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THE

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AND

AGRICULTURAL GAZETTE

FOR

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GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE,

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 1.—1857.] SATURDAY, JANUARY 3. {Price Fivepence. {Stamped Edition, 6*d*.

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CRYSTAL PALACE FLOWER SHOW.—It is intended to have two FLOWER SHOWS during the coming season, on the following days:—SATURDAY, May 30th, and WEDNESDAY, THURSDAY, and FRIDAY, the 9th, 10th, and 11th of September. Schedules of Prizes and Regulations will shortly be ready. GEO. GROVE, Secretary.
Crystal Palace, January 3.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY'S EXHIBITIONS for 1857 are fixed to be held on the following days:—Summer Show, WEDNESDAY and THURSDAY, June 24th and 25th; Autumn Show, WEDNESDAY and THURSDAY, September 16th and 17th; on the same grand scale as in former years.
Schedules will be published early in the year, to be obtained of the Secretary, or of E. SPARY, Queen's Graperies, General Superintendant of Exhibitions, and THOS. ATTREE, Esq., Chairman of Committee. EDWD. CARPENTER, Secretary, St. James's Street.
Brighton, Jan. 3.

GARDEN ARCHITECTURE, LANDSCAPE GARDENING, AND GENERAL IMPROVEMENT OF DOMAINS.
CHARLES M'INTOSH, F.R.P.S., A.L.S., Member of the Architectural Institute of Scotland, author of "The Book of the Garden," and other horticultural works, &c., begs respectfully to state, (in consequence of letters being frequently misdirected), that all communications should be addressed, Newcome Villa, Murrayfield, Edinburgh.

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A. PAUL AND SON have a large Stock of fine Plants of this superb New Rose, figured in the "Florist" of last month, price 3*s*. 6*d*. to 5*s*. each, and all the New Roses of the season. A few of the best Hybrid Perpetual, Tea-Scented, Moss, Provence, &c., of extra size, suited for immediate forcing, 24*s*. to 30*s*. per dozen. A large stock of Roses, Standards, Dwarf Standards, and Dwarfs in pots; the leading kinds at the usual price.
A Priced Descriptive Catalogue will be forwarded free by post on application.—Nurseries, Cheshunt, Herts.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.
N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

SEEDS FOR EXPORTATION.
SUTTON AND SONS *are now prepared to execute orders for exportation for New Seeds, growth of* 1856, *consisting of the most desirable sorts, properly packed to arrive in good condition. Free on board at London, Bristol, or Southampton.*
SUTTON & SONS, Seed Growers, Reading.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.
THE *most economical and convenient mode of ordering* GARDEN SEEDS *is to send for one of* "SUTTON'S COMPLETE COLLECTIONS FOR ONE YEAR'S SUPPLY," *particulars of which may be had on application, addressed—*
SUTTON & SONS, Seed Growers and Merchants, Reading.

SEED PURCHASERS save 20 per cent. in writing for W. STEWARD & CO.'S CATALOGUE, post free. Compare prices (quality warranted) and you will order YOUR YEARLY SUPPLY of W. STEWARD & CO., Plymouth.

AGRICULTURAL SEEDS.
JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce that they will publish a complete List of AGRICULTURAL SEEDS in February, 1857, and forward FREE OF CHARGE and POST-PAID to ALL PARTS OF THE WORLD, upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

FERN CATALOGUE.
ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AMERICAN PLANTS.
WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.
JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.
The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

TO THE SEED TRADE.—Just Published,
HORATIO BUNTING'S WHOLESALE CATALOGUE OF FLOWER AND VEGETABLE SEEDS, which will be forwarded to any Seedsman in the world post free on application. All seeds warranted genuine and true to name. All Vegetable Seeds offered as low in price as any house in the trade—Address in full HORATIO BUNTING, Seed Grower, Lexden Road, Colchester.

SAFFRON WALDEN NURSERY.
SUPERB DOUBLE HOLLYHOCKS.
WILLIAM CHATER'S ANNUAL DESCRIPTIVE CATALOGUE, with remarks on the Culture, Exhibiting, &c., of this noble flower, may be had on receipt of one postage stamp.

Seed saved from 20 best varieties, mixed, per packet	5*s*.	0*d*.
Do. 12 do. do	2	6
Do. good mixed	1	0
Border varieties, good mixed, ground roots, per 100	20	0
Do, do. in colours do. do.	30	0

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.
JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.
J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.
Floral Nursery, Acton Road, Turnham Green.

NEW AND GENUINE SEEDS.
J. DOBSON AND SON will be happy to forward their NEW CATALOGUE OF SEEDS on application. They beg to say that their Seeds have always given the greatest satisfaction, being of excellent germinating qualities, which they think is alone sufficient to commend them.
Seed Establishments at Isleworth and Hounslow.
*** Orders forwarded to either address will receive prompt attention.

CHOICE PELARGONIUMS.
J. DOBSON AND SON beg to announce that they have a large stock of the above, including Beck's New and every other good variety. Catalogues may be had on application.
Woodlands Nursery, Isleworth.

HUGH LOW AND CO. respectfully announce to their friends and the public in general that their CATALOGUE OF GARDEN AND FLOWER SEEDS is now ready, and may be had on application. H. L. & Co. have been careful in making a selection to have none that has not been proved of first-rate quality, having the greater portion direct from the growers—this applies to both Vegetable and Flower Seeds. The German Flower Seeds are from Mr. Haage and Mr. Ernst Benary, two of the most careful growers in Prussia.
Clapton Nursery, London, N.E., Jan. 3.

GRAPE VINES IN POTS.
JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

MESSRS. JOHN WEEKS AND CO., King's Road, Chelsea, beg to intimate that they have received their supply of SEEDS for the ensuing Season, in the best possible condition, *direct from eminent growers;* and are THUS ENABLED TO VOUCH FOR THE PURITY AND EXCELLENCE OF EACH ARTICLE.
Their annual Catalogue is in course of delivery, and will, on application, be sent free by post to any address.

SEED ESTABLISHMENT, SLEAFORD.
CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

CHRYSANTHEMUMS.
W. HOLMES offers the above in strong plants, at 5*s*. per dozen. The large flowered varieties include Alfred Salter, Voltaire, Webb's Delight, Stellaris globosa, Antigone, Madame Lebois, &c. Pompones include Scarlet Gem, Duruflet, Aurore Boreale, Saint Thais, &c. For the cultivation of the above see Monthly Calendar by W. H. in "Gossip for the Garden."—WM. HOLMES, Florist, Well Street, Hackney.

SEED ESTABLISHMENT, HIGHGATE.
WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.
It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. TO THE TRADE.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.
BASS & BROWN, Sudbury, Suffolk.

NEW CRESS SEED! NEW CRESS SEED!—Growers or Dealers of plain Cress may meet with a buyer for a few quarters by forwarding sample and cash price to HENRY DEAN, Seed Merchant, Altrincham, Cheshire.—Persons having good bright Cress Seed to dispose of will do well to attend to the above Advertisement, as further transactions may be the result.

LYCOPODIUM COMPLANATUM.
LYCOPODIUM LUCIDULUM.
W. CHITTY having a good stock of the above-named scarce North American Lycopods, can supply good Plants at 15*s*. each.—Stamford Hill, near London.—Jan. 3.

THORNS WANTED.
WANTED, 12,000 to 15,000 one or two year transplanted Thorns. Samples and price for cash may be forwarded to F. FORD, Nurseryman, &c., Commercial Road Southampton.

QUICKTHORN.
CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.
PINUS MARITIMA (one-year seedlings).
C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed growing Establishment, Sleaford.

FOREST TREES.
FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

SEED WHEAT FOR LATE SOWING.
TALAVERA, RED NURSERY, AND HYBRID WHEAT, the best sorts for late sowing, may be had on application to H. RAYNBIRD, Basingstoke. A reference or remittance required from unknown correspondents.

KIDNEYS.—ASHLEAF, 7*s*. per bushel; FLUKES, 5*s*. per bushel; DAWE'S MATCHLESS, 6*s*. per bushel, a very fine sort and large croppers, strongly recommended for a white Kidney to use in the spring. Has withstood the disease three years in succession. All other kinds of Seeds equally low and warranted. Prices sent upon application.
JOHN BELL, Covent Garden, and King's Cross Potato Market, Great Northern Railway. Post-office orders payable at Charing Cross. New bags, 1*s*. 6*d*. each.

1, WELLINGTON STREET, STRAND.
J. MAY AND CO. beg to announce that they have received their new Stock of VEGETABLE and FLOWER SEEDS, selected from the best growers. A Catalogue comprising the most useful kinds is just published, and will be sent post free on application.
A selection of SAYNOR & COOK'S CUTLERY always on hand; also the various FLORICULTURAL PUBLICATIONS.
J. M. & Co. have a large Stock of the best MUSHROOM SPAWN, which can be had in large or small quantities.

GLENNY'S SUPERB BALSAMS, altogether unapproached; 6 classes 37 stamps; mixed, 13; Hollyhock, 13; Geraniums, 37; Pink, 37; Calceolaria, Verbena, Cineraria, Heliotrope, 13 each; Asters and Stocks, the finest double in the kingdom; best 24 Annuals, 74 stamps; best 12, 37.
THE TWO SPLENDID DAHLIAS, NAPOLEON AND EUGENIA, dry roots, 5*s*. to 10*s*. 6*d*. each. Everything connected with a Garden procured from the best sources, by G. GLENNY, Horticultural Agent, Dungannon House, Fulham.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli; Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities	£3 0 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN	2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES	1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN	0 15 0

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*

WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

SEEDLING MEDINELLAS, between magnifica and Sieboldi, fine plants 3 years old, 2 feet high, to be sold cheap. New Seed from perfect specimens, true stock, rarely to be brought at any price, comprising Primulas, Cucumbers, and Melons of world-wide celebrity. A few packets of Hollyhock, Pansy, Dahlia, Polyanthus, Gloxinia, Cineraria, Calceolaria, Sweet William, Balsam, Aster, warranted saved from prize varieties by some of the best growers of the day. Testimonials are pouring in from all quarters, which will be published with Latter's Treatise on the Culture of Primulas, illustrated with a coloured drawing, &c. May be had on application to THOMAS WILD, Fancy Seedsman and Importer of Dutch Bulbs, Handford Road, Ipswich.

Agents:—TURNER, Slough; FISHER, HOLMES, & CO., Sheffield; BURGESS & KENT, Stoke-upon-Trent; GARNHAM, Chichester; MACKIE & STEWART, Norwich; KONING & CO., Holland; and other principal Nurserymen in England, Ireland, and Scotland.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5*s.* each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet, producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2*s.* 6*d.* per quart, 35*s.* per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2*s.* 6*d.* per quart, 40*s.* per bushel.

W. J. EPPS offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southey, High Street, Clapham
Messrs. Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place, Manchester
Dulwich, Surrey.

VERONICA SYRIACA,
NEW BEDDING ANNUAL FOR 1857.

MESSRS. E. G. HENDERSON AND SON having just concluded arrangements with Messrs. Ernst & Von Spreckelsen, successors to J. G. Booth & Co., Seedsmen at Hamburgh, relative to the above, have great pleasure in announcing the purchase of the entire Stock of Seed of this new and striking dwarf annual. Colour beautiful (Gentian blue), lower petals white, habit very dwarf, from 6 to 8 inches in height, compact, and covered with bunches of flowers; foliage ample and bright green; in packets at 2*s.* 6*d.* each.

Early in January next a coloured plate of above by Mr. Andrews will be published and presented with every order received previous to the 15th January.—Trade Packets, 5*s.*, 10*s.*, and 20*s.* each.—Wellington Nursery, St. John's Wood.

FRUIT TREES (DWARF TRAINED).

		s.	d.
PLUMS, 60 of the best kinds	each	2	6
PEARS, 150 of the best kinds	"	2	6
MOORPARK APRICOTS	"	3	6
PLUMS and PEARS, dwarf standards, all the best kind for pyramids (healthy young trees)	each	2	6
The new and beautiful Collinsia bicolor alba, per packet		1	0
C. Bartsiæfolia alba	"	0	6

And a collection of 50 of the newest and most showy Annuals for 10*s.* 6*d.*, free by post, or 100 sorts for 20*s.*

Also collections of Garden Seeds of the best quality from 10*s.* to 60*s.* per col. Sorts forming each collection on application to

JOHN SCOTT MERRIOTT, Nurseries, Crewkerne, Somerset.

N.B.—All kinds of Nursery Stock grown largely; also a most complete collection of CONIFERÆ. Catalogues sent on application.—Jan. 3.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

DICKSON'S EARLY FAVOURITE PEA.

FRANCIS AND ARTHUR DICKSON AND SONS, SEED MERCHANTS, &c., Chester, have great pleasure and satisfaction in again calling attention to this *distinct* and VERY *valuable* Early Pea, admitted as it is, by *all* who have grown it, to be the *most prolific* and *best* Early Pea ever introduced.

It comes in very few days after the *Earliest* varieties, grows about 4 feet high, and produces a *wonderful* profusion of pods, containing, on an *average*, nine to ten Peas of first-rate quality and flavour.

Independent of its excellence as an Early Pea, it has proved invaluable as a *Late Pea*, having been found to resist *mildew* when most other varieties are destroyed.

The testimonials of its excellence and desirability which they received last season (1855) were of the most gratifying description, and they have the satisfaction of stating that the accounts which they have received of it from nearly every county in Britain into which they last spring (1856) sent it, *more than bear out* all that has hitherto been said in its favour.

Testimonials to the above effect, from upwards of Fifty of the first Gardeners in the Kingdom, will be forwarded on application.

Finding that many Seedsmen from whom it was ordered last spring *substituted* other sorts for it, F. and A. D. and Sons have resolved to send it out in SEALED PACKETS, so as to prevent a recurrence of the disappointment which the substitution of other sorts caused many purchasers last season.

The following firms have received a supply from F. and A. D. and Sons, and are their authorised agents. Those marked * are wholesale agents.

*Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London.
*Messrs. Beck, Henderson & Child, Adelphi Wharf, London.
*Messrs. Charlwood & Cummins, Covent Garden, London.
*Messrs. Nutting & Sons, Cheapside, London.
*Messrs. Flanagan & Son, Mansion-House Street, London.
*Messrs. Noble, Cooper & Bolton, Fleet Street, London
*Mr. J. G. Waite, 181, High Holborn, London.
*Mr. Henry Clarke, King Street, Covent Garden, London.
Messrs. Clarke, Boshell & Co., 86, Borough, London.
Messrs. Hooper & Co., Covent Garden, London.
Messrs. James Carter & Co., 238, High Holborn, London.
Mr. Timothy Brigden, 10, Railway Arcade, London Bridge, London.
Messrs. Joseph May & Co., 1, Wellington Street, Strand.
Messrs. James Veitch & Son, Exeter.
Messrs. Page & Co., Oxford Street, Southampton.
Messrs. Garaway, Mayes, & Co., Bristol.
Messrs. James Backhouse & Son, York.
Messrs. Bass & Brown, Sudbury, Suffolk.
" John Sutton & Sons, Reading.
" Samuel Finney & Co., Gateshead Nursery, Newcastle-on-Tyne.
" J. C. Wheeler & Son, Gloucester.
" Bubb & Matheson, Gloucester.
" Wood & Ingram, Huntingdon.
" Cutbush & Son, Highgate Nurseries, near London.
Mr. James Veitch, Exotic Nursery, Chelsea.
Mr. Fisher Godwin, Sheffield.
" Thomas Wild, Nurseries, Ipswich.
" William Chater, Nurseries, Saffron Walden.
" John Perkins, Market Square, Northampton.
" Charles Turner, Royal Nursery, Slough.
" John Cattell, Nurseryman, Westerham.
" J. C. Cheyne, Nurseryman, Warwick.
" Thomas Bayliss, Birches Barn, Wolverhampton.
" Henry Pope, Gibb Heath, Birmingham.
Messrs. W. Drummond & Sons, Seedsmen, Stirling and Dublin.
" Cole & Sharpe, Birchfield, near Birmingham.
" James Dickson & Sons, Seedsmen, Edinburgh.
" Hogg & Wood, Coldstream and Dunse.
" Edward Sang & Son, Kirkcaldy.
Mr. Thomas Rae, Whithorn, Wigtonshire.
Messrs. John Edmondson & Co., 61, Dame Street, Dublin.
" Dickson, Farrell & Co., Seedsmen, Belfast.
" Richard Hartland & Sons, Seedsmen, Cork.
Mr. Thomas M'Kenzie, Seedsman, Cork.
Mr. George Williamson, Seedsman, Sligo.

Price 2s. 6d. per quart, or 1s. 6d. per pint, in sealed packages.

Vegetable, Flower, and Agricultural Seeds of superior quality, and at moderate prices, Catalogues of which may be had on application to FRANCIS AND ARTHUR DICKSON & SONS, the OLD ESTABLISHED Seed Warehouse, 106, Eastgate Street, CHESTER; also at 14, Corporation Street, Manchester.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

CHARLES NOBLE having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he will shortly be in a position to execute any orders with which he may be favoured, and respectfully requests that, for the present, all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Jan. 3.

FLOUR, warranted free from adulteration, and delivered to any part of London (not less than 1 peck), carriage free. Whites, for pastry, at per bushel (56 lbs.), 11*s.* 8*d.*; Fine Households, recommended for bread making, 11*s.*; Seconds, 10*s.* 4*d.*; Wheat Meal, for brown bread, 10*s.* 4*d.*; Best Coarse and Fine Scotch Oatmeal, Indian Corn Meal, &c.—Address HORSNAILL & CATCHPOOL, Bullford Mill, Witham, Essex; or, Caledonian Road, Islington. Directions for making bread supplied gratis. Terms cash. German Yeast.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

THERMOMETERS—SELF-REGISTERING.

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In June, 1855, *we forwarded a brace of the fruit to* DR. LINDLEY, *the Editor of the* Gardeners' Chronicle, *for his opinion, and the following appeared in the columns of that paper, June 30th*, 1855:—

"GIGANTIC CUCUMBERS.—*We forward a brace of Cucumbers, Lynch's Star of the West, grown by the Gardener to the Earl of St. Germans, and we should feel much oblig d for your opinion respecting its merit.*—WILLIAM E. RENDLE & Co."

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Mr. Joseph Hamilton, the celebrated Cucumber grower, and author of the "Hamiltonian System of Pine Growing," in a letter dated October 1st, 1856, says:—

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In the autumn of last year a challenge was given in the Gardeners' Chronicle *by Mr. Wild, to show the Ipswich Standard against it. This Mr. Ayres declined, considering the production of a brace of fruit on a given day no criterion of the general worth of a variety; but he forwarded seed of the Perpetual to Dr. Lindley. Mr. Wild did the same of the Ipswich Standard, and the seed was divided, and put into the hands of Mr. G. McEwen, Gardener to the Duke of Norfolk, and Mr. J. B. Whiting of the Deepdene, for proof, and the following was the result:*—

Mr. McEwen writes thus:—"*I have tried one plant of each in a pot, in a Pine-pit under exactly similar conditions, and Ayres's is both a better grower and a better bearer than Wild's. * * * For general usefulness, I unhesitatingly give the preference to Ayres's Perpetual.*"—Gardeners' Chronicle, *May* 3, 1856, *p.* 302.

Mr. Whiting, after confirming the preceding, remarks:—"*For the regular supply of a gentleman's family, which after all is the true test of merit in a Cucumber, I can say, without hesitation, Ayres's Perpetual is much to be preferred.*"

Similar laudatory remarks have appeared in the Field, *from the pen of Mr. Errington; and Dr. Lindley in a private letter, observes:*—"*Your Cucumbers are excellent, and quite deserving of all that has been said of them.*"

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RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is now ready, and can be had from the Booksellers or from the Proprietors in exchange for seven postage stamps.*

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The Gardeners' Chronicle.

SATURDAY, JANUARY 3, 1857.

How am I to prevent MOSS from growing ON MY APPLE TREES? Shall I scrape it off? Can I kill it with any sort of wash? Will it come again? Does it do much harm? Such questions as these, though often answered, are becoming so common that it seems desirable to bring them all under one reply, at this time of the year when whatever has to be done should be done quickly.

No explanation of the manner in which what is called "Moss" can be dealt with is worth having unless the reason why it comes is clearly understood. We will therefore at once say that Moss or Lichen grows on the bark of trees for three reasons:—1, The bark is dead; 2, the bark remains without change; 3, the air around it is loaded with moisture.

It is an invariable law of vegetation that the surface of a tree dies after a time; this may be seen even in young branches, the skin of which has become brown, for brownness is among plants an absolute indication of death, Ferns and some Seaweeds excepted. As the branch grows older, superficial death becomes more evident, the bark cracking or crumbling away. In this state it is physiologically speaking mere humus or mould, upon which anything will grow, the seeds of which can attach themselves to it and subsist upon the elements of the atmosphere. Lichens fulfil such conditions; their invisible seeds floating in the air fall on trees and hold to them by the mere force of attraction; sprout there, incorporate themselves with the bark, and at last grow up into visible plants. Hence all trees may be attacked by Lichens, Mosses, and similar plants.

But all trees are not attacked, or at least we perceive no sign of their being so. This arises from the rapid decay, or the frequent sloughing, of the surface of certain trees, the consequence of which is that the ground, so to say, on which the Mosses stand is perpetually slipping from under such incumbrances and carrying them away. The ceaseless expansion of the wood brings this about. This year a branch is an inch in diameter or 3 inches round, next year it is 1¼ inch in diameter, or 3¾ inches round. The original surface must therefore occupy ¾ inch more than before; but having been already fully formed it has undergone no additional growth, nor will it have stretched beyond a very small amount; it merely gives way beneath the internal distension, cracks, peels off or crumbles away. Under such circumstances the seeds of any Lichens that may have attached themselves to the bark must also fall away without having discovered themselves. It is when the bark undergoes change very slowly, if at all, that the Lichens have time to establish themselves, and to form the shaggy beards that load some ancient orchard trees; this absence of a sufficient expanding force is owing to the tree having ceased to grow with sufficient vigour; to grow is to form wood, to grow vigorously is to form wood abundantly, to form wood abundantly is to lose surface rapidly; to grow fast is, therefore, to render the presence of Lichens impossible. But we may reverse the description; to grow slowly is to form wood slowly, to form wood slowly is to lose the power of casting off the surface bark, to grow slowly is therefore in the highest degree favourable to the presence of "Moss."

Now trees grow slowly because either of ill health or extreme old age. The latter is without cure; for the former there is a remedy. Young trees (from 7 to 75 years old) get into bad health from the soil in which they grow being too poor, or too wet, or in some other way unsuited to their constitution. If too poor manure is a remedy, but this is seldom the case; men rarely plant orchards in sand or peat. It will almost always be found that the fault of the soil is its wetness and its impermeability. The first is attended by a low temperature, and moreover gorges the system of the tree with water, which it can neither throw off as perspiration nor decompose; the second cuts off the requisite supply of atmospheric air, stops rain when the roots most want it, as at fruiting time, and renders it impracticable for the roots to wander freely in search of food. For all this the remedy is deep digging and deeper draining. A Moss-grown orchard trenched two spades deep, and drained 4 feet, will in any soil fit for fruit trees rapidly recover its health and keep it. Under such circumstances wood will form fast, bark will peel off, or crack or crumble away, and with the surface the Lichens themselves will also go. At the same time the health of the trees will be restored, and good fruit will follow.

But it is not merely because draining relieves the soil of water when injurious and brings it when the roots most want it that it is indispensable to the health of orchard trees; it also acts by rendering the air that rests upon the branches itself too dry to suit the constitution of a Lichen. Bark may be dead, and may remain in its place for years, and nevertheless the Lichens cannot grow unless they find themselves surrounded by a moist atmosphere; getting no nutriment, or very little, from the bark itself they of necessity feed upon whatever the air contains, and on nothing more greedily than on the water there, without which all other agents are useless. It is needless to point out the enormous difference in the amount of water floating in air which rests upon undrained and thoroughly drained land.

Such being the true history of "Moss" on fruit trees it is obvious that scraping, and washing, and painting, can have no permanent value, if any. When spending time upon removing it it is assumed that the Moss is itself injurious. We do not believe that it does any harm whatever. It is merely a symptom of decrepitude removeable or irremoveable as the case may be, and a natural warning to gardeners that their trees require better treatment. It may indeed, like rifts in bark, harbour insects, and in such a way be injurious; but that is a small matter, and easily remedied by a scraper. It will, however, be found that as soon as the improved soil begins to act no further care beyond skilful pruning and thinning is demanded.

THE daily and weekly papers are filled with accounts of a most remarkable journey in the heart of Africa, which occupied the fearless traveller sixteen weary years. The hero of this extraordinary exploit, Dr. LIVINGSTONE, is described as "not a man of great bulk, but for boldness, perseverance, and enterprise, a very Hercules. During his long and weary peregrinations, he has travelled over 11,000 miles of Southern Africa, the greater part of which journey was never before trodden by the foot of European. His first expedition extended from the extreme southern point of the African continent to Loando in the tenth degree of south latitude on its western coast, over twenty-four degrees of latitude and nine of longitude, mostly on his own feet, with the occasional help of those of an ox, the dainty vehicle of South Africa. His second, last, and

greatest journey took him across the whole continent of Africa, from the tenth degree of south latitude on the western shore to the eighteenth degree on the eastern, that is, from the coast of the Atlantic to that of the Indian Ocean; and he is the only European who ever accomplished this perilous undertaking."

All honour to him, the fearless and skilful! Amidst the vast regions he traversed what countless multitudes of rare and useful plants he must have seen; what additions he could have made to our knowledge of the Flora of Central Africa; what indications he could have furnished of the vegetable products valuable in commerce! Here however he failed.

He speaks indeed of Cotton, of the fibres of certain textile plants, of Cinchona or Jesuit's Bark, and of Sarsaparilla, and of fields of wild Indigo in the neighbourhood of the Portuguese settlement of Tate, and that seems to be all. Botany then has received no elucidation from the great traveller's labours; it has rather suffered than the contrary, for assuredly no Cinchona grows in Africa.

While we heartily join in the regret which every one feels that so remarkable a journey should have been, as is stated, thus wholly unproductive of botanical discovery, we cannot concur with the *Examiner* in its rejection of everything related by Dr. LIVINGSTONE of the drugs of the country. Our contemporary is quite wrong in saying that no kind of true Indigo is found in Africa; he should have recollected that *Indigofera argentea* is a common crop in Egypt and Abyssinia, and that the term Indigo is moreover applied to any leguminous plants that yield a blue dye, as Tephrosia Apollinea in Nubia, and T. toxicaria on the banks of the Niger. No doubt then fields of "Indigo" were seen. Nor, like the *Examiner*, do we discredit the report about Sarsaparilla; on the contrary, it is extremely probable that a very large genus like Smilax, which extends from Barbary to China and New Holland, abounding in India, and existing in the Mauritius, will furnish some species to the heart of Africa. What we do regret extremely is, that our modern Hercules should have possessed so little knowledge of Natural History as to have placed Peruvian Cinchona trees in an African forest, and therefore to gain no credence when he asserts that Indigo and Sarsaparilla are indigenous to the countries he visited. This fact shows what the state of education was, and our traveller is understood to be a medical man, sixteen years ago when he started on his marvellous pilgrimage. Is it much better now?

New Plants.

190. FARFUGIUM GRANDE.

GEN. CHAR. (Labiatiflorum, Anandriæ et Chaptaliæ affine) *Capitulum* heterogamum, radiatum. *Invol.* cylindricum uniseriale, bracteis 3-4 patentibus calyculatum. *Recept.* nudum foveolatum. *Fl. radii* fœminei, staminum rudimentis; *disci* hermaphroditi? antheris basi caudiculatis. *Cor. radii* uniseriales, labio extimo tridentato, intimo 2-lobo erecto; *disci* tubulosi regulares. *Stylus* 2-lobus, ramis truncatis canaliculatis. *Ovarium* erostre, subteres, pubescens. *Pappus* pluriserialis, scaber.—Herba, Asiæ boreali-orientalis, foliis maximis angulatis, scapo polycephalo squamato, floribus luteis.

Under the name of a variegated Tussilago Mr. Glendinning, of the Chiswick Nursery, exhibited this charming plant at the last London meeting of the Horticultural Society. At that time it had not flowered, and its general resemblance to our wild Coltsfoot justified the provisional name, as we hope it does that which is here proposed for it, one of the ancient denominations of the Coltsfoot itself. It has very large round angular heart-shaped evergreen leaves, sometimes more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks, 12 to 15 inches long, and form a magnificent tuft of surpassing beauty; if, as is supposed, they shall continue to be evergreen during winter, they will form an object in the flower garden without a rival at that dreary season. Mixed with Christmas Roses, or rather forming the centre of a bed or patch of those plants, an effect not less novel than beautiful would be produced. The flowers of *Farfugium* are insignificant. In the specimen before us they stand on a woolly scape shorter than the leaves, and like that of Coltsfoot (Petasites) furnished with several spreading scales; the flower heads cluster at the end of the scape, have a yellow ray, and a dirty purple centre.

We suspect that the parts of fructification are accidently imperfect in our specimen, for the anthers in the florets of the disk are empty of pollen, short, and have all the appearance of abortion. Yet the structure is otherwise perfect. The plant will therefore require further examination under more favourable circumstances than when blossoming at the end of December. It, however, seems clear that it forms a most distinct new genus among the labiate Composites distinguished from *Anandria* by the large inner lip of the radial florets, the beakless ovary, &c.; from *Chaptalia* by the hermaphrodite regular florets of the disk, &c.; and from both by the simple cylindrical involucre furnished with a spreading calyculus—not to insist upon other points.

Mr. Glendinning informs us that he received it from Mr. Fortune, without any account of its history.

CULTURE OF ORANGE TREES.

As you have been pleased to pass some complimentary remarks on the Oranges with which I took the first prize at the Horticultural Society's meeting of Nov. 25th, I take the liberty of forwarding for insertion in your Paper an account of the system I have hitherto pursued in cultivating the Citron family. [See *Gardeners' Chronicle*, suprà, p. 791, 1856.]

The conservatory in which my trees are grown is attached to the mansion. It stands south and north with south and west aspect, being span-roofed, 20 feet high, and supported by 18 cast-iron pillars. It is situated on a slight eminence, overlooking the beautiful valley of Terne. It is ventilated by means of perpendicular lights upon the south and west aspects, and is heated with a conical boiler and 4-inch pipes.

Being rather elevated it is naturally well drained, although extra provision was made to secure perfect drainage from the bottom of the beds. The interior is divided into four compartments (or beds), and in the centre is a fountain. For the encouragement of creepers a narrow border runs all round the house supported by a 4-inch brick wall, the hot-water pipes are laid close to the brick-work; the whole is neatly covered with a portable trellis-work, the top being 2 feet wide is used for pot plants in flower.

Orange culture I have found hitherto to be the easiest portion of all my troubles in the fruit department. Each of the four beds or compartments were dug out to the depth of about from 4 to 5 feet. After being well drained, about a foot of broken bricks, &c., was put into the bottom to make the drainage more complete. The soil was carefully prepared, the main body being a brown alluvial loam, the top spit from an old pasture; also leaf-mould, road grit, and wood charcoal; one load leaf soil to three of loam, with about the same quantity of road grit, one load of wood charcoal to six of the loam—those are about the quantities required to give porosity to our loam. When all had been thoroughly incorporated it was then ready for use.

My trees, 16 in number, were imported from Italy. It will be eight years next spring since they were planted. They appeared to be about two years from the bud. They were worked upon very strong stocks, from 3 to 4 feet high. What bit of soil adhered to their roots was a very adhesive yellow clay, which almost made me wish that a stronger soil for the main body had been selected.

I am sorry that I cannot give any information as to the names of the varieties, the labels were so mutilated that we could not make anything of them. There appears however to be two distinct sorts of Orange, not including the myrtle-leaved variety, together with Citron, Lemon, and Shaddock.

When the borders had settled down pretty well the trees were planted and well watered, to consolidate the soil about their roots. From that day till now they have had nothing given them but pure rain-water, with two or three surface dressings of old Melon mould from off the dung-beds.

As regards watering, we have no fixed time for that operation; during the height of summer they get a hearty soaking once a fortnight; throughout the winter, or in fact at all times, we are chiefly guided by the appearance of the surface of the borders, never at any time giving them a light watering. I may as well say that with very few exceptions since the trees were planted I have poured the water upon the borders (or beds) with my own hands to insure a good soaking. I give credit to that worthy old gardener, Mr. George Sheills, gardener to the Right Hon. the Lord Blantyre, of Erskine House, Renfrewshire, who spared no pains or trouble in initiating me into the proper method of watering inside borders.

In pruning, I do not imitate those trees that have the appearance of being clipped. I leave them in general as natural as possible, only stopping rampant growing shoots, always taking care to leave the small and well-ripened wood for flowering. They will soon monopolise the whole, as we keep cutting in everything that comes in their way.

During summer every amount of ventilation is given during the day that is available, and a portion is left on at night; at all times when the weather permits we ventilate freely. We never fire unless the thermometer falls below 40°, and there is a likelihood of frost or damp weather.

Insects we are not troubled with, beyond an occasional green-fly during the summer months. These are destroyed by the fumes of Tobacco. *J. Miller, Gardener to Sir Wm. Smith, Bart., Eardston. Worcestershire.*

VEGETABLE PATHOLOGY.—No. CXLVII.

606. PARASITÆ (*Puccinia,* Wheat Mildew, &c.*) —*Uredo* and the several genera which, with greater or less propriety, have been separated from it in consequence of a more intimate acquaintance with their structure and mode of development, are all distinguished by their uniseptate spores, whether produced singly or in the form of little necklaces upon the fertile threads. They vary considerably in colour, from an almost pure white to yellow, purple and brown. The dark-coloured species, excluding the allies of *Ustilago*, which have been treated separately, tread very closely on the heels of *Puccinia*, and in some cases seem to be a younger stage of growth, or at least a secondary form of fruit analogous to the stylospores of *Sphæriæ*, unless indeed the *Pucciniæ* which attend or follow them be conceived to be mere secondary parasites, a notion which has some support in the fact that more than one species of true *Puccinia* sometimes grows in the same sorus. Making however as much allowance for this fact as it deserves, when it is considered that so many of the brown Uredines, as *U. Menthæ, U. Vincæ*, &c., have exactly analogous *Pucciniæ*, as *P. Menthæ, P. Vincæ*, &c., which cannot be distinguished from them except after microscopical examination, and that the one seems to pass into the other, it requires strong evidence to convince an unprejudiced person that they are really distinct. *Uredo linearis*, which is at first yellow, may be traced with the greatest ease, passing into *Puccinia graminis*, so as not to leave the slightest doubt as to their identity.†

607. The genus *Puccinia*, then, is distinguished by the same habit as *Uredo*, the spores being produced in little cushion-like heaps beneath the cuticle of the plants on which they are parasitic. The spores are uniseptate, the upper division being for the most part broader than the lower; though in some species where they are elliptic they are equally divided. The surface is variously sculptured, and in some exotic species the outer coat shells off from the inner, as in a beautiful form which grows on *Amorpha*, in South Carolina. The spores arise from a distinct mycelium which creeps amongst the parenchym of the mother plant, exhausting its nutritive matter, and finally producing decay. These spores, however, are spores only of the first order, and do not immediately increase the plant. Whether they require impregnation for their further development is at present uncertain. Spermogonia have been found at present tolerably abundant in a few species only, as in *P. Anemones*. After a time, however, these primary spores or prothallus, if it be right to give them that name, germinate after the fashion of the spores of the higher Cryptogams. Each cell germinates; the upper from the apex, the lower from the commissure. The mycelium which proceeds from them, according to the observations of Tulasne, is rather coarse, septate or inarticulate, clavate in form, and producing a few short branches or processes, each of which has a single boat-shaped spore at its apex. These in their turn germinate, not from the protrusion of the inner membrane, as in the first case, but by extension of the outer, and give rise to a spore of the third order. The mode and time of introduction of the mycelium into the mother plant has not at present been observed, nor the stages of growth which precede the appearance of the sori upon the leaves or stem. It is not, however, probable that the spores adhere like those of Bunt to the grain, for they are not easily removed from their place, and if they did adhere they would be destroyed by the usual dressing in the same way as Bunt, which is not the case. In any case they do not germinate till spring. Wheat-mildew is one of the most formidable plagues against which the agriculturist has to contend, and unfortunately one against which he has no remedy. The very cultivation which is most conducive to a large produce in good seasons, is in unfavourable seasons productive of mildew. In bad mildew years the worst crops often suffer the least because they are less heavy. A pamphlet was addressed by the late Mr. Tycho Wing to the tenants of the Duke of Bedford at Thorney, calling upon them to clear out the ditches with which their fields are bordered, as the Reed constantly harboured a quantity of *Puccinia*, which he believed with good reason to be the same species with that of Wheat. The advice was undoubtedly good, but unfortunately the spores of *Puccinia* when once separated are capable of being blown about by every breeze. In fact, spores of such plants occur in the dust of the trade winds, as observed by Ehrenberg. If however they germinate while still attached, the spores of the second order are still more capable of being wafted everywhere. For the present, therefore, the farmer must be content to reckon mildew as one of the unfavourable circumstances which he must take into calculation in estimating the average annual value of land. In such case he at least will not be the sufferer. *M. J. B.*

* A name first applied to a species of *Podisoma* and *Ceratium* by Micheli in honour of Puccini, an Italian physician, and transferred to these plants by more modern authors.

† Tulasne believes that almost all the *Uredines*, exclusive of *Ustilagines*, are mere stylospores of *Puccinia* and other allied genera.

MUSHROOMS.

HAVING cultivated Mushrooms successfully for some years, I may perhaps be permitted to say a few words relative to a system which I have lately adopted; the amount of success resulting from which may perhaps be regarded by some as incredulous, but for the accuracy of which others, if necessary, can vouch.

A bed was spawned on the 15th November, from which a quantity of buttons was gathered on the 12th of the present month, just 27 days after spawning, a circumstance I believe without parallel in the cultivation of this most useful esculent. The system of culture adopted on the occasion was different from that usually pursued, inasmuch as the spawn was not introduced in large pieces as is usually done; but was broken fine, the largest bits not exceeding a small marble in size. Thus prepared it was sown (if I may use the term) over the surface of the bed, which was then immedi-

ately beaten firmly down and soiled; the temperatures of the bed being about 90°.

This plan I consider superior to that usually adopted, as it does not require more than half the quantity of spawn, the Mushrooms are equally diffused over the whole surface of the bed, and consequently no loss is sustained in gathering, as is the case when they are produced in clusters, a result which naturally follows when the spawn is inserted in the ordinary way. I am justified I imagine in attributing the early productiveness related above to the particular system pursued, as the house was kept comparatively cold for some time in order to retard a quantity of Seakale, which is now in daily use. It might perhaps be satisfactory if other growers would give the plan I have just been describing a trial, and report the result. I am of opinion that if the system is carefully followed the most successful results will ensue. Perhaps I ought to observe that the soil used should not be too wet, but should rather be verging towards dryness than otherwise. Two beds now in full bearing for productiveness and quality perhaps cannot be excelled. *Richard Robertson, Stoke Edith Park.*

ON THE CAUSES OF THE DISEASES OF THE PEAR TREE.

The diseases with which the Pear tree is attacked in our climate arise from various causes, of which the following are a few:—1st, Constitutional weakness of the variety; 2d, the insects induced by that state of weakness; 3d, the influence of the stock upon which the variety is worked; 4th, the use of improper scions; 5th, bad soil; 6th, bad management; 7th, accidents, such as contusions, gnawing by animals, sun strokes, &c.

It is not our intention to describe and define the various diseases, for these have already been made sufficiently known in works on the subject; but it is important to know the causes of these diseases in order to prevent their attacks.

A variety which has originated in a warmer climate than our own, or which has not been sufficiently acclimatised, hardly bears the frosts which occur in winter and spring in our cold and variable climates. Sudden changes of temperature affect these varieties, both in their growth and bearing. Consequently a state of weakness is induced which prevents the tree from thriving and bearing fruit; or, if it does bear, the fruit has neither its natural form nor flavour. If this solely arises from tenderness of constitution, the only remedy is to place the tree against a wall.

It will be easily understood, that feebleness of constitution renders the tree liable to the attacks of insects, which, by feeding upon the vitiated sap of the tree, cause it to become weaker and weaker, and in most cases effect its destruction. If the stock upon which an acclimatised variety is worked is itself of a weakly constitution, that weakness is communicated to the graft; but the latter, however hardy and vigorous, rarely succeeds in overcoming the stock so far as to communicate these qualities to it, if the tree is not placed in highly favourable circumstances of soil and situation. In a previous article, in which this opinion has been advanced and several proofs adduced, we have inferred as a consequence that the stock has a great influence upon the growth and bearing of the graft.

By employing scions from too young a tree, unfruitfulness is the consequence; if from too old a tree, all the symptoms of old age are impressed. With a vigorous stock these symptoms do not manifest themselves immediately, but they soon become apparent.

Whatever may be the degree of acclimatation or the constitution of a variety, whatever the talent of the person who has reared the tree, if it has been planted too deeply, if at the time of planting the necessary precautions already pointed out have not been taken, if the soil and subsoil where the roots must penetrate are of too compact, cold, and moist a nature, the tree will soon be thrown into a state of weakness, the forerunner of various diseases, such as cracked and fissured bark, shrivelling, cankers, dry or moist, and cancers. The ground, whatever its nature may be, in which the roots are to extend must be rendered sufficiently open by the application of appropriate manures; and manuring, either for ameliorating the soil or promoting growth, must be persevered in. The absence of such manures occasions a languid growth and barrenness.

When a tree is subjected to untimely, improper, or too severe pruning, it becomes weakly and affected by various diseases. The object of a rational mode of pruning should be to renovate and invigorate the tree. To render the winter pruning successful, recourse must be had to preparatory operations which should be performed about Midsummer, that is, when the trees are in full growth, and are not liable to be weakened by the proceeding. These operations consist in removing forked and superfluous shoots. By binding or breaking down the laterals, the sap is made to flow into the parts of the tree where fruit-buds ought to be formed. Is not a tree managed in this way more elegant, and more vigorous, and has it not a better chance of flowering and setting its fruit than one not so treated? In cultivating fruit trees, it is above all necessary to give the tree a form pleasing to the eye, and the greatest possible amount of vigour. It is only by renovation that such result can be obtained; and it is the consequence of a proper mode of winter pruning, and of the due performance of the operations preparatory to it in summer, and which is briefly the shortening of the lateral shoots on the leading branches and stem. When and how this shortening should be performed must be left to the judgment of the practitioner, who has to consider the nature of the subsoil, the more or less favourable situation in which the tree is planted, and the vigour of the trees under his care.

With regard to the shoots which extend to too great a length or beyond their bounds, we break them at two-thirds of their length from the base, or, in other words, they are shortened one-third about the end of September or during the first fortnight in October. This practice has the beneficial effect of concentrating the sap in the remaining parts of the shoots to which it is then necessarily directed. After winter, we cut a little lower down above a good bud. It is thus, we think, that healthy and vigorous trees, as well as perfect fruits, should be obtained.

Bruises variously inflicted, injuries from the gnawing of animals, and the destruction of the roots, are so many weakening causes as regards the Pear tree, preventing it from growing vigorously and from bearing fruit.

In conclusion, it is in the knowledge of the above causes, and many others that vary according to the situation, that the talent of the practitioner lies. It is by averting those causes, or by neutralising them, that he succeeds in preventing the various diseases by which the Pear tree is attacked. *J. De Jonghe, Brussels.*

Home Correspondence.

Ancient Winters.—I find the following statements in a French periodical. In 1183-4 fruit trees were in flower in December and the Vine in February, in Germany. In spite of the War of the Shepherds then raging, and the general destruction of crops, ripe fruit was gathered in May and the Vintage was in the end of July. In 1288-9 at Christmas children sold in the streets of Cologne Violets gathered in the meadows of the Rhine; Bluebells were in flower in February, and the Vine in April on the hills of the Moselle. In 1572 trees were in full leaf in January and children were birds' nesting in the following month. In 1621 everything was in flower in February; it was then the middle of spring. In 1658-9 there was neither frost nor snow in Germany. Can any of your correspondents mention similar cases, or point out the authority for these? *Noël.*

Golden Hamburgh Grape.—In reply to the remarks of "Vitis" on the above Grape in your last Number, I beg for his satisfaction, and for the information of all whom it may concern or interest, to say that it is quite true I did meet with an unfortunate accident in the propagation of the eyes, and that that cause alone prevented my being able to send out the plants during the past autumn, as I at one time intended doing. The orders received exceeding the quantity of plants on hand, and being pledged to supply all together, I have no alternative but to ask the kind indulgence of those who have ordered them till next May or June, when I have every confidence of being able to execute all orders with good established plants, and I trust and believe by sending them out at that time the season will not be lost. As regards the assertion of "Vitis" that "in fact it (the Grape) has degenerated," I can safely say, never was there a new production more fully and more satisfactorily tested than the Golden Hamburgh Grape. The maiden bunch was exhibited at Regent Street in October, 1853, and had a first class certificate of merit awarded it. It was exhibited at the July Chiswick meeting in 1855 (see report in *Gardeners' Chronicle*), and was then awarded a large silver medal. It was exhibited at the Pomological Society, August 6, 1855, and was declared to be in every way satisfactory. It was also exhibited at the Caledonian Society's Exhibition in Edinburgh on the 8th of September, 1855, and there again had a first class certificate. Thus in 1853 and 1855 it was most thoroughly proved. In the winter of 1855-6 every available eye was taken for propagation, and hence the cause of its not being exhibited during the past season. It is really nonsense to talk of its having degenerated; let "Vitis" wait till next summer, and probably Mr. Busby will gratify him by again showing it in its undegenerated state. The fact is, the Golden Hamburgh without doubt is a first rate Grape, and probably "Vitis" is some enthusiastic amateur anxious to get hold of it, and vexed at the delay. If so I regret it, but a little patience will rectify that; or may be, he is some brother chip of Mr. Busby's, and not quite pleased at Mr. B.'s good fortune in having raised so decided an acquisition; or perchance he is connected with "the trade," and a little jealous that so humble an individual as myself should have the credit of distributing so fine a thing in the fruit way. Be the case however what it may, it is evident "Vitis" was not in an amiable humour when he wrote the paragraph in question; nevertheless I thank him for giving me an opportunity of stating publicly these particulars in reply to his inquiries, and I trust this explanation will calm his doubts, remove his fears, and enable him to enjoy a happy new year. *James Veitch, Jun., Royal Exotic Nursery, Chelsea. Jan.* 1. [And now let *us* ask Mr. Vitis what he, a gardener, means by a Vine degenerating in a twelvemonth. Did he ever know such a thing to happen; if so where? and will he further be good enough to explain what his experience as a gardener tells him that this so-called degeneracy is?]

Quercus sessiliflora.—I extract from "Notes and Queries" (2nd Series, vol. ii., p. 493), the following portion of a communication from Mr. Bennett, Timber Inspector, H.M. Dockyard, Portsmouth; for, as far as my recollection serves me, I have never seen in your columns any reference to the experiment on the "Vindictive." It is much to be wished that Mr. B. would communicate to you the further experiments to which he refers. "In the year 1832, 40 pieces of the common Oak, and 40 pieces of the Durmast Oak, were respectively used on the starboard and port sides of the 'Vindictive.' After the lapse of seventeen years, that is to say in 1849, the officers of Portsmouth Yard reported that the Durmast appeared to be more durable than the common Oak. Interested in this result, I followed up the investigation by an experiment—which I will not tire you by describing—and the result to my astonishment was that the Durmast was denser, stronger, and more elastic than the common Oak." *Diss.* [This last result has already been given at p. 804 of our volume for 1855.]

Fruit Trees for different Aspects.—Will you, or some of your readers, advise me the most desirable mode of planting with fruit trees (and the kinds) my garden, the land of which is high, 8 inches fair mould, with gravel, sand, and clay substratum? *Subscriber.* [The length of the north wall of your garden would admit of 18 trees being planted against it, at 20 feet apart, and might comprise the following kinds, arranged in the same order as we have placed them, beginning at the west end with a Brunswick Fig, then Noblesse, Grosse Mignonne, Barrington, and Late Admirable Peaches; Elruge, Violette Hâtive, and Early Newington Nectarines; Moorpark, Turkey, and Royal Apricots; Greengage, Coe's Golden Drop, and Reine Claude Violette Plums; May Duke, Late Duke, and Elton Cherries; and a Brown Turkey Fig at the east end. The west aspect of the east wall might be occupied with the following kinds of dessert Pears, viz, Gansell's Bergamot, Thompson's Pear, Easter Beurré, Brown Beurré, Beurré d'Aremberg, Beurré Rance, and Jargonelle. Against the north side of the paling we should recommend Red and White Currants to be trained. For this purpose they are well suited, and if protected by a net will remain in perfection for a long time after the fruit has been gathered from the bushes in other parts of the garden. The space between the paling and south wall is sufficient to hold a couple of trees; these may be Winter Nelis and Vicar of Winkfield Pears; or if Plums are preferred, the Washington and Kirke's are to be recommended. The north aspect of the south wall, although only 8 feet high, will be found well adapted for Morello and Kentish Cherries, the two sorts that are most esteemed for preserving. We should therefore advise planting trees of each of the kinds; and as the Marie Louise and Glou Morceau Pears have been found to answer well in such a situation, the two remaining spaces may be advantageously filled up with them. Besides having trees against the walls we should think it would be worth while to have a light iron wire trellis erected at the distance of about 16 feet from the north, east, and west walls, and in a line parallel to them, for the purpose of training Espalier Pears and Apples. The Pears should occupy the trellis in front of the north wall, and the remaining portions might be filled with Apples. There would thus be room for about 14 Pears and 22 Apples, which might comprise the following sorts, viz.:—Pears—2 Beurré Diel; 2 Winter Nelis; 2 Easter Beurré; 2 Beurré Rance; 1 Napoleon; 1 Beurré de Capiaumont; 1 Duchess d'Angoulême; 1 Chaumontel; 2 Catillac. The selection of Apples might be the following:—2 Ribston Pippin; 2 Nonpareil (Pitmaston); 2 Wormsley Pippin; 2 King of the Pippins; 1 Court Pendu Plat; 2 Bedfordshire Foundling; 2 Dutch Mignonne; 2 Boston Russet; 2 Hawthornden; 2 Reinette du Canada; 2 Dumelow's Seedling. The other parts of the garden may be occupied with such small fruit as Gooseberries, red and white, and Black Naples Currants, Raspberries and Strawberries, &c. *B.*]

Practical Lessons in Botany.—In your last Number for 1856, p. 853, in my paper, *for* "ovary (from the ovarium)" *read* ovule (from the ovary). The following paragraph should also have been added:—3rd.—Disregard the remarks of those who have no faith in the assertion that "a just appreciation of the works and laws of Nature has a *tendency* to improve the moral as well as intellectual status of our population." Whatever assists in impressing the younger women of our villages with a sense of greater self-respect than the universal testimony of the country clergy show them at present (as a class) to possess, is an object of no mean importance. If it were possible to secure school discipline and school instruction for all our village children (whether of masters or men), until they were fourteen or fifteen years of age, my convictions are strong that a very considerable amount of stupidity, insubordination, and immorality, would speedily be replaced by intelligence, sobriety, and improved morals, among a class of people unqualified, as yet, for appreciating blessings they might obtain; and too little cared for by many, who might insist upon the children of their labourers receiving such amount of education as would enable them, in after life, to secure a better prospect than a pauper's patrimony—a weekly dole and a parish coffin. *J. S. Henslow.*

Meteorological Tables.—Will you do me the favour to inform me whether the temperature at Chiswick for any given day in the table is for that day or for the previous 24 hours; *e. g.*, Dec. 25—34° max, 18° min.; does that express the maximum on Christmas Day and the minimum on the night of the 25th and 26th, or the maximum of the 24th and minimum of night between the 24th and 25th? I ask because I register my own as

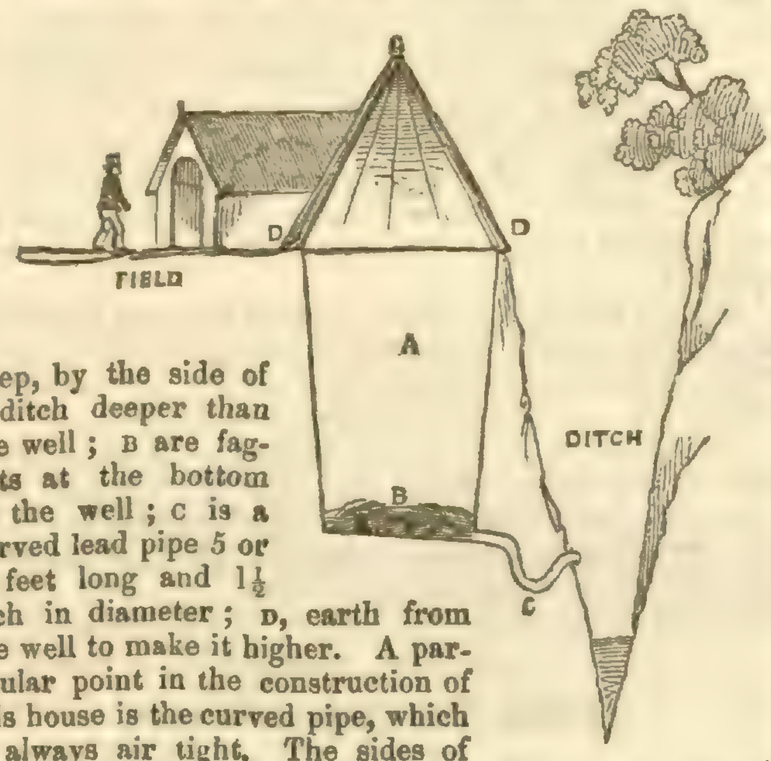
for the previous 24 hours; but I do not think it tells what one wishes to know, viz., the temperature of any given day, but that of the previous one. *T. S. P.* [The max. is that of the day reported on, the min. that of the succeeding night. Therefore, on Dec. 25 the max. 34° refers to daylight on the 25th, and the min. 18° to the night between 25th and 26th. This is, we believe, the rule among meteorologists.]

Oak Roots.—Possibly the following fact (by no means an uncommon one) may help "Sigma" in his search after the way in which the tap-root of Oaks penetrates hard soil. At Hertford station some years since the pathway by the station house was laid down with concrete of tar, ashes, &c., in the usual manner, and formed an excellent and hard way. Some weeks afterwards small blisters arose, which gradually enlarged, until at length the tender top of the common Thistle made its appearance through the concrete. A more unlikely looking implement to force its way through such an impediment I never saw. If such a weakly thing could mechanically force its way upwards, the root of the Oak may easily do the same downwards. *W. D. F.* [A Mushroom, a still more tender thing, some years ago upturned the hardest part of a capital turnpike in Herefordshire—and in doing so became as hard as a cricket ball.]

Rhizomorphas.—In a late number of the Botanische Zeitung there is a notice by Bail respecting the identity of *Sphæria Hypoxylon* with *Rhizomorpha subcorticalis*, with the promise of a complete figure in the 26th volume of the Bonn Transactions. The matter is brought forward as if it were new, but the connection of the two was half a century since noticed by Withering, and other information on the subject will be found in the English Flora (published in 1836) under *Sphæria Hypoxylon*. The truth is that all the species of this supposed genus are spurious. One is the creeping stem of *Marasmius rotula*, others are states of a *Polyporus*, as shown by Palisot de Beauvois in the 8th volume of the Annales du Muséum, or by Dr. Montagne in his work on Cuba; others again are the roots of Phænogams, as of Willows developed under abnormal circumstances. Barren stems are true species of *Thamnomyces*, which produces when perfect abundant perithecia with fruit like other *Sphæriæ*, and would be taken for species of *Rhizomorpha*. The genus *Rhizomorpha* has, indeed, been long since expunged by all good botanists. In most cases such growths are produced in the absence of light, as in mines and cellars, or beneath the decayed bark of trees. In mines they exhibit occasionally the most splendid luminosity, as observed by Humboldt, Nees von Esenbeck, and others. Indeed, indications of this phenomenon are to be found in the earliest authors.* Such phenomena have been observed in rotten wood and on fallen leaves, but they have been noticed also in many parts of the world in Fungi, or their mycelia. The mycelium may sometimes be luminous where the perfect plant is not, and the contrary. We are the rather inclined to notice the matter, though there is nothing new about it, as queries are so often sent to us concerning these productions, and because fresh caution is every day needful to observers not at once to suppose that every observation is new, but to believe it possible that their forefathers had eyes as well as themselves. *M. J. B.*

Heating.—In your last Number there is an interesting article on Polmaise heating, and I cannot but request further information on the subject, as from the decided opinion expressed in your pages some years since, I adopted that mode of heating a greenhouse and a moderately early Vinery (say June); for the former I find it answers well, but its rapid loss of heat when the fire gets low or goes out renders it, in my experience, not so fit for the latter. Your correspondent states that he has used it for a stove, and I should feel much obliged to him to inform me how often in nights with 10° of frost the Polmaise must be attended to. I would also beg for a diagram of Whitehead's stove and the air drains, as now found the most effective. My Polmaise was purchased of the earliest London maker (near Hackney I think), and brought 100 miles to my residence, as I was anxious to have one of the most approved construction; the top plate has split twice and has been repaired with wrought-iron plates riveted upon the old work; it carried me well through the last season, and on a careful inspection seems perfectly safe for the present one. I wish however to be prepared for a break down, and from any information your Polmaise correspondent may have the goodness to give, I should be able to decide on continuing or the contrary a mode of heating which is delightful to the feelings, and certainly most admirable for a church or school, or a greenhouse. I thoroughly agree with an "Old Sub" as to the importance of some definite and reliable information on the subject of boilers, their best shape (tubular or conical), size, &c., and particulars whether Kew Garden or Messrs. Weeks are right as to the one or several boiler plans. *L.*

Icehouses.—In answer to the inquiry of "An Old Subscriber," in your Number of 13th December last, I send you a rough plan and section of an easily made ice-house and cheap, which works to perfection, far better than a stone one adjoining, which cost a large sum to build. The excavation should be made in a dry soil, and where the shelter of overhanging Silver or Spruce Firs can be obtained. The thatch of the ice-house and porch may be either of Heather or straw, and a little more than the ordinary thickness used for houses. Care must be taken of course when opening and shutting the ice-house; and plenty of straw must be kept between the doors. The ice also must be firmly packed together when filling the house, and an open drain of a foot deep should be made all round the house, to carry off any surface water. *E. C.* [The drawing furnished by our correspondent very closely resembled the following, which we reproduce from our volume for 1844, p. 853. A is a well 8 or 10 feet



deep, by the side of a ditch deeper than the well; B are faggots at the bottom of the well; C is a curved lead pipe 5 or 6 feet long and 1½ inch in diameter; D, earth from the well to make it higher. A particular point in the construction of this house is the curved pipe, which is always air tight. The sides of the well should be lined with dry Barley straw, and the ice firmly packed. Other plans of ice-houses, of which the following are representations, have also been published in our columns, chiefly in those of our volume for 1844, and we repeat them here for the convenience of our new readers.—In Fig. 1, A B is a conical

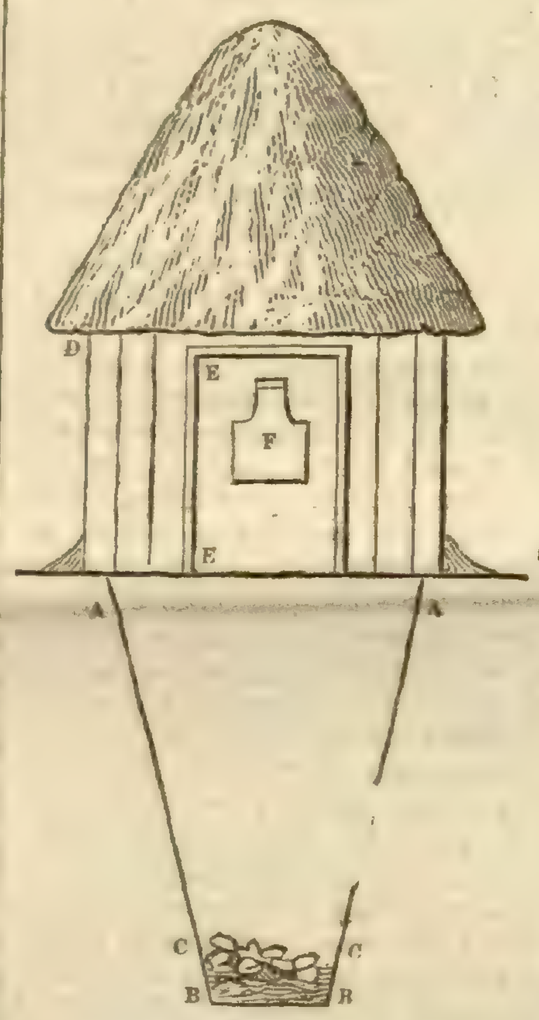


Fig. 1.

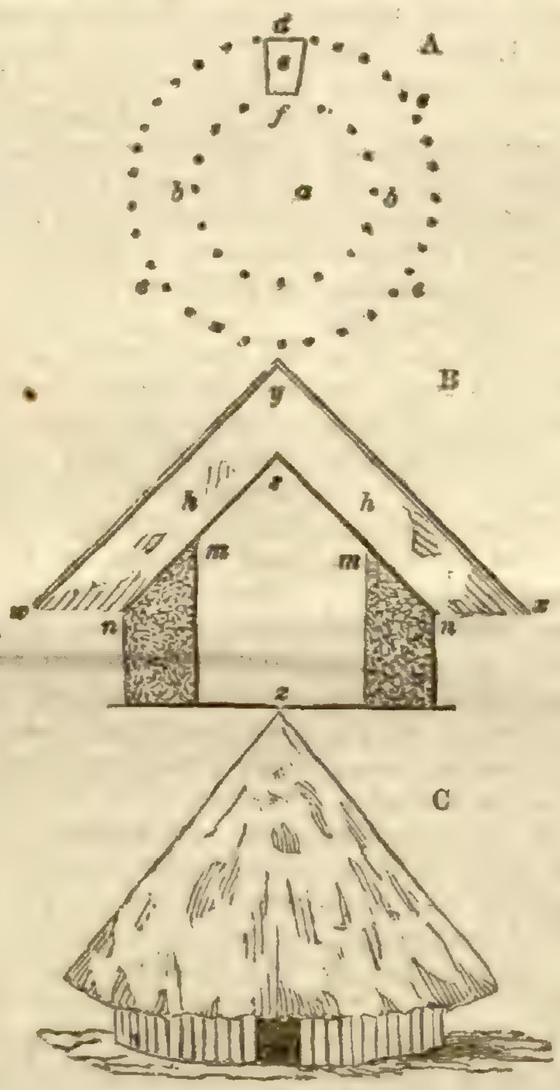


Fig. 2.

hole in the ground, C B are stones or rubble 18 inches deep to act as a drain; A D are slabs 4 feet high above the surface; E is the door; F is a trap door to answer a similar one on the opposite side, to be opened in a dry air, and carefully closed when the circumambient atmosphere is damp. This plan is stated to be at once cheap and efficacious.—Fig. 2 is a house of another

Fig. 3.

description. In this case *a* is the centre of a circle 10 feet in diameter. At this point a post is put up, which stands 15 feet above the level of the ground. *b b* are fifteen posts 9 feet high and about 2 feet apart; *c c c* are 54 posts, 5 feet high. The space between these two rows of posts is about 4 feet, and forms a wall of straw; *e* is a passage through this wall, *d* is the outside door of the passage, *f* being that of the inside. Make the straw walls very close, so that if the wall were cut across as at *n n* in section B, the ends of the straw would present a compact face. The roof (C) is covered with clean well prepared Wheat or Rye straw, 4 feet thick.—Fig. 3 is a section of another contrivance for preserving ice. In this A is the ice, B a wall of Fern from 3 to 4 feet in thickness, and C the thatch. The walls are built up in the first instance, and then shored up and secured by hurdles. A little clean straw is first strewn over the top; Fern 18 inches in thickness follows, and after that it is made waterproof by means of straw thatch. This kind of house is found to answer perfectly.]

Old and New Roses.—The discussion in your columns lately respecting the merits of old and new Roses is most interesting to every amateur. Without wishing to detract from the merits of old favourites, I will name six of the newer varieties which I think may challenge any six of the older sorts, and take as my champions—H. P. General Jacqueminot, Jules Margottin, Lord Raglan, Mrs. Rivers, Prince Leon, Souvenir de Leveson Gower. There are many others, such as Barron Larray, Louise Peyronny, Madame Hector Jacquin, Madame Domage, that cannot be called old sorts, and that are lovely Roses. Amongst the still newer varieties I hear good accounts of Souvenir de la Reine d'Angleterre and Triomphe de l'Exposition, but they have not yet bloomed with me. Any information respecting them will be interesting. The brilliant descriptions in the Rose catalogues are too often incorrect, and lead to sad disappointments. My advice to all young amateurs is—"Go and see the flowers yourself, taking with you some experienced friend." *Alpha.*——Permit me to add a word or two about Roses, or your readers may be misled. The General Jacqueminot alluded to by "A. R., Bromley," is a hybrid China Rose, entirely distinct from the brilliant hybrid perpetual Rose with the same name. I may add that "inconstant in moist climates" should be added to La Reine. Here it is always most beautiful; its congener Louise Peyronny, which is not quite so full, is better adapted to cool moist situations. Madame Laffay I have never seen "small and transitory," but on the contrary always full, perfect, and fragrant. Descriptions in the catalogues of the Rose growers (not "dealers," for they grow for sale, and are not like grocers and others who buy and sell) are, I fancy, a little too fervid occasionally, but who can help a little fire when a really new and fine Rose is in full bloom and to be described? The growers, as it appears to me, are apt to err in describing new Roses in too glowing colours before they have properly tested them, merely for the sake of being first in the field in offering them. This should not be; the Rose cultivator should be wary and honest in his intentions, not crowding his catalogue with new names only because they are new, nor recommending them to his customers in preference to old varieties, for the same reason. On the contrary, he should adhere to old favourites at 1*s.* 6*d.* each, and recommend them to beginners in Rose culture rather than the new kinds at high prices, about the character of which he is not certain. There are by far too many hybrid perpetual Roses described in catalogues, in some upwards of 200; this should not be, the grower should use great discretion, and insert a few of the best representatives of each shade of colour such as he can honestly recommend, and oust from his collection (giving them to his friends or destroying them) all with "names and nothing else" to distinguish them. It is a question of interest if Roses degenerate. I know that some varieties are improved by culture, and by being budded on vigorous stocks; but I cannot see that any varieties degenerate. The Crimson Perpetual, or Rose du Roi, is as beautiful as ever, and yet it is one of our most ancient autumnal blooming Roses. Still, and it throws some doubt on the question, I saw in the grounds of one of our large Rose growers last autumn a number of plants of that fine old Rose the Duchess of Sutherland, which had entirely lost their tendency to bloom in autumn, or had given only small and imperfect flowers. *An Old Subscriber.*——I most cordially agree with all that "A. R." has said about Roses—and never was there a more truthful homethrust than that "Amateurs buy experience, as well as Roses." How Mr. Paul will get over "A. R.'s" rejoinder in the *Gardeners' Chronicle* of the 20th ult. remains to be seen. Those two columns in juxtaposition are certainly rather startling; and I must say that in my opinion Mr. Paul has managed to get himself into what our cousins across the Atlantic would call a "pretty considerable fix." For my own part, I know too well what it is to place implicit faith in the catalogues of dealers, for I have grown a pretty extensive collection of Roses for some 12 years past, and dearly bought experience has, I hope, made me a little bit wiser than to buy a new Rose with a high sounding name and a still more grandiloquent description, simply because it is new. If dealers would only "weed" their catalogues a little more it would give

* See Nees v. Esenbeck's long treatise in the Bonn Transactions, vol. xi., 1823.

ten times more satisfaction to purchasers; for I defy any one who is not up to his ears in Roses to attempt anything like a selection as the majority of catalogues are at present. To give you an instance of this—Messrs. Wood and Son have no less than 159 varieties of hybrid perpetuals alone in their catalogue of 1856-7! Now is not this, to say the least of it, simply absurd? If these were reduced to one-fourth of that number, say down to some 40 sorts or so, I will engage to say it would include every hybrid perpetual worth growing. And in doing this don't let them strike out a variety simply because it is old. Let them have an eye to every point that tends to perfection—vigorous habit, constancy, free blooming, and above all handsome and abundant foliage, not forgetting high perfume. These are what we must look for now-a-days in every new Rose that is brought before the public, and a variety that has not all these qualities more or less in advance of its compeers has no business to pass muster. Above all, however, let handsome foliage be aimed at, for as an old cultivator of this lovely flower, I can answer for it that a clean luxuriant foliage is the very making of a rose. One word more and I have done. Let Mr. Paul have the goodness to name a dozen Roses which will beat those two poor condemned convicts (in his estimation) Madame Laffay and William Jesse, and I will send him an order for them at once. I mean, let him select a dozen which, for the general purposes of a lover of Roses, can beat these; for we amateurs do not want varieties from which a choice bloom can only be plucked now and then. To any beginner in the cultivation of Roses I would say, "Never rest till you have procured the above two," and let him add Coupe d'Hébé, Jules Margottin, Wm. Griffiths, Baronne Hallez, Duchess of Sutherland, Blairi No. 2 (Hyb. China), Auguste Mie, Prince Léon, Géant des Batailles, Baronne Prévost, Pius IX., and Mrs. Rivers (the best white). If he buys these I will answer for it he will not soon regret the few shillings he lays out; and he will have "given in" (without being "taken in"), "to compensate for carriage," as the dealers say, the experience of *A White Rose of Yorkshire*.——The tourney between "A. R." and Mr. Paul, the amateur and professional, has amused and edified me much, and I am not surprised at the latter smarting under the blow he received from his adversary's catalogue thrust. It seemed to me that he was fairly transfixed, and compelled to eat his own words, and I am not surprised at his declining to have "another turn" with the nameless knight. For my own part I feel obliged to "A. R." for standing up for our old and most charming friends, W. Jesse, La Reine, Mrs. Elliott, and Duchess of Sutherland; and I should be glad to know if any of the late introductions excel that trio of summer beauties, Coupe d'Hébé, Blairi, and Magna Rosea? I do not expect our Rose growers to be "Quixotic" enough to be "above" the ways of other tradesmen. They say, or at all events think, of the public, "*Vult decipi, decipiatur*," and I do not know that I blame them; all I ask is, that in their anxiety to "get out" a novelty they do not run down our proved and old established favourites, and that in "trotting out" a new and "crabbing" an old friend they should not forget that a catalogue may rise up in judgment against them, and that having written, *litera scripta manet*. In much admiration at Mr. Paul for continuing to labour at so "small a profit" for so ungrateful a public, *Briar-cus*.——It may not be uninteresting to mention a fact in support of old Roses. In the early part of the present year I moved a number of my Rose trees from one of my gardens to another (as I had an intention of disposing of the house and grounds attached to the flower garden in which these Roses were, and did not wish to leave them behind). I do not exaggerate when I tell you that since the month of June up to last Tuesday I have had Roses of a first-rate description, and most particularly from Mrs. Elliott, Madame Aimée, and Madame Lamoricière, I should say three of the best bloomers we have, though I believe they are not now considered the "ton." Certainly my garden at Old Connaught is very sheltered, and the ground well adapted for Roses, but I think few can boast of having cut a well-blown Rose with rich foliage the Tuesday before Christmas Day. *A Dublin Subscriber*.

To Protect Early Peas from Frost.—This being the season when we may expect severe frosts, accompanied with north-east winds, I will state the plan I adopted last spring to protect early Peas, and which proved perfectly successful. I took two rows running east and west, one row behind the other. When the Peas were about 2 inches out of the earth the sticks were set in the usual manner. To the front row I ordered common house slates to be placed slanting against the sticks on the north side, but none to the other row. The result was that the front row grew away with increased vigour and without the loss of a plant, and although the sort was not so early as some other rows in the garden the Peas of this row were ready to be gathered first. The row behind was all destroyed by frost and cutting winds except a few patches, which were dug up. I intend always adopting this plan till I can find a better. *Sigma*.

British Oak.—I have been much interested by the experiments made at Wentworth with the two varieties of native Oak timber, Quercus pedunculata and Quercus sessiliflora. I consider it of the highest importance to the Government of this country, and to planters generally, that they should perfectly understand the relative value of both varieties of the English Oak; and I know of no course so likely to bring them prominently before the public as the trials pursued at Wentworth. The idea put forward by your correspondent writing from Southampton, that the two varieties are identical, is absurd; the only difference, he states, being in soil and locality, must be patent to every one as incorrect, and if your correspondent during his experience of 25 years had only given himself the trouble to go to the New Forest during the time of the acorns falling, he might easily have ascertained the distinction, provided he was acquainted with their different features, which I should imagine by the theory he now propounds he is not. I will however, with your permission, and for general information, state that the wood of Q. pedunculata is heavier, the grain closer, and in its composition contains a far larger proportion of iron (!) than Q. sessiliflora, hence its ability to withstand the variations of climate without injury, where the wood of Q. sessiliflora would in the same situation and time become decayed. I have ascertained from a gentleman of high standing in the New Forest, and well acquainted with the two varieties, that both grow there naturally; but for the last 40 or 50 years the acorns of Q. pedunculata have alone been selected for sowing. Undoubtedly the timber of Q. sessiliflora is valuable for many purposes; it will work easier and bend with less trouble than Q. pedunculata, but for lasting will not bear comparison. In gathering the acorns it is highly necessary to select only those having footstalks, and reject all without, or that set as it were in a nest; on the contrary as regards the leaves, the footstalks of which in Q. pedunculata are shorter than in those of the Quercus sessiflora and the body of the leaf is less regularly divided. I think chemistry could do a good deal towards enabling us to arrive at a correct conclusion, by ascertaining the specific proportions of the properties contained in a given quantity of each. In America the wood of the Quercus alba, which agrees in almost every particular with our Q. pedunculata, is alone thought fit to be used for any purpose, whether in ship building, as piers for bridges, or sleepers, and it is a very extraordinary circumstance that in going through the large forests in that country I have particularly noticed that the lightning strikes the white Oak, and peels a strip of bark from the top to the bottom of the tree, but in no instance have I ever observed the other species struck in the same manner; the reason there assigned is that Q. alba contains a much larger proportion of iron, and consequently more readily attracts the lightning, and acts as a conductor. The Quercus sessiliflora will grow on low damp soil and thrive well, whilst Q. pedunculata requires a dry situation, and if the land be previously drained so much the better. *George S. Rogers, Red Lodge Nursery, near Southampton*.

Conical Boilers in Orchard Houses.—In an orchard house 60 feet by 15, front 2½, back 10 feet, I stow away a great number of greenhouse plants during the winter, and am obliged to keep out frost. I have a conical boiler (Rogers's) and one double row of 4-inch iron pipes. In a late frost I ordered the thermometers, both outside and in, to be examined at six o'clock in the morning: the outside indicated 12 degrees below freezing while the inside was 14 degrees above, or 26 degrees warmer inside than out; this proves my former statement to be correct as to the economical plan I advocated for keeping frost out of an orchard house. This house is full of ventilators, but they shut so closely that when not open the house becomes nearly air-tight; it is never altogether closed excepting during frost. I examined this house yesterday afternoon, and found that, although the fire had not been touched for 24 hours, I could not bear my hand on the hot-water pipes, and the fire I found in a glow. *Sigma*.

Notices of Books.

Mr. Stainton's *Entomologist's Annual* for 1857 is a very good volume, which no working naturalist can dispense with. The papers in it are good, and have generally a direct practical application—such, for instance, as Dr. Hagen's account of British Dragon-flies. The most interesting generally is however Mr. Lubbock's dissertation on the respiration of insects—from which the following are extracts:—

"If we compare this type of the respiratory organs, which is found so far as we know the same in essential points in all perfect insects, except *Pteronarcys*, which has branchiæ as well as spiracles, and in most larvæ, with that which prevails in the *Vertebrata*, or animals with bones, we are at once struck with the fact that in insects the air never enters the body through the mouth, although in a few cases (the larvæ of *Libellulæ*) the opposite end of the intestinal canal is used for that purpose; and secondly, that the air vessels are not collected into one mass called the lungs, but are scattered throughout the whole body.

"The cause of this dispersion we may probably find in the imperfect circulation of the blood; in the *Mammalia*, care has been taken that all the blood should be subjected at very short intervals to the action of the air, and though in the reptiles this is not the case, yet even here a part of the blood thus aërated is carefully mixed with the remainder, which has not been so purified.

"But in insects the organs for the circulation of the blood appear much less developed, and though very likely future anatomists may discover far more than we are at present aware of, yet we may perhaps conclude that, if the blood was aërated in one part only of its course, a large portion would remain without this necessary purification.

"As insects never breathe through their mouth, they have of course no voice properly so-called, and when they make a noise it is in some different manner, and is usually caused, like the so-called chirping of the cricket and grasshopper, by the rubbing of one part of the body against another. The humming of the bumble bee, blue bottle, &c., forms however, to a certain extent, an exception to this rule, although for this sound three causes have been suggested."

"In the larvæ of *Æschna* and *Libellula* (dragon-flies), on the contrary, the respiratory organs are formed on a type which is without a parallel, and which, though so familiar with the fact, I never contemplate without a feeling of awe and admiration. The water is sucked in through the posterior orifice into the rectum or lower part of the intestinal canal, on the walls of which the tracheæ ramify in great numbers, and extract the air from the water thus brought into contact with them.

"Truth is indeed stranger than fiction. What man would have imagined such a machine! What but Almighty wisdom and power could have contrived and carried out these and many other means for supplying air to the internal organs of animals apparently so insignificant?"

Why does not Mr. Stainton concentrate his talent and energy upon the publication of a good *Insecta Britannica*? Our Entomological friends say that no man can do it. We say that he is the man who can.

The *Rev. T. Waddingham*, late of St. John's, Cambridge, has published a valuable *Geometrical Treatise on Conic Sections*, for the use of Schools and Students (Longmans, 8vo., pp. 73).

It was not a bad idea on the part of the compiler of *Notices to Correspondents* (8vo., Houlston and Stoneman, pp. 320) to glean over the field bearing this name in the most important of the newspapers of the day, and then of indexing the result, so that the inquirer may find what he wants without trouble or loss of time. In the volume before us the compiler assures us that he has collected 10,000 editorial answers. To us it appears that the whole number of questions and answers taken together is only 3050; this however is enough for the most zealous inquirer.

The well-known correspondent of the *Times* who writes under the name of *Jacob Omnium*, has just published a pamphlet on the *Purchase System* (Bradbury & Evans), in which he endeavours to show that the conclusions at which the Royal Commission of 1840 arrived were worthless, and that those to be expected from the Commission now sitting are not likely to be better. The advocates of "purchase" as well as those of "no purchase" should certainly read what Jacob Omnium has to say.

Miscellaneous.

On the Durian of Borneo.—"The second object of my especial admiration is the Durian, a fruit of which we hear little in England, where all praise is given to the Mangosteen, while the Durian is generally mentioned as a fruit much liked by natives, but whose offensive smell renders it disagreeable to Europeans. There is however no comparison between them; the Mangosteen resembles a Peach or a Grape, and can hardly be said to be superior, if equal, to either: the Durian, on the other hand, is a fruit of a perfectly unique character; we have nothing with which it can be compared, and it is therefore the more difficult to judge whether it is or is not superior to all other fruits. The Durian grows on a large and lofty forest-tree, something resembling an Elm in character, but with a more smooth and scaly bark. The fruit is round or slightly oval, about the size of a small Melon, of a green colour, and covered with strong spines, the bases of which touch each other, and are consequently somewhat hexagonal, while the points are very strong and sharp. It is so completely armed that if the stalk is broken off it is a difficult matter to lift one from the ground. The outer rind is so thick and tough that from whatever height it may fall it is never broken. From the base to the apex five very faint lines may be traced, over which the spines somewhat curve and approximate: these are the sutures of the carpels, and show where the fruit may be opened with a heavy knife and a strong hand. The five cells are silky-white within, and are filled with a mass of firm, cream-coloured pulp, containing about three seeds each. This pulp is the eatable part, and its consistence and flavour are indescribable. A rich custard highly flavoured with Almonds gives the best general idea of it, but there are occasional wafts of flavour that call to mind cream-cheese, onion-sauce, sherry-wine, and other incongruous dishes. Then there is a rich glutinous smoothness in the pulp which nothing else possesses, but which adds to its delicacy. It is neither acid nor sweet nor juicy; yet it wants neither of these qualities, for it is in itself perfect. It produces no nausea or other bad effect, and the more you eat of it the less you feel inclined to stop. In fact, to eat Durians is a new sensation worth a voyage to the East to experience. The smell of the ripe fruit is certainly at first disagreeable, though less so when it has newly fallen from the tree; for the moment it is ripe it falls of itself, and the only way to eat Durians in perfection is to get them as they fall.

It would perhaps not be correct to say that the Durian is the best of all fruits, because it cannot supply the place of subacid juicy fruits such as the Orange, Grape, Mango, and Mangosteen, whose refreshing and cooling qualities are so grateful; but as producing a food of the most exquisite flavour it is unsurpassed. If I had to fix on two only as representing the perfection of the two classes, I should certainly choose the Durian and the Orange as the king and queen of fruits. The Durian is however (in another way) dangerous. As a tree ripens the fruit falls daily and almost hourly, and accidents not unfrequently happen to persons walking or working under them. When a Durian strikes a man in its fall it produces a fearful wound, the strong spines tearing open the flesh, while the blow itself is very heavy; but from this very circumstance death rarely ensues, the copious effusion of blood preventing the inflammation which might otherwise take place. A Dyak chief informed me that he had been struck down by a Durian falling on his head, which he thought would certainly have caused his death, yet he recovered in a very short time. Poets and moralists, judging from our English trees and fruits, have thought that there existed an inverse proportion between the size of the one and the other, so that their fall should be harmless to man. Two of the most formidable fruits known, however, the Brazil Nut (Bertholletia) and the Durian, grow on lofty trees, from which they both fall as soon as they are ripe, and often wound or kill those who seek to obtain them. From this we may learn two things:—first, not to draw conclusions from a very partial view of nature; and secondly, that trees and fruits and all the varied productions of the animal and vegetable kingdoms, have not been created solely for the use and convenience of man. The unripe Durian makes a very good vegetable, and it is also eaten raw. In a good fruit season the Dyaks preserve quantities of the pulp salted in jars and bamboos, in which state it will keep the year round, and is much esteemed as a relish with their Rice. They seem hardly to appreciate the ripe fruit in its perfection, from the quantities they gather unripe, and from the small value they place upon it, as compared with the Jack and some other fruits. In Borneo great numbers of Durian trees have been planted on the mountains occupied by the Dyaks, and on the rivers' banks in the interior. In the jungle are found two varieties with much smaller fruits, one of them of an orange colour inside; and these are probably the originals of the large and fine Durians, which seem never to be produced in a wild state. In the tropics, as well as in our colder climates, fruit always seems to be improved by cultivation." *A. R. Wallace, in Hooker's Journal of Botany.*

Geological Time.—Whatever may have been the creational development of plants and animals, the groups and systems of geology afford irrefragible evidence of the lapse of vast epochs and cycles of time. The idea of immeasurable duration is at once suggested by an examination of the stratified rocks,—their innumerable alternations, their thickness, their repeated laminations, the alternation of marine with fresh-water beds, their upheaval into dry land and subsequent submergence again and again, the various races that have lived and grown and been entombed in them, system after system, —all this, and much more that will readily suggest itself to the student, must convince him beyond doubt of the almost inconceivable duration of geological time. To attempt to compute this time by years and centuries is altogether futile; we can only faintly indicate its vastness by the use of indefinite terms, as "eras" and "epochs," "cycles" and "systems." Many ingenious calculations have, no doubt, been made to approximate the dates of certain geological events, but these, it must be confessed, are more amusing than instructive. For example, so many inches of silt are yearly laid down in the delta of the Mississippi—how many centuries will it have taken to accumulate a thickness of 30, 60, or 100 feet? Again, the ledges of Niagara are wasting at the rate of so many feet per century—how many years must the river have taken to cut its way back from Queenstown to the present Falls? Again, lavas and melted basalts cool, according to the size of the mass, at the rate of so many degrees in a given time—how many millions of years must have elapsed, supposing an original igneous condition of the earth, before its crust had attained a state of solidity? or further, before its surface had cooled down to the present mean temperature? For these and similar computations, the student will at once perceive we want the necessary uniformity of factor; and until we can bring elements of calculation as exact as those of astronomy to bear on geological chronology, it will be better to regard our "eras" and "epochs" and "systems" as so many terms, indefinite in their duration, but sufficient for the magnitude of the operations embraced within their limits.—*Advanced Text-Book of Geology*, by *David Page, F.G.S.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—During the present mild weather the principal object should be to guard against plants commencing growth at this unfavourable time of the year, and to keep in check damp and mildew, which the weather we are now experiencing is likely to induce, more especially in the case of plants that are at all delicate, and such as have imperfectly ripened their wood. Nothing keeps the two evils just mentioned so much in check as a dry healthy atmosphere. To assist in promoting a free circulation of air through plant houses, some of the inferior duplicates might now be removed to spare Vineries or other quarters; for anything approaching a crowded state among delicate plants will be sure to cause at least a partial loss of foliage. Let Ixoras and other hard-wooded plants that have made sufficient growth be kept rather dry at the root, in order to check their growth, and induce a tendency to form bloom, but do not let the balls become so dry as to endanger the foliage. Look sharply after insects here, especially mealy bug, and endeavour to get the whole collection clear of this destructive pest, for if neglected now it will not fail to demand attention in spring and summer, when time with the plant grower will doubtless be fully as precious as now. Be sparing in the use of fire-heat, except in the case of things being forced into flower or growth, and it is in every sense good policy to have a separate house or compartment for these, as it saves fuel, avoids over-driving the whole collection for the sake of a small portion, and ensures a more satisfactory result than can be obtained where there is but one house for the whole collection of what is generally termed stove plants. Let specimens in bloom be placed in the most favourable positions for prolonging their beauty, and be careful to keep the flowers from damp.

FORCING DEPARTMENT.

The forcing of fruit trees in pots has become both useful and interesting, and where separate houses do not exist for each kind a valuable addition to the dessert in spring may be secured by growing a collection of Peaches, Nectarines, Apricots, Figs, Plums, Cherries, and Raspberries in pots; they are easily managed in this form, provided there are one or two houses at work to hold them during the later stages of their growth. All the above kinds (with the exception of Raspberries) should have been grown in pots two years at least, and be well furnished with fruit buds. Raspberries are best obtained by taking up the strongest suckers early in September and potting them either singly or three together in rich soil, shading them for a few days to make fresh roots, and then placing them against a south wall to ripen. Where a stock of the above fruits is prepared for forcing the advantages of a deep pit with a bed of leaves will be apparent; the slight bottom heat thus afforded will be found beneficial in setting the roots in action. Cherries and Raspberries are the most impatient of heat and should be brought forward in a very low temperature, and unless they are required very early they will succeed better when started next month. The remainder should be started with a top heat ranging between 40° and 60°, with a gentle syringing daily, and air according to the state of the weather. Here they may remain till they are nearly in bloom, when a drier atmosphere being necessary, they may be removed to vacant shelves or stages in any house at work where a moderate heat is kept up. Peaches and Nectarines may even be placed on the back shelves of the Pine-houses after they have set their fruit, though a more moderate temperature would suit them better. In carrying out the subsequent treatment we may add that Figs, Peaches, &c., should occupy the warmest part of the house in which they are to fruit, and Apricots, Plums, and Cherries the coolest end. If required, Raspberries will succeed well in pits or in the partial shade of other plants. If circumstances permit of the whole being kept plunged in a gentle heat, it will assist the swelling of the fruit, but with proper attention in supplying them with manure water they will do well without that assistance. Prepared plants of the most suitable kinds of the above fruits may be obtained at most of the principal nurseries, or maiden plants of each may now be potted in rich turfy loam for future operations, getting them into a bearing state by judicious stopping rather than by the use of the knife. Pursue former directions as regards the early Vinery and Peach house.

FLOWER GARDEN AND SHRUBBERY.

In open weather dig borders, sweep and roll lawns and gravel walks, prepare composts, lay turf, and see that plants that are at all tender are well protected from severe frost. Protect also autumn planted bulbs, and prune the hardier sorts of Roses and shrubs. Push forward all alterations as much as possible, so as not to interfere with the ordinary routine operations. All Pink and Pansy beds should be examined, and all plants that are at all loose carefully fastened. The same remark applies to seedling Auriculas and Polyanthuses. With respect to Ranunculuses lose no time in making what purchases may be necessary, and take care during this rather variable weather that the roots do not contract mouldiness, which is fatal to them.

ORCHARD AND KITCHEN GARDEN.

All unoccupied ground should now be rough dug trenched, or ridged, regulating these operations according to the nature of the soil and the kind of crops to be planted on it. Keep forward Lettuces from being injured by frost, and look sharply after Cauliflower plants under hand-lights, as well as Lettuces, Endive, and Radishes in cold frames, protecting them with straw, or Reed covers or Spruce branches. If not already done, embrace the first opportunity of mild weather to sow the first crop of Peas and Beans, choosing for the purpose established early varieties, as Sangster's No. 1 Pea and the Mazagan Bean. As regards orchard work, proceed with pruning, and protect newly planted trees by mulching their roots. Let all ground intended to be planted in spring be well prepared for the reception of the trees which are to occupy it. Above all, let it be properly drained.

MONTHLY DEPTH OF RAIN, in inches and hundredth parts of an inch, which fell at Chiswick in the years 1841 to 1856 inclusive.

	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849.	1850.	1851.	1852.	1853.	1854.	1855.	1856.
	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.	Ins.
January ...	2.60	1.06	1.33	2.25	2.97	2.85	1.31	1.16	1.73	1.43	3.07	2.72	2.14	1.92	0.10	1.76
February ...	0.76	1.32	2.35	2.27	0.93	1.47	1.34	3.12	2.52	0.95	0.90	1.06	0.59	0.78	1.35	0.62
March ...	1.32	1.81	0.47	2.44	1.25	1.02	0.41	3.05	0.85	0.13	3.57	0.25	1.48	0.42	1.75	0.97
April	1.58	0.15	1.62	0.33	0.95	3.93	0.92	3.06	2.21	1.79	1.65	0.52	2.58	0.30	0.26	1.97
May	2.16	1.73	5.26	0.25	2.89	1.35	1.59	0.28	3.53	1.84	0.74	1.74	1.60	4.03	1.94	4.58
June	2.45	1.58	1.62	0.97	1.36	0.80	1.31	3.20	0.31	1.40	1.33	4.69	2.54	1.53	1.48	0.88
July	3.56	1.52	1.67	2.10	2.31	1.78	0.79	2.21	2.82	2.68	3.90	2.28	4.17	2.40	6.30	1.43
August ...	2.69	2.81	3.28	1.84	2.79	4.50	1.50	4.70	1.60	0.97	2.03	3.71	1.87	1.77	1.45	3.50
September...	3.71	3.39	0.98	1.31	1.77	1.76	1.66	2.20	2.49	2.36	0.42	3.54	2.41	0.58	1.15	1.99
October ...	4.61	1.71	4.19	4.13	1.39	5.54	1.75	2.93	2.18	1.55	2.01	3.87	3.78	2.61	6.15	2.40
November...	3.41	4.43	2.13	3.06	2.11	1.43	2.26	0.90	1.32	2.03	0.55	6.20	0.91	1.31	1.34	0.94
December ...	2.12	0.76	0.58	0.39	2.61	1.21	1.81	2.03	1.28	1.15	0.62	1.97	0.30	1.27	1.11	1.88
Annual amount	30.97	22.27	25.48	21.34	23.33	27.71	16.65	28.84	22.84	18.28	20.79	32.55	24.37	18.92	24.38	22.72

The amount of rain in 1856 is 1.16 inch below the average.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Jan. 1, 1857, as observed at the Horticultural Gardens.

Dec. and Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 26	29	29.041	28.837	35	24	29.5	39	43	N.	.00
Satur. 27	[illegible]	29.380	29.211	32	11	21.5	39	42	N.W.	.00
Sunday 28	1	29.770	29.540	30	21	25.5	38	40	S.W.	.0
Mon. 29	2	30.122	30.055	42	33	37.5	37	41	S.W.	.00
Tues. 30	3	30.211	30.136	47	40	43.5	40	40½	S.	.00
Wed. 31	4	30.207	30.129	50	45	47.5	42	41	S.W.	.00
Thurs. 1	5	30.063	29.998	53	40	46.5	43	41	W.	.10
Average .		29.827	29.683	41.3	30.5	35.9	39.7	41.2		.10

Dec. 26—Densely clouded; frosty at night; barometer very low.
— 27—Clear and frosty throughout; severe frost at night.
— 28—Severe frost; clear and frosty during the day; frosty.
— 29—Clear and frosty; partially overcast; cloudy.
— 30—Partially overcast; hazy; cloudy.
— 31—Densely overcast; cloudy and mild.
Jan. 1—Partially overcast and mild; exceedingly fine; rain at night.
Mean temperature of the week 1½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 31 years, for the ensuing week, ending Jan. 10, 1857.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	42.4	31.9	37.2	14	0.86 in.	3	3	3	6	2	9	2	3
Mon. 5	42.1	31.1	36.6	11	0.40	6	3	5	1	1	11	3	1
Tues. 6	41.8	30.6	36.2	12	0.33	2	6	4	3	4	9	3	—
Wed. 7	41.7	29.9	35.8	11	0.34	2	4	4	3	3	7	5	3
Thurs. 8	39.9	30.9	35.4	8	0.26	3	4	7	4	—	11	1	1
Friday 9	39.9	31.3	35.1	12	0.23	1	7	4	3	3	7	5	1
Satur. 10	41.2	30.1	35.7	14	0.40	2	8	3	4	5	4	3	2

The highest temperature during the above period occurred on the 5th, 1844, and 6th and 7th, 1845—therm. 54 deg.; and the lowest on the 7th and 8th, 1841—therm. 6 deg.

Notices to Correspondents.

OUR CORRESPONDENTS will much oblige us if they will in future place the letters W C at the foot of the addresses of their letters, thus:—

THE EDITOR OF THE "GARDENERS' CHRONICLE,"
5, Upper Wellington Street,
London.
W. C.

The new Post Office regulations require this if country letters are be delivered with all possible punctuality and despatch.

BOOKS: *Lancashire* will find what he wants in the Indexes to any British Flora, and in any of the Catalogues of Garden Plants, whether Sweet's, Loudon's, or Donn's.—*F T I.* Dubreuil's work on fruit trees is an extremely good one; it goes into many details not found in the common books on gardening.

HORTICULTURAL SOCIETY: *A Fruit Grower.* Prizes will be given for fruit and flowers at the forthcoming meetings for 1857.

MUSHROOMS: *D P.* The specimens you have sent are very good Mushrooms and very well grown, but old.‡

POLMAISE: *Our Correspondents* must excuse us for withholding the name of our Lancashire informant. It is quite unnecessary to trouble him, there being Mr. Whitehead, of Preston, who will answer inquiries as a matter of business. We trust this reply will be understood to be addressed to *Mrs. G.*, the *Revd. L. T.*, *S J T.*, *Max*, *Breage*, *R G.*, and all others.

VINES: *G H.* Cut them back now to a plump bud.‡

MISC. *J B.* Three lines 1*s.* 6*d.*, and 6*d.* each line after.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c.. and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

ARTIFICIAL MANURES. — Superphosphate of Lime, Wheat, Corn, Grass, and Hop Manures, &c., manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).— Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1. Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840)
Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.
EDWARD PURSER, Secretary.
40, Bridge Street, Blackfriars, London.

ESTABLISHED 1812.
TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the *weight* and *quality* of the bulbs which it produces; it is besides especially beneficial to the *Grain Crops* which follow, while *Clover* is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to
H. & T. PROCTOR, CATHAY, BRISTOL.
PROCTOR AND RYLAND, { BIRMINGHAM, EDMONSCOTE, WARWICK. And SALTNEY, near CHESTER.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM THE MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS. 15*l.*—Illustrations forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

TO CATTLE FEEDERS AND DISTILLERS.
LOCUST BEANS having proved on analysis to contain upwards of 60 per cent. of sugar and gum, and being otherwise found an article of food admirably suited to Cattle, Horses, Sheep, and Pigs, Agriculturists and Cattle Feeders will find it well worth their attention to make a trial of them. From the large amount of saccharine matter yielded by the Locust Bean Distillers will find it a very profitable article for their use.
Samples of not less than half a ton will be forwarded on receipt of the value, at 9*l.* 10*s.* per ton, or a reference.
Apply to CUNLIFFE, PATON, & Co., Corn Factors, Liverpool.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

CRYSTAL PALACE POULTRY SHOW.—The GRAND SHOW of POULTRY, PIGEONS, and RABBITS will take place on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, the 10th, 12th, 13th and 14th January. On Saturday the Palace and Park will open at 10 o'clock. The usual SATURDAY CONCERT will take place at 2 o'clock. Vocalist, MADAME RUDERSDORFF. On the other days the Palace will open at the ordinary hour of 10.—Admission on Saturday Half a Crown. Other days One Shilling.—Jan. 3.

LIVERPOOL GRAND POULTRY SHOW.—The FOURTH ANNUAL EXHIBITION OF POULTRY will be held at Messrs. LUCAS & Co.'s Carriage Repository, Great Charlotte Street, Liverpool, on WEDNESDAY, THURSDAY, and FRIDAY, the 28th, 29th, and 30th of January, 1857. Managing Committee—Joseph Hindson, Esq.; Henry Lafone, Esq.; Lawrence Peel, Esq.; Henry Worrall, Esq. Hon. Secretaries—Gilbert W. Moss, Esq.; William C. Worrall, Esq. Sixteen Silver Cups or Pieces of Plate, in addition to liberal money prizes, will be offered for competition. Entries close on the 10th January.—6, Lower Castle Street.

PRESENT PRICES OF FARM SEEDS.
THE CROPS OF SWEDE TURNIP, MANGEL WURZEL, AND OTHER FARM SEEDS *being good, prices are lower this season (at present) as see* Messrs. SUTTON *Priced List*, which may be had, post free, in return for one penny stamp, on application, addressed
SUTTON & SONS, Seed Growers and Merchants, Reading, Berks.
Early orders are requested and recommended.

The Agricultural Gazette.
SATURDAY, JANUARY 3, 1857.

WE have parted with the old year. It is cut adrift into the ocean behind us, and we steer forth under an impulse we cannot resist, upon our new voyage. The parting cheer, and the cheer for the coming time, are an old song, a very old song: it has been sung a thousand times and will be sung a thousand times again, and in a thousand different keys: it is resounding all around us, like the chimes of a great city; all going together, with more or less exactness of synchronism, little ones beginning as great ones are finishing, or *vice versâ;* for big or little we all march together. Time allows no laggers.

Time is indeed the same to all. But with what different eyes do men regard it. Take the moment of the opening year, for instance: ask any two men of different pursuits, the hopes the anxieties, the simplest feelings it inspires them with: you will be almost startled with the difference both of language and tone in the reply. Of no country in the world is this more true than England: in no country of the world do men know or enquire so little out of the beaten track of their own pursuit and profession. It is said to be one of the secrets of her greatness: for the hive is filled with honey by each bee filling its own cell. But there is no virtue without its corresponding evil, in ready attendance, waiting upon it, like a shadow, dark and distorting. And with this truth we, as agriculturists, are much concerned; for in no body of men is the characteristic we have alluded to more strikingly seen than in that for which we are interested. A hundred circumstances of the agriculturist's position, which have been defined a hundred times, conspire to make it so. He is built up into what he is, as indeed are all classes and individuals more than they often think, or perhaps like to think, by circumstances.

This is commonly forgotten, sometimes perversely left out of sight when men are spoken of in classes. "Why do not farmers do this, or that?" says the landowner: the answer is, Because they are farmers, and not owners, of land; and the circumstances presented by the soil to them are totally different to those it presents to him.

And this bears upon the very point which at the opening of this year we wish to speak of, and to draw, to drag perhaps, before the notice of the Farmer. It is a subject which he seldom ever thinks of, and which he hardly thinks he has a right to think of, if indeed he ever thinks so much of it as that amounts to. Yet no man is closer to it: it is the leaf he feeds on: it underlies his whole life and business: it is indeed, without a metaphor, the very ground he treads on, cultivates, pays for, and renders what it is, to himself, and to the community around him.

We are promised, in the coming session, some attempt to investigate and to improve the TRANSFER of LAND in this country. It is even promised as a leading subject of the session: had it not been so, the cry is so stale, so stifled with the dust of old impediments, that it would scarcely have been worth the notice. But it has been prominently put forward in several quarters, and earnest minds are earnestly engaged upon the subject, as one the very difficulty of which lies in the fact that those most truly interested in the matter are exactly the most blind to its importance. This is the definition of the worst form disease, physical or moral, can assume.

Is it generally known to those who cultivate English soil, that in this country Land is every year and every day, and has been for very many years past, aggregating into fewer and fewer hands? that its impracticability is such for the purposes of commerce, its unwieldiness and lawyer-clogged condition is such (while everything around it becomes simpler, freer of exchange and dealing) that it can only move in masses whose momentum will carry a Lawyer's bill such as would break the back of any moderate-sized Farm, such as a man of moderate capital might wish to buy for his own plough?

No evil in the world is, or ever was or ever will be stationary. "Time itself," says Lord BACON, "is the greatest of all innovators," and is constantly silting fresh accumulation in the shape of effects, upon the substratum of existing causes; so that a thing in its origin moderately evil, or even praised, as many of our worst evils are, for *some* good qualities, shall as it progresses accumulate mischief, Augæan in proportion and in quality, yet difficult to point out to those who are become accustomed to it, who are "to the manner born," and are almost unwilling to recognise an evil which has grown with their growth.

It is almost impossible to picture what the benefit would be of perfect freedom of Transfer of land, of its being actually and confidently trusted to the hands of commerce, as an article subject to no fetters, no clogs, no hindrances, no exceptions and exemptions, beyond any other article of free exchange between man and man. One admires cobwebs in a wine-cellar, and dust is thought not indecorous in a lawyer's office: and there are plenty of people who believe that the dust and cobwebs which hang upon our system of title-deeds, entails, and landed succession are as sacred as 'the Constitution' itself. Probably the greatest compliment which can be paid to our Constitution, is to be found in the company it is able to associate and be confounded with, from time to time, and for so long a time, uncompromised.

Our whole system of law-dealing with land is one of these 'evil companions.' Law books have in this country survived revolutions, and a people as totally changed from what they were in early times as the grown frog from the tadpole, may find themselves tied by their very love for antiquity and law, to an insidious course of innovation that ultimately comes to set law itself at defiance. For, this our conveyancers do, and our landowners are for ever unconsciously attempting to do. The law says twenty years' possession shall be a title to land; conveyancers say *three times* twenty shall hardly avail, and that not without *their fees.* The law is and has been always against long entails and settlements; individuals, on the contrary, are for ever striving to immortalise themselves in their acres, fondly and vainly picturing a sort of personal identity descending with the land. The desire is natural; its moderate fruition healthy and allowable; its excess one of the greatest curses to which a country can be territorially subject. This is one of those cases in which the Law is wiser for the community than the community is for itself, and where its especial vigilance is due to assert its supremacy, and wisdom for *all.* In an actively commercial country like this, the cruelty and mischief of a trammelled and stagnated condition of the soil are immensely greater, both in kind and degree, than where less active industry and accumulation prevail. The

wagon that blocks up a remote country lane is a nuisance, but what is the damage it occasions in a week compared to what the same impediment would cause in Piccadilly or Cheapside in an hour: and such is the comparison of law-clogged land in a country like this. It prevents the *civilisation* of our acres to the standard of the towns, in every sense which the term embraces. Freedom of transfer is the only channel by which our town-collected wealth can be poured into the country: it is a sort of pecuniary and moral solution of the 'sewerage question.' It will release to each other's arms capital striving for investment and land starving for capital. It will antiquate by degrees the sickly and suicidal folly of men ashamed to sell who are not ashamed to borrow. It will render more liberal and more wise the clauses of Entails and Settlements for the known and obvious advantage of the objects of the trust, as well as the good of the community.

And what will it do for the Tenant Farmer? The first and very best thing it could do would be to make him the owner of the land he tills! The idea is beginning to sound monstrous! In 1786 (only seventy years ago) says a recent visitor of this country,* "the soil of England was owned by 250,000 corporate or individual proprietors—in 1822 by 30,000! Broad estates to find room in this narrow island!—and these large domains are growing larger."

Less than two centuries ago, if we may trust the best statistical writers of that age,† it was computed that the number of those who farmed their own land was *greater than of those who farmed the land of others*, and made up more than a seventh of the whole population.

What has produced in so short a time the extraordinary and rapid change that we now behold? a change so great, yet so unnoticed and unchallenged in its progress that it needs but small calculation to determine how soon, at the current rate, we shall arrive at another Heptarchy! Is land found such an encumbrance that men will only tie themselves to a hireling's interest in it, unless like a Duke they can wall a county round?

Is it really to come to this, that the agricultural status of England is to consist of Dukes and *Tenant* farmers? Do the men who rejoice in this latter name, and delight to live in houses kept in repair by other men, and to till other men's acreages, ever really give a thought to what is going on? or is the agreeable shelter of "getting under a good landlord" so fascinating that the re-conquest of the soil of England into a few large Fiefs, and its cultivation by proxy, is to be regarded as rather a convenient arrangement?

The blindness and deadness of the agricultural world to the matter (and the rest of the world knows nothing and hears nothing about it) would be unaccountable were it not for the insidious Silence with which the thing is, and has long been advancing. Speak of it in general society, and the answer you get is a shout of vague deprecating horror of the French '*morcellement*;' as if our teeth were for ever to be set on edge by the sour grapes eaten by revolutionary France! Is an Englishman to be practically forbidden to own and cultivate land, except on a ducal scale, (on which he *can not* cultivate it), because NAPOLEON in trying to vault over Primogeniture, fell on *the other side?* Is there no middle course for a wise nation to pursue, between a law that chops up land like a chess-board, and a complication of law and 'Practice' that is gradually taking land out of Commerce altogether?

The truth is that the subject is little understood or thought of. It is nobody's business. Like everything else connected with agriculture, it has no statistics and no record. Yet were it posted on a notice-board, so that all could read—'*What has become of the land of England during the last 'seventy years?*'—(that length of 'Title' dear to the hearts of Conveyancers)—we suspect a history would be laid bare which would cause sufficient astonishment, from one end of the kingdom to the other, to supply to Farmers' Clubs a new theme of debate; instead of the terms on which Tenant Farmers should cultivate other men's land—Why it is, and what the causes are, that now-a-days all the land *is* cultivated by *Tenant* Farmers?

AT the late meeting of the Blandford Agricultural Society, Mr. KER SEYMER, M.P., spoke on the subject of agricultural statistics. He is reported to have said:—"The Scotch have shown their national character, they entirely avoided all compulsory measures. One thousand Scotch farmers were engaged in collecting the Scotch statistics, *but they took care to get several thousand pounds of our money for it.*"

Let us inquire what truth this speech conveys.—The original Parliamentary grant was 6000*l.* for Scottish agricultural statistics. It is now 4000*l.* Out of this the cost of stationery, advertisements, postage, and a large establishment of clerks, is defrayed. Not one member of the local or any other committees receives a farthing. An allowance of 1*l.* per parish is made to cover their actual expenses. The only persons who receive remuneration are the enumerators: these are the direct correspondents of Mr. HALL MAXWELL, and their time is of course considerably engrossed. They receive fees or salaries varying from 5*l.* to 20*l.* yearly, but out of the 1000 alluded to by Mr. SEYMER, 900 work gratuitously, and we cannot permit the injustice done to them by him to go forth unaccompanied by this comment.

* EMERSON, "English Traits."
† DAVENANT, KING.

ARTIFICIAL MANURES, ECONOMY OF FOOD AND FARM-YARD MANURE.

THERE have been three Papers recently published by Dr. Voelcker, the professor of chemistry in the Agricultural College, to which I desire to call the attention of all farmers who may not have had the advantage of a perusal of them. Two of them appeared in the Bath and West of England Agricultural Journal, the one, "On the Agricultural and Commercial value of Artificial Manures, and on their Adulteration;" the other, "On the Chemistry of Food." These have been published separately. The third, "On the Composition of Farm-yard Manure," appeared in the last number of the Journal of the Royal Agricultural Society.

The Paper "On the Agricultural and Commercial value of Artificial Manures" describes the most important constituents of such manures; the crops to which they are most beneficially applied; the real agricultural value of them, as an indication of the price it may be worth our while to give for them; the adulterations which may prevail; and suggestions for our protection against that iniquity.

The Paper "On the Chemistry of Food," a title not very inviting to farmers, and which I should rather have entitled "On the Economy of Food," and that "On Farm-yard Manure," I venture to state, after the perusal of nearly all that has been written on agriculture during the last 30 years, are the most practically useful to the ordinary farmer, if not the most important contributions to agricultural literature which have appeared within that period. These essays should be in the hands of every farmer, and be carefully studied.

With respect to the Paper "On the Economy of Food," it is sufficient for the present purpose to state, that it explains the principal constituents of the various feeding stuffs used by the farmer, and the different purposes to which these are applicable in the animal economy; hence it teaches us the selection of those which will most effectually accomplish the special object of the feeder at the least cost; whether that object be the feeding of young growing stock, the fattening of the mature in growth, the greatest production of butter or of cheese. We are taught how to lay out our money to the greatest advantage; in a word, the economy of food.

The management of farm-yard manure would, at first sight, seem a very simple affair, and that view of the matter has probably led to the enormous waste of it up to this day. Science has done good service in pointing out to us the elements of which this manure, in its natural state, is compounded—their relative importance in vegetable nutrition, in distinguishing the soluble from the insoluble, and the losses sustained by exposure to the elements.

This essay of Dr. Voelcker's is especially recommended to the farmer's not mere perusal, but attentive study, as a record of facts, accompanied by conclusive evidence, as distinguished from communications of a theoretical character and containing the mere opinions of an individual. I would not impose on the mere agriculturist the labour of investigation, the numerous analyses, and the pages of figures—the result of many months' severe labour, on which the information given is founded. Only the results which are given necessarily concern them. Those results may be taken as established, the analyses and tables being appended as the evidences on which those results are founded for the use of those who may be disposed to examine the subject more in detail.

As I fear the Journal of our Society is never seen by a very large proportion of the agricultural community, I will state very briefly two or three consequences of the every-day treatment of farm-yard manure which will surprise many farmers, and which will, I trust, induce those who have not yet read this highly interesting article, to obtain and study it when published separately, for which the consent of the Council of the Society is necessary. There can be no doubt that will readily be given in favour of an essay of such practical utility to every occupier of land.

Dr. Voelcker selected from a heap of fresh made manure from horses, cows, and pigs, mixed together, three parcels consisting of two cart-loads each. No. 1 was placed in a heap against a wall, but exposed otherwise to the weather. No. 2 was placed under an open shed. No. 3 was spread in an open yard, about the same thickness as it is usually found in farm-yards. No. 4 was a heap of well rotted dung, placed against a wall under the same circumstances as No. 1.

These heaps having been first weighed and analysed were placed in November, 1854; and were again weighed and analysed every three months up to Nov. 1855. It will be sufficient for my present purpose to state only the more striking results in the case of the heap No. 3, being the usual mode of treating manure, as developed at the conclusion of the experiment.

The loss in weight of the dry manure, exclusive of water, was 42 per cent. The soluble ash, containing the most valuable saline matters, was reduced one-half in the first six months. The soluble nitrogenous matter had nearly disappeared, leaving only a trace behind of nitrogen.* In round numbers, two-thirds of the fertilising matters were wasted at the close of the experiment. In fine, the real manuring constituents rapidly diminished, so that a very small proportion of fertilising matter remained.

Dr. Voelcker states that the drainings from dung-heaps exposed to rains are actually more valuable than the urine of our animals, as containing a much larger quantity of phosphate of lime.

It is to be hoped we shall see no more of this fine gravy running down ditches or permitted to pollute our pools. These experiments show how much truth there was in the observation of the facetious author of the Chronicles of a Clay Farm on seeing a neighbour carting out his long exposed manure—"There goes neighbour Dry-chaff's creaking hearse conveying away the body from which the soul has departed." *Charles Lawrence, Cirencester, December* 26.

TREATMENT OF PLEURO-PNEUMONIA.

IN the *Gazette* of December the 6th I supplied particulars of my treatment of pleuro-pneumonia. I now proceed to explain the symptoms and appearances which have suggested the application of the means I have used.

In a conversation with Mr. Garnett, of Clitheroe, I learnt that some time ago he purchased eight or ten polled Galloways from a lot of 50 which were exposed in a market for sale. Nine weeks after this they became affected with pleuro-pneumonia, from which he lost the greater part of them. He afterwards learnt from the dealer from whom he bought them that the remainder of the herd of 50, which were sold to six or eight parties who resided at a distance from each other, were also affected with the disease in the same week and with the like result.

From this, to which numerous instances similar in character may be added, we may infer that the origin of the disease is somewhat remote. The 50 Galloways being nearly the same age would have been purchased from various breeders, and sent together from Galloway to Clitheroe, a distance of 150 miles. It seems not improbable that from exposure to a sudden change of temperature to which they were subjected after they had been collected together by the dealer, the process of respiration has been impeded, by which some impurity of the blood is engendered, which slowly and imperceptibly increases until the symptoms I have described attract attention.

Cattle from Ireland are more subject to this complaint than others; they are brought on board vessels crowded together in the hulls or on the decks, and on reaching land travel usually on foot considerable distances to markets for sale.

My milch cows are housed during winter in stalls of more than ordinary warmth, and are turned out to grass in the month of May, which in the present season was unusually wet and changeable; the pleuro has prevailed amongst them since July. When attention is first called to this illness, the feeder states that up to the meal before the cow has eaten up her food, given her usual yield of milk, and shown every symptom of health; thus though the disease has hitherto been imperceptible and of slow progress, it arrives at a stage to cause a sudden interruption of the functions, the cow's appetite is gone, and her yield of milk diminished to one-half of what she gave 12 hours before.

On applying the ear to the side of the animal you distinctly hear the air rushing past, but at the very early stage, as far as the ear can detect, with little or no impediment; the inhalations become frequent and laboured. On opening the vein if you place your finger in the stream of blood a hot sensation is imparted; if you again place your finger in the stream towards the close of bleeding, the heat is sensibly diminished, the colour of the blood also undergoes a perceptible change from a dark to a redder or brighter colour.

A consideration of these symptoms seems to denote a greater consumption of carbon, for the combustion or oxidation of which it seems probable that the animal is prompted to exert her organs of respiration for the supply of the necessary air, whilst the blood at the same time is in an impure state. At this stage immediate relief seems requisite to prevent or arrest damage from over-exertion; with this object I resort

* The soluble organic matters were reduced from 41 lbs. to 4 lbs., the insoluble organic matters from 25 to 10 per cent. The soluble mineral matters were reduced from 25 lbs. to 5 lbs. Of the nitrogen 59 per cent. was lost. Of the No. 4 heap of well rotted dung placed against a wall, and exposed to the weather for 12 months, out of 59 lbs. of soluble organic matter, present at first, only 11 remained; and from 23 lbs. of soluble mineral matter, only 10 remained. A trace only of the free ammonia in this heap remained at the end of the experiments, and nearly all the ammonia in the form of salts was lost. Dr. Voelcker observes that our farm-yard manure is by far the most valuable of any, as comprising all the elements essential to the successful cultivation of all the crops we produce.

to bleeding as the speediest means of subduing the fever and lowering the circulation. Tartar emetic and digitalis are known also to have the effect of retarding the circulation and lowering the pulse. It will be observed that I apply these necessarily in the very early stages; spirits of nitre and flour of sulphur, which are continued much longer, stimulate the secretions, and thus tend to purify the blood and the system. My observations lead me to think that the organs of respiration are on the first appearances, comparatively speaking, but slightly injured. It is not until after a lapse of time that with the ear only we can perceive that dullness of sound which betokens injury. In the two which died we could distinctly trace the increase of this, until the flow of air on the one side seemed entirely to have ceased. whilst on the other we could plainly hear the air passing to and fro. On a *post mortem* examination we found the lung on one side completely damaged, whilst on the other it was but little affected. Whilst the greater heat of blood and the more frequent respiration denote an excessive demand on the carbon, yet at the same time the animal is devoid of appetite; the necessary consequence is a consumption of the components of the system. The fats will first be laid hold of, then though probably not altogether singly and separately, the carbonaceous components of the fibrine, but as these materials are in succession less easily available, their consumption seems necessarily to imply a greater exertion of the organs of respiration.

These considerations have led me to resort to a supply of food rich in elements of heat, carbon, and hydrogen, in a form easily available for respiration. Indian meal is particularly rich in starch, by the process of boiling it approximates more nearly to sugar; together with this I give sugar and treacle in appreciable quantities, and also oleine oil. These ingredients are mixed and given in warm water. Starch, sugar, gum, dextrin, &c., are accounted the main supporters of the heat of animals when in health; they contain with carbon and hydrogen a considerable proportion of oxygen. On this account they require less of the oxygen of the air to effect their combustion. Their components are:—

	Carbon.	Hydrogen.	Oxygen.
Starch	44.45 ...	6.17 ...	49.38
Sugar	40.00 ...	6.66 ...	53.54

The composition of oils differs very considerably from that of starch and sugar, oils being much richer in carbon and hydrogen with less of oxygen. They contain on an average of analysis:—

	Carbon.	Hydrogen.	Oxygen.
Oil or fat	78.13 ...	11.74 ...	10.13

The following are ultimate analyses by Dr. Dugald Campbell, given in Dr. Thompson's lectures (p. 24):—

	Carbon.	Hydrogen.	Oxygen.	Nitrogen.
Cod liver oil ...	80.18 ...	13.72 ...	5.854 ...	5.246
Olive oil	69.38 ...	13.47 ...	17.092 ...	0.058

A proximate analysis by M. Braconnot of one of the richest vegetable oils in olein gives—

Of olein.	Margarine.
72.	28.

They are observed to be much longer in undergoing comminution, and in their passage through the system. Amongst the materials of food they contain in the same space in the greatest proportion of elements necessary for the support of vitality, according to Lehmann, whose work I have recently been able to obtain, the first and second volumes in German, the third in English. I find in vol. iii., page 358, the following computation. "If in a given time the organism absorb 100 grammes of oxygen, the following quantities would be necessary, in union with 100 grammes of oxygen, to satisfy the requirements of vitality:—Of fat, 34.23 grammes; starch, 84.37 grammes; sugar, 93.75 grammes. From which it will be seen that a pound of fat or oil in combination with the oxygen supplied by the air is equal to nearly 3 lbs. of starch or sugar.

Lehmann, vol. iii., page 336 to 339, gives a series of interesting experiments by Vierordt, who found the mean or his average respirations whilst in a state of rest to be 12 per minute, by which he expired 366 cubic inches of air containing 13.5 cubic inches of carbonic acid; by increasing his respirations to 96 per minute he expired 2928 cubic inches, containing 79 cubic inches of carbonic acid. From this we learn that the organs of respiration are endowed with a capability far beyond the normal requirements, the volume of air being increased eight-fold, that of carbonic acid nearly six-fold. Had Vierordt been able to continue these laboured respirations without damage to his organs, he must necessarily have consumed more food for the increase of carbonic acid or otherwise have expended his own substance.

At page 381, vol. iii., Lehmann recites experiments carefully conducted by Hanover on patients suffering from pulmonary disease, which show that the absolute amount of carbonic acid increases with the number of respirations, whilst the relative amount (that which is contained in a given volume of air) diminishes. These experiments tend to confirm in a remarkable manner my suspicions as to a greater consumption of carbon during this disease; they show also that the organs of respiration, though weakened, inhale a greater quantity of air, and exhale also an increased quantity, though less in proportion, of carbonic acid. From the diminished proportion of the carbonic acid to the volume of air in the increased respirations, it is clear that the system could not afford an adequate supply of carbon.

When in London I sought an interview with Dr. Theophilus Thompson, F.R.S., with the object of learning his views on the efficacy of oil as medicine, of which he has had great experience. In the course of conversation he drew my attention to several cases, in which his patients had gained more by the use of cod liver oil than the weight of the oil supplied; I ventured to suggest that this might possibly be attributed to the food being deficient in elements which are found concentrated in oil. In support of which I explained that in my treatment of dairy cows I have completely satisfied myself that by adding to ordinary food Beans or other materials peculiarly rich in albumen but comparatively deficient in oil, I enrich the milk not only in curd but also in butter, to a far greater extent than is contained in the oil of such additional food.

Lehmann (Leipsic), second edition, page 271, states, "On theoretic grounds I have long been satisfied that fats belong to the most active agents in the metamormophosis of animal materials (of digestion), and that by numerous experiments and observations I have completely assured myself of this (*that what had been matter of subjective, had by experiment become matter of objective certainty*)."

These experiments he explains, and cites others by Elsässer, which show that the digestion is materially assisted by an admixture of fat. I learnt from Dr. Thompson that cod liver oil is composed almost wholly of carbon and hydrogen, with a smaller per-centage of oxygen than other fats. I did not ascertain from him, nor do I find in his lecture to the Medical Society, a copy of which he kindly presented to me, the relative proportion of oleine and margarine fats. In Royle's "Materia Medica" there is a proximate analysis of this oil by Dr. de Jongh, which gives—

Of oleic acid	74.
Margaric acid	11.75
Glycerine	10.17
Butyric and acetic acid	.11
Other substances	3.97
	100.

This analysis shows a far greater per-centage of oleine compared with margarine than any other fat I have seen noticed.

That the nutritive effects of materials for food depend much on their proximate elements I need only adduce the composition of the grain and straw of Wheat, which are very similar in their proportion of ultimate elements, whilst the predominating proximate principle of the grain is starch (73 per cent.), that of straw woody fibre, of which it contains 61 per cent. with only 36 of starch. That oleine is more easy of consumption (more available for respiration), I refer to Lehmann, volume i., page 121, where he states that the fat of animals being found to contain a greater proportion in comparison with the fat of plants may probably be attributable to the oleine being more easy of consumption.

My attention was drawn to some experiments of Dr. Leuved, published in the *Medical Times*, from which it appeared that the oleine of cod liver oil agreed better with several of his patients than the oil in its natural state, from which he drew the inference that the effect of margarine was excrementitious; this can only apply to patients whose organs are weakened. My observations on feeding tend to the conclusion that if you afford animals an adequate supply of sugar, starch, and olein fats for their respiratory and other functions, the margarine of the food will be converted into and stored up in animal fat to the extent which the system is capable of absorbing. I am, however, clearly of opinion that on a deficiency of food or incapacity of the organs from disease or other causes to supply the wants of respiration, the stores of solid or margarine fat are laid hold of and consumed. In the spring of 1853 I sold some fatted cattle to Mr. Freeman, of Otley, with whom I had frequently dealt; he reported that they did not contain the quantity of loose fat which he had been led to expect from their touch and his experience of my feeding. Having told him that they had recently suffered from soreness of mouth by which with evident symptoms of appetite they were hindered from eating the necessary quantity, Mr. Freeman remarked that he well knew from experience that cattle which had recently suffered from this (known here as the mouth and foot sore complaint), were deficient in loose fat. I may also here state, as a matter of some physiological interest, that cattle which have been partially damaged in the lung from previous attack of pleuro or other causes are invariably found deficient in their store of loose fat.

It will be observed that cod liver oil contains in the same space the greatest proportion of elements which, in combination with the oxygen of the air, are necessary for the support of vitality, and with this by far the greatest proportion of olein in comparison with other oils in their natural state; and it seems worthy of remark that this oil is held in the greatest esteem for pulmonary complaints; next to this, and almost in equal repute, is pure olein.

From what has been premised it will be found that from consideration of the symptoms of pleuro-pneumonia I was led to suppose an abnormal consumption of the elements which support respiration. I have sought to meet this by a supply of food particularly rich in such elements, and in a form most available for their purpose. My observations on the effects tend to confirm my opinion that by this means I supply in food what would otherwise be abstracted from the system with greater labour to the organ and with impoverishment, thereby weakening the ability to resist disease. I am therefore encouraged to offer it for the consideration of those who give their attention to pathological chemistry.

If any owners of cattle should adopt my treatment, I urge the greatest nicety of attention to the sick animal. I am clearly of opinion that one of the animals which died might, by a greater observance of this, have been restored.

In the course of the foregoing observations I have made frequent allusion to Lehmann's "Physiological Chemistry." About a year since I obtained this work on loan for a short time from a member of the Pharmaceutical Society. A perusal of such portions as seemed likely to afford me the particular information I was then in quest of, disclosed to me the pen of an author, master of his subject, of great research and acquirements. With some difficulty and through the kind assistance of others I have recently obtained the whole work, three volumes, the first and second in German, the third in English. I learn that in both languages it is out of print. I cannot but hope that ere long that another edition of a work, every page of which is replete with information of peculiar interest, will be published. *Thomas Horsfall, Burley Hall, Dec.* 18.

Home Correspondence.

On Breaking up Grass.—Let us consider the expenses attendant on a farm of 100 acres wholly under the plough. I am well aware that oilcake or meal might be advantageously given to cattle eating Clover and roots, but I am as sure that cattle consuming only hay alone require the assistance of cake or corn quite as much; I will therefore omit the artificial food under both. I propose to debit this system with interest at 5 per cent. on the excess of capital employed under it as compared with the pasture system. I will allow for the original cost of—

	£.	s.	d.
Implements	100	0	0
4 horses and harness at 30*l.* each	120	0	0
Seed for 25 acres of Wheat, 1½ bushel per acre, at 6*s.*	11	5	0
Do. for 25 acres of Barley, 4 do. do. at 3*s.* 6*d.*	17	10	0
Do. for 25 acres of roots seed	3	15	0
Do. for 25 acres of Clover or Rye-grass seed ...	15	0	0
4 oxen or cows at 12*l.*	48	0	0
	315	10	0
Capital invested in keep of horses and manual labour	207	18	0
Amount of capital over and above pasture system...	£523	8	0

Having ascertained the excess of capital required over and above the pasture system, I will proceed to describe the annual expenses of the farm. I do not intend to particularise the whole of the horse labour requisite for the cultivation of this farm; it is extremely absurd to lay down a rule as to how many ploughings or harrowings certain lands will require, as of course differences in the seasons and various other things cause alterations in the arrangements of the farmer. I will allow that the labour of four horses is required for the entire cultivation of 100 acres.

	£	s.	d.
Cost of keeping 4 horses 12 months, at 9*s.* per week each horse	93	12	0
Seed for 25 acres of Wheat, 1½ bushel per acre at 6*s.*	11	5	0
Seed for 25 acres of Barley, 4 bush. per acre, at 3*s.* 6*d.*	17	10	0
Do. for 25 acres of roots	3	15	0
Do. for 25 acres of Clover or Rye-grass...	15	0	0
Expenses of hoeing Wheat at 4*s.* per acre	5	0	0
Carter and under carter at 12*s.* and 6*s.* per week ...	46	16	0
Expenses of reaping, ricking, and thatching Wheat crop, at 12*s.* per acre	15	0	0
Expenses of reaping and ricking Barley, at 12*s.* p. acre	15	0	0
Expenses of preparing, filling, and strewing manure 20 cubic yards per acre, at 10*s.*	12	10	0
Expenses of manual hoeing root crop, at 6*s.* per acre, 25 acres	7	10	0
Expenses of pulling, filling, &c., roots, at 10*s.* per acre	12	10	0
1 man and 1 boy to attend to cattle, who are also to cut and load Clover, &c., at 14*s.* per week	38	8	0
Interest on excess of capital employed over and above the pasture system, at 5 per cent. per annum ...	26	13	6
Cake	74	0	0
Annual labour required in threshing and winnowing by machine 750 bsh. of Wheat, at 2*d.* per bsh. ...	6	5	0
Annual labour required in threshing and winnowing by machine 125 qrs. of Barley, at 1*s.* per quarter...	6	5	0
Sundry expenses, as hauling to market, &c.	5	0	0
	409	19	6
Gross return of the produce:—			
750 bushels of Wheat, at 6*s.* per bushel ...	225	0	0
125 quarters of Barley, at 28*s.* per quarter ...	175	0	0
Profit on 37 oxen or cows, at 13*l.* each	481	0	0
	881	0	0
Deduct expenses	409	19	6
	471	0	6
Gross return of produce under pasture system:—			
Profit on 33 oxen or cows at 13*l.* each	429	0	0
Whole expenses (being only manual labour)... ...	63	14	0
	£365	10	0

In making this calculation on the probable return under these two modes of managing 100 acres of land, I have not brought into account rent, tithes, and taxes; I have supposed that the two farms are of equal value and these payments on each are equal. I have shown that after the additional expenses have been paid on the cultivated farm there remains for the profit of the farmer and for the payment of rent, tithes, and taxes, the sum of 471*l.* 0*s* 6*d.*; while under the pasture system, for the same payments, there only remains 365*l.* 10*s.* In this and the former letter I have proved that breaking up old pasture is without doubt advantageous to the labourer, the farmer, the landlord, and the public. It is beneficial to the labourer because it increases the demand for labour nearly threefold; to the farmer, because he has a much larger sum after all the additional expenses have been paid, to remunerate him for his labour and his capital employed—it also gives scope for skill and industry. To the landlord it is beneficial, because, as I have already shown, 117*l.* more is gained than on the pasture farm, consequently he can obtain more rent

without injuring the tenant. To the public it is very evident the advantages are great, because the food of man is more than doubled, and that not only without injury to any individual party, but to the benefit of each of the three degrees of men immediately connected with agriculture, viz., the landlord, the tenant, and the labourer. *H.*

Leaf Feeding.—With reference to my former remarks on this subject, I beg to state that in consequence of some one having added "if any" as a pendant to my sentence, "the better the culture the less this evolvement," has caused the chasm to appear deeper than it probably is between Mr. Goodiff's opinion and my own on this absorbing leaf-feeding business. There is no difference between us as regards the propriety of hoeing, nor of its salutary effects on plants. But, whether these effects are obtained by facilitating the decomposition of the ingredients in the earth taken up by the spongioles of the roots of the plants, or by the exhalations continually rising from this constant comminution taken up by the leaves, appears to be the question in the first place. In the second place, whether does radiation go off more rapidly on a well stirred surface than on a solid one; and thirdly, what are those evolvements composed of, organic, or inorganic? To the first I answer, that there cannot be a doubt but plants feed, so to speak, both from the earth and the atmosphere; and though plants have been experimented upon by some of our philosophers, and under peculiar circumstances have absorbed ammonia by their leaves, yet, as we see an acorn on an Oak tree perfectly developed at 100 feet from the surface of the earth, the ammonia, or any other exhalations therefrom, must be well diluted by the time it reaches that height. Hence, from this view of the case alone, I do not attach such importance to the evaporations from the earth as I do to the confined (by stirring the surface) gaseous matter in it. To the second question I answer that we must turn our attention to what are called conductors and non-conductors of heat. All solid bodies are better conductors than when the same materials are shivered to pieces—the more slightly the particles touch each other, the worse conductors they become. Hence a well trodden path on a strong clay becomes so hot on a cloudless day in summer that a Turnip plant would, if not burnt to death, soon be very sick. Why?—because the sun's rays impinge upon it and stream into it. When the sun goes down, leaving a clear sky, this heated solid clay streams off its heat with the same facility as it received it. Why?—because there was nothing to break the streams of heat from going off. Now let this path be knocked to atoms before the sun rises, and a wonderful change will be effected in its conducting powers; it will neither be heated so soon nor cooled so quickly. Why?—because the soil is composed of parts innumerable; and there are interstices between each, filled with air, which is a non-conductor; and here is a proof worked out that "the better the culture of the surface the less the evolvement." These what I shall call mechanical chambers in the soil, filled with air, work wonders in the winter also with respect to water. When a well pulverised surface is attacked by rain, the fine particles of earth soon dissolve (and the more aluminous the better for this occasion), and the surface is sealed as it were. After this sealing, no water sinks generally; the air in the soil prevents it; it casts it off into particular places, hollow solid parts, and there sinks or runs off to the furrows: it also prevents frost from entering so deeply as it otherwise would, by the same law of conduction. To the third question—are those evolvements organic or inorganic? I answer that, though I have dabbled in Davy and Liebig, I can only answer conjecturally. I assert that as we have proof sufficient of an escape of a something when the contents of a farm yard are stirred, it is probable that so long as the evolvement arises from simple radiation gas would escape containing both organic and inorganic manures. This statement is strongly in favour of Mr. Goodiff's propositions, but I beg to add in illustration of the statement I made respecting plants rooting deeply in search of food less organic than what they could find nearer the surface amongst our applications called manure, the two following extremes, *i. e.*, a Wheat plant on an old old dung-hill, and one on Mr. Smith's ground at Lois-Weedon. The plant on the dunghill becomes luxuriant to all outward appearance, but if it does reach an advanced state so as to send up its centre stalk, it cannot stand, because its roots cannot find the necessary inorganic food to enable it to build its structure firmly; it cannot find material to lay upon its sides in an incipient state that kind of cement which afterwards hardens into a shining flinty coating, which would have been strengthened according to the demand made upon it by its ripening ear. The plant at Lois-Weedon is very differently situated; it is fortunate for it if it had a good sound seed to start from; the inorganic food is abundant, its organic food scarce; but though scarce it is so intimately mixed with the inorganic portions of the deeply stirred bed of earth, that when the robust seed sends out its innumerable roots (ten thousand for one of the plant on the dunghill), it finds enough to support its economy in every way—no plethora, and probably seldom diseased. Here the plant finds the constituent elements necessary for its reproduction—no ammonia, no guano, no public or private nostrum having been applied to create artificial fermentation save that of stirring the native earth so that sun, air, and water may have free ingress. "That the leaves of plants are fed by an ascending gas or vapour is, I think plainly indicated by the stomata or mouths by which they receive it being placed on the under side of the leaves." But, as to the diffused gases in the atmosphere—I have found that when Turnips are so crowded together as to cause their leaves to overlay each other, a deposit was visible on the upper surface of the under leaf in dry weather (not from insects certainly), and if rain did not come and wash it off, these leaves become diseased and turn yellowish. Whether these deposits are to be called excretions or not, I will leave it to some one more versed in those matters than myself to determine, but certain it is that plants suffer more from these depositions when crowded, than from want of air. I presume that it is mainly owing to this that cattle refuse to eat "rank" Grass. It is patent to most people that these patches are left almost untouched. These excretions, combined with radiation being arrested by the veil of Grass, renders it unpalatable; let it be cut closely with the scythe, and the stock eats the next growth with avidity. This points to damage by "thick seeding," which I will leave in the hands of Messrs. Hardy and Son. Mr. Goodiff states, "but what shall we say of the tap-roots of Oaks and other trees 40, 50, or 100 feet below the surface, &c. Can they seek at these depths inorganic food which has been rendered soluble by contact with the atmosphere?" Yes, I think they can find it as deep as they ever go; for supposing air could not get there, water does. *Ben Giles.*

Onion.—No complete proximate analysis of this bulbous plant has been made as yet. The bulb contains much sugar, gum, and mucilage, a considerable quantity of albumen and other protein compounds, and an acrid volatile essential oil, which may be obtained by distilling Onions with water. This volatile oil is distinguished from other essential oils by a most penetrating, disagreeable smell, and by a large proportion of sulphur which enters into its composition. Few essential oils contain sulphur, and the essential oils of Onions, of Garlic, and of Mustard, which all contain much sulphur, thus differ from most others, which consist generally of carbon and hydrogen, or carbon, hydrogen, and oxygen. When burnt the bulb of Onion leaves an ash amounting to 0.46 per cent. of the weight of the bulb in natural state, or 8.80 per cent. calculated dry. The stalk of this plant in its natural state leaves 0.84 per cent., and when dried at 212° Fahr. 9.35 per cent. of ash behind. According to Dr. Thomas Richardson the ash of the stalk and bulb of Onions contains in 100 parts:—

	Bulb.	Stalk.
Potash	32.35	13.98
Soda	8.04	14.43
Magnesia	2.70	Trace
Lime	12 66	25.10
Phosphoric acid	15.09	—
Sulphuric acid	8.34	10.50
Silica	3.04	19.77
Phosphate of iron	12.29	10.61
Chloride of sodium	4 49	Trace

Oily matters as fertilisers. They have been found now and then useful, and we have to look for some foreign substances occasionally accompanying refuse oils as the source of the observed manuring effects. The oil of blubber, which in particular has been found to benefit the crop to which it was applied, for instance, always contains more or less fish-refuse, a highly nitrogenised substance; and there can be little doubt that the fertilising effects of blubber are due to its presence. Again gas-tar, an oily and resinous liquid, which has also been applied with advantage as a manure, always contains carbonate of ammonia, and it is on this substance, occurring much more abundantly in the watery liquid of gas-works, that the fertilising properties of gas-tar depend, and not on the oily or resinous substances in the tar. The ammoniacal liquid of gas-works we have no hesitation to pronounce ten times superior in value to gas-tar, which when perfectly washed with water, so as to deprive it of any carbonate of ammonia, with which it is always more or less mechanically mixed, will produce, we are confident, no beneficial effect on vegetation. *A. V.*

Cattle Feeding.—I wish to make known to you my present new mode of cattle feeding, its results as far as I have gone, and then ask for your advice as to whether I can give additional nourishment with a fair hope of a corresponding improvement. I have 56 cattle coming through, principally from Yorkshire, put in on the Grass in a very lean state, as are all the young store cattle we get here from England. They are in a well ventilated shed about 100 feet long and 32 feet wide, kept on a paved floor, with straw over it, their skins in as good condition as any horses. They were fed in the house all through the summer on cut Italian Rye-grass, and then placed on Turnips, &c., on 1st October; since this date they have received each daily 56 lbs. of Yellow Turnips and 2lbs. of Rape-cake steamed, and on this fare they have made excellent progress. The Turnips are pulped and mixed with about 20 lbs. of cut Wheat straw, and on which the cattle are fed morning and evening; the cake is steamed with a small quantity of pulped Turnip and about 8 lbs. of cut straw. I should mention that until the last fortnight a cart-load of Turnip tops was cut up with the straw and daily consumed with much relish—they greatly aided the consumption of straw; since their withdrawal the consumption of straw has decreased about 3 lbs. per head, say from 20 lbs. to 17 lbs. The cattle are from 36 to 40 imperial stones weight, and 10 were sold fat about a fortnight back about 42 stones weight; the present lot I want to sell fat by the end of May. They are always very full, and seldom on their feet except at feeding times. Now do you think the cattle could assimilate a greater portion of nourishment? for I have no wish to have my food pass through them unappropriated by the system. As far as I can judge the constituents of my food are the following per day each beast:—

	Weight. lbs.	Nitrogenous. lbs.	Starch, &c., and lbs.	Fat.
Turnips...	56	¾	4	0
Wheat straw	25	¼	6	½
Rape-cake	2	½	¾	¼
Total food	83	1½	10¾	¾

This is not far from the proportion of 1 to 8 in nitrogenous and non-nitrogenous elements. Now it strikes me these are materials sufficient to fatten under the favourable circumstances of warmth, cleanliness, and quiet. The starch will yield sufficient carbon for respiration, say 4 to 5 lbs. per day, the 1½ lb. of nitrogenous, containing about ¼ lb. of nitrogen, should yield about 1½ lb. of flesh, and I am at a loss to know how much of the fat ought to be appropriated when not demanded for purposes of respiration. Am I at all near the truth in my calculations? The expenses of the feeding run thus—

56 lbs. of Turnips, at 10*s.* per ton ...	3*d.*
Steaming and cutting straw, root-grating, &c.	½*d.* per day per head.
2 lbs. of Rape-cake, at 7*l.* per ton ...	1½*d.*
	5*d.*

The manure considered worth the attendance and straw; one man steams the food, feeds, and cleans all the cattle. The Turnips and straw are prepared for him by one man and two women, taking them the half of an afternoon every day. I propose the last three months to give the cattle about 6 lbs. of Bean straw steamed, which according to analysis should be equal in nitrogenous constituents to fully 2 lbs. of cake; am I valuing the Bean straw too highly for practical purposes? I should mention that all the cattle are well on in condition, and there can be no doubt the food has contained sufficient nutriment for bringing them up to their present stage. The question now is, whether the same food will thoroughly finish them off; ten went off fat on the food, but then they might have been first-rate thrivers. I will now enumerate the questions I have put. Having withdrawn the Turnip tops, should I add anything as an equivalent, or were they not worth it? Are my calculations of the constituents of the food, as well as the amount of beef they are capable of yielding, correct? Can cattle assimilate the whole portion of digestible matter up to a certain quantity without waste? Is 6 lbs. of steamed Bean straw equal to 2 lbs. of cake, as far as the available nitrogenised constituents are concerned? and does Bean straw contain 16 per cent. of nitrogenised constituents, for if so it must be very valuable food? Would you recommend me to give my cattle say 2 lbs. of cake additional the last three months; or from what I have stated do you think they will fatten off without it? they may at present be called half fat. *B.* [We shall refer to this subject in another portion of the Paper, shortly].

The small Chesnut Oak.—Happening to light upon the following notice of the small Chesnut Oak, which may be useful to both landlord and tenant—to the first as excellent feeding for pheasants, to the latter as saving his crops, I enclose it if you think it worthy of insertion. "The small Chesnut Oak rarely exceeds 30 inches in height, and ought perhaps to have been passed over here without notice; however, it is very prolific, and when acorns are in request for the food of game (pheasants for instance), this dwarf Oak may be planted with advantage. The acorns are very sweet. Of its habits in its native soil, Michaux remarks, that 'nature seems to have sought a compensation for the diminutive size of the shrub in the abundance of its fruit; the stem, which is sometimes no bigger than a quill is stretched at full length upon the ground by the weight of its thickly clustering acorns.' The quotation is from a book by the Society for the Diffusion of Knowledge on Ornamental and Useful Planting. *F. W., Shrewsbury.*

Wicksteed's Process of Deodorising Sewage.—As you have published a report of the Paper read before the Society of Arts by Mr. W. Fothergill Cooke on the 10th December last, will you do me the favour to insert the following letter sent by me to the Secretary of the Society of Arts, and published in their journal.

"In Mr. Cooke's paper of yesterday it was asserted 'that Mr. Wicksteed was the inventor of the lime process for deodorising and precipitating sewage.' As long since as 1847 a court of inquiry, consisting of the chairman of the meeting, Dr. Lyon Playfair, together with Sir Henry de la Beche and one or two others, examined into my own invention on this subject and reported 'that it was a proper subject for an act of Parliament,' which act was passed in the same year: Mr. Wicksteed was on that occasion heard by counsel before that court, which however decided in my favour. It was impossible for me last evening to call attention to my claims, which, however, I trust you will allow to appear in the same journal which contained the report of last evening's proceedings. By so doing you will much oblige" *William Higgs, 24, Churton Street, Pimlico.*

Farm Memoranda.

HOLMESCALE, NEAR KENDAL.—A new description of water-wheel, known as the "vortex," has just been erected by Messrs. Williamson Brothers, of the Canal Works, for driving the machinery connected with this farm. A number of the most intelligent tenant farmers from the neighbourhood witnessed its trial. Many of of the visitors arrived at an early hour in the morning, and appeared greatly interested in examining the

arrangements of the farm buildings, and especially of the cattle boxes, which are upon the most improved plan, affording ample space for each animal, and the greatest facility of access for supplying the food. To effect the latter purpose, one end of the range of boxes adjoins the room in which the machines are placed, so that as the chaff, oilcake, Oats, &c. are prepared, they can be placed upon a truck, and conveyed along a passage in front of the mangers, each of which is thus replenished in its turn. The construction of the vortex was also explained to many of those who were not previously acquainted with its mode of action, and it excited great surprise that a wheel of 10 inches diameter, and weighing only a few pounds should be able to yield a power nominally equal to that of five horses, but which is in reality as great as would be obtained with seven or eight ordinary farm horses. Such, however, was afterwards proved to be the case. A shaft traverses the length of the barn, and upon it are fixed the drums, from which motion is given to the various machinery required for the purposes of the farm, including, when the arrangement is complete, the threshing machine, chaff cutter, corn crusher, oilcake mill, patent root pulper, circular saw, &c. After an hour pleasantly spent in noting these matters, the water was admitted to the wheel, and instantly the whole of the machinery was in motion. The threshing machine, with improved straw shaker, was first set at work, and its performance met with general admiration, the straw being delivered free from loose grain, and quite clean, through a trap door, into an adjoining shed, whilst the grain was conveyed by a shoot into the winnower, placed on the lower floor of the building, and which was in operation at the same time. After testing this machine in the severest manner with rapid feeding, the chaff-cutter (a very large and powerful one) was put into action, and subsequently other machinery was added, the whole continuing to work without in the slightest degree affecting the speed of the wheel, notwithstanding the great amount of labour it was required to perform. We also noticed the system of liquid manure irrigation which has been adopted in this farm. The farm buildings being in an elevated position, the manure is collected near them into a large tank, from which it is conducted to the meadows around by iron pipes, having plugs placed at intervals to admit of the attachment of a hose, through which the liquid, by the pressure from above, can be thrown over the land without the application of a pump. The excellence of the arrangements throughout is highly creditable to the farm steward, Mr. R. Knowles. *Kendal Mercury.*

Miscellaneous.

Stable Management.—1. Keep as far away from a northern or eastern aspect as possible; south before all, and west next. 2. Swear by loose boxes, and don't believe in stalls. 3. Have the floors of brick, nearly level, slightly tending to the drain in the centre of the box. 4. Have plenty of light, and have the windows so arranged that you can regulate the quantity as you please. 5. Ventilate! on scientific principles if you can—but ventilate! Have openings above for the foul air to escape, and some below for the pure air to enter. Very little ingenuity is required to arrange some simple contrivance for directing the lower current so as not to strike on the animal's legs. 6. Make each box as high and long and wide as your ground will permit; we don't prescribe any particular number of feet; in reason, you cannot have too much room, and you must have enough to permit the horse to turn easily in all directions. 7. Patronise iron mangers, water troughs, and racks, and let every box have one of each, taking the liberty to put the rack quite low, that the horse may eat his hay in the way he prefers, with his head down; if you will put the fodder nearly out of his reach, he will occasionally show his contempt of your ignorance by pulling it to the ground before he eats it, employing it then in about equal proportions as food and litter. *Oxford Journal.*

Calendar of Operations.

DECEMBER.

CHESHIRE, *Dec.* 31.—Frosty weather at intervals throughout the month of November and again the first week in December retarded many of the field operations, and Wheat sowing and the storing of Turnips in many localities is not in the forward state that could be desired. The severe frost which commenced on the evening of the 25th inst. has again changed to mild dry weather, and there is now a prospect of the different operations of the field being speedily resumed. Early-sown Wheat came up well, and is looking healthy and not over luxuriant. There is a good demand for cattle of all descriptions, and late prices are maintained. We do not hear so much of that fearful disease "pleuro pneumonia" as we did a year ago, but "blood striking" among young cattle has, within the last few weeks, been very prevalent. Store pigs are still scarce and dear; fat ones are in demand at about 6*d.* per lb. *W. P.*

WESTER ROSS, *Dec.* 23.—The snow storm disappeared on the 5th current, and since then the weather has been mild and open, and particularly suited for the operations of the plough, or for casting the seed into the ground. A pretty large breadth of Wheat has been laid down, and the earlier sowings are now well above ground. The braird is strong and thickly set. A small proportion of our Wheat having sprouted in the stook, a fear was entertained lest the usual proportion of the seed sown would not vegetate, and from this cause I doubt not a larger quantity of seed per acre has been sown this year than has been given for years gone by. Very little of this year's crop of Wheat has been as yet disposed of. It is yet in very bad condition, and still requires a large admixture of old Wheat for grinding. There are some farmers, however, who having had no Barley sown have been threshing out Wheat, and have been necessitated to dispose of it both from want of store room and from want of cash, and the price realised has been so low as from 40*s.* to 50*s.* per quarter—a serious fall from our 80*s.* of last year. Barley is continuing to sell well, and fetches about 40*s.* per quarter, and every farmer who had got a fair proportion of it in his stock yard is rejoicing over his good fortune, and disposing of it at his leisure. Our Barley threshes out well, at least for this county, our soil being better adapted to the growth of Wheat than of Barley Our return is about 6 quarters an acre. The grain however is light, weighing only 54 lbs. per basket. A few days of severe frost would bring it up a pound or two more. Our green crop lot has been turned over to the depth of some 10 or 12 inches. As our fields are steep this admits of easy accomplishment by commencing at the low end, passing angularly across the hill, and ploughing it all down the brae. Of course it is necessary to return without a furrow, but as a large breadth can be turned over each time, the work is more speedily accomplished than would at first be supposed. The mild weather has been favourable for sheep on Turnips, and they have been making good progress. To-day, however, snow has again begun to fall, and all is under a mantle of white.

WEST SUSSEX, *Dec.* 31.—We have had very great changes in the weather; first, an early appearance of snow with sharp frosts, quickly succeeded by mild weather, and then a second winter came on the 24th inst., which has gone off in the most agreeable manner, and now we have it mild and pleasant. As might be expected, such sudden changes have not been so well for the lambing flocks. There have been a great many slips, which we fear have been caused by the ewes having got too much Grass when it was affected by the frost. It is far better to keep the ewes in on a short allowance of hay than let them out to eat frosty Grass, when they are near lambing. But we have all too great a desire for saving hay, and, what is perhaps worse, allowing them to get Turnips. Even where the lamb has come at the proper time, it has in many cases been dead, but the ewes always do better in this case than when they slip earlier. Our market has been scantily supplied with mutton lately, and is likely to continue so, as the roots will be wanted for other purposes, and all kinds of artificial food is too dear. We have got the Locust Beans introduced into this neighbourhood, but we have not yet got any machine to crush them, which I should think would make them more available for mixing with chaff, &c., which their sweetness would no doubt improve. If they are to become a common article of food it will be well for our implement makers to set their wits to work. The cake crusher is the nearest thing that we have got, but it does not do them fine enough, and what is worse it clogs in its work. There is little doing in the fields at present beyond carting dung and repairing roads. The supply of corn in market is unusually large, and as the quality is not superior sales are slow; but there is a great deal threshed out, and supplies will not be so great in the spring. There is no question but the yield is far below what we expected from the appearance on the ground; I should say from 4 to 8 bushels less on good Wheat land, and, taking all together, we may look for higher prices before long. *G. S.*

Notices to Correspondents.

BLACK POTATO: *G R Proper.* There is none.

HOME FARM MANAGEMENT: *W C M.* The series is not yet completed.

LAND AGENCY: *A G.* Your best plan is to reside with a land agent who is also a farmer for a year or two, and so acquire the necessary skill and knowledge; you will thus have an opportunity of proving your ability in whatever business he may ultimately charge you with, and so gradually acquire a connection which may lead to an appointment.

THEORY OF AGRICULTURE: *F R S.* The following are some of the answers by Mr. Murray, of Oventon, Northamptonshire, to the Society of Arts' questions: (1.) By the removal of water the physical properties of the soil are greatly improved. Clays when wet are close and adhesive, but remove the water, and they will gradually contract and become mellow and friable, more cheaply and easily worked, more open to the access of air which is essential to the healthy growth of most of our cultivated crops. The temperature of the soil is raised, and the chemical changes on which the growth of the plant depends proceed more rapidly on dry land; manures containing organic matter decompose rapidly, produce carbonic acid in large quantity, as well as other compounds on which the plant can live. (2.) By fallowing either during the growth of the crop or otherwise, its parts are more minutely divided—the air gets access to every particle of the soil, the vegetable matter it contains decomposes more rapidly by a constant turning of the soil, so that wherever the roots penetrate they find organic food provided for them, and an abundant supply of the oxygen of the atmosphere to aid in preparing it. The production of ammonia and of nitric acid, and the absorption of both from the air, proceed more rapidly and to a greater extent, the finer the soil is pulverized, and the more it has been exposed to the action of the atmosphere. There are few soils that will not pay for an extra amount of this kind of labour. (3.) The farm-yard is the general depôt for dung in the raw state. Care should be taken to give it such a form as may best preserve it. The form which we recommend is to slope the sides towards the centre, making at the lower end a tank to receive the soakings of the dung, towards which the entire surface of the yard should have a gentle inclination. The water from the surrounding roofs should be conveyed away by shoots or spouts from under the eaves, and no water should be allowed to pass through the dung except the rain water which falls directly upon it. Due care should be taken regularly to mix the dung made by different animals. The whole should be kept firmly trodden down by cattle from time to time. As the soakings of the manure accumulate in the tank they should be conveyed back over the whole surface of the manure. In farm-yard manure when loosely packed in heaps exposed to the weather a similar action to burning takes place, though of slower operation. The oxygen unites with the carbon to form carbonic acid gas, and with the hydrogen to form water, while a small portion of the hydrogen unites with nitrogen to form ammonia. Carbonic acid is the most abundant of those products, water the next, and ammonia the least. The greater portion of these are thus dissipated; the sulphates and phosphates are decomposed, producing stinking gases, and if in the meantime water be allowed to soak through the mass and drain away, it carries with it the soluble salts, ultimately leaving a black mass, consisting chiefly of carbon. (4.) Lime acts by supplying the lime which all plants require as part of their food, by combining with acids in the soil, so as to remove the sourness of the land, and by converting the vegetable matter into the food of plants. (6.) The chief advantage of treating bones with sulphuric is that the substances of which the bones consist are very minutely divided. They can thus enter more readily into the roots of plants, and a smaller quantity produce an equal effect upon the crop. (7.) Nearly all parts of the body suffer a certain waste every day, the growing animal necessarily extracts and retains more of the substance of the food, because it has both to supply the natural waste of its own body and to add to its size, while the full grown animal has only to supply the waste, and therefore extracts and retains only the oil and starch of their food, and rejects the remainder. Hence manure from growing stock is inferior to that from fatting stock. (8.) The benefits of repose, of moderate warmth, and of the absence of light in conducing to the more speedy fattening of cattle are explained by quietness requiring fewer respirations, and hence a less waste of that part of the food which should be laid on in the form of fat; heat also has the same effect, since less heat will be required to be produced in the interior of the animal, the loss of heat being less than when exposed to the external air.

TREE-LIFTING MACHINE: *F N* asks Mr. John Reid, Orton Hall, to give the price of the tree-lifting machine.

WELSH COWS: *H B J.* Will any one tell us his experience of their qualities for the dairy?

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.*			8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*		
7 by 5, and 7½ by 5½ ... 13*s.*			9 by 7, and 10 by 8 ... 13*s.* 6*d.*		
11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	...	15 0
12 „ 10,	13 by 10,	14 „ 10,	15 „ 10 ...	...	16 0
	16 „ 10,	17 „ 10,	18 „ 10 ...	...	
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11 ...	16 6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12	... ...	17 0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12 ...	...	
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13 ...	...	
	22 „ 13,	24 „ 13	...	... ...	18 0
20 „ 14,	22 „ 14,	24 „ 14	...	... ...	
10 „ 15,	22 „ 15,	24 „ 15	...	... ...	
	20 „ 18	... ...	...	... ...	£1 2 0

Boxes charged 2*s.* each, but returnable at full prices.

ORCHARD HOUSES.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼*d.* per foot. Twenty-one Ounce, 3¼*d.*

Foreign Sheet Glass, in cases of 200 feet, 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, London.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR HORTICULTURAL PURPOSES.

Good 15 oz. Sheet in Squares cut to size:—

Not exceeding	per foot	Not exceeding	per foot
8 inches long	1½*d.*	24 inches long	2½*d.*
12 „ „	1¾*d.*	30 „ „	2½*d.*
16 „ „	2*d.*	40 „ „	2¾*d.*

T. & W. FARMILOE, 12, Rochester Row, Westminster.

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HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 10 feet.
	Under	6 by 4	at	1½*d.*	is	£0 12 6
From 6 by 4	„	7 „ 5	„	2*d.*	„	0 16 8
7 „ 5	„	8 „ 6	„	2¼*d.*	„	0 18 9
8 „ 6	„	10 „ 8	„	2½*d.*	„	1 0 10
10 „ 8	„	12 „ 9	„	2¾*d.*	„	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
26 oz. „ 3½*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

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PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

AGRICULTURAL FOOD-PREPARING & OTHER IMPLEMENTS.

B. SAMUELSON, Britannia Works, Banbury,

MANUFACTURER OF ALL DESCRIPTIONS OF FOOD-PREPARING MACHINES,

Is prepared to supply the following IN ANY QUANTITY and in the following number of days after receiving the order.

GARDNER'S TURNIP CUTTERS	IN ONE DAY
MOODY'S GRATERS	IN ONE DAY
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NEW PATENT COMBINED CHAFF AND ROOT CUTTER AND MIXER	IN SIX DAYS
CHAFF CUTTERS, for Gentlemen's Stables or for export, small sizes ...	IN ONE DAY
DITTO CORNES' PATTERNS, all sizes, from 6*l.* 15*s.* to 14*l.*	IN THREE DAYS
ROLLER MILLS for Crushing all Descriptions of Grain, 5*l.* to 7*l.* 10*s.* ...	IN FOUR DAYS
BEAN SPLITTING AND SMALL UNIVERSAL MILLS, 2*l.* 2*s.* 6*d.*, and upwards	IN TWO DAYS
LINSEED-CAKE BREAKERS, from 2*l.* 6*s.* to 10*l.* 10*s.*	IN TWO DAYS

B. SAMUELSON will have pleasure in forwarding, post free, his Illustrated Priced Catalogue of the above, and also of his

HAY-MAKING MACHINES, CLOD CRUSHERS, HORSE HOES, PATENT HORSE RAKES, FIELD ROLLERS, LAWN MOWERS, &c.,

PATENT AMERICAN AND PATENT ATMOSPHERIC CHURNS, GALVANISED IRON PUMPS FOR LIQUID MANURE, PATENT AMERICAN WASHING MACHINES, MANGLES, &c, &c., &c.

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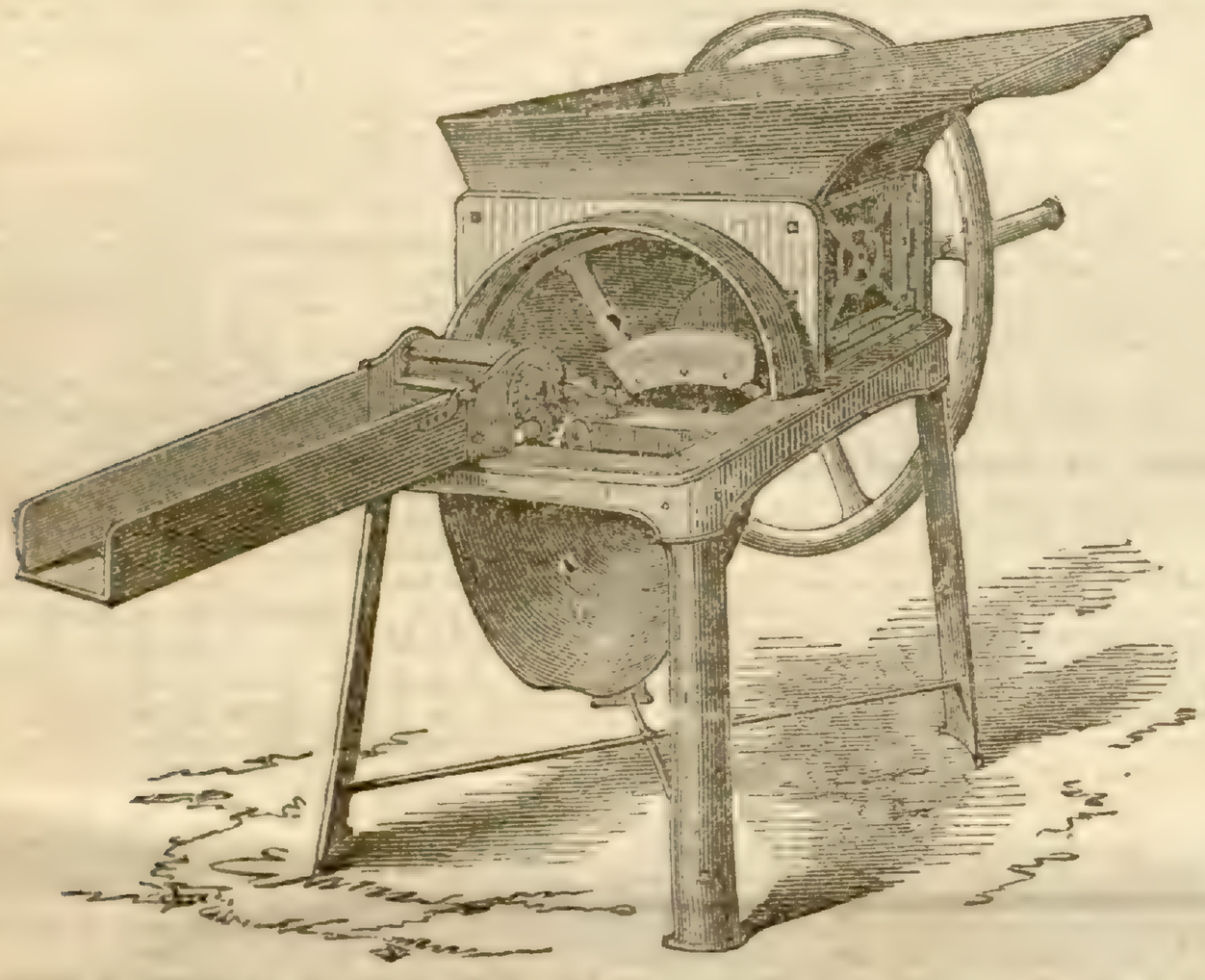
ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10*s.*
Ditto, for horse-power, or it can be worked by a man and boy ... ... £8 0*s.*
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

B. SAMUELSON, Britannia Works, Banbury.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „	long 3 „ 3 „	gutta percha,	1	14	0
3 „	ditto 3 „ 6 „	or cast iron	2	8	0
3½ „	ditto 3 „ 6 „	flanged pipe,	2	12	0
4 „	ditto 3 „ 6 „	as required.	3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

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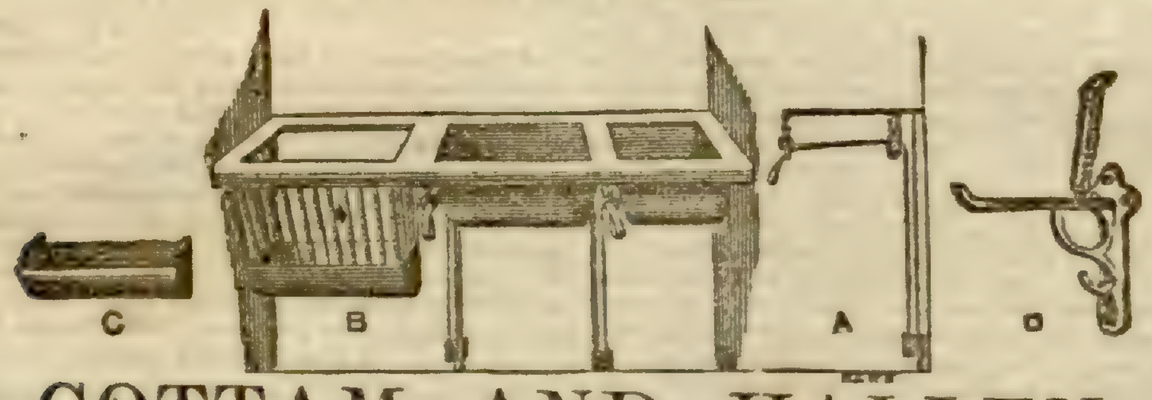
New Patent Inventions for Stable Requisites.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM & HALLEN, the Inventors, have designed these Fittings on strictly scientific principles, and they are, if not perfect, the most in keeping with the science of the present day of anything yet produced. The facts of their having been extensively introduced by architects of known practical experience, besides obtaining the favour of both the English and French Governments, are valuable proofs of their utility.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Patent Loose Box Fittings, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

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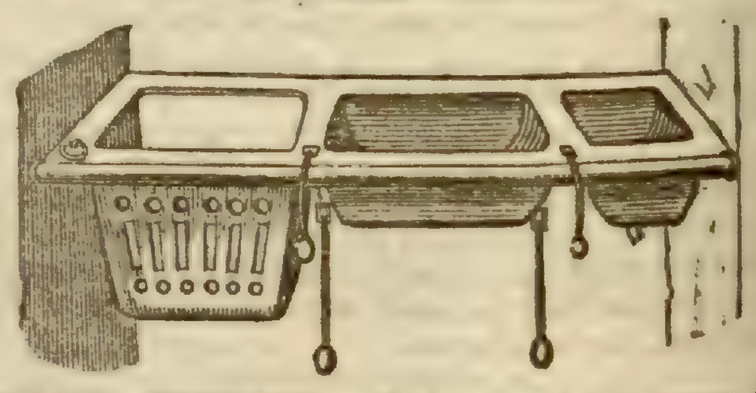
WARMING AND VENTILATING.—Illustrated Catalogues and Estimates gratis on application.

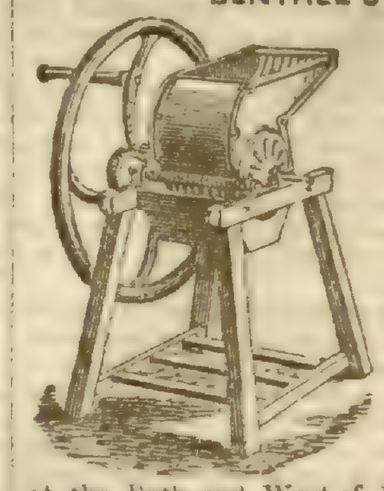
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder &c., 370, Oxford Street, London.

BENTALL'S PATENT PULPER.



PRICES.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

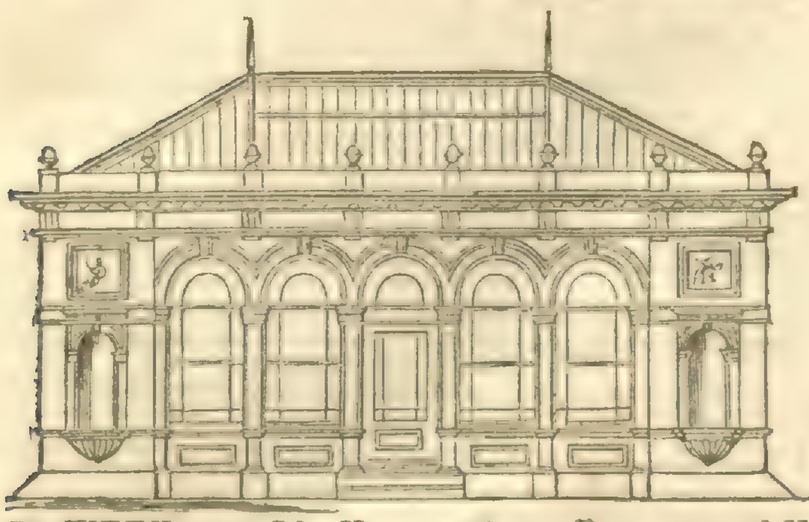
☞ Manufactory, Heybridge, Maldon, Essex.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

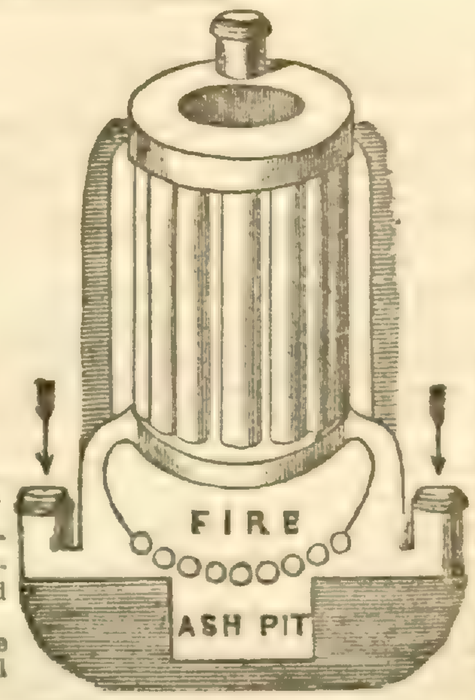
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

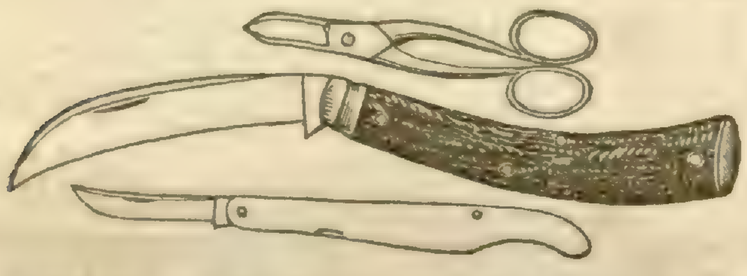


The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surf ce which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. manufacture *these* Boilers of all sizes. The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

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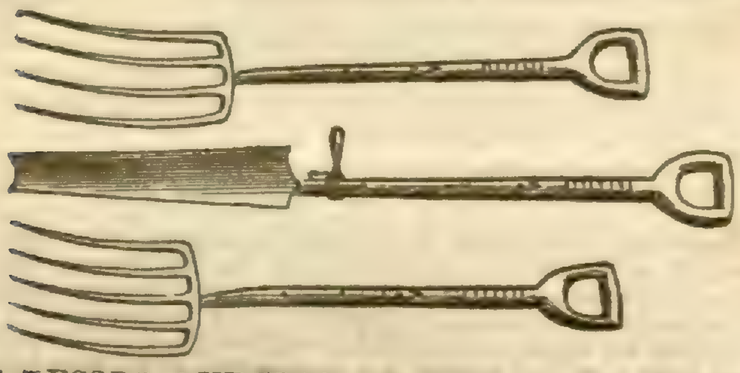

MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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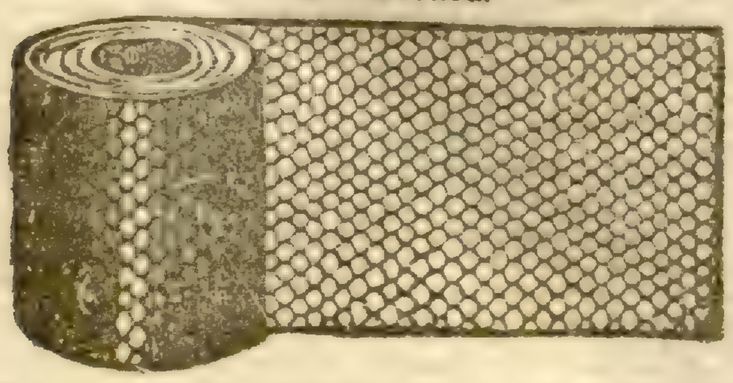

BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	... ...	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong, do.	... ...	6 ,,	4¾ ,,
2 inch ,, intermediate, do.	... ...	7 ,,	5½ ,,
2-inch ,, extra strong, do.	... ...	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	... ...	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	... ...	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do.	... ...	7¾ ,,	6 ,,
1⅝-inch ,, extra strong, do.	... ...	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

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Estimates upon application.

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AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

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Table Spoons and Forks, per dozen	38*s.* ...	48*s.* ...	60*s.*
Dessert ditto and ditto ,,	30*s.* ...	35*s.* ...	42*s.*
Tea ditto ... ... ,,	18*s.* ...	24*s.* ...	30*s.*

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's
Table Spoons and Forks, per dozen ...	12*s.* ...	28*s.* ...	30*s*
Dessert ditto and ditto	10*s.* ...	21*s.* ...	25*s*
Tea ditto	5*s.* ...	11*s.* ...	12*s*

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MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, January 6, at 12 o'Clock precisely, Choice Poultry, including Polands and Hamburghs, bred from birds that have taken about 30 First Prizes including 5 cups, from the yard of C. E. Coleridge, Esq.; Cochins from the Rev. G. Gilbert's renowned yard, and numerous well-bred Spanish, Dorkings, Brahmas, &c. Also a few Lots of good Pigeons.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W. C.

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LYNCH'S STAR OF THE WEST CUCUMBER.—This has proved itself during the last two seasons to be one of the very best Cucumbers for general use.

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"LYNCH'S STAR OF THE WEST IS A GREAT FAVOURITE OF MINE, AND I WILL USE MY BEST ENDEAVOURS TO RECOMMEND THE SORT TO ALL MY FRIENDS."

	Per packet.—*s.* *d.*
SIX SEEDS FOR	1 6
TWELVE SEEDS FOR	2 6
TWELVE LARGE PACKAGES FOR PRESENTS FOR	20 0

Apply to WILLIAM E. RENDLE & Co., Seed Merchants Plymouth.

LYNCH'S STAR OF THE WEST CUCUMBER.

CHARLES SOUTHBY begs to inform the Public that he has grown the above Cucumber for the last two years, and last year supplied many of his customers with the seed, which gave unbounded satisfaction, and he can still recommend it as being the largest and finest Cucumber grown.

Six Seeds, 1*s.* 6*d.*; Twelve do., 2*s.* 6*d.*

Vegetable Seeds of the first quality supplied in collections—if preferred—in the same quantities and at the same prices as those advertised by other houses.—High Street, Clapham.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s.* 0*d.* | LORD PALMERSTON 5*s.* 0*d.*

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

FLORISTS' FLOWERS AND SEEDS.

CAREY TYSO, FLORIST, &c., Wallingford, Berks, begs to offer choice assortments of

*RANUNCULUSES, 100 superb named sorts,	40*s.* to £4	0*s.* 0*d.*
*DOUBLE ANEMONES, 100 ditto	21*s.* to 1	6 0
CARNATIONS and PICOTEES, 25 pairs ...	37*s.* to 3	0 0
PANSIES, fine sorts, per dozen	5*s.* to 0	12 0

*IMPORTED GERMAN SEEDS:—ASTERS, STOCKS, LARKSPURS, BALSAMS, ZINNIAS, &c., of best quality in assortments, 2*s.* 6*d.* each. *Annual Seeds, 25 packets, 5*s.*

C. TYSO'S Floral Catalogue for 1857 may be had for one label.

* These articles can be forwarded by post.

WANTED TO PURCHASE, some young healthy TREES (particularly LIMES), from 12 to 15 feet high, with good large heads. Also YEWS, HOLLIES, BOXES, and other Evergreens, 4 to 6 feet high.—Apply to W. W., 26, Milton Street, Dorset Square.

ASPARAGUS FOR FORCING.—Two Thousand very strong from three to five years old.—Price on application to HENRY PAGE, Gardener, St. John's, Fulham, S.W.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

QUICKTHORN.

CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.

PINUS MARITIMA (one-year seedlings).

C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed growing Establishment, Sleaford.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have to offer (fit for immediate forcing) PEACHES and NECTARINES, &c., in pots, well established, and well set with bloom-buds.

The different Catalogues may be had on application.

STANDARD LILACS.—Some new and fine varieties of Lilacs, well adapted for lawn trees, budded on straight 5-feet stems, raised from seed which do not put forth suckers. Descriptions and prices given in Catalogue of Trees and Shrubs, sent free per post on application to

THOS. RIVERS, Nurseries, Sawbridgeworth.

IMPORTANT NOTICE.

TO BE SOLD, very cheap, for cash, a quantity of Large Ornamental Worked FOREST TREES, WEEPING and others; also some fine DOUBLE BLOSSOMED ALMONDS, &c., the ground being wanted.—Apply to CHAS. CLARKE, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

EXCELLENCE, ECONOMY, AND CONVENIENCE.

SUTTON'S COMPLETE COLLECTIONS

OF

KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY.

GENTLEMEN who do not employ a professed Gardener, or who may prefer ordering their Seeds themselves, will find it most convenient to order one of SUTTON'S COMPLETE COLLECTIONS, which are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3.
Do, do. Collection (No. 2) is £2.

AND COMPLETE COLLECTIONS FOR SMALLER GARDENS MAY BE HAD AT PROPORTIONATELY LOWER SUMS.

The No. 1 Collection contains 20 quarts of the best sorts of Peas, 10 quarts Garden Beans, 5 pints French or Kidney Beans, and all other Vegetable Seeds in due proportion.

N.B. If any kinds of Seeds are already possessed they should be named, that we may omit them and increase the quantities of others in lieu of them. Those purchasers who may prefer making their own selection are recommended to apply for our GENERAL SEED CATALOGUE for 1857, which is now in the press. It contains all the newest and best kinds of Kitchen Garden and Flower Seeds yet introduced, many of them from the Continent, with the prices affixed to each article.

SUTTON & SONS, Seed-Growers and Merchants, Reading, Berks.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6*d.* and 1*s.*)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

GERMAN FLOWER SEEDS,

In collections from our own inspection when in flower on the continent. These we can with confidence recommend. Descriptions of the following New Plants will also appear:—

BANKS' NEW FUCHSIAS,

Including three white sepal varieties, each with a distinct coloured corolla; two varieties possessing red sepals, and each of distinct character; and others with quite a new and graceful form of flower. A new and beautiful coloured Plate of six of the above varieties is now ready, and can be had for 12 stamps.

NEW VERBENAS,

Raised by Messrs. Banks, Breeze, and Evans. A coloured Plate of these novelties is in preparation, price 12 stamps.

NEW ERECT GLOXINIAS,

Raised by M. Jæger, the original introducer of this form of flower.

NEW HYBRID BOUVARDIAS,

Raised by Mr. Parsons, from Longiflora, hybridised with B. Leiantha.

NEW STRIPED GERANIUM,

Raised by Mr. Grieve. The best and only one worth growing.

Mr. Elphinstone's new Ornamental Foliaged Geraniums, with red and other coloured zones.
Mr. Morgan's Hybrid Bedding Geranium, splendid colour.
Mr. George Cunningham's New Rhododendron, quite hardy, and the first of its colour.
New Petunia, Delphinium, and Shrubby Calceolaria, &c. Other novelties beside the above will be noticed in this Catalogue.

Wellington Nursery, St. John's Wood.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—

ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CHARLES NOBLE, having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he is in a position to execute any orders with which he may be favoured, and respectfully requests that all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.—Jan. 10.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Jan. 10.

MYATT'S
PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s.*; per peck, 2*s.* 6*d.*; bags included.—To be had of JAS. MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office Orders payable to JAMES MYATT, Evesham, or JAMES MYATT, Camberwell.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place, Manchester
Dulwich, Surrey.

NEW HYBRID CUCUMBER "PERFECTION."—This is undoubtedly one of the finest varieties ever yet offered to the public; it is a splendid black spine, length 26 inches; a very free setter and an abundant bearer. Them were fine fruit cut from plants last year on the 1st of March, and the same carried a good crop till the middle of October. The plants are not at all liable to rust or mildew, which is the case with most other varieties. It will set its fruit as well in the middle of December and January as in April. If ever there was a Cucumber superior to all others this is the variety, and it is well worthy of the name given to it, and will be sure to become as great a favourite as all other hybrid varieties sent out by me. It always grows of an even size from stem to point, and never clubs as many others do. As a Cucumber for Exhibition nothing surpasses it. Fruit of it was given to a medical gentleman last spring, who spoke of it as being the wholesomest and most digestible of its kind he had ever eaten: it being so very firm, solid, and crisp, and not seedy and watery as Cucumbers generally are. Seed of this superb Cucumber is now ready to be sent out at 3*s.* 6*d.* per packet.

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all purchasers, can be supplied:—

CUCUMBERS.

Sir Colin Campbell	2*s.* 0*d.*	Sunderland Wick	1*s.* 0*d.*
Captivation	2 0	Hunter's Prolific	1 0
General Canrobert	2 0	Mill's Jewess	1 0
Phenomena	2 0	Cheltenham Surprise	1 0
Ipswich Standard	2 0	Manchester Prize	1 0
Lord Kenyon's	2 0	Sion House (true)	1 0
Essex Hero	1 0	Cuthill's Black Spine	1 0
Victory of Bath	1 0	Conqueror of the West	1 0
Gordon's White Spine	1 0	Lynch's Star of the West	1 0

MELONS that surpassed all others at the great exhibition of the Crystal Palace, and were awarded First Prizes.

	s. *d.*		*s.* *d.*
M'Ewen's Arundel Hybrid Scarlet-flesh	1 6	Bowood	1 0
M'Ewen's Arundel Hybrid Green-flesh	1 6	Victory of Bath	1 0
Monro's Crystal Palace Hero	1 6	Cashmere	1 0
Monro's Golden Gage	1 6	Camerton Court	1 0
The Queen	1 0	Beechwood	1 0
Orion	1 0	Windsor Prize	1 0
Golden Drop	1 0	Emperor	1 0
Green Gage	1 0	Fleming's Hybrid Persian	1 0
Bromham Hall	1 0	Blackall's Green-flesh	1 0
Incomparable	1 0	Bailey's ditto	1 0
Golden Ball	1 0	Snow's Hybrid	1 0
		Golden Perfection	1 0
		Scarlet King	1 0

One packet of either of the first six Cucumbers mentioned and one of either of the first four Melons, and a packet of the Cucumber Perfection, will be sent for 6*s.*

A remittance must accompany every order in cash or penny postage stamps, and the whole, or any part, as the case may be will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

DICKSON'S EARLY FAVOURITE PEA.

FRANCIS AND ARTHUR DICKSON AND SONS, SEED MERCHANTS, &c., Chester, have great pleasure and satisfaction in again calling attention to this *distinct* and VERY *valuable* Early Pea, admitted as it is, by *all* who have grown it, to be the *most prolific* and *best* Early Pea ever introduced.

It comes in very few days after the *Earliest* varieties, grows about 4 feet high, and produces a *wonderful* profusion of pods, containing, on an *average*, nine to ten Peas of first-rate quality and flavour.

Independent of its excellence as an Early Pea, it has proved invaluable as a *Late Pea*, having been found to resist *mildew* when most other varieties are destroyed.

The testimonials of its excellence and desirability which they received last season (1855) were of the most gratifying description, and they have the satisfaction of stating that the accounts which they have received of it from nearly every county in Britain into which they last spring (1856) sent it, *more than bear out* all that has hitherto been said in its favour.

Testimonials to the above effect, from upwards of Fifty of the first Gardeners in the Kingdom, will be forwarded on application.

Finding that many Seedsmen from whom it was ordered last spring *substituted* other sorts for it, F. and A. D. and Sons have resolved to send it out in SEALED PACKETS, so as to prevent a recurrence of the disappointment which the substitution of other sorts caused many purchasers last season.

The following firms have received a supply from F. and A. D. and Sons, and are their authorised agents. Those marked * are wholesale agents.

*Messrs. Hurst & M'Mullen, 6, Leadenhall Street, London.
*Messrs. Beck, Henderson & Child, Adelphi Wharf, London.
*Messrs. Charlwood & Cummins, Covent Garden, London.
*Messrs. Nutting & Sons, Cheapside, London.
*Messrs. Flanagan & Son, Mansion-House Street, London.
*Messrs Noble, Cooper & Bolton, Fleet Street, London
*Mr. J. G. Waite, 181, High Holborn, London.
*Mr. Henry Clarke, King Street, Covent Garden, London.
Messrs. Clarke, Boshell & Co., 86, Borough, London.
Messrs. Hooper & Co., Covent Garden, London.
Messrs. James Carter & Co., 238, High Holborn, London.
Mr. Timothy Brigden, 10, Railway Arcade, London Bridge, London.
Messrs. Joseph May & Co., 1, Wellington Street, Strand.
Messrs. James Veitch & Son, Exeter.
Messrs. Page & Co., Oxford Street, Southampton.
Messrs. Garaway, Mayes, & Co., Bristol.
Messrs. James Backhouse & Son, York.
Messrs. Bass & Brown, Sudbury, Suffolk.
" John Sutton & Sons, Reading.
" Samuel Finney & Co., Gateshead Nursery, Newcastle-on-Tyne.
" J. C. Wheeler & Son, Gloucester.
" Bubb & Matheson, Gloucester.
" Wood & Ingram, Huntingdon.
" Cutbush & Son, Highgate Nurseries, near London.
Mr. James Veitch, Exotic Nursery, Chelsea.
Mr. Fisher Godwin, Sheffield.
" Thomas Wild, Nurseries, Ipswich.
" William Chater, Nurseries, Saffron Walden.
" John Perkins, Market Square, Northampton.
" Charles Turner, Royal Nursery, Slough.
" John Cattell, Nurseryman, Westerham.
" J. C. Cheyne, Nurseryman, Warwick.
" Thomas Bayliss, Birches Barn, Wolverhampton.
" Henry Pope, Gibb Heath, Birmingham.
Messrs. W. Drummond & Sons, Seedsmen, Stirling and Dublin.
" Cole & Sharpe, Birchfield, near Birmingham,
" James Dickson & Sons, Seedsmen, Edinburgh.
" Hogg & Wood, Coldstream and Dunse.
" Edward Sang & Son, Kirkcaldy.
Mr. Thomas Rae, Whithorn Wigtonshire.
Messrs. John Edmondson & Co., 61, Dame Street, Dublin.
" Dickson, Farrell & Co., Seedsmen, Belfast.
" Richard Hartland & Sons, Seedsmen, Cork.
Mr. Thomas M'Kenzie, Seedsman, Cork.
Mr. George Williamson, Seedsman, Sligo.

Price 2s. 6d. per quart, or 1s. 6d. per pint, in sealed packages.

Vegetable, Flower, and Agricultural Seeds of superior quality, and at moderate prices, Catalogues of which may be had on application to FRANCIS AND ARTHUR DICKSON & SONS, the OLD ESTABLISHED Seed Warehouse, 106, Eastgate Street, CHESTER; also at 14, Corporation Street, Manchester.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli; Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities ... £3 0 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN ... 2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES ... 1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN ... 0 15 0

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SUTTON'S MONSTER LETTUCES.

THE LARGEST AND QUICKEST GROWING LETTUCES ARE "SUTTON'S SUPERB WHITE COS," AND "SUTTON'S SUPERB GREEN COS."

The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—

"*This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce.*" And of the other he says—

"SUTTON'S SUPERB COS.—*This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use.*" Seeds may be had (if ordered immediately) in packets 1*s.* each, post free.—Address,

SUTTON & SONS, Seed Growers, Reading, Berks.

TRUE READING ONION SEED.

THIS *favourite mild* WHITE ONION *can only be obtained in perfection from Seed Grown in or near Reading*, in which case the crop is fully equal to imported Spanish Onions. Price of Seed, 6*d.* per oz., or 5*s.* per lb.

SUTTON & SONS have annual demands for large quantities of Seeds from all parts of the kingdom.

Mr. JAMES M'INTOSH, *Gr. to the Duke of Buccleuch, at Drumlanrig, whom we have the honour to supply annually, says—"Your Onion is particularly fine."*

Besides many others, the following have been recently received:

From the Rev. F. T. SCOTT, *Sibertswold Vicarage, near Dover, Jan.* 16, 1856.—"The seeds gave great satisfaction, especially the Onions, which were superb"

From the REV. J. A. CARR, *Belshford Rectory, Horncastle, Aug.* 5, 1856.—"Your Onions are the largest and best I ever grew or saw."

Royal Berkshire Seed Establishment, Reading.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5*s.* each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet, producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2*s.* 6*d.* per quart, 35*s.* per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2*s.* 6*d.* per quart, 40*s.* per bushel.

W. J. EPPS offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

WILLIAM CUTBUSH, NURSERYMAN, &c., Barnet, begs most respectfully to intimate that he has received his supply of KITCHEN GARDEN, AGRICULTURAL, and FLOWER SEEDS for the ensuing season in the best possible condition, direct from eminent growers, and is enabled to vouch for the purity of each article.

W. C. particularly desires to call attention to his fine healthy stock of young Exhibition Stove and Greenhouse Plants, Ericas, and Azaleas, which are well set with bloom; also Variegated and Common Hollies, from 2 to 10 feet, well shaped; and likewise to his superior Mushroom Spawn, which has given such general satisfaction both in England and Scotland.

Prices and Catalogues free, to be had on application.

The Nurseries, Barnet, Herts, N.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

FOREIGN SEED ORDERS.—Plymouth is admirably situated for the execution and transmission of FOREIGN ORDERS. The Subscribers have during the past season forwarded Seeds to AUSTRALIA, NEW ZEALAND, UNITED STATES, CANADA, INDIA, MALTA, FRANCE, AUSTRIA, PORTUGAL, IONIAN ISLANDS, MADEIRA, GAMBIA, CHINA, CAPE OF GOOD HOPE, PRINCE EDWARD'S ISLAND, BALAKLAVA in the CRIMEA; and they have supplied several RUSSIAN OFFICERS (lately quartered in Plymouth), to take to their native country.

The following letter has just been received from a Nurseryman in AUSTRALIA, and is important in showing that by careful and proper packing Seeds will travel *thousands of miles*, and through the Tropics too, without injury.

"*The case of Seeds you sent me arrived in excellent condition, and they are all growing well, and, from every appearance, I should have supposed that they had only travelled a short distance instead of* SO MANY THOUSANDS OF MILES. *This I consider is owing to their being well ripened and dried, and* CAREFULLY AND PROPERLY PACKED. *I have to tender my best thanks to you for your attention in doing so, for generally seeds that are sent out to this Colony are destroyed owing to their getting damp on the passage.*"

Our plan of packing them succeeds admirably, and all the letters from our Foreign Correspondents tell the same tale. All Foreign Orders will be attended to with promptness and care.

WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each .. 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

ROSES.—The following named varieties can be supplied true to name; they are all fine healthy well-grown plants, and warranted to give satisfaction to all purchasers.

Dwarfs worked on the Dog Rose, purchaser's selection, 1*s.* each, or 12*s.* per dozen. Plants on stems 1 to 2 feet in height, same price as dwarfs.

HYBRID PERPETUALS.

Adam Paul
Aubernon
Auguste Mie
Baronne de Kermont
Baronne Hallez
Baronne Prevost, per doz. dwfs 9*s.*
Caroline de Sansal
Colonel Foissy
Comte Odart
Comtesse Duchatel
Cymedor
Dr. Marx
Duc d'Aumale
Duchesse de Montpensier
Duchesse de Praslin
Duchess of Sutherland
Eugene Sue [dwfs., 9*s.*
Géant des Batailles, per doz.
General Brea
General Cavaignac
Graziella
Inermis
Jacques Lafitte
Jeanne d'Arc
Lady Alice Peel
Lady Stuart
La Reine
Laure Ramand
L'Enfant du Mont Carmel
Le Lion des Combats
Leonore d'Est
Madame Campbell d'Islay
Madame de Manoel
Madame Freemion
Madame Guillot
Madame Lacour Jurie
Madame Laffay
Madame Lamoricière
Madame Pepin
Madame Rivers
Noemi
Panaché d'Orleans
Pius IX
Reine des Fleurs
Reine Mathylde
Robin Hood
Sidonie
Standard of Marengo
Theocrite
Victoria (Paul's)

BOURBONS.

Bouquet de Flore
Comice de Seine et Marne
Dupetit Thouars
Louise Odier
Menoux
Paul Joseph
Paxton
Queen
Scipion
Souvenir de la Malmaison

The following at 1*s.* 6*d.* each, or 18*s.* per dozen, purchaser's selection:—

HYBRID PERPETUALS.

Alexandrine Bachmeteff
Colonel Rougemont
Deuil de Willermoz
Duchess d'Orleans
Duchess of Norfolk
General Castellane
Joseph Decaisne
Jules Margottin
Leon Haimann
Louise Peyronny
Madame Domage
Madame Phelip
Madame Place
Paul Dupuy
Prince Chipetouzikoff
Prince Leon
Sir John Franklin
Souvenir de Leveson Gower
Triomphe de Paris
William Griffiths

BOURBONS.

Adelaide Bougere (dwfs.)
Aurore du Guide
Prince Albert (Paul's)
Reveil (dwfs.)

PERSIAN YELLOW, dwarfs worked, 10*s.* per doz.

With general Collection of ROSES, &c. Catalogues forwarded post free upon application.

APPLE—Bradley's Golden Permain, standards 2*s.* each, or 18*s.* per dozen.

A remittance or reference requested from unknown correspondents.

RICHARD BRADLEY AND SON,
Halam Nursery, near Southwell, Notts.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL WURZEL, AND OTHER FARM SEEDS *being good, prices are lower this season (at present) as see* Messrs. SUTTON *Priced List*, which may be had, post free, in return for one penny stamp, addressed

SUTTON & SONS, Seed Growers and Merchants, Reading, Berks.

Early orders are requested and recommended.

SEED CORN FROM THE CHALK.—TALAVERA, RED NURSERY, and RED HYBRID, the best Wheats for Early Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

GLENNY'S SUPERB BALSAMS, altogether unapproached; 6 classes 37 stamps; mixed, 13; Hollyhock, 13; Geraniums, 37; Pink, 37; Calceolaria, Verbena, Cineraria, Heliotrope, 13 each; Asters and Stocks, the finest double in the kingdom; best 24 Annuals, 74 stamps; best 12, 37.

THE TWO SPLENDID DAHLIAS, NAPOLEON AND EUGENIA, dry roots, 5*s.* to 10*s.* 6*d.* each. Everything connected with a Garden procured from the best sources, by G. GLENNY, Horticultural Agent, Dungannon House, Fulham.

EARLY DWARF PEAR TREES.

H. WALKER, Londonderry, offers for sale Fifty fine varieties of Hardy, Early Dwarf, Bearing PEARS, on Quince roots, suitable for planting in very limited spaces on walls, borders, and pots, including the following:—

Alexandre Bivort
Alexandre Lambre
Belle Apre Noël
Bergamot Esperen
Bonne d'Ezees
Doyenné d'Eté
Doyenné Snille
Dorathe Royale Nouvelle
Frederick Le Clerc
General Dutilleul
Henriette Bouvier
Jalousie de Fontenay Vendée
Louise Bonne of Jersey
Monsieur Albert
Princess Royal
Prevost
Susette de Bavay
Williams' Bon Chrétien
Vineuse Esperen
Zepherine Gregoire.

One year old, 6*d.*; two years, 1*s.* each.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

"WHEELER'S LITTLE BOOK," *or Select Seed List for* 1857, *is now in the press, and will be ready in a few days. A copy will be forwarded on receipt of three postage stamps.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857 *is now ready, and can be had from the Booksellers or from the Proprietors in exchange for seven postage stamps.*

A BOUND EDITION *has also been prepared this season, which will be sent free for* 18 *postage stamps. Application to be made to*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

IMPORTANT TO PURCHASERS OF SEEDS.

SUTTON'S SEED CATALOGUE, *with prices, will be sent post free on receipt of one penny stamp.*

Also,

SUTTON'S AMATEUR'S GUIDE IN HORTICULTURE AND AGRICULTURE; *free by post for twelve penny stamps, or gratis to purchasers of Seeds.*

SUTTON & SONS, Seed Growers and Merchants, Reading.

The Gardeners' Chronicle.

SATURDAY, JANUARY 10, 1857.

THE course which the Council of THE HORTICULTURAL SOCIETY are about to take in the ensuing season is now finally determined upon. In the main it is what we ventured a few weeks since to say it was likely to be.

In the first place there is to be one GREAT GARDEN EXHIBITION to last for two days, so that if the first day should prove unfavourable a second may become available. The days selected are Wednesday and Thursday, the 3d and 4th of June. The middle of the week has been chosen in order that neither in coming or going a Sunday may be interfered with. This Exhibition is to include not merely the flowers and fruit usually collected on such occasions but, what has never before been admitted, all kinds of vegetables and horticultural implements, for the reception of which adequate arrangements will be made. We shall therefore see for the first time an approach to the system that has

proved to be productive of so much practical advantage in Agriculture. Those who have no means of showing their skill in the production of rare flowers or forced fruits may establish the reputation of English KITCHEN GARDENING and MARKET GARDENING: branches of Horticulture that are second not even to Agriculture in national importance. The public will also be able to see how our HORTICULTURAL MANUFACTURERS respectively stand. Cutlery, tools, machines of every sort, heating contrivances, protecting materials, Apiarian inventions, and all kindred subjects may there stand on common ground in a space large enough to allow everything to be compared and examined. Nor do we understand that this Exhibition will be limited to British goods; on the contrary, we believe that FOREIGN MANUFACTURERS will be welcomed on the occasion. There can be no doubt that those manufacturers who have confidence enough in the excellence of their productions to expose them to public comparative examination will find this a golden opportunity.

In order that rare and valuable tender plants may not sustain injury by exposure for two days, it is decided that the great iron conservatory shall be emptied and converted into a magnificent exhibition room, affording shelter in case of rain as well as protection to the plants. Those exhibitors of plants who, in consequence of a two days' show, may be obliged to incur additional expense, will have their charges defrayed according to a scale hereafter to be determined on.

During the spring and summer the usual Exhibitions in Regent Street, or whatever other place the Society may select, will take place, prizes in money and certificates being awarded as heretofore to really meritorious subjects.

On Saturday, October the 24th, a grand FRUIT EXHIBITION will be held in one of the large public rooms then available in the West of London. On this occasion foreign growers will be invited to send their produce, the show being open to all nations, and we fully expect to see assembled in one gorgeous mass the finest productions of Great Britain, and at least France, Belgium, Holland, and Germany, or even the United States. As it is not intended on this occasion to insist upon the fruit being absolutely ripe, winter fruit being especially desirable in October, we see nothing to prevent our foreign friends taking part in this friendly contest.

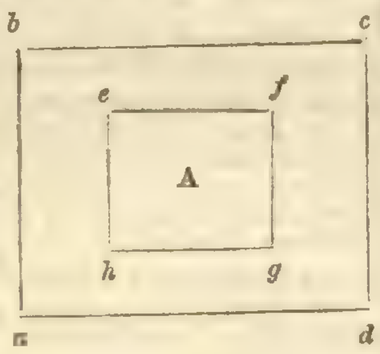
In order to defray the cost of the arrangements necessary on these occasions tickets will be issued as formerly—some at 5*s.* to the public and 3*s.* 6*d.* to Fellows of the Society, others at 2*s.* 6*d.* each to the public and 10 for 40*s.* to Fellows. The number which Fellows will be able to purchase at their privileged price is no longer to be limited. The *five shilling* tickets will admit the bearers to the Garden after 2 P. M. on the first day, and after 10 A. M. on the second day, or will be received as equivalent each to two half-crown tickets after one o'clock on the second day at the Garden, or at the great London Fruit Show in October. By this means no five shilling tickets need remain unused in the holders' hands. The *half crown tickets* will admit visitors after one o'clock on the second day at the Garden, or at the October fruit show.

The Council evidently trust to the whole gardening community for zealous support on these occasions, which will undoubtedly be no less agreeable as meetings than instructive as displays of Horticultural energy, ingenuity, and practical skill; and we call upon all the friends of gardening to respond to the appeal. Details are under consideration, and doubtless in a very short time we may expect an announcement of the plans in an official form.

ONE hot Saturday in July, a gentleman going into the country purchased at a shop in London a few pounds of ICE. Packed in a dilapidated chip hat box he took it to his chambers—put it aside for a moment—started in a hurry to catch the train—and so left the ice behind. It was only when he reached his destination that he discovered his loss. As he did not return till the succeeding Tuesday he fully expected to find the ice melted and his neighbour on the floor beneath him deluged with water. His delight as well as surprise may be conceived when he found that the ice had not only not melted but had undergone no change. And yet the room in which he left it must have been heated to 75° for nearly three days. The ice had been packed in sawdust. A thick bed of sawdust formed the bottom of the box on which the ice had been deposited, sawdust surrounded the sides, and sawdust covered the top.

It was apparent from this accident that the key to the preservation of ice laid in the chip hat-box. For it was impossible to find a place more favourable to the melting of ice than a barrister's chambers in Lincoln's Inn; and it was obvious that if a few pounds could be thus preserved under the most adverse circumstances for two or three days, a mass weighing several tons might be kept elsewhere from melting for many months. Here as in all similar questions the point to determine was "what kept the ice from melting?" Was it the dilapidated chip box, or the atmosphere of the room, or the sawdust? That it could not have been either of the two first is obvious: but why the sawdust? The reason was this. Ice melts in consequence of absorbing heat from the air or other bodies in contact with it. If such absorption is prevented ice will remain ice for ever; if it is permitted ice returns to the state of water with a degree of rapidity proportionate to the facility with which it can obtain heat from the bodies around it.

Sawdust is one of the most powerful non-conducting substances that can be easily obtained. Consisting of an infinite multitude of cavities filled with air—an agent which opposes the passage of heat with very great force—sawdust in reality forms round ice an infinite multitude of barriers through which heat passes with extreme difficulty, and it thus cuts the ice off most effectually from the heated bodies lying beyond it. Therefore ice in a room heated to 75° is not, when surrounded by sawdust, exposed to a temperature of 75°, but to air possessing the same temperature as itself, and having no heat to give up to the ice. For instance, let us suppose the square A to be a lump of ice, and the other square *a b c d* to represent a mass of sawdust covering it up, it is evident that although the exterior, or *a b c d* may be 75° yet the interior or *e f g h* will be 32° or thereabouts, and it will be a very long time before the weak conducting power of the sawdust will enable the infinite multitude of air cavities lying between the two squares to transmit heat from the outside to the inside. If this is rightly understood the whole secret of preserving ice in icehouses is explained, and moreover we have a test by which to judge of the value of the various plans that have been proposed for the purpose. It will be evident why so many fail and so few succeed.



The condition indispensable to the preservation of ice during summer is that it shall be permanently surrounded by a mass of ill conducting matter. Is this condition always fulfilled? Let us see. A brick well is dug in the ground and filled with ice; thatch, double walls, and double doors protect it from the air; it is overshadowed by trees; we are assured that every possible precaution has been taken to keep out heat. By the end of June the ice is gone, to the amazement of the owner. He forgot, or possibly did not know, that the defences above ground were of no use so long as the ice was affected by the earth beneath. Men are apt to fancy that because earth is cold in winter it remains so during summer; unacquainted with the subterranean indications of the thermometer, it never occurs to them that buried ice will melt in even an English winter. Now, it is perfectly well ascertained that the temperature of the earth at the depth of two feet, near London, is nearly as follows:—

	Deg.		Deg.
January	41	July	62½
February ...	39½	August	62
March	41¾	September ...	59
April	46¼	October	53¾
May	52½	November ...	48
June	59½	December ...	42¾

It is therefore evident that ice in contact with the sides of a well, even in January may thus receive 7½° of heat, which will soon change it into water, and that in all May 20°, or in June 27½° may thus pass into it. No wonder, then, that ice houses are often found empty when first opened.

It is true that no experienced man allows his ice to be actually in contact with the sides of the well; and that he interposes a layer of straw or Reeds; but straw or Reeds are far less effectual than sawdust, even if used in large quantities, and if placed with their ends downwards they really act as so many little flues forming a communication from below upwards, an action that must be increased greatly every time the house is opened for the purpose of removing ice. In a similar way is straw or such material imperfect when laid on the surface of the ice. An insufficient separation of ice from the sides of the well may therefore be one of the causes of failure in this simple process.

But there is another. Under no circumstances in this country can ice be prevented from melting in some degree: as soon as it is converted into water, the latter rapidly conveys to it the warmth of the bodies it comes into contact with, and the melting process becomes daily more and more rapid. To prevent this all ice houses are, or should be, furnished with a drain that will carry away the water as fast as it is formed. Now, if this drain is neglected or ill-constructed it only increases mischief instead of diminishing it, for warm air readily passes up it, acts upon the ice, and reduces it to water. To remedy this evil such drains are usually formed like an S so as to insure the constant presence of water in the bend; but there are not a few inexperienced persons who neglect this, make the drain straight, and so destroy their ice. Were the ice to rest upon a framework placed over a thick bed of sawdust, itself properly drained, we imagine that the chance of this mishap would be much diminished.

After all it is a question whether an ice house is of any real use, and whether ice cannot be preserved quite as well without one. We have seen excellent ice taken in September from beneath a thick bed of mere straw in a plantation sloping quickly to the edge of a lake, the ice having been heaped upon a thick bed of straw when first drawn out of the lake. And we think it well worth ascertaining experimentally, wherever sawdust can be had in abundance, whether a bed of this worthless substance laid upon a shaded slope, then covered with ice, and the heap buried a yard deep in the same material would not do all that a costly ice house will effect even when successful. We have heard that peat earth has been thus used with some success in Scotland.

That the art of preserving ice in warm weather depends wholly upon keeping it surrounded on all sides by some good non-conducting material is, at all events, a matter that admits of no dispute.

HAZARD'S SYSTEM OF HEATING.

THE great interest your readers have always taken in the subject of Polmaise heating doubtless justifies your giving the prominence you did to the observations of your Lancashire correspondent on this system. As the patentee of a new plan of heating which possesses all the advantages without the disadvantages of Polmaise, and which is much in use, and was in fact produced for the sake of remedying the errors of Polmaise, I hope you will permit me to say a few words in reply to the statements you have "produced" in your last Number.

From a long course of practical experience I can confidently say that there is nothing to equal a rapid moving current of pure warm air circulating within the house, whether it be called Polmaise or any other system. Its advantages are most remarkable in the latter end of the month of January, during February, and the commencement of March, when, from the severity of the season, and the prevalence of easterly winds, it is impossible to air houses heated by hot-water pipes or flues running round the house. The plants in such houses then look sickly and droop for want of that warm air which is so essential to their growth and strength, whilst in houses where we have a circulation of warm pure air such as I describe, plants and fruits will be found in luxuriant foliage, healthy, and growing as in the very height of summer.

Now, the great drawback to the Polmaise system was not the principle but the manner in which it was attempted to carry it out, viz., that of warming by means of a hot plate or some similar contrivance. The wrought iron stove or cockle mentioned is nothing new; it is used by hundreds of engineers. But this has its disadvantages also. By increasing the size you extend the radiating surface of necessity, and thus you commit a cardinal error, because you increase the internal area, and as matter of course diminish economy. After all this same stove is nothing more nor less than a large Arnott stove encased in a brick chamber, and is anything but economical. My experience has proved to me that it is of no use in the present day to offer gentlemen even a good thing unless it be at the same time cheap. Economy is the order of the day. I therefore abandoned this description of cockle, and adopted a system of my own—now, I flatter myself, well known as Hazard's system of heating. By this, with the aid of an invention I have just patented, which I have called the Patent Heat Extractor, I am enabled to say, "Give me only the waste heat from the smoke from one of the best warming apparatus, and I will produce you a greater quantity of pure warm air than you can obtain from the apparatus itself."

Your correspondent gives an illustration of the Polmaise system in heating a church. If the stove was large enough why erect a second one of brick? A brick stove is always costly in working, as from the slow radiating powers of the material, the whole of the heat will be constantly passing up the chimney.

Of hot water I would beg to observe that it is expensive in first erection and in after use, and all experienced gardeners admit that the waste heat up the chimney is very great. It was to obviate this that I invented my Heat Extractor, and I can only say to those who your correspondent states will ever prefer the hot-water system, examine the merits of the Patent Heat Extractor.

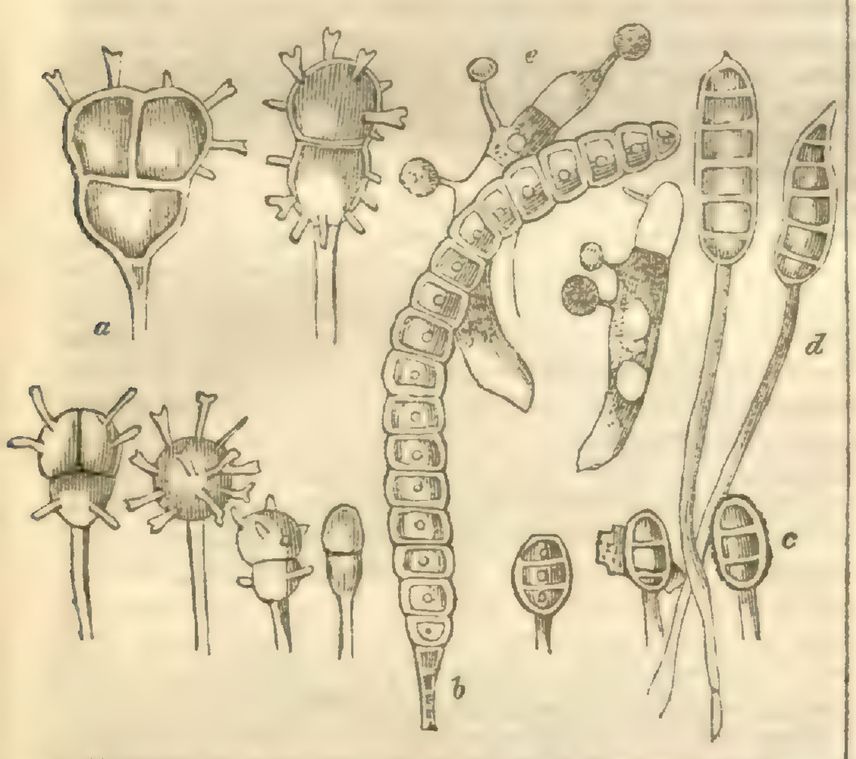
Although I profess to give by my heating system a current of *pure* air, I have no wish to give to my epistolary efforts a current of purer motive than they are entitled to. You have already been so kind as to notice my system, and as you have given currency to the

opinions of a correspondent upon a system which, although good, may be said to have become almost obsolete, I venture to claim from you the extended courtesy of insertion in your truly valuable journal of this reply, permitting me at the same time to say that although my motive for addressing you may be tinged with the vulgarity of business, I have also much interest in the question as a matter of science connected with my profession. *Robert Hazard, London, Jan.* 1.

VEGETABLE PATHOLOGY.—No. CXLVIII.

608. PARASITÆ (*Triphragmium, Phragmidium, Xenodochus*).*—As *Puccinia* differs from *Uromyces* in the accession of a dissepiment dividing the spore into two parts, which though never losing their adherence are nevertheless each of them capable of germination and of producing spores of the second order, so these genera severally differ from *Puccinia* in the accession of fresh dissepiments. In *Triphragmium* this usually takes place by the vertical division of the upper cell, but in a species from Texas, *T. deglubens*, sent to me by Mr. Curtis on some Leguminous plant, the second dissepiment is horizontal like the first, and from this *Phragmidium* differs merely in the greater number of dissepiments, and *Xenodochus* in the multiplication to such an extent that the threads become curved and ultimately break. In all, the spores are accompanied by one-celled stylospores, formerly referred to *Uredo*, and in *Triphragmium* and *Phragmidium*, spores of the second order are formed upon the germinating threads, which differ only from those of *Puccinia* in being globose instead of broadly cymbiform. The germination of *Xenodochus* has not yet been observed. In *Triphragmium* each cell has only a single pore for the emission of the mycelium, but in *Phragmidium* there are mostly three, and these lateral, even in the terminal joint.

609. *Triphragmium* was for a long time supposed to be confined to *Spiræa Ulmaria*. A beautiful form has lately been found by Tulasne on *Spiræa filipendula*, a second species occurs on *Isopyrum Thalictroides*, a third was found by Leveillé on *Meum athamanticum*, and I now figure two additional species, *T. deglubens* and



a. Triphragmium clavellosum, Berk., from Montreal. *b. Xenodochus paradoxus. c. Triphragmium deglubens*, Berk. and Curt. *d. Phragmidium speciosum*, Schwein. *e.* Secondary spores and mycelium of *Triphragmium ulmarium*, after Tulasne. All more or less magnified.

clavellosum, the latter of which grows apparently on some Cherry, and is remarkable for the forked processes with which it is sparingly clothed, and the rather long hyaline stem. Leveillé's species on *Meum* like this has spinulose processes, and like the former of them parallel dissepiments.

610. *Phragmidium* has at present occurred only on *Rosaceæ*. The Raspberry, Bramble, lesser Burnet, and Strawberry Potentilla produce well known species, but far the most interesting is *P. speciosum*, which occurs on Roses in America, and which were it once to assail our Rose gardens would be a most intolerable pest, as it attacks the twigs and forms such large and dense tufts that it would soon exhaust all their energy. The other species, though sometimes abundant, especially that upon the Bramble, can scarcely be said to be formidable pests. The spores, as far as is known, do not germinate till the spring of the following year, when the tender leaves of their matrix are ready to receive the infant mycelium, a fact equivalent to that which Fries has observed in the *Rhytisma* of the Maple.

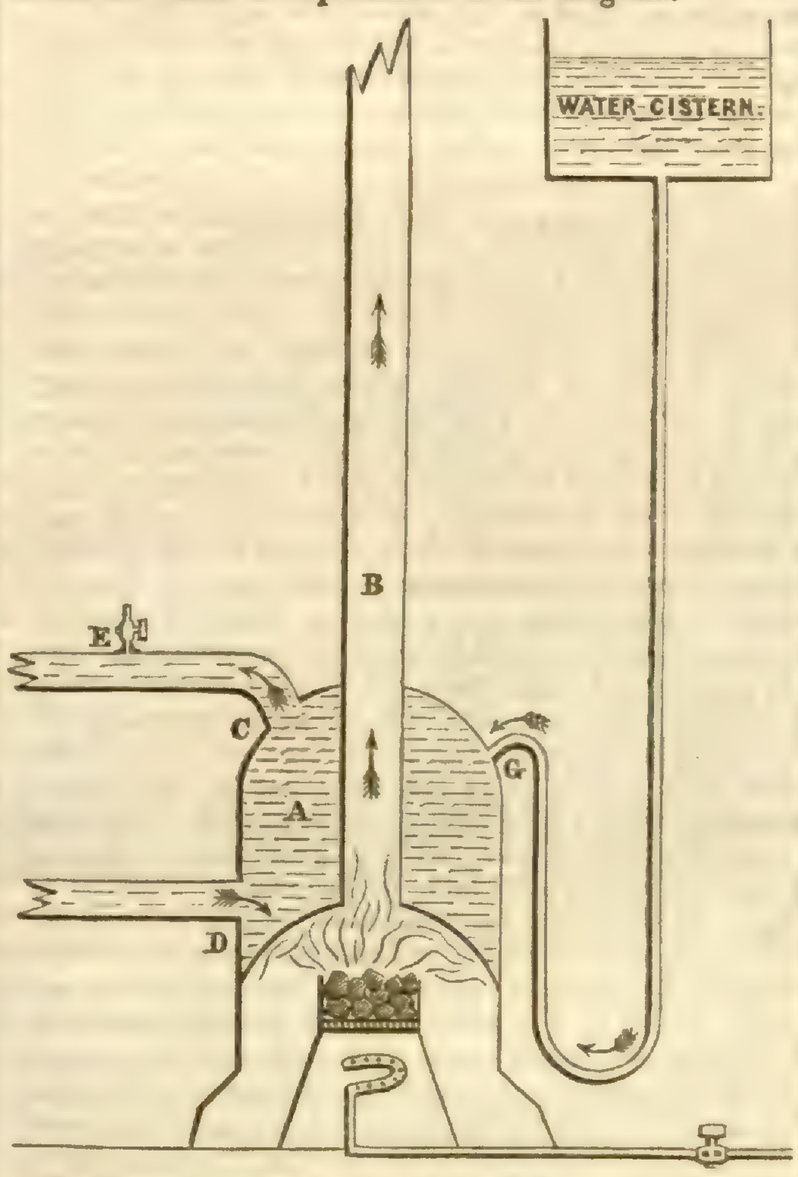
611. *Xenodochus* has hitherto been found only on the greater Burnet, and is especially interesting, because it seems the highest stage at which a *Puccinia* can arrive without the addition of the gelatinous element which makes *Podisoma* so conspicuous and so different to the outward eye from all allied parasites, and secondly because it connects these true parasites so clearly with such false parasites as *Torula*.

612. With this genus our remarks on the Uredinoid parasites will close, which though once despised and advisedly considered worthy of neglect as incapable of definition, and mere metamorphoses of the cellular tissue of plants, are now by the researches of Tulasne and others proved to be amongst the most interesting of fungi, and as clearly productions perfectly distinct from the matrix, and subject to their own especial laws, as the highest Agaric or Batarrea. The knowledge, too, that the germination of the spores of many species, especially those in which they remain firmly attached to the matrix, does not occur till some months after their production, is calculated to throw great light on the mode of their development on the especial plants which they attack. This we trust will not long remain a mystery, and the circumstance of a prize for this especial object having been proposed by the French Academy, leads us to hope that the same tact and perseverance which has unravelled so many mycological knots will be rewarded with the development of this also. *M. J. B.*

* *Triphragmium*, from τρις thrice, and φραγμα, a dissepiment; *Phragmidium*, from the latter root, and ειδος, resemblance; and *Xenodochus*, from ξενος, strange, and δεχομαι, I receive, in allusion to its parasitic habits.

GAS HEATING.

SEVERAL plans have been from time to time adopted for the purpose of heating small greenhouses, but to all of these more or less of objection would seem to apply. I have for the last four or five years made use of an apparatus for heating water by means of gas, which answers exceedingly well and is very easily managed. As it is desirable to economise as much as possible the use of the gas it is necessary to preserve an equilibrium between the heating power and the quantity of water to be heated, and this is managed by doing away with the open cistern usually employed, and at the same time preventing any fear of explosion from the formation of steam. Thinking that the plan might be useful to some of your readers I forward a description of it. A is a small copper boiler convex at the top and concave at the bottom, with a pipe B passing through it for the purpose of conveying away the foul and heated air resulting from the combustion of the gas. The boiler should be placed as near the bottom of the greenhouse as possible, and the pipe may be carried up the wall to an opening in it near the top. It is best made of copper, for though more expensive at first it will last longer than an iron one, and will give out heat more rapidly. To the boiler a pipe flow and return is affixed at C and D; this is carried round the house, and is of iron, one inch diameter. In the flow pipe at a little distance from the boiler at E a small stop-cock is inserted; this by allowing the air to escape will facilitate the filling of the boiler and pipes in the first instance, and enable any that may subsequently get into the pipes to be removed. A small zinc cistern is placed either in or outside the house, at a higher level than the boiler and pipe, and a small pipe such as is used by gasfitters passes from it to the boiler at G. This is filled with water, and by it the boiler and pipes. Heated water will always ascend to the highest point, and care must be taken in fixing with regard to the relative position of the pipes, or else the water in the cistern would soon be heated and the water in the pipes round the house would remain cold, but by a very simple expedient this may be obviated; all that is required is to bend the small pipe before it enters the boiler as represented in the diagram.



When the water in the boiler becomes hot the circulation in the iron pipe goes on, and if, as in my own instance, the heating power is only just sufficient to accomplish this no steam is generated, but should it be formed it will then pass through the small pipe and escape through the cistern. Now with regard to the mode of heating—below the boiler I have a small cylinder made of copper capable of holding a sufficient quantity of pumice stone placed on a fine wire-gauze partition, which will allow the gas from below to pass freely through but will intercept the passage of flame. The gas is laid on in the ordinary way, and a small ring-burner placed below the web with a sufficient number of openings made in it to diffuse the gas equally. When used it is turned on and lighted from the top. In a few minutes the pipe that carries off the foul air becomes heated, and in a short time afterwards the boiler and the circulation of the warm water goes on. If one or two things are attended to there is very little trouble in the management, and it will be easy to raise the temperature of the house to the required point—one is to take care that there is no air in the pipes, the smallest possible quantity will prevent the circulation. All that it is necessary to do will be to turn the stop-cock at E till the water flows freely. The supply pipe even just where it enters the boiler should remain cold; if it soon becomes hot, and the circulation of hot water through the pipes does not take place, it is almost certain that a small quantity of air has got in. Another point is to regulate the quantity of gas passing through the cylinder; if there is too much it will sometimes ignite from passing round the cylinder, and thus defeat the intended object. It is necessary occasionally to remove the cylinder and dust the web, so as to insure the free passage of the gas, or the same thing will happen. It will not be necessary to fill the cistern often, for there will be no more evaporation than is due to water contained in any open vessel. These matters being attended to it will go on burning for a month together if necessary, and there will be no occasion in the severest frost to get up to renew the fire, and it may be set in operation at any time by simply lighting it. If frost threatens it may be used for an hour or two, the temperature of the house raised to a proper point, and then immediately discontinued, and so on as may be necessary. *James William Ilott, Bromley, Kent.*

THE FIG TREE.

THE Fig is described as differing from other fruit trees in the remarkable property of bearing and in warmer climates ripening in the same year or season two successive crops of fruit, each being produced on a distinct set of shoots, and depending on two separate and successive flowings of the sap: the first flow, commencing in spring, is employed in the production of Figs on the Midsummer shoots of the preceding year, and in forming new shoots for the autumn crop; the second commencing in July, and causing the production of Figs on the shoots just named, and forming new shoots for the first crop of the ensuing year. This property, however, appears to be modified by climate; and whoever has observed the growth of the Fig tree in the open air, in a cold climate like that of Scotland, must, I think, conclude that it follows the ordinary habit of other fruit trees, in having only one flow of sap, and producing one set of shoots during the entire season; and consequently there is no such thing as a second show of Figs in autumn. Corroborative of this I may mention that near the end of last year I procured from the open grounds of one of the Edinburgh nurseries a Fig tree, which had been killed down to within 3 inches of the ground by the severe frost that occurred early in 1855, and consequently had only the growth of the ensuing summer, consisting of two shoots about a foot long, rising from the crown of the old stem or stole, which was about ⅜-inch in diameter, and a few suckers from the roots. The latter being removed, it was planted in the open ground against a south (aspect) wall, one of the reserved shoots having by accident in the carriage had part broken off. About the middle of May last the sap began to move, and its first effect was the putting forth of three young Figs—one at the first or lowest joint of the broken shoot, another at the fourth joint just below the fracture, and the third at the seventh or top joint of the unbroken shoot, immediately below the point of the shoot. From the dissimilar situations in which the Figs appeared, one at the very bottom near the crown of the old stem, and another at the very top of the shoot, it is plain that one set of shoots alone was made during the entire season 1855, for had there been in reality two distinct sets of shoots successively formed, one in prolongation of the other, there could not, from the mode of bearing of the Fig tree, have been Figs produced at the same time on shoots of a different age; nor could any Fig have been produced this year in such a situation as the lowest joint of the shoot, close to the parent stem—some three or four years old—unless it had been part of the same shoot as the top or last formed portion of it.

The influence of climate, however, in thus altering or modifying the habits of the Fig tree would seem to be merely a particular aspect or expression of a more general law in its economy, in which perhaps it stands distinguished from all other fruit trees. Mr. Knight, as quoted by Loudon from the Horticultural Transactions, made an experiment of forcing the Fig in pots in a stove throughout an entire year, winter as well as summer, and as the result obtained from the same tree four successive crops of ripened Figs from July to Christmas, 1819, and four more from January to July, 1820, making eight crops within 12 months. This gives an average of a month and a half as the term in which the Fig tree performed an entire round or course of its functions. It was no doubt by enlisting the conditions necessary to rapid growth and development, that such results were obtained; but there must be some great peculiarity in the nature and constitution of the Fig tree to admit of results which no kind of management could have extracted from any other fruit tree. In the South of Europe, where the Fig is naturalised, it perfects two crops during the active season of the year, spread over a period of about seven months, which gives three months and a half as the term in which it performs a course or round of its functions in those climates. Proceeding northward, when we come to the south of England, with a lower temperature, we find the Fig tree

incapable of completing two perfect courses during the active season of the year; for the crop of Figs, which in the south of Europe ripens in July, ripens in England only in September or October; and of the succeeding crop, which, in those climates, ripens in autumn, the Figs in England scarcely attain half their size, when the flagging energies of the tree succumb to the chills of autumn, and the half-formed immature fruit is subsequently destroyed by frost. We may therefore consider that out of a growing season of seven months, the Fig in England takes more than four to perform a complete course of its functions. Coming to Scotland, with a still lower temperature and an active season of six months, we find the whole period occupied in a single course of operations; all the functions of growth and development are performed slowly and with difficulty in an ungenial climate, and the fruit which is put forth in May is still green and hard in October, though full grown and perfectly formed; and it only begins to grow soft and ripen as the vegetative action of the tree comes to a close from the diminished temperature of the season. Thus we have the Fig in every phase of activity, from eight crops in the year and an average term of one month and a half for a complete course of its functions, effected under a high temperature and stimulating mode of treatment, down to a single term of six months, as the measure of its performances in one year, under a temperature scarcely sufficient for the due development of its productive powers.

The conclusion to which these facts seem to point is that the Fig, from a peculiarity in its nature and constitution, not possessed by any other fruit tree, is independent of a state of rest, except in so far as it is imposed on it by conditions as to temperature, moisture, &c., unfavourable to vegetative development, and that the relative lengths of the terms or periods in which it is capable of going through a course of its functions, varying, as we have seen, from one and a half to six months, are due in like manner to the more or less favourable conditions of temperature and climate to which it is subjected. The experiment of Knight would justify the inference that the Fig may be kept in a state of continuous productiveness, under suitable conditions of temperature and moisture and adequate supplies of nourishment, though it is certainly probable that the tree would soon be exhausted by such an exciting course of treatment.

The reproductive process is worthy of notice. There are three distinct stages in the progress of the fruit, each performed in a different part of the tree, and all three going on at the same time, as exemplified in the state of the Fig after the second flowing of the sap at Midsummer. Commencing with the first development of the shoot, the embryo Fig is formed in the axil of each leaf as the shoot extends, though it is not, as Knight observes, ordinarily visible to the eye, nor is it always developed afterwards in the perfect fruit, but often remains inert in the shoot. This is the first stage, and comprises one term or flow of the sap, when a revulsion takes place, giving a new direction to the sap and producing new results. This introduces the second stage; when the sap begins to flow afresh, and the shoot, now a season old (speaking in ordinary language, but with reference to the Fig tree, meaning only one term, or flow of the sap), puts forth its Figs, which continue to grow and attain their full size and perfect development during the currency of this term, or flow of the sap; but they do not ripen until the sap, on which their development depended, has ceased to flow, as exemplified in the early or spring crop of Figs, which, though brought forward by the spring sap, do not ripen till after the second flowing of the sap at Midsummer. The third stage is the ripening of the Figs, which, as just observed, takes place after the sap, to which their growth was owing, has ceased; and the shoot, which carries them, is now two terms or seasons old. In the two first stages the sap was the direct agent concerned in the formation and subsequent development of the fruit; but on what does the process of ripening depend? Observation inclines me to the conclusion that it is owing to just the opposite cause, viz., the gradual withdrawal of the sap, whether by its diversion to the production of new results, as at Midsummer, or by its cessation in autumn from the declining temperature of the season; for as long as the sap, on which the development of the Fig depends, continues to flow, it seems indisposed to ripen. In those climates where two crops of Figs are obtained during the active season of the year, the first, which is produced in the early part of summer, does not begin to ripen until the sap is diverted from the shoots which carry the Figs, *i.e.*, until a fresh flow of sap commences and is employed in producing a new set of shoots and a new crop of Figs on the shoots last formed; and again, when these last have attained their full size and perfect development towards autumn, the declining temperature of the season then steps in to moderate and ultimately to stop the motion of the sap, during which time it is that the ripening of the autumn crop takes place. In neither of these cases is the withdrawal of the sap sudden. In the former, what is called the second flowing of the sap is nothing more than a revulsion or change from its previous course and purpose to a new direction and object—its gradual diversion and withdrawal from the now perfectly formed Figs and completed shoots, for the purpose of producing a new crop of Figs and a new set of shoots; in the latter it is the gradual declining of the sap to a state of winter rest, during which the full-formed Figs are proceeding to maturity, but no new Figs or shoots are produced. This view of the means by which the ripening of the Fig is effected may perhaps serve to account for the practices resorted to in Fig countries for hastening the ripening of the autumnal crop of Figs, which however seem to be unnecessary. It is not difficult to conceive that towards the end of the active season of the year, when the Figs attain their full size but are still hard and green, there may yet be a sufficient amount of warmth and other agencies of growth to maintain the motion of the sap in a certain degree of activity, and keep the Fig tree in a growing state, while they may not be in such force as to produce a revulsion of the sap and an evolution of new shoots and Figs. As long as this state of growth continues the Figs will show an indisposition to ripen; and if the autumn should be more than usually open and moist, and favourable to growth, the period of ripening is likely to be proportionally protracted; hence it is probable that observation of this hanging, so to speak, in the ripening of the autumnal crop of Figs, suggested the idea of puncturing and other expedients for the purpose of hastening their maturity. But on the view here taken that result must come about of itself, without the aid of these expedients, by the gradual decline and cessation of the sap, provided the Figs have previously attained their full growth and development, in readiness for ripening; for if they should only be half grown, as in the south of England, when the cold of autumn catches the trees, it is of course impossible to expect that they can ripen.

A suggestion of a practical nature presents itself relating to the culture of the Fig in the open air in the south of Britain. There the second flowing of the sap takes place in July or August, coincident with which a new crop of Figs begins to be put forth on the shoots produced in the previous or early part of the summer, and a new set of shoots to be formed, which are to bear the fruit crop of the following year. Now these Figs, produced late in summer, never attain their full size and development, and consequently never come to maturity, but perish with the first frosts. In this short statement we have three undesirable results. First, a crop of fruit, which should have been the best, as being borne on the perfectly developed and matured shoots of the early part of the summer, is entirely lost; secondly, the tree is burthened with so much useless wood; for, practically viewed, it amounts to this, as these shoots, whose Figs have just failed, can never bear fruit again; and thirdly, the new shoots, which are to bear the crop of the following year, must have their fruitfulness or capability of bearing much impaired from their immature half developed state, when they are overtaken by the nipping cold of autumn, and their further growth put a stop to. The obvious remedy for these drawbacks resulting from defective climate is to give the trees the aid of glass; but as the present subject relates only to Fig trees growing in the open air, an inquiry may be ventured whether, since two perfect crops of fruit cannot be obtained in one season, the disposition of the trees to produce two sets of shoots may not with advantage be so restrained or modified as to prevent the production of useless wood, and secure well-ripened shoots for the next year? We have seen how readily the Fig tree accommodates itself to varieties of climate, performing no less than eight rounds or courses of its functions in one year, where a suitable climate is provided for it, and in opposite circumstances accomplishing only one. Would it not then be possible to modify the climate so as entirely to prevent the second flowing of the sap, which is useless in every part of Britain, and limit the functions of the Fig tree to maturing one crop and preparing one set of well-ripened shoots for the ensuing year? Whatever would have the effect of retarding its starting in spring, and of keeping it backward in the early part of the growing season would be serviceable to this end, by proportionally putting back the period at which the second flowing of the sap would be disposed to commence into late summer, when probably the conditions not merely of temperature but of other agencies necessary to vigorous growth would not be in sufficient intensity to effect such a change as the revulsion of the sap, or diverting it into a new course. In Scotland, where, as I have observed, there appears to be no second flowing of the sap, it does not begin to move till the middle of May; in the south its movement might perhaps be deferred to a later period, and the first stage of growth retarded by artificial means; as the placing of an opaque screen on the south side of the Fig tree until the season was pretty well advanced, and it became desirable to open up to it the full influence of the sun. Mr. Rivers mentions transplanting as a good means of retardation; but it would require experience to determine whether such a mode of treatment could be advantageously adopted in the case of the Fig tree. The ripening of the Figs would certainly be rendered considerably later by recourse to such expedients; but it does not follow that they would either be inferior in sweetness and flavour, or that they would be less perfectly matured than in the ordinary way; for, if the preceding observations on the ripening of the Fig be founded on correct views, it will be enough that the Fig be perfectly developed in readiness to ripen during the flowing of the sap, and maturation will ensue on its decline, notwithstanding the falling temperature of the season. The process of maturation and the flavour and sweetness of fruit do not necessarily depend on high temperature during the period of ripening; for some of our finest Pears ripen in the dead of winter, and quite apart from the trees on which they were produced. Were it then only with the view of securing a set of well-ripened shoots, from which there might be a prospect of obtaining a more abundant crop in the ensuing year than is to be looked for from immature shoots formed late in the season, it would deserve consideration whether it may not be practicable to modify or control a habit or function of the Fig tree which in the climate of Britain is at least useless, and probably detrimental to its fruit-bearing properties, because imperfect, and to bring it into accordance with the ordinary conditions of other fruit trees. *J. H. H., January* 10.

Home Correspondence.

Ice Stacking.—I am a perfect tyro in stacking ice, and being so am desirous of ascertaining in a rather more detailed manner the way in which your correspondent "W. D." manages to build a stack of ice, using the large pieces for the walls of it, and breaking and ramming the centre quite small. My own view is, that he must necessarily force the sides down, unless he puts posts to support them. Will he be kind enough to enlighten me with another communication explaining this? I wish also to ask Mr. Maxton if when he first opens his stack, he finds much waste, and should thank him to state what proportion the loss bears to the stack. His statement of there being little or no waste in opening daily in a hot July seems extraordinary; perhaps he will kindly state how he manages so as to avoid this. We are purposing to stack some here, and before doing so I should feel greatly obliged by a few more hints from those who have succeeded so well. *Tyro.*

Old and New Roses.—I do not pretend to decide whether the old or new Roses are the best, but on reference to my note-book I find that 10 out of the 12 new Roses recommended by Mr. Paul were shown in his stand, which gained the first prize at the Royal Botanic Society's exhibition in July last. I will name them here—Madame de Cambacères, General Jacqueminot, Madame Martel, Souvenir de Leveson Gower, Gloire de Dijon, Prince Albert (Bon.), Madame Masson, Madame Vidot, Lord Raglan, and General Castellane, the two last the finest in the whole exhibition. My gardener informs me that there were no fewer than seven competitors. The grand tournament has indeed been fine sport for the on-lookers, but whether the professional is "transfixed" as yet is I think more than questionable. That catalogue thrust was certainly a splendid pass, but it has been met and repelled with equal dexterity; the professional may have been shaken by the collision, but I apprehend that he remained on the field in full bearing neither dishonoured nor overthrown. I wish some of your correspondents who are growers both of old and new Roses would openly enter the list of combatants, not only to induce Mr. Paul to continue the controversy but that their opinions might derive the weight due to real signatures. I do no question "A. R.'s" honesty of intention, but I amt apprehensive—"Cæcus iter monstrare vult." Some of the Roses named by your correspondents are comparatively indifferent in this neighbourhood, and it seems to me one may be deceived through other sources than those of interest. Is "A. R." really as well acquainted with the new Roses as with the old? If not, I would say "Experto crede." *Philalethes.*

How does the radicle penetrate a hard dry soil?—Many thanks to "W. D. F." for his explanation. I have long ago turned over the facts he mentions, but could never bring them to bear on the matter in question. My opinion is that roots do not penetrate stiff clays and hard dry marls by mechanical force. Examine the soft threadlike radicle; could you by any means bring yourself to believe that it could thrust itself through soil as hard as rock? De Candolle states that, "on the ends of the radicle we often perceive drops of a fluid of a slimy consistence, which in all probability has been derived from them." Other authors state "that the radicle exudes excrementitious matter." Now, is it not more likely that this so-called "excrementitious matter" is the soil that came in contact with the fluid exuded from the point or ends of the radicle, chemically dissolved, and possibly now in a condition to be assimilated by the plant? If we follow the root of the Oak many feet below the surface we find it carries us through a soil quite dry and hard. As it is the property of roots to seek nourishment from the soil, let me ask how they can absorb this without moisture, and how do they here obtain moisture excepting they have conveyed it themselves? I believe we are still in the dark as to the mode in which those soft thread-like radicles thrust themselves onward; for although they may have life, I do not see what power a thread has to thrust itself through a hard substance. Till we receive further information on this subject, I cannot help thinking that this fluid which has been observed at the point of the radicle is a solvent to break down the hard dry soil and allow the root to advance. This is an interesting, and, I am led to imagine, an important subject. I trust this discussion will not be allowed to drop till some further light has been thrown upon it. *Sigma.* [Perhaps our correspondents will excuse us for drawing their attention to the following extracts from Prof. Lindley's last edition of the *Theory and Practice of Horticulture*:—"The root, being the organ through which food is conveyed from the earth into the plant, is the part which is the soonest developed. Even in the embryo, at the earliest commencement of germination, it is the part immediately connected with the root that first begins to move, by lengthening all its parts and protruding itself beyond the seed-coats into the earth. But as soon as this primitive lengthening of the root has taken place,

and the upper part of the embryo, namely, the young stem, has begun to exist as a separate organ, the root changes its property, ceases to grow by a general distension of its tissue, and simply increases in length by the addition of new matter to its point. A root is therefore extended much in the same way as an icicle by the constant superposition of layer over layer to the youngest extremity, with this difference however, that an icicle is augmented by the addition of matter from without, while the root lengthens by the perpetual creation of new matter from within. Roots being furnished with the power of perpetually adding new living matter to their points, are thus enabled to pierce the solid earth in which they grow, to insinuate themselves between the most minute crevices, and to pass on from place to place as fast as the food in contact with them is consumed. So that plants, although not locomotive like animals, do perpetually shift their mouths in search of fresh pasturage, although their bodies remain stationary."]

A Vinery.—I am about constructing a Vinery of iron and glass (Hartley's rough plate), with due provision for ventilation. I do not intend to use artificial heat, my object being on a south wall to produce the climate of Mid-France, and my ambition being to grow Black Hamburghs and ripen them at the usual period without forcing. I propose to have the roots inside the house, making for them a special soil composed of good garden soil, freely mixed with small fragments of decomposed granite (chiefly feldspar), stick charcoal, and broken bones. I intend to concrete the bottom of the bed to prevent the roots penetrating into the subsoil, and to have the upper floor of the Vinery laid in loose bricks, that I may feed the Vines. Will you kindly say, 1. Is there any objection to the plan of having the roots inside the house? 2. Do you see any objection to (or omission from) the materials of the bed? 3. Shall I, in a well sheltered position, succeed without fire heat with Black Hamburghs? 4. What depth should I allow for the artificial bed between the concrete and the floor of the Vinery? 5. As I intend to make it a condition of my house to dispense with fire heat, what other Vines would you recommend besides Black Hamburghs? 6. As the Vinery is to be built against an old wall upon which fruit trees and Vines have been trained, and where red spider and perhaps Vine mildew may lurk, what had I better do to eradicate those things from the future Vinery? 7. At what angle should I place the glass roof to ensure the full effect of solar light and heat? 8. What objection is there (until the Vines get up and cover the glass) to introduce fruit trees in pots, and so make the Vinery do duty for a time as an orchard house? *W. M.* [By erecting a Vinery against a south wall to grow Black Hamburgh Grapes, you may in some seasons ripen them without artificial heat. With regard to your first query, there is no objection to your bringing the roots of the Vines inside the house; although it is not of much importance whether they are so or not when the Vines are not to be forced. To the materials of the bed, small fragments of wood charcoal, decomposed granite, chiefly feldspar, and broken bones, there can be no objection; but for its main constituent, namely, good garden soil, we should prefer the substitution, wholly or in part, of good rich turfy loam. Of this, together with the other materials, the depth may be 2½ feet, provided the drainage is considerably below this depth from the surface. Besides the Black Hamburgh, you may have a white Grape, the Royal Muscadine. In order to eradicate insects that may be lurking in the old wall, wash it with a mixture of soap suds, tobacco liquor, and sulphur; and to prevent the Vine mildew, scatter flowers of sulphur occasionally in the house. Under all the circumstances, an angle of 45° will give the best effect of solar heat at the time when it is most wanted. The structure will doubtless answer exceedingly well as an orchard house until such time as the Vines get up to cover the roof. In conclusion, we would beg to remark that we have not the sunshine of Mid-France. It sometimes happens that for weeks we have almost none; and instead of a progressively increasing temperature, Vines in houses without fire heat then experience a great drawback; and against that we would advise the introduction of some contrivance for heating; with that and a trifling expense for fuel at times, you can in all kinds of seasons insure well ripened Grapes, not otherwise.]

The Rose Discussion.—I have read with interest the remarks of your correspondents on Roses, old and new, and while the tide of numbers seems to roll against the professional the balance of truth is in my opinion in his favour. The position assumed by Mr. Paul is not I presume exactly whether the old or new Roses are the best, but whether the 12 old Roses named by "A. R." are or are not beaten. My sober judgment pronounces against "A. R.," and I would ask him whether old associations have not led him to over-estimate his old favourites? For many years past I have paid an annual visit to the Roses at the Cheshunt nurseries, and have every year picked up some real diamonds which have led me to discard some previously thought highly of. There, in a small spot, are usually concentred all the new kinds, and those who choose to go may see and judge for themselves. The proprietors deserve the thanks of amateurs for offering them this opportunity, and I am informed that they propagate the good new kinds only, throwing away the worthless. In justice to Mr. Paul I must say that I do not see with your correspondent "A. R." that he is in any "fix;" he does not condemn the old favourites, but merely states—in which I perfectly agree with him—that five of the kinds named by "A. R." as not beaten yet are second-rate in comparison with 12 of the best. Mr. Paul justly observes that things are small or great only by comparison, and the Roses may be what the catalogues make them in comparison with 600 varieties, and what he states them to be in the *Gardeners' Chronicle* in comparison with 12 of the best. I think that Mr. Paul is quite right in declining a controversy with an anonymous correspondent; his high standing in the Rose world quite warrants this course. I have dealt 20 years at the Cheshunt nurseries, oftener trusting to the judgment of the principals than to my own, and I cannot say that I have ever been "taken in." Among the new kinds recently received at their recommendation are—Hybrid Perpetual: Gen. Jacqueminot, Lord Raglan, Gen. Castellane, Jules Margottin, Auguste Guimoisseau, Madame de Cambacères, and their own glorious Hybrid "Vivid." The latter though but a summer Rose was this season the most beautiful in my garden. In conclusion let me thank Mr. Paul for his beautiful and interesting work, "The Rose Garden," from which many of us have long derived both pleasure and instruction. *A Rose Amateur of twenty years' standing.*

British Oak.—In looking over your abstract of our experiments on the Oak timber in the *Gardeners' Chronicle*, I regret much to find that two errors have been made by the person who copied the tables which were sent to you, and which I had not observed until I saw your abstract in the *Chronicle*. It appears that the 13th experiment is marked A, whereas it should have been B, and the 19th is marked B when it should have been A. There are some other mistakes which you will observe in the calculations relating to the deflections which I have endeavoured to correct in the tables which I inclose. I have taken the resisting deflection in all cases where the last weight has not been sustained two minutes, from the one preceding, as I imagined you intended; and I have added the 18th, 19th, and 21st to these tables, as I observe you have omitted them in the general average. [No.] These tables, if I am right, bring the averages a trifle nearer.

A. QUERCUS PEDUNCULATA.

No. of Experiments.	Resisting Weight.	Resisting Deflection.	Breaking Weight.	Breaking Deflection.	
	Stones.	Inches.	Stones.	Inches.	
1	64	5.25	68	9.50	Broke 1½ min. after the last weight was put on.
3	52	3.75	56	7.00	
7	56	5.50	60	9.62	Splintered with 56 stones, finally broke with a deflection of 9.625.
8	48	4.62	52	6.12	
10	52	4 87	56	8.50	
12	48	3.62	52	5.50	
14	52	3.37	56	4.75	
15	48	5.12	52	9.00	
17	60	4.62	64	8.50	
19	48	3.50	52	4.37	Broke suddenly.
20	60	5.00	64	9.00	
21	48	4.00	52	6.00	Broke suddenly in 1½ minute.
23	60	5.00	64	6.12	
	53.5	4.47	57.5	7.22	

B.—QUERCUS SESSILIFLORA.

No. of Experiments.	Resisting Weight.	Resisting Deflection.	Breaking Weight.	Breaking Deflection.	
	Stones.	Inches.	Stones.	Inches.	
2	44	3.87	48	8.31	
4	44	3.68	48	6.68	
5	48	5.00	52	9.00	
6	48	4.31	52	6.00	
9	44	4.50	48	9.50	Splintered at 6.000 deflection a minute before it bent to 9.500 and broke.
11	44	4.00	48	9.00	
13	56	4.87	60	7.00	
16	40	3.31	44	3.31	Broke suddenly.
18	48	3.68	52	7.00	Bent rapidly and broke suddenly.
22	56	4.68	60	7.50	
24	48	4.00	52	6.00	
25	44	4.25	48	5.50	
26	52	4.50	56	8.50	
	47.38	4.20	51.38	7.02	

Joseph Henderson, Wentworth Woodhouse, Dec. 26.

Brittleness of Elms.—Two days ago a main branch of a fine Wych Elm, not an old tree, was split off the trunk from the fork whence several great limbs sprung, and exhibited a curious phenomenon. It seems as if the fork, by allowing leaves, Moss, and water to collect in it, had accumulated a sort of mould, into which actual roots protruded in bundles, which seem to have been growing for a length of time from the sounder bark above. I had gone to see the tree from hearing it had nearly fallen on some little nephews of mine, and no wonder, as it was in that state of internal decay which such a condition would account for as I have described. *S.* [We recommend this statement to the consideration of the wise correspondents of the *Times*.]

Mushrooms.—Like your correspondent Mr. Robertson I am convinced that using spawn broken finer than is usually done does facilitate the production of Mushrooms. I spawned two beds on the 28th of November; in one the spawn was introduced in the ordinary way, for the other the same quantity was used broken fine, the largest bits not exceeding the size of a Bean. It was then strewed uniformly over the surface of the bed, and slightly covered over with the same dry materials of which the bed was composed, beaten as close as possible with a flat mallet. In eight days after, finding that the spawn had commenced vegetating freely, it was earthed over; and at the present time (Jan. 6) the bed is in full bearing, and the produce excellent. The bed spawned at the same time in the ordinary way, and otherwise receiving exactly the same treatment, apparently will not produce anything for several weeks to come. I presume therefore that I am right in attributing the early produce in the bed spawned on the new principle to the system pursued. At all events it is worthy of a trial. I am doubtful if the saving of spawn in this case is as great as is represented by Mr. Robertson. *George Westland, Carhead, Yorkshire.*

Law respecting Glasshouses.—In answer to the question of your correspondent "Sigma" as to what the decision was in the case (executors of late Matthews, clerk, *versus* Roe, clerk) submitted last term for the opinion of the Court of Queen's Bench, I beg to state that Lord Campbell said the Court would take time to consider, and therefore judgment will not be given until on or after the 11th January, the commencement of Hilary Term. The action (if I remember rightly) was one brought by the executors of a late incumbent to obtain possession of a greenhouse erected by him (not as "Sigma" supposed brought by the present incumbent to recover them). It appeared from Mr. Petersdorf, the defendant's counsel, that the houses were built in such a substantial way as to have become part of the freehold, and he therefore contended that they belonged to the defendant. If the judges should decide in favour of the plaintiffs, as the opinion they gave leads me to suppose, it will entirely subvert the existing law on the subject, which appears to be (by the many cases which have recently come under my own notice), that glass houses built in a substantial manner (the soil having been removed for the foundation) passed with the freehold to the next incumbent. The case is one of great interest to the whole body of the clergy, and the decision will be looked for with great anxiety by all who may in any way be concerned in a like matter. So many eminent counsel, too, have given their opinion so decidedly in favour of greenhouses being part of, and passing with, the freehold, that the judges' opinion will be of as much importance to the legal profession as to the clerical. *X.*

Roses and Rose Growers.—It seems to me that Mr. Paul has placed himself to a disadvantage in declining to continue the controversy about Roses. He was the first to condemn the indiscriminate puffing of new Roses (see supplement to the "Rose Garden," p. 4, published in 1853), and some of your correspondents' remarks, far from being antagonistic to his views, are but the echo of his opinions. That many worthless "new Roses" have been sold by Rose growers at high prices is, I fear, undeniable; but is it fair that Mr. Paul should be made amenable for the sins of the many? One disadvantage of his position is that everybody can speak as to the merits of the old Roses, but few are acquainted with the new ones. And how are the facts to be got at except by an appeal to the growers? While I do not think the latter pretend to be more honest than other people, I am not so unhappily constituted as to be thinning every hedge and rounding every corner for fear of being "taken in." I have always considered Mr. Paul one of the highest authorities on Roses, and his integrity of character is unquestionable. I thought that he was doing floricultural list supporters a service in naming the few really good from among the many worthless kinds annually imported. *A Nurseryman, but not a Rose Grower.*

Polmaise Heating.—In answer to your correspondent "L.", I may say that the air drains ought to be 3 feet by 2 feet 6, and that when Polmaise was at work in the gardens here, the fire used to be made up at 6 o'clock, and that in the coldest night nothing more was wanted till morning. The Polmaise stove which was taken down here had been at work six or seven years, and it was in as good order as the day it was put up. The stove which is now working in the schools has been there upwards of six years, and the stove in the church four years. All of them have been in constant use, and there has never been the slightest escape of gas. I may say the same of the stove at Wansfell, which is the place to see Polmaise in perfection. You are therefore most fully justified in saying that the one difficulty about Polmaise, that of the escape of gas, no longer exists. *W.*

Moss on Fruit Trees.—In your leading article of the 3d inst. is, "A Moss-grown orchard trenched two spades deep and drained 4 feet, will in any soil fit for fruit trees rapidly recover its health and keep it." The orchard here on a clay soil is "Moss grown," and we are about to drain it 4 feet deep; but surely it would do mischief to trench it two spades deep, and thus destroy all the roots within 2 feet of the surface? I am quite aware of the utility of root pruning and lifting young bush-grown fruit trees, but have always considered it injurious to destroy the roots of old Apple and other fruit trees near the surface. Have I been under an erroneous impression in this respect? Probably it is intended to trench only at a certain distance from the trees; if so, perhaps you will have the kindness to say in your next publication what space round each tree should be left undisturbed. *F. Kelly.* [We did not suppose that we should have been thought to recommend trenching up to the trunks of trees. What we meant was that the ground should be broken up 2 feet deep wherever room could be found between the trees without hurting their roots.]

Notices of Books.

A Practical Dictionary of the French and English Languages. By Léon Contanseau. (8vo., Longmans, pp. 529 in double columns.)

If any one description of book is more useful than another that one is a good dictionary; even as regards a man's own language it is almost indispensable, and to the student of foreign tongues it is his hourly guide and counsellor. But then it must be a good one, or it is apt to mislead as much as to inform. In the present state of our relations with France, which we trust will become every year more and more intimate, a thoroughly good French dictionary is most especially required, and it would be great injustice to Tarver, Boniface, and some others if we said one word in their disfavour. But they are too large for schools or as travelling companions, and too costly for thousands who nevertheless must have a French dictionary of some kind. Of the cheap works of this sort little can be said that their authors would like to hear; an idea of what some of them consider common words that every pocket dictionary must contain may however be gathered from Mr. Tibbins, who treats his French readers to the most astonishing collection of English words; we open his volume at random, at G, under which we find the following choice selection (*ne rideas*) in a single column, viz., Gammer, Ganch, Gantelope, Ganza, Garboard, Garboil, Gard, Gargarism, Gargol, Garran!!

The author of the beautiful volume before us is not a Tibbins. He has been for many years Professor of French at Addiscombe, is evidently a master of English as well as of his own language; and the long experience which he has had of the wants of students has been turned by him to excellent account. As to that indeed we must ask him to speak for himself. "When," says M. Contanseau, "I first began my career as Professor of French at Addiscombe College, I was struck with the great number of ridiculous mistakes made by the students in translating English into French. My first impression was that perhaps they did not take the trouble to consult their dictionary; but I soon found out that the fault was not altogether theirs, but that of the various dictionaries placed in their hands. By running over some of these books, I found that none of them gave all the different acceptations of words, and that the acceptations given were jumbled together indiscriminately, without offering assistance of any kind to the pupil, who was obliged to take his chance, and make his choice at random."

The result of this he illustrates by showing how impossible it is for a learner, when the same word in English has many different meanings, to select that which in French shall be the appropriate one. "In nine cases out of ten he will choose the wrong one. As for instance, '*That young lady is the richest match in the town,*' was not long ago brought to me thus translated: '*Cette jeune demoiselle est la plus riche* ALLUMETTE *de la ville.*'—'*The army took flight,*' '*l'armée prit le* VOL.'—'*In a desperate case,*' '*dans un* ÉTUI *désespéré.*' Such absurd mistakes could not have been made, had this dictionary been placed in the pupil's hands."

We do not call this an exaggeration, and we think that the author has taken all possible precaution in the present dictionary against the continuance of such mistakes. A careful examination of his pages has indeed assured us that he has produced a small compendious unpretending volume excellently adapted for every purpose of a teacher. It cannot fail to take its place at the head of school and travelling French dictionaries.

Those who have read *Lord Cockburn's Memorials*, one of the most interesting volumes that appeared last year (see our p. 486, 1856), are probably aware that it has been shamelessly misrepresented by an unknown writer in three of our periodicals. They will find in an *Exposure* (pamphlet), published by Black of Edinburgh, such an answer to this flagitious proceeding as must sink the anonymous Cerberus to the lowest depth of literary disrepute.

Who's Who for 1857 (Baily, square 24mo.), is again welcome in its cover of scarlet and gold. It is a very convenient adjunct to the writing table, containing as it does useful information respecting all the notables of the United Kingdom.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In mixed conservatories, that is, houses containing the principal display of bloom, and a miscellaneous collection of greenhouse plants, the use of fire-heat should be avoided as much as possible; for although artificial warmth is useful to most plants in bloom it is injurious to many hard wooded things which flower late in spring, and where these have to be wintered in the conservatory it should be sparingly used. It is not possible however to give precise directions as to the temperature which should be maintained; for so very much depends upon the kinds of plants the house may contain, and also upon the character of the house itself, that only general instructions can be offered, and these must be varied and accommodated to the respective circumstances which each case may present. Where Camellias, Epacrises, Heaths, and other Greenhouse plants form the principal floral display, 40° at night by means of fire-heat will be quite sufficient, but where the hardier stove plants or forced things are used for the decoration of this house, 40° will be the proper mean night temperature.

FORCING DEPARTMENT.

PINERY.—A night temperature of about 60° should be maintained in the fruiting pits, allowing it to rise to about 70° during the day or 75° with sunshine, and where the fruit is approaching maturity 5° higher may be kept up if this can be done without injuring the general stock. Aim also at maintaining a steady bottom heat of about 80°, which for the present will be warm enough.

VINERY.—Vines in houses about to be started should receive a dressing with the ordinary composition a few days before closing the house, rubbing it well into the crevices of the bark; also get the outside border covered if not already done; this however should have been effected before this season, so as to retain a portion of the warmth infused into the soil in summer, and to throw off heavy rains. Where very early Melons are required, seeds of some established variety should be got in at once. Cucumbers being very generally grown for early use, it is scarcely necessary to refer to these further here than to say that if not already done seeds should be sown now. These and Melons require plenty of light and moisture, and every care should be used to keep them clear of insects, and this renders it advisable to have them in a light by themselves. A small quantity of Strawberry plants may now be placed in a pit or frame where a temperature of about 45° can be maintained, keeping them close to the glass, and giving abundance of air whenever the weather will permit.

FLOWER GARDEN AND SHRUBBERIES.

Where any of the beds or borders require a dressing of fresh soil, this should be provided in order to have it in readiness to wheel on when favourable weather for such work may occur. Fresh soil is in most cases preferable as a dressing for flower beds to manure, which is apt to cause too luxuriant a growth for a first-rate display of flowers. On soils that are naturally poor, however, and where neither fresh soil nor decayed leaves can be had, a moderate dressing of well-rotted farm-yard manure will be useful; but this should be well mixed with the soil to the full depth of the bed, and not carelessly turned in and left in lumps near the surface, for in this case a gross habit of growth would be promoted early in the season; and as the principal part of the roots would be near the surface in the manure, the plants soon feel the effects of dry weather, whereas if the manure was well incorporated with the soil to the depth of about 18 inches, no ordinary amount of dry weather would injure the plants after they had once got fairly established. Shrubberies may be thinned where this involves only the cutting out of overgrown plants or lopping deciduous trees or the hardier kinds of evergreens; but where the latter generally require pruning, the work had better be deferred until March, except in favourable localities; for although where the winter proves mild such work may safely be performed at any time, it is never safe to depend upon this. Avoid getting upon or working the ground when it is in a soddened state, and if the workmen cannot be profitably employed at out-door work, get a good stock of pegs, Dahlia stakes, labels, brooms, &c. prepared, and stored away in an orderly manner so as to be ready for use when wanted.

HARDY FRUIT AND KITCHEN GARDEN.

If any transplanting of fruit trees has yet to be done this season it should be seen to while the weather is favourable for such work; also see to getting ground intended to be planted with young trees prepared, and spare no pains or expense to have this properly done, remembering that future success will very greatly depend upon how this is effected. Make sure of thorough drainage, and where the subsoil is unkind this should be removed, replacing it with some good fresh loam. When a large breadth has to be planted in one season, this expensive kind of preparation cannot always be afforded; but it is better to do such work only in such quantities as will allow of every precaution being used to ensure success, and it is useless to hope for this on some soils without making expensive preparations before planting. Get pruning and nailing forwarded as fast as circumstances will permit. Attend to keeping up a supply of Seakale, Rhubarb, and Asparagus, according to the demand and convenience, by introducing quantities of these roots into heat at intervals of about a fortnight. Where there is room to spare in the Mushroom house, the two former will be found to do exceedingly well there, and the supply will be obtained with very little trouble. A quantity of roots should be got up and laid in where they can be covered in case of severe frost, so as to avoid the chance of having to take them up when the ground is frozen hard. Also see to providing a supply of French Beans; these are frequently grown in early Vineries or in plant houses; but their liability to the attacks of red spider renders them dangerous inmates of such structures, and if it can be done they should be grown in a pit devoted to such purposes.—For land that has been long cropped with vegetables a dressing of fresh loam would in many cases be preferable to manure, and where this is wanted and can be obtained it should be got to hand, in order that advantage may be taken of frosty days for wheeling it upon the ground. Where fresh soil cannot be obtained, charred vegetable refuse may be made to answer the purpose.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Jan. 8, 1857, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep	Wind	Rain.
Friday 2	6	29.722	29.684	51	35	43.0	43	42	W.	.06
Satur. 3	7	29.266	29.110	50	37	43.5	43	43	S.W.	.04
Sunday 4	8	29.374	29.119	42	33	37.5	43	42½	S.W.	.13
Mon. .. 5	9	30.043	29.781	35	28	31.5	40	43	N.E.	.00
Tues. 6	10	30.279	30.032	36	25	30.5	40	42	N.E.	.00
Wed. .. 7	11	30.316	30.304	35	28	31.5	38	41½	N.E.	.00
Thurs. 8	12	30.308	30.221	42	35	38.5	37	41	E.	.11
Average..		29.994	29.750	41.5	31.5	36.5	40.6	42.1		.33

Jan. 2—Fine; very fine; cloudy.
— 3—Rain; slight rain occasionally; cloudy.
— 4—Rain; slight rain; cloudy; rain at night; boisterous.
— 5—Densely clouded; few snow flakes; cloudy; frosty; windy.
— 6—Densely overcast; sprinkling of granulated snow; frosty.
— 7—Overcast; hazy; cloudy; frosty at night.
— 8—Slight sprinkling of small hail; drizzly throughout.
Mean temperature of the week 1-10th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Jan. 17, 1857.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11	40.8	31.4	36.1	16	0.83 in.	4	6	3	1	5	8	2	2
Mon. 12	41.5	30.9	36.2	15	0.76	2	7	2	3	5	9	2	1
Tues. 13	42.6	32.7	37.6	15	0.29	4	5	4	2	6	6	3	1
Wed. 14	42.2	30.2	36.2	16	0.50	4	6	4	3	3	6	2	3
Thurs. 15	41.3	29.1	35.2	19	0.54	3	4	3	3	3	6	6	3
Friday 16	41.6	31.6	35.6	17	0.34	1	7	5	1	5	7	3	2
Satur. 17	42.4	31.0	36.7	19	0.48	3	6	2	3	3	8	3	3

The highest temperature during the above period occurred on the 14th, 1849, and 15th, 1852—therm. 59 deg; and the lowest on the 14th, 1838—therm. 4 deg.

Notices to Correspondents.

OUR CORRESPONDENTS will much oblige us if they will in future place the letters W C at the foot of the addresses of their letters, thus:—

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5, Upper Wellington Street,
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W. C.

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BOOKS: *S S L.* There is no such book as that which you inquire for‡

BRITISH OAKS: *Southampton.* We cannot open our columns to personalities. It is of no consequence who A may be or B; the question is, what are their opinions worth? A man is not deprived of the power of observation because of some peculiarity in his occupation. Among our best British botanists one, Wigham, kept a little tobacconist's shop, the other, Hobson, was a Manchester weaver. If you will place yourself in communication with any of Mr. Cumberbatch's people in the New Forest they will show you that you are entirely mistaken in every one of your statements. Undoubtedly plants of what were called Durmast Oaks have been largely sold by a nurseryman in Hampshire, every one of which proved to be false. But that was the fault of the nurseryman. The Durmast Oak, or Q. sessiliflora, *comes true* from acorns.

CUPRESSUS FUNEBRIS: *Const. Reader.* We would recommend you to let your young plant of this alone; it will alter in form when it gets older.‡

GREENHOUSE: *B A.* We cannot understand you. How can a sloping wall stand? The description you have sent us is incomprehensible. You should send a plan and explanation. Probably a flue passing along the middle and returning in the same way will be amply sufficient. Such matters are determined by convenience rather than by principle. On a horizontal line raise a perpendicular; the angle half way between the two will be 45°.

HEATING STOVES: *Eileanach* inquires whether he may depend on heating a 13-feet square orchard house, when heat is needed for slightly forcing Vines and Figs in spring and ripening wood in autumn, by one of Deane & Dray's Patent Suspension Ventilating Stoves, which burn coke. We are unacquainted with the operation of this stove.

HOGG'S EDGING TILES.—If Mr. Blackett will refer to p. 788 of last year's volume he will see that his letter of Jan. 1 was uncalled for; the explanation he makes having been already inserted.

HOTHOUSE TIMBERS: *Constant Reader.* Oak will, of course, answer for rafters and other principal timbers of a hothouse; but it is heavy and expensive, and unless clean-grown it is more apt to warp than Red Pine, which if good, at much less expense, will last for a lifetime.‖

MEDLARS: ? The only mode of keeping Medlars so as to prevent mould and preserve the moisture of the fruit, is to place them in a cool place where there is plenty of ventilation from the external air. They will not keep long.

NAMES OF FRUITS: *F.* As far as can be ascertained in this unfavourable season your Apples are: 1, Rosemary Russet; 2, Waltham Abbey Seedling; 3, Beauty of Kent; 8, resembles the Winter Coleman; 10, Winter Pearmain; 11, Blenheim Pippin; 15, appears to be Fearn's Pippin; 16, a Nonpareil, very like the Green Nonpareil; 18, "Branch Apple;" 20, is certainly not the Belle et Bonne, but a very good specimen of the Alfriston, a sort which, it appears, is suitable for your climate.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*Sub, Putney.* Chimonanthus grandiflorus.—*A Bye.* 1, Hardenbergia monophylla with white flowers; 2, Abutilon indicum.—*G S.* Thunbergia grandiflora.—*W. Sant.* Begonia xanthina.—*J St A.* Dendrobium speciosum.

QUERCUS PUBESCENS: *S* inquires if anybody in England has got the true Quercus pubescens, seen in German gardens, a native of the south-east of Europe? and will he describe it?

ROSES: *Rosa.* If the buds inserted last season have taken well, and although dormant are now in good condition, they will not be destroyed by removal of the plants, provided these are taken up, packed, and transplanted with due care. The shoots ought to be cut back to the inserted buds, but not closely so till the winter is over.

SALT IN THE AIR: *S* writes, "Can any chemist recommend a method of testing the presence of salt in the air, fogs, rain, or any atmospheric conditions during the prevalence of south-west gales, or even at other times, near the sea?

UNITED GARDENERS' BENEFIT SOCIETY: *Wm. Heale.* We are inquiring.

VINES: *H D.* For early forcing you may plant 3 Black Hamburghs 3 Royal Muscadine, 1 Sweetwater; and for a late house 1 Muscat of Alexandria, 1 Bowood Muscat, 1 Barbarossa, and 2 Oldaker's St. Peter will be suitable.‖

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AGENCY FOR A VALUABLE MANURE.—A Manufacturer is open to appoint a few respectable Agents for his Manure, which commands a ready sale, as its goodness is certified by 2000 Testimonials from all parts of the United Kingdom, and by many Farmers who have used it for several years.—Address, with occupation and references, R. T., at Mr. E. Colyer's, Printer, 17, Fenchurch Street, London.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.
THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—
From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*
"May 20th, 1850.
"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint."
Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

ROYAL AGRICULTURAL COLLEGE,
CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.
Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S,
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E
Assistant to Chemical Professor—A. Sibson.
Manager of Farm—J. Coleman.
The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum.
The chief attention of the students is directed to a diligent attendance on the Lectures on Practical Agriculture, Chemistry (Inorganic, Organic, and Agricultural), Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering, which have been so arranged that, where time is of consequence, a course of Lectures on each of the aforesaid subjects may be attended in two sessions or one twelvemonth, though a longer period is recommended to those who wish to go thoroughly through each department. The students are periodically examined in the subjects of these Lectures, and receive honorary certificates and prizes, according to their proficiency. There is an Elementary Class for those who are too young or too backward to attend the regular courses with advantage.
The practical Instruction in Agriculture is given by the Farm Manager on the Farm, where the students have an opportunity of becoming acquainted with and taking part in the manual operations of Husbandry.
A well-appointed Laboratory is devoted to instruction in Chemical Manipulation and Analysis, which are taught to each class of students in succession, under the superintendence of the Professor of Chemistry and his Assistant.
Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring, in the use of the Theodolite and other instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.
A Veterinary Hospital is fitted up for the reception of diseased animals of all descriptions, with Pharmacy, &c., attached, where the students have opportunities of taking part in dispensing the medicines employed, and of witnessing dissections, operations, &c.
A good system of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural Information in general.
Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy, Surveying and Mensuration, and other branches of a liberal education.
Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

TO LANDOWNERS.
THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.
THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.
The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.
No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the Plans and execution of the Works, which are controlled only by the Inclosure Commissioners.
The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.
Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.
Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.
For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

TURNIP CUTTERS & ROOT GRATERS of every description. Illustrations & Prices forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

CHAFF-CUTTING MACHINES, 58*s.*; OAT-BRUISERS, 50*s.*—Illustrations on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

AGRICULTURAL CARTS, 10*l.* 10*s.*; LIGHT WAGGONS. 15*l.*—Illustrations forwarded on application.
WILLIAM DRAY & Co., Swan Lane, Upper Thames Street, near London Bridge.

FURTHER REDUCTION IN THE PRICES.
LYNDON'S SOLID CAST STEEL DIGGING AND OTHER FORKS, ALL WARRANTED OF THE FIRST QUALITY.
MAPPLEBECK AND LOWE,
WHOLESALE AGENTS, BIRMINGHAM.

CRYSTAL PALACE POULTRY SHOW.—The GRAND SHOW of POULTRY, PIGEONS, and RABBITS is now open, and will continue open on MONDAY, TUESDAY, and WEDNESDAY next. Admission One Shilling. A Cheap Excursion Train will leave Bristol and Bath on the 12th and return on the 14th inst.

The Agricultural Gazette.

SATURDAY, JANUARY 10, 1857.

THE agricultural world was at first astonished and then amused some years ago by the offer of 1000*l.* as the reward of the clever man who should make a guano equal to Peruvian for 5*l.* a ton. But what will be thought of the premium just proposed by Messrs. GIBBS to speculators and inventors in the guano market! The offer of 1000*l.* is said to have excited considerable interest and attention, and very many claimants of the sum appeared. None of them however were successful, and the offer itself has been now withdrawn. Another much more likely to produce some fruit has within the last few days appeared. An annual income of half a million sterling is the fund from which the fortunate inventor is now to be rewarded! And it needs not that he invent a guano worth 5*l.* a ton: he has a margin 10*l.* wide, and even more, allowed him.

Messrs. GIBBS have raised the retail price of Peruvian guano to 14*l.* a ton. An advance at one step of 2*l.* per ton on the annual importation of this manure is more than the half million of money of which we speak. It cannot but greatly increase the activity and the energy, both honest and dishonest, that now characterise the trade and manufacture of manures. That guano was worth its higher price per ton most agriculturists knew. Whether in the face of increasing competition it is worth the price to which it has now been raised remains to be determined. One thing is plain, that, like the Royal Agricultural Society, the Messrs. GIBBS retain the power of withdrawing the premium they have offered. We hope that the increased competition to which they have thus subjected themselves will soon induce them to do so.

Meanwhile, as one considerable source from which this competition may be expected, our correspondent MR. BOWDITCH again calls attention in our columns to the "new manure," which gas waste furnishes.

"SIGMA" has published a pamphlet, inscribed to Mr. MECHI, in which he discusses THICK AND THIN SEEDING, and describes "a new and scientific method of seeding grain." He is not a thin seeder himself—indeed he may term himself a *very* thick seeder, for the land he seeds becomes so thickly covered with plants that the soil in a few months after seeding cannot be seen between the rows—however, he never seeds with more than two pecks to the acre! All this is stated in the opening sentences of his paper, and gives the key-note to the whole performance.

Besides its main object, the inculcation of a better style of Wheat culture, there is another purpose in

this pamphlet, namely, to advertise the invention of a very light and efficient hand-dibbling machine, capable of planting several rows at once, by which an accustomed hand can plant "nearly an acre a day." Having seen the machine we can recommend it as well adapted for its purpose. It is a great improvement on a dibbler which "SIGMA" issued some few years ago, and which we considered at the time to be the best implement of its class.

The machine will plant five rows at a time—three or four grains in a hole and two pecks per acre: and if the seed it sows shall all come up, and if the young plants shall find in the soil all the nourishment which it ought to give them, then, as they will above ground obtain all the benefit of air and sunshine which there they ought to receive, we have no doubt that "SIGMA'S" planted Wheat will yield an abundant crop. And as the conditions with reference to the soil and germination necessary to the success of so small a quantity of seed per acre shall become more general, a saving of seed even to the extent of the rental of the land will become, in some cases, possible and general. Let us have drainage and thorough tillage advocated first, however, and vermin kept in check, and hedgerow timber reduced in quantity; let us be sure that the seed we sow will grow, and that the young plants which spring from them shall be enabled to use all the opportunities which their thinness on the ground affords, and then we may be content to sow but four or six seeds in a square foot of land, instead of the 20 or more that are sown at present.

The enormous waste of seed under ordinary practice has been known long ago to practical men. In his "Book of the Farm" Mr. STEPHENS pointedly calls attention to it—shows how half and even more of the result which ought to be expected from the proved productiveness of seed is lost in ordinary farming: and yet in that same book we see 6 bushels of seed Oats recommended per imperial acre. It was his duty to describe that actual practice in the first instance which Scottish agricultural experience exemplified and justified; and in spite of all his lamentations over this unaccountable loss, he did right to recommend whatever the experience of the intelligent, energetic, agriculturists of the best cultivated parts of Scotland indicated. And though we should have added the recommendation to try, as cautiously as might be, the effect of a gradually smaller seeding in order that each one might for himself put the experience of his predecessors to the test, yet there can be no doubt that in agriculture on the great scale so many hazards, dangers, difficulties, have to be encountered that a rule derived from an experience in garden plots will not generally apply. For instance, the neighbourhood of a rookery—the carelessness of a scarecrow—may itself lead to the destruction of half the seed over half-a-dozen acres—a thing which "SIGMA" would admit to be an advantage if they had been thick seeded, but which would be a serious injury if there had been only 4 grains put in every square foot of land.

Bearing, however, these considerations in mind—and remembering that a truly "scientific" practice is one which has reference to *all* the conditions under which it has to be performed—it is a good thing for established practice to be occasionally attacked by an enthusiast in any particular modification of it. Practical men are thus induced to reconsider the reasons for what they do, and adapt their practice continually to changing circumstances.

Of the way in which "SIGMA" treats his subject the following extracts will be sufficient illustration.

"I never seed with more than two pecks to the acre, but then I insert my seed with a machine which deposits every grain from 1½ to 2½ inches deep; the depth being regulated by the season of the year, and the quality of the soil; I thus cause every seed to grow. At the same time I should deposit, late in the season, the large number of six seeds in each hole, the rows 9 inches apart, and the deposits 8 inches apart in the row. Now I know full well that six grains in a hole is twice as many as needs be; but, when I undertake to plant other people's land for them—which I do just to show them what can be done—I dare not put in less than two pecks to the acre, the opposition being so great that I should be unable to persuade any one to try my plan. Six seeds in a hole, and all growing together! this might be thought decidedly unscientific—recollect the holes must be 8 inches apart in the row—yet I know from experience that this is better than three seeds in a hole at only 4 inches apart, or one seed in a hole at 1 inch apart in a 9 inch row. Isolated corn plants, or even three or four from one hole—for it matters little which, if they grow from a common centre—will grow in a circular form, and produce but one stool. It seems that nature intends that they should assume this Carnation or Pink-like shape, one reason being to protect the plant during severe frosts, and also to prevent its being forced out of the earth by frost, this mat-like form covering the soil and root, and serving to preserve it. The roots also of isolated plants are considerably stouter than when they grow thickly, and extend a longer distance into the earth in search of food, staying the plant, and keeping it erect during heavy rains and winds. A plant of Wheat, if it is allowed sufficient room and it be early sown, will grow as large as a cheese-plate, and it will retain this shape till all danger from frost is over; then, when the warm weather appears, the stems, by means of their joints, will all be lifted up to allow the sun to warm the soil, and in conjunction with the air to dry and soften the stems. No fear of lodging here. The saving of seed alone by 'planting' in this way is more than equal to the rent; and it cannot be very consolatory to old men, who have on an average seeded 30 acres of Wheat annually during the last 40 years, to reflect that they might have saved in seed alone upwards of 1200*l.*, to say nothing of compound interest. For the future this can be saved."

"SIGMA" refers further to a drag hoe of his invention, a simple tool, the blade not more than half an inch wide, very thin, and sharpened on each edge, "so that when one edge is blunted the other edge can be turned and used. This thin sharp blade, slightly ribbed in the centre to give strength, is turned up about 3 inches at each end, to prevent the corn being cut, and to allow the cut off weeds to pass behind it; these ends, being stouter than the blade, fit into two slots or mortices made in a bar of iron: a handle with a goose neck is fixed to this bar. This little hoe varies in width according to the width of row to be operated on: it cuts off every weed about an inch below the surface, but deeper should stirring be needed; the blade being then set at a different angle by means of set-screws in the slots. It cannot hoe up the corn unless dragged into it. Now what does this little instrument effect? It is hard perhaps to believe, but three times as much as any common hand hoe, and it is so light and easy in its operation, that even a woman or lad can hoe nearly an acre a day in the best possible style."

Many of our readers saw these tools last month at the Smithfield Club meeting in Baker Street, and are perfectly able to judge of their efficiency. To us they appeared all the more likely to succeed from the simplicity which their inventor has so successfully preserved in them.

MR. BRANDRETH GIBBS, of Half Moon Street, Piccadilly, whose energy and activity at the previous agricultural meetings at Paris have already been acknowledged by distinctions conferred by the French Government, has received a supply of prize sheets and blank forms of certificate, to be filled up by intending exhibitors at the fat stock show at Poissy, in April next. Applications therefore should at once be made to him for the means of giving notice to the proper authorities of an intention to exhibit in any of the classes under which fat cattle, sheep and pigs, are to be arranged.

THE "NEW MANURE."

I HAVE pleasure in sending you some further particulars relative to the effects of my new manure, which your readers will perceive strikingly confirm results obtained previously.

I. *Potatoes.*—I had about half a ton per acre of this manure mixed with an ordinary dung-heap, and planted 3 acres 8 perches of Prince Regent Potatoes with the compound. The man set to mix the manures did it so badly that parts of the mass contained none of the gas-works refuse, and parts contained it in such abundance that I quite expected the crop to be destroyed where this was put. To my surprise no evil resulted, and when the Potatoes were harvested they were found to give a largely increased crop where this excess of the new manure was put.*

Another unexpected result came out which I investigated jealously, as it tends much to support the fungoid nature of the Potato disease which you have so ably advocated, and to weaken my argument for the electric origin of that scourge. All the tops indicated disease to a considerable extent, and this indication in the tops was as visible in one part of the field as in another. When the crop was dug, however, there was found to be a considerable difference, and this difference was too uniform to allow of its being called accidental.

1. Where the gas-works manure was found in quantity, no disease.

2. Where there were but traces, a little disease.

3. Where none, much disease. The explanation of this is easy enough upon the fungoid theory. The gas refuse contains carbolic acid (or as it is generally called creosote), and it is well known that fungi will not grow in the presence of either of these agents. The carbolic acid would lie amongst the tubers, and would therefore prevent an attack of fungus; but the stems having no such preservative agent were attacked in the ordinary manner. The diseased stem could be easily traced quite within the ground, but at a particular point it appeared quite, or almost, sound. The tubers were both sound and clean, and an excellent crop, as I have said already.

This experiment will not entitle any one to infer that we have a specific for the disease, but it is sufficient to induce a number of competent persons in various parts of the country to repeat it, that we may determine whether the result is accidental or the regular sequence of a natural law. Should any one put the matter to the proof I shall feel obliged if he will favour me with the result.

II. *Wheat.*—The White Wheat grown by me after Mangel (mentioned in my previous communication in August last) was a better crop than that after Potatoes in the same field. The straw was stronger, the crop less laid, and the Wheat plumper.

III. *Grass.*—The crops of after Grass (fogg) upon the fields I mentioned were superior in their way to the first crops, and enable us to determine the feeding quality of Grass thus grown. In Mr. Thompson's field the cattle selected the Grass of the part to which this manure was applied in preference to that dressed with lime, or that with farm-yard manure, and they ate it so bare that no opinion could be formed as to the relative productiveness of the different portions.

In Mr. Turner's field the Grass grew so rapidly that 30 sheep and 13 small Irish cattle could not consume it, and the farmer who bought it was obliged to increase his stock. At one time he had 33 bullocks in it, and he informed me that he never saw cattle thrive faster. This is satisfactory, as a mere increase of quantity would not be of much importance unless accompanied by an increased feeding power.

I shall close the subject of Grass by an extract from a letter to myself, written by an old correspondent of yours, who is well known as an experienced agriculturist—H. Briggs, Esq., late of Overton, now of Outwood Hall, near Wakefield:—"In reply to your inquiries respecting the effects upon Grass land of the clay used for purifying gas as practised at the Wakefield works, I beg to state that in my opinion, and from my experience, it operates as a manure when used sparingly and very equally distributed, say two tons to the acre,† but if a greater quantity is applied it will burn up the Grass in the first year of its application; though in the subsequent year vegetation will be doubly luxuriant."

I may just observe that Mr. Briggs directed one of his men to put some of this manure on part of his park. The man put on too much and burnt up the Grass in 1855, but in 1856 the Grass grew on these burnt spots, as stated above. Farmers will readily see in this an evidence that the power of the manure for good is not expended in the first year.

Onions.—Half an acre of land was manured with ashes and nightsoil and about 15 cwt of the new manure, and sown with White Lisbon Onions in July last by Mr. Turner. He spread the manure upon the land, and merely harrowed it in immediately before the seed was sown. The natural consequence of this was that some of the seed came into contact with the manure, and where this happened it was of course killed. The crop grew well from the first, is now good (although rather thinned by an attack of grub), and promises well for the future. You shall have some of the Onions sent when they arrive at maturity.

Experiments with this manure upon Onions, Garlic, Mustard, &c., are of considerable philosophical interest, and should be made and accurately reported by persons who have facilities. Your readers will be aware that the above and several other cultivated plants contain characteristic sulphuretted essential oils of which the types are oil of Garlic and oil of Mustard. Oil of garlic is the sulphuret of allyle

$$C_6 H_5 = All\ S$$

while oil of Mustard is the sulpho-cyanide of allyle

$$C_6 H_5 + N S_2 = All\ Cy\ S_2$$

The foul clay has abstracted from gas and retains a large quantity of sulpho-cyanide of ammonium, &c., and this ought to exercise a specific effect upon such a plant as Mustard, of which the essential oil is a sulpho-cyanide.

The known decompositions of sulpho-cyanides would also lead us to look for the same specific influence upon Onions, &c., and it is to hoped that extensive growers of the various crops who are necessarily familiar with their modes of growth will make and publish experiments bearing upon this point. I take the liberty of suggesting some conditions necessary to the production of trustworthy results.

1. No other manure should be used.

2. The manure must be kept from contact with the seed or it will kill it.

3. The manure should be finely pulverised and put on a few weeks before sowing time if possible. The quantity applied may vary from half a ton to 2 tons per acre.

4. The manure should be well mixed with the soil by harrowing or raking, and need not be buried more than an inch or two.

Several persons have inquired the name of this new manure. It has not yet had the honour of a name, but may be called from its chief constituents "Nitro-sulpho-Cyanic." *W. R. Bowditch, St. Andrews, Wakefield.*

* The men who dug the crop maintain that it was double on these spots what it was on other parts of the field. I can hardly think this.

† This is too much; from 1 ton to 1½ ton is ample for Grass. *W. R. B.*

A "STIFF CLAY FARM" ACCOUNT.

IN compliance with your wish I send you the inclosed statement. It is often said that a "gentleman always loses by farming his own land." Without arrogating to myself that title, I am satisfied that, as a proprietor using my own land, my farming concern is remunerative. It is very true that for seven years prior to 1849, my account did not show much rent or interest, but I am convinced that both were invested in the land. At Michaelmas 1849 I considered myself insolvent as a farmer. I sold my stock and bought it, by valuation. I let my land and hired it, at a rent exceeding by more than one-third what it was let for when I bought it. The following account will show the result. It will probably be said, and with reason, that 4 or even 6 per cent. on capital is not a sufficient remuneration to a tenant farmer; but the generally progressive succession in the Corn Account is evidence that the actual improvement in the land is to me, as proprietor, equal to a very large additional interest on my capital. The publication of the statement may be useful if it should induce "Gentlemen Farmers" to look closely to their accounts, and all occupiers of land, whether proprietors or tenants, to adopt the easy plan of keeping their current accounts in columns, as in the statement, so that the increase or decrease under any of the different heads of receipt or payment may be ascertained at any time of the year, and comparatively one year with another.

—— Si quid novisti rectius istis,
Candidus imperti—si non, his utere mecum.

—— £ s. d.

Statement of the Receipts, Payments, and Valuations, from Michaelmas, 1848, to Michaelmas, 1856, of a "Stiff Clay Farm in Hand," consisting of 60 Acres of Grass and 90 Acres of Arable Land, in which the Routine of Crops is

As to 13 acres, three course.
Viz., 1. Beans or Pease (a)
2. Wheat
3. Rye, Trifolium (b), or Tares followed by Swedes (c)

As to 77 Acres, eight course.
Viz., 1. Beans or Pease (a)
2. Wheat
3. Clover
4. Oats (d)
5. Tares or Trefoil (b)
6. Wheat (b)
7. Roots (c)
8. Barley or Oats (b)

MANURES:—(a) Dung. (b) Guano. (c) Do. and superphosphate of lime. (d) Lime or marl on the Clover stubble.

RECEIPTS.	Value of Corn consumed by Fatting Stock.		Corn.	Hay and Straw.	Roots.	Stock.	Poultry.	Dairy.	Sundries.	Total.
			RECEIPTS FOR							
	£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
In the year ending at Michaelmas 1849 ...	28 10 0	... ...	123 19 4	41 15 3	9 15 3	543 19 1	16 7 4	30 1 5	4 5 10	770 3 6
Ditto ... ... 1850 ...	89 10 0	... ...	117 2 3	63 1 7	14 15 4	651 10 2	22 1 4	26 13 11	19 8 8	914 13 3
Ditto ... ... 1851 ...	80 0 0	... ...	177 5 0	59 14 9	22 4 0	718 4 11	23 0 4	29 9 3	20 10 10	1041 9 1
Ditto ... ... 1852 ...	103 0 0	... ...	335 4 2	59 11 8	55 4 2	774 1 10	28 13 9	28 2 10	5 4 6	1286 2 11
Ditto ... ... 1853 ...	90 0 0	... ...	341 17 1	58 4 3	43 6 11	862 18 3	15 0 6	37 5 9	26 8 3	1385 1 0
Ditto ... ... 1854 ...	36 0 0	... ...	435 7 7	64 4 9	60 12 5	927 6 4	15 8 6	32 18 6	31 2 11	1567 1 0
Ditto ... ... 1855 ...	120 0 0	... ...	483 7 3	49 4 10	57 4 2	694 4 11	13 12 0	34 17 0	22 1 9	1354 11 11
Ditto ... ... 1856 ...	157 10 0	... ...	385 15 8	32 19 7	0 7 0	602 19 5	16 3 0	37 13 0	22 10 4	1098 8 0
	676 0 0				253 14 0	5231 5 10				

PAYMENTS FOR

PAYMENTS.	Labour.	Lean Stock for Fatting.	Other Stock.	Food for Fatting Stock.	Corn, Seeds, &c., not consumed by Fatting Stock.	Manures.	Tackle.	Taxes.	Sundries.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
In the year ending at Michaelmas 1849 ...	237 12 7	463 13 9	25 9 0	108 19 8	97 19 9	104 1 8	57 9 1	58 15 11	4 2 10	1158 4 3
Ditto ... ... 1850 ...	239 9 2	257 13 4	4 4 6	122 11 6	15 4 9	138 19 6	26 8 4	60 16 7	1 6 11	866 14 7
Ditto ... ... 1851 ...	227 2 10	432 18 7	12 14 0	146 11 3	27 14 10	128 9 9	34 14 11	56 5 8	1 5 1	1067 16 11
Ditto ... ... 1852 ...	255 7 1	534 7 3	19 5 6	148 0 3	43 18 9	69 9 9	27 5 9	59 4 0	4 12 0	1161 10 4
Ditto ... ... 1853 ...	274 9 11	648 1 10	10 19 0	146 13 10	27 17 11	77 10 10	37 7 0	54 19 4	2 7 5	1280 7 1
Ditto ... ... 1854 ...	323 16 3	375 16 10	10 0 3	268 0 8	60 11 3	108 5 3	44 11 3	66 5 4	4 6 4	1281 13 5
Ditto ... ... 1855 ...	308 4 3	252 10 0	0 4 0	149 2 5	35 3 10	62 9 10	57 0 8	63 17 0	2 15 8	931 7 8
Ditto ... ... 1856 ...	320 2 8	361 0 6	1 16 6	51 13 5	23 13 6	68 3 0	26 18 11	67 4 2	3 10 9	924 3 5
		2862 8 4		1032 13 4						

ANALYSIS OF VALUATIONS.

	Fatting Stock.	Other Stock.	Implements.	Hay.	Straw bought.	Old Corn.	New Corn.	Wheat Seasons.	Root Seasons.	Clover, Tares, and Trifolium sown.	Manures.	Half Mendments.	Underwood.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
1849	392 5 6	188 7 0	283 17 9	147 2 6	... ...	... ...	312 18 10	105 6 2	91 10 6	28 18 4	111 11 6	71 12 6	4 10 0	1738 0 7
1850	360 9 4	188 17 0	283 1 9	254 12 6	10 0 0	69 10 0	410 0 9	98 7 8	70 1 11	19 18 4	135 17 6	59 5 2	5 10 0	1965 11 11
1851	356 8 0	208 15 0	283 15 3	229 8 9	25 0 0	134 14 3	448 11 3	86 10 6	118 4 4	33 6 5	171 15 6	56 10 10	5 10 0	2158 10 1
1852	470 13 0	210 0 0	281 8 6	171 16 0	25 0 0	55 17 0	426 1 10	76 15 9	126 3 2	30 10 3	145 15 3	96 8 0	5 10 0	2121 18 9
1853	687 4 0	180 0 0	268 3 0	248 13 3	25 0 0	91 15 6	415 13 9	82 14 5	81 19 0	34 9 3	153 0 9	55 19 2	6 0 0	2330 12 1
1854	497 17 0	213 5 0	282 14 6	179 14 0	... ...	10 5 0	670 1 9	51 6 7	127 2 0	46 17 0	179 5 6	68 18 10	6 0 0	2393 7 2
1855	355 6 2	216 10 0	290 11 0	178 15 0	... ...	20 11 3	653 1 6	169 11 10	75 13 3	45 2 5	145 10 0	52 9 3	6 0 0	2209 1 8
1856	434 8 6	203 18 0	269 15 0	273 15 0	... ...	16 14 0	643 19 0	91 5 9	118 3 5	43 7 6	121 9 0	42 9 6	6 0 0	2265 4 8

Summary of Balances from Michaelmas, 1849, to Michaelmas, 1856. The Balance of the preceding Year cannot be accurately ascertained, because only a general Estimate of Farming Stock was made at Michaelmas, 1848, and not a regular Valuation by an Appraiser, as at, and since, Michaelmas, 1849.

	Receipts and Payments. In Hand.	Receipts and Payments. Deficient.	Valuations. Increase.	Valuations. Decrease.	Balance of Increase.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
At Michaelmas, 1850 ...	47 18 8	.....	227 11 4	.....	275 10 0
" 1851 ...	.....	26 7 10	192 18 2	.....	166 10 4
" 1852 ...	124 12 7	.....	.....	36 11 4	88 1 3
" 1853 ...	104 13 11	.....	208 13 4	.....	313 7 3
" 1854 ...	305 7 7	.....	2 15 1	.....	308 2 8
" 1855 ...	423 4 2	.....	.....	124 5 6	298 18 8
" 1856 ...	174 4 7	.....	56 3 0	.....	230 7 7
	1180 1 6	26 7 10	688 0 11	160 16 10	
	26 7 10		160 16 10		
	1153 13 8	.....	527 4 1	.....	1680 17 9

*Three years' rent of 145 acres, at 145*l.*	£435 0 0	
Four years' do. of 150 acres, at 150*l.*	600 0 0	
	1035 0 0	
Seven years' interest on 2100*l.*, at 4 per cent.	588 0 0	
		1623 0 0
Surplus ...		£57 17 9

* Five acres of Grass were not in hand till Michaelmas, 1852.

Summary of Balances from Michaelmas, 1852, to Michaelmas, 1856.

	Receipts. In hand.		Valuation. Increase.	Valuation. Decrease.	
	£ s. d.		£ s. d.	£ s. d.	£ s. d.
At Michaelmas, 1853 ...	104 13 11	.....	208 13 4	.....	313 7 3
" 1854 ...	305 7 7	.....	2 15 1	.....	308 2 8
" 1855 ...	423 4 2	.....	.....	124 5 6	298 18 8
" 1856 ...	174 4 7	.....	56 3 0	.....	230 7 7
			267 11 5		
			124 5 6		
	1007 10 3	.....	143 5 11	.....	1150 16 2

Four years' rent	£600 0 0	
Four years' interest on 2100*l.*, at 6 per cent.	504 0 0	
		1104 0 0
Surplus		£46 16 2

CORN ACCOUNT *from Michaelmas, 1848, to Michaelmas, 1856, exclusive of Oats consumed by Cart Horses.*

In the Year ending	Consumed by Fatting Stock.	Sold.	In Hand.	Total.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
At Michaelmas, 1849 ...	28 10 0	123 19 4	... ...	152 9 4
" 1850 ...	89 10 0	117 2 3	69 10 0	276 2 3
" 1851 ...	80 0 0	177 5 0	134 14 3	391 19 3
" 1852 ...	103 0 0	335 4 2	55 17 0	494 1 2
" 1853 ...	90 0 0	341 17 1	91 15 6	523 12 7
" 1854 ...	36 0 0	435 7 7	10 5 0	481 12 7
" 1855 ...	120 0 0	483 7 3	20 11 3	623 18 6
" 1856 ...	157 10 0	385 15 8	16 14 0	559 19 8

EPITOME OF CATTLE ACCOUNT *from Michaelmas, 1849, to Michaelmas, 1856.*

The Receipts for Stock have amounted to			£5231 5 10
Valuation at Michaelmas, 1856	£434 8 6		
and			
" Michaelmas, 1849	392 5 6		42 3 0
			£5273 8 10
The Payments have been—for			
Lean Stock for Fatting		£2862 8 4	
Food for Fatting Stock	£1032 13 4		
Deduct for Roots sold	253 14 0	778 19 4	4317 7 8
Home-grown Corn consumed by Stock		676 0 0	
Profit of			£ 956 1 2

With dung to meet hay, straw, roots consumed by stock, attendance and interest on capital.

THE VALUE OF LAND.

MR. CAIRD has issued a circular on this subject, from which we make the following extracts:—

Since the confessedly great crop of 1854, which required little more than one half of the average importations to supplement it, the breadth of land sown with Wheat has increased considerably, in Scotland and Ireland upwards of one-third. If it were safe to adopt the same rule for England, the harvest of 1856 would have almost sufficed without foreign supply for the consumption of the country. But the circumstances of England are so different that we cannot apply this rule; and, moreover, a considerable proportion of the crop was so much injured by wet weather as to be unsuitable for human food. The Potato crop also, which during last year and the preceding one so largely contributed to the food of the people, will not this year yield one-half of the former supply.

In the continued want of official statistics of the breadth under crop in England, we are thus left to guide ourselves by the *Gazette* returns of sales. These seem to show a marked deficiency in the present crop, the deliveries from the farmers since harvest to the beginning of December in each of the last three years having been as follows:—

1854	1855	1856
1,446,361 qrs.	1,479,850 qrs.	1,282,968 qrs.

There is thus a falling off in the present year of nearly one-seventh; but the deliveries from the farmers have probably been retarded by the fall in price, and by the bad condition of the crop.

There is no likelihood however of the price of this year's Wheat crop going much below its present range. But the extension of railways and the improvement of river and steam navigation throughout the fertile provinces of Europe and North America, must ere long have an effect in equalising the price of corn. That however which promotes the comfort and prosperity of the mass of consumers in this country will not continue long to be injurious to the English agriculturist—as the people will then have the means of purchasing animal food and dairy produce in greater quantity, and these are the most lucrative products of British agriculture.

The fact to which I drew public attention in 1851, that, in the course of the last 70 years, the average price of corn continued much the same now as it was then, whilst animal food, wool, butter, and cheese, had doubled in value, is one of much importance to the English farmer. There are rapid fluctuations in the price of corn, but a steady upward tendency in that of meat. Corn may be brought from every quarter, meat and dairy produce can be supplied in perfection only at home. The climate of the British islands is more favourable to their production than that of any other country, and the number of consumers is constantly augmenting.

This will ensure stability to the value of land in England, but I beg leave to bring under your notice some further facts which may be useful to you in considering the advantage of making investments in landed property.

The most obvious one is the limited territory of the British islands, and the rapid increase of population and wealth. The discovery of gold, and the enormous sums which are thereby annually added to the circulation, must also ere long exercise a considerable influence on the price of land. The following figures will explain these points clearly:—

	1831	1851	Per centage increase of population and wealth.
Population	16,552,410	21,169,951	27
Value of exports	£37,164,372	£74,448,722	100
	1848	1852	
Annual production of gold	£14,000,000	£47,085,000	234

It is hardly possible that so great an increase in the people, their wealth, and the circulating medium can continue without affecting considerably the value of the only limited commodity in this country—land.

BEET-ROOT DISTILLING.

MR. LEPLAY'S system of distilling from Beet and Mangel Wurzel, introduced into England by the spirited firm of Messrs. Dray & Co. on their farm at Farningham, must prove of immense importance to the landed interest of England, as the production of both bread and meat must follow wherever this system is adopted.

1st. The low average crop of 20 tons of Silesian Beet will make more proof spirits than two acres of good Barley. The residues from the acre of Beet are double the value of the grains from the two acres of Barley, for feeding either cattle, sheep, or pigs; but it is to be remembered that the Barley goes all off the farm, whereas the distilling from the Beet is so simple that every farmer can conduct it on his own farm, using the residues for the feeding of his cattle, sheep, and pigs. The fermenting and cooking of the roots in the process of distillation elaborates more of the inert nutritious elements of the Beet than compensates for the saccharine evaporated into spirits. The residues are just the roots brought into the finest prepared state for feeding purposes. The farmer's manure heap will be increased in the same ratio as he increases his growth of Beet, with which his produce of beef, mutton, and pork will also increase.

2nd. It is evident that the farmer who increases his fallow crop, and at the same time his manure heap, must also increase his growth of Wheat. Thus there will be the increase of bread, meat, and also the cheering glass, which leaves only one more recommendation to call forth capital and intelligence to the fully putting into general application the system of farming and distilling as a united business, and that is, the certainty of profit.

3d. The system must be profitable, or it would not have so rapidly extended in France, where it is now become an object of extensive commerce, which increases annually at an extraordinary rate, as shown by the returns of France. In 1853 only 20,000*l.* worth of Beet-root spirit was made, while in 1855 about 2,000,000*l.* worth was made, which carries with it abundant proof of the profitableness of the system.

The process in all its details was shown to a large meeting of gentlemen at Messrs. Dray & Co.'s farm at Farningham on Friday last. It is very simple, and is as follows:—First the roots are thoroughly washed by a simple machine; secondly, the roots are then cut into slices, an inch wide and an eighth of an inch thick. These slices are then placed in fermenting tubs, where they are immersed into liquor prepared by mixing certain quantities of water, yeast, and acid, where these sliced Beets remain until they are thoroughly fermented, when they are taken out and placed into cylinders in layers with perforated iron plates between each layer. These cylinders are the still where the spirit is driven out of the slices by the application of steam laid on at low pressure, which rapidly boils out the spirit, which escapes in steam from the top of the cylinders into an iron pipe, wound into a number of coils, inside of a tub filled with cold water. The end of the tube or worm (as it is called) passes through the side of the tube; the steam that is evaporated from the sliced Beet in passing through the worm (which is kept cold by the water in the tub) gets condensed into liquid spirits, from 20 over to 20 under proof. This spirit resembles whiskey in flavour; it is of course easily rectified and made into spirits of wine, which has become the great object of commerce in France before alluded to as growing from 20,000*l.* in 1853 to 2,000,000*l.* in 1855, while the residues have caused an increase of cattle from 15,000 to 27,000, and of sheep from 67,000 to 150,000; while the cultivation of the Beet has prepared and the manure from the stock fed has caused an extended growth of Wheat of about 80,000 acres. These statistics are all under the returns given by the French Government upon this great nationally important matter.

An important feature in the residues is that they will keep for any length of time in tanks or cisterns merely dug in the ground, and come out palatable and nutritious food at the end of two years, so that the distiller is not obliged to consume his residues until it best suits his purpose.

As a ton of Beet will produce from 18 to 20 gallons of proof spirits and the residues left are but little reduced in value as cattle food through the extraction of the alcohol, the return per acre will stand as follows.

20 tons = 380 gallons, at 3*s.*	£57	0	0
20 tons of residues, at 5*s.*	5	0	0
	£62	0	0
EXPENSES.			
20 tons distilling costs 6*s.* 8*d.* a ton	£6	13	4
4*s.* per ton for interest on capital	4	0	0
	10	13	4
Value of one acre of Beet	£51	6	8

The above sum will leave an abundant profit after paying for the most liberal system of cultivation, leaving the land prepared for a Wheat crop.

Buildings, machinery, distillery, with other requisites for working up 5 tons of Beet per day cost about 1000*l.*; an establishment of this magnitude would be sufficient for the distillation of 50 acres of Silesian Beet.

Before the advantages of this system can be reaped by the landlords and farmers of this country, our Excise laws will have to be modified to permit the distillation of spirits from solids as well as fluids. The present Excise laws only allow distillation from wort or juices from whatever grain or vegetable it may be derived, whereas Mr. Leplay's system is to distill from the solid slices of roots after they have been fermented in cold liquor, which prevents the exhaustion of the carbonaceous and nitrogenous elements, retaining them in the residues for the fattening of stock; while the present system, as by law established, of maceration in hot water and fermentation, evaporates and exhausts those elements which are the means by which the whole of the reproductive power of the system can enlarge the independence and wealth of the country. Therefore we hope that those having a voice in our legislature will visit Messrs. Dray & Co.'s establishment at Farningham, and satisfy themselves (by ocular demonstration) of these great (politically and socially important) facts, during the time allowed by the special permission of Government to Messrs. Dray & Co. to prove the national importance of Mr. Leplay's system, which promises this increase of meat and bread in the same ratio as his system increases until the whole of England's acres are farmed in two halves, one being Wheat and the other Beetroot, the latter producing above 50*l.* worth of spirits and the residues fattening two head of cattle per acre, and the Wheat yielding at least an average of four quarters per acre; thus bread, meat, and cheering drink would inspire that strength, energy, and perseverance into greater development that has and ever must render our country a land of freedom and independence. *P. L.*

Home Correspondence.

A Reminiscence.—While perusing the discussion on Rotation of Crops, p. 844 of the *Agricultural Gazette*, 20th ult., my attention was arrested by the paragraph commencing at the 25th line of col. 3.—"J. W. Coke, afterwards Earl of Leicester, had succeeded to his vast estates in Norfolk, where a soil naturally poor only produced the poorest crops when their cultivation was attempted; but the greater part presented only sterile barren sheep walks, or was devoted to the purposes of the warren." I trespass no farther upon the discussion, but come at once to a veritable document which will clearly explain one at least of the operations undertaken by that great landowner to effect an entire and permanent amelioration of his property. This document is furnished by a letter with which I was favoured by Mr. Coke himself, bearing date January 13, 1834. At that period we heard a good deal of a compost then prepared and locally termed "the Norfolk pie." I copy much of the letter, which by mere accident has very lately been found among a number of papers upon agricultural subjects, and coming from an authority so high I believe can scarcely fail to excite attention. "My custom is to carry out all the manure made in the yards during the winter as opportunities may offer into the fields intended for Turnips, estimating the quantity at 10 loads per acre. In the first instance I make a platform of earth, and then I cart over it a proportion of cow dung, which I deem to be of the weakest nature, upon that pig which I hold to be the best; then more from store and fold litter, followed by horse-dung; then more of the pig, always compressing the heap by carting over it. Then I plough round the heap and spread a slight coat of earth over the top and sides to keep it from fermenting. It remains in that state to within a fortnight of sowing Turnips. Then I turn it over, and in its fermented state it is put into the split ridges of 27 inches, then covered by the plough, and the seed sown immediately after it. This process I have found to meet my most sanguine expectation for more than 16 years." So far Mr. Coke's compressing theory bears upon the subject introduced by the speaker on the rotation of crops, and certainly the long experience acquired at Holkham has been, and continues to be, increasingly profitable. *J. Towers, Croydon, Jan.* 3.

Garden versus Field.—I have often been struck with the difference observable as to the amount of produce raised under the two systems of cultivation followed in this country, viz., the ordinary farming system and the garden or allotment system. I am anxious to try fairly the merits of each. I live in a country where there is not sufficient demand for them to make it worth while to raise in large quantities the rarer fruits and vegetables. But I think it ought to "pay," if one raised large quantities of the commoner description of articles usually grown by the cottager or allotment farmer. Against the unpaid hours of labour expended by the latter on his highly-rented plot of ordinary soil I put the means and appliances which a capitalist can command—to wit, expensive implements and the necessary space on which to use them. I propose to farm from 20 to 30 acres in this way, and a larger number on the regular 4-course system. Will you, or any of your correspondents, favour me with a few suggestions, (1) as to the best seeds to sow, and (2) as to the best mode of culture. Messrs. Hardy, I dare say, are both able and willing to give me a valuable hint on this subject. Say that I have 30 acres—7 in one field, 3 in another, and the rest in 2-acre plots. Now, what are the vegetables which will be most useful for feeding the greatest number of stock? How many cows, bullocks, sheep, horses, and pigs can I hope to keep on these 30 acres by growing Vetches, Rye-grass, Rape, Turnips, Oats, Beans, Cabbages, Lucerne, Carrots, Parsnips, and Wheat? Are there any other crops which can be more profitably substituted in a cold wet climate and average soil? For which would you use the spade, the fork, the plough? Which manures would you prefer to apply, supposing guano to maintain its present high figure, and no particular facilities to exist for procuring lime or any artificial manures? I have my own notions on these points, but wish for a word or two from older heads. *Cambrian.* [(1) Cabbages, Mangel Wurzel, Italian Rye-grass, Lucerne, Carrots, are the best food for dairy stock you can grow. (2) This constitutes the whole subject of agriculture, and we must refer you to systematic treatises for information. We shall perhaps be able to give you a scheme of cultivation hereafter.]

Welsh Cows.—In your Paper of the 3rd instant there is an inquiry by "H. B. J." requesting information as to the properties of Welsh cows. It has long been a matter of surprise to me that the breeds of those valuable animals have been so long overlooked. It would take up too much space in a simple answer to one plain inquiry to enumerate all the various breeds in North and South Wales, which are worthy of preservation and attention. I have a large dairy of from 16 to 20 cows. I have had many years' experience, and I can safely affirm that I have never found any cows equal to the Mona or Isle of Anglesea breed, when pure, for the combination of qualities so much valued for a dairy. They are small and light, bite close, give a large quantity of milk in proportion to their size, keeping at the same time a fair quantity of flesh, and when dried they fat rapidly and the beef is equal, if not superior, to any of the Scotch cattle. The Glamorgan breed of cows give the largest quantity of milk of any, and though much larger in carcase than the

Anglesea, they will thrive on the same pastures. This breed is becoming nearly extinct from the want of attention to keeping it up. Besides these there are other breeds of which if desired a further account can be given, and I much hope that through the medium of your valuable journal, not only the Welsh breeds of cattle but the unrivalled sheep of the Principality, whose flesh is in such high request by the epicures of London, will be brought into the notice they deserve. *An experienced Cowkeeper.* [We shall be greatly obliged by an account of Welsh breeds of cattle].

On Pleuro-Pneumonia.—In the *Agricultural Gazette* of Jan. 3, on my treatment of Pleuro-pneumonia, with analysis of cod liver oil by Mr. Dugald Campbell, the proportion of nitrogen is stated at 5.246; it should be 0.246. In De Jongh's analysis, Royle's Materia Medica, there appears no trace whatever of nitrogen. I quite recollect, on perusing a French treatise on oils the chemist found in a sample of almond oil traces of nitrogen. On examining several other samples of the like oil, he found no trace of nitrogen or azote, and that this was probably a foreign and not essentially or invariably an accompaniment of the oil. *T. H.* [To this we add that the proximate analysis given by M. Braconnot of "one of the richest vegetable oils" is an analysis of olive oil. Dr. Leured's name, too, is wrongly spelled].

Notices of Books.

Diary for the Dairy, Piggery, and Poultry Yard, for 1857. By an Essex Amateur. *Essex and West Suffolk Gazette* Office, Colchester.

THIS is a re-issue of a very useful annual. It contains literally a diary with columns indicating when the cow and the sow may be expected to bring forth, and when the eggs of goose and duck and hen shall hatch. It contains pages and columns proper for the fullest account of the dairy produce, and all the produce of the piggery and the poultry yard. It contains an ample calendar of monthly operations, with a short account of the diseases to which poultry are subject, and a directory to 1000 exhibitors of prize poultry at the shows of Great Britain and of Paris during the past year. This part especially indicates great industry and anxiety on the part of its editor to make his annual useful and interesting, and all of it exhibits both skill and judgment in the selection and arrangement of the subjects for which it is adapted.

Calendar of Operations.

JANUARY.

BORDER OF THE FENS, *Jan.* 6.—The great anomaly of the day is the price of good Barley, free from sprouts. The expected demand for seed makes it uncertain to what extent speculation will enhance it, but there can be no doubt that during the spring malting sorts will command a very high figure, and the probability is that more seed will be wanted in consequence of its having been this season (where secured early) a most profitable crop. The ordinary sorts sell freely at from 30*s.* to 40*s.* per quarter, the best already realising from 52*s.* to 56*s.* The late sown Wheat comes up very slowly; the growth of the earlier sown has been seasonably checked by some very rough weather; altogether the Wheat seeding time has been favourable, and the preparation of land for spring cropping has suffered but little interruption; the removal of roots has been managed with great deliberation, so much so that some farmers have lost a good deal of Mangel Wurzel from not protecting it before the severe frost of December 4th. Swede Turnips do not sustain injury while left growing, unless mild weather induces the formation of new leaves; but we think they should not be packed up during frost, or left long on the land in heaps unprotected. This might seem an unnecessary remark did we not witness such frequent instances of carelessness in exposing them to alternate frost and rain for days together; stock certainly do not relish Turnips so well if they are not stored in heaps as soon as cleaned and covered with stubble or earth as early as practicable; a little time should elapse before the top of the heap is quite covered over to allow the escape of heat during a first fermentation, afterwards it is well to exclude the air as much as possible until wanted for consumption. Wool has advanced in price, and with it the value of sheep. Beasts are selling well both store and fed. Wheat and Flour, on the other hand, have declined in value, as have also Oats and Beans. Labourers receive generally 13*s.* a week, and are tolerably well employed; the number of paupers in this Union have diminished, as compared with last year, considerably, and the expenses of the Union are lessened in a greater proportion, chiefly owing to the diminished cost of the 4 lb. loaf. *J. W., Peterborough.*

Notices to Correspondents.

CANADIAN AGRICULTURE: *An Intending Emigrant* requests from "A Canadian Farmer," who favoured our correspondent "E. I. C. B." with valuable information, the favour of his advice on one or two points of some importance. What would he advise to be taken out from England? Would he recommend such articles as a "hand flour mill" for grinding and dressing corn, a "hand churn," a "cottage stove," a "chest of good carpenter's tools," a "pair of cart wheels and axle," a "double barrelled fowling-piece or rifle or both," &c. Or are such things easily procured at moderate prices, and as good in the towns of Upper Canada? Does he think it advisable for a new settler to spend the first eight or ten months with some one already settled and experienced in Canadian farming, and is such an advantage easy to obtain? He speaks highly of the Oxford district. Would it be possible to obtain in that district, say 100 acres of land, of which about 10 already cleared, at about 2*l.* per acre? Does he happen to know anything of the Peterborough, Durham, or Northumberland districts, and can he offer any advice relative to those parts? If he will kindly reply to these queries, and give any other information which he may think useful, he will probably be of great assistance to many intending emigrants.

SHEEP: *Cor.* We have not yet heard from "W. C. S." in answer to your question. Meanwhile, on the ground of an experience for some years in shed-feeding sheep, we may say that considerable losses, generally from affections of the kidneys, arose as it appeared to us from the want of exercise. We once heard it recommended for that purpose to let a dog run into the sheep-yard about twice or thrice a day for a minute each time.

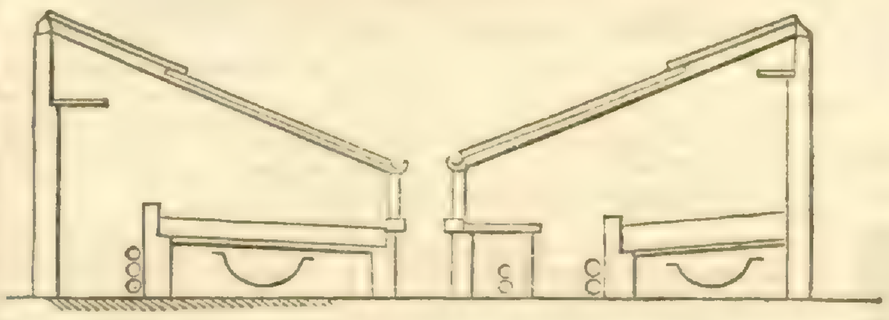
*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

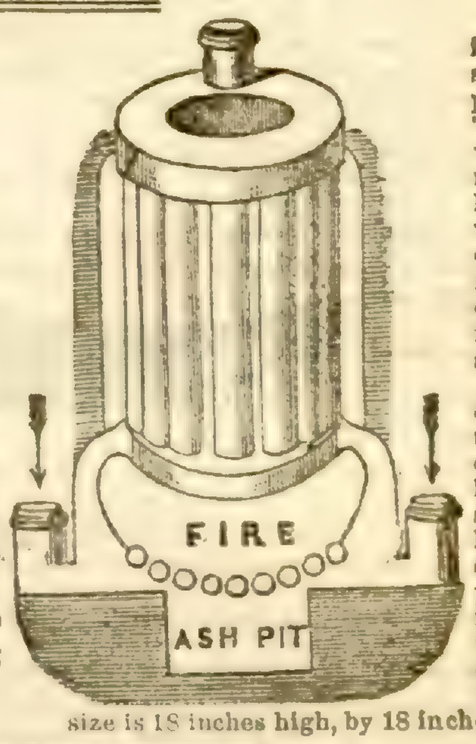
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

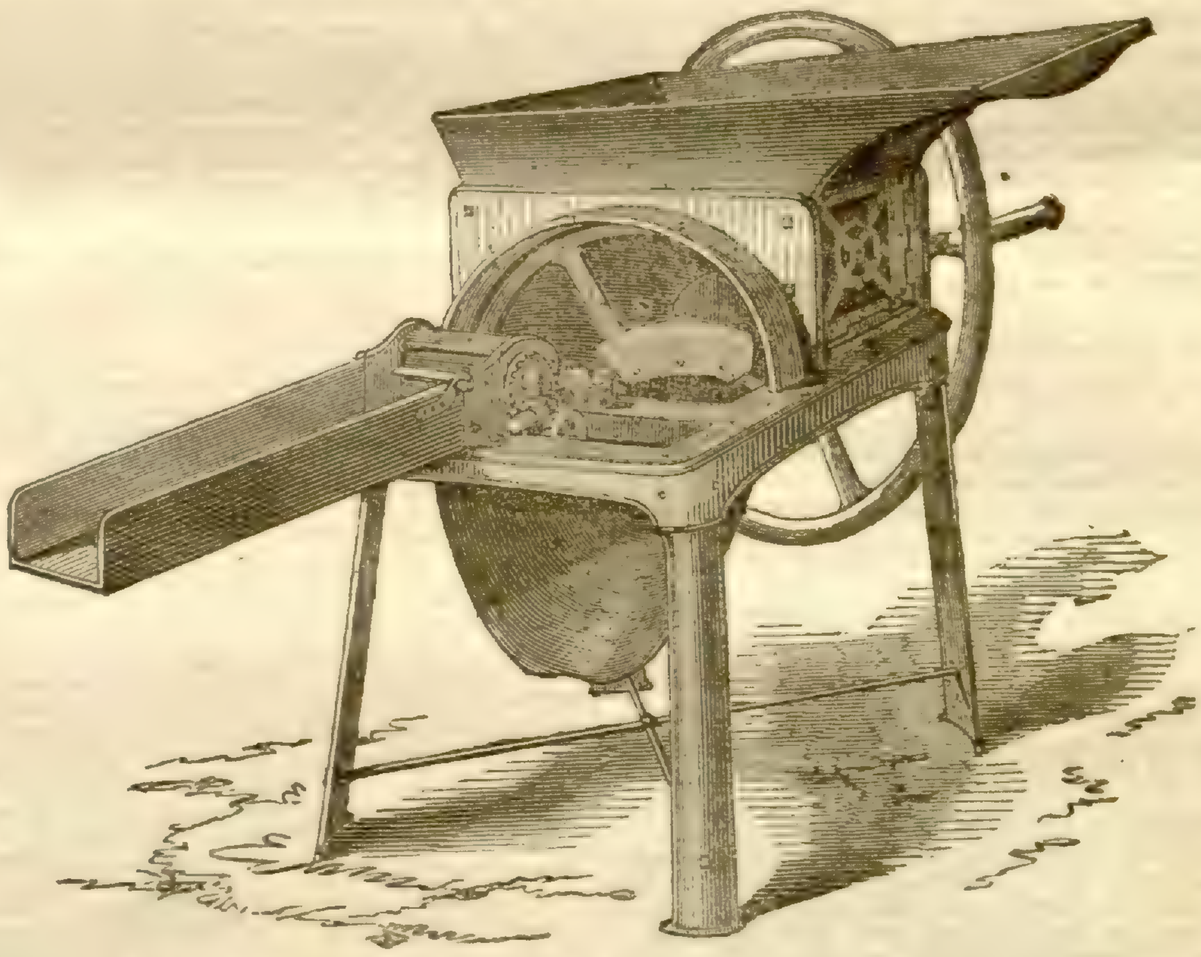
J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY

Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

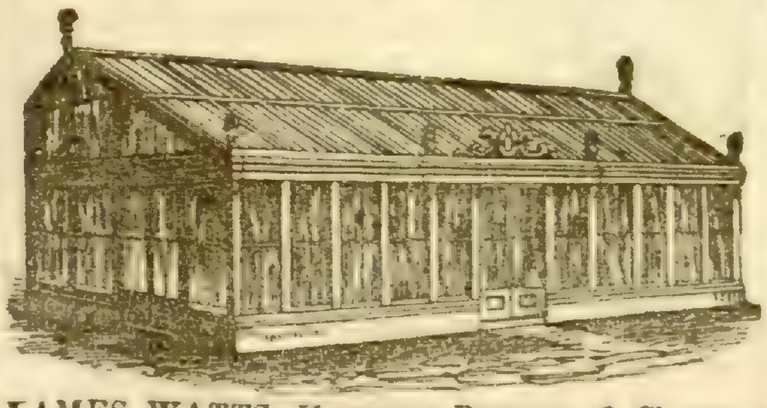
TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10s.
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0s.
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

B. SAMUELSON, Britannia Works, Banbury.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & LEMON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade, in most of the counties in England.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

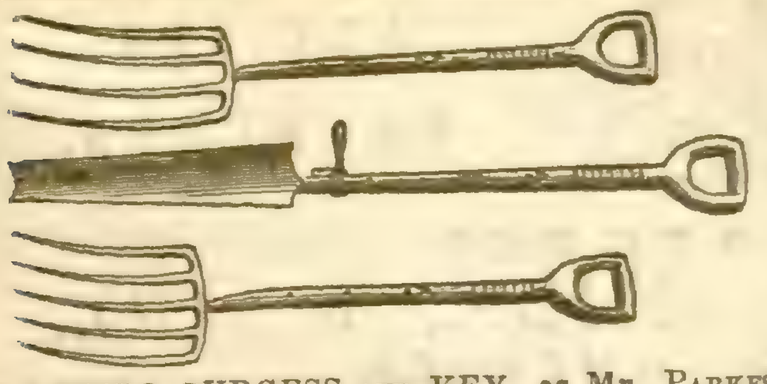
WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
95, Newgate Street, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works. Sheffield, and 67 and 68, King William Street, London.
Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.
Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

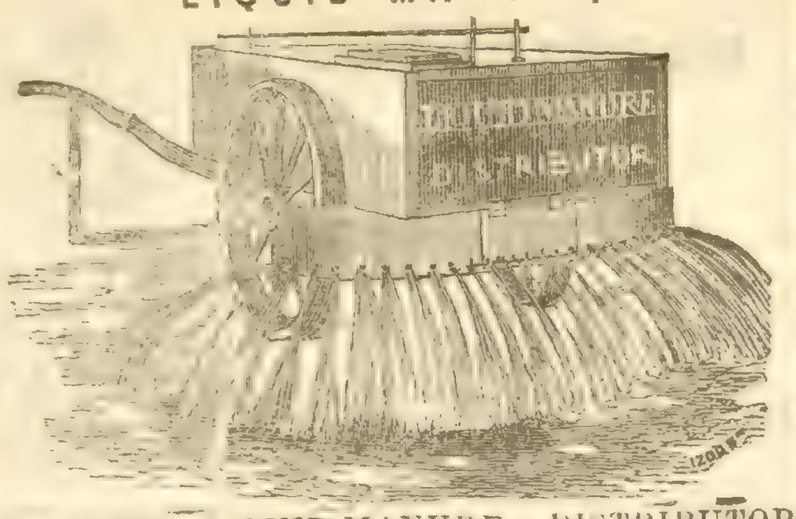
MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

WIRE WORK, USEFUL AND ORNAMENTAL of every description, for the Conservatory, Garden, or other service.
The CRYSTAL PALACE SUSPENDING FLOWER BASKETS to the original and numerous other elegant designs.
Hyacinth Stands, Violet, Crocus and Tulip Baskets in variety: Flower Stands, Garden Arches, Lattice Work, Fencing, &c. Window Blinds and Sun Shades of all kinds of the best make; Anglo-German and other Bird Cages of superior description; Aviaries and Conservatories fitted up, by W. RICHARDS, Imperial Wire Works, 370, Oxford Street, nearly opposite Princess's Theatre.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
PROTECTION FROM THE MORNING FROST.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 6d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

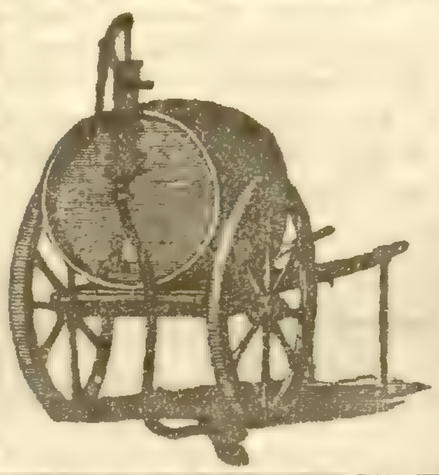
"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.
TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3d. per yard or 5s. per piece. A liberal allowance to the Trade when 10 or more pieces are taken.
N.B.—Orders from unknown correspondents must be accompanied by a remittance.
JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—
Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—
Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. W. J. Epps, Maidstone.
" Caldwell, Knutsford.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.
PRIZES:—
A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.
Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

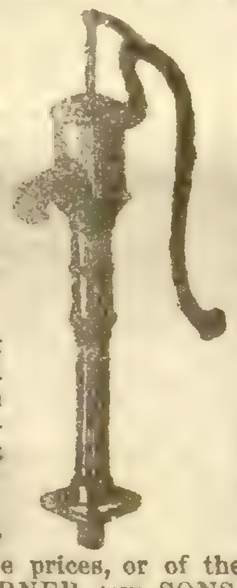
WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50s.
1½-inch Flexible Rubber and Canvas Suction for ditto, 3s. 0d. per foot.
1¼ Gutta Percha Suction, 1s. 9d. per foot.

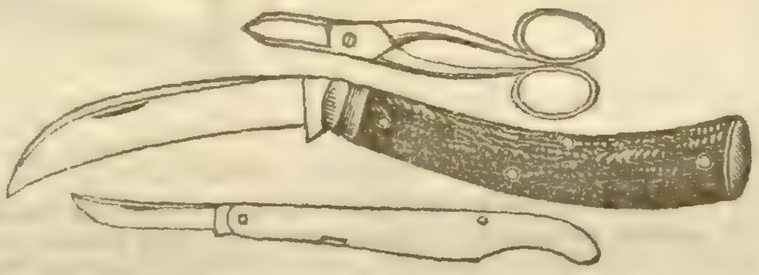
WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 10 0
2½ "	long 3 " 3 "	gutta percha,	1 14 0
3 "	ditto 3 " 6 "	or cast iron	2 8 0
3½ "	ditto 3 " 6 "	flanged pipe,	2 12 0
4 "	ditto 3 " 6 "	as required.	3 3 0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0



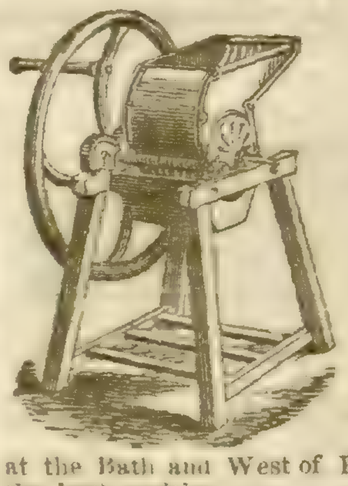
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1736.

BENTALL'S PATENT PULPER.



PRICES.	£ s. d.
R. P. A.	8 8 0
R. P. B.	6 6 0
R. P. C.	5 5 0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!
These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.
☞ Manufactory, Heybridge, Maldon, Essex.

ORCHARD HOUSES.
JOHN BURTON, BUILDER, of Sawbridgeworth, who is accustomed to build ORCHARD HOUSES for Mr. Rivers, is now prepared to give estimates and undertake to build them with the latest improvements, on the most reasonable terms.

HOT-WATER APPARATUS.
J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HOT-WATER APPARATUS ON AN IMPROVED PRINCIPLE.
MESSRS. COLLS AND CO., Builders, Camberwell, beg to inform the nobility, gentry, and the public in general, that they have made arrangements with an eminent Inventor and Hot-water Engineer for the management of this portion of their business, and are prepared to take contracts for Warming Churches, Chapels, Private Residences, Greenhouses, &c.
Estimates upon application.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HEATING BY HOT WATER.
J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, Con-Pipes, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50s. each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

PATENT TERRA-COTTA.—Tracery for Parapets and Terraces, mullions, pinnacles, moulded bricks, coats of arms, crosses, label mouldings, friezes, trusses, consoles, vases, balusters, capitals and bases of columns, paving, facing bricks, copings, kitchen and other sinks, chimney shafts and tops, and numerous other articles manufactured by J. M. BLASHFIELD, in Patent Imperishable Terra-Cotta, at Mill Wall, Isle of Dogs, and sold at No. 1, Wharf, Praed Street, Paddington Basin.

BLOSSOM OF WALL FRUIT TREES.—WORSTED NET to effectually protect blossom, and the ripe fruit afterwards from wasps and flies, 7d. per square yard; transparent sheeting, 6d. per square yard; thread net for blossom, 6d. Samples and particulars sent free.
R. RICHARDSON, 21, Tonbridge Place, New Road, London.
N.B. Tanned nets, 6s. 3d. per 100 yards.

IRON HURDLES MADE BY MACHINERY.
COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.
JAMES PHILLIPS AND Co. have the pleasure hand their present reduced prices of Glass for Cash:—
SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½	... 12s.	8 by 6, and 8½ by 6½	... 13s. 6d.		
7 by 5, and 7½ by 5½	... 13s.	9 by 7, and 10 by 8	... 13s. 6d.		
11 by 9,	12 by 9,	13 by 9,	14 by 9	...	... 15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10	...	... } 16 0
	16 " 10,	17 " 10,	18 " 10	...	... }
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11	... 16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12	...	... 17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12	...	... }
16 " 13,	17 " 13,	18 " 13,	20 " 13	...	... }
	22 " 13,	24 " 13	...	...	... } 18 0
20 " 14,	22 " 14,	24 " 14	...	...	... }
10 " 15,	22 " 15,	24 " 15	...	...	... }
	20 " 18	...	...	...	... £1 2 0

Boxes charged 2s. each, but returnable at full prices.
ORCHARD HOUSES.
SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18s. per 100 feet.
Double-crown Glass of various dimensions in 100 feet boxes.
HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.
Foreign Sheet Glass, in cases of 200 feet, 34s., 38s., 40s., and 42s. per case.
HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, London.

GLASS FOR HORTICULTURAL PURPOSES.
Good 15 oz. Sheet in Squares cut to size:—

Not exceeding	per foot	Not exceeding	per foot
8 inches long	1½d.	24 inches long	2¼d.
12 " "	1¾d.	30 " "	2½d.
16 " "	2d.	40 " "	2¾d.

T. & W. FARMILOE, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.
HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.
Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.
See *Gardeners' Chronicle* first Saturday in each month.

FOUNTAINS.—As the preparation of Stone Work for this purpose generally occupies several months, AUSTIN AND SEELEY respectfully solicit immediate orders for any that may be required in the approaching spring, to ensure its being carefully executed.—Works, 1, to 4, Keppel Row, New Road. N.B. Many new designs of vases and other ornaments have been added during the present year.

COLT'S PATENT SIX-SHOT REVOLVERS.—The favourite size for Officers, Army, Navy, and Merchant Service, weight 2 lbs. 8 oz., rifle bored. Also, three sizes POCKET REVOLVERS, for travellers and house protection. A large stock of London-made ready for immediate delivery. Holsters, Belts, Pouches, Cartridges. Description and Price Lists furnished.—Order of SAMUEL COLT, the Patentee and Manufacturer, 14, Pall Mall, London.—Beware of counterfeits.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8s. 6d. to 21s. List of Prices and Sizes sent free by post.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING also sent post free.—196, Tottenham Court Road, W.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

BEDS, MATTRESSES, AND BEDSTEADS.—WILLIAM S. BURTON'S NEW LIST of BEDS, BEDDING, and BEDSTEADS is now ready, and can be had gratis.

The quality of beds, mattresses, &c., of every description he is able to guarantee; they are made on the premises, in the presence of customers; their prices are in harmony with those which have tended to make his house ironmongery establishment the most extensive in the kingdom.

Feather beds	from £1	5	0	to	£8	0	0
German spring mattresses ...	„	2	8	0	„	7	0	0
Horse hair mattresses ...	„	0	16	0	„	5	0	0
Wool mattresses	„	0	7	6	„	4	9	0
Flock mattresses	„	0	6	6	„	0	18	0
Best Alva and cotton mattresses	„	0	6	6	„	0	19	0
Sheets per pair	„	0	7	6	„	2	6	0
Blankets each	„	0	3	0	„	1	4	0
Toilet quilts	„	0	4	0	„	1	7	6
Counterpanes...	„	0	2	6	„	0	15	0
Portable folding bedsteads ...	„	0	12	6	„	4	15	0
Patent iron bedsteads, with dove-tail joints	„	0	15	0	„	9	0	0
Ornamental brass ditto ...	„	2	10	0	„	20	0	0
Children's cots...	„	0	15	6	„	5	0	0
Bed hangings, in every variety per set	„	0	14	0	„	10	0	0

39, Oxford Street, W; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, Oxford Street, London.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices. Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25s.; galvanised do., 30s.; cast iron, 35s. each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street, London.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

NEW YEAR'S GIFTS.—The exuberance of the feelings amid scenes of gaiety induces the fair and youthful to shine to advantage under the gaze of many friends, and therefore to devote increased attention to the duties of the toilet. It is at this festive season that ROWLANDS' Auxiliaries of Health and Beauty are more than usually essential. ROWLANDS' MACASSAR OIL, for the Growth, and for Improving and Beautifying the Hair, imparting a transcendant lustre, and sustaining it in decorative charm. ROWLANDS' KALYDOR imparts a radiant Bloom to the Cheek, and a delicacy and softness to the Hands and Arms, and eradicates cutaneous defects. ROWLANDS' ODONTO, or Pearl Dentifrice, bestows on the Teeth a pearl-like whiteness, strengthens the Gums, and renders the Breath sweet and pure.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London; and Chemists and Perfumers.

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IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

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„ insignis, ditto ditto
„ Montezumæ, fine plants, 3 and 4 feet high
„ Benthamiana, in large quantities from seed
„ macrocarpa ditto ditto
„ Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
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„ nobilis, in quantities from seed
„ ditto, 1, 2, and 3 feet, with perfect leads, and none of them [grafted
„ grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
„ „ several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
„ Lebanon, 2, 3, 4, and 6 feet
„ „ some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
„ Goveniana, 2, 3, and 4 feet
„ Lawsoniana, from seed
„ MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
„ Chinese, 2, 3, and 4 feet
„ „ a fine lot, 7, 8, and 10 feet
„ Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
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„ Golden Yews by the thousand, 1½, 2, and 3 feet high
„ „ worked, 4, 5, 6, and 8 feet
„ „ worked on Irish, and very ornamental, 5 to 8 ft.
„ elegantissima (or new striped), in large quantities, 1½ to 3 ft.
„ Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
„ adpressa, fine bushes, 2 and 3 feet
„ adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
„ occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
„ Weareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
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„ „ smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
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„ elegans, ditto ditto
„ Gregori, ditto ditto
„ compacta, ditto ditto
„ pygmæa, ditto ditto
„ pyramidalis, ditto ditto
„ diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

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Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

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REIGATE SILVER SAND, 16*s.* per Ton. Less quantities, 1*s.* 6*d.* per bushel. Delivered to any London wharf or railway. Peat and Loam for Ferns, Heaths, Americans, &c. Samples if required; terms, cash. Sacks, 2*s.* each, or on hire.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

TO NURSERYMEN, ETC.

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WANTED, to Rent, now or at Lady-day, a GRAZING FARM, or SMALL FARM, from 50 to 100 acres of Land, with House and suitable Buildings.—Address, with full particulars, to J. P., 16, Charlton St., Somers Town, N.W.

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Enabling the Purchaser to select a Pianoforte or Harmonium from the

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Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, January 10, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 3.—1857.] SATURDAY, JANUARY 17. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON, 1857.

MEETINGS FOR EXHIBITION AT THE SOCIETY'S OFFICE.

The following, in addition to all other subjects, are specially invited, viz.:—

TUESDAY, Feb. 3.—Fruit, Early Flowers, and Forced Vegetables.
TUESDAY, Mar. 3.—Camellias, Bulbs, and Fruit.
TUESDAY, April 7.—Azaleas and Roses.
TUESDAY, May 5.—Orchids, Azaleas, Sikkim and Bootan Rhododendrons, Pelargoniums, and Strawberries.
TUESDAY, July 7.—Ferns, good foliaged Plants, and Fruit.

BOTANICAL AND HORTICULTURAL SOCIETY OF DURHAM, NORTHUMBERLAND, AND NEWCASTLE-UPON-TYNE.—Alteration of Date for the Autumn Show.—In consequence of the Crystal Palace and other large Shows having been fixed for the 9 h and 10th September, the Committee of this Society have been applied to by Parties wishful to compete in the Dahlia Class for an alteration in the time. The Committee have therefore decided upon holding this Show on the 2d and 3d, instead of the 9th and 10th of September, as previously advertised.

H. V. Wilson, W. Dickinson, } Secs.

Newcastle-upon-Tyne, 9th January, 1857.

CUTHILL'S BLACK SPINE CUCUMBER, &c.—The Trade can still be supplied by the ounce, also in packets of 12 Seeds at 1*s*. Green's Lady Antrobus, Winter Cucumber, 2*s*. 6*d*.; and Cuthill's New White Spine, 2*s*. 6*d*. per packet of 10 seeds each. His three pamphlets always on sale.
James Cuthill, Camberwell, London, S.

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Also Dwarfs on own Roots of all the most popular sorts.
Dwarfs in Pots for forcing, well established in large quantities.
Catalogues may be had on application.
The Nurseries, Great Berkhampstead, Herts.

RED CURRANT RHUBARB (TRUE).

W. ABRAHAM begs to offer good roots of this rather scarce but excellent RHUBARB at 9*s*. per dozen or 50*s*. per 100 for cash.—Seedsman and Florist, Bath.

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CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

PRINCE OF WALES RASPBERRY.

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It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

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J. DOBSON AND SON will be happy to forward their NEW CATALOGUE OF SEEDS on application. They beg to say that their Seeds have always given the greatest satisfaction, being of excellent germinating qualities, which they think is alone sufficient to commend them.
Seed Establishments at Isleworth and Hounslow.
*** Orders forwarded to either address will receive prompt attention.

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Hedenham Rosery, Bungay, Suffolk, Jan. 17.

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SUTTON AND SONS *are now prepared to execute orders for exportation for New Seeds, growth of* 1856, *consisting of the most desirable sorts, properly packed to arrive in good condition. Free on board at London, Bristol, or Southampton.*
Sutton & Sons, Seed Growers, Reading.

TO NOBLEMEN, CLERGYMEN, AND OTHERS.

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KITCHEN GARDEN AND FLOWER SEEDS.

CHARLES TURNER'S CATALOGUE of Seeds contains many NEW THINGS offered for the first time, and can be had on application.
Especial attention is devoted to the Seed business, and every article offered is of the best quality, and in many instances of very superior quality.—Royal Nursery, Slough.

SEED ESTABLISHMENT, WESTERHAM, KENT.

JOHN CATTELL begs to announce that his CATALOGUE OF KITCHEN GARDEN SEEDS for 1857 may be had gratis and post free on application. It contains a very select collection, the great part of which are of J. C.'s own saving.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.
The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

W. DRUMMOND AND SONS beg to intimate that their CATALOGUE OF VEGETABLE AND FLOWER SEEDS is now ready, and may be had post free on application. This Catalogue contains only such varieties as are really worth cultivating, and each having a short but accurate description affixed, the Gardener and Amateur can draw out their seed list correctly and without trouble.—*Seeds delivered carriage free; for particulars see Catalogue.*
Seed and Implement Warehouse, Stirling, N.B.; and 58, Dawson Street, Dublin.

TO THE SEED TRADE.—Just Published,

HORATIO BUNTING'S WHOLESALE CATALOGUE OF FLOWER AND VEGETABLE SEEDS, which will be forwarded to any Seedsman in the world post free on application. All seeds warranted genuine and true to name. All Vegetable Seeds offered as low in price as any house in the trade—Address in full Horatio Bunting, Seed Grower, Lexden Road, Colchester.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

ROBERT KENNEDY will have much pleasure in forwarding his RETAIL CATALOGUE OF HORTICULTURAL, AGRICULTURAL, GRASS, AND TREE SEEDS to those who have not received it. They will be found to be of the most genuine quality, being procured from the most eminent growers at home and abroad. Messrs. Platz's Seed Catalogue to the Trade forwarded on application.
Bedford Conservatory, Covent Garden.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.
Horticultural Establishment, King's Road, Chelsea.

TO THE SEED TRADE.

PEAS.—Early Emperor, Early Ringwood Marrow, Flack's Victory Imperial, Woodford's Marrow, &c. The above at low prices. Trade prices of Seeds in general may also be had.—Bass & Brown, Sudbury, Suffolk.

WAITE'S DANIEL O'ROURKE PEA, the best early Pea in cultivation, can be had in any quantity.—J. G. Waite, Seed Merchant, 181, High Holborn, London.

EPPS'S LORD RAGLAN PEA.

J. G. WAITE begs to inform the Trade that *he has a very large stock of true* LORD RAGLAN PEA.
J. G. W. *purchased from Mr. Epps, January 29th*, 1855, 1 bushel of the above for 5*l*. 5*s*., which were sown for stock; the produce of these was again sent out last spring, and from them the present *large* stock was grown. Price 30*s*. per bushel.
WAITE'S KING OF THE MARROW, *syn.* MONARCH, *syn.* TALL MAMMOTH.
J. G. Waite, Seed Merchant, 181, High Holborn, London.

NEW SORTS OF PEAS.

SUTTON AND SONS can supply Harrison's Napoleon, Eugenie, Alliance, Climax, Glory, Perfection, Epps' Lord Raglan, Sutton's Early Champion, Prizetaker, and every Horticultural novelty which may from time to time be advertised in this Paper, by whomsoever introduced, though they of course cannot recommend any article until they have had time to test it in their Nursery and trial ground.
Royal Berkshire Seed Establishment, Reading.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.
9, Mansion House Street, London.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. To the Trade.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.
Bass & Brown, Sudbury, Suffolk.

CAMELLIAS, AZALEAS, AND FERNS.—Camellias with flower-buds, 30*s*. and 42*s*. per doz. Chinese Azaleas with flower-buds, 18*s*. and 30*s*. per doz. A great variety of Ferns at moderate prices.
Chandler & Sons, Wandsworth Road.

KITCHEN GARDEN AND FLOWER SEEDS.

CHANDLER AND SONS, Nurserymen and Seedsmen, Wandsworth Road, London, S., supply the above of the best quality. A Catalogue can be had on application.

WANTED, to Purchase 400 BLACK AUSTRIAN PINUSES, from 3 to 4 feet high. Also 300 SILVER SPRUCE, and 300 SCOTCH, 3 feet. They must be well-rooted and transplanted plants.—Letters addressed to E. W., Post Office, Selby, stating price and all particulars.

WANTED, a quantity of 1-year and 2-years SEEDLING QUICK THORNS, 1-year SEEDLING LARCH, and a few thousands 1-year or 2-years SEEDLING ALDER.—Address, stating lowest cash price, to Thomas Cripps, Nurseryman, Tunbridge Wells, Kent.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have to offer (fit for immediate forcing) PEACHES and NECTARINES, &c., in pots, well established, and well set with bloom-buds.
The different Catalogues may be had on application.

TO PLANTERS.

TO BE SOLD, cheap, 100,000 SCOTCH FIRS, 12 to 18 inches, and 18 inches to 2 feet; 50,000 HIGHLAND PINES, 1 foot to 1½ foot. The plants are very stiff, and grown upon high exposed land; will take up with good fibrous roots.—Price upon application to J. Smith, Tansley Nursery, near Matlock, Derbyshire.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

QUICKTHORN.

CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.
PINUS MARITIMA (one-year seedlings).
C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed-growing Establishment, Sleaford.

FOREST TREES.

FOWLER AND WRIGHT, Seedsmen & Nurserymen, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

CEMETERY TREES

J. DAVIES has a fine stock of WEEPING MOUNTAIN ASH and ELM to offer, on stout straight stems from 7 to 9 feet high; in large quantities at reduced prices.—Larkfield Nursery, Wavertree, near Liverpool.

IMPORTANT NOTICE.

TO BE SOLD, very cheap, for cash, a quantity of Large Ornamental Worked FOREST TREES, WEEPING and others; also some fine DOUBLE BLOSSOMED ALMONDS, &c., the ground being wanted.—Apply to Chas. Clarke, Nurseryman, &c., 179, Windmill Street, Gravesend, Kent.

SUTTON'S MONSTER LETTUCES.

THE LARGEST AND QUICKEST GROWING LETTUCES ARE "SUTTON'S SUPERB WHITE COS," AND "SUTTON'S SUPERB GREEN COS."

The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—

"*This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce.*" And of the other he says—

"SUTTON'S SUPERB GREEN COS.—*This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use.*" Seeds may be had (if ordered immediately) in packets 1*s.* each, post free.—Address,

SUTTON & SONS, Seed Growers, Reading, Berks.

TRUE READING ONION SEED.

THIS *favourite mild* WHITE ONION *can only be obtained in perfection from Seed Grown in or near Reading*, in which case the crop is fully equal to imported Spanish Onions. Price of Seed, 6*d.* per oz., or 5*s.* per lb.

SUTTON & SONS have annual demands for large quantities of Seeds from all parts of the kingdom.

Mr. JAMES M'INTOSH, *Gr. to the Duke of Buccleuch, at Drumlanrig, whom we have the honour to supply annually, says*—"*Your Onion is particularly fine.*"

Besides many others, the following have been recently received:

From the Rev. F. T. SCOTT, *Sibertswold Vicarage, near Dover, Jan.* 16, 1856.—"The seeds gave great satisfaction, especially the Onions, which were superb"

From the REV. J. A. CARR, *Belshford Rectory, Horncastle, Aug.* 5, 1856.—"Your Onions are the largest and best I ever grew or saw."

Royal Berkshire Seed Establishment, Reading.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S

NEW SEED CATALOGUE (26th Annual Edition),

Contains the finest Vegetables in cultivation, carefully grown by them from pure and well selected stocks.

It having been the custom in our establishment for 30 years past to test the comparative merits of Vegetables, our own practical knowledge of this branch of our business enables us to give our attention to the growing of such only as we have proved to be of real merit. The number of varieties of recent introduction having now swelled the lists of names offered by the trade to a very large extent, our endeavour has been annually to prune away certain varieties from our Catalogue for the introduction of the newer and improved of each class, reserving however those of the best older sorts.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These are particularly recommended to the notice of Amateurs not keeping regular Gardeners. The collections we have furnished have met with the highest approval, and will be found on trial such as will not be surpassed. Supplied as usual as follows. (See full particulars in Catalogue.)

No. 1, £3 | No. 2, £2 | No. 3, 25*s.* | Collections for Small Gardens, 10*s.* 6*d.* and 15*s.*

A few choice New Seeds (Descriptions see Catalogue).

NEW PEAS.		s. d.
Harrison's Eugenie	per qt.	5 0
" Napoleon	"	5 0
" Glory	"	3 6
" Perfection	"	3 6
Rising Sun	"	5 0
Beck's Gem	"	1 6
Dickson's Favourite	"	2 6
King of the Marrows	"	2 6
Epps's Lord Raglan	"	2 0
" Monarch	"	2 0

		s. d.
Broccoli, the new Penzance,	per packet	1 0
Cauliflower, Stadtholder	"	1 0
Celery, Incomparable white	"	0 6
Cucumber, choicest	"	6*d.* to 2 6
Mammoth Gourd, from a fruit weighing 1 cwt.	"	1 6
Imported Brussels Sprouts	per oz.	1 0
French Horn Carrot (earliest)	"	0 6

For many other choice new, see Catalogue.

	s. d.
Peas, 16 from finest, 1 qt. each	16 0
" 10 from finest, 1 qt. "	10 0
" 8 fine sorts, 1 qt "	6 0
Broccoli, 10 packets of 10 finest, for succession	5 0
" 6 packets of 6 do.	3 0
Lettuce, 6 packets of 6 do.	2 0

CHOICE FLOWER SEEDS.

Our List will be found to contain as select a collection as can be brought into a catalogue, with all the new gems of the season. The usual arrangement of colours, heights, time of flowering, hardiness, duration, the Climbers also specified, and embracing every necessary information for purchasers. Useful instructions for the culture and growth of Seeds are supplied with each order.

FLOWER SEEDS IN ASSORTMENTS.—We beg strongly to recommend these assortments, for which see Catalogue.

IMPORTED GERMAN SEEDS.—Superb collections of these (see Catalogue).

BULBS AND ROOTS FOR SPRING PLANTING.

Very splendid collections of Ranunculus, Anemones, Gladiolus, Iris Germanica, and Primula, Lilium lancifolium, and other superb Lilies, Tigridias, Oxalis, and a great variety of other Roots (see Seed Catalogue).

ACHIMENES AND GLOXINIAS.

Superb Continental and other varieties (including the beautiful erect flowering Gloxinias), tubers of which are now ready, and will make fine flowering plants this season.

SEED CATALOGUES SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20*s.*) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6*d.* and 1*s.*)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

GERMAN FLOWER SEEDS,

In collections from our own inspection when in flower on the continent. These we can with confidence recommend. Descriptions of the following New Plants will also appear:—

BANKS' NEW FUCHSIAS,

Including three white sepal varieties, each with a distinct coloured corolla; two varieties possessing red sepals, and each of distinct character; and others with quite a new and graceful form of flower. A new and beautiful coloured Plate of six of the above varieties is now ready, and can be had for 12 stamps.

NEW VERBENAS,

Raised by Messrs. Banks, Breeze, and Evans. A coloured Plate of these novelties is in preparation, price 12 stamps.

NEW ERECT GLOXINIAS,

Raised by M. Jæger, the original introducer of this form of flower.

NEW HYBRID BOUVARDIAS,

Raised by Mr. Parsons, from Longiflora, hybridised with B. Leiantha.

NEW STRIPED GERANIUM,

Raised by Mr. Grieve. The best and only one worth growing.

Mr. Elphinstone's new Ornamental Foliaged Geraniums, with red and other coloured zones.
Mr. Morgan's Hybrid Bedding Geranium, splendid colour.
Mr. George Cunningham's New Rhododendron, quite hardy, and the first of its colour.
New Petunia, Delphinium, and Shrubby Calceolaria, &c. Other novelties beside the above will be noticed in this Catalogue.

Wellington Nursery, St. John's Wood.

TO GENTLEMEN AND PLANTERS.

H. LANE AND SON have to offer in large quantities the undermentioned well-grown plants, having taken great care in their removal:—

Araucaria imbricata, splendid plants, from 1 to 4 feet.
Arbor-Vitæ in sorts.
Azaleas, Ghent, in fine variety.
Beech, Norwegian, copper, &c.
Berberis Darwini.
Cedrus Deodara, beautiful shape and well grown, forming perfect specimens, from 2 to 9 ft.
Cedrus Libani, do., do., from 2 to 10 feet.
Chesnuts, standards, very ornamental, 5 to 10 feet.
Cryptomeria japonica, 2 to 6 ft.
Cupressus funebris, compact, 2 feet.
Cupressus Lambertiana, 2 to 3 feet.
Cytisus, standards in sorts, also Laburnum.
Daphne, in varieties.
Deutzia gracilis, nice compact plants for forcing.
Elms, fine trees, from 10 feet upwards.
Fitz-Roya Patagonia
Heaths, in extensive collection.
Hibiscus (Althæa Frutex), standards and dwarfs.
Holly in variety (green and variegated), large and small.
Juniperus, well-grown plants of most sorts.
Laurel, Portugal, very bushy, 3 to 6 feet.
Laurel, Portugal, standards, fine specimens for lawns.
Kalmias, small, fit for forcing.
Kalmias, larger sizes, very fine.
Mahonias.
Picea Cephalonica, 1 to 4 feet.
" Fraseri, very fine, from 3 to 8 feet.
" nobilis.
" Nordmanniana.
" Pinsapo, 1 to 3 feet.
" " 3 to 5 feet, and 3 feet through,
Pinus cœrulea, very handsome, 1 to 5 feet.
" excelsa, 1½ to 8 feet.
" insignis, beautiful plants, 4 to 7 feet.
Abies Douglasi, from seed, 4 to 10 feet.
" Morinda, do., 2 to 7 feet
" orientalis, nice compact plants.
Poplars, good variety of sorts.
Rhododendrons, by name, a good collection of popular sorts.
Ribes, in sorts.
Taxodium sempervirens, 4 to 8 feet.
Weigelia amabilis and rosea.
Yew, adpressa, very fine.
" common, beautiful compact plants.
" do., upright variety.
" coriacea or japonica.
" Dovaston, fine weeping.
" elegantissima.
" Gold-striped.
" Irish, the finest lot possible.

Carriage of all goods paid to London. Catalogues may be had on application.—The Nurseries, Great Berkhampstead, Herts.

NEW HYBRID CUCUMBER "PERFECTION."—This is undoubtedly one of the finest varieties ever yet offered to the public; it is a splendid black spine, length 26 inches; a very free setter and an abundant bearer. There were fine fruit cut from plants last year on the 1st of March, and the same carried a good crop till the middle of October. The plants are not at all liable to rust or mildew, which is the case with most other varieties. It will set its fruit as well in the middle of December and January as in April. If ever there was a Cucumber superior to all others this is the variety, and it is well worthy of the name given to it, and will be sure to become as great a favourite as all other hybrid varieties sent out by me. It always grows of an even size from stem to point, and never clubs as many others do. As a Cucumber for Exhibition nothing surpasses it. Fruit of it was given to a medical gentleman last spring, who spoke of it as being the wholesomest and most digestible of its kind he had ever eaten: it being so very firm, solid, and crisp, and not seedy and watery as Cucumbers generally are. Seed of this superb Cucumber is now ready to be sent out at 3*s.* 6*d.* per packet.

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all purchasers, can be supplied:—

CUCUMBERS.

Sir Colin Campbell	2*s.* 0*d.*	Sunderland Wick	1*s.* 0*d.*
Captivation	2 0	Hunter's Prolific	1 0
General Canrobert	2 0	Mill's Jewess	1 0
Phenomena	2 0	Cheltenham Surprise	1 0
Ipswich Standard	2 0	Manchester Prize	1 0
Lord Kenyon's	2 0	Sion House (true)	1 0
Essex Hero	1 0	Cuthill's Black Spine	1 0
Victory of Bath	1 0	Conqueror of the West	1 0
Gordon's White Spine	1 0	Lynch's Star of the West	1 0

MELONS that surpassed all others at the great exhibition of the Crystal Palace, and were awarded First Prizes.

	s. d.		s. d.
M'Ewen's Arundel Hybrid Scarlet-flesh	1 6	Bowood	1 0
M'Ewen's Arundel Hybrid Green-flesh	1 6	Victory of Bath	1 0
Monro's Crystal Palace Hero	1 6	Cashmere	1 0
Monro's Golden Gage	1 6	Camerton Court	1 0
The Queen	1 0	Beechwood	1 0
Orion	1 0	Windsor Prize	1 0
Golden Drop	1 0	Emperor	1 0
Green Gage	1 0	Fleming's Hybrid Persian	1 0
Bromham Hall	1 0	Blackall's Green-flesh	1 0
Incomparable	1 0	Bailey's ditto	1 0
Golden Ball	1 0	Snow's Hybrid	1 0
		Golden Perfection	1 0
		Scarlet King	1 0

One packet of either of the first six Cucumbers mentioned and one of either of the first four Melons, and a packet of the Cucumber Perfection, will be sent for 6*s.*

A remittance must accompany every order in cash or penny postage stamps, and the whole, or any part, as the case may be will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The undermentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs. Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place, Manchester
Dulwich, Surrey.

LYNCH'S STAR OF THE WEST CUCUMBER.—This has proved itself during the last two seasons to be one of the very best Cucumbers for general use.

Mr. Joseph Hamilton, the celebrated Cucumber grower, and author of the "Hamiltonian System of Pine Growing," in a letter dated October 1st, 1856, says:—

"LYNCH'S STAR OF THE WEST IS A GREAT FAVOURITE OF MINE, AND I WILL USE MY BEST ENDEAVOURS TO RECOMMEND THE SORT TO ALL MY FRIENDS."

	Per packet.—s. d.
SIX SEEDS FOR	1 6
TWELVE SEEDS FOR	2 6
TWELVE LARGE PACKAGES FOR PRESENTS FOR	20 0

Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—

ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli; Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities ...	£3 0 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN ...	2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES ...	1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN ...	0 15 0

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5s. each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5s. per quart. Usual allowance to the trade.

FINEST PEAS IN CULTIVATION.

EPPS' LORD RAGLAN AND MONARCH.—"LORD RAGLAN." Green wrinkled marrow. Habit dwarf and branching, 3 feet, producing large clusters of bright green pods of immense size, containing 7 to 10 Peas much larger than the British Queen, and of equal if not superior flavour, 2s. 6d. per quart, 35s. per bushel. Several persons in the trade are selling Hair's Mammoth for this Pea, which is very distinct from it, being a much larger cropper and superior flavour.

MONARCH. Tall green wrinkled marrow, the largest size and best flavoured Pea in cultivation, 2s. 6d. per quart, 40s. per bushel.

W. J. EPPS offers the above two Peas with great confidence, and submits the following testimonials out of the great number he has this last year received. The trade supplied ONLY by Messrs. Hurst and McMullen, who have purchased the stock for this season.

From E. Collyer, Esq., Southfleet.

"I consider the Pea I had of you to possess the finest flavour I ever tasted, and also yielded an excellent crop."

From Mr. G. Fleming, Trentham.

"Your Peas have been highly approved of here; they are the largest, very abundant, and of excellent flavour and of a fine green colour.

From Mr. Jas. Allen, Market Gardener, Stone Hill, Dartford.

"I have tried your Peas, and am satisfied they are the finest I have ever grown, and the very best flavour."

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1l. to 5l. and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

VEGETABLE AND FLOWER SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now sending out the above seeds, comprising many newly introduced and valuable varieties, and all carefully selected from true stocks. They solicit the favour of speedy orders, which will ensure an early delivery. Catalogues will be sent free on application.

Their stocks of Agricultural SEEDS and GRASSES for alternate husbandry, permanent pasture, &c., are of very superior quality this season, being the result of repeated and very careful selections. Priced Catalogues are in course of publication. Everything connected with their Trade can be supplied in any quantity from their London branch.

27, Great George Street, Westminster.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION ...	£2 15 0
No. 2.—Ditto Ditto	1 15 0
No. 3.—Ditto Ditto	1 0 0
No. 4.—Ditto Ditto	0 10 0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each .. 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

SUPERB SEEDLING CALCEOLARIAS, ETC.

JOHN CATTELL has now ready to send out fine strong Seedling Plants, in single pots, of his superb varieties of CALCEOLARIAS; they will produce flowers of very large size, and every shade of colour. 5s. per dozen, or 36s. per 100, hamper included; plants from the store pans can be sent free by post at 5s. per dozen.

J. C. has also fine healthy plants of the under-named splendid FRENCH GERANIUMS, which are fit for immediate shifting; strong plants of any 12, 18s.; or 12 smaller plants, 12s., hamper included:—Madame Lamoricière, James Odier, Medaille d'Or, Auguste Miellez, Jacques Duval, General Eugène Cavaignac, Auguste Odier, Colonel Faissy, Adèle Odier, Eugène Scribe, Chauvieri, Elize Miellez, Madame Lefio, Adolphe Odier, Dr. Andry, Gloire de Bellevue, Madame Cherean, Monte Christo, Coquette, Astrea, Madame James Odier, Zaria.

Extra fine varieties of Show and Fancy.
Geraniums 6s., 12s., and 18s. per dozen.

VARIEGATED LEAVED GERANIUMS.

	Each—s.	d.		Each—s.	d.
Attraction (Kinghorn) per dozen 12s.	1	6	Golden Admiration ...	1	6
Attraction (Gaines's) ...	1	0	Mountain of Light ...	0	9
Annie (Kinghorn) ...	2	6	Mrs. Lennox	2	6
Alma (Turner)	2	6	Silver King	1	0
Countess of Warwick (Kinghorn	2	6	Silver Queen	1	0
			Variegated Queen ...	2	6

SCARLET GERANIUMS.

	Each—s.	d.		Each—s.	d.
Beauty of Chipstead ...	0	9	Beauty of Coombe Bank...	1	0
General Pelissier (Kinghorn)	2	6	Trentham Scarlet Gem 1s. to	1	6

Fine healthy plants of the following:—Leschenaultia biloba splendens, Hunt's fine free flowering variety, each 2s. 6d. to 3s. 6d.

INDIAN AZALEAS.

	Each—s.	d.	s.	d.		Each—s.	d.	s.	d.
Admiration (Ivery)	2	6	to 21	0	Empress Eugenie...	3	6	to 21	0
Criterion (Ivery) ...	2	6	to 21	0	Magnificens, the best white			2	6
Gem (Ivery) ..	21	0	to 42	0	Magnificens, small specimens in 24s or 8-in. pots			21	0
Eulalie (Van Geert)	3	6	to 21	0					
Striata formosissima	2	6	to 7	6					

Fine plants of the best older kinds 12s., 24s., 30s., and 42s. per doz.

A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Subscribers, held on Wednesday, the 14th January,

Mr. JOHN LEE in the Chair,

the Chairman informed the meeting that a vacancy had occurred by death on the List of Pensioners, and that it was the recommendation of the Committee that such vacancy be filled up.

It was moved, seconded, and resolved unanimously—That the recommendation of the Committee be agreed to, and that the Candidate who may have the largest number of votes after the first three be placed on the list of pensioners.

The attention of the meeting having been drawn to a letter signed "An Old Member of the Committee," which appeared in the *Gardeners' Chronicle* of the 2d August, 1856, and many Subscribers having expressed themselves very strongly on the subject,

It was moved, seconded, and resolved unanimously—That this meeting is of opinion that the charges and allegations contained therein are entirely without foundation.

The meeting then proceeded to the election of four pensioners, when the scrutineers announced the number of votes for each candidate to be as follows:—

CANDIDATES.

No.	Name.	Application.	Age.	Votes.
1	JOSEPH JEFFREY	Seventh ...	64	331
2	JOHN LAWSON	Sixth ...	78	110
3	JAMES SMITH	Sixth ...	71	73
4	ANN ARNOLD	Fifth ...	65	570
5	FREDERICK L. BURNET ...	Fifth ...	55	446
6	WILLIAM DUNGATE	Fifth ...	71	99
7	WILLIAM JACKSON	Fourth ...	68	161
8	JOHN DAVEY	Third ...	70	526
9	MARY ANNE FARQUHARSON	Third ...	70	818
10	ELIZABETH POPE	Third ...	71	209
11	ROBERT HODGE	Second ...	49	608
12	WILLIAM PRIEST	Second ...	62	5
13	MICHAEL QUIGLEY	Second ...	62	105
14	SARAH AYRES	First ...	72	38
15	WILLIAM CROUCHER	First ...	67	6
16	MARTHA GARDINER	First ...	71	45
17	JOHN MACKINTOSH	First ...	66	4
18	JOHN MCINTOSH	First ...	61	12

The meeting then declared Mary Ann Farquharson, Robert Hodge, Ann Arnold, and John Dovey, as having the greatest number of votes, duly elected Pensioners of this Charity.

By order, EDWD. ROGER CUTLER, Sec.
Jan. 17. 14, Tavistock Row, Covent Garden.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.

JAMES VEITCH, JUN., takes this the earliest opportunity of gratefully tendering *his most cordial thanks* to all those Subscribers who so kindly responded to his appeal in behalf of *the Widow "Mary Anne Farquharson,"* and who by their kindness was yesterday elected a *Pensioner of the Institution.*

Royal Exotic Nursery, Chelsea, Jan. 15, 1857.

The four following candidates were elected and polled as follows:—

	Votes.
MARY ANNE FARQUHARSON	818
ROBERT HODGE	608
ANN ARNOLD	570
JOHN DAVEY	526

The Gardeners' Chronicle.

SATURDAY, JANUARY 17, 1857.

FIFTEEN years ago we presumed to shock the prejudices of FORESTERS by raising the cry of PRUNE NOT AT ALL. At this sound up rose a legion of sawyers, and choppers and loppers, of pruners, shearers and snaggers, practical men, having as they said a life-long experience. The ruin of our woods, of our timber, of half our rural property was predicted, or something like it, if such a principle were admitted. In short all Prunedom, as Mr. CARLYLE would call it, rose in rebellion. Nevertheless, a few stout practitioners stood by us, and by degrees opposition subsided into acquiescence on the part of all persons of intelligence. The exceptions were and are the pretenders who are permitted to exercise their ignorance upon hedgerow trees, or tenants who are driven to lop them in order to diminish the evil of having them at all.

It appears, however, that doubts upon the subject still exist, for we find in the last report (34th) of the Commissioners of Woods and Forests that the Hon. CHAS. GORE some time in March 1855 caused various questions upon this and some allied matters to be put to thirty gentlemen supposed to be conversant with the management of Oak trees, in order to elicit their separate opinions. One of these was Mr. CLUTTON, whose reply will be found, *in extenso*, in another column. The others consisted for the most part of surveyors, sawyers, hewers, land agents, carpenters, converters, and timber merchants. Although we cannot think this selection of reporters the best possible, very few foresters of reputation having been consulted, nevertheless the united experience of so many different classes must be taken as important in practice. We only mean that it might have been more important.

Four questions were put to each person, the first being

"*Is it necessary for the proper and sound growth of an Oak tree, that it should be pruned, at any period of its growth, either of live or dead boughs?*"

To this were received the following replies, to which we prefix numbers, instead of names, in order to economise our space.

1. Let nature carry out its own work; never trim a tree. 2. Certainly not. 3. No, and certainly not after 10 or 12 years' growth. 4. I think no pruning necessary, except where a small sapling has two leaders; then, by cutting off one a short distance from the top, you check that, and increase the growth of the other, which prevents a forked tree. 5. I consider it is not necessary, and that pruning should be confined to

ornamental timber and to branches of recent growth. 6. If the woods and plantations are properly planted in the first instance, in my opinion the trees are much better left to prune themselves. 7. It is necessary, for the proper growth, to prune or rub off the live young shoots round the stem or trunk, up to the crutch or first bough, otherwise suckers and dead boughs. 8. Certainly not. 9. It is unnecessary and decidedly injurious to prune an Oak tree, at any period of its growth, either of live or dead boughs after its removal from the nursery ground. 10. Not of live boughs, and there ought to be no dead ones, if the trees are timeously thinned before they cease to be saplings, taking care to leave those only with well-shaped tops and one leader. 11. Oak timber requires no pruning at any time of its growth. 12. Not by any means. 13. I consider it is not necessary, and that pruning should be confined to ornamental timber, and to branches of recent growth. 14. In my opinion it is not necessary. 15. All superfluous branches should be judiciously pruned whilst growing in the nursery, and at the time of their being transplanted therefrom, and not after that time. 16. There is no good done by pruning Oak timber. 17. Oak timber does best when no boughs are cut off for the sound growth of it. 18. I think it ought not to be pruned, but let Nature take its course. 19. No, it is not, provided the tree is raised from the acorn on the spot where it is permanently to stand, and never transplanted; but if it is raised in a nursery, and transplanted once or oftener, it is sometimes necessary, or rather desirable, to prune off a second leader where the tree may have become forked; but this should be done when the tree is quite young, and the bough or fork small enough to be cut off with a pocket knife. 20. Should be taken off when the tree is young, and before the boughs are dead, if time permits, but not too many at one time, as to prevent its growth. 21. I should say not. 22. I consider it very injurious to prune an Oak tree after it has left the nursery; the plant should be properly pruned at the time of transplanting, but never after. If the tree was raised by sowing on the spot, and it was never transplanted, it would never require pruning. 23. Certainly not. 24. No, certainly not, after a few years' growth. 25. Cut the dead boughs not off, nor the live ones. 26. I think not. 27. In my opinion it is not necessary. 28. It is not necessary to prune at any period of its growth. 29. No.

The practice of pruning Oak trees, at least, has therefore met at last with unanimous disapproval.

But when we insisted on the disadvantage of the practice we took care to add to the words "prune not at all" the important qualification "if you can help it." The reason for this must we think be obvious; there can be no practical rule without exceptions, and the rule of no pruning may be interfered with by various causes, of which it is sufficient to name injuries caused by winds which rend, or by thunderstorms which shatter the limbs of trees. This was not overlooked in the questions proposed by the Commissioner of Woods, for three more inquiries bearing upon the point were addressed to his correspondents. The opinions expressed on the subject occupy however too much space to be considered to-day. We trust on an early occasion to place them before our readers in an abridged form.

We perceive with much satisfaction that the Madras Government is about to establish a new public garden, at Bangalore. From an interesting article in the last number of Hooker's Journal of Botany it appears that the place selected is "in the territory of Mysore, elevated about 3000 feet above the level of the sea, in what may be considered 'one of the finest climates in India, being cool and pleasant throughout the greater part of the year. The gardens produce the usual vegetables of Europe in great abundance, and the products of the flower gardens are remarkably varied, vivid, and luxuriant.'"

So many so-called public gardens have in former times sunk into the Governor's Kitchen Garden, while others have conduced in no visible manner to public information or utility, that we have never felt surprise that they should have come to be regarded with much disfavour: for they deserved it. Things have now changed; jobs are not very easily committed under the eyes of a vigilant press, and quite a different description of management has been brought to bear on these distant establishments. Some have been confided to men eminent in science, and of active minds, such as Wight at Madras, Thomson at Calcutta, Royle and Jamieson at Saharunpur, and Thwaites in Ceylon; or practical gardeners of the first class like Moore at Sydney, Duncan in the Mauritius, and M'Ivor at Ootacamund. With such changes the value of public gardens in our foreign possessions begins to be more and more appreciated. It is found that they not merely conduce to the pleasure of those who live near them, but constitute so many foci of improvement in cultivation, from which valuable garden productions radiate rapidly in all directions.

Already has Mr. M'Ivor set on foot some very important attempts at growing European garden seeds in India. Placed as he is at Ootacamund in a quasi-European climate it occurred to him that the heavy losses and great disappointment annually experienced from the injury sustained by seeds imported from Europe might be obviated if such seeds could be saved without loss of quality in India itself. Experimental samples of many kinds have been received from him through Dr. Wallich and are now on their trial in the Garden of the Horticultural Society; should the verdict be in their favour India will no longer be dependent for kitchen garden seeds upon England and France. We look to the final result not merely with hope but also with confidence. For we are persuaded that any ill success which may attend these first attempts must be susceptible of being overcome by skill, time, and patience.

In the new garden at Bangalore Dr. Cleghorn, at whose instance the proposal to establish it has been entertained, states that "The great objects in view are the improvement of indigenous products—the introduction of exotics—the supply of these to the hills and plains when acclimatised, and the exhibition to the people of an improved system of cultivation in practical and successful operation. Seeds and plants should invariably be sold at a fair price to all applicants, but none should be given gratuitously, except for public purposes, and then only with the Commissioner's approval. By public purposes I mean not merely for those of Government, as plantations, avenues, &c., but for distribution to scientific persons for experiment, to public institutions, &c." "It appears to me that the advantages to Southern India, generally arising from the Garden in contemplation, promise to be very great, if the scheme be carried out under the superintendence of a competent person, permanently appointed to the charge. There can be no doubt that the climate is highly favourable, and the soil capable of producing the best description of many vegetable products. Bangalore is much better suited for horticultural and agricultural experiments than either Ootacamund or Madras, and from its central position and intermediate elevation the finer kinds of vegetables and better sorts of graft-trees may be disseminated with great success to the neighbouring ranges of hills."

These are the views of an intelligent man fully alive to the importance of his subject. We trust that he also recognises the necessity of allowing the person in charge of such a garden to be as free an agent as a public servant possibly can be. We own that the words "The superintendent of the Bangalore division, the secretary, and the surgeon for the time being, would be willing and able to relieve him of details," have to us an ominous sound. They look too much like placing the garden under such a committee as might be fatal to the efficiency of the establishment. Unless the "superintendent of division, secretary, and surgeon" are men of tact, temper, and very good sense, they may speedily paralyse the most skilful gardener in the world. It is not many years since that the Committee of one of the Indian Gardens interfered with the gardener, a first-rate man, to such a degree as to drive him into remonstrance; upon which he was informed that if he was directed to root up every tree in the place his business was to do so. By great good fortune a new member was just then added to the Committee, and sided with the gardener; a quarrel among the Committee took place, and the dispute was referred to the Government, who supported the gardener and dissolved the Committee. But this might not always, or often, happen.

The Madras Government should, in this new case, very carefully select their gardener, place him under the local Commissioner's orders, and then leave him to such perfect freedom of action as would be consistent with that subordination. If a Committee there must be, let it be one of inspection, not direction. No one knows better than Lord Harris what a public garden requires, and we trust that these remarks may meet his Lordship's eye.

It is understood that the appointment of Superintendent of the Chiswick Garden still remains open, none of the candidates having been found to possess all the qualifications which the Council of the Horticultural Society are desirous of securing.

New Plants.

191. Uroskinnera spectabilis.

G. Nov. Foliis ovato-lanceolatis, subtus [illegible] 4-dentatis. Florib. ex [illegible] Pentatemonis. Stylus planus stigmate truncato. Capsula calyce arctissimè vestita, bicoccide dehiscens. Semina scobiculata, membranâ cincta.——Herba facie Incanarum, floribus spicatis violaceis.

For this beautiful plant our gardens are indebted to George Ure Skinner, Esq., the most generous of merchants, the most eager of collectors, to whom or to whose assistance the Botany of Western Mexico and Guatemala owes more than to all the travellers that have visited those regions. Nothing more worthy of his name could well be found, for the plant is very rare, very showy, and now secured to our gardens; we therefore trust that verbal pedants will not quarrel with the manner in which we have contrived to escape from the difficulty of there being already a Skinnera in the Botanical field, but agree with us that Ure Skinner may be fairly blended into a name which shall constantly record the labours of one who ought never to be confounded with any other Skinner whatsoever.

It forms a soft, stout, erect, herbaceous plant looking like some Geranea, and grey with close hairs. In drying it becomes very dark brown. The leaves are oblong, toothed, stalked, from 2 to 4 inches long. The flowers appear in axillo terminal very close spikes, about 3 inches long, and are each subtended by a fifteen haired bract. The calyx is small, cup-shaped, hairy, 4-toothed, and fits close to the base of the tube of the corolla, which is pale violet, smooth, 1½ inch long, funnel-shaped, with a nearly equally and bluntly 5-lobed 2-lipped limb, downy on the upper side. The stamens are those of Pentstemon, the sterile one being imperfectly spathulate, coarsely downy, and rather shorter than the shortest fertile ones. The fruit is an ovate capsule, naked at the point, but otherwise tightly invested with the coarse hairy calyx and its four fibrous lobes; the dehiscence is through the back of the carpels. Our central eventually loose spongy placenta, are closely packed numerous scrobiculate small oval plain seeds edged with a narrow membrane. In the specimens before us all were abortive, and looked like membranous toothed cups, with the exception of one which had a straight embryo lying in the midst of albumen, and a well defined oval chalaza near the upper end.

The genus is very near Pentstemon, from which it differs in its 4-toothed cupped calyx, closely investing the capsule, which has a horizontal not septicidal dehiscence, and in its whole habit. It is a very handsome rather fleshy stove herbaceous plant, apparently disposed to flower during the greater part of the year. This description is made from a weak plant in the possession of the Horticultural Society. We believe Messrs. Veitch of the Exotic Nursery, King's Road, are also in possession of it.

EFFECT OF A BLACK SURFACE ON FRUIT TREE BORDERS.

In the course of some experiments with different coloured paints on wooden fences to which fruit trees were trained, it occurred to me that the absorbing power of black might be beneficial to fruit tree borders, and more particularly to Vine borders. Impressed with this idea I cast about for the best material to give a black surface to a border in front of one of my Vineries; peat charcoal occurred to me as the most convenient, and so on one of those hot days we have treated with last August, I proceeded to give a surface dressing nearly 1 inches in thickness to a small space for the purpose of testing the heat-absorbing qualities of a black surface. I had scarcely however spread the dressing before it occurred to me (as it ought to have done earlier) that charcoal, being an indifferent conductor of heat, or almost a non-conductor, would counteract the effect of colour, but I proceeded with my experiment under a hot sun, with the thermometer at 85° in the shade, and the results were as follows:—

A thermometer 5 inches deep beneath the coat of charcoal stood at 89°; within 6 feet of this spot on a place at the same depth without the charcoal dressing stood at 86°, thus giving two degrees in favour of the absorbing power of the bare surface. I then placed a thermometer laid flat in the charcoal—it stood at 110°; another placed on the bare surface within 6 feet of the above stood at 114°, giving six degrees of heat in favour of the bare surface, a calcareous sand. I consequently gave up the idea of dressing my Vine border with peat charcoal. I have however since thought that I ought to have tried a thin coat of charcoal, say ½ an inch in thickness, and then to have seen if the colour would not have neutralised the small conducting power of so thin a coat of charcoal. I dare say these experiments have been tried, and that there is nothing new in them. I merely relate what I did to call forth information which doubtless some of your numerous correspondents can furnish; if by so simple means we can add heat to our Vine and fruit borders in the summer it will be a step forward. The following account of another charcoal experiment I have just received from a reverend friend, whose peaceful leisure is devoted to fruit culture; if you knew how active he is in his researches you would be inclined to call him as I do the "philosophical fruit grower."

"I must tell you an experiment I made this year; it began in November, 1855. Having got my orchard all pruned, and digging time being at hand, I selected two Louise Bonne Pears on the Quince growing side by side; they were both well manured (for every year I manure all my little trees). The I formed a five-sided figure, and at about 2 feet from the hole I drove down pegs at the corners, to which I nailed thin boards, about 4 inches in breadth, which thus enclosed a space around the tree. The space was considerably raised by the dung which had been applied. I then filled it flush with small charcoal dust; all I wanted with this was its colour, for I expected it would become heated by the sun's rays and give heat to the roots, and through the sap to the tree. I had never before observed any difference between the

two trees. Last spring the tree treated with charcoal in November was in bloom a week earlier than the other; it carried seven dozen of fruit, and the other not quite one dozen, and the charcoal tree, as I may call it, had fruit on an average twice the size of the other."

I am by this reminded of an experiment with soot on my own Pears, but with no thought or calculation as to the heat absorbing qualities of a black surface. In the winter of 1854-55 I gave my plantation of Louise Bonne Pear trees on Quince stocks a dressing of soot instead of manure. I did this to correct the effects of the soil in which they are planted, it being too calcareous, giving to the leaves a yellow tinge (soot always promotes a dark green tinge to the leaves of corn as well as trees). About half a peck was given to each tree in a circle round the bole of 3 feet in diameter. The following season I had the finest crop of Pears ever seen, and the most beautiful and perfect fruit. I have reason to believe that such a beautiful "lot" of Louise Bonne Pears were never before seen in Covent Garden market. I am now inclined to think that this at least was partly owing to the black surface of the soot. I am now about to give the trees the same amount of soot on the surface, and shall watch narrowly its effect.

It would appear from the interesting experiment quoted above that although my charcoal covering depressed the thermometer in both instances placed on it and under it, much heat must have been absorbed by it and conveyed to the Pear tree, if we may judge from its apparent effect in forcing the tree into comparatively early blossom and in giving enlarged fruit. The experiment may be tried with great facility on trees with their roots near the surface, such as Pear trees on Quince stocks, Apples on Paradise stocks, and Peach and Plum trees, which are always inclined to root near the surface; so let us hope that we shall hear more about the effect or non-effect of a black surface on fruit tree borders, towards the end of the forthcoming fruit season. Charcoal dressings may be given at once; the effect, if any, will be the same as if given in November. *Thomas Rivers.*

HORTICULTURAL JOTTINGS MADE DURING A JOURNEY TO PARIS.—No. II.

FONTAINEBLEAU.

THE city of Paris was enshrouded in a dense fog when I departed from it by the Lyons railway for Fontainebleau; and I could not but notice the great difference between our smoky, stinking, London fogs, and the one in question. It was the 20th of October, and one of those very heavy mists prevailed which so often herald a really fine day at that season. Starting at 6 A.M. it was very dense through the suburbs of the city; but as we progressed it rolled gradually away and revealed the sun in all its glory, with a bright ethereal sky. I reached Fontainebleau to breakfast, distant from Paris 40 miles. It is a quaint old town, and, judging from appearances, it seems to have got out of the march of progress.

My first object was to see the kitchen garden, which is upon a palatial scale, and I here beg to express my great obligations to the head-gardener, from whom I received every possible attention. Proceeding there I saw some very good Pines, fruited in very small pots, for the size of the fruit; they were commencing to force the Alpine Strawberry for Christmas. In a deep pit Prince Albert Peas were just sown, and there were immense ranges of pits for forcing French Beans and Strawberries, heated by dung linings, and having a flow and return copper-pipe passing along the front of them. Their fuel is wood, and the fires must want unremitting attention owing to the rapidity with which such pipes give off their heat. There were many cloches, with Lettuces under them, and Batavian Endive (Escarolle), Cardoons, and Spinach formed the staple crops of the garden for winter use.

I saw nothing novel in the training of the fruit trees here. Perhaps one of the most remarkable features of French gardening is the rude and simple manner in which they do things. For instance, almost all their forcing is done in little moveable frames which are made out of old ship timber purchased at a cheap rate, and these are never painted. Looking at how little paint costs, and how invaluable it is when put upon really dry wood, I cannot but think their practice in this respect short-sighted. Perhaps I may be pardoned for a slight digression here on the subject of painting frames, &c.

It is much too common an error in places where better practice might be expected to allow both houses and frames to go three or four years without painting them. In the interim the putty cracks, and rain insinuates itself, causing decay of the sash bars. This is sought to be remedied by giving three coats of paint and cutting out the old putty—a process which breaks a good deal of glass—but we will suppose it fresh puttied and painted, and as it generally is put up without sufficient time to harden, to endure the scorching rays of the sun and an internal moist atmosphere with a temperature of from 85° to 90°, what is the result? Why, the paint is all in blisters, and the new putty cracks; and wherever there is a fault the water finds its way. Now the object of paint is to preserve the wood, and it should present an uniform smooth glossy surface which will reject the wet. My own practice is to give one coat every year. I find it much the most economical plan and I think it possible to preserve houses for an indefinite time by so doing.

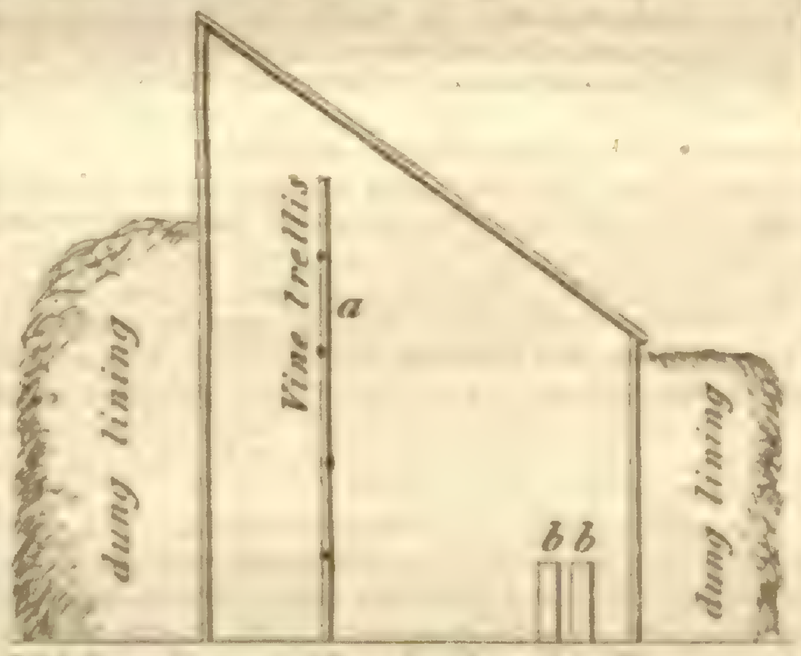
The French hothouses are all most clumsily constructed, and many of them are of the rudest materials. The most extravagant thing I saw in them was the universal use of copper boilers and pipes, instead of iron. On inquiring why these were preferred, the answer was that they were worth more when old than iron pipes are. There is one peculiarity about their pipes; instead of being round they are flat-sided, high, and narrow, thus ▯, a flow and return of this shape traversing the front of the structure.

For Grape forcing they have no such houses as we have; the Chasselas de Fontainebleau is forced in pits like that represented in the accompanying woodcut. They are constructed of wood, which is in no case painted, and are about 4 feet in height at the back and 2 feet in the front. The trellis is represented by the letter *a*; on this the Vines are trained as in the open air. But it is a point with them to force a different portion of the trellis every year, which they say rests and recruits their Vines. I think English gardeners generally prefer to force those trees which have been accustomed to early excitement, and from that have acquired the habit of breaking at a certain season; *b b* are the copper hot-water pipes.

The wall of Chasselas Grapes, 1300 yards long and from 12 to 15 feet in height, is indeed a fine sight to see, as I saw it, covered with ripe fruit, which in this charming climate is of an exquisite colour and flavour.

I entered the pleasure ground at the back front of the palace, where the grounds are arranged in the picturesque style, and noticed some extensive pieces of lawn (and for the first time in France) some fine trees, with a noble lake of water. Large masses of Dahlias prevailed in the vicinity of the palace, and never have I seen this plant so artistically used as it is here. The arrangement of colour was most effective, and the quantity, perfection, and brilliancy of the flowers formed a *coup d'œil* of singular beauty, and was much the result of the dry and genial climate of Fontainebleau. In the lake were many hundreds of voracious carp, which congregated in large numbers at a place where they are fed by visitors, and it was truly amusing to see their scuffles and gambols after pieces of bread. We now went to what may be called the back front of the palace.

The palace itself is a vast irregular aggregation of building, with no particular design excepting that next the town the frontage resembles half of the letter H, the sky outline of the whole being broken by towers of



all kinds and sizes with pointed roofs. The entrance from the town is through an immense court formed by the half H. The garden front has a most magnificent sunk terrace, the beds of which were filled with Dahlias and Gladioli, which were of dazzling brilliancy. I thought, looking at the immense scale of it, that the arrangements were most admirable. In a large reserve garden were some handsome kinds of Gladiolus, a flower which attains to great beauty in this delicious climate.

I did not see the interior of the palace, which I was informed is very fine, but preferred going to drive in the celebrated forest. We therefore set off *en route* for it, and soon reached its commencement.

It did not at first present any very striking objects, but as we progressed we noticed occasionally some gigantic Beeches and Oaks standing out in bold relief from the entangled thicket of underwood. Some of these trees were named, and two of the finest were called La Reine and Charlemagne. Proceeding on, we came presently to a spot which was charmingly picturesque.

We stood upon a bold projecting rock and looked upon an enchanting scene. The spot commanded a view over the forest, and the foreground was lovely; looking around us we saw gigantic boulders of the sandstone rock of the most grotesque forms, now an enormous mass poised on some tiny point, and everywhere large rocks overlying each other in such a manner as Dame Nature's hand could alone effect; while intermixed with these were gnarled and contorted oaks, and pretty picturesque masses of them. It was a scene that the eye of taste could revel in—one that is still fresh in my memory. We again mounted the carriage, and after driving through some miles of forest scenery arrived at another magnificent aggregation of rocks. Here we dismounted and wended our way through a narrow tortuous path, till we came out on the brow of a rock commanding a fine view of the adjacent country. Here, too, we were shown a brigand's cave, happily without its tenants or any traces of them, save the smoke-stained roof; after seeing it, and thanking our lucky stars that there were no real living robbers there, we retraced our steps and after driving through a vast extent of wood, now descending into the bosom of a dell and anon ascending to some elevated ground, occasionally stopping to admire some gigantic tree, and paying a visit to some other rocks, we reached Fontainebleau, after one of the most delightful days "in search of the picturesque" which it has ever fallen to my lot to enjoy.

Those who would excel in woodland management must not go to the forest of Fontainebleau for a lesson. I never saw woods worse managed. Most of the young trees are spoiled for want of thinning. We have heard much of late of our own mismanagement of Royal forests, and I believe that the picture presented to us has not been overcharged; but really nothing can be worse than Fontainebleau, and indeed in all I saw of France the art of arboriculture seems to be set at defiance. In this forest there seems to be only two descriptions of trees—the gigantic monarchs of the wood, few and far between, but very fine, and the host of drawn up poles which are to be their successors. *Henry Bailey, Nuneham, Jan.* 8, 1857.

PRUNING OAK TIMBER.

We find in the last report of the Commissioners of Woods and Forests the following letter from Mr. Clutton to Mr. Gore, relative to the manner in which Oaks are affected by dead boughs.

8, Whitehall Place, 18th April, 1855.

Sir,—I have the honour to acknowledge the receipt of your letter of the 31st ultimo, calling my attention to the question which has been raised upon an opinion, expressed by the surveyors employed by direction of the Lords of the Treasury to inquire into the state of management of the New Forest in their report of the 1st of August 1854, upon the recommendation made by Mr. Brown of pruning decayed branches of Oaks.

I have, in a previous report, stated that no bough should be cut from an Oak Tree, whether dead or alive; and as the referees entirely agreed with me as to the impropriety of removing such boughs, it might appear unnecessary for me to offer any further observations on the subject; but as the result of my own experience (and that of my father and grandfather during a period of 80 years upon the same Oak-growing estates) leads me to adopt a different conclusion as regards one of the points adverted to by them, I feel it right to submit an explanation.

I must premise, that as the Oak grown in the Royal Forests is reared with a view to an ultimate crop for the supply of the navy, and as it is grown in coppices strictly set apart for the purpose, and where alone, commercially speaking, it can be grown with any prospect of advantage, my observations will have reference to the growth of Oak and its healthy development when reared in masses, such as these coppices are composed of, and not to the growth of the tree in situations where it is distributed over the surface of the ground at wide intervals.

The manner in which Oaks are affected by dead boughs, may be considered under three heads; viz.—

1. On young trees under 40 years of age.
2. On growing trees, having acquired a size to be called timber.
3. On large or matured timber Oaks.

As regards the first stage of young trees:—When timber is intended for planking, or for purposes requiring length of bole, the young trees should stand sufficiently close, to allow them to make rapid growth, and at the same time to drop their lower branches from time to time as the trees increase in height.

For the removal of these branches no mechanical means are necessary, nor should any be resorted to under any circumstances. The sapwood as it is formed gradually tightens round the base of the dying bough, until the branch is quite rotten, and drops off when the sapwood extends its growth over the place; and so perfect is the process by which the dead bough thus leaves the parent stem, that no appearance, either externally or internally, remains of a bough ever having grown upon the bole of the tree; but if the dead branches are removed by cutting, their base becomes rapidly covered with sapwood, and the tree will be permanently defective.

I have thought it necessary to be explicit as regards the result of natural decay in branches, because I observe, in the extract which you forwarded to me, that the referees state that when a process, such as I have described, takes place at the base of a decaying branch, the "defective spot is detected" when the tree is ultimately opened; whereas the fact is, that in Oak trees grown in coppices, like those to which I have referred, and upon soils adapted to their growth, no spot or indication whatever is found in the stems of the loss of branches which have fallen from natural decay, during the early periods of the growth of the trees.

In the second stage of growing timber, the process is much the same; the bough being larger, the decay is much more gradual; but if the dying boughs are left entirely to themselves, they will drop off without injury to the trees, and, with few exceptions, without leaving a trace in the bole. I state this from the experience gained in felling many large Oak trees of great length and fine growth, which have been reared by my family; whereas, if they are cut off, the sapwood closes over the dead stump, and the trees become defective, and to a greater extent than in the first stage. The effect of closing or sealing up the stump appears to be to cause rapid decay; whereas if left to nature the tree appears to close tightly with new wood round the base

of the bough, so as to force off, by slow degrees, the decaying limb.

In the above two stages of the tree's growth, the dead boughs do not always indicate that the tree is not in a thriving state, but rather that it is casting such boughs as are not necessary for the maintenance of the plant in a healthy and profitable state. But in the third stage, in the case of matured timber, dead boughs or horns indicate that the tree is ripe, and fit to be cut; and after the tree has many such horns, it seldom makes rapid growth, although this will depend much upon the nature of the soil; as a tree upon the best Oak-growing soils will for many years continue to grow and remain sound long after the horns show themselves; but upon inferior soils the decay of the butt commences soon after the tree has many dead boughs upon its top.

It does not follow, therefore, because the occurrence of these boughs is one of the first symptoms of maturity and of the commencement of decline, that a dead bough will necessarily, under such circumstances, injure a tree if suffered to remain: on the contrary, it is found that the sapwood tightens round the base of the bough, and prevents the entrance of water into the tree; but if the bough is cut off, the tree has not, at this period, sufficient power to cover the vacant space with fresh sapwood, and the place speedily becomes a hole, in which the rain lodges, and passes thence into the very heart of the tree, causing decay to proceed at a very rapid rate.

Having submitted these observations in elucidation of the remarks of the referees respecting the removal of decaying branches, I have only to add, that it must not be assumed that I am of opinion that a tree so far matured as to have many dead boughs in its head should be allowed, as a general rule, to stand, for I am well aware that it will never be in a better state for felling, but in the event of circumstances, such as the depression of the markets, or any other reasons, rendering it undesirable to fell matured timber; the decay on good soil is so gradual, that little, if any, diminution takes place in the value of a tree for a number of years after it has reached maturity; and the period of its subsequent removal may be dictated by motives of policy or convenience, without any fear of the intrinsic worth of the timber being injuriously affected by the delay.

I may add, that Oak timber will continue to grow and increase in size, though slowly, for many years after it has apparently arrived at maturity; and as the officers of the Royal Dockyards seek in the forests belonging to the Crown for timber of the largest scantling, which it is now difficult to get elsewhere, it is of importance, with special reference to the objects for which those possessions have been appropriated under the sanction and by the direction of the Legislature, that the timber should not be felled until it has reached the extreme limit of maturity, of which, as I have already stated, the decay of the horns in trees growing upon inferior soil affords the earliest indication. *John Clutton.*

Home Correspondence.

A Plan for Transplanting Evergreens at all Seasons of the Year.—The following method I have pursued for many years with great success. On receiving an estimate of the number of evergreens required for forming new plantations, I send two or three men to a nursery ground with instructions to dig up every plant themselves, and with a good ball of earth. This operation has generally been carried on early in spring, as my plan renders me independent of the usual planting season. On the shrubs being brought home I dig a long trench in some spare piece of ground, from 2 to 3 feet wide and from 9 to 10 inches deep; in this I have the plants thickly arranged, but not so closely packed as to cause them to shed their leaves; I then surround the balls with well-rotted leaf-mould, of which I always have a large supply, and the same mould will do more than once. I then throw back the earth over the leaf-mould to prevent the escape of moisture. On inspecting the balls in two or three months I find them covered with roots from 4 to 5 inches in length, of the size of porcupines' quills, and the balls at this time much resembling this animal in appearance. An evergreen in this condition will bear being transplanted even in the hottest weather, if the roots be not much exposed. Since I have adopted this plan—which I discovered by accident—I have hardly lost an evergreen, although in 1854 I planted from March till August. The leaf-mould being always moist and in a state to afford immediate nourishment causes the roots to grow as much in three months as I have found, on examination, those planted in the open ground have grown in a whole year. Let any one try this experiment, and examine the roots in about two or three months; he would, if he has never seen it, be surprised to find the ball of earth covered with straight quill-like roots. The rapid manner in which my plantations have advanced has been the remark of all. *Sigma.* [This reminds us of Mr. Knight's plan of sowing Carrots, &c., among chopped hay, in order to transplant them safely; and still more of basket-transplanting, as sometimes practised with valuable Conifers.]

Rose Discussion.—I have read the discussion on Roses in your pages betwixt Mr. Paul and "A. R," and I think that "A. R." has viewed the matter in a wrong light. When Mr. Paul recommended the 12 new Roses, it did not strike me that he meant them for those who were going to purchase their first dozen. I imagined that it was for such as myself he was writing, who have already all the old Roses that are worth growing and as many of the really good new ones as Mr. Paul, or Mr. Charles Wood of Maresfield, have recommended me to purchase, when an opinion was requested. And I do honestly confess that I have never on any occasion been disappointed either with their verbal or written recommendations on this subject. I recollect when Mr. Paul advised me to add H. P. General Jacqueminot to my collection, he could scarcely find words vivid enough to describe the glowing colour of that magnificent Rose. And I did not wonder at the difficulty after I saw it bloom, as there is no variety which can approach it for colour, and for thickness of petal it looks like a fine Camellia. General Castellane may be termed Rose in perfection. Gloire de Dijon—I have seen a bloom of this Rose so exquisitely beautiful that I never shall forget it. Lord Raglan is a new colour, and a first class perpetual blooming sort. As I make additions to my collection every year, I added these four varieties of new Roses along with others upon Mr. Paul's recommendation to my Rosetum, which contains upwards of 150 kinds, and these are four of the Roses which "A. R." finds fault with Mr. Paul for recommending. If "A. R." has not got them in his collection and wishes to be thought a lover of good Roses, I would advise him to order them at once from his nurseryman, and discard such fourth-rate varieties as Louis Bonaparte, Mrs. Elliot, Madame Laffay, and also William Jesse, which has now little but its fragrance to recommend it. I would advise "A. R." to take William Griffiths as his standard to compare his varieties by, and if he has got Jules Margottin, he will have little use for the services of Madame Laffay. *Paul Ricaut, Falkirk, January* 12.

Mushrooms.—In Mrs. Loudon's "Gardening for Ladies" occurs the following passage:—"Mushrooms may be also made to grow on lawns and in pleasure grounds by procuring some bricks of Mushroom spawn in April or May, and after breaking them into pieces 1 or 2 inches square, burying the pieces at intervals all over the lawn. In each place a little of the turf should be raised, under which the spawn should be inserted, and the turf then pressed down over it. The lawn should be afterwards rolled, and no other care will be requisite till the plants are ready for gathering, which they will be in September if the summer has been tolerably warm and dry. This plan only succeeds where there are no snails." These instructions I followed to the letter last April, but have had not a single Mushroom, and the garden and lawn being new we have not seen half-a-dozen snails in the season. Can you therefore oblige me by suggesting the reason the plan has failed? *A Lady at Croydon.* [We never could persuade them to grow in our own lawn.]

Tree-lifting Machine.—As my tree-lifting machine was not entirely made by contract I cannot at present inform your correspondent of its cost; but as I wish to give all possible information on the subject, I may mention that I value it at 20*l.* It may be remarked, however, that this machine, simple as it is, may not be got up for this cost by all parties, as something must depend on the kind of workmen employed, and the facilities at command. *John Reid, Orton Hall* (see p. 13 of our present year's volume).

Sawdust valuable for Packing Fruit in.—As a proof of the value of sawdust as a non-conductor, permit me to inform you that I have this year received a barrel of Newtown Pippins from the United States, and the Apples having been packed in Mahogany sawdust not a single Apple is damaged. For the last 10 years I have received my annual barrel but without the sawdust, and generally from one-fourth to three-fourths were positively rotten. *E. H., Tufnel Park, Holloway.* [But don't use *Deal* sawdust for this purpose.]

Hazard's System of Heating.—While I lived at Heywood House, in Wiltshire, we employed one of Mr. Hazard's 20*l.* stoves to heat a small Vine-house. The Grapes were of good quality, and were ripened usually by the middle of March. But this I considered no test of superior merit, as the same Vines were previously forced by means of a fire-flue with equal success. Calculating the two systems with reference to expense, they will produce figures essentially different. A good substantial fire-flue can be built for a great deal less money than is required to build Mr. Hazard's hot-air chamber and cold-air drain, independent of what is incurred in the construction of a channel for the diffusion of warm air throughout the house. I do not consider it necessary to say anything respecting the construction of this stove, beyond that it is made of a series of cast-iron tubes that fit into sockets and through which the flame travels. To secure these joints against their letting smoke and other deleterious matters into the house, I found to be a real difficulty. What Mr. Hazard instructed me to close them with was finely sifted caustic lime and bullock's blood made into putty. This proved a mere temporary prevention, as it crumbled to dust under the action of the fire. For a couple of years matters went on satisfactorily, but in the spring of the third year symptoms of derangement began to show themselves, which no amount of skill and care could remedy without taking the stove entirely to pieces, which is a difficult task, and even then there exists no lasting security. Destructive effects first showed themselves about the end of February from the combined influence of the noxious gases and sunshine. When scorching first took place, I judged the cause to proceed solely from inattention to ventilation, and consequently took the matter under my own immediate care but with no better success, and so this annoyance continued till I left the place. Supposing it were possible to make the joints secure, which I very much doubt, the stove itself cannot remain sound more than a few years, owing to the intense heat to which it is subjected and the oxydising principle of the water, which is thrown over the stove to produce atmospheric moisture. To such a plan I enter a most determined protest; no good gardener would let loose among tender foliage a volume of hot steam, which unless managed with great care would scald every leaf on the plants. And how could it be otherwise, as the heated air during severe weather passes off from the stove at a temperature of from 180° to 200°? There is something also to be said with respect to the introduction of cold air to the chamber. Ours was at first brought from the outside of the house, which answered very well so long as the wind blew from the north, north-east, or north-west, but whenever it changed from any of these points a reaction took place; that is, the air in the house passed into the hot chamber, and escaped by the cold air drain. An occurrence of this kind would, I suspect, make a gardener look rather stupified, particularly during a storm of frost or snow. The circumstance did so alarm my assistant that he pronounced the cold air drain to be on fire. Owing to this insecurity, a communication with the stove from the inside of the house was made, which acted very well, but did just what a hot-water apparatus does, consume the same air over again. Were I compelled to adopt either a fire flue or Mr. Hazard's stove, I would decidedly prefer the former, involving as it does less labour and more security to the crop. I most candidly beg to say that I have no desire to bring disparagement on Mr. Hazard's invention, but merely to relate facts confirmed by my own experience. *Alex. Cramb, The Gardens, Tortworth Court, Gloucestershire.*

Raspberries.—I quite agree with the opinion advanced in your leading article at page 819, 1856, that the Raspberry has not been so much improved in point of quality as its relation, the Strawberry, but I cannot think that the method of culture represented in your first figure is calculated in any degree to effect that desirable object. In that figure the plants appear to be at least 3 feet asunder in the rows, and there are no fewer than 12 bearing canes left upon each root after pruning. Now it might fairly be questioned whether with the advantage of the most fertile soil a plant trained upon the plan in question could long continue strong enough to carry good crops of good fruit. Twelve bearing branches will yield a considerable weight of fruit, and in addition to that drain upon the plant it is also expected to furnish an equal number of fruit-bearing shoots for the following season, which will be found too heavy a tax upon its strength. For this and other reasons it is better to place the plants closer together in the row. My practice (the soil being naturally very poor) is to plant 1 foot apart, and to allow each plant to carry one bearing cane and one growing shoot for the next year; during the growing season therefore the canes when tied to the wire will be 6 inches asunder. But as it is not possible to keep all the plants in an equal state of vigour, it will occasionally happen that a root will fail to throw up even one shoot long enough and strong enough for taking its proper place as a fruit-bearing cane at the autumn pruning, in which case it becomes necessary to substitute a cane from one of its more robust neighbours which has been retained for this purpose at the summer training. In good loamy soil, such as the Raspberry delights in, 2 feet apart will not be too near together for the plants, because they will then grow vigorously enough to carry two or three bearing canes each, as may be required. This system properly carried out ensures to each shoot a fair supply of light and air, without which it is vain to expect large and well flavoured fruit. With respect to the quality of the different varieties of Raspberry, I have never yet tasted one superior to the true Red Antwerp. The true White Antwerp seems to be very scarce. I have never seen it growing in this part of the country, and have failed in procuring it from one of the most eminent fruit tree nurserymen. Although the White Raspberry is a very nice dessert fruit, yet not being used for any other purpose in a gentleman's establishment, it is less valuable than the red kinds. Some one of the varieties of what is known as the "Double-bearing" Raspberry ("autumn-bearing" would be a better name) will be found very desirable in a gentleman's garden, and perhaps the best of them is "Rivers's Large-fruited Monthly." As the fruit of none of this class is equal in quality to that of the best summer-bearing sorts, they should be prevented from fruiting at that season, which can be done by cutting off the canes close to the ground at the winter pruning; this will also cause them to yield a more abundant autumn crop. My remarks, it will be observed, refer only to the cultivation of the Raspberry in its present state. Your suggestions, in the article above alluded to, for the future improvement of this most useful fruit will I trust be acted upon by some lover of gardening who has plenty of leisure for the purpose; and possibly such a person might be further stimulated to make a beginning if I remind him of what has been effected within these few years by florists. In the case of the Raspberry (and I might add the Currant) the harvest, although slower, will be equally sure. *J. B. W.*

Elder Wine.—At page 632 of your volume for 1850 you give two recipes for making Elder wine, to the first of which you accord the praise of "very excellent." Are the quantities given correctly? The principle I believe to be good, but both from reason and now from experience I feel satisfied there is some material error. I have found when Sloes are not procurable, a quart or at most

three pints of Damsons, or of any small black Plum, softened by heat and put with the chopped raisins will do as well, and give that roughness which Elder juice is so deficient in. *George Jeans, Alford Vicarage.* [The recipes in question have been in use by excellent housewives for a century; and we are not aware that they contain any error. The quantity of sugar seems small, but then they were intended to be œconomical. A much more expensive and no doubt far better sort of wine is prepared thus:—"Take 12 gallons of soft river water, 48 lbs. of raisins, 14 lbs. of Lisbon sugar, 12 quarts of Elder juice, 3 quarts of juice of Sloes, and ½ oz. of isinglass; when this has stood two months, or till it is fine, draw it off into a clean cask, and add 6 lbs. of loaf sugar and 3 quarts of brandy. Bottle it the April following, and keep it two years before drinking it." This is, in the opinion of some, equal to genuine Port wine if kept long enough. We have known a wine merchant exchange the latter, bottle for bottle, with old wine thus prepared. The Australian seeds whose names you have sent are all of greenhouse plants which will live out of doors in summer. For *Lida* read Sida; for *Dawfentonia* Daubentonia, *Callisthemon* Callistemon, *Euylea* Eurybia, and for *Lopnantha* Lophantha. The last is naturally a great tree, hardy in Devonshire and Cornwall.]

The Durian.—Let an attempt be made to introduce the Durian of Borneo into this country. Let it be treated only as an espalier, by budding or grafting only fruit-bearing branches. Perhaps we may find out some mode of getting rid of the unpleasant effluvium, and may render it a favourite. *An Old Horticulturist.* [What is it to be budded or grafted upon?]

Quercus pubescens.—I believe I can answer the query as to the general appearance of this Oak, from its being so exceedingly common in the Crimea, where it forms the greater part of the scrub which I see described often as "Heath" and "Heather," neither of which are to be found in the country. The Quercus pubescens, as I have seen it, grows from 3 to 5 feet high, a shrub, never growing to a single stem, but very pretty in early spring from its shoots and young foliage being soft and downy, and of a bright white and crimson colour variegated, and when the foliage is fully open of a grey downy green, and very distinct in colour from the other Oak which I take to be "pubescens," though acorns were very scarce of either. There are several Oaks on the banks of the Bosphorus, particularly on the Asiatic side, which I have never seen in England. There is the beautiful neat little evergreen *coccifera*, like a small Holly bush, which in early spring while putting forth its soft copper coloured shoots has its older leaves speckled with bright scarlet coccus or galls (hence its name). Then there is a lovely little acorn, quite a fairy-like ornament, the acorn as big as a Holly berry, with a pretty little cup complete, growing on a tree of the size of an orchard Apple; another on the same sized tree with long acorns and rather larger than the usual English sessiliflora or pedunculata, and on long pendulous stalks, making a striking contrast to its little stiff stalked miniature acorned neighbour. These two latter varieties I have never seen elsewhere, though worthy of introduction. Quercus coccifera is in England usually spoiled by being grafted; as also Quercus gramuntia; also an evergreen bush of some interest which grows with the Cork trees and Quercus Zau (Mirbecki) in the Cork wood near Gibraltar. Quercus Zau is beautiful with foliage (as large as Quercus coccinea of America) and is sub evergreen, native of Morocco. *Derru.*

Himalayan Trees and Shrubs.—Will you be kind enough to inform your readers if the many fine trees and shrubs discovered by Dr. Hooker, such as Magnolias Campbelli and excelsa, Edgeworthia Gardneri, the beautiful shrub "with globes of waxy Cowslip-coloured deliciously scented flowers," the Oaks, the single scarlet Rose with such large flowers, the yellow Rose, and many other most interesting shrubs, have been introduced to the Royal Gardens at Kew, or are likely to be? May I also ask if the "Prangos" (what is it?) described by Moorcroft as so valuable and hardy as a forage plant has ever been introduced? *Herts.* [To this inquiry Dr. Hooker has kindly sent us the following answer:—Seeds of several of the beautiful Eastern Himalayan Magnolias have been sent to Kew by myself, and since then by Dr. Thomson and Dr. Campbell of Dorjiling; but owing to the soft, fleshy, and oily nature of the albumen, all have arrived in a more or less decayed state, or rancid and dead. We hope to receive live plants from Dr. Thomson, there being little hope of seeds of such a nature surviving transmission. The "yellow Rose" is not a Himalayan plant; that to which your correspondent alludes is, I suppose, the "double yellow Rose" observed by Dr. Thomson to be cultivated in the Ladak province of Western Tibet, at an elevation of about 11,000 feet, and where, of common European species, Tussilago Farfara and Rosa spinosissima (Webbiana of Indian botanist) are wild, and the prevailing trees are Apricots, Willows, Junipers; and the crops are Barley, Lucerne, and Melilot. Dr. Thomson, when in England, determined his Rose to be the common Rosa lutea, a plant which had, no doubt, been carried from Persia or Affghanistan into Tibet. The wild single state of the same species was however found by Dr. Thomson in the Western Himalaya, in the province of Kisiitevar, near Kashmir (elev. 7500 feet), and by Griffith in Affghanistan. Though so well known in our gardens for nearly a century, the native place of this fine plant (Rosa lutea) has only been recently discovered; both single and double states of it are cultivated abundantly in the Persian gardens, and the single has been found wild also by Aucher Eloi on Mount Sypilus. The Edgeworthia alluded to is, I suppose, the E. Gardneri, a native of the central and Eastern Himalaya, in the provinces of Nepal, Sikkim, and Bhotan, and was originally, I believe, introduced into England by its discoverer, Wallich; it is very similar to its better known Chinese congener E. chrysantha. The large flowered Rose is the R. macrophylla, Lindley; I believe also named R. Hookeriana by Wallich, though figured under the former name in his Plantæ Asiaticæ Rariores. It inhabits the outer damp ranges of the whole Himalaya, from Sikkim to the Indus river, at elevations of 8-12,000 feet, varying extremely in stature and the size of its flowers; these are nowhere so large as in Nepal and Sikkim, where they are sometimes 3 inches in diameter; nor are they constantly so large as this in these countries, but often only 1½ to 2 inches. More extended views of the limits of the species of the genus Rosa than now prevail may prove it to be a variety of some European or oriental species. In its large flowered state it is a magnificent plant. I sent seeds to Kew which grew and blossomed, but the flowers were not larger than those of a common Dogrose, which the plant strongly resembled. *J. D. Hooker.* The Prangos is an Umbelliferous plant of no value in Europe. It is about as good as Cow Parsnep.]

Village Post Offices.—Now that the subject of postage in London is before the public, can you not say a word about village post-offices? When our employer is away and the horses, we gardeners and the women have no one to send three miles to the post-office; and the poor labourers in this scattered village have no one to get their few letters when they do not know when to expect them. I cannot help thinking that if they knew more about writing, and had more letters, they would know more about wages, and go where they are higher, and so things would get more even, and the poor would not be so badly off as they are here. I want you to say something, in order that post-offices may be in every place, whether large or small; and when a letter is posted we may be sure that it will reach the owner, be he poor or rich. I want, too, to get my boys a better education than in the church school, but the poor here is getting from our master the squire better instruction than the farmers' and tradesmen and gardeners' and other servants' sons can get. *W. J., a gardener of twelve years.*

Rain at Castle Hill in 1856:—

	Inches		Inches.
January	3.27	Brought forward ...	17.59
February	2.24	July	2.11
March	1.00	August	3.85
April	4.28	September	4.44
May	3.43	October	3.11
June	3.37	November	2.14
		December	4.45
Carried forward ...	17.59	Total	37.19
		1855	29.74
			7.45

—*A. Saul.*

Old and New Roses.—As a practical man who has had much experience with the "Queen of Flowers," I am induced to offer a few remarks upon this subject. In the first place "A. R.'s" article of 22d November, wherein he states that the "old Roses are not beaten yet," shows, I think, a want of taste in selecting even from among the old Roses such varieties as William Jesse, Madame Laffay, Gen. Jacqueminot (H. China), &c.; and had it not been so ably replied to by the "professional," it would undoubtedly have caused much disappointment to those following his advice. "A. R.'s" article of 27th ult., wherein he states that "Gen. Castellane and Mdme. Masson are bad growers, Mdme. Desiré Giraud a most inconstant Rose; Prince Albert a doubtful opener in many soils; and Gloire de Dijon could not be grown out of doors north of the Trent," proves want of experience on his part. With respect to the first I must partially agree with him: although it is one of our finest shaped free blooming Roses, it has the fault of being what is termed a dwarf grower, but certainly not a delicate or "bad grower;" Madame Masson, on the contrary, is a vigorous grower, either budded or on its own roots, and in fact one that I can with confidence recommend as a pillar Rose, for which, from its fine foliage and large showy crimson blossoms, which are produced in abundance, it is peculiarly adapted. Of the third I can speak with equal confidence, from having grown large quantities of this variety during the past season, and which have bloomed freely with me, both in the forcing house and in the open ground; in no case have I found it inconstant, but fully bearing out the character given it; this is really a striped Rose and a great novelty, resembling in marking a well-flaked carnation. The fourth, which is undoubtedly the finest of all the bright Bourbon Roses, I have always found bloom to my satisfaction, more especially in the autumn, which appears its more peculiar season. The last, the charming "Gloire de Dijon," although a Tea, is without doubt the hardiest of its class, and would survive where some of the Chinas, Noisettes, and even Bourbons would perish, and I do not hesitate in offering an opinion that it would not only grow out of doors "north of the Trent," but even "north of the Tweed;" this is indeed a diamond of the first water, and no collection can possibly be complete without it. Of General Jacqueminot (H. P.) spoken of in the same article as "notoriously semi-double, and saved only by its colour," I can only say that such a remark cannot carry with it any weight, or in the least disturb the general opinion entertained of this fine flower. Surely "A. R." could not have seen the beautiful specimens so often exhibited during the past season, to have arrived at such a conclusion; as a continuous bloomer few are equal to it, flowering as it does from June to November, and becoming even more beautiful as the season advances. Having been much associated with Roses during the past few seasons, and during which the greater portion of the new varieties have annually come under my notice, I have been enabled to test their merits thoroughly in comparison with the older kinds, such as La Reine, William Jesse, Louis Bonaparte, Madame Laffay, &c., and although I do not wish to depreciate these old favourites upon the plea of being "old," I must certainly disagree with "A. R." as to their being the "best yet," and to show that there are not only 12 to beat them, they are not even in my opinion admissible in a collection of 24. I now select from my note book 24 varieties, which for habit of growth, foliage, quality, and freeness of bloom cannot be surpassed either for home decoration or the exhibition table:—Hybrid Perpetuals—Baronne Hallez (dark red), Comte de Nanteuil (fine rose), General Jacqueminot (brilliant red), Joan of Arc (delicate blush), Jules Margottin (cherry), Lord Raglan (crimson scarlet), Madame de Cambacérès (rosy carmine), Madame Masson (crimson shaded), Madame Martel (white, tinted with rose), Madame Vidot (waxy flesh), Madame Hector Jacquin (rose), Mrs. Rivers (delicate flesh), Prince Leon (bright crimson), Souvenir de Leveson Gower (ruby red), Triomphe de Paris (deep velvety crimson), Louise Odier (fine rose); Bourbon—Prince Albert (bright crimson), Reveil (violet crimson); Moss—Baronne de Wassenaer (bright red), Gloire des Mousseuses (blush white), Lanei (rosy crimson shaded); Hybrid Bourbon—Coupe d'Hébé (rich pink), Paul Ricaut (rosy crimson); Tea—Gloire de Dijon (fine yellow). Of the new Roses imported last spring, of each of which I have bloomed several plants, I have been enabled to note favourably of the following:—Hybrid Perpetuals:—Arthur de Sansal (purplish crimson), General Pelissier (rose, very large), General Simpson (carmine), Impératrice des Français (delicate flesh), Madame Hitz (rosy flesh), Madame Knorr (bright rose), Mathurin Regnier (salmon rose), Ornement des Jardins (scarlet crimson), Pauline Lansezeur (crimson), Souvenir de la Reine d'Angleterre (lilac rose, very distinct and fine), Triomphe d'Avranches (fiery red), Triomphe de l'Exposition (crimson, fine shape); Bourbon—Empress Eugenie (rose edged with purple, will make a fine climber); Perpetual Scotch—Souvenir d'Henri Clay (rose, blooms freely in autumn, a great improvement on Stanwell Perpetual); Bacchus (Paul's) bids well to occupy a prominent position among the new Roses of the season. In conclusion, I cannot too strongly recommend the amateur to the advice of your correspondent "Alpha," "go and see the flowers yourself," and by so doing he will please his own taste, and at the same time gain much valuable information. *G. H.*

Societies.

BOTANICAL OF EDINBURGH, *Nov.* 13th, 1856.—Professor FLEMING, V.P., in the chair. The following papers were read:—1. "Notice of Diatomaceæ, Desmideæ, &c., collected in Ceylon." By Dr. Kelaart. 2. "Notice of the Occurrence of Crambe maritima near Edinburgh." By Mr. J. W. Brown. Mr. B. observed—"Crambe maritima seems to have disappeared from the localities around Edinburgh in which it used to grow. Thus it is no longer found in the station on the Bass Rock, nor in others along the southern shore of the Firth of Forth. The plant has not been included for many years in the Herbaria sent in for the prize at the botanical class of the University. It may not, therefore, be uninteresting to notice its occurrence on the northern shores of the Firth of Forth. During the month of August last, I detected the plant, in company with Mr. Macfarlan, in the neighbourhood of Elie, within 20 miles of Edinburgh. It was found in a truly wild state, and in considerable abundance. The plant is frequently met with on the western shores of Britain, as, for example, on the shores of Galloway and of the island of Arran. In some places it is found in large quantity."

Notices of Books.

Among recent publications now before us are new numbers of Dr. Weddell's valuable *Chloris Andina* (the 5th), and of Prof. Reichenbach jun.'s important *Xenia Orchidacea* (the 9th).

We have also received the first part of Prof. de Vriese's *Plantæ Indiæ Batavæ orientalis;* an elaborate account of the plants found in Java, Amboina, Celebes, Ternate, and other places in the Malay Archipelago by the late Prof. Reinwardt, a most zealous botanist, whose merits his countrymen have hitherto but little acknowledged, although one of them at least has known how to profit by his labours. The present work is in quarto, and published under the enlightened patronage of H.M. King William the Third. The part before us contains learned systematical descriptions written in Latin and illustrated by excellent lithographed figures, one of which represents *Trichotrichum Ternateum*, an herbaceous plant that would be invaluable in gardens. It is related to Streptocarpus, creeps on the ground like an Æschynanthus, but has great heart-shaped downy leaves, and fine large trusses of tubular scarlet flowers, an inch and a half long. The plant grows in woods near the summit of the volcano of Ternate, where Reinwardt

found it in August 1821 in flower and seed, creeping over trees and rooting on them. Our collectors should look for this, which would be really a grand acquisition.

Sir Francis Head has long been one of the most popular contributors to the pages of the Quarterly Review; for if his style is not the purest, at least his matter and manner are instructive and very entertaining. We are therefore not surprised to find a demand for a separation of his many essays from the pages of a work which only large libraries can contain. Under the title of *Descriptive Essays* (8vo, Murray) we have two handsome extremely well printed volumes, containing a dozen of the most solid of these fugitive contributions. They form a handsome addition to the shelves of a library, whence they will often be taken down to solace the weary hour. The subjects are—Cornish Mines in America, a warning to thoughtless speculators; English Charity, Locomotion by Steam, British Policy, the Printer's Devil, the Red Man, the Air we live in; Memorandum on the Battle of Waterloo, a happy defence of the Duke of Wellington against an aspersion of Alison; the London and North Western Railway, the Electric Telegraph, the Britannia Bridge, the London Post-office.

The Student's Gibbon (small 8vo, Murray, pp. 677), forms a very neat compact volume, profusely ornamented with woodcuts of coins, antiquities, &c., illustrative of the times described. As the work is intended for schools, we think the learned editor, Dr. Smith, has shown sound judgment in omitting the objectionable parts of the original. Historical *facts* are all that a schoolboy has to deal with, and these are carefully preserved. Private *opinions*, especially such as Gibbon's, concern those only whose judgment is matured, and who have learned how to estimate the value of historical inferences as to matters of faith. The recent researches of Dean Milman and M. Guizot being interwoven with the text, the work is now presented to the young student not only in an unobjectionable, but in as good a form as an abridgment is susceptible of.

Miscellaneous.

Gardeners' Benevolent Institution.—This charity held a meeting on Wednesday last, for the purpose of placing four additional pensioners on its funds. The following, as will be seen from an advertisement in another column, were the successful candidates, viz.:—Ann Arnold, aged 65, with 570 votes; J. Davey, aged 70, with 526 votes; Mary Ann Farquharson, aged 70, with 818 votes; and R. Hodge, totally blind, aged 49, with 608 votes. The total number of votes polled was 4166. On comparing these with previous years, we have the following return:—

1854, Jan. 18	2968
1855, Jan. 17	3016
„ July 4	3393
1856, Jan. 16	3745
„ July 9	3238
1857, Jan. 14	4166

It is highly satisfactory to learn from these figures how much increasing interest is taken in this important charity.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The principal work in this department will consist in keeping the houses and their inmates scrupulously clean.—Moderate fires with ventilation whenever the weather will permit and frequent washing of stove plants will be necessary. This and other houses should now be gay with Camellias and forced plants which will take the place of the Chrysanthemums now over. Keep up a regular succession of plants in bloom through the spring by bringing forward the stock of forcing plants as may be required. Roses, both dwarfs and standards, Honeysuckles, Scarlet Thorns, Hybrid Rhododendrons, and Azaleas, together with other things, will, in addition to the usual occupants of the house, make a brilliant display during the early months. Hyacinths, Narcissus, early Tulips, Lily of the Valley, and other plants of that description must be duly forwarded as wanted. Hard-wooded plants will require a rather dry atmosphere, in order to keep them free from mildew and damp. As severe weather may now at any time be expected, a good supply of dry litter, Fern, or other material should be in readiness for extra covering when required. Take advantage of bad weather to wash up and arrange dirty pots, paint tubs, baskets, wires, &c., out of use; repair and paint the sashes of houses not covered in, prepare labels of different sizes, forked sticks for pegging down plants in the flower garden, look over the stores and provide whatever may be required for next season's use. If not already done, lose no time in getting under cover a supply of the different loams, peat, &c., which may be likely to be needed for spring potting.

FORCING DEPARTMENT.

PINERY.—There is often considerable difficulty experienced in getting the requisite number of plants to show fruit at this season, and where this is the case every advantage should be taken of mild weather to maintain a brisk temperature, which may be kept at from 70° to 75° by night, and 80° to 85° by day. The difficulty of getting plants to show fruit is generally the result of their growth not having been properly matured in time to allow the plants a period of comparative rest before subjecting them to forcing with the view of getting them to show fruit, and where any difficulty of this kind is experienced timely attention should be given to the preparation of the plants for another season, which is the only means of having them at command. All that can be done this season, however, with backward plants will be to take advantage of bright days to maintain a brisk temperature, letting it rise to 80° or 85° with sunshine, and 70° to 75° should be secured at night. Maintain a moist growing atmosphere, but do not syringe plants overhead that are showing fruit. Also see that the roots are in a properly moist state, using tepid water where any is wanted. VINERY.—In houses being started use means to get the buds to break regularly, and where necessary bend the Vines, raising the backward buds to the highest point; maintain a moist atmosphere, and sprinkle the Vines morning and afternoon. When the buds begin to break the night temperature may be increased a few degrees, but it should not exceed 55° until they are all fairly started, and 65° by day should not be exceeded except with sunshine and air. Rub off all superfluous buds, taking care to leave the strongest ones, but in cases where there is any fear about the show of fruit, it will be advisable to leave all promising buds until the bunches can be perceived. It is only in cases, however, where the Vines are in a bad state that there need be any fear about destroying all superfluous buds as soon as this can be done. Admit air on every mild day, using a sufficient amount of fire heat to maintain the proper temperature. Look well to the border, and see that it is protected from wet or sudden changes of weather; and where fermenting materials are used turn them as often as necessary, adding a small quantity of fresh leaves and dung, in order to maintain a steady heat.

FLOWER GARDEN AND SHRUBBERIES.

If flowers are required to occupy those beds in the spring which are afterwards devoted to the usual bedding out plants they will have been planted; and such being the case some choice things now pushing may require a slight protection from severe frost. Sawdust, leaf mould or old tan may be put over such things as the best sorts of Anemones, Scillas, Hyacinths, and Tulips, covering the surface afterwards to resemble that of the other beds. Keep the latter neatly raked, and the edgings and Grass in good order. The pleasure ground will require frequent sweeping and rolling, the walks rolled especially after frost, and every attention paid to neatness and order. Deciduous trees and shrubs may now be thinned out and pruned if such is required; evergreens, however, had better remain untouched for the present. Planting, too, should not be done except in extreme cases at this season. Ground, however, to be planted may now be prepared with advantage. Mulch trees lately moved to preserve them from frost.

HARDY FRUIT AND KITCHEN GARDEN.

The general pruning and training of wall trees and espaliers may be proceeded with at all times, except during severe frost. Peaches, Nectarines, Figs and Apricots are, however, better left for some time yet. Gooseberries and Currants may be planted in rows 5 feet apart, and trained as low espaliers. Where room is an object this is an economical mode of growing them. These fruits may now have the necessary pruning. Take advantage of frosty weather to wheel manure to such fruit quarters as require that assistance. Newly planted trees of all kinds should have their roots protected from frost by a mulching of litter or short dung. In the kitchen garden the manuring and trenching vacant ground should be proceeded with in favourable weather, at which time the formation of new borders should be attended to, and all description of work requiring the removal of earth. Clean plots of ground immediately the crops are off, as refuse if left only afford shelter to vermin. In mild weather the vegetable quarters would be much benefited by a dressing of salt and hot lime repeated two or three times; this by killing the present stock of slugs may save much after trouble. In dry weather stir between such crops as Cabbage, Lettuce, Peas, &c. A successional crop of Peas and Beans may now be planted, the former in a dry sandy plot. Some always sow in an open field for the early crop, and never stick them; but this only applies to certain localities. A small crop of Early Horn Carrot and short top Radish may now be sown on a warm border, covering them with litter till they come up. Sow in a frame a little Cauliflower, Lettuce, Parsley, &c., for transplanting to a warm border in April to succeed the autumn sown plants. Give air on all favourable opportunities to Radishes, Carrots, &c., in frames. Keep up successions of Seakale, Asparagus, and Rhubarb, and make sowings of Cucumbers and Melons for spring crops. Cucumbers in bearing will require a somewhat brisk temperature, say from 70° to 85°; keep their shoots thin and allow them all the advantages of sun-heat. The bottom heat must nearly approach that of the house.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Jan. 15, 1857, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature. Of the Air. Max.	Temperature. Of the Air. Min.	Temperature. Of the Air. Mean	Temperature. Of the Earth. 1 foot deep	Temperature. Of the Earth. 2 feet deep	Wind	Rain.
Friday 9	13	30.143	29.797	48	40	44.0	41	41½	S.W.	.71
Satur. 10	○	29.589	28.989	51	38	44.5	41	41½	W.	.27
Sunday 11	15	29.292	28.940	45	24	34.5	42	42	W.	.07
Mon. 12	16	29.215	29.096	45	29	37.0	41	42	W.	.00
Tues. 13	17	30.338	29.193	37	28	32.5	40	42	E.	.00
Wed. 14	18	30.144	29.944	38	18	28.0	39	41	N.	.00
Thurs. 15	19	30.063	29.954	42	29	35.5	38	40	S.W.	.10
Average..		29.826	29.416	43.7	29.4	36.5	40.3	41.4		1.15

Jan. 9—Overcast; hazy; heavy rain at night.
— 10—Overcast; fine; heavy rain.
— 11—Partially overcast; rain; cloudy and fine; frosty.
— 12—Clear and frosty; exceedingly fine; cloudy; slight frost.
— 13—Densely and uniformly overcast; cloudy and cold; slight frost.
— 14—Clear and cold; sharp frost at night.
— 15—Foggy; small hail; rain; cold and drizzly throughout; slight frost.

Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Jan. 17, 1857.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	43.3	31.0	36.6	13	0.55 in.	1	4	1	3	4	11	4	3
Mon. 19	42.4	30.5	36.5	13	0.88	4	2	4	2	5	8	5	1
Tues. 20	41.8	30.8	36.3	12	0.65	4	7	4	1	6	6	2	1
Wed. 21	43.6	32.6	38.1	14	0.48	—	5	4	1	7	8	4	2
Thurs. 22	43.5	33.2	38.4	12	0.57	2	5	1	5	3	11	2	2
Friday 23	44.4	33.5	39.0	12	0.27	2	3	2	3	5	10	2	4
Satur. 24	43.5	32.5	38.0	14	0.51	3	4	2	1	3	12	5	1

The highest temperature during the above period occurred on the 19th, 1828—therm. 60 deg.; and the lowest on the 19th, 1838—therm. 4½ deg. below zero.

Notices to Correspondents.

AMERICAN BLIGHT OR APHIS LANIGERA: *T. B. P.* Ammoniacal liquor from the gasworks will not effectually destroy this pest unless used so strong as to injure the buds of young shoots. You can effectually clean your orchard Apple trees by means of a good garden engine with a nozzle attached to a flexible hose tube. Through this a stream of water should be strongly urged against every part of the tree. The aphis will be brought to the ground, where you can easily dispose of them. Some will again make their appearance and the operation must then be repeated. The washing, besides removing the cause of complaint, will tend to maintain a healthy foliage.‖

APRICOTS: *Philo.* On thin, sandy, alluvial soil, or sharp gravel, the Moorpark and other Apricots will be apt to gum; for under these circumstances the trees will occasionally get too dry at the root. Before planting, your border should be made deeper by fresh materials. You may then plant the Royal Apricot, Breda, Orange, and Roman, sorts which ought to ripen well on a southern aspect, even in your climate. You may also try the Kaisha ‖

BOOKS: *P H.* We cannot undertake to count the number of plants mentioned in catalogues. As you have both works you can judge for yourself which suits you best. Paxton's is the most accurate.—*Diary.* We know of no book which will teach a nurseryman his business. Much information is to be found in Brown's Forester, Morton's Encyclopædia of Agriculture, and Loudon's Arboretum. We fear that nurserymen who have to learn their business from books will find it difficult to make it pay them.—*Young Gardener.* Williams on Orchids.—*A S.* M'Intosh's Greenhouse and Stove may possibly answer your purpose.‡

BRITISH OAK: *Southampton.* If discussion cannot be conducted without disgraceful personalities we must exclude it. Moreover such questions as whether the sun shines by day, do not interest those who do not sleep all day.

BULBS FOR AUSTRALIA: *Devonian.* Let them be quite ripe. Pack them in perfectly dry river (not sea) sand, in a box not lined with tin. "Case" this box with another, filling the space between the two, which should be about 3 inches wide, with perfectly dry sawdust. Charcoal is useless.

CUPRESSUS GOVENIANA: *A Constant Reader.* It seeds everywhere when the plants are old enough. Your cones may not be ripe, or they may be the first crop, in which good seeds are seldom found. The plant is as hardy as a Yew.

FUCHSIAS: *Unex.* Sow the seeds in March, in any light garden soil, in a flower-pot placed in the window of a sitting room. When they come up take care that they do not perish from dryness, or from exposure to cold. The best way will be to cover them at night with a bell glass, and to take it off by day. The ashes from your hard charcoal have the same value as any other wood ashes, and may be advantageously mixed with earth in which things are potted. But don't use much at a time.

GUTTA PERCHA: *Arundel.* This should *not* be pronounced Perka, but Pertcha, as is indicated by the real name given the tree in the Malay Archipelago; viz., Getah-Pertja.

LABELS: *Dymock.* The best and most durable are the "Enamelled;" but they have not been advertised that we can find. Probably you may hear of them by writing to R. Branston, Esq., St. Andrew's Hill, Doctors' Commons, London.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*A B.* Lapageria rosea.

THE GOLDEN HAMBURGH GRAPE. We have received a letter from Mr. Vitis explaining that by asking if this had "degenerated" he meant to inquire whether it set well—an application of the term which is quite peculiar to himself. The remainder of his letter relates to matters of no public importance; private interests must be promoted through private channels.

THE HORTICULTURAL SOCIETY: *Towcester.* The subscription of all new Fellows is now paid in advance, and no admission fee is required. Those paying two guineas a year, if elected now, will have to pay 1*l.* 1*s.* upon election, provided they desire to exercise their privileges before April, and two guineas on the 1st of May next. We are happy to say that new members continue to come in fast.—*Deodar.* We shall be happy ourselves to propose you for election if you will authorise us to do so; this will save you all trouble.

THE SCALE INSECT: *A W.* If you will study the Natural History of these creatures, as it has been fully described in our former volumes, you will perceive how hopeless it is to attempt their destruction by syringing or any such scheme.—The best way is to *scrub* the branches with water heated to 160°, and then to paint the branches with a mixture of clay and sulphur tempered with as much tobacco water as will reduce it to a sufficiently fluid condition. How does scale come? How do aphides, or flies, or any other insects come? How do we come ourselves? The answer to the last is also an answer to the two first questions.

THE SUMBUL: *F.* This is the root of a Valerianwort called Nardostachys Jatamansi, and is the Spikenard of the ancients, or νάρδος of the Greeks. It grows wild in Northern India, where it is called bal-chur, and is brought southwards in considerable quantities from the mountains. Dr. Royle procured several pounds of the fresh dug-up root from Nagul, a village five miles N.E. of Deyra, and one of the commercial entrepôts situated at the foot of the mountains. See a very full account of the plant in Royle's Illustrations of the Botany of the Himalayan Mountains, p. 242, where the plant is figured.

VINES FOR A GREENHOUSE: *B S.* You may plant a Vine for every rafter if the greenhouse plants are to be mostly turned out in summer; but if the house is to be kept always gay with flowering plants, then a Vine for every second rafter will be enough. You cannot do better than plant the Black Hamburgh and Royal Muscadine.‖

MISC: *Dorchester.* Mr. Hazard's address is St. Martin's Chambers, St. Martin's Place, London.‡

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"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

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TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

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JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

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The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum.

The chief attention of the students is directed to a diligent attendance on the Lectures on Practical Agriculture, Chemistry (Inorganic, Organic, and Agricultural), Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering, which have been so arranged that, where time is of consequence, a course of Lectures on each of the aforesaid subjects may be attended in two sessions or one twelvemonth, though a longer period is recommended to those who wish to go thoroughly through each department. The students are periodically examined in the subjects of these Lectures, and receive honorary certificates and prizes, according to their proficiency. There is an Elementary Class for those who are too young or too backward to attend the regular courses with advantage.

The practical Instruction in Agriculture is given by the Farm Manager on the Farm, where the students have an opportunity of becoming acquainted with and taking part in the manual operations of Husbandry.

A well-appointed Laboratory is devoted to instruction in Chemical Manipulation and Analysis, which are taught to each class of students in succession, under the superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring, in the use of the Theodolite and other instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

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Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy, Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

THE PRICES OF FARM SEEDS *being now fixed for the present season,* SUTTON & SONS *will be happy to forward their* LIST, *post free, on receipt of one penny stamp.*

Royal Berks Seed Establishment, Jan. 17.

The Agricultural Gazette.

SATURDAY, JANUARY 17, 1857.

THE efficiency of A CHEAP DISINFECTANT is a subject of great agricultural importance. For though the word relates rather to the sanitary purpose which the substance serves, yet in accomplishing that purpose it may prove agriculturally useful also. This however it does not always prove. Charcoal, which has been so highly spoken for its agricultural uses, is an excellent disinfectant, but this it is by oxidising, which means simply burning up the noxious emanations which it was intended to retain. To cover your dung heaps, or your stable floor with charcoal, would indeed remove all smell and induce a healthy atmosphere, but this it would do by destroying or converting into substances comparatively unavailable as food for plants the things we wish preserved for use. —Gypsum is useful in itself but comparatively inefficient as a fixer of ammonia, owing to its comparative insolubility.—Chloride of zinc, Sir W. BURNETT's disinfectant, is costly and poisonous, and capable of use only as a liquid.—Sulphate of iron is soluble and like gypsum supplies the sulphuric acid which fixes ammoniacal salts—but its iron is fatal to its use in the manure heap, for it forms so insoluble a compound with the phosphoric acid, one of the most valuable ingredients in a dung heap, as almost entirely to lock it up and make it useless.—Common salt has considerable powers as a fixer of ammonia, which it owes, however, chiefly to the gypsum it contains, but this power depends upon a balance of affinities so very little in its favour, even

under favourable circumstances, that it is not permanent nor even long-lived.

None of the fixers or disinfectants that we have named is thus exactly what we want. Sulphuric acid is, indeed, in use for these purposes in some places, but it is plain that for disinfecting stables, feeding houses, cattle stalls, &c., it is entirely unfitted, owing to its corrosive and acid properties. What we want is a substance which shall—

1. Remove offensive smells.
2. Prevent putrefactive fermentation, so that the offensive smell, being once removed, shall not set in again from the same substance.
3. Combine with and preserve, in fœcal and other matters, the elements which form the food of plants.
4. And be cheap and easily procurable.

This is the way in which the problem is proposed in a pamphlet on "The Preservation of Manures," by Mr. ALEXANDER M'DOUGALL, published by WHITTAKER & Co., of Ave Maria Lane.* Mr. M'DOUGALL claims to have solved this problem; and he quotes a number of testimonials to his success from the keepers of piggeries, cowhouses, and stables, from veterinary surgeons, from physicians, and others.

"An effective disinfectant," said the late Professor JOHNSTON, "must be able either to decompose or combine with both the alkaline and acid products of decomposition. And, economically, its value will be further increased if, while it effects these chemical purposes, it at the same time produces a new substance which is not offensive in any way, and still more if it produces one that is positively useful."

Mr. M'DOUGALL's disinfectant, which he believes exactly answers JOHNSTON's description, is a compound of two acids "sulphurous acid and carbolic acid, and two bases, magnesia and lime. These four exist in it as two salts, viz., sulphite of magnesia and lime, and carbolate of lime." The offensive products of putrefaction are decomposed and rendered innocuous by the sulphurous acid, and the further progress of putrefaction is hindered by the so-called carbolic acid, which is one of the component parts of coal naphtha, and has the property of coagulating albuminous substances, and generally of preventing putrescence. It is combined with lime in order to dry and reduce it to powder. The magnesia with which the other acid substance is combined is used because it will combine with the ammonia and phosphoric acid of manure, and so form a triple compound of great fertilising power.

"In the treatment of sewage or other similar matter in an advanced stage of decomposition containing any considerable per-centage of ammonia," says Mr. M'DOUGALL, "we find it advantageous to add a soluble phosphate, as the quantity of phosphoric acid in the substance to be operated upon is not, in the circumstances, sufficient to permit the formation of the triple phosphate. Thus, then, we use sulphurous acid to remove the offensive smell, carbolic acid to prevent putrefactive fermentation, a little lime to neutralise and dry this latter acid, and magnesia to combine with and preserve the phosphoric acid and ammonia; and in special cases we add a soluble phosphate to prevent the loss of any of the ammonia. Such is the theory of the Disinfecting Powder."

A number of illustrations are given of the practical value of the powder.

"Perhaps the best practical illustration of its use is to be seen at Mr. MURRAY's Horse Bazaar, Lower Broughton, Manchester. Mr. MURRAY's stud usually consists of about 60 of the finest and most valuable horses to be found in the country, all kept in the highest condition. Any neglect reacts upon the condition of the horse, and lowers its value. Mr. MURRAY has the dry bedding put back every morning, the stall carefully swept, and the Disinfecting Powder sprinkled over the floor; this is never omitted, and the result is so complete that it is difficult to convey a correct idea of it to any one accustomed to ordinary stable keeping. Both the dung and the urine of horses are liable to decompose very rapidly; they heat, steam, and give off much ammonia, and other gaseous products equally wasteful and unsanitary. At Mr. MURRAY's there is no smell of putrid manure, no gaseous ammonia, all is sweet and wholesome; the dung heap is entirely without smell when it is removed, which is seldom done till 500 tons are accumulated; there are no fumes or other traces of fermentation; the liquid manure tank is quite scentless, and on its surface there is no froth or scum, which is usually caused by the gaseous products of decomposition escaping into the atmosphere. This is a remarkable instance of an animal manure in a state of the most perfect preservation, and in the best possible condition chemically for applying to the soil. This condition of things, viz., pure air, a healthy stud, scentless and superior manure, with all the advantages incidental thereto, Mr. MURRAY enjoys at little or no cost, as the effects of the Disinfecting Powder in drying the pavement, so enables him to economise his straw as to effect a saving greater than the cost of the Disinfecting Powder used."

Of the immense loss suffered during the ordinary decomposition of farm manure, Dr. VOELCKER's writings in the *Journal of the English Agricultural Society* and elsewhere inform us. Of the easy avoidance of this loss the following passage from Mr. M'DOUGALL's pamphlet is an illustration:—

"An idea is prevalent that the animal excreta consist of substances in a state of putrescence: this is quite erroneous; experiments have proved that the excreta of healthy animals are never putrescent. They should never be allowed to become putrescent, as it can only be permitted at the expense of their value as manure, and the sanitary condition of the atmosphere. It is however a fact, that although not putrescent at first, few substances are more perishable, or more liable to become putrescent, and to suffer loss and deterioration from carelessness and neglect."

It only needs that some substance be employed from the beginning which shall have the power of checking the putrefactive fermentation, and all that loss and deterioration will be saved. And how great the other disadvantages escaped may be gathered from a last extract which we make from a pamphlet that deserves to be widely read and carefully studied.

"The instant that dung or urine comes into contact with the air, it is liable to decomposition; some of its elements assume the gaseous form, and pass into the atmosphere; others are broken down, and become so easily soluble in water that they are readily removed in solution; so that if animal excrements be exposed for a sufficient time to air and moisture, they continually decrease in value till they become utterly *effete*, nothing remaining but woody fibre and other matters equally worthless. This process is pregnant with mischief. The loss of manure is not the only, nor perhaps the greatest evil suffered by the farmers. The decomposition of animal manures yields gases of the most noxious character, and most detrimental to health; and where it is permitted, the evil consequences are an unsanitary condition of the atmosphere in and around the stables, cow-houses, piggeries, &c., where the animals are kept — a lowering of the general health of the locality, from which neither the farmer, his family, nor his servants can escape—a greatly increased liability to disease, especially among the cattle, which are constantly inhaling an atmosphere charged with fermenting emanations from their own dung. The lamentable loss of cattle from disease which has been witnessed of late years is justly attributable to this and kindred causes."

* On the Preservation of the Natural Manures. A lecture delivered at the annual meeting of the Bakewell Farmers' Club, January, 1856: afterwards at the City Hall, Perth. By ALEXANDER M'DOUGALL. WHITTAKER & Co., Ave Maria Lane.

"HALF the diseases of our plants come of over manuring."—This is the assertion of a correspondent of the *Times*, who opposes all schemes for the utilisation of London sewage, whether at Erith or elsewhere, not only because of the east wind as a carrier of pestilence, but because it would end in our eating poisonous food as well as breathing poisonous air.

It is an assertion we have lately met with pretty frequently. Pleuro-pneumonia in the cow byres of Edinburgh has been attributed to the over succulence of the Grass upon the celebrated water meadows there. And at Canning Park near Ayr where Mr. Telfer keeps a large stock of cows on Italian Rye-grass, an attack of illness was by some attributed to the richness of their food. But this illness was only for a time, though the management of Mr. TELFER's cows continues as it was: the health too of the cows fed upon the sewage meadows of Edinburgh is not permanently worse than that of other stock similarly housed. And we do not think that London citizens any more than London cows need fear the effects of over-manuring on the growth of their vegetable food. Certainly no agricultural manuring, not even that of Mr. TELFER—and if over-manuring exists anywhere in agriculture it is there—exceeds that of the London market-gardener. And if the *Times* correspondent were consistent he would be not only *expecting* disease as the result of sewage on low lands east of London, but he would be *explaining* existing disease as the result of all that succulent vegetable growth distributed at Covent Garden, the Borough, and elsewhere, which is due to a manuring far more "excessive" than poor sewage water is ever likely to prove.

REMARKS ON PLOUGHS AND PLOUGHING.

THE plough is doubtless the most ancient implement of agriculture, and is perhaps the most important. It may be described as an instrument for cutting and moving the soil, its form resembling a curved wedge. Perhaps upon no implement used in agriculture has there existed a greater diversity of opinion than upon the plough, hence the almost infinite variety of forms. We have had them made in wood and in iron, and partly of each—with wheels and without—with beams pointing heavenward and others inclined downward—some with one handle and others with two—ploughs with furrow turners made short, long, concave, convex, flat, abruptly turned, or gradually curved—some to turn the furrows to the left, others to the right—whilst the turnwrest plough lays the furrows in one direction, and almost as great a variety exists in these turnwrests as in the ordinary plough.

Many reasons might be adduced to account for so great a variety, but doubtless the chief cause has been that the manufacture of this important implement has until recently been very much in the hands of unscientific men, each locality producing its favourite maker in the shape of a village wheelwright or blacksmith, to whom the neighbouring ploughmen communicated their fancies and prejudices: but since the establishment of the Royal Agricultural Society a different class of men has sprung up, who have brought abilities of a higher order to bear upon this important implement, and who have taken a more comprehensive view of the subject; they see that ploughing is simply an operation of cutting and moving, and that upon all soils and under whatever circumstances the same principles are involved. It may appear startling to many, but it is a remarkable fact that at the trials of the leading agricultural societies of the three kingdoms we find the same form of plough contending for and carrying off the premiums, no matter what may be the character of the soil—a sufficient proof that our leading makers have produced an implement of such universal application that there no longer exists any necessity for the innumerable kinds which are still found in use. We do not intend by these remarks that no difference in size is required; assuredly a different implement so far as size is required to plough a foot deep to one intended for only 6 inches; we would merely affirm that there is only one correct principle upon which to construct a plough, and we are strengthened in this opinion from finding that the most popular plough of the present day is found in almost every locality, and that in the best farmed districts the old-fashioned ploughs have already given way to the implements alluded to.

Having said thus much upon varieties we will now proceed to give our ideas of a perfect plough and ploughing, regarding the latter, as do all good farmers, as the most important operation on the farm, and which in some districts we regret to say is so generally performed as though it were a matter of no consequence. We commence with the cutting of the furrow slice, which operation is of the highest importance, as not only the draught is hereby materially affected, but the subsequent quality of the ploughing is dependent on this being performed accurately. The bottom or flow of the furrow should be perfectly flat and cleared out, and the land side at right angles with it, for unless the flow is horizontal the depth is irregular—a point, we would observe in passing, in which all Scotch ploughs are most deficient. Enough importance is rarely attached to the cutting portions of the plough, viz., the share and coulter. It is forgotten, in many cases not known, that more power is often required in this operation than in the subsequent one of moving.

We next come to the moving or turning of the furrow. This should commence immediately the soil is separated by the share and coulter, and the slice should travel along the mould-board, resting on its lower edge, until it arrives at a point where it attains a perpendicular position, when the edge or centre upon which it was turning is changed, and the slice is then conducted by the hinder portion of the breast or turner to its proper place; in this operation the furrow slice should bear evenly and uniformly on all portions of the mould-board, and the latter so formed that it does not press or rub the furrow out of the shape in which it was originally cut, and no matter how adhesive the soil none should remain in the breast, and if the form is perfect and made of steel the plough will work clean. The furrows should be laid so that the greatest fresh surface is exposed to the action of the atmosphere, and this is best attained by laying the slices at an angle of 45°; to obtain this the depth of furrow should be two-thirds that of the width. If these proportions are not observed and a wider furrow taken, the consequence will be that the work will lie flat, and the edge of the furrow will not be in so good a form for the harrows; nothing proves whether a plough is correct in its turning portions than being able to turn well its furrows when they are narrow.

We attach great importance to any vegetable matter growing on the surface being cut off and turned in, for if left, as is too often the case, staring out between the furrows, it will continue to grow, whereas if effectually turned in it will decay and serve to sustain vegetation, instead of drawing its own nutriment from the soil to the damage of the crop. This work is most perfectly performed by two simple appendages to the plough, viz., a skim-coulter (which is really a miniature plough), and a chain and ball attached to the common coulter, the first

cutting off the herbage and turning it into the furrow, and the latter dragging in stubble and long Grass, and anything that may have escaped the skim-coulter. When these appendages are employed, it is especially important that the furrows should be well and lightly packed together in evenly-shaped slices; indeed, we consider it at all times imperfect ploughing when this is not attended to. We are aware that upon this subject the very opposite opinions have been mooted, and that in high places writers have asserted that the soil should be disintegrated as by a forking machine; but from long experience we find that not only in ploughing for Wheat but stubbles for fallow the sounder and cleaner the ploughing the fewer weeds we have to contend with in the spring, and the less work we have with our fallows. We prefer the operations of nature in disintegration; a few days' frost is more valuable than any machine that can be devised. To those who would have land pulverised after the manner of continental ploughs we would recommend another and different implement to the plough. Of late years a vast number of scarifiers, grubbers, and broadshare ploughs have been introduced, and have met with a great demand. They are doubtless for some purposes most valuable implements; but such is the desire to make perfect any plans to facilitate field operations, that at the present day we believe in many instances they have been used when it would have been far better and cheaper to have used our old friend "the plough;" for such has been the progress in the art of plough making, that the draught is less in comparison of the work performed than any implement used in agriculture. We have often seen broadshares and scarifiers at work from 2 to 3 inches deep with six horses, paring land with an abundance of Couch-grass in it, thus rendering it fourfold more difficult in consequence of its being cut into innumerable short lengths.

We would now refer to a few of the remaining prejudices against our modern English plough. With a Scotchman the wheels are a fatal objection; their plea is that they are an unnecessary complication, and that the weight and draught is thereby increased. With regard to the latter it was shown at a late meeting of the Highland Society of Scotland how ill-founded was the prejudice, for the only English plough competing was proved to draw one-third or one-fourth lighter than the best Scotch plough exhibited, besides performing its work in a very superior style. This was well known in England prior to this meeting, but the experiment, as far as we know, had never before been tried on Scotch ground. How can it be (ask some) that a wheel plough can take less power than a swing, whilst you have so much more weight to draw? This question has been a vexed one for years, whilst the thing lies in the smallest possible compass; all ploughs are constructed with a certain inclination to go down into the soil. In a wheel plough this tendency to draw into the soil is regulated or obviated by the wheels which turn with the weight thus thrown upon them, relieving the friction on the point and sole. On the other hand, the swing plough is kept from entering the soil too deeply by the ploughman, whose whole weight is often required upon the handles to maintain the proper depth; it will at once be seen that this weight at the end of so long a lever throws much additional friction on the sole, which is of itself sufficient to account for the great difference in draught. The objection with regard to complication is purely ideal, the wheels being readily adjusted to any required depth and width, and in the midland counties of England we have seen mere boys using them and making most beautiful and uniform work.

Another objection frequently urged is its great weight and length; upon this subject we would merely state a fact or two. As long ago as 1842, at the Royal Agricultural Meeting, two ploughs were exhibited by one firm, one weighing 20 stones and the other 11 stones; the draught of the former was 20 stones, whilst that of the latter was 30 stones. At the recent trials made at the Paris Exposition some rather curious facts were elicited; Dutch and other continental ploughs weighing less than 8 stones were found to take three times and even four times the draught of our best English plough, which weighed 22 stones. So great was the difference shown by the dynamometer that it was thought desirable to test the ploughs at a great depth with one horse, in order to prove whether the results given by the dynamometer were to be relied upon; this experiment convinced the foreign jurors of the correctness of this instrument. We might add many other facts connected with trials of ploughs to prove that the weight of a plough has little to do with the draught, but we think enough has been said to establish this point.

The progress that has been made towards the perfection of English agricultural machinery was very manifest in every implement brought to trial at the Paris Exposition, for being tested side by side with foreign productions rendered it more easy to see and appreciate the improvements. The annual exhibitions in England have no doubt had great influence in promoting these improvements, but we are inclined to think that the greater portion of them are to be attributed to the growing intelligence of the British farmers, and to the increased attention which they as a body have devoted to this part of their business; indeed, some of our leading manufacturers readily acknowledge that the greater part of the inventions and improvements are the result of hints and suggestions given to them by persons practically engaged in agriculture. This increased and still increasing intelligence of the British farmer upon these subjects renders the question of steam cultivation more hopeful, but so great are the difficulties which at present attend this operation that we are not yet prepared to enter upon it; suffice it to say, that when any feasible plan is devised, such is the intelligence and public spirit of the agriculturists of the present day that no difficulty will be experienced in finding purchasers and persons willing to co-operate in perfecting the invention. *J. H.*

[If our correspondent would give us in detail the results of the Paris trial of ploughs we should be very much obliged.]

ON SECURING TURNIPS FROM FROST AND GAME.

I READ with much interest your article on storing Turnips in the No. for Nov. 15th, and having had some experience thereon, trust you will not consider the following particulars irrelevant or obtrusive. Previous, however, to entering upon the question of storing, it appears to me advisable to consider, first, the nature and quality of the crop; for Swedes, Whites, and Mangels all require different modes of protection, and large bulbs a more careful arrangement than small ones. Secondly, the nature of the soil, whether light or heavy, wet or dry. Thirdly, the object of storing, whether for immediate consumption in the home-stalls, or for permanent security against the depredations of hares and other game in the field. I shall begin with Swedes as the most valuable crop, whether from light or heavy land, and which, for forward beasts, it is desirable to have easy access to when wanted. To this end I have tried various plans, from topping and tailing in the field, carting them home, and depositing them in sheds for present use, according to one of your suggestions. Whites have been served in the same manner, but in both cases the apples, as the bulbs are called in Norfolk, are not wholly free from danger of injury by frost, and even in the event of mild and comparatively warm weather, the quality will be found to have been injured by their having remained beyond a certain time in any great bulk. The plan of storing Swedes, to which on the whole I am inclined to give the preference for the average of our seasons and situations, is that recommended by my friend Mr. Blaikie, and adopted by him at Bradley Hall and others of Lord Chesterfield's farms. I give his own account of the process.

"We consider the early sown Swedes to be full grown by the middle of November, and in some instances rather earlier. We then take the first favourable opportunity of the land being in a proper state for our operations, when all spare hands, men, women, and children, are set to work; the Turnips are pulled up, and the roots cut from the bulbs, the tops being left on; old Gorse, or billhooks, broken sickles, or reaphooks, and such like implements answer for the purpose; the Turnips are thrown into carts and conveyed to an orchard, or some other piece of old turf land most convenient to where they are intended to be consumed; they are there shot out of the carts in heaps, and afterwards *placed* as we term it; that is, the bulbs are placed close to, and touching each other, with their tops uppermost, and only one Turnip deep. An acre of good Turnips from the field occupy a much less space when placed than can readily be imagined by those who have not tried the experiment; in this manner we endeavour to secure one or two months supply for the stock intended to be fed with them, and find them keep good the whole winter. If the weather proves very severe, a slight covering of litter is thrown upon them.

"The depôts are kept so far sacred as to be only resorted to in cases of emergency; such as when the land is too wet to be carted upon without injury, in time of severe frost, deep snow, &c., while at every favourable opportunity in the course of the winter we keep adding to the store in the preserve. As soon as the Turnips are removed from the field, the ploughs are set to work and the land drawn up into such sized ridges as are thought proper; by this means the strong soils become pulverised, and the spring work expedited, as the ground only requires to be scarified and harrowed to make it in a proper state to receive the succeeding corn crop, which is always drilled in.

"In districts where game is too plentiful, the practice here recommended will be found the most effectual means of securing them from the attacks of those depredators." *Farmer's Journal*, Vol. vii. p. 139.

In the same volume, at p. 297, Mr. Blaikie reverts to the subject in the following terms:—"In the first week of last November we secured the produce of several acres of Swedish Turnips in the manner called placing. Such part of those Turnips as were not consumed by stock remained in the depôts the whole of the late very severe winter (1813-14), without any covering whatever, except by occasional falls of snow. They were very little injured by the severity of the weather, while two-thirds of the remainder of the same crops left in the fields perished, and became rotten; and in some parts of the fields, where the snow was drifted off, not one Turnip in ten remained sound. We have now, at the date of this letter (April, 1814), a considerable quantity of placed Turnips perfectly sound and good remaining in the depôts; the bulbs have thrown out young fibres, and the tops are pushing up. Were we to remove these Turnips, and replace them on fresh turf, the vegetation would be checked, and they would continue sound for months to come. It may appear paradoxical that Swedish Turnips should resist the severity of the weather when treated in the manner here recommended better than if left in the field, where they have the protection of the earth partly round their roots; such, however, is the fact."

Mr. B. thus sums up the advantages of the placing system:—

"First, removal from the field with the least injury to heavy land. 2. More certain preservation of the root. 3. The means of obtaining a certain supply for the stock in severe weather; and 4. Security against the destructive ravages of game."

Though not immediately connected with the subject of cattle food, the following may be interesting to your horticultural readers:—"Notwithstanding the unprecedented severity of last winter, there is now in the Earl of Chesterfield's kitchen garden at this place an abundance of healthy Cabbage, Cauliflower, and Lettuce plants, which have stood the winter without any protection or covering. His lordship's gardener, Mr. Groves, has made it a practice when the young winter and spring vegetable plants grow over luxuriant in autumn, to pull them up and expose their roots to the vicissitudes of the weather for a day or two; he afterwards replants them in their former places, and in some instances when the weather has been very mild late in the season he has repeated the operation a second and even a third time. This practice stagnates the growth of the plant, hardens it, and invariably enables it better to withstand the severity of the following winter. To this practice, which was followed last autumn, Mr. Groves attributes his wonderful success in preserving the before-mentioned vegetables, while very few have survived in the gardens in the neighbourhood."

"May not," asks Mr. Blaikie, in conclusion, "the same cause which operates so advantageously in the preservation of vegetables in the garden be also assigned as a reason for Swedish Turnips being better preserved by the method of placing than if left in the fields?"

I now come to the management of White Turnips, which, as I hinted at the commencement of this letter, must necessarily vary according to the nature of the soil, whether strong or light, wet or dry. If a tenacious clay, it may not be advisable or even practicable to consume them on the land, at least not all the crop, but only the smaller Turnips; the larger ones may be topped and tailed, and carted off for home use whenever the surface is dry enough; where they will at all events be safer than in the field, and, not laid in too great a body, handy for immediate use. Some heavy land farmers are so anxious to make the most of a dry time to secure their Turnip crops, that they will not even stand after topping and tailing them in the field, but throw them at once into the cart, merely knocking off the loose mould. In this state they are carted home, tipped up in some spot contiguous to the cattle-yards, and afterwards topped and tailed as wanted. But this is a slovenly and anything but an economical system, for it is often done at the sacrifice, and always to the injury of the tops; which, be the weather wet or dry, must be thereby so soiled as to be rendered unfit and even improper for the purposes to which they are commonly applied. Thus much for heavy land Turnips. I need not remind the practical farmer that white varieties are usually the first to be consumed, and that beyond a certain period, keep them how you may, they deteriorate in quality, and are or ought to be succeeded by the more solid and nutritious Swede.

There is however a method of preserving even the largest White Turnips, which from experience I am enabled to recommend as peculiarly adapted to light, dry, sandy, or gravelly loams, not wet enough to require draining, and yet with sufficient stamina to produce a great weight of bulbs.

It so happened that the farm I first occupied in Norfolk was greatly overdone with game, and my best field of White Turnips (nearly 20 acres) abutted upon a preserve which abounded with hares and could not fail in the event of a severe winter to be a serious annoyance and detriment to me, the real owner of the crop, though my landlord would have deemed it a great act of presumption in me to question his right to the run of the field, for what he considered his property—the game. I could not exactly see the justice of this doctrine, and forthwith set about active measures for securing my own crop for my own use. This was in the December of that memorable winter of 1813-14, adverted to by Mr. Blaikie. I got together a requisite number of hands, chiefly women and children. Our first process was to pull the Turnips on each side the furrow so as to open a passage wide enough to go a bout of a plough with two horses abreast. The one furrow thus became two deepish furrows or trenches, into which, besides the Turnips that had been pulled to make way for the plough, the whole of the bulbs yet remaining on each 12 furrow-stetch (9 feet wide) were placed, as close as they could be, and when so placed, covered over with a second, or, if necessary, a third bout of the plough; a man following with a hoe or his foot to finish the work, and see that each Turnip was fairly covered with earth. When finished, these double furrows contained the produce of the two stetches right and left of them, with only the tops visible. The manual part of the operation, viz., opening a way for the plough, pulling, and placing the Turnips in the furrows (observe there is no topping nor tailing in this case), cost 4s. an acre. The ploughing I reckon at nothing, inasmuch as the land is benefitted to the full amount of the work done, whether just enough furrows to cover over the Turnips, or the whole of the intervening spaces between the furrows. In brief the safety of any crop may be insured for 4s. an acre by this plan. The result I shall give in as few words as possible. By Christmas Eve I had finished the

field, with the exception of about 2 acres, which I had not time to cover, and which were all destroyed by the frost and game. On the same Eve set in that memorable winter, which, with slight alternations of temperature, lasted 12 or 13 weeks, and here I felt the benefit of my storing plan, for although I could not always get at them when the frost was at the worst, it was nearly the end of March before the last of those buried Turnips were brought into the home sheds, and then in as sound and juicy a state as when drawn and covered over in December! True, the tops were in a great measure destroyed by wood pigeons, pheasants, &c., but this was comparatively of no importance, so long as the bulbs remained uninjured. And here I may be asked, whether a good covering of straw or stubble in a warm shed would not have answered the purpose as well or better than a thin coating of earth in the field! My answer is, decidedly not. Six inches of mould is safer against such a frost as that than 6 feet of straw to Turnips topped and tailed. The quality of the bulbs will show this, for even up to the very last they would rive and split if pierced with a fork, like Apples when young and crisp. I fear these details will be considered tedious, but they are seasonable, and that must be my excuse.

I need not touch on the question of storing Mangels, for that seems settled by general consent in favour of pies, or clamps, similar to those of Potatoes, which have a light covering of straw or stubble, but the sheet-anchor against frost is a few inches of soil well clapped down with the spade. *Samuel Taylor, Gloucester.*

CRYSTAL PALACE POULTRY SHOW.

TIMID amateurs had often shaken their heads, and wished the directors would have a poultry show. Good exhibitors had promised support, and men capable of judging had prognosticated success. We suppose that the right man had not made his appearance till Mr. Houghton took it in hand. This gentleman being thoroughly conversant with all the minutiæ, from sending out the prize lists to sending off the birds, at once put it in form, and carried it out successfully. The greatest praise, and the thanks of all amateurs, are due to him.

A long, light and airy gallery, ordinarily devoted to carriages, was on this occasion tenanted by the poultry. The centre of it was occupied by a double tier of double pens, one above and one below, while on each side there was a row against the wall, in some instances of double, in others of single pens. Thanks to the width of the building, this arrangement left plenty of room for spectators, while the glass roof ensured ample light. About 250 pens were accommodated in the tower adjoining the gallery. Most persons are acquainted with the crowing of cocks to be heard at a poultry show, yet although within a few steps of the Palace itself, it was not to be heard there, nor was it audible on entering, till really in the place. This was attributed by most people to the double doors. We mention it for the information of committees, as a curious point in acoustics.

As in most other places, the Spanish were first on the list, and they formed a goodly array. Mr. Davies took first and second for old birds, Mr. Rake first for chickens and single cocks. Thirty-two pens appear in the prize-sheet, as distinguished by the judges, and such names as Rodbard, Bothan, and others, will speak of their merits. Then came a show of itself—the breed of Dorkings. It is curious to remark, that although the same names constantly appear, yet it is with varying fortune. Thus, the Rev. S. Donne, who has won so many first prizes, is here content with lower honours in both classes. Mr. Botham takes first and second in one, while a new name, Mr. Wakefield, jumps into celebrity at once by heading the Dorking chickens.

Ladies Cathcart, Dacre, and Macdonald were among the prize takers and commendations. The white are increasing in weight, but it is plainly a work of difficulty to keep pace with their darker brethren. Mr. Fisher Hobbs took the prize for a single cock, with a bird of great size and merit.

Then came the birds that were once so petted, and sold at 50*l.* each—we allude to the Cochins. We do not think these birds were as good as we have seen of late. There were some among the prize birds, especially those belonging to Messrs. Allison, Punchard, and Sturgeon, of which we thought well; but, as a whole, they were not up to the Birmingham standard. The Grouse birds were very good, and some of the whites excellent.

Brahma Poutras are improving, and the favourable accounts we heard on all sides of their valuable properties will, doubtless, raise them in the public favour. Mr. Botham appears in all the classes, and in company that testify of merit, Messrs. Bush, Allison, Dain, Breavington, and Chater.

It is difficult to do justice to the game classes, for good birds were "thick as leaves in Vallambrosa." Fifty of them were noticed by the judges, and even then we thought there were others that equally deserved the honour.

The duck-winged appeared to us the best class we had ever seen, far beyond the same at Birmingham. Truly the winners in such classes may be proud, for it is not an easy victory. We could not help noticing the condition of these birds. Their owners set an example worthy of imitation to all amateurs in the style in which they send them for competition. The black-breasted reds were also beautiful, and both show to advantage compared either with the blacks or whites.

All the Hamburghs were well represented, but the Silvers lag a little. They do not advance in merit like the others—we mean the pencilled. Mr. Jas. Howard's Golden, and Mr. Archer's Silver were deservedly admired, but they were not to be compared to Mrs. Sharpe's Silver Spangled, No. 728. We were not surprised to see they were claimed, as we thought them the gem of the Hamburgh classes.

The Black Polands were shown in good health; indeed, we do not recollect to have seen Polands so well exhibited in point of condition as at this show. Messrs. Coleridge and Bush were very successful, especially the former. Mr. Strange and Mr. Coleridge both sold their first prize birds. We heartily went with the judges in giving first honours to Mr. Tweed's Silvers.

The Malays reminded us of the olden time, when these birds stood foremost in popularity. By the note appended to their award, the judges evidently thought the same.

Sebright Bantams are hardly as good as they were; or, if they are, their owners will not exhibit them. The black, white, and game are becoming better at every show. Nothing can be more beautiful than the duck wings and black-breasted red, or more curious than some blues shown by Miss Pulleine.

The geese showed well. The three successful white pens weighed 183½ lbs.; the greys, 187 lbs. The master pen of all contained three grey birds belonging to Mr. Davies of Hounslow, and weighing 68 lbs.

As we believe we have the weights on undeniable authority, we will give them again in the Aylesbury duck class: the nine successful ducks weighed 71 lbs., nearly an average of 8 lbs., not per couple, *but per duck.* All the other ducks were good. The Rouens were true to colour, but not so large as we have seen. The black and call ducks were beautiful. The turkeys were very large.

The judges were Messrs. Anderson, Baily, and Hewitt.

Our limits will not permit us to give the names of the successful. This is the less necessary, because most people have seen, or can see a catalogue.

We have satisfaction in adding that in all respects the show was eminently successful, and that the large amount of sales, upwards of 600*l.*, proves the interest taken by the public in this pleasing pursuit.

Home Correspondence.

Agricultural Success.—We cannot close the past year in a better manner perhaps than in making known to the agricultural world, through the medium of your columns, the success which has attended a humble individual by following out with spirit, energy, and perseverance a system of agriculture commenced about 40 years since, and continued (the four course system) up to this very day. I allude to the loss the neighbourhood has sustained by the rather sudden death of Mr. John Rob, of Thorpfield, near Thirsk, a tenant farmer of Col. Wyndham's, and who by his industry, ability, and undivided attention to the requirements of his profession, has realised a very handsome private property, chiefly in land; and when we understand that this gentleman commenced his career with very small means, it surely is an encouragement to farmers to rely more upon themselves and their own resources than upon any legislative help; and as Mr. Rob had been more than 40 years employed in farming, he must have experienced the changes attendant upon both high and low prices. *A True Friend to the Farmer.*

Charges for Professional Advice on Draining.—The remarks of your two correspondents signing themselves "Subscriber" are so strikingly alike that they must surely be the same person, or the same engineer must have attended both, and they must live within a short distance of each other. Is it possible, Mr. Editor, in this railway age when time is economised to the utmost, that gentlemen desiring the advice of a London professional man should object to pay for the time actually absorbed in travelling? The time of a professional man is essentially his means of existence, and is there any reason why he should lose a day in travelling to his employer and another in returning home unless he charges treble for the day he is actually engaged with his employer? In the case referred to in your columns it is admitted that the engineer or engineers in question travelled by rail (query express) seven hours to get to the spot in one case, while in the other it would appear that the time consumed in the journey was more. Now if the time on the railway was seven hours it is to be supposed that some additional time was absorbed in getting to and from the railway stations. Is that time to be considered as nothing to a professional man? Again, was there no time consumed in correspondence? was there no report? no inquiries to be made? no one to see besides the "Subscriber" as to the supply and price of materials and other attendant details? Again, is a professional man to travel by night, as kindly suggested by one of your correspondents, and charge nothing for it? Is health and strength nothing to a professional man? Let each of your correspondents say where they live and the distance from London, in order that the public may judge whether the engineers referred to have been exorbitant or not in their charges. I have no intention to lose my night's rest in journeying to Lancaster or Preston and charge no more than if I run down to Clapham in the morning and returned home to dinner at six, although a *Draining Engineer.*

Mixed Wheats as Seed.—I have read with interest your remarks in the last Number of the past year recommending the use of admixtures of seed Wheats, and on which you invite comment. This seems one of our farming practices which observation and experience can best illustrate, and should it be deserving of general adoption I am at a loss to conceive why the contrary practice should have been so long and pertinaciously adhered to in this (if not in other) corn-growing districts. You are doubtless aware that the description grown on our yellow, retentive, and undrainable clays is the rough or silky-chaffed white Wheat. A new variety of this has recently come into favour, raised from a single plant in a similar way to the "Fenton Wheat," like it, characterised by growing a short straw and moderately large ear of even shape, and as the joints of the ears are more closely set than in those of the older varieties, it has received the name of "thick set." It is very readily distinguished at and after earing time by its uniformly level appearance, and to preserve this peculiarity the straggling ears are often removed by shears. We are taught to consider this evenness and regularity as an advantage, because to each ear is secured thereby a more equal maximum of the sun's rays, producing a better ripened and plumped sample. This reasoning must of course be fallacious if yours be sound on which you recommend the "Fenton Wheat" as an improved variety. An extended period of flowering certainly appears to offer the advantages detailed in the Report of the French experiments of M. Rousseau; and our experience of the past season, where the "defective set" has reduced the yield some 20 per cent. below our calculations, would lead us gladly to adopt any suggestions which promise a remedy or palliative; still the great loss at harvest consequent on irregular (because extended) period of ripening seems to overbalance these advantages. Probably the risk is not so great in the hotter and more arid climate of France, since our own crops are not so apt to "shield out" after a hot and favourable ripening season if unaccompanied by wind or rain. *South Essex, Jan. 3.*

Societies.

CENTRAL FARMERS' CLUB.—The following subjects are set down for discussion during the present year:—

	PROPOSED BY
FEBRUARY 2. — The most judicious Management and Application of Farmyard and Artificial Manures ...	Mr. R. BAKER, of Writtle, Chelmsford.
MARCH 2.—The best means of Improving the Cultivation of Poor and Hilly Lands	Mr. R. SMITH, Emmett's Grange, S. Molton, Devon.
APRIL 6.—The most convenient and economical Mode of Stacking and Threshing Corn	Mr. W. BENNETT, of Cambridge.
MAY 4. — The Boarding, Lodging, and Maintaining yearly Agricultural Servants: the best and cheapest mode of doing so	Mr. J. MARSHALL, Blankholme, Lincoln.
JUNE 1.—The Autumnal Cultivation of Wheat Stubbles—and the subsequent preparation and growth of a Root Crop, especially on stiff, retentive soils ...	Mr. R. BOND, Kentwell, Long Melford, Suffolk.
NOVEMBER 2.—That the improved Education of the Labourer is essential to the present position of the Farmer ...	Rev. C. T. JAMES, Dunsmington, Devon.
DECEMBER 7. — The Mechanical and Chemical Principles which should properly regulate the practice of Drainage	Mr. J. C. NESBIT, Kennington Lane, London.

Review.

The Journal of Agriculture, and the Transactions of the Highland and Agricultural Society of Scotland. No. 55. *January,* 1857. Blackwood and Sons.

The current number of "the Journal" contains another portion of the interesting American journal of Mr. R. Russell, of Kilwhiss—a paper by Mr. Burn on Mechanical Aids to Steam Culture, in which the suggestions and attempts of Boydell, Usher, Romain, and Mr. Hoskyns, as well as of previous inventors, are referred to — another contribution to the review which is being published here of the sciences applicable to agriculture, in which geology is discussed—and No. 54 of the Farmers' note book. This Farmer's note book will hereafter furnish the materials of a very interesting agricultural volume. It contains in the instance before us a continuation of the "Walk through the Implement Department of the Sydenham Palace," a review of Page's Geological Text Book, and Mr. Dickinson's instructions for growing Italian Rye grass. We extract a passage in which Mr. Dickinson gives us the results of his practice.

"When I have kept the plant entirely for green food without growing seed or making hay, I have seldom had less than seven crops during the year; and I have had 10, each weighing from 6 to 20 tons to the acre. The same results will follow to others using the same means with the same plant. Grass sown in August will produce a crop, in an ordinary autumn, in November; another in February, or early in March; in six weeks a third, in five weeks a fourth, in three weeks a fifth, in three weeks a sixth. These two last, grown with a high temperature, may be the two largest crops of the year—perhaps a yard high and thick upon the ground; and the crop becomes lighter as the temperature falls with the approach of winter. Watering the same day as the Grass is cut, is the only mode to obtain the largest amount of produce. Sometimes the produce

has exceeded what is here stated, amounting in one instance to 25 tons the acre; and in another even surpassing that, the plants being 5 feet 10 inches high; but the crop was borne down by its own weight. One of the most valuable qualities of this Grass is the amount of nitrogen it contains, and hence its excellent feeding properties. The produce of a quarter of an acre (the acre being 6 tons 8 cwt.) was weighed, and sent to Professor Way to analyse, and ascertain the quantity of nitrogen it contained, cut in the green state after the dew was off. It contained about 55 lb. per acre in one crop, equal to 64 bushels of Wheat; 30 tons—the preceding year's produce, in five cuttings—contained as much nitrogen as between 200 and 300 bushels of Wheat. Placing all the facts before him, Mr. Dickinson makes a calculation of the money-value of the crops thus produced. As the plant is biennial, the calculation extends over two years. The whole expenditure on an acre of good land, including the rent, dressings with guano, and every other item, on a scale approaching to extravagant, he makes amount to 39*l.* 2*s.* Confining himself to seven mowings in the year, and taking the moderate average of 10 tons per acre as the largest, and decreasing the calculation to 4 tons, the smallest crop he had ever known, he finds the produce, at 15*s.* a ton, to be 73*l.* 10*s.*; thus yielding a profit on one acre, for two years, of 34*l.* 8*s.*"

The other division of the volume contains the transactions of the Highland Society—an address by Dr. Anderson on the Chemical Principles involved in the Reclamation of Waste Land; an essay on the Application of Liquid Manure, in which the experience of the writer goes to recommend the use of it in composts rather than in a direct application to the land; Mr. Hall Maxwell's Report on the Agricultural Statistics of Scotland; and an account by Professor Anderson of the proceedings in his laboratory. From some of them we shall select extracts for future publication. Meanwhile this table of contents shows that the present number of the periodical is full of useful agricultural matter.

Calendar of Operations.

JANUARY.

BERWICKSHIRE MERSE FARM: *January* 13.—Harvest being finished about the end of October, we had a fortnight of mild and close weather, exceedingly unfavourable to the bulk of the crop, which was stacked in bad condition. In the absence of rain the land was soon in beautiful order and all bare fallows were promptly seeded; but a part only of the Bean stubbles could be got at, as the larger portion of the "black corn" was afield far on in November. On the 8th the weather broke, and rain and wind, frost and fresh, succeeded each other—never two days alike—till on the 25th there fell 3 or 4 inches of snow on the hard frozen surface. For 11 days it lay with continental steadiness, the frost gradually increasing in intensity, without the slightest indication of a thaw—a thing unexampled at the season. On the 5th December a fine fresh west wind soon melted the snow and though it was followed by heavy rain, the effect on our streams was so slight that we were quite surprised by the news of disastrous floods in Tweed and Tyne. Since then moderate but constant rains have kept the land soaking, the only relief being a couple of days' sleet and frost about Christmas, and again last week, with a speedy return to rain. In a word, the weather of the past two months has been singularly unsettled, and, as a consequence, never was there less winter Wheat sown here (on the Turnip soils) for many years past, with the exception of the wet winter, 1852-53. Large breaks of Bean stubble and cleared Turnip land are lying waiting for an opportunity to plough and sow; but between rain and frost there is not one single chance. The general work being thrown back five weeks at the first start, a changeable season has not tended to forward it; and if ploughing is not so far back as might have been expected, the poor horses have had to pay for it. In regard to the additional disadvantages of bad Oats and bad fodder, I have heard it remarked that, were it not that the horses got plenty of good Swedes, they would never get through; and as it is they are very thin. The days fit for Turnip storing have been few and far between, and that important operation is sadly behind. The rains of September stimulated their growth, and they unexpectedly presented a full crop; but, not being covered with the first fall of snow, they give evidence of extensive damage sustained in the shape of rotten bulbs. The prices however continues pretty moderate, which speaks to a smaller number of feeding sheep this season than usual. Except on the lightest soils hoggs have made little improvement, owing to the poaching of the soil even where thorough drained; but when dry they have fed wonderfully. Cattle have in many instances not done so well latterly, being apparently more dependent than sheep on the succulency of the bulb, for we observe all but the later Swedes are unusually fibrous, owing to a premature development of the seed-stem. Whites and Yellow Hybrids can always be got good by buying the best seed, but it is very difficult to obtain Swedish seed of a well-grown sort and free from forked root (by some confounded with finger-and-toe or Anbury), a malformation that renders the operation of cleaning both tedious and destructive by close cutting. Of the yield of our Cereals it were superfluous to say much. The tale has been often told, and can have little interest for those whose crop was but slightly damaged by the rain of the end of August, before we commenced cutting. Nearly the whole of the Wheat has been malted free of excise duty, and sells to distillers at 25*s.* to 35*s.* per quarter. A small portion secured before the weather, estimated at 5 per cent. of the crop, has brought high prices for seed; but except a few of the least sprouted samples bought by millers for mixing with foreign Wheat, none of our produce has gone for human food. The redundancy of such damaged Wheat has much reduced the price of Barley, which crop, being limited in extent, was generally well secured. Oats were partially carried dry, and such bring 32*s.* per quarter. The holders of these, however, expect higher prices at seed time; damaged range from 15*s.* to 22*s.* Heavy hoar frost and fog all day, and freezing hard again; barometer low; wind W. *J. T.*

FARM NEAR HEXHAM, *Jan.* 5.—At the time of our last report we stated that we were in the midst of Turnip storing, and that a short period of fine weather would see a large breadth stored. These expectations were doomed to be disappointed, as the following week a snow storm with severe frost set in, which continued for 10 days, and was succeeded by a rapid thaw and heavy rains, which not only put a stop to field works till the 16th or 17th December, but caused floods in the river such as have not been seen for 40 years, breaking down embankments in all directions and doing very serious damage to many farms on the river banks. A dry week from the 17th to the 25th permitted some who are favoured with dry land to proceed with Turnip lifting and Wheat, but Christmas brought us five days' snow again, when after a day or two's fresh we are again visited with what has all the look of a snow storm. With the above announcement of snow and wet we have little to report, except threshing, manure carting, and attending to stock, with a little stubble ploughing in the intervals of snow, and the first of these we are glad to say is a much more satisfactory operation than it proved last year, and prices, though considerably down, are still good for sound corn. Turnips have turned out a good crop, and stand much more eating than was expected, but the stormy weather has prevented sheep from doing so well as they otherwise would have done. Cattle in yards have done well and those in boxes better, and prices for both sheep and cattle are good; 7½*d.* per lb. for mutton, and 8*s.* per st. of 14 lbs. for beef are paying prices.

Notices to Correspondents.

BAILIFF: *Langley.* We shall be glad to see the paper.

BLACK POTATOES: *E S D* says, "Allow me to correct what appears to be a mis-statement in the Notices to Correspondents of the *Agricultural Gazette* for January 3, to the effect that 'Black Potato there is none.' On the contrary, I have both seen and eaten Black Potatoes in England, and the variety is regularly cultivated by the Flemish market gardeners both for its mealiness and good flavour, as well as for its curious appearance. I know it may be said that the 'black' is only a very dark purple, as is the case with what are called black Hyacinths; and also that the dye does not pervade the substance of the tuber, the interior being white like that of other Potatoes. Still the sort has as much a right to be called a black Potato as a negro has to be called a black man; and, in fact, as the pink Potatoes have to be so styled. Amongst coloured Potatoes little known in England there is one held in considerable esteem in the environs of St. Omer, which is called 'Arlequin,' from its coat being blotched with red and yellow." [Our correspondent's question related to the existence of a Potato black through!]

DESTRUCTION OF COUCH: *P.* We should be clear for burning Couch and using the lime with mould or turf, free from a weed so full of life. Nevertheless no doubt the lime will kill the most of it. Put on 50 or 60 bushels of the lime per acre, and mix with it the Couch along with whatever other vegetable matters you have access to. You will have then more than the necessary quantity of lime to make an efficient compost.

GAS-WATER: *G. Nicklin* asks for an *experience* in the use of gas-water as a manure. It has been applied successfully to Grass lands in rainy weather, and also to soak manure heaps.

GOSLINGS: *S T.* A *white* goose and a *spotted* gander are seldom seen. If you select a gosling *quite* brown the chances are it proves to be a gander. These rules are approaching to certainty. I have *once* seen a spotted gander but *never* a *white* goose. *P.*

HOLMSCALE: *Mr. Knowles* would much oblige us by a more particular description of the vortex wheel employed in driving his threshing machinery. We presume it to be of the kind commonly called the Turbine.

MANURES: *L L.* Apply guano to Grass land in March, 3 cwt. per acre mixed with mould. For Potatoes, if your land is in good heart, put on lime and salt mixed now, and allowed to lie together in a dry place for six weeks, then apply 40 bushels and 4 cwt. per acre. If your land wants manure scatter 3 cwt. of guano per acre before the last harrowing.—*T B.* We are inclined to think the prevalent practice of applying more of the manure to the grain crops and making up for the smaller quantity available for Turnips by the addition of artificial manure is right. We do not believe that the Turnips will keep any the less perfectly for it, nor that they are likely to interfere more with the health of your breeding stock than if they were fed on Turnips grown with dung alone. We have your MS., but should be glad to keep one part of it.

MITY CHEESE: *Cor.* The recipe for rennet will not affect the liability of your cheese in this respect. You should keep the boards on which you turn it perfectly clean, and occasionally rub both them and the cheeses with a very little sweet oil, well rubbed in.

MR. CAIRD: *Gt. St. Helen's.* Mr. Caird's address is 6, Serjeant's Inn, Fleet Street. You should apply to him. The remainder of the letter refers to policy of investments in land in Ireland, Scotland, Hungary, &c.

RAPE-CAKE: *W C M.* We must not publish the names of dealers. If you will give us your address we can supply you with the information given us on the point you name. Rape-cake will cost you from 6*l.* 15*s.* to 7*l.* per ton.

SALT: *S. M.* If your land is light you may put it in your dung-heap, especially that intended for your Mangel Wurzel, after the rate of 4 or 5 cwt. to the quantity you shall put on per acre.

TAN AS MANURE: *C R S.* We have used spent bark many years old as a sponge for liquid manure with good effect. It is not worth anything in itself, and considering the other means of absorbing liquid on the farm, very little at the best.—The "new manure" is not gas-lime. It is clay which has been used to absorb whatever it can during the passage of the gas over it.

TIME TO SUPPLY MANURE, &c.: *T Barrow.* We shall make this the subject of remark in another section of the Paper. As to a deep plough, probably Lord Tweeddale's experience in Deep Culture at Yester in East Lothian might be of service. Messrs. Slight of Edinburgh made his implements. It is certainly possible to reduce clay to tilth by perseverance in tillage operations, assisted as they are by the weather if performed at the fitting season.

TITHE COMMUTATION: *Clericus.* Mr. Willich informs us that, as the result of the corn averages for the seven years to Christmas last, published by authority in the *London Gazette* of the 9th inst., viz.—

		s.	*d.*	
Wheat	... ...	6	11¼	per imperial bushel
Barley	... ...	3	11¼	" "
Oats	... ...	2	9¼	" "

each 100*l.* of tithe rent-charge will, for the year 1857, amount to 99*l.* 13*s.* 7¼*d.*, which is a little more than 5¾ per cent. above the last year's value. The following statement from his "Annual Tithe Commutation Tables" will show the worth of 100*l.* of tithe rent-charge for each year since the passing of the Tithe Commutation Act, viz.—

		£	*s.*	*d.*
For the year 1837	... ...	98	13	9¾
" " 1838	... ...	97	7	11
" " 1839	... ...	95	7	9
" " 1840	... ...	98	15	9½
" " 1841	... ...	102	12	5¼
" " 1842	... ...	105	8	2¾
" " 1843	... ...	105	12	2¼
" " 1844	... ...	104	3	5¼
" " 1845	... ...	103	17	11¼
" " 1846	... ...	102	17	8¾
" " 1847	... ...	99	18	10¼
" " 1848	... ...	102	1	0
" " 1849	... ...	100	3	7¾
" " 1850	... ...	98	16	10
" " 1851	... ...	96	11	4¾
" " 1852	... ...	93	16	11¾
" " 1853	... ...	91	13	5¾
" " 1854	... ...	91	19	5
" " 1855	... ...	89	15	8¾
" " 1856	... ...	93	18	1¼
" " 1857	... ...	99	13	7¼
General average for 21 years	...	£98	13	7½

WILLIAMS' APPARATUS FOR CULTIVATION: *Cor.* This as figured in the "Mechanics' Magazine" for Dec. 27, 1856, appears to be a contrivance for producing an up and down, as well as an onward motion, in the tines or teeth of an ordinary cultivator. It appears to us likely to involve a great deal of labour without any sufficiently corresponding result.

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7 by 5, and 7½ by 5½ ... 13*s.*				9 by 7, and 10 by 8 ... 13*s.* 6*d.*	
11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	...	15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10 ...	...	16 0
	16 " 10,	17 " 10,	18 " 10 ...	...	
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11 ...	16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12 ...	...	17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12 ...	...	18 0
16 " 13,	17 " 13,	18 " 13,	20 " 13 ...	...	
	22 " 13,	24 " 13	...	...	
20 " 14,	22 " 14,	24 " 14	...	...	
10 " 15,	22 " 15,	24 " 15	...	...	
	20 " 18	... ...	...	...	£1 2 0

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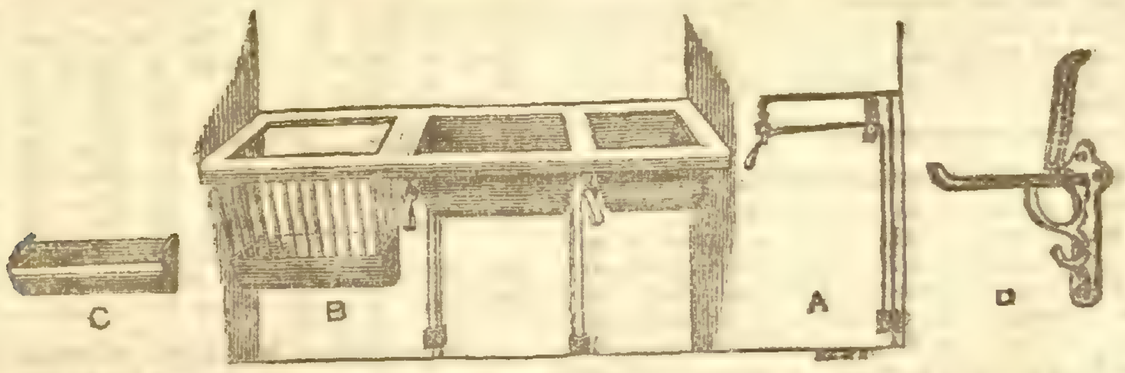

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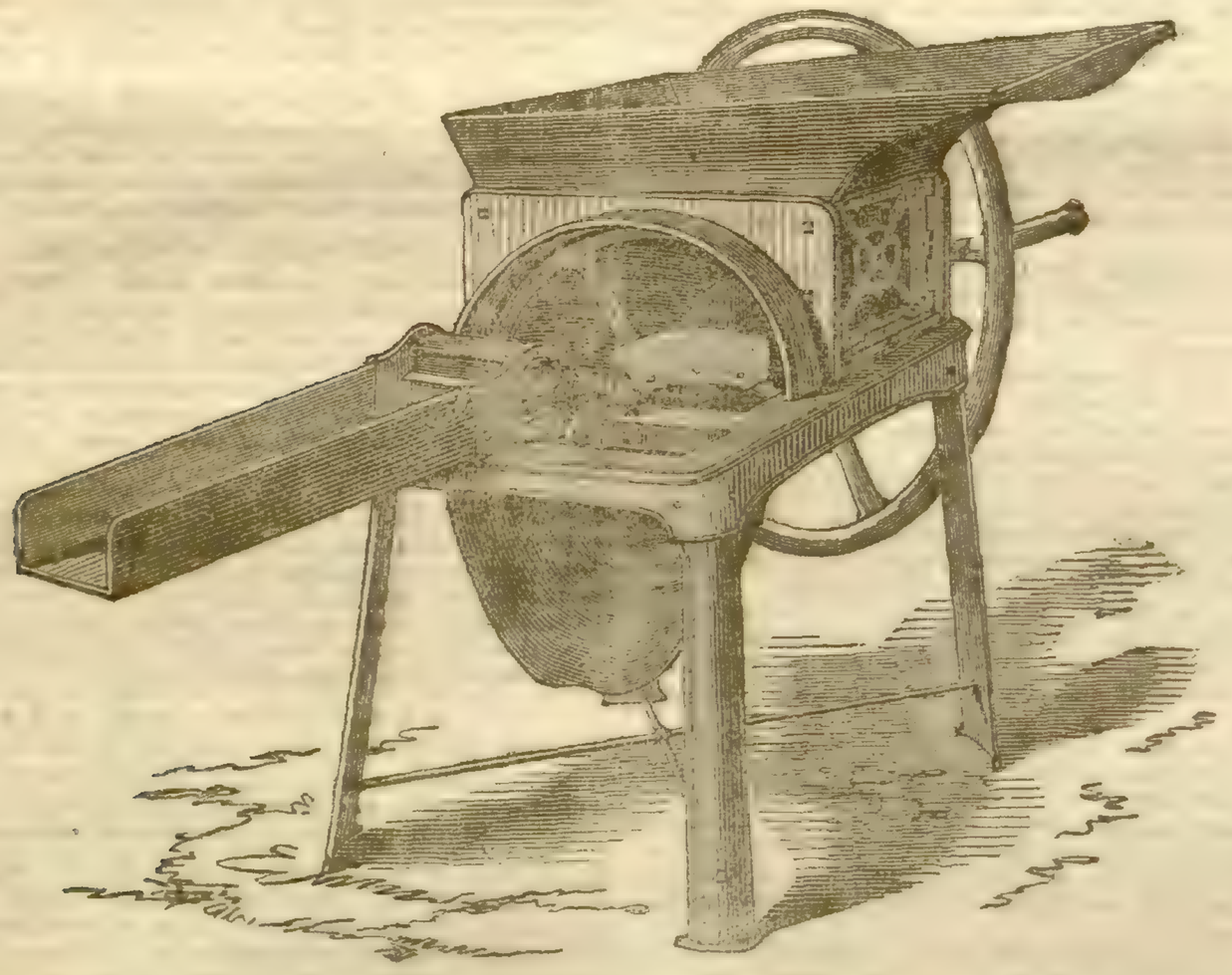

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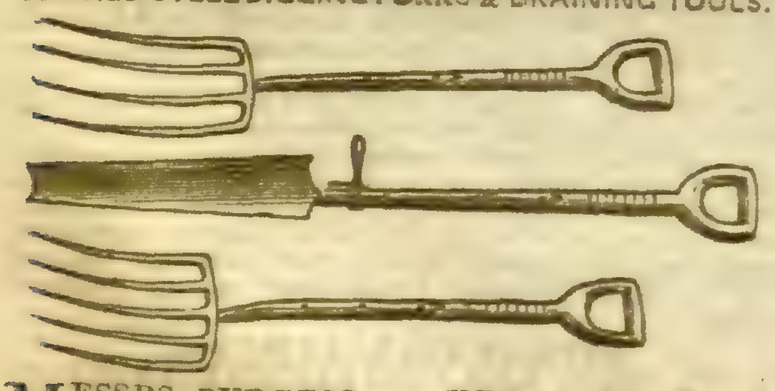

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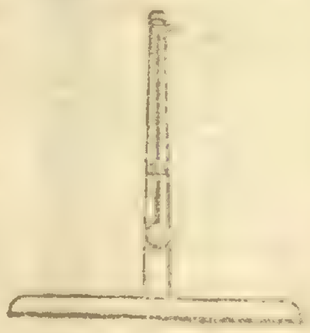

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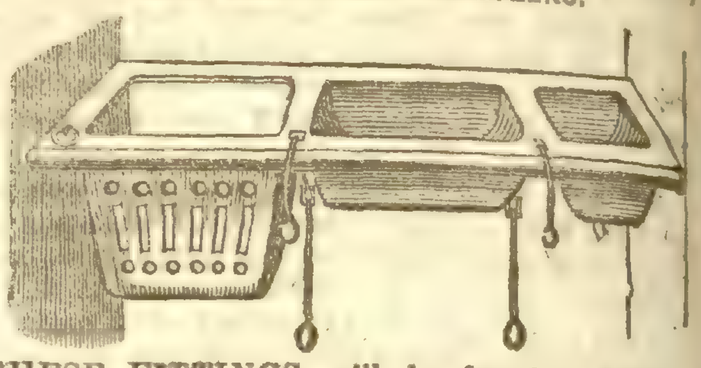
EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.
JAMES BARTON, Iron Founder &c., 370, Oxford Street, London.

BLOSSOM OF WALL FRUIT TREES.—WORSTED NET to effectually protect blossom, and the ripe fruit afterwards from wasps and flies, 7d. per square yard; transparent sheeting, 6d. per square yard; thread net for blossom, 6d. Samples and particulars sent free.
R. RICHARDSON, 21, Tonbridge Place, New Road, London.
N.B. Tanned nets, 6s. 3d. per 100 yards.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3l. 3s. The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1s. 9d. per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3s. 0d. per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

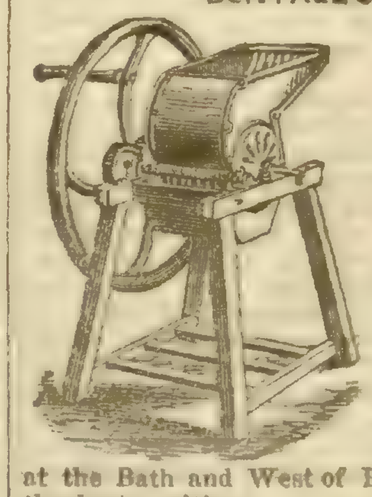
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „ long	3 „ 3 „		1 14 0
3 „ ditto	3 „ 6 „		2 8 0
3½ „ ditto	3 „ 6 „		2 12 0
4 „ ditto	3 „ 6 „		3 3 0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BENTALL'S PATENT PULPERS.



PRICES.	£ s. d.
R. P. A.	8 8 0
R. P. B.	6 6 0
R. P. C.	5 5 0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

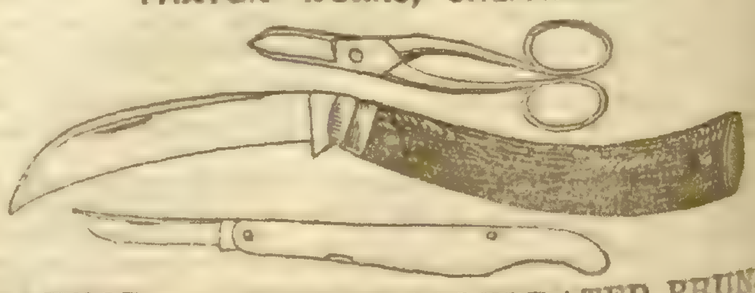
	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

PAXTON WORKS, SHEFFIELD.



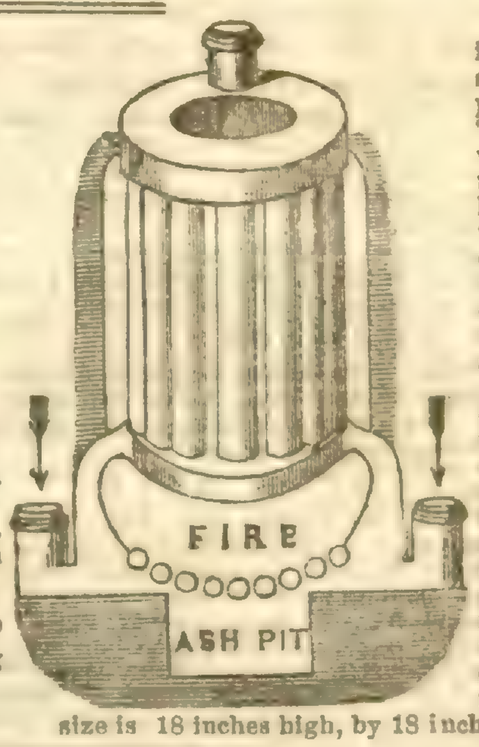
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

GARDEN ENGINES, SYRINGES, &c.—CAUTION: The well-known reputation of READ'S ENGINES, machines, and syringes, has led to the nefarious practice of placing cards in shop windows, with the words "Read's Patent" upon syringes of the VERY COMMONEST DESCRIPTION.

R. READ begs to caution the public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S instruments have the royal arms, and address,
"35, REGENT CIRCUS, LONDON."

*** Descriptions sent post free.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

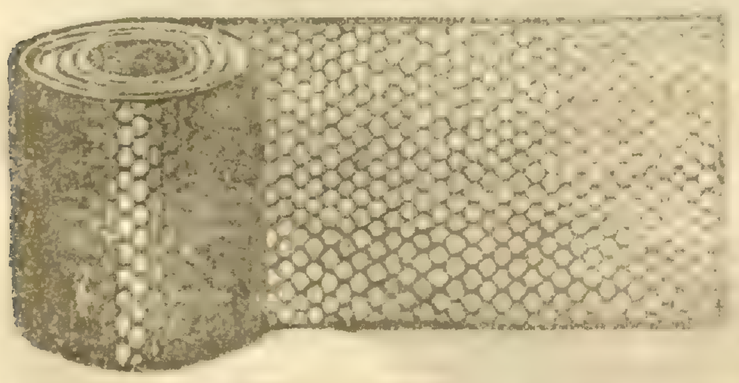
"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch " strong, do.	6 "	4¾ "
2 inch " intermediate, do.	7 "	5½ "
2-inch " extra strong, do.	9½ "	7½ "
1⅝-inch " 24 inches wide	5½ "	4½ "
1⅝-inch " strong, do.	6½ "	5¼ "
1⅝-inch " intermediate, do.	7½ "	6 "
1⅝-inch " extra strong, do.	10 "	8 "

All the above kinds can be made of any width (under 8 feet), at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

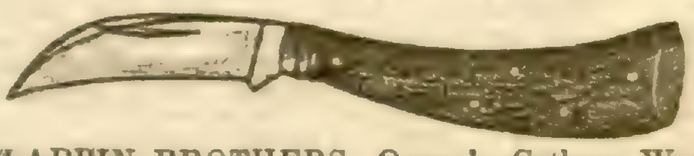
Illustrated Catalogues and Patterns forwarded by post.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works. Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

HEAL AND SON'S EIDER DOWN QUILTS; also GOOSE DOWN QUILTS, from 8*s.* 6*d.* to 24*s.* List of Prices and Sizes sent free by post.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE OF BEDSTEADS AND PRICED LIST OF BEDDING also sent post free.—196, Tottenham Court Road, W.

BEDS, MATTRESSES, AND BEDSTEADS.—WILLIAM S. BURTON'S NEW LIST of BEDS, BEDDING, and BEDSTEADS is now ready, and can be had gratis.

The quality of beds, mattresses, &c., of every description he is able to guarantee; they are made on the premises, in the presence of customers; their prices are in harmony with those which have tended to make his house ironmongery establishment the most extensive in the kingdom.

Feather beds	from £1	5	0	to	£8	0	0
German spring mattresses ...	"	2	8	0	"	7	0	0
Horse hair mattresses ...	"	0	16	0	"	5	0	0
Wool mattresses	"	0	7	6	"	4	9	0
Flock mattresses	"	0	6	6	"	0	18	0
Best Alva and cotton mattresses	"	0	6	6	"	0	19	0
Sheets per pair	"	0	7	6	"	2	6	0
Blankets each	"	0	3	0	"	1	4	0
Toilet quilts	"	0	4	0	"	1	7	6
Counterpanes...	"	0	2	6	"	0	15	0
Portable folding bedsteads ...	"	0	12	6	"	4	15	0
Patent iron bedsteads, with dove-tail joints	"	0	15	0	"	9	0	0
Ornamental brass ditto ...	"	2	10	0	"	20	0	0
Children's cots...	"	0	15	6	"	5	0	0
Bed hangings, in every variety per set	"	0	14	0	"	10	0	0

39, Oxford Street, W; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, Oxford Street, London.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

ALLSOPP'S PALE ALE IN IMPERIAL PINTS.

HARRINGTON PARKER AND CO. are now delivering the October Brewings of the above celebrated Ale. Its surpassing excellence is vouched for by the highest Medical and Chemical Authorities of the day. Supplied in bottles, and in casks of 18 gallons and upwards, by HARRINGTON PARKER & Co., 5½, Pall Mall.

HOW TO BREW SPLENDID ALE AT 7*d* PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1*s.* 9*d.* per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny post stamps. Sent, post-free, to any address. Direct to FISHER & SON, publishers, Kingsland, London. Established 1847.

COLT'S PATENT SIX-SHOT REVOLVERS.—The favourite size for Officers, Army, Navy, and Merchant Service, weight 2 lbs. 8 oz., rifle bored. Also, three sizes POCKET REVOLVERS, for travellers and house protection. A large stock of London-made ready for immediate delivery. Holsters, Belts, Pouches, Cartridges. Description and Price Lists furnished.—Order of SAMUEL COLT, the Patentee and Manufacturer, 14, Pall Mall, London.—Beware of counterfeits.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

CLOSE OF HOLIDAYS.—The return of Youth to their respective Boarding-Schools induces a solicitude from Parents and Guardians for their personal comfort and attraction, and ROWLANDS' MACASSAR OIL, for accelerating the growth and improving and beautifying the hair; ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions; and ROWLANDS' ODONTO, or Pearl Dentifrice, for rendering the teeth beautifully white, and preserving the gums, are considered indispensable accompaniments for the attainment of those Personal Advantages so universally sought for and admired. Beware of spurious imitations. The only genuine of each bears the name of "ROWLANDS" preceding that of the article on the wrapper or label.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustaches, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair"—Sergt. Craven, "Through using it I have an excellent moustache."

BLAIR'S GOUT AND RHEUMATIC PILLS.—This preparation is one of the benefits which the science of modern chemistry has conferred upon mankind; for during the first twenty years of the present century to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine is so fully demonstrated, by unsolicited testimonials from persons in every rank of life, that public opinion proclaims this as one of the most important discoveries of the present age.—Sold by PROUT and HARSANT, 229, Strand, London; and all Medicine Vendors. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

FOR SALE, the PATENT-RIGHT OF THE ANTI-ACCIDENT WINDOW CLEANER.—With this simple machine the outsides of windows may with ease be cleaned from the room, without endangering life. It will be found most useful and economical in town and country, and especially at marine residences, where windows are generally coated by the spray from the sea and the glass rendered dim. Particulars will be given on application by letter to G. H. C., care of Mrs. Knight, London and Paris Hotel, Newhaven, Sussex. None need apply who have no intention of purchasing the Patent-right of the Patentee, or else undertaking to manufacture them. There is also another Patent-right of a Portable Self-regulating Incubator for Hatching and Rearing Game and Poultry, and a useful Plate Warmer by which a small dinner may be kept hot for several hours without fire.

TO NURSERYMEN, ETC.

ARCHANGEL MATS on Sale.—Apply to GARNOCH, BIBBY & Co., Patent Cordage Manufacturers, Liverpool.

TO NURSERYMEN, SEEDSMEN, GARDENERS, &c.

ON SALE, a large quantity of very stout BAG MATS, large-sized, DUNNAGED MATS, and a considerable quantity of CART and VAN COVERS, from the Crimea, at a low price. Old and new Archangel Mats, old and new Sacks and Bags of every description on hand.

JOHN HENRY, 31, Mark Lane, City.

WANTED TO RENT, one or two acres of good GARDEN GROUND, with easy access by rail or road to Covent Garden; if with Cottage would be preferred.—Apply to Mr. HENRY CLARKE, 39, King Street, Covent Garden.

WANTED, on Lease, a Piece of LAND, not exceeding two Acres, suitable for a Market Garden, distant from London four to eight miles.—All letters post paid, sending particulars, addressed to Y. Z., Saul Post Office, King's Road, London.

CORN MILL IN EAST KENT.

TO BE LET ON LEASE, the CORN MILL at Charlton, Dover, for 7 or 14 years, from the 6th of April next, on account of the decease of the late owner. This Mill possesses advantages which few country mills offer. It is brickbuilt, in perfect repair, and is now being refitted with machinery constructed on the newest and most improved principles. It will contain 10 pairs of stones. It has an unfailing supply of water power. It is near the Railway Station. It has been established for centuries, and has long enjoyed a gristing trade, yielding a considerable income, and susceptible of easy increase. It is admirably situated for retail trade. On the same stream there are several other Corn Mills; but all, except Charlton Mills, are periodically straitened by want of water; while even when water is most abundant, Charlton Mill will be found able to do with ease more work than all the other mills on the same stream in combination. The Mill and the adjoining Store House are capable of containing five thousand quarters of wheat. The several buildings, which embrace a commodious stable and cart house, are lighted with gas. If the tenant should desire such an arrangement, a house will be built for his accomodation. To an enterprising miller, possessed of capital, Charlton Mill offers very rare advantages.—For further particulars, apply to G. T. THOMPSON, Esq., Solicitor, Dover.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

FLOWER AND VEGETABLE SEEDS.

KEMPTON'S CATALOGUE OF SEEDS, offering an advantage never before presented to the public, can be had gratis on application.—Address, KEMPTON, Seedsman and Florist, 22, Wigmore Street, London, W.

SKIRVING'S SWEDE OF 1856, growth selected from large transplanted bulbs, 23*s.* per bushel.

MANGEL WURZEL, Yellow and Orange Globe, 28*l.* per ton.

Also the following PEAS, first-rate samples.

British Queen	Burbidge's Eclipse
Hair's Dwarf Mammoth	Scimetar.

Application to Mr. W. J. EPPS, Seed Merchant, Maidstone.

PRIMULAS! PRIMULAS! PRIMULAS! (now in full bloom).

"Mr. WILD has the lead in Chinese Primroses."—*The Field.*

"Dear Sir,—Let me thank you for your splendid Chinese Primroses. I shall recommend them to all my friends.

"ROBERT ERRINGTON, Oulton Park, Tarporley."

Latter's Treatise on the Cultivation of Primulas, Coloured Drawing of a splendid Seedling, Testimonials, Descriptive Catalogue, &c., post free to all subscribers, on application to THOMAS WILD, Ipswich.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s.* 0*d.* | LORD PALMERSTON 5*s.* 0*d.*

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

LYNCH'S STAR OF THE WEST CUCUMBER.

CHARLES SOUTHBY begs to inform the Public that he has grown the above Cucumber for the last two years, and last year supplied many of his customers with the seed, which gave unbounded satisfaction, and he can still recommend it as being the largest and finest Cucumber grown.

Six Seeds, 1*s.* 6*d.*; Twelve do., 2*s.* 6d.

Vegetable Seeds of the first quality supplied in collections—if preferred—in the same quantities and at the same prices as those advertised by other houses.—High Street, Clapham.

CHOICE CINERARIAS.

WILLIAM HUSSEY begs to offer the undernamed collection for 14*s.*, package included:—Mrs. Beecher Stowe, Polyanthiflora, Rosy Morn, Lady Paxton, Prima Donna, David Copperfield, Delicata, Scottish Chieftain, Optima, Lablache, Octavia, King of the Blues, Kate Kearney, Queen of Beauties, Prince Arthur, Mrs. Sidney Herbert, Lady Hume Campbell, Georgiana, Marianne, Catherine Seaton, Pauline, Agnes Wakefield.—Horticultural Gardens, Norwich.

SEED PURCHASERS.

W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order W. S. & Co.'s COMPLETE COLLECTION FOR ONE YEAR'S SUPPLY for 10*s.*, 20*s.*, 30*s*, and 40*s.* each, or double of 40*s.* for 70*s.* Complete Seed Lists on receipt of 1*d.* stamp. Compare prices, quality warranted, and you will order a yearly supply of W. S. & Co.

TRENTHAM COCOA-NUT MELON.—The above Melon was raised by Mr. FLEMING, a notice of which appeared in the *Gardeners' Chronicle*, p. 676, of last year. The entire stock is in the hands of the undersigned.

Packets of Six Seeds, 2*s.* 6*d.*; Fifteen do., 5*s.*; Cashmere, true, Twelve do. 1*s.*; Trentham Netted (fine), do., 1*s.*; do. Smooth (good), do., 1*s.*

WILLIAM THOMAS, Nurseryman and Seedsman (Lich Gates), Market Place, Wolverhampton.

KIDNEYS.—ASHLEAF, 7*s.* per bushel; FLUKES, 5*s.* per bushel; DAWE'S MATCHLESS, 6*s.* per bushel, a very fine sort and large croppers, strongly recommended for a white Kidney to use in the spring. Has withstood the disease three years in succession. All other kinds of Seeds equally low and warranted. Prices sent upon application.

JOHN BELL, Covent Garden, and King's Cross Potato Market, Great Northern Railway. Post-office orders payable at Charing Cross. New bags, 1*s* 6*d.* each.

SEED CORN FROM THE CHALK.—TALAVERA, RED NURSERY, and RED HYBRID, the best Wheats for Early Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c. &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

CHARLES NOBLE, having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he is in a position to execute any orders with which he may be favoured, and respectfully requests that all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.—Jan. 17.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Jan. 17.

PRESENT PRICES OF FARM SEEDS.

THE CROPS OF SWEDE TURNIP, MANGEL WURZEL, AND OTHER FARM SEEDS *being good, prices are lower this season (at present) as see* Messrs. SUTTON *Priced List*, which may be had, post free, in return for one penny stamp, addressed

SUTTON & SONS, Seed Growers and Merchants, Reading, Berks. Early orders are requested and recommended.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

1, WELLINGTON STREET, STRAND.

J. MAY AND CO. beg to announce that they have received their new Stock of VEGETABLE and FLOWER SEEDS, selected from the best growers. A Catalogue comprising the most useful kinds is just published, and will be sent post free on application.

A good supply of Daniel O'Rourke and Dickson's Favourit Peas, the two best early kinds; also, Anemones, Ranunculus, Gladiolus, Liliums, and other Bulbs for Spring planting.

POTATOES.

J. MAY AND Co. have a fine Stock of all the early kinds—Shilling's Prolific True, Early Ten Week, Ash-leaved Kidney, &c. For prices see Catalogue, sent post free on application.—1, Wellington Street, Strand.

CUCUMBER SEED.

BURNETT'S "PERFECTION" has again been successfully exhibited during the past season, beating all others wherever he has shown it. In sealed packets of 6 Seeds, 1*s.* 6*d.*, may be had of J. BACKHOUSE & Son; or for 18 postage stamps of W. BURNETT, Jackson Street, Groves, York.

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THE TWO SPLENDID DAHLIAS, NAPOLEON AND EUGENIA, dry roots, 5*s.* to 10*s.* 6*d.* each. Everything connected with a Garden procured from the best sources, by G. GLENNY, Horticultural Agent, Dungannon House, Fulham.

COLE'S DEFIANCE RED CELERY has proved itself the best Red Celery for exhibition purposes or for common use; it is exceedingly solid, of exquisite flavour, attains a large size, and keeps better than any other sort in cultivation. To be had in sealed ½-ounce packets, free by post, for 12 postage stamps.—The DWARF WHITE INCOMPARABLE, so highly recommended, for 12 postage stamps. Also Cole's Dwarf Solid Red, and Crystal White, in ½-ounce packets, each free by post for 6 postage stamps.

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CAREY TYSO, FLORIST, &c., Wallingford, Berks, begs to offer choice assortments of

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PANSIES, fine sorts, per dozen	5*s.* to	0	12	0

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* These articles can be forwarded by post.

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		s.	*d.*
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C. Bartsiæfolia alba	"	0	6

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JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset.

N.B.—All kinds of Nursery Stock grown largely; also a most complete collection of CONIFERÆ. Catalogues sent on application.—Jan. 17.

IMPORTANT TO PURCHASERS OF SEEDS.

SUTTON'S SEED CATALOGUE, *with prices, will be sent post free on receipt of one penny stamp.*

Also,

SUTTON'S AMATEUR'S GUIDE IN HORTICULTURE AND AGRICULTURE; *free by post for twelve penny stamps, or gratis to purchasers of Seeds.*

SUTTON & SONS, Seed Growers and Merchants, Reading.

Just published,

SUTTON'S AMATEUR'S GUIDE; being a Descriptive List of New Seeds with Instructions on Cultivation, Monthly Calendar of Operations, and other useful information in Horticulture and Agriculture.

As this Publication is compiled principally for the use of Messrs. SUTTON & SON'S *customers, it is requested that those of them who have not yet received it will forward their address, when a copy will be sent gratis or post free.*

Other persons will receive it post free in return for 12 postage or receipt stamps,

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"HOW TO GROW DIOSCOREA SUCCESSFULLY," AND "HOW TO CUT BROCCOLI IN SUCCESSION THROUGHOUT THE YEAR."—SEE

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SUTTON & SONS, Royal Berkshire Seed Establish ment, Reading.

BOUND EDITION OF

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY.—*At the solicitation of several very influential Customers, the Proprietors have been induced to publish a Bound Edition of this Popular Work, and copies may be obtained through any Bookseller, or from the Counting House, Union Road, Plymouth, in exchange for 18 penny stamps free by post.*

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2. Stockwood's Golden Hambro' Grape.
3. Clematis Guascoii.
4. Rose (perpetual) Marie Aviat.

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NOTICE—REPRINT OF THE

NATIONAL GARDEN ALMANACK, 1857.—So numerous, influential, and urgent are the demands for further supplies of the National Garden Almanack, Horticultural Trade Directory, and Florists' Diary for 1857, that notwithstanding the distribution of seven-eighths of the type its reprint becomes imperative. One thousand additional copies are thus early subscribed for—a second 100 by Mr. James Veitch, of the Royal Exotic Nursery, Chelsea, S.W. As no time can be lost, every advertisement or subscriber's name must be promptly to hand to insure insertion in its proper place.

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THE EDINBURGH REVIEW, No. CCXIII., was published on THURSDAY LAST.

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I. PHILIP II. AND HIS TIMES.
II. HUMAN LONGEVITY.
III. CONVOCATION.
IV. FERGUSSON'S ARCHITECTURE.
V. MACAULAY'S HISTORY OF ENGLAND.
VI. RIGHTS AND LIABILITIES OF HUSBAND AND WIFE.
VII. SCOTTISH LAWYERS AND ENGLISH CRITICS.
VIII. FRENCH SOCIETY UNDER THE DIRECTORY.
IX. PARLIAMENTARY COMMITTEES AND RAILWAY LEGISLATION.
X. INDIA, PERSIA, AND AFGHANISTAN.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 4.—1857.] SATURDAY, JANUARY 24. {Price Fivepence. {Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, February 5, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

ROBERT HODGE begs to return his most grateful thanks to all those Subscribers to the Gardeners' Benevolent Institution who recorded their votes in his favour at the Election on the 14th inst., by which he was made a Pensioner on its funds; and particularly to those kind Friends who by their personal exertion placed him in this position on his second application, a result which has only been attained in one previous instance since the establishment of the Society.—Pocklington, Jan. 24.

GRAPE VINES IN POTS.

JOHN WEEKS AND Co., King's Road, Chelsea, can now supply Grape Vines struck from eyes in very fine condition, strong and healthy, for Planting or Forcing in Pots, all the best approved sorts.

Horticultural Establishment, King's Road, Chelsea.

AGRICULTURAL SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce that they will publish a complete List of AGRICULTURAL SEEDS in February, 1857, and forward FREE OF CHARGE and POST-PAID TO ALL PARTS OF THE WORLD, upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

RED CURRANT RHUBARB (TRUE).

W. ABRAHAM begs to offer good roots of this rather scarce but excellent RHUBARB at 9*s*. per dozen or 50*s*. per 100 for cash.—Seedsman and Florist, Bath.

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CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, Wandsworth Road, London, S., supply the above of the best quality. A Catalogue can be had on application.

CAMELLIAS, AZALEAS, AND FERNS.—Camellias with flower-buds, 30*s*. and 42*s*. per doz. Chinese Azaleas with flower-buds, 18*s*. and 30*s*. per doz. A great variety of Ferns at moderate prices.

CHANDLER & SONS, Wandsworth Road.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Jan. 24.

JENKINS' RED MATCHLESS CELERY.—The Advertisers in offering the above beg to say the Celery is well known in COVENT GARDEN MARKET, and has taken the lead for several years past for size, flavour, and being very solid it stands unrivalled. Packets containing over ½ oz. may be had post free. Having purchased the whole stock of Mr. JENKINS it can only be had genuine of J. MAY & Co., 1, Wellington Street, Strand. Samples of the Celery can be seen as above.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. TO THE TRADE.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.

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PRINCE OF WALES RASPBERRY.

WILLIAM CUTBUSH AND SON have still a quantity of their PRINCE OF WALES RASPBERRIES, acknowledged to be the *finest Red variety in cultivation*. For prices and testimonials see Catalogues, which will be forwarded free on application.—Highgate Nurseries, London, N.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

THE PRICES OF FARM SEEDS *being now fixed for the present season*, SUTTON & SONS *will be happy to forward their* LIST, *post free, on receipt of one penny stamp.*

Royal Berks Seed Establishment, Jan. 24.

SEED CATALOGUE.—26th ANNUAL EDITION.

BASS AND BROWN'S New Descriptive SEED CATALOGUE contains the finest new Vegetable Seeds in cultivation, with the choicest novelties in Flower Seeds. Also choice BULBS for spring planting. Copies sent free on application.—Sudbury, Suffolk.

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ROBERT KENNEDY will have much pleasure in forwarding his RETAIL CATALOGUE OF FLOWER, VEGETABLE, AGRICULTURAL, GRASS, AND TREE SEEDS to those who have not received it. His stock will be found to be of the most genuine quality, being procured from the most eminent growers at home and abroad. Wholesale orders for the trade for Messrs. PLATZ & SON, Seed Growers, Erfurt, Prussia, supplied in 10 days by new mode of transit.

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Especial attention is devoted to the Seed business, and every article offered is of the best quality, and in many instances of very superior quality.—Royal Nursery, Slough.

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JOHN CATTELL begs to announce that his CATALOGUE OF KITCHEN GARDEN SEEDS for 1857 may be had gratis and post free on application. It contains a very select collection, the great part of which are of J. C.'s own saving.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

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WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

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JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

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ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

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*** Free delivery, see Catalogue.

W. DRUMMOND AND SONS beg to intimate that their CATALOGUE OF VEGETABLE AND FLOWER SEEDS is now ready, and may be had post free on application. This Catalogue contains only such varieties as are really worth cultivating, and each having a short but accurate description affixed, the Gardener and Amateur can draw out their seed list correctly and without trouble.—*Seeds delivered carriage free; for particulars see Catalogue.*

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An Annual Catalogue of Tree Seeds is published every May, sent free on post-paid application. Terms, half cash with order, balance on receipt of invoice.—THOMAS MEEHAN (formerly of the Kew Gardens), Nurseryman, Germantown, Philadelphia, U. S. A.

TRENTHAM COCOA-NUT MELON.—The above Melon was raised by Mr. FLEMING, a notice of which appeared in the *Gardeners' Chronicle*, p. 676, of last year. The entire stock is in the hands of the undersigned.

Packets of Six Seeds, 2*s*. 6*d*.; Fifteen do., 5*s*.; Cashmere, true, Twelve do. 1*s*.; Trentham Netted (fine), do., 1*s*.; do. Smooth (good), do., 1*s*.

WILLIAM THOMAS, Nurseryman and Seedsman (Lich Gates), Market Place Wolverhampton.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Catalogue, which will be forwarded on application.

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YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100	... ...	2*s*. 6*d*.
Ditto 3 years old, per 100	... ...	3 6
Sea Kale, strong ... ... „	... ...	7 0

Royal Nursery, Great Yarmouth, Norfolk.

TO CUCUMBER GROWERS.

H. SHERMAN has for Sale a quantity of fine Plants, 1*s*. per pot, good sorts for early and late works.—Cucumber and Mushroom Grower, Gooseberry Gardens, Hendon, half a mile from the Welch Harp, Edgware Road.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CONREAT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

GLENNY'S IMPROVED BALSAM, from Double Flowers, 3 inches over, 6 classes, 37 stamps; mixed, 13. GLENNY'S SEED LIST for amateurs, free, by sending a directed envelope. GLENNY'S COMPANION TO THE ALMANACKS, with Portrait, free for 13 stamps.—Fulham, S.W.

THE NEW DWARF EARLY FORCING CAULIFLOWER (Haage's of Erfurt), 100 Seeds, 13 stamps; ACROCLINIUM ROSEUM (the new annual that beats Rhodanthe), 20 Seeds, 13 stamps.—G. GLENNY, Agent, Fulham, S.W. Glenny's Almanack, 13 stamps.

TO THE SEED TRADE.

PEAS.—Early Emperor, Early Ringwood Marrow, Flack's Victory Imperial, Woodford's Marrow, &c. The above at low prices. Trade prices of Seeds in general may also be had.—BASS & BROWN, Sudbury, Suffolk.

NEW SORTS OF PEAS.

SUTTON AND SONS can supply Harrison's Napoleon, Eugenie, Alliance, Climax, Glory, Perfection, Epps' Lord Raglan, Sutton's Early Champion, Prizetaker, and every Horticultural novelty which may from time to time be advertised in this Paper, by whomsoever introduced, though they of course cannot recommend any article until they have had time to test it in their Nursery and trial ground.

Royal Berkshire Seed Establishment, Reading.

SEED POTATOES,

SUTTON AND SONS, SEED GROWERS, Reading, *have a large Stock of the early kinds of* POTATOES *very true and free from disease. Prices, &c., will be sent post free on application.*

EARLY FRAME POTATOES, AND POTATO ONIONS.—We have a surplus stock of these, good and true; prices can be had on application.

JOHN MITCHINSON & Co., Truro, Cornwall.

SEED POTATOES FROM THE NORTH OF SCOTLAND.—The Subscriber can supply the following kinds grown by himself on his Farms in Inverness and Ross-shires, free from disease:—

PROTESTANTS.—A white variety, introduced from Connaught, and cultivated with great success in Scotland for two years, the crops being heavy and sound.

REGENTS.—Grown on ploughed up Grass land, specially adapted for seed.

FLUKES.

Price, delivered free in London, Newcastle, Hull, or Edinburgh, 20*s*. per sack of six bushels (sack included).

Orders, with remittances, to be addressed to ALEX. SIMPSON Beauly, Inverness-shire.

Reference in London may be made to the Editor of the *Agricultural Gazette*.—January 24.

ONE HUNDRED BUSHELS OF SKIRVING'S IMPROVED SWEDE, grown from large selected bulbs, warranted, 28*s*. per bushel.

ORANGE GLOBE and LONG RED WURZEL, 28*l*. per ton.

Apply to Mr. EPPS, Maidstone.

FOR SALE, OR EXCHANGE FOR HYBRID RHODODENDRONS, AZALEAS, KALMIAS, and HEATHS. Some hundred roots of the beautiful sweet-scented Cape Aquatic Aponogeton Distachyon, perfectly hardy and free bloomers.—Apply to R. TREBBLE, Loddiswell, near Kingsbridge, Devonshire.

TO BE SOLD, 520 Yards of DWARF BOX.—Apply to WM. BEASLEY, Gardener, Dunchurch, near Rugby, Warwickshire.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

QUICKTHORN.

CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.

PINUS MARITIMA (one-year seedlings).

C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed-growing Establishment, Sleaford.

TO PLANTERS.

TO BE SOLD, cheap, 100,000 SCOTCH FIRS, 12 to 18 inches, and 18 inches to 2 feet; 50,000 HIGHLAND PINES, 1 foot to 1½ foot. The plants are very stiff, and grown upon high exposed land; will take up with good fibrous roots.—Price upon application to J. SMITH Tansley Nursery, near Matlock, Derbyshire.

SUPERB SEEDLING CALCEOLARIAS, ETC.

JOHN CATTELL has now ready to send out fine strong Seedling Plants, in single pots, of his superb varieties of CALCEOLARIAS; they will produce flowers of very large ize, and every shade of colour. 5*s.* per dozen, or 36*s.* per 100, hamper included; plants from the store pans can be sent free by post at 5*s.* per dozen.

J. C. has also fine healthy plants of the under-named splendid FRENCH GERANIUMS, which are fit for immediate shifting; strong plants of any 12, 18*s.*; or 12 smaller plants, 12*s.*, hamper included:—Madame Lamoricière, James Odier, Medaille d'Or, Auguste Miellez, Jacques Duval, General Eugène Cavaignac, Auguste Odier, Colonel Faissy, Adèle Odier, Eugène Scribe, Chauvieri, Elize Miellez, Madame Lefio, Adolphe Odier, Dr. Andry, Gloire de Bellevue, Madame Chereau, Monte Christo, Coquette, Astrea, Madame James Odier, Zaria.

Extra fine varieties of Show and Fancy.
Geraniums 6*s.*, 12*s.*, and 18*s.* per dozen.

VARIEGATED LEAVED GERANIUMS.

	Each—*s.* *d.*		Each—*s.* *d*
Attraction (Kinghorn).per dozen 12*s.* ...	... 1 6	Golden Admiration	... 1 6
Attraction (Gaines's)	... 1 0	Mountain of Light	... 0 9
Annie (Kinghorn)	... 2 6	Mrs. Lennox ...	... 2 6
Alma (Turner) ...	... 2 6	Silver King ...	... 1 0
Countess of Warwick (Kinghorn ...	... 2 6	Silver Queen ...	... 1 0
		Variegated Queen	... 2 6

SCARLET GERANIUMS.

	Each—*s.* *d.*		Each—*s.* *d.*
Beauty of Chipstead	... 0 9	Beauty of Coombe Bank...	1 0
General Pelissier (Kinghorn)	... 2 6	Trentham Scarlet Gem	1*s.* to 1 6

Fine healthy plants of the following:—Leschenaultia biloba splendens, Hunt's fine free flowering variety, each 2*s.* 6*d.* to 3*s.* 6*d.*

INDIAN AZALEAS.

	Each—*s.* *d.* *s.* *d.*		Each—*s.* *d.* *s.* *d.*
Admiration (Ivery)	2 6 to 21 0	Empress Eugenie...	3 6 to 21 0
Criterion (Ivery)...	2 6 to 21 0	Magnificens, the best white	2 6
Gem (Ivery)	...21 0 to 42 0	Magnificens, small specimens in 24s or 8-in. pots	21 0
Eulalie (Van Geert)	3 6 to 21 0		
Striata formosissima	2 6 to 7 6		

Fine plants of the best older kinds 12*s.*, 24*s.*, 30*s.*, and 42*s.* per doz.

A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

CHOICE PLANTS, &c.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants in large and small 48-sized pots, at 12*s.* and 15*s.* per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, igneescens, Lateritia grandiflora, Conqueror, Emily, decora, Rosea punctata, carminata.

CAMELLIAS, in choice new kinds, without bud, 21*s.* per dozen.

EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per doz.; smaller do., 9*s.*

ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen.

GREENHOUSE PLANTS, in 50 select kinds, for 50*s.*

PERPETUAL FLOWERING OR TREE CARNATIONS BLOOMING SUMMER AND WINTER.—A very choice and select collection of the above beautiful class in good good healthy plants at 12*s.* and 18*s.* per dozen.

FERNS.—A fine collection of rare Exotic species, 18*s.* to 24*s.* per dozen.

ROSES, Standard and Half Standard, of the best Hybrid Perpetuals, 18*s.* per dozen.

ROSES.—A fine collection of the choice varieties of Hybrid Perpetuals, well established in pots, fit for forcing, 18*s.* per doz.

DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, 18*s.* per dozen. This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue

STATICE MARITIMA ROSEA, AND PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.

GYNERIUM ARGENTEUM, THE NEW PAMPAS GRASS.—Strong plants, 2*s.* 6*d.* each.

CINERARIAS.—A choice collection of all the best kinds, 9*s.* per [dozen.

PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen, including that fine new Phlox Countess of Home.

PANSIES.—A fine collection of all the new and first-rate flowers, 9*s.* per dozen.

DEUTZIA GRACILIS.—Fine strong plants for forcing, 9*s.* per [dozen.

LILY OF THE VALLEY.—Strong for forcing, 5*s.* per 100.

PÆONIES.—A choice collection of 20 new varieties for 20*s.*

ROCKETS.—Double crimson (strong), 9*s.* per dozen; the old double pure white do., 3*s.* per dozen.

HERBACEOUS PLANTS.—A very extensive and select collection of the handsomest kinds, including those adapted for rock work, 6*s.* per dozen; 30*s.* per 100.

CHOICE FRUIT TREES (WARRANTED TRUE TO NAME).

APPLES, Standard, in best selection, good heads			... 12*s.*	per doz.
" Dwarf	"	"	... 6*s.*	"
" Trained	"	"	... 30*s.*	"
PEARS, Standard	"	"	... 12*s.*	"
" Dwarf	"	"	... 8*s.*	"
" Trained	"	"	... 30*s.*	"
PLUMS, Dwarf	"	"	... 9*s.*	"
" Trained	"	"	... 36*s.*	"
PEACHES, Dwarf-trained, in fine strong trees,			36*s.* to 60*s.*	"
NECTARINES "	"		36*s.* to 60*s.*	"
APRICOTS "	"		36*s.* to 60*s.*	"
CHERRIES, Standard, in fine variety		...	... 12*s.*	"
" Dwarf	"	...	... 9*s.*	"
" Trained	"	...	36*s.* to 42*s.*	"

GOOSEBERRIES, 50 of the finest varieties by name, good bushes, selected for size and flavour, 30*s.* p,100; 4*s.* "

CURRANTS.—Improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4*s.* per dozen; Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6*s.* per dozen. These are the most desirable kinds in cultivation, and are highly recommended.

RASPBERRY FASTOLFF (TRUE), strong well-rooted canes, 10*s.* per 100; Large White Raspberry, 18*s.* per 100; New Monthly Fruiting, 18*s.* per 100; Belle de Fontenay, 16*s.* per doz.

STRAWBERRY SIR HARRY (TRUE), strong plants, 6*s.* "
" ADMIRAL DUNDAS, do., 20*s*, per 100, 3*s.* "

ASPARAGUS, Giant, 2 years	2*s.* 6*d.*	per 100	
" " 3 years	3 6	"	
" " extra strong, for forcing	5 0	"	
RHUBARB, Myatt's Victoria	8 0	per dozen	
" " Linnæus	8 0	"	
" Mitchell's Royal Albert	8 0	"	
" Hawke's Champagne, new and fine, 2*s.* each	18 0	"	
SEAKALE, strong	7 0	per 100	

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

It is respectfully solicited that all Post-office Orders be made payable to YOUELL & Co., Yarmouth, Norfolk.

Royal Nursery, Great Yarmouth, Norfolk.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	*d.*
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

CONIFERÆ.

WM. WOOD AND SON are offering the undermentioned on very moderate terms. Prices will be given on application.

Abies cærulea, 2 to 3 feet
Araucaria imbricata, 1 foot and upwards
Cedrus Deodara, 1 to 1½ ft. & do.
" " robusta, 1 to 1½ ft. do.
" " viridis, 1 foot
Cryptomeria japonica, 1 to 1½ ft.
Cupressus erisoides, 1 to 1½ feet
" funebris, the Funereal Cypress, 3 ft., very bushy
Also 4 and 5 ft. perfect spec.
Cupressus Goveniana, 1 to 1½ ft. also 3, 4, & 5 ft., large spec.
Cupressus Lambertiana, 1 & 2 ft.
" macrocarpa, 1 and 2 feet and 3, 4, & 5 ft., splendid spec.
Juniperus glauca, 1 foot, fine
Pinus insignis, 2 to 2½ ft. very fine
Taxodium distichum pendulum, 3 feet
Irish Yews, 4 and 5 feet
Thuja japonica, 1 ft., very fine

The smaller plants quoted above are in pots; the large specimens are in the open ground and will move with balls of earth. Parties requiring quantities will be liberally dealt with.

Extra fine Dwarf-trained Peaches, magnificent Trees.

PHLOXES.—A very superb collection including the best new kinds from 6*s.* to 18*s.* per doz. Catalogues free on application.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5. 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyrœas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—

ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—Celebrated and invaluable for its earliness, coming into use early in February; a full sized handsome head, of excellent quality but a shy seeder, price 1*s.* 6*d.* per packet. Highly favourable testimonials, too numerous for insertion, from gardeners in various counties. New Seed can be had in sealed packets from the following Agents in London:—HURST & M'MULLEN, Leadenhall Street; MINIER, NASH, & Co., 60, Strand; CHARLWOOD & CUMMING, Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON & Co., Truro, Cornwall.

NURSERIES, COVENTRY.

J. OGDEN having decided to give up that portion of land known as the Park Nursery, offers the Stock left from the Sale at the lowest prices, consisting of large English Elms (grafted), English and Norway Oaks, Italian Poplars, Horse Chestnuts, Spruce Firs, Sycamores, &c., Standard and Dwarf Cherries, trained and untrained (fine), Quinces, Walnuts, Asparagus Plants, &c. As the ground must be cleared without delay, he is ready to receive an offer for the whole or any part of the same.—Jan. 24.

CHARLES NOBLE, having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he is in a position to execute any orders with which he may be favoured, and respectfully requests that all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.—Jan. 24.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Jan. 24.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5*s.* each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. H. Low & Co., Clapton
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso

Dulwich, Surrey.

ROSES AND MANETTI STOCKS.

JOHN HARRISON, NURSERYMAN, Darlington, has still on hand a large and healthy stock of the above; also the true Fillbasket Raspberry, Victoria and Houghton Castle Currants, Lancashire and other choice Gooseberries, Victoria and other Rhubarb, Seedling Forest Trees, Fruit Trees, Shrubs, &c. See Advertisement in the Rural Almanack, Glenny's Companion to the Almanack, the National do. Prices on application.

Foreign Orders liberally and faithfully executed.

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Manetti Stocks, 50*s.* per 1000.
Hardy Heaths, in variety, 25*s.* per 100.
Menzieas polifolia and alba, 30*s.* per 100.
Standard and half standard Roses, by name, 4*l.* per 100.
Dwarf do. do. do. 50*s.* per 100.
Blush China Roses, strong, 15*s.* per 100.
Double Yellow Primroses, 20*s.* per 100; or 8*l.* for 400.

A remittance or reference expected from unknown correspondents

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s.* 0*d.* | LORD PALMERSTON 5*s.* 0*d.*

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

SEED PURCHASERS.

W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order W. S. & Co.'s COMPLETE COLLECTION FOR ONE YEAR'S SUPPLY for 10*s.*, 20*s.*, 30*s.*, and 40*s.* each, or double of 40*s.* for 70*s.* Complete Seed Lists on receipt of 1*d.* stamp. Compare prices, quality warranted, and you will order a yearly supply of W. S. & Co.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S COLLECTIONS OF GARDEN SEEDS,

THE BEST YET OFFERED.

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The Gardeners' Chronicle.

SATURDAY, JANUARY 24, 1857.

IN our clever contemporary the *Scottish Gardener* an attempt has recently been made to support Mr. KNIGHT'S theory about the WEARING OUT OF RACES; that is to say, of the varieties of cultivated plants. This question is not merely one of interest, but of the highest Horticultural importance. It is by no means a topic to be discussed in the study or by the fireside, but one for which the orchard, the kitchen garden, and the farm must be taken as the debating ground. If varieties do really wear out or degenerate, the renewal of health and vigour must be secured by the continual production of new races, and cannot be secured by any other means. Moreover, it will be useless to plant old varieties even if in health, because in the course of a few years degeneracy will come on as an inevitable result of their original constitution; so that by the time they arrive at their prime by force of age they will also sink into decay by force of inherent debility. If this were really so it would render half the stock of our nurserymen valueless, and lead to a belief that only fresh seedling varieties are worth planting. As to orchards, their prospective value to a new tenant could no longer be settled by the judgment of two experienced men and a referee; but would have to be determined by the actuary of a life insurance.

Such being the case, the question raised anew in the *Scottish Gardener* must be admitted to be inferior to none in the whole circle of Husbandry, and we, therefore, propose to consider it in greater detail than our limited space will usually permit. To this we are the more disposed because the evidence now adduced in favour of degeneracy evidently proceeds from a person of great ability as well as much experience, and possesses a weight which we have never been able to attach to the consecutive arguments of any writer since the days of Mr. KNIGHT. Before, however, we can render the arguments before us intelligible to our readers it is indispensable that we should state what the

opinions are that he controverts. We are, therefore, obliged to quote at length the passages in Prof. LINDLEY's *Theory and Practice of Horticulture*, p. 471, which have caused the discussion to be revived:—

"It has been often asserted," says this author, "that propagation by seed is the only natural process of multiplication, and that by propagation by division the races of plants wear out; that when a tree or other perennial plant becomes unhealthy from old age, the offspring previously obtained from it by cuttings in all parts of the world becomes unhealthy too. Is such a doctrine a reasonable inference from known facts? or is it forced upon us by evidence although not deducible from mere reason? This is an important question, to a laboured advocacy of which pamphlets and newspapers have been abundantly brought into requisition. The subject has been already adverted to in these pages; it is now necessary to examine it more carefully.

The species of plants, like those of animals, appear to be eternal, so far as anything mundane can deserve that name. There is not the smallest reason to suppose that the Olive of our days is different from that of NOAH; the *Asa dulcis* stamped upon the coins of Cyrene still flourishes around the site of that ancient city; and the acorns figured among the sculptures of NIMROUD seem to show that the same Oak now grows on the mountains of Kurdistan as was known there in the days of SARDANAPALUS. There is not the slightest evidence to show that any species of plant has become extinct during the present order of things. All species have continued to propagate themselves by seeds, without losing their specific peculiarities; some appointed law has rendered them and their several natures eternal.

It would seem moreover that, with the exception of annuals and others of limited existence, the lives of the individual plants born from such seed would be eternal also, if it were not for the many accidents to which they are exposed, and which eventually destroy them. Trees and other plants of a perennial nature are renovated annually—annually receding from the point which was originally formed, and which in the nature of things must perish in time. The condition of their existence is a perpetual renewal of youth. In the proper sense of the word decrepitude cannot overtake them. The Acorus creeps along the mud, ever advancing from the starting point, renews itself as it advances, and leaves its original stem to die as its new shoots gain vigour; in the course of centuries a single Acorus might creep around the world itself, if it could only find mud in which to root. The Oak annually forms new, living matter over that which was previously formed, the seat of life incessantly retreating from the seat of death. When such a tree decays no injury is felt, because the centre which perishes is made good at the circumference, over which new life is perennially distributed. But inevitable accidents interfere, and trees are prevented from being immortal.

Species, then, are eternal; and so would be the individuals sprung from their seeds; if it were not for accidental circumstances.

No reasonable person now pretends that the species of plants disappear. It is alleged, on the contrary, that seeds renew the languid vigour of a species as often as they are sown; and that if an unhealthy plant is multiplied from seeds the immediate offspring becomes healthy. It is also said that multiplication by seed is the only natural mode of propagation known among plants, and that all other kinds of increase are artificial, and lead to debility.

It would, we think, be difficult to find an hypothesis more entirely at variance with notorious facts. That propagation by seed is *a* natural method of multiplication is doubtless true; but to say that no other natural means exist is absurd. The Sugar-cane is rarely propagated by seeds; its natural mode of propagation is by the stem, which when blown down by the storm emits roots at every joint. Of this natural property man has availed himself as a means of artificially extending the plant. The Tiger Lily naturally propagates itself by bulbs, formed in the bosom of its leaves; we never saw it form a seed. The Strawberry has been more propagated by its runners than by its seeds; and where do we find any signs of debility there? The Jerusalem Artichoke was introduced before the year 1617; for nearly two centuries and a half it has increased itself entirely by tubers, and never by seed. Couch Grass increases chiefly by its creeping roots; we wish we could adduce this, at least, as one instance of failing vigour in a plant whose seeds are but little yielded. It therefore is not true that plants, multiplied much or wholly by other means than seeds, become on that account unhealthy. Every gardener knows that his Achimenes are principally multiplied by little scaly bodies resembling tubers, and that these are formed in such abundance as to render seed unnecessary. In short, the denial of this could only arise from an entire unacquaintance with common facts. Such examples sufficiently show that Nature does provide other means of propagating plants than seeds, and that tubers are one of those means. The Hyacinth and the Garlic propagate naturally, not only by seeds, but also by the perpetual separation of their own limbs, known under the name of bulbs, their bulbs undergoing a similar natural process of dismemberment; and so on for ever. The Potato plant belongs to a similar class. Another plant bends its branches to the ground; the branches put forth roots, and, as soon as these roots are established, the connection between parent and offspring is broken, and a new plant springs into independent existence. Man turns this property to account by artificial processes of multiplication; one tree he propagates by layers, another by cuttings planted in the ground. Going a step further he inserts a cutting of one individual upon the stem of some other individual of the same species, under the name of a bud or a scion, and thus obtains a vegetable twin.

It is not contended, for there is nothing to show, that these artificial productions are more short-lived than either parent, provided the constitution of the two individuals is in perfect accordance. There is not the smallest evidence—it has not been even conjectured—that if a seedling Apple-tree is cut into two parts, and these parts are reunited by grafting, the duration of the tree will be shorter than it would have been in the absence of the operation. No one indeed alleges that the Garlic of Ascalon has only a short life, although it has been propagated by subdivision from the time when it bore the name of Shummin, and fed the labourers at the Pyramids: nor do we know that the bulb-bearing Lily is supposed to have less inherent vigour than if it were multiplied by seeds instead of bulbs.

Some maintain that vegetable, like animal life, has its fixed periods of duration, and that there is a time beyond which the debility incident to old age cannot be warded off; and this is true, so far as individuals are concerned. But it is to confound individuals with races to infer from this that all the cultivated races of plants require to be incessantly renewed by seed, in the absence of which precaution they gradually become unhealthy, and unfit for cultivation. It is thought that although the wild Potato possesses indefinite vitality, yet that the varieties of it which are brought into cultivation pass their lives circumscribed within very narrow limits; and the same doctrine has been held concerning fruit trees.

The first person who proposed this theory was the late THOMAS ANDREW KNIGHT, who, in the latter part of the last century, finding that the orchards of Herefordshire no longer contained healthy trees of certain varieties of Apples, which were said to have flourished fifty years before, and failing in his attempt to restore health to such varieties by grafting, assumed that old age had overtaken them, and that they were incurable. Thence he extended the theory to all other plants; and here and there writers on vegetable physiology, rather out of respect to Mr. KNIGHT's great name than from any correct examination of the facts for themselves, have blindly adopted his views. But reason and evidence are alike opposed to the conclusion, which seems to have sprung out of a mistaken application of the laws of animal life to that of vegetables, and a desire to push analogy beyond its proper limits.

All who understand the nature of plants, and the manner in which they grow, and have witnessed that incessant renewal of their vitality with which Providence has so wonderfully endowed them, would hesitate to adopt KNIGHT's views except in the presence of facts capable of no other possible interpretation. No physiologist can separate the nature of what gardeners call varieties (of course mules are not here included), from that of a wild race. In their intrinsic qualities they are the same. It can make no difference in the nature of a plant whether it is sown by a gardener or by winds, birds, animals, or other agents. The Oak which springs up in a forest is not in the smallest physiological particular different from that which rises from the bed of a nurseryman. The Cabbages which load the waggons of a market gardener are in their essence the same as those which sprout forth from the sea-beaten cliffs of the ocean. They may be greener or redder, more succulent and larger; but they are physiologically the same. We therefore must dismiss from our argument the word variety, which only leads to a confusion of ideas.

Among plants, as among animals, there are ephemeral and perennial species. The butterfly perishes in a few hours; nothing can defer the arrival of that early death which is the portion of such beings. Man, on the contrary, is endowed with a longevity the limit of which is hardly definable. In plants we have annuals, biennials, and perennials, to the last of which belong all trees and bushes. Now, wild perennial plants, whether woody or herbaceous, whether forming a trunk or a mere permanent root, have never yet been shown by any trustworthy evidence to be subject to decrepitude, arising from old age. On the contrary, every new and annual growth is, as has just been stated, an absolute renewal of their vitality, in the absence of disturbing causes. Hence the enormous age at which trees arrive. A thousand years is still youth to a forest tree which no accident has injured; and there is no intelligible reason why it should not, if guarded from violence, continue to grow to eternity. Travellers believe that they have found, in the forests of Brazil, trees that were seedlings in the age of HOMER. There seems to be no doubt that the Wellingtonias, now growing in California, were born in the days when MAHOMET was in full career.

It is true that plants do in reality perish commonly without attaining any such longevity; and that constitutional feebleness is notoriously one of the accompaniments of advancing age. But this arises from external, not intrinsic causes. The soil which surrounds them is exhausted, their roots wander into uncongenial land, water in unnatural excess is introduced, the food they require is withheld, violence rends them, men mutilate them, severe cold disorganizes them, and these and other causes produce *disease*, which may end in death. But this is very different from dying of mere old age; and for practical purposes it is material to draw the distinction.

If no evidence exist to show that wild plants suffer from mere old age, we cannot admit such a property to be incident to those which are cultivated."

We must apologise for the length of this extract, which ought, indeed, to be longer; but as it constitutes the basis of nearly the whole argument of our northern friend, we should, in its absence, have been unable to place the question at issue satisfactorily before our readers. Having thus enabled them to understand what is the subject of debate, the opposite views of the *Scottish Gardener* shall be discussed in our next number.

WE understand that a gardening periodical has reprinted for the benefit of its readers the article on POLMAISE HEATING, by the late Mr. MEEKE, which appeared in the Journal of the Horticultural Society. We therefore think it right to warn the public that the article in question was written before its lamented author had fully mastered the subject, and that the most important of the conditions which must be observed in this kind of heating was at that time unknown to him.

CULTURE OF TOMATOES.

ABOUT the end of the month of last February I sowed some seeds of these in a pot, which was then placed in the frame of a hot bed. When two or three leaves had become developed, I transferred the plants singly into separate pots, and deposited them in a greenhouse. On the 17th of May, by which time the whole had become fine strong plants full of flower-buds, I took three of these out of the pots without disturbing the roots further than shortening the taps, and sunk them in a border of my garden against a close paling facing the south, at a distance of about 3 yards from each other. They were then well watered with weak liquid manure made from fresh cowdung that was allowed to remain a month or two in a large cask before being used. To this a small quantity of Peruvian guano was added, together with home manufactured pure bi-phosphate of lime from bone-dust—I mean clear liquid manure a day or two after it is made, when the thick matter has fallen to the bottom.

The good effects of this, mixed as above stated, upon every kind of vegetable as well as on florists' flowers, are probably not generally known to gardeners. When used, it must be very largely diluted, or it will kill the plants, instead of acting beneficially. It may be said, that if water be added to the dried superphosphate that is sold in the manure market, and the liquid be drawn off after it has been allowed to settle, the same solution may be obtained. I grant it may, but not to the same extent, nor so pure, containing as it does so large a per centage of nearly insoluble matter. Besides, the bought article cannot always be depended upon, for, as has been frequently adverted to in your Paper, and proved by the analyses of Professor Way, Dr. Anderson, and others, not one half of what is offered for sale contains a particle of bi-phosphate. The plan I should recommend those to adopt for gardening purposes who cannot prepare the article themselves, is to get from a respectable manufacturer the liquid separate in jars, and the residue sulphate of

lime in an evaporated state, without any admixture whatever, which I have found to be a valuable application, incorporated with dung, to Peas, Beans, Potatoes, Celery, all the Brassica tribe, &c., as well as if diffused alone in promoting the appearance naturally of white Clover on Grass plots, and greatly improving the colour of the sward.

Being shaded for a short period the plants did not droop in the slightest degree, and as they were again watered several times at intervals afterwards with the same composition always very much diluted, they not only grew most vigorously, but displayed a vast profusion of blossom. In order to prevent the stems from bending over these were closely secured to the paling, as they increased in length, with tarred line, such as is used for thatching, nailed across them, all superfluous and crowding shoots being cut away as they appeared, for the purpose of admitting air and sun to the branches intended to mature fruit. Each plant was trained in the shape of a fan, and in the course of time showed an immense quantity of fruit. As it was impossible that above a tithe of it could come to perfection, I thinned out the smallest from the bunches and removed the extremities of the shoots when they had reached the top of the paling, 6 feet high, in order to throw strength into the fruit. The effect produced, first from the numerous flowers, and then from the hanging red Apples, was exceedingly beautiful.

Upon gathering, the following quantity was obtained —from one plant 73, another 65, and the third 68, in all 206. The largest measured full 9 inches in circumference, the smallest about 6¼ inches, and the weight of the whole amounted to 42 lbs. 9 oz., a pretty fair return, I think, from three plants. The crop however did not all ripen at one time, some of it having been gathered in September and October, and the remainder early in November, before any was damaged by frost. I attribute the astonishing vigour and fecundity of these plants in a great measure to the application of the guano and soluble phosphate, because of two others that I grew also against the paling by way of experiment, one was watered in the same manner and at the same periods with merely liquid cow manure, and the other with water alone. The former certainly grew as tall, but had not nearly as much fruit upon it as any of the three others, and that was mostly of inferior size. The other plant did not reach the top of the paling, and ripened but few of its Apples.

The exposure also has, no doubt, had a good deal to do with the ripening, for several plants from the same lot that were placed in a less favourable situation of the garden produced hardly any but small green fruit when overtaken by the frost. These half ripe Tomatoes I have found to be excellent for pickling. Notwithstanding however their being in that condition when gathered, a good many of them that were arranged on a shelf in a dry room after a time ripened perfectly. A neighbour to whom I gave two plants had not a single Apple upon them, although they grew luxuriantly, the blossoms having dropped off after they expanded. To account for the circumstance puzzles me completely. Perhaps it arose from my garden being thoroughly drained throughout and his not. Mine has 4 feet pipe drains at 30 feet apart, which I find to answer capitally. The subsoil in some parts is good sound yellow clay. The surface is a good loam to the depth of from 12 to 18 inches, otherwise the soil in both is very similar. *An Amateur Gardener, South Wales.*

VEGETABLE PATHOLOGY.—No. CXLIX.

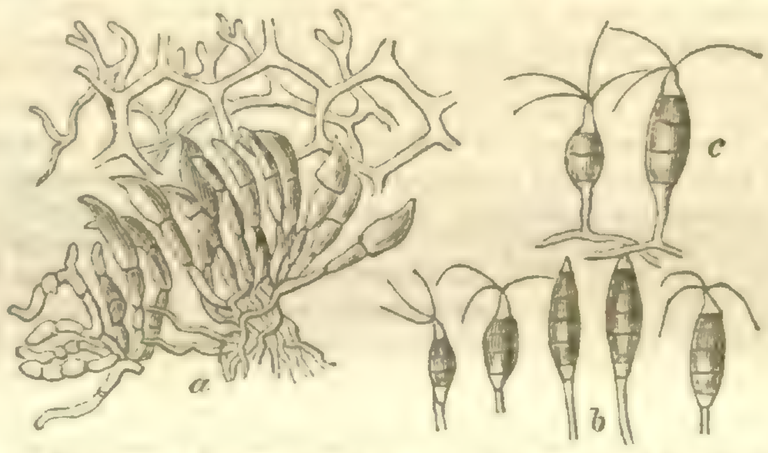
613. PARASITÆ (*Glœosporium, Septoria, Phyllosticta, Pestalozzia, Vermicularia**). These genera may be quoted as examples of the remaining fungi of the natural order to which the rusts and other allied pests belong, as destructive to plants, and truly parasitic. Some of them have proved formidable evils to the cultivator; while others, though injurious in a lesser degree, are so unimportant as not to attract his notice. It is true that many of the genera are not what botanists call autonomous, that is complete and independent in themselves, but on the contrary are mere conditions of species which in their perfect form assume very different characters; but this is a point which affects the botanist or systematist only and has nothing to do with the question whether they are such noxious plants as the cultivator must if possible guard against.

614. *Glœosporium concentricum* (Cylindrospora concentrica, *Greville*) than which few plants have been less understood, is sometimes the plague of Cauliflower growers in spring. I have seen large beds wearing the most unhealthy aspect and materially injured in produce, by myriads of these parasites attacking every leaf. The structure is most simple. There is merely a very obscure mycelium studded with almost obsolete sporophores, each of which bears a little sub-cylindrical spore. The spores are so numerous that when the cuticle with which they are covered contracts on the mass from deficiency of moisture in the leaf, or from any other cause, the spores ooze out in the form of a gelatinous globule or irregular thread. *Glœosporium fructigenum*, Berk., in *Gardeners' Chronicle*, 1856, p. 245, forms brown spots on Apples, which it soon reduces to decay by means of its abundant mycelium. There are many other species differing slightly in the form of the spores, but agreeing in general character.

615. *Septoria* is a genus which abounds in species, the greater part of which are probably a mere secondary form of other fungi. Some of them however are very destructive. Amongst them is one which affects Peas in damp weather, attacking the pods before they come to perfection, and preventing the development of the seeds, but sometimes invading the flowers themselves as soon as they are expanded. This is particularly destructive in Scotland, but I have seen whole crops materially injured by it in England. Another infests the knots of Wheat stalks just as the seed is swelling. In a short time the knot perishes and as no more nutriment can be conveyed to the plant, the produce is thin and shrivelled, like that of Wheat affected by mildew. Another affects Grapes after they are perfectly formed, just before they ripen, and causes speedy putrescence. In these fungi there is an obscure perithecium. The spores are for the most part cylindrical, and in the more typical species repeatedly septate. *Septoria rufo-maculans*, Berk. in *Gard. Chron.*, 1854, p. 676, for instance, the species which attacks Grapes, agrees with the *Glœosporium* of the Apple just mentioned, not only in its effects, but in its sub-cylindrical spores, but in this case there is a perithecium, while in the other the spores were simply covered by the discoloured cuticle.

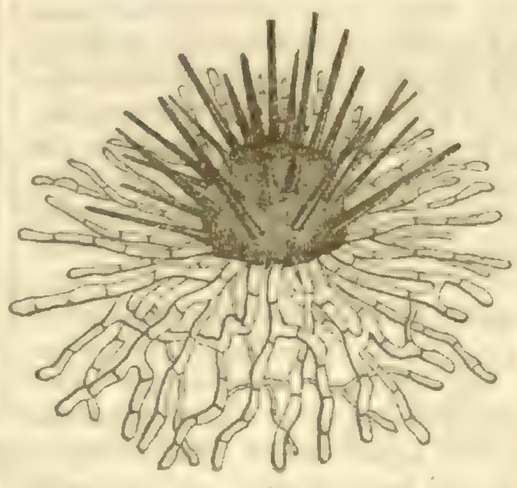
616. *Phyllosticta* forms brown specks upon the leaves of a variety of plants, and has large uniseptate spores, mostly of an irregular form, as in our figure of *Phyllosticta Fragariæ*. Most of the species are innocent enough, or if destructive they are confined to weeds, whose maladies attract no notice. But the Strawberry Phyllosticta is sometimes most injurious, as in cases noticed in the *Gardeners' Chronicle*, 1856, p. 616, the coarse mycelium soon converting the tissues into a putrescent mass.

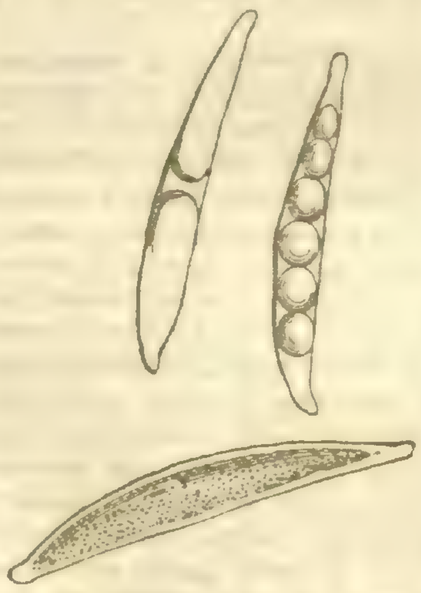
617. *Pestalozzia* is remarkable for the great beauty of its spores, which are surmounted by a delicate crest.



a. Phyllosticta Fragariæ. A portion of the plant showing the sporophores and spores, with a mass of mycelium above running in amongst the cellular tissue. *b. Pestallozzia Guepini*, Desm. *c. Funerea*, var. *heterospora*, Desm. All more or less magnified.

The species appear to belong principally to warm climates. I have several from the warmer United States, and a very fine form from the heart of India near Secunderabad. A short time since however the Camellias and Coniferæ in one of our leading nurseries were suffering from one of the species, a circumstance which surprised me as I had seen no native specimens before. I asked in consequence whether the Camellias were not imported, and this proved to be the case, and from the importation with them of this little parasite a loss of some hundreds of pounds was soon sustained. It is difficult therefore to say that any of these obscure particles may not eventually prove a serious scourge.





Vermicularia circinaus, single perithecium magnified and spores.

618. *Vermicularia* might seem at first sight not to be a true parasite; I have seen it however so destructive to a bed of White Nocera Onions, while yet in a growing state, that it certainly requires notice here. There is some reason to believe that the peculiar species which affects this Onion was imported with the seed, as it was confined to one variety and occurred in more than one locality on plants raised from the same packet of seed,† a circumstance which is not without its parallel in the annals of horticulture.

619. The main question is how are such evils to be remedied. Unfortunately no favourable answer to this question can at present be given. The evil is in general not discovered till it is too late to apply a remedy, even were one known. The outward influences however which favour their growth are at present in great measure unknown, and since they attack plants no less in uncultivated spots than in the artificial soil of our gardens, we cannot ascribe their presence entirely to high manuring or to other conditions attendant on cultivation. *M. J. B.*

* Glœosporium from γλοιος a slimy mass, and σπορος seed; Septoria from *septum* a partition; Phyllosticta from φυλλον a leaf, and στικτος spotted; Pestalozzia was named by De Notaris in honour of Pestalozza, an Italian physician; Vermicularia from *vermis* a worm.

† See *Gard. Chron.*, 1851, p. 646, compared with p. 595.

INSECTS WHICH ATTACK THE PEAR TREE.

THE stronger the constitution of a variety of Pear, the less will the tree suffer from the attacks of insects. When a variety of this kind appears to suffer from such attacks, the cause of the appearance of insects must be attributed either to an improper stock, unfavourable soil, or a bad system of pruning and management. The ill health of the tree in consequence of these causes attracts the insects, and in it they take up their abode, making it their prey.

One must have lived in the midst of large collections of Pear trees for several years, and must have observed the trees in different situations of soil and aspects, to have an idea of the multitude of insects of all kinds which are bent upon the destruction of the tree and its fruits. On examining the most healthy and vigorous trees after the fall of the leaf, various nests of insects and larvæ will be found; they may be observed on the stem, on the branches, and in the axils of the shoots. They will likewise be found round the fruit buds. By rubbing the stem with a sponge dipped in soap-suds, the insects glued to the bark may be destroyed; and by means of the pruning-knife many of those situated elsewhere may be removed. A fortnight afterwards, on visiting the tree in the morning after fog, one is surprised to see the number of spiders' webs between the branches. On closer examination, a thin diminutive spider will be observed. Whence has it come, and what does it do there? Destroy the insect, and next day you will find another; but one only on each tree. This spider remains there till February, when it disappears, and is replaced by a sort of acarus with a striped back. This insect skips from place to place, and disappears in its turn about the end of March, and is replaced by another acarus which forms a nest in the axil of a branch, and there it sticks. In the end of April, from this nest, comes a legion of small black caterpillars, which disperse over the tree. These are the first which attack the young leaves, the latter being also attacked about the same time by the Vine weevil (Rhynchites Betuleti? or R. Bacchus?), which rolls up the leaves and prepares a place for its eggs. At the time of, or even before the opening of the flowers, these insects must be sought for and destroyed; and it is advisable to renew the search for them after the fruit is set, thinning out a portion of the latter in order to isolate the fruits more completely, for if these were too close together, the insect, passing from one fruit to the other, would destroy the whole. The isolated fruit being in free contact with the air, hardens, and is thus preserved from the attacks of insects. The more vigorous and hardy the tree, the sooner will its fruit be safe. About this critical period, and until the end of June, care should be taken not to pinch any of the summer laterals, especially in a cold spring like that of 1856. Premature shortening or pinching of the summer shoots weakens the tree, and weakness favours the attacks of insects. Instead of early pinching, the end of the first flow of sap is waited for, and till fine weather is fairly set in, before the operation of breaking the ends of the shoots is commenced. At the same time the summer pruning of all useless shoots is proceeded with. These operations may be performed simultaneously without throwing the tree into bad health, or causing it to become abortive.

These operations having been completed, and the fruit securely set, no further danger from the attacks of insects need be apprehended. Towards the end of August, however, the sublaterals may be again broken to cause a reflux of sap into the branches to strengthen them, with the view of obtaining future organs of fructification, or, in other words, to dispose them to form fruit spurs.

In the last few years, leaves affected with rust have been observed. What is the cause of it? It is not known. Care however should be taken to pinch off all leaves so affected. At the same time the caterpillars and eggs of other insects should be destroyed. From this period to the gathering of the fruit, a healthy and vigorous Pear tree requires no attention.

When a Pear tree which is kept clean in summer is, notwithstanding, attacked every spring by various insects, the question may be asked, whence do they come? As there is no effect without a cause, it must be sought for in eggs deposited either in a Thorn hedge or in the crevices of a wall surrounding the plantation, as the case may be. Some come from large trees planted in the vicinity of the orchard, and others out of the ground, where certain insects remain at a great depth during winter. The mole-cricket and slug can only be destroyed when on their travels.

In an exclusively practical article, it has not entered into our plan to treat the question in its relation to entomology, a science which merits the special attention of the cultivators of fruit trees. *J. de Jonghe, Brussels.*

Home Correspondence.

Old and New Roses.—I observe that the controversy respecting the relative qualities of old and new Roses still rages, and although inclined to admit that out of some hundred known varieties there are few even new Roses of the present day that are superior in shape,

size, and regularity of petal to such Roses as Baron Prevost, La Reine (when fine), Souvenir de la Malmaison, and others mentioned by your correspondent, yet I have not the slightest hesitation in saying that the Roses of the last two seasons are, as a whole, infinitely superior to the Roses of 12 or 15 years ago when La Reine, Baronne Prevost, William Jesse, Coupe d'Hébé, were reigning dominant; my reasons for saying so I will state briefly. The finest Roses of 12 years ago of the type of La Reine, Baronne Prevost, &c., are very fine as regards size and fulness of petal, but are now beaten in both of these qualities by such as Madame Masson, Madame Vidot, Prince Leon, Lord Raglan, Paul Ricaut, and many others; in addition to which there were no varieties 12 years ago with anything like the beautiful deep crimson or crimson purple colours of Madame Masson or Lord Raglan, and a variety of others, or like the perfection of shape of Madame Vidot, Madame Domage, to say nothing of the extraordinary delicacy of colour of the former, unlike and more beautiful than any Rose, a cotemporary of La Reine or Souvenir de la Malmaison. I am somewhat surprised that your correspondent of some weeks ago should set up the two above-named Roses as models; true, they may be considered so as regards size when perfect, but unfortunately they are the most uncertain Roses known, as by reason of their being so very double they are injuriously affected by either too much heat and drought or too great moisture. To conclude, I would beg to say that I am not touting for the nurserymen, some of whom, I am sorry to say, frequently charge an extravagant sum for new Roses that have not been sufficiently tried and that are ultimately found to be deficient in some good quality or another, and but second-rate after all; but to settle this much vexed question I have no hesitation in saying that the Hybrid Perpetual Roses of 10 or 12 years ago are not for one moment to be compared in respect to form, regularity of petal, size, or colour, with that section of Roses of the last two seasons. The following is a list of some of the finest Roses now in cultivation, whether in borders or for pot purposes: Paul Ricaut, Hybrid China, a most lovely Rose for size, shape, colour, very lasting, and beautiful in a pot for exhibition. Madame Masson, H. P.: an immense Rose with most regular petals, larger and more finely formed than La Reine, but of the most splendid crimson lilac colour. Madame Vidot, H.P.: same as Madame M. as regards size, petals, &c., if anything more finely formed, the most delicate light pinkish blush; an exquisite Rose. Madame Domage, H.P.: very large in size, fine large bold petals, not too numerous; fine pink in colour; a good show Rose, lasting in bloom. Lord Raglan, H.P.: large petals, bold, and brilliant cherry crimson; fine Rose. Prince Leon, H.P.: a most magnificent Rose, somewhat after the style of Madame Masson and Lord Raglan. General Jacqueminot, H.P.: brilliant crimson, intense colour; rather flimsy, however, but colour wonderful. General Castellane, H.P.: somewhat after Lord Raglan type, very fine and perfect in all respects. Paul's Victoria, H.P.: light pink colour, very perfect in shape, well cupped, and globular. Auguste Mie, H.P.: light pink. Caroline de Sansal, H.P.: light blush. William Jesse, H.P.: old, but always fine and perfect. Duchess of Sutherland, H.P.: the same; Blairi, No. 2, H. China: old, but exquisite in colour and shape. Gloire de Dijon, Tea Rose: colour, salmon yellow, most free bloomer, and most robust and strong grower, and suitable for almost any soil, and very hardy. Augusta, Noisette: similar in most respects to Gloire de Dijon. I rejoice to find that there is to be an exhibition of the Horticultural Society in June next, and look forward with interest to the prize schedule. *J. R. Scott, F. H. S., Hornsey.*

Hazard's System of Heating.—Your desire to afford "a fair field and no favour" to every system adopted for heating plant structures, &c., gives me hope that you will not think me intrusive in requesting you to allow me to reply to a letter you inserted in last week's *Chronicle* from Mr. Alexander Cramb, of Tortworth, Gloucestershire. When Mr. Cramb says that he candidly begs to say that he has no desire to disparage my invention, I would observe that I take this assertion for all it is worth, as doubtless will all your readers. Mr. Cramb purchased one of my stoves 10 years ago, and as he says not only erected but superintended its workings himself, or left it to the care of his gardener. He now tells you that he brought on his Grapes with equal success by means of a fire flue. To this I will make no reply further than to say that I had no idea that my invention ever would, or ever could, be brought into comparison with the fire-flue. I never thought of such a thing, and I cannot consent to argue upon such a proposition. Will Mr. Cramb oblige your readers with his ideas upon the relative merits of our present system of travelling in contradistinction to that pursued by our grandpapas? However Mr. Cramb goes on to give you a description of my apparatus, and for his trouble in that respect I can thank him with sincerity, and when he tells you that the apparatus continued to work "satisfactorily" for two years with the usage he confessedly subjected it to, I can renew my thanks with increased warmth, and express to him my gratitude for this singular and unexpected testimonial in its favour. What could be expected but that the apparatus must eventually become out of order with a gardener attending to it whose care led him to keep up a degree of heat enough to burn out Beelzebub himself, and which so startled the "stupified" stoker himself that he "pronounced the cold air drain to be on fire!" I can only express my astonishment under the circumstances that the apparatus lasted so long as it did; but I must in self-justification remark that had Mr. Cramb sought advice or help, had he been himself experienced or obtained an experienced servant to aid him, he would have found my apparatus answer for any number of years as other gentlemen have. A good watch may be spoiled by over winding, and my apparatus, I am free to state, may be damaged by ill use. I assert confidently that Mr. Cramb has given my invention anything but fair play, and now comes before the public to state his candid convictions hastily, with the wind evidently in the east as far as he is concerned, without considering that the more straightforward way would have been to have represented his difficulties to the inventor. However, give Mr. Cramb the advantage of his candour and permit me to say that with proper usage the cement he alludes to will not crumble, but even in that case I could have furnished him with a cement which would not do so under any circumstances. And then your correspondent is angry with a scorching sun in February, which, with the noxious gases, he says scorched up his plants. Who can wonder at a scorching February sun, noxious gases, and a temperature of 200° destroying his plants? Again I say, the wonder would have been if such combined influences had not perpetrated the destruction he asserts. Seriously, sir, a good thing in the hands of some people is turned to advantage, while, in the hands of others, it is worse than useless. Now regarding the fact that Mr. Cramb's intelligent gardener contrived to obtain too much vapour in his Vine-house, I have only to say that in this respect also he used badly or rather over-used a contrivance which, in judicious hands, answered every purpose for which it was intended; and if he had sought advice and assistance from me, instead of giving his candid impressions to the public, I should have been able to have informed him that the system he used, and abused, has been discarded by me for some years, and I should have had the pleasure of explaining to him an arrangement by which stokers, however "stupified," cannot commit the depredations for which Mr. Cramb seems disposed to fasten upon me the responsibility. By-the-bye, permit me to say in conclusion that I have always understood that gardeners found it difficult to get sufficient heat, and here I find your correspondent candidly condemning my system for giving him too much. *Robert Hazard.*

Double Convolvulus.—Will you inform me if there is such a thing as a double Convolvulus, and if so what it is like? In the catalogues of most of our leading seedsmen and nurserymen the seed is offered for sale, and charged at a high price; but although I have purchased and tried to obtain one therefrom frequently, I have never yet succeeded. Either the seed would not vegetate at all, or if it did, nothing but the most common single blue sort was produced. I have also applied to various nurserymen for a plant of it without success. Surely, in the event of such a variety really existing, they would find it worth their while to supply it, as they do Stocks, for I think it might answer well as a bedding plant. *A Subscriber.* [There is a double Calystegia pubescens from China.]

Packing Seeds in Glycerine.—Having noticed in your last Number that owing to the soft fleshy and oily nature of the albumen, Himalayan seeds arrive in this country in a decayed state, I beg to suggest that some should be brought over in bottles filled with concentrated and diluted glycerine. By this means all tendency to decay would be stopped, while the results of experiments communicated to me make it appear that the germinating power is not to say the least lessened. If you have the means and are disposed to have the experiment fairly tried, I shall have much pleasure in forwarding the glycerine. *Geo. F. Wilson, Price's Patent Candle Works, Vauxhall.*

How are Rose-buds destroyed?—I have noticed that in the spring in March and April those buds which have been inserted during the previous summer are often entirely picked out and destroyed, either by an insect or a bird. Can you tell me which it is? Suspecting a bird I have this year netted over all the dormant buds. The buds of the Briars themselves always seem to be left untouched. *X. Y. Z.*

Oldaker's St. Peter's Grape.—Observing in your last Number that you recommend Oldaker's St. Peter's Grape as a proper sort for a late house, might I beg of you to describe wherein that variety differs from West's St. Peter's, raised by a person of that name formerly gardener at Castle Ashby in Northamptonshire, where the original Vine is still growing, and where I have had an opportunity of examining it on one or two occasions. It seems to differ from those exhibited by Mr. Ingram at the last meeting of the Horticultural Society, inasmuch as the bunches are somewhat smaller and more compact in form, and generally without shoulders; in short, although smaller in the berry, having the appearance of a Chasselas or Muscadine in all save colour; whilst those exhibited from the Royal Gardens were very much shouldered, and of a much looser character than the Castle Ashby variety. The Oldaker's St. Peter's must, however, be well known in the neighbourhood of London; and if that variety is superior to the old or West's seedling, I would of course be glad to have it in preference to the other before planting another house. I may state that I have resorted to you for information in this matter after having waded through the pages of Loudon, M'Intosh, and the two editions of the Horticultural Society's Catalogue without gaining what I sought for; in short, the whole seems so much involved in mystery that I have risen from the perusal of these works completely puzzled. *S. N.* [The variety of Grape cultivated as Oldaker's St. Peter's, or Oldaker's West's St. Peter's, is well known in the neighbourhood of London. Two Vines of it were planted in 1818 at Spring Grove, by Mr. Oldaker, gardener to Sir Joseph Banks; and afterwards, whilst that place was the residence of H. Pownall, Esq., there was a whole house filled with the identical variety; we have the Vines there loaded with beautiful fruit, in excellent condition in February. The Grapes exhibited by Mr. Ingram at the last meeting of the Horticultural Society were doubtless the same excellent variety as the above mentioned, for although the bunches are often without shoulders, yet that depends greatly on cultivation. In Mr. Oldaker's own account of it, "Gardeners' Magazine," vol. i., p. 36, he states that—"The Vine grows freely, and is a great bearer; the bunches at first showing are small, and apparently weak, but gradually advance until they become long with large shoulders. The blossom sets freely, the berries are round and grow of an even size, and if well thinned they soon become large." With regard to Money's West's Black St. Peter's there has been much confusion, and it is doubtful whether there is any distinct sort in cultivation under that name. It was found to be the same as the Black Lombardy, or Raisin des Carmes, a sort not by any means so well adapted for long hanging as the preceding. Mr. Money, in the "Gardeners' Magazine," vol. v., p. 737, gives a different origin to it from that with which you have favoured us of a West's St. Peter's. He says—"The West's Black St. Peter's was raised from seed about the year 1775 by Mr. Daniel West in his own nursery ground, situated on the north side of the New Road, opposite Fitzroy Square, in the parish of St. Pancras. Mr. West had the highest opinion of this Grape as to all the qualities requisite to constitute a first-rate sort; but the demand for Grapes at that time being trifling this variety never became sufficiently known during Mr. West's life-time, and after his death Mr. Green, who got possession of his grounds, though sensible of the high merit of this Grape, suffered the Grape to ramble about in a state almost wild, and there being little demand, only a few plants were scattered about the neighbourhood. Mr. Green let the ground to a musical reed maker and his daughter, who was his head-gardener and paid very little attention to the Vine, let things fall into a state of neglect, so that in a few years the ground fell into the hands of a Mr. Lawrence, who destroyed the original plant, and planted a young one in a very poor greenhouse, which though very badly managed, produced exceedingly fine fruit." Mr. Money adds: "the plant grows freely in a proper Grape soil, and it will ripen against a south wall." It must, therefore, if in existence, be very different from Oldaker's late variety, that which we would advise you to plant for a late crop.]

Sawdust.—The interesting article upon the protective and non-conducting property of sawdust in your Paper of 10th inst., has induced me to communicate the following anecdote, the veracity of which may be depended on. While I resided in Wiltshire, near Frome Selwood, I had occasion to employ a sawyer for a time. He was a sensible man, of good feeling; and while conversing with him he told me that he had abundant reason to know the value of sawdust, as it had saved the life of himself and family. He reminded me of the very great price of bread in 1800—it having been 2*s.* per quartern loaf in Bath. "At that time, sir, I had been out of work for a month, and we had only one 6*d.* remaining. What could I do? To spend the 6*d.* for one quarter of a loaf was ruin. I said to my wife, 'We must starve.' All of a sudden it came across my mind that I had saved a few pounds of early Potatoes in the saw-pit for seed. I went to the store thinking that it might furnish a meal or two. On groping among the sawdust, I found that it had not only preserved the Potatoes, but by its warmth had caused them to sprout and produce many fine early Potatoes." He ran in, told his wife, set off to Bath market, and sold all he carried with him at 2*s.* 6*d.* the pound. When he came back with such a store of money the family was not only relieved, but work soon came in, and "Sir," said he, "I have never since been without employment." The same man told me that a nurseryman had his store of Auriculas, &c., safely preserved from frost by surrounding all the pots in the frames with a deep bed of dry sawdust. *John Towers, Croydon, Jan.* 17. [Further information respecting the applicability of sawdust to other purposes will be found in pp. 55 and 56 of to-day's Paper.]

Labels.—You say the best labels are the enamelled. I am a little amateur, and I would suggest that those I use and make myself, if not the best at all events are cheap, and answer the purpose very well indeed. I get some zinc and cut it to what shape I prefer, and with a quill pen (a steel won't do) write what I want with nitro-muriate of platinum, which becomes perfectly black, and I think will last for ever, although I should tell you I am no chemist, and will not vouch for this assertion, though I have seen some labels a few years old, and they are as legible as ever. What little oxidation takes place on the zinc can be washed off with a sponge, and they freshen up beautifully. A small hole is drilled through the labels, and they are suspended to my trees with lead wire. *An Amateur.* [These zinc labels, which are well known, answer the purpose; but surely they cannot be put in comparison with the enamelled.]

Pear Grafts.—Is there any reason either from science or experience to believe that the opinion lately expressed by M. de Jonghe in your columns is correct, that Pear grafts taken from young trees not yet in

bearing will make less fruitful trees than those taken from older ones? Does the same apply to Apple trees? *W.*

Heating.—I have read with interest the various letters which have appeared lately in your paper on heating, whether by Polmaise or Hazard's plan; but I beg to remark of all your correspondents a certain want of definiteness. Your Lancashire correspondent of Dec. 27 does not give one single dimension that can guide a reader as to the amount of work done by his Polmaise stoves—I mean anything to indicate the number of cubic feet of air warmed any number of degrees per minute. He does not state the size of any of the buildings, horticultural or not, which he refers to. True he says Whitehead's stoves are 5 to 6 feet high, but in the absence of anything more definite, this tells us nothing. Supposing that they present a surface of 36 square feet, that is 6 feet round them by 6 feet high, and that they are as hot as hot-water pipes usually are, there can only be a moderate amount of heat got out of them. That would be a very small greenhouse efficiently warmed by 18 feet of flow and 18 feet of return pipe of 4 inches diameter, and this conclusion is confirmed by his putting a second stove into his church. I strongly suspect that this vain attempt to get a very large amount of work out of a comparatively small heating apparatus was the radical cause of Hazard's stove failing at Heywood House, as stated by Mr. Cramb in p. 38, Jan. 17, 1857. Had it not been overheated, the joints might have stood as well as hot-water pipes do, supposing they were equally well made. Mr. Hazard seems to have taken his idea from Stevenson's tubular boilers for locomotives, and it is notorious that the joints in them are very often giving way. Turning to Mr. Hood's work on warming, &c., he says distinctly—"1 foot in length of 4-inch pipe 125° hotter than the air to be warmed will warm 222 cubic feet of air 1° per minute." Mr. Tomlinson varies a little from this. His terms converted into Hood's would make the quantity about 204 cubic feet, and the other authorities do not vary much from these. My object in referring to them is to ask whether any or all of your late correspondents, including Mr. Hazard himself, can give us something of like import as to the work done by their stoves. I am thoroughly convinced of the merits of the so-called Polmaise system, but until we have something more like precision and exactness in our experiments and projects, we shall not yet see a perfect Polmaise stove. Without noticing Mr. Cramb's steaming his plants, I would only ask whether in his opinion, if his cold-air drain had been built up to his back wall like a chimney, and one of the upper lights been lowered a little to permit the escape of a portion of the warmed from the house, whether he would have been troubled in the way he states—by his cold-air drain drawing off his hot air—under any circumstances or direction of the wind. *A Looker On.*

Ice Stacks.—In answer to your correspondent's inquiry as to how I manage to build my ice stack so as to keep it from falling, permit me to say that I raise the foundation pieces 2 or 3 inches higher on the outside than on the inside, and as the ice is all one thickness it retains its inward slope to the top of the wall. I have also invariably found that the pieces freeze together in a few minutes after they have been placed in proper position. I have erected four stacks in the manner described, none of which ever showed the least symptom of giving way. I may mention that it is necessary to leave a doorway through the boards at the north end of the stack, for the purpose of taking out the ice. I have no hesitation in saying that a stack of this description is superior to any ice-house I have ever seen. The reason is obvious—every time a house is opened in summer it fills with warm air, to which the whole surface of the ice is exposed. In the stack the sawdust following close on the ice as it melts, exposes no more of the latter than the few square feet necessary for getting it out. My object in using branches betwixt the ice and the sawdust is to keep the latter as dry and porous as possible, and thus prevent its rotting. I used straw instead of branches one season, but I found it worse than useless, and I only saved the ice by removing the straw and substituting branches for it. I have used the same sawdust for three years, but this season I thought it necessary to get it renewed. *W. D., 20th Jan.*

Societies.

LINNEAN, *Jan.* 20.—Prof. Bell, President, in the chair. Maj.-Gen. Sabine, R.A.; C. W. Dilke, Esq.; W. V. Guise, Esq.; W. H. Harvey, M.D.; A. Sinclair, Esq., M.D., R.N.; and G. H. Polybank, Esq., were elected Fellows. The following papers were read:—1. "Notice of the Mechanism of the Stomach of the Crustacea," by T. H. Huxley, Esq. 2. "Note on Spiranthes gemmipara," by Prof. Lindley. This rare Irish Orchis, discovered near Cork so long ago as 1810, was published by Sir J. E. Smith under the name of Neottia gemmipara, and was figured under the same name in the Supplement to English Botany. Dr. Lindley in his Genera and Species of Orchidaceous Plants referred the plant to the genus Spiranthes, with the remark that it so much resembled S. Romanzoffiana, a Unalaschka plant, that he could scarcely doubt the identity of the two. Subsequently Mr. Babington, in a paper read before the Linnean Society, referred the Irish plant unhesitatingly to the American S. cernua. Thus three conflicting suggestions concerning the relation of this plant were on record by British botanists:—(1), Smith's, who compares it with S. autumnalis, still regarding it distinct; (2), the author's, that it was probably S. Romanzoffiana; and (3), Babington's, that it was S. cernua. The author stated that in a recent examination of Neottian Orchids he had had occasion to reconsider these different views, in order to ascertain the true relationship of the Irish plant, and his conclusions were these:—That the identification of the Irish S. gemmipara with S. cernua is to be regarded as a mistake, and that the Irish plant must be admitted as a perfectly distinct species, peculiar as far as at present known to a small district in Ireland. He further stated his conviction that the affinity of the species was much closer with S. autumnalis than with S. cernua, although distinct from the former by its dense three-rowed spike, its leafy stem scarcely longer than the radical leaves, its short pyriform ovary, and the very broad base to its lip. 3. "Contributions to the Orchidology of India, No. 1," by Prof. Lindley. The present paper was the first of a series of intended communications on the Orchidaceous plants of India. The most remarkable and unexpected fact brought out by the examination of the great mass of materials in the author's hands is this: that certain of the species are found to have a most extensive geographical range. Hitherto it had been believed that these plants were extremely local, such being probably the case with epiphytal species, but it has proved quite the reverse with the terrestrial ones, the range of some of which turns out to be as wide as that of the most ubiquitous species belonging to other natural orders. Some instances of this were then alluded to. Thus Orchis latifolia, which had been long known to wander into North Western India, had now been found in Western Thibet. Herminium Monorchis, in no respect distinguishable from its English state, had been found in N. W. India, and probably also in Sylhet, while H. unalaschkense from the distant Aleutian Islands proved identical with H. congestum, from the Alps of Sikkim. Gymnadenia cucullata, a plant of Eastern Europe and Siberia, seemed to be the same as one gathered by Dr. Hooker at an elevation of 14,000 feet in Sikkim. Goodyera repens was common in Sikkim, while G. procera extended from Sikkim by way of the Neilgherries, Ceylon, and Java, to China. Zeuxine sulcata, found at Hong Kong, the Philippines, and Ceylon, occurred also in the plains of India, as far as Peshawur. A plant which the author believed to be Spiranthes autumnalis is found in N. W. India; and S. australis apparently grew everywhere, from Siberia, Peshawur, and N. W. India generally, the Neilgherries, Ceylon and Java, to China, New Holland, and New Zealand. It was added that any one who examined a long suite of specimens would probably be correctly led to regard the latter variable plant as nothing more than our own S. æstivalis. Epipactis veratrifolia, a remarkable Persian species, was found at Peshawur, and without doubt the common Indian species described under the names of E. consimilis, macrostachya, herbacea, and Dalhousiæ were only so many states of the European E. latifolia. Cephalanthera acuminata, found all over Northern India from Mussooree to Bootan, was identical with the European C. ensifolia. Epipogium Gmelini, recently ascertained to be a native of England, had been found in Sirmur. A still more remarkable discovery was that of a species of Tipularia in Sikkim, the genus having been hitherto known only in the United States; the Indian, though different in some respects from the American plant, was probably nothing more than a form of that species, which thus appeared at once in two points of the globe distant some 12,000 miles from each other. "Facts of this nature," observes the author, "are of the more importance, seeing that the ordinary modes of dispersion by birds, by winds, by waves, by man, would seem to be here inoperative, or at least insufficient to explain such very remarkable ranges." The remainder of the paper was chiefly occupied by an enumeration of upwards of 70 species of Indian Orchids; and concluded with some critical remarks on the genera of the group Physuridæ, together with an analytical table more distinctly showing their differences. 4. "Note on the exhibition of Fungi in cases," by the Rev. H. H. Higgins. The author stated that a case in the Museum of the Royal Institution of Liverpool had been placed at his disposal, and that he had filled it with arranged specimens of fungi, numbering about 250 species, found in the neighbourhood of Liverpool, and illustrating the principal families and genera. The specimens, which had been dried without pressure and retained in many cases their natural form and colour, were glued on oblong tablets of wood. This was the only series exhibited to the public in England or elsewhere, so far as known to the author—whose object was to attract more general attention to these interesting but much neglected plants.

Notices of Books.

Matter: its Form and Governing Laws, by George Duplex (18mo., Bradbury) is another of the cheap little books intended to render people acquainted with the rudiments of the Natural Sciences. It does not appear to be intended for the young, but is rather addressed to "that class of readers whose early studies may not have been directed" to such subjects. This is a very large class, which may derive useful condensed information from Mr. Duplex's pages if it can apply its mind to natural science as a serious study. We are however obliged to remark that the author is not always trustworthy. For example, speaking of plants, he says:—"Woody fibres consist of tubular cells thickened so as to give great firmness. The wood of trees is made up of fibres or tubes of this kind, and they are also found in the veins of leaves. The woody fibres may be separated from the cellular parts of plants by maceration in water; in this manner Flax and Hemp are produced. Linen is formed from woody tissue; Cotton, on the contrary, consists of elongated cells or hairs. Woody fibre when reduced to small fragments constitutes the pulp whence paper is made." But since the greater part of paper is made from cotton rags, it must, upon the author's own showing, consist of "elongated cells or hairs," and not of "woody fibre reduced to small fragments," itself an objectionable expression, for we doubt whether, in the process of preparing paper, woody fibres are ever reduced to fragments; they are torn asunder, indeed, but that is a very different matter. Then he says that "the unition (query, union) of cells forms tubes, which again unite and form vessels," a statement that is true, as to the first part, only to a very limited extent, and wholly inaccurate as to the second part.

A work on *Madeira*, giving an account of its climate, commerce, and natural productions, and containing a good map, if proceeding from an author possessed of the necessary qualifications, must be useful. To those indeed who visit the island for their health, and to whom an acquaintance with its natural history cannot but afford a constant relief to the inevitable tedium of a residence there, such a work will prove as indispensable as a "Murray" to the wanderer over Europe. Under the title of *Madeira, its Climate and Scenery* (8vo, Edinburgh, Black, pp. 338), Mr. Yate Johnson has produced a very good guide book, called a 2d edition of that published by Mr. White in 1851, but altered and increased in so many important circumstances that it may be almost regarded as a distinct work. With medical directions, hotels and boarding houses, and other such subjects, however important to the visitor and fully set forth, we need not here concern ourselves. The chapters on Agriculture and Gardening, Vines and their produce, Climate, Zoology, Botany, and Geology, are of more general interest.

Unfortunately Madeira is a Portuguese possession, and therefore it suffers from that apathy and want of enterprise which are so characteristic of the race. Anything more discreditable to a European nation than the state of horticulture and agriculture, as described in the pages before us, could scarcely be imagined. "The soil of Madeira," says our author, "assisted by an atmosphere of warm and equable temperature, and an abundant supply of water, would produce the fruits and vegetables of nearly the whole globe, if natural advantages were seconded by the art of man. Unfortunately not only great ignorance as to good modes of cultivation exists, but also great apathy and an intense dislike to every kind of innovation; consequently little is done beyond supplying the ground with water by artificial irrigation in the intervals of dry weather. Few of the fruit trees are pruned or grafted, nor is the soil improved in the manner appropriate to the peculiar requirements of the various plants. It is not to be wondered at, then, if the fruits are not of the best quality, and if the vegetables are much inferior to those produced by experienced horticulturists in England."

This total absence of intelligence and enterprize may perhaps assist us in understanding why Madeira and Portugal have suffered from the Vine disease so much more than other countries. Upon that important point we are told that "the wine of Madeira, which has acquired a world-wide celebrity, will soon be no more than a thing of history. In the spring of 1852, a disease suddenly showed itself which, in process of time, destroyed the Grape and ruined the prospects of the hardly-tasked cultivators. With each returning spring since that time, the same disease has reappeared; the Vine has ceased to produce fruit, and where it has not been rooted up it is gradually dying away. During this time the stocks of the merchants are disappearing without being renewed; and it is calculated that in two or at most three years, not a pipe of wine will be left in the island. The cause of this great misfortune has not been ascertained." May not the cause be found in this other statement? "The reason that the wines of Madeira have for many years past been gradually sinking in the favour of British consumers, in spite of these excellences, is, that under the stimulus of a large demand, and the temptation of the high prices which obtained during the wars with Napoleon, the merchants shipped wines of inferior quality. This proceeding in the end damaged the character of the whole produce, and excited an unfounded prejudice against first class wine. A similar cause is at work, according to Mr. Ford, in lowering the credit of sherry." At all events the export of wine has diminished from 14,432 pipes in 1825 to 2085 in 1855. And it seems likely to cease entirely.

A chapter is devoted to the botany of the island; another to its insects, birds, and other members of the animal kingdom, and a third to geological inquiries. It will thus be seen that the visitor to Madeira has in Mr. Johnson's work a companion which he may consult on all subjects of general interest.

Garden Memoranda.

MESSRS. LOW'S NURSERY, CLAPTON.—Some important alterations have been effected here since our last visit. Near the entrance has been erected a new and commodious seed shop, and in another part of the nursery a

very nice span-roofed propagating house has been put up. The latter has a path up the middle, and on each side propagating beds, which are warmed by means of tanks, with hot-water pipes run through them. The tanks are covered with slates, over which is a bed of sand, in which the cuttings are inserted, and the latter are struck under little lights glazed with green fluted glass, and hinged at the back so as to be easily moved up and down. Cuttings are found to root readily under this kind of glass, and owing to its thickness and colour it requires no shading. Treated in this manner variegated Orchids and Pitcher plants push roots freely; it may also perhaps be worth knowing that sawdust forms a good material for striking such things as Rhopalas and Aralias in. All that is required is merely to put a little sand into the holes along with the cuttings, which thus situated are found to root well in about half the time they usually take under ordinary circumstances. This stove is divided in the middle so as to furnish an intermediate house for hardening off young plants after they are brought out of the warm propagating house, and at the extreme end is a little potting shed, glazed entirely with fluted or corrugated glass. By this means plants can be repotted, tied up, and otherwise attended to without risk of being injured by cold. Among other things in this stove we observed New Holland Pitcher Plants, Mangosteens, the Durian of Borneo, of which mention has lately been made in our columns; Bread-fruit and Gutta-percha trees, Rice-paper plants, and Aphelandras, of which one of the best is Leopoldi, whose leaves are charmingly striped or rather veined with white. This makes it a most useful plant either in or out of flower. Among other stove rarities was a small leaved unnamed Begonia from Bhotan, which was stated to have handsome pale pink blossoms with large yellow centres. Of Gesnera Blassi with drooping branches closely set with pale green leaves, we had also a very favourable report, but we did not see it in flower.

An Orchid house 100 feet in length was filled with that attractive tribe of plants intermixed with Ferns and Palms. The handsome leaves of the latter set off their less lofty associates to much advantage, and gave to the house a rich and varied appearance—a point of the highest importance at this dull season of the year. In a house nearly wholly devoted to Ferns was the rare Thyrsopteris elegans, whose noble fronds are often found to measure as much as 10 and 12 feet in length. It comes from the island of Juan Fernandez.

Of Bhotan Rhododendrons Mr. Low has an enormous number, from among which something good is expected. They have smaller leaves than the Sikkim kinds, and among them are great differences of appearance. We also noticed plants of the beautiful Embothrium lanceolatum, which is found to stand the weather out of doors in Devonshire. Of standard Bays this nursery possesses many fine specimens with clean stems and beautiful round bushy heads. Among Coniferous plants we noticed Libocedrus decurrens, a tree stated to grow to a great height. This is reported to be quite hardy. Seedling plants of Araucaria imbricata are here most abundant, Mr. Low having imported seed of it to the amount of nearly 50 bushels! Podocarpus Nubigena has also been raised plentifully here from seed. This it is expected may be hardy.

Pelargoniums, a new feature in this establishment, are now being extensively cultivated; a large house was full of the best kinds, and among them were many of the spotted French varieties. Among flowering soft-wooded plants were tree Carnations and Chinese Primulas, both great favourites, which meet with a ready sale.

The stock of New Holland plants and Heaths was in excellent condition. Among the latter was the pretty upright growing early blooming Syndriana, a kind which is found to make a good succession to such sorts as hiemalis and colorans. Among plants in cold pits were one or two varieties of hardy Lady's Slippers.

Miscellaneous.

Hickory. — The Indians (of Florida) hold in great esteem all kinds of sweet Hickory nuts; they crack the nuts and beat them in mortars; then boil in water and save the oil. But the most favourite dish the Indians have amongst them is corn drink seasoned with Hickory nut oil. They pick out the kernels, beat them to a paste, and boil with Indian corn flour, which being seasoned with a lixivium made of Pea-straw ashes, gives it a consistence and taste something like cream or rich new milk, and is called by the traders Hickory milk. *Bartram MS.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

DURING open weather like the present a number of operations may be proceeded with which are generally deferred till spring. Any part of the grounds or garden requiring draining should now have attention, bearing in mind that on ground carrying fruit trees or vegetables the drains should not be less than 4 feet deep; the width apart must be regulated by the nature of the soil. The preparation of ground intended for planting in spring, either with fruit or ornamental trees, may now be forwarded, as may the levelling and returfing such parts of the lawns as have become unsightly, using turf obtained from dry upland pastures or other elevated ground, such having generally a less quantity of the coarser kinds of Grass in them. As in most gardens tree leaves are in great request for many purposes, steps should be taken to procure a sufficient stock for the season's supply; two or three stacks may be made in the most unfrequented places, thatched, and a temporary fence placed round them to keep them together—they are always useful. Where new gravel walks are about being made, material for that purpose should be got in readiness; gravel is all the better for being left some time to dry. As regards things under glass, when such plants as Aphelandras, Justicias, Poinsettias, and other winter flowering stove plants have done blooming, they should be removed to a drier house and water gradually withheld to effect the proper ripening of their wood. Use as little moisture in the stove at this season as possible, and do not aim at high temperature; the colour and durability of flowers will show how injurious both are in excess at this period. Where Orchids have had a long rest some will now be commencing growth and should be set to work; well soak them in tepid water, and after removing all the loose and decayed material from the roots let them be repacked in fresh baskets or pots. Those growing on logs of wood will require more care in preserving their roots from injury. As a general rule it is too early to begin with the principal stock. Examine frequently Heaths and other plants which suffer from damp at this season. It is often requisite to keep a little air on at night; where such is the case allow a slight fire, this with sulphur efficiently applied will greatly help to keep plants free from disease. Shift all greenhouse plants frequently (to prevent their growing one-sided) and see that no decayed leaves are allowed to remain on them. The conservatory should not be allowed to fall below 40°. Keep up a succession of blooming plants from the reserve houses. In the arrangement of plants in show houses strive to produce as good an effect as possible by a judicious contrast of colour and form; the larger kinds of Fern and some dwarf Palms have often a good effect when skilfully introduced among the more common forced flowers.

FORCING DEPARTMENT.

PINERIES.—Cold changeable weather will necessitate the use of a considerable amount of fire-heat, particularly where a high temperature is being maintained with the view of inducing the plants to show fruit, and in the case of swelling fruit see that a proportionate amount of atmospheric moisture is secured, for accommodating as the Pine must be admitted to be, it is by no means benefitted by a warm parched state of the atmosphere; see that none of the stock is allowed to suffer for want of water at the root. For succession plants a temperature of from 50° to 55° by means of fire-heat will be sufficiently high, but it should not be allowed to fall below 50°. VINERIES.—The early house will now require careful attention, and as the Vines in some places will probably be in bloom, the night temperature must not be allowed to fall below 60°, and 70° should be secured during the day. Maintain a healthy growing atmosphere by sprinkling the floors, &c., as may be necessary, and admit fresh air whenever this can be safely done. Also attend carefully to the border, and if fermenting material is used do not allow the heat to decline, and where this is not used see that whatever covering is employed is efficient. PEACH HOUSE.—Discontinue syringing where the blossoms are beginning to open, but secure a nice, moist, healthy state of the atmosphere by sprinkling the passages, &c., as may be necessary, but avoid anything like dampness while the trees are in bloom. Maintain a steady night temperature of 50° to 55° while the trees are in flower. Take every possible opportunity of admitting fresh air, and where the external air can be made to pass over the heating apparatus, so as to get warmed before coming in contact with the plants, a gentle circulation should be constantly kept up until the fruit is fairly set. Avoid the admission of currents of dry cold air, however, which would be most injurious to the trees.

FLOWER GARDEN AND SHRUBBERY.

Wherever there is a large extent of mixed shrubbery some care is necessary to prevent the stronger growing bushes from out-growing the weaker ones; and it will be found better every few years to lift and replant the former than to prune them severely, which prevents, by inducing the growth of luxuriant wood, the habit of blooming profusely. Never allow a margin of bare earth to intervene betwixt the Grass and the plants; such should be covered with low growing plants as Periwinkles and things of a similar habit, and the plants over the remaining space should be made to cover as much of the border as possible. The pruning of the more common kinds of Roses may now be done; should however a part of the Provins, Moss, and others of the summer flowering kinds be required to bloom late, reserve a portion till April for that purpose.

HARDY FRUIT AND KITCHEN GARDEN.

The thinning and pruning of orchard trees should be proceeded with, and liberal dressings of manure given to exhausted soils. Prune and remove the suckers from Filberts, which rarely (except in Kent) get the management they require. Young planted orchard trees should be securely staked, using a little hay or Moss at the tie to preserve the bark. The making of fruit-tree borders, particularly for the finer kinds against walls, requires the use of good fresh turfy loam; let that therefore be in readiness. The only addition should be road scrapings or something similar, where the loam is heavy, for the Peach and Apricot; use loam itself for Cherries and Plums, and a small quantity of rotten cow-dung for Pears, but not if the loam is rich. Dust over on damp mornings with soot and lime Gooseberries, &c., which are attacked by birds. We have found two or three dressings sufficient to preserve the buds of these useful fruits. Raspberries may have the old wood removed and the new shoots thinned; leave the shortening of them till another time. Let the fruit room be looked over and everything showing decay removed. Slight fires must occasionally be used. Ground should on all opportunities have the necessary turnings to bring it to a friable state by the time the spring crops will require planting. Not much in that way should be attempted at present, but make a sowing of some early Pea, as the Prince Albert or Emperor, in pots to turn out, should those sown in the open garden fail. A crop of the Mazagan Bean may be treated in the same manner. Cauliflowers, Lettuce, and all kinds of early vegetables wintering in frames must have abundance of air daily, and be kept free from damp. The spare frames will be filled with Endive, Sorrel, Parsley, and other things required for daily use, should severe weather occur. So likewise Broccoli now turning in should be placed under some sort of protection for the same purpose. A few years back it was difficult to get a supply of Broccoli through the winter; but Snow's invaluable Broccoli enables it to be done now with ease. Take every opportunity on dry days to hoe and stir the soil between growing crops. Fresh supplies of Rhubarb, Kale, and Asparagus must be forwarded as wanted. Make a sowing in 3-inch pots of the Fulmer's or Mohawk French Bean as the days lengthen; this, which is the best forced vegetable we have, will thrive in the Pine stove or early Vinery near the glass. Fresh plantations of Horseradish and Jerusalem Artichokes may now be made.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Jan. 22, 1857, as observed at the Horticultural Garden.

Jan.	Moon's Age.	Barometer.		Temperature					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 16	20	30.217	30.047	45	26	35.5	38	40½	W.	.00
Satur. 17	21	30.255	30.261	46	36	41.0	40	40½	W.	.00
Sunday 18	☾	30.277	30.232	50	44	47.0	42	40½	W.	.00
Mon. 19	23	30.256	30.187	48	25	36.5	41	41	N.W.	.02
Tues. 20	24	29.730	29.308	44	29	36.5	42	41	S.W.	.17
Wed. 21	25	29.679	29.447	39	24	31.5	40	41	W.	.00
Thurs. 22	26	29.791	29.510	43	32	37.5	39	41	S.W.	.13
Average		30.032	29.856	45.0	30.8	37.9	40.3	40.7		.32

Jan. 16—Hazy clouds; clear; fine; slight frost.
— 17—Frosty; fine; cloudy at night.
— 18—Uniformly overcast; cloudy.
— 19—Drizzly; hazy; very fine; frosty.
— 20—Partially overcast; red clouds; rain.
— 21—Foggy; fine but cold; rain at night.
— 22—Clear; fine; rain.
Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Jan. 31, 1857.

Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	44.2	33.2	38.7	15	0.90 in.	1	3	3	1	4	10	5	4
Mon. 26	45.0	32.0	38.5	13	0.34	1	4	3	3	1	12	4	3
Tues. 27	43.6	31.7	37.7	16	0.28	2	4	4	—	4	12	4	1
Wed. 28	44.5	31.2	37.8	17	0.17	2	4	2	—	—	13	7	3
Thurs. 29	44.9	31.3	38.1	12	0.32	4	4	—	1	2	9	5	6
Friday 30	43.8	31.3	37.5	13	0.38	2	3	3	3	3	8	7	2
Satur. 31	43.8	31.1	37.5	14	0.38	3	5	1	2	9	6	3	2

The highest temperature during the above period occurred on the 5th, 1846, and 28th, 1843 and 1846—therm. 56 deg.; and the lowest on the 8th, 1827, and 27th, 1855—therm. 15 deg.

Notices to Correspondents.

BOOKS: *A humble Sub.* We suppose that *Brown's Forester*, published by Blackwoods, is the book you want.—*Elphingham.* All such subjects are fully treated of in the *Theory and Practice of Horticulture.*

BURNT EARTH: *J C S.* This is clay burnt by the assistance of weeds, or trimmings of plantations, or even breeze. Any country labourer will do it for you.

CHRYSALIDS: *Butterfly.* Fill a wooden box half full of vegetable mould and leaves; keep it just damp. Tie some muslin on the top, and as the insects are hatched they will fly upwards and adhere to the muslin. Keep the moths in boxes strongly scented with turpentine or camphor.

FRIGI DOMO: *Black Spine.* It would not of itself prove covering sufficient to keep out severe frost. It is a mere shelter; nothing more.‡

GARDENERS: *Grantham.* The person you first name is wholly unfit for employment. The second is a good gardener of much experience, and a most worthy respectable man, highly deserving your good opinion.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*H T.* Erica Plukeneti.—*J A.* A small specimen of Odontoglossum constrictum.—*A C.* Salisburia adiantifolia.—*A D.* Maxillaria squalens.

POOR RATES: *T C.* We would refer you to the case of Messrs. Lane, of Berkhampstead, of which a full report will be found in our volume for 1852 ‡

THE HORTICULTURAL SOCIETY: *Deodar.* Unfortunately you do not give the post town near which you live, so that we cannot answer you privately. The election will take place on Feb. 3, of which notice will be sent you.

VINE BORDERS: *A Constant Subscriber.* If you wish to ruin your trees dress the borders with bullock's blood.

MISC.: Full prices will be given for the following Numbers for 1856:—34, 35, 36, 37, 38, 40, 41, 42.—*Back Nos.* We can supply you with Nos. 2, 3, and 33; the others are out of print. Send 18 stamps.—*G D.* In your case we would advise you to have your Pears on Quince stocks. Washing your Apple tree with pure turpentine will probably kill it.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840)

Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime, Blood Manure, and every Artificial Manure of known value.
EDWARD PURSER, Secretary.
40, Bridge Street, Blackfriars, London.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

ESTABLISHED 1812.

TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the *weight* and *quality* of the bulbs which it produces; it is besides especially beneficial to the *Grain Crops* which follow, while *Clover* is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to
H. & T. PROCTOR, CATHAY, BRISTOL.
PROCTOR AND RYLAND, { BIRMINGHAM, EDMONSCOTE, WARWICK. And SALTNEY, near CHESTER.

PATENT WOOL MANURE COMPANY (LIMITED).—Wool Manure for Corn, 7*l.* 10*s.*; Turnips, 6*l.* 10*s.*; delivered to any railway station or wharf in London.—Applications for Agency from influential persons attending provincial markets, to be forwarded to Mr. C. H. TIDBURY, Secretary, 81, Gracechurch Street, London.

REIGATE SILVER SAND, 16*s.* per Ton. Less quantities, 1*s.* 6*d.* per bushel. Delivered to any London wharf or railway. Peat and Loam for Ferns, Heaths, Americans, &c. Samples if required; terms, cash. Sacks, 2*s.* each, or on hire.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD Sec.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the Plans and execution of the Works, which are controlled only by the Inclosure Commissioners.

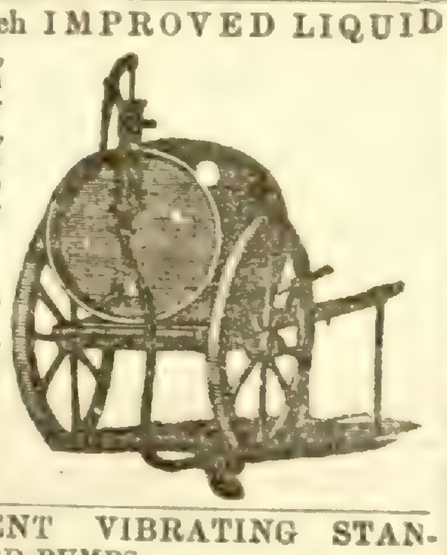
The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 0*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

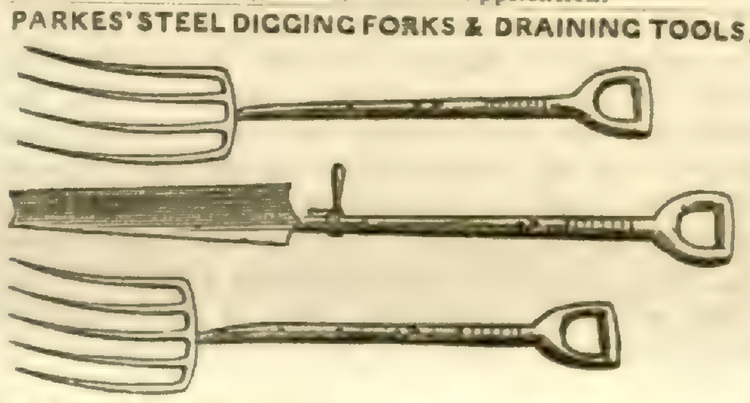
Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2¾ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

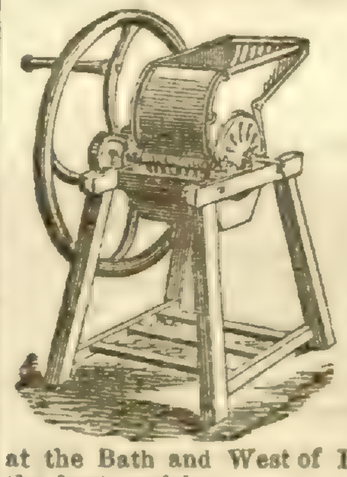
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
95, Newgate Street, London.

BENTALL'S PATENT PULPER.



PRICES.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*
" May 20th, 1850.

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL COLLEGE,
CIRENCESTER.

Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.
Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E
Assistant to Chemical Professor—A. Sibson.
Manager of Farm—J. Coleman.

The first Session of 1857 will begin early in February. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum.

The chief attention of the students is directed to a diligent attendance on the Lectures on Practical Agriculture, Chemistry (Inorganic, Organic, and Agricultural), Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering, which have been so arranged that, where time is of consequence, a course of Lectures on each of the aforesaid subjects may be attended in two sessions or one twelvemonth, though a longer period is recommended to those who wish to go thoroughly through each department. The students are periodically examined in the subjects of these Lectures, and receive honorary certificates and prizes, according to their proficiency. There is an Elementary Class for those who are too young or too backward to attend the regular courses with advantage.

The practical Instruction in Agriculture is given by the Farm Manager on the Farm, where the students have an opportunity of becoming acquainted with and taking part in the manual operations of Husbandry.

A well-appointed Laboratory is devoted to instruction in Chemical Manipulation and Analysis, which are taught to each class of students in succession, under the superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring, in the use of the Theodolite and other instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

A Veterinary Hospital is fitted up for the reception of diseased animals of all descriptions, with Pharmacy, &c., attached, where the students have opportunities of taking part in dispensing the medicines employed, and of witnessing dissections, operations, &c.

A good system of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural Information in general.

Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy, Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

LIVERPOOL GRAND POULTRY SHOW.—The Fourth Annual EXHIBITION OF POULTRY will be held at Messrs. LUCAS & Co.'s Carriage Repository, Great Charlotte Street, Liverpool, on WEDNESDAY, THURSDAY, and FRIDAY, the 28th, 29th, and 30th January, 1857. Prices of admission;—Wednesday, from 10 A.M. to 4 P.M., 2*s.* 6*d.*; from 4 P.M. to 9 P.M., 1*s.* Thursday, from 9 A.M. to 9 P.M., 1*s.* Friday, from 9 A.M. to 4 P.M., 1*s.*
GILBERT W. MOSS, } Hon.
WM. C. WORRALL, } Secs.
6, Lower Castle Street, Liverpool.

The Agricultural Gazette.

SATURDAY, JANUARY 24, 1857.

WE are asked to name the best time in which to apply manures to our several crops. Now there are two principal styles of management under this division of farm practice. The one is indicated in the following passage from Mr. CAIRD's report of Castle Acre Farm:—"It is the practice here," he said, "to manure for every crop." The other is taken from JOHNSTON's *Agricultural Chemistry*, where the writer, describing that theory of a rotation of crops which is founded on the idea that each

tends to exhaust the land of the nutriment proper for itself, puts the case thus :—"If after a skilful manuring Turnips grow luxuriantly, it is because the soil has been enriched with all that the crop requires. If a healthy Barley crop follow the Turnips, it is because the soil still contains all the food of this new plant. If Clover thrive after this, it is because it naturally requires certain kinds of nourishment which neither of the former crops has exhausted. If again luxuriant Wheat succeeds it is because the soil abounds still in all that the Wheat crop needs,—the failing vegetable and other matters of the surface being increased and renewed by the decaying roots of the preceding crop of Clover. And if now Turnips refuse again to give a fair return, it is because you have not added to the soil a fresh supply of that manure without which they cannot thrive. Add the manure and the same rotation of crops may again ensue." In these two passages, then, we have the idea of the independent cultivation of every separate crop, as distinguished from that of once manuring for a rotation. It is needless to say that the latter will long remain, in its principle at any rate, the rule of English agriculture, and as needless is it to add that the former is more and more becoming adopted as intelligence and energy characterise the tenants, and as freedom for their exercise is permitted by the landlord. This is, of course, in principle the most economical management—the means you employ under it produce their fruit the same year—whereas in the other case the means employed require several years for their full fruition. It is the old case of Bone-dust *v.* Superphosphate over again. The less soluble manure affects several successive crops: the more soluble one produces all its effect at once: and it is therefore the more economical of the two.

There can be no doubt that the rotation of crops in the order in which the cultivation and management of each shall beneficially affect its successor is good agricultural policy, whether regarded in the interest of the landlord, the farmer, or the consumer; but the advantage of it is, as generally obtained, combined with a disadvantage of very serious import. A rotation under ordinary management not only stands but falls together. A heavy crop of Turnips, as Professor JOHNSTON puts it, may be followed by a crop of Barley so luxuriant that it is laid and kills the Clover under it, and then the succeeding Wheat crop fails; or the Turnip crop may, as coming round in a short rotation it very often is, be itself a failure, and then, the manure producing plant in the rotation being lost, all the other plants are starved. The right plan is to secure all those advantages of a rotation which it affords by the cultivation of one crop fitting the soil especially for another, without at the same time being so entirely dependent for a whole rotation upon the liberal treatment of any particular crop in that rotation.

And this is the modification of former farm management which our artificial manure makers and our guano importers have especially been useful in enabling. Farm-yard manure is now put upon the Clover plant either immediately after Barley harvest, or before ploughing the Clover stubble up for Wheat. Turnips receive only a share of the farm dung, and along with it superphosphate of lime, blood-manure, or guano, and thus each crop is dependent upon its own individual treatment as well as upon that of its predecessor. The deficient promise of any particular crop may be met by the immediate application of a manure which shall supply the food of which its starved condition seems to indicate the want. And this may be added in a state more or less soluble according to the actual wants of the plant to which it is applied.

Thus nitrate of soda may be added during the season of most rapid growth—during April or even May showers—while guano would be more likely to produce all its effect if spread somewhere nearer seed time, and farm manure if added some months previous to it.

And this brings us to the question that has been put—when should manure be added to the land? The answer involves at least three considerations—(1), the actual provision of food for the plant; (2), the influence of the manure upon the soil as a vehicle of that nutriment; and (3), the economical management of the manure itself. As regards this last point Mr. WAY's investigations into the absorptive properties of soils, and Dr. VOELCKER's researches into the composition of farm-yard manure, tend very materially to alter ordinary farm practice. The one has shown that the soil is an admirable store-room in which food for plants is not so liable to waste as was formerly supposed, and the other has shown that recent dung contains but a very small portion of its real value in a state in which it is likely to be lost. As regards farm-yard dung, therefore, the conclusion to which we are led is that the sooner it is taken to the field, spread, and ploughed in after it is made, the better under all three of the aspects in which the question put presents itself. Its presence there will lighten and improve the texture of the soil—it will be gradually preparing food for use to the ensuing crop,—and it is while there as economically and safely stored as possible. Indeed as regards this last point Dr. VOELCKER recommends that manure be spread as a top dressing on the land rather than stored in heaps where a rapid fermentation tends to loss. As regards the farm manure for the Wheat crop therefore, the English practice of top-dressing Clover in the autumn seems consistent with theory as well as approved by practice. Its application for green crops in like manner is best done in the autumn, especially if the soil be clayey. For Carrots and Mangel Wurzel, both of which require an earlier spring culture than the Turnip, it is well to do most of the cultivation before winter. The manure should be applied then if only to avoid the necessity of turning up a fresh surface by the plough in spring; and the equal or greater economy of such a practice as regards the efficiency of the manure applied under such circumstances is all that was needed to make the practice unquestionable as a rule.

Of course manure can be applied only when we have it, and it is not likely to be over abundant before winter. The practice of autumn manuring is then not likely to obtain except over a limited portion of our "fallow-break." If added in the spring, it must be ploughed in either as early as possible if intended to be incorporated with the land, or on the usual plan, if in drills underneath the rows of the future Turnip crop or Mangel Wurzel.

As regards the soluble artificial fertilisers, the answer to our correspondent's question must be general, and we must simply say that they must be added to the soil near the time of their immediate use by the plant, in proportion to their solubility. Take the case of pasture land as an illustration. Farm dung should be put upon it as a top-dressing in the autumn; bone-dust, too, is best applied before winter; guano in very early spring, as February or March; and nitrate of soda not till April.

A SCHEME OF CULTIVATION,

BEING THE SUBSTANCE OF ANSWERS TO QUESTIONS UPON AGRICULTURE BY THE SOCIETY OF ARTS.

(1.) The soil being an adhesive loam, I should farm it upon the four course system :—1st, Fallow; 2d, Barley and Oats; 3d, Clovers; 4th, Wheat. Two hundred and fifty acres being arable, the fallow would consist of 18 acres Beans, 15 acres Swedes, 10 acres White Turnips, and 10 acres Mangel Wurzels, and 8 acres Tares. Barley, 53 acres; Oats, 10 acres; 63 acres Clover; and Wheat, 63 acres.

(2.) Beans require for seed upon 18 acres at 2 bsls. p. acre 36 bsls.

Barley	„	„	„ 53	„ 3	„	„ 159
Oats	„	„	„ 10	„ 4	„	„ 40
Wheat	„	„	„ 63	„ 2	„	„ 126
Tares	„	„	„ 8	„ 3	„	„ 24
Swedes	„	„	„ 15	„ 2 lb.	}	34 lbs.
30 lb. + 4 lb. to feed the drill				„	}	

White Turnips, 10 acres at 2lb. allowing 4 lb. for drill 24 lbs.
Wurzel seed, 10 acres at 6 lb. per acre and 2 lb. for drill 62 „
Clover 63 acres at 20 lbs. 1260

(3.) With a favourable season and a fair average yield I should expect to produce

5 qrs. of Beans per acre at 36s.	= 9l.	× 18 acres	= £162	0s.	0d.
6 „ Barley	„ 40s.	= 12l.	× 53 „	= 636	0	0
10 „ Oats	„ 24s.	= 12l.	× 10 „	= 120	0	0
5 „ Wheat	„ 60s.	= 15l.	× 63 „	= 945	0	0
				1863	0	0
Oats and Beans consumed upon the farm				282	0	0
				£1581	0	0

(4). I shall require 10 horses to work the above farm, always breeding 2 foals every year. If not fortunate enough I must buy in one or two as the case may be, so that the system may not be deranged, selling out two every autumn for London at seven years old when the young ones will be able to take their places; by this system the stable will always be kept full of young horses, growing into money instead of gradually getting of less value, compelling the farmer after a time to be selling out the worked up horses at about 10*l.* each, and sometimes considerably less, and buying in at about 40*l.* to take their places. In Cambridgeshire and Lincolnshire the breeding and selling out system is adopted, from which counties many valuable horses ranging from 60*l.* to 80*l.* are drafted every spring and autumn. In June the horses will have got most of their work over, except the sowing of white Turnips, horse hoeing, and manuring the clover leas for Wheat. In October they will recommence their series of laborious tasks, ploughing up the leas and preparing the same for the seed, also ploughing up Wheat stubble for Tares, and if not previously done, weather and time permitting, the Mangel land may be cleaned. For Mangels the land must be prepared as follows :—1st, the land should be ploughed about 4 inches deep, well scarified, harrowed and picked, which should be done as early as possible after harvest, letting it lie a few days. It should then be ploughed up 7 inches deep, there to rest until the spring.

(5.) In March the land intended for Wurzels and previously ploughed in October must be ploughed across the old furrows at the same depth (7 inches). In the first week of April if the land is quite dry it must be well pulverised and cleaned of all Couch Grass, &c., by scarifying, rolling, and harrowing, letting it rest for a few days, giving the weeds an opportunity of germinating. It must then be marked on for ridging at 27 inches apart, and when ridged 2 cwt. of guano, 2 cwt. of blood manure, and 2 cwt. common salt per acre should be drilled between the ridges, 8 loads of well rotted farm yard manure per acre being laid between the ridges, well spread, and put at the bottom of the furrow; all being then carefully covered in by the plough, splitting the ridges back, the ridges must then be rolled and drilled the third week in April with 6 lbs. of Yellow Globe seed per acre, the drill being fitted up with small rollers attached to each coulter, which will regulate the depth to the greatest nicety and cover in the seed, which must not be put in more than half an inch deep.

The following is my estimate of the cost.

3 ploughings, costing, at 7s. per acre				£1	1	0
2 ridgings	„	5s.	„	0	10	0
2 scarifyings	„	2s.	„	0	4	0
4 harrowings	„	8d.	„	0	2	8
3 rollings	„	8d.	„	0	2	0
2 drillings	„	1s. 6d.	„	0	3	0
3 horse hoeings	„	1s. 6d.	„	0	4	6
1 singling by hand			„	0	4	0
1 second do			„	0	3	0
Stowing and stacking 10s.			„	0	10	0
Muck carting and spreading			„	0	6	6
Guano 24s., blood manure 14s., salt 3s.				2	1	0
Seed				0	4	6
Total cost				£5	16	2

(6.) About 4 bushels of Sainfoin seed is generally sown per acre, it being drilled across the rows of Barley or Oats sown the previous day. I prefer Oats, as they are not nearly so likely to fall and smother the young Sainfoin. About half a peck of Trefoil should also be sown broadcast with it, as it fills up the crop the first year. Sainfoin is usually mowed for hay about the first week in June; it will be fit to cut as soon as one half of it is in flower. If Giant Sainfoin, only one-third must be in flower before it is cut. It requires a good deal of weather before it is fit to cart, from the stoutness of the stalks, as it is very liable to heat in the stack, although a moderate heat improves it. A second crop may be cut either for seed or storing; if for seed, it will be fit to cut about the first week in September; from 4 to 6 sacks per acre is generally obtained, the stalks making a good fodder when cut into chaff. Trifolium incarnatum should be sown as early as possible after harvest; the land should be skimmed about 2 inches deep, well harrowed, and drilled with 24 lbs of seed per acre and rolled lightly down. This crop is generally mown for soiling horses in lieu of Tares, getting it off in time to sow Rape or White Turnips. Carrots prefer deep sandy loam, though light sands and gravels will produce good crops if properly cultivated, a deep and fine tilth being indispensable and perfectly clean. In March it must be ploughed and subsoiled to quite a foot deep, and in the middle of April it must be thoroughly scarified and rolled down, and after a week or 10 days it should be sowed with the White or Yellow Belgian, being harrowed and thickly rolled down before the drill, 4 cwt. of guano being sown before the harrows. The seed is very difficult to sow regularly, it should be well rubbed by hand and mixed with sand or ashes; it is a good plan also if the land is likely to grow many weeds to mix a little Mustard seed with it, which come up very quickly, showing the drills where the Carrots are to come, so that they may be hoed several days earlier. Carrots should be drilled in rows 15 inches apart and left singly in the row at about 10 inches apart, should be kept perfectly clean. They will be fit to harvest the first week in November raising them with a fork or narrow spade, taking hold of them with one hand and levering them up with the other. The top is cut off close to the crown, and the Carrot should then be stacked up in long narrow stacks covered with Barley straw and about 6 inches of earth. For Beans the Wheat and stubble land should receive in November or December 15 loads of good farm-yard manure and then ploughed in about 6 inches deep. In February the land must be well harrowed and dibbed, or drilled at 20 inches apart between the rows; about the latter end of March should be harrowed lightly and then rolled, horse-hoeing as soon as any weeds appear, which may be repeated two or three times. Beans should be cut as soon as the pods begin to get a little brown, the best method being to bag them, tying up in small sheaves, leaving them in the field until thoroughly dry. For Potatoes the land should be cultivated precisely the same as if for Wurzels. Having got the land all ready ridges should be drawn out at 27 inches apart, 12 loads of farm-yard manure per acre spread between the ridges; boys then drop upon the muck in the furrow the seed Potatoes at about 1 foot apart, men following with hoes chopping the ridges down, covering up the sets and muck. As soon as fairly up it should be horse-hoed and then moulded up with a double breasted plough. It will be ready to take up in September or October according to the sort sown, which may be done with the fork—costing about 1½*d.* per bushel or about 25s. per acre. Oats should be sown as early as the land will work nicely in the spring, upon the soil where the sheep have fed off the Turnips,

with oil-cake or bran; about 4 bushels per acre should be drilled.

(7.) Of artificial manures upon the farm I should require about 4 tons of blood manure, using 2 cwt. per acre to the Swedes, Turnips, and Mangels; 1 ton of guano for the Mangels, giving them 2 cwt. per acre; also 10 tons of salt, using 2 cwt. per acre for the Mangels and the rest to the corn crops where they look too rank, for the purpose of stiffening the straw.

(8.) IMPLEMENTS REQUIRED.

5 ploughs (Howard's) at 4*l.* 10*s.*	£22	10*s.*	0*d.*
1 double breast do.	3	10	0
1 scarifier	7	0	0
1 pair of drag harrows	6	0	0
2 lighter do.	8	0	0
1 seed do.	3	0	0
1 cultivator	5	10	0
1 Crosskill's clod crusher	18	0	0
1 pair horse roll	10	10	0
2 single do.	10	0	0
1 general drill	58	0	0
1 drill roll	15	0	0
1 Garrett's horse hoe	22	0	0
6 dung carts	90	0	0
2 waggons	50	0	0
1 water cart	15	0	0
1 chaff engine complete	32	0	0
2 Turnip cutters	11	0	0
Oil-cake breaker	5	10	0
Bean mill	3	10	0
1 dressing machine	13	10	0
1 hummeller	5	0	0
1 haymaker	15	0	0
1 drag rake	7	0	0
3 hand do.	2	5	0
Pig troughs	5	0	0
10 sheep troughs	7	10	0
Hurdles	12	0	0
Forks	4	10	0
Barn tackle, rick cloth, poles, and sundries...	20	0	0
	£497	15	0

I have not put down threshing machine, the size of the farm not warranting a steam engine and machine: the corn is better to be put out to the person owning the best engine in the locality, Wheat at about 1*s.* 6*d.* per quarter, and Barley and Oats, 1*s.* If light sandy land I should not require a Crosskill or such heavy harrows.

(9.) Weekly wages at the present rate of about 11*s.* or 12*s.* per week, 10*l.* per week, 480*l.*; harvesting, 80*l.*; total, 560*l.* Hoeing Wheat, 3*s.* to 3*s.* 6*d.*; setting out Turnips, 3*s.*; raising Potatoes, 25*s.* per acre; mowing Clover, 2*s.* 6*d.* to 3*s.*; reaping, 7*s.* to 12*s.* per acre.

(10.) Rent, rates, and taxes	£750	0*s.*	0*d.*
Labour	560	0	0
Horses	360	0	0
Implements	487	15	0
Live stock	900	0	0
Cake and manure	150	0	0
Tradesmen's bills	40	0	0
Capital required	£3247	15	0

(11.) 240 tons of straw will be produced for litter, &c.

15 acres of Swedes producing	20 tons per acre ...		300 tons
10 White Turnips	„ ... 16	...	160
10 Mangels ...	„ ... 30	...	300
40 acres Grass hay	„ ... 2	...	80
20 do. Clover ...	„ ... 2	...	40
			tons 800

Besides 35 acres Grass fed off by bullocks, and 43 acres Clover fed off with sheep, and 8 acres Tares mowed green for horses.

(12.) I should keep upon the Clover 200 wethers, stocking the 43 acres of seeds about the 2d week in May, pitching it off with ½ pint of Beans per head, getting them off fat about the middle of August, buying in from 100 to 150 more to bare up the Clovers, getting them fat upon the Turnips by Christmas, by which time all Turnips should be off the heavy land. I should require 50 head of cattle, viz., 10 cows, 10 3-year olds, 10 2-year olds, 10 yearlings, and 10 calves; 6 cart colts, viz. 2 2-year olds, 2 yearlings, and 2 foals; and 100 pigs.

(13.) The mare goes with young 11 months, the cow 9 months, the ewe 22 weeks, the sow 16 weeks. The mare should foal in March or April; the cow should calve in November or February if for sale, there always being a good trade just at that time; if to keep on not until the spring, when the Grass begins to grow luxuriantly; lambs for fatting should be dropped in January, early fat lamb generally commands good prices. Sows should bring forth their litters either early in the autumn or early in the spring; the autumn litter will have time to grow and strengthen themselves against the coming winter; the spring litter will come in for the whey, buttermilk, &c., generally abundant in the spring and during the summer, and will also get good strong pigs to go in the stubble fields after harvest.

(14.) A full-sized farm horse will require from September (or about 8 months) until May 1½ bushels of Oats, half bushel Beans, per week, and 10 lbs of hay per day, or 48 bushels of Oats, 16 bushels of Beans, and 1 ton of hay during 32 weeks. The first month at Tares he will require about 4 bushels of Oats, and will consume about 1 acre of Tares, which will last him until September again.

(16.) The calf should not be allowed to suck more than 2 days; then only three times a day, being put in a pen close by, giving it new milk until one month, then half new and half skimmed with a little boiled Linseed, gradually putting in less until it has all skimmed and Linseed; giving the calf a nice little piece of sweet hay, or a little hay chaff with about half a pint of Barley and Bean meal, which when it eats readily the milk may be gradually taken away, supplying water *ad libitum*. Being then about 4 months old it may run out to Grass, still supplying it with the hay chaff and meal, at which it may continue until 8 months old. If born in March it will now be November; the calf must come into the straw yard receiving one straw and two hay chaff in the morning with about 1 lb. of meal, about half a bushel of cut Turnips at about 9 o'clock, 2 lbs. of cake at 1 o'clock, and chaff again at night.

(17.) The bullocks should be attended to very regularly beginning at 6 o'clock in the morning, giving them nearly 1 bushel of hay chaff with 4 lbs. of Bean and Barley meal, giving them fresh water and cleaning them out, littering with some clean Wheat and straw. At 9 o'clock give them 1 bushel of cut Swedes; at 12 o'clock half a bushel of chaff with about 7 lb. of cake and some more fresh water; at 3 o'clock 1 bushel of Swedes, cleaning them out and littering again; and at 6 o'clock 1 bushel of chaff and 4 lbs. of meal.

(18.) The bullock will be at Grass until the middle of October, when it will be stalled, receiving hay, chaff, meal, Turnips, &c, beginning with 1 bushel of Turnips increasing to 2 bushels average.

1½ bushels per day for 126 days	190 bushels
Averaging 6 lbs. of meal per day ...	756 lbs.
do. 6½ cake do.	819 lbs.
do. 2½ bushels of chaff	315 bushels

Home Correspondence.

Lime and Manure.—In your Paper of the 27th December last is a report of a discussion on lime at Hexham. A paragraph towards the end reads thus—"When lime and manure are put into the soil together, they have a wonderful property of making more manure out of the air," &c. I have always understood that even *effete* lime should not be mixed with farm-yard dung or be put on land intended to be boned. Will you say whether you consider this maxim to be now exploded, [No.] and that such a mixture may be made with advantage, or farm-yard manure and lime applied at the same time to the land. Some little time ago you replied to a question as to the comparative value of farm-yard or stable manure from towns, and guano or bone dust, "that the quality of the first was too various." But I think an approximation sufficiently near for all practical purposes might be arrived at. A prevailing notion seems to be 7*s.* 6*d.* per ton for stable manure on the average when guano is at 10*l.* and bones at 6*l.* per ton; where there is so much difference several shillings per ton on the farm-yard or stable manure might be allowed for the sake of being certainly on the right side, that is, to be sure not to over-value the stable manure, the cartage and spreading costing so much more than upon guano or bones. *R. H., Cheshire.*

Sigma's Dibble.—We are just presented with one of these machines by the inventor for the express purpose of our testing its merits or demerits and reporting upon it, which we hope to be able to do shortly, by describing and showing a uniform plant of Wheat produced from nearly every perfect grain planted. It is said to be very difficult to plant as much as 1 bushel per acre with one of those efficient implements, though it be set to dib and drop it much closer from one grain to another than is thought necessary even by extreme thick seeders. One of the great recommendations of this machine is that with it the work cannot be slurred over; however awkward and careless the labourer may be who uses it, he cannot avoid depositing the seed at equal distances and at uniform depths, if he works according to the simple directions. A man or strong lad is said to be able to perform 1 acre a day, with more pleasure, comparatively speaking, than he can ½ an acre with the old-fashioned pair of dibbles, without taking into consideration the trouble and expense of his droppers. The necessary slowness of the operation of dibbling, and the number of hands required to deposit all the seed on a large farm, have hitherto militated against the more general adoption of this much to be approved of practice. The machines that have been invented to facilitate the process of dibbling do not appear to have taken with the farmer, or at least to have succeeded so well as might be expected. We believe however the present practice of a man making the holes, followed by four seed droppers, to be a most bungling process, and at all events a very unsatisfactory mode of proceeding; besides that little ground is got over in a day, and the work that is done is usually found on the seed coming up to have been executed in a most irregular and slovenly manner. On making inquiries of many intelligent farmers in Essex, we were given to understand that the number of grains dropped in each hole by the existing method varied from nil up to 30. This is a wide range enough—far too much to be creditable. Yet it is what we might naturally expect. The persons employed in dropping the grain are poor women and children, and as the wages are very trifling they are obliged to work fast, being commonly paid according to the quantity of ground they get over, without regard to the manner in which the work is done. Their hands likewise get benumbed with cold, and occasionally some getting behind the rest are obliged to hurry on. All this is calculated to render the mode of dibbling a very bungling operation. Provided the poor people can get over sufficient ground to enable them to earn their wages, they are for the most part extremely indifferent as to how the work is accomplished. In some places on the seed coming up large tufts will be presented to the eye, while in others no seed at all appears to have been deposited. The consequence of this is deplorable. If so many as 30 seeds are huddled together beneath the surface, the roots becoming matted together will either perish from fermentation or otherwise a fine tuft will in due time make its appearance. Take the latter case. In what does this tuft eventuate? For a time they certainly look green and flourishing, and bid fair to become a promising family, but like many other precocious geniuses, whether of the animal or vegetable world, they do not realise the expectations formed of them. Unless this happy family can get food, disease will follow, and death will knock at the door. They however run a race for it, and do the best they can on what they can get; by degrees they become more and more puny and unhealthy; at length they turn yellow and thin, and then drop off like rotten sheep. After this hard fight for existence, two or three stunted things are found to remain. These under favourable circumstances after a time contrive to acquire a little strength, and send forth a shoot or two, but owing to their having been starved in their youth, they never really thrive—they never assume the fine healthy appearance they would have done had they started singly, or by twins, or at most three plants, from the beginning. We have heard people complain of thin seeding being apt to produce an uneven sample. We should say that the example above given is more likely to do so. *Hardy & Son, Maldon, Essex.*

Salt on Barley.—I shall be much obliged to you for information upon the subject of sowing salt upon Barley; whether such an application would be attended with beneficial results or otherwise? The land proposed to be thus treated is dry and rather heavy but still good Barley soil, and when in good condition and in a favourable season produces from 6 to 7 quarters of Barley per acre, but generally of a coarse and inferior quality as the crop is very apt to be laid. Would an application of about 2 cwt. of salt per acre be likely to improve the quality of the Barley? The field upon which I should like to try the experiment this spring, if your answer is favourable, is in good condition, and has now upon it an excellent crop of Swedish Turnips, the whole of which will be consumed by sheep upon the ground, the sheep also having in addition ½ lb. of Linseed cake and ½ lb. of cut Clover per head daily. Salt sown upon Wheat last spring upon the same farm, after the rate of 5 cwt. per acre, answered extremely well, the crop turning out superior, both as regards quantity and quality, to the rest of the field not so treated. *H. F. H.* [We should certainly try salt under the circumstances.]

The Agricultural Labourer.—In a former communication we deprecated the patronising superintendence with which in some few parts of the country our peasantry are visited, not with any view of discouraging the benevolent sympathy which prompts to tender aid wherever and whenever required, but to moderate a little the excesses of superior management, and to recover in such cases for the labourer the liberty to think and act, which injudicious kindness would coerce into so much propriety as to smother altogether. Captain Basil Hall, in a diary he kept at Abbotsford, quotes Sir Walter Scott's opinions about meddling with the domestic affairs of the poor thus:—"I dislike all such interference—all your domiciliary, kind, impertinent visits—they are all pretty much felt like insults, and do no manner of good; let people go on in their own way in God's name. Let the poor alone in their domestic habits, I pray you; protect and treat them kindly, of course, and trust them; but let them enjoy in quiet their dish of porridge and their Potatoes and herrings, or whatever it may be—and consider it as a sin to do anything that can tend to make them lose the precious feeling of independence." These sentiments are very admirable, and evidently refer to a class of peasantry that were by no means neglected by their kind and judicious friend Sir Walter, who so far from keeping aloof from or neglecting his poor neighbours, omitted no opportunity of recognising their claims, sharing in their pastimes, and sympathising in their griefs. How noble is this fellow feeling, how becoming this respect for their privacy, and observe how he cherishes a taste as it were, or love for freedom! It too often happens that where there is much almsgiving there is generally much misery and dependence, and the best charity is frequently that which furnishes employment, awakening the better qualities of our nature by directing the physical and mental energies into profitable channels, and bringing into existence cheerful and generous impulses! Supposing the employer and the labourer to be well suited, how can we calculate upon a continuance of such a happy state of things, and how can we extend the welfare of the working man to his rising family? Granted that a decent school is in operation, and that the children have obtained a smattering "of reading, writing, and arithmetic;" at 12 years old, or sooner, boys and girls commence their out-of-door experience by scaring birds, or weeding, or tending stock, or by driving the middle team. At this stage much depends upon companions, but more, far more, upon the parents; and how differently parents do treat their children need not be dwelt upon, as, alas! it is painful to witness the bad example of some, the neglect of others, and the want of kind and watchful care in many instances apparent. Yet notwithstanding occasional irregularities, improvidence, poverty, and defective house accommodation, the homes of the poor are after all the nurseries of the poor, about which are garnered affections never to be obliterated, which contain their chief objects of hope or anxiety, and where scenes of love and devotion, joy and suffering, bind families together with ties as strong and with regards as dear as do households of higher

pretension, commanding more comforts and exhibiting more wealth. How pleasing it is at Michaelmas to see the stout lad and buxom lass at the next market town, accompanied by the fond mother to direct them in spending their lately received wages; scores of them may then be observed returning at evening with huge packages of hats and bonnets, shoes, and other clothing, to prepare for another year of service, and to take another step in the art of decoration. When they arrive at their cottage they may be perchance huddled together, and more often than could be desired bad effects may arise from such a thickly planted crop; but far less are the evils taken collectively than could be predicated of lodging 12 or 20 youths in one building, with only one steady couple to do the washing, mending, and moral control of a set of harum scarum boys. They are bad enough to manage one or two in a house under the eye of a master, so as to get through the year with nothing worse than an occasional tiff, but very few could be induced to submit to the control of a "committee" who could get a "place" or had the happiness of belonging to a "home." In religious matters "one volunteer is worth two pressed men," and if the clergyman can win here and there a few of the young working class to assist him in a Sunday-school or to take a part in the choir, why it indicates a desire for improvement that should by all means be welcomed and cherished, ay, and even rewarded; for look at the reverse, the knowing, forward, loose and ignorant puppy, accustomed to slang and smoke, emulous of four-corners and pick and hustle, thence to hen roosts and orchard robbing, under the cognizance of constables, a victim to the beer shop, and an old acquaintance of the relieving officer. It may be presumed that good parents will bring up good children, particularly when aided by a pious resident clergyman and intelligent occupiers of land in the village; it is quite a different thing for a well-to-do class being accessible to the poor, honorary members of their benefit societies, cricket clubs, clothing, coal, and other charities, promoters of schools, and giving them a lift when the "shoe pinches," adding to their gardens, threshing their little store of corn, and employing the whole population—to the starch and prudish condescension of patent charity with pity engraved on their supercilious approach, and receipts for soup and instructions for the heathen, lumping the labouring people as so much stock for devout meditation or political capital. Oh, how much well-intentioned goodness is wasted for want of a glimmering of common humanity, common infirmity, and common feeling. One cup of the milk of human kindness would nourish the whole mass into a community of interests; a glow of gratitude, an emulation of excellence, and a taste of real happiness that we hope will, before many years have passed away, be shared alike as the feast of the nobleman, the pastor, the farmer, and the peasant. *J. W., Peterborough.*

Sheep in Sheds.—I wish to ask your advice on the following subject. I keep a number of sheep in sheds, and this autumn I have lost several. The sheep are 3-year old Cheviot wethers, and were bought in September at Falkirk. I began feeding them on Italian Rye-grass, on which they did well. As the Grass failed, I gradually began with Turnip tops and Cabbages, and when the Grass had altogether failed, the sheep got white Turnips cut and mixed with cut Oat straw. They also got ¼ lb of oilcake per day. When they got the Turnips they began to die. I first suspected the Turnip tops; these were stopped, but still no great improvement. I then stopped the Cabbage, and the sheep got nothing but Turnips, straw, and oilcake. I lost no more for three weeks, when I thought I would try a very small feed per day of Cabbages. They got this addition two days, and I lost two more sheep. I have lost none since, as of course I stopped the Cabbage. I had 70 other sheep also in the house, which never got any Cabbage or tops; they were bought later, and I have only lost one sheep from that lot, owing altogether to another cause. The sheep died of inflammation, and generally about 7 to 8 o'clock in the morning. Does Cabbage usually kill sheep; and would Rape have the same effect? The only answer I can get in this neighbourhood is "that sheep always die when they are improving fast." These sheep in other respects have done very well; the price paid was only 27*s.*, and they now average fully 18 lbs. per quarter. *A Subscriber.* [Cabbages have within our knowledge been given with impunity and advantage to sheep. We venture to attribute the mortality in the present case to too great a quantity of succulent green food having been suddenly given to the sheep without that exercise which is experienced in the field. *W. C. S.*]

Farmers' Clubs.

HOLDERNESS.—*Harvesting Corn and Drying the Corn in Stack.*—Mr. Malam, of Holmpton, observed: The serious injury done to Wheat in wet seasons at the period of harvest has lately excited the attention of agriculturists as to the necessity of some method being devised to hasten harvest operations, and the drying of corn in the stack when in a damp condition. Although every effort is made in fine weather to get the crops in a proper dry state, yet there are numerous instances where industry and exertion have totally failed in contending with the uncertain character of the climate of this country. In order, therefore, to mitigate those losses which arise from the causes alluded to, it is evident every mechanical contrivance which engineering skill can bring into operation ought to be adopted, to facilitate harvest operations, and also in the event of a difficult season, to prevent in a great measure the injury liable to be done to corn from wet, by hastening the drying of it, either in the stack or corn chamber. The desirable advantages to be gained by the use of reaping machines, when perfected and simplified in their construction, are such as must eventually supersede the use of the sickle, inasmuch as by their operations the corn is speedily cut, much time and labour are saved, and the corn can be allowed, if required, a longer time to attain an advanced state of ripeness. Their use also will be found to overcome those difficulties which agriculturists have lately experienced in getting in their crops, in consequence of the scarcity of labourers at the time of harvest. Land which has been drained and levelled is more suitable to the efficient working of reaping machines than when undrained and unlevelled with ridges and furrows. In misty, showery, damp weather, it is considered better to run the risk of a slight heating in the stack, than to leave the crop standing out from day to day exposed to alternate changes of mist, rain, and sunshine. The sheaves when taken to the stackyard should be dry to all external appearance so far as moisture is concerned, and if put into moderate sized stacks with kilns, or vents inside, the natural sap of the straw will gradually dry off without causing any damage from heating. Stacks well thatched in this manner will keep out any amount of rain, and the grain in them will keep better and dry sooner, than when enclosed and stored in close barns. The plan adopted by Mr. Charles Lambert, at Sunk Island, of having covered stack yards open at their sides, possesses great practical advantages, and is attended with more economy than the usual custom of thatching with straw. Covered sheds supported on pillars, and open at the sides for the storing of corn, save the cost of thatching and the materials used in covering stacks every year. The sheaves stacked under them are more loosely detached, and being unthatched, admit of a free circulation of air amongst them, so that the damp warm moisture in them passes off more freely, as the grain dries with greater effect and more rapidly. It appears, from an old painting which I possess of the Dutch school, in which there is a farmstead with covered sheds on pillars, open at the sides, that more than 150 years ago the same plan was in use for storing corn. In order to secure grain from harm in a wet season, it has been suggested after reaping the corn to cut off the ears within six inches of the top, by which means they can be brought immediately from the field in bags to be dried and threshed. Less horse or steam power would be required by following out this plan, since scarcely any straw would then pass through the machine when threshing. Another plan for drying corn is to have wooden or brick buildings, inside which to place hot water pipes on the floors. The damp corn is placed on the hot water pipes, the heat from the latter driving out the dampness from the corn, which is carried off through an opening near the roof by a fan or exhauster, worked by steam or horse power, until the operation is completed. Dr. Ure states that 'genial air thrown in by a fan into the basement story of a building prevents stagnation of vapours from damp and moisture which lurk about the foundations of buildings and in sewers, and which are sucked in by the rarifying plan. Many a lordly mansion is rendered hardly tenantable from such a cause during certain vicissitudes of wind and weather.' The condensing plan, however, as executed by the engineers Messrs. Easton and Amos at the Reform Club House, consists of a large fan revolving rapidly in a cylindrical case, and is capable of throwing 11,000 cubic feet of air per minute into a subterranean tunnel under the basement story. The fan is driven by an elegant steam-engine, worked on the expansion principle, of five-horse power. The apparatus at the Bank of England, independently of ventilating several apartments, is put to the severest test, that of evaporating the moisture from a series of 400 large mill boards with a surface of 1600 square feet, and which moisture they have absorbed from the fresh printed bank-notes, which are daily dried by this process. Having briefly alluded to several methods for evaporating or absorbing moisture, I will now call your attention to the plan proposed by me, in the drawing laid before you, for drying damp corn when stacked, &c. I have alluded to vents in stacks, and the storing of corn in open sheds where cold atmospheric air freely admited is beneficial to the more effectual drying of damp corn, and have also alluded to the proposed use of warm or dried air for the same purpose. If then, under such circumstances, the free admission of air, whether by natural or artificial means, has been satisfactorily proved to absorb moisture from corn, paper, linen, or any other, material, I cannot see why condensed air on my plan, thrown into the body of a sack when not in a green state should not absorb and carry off its moisture. The advantages of such a plan in which a current of air is mechanically created are, that the superfluous moisture and the close damp stagnant air in the body of a stack are displaced by the artificial condensed air driving them out, when impelled by a blower worked by steam or horse power. Supposing the quantity of air in every 1000 cubic feet of straw and corn in a stack to be about five cubic feet, then there would be 360 cubic feet of stagnant air in a stack, say 60 feet long and 40 wide, and 30 feet high, of the contents of 72,000 cubic feet. By working a blower with three horses' power, 360 cubic feet of pure air or more could be thrown into the heart of the stack per minute, in which period part of the superficial moisture and the whole of the stagnant damp air would be driven out of the stack. In six hours, therefore, a volume of pure air exceeding 360 times the impure air could be made to force itself into and out of a stack of the size named." Mr. Malam then pointed out that his method was to introduce tubes either of metal, earthenware, or even wood beneath the stack, from which spring up perforated tubes to any number desired. By the action of the blower, atmospheric air, or any other gases, can be forced into the stack, which pervading the whole body of it, carries off the superabundant moisture by a natural process. Sections of a contrivance on the same principle were also exhibited, for the purpose of ventilating corn when stored in the corn chamber.

Farm Memoranda.

LAKEVIEW, NEAR QUEEN'S COLLEGE, GALWAY.—On the 18th ult., the agricultural students of the College attended on the professor's farm at Lakeview, for the purpose of inspecting and estimating the weight and value of the various green crops raised upon the farm during the past season. After carefully selecting and measuring certain spaces, in order to obtain fair averages, they watched the labourers pull, and accurately weigh the different specimens chosen for trial, and from the data thus furnished, they calculated the acreable produce of each kind. The following are the results of their investigations:—

ACREABLE PRODUCE.

CROPS.	SOIL.	British acre.			Irish acre.		
		tons	cwt.	qrs.	tons	cwt.	qrs.
Swedish Turnips ...	Reclaimed bog	23	0	3	37	6	2
Do. do. ...	Upland ...	28	13	3	46	9	1
Dale's hybrid do. ...	Reclaimed bog	29	15	1	48	4	1
Yellow Globe Mangel Wurzel	Upland ...	26	0	3	42	3	3
Long Red do. ...	Do.	27	16	3	45	2	0
White Belgian Carrots	Do.	18	9	2	29	18	3
Red Altringham Carrots	Do.	15	9	2	25	1	2

These quantities do not enter into competition with the enormous yields said to have been raised in various localities; but if careful weighing and accurate calculation be deemed sufficient data from which to judge, then must they be regarded as *bonâ fide* realities; and we think also, beyond the average yield of the United Kingdom, notwithstanding they have been grown upon very inferior land (which was valued by Griffith at only 7*s.* 2*d.* per statute acre), the farm being uneven and hilly, and consisting of either swampy bog or closely consolidated granitic gravel but lightly covered with peat, and plentifully interspersed with sterile rugged rocks; and in every respect in keeping with the prevailing inferior soil of the locality.

When, four years ago, Professor Skilling got possession of the farm, it was considered only fit for poor pasture for inferior stock, and very different indeed were the crops it then produced from those which it now yields.

The land which has produced the crops in question has been deeply drained, subsoiled, trenched, and cleared; and all by means of manual labour, with the aid of those best of all implements—steel forks and spades. Professor Skilling, on this naturally very inferior farm, is successfully endeavouring to carry out and substantiate the views he has so long maintained and promulgated in his writings and his lectures, viz.:—1, That agreeably to the old Roman maxim, a small farm well cultivated is better than a large one mismanaged. 2, That there is, comparatively, little really bad or worthless land in Ireland. 3, That comparatively few farmers know the real value and capabilities of their land. 4, That the best and most profitable mode of managing land in Ireland is by human labour, with the aid of those simple and inexpensive implements, the spade and the fork, &c., and that by such means the greatest amount of produce will be obtained from any given quantity of land, be its quality what it may. 5, That low-priced labour is not, in general, cheap labour; that work judiciously and well done will always pay better than work inefficiently performed, how small soever may be the expenditure; and hence that the employment of manual labour on the farm should always, where practicable, be preferred to that which is done by horses, as it is much superior to, and has many advantages over, the latter. 6, That on every well-managed farm on which a sufficient number of cattle are kept and judiciously house-fed, there will always be an abundance of manure for all purposes annually augmenting, which will not only raise the weight and quality of the crops, but constantly increase the fertility of the soil; and therefore that the purchase of foreign or extraneous manures becomes unnecessary. 7, That the common opinion among farmers, that only certain classes of inferior stock are adapted to their land is fallacious, even mischievous; and that, as the professor himself has proved in his own experience, even what is called very bad land may, by proper management, be made to suit the best of stock, and that all kinds of stock may be kept in any part of Ireland if judicious and careful attention be paid to their feeding, sheltering, and general management.

In conclusion, we believe we are correct in stating that the foregoing particulars are considered by Professor Skilling as the cardinal points in successful, or what may be very appropriately termed, high farming. *A Student, Queen's College, Galway.*

Notices to Correspondents.

ARSENIC: *E M.* You will derive no advantage from drilling dry arsenic with Barley: the rooks will pick up the grain unharmed.—The loss by offal in a fat pig varies exceedingly according to age and fatness. From ¼ to ⅓ of the live weight is offal—the head of a pig is weighed on the carcase, that of the sheep and ox is not.—We shall be lad to have your report of the effects of liquid manure.

CANADIAN AGRICULTURE: *W R* says he would feel obliged to the Canadian farmer who replied to "E. J. C. B.'s" inquiries, if he would kindly answer the following:—Is there any opening that he knows of for a clergyman to follow his own profession, and who is desirous of his sons engaging in farming? Any advice which he could give on such a point would be esteemed a favour. The clergyman has about 3000*l.* which he would invest in land, &c.

COTTAGE ARCHITECTURE: *A Reader.* You had better put yourself in communication with the Secretary to the Society for Improving the Cottages of Labourers, Edinburgh.

DIGGING: *X Y Z.* If you have the ground dug fairly with a grafting tool 2 feet deep, that is at least 20 inches, it will cost you 8*s.* per perch, or 5*l.* 6*s.* 8*d.* per acre. That is supposing the case of a clay soil.

DISINFECTANTS: *Constant Reader.* Mr. M'Dougall's pamphlet was reviewed last week. We cannot advertise for him except in the advertising columns. His pamphlet will give you all the information you desire. It seems to be a successful expedient.—*A Z.* They depend generally on the decomposition of the noxious effluvium. Charcoal acts by burning the vapours which it attracts. It is not so much a strong box in which they are stowed away as a furnace through which, on passing, they become converted into the products of perfect combustion. Dr. Stenhouse explained this; he says:—"When putrifying animal and vegetable substances are covered with charcoal powder, the effluvia and miasmata which under ordinary circumstances they would evolve directly into the atmosphere, are absorbed and oxidised within the pores of the charcoal, where they undergo a species of what is called low combustion, which as effectually destroys them as if they were at once passed through a furnace: it is, therefore, on its absorbing and oxidising power that the great efficiency of charcoal as a deodorising and disinfecting agent depends."

DR. VOELCKER'S PAPERS: *Agriculturist.* They are not published separately that we are aware. They appeared in the Journals of the Bath and the English Agricultural Societies. Dr. Voelcker's address is Royal Agricultural College, Cirencester.

FARM BAILIFFS: *A Working Bailiff* re-opens this subject. We have not room for his paper, but give his conclusion:—"It is not our intention to upbraid, and we are not given to boasting. It is our opinion that unless a Farm Bailiff can (in case of emergency) cast his coat and show how *all* and *sundry* branches of work ought to be executed, he is not the right man in the right place."

FOOD FOR CATTLE: *Tyro in Agriculture.* We hardly understand your question, but half a cwt. of Carrots with 12 lbs. of hay and 12 lbs. of straw cut into chaff is a good daily ration for a cow. If you can give an unlimited quantity of roots, then 1 cwt. of Carrots and half those quantities of hay and straw should suffice.

LABOURERS' COTTAGES: *Tonbridgiensis.* Apply to the Secretary of the Association for Improving the Domestic Condition of the Agricultural Labourer, 51, George Street, Edinburgh.

POTATOES: *Ignoramus.* We should not like to put the sets on a lot of farm manure in drills and then cover with guano and bog earth. The last would be a good thing, but the first two would produce a growth too luxuriant to be free from disease. Superphosphate of lime is not likely to be of much use, and the dry sand of which you speak would not replace the bog earth efficiently. Perhaps for early Potatoes you may more safely use a liberal manuring such as you suggest than you could with propriety for the main crop. As to the manure heap, clay is a good covering whether burnt or not—better unburnt than overburnt.

SALT UPON BARLEY: *F H.* Your letter is published in another column as being likely to excite discussion. Salt has had the effect of brightening and strengthening the straw, and therefore we should apply it.

VALUE OF MANURES: *A Correspondent* asks if the following manures, the analysis of which "are about as below," are worth the sums marked at each, and if these manures are all equally applicable for Grass, Potatoes, Carrots, Mangel Wurzel, and Turnips. If so, what quantities should be used per acre for the above named crops respectively?

No. 1, Superphosphate of Lime, at 6*l.* 10*s.* per ton.

16	per cent.	soluble phosphate.
13	"	insoluble do.
17	"	moisture.
7	"	silica and oxide of iron.
8	"	organic matter.
39	"	sulphate lime.
100		

No ammonia. [This is cheap at 6*l.* 10*s.*]

No. 2, Superphosphate of Lime, at 7*l.* per ton.

16 to 24	per cent.	soluble phosphate.
14 to 6	"	insoluble do.
15 to 14	"	organic matter.
15 to 15	"	moisture.
5 to 5	"	silica.
36 to 36	"	sulphate lime.
100 100		

Containing 1 per cent. ammonia = to 4 per cent. sulphate ammonia.

No. 3, Dissolved Bones, at 7*l.* 10*s.* per ton.

16 to 25	per cent.	soluble phosphate.
14 to 5	"	insoluble do.
15 to 15	"	moisture.
12 to 12	"	organic matter.
5 to 5	"	silica.
38 to 38	"	sulphate lime.
100 100		

Ammonia 1 to 2 per cent. = to 8½ to 13 per cent. sulphate ammonia.

No. 4, Ammoniacal Guano, at 9*l.* per ton.

16 to 25	per cent.	soluble phosphate.
12 to 3	"	insoluble do.
4 to 6	"	alkaline salt.
7 to 8	"	silica.
15 to 12	"	organic matter.
12 to 12	"	moisture.
34 to 34	"	sulphate lime.
100 100		

Ammonia 4 per cent., or equal to 17 of sulphate ammonia.

[They are all cheap at the prices named, the last dearer than the others. They are better adapted for Turnips than the other crops you named, though probably the last-named manure would be efficient in any of the cases named; 3, 4, and 5 cwts. per acre should be applied according to the condition of the land and the quantity of farm manure you can apply along with it. Guano should be applied with the three first named if for Mangel Wurzel, Grass, Potatoes, or Carrots. A guarantee of composition should be obtained.]

WELSH PONIES: *H J.* asks for information about their general disposition and price. What a gelding 3 years old could be got for, between 11 and 12 hands high and untrained? and what is the usual selling price of handsome young Welsh ponies?

ERRATA:—In the article on Ploughs, p. 42, col. *c*, *Agricultural Gazette*, at the 44th and 46th lines from the bottom, for "flow" read "floor," and in col. *a*, p. 43, 5th line from top, for "lightly" read "tightly."

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6*d.* and 1*s.*)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

FLORISTS' FLOWERS

Of extra quality, saved from named and first-class Flowers (for second qualities see Catalogue).

	Per packet—*s.*	*d.*		Per packet—*s.*	*d.*		Per packet—*s.*	*d.*
Auricula, finest	2	6	Cockscomb, crimson	0	6	Hollyhocks	1	0
Do. Alpine	0	6	Do. new rose	0	6	Mimulus	1	6
Calceolaria, extra	2*s.* 6*d.* and 5	0	Do. giant	1	0	Pansy	1	6
Do. new dwarf show	2	0	Geranium, fancy	2	6	Petunia	1	6
Cineraria	2	6	Fuchsias	1	6	Phlox, French	1	0
Carnation	2	6	Gloxinias, erect flowering	2	6	Primula, single fringed	2	6

CHOICE AND NEW FLOWERS

Of extra merit and highly recommended.

Atroclinium roseum	1*s.*	0*d.*	Grevillea robusta	3*s.*	6*d.*	Gaillardia splendidissima	0*s.* 6*d.*
Delphinium cardiopetalum	0	6	Lilium giganteum	1	0	Cosmidium Burridgeanum	1 0
Ditto formosum	1	0	Rhododendron ciliatum	1	0	New Marvel of Peru	0 6
Collinsia bicolor alba	0	6	Ditto javanicum	1	0	" Marygold	0 4
Ditto marmorata	0	6	Stephanotus floribunda	2	6	" Phlox Drummondi	0 6
Calendrinia umbellata	0	6	Poppy, dwarf, white & pink fringed	0	6	Saponaria calabrica	0 3
Nemophila new, white edged	0	6	Sweet William, new varieties.			Ditto, new variety	0 6
Victoria Scarlet Stock, new	0	3	Ipomœa violacea	1	0	New Tropæolum	1 0
Linum grandiflorum rubrum 6*d.* &	1	0	Obeliscaria pulchella	1	0	Lupinus Dunetti superbus	1 0
Ditto (white anthers)	1	6	New Yellow Nasturtium	1	0	Ditto Hartwegi albus	1 0
Oxalis rosea	0	6	" dwarf everlasting do.	0	6	Ditto hybridus superbus	0 3
Salvia argentea	1	0	" scarlet Salpiglossis	0	4	Ditto pubescens elegans	1 0
Tritonea aurea	0	6	Escholtzia tenuifolia	0	6	Ditto tricolor elegans	1 0

Truffaut's French Asters in collections, each	3*s.* 6*d.* and 5*s.* 6*d.*		Stocks, new, large flowering, in collections	2*s.*	0*d.*
E. G. H. & Son's Camellia-flowered Balsams, in collections,	3	6	do. new, large pyramidal do.	5	0
New Hyacinth-flowered Larkspur, in collections	3	0	do. Hybrid Perpetual do.	4	0
Aquilegias, in collections	3	6	do. Giant Cape do.	5	0

Maurandyas, Cobœas, and other Climbers.

Dioscorea Batatas, roots at 3*s.* per doz. | Napoleon III. Cucumber (3 seeds), 3*s.* | Lady Antrobus Cucumber, p. pkt., 2*s.* 6*d.*

For other Culinary novelties, &c., see Catalogue.

Wellington Nursery, St. John's Wood, N.W.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

NEW HYBRID CUCUMBER "PERFECTION."—This is undoubtedly one of the finest varieties ever yet offered to the public; it is a splendid black spine, length 26 inches; a very free setter and an abundant bearer. There were fine fruit cut from plants last year on the 1st of March, and the same carried a good crop till the middle of October. The plants are not at all liable to rust or mildew, which is the case with most other varieties. It will set its fruit as well in the middle of December and January as in April. If ever there was a Cucumber superior to all others this is the variety, and it is well worthy of the name given to it, and will be sure to become as great a favourite as all other hybrid varieties sent out by me. It always grows of an even size from stem to point, and never clubs as many others do. As a Cucumber for Exhibition nothing surpasses it. Fruit of it was given to a medical gentleman last spring, who spoke of it as being the wholesomest and most digestible of its kind he had ever eaten: it being so very firm, solid, and crisp, and not seedy and watery as Cucumbers generally are. Seed of this superb Cucumber is now ready to be sent out at 3*s.* 6*d.* per packet.

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all purchasers, can be supplied:—

CUCUMBERS.

Sir Colin Campbell	2*s.*	0*d.*	Sunderland Wick	1*s.*	0*d.*
Captivation	2	0	Hunter's Prolific	1	0
General Canrobert	2	0	Mill's Jewess	1	0
Phenomena	2	0	Cheltenham Surprise	1	0
Ipswich Standard	2	0	Manchester Prize	1	0
Lord Kenyon's	2	0	Sion House (true)	1	0
Essex Hero	1	0	Cuthill's Black Spine	1	0
Victory of Bath	1	0	Conqueror of the West	1	0
Gordon's White Spine	1	0	Lynch's Star of the West	1	0

MELONS that surpassed all others at the great exhibition of the Crystal Palace, and were awarded First Prizes.

	s.	*d.*		*s.*	*d.*
M'Ewen's Arundel Hybrid Scarlet-flesh	1	6	Bowood	1	0
M'Ewen's Arundel Hybrid Green-flesh	1	6	Victory of Bath	1	0
Monro's Crystal Palace Hero	1	6	Cashmere	1	0
Monro's Golden Gage	1	6	Camerton Court	1	0
The Queen	1	0	Beechwood	1	0
Orion	1	0	Windsor Prize	1	0
Golden Drop	1	0	Emperor	1	0
Green Gage	1	0	Fleming's Hybrid Persian	1	0
Bromham Hall	1	0	Blackall's Green-flesh	1	0
Incomparable	1	0	Bailey's ditto	1	0
Golden Ball	1	0	Snow's Hybrid	1	0
			Golden Perfection	1	0
			Scarlet King	1	0

One packet of either of the first six Cucumbers mentioned and one of either of the first four Melons, and a packet of the Cucumber Perfection, will be sent for 6*s.*

A remittance must accompany every order in cash or penny postage stamps, and the whole, or any part, as the case may be will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had gratis on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

WANTED, the ADDRESS of any Gardener, or his Employer, wishing to have samples, with particulars and prices, free by post, of HAYTHORN'S HEXAGON GARDEN NET, used in most Gardens, and recommended by all the principal Gardeners.

Copy the Address—Mr. HAYTHORN, Nottingham.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—J. BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

BEDS, MATTRESSES, AND BEDSTEADS.—WM. S. BURTON'S NEW LIST of BEDS, BEDDING, and BEDSTEADS is now ready, and can be had gratis.

The quality of beds, mattresses, &c., of every description he is able to guarantee; they are made on the premises, in the presence of customers; their prices are in harmony with those which have tended to make his house ironmongery establishment the most extensive in the kingdom.

Feather beds	from £1	5	0	to	£8	0	0
German spring mattresses	" 2	8	0	"	7	0	0
Horse hair mattresses	" 0	16	0	"	5	0	0
Wool mattresses	" 0	7	6	"	4	9	0
Flock mattresses	" 0	6	6	"	0	18	0
Best Alva and cotton mattresses	" 0	6	6	"	0	19	0
Sheets per pair	" 0	7	6	"	2	6	0
Blankets each	" 0	3	0	"	1	4	0
Toilet quilts	" 0	4	0	"	1	7	6
Counterpanes	" 0	2	6	"	0	15	0
Portable folding bedsteads	" 0	12	6	"	4	15	0
Patent iron bedsteads, with dove-tail joints	" 0	15	0	"	9	0	0
Ornamental brass ditto	" 2	10	0	"	20	0	0
Children's cots	" 0	15	6	"	5	0	0
Bed hangings, in every variety per set	" 0	14	0	"	10	0	0

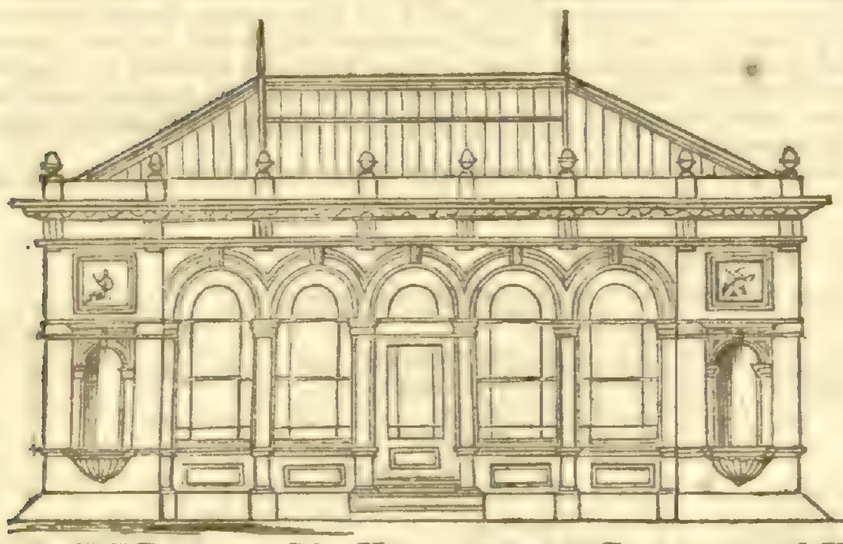
39, Oxford Street, W; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, Oxford Street, London.

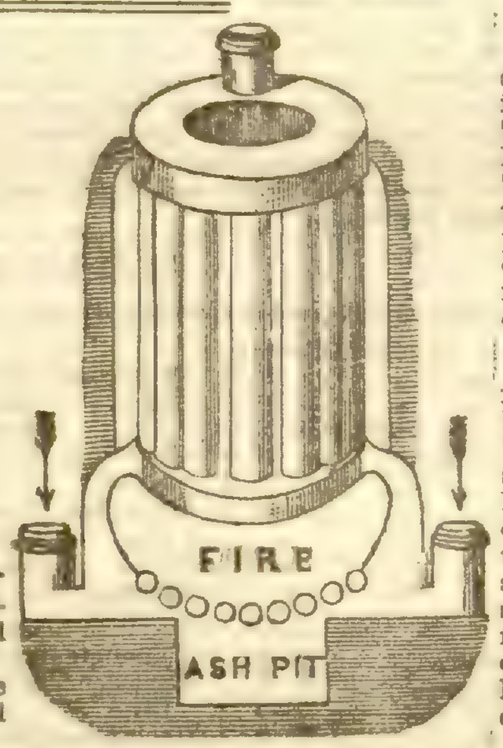
HORTICULTURE IN. ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surf ce which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

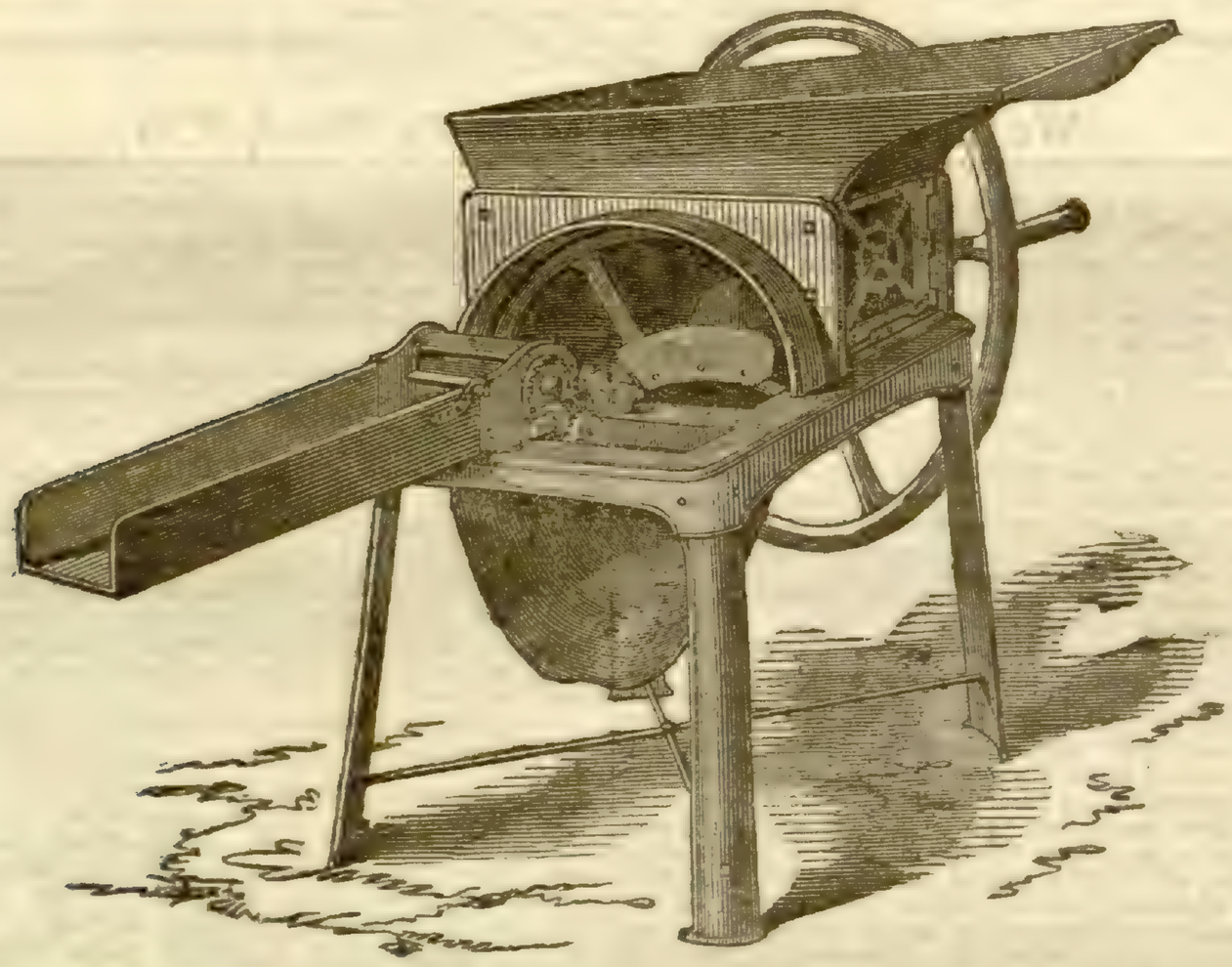
JOHN WEEKS & Co. manufacture *these* Boilers of all sizes. The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10s.
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0s.
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

B. SAMUELSON, Britannia Works, Banbury.

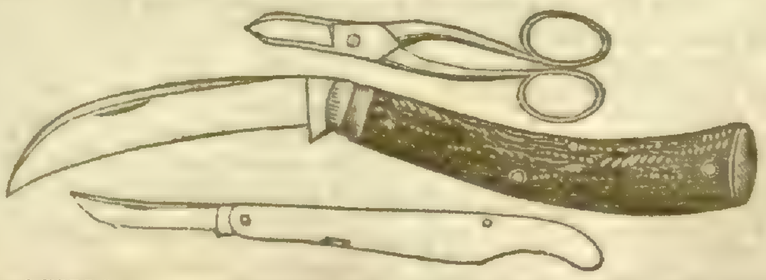
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.

JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1736.

ORCHARD HOUSES.

JOHN BURTON, BUILDER, of Sawbridgeworth, who is accustomed to build ORCHARD HOUSES for Mr. Rivers, is now prepared to give estimates and undertake to build them with the latest improvements, on the most reasonable terms.

HOT-WATER APPARATUS.

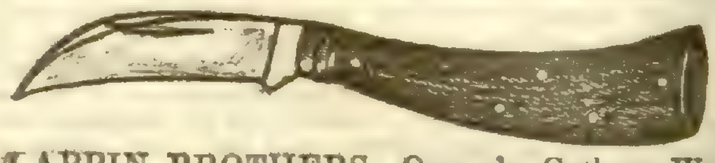
J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER PIPES (CAST IRON) AT WHOLESALE PRICES, with Elbows, Syphons, Tee-Pipes, COIL-PIPES, and every requisite connection. Cast Iron Conical and Saddle Boilers, 50s. each. Improved Soot Doors and Furnace Doors, Builders' Castings, Pipes, and Gutters of every description in stock at Mr. LYNCH WHITE'S, Old Barge Iron Wharf, Upper Ground Street, Blackfriars Bridge, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

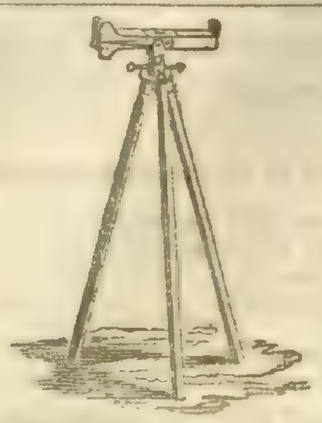
MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

FOUNTAINS.—As the preparation of Stone Work for this purpose generally occupies several months, AUSTIN AND SEELEY respectfully solicit immediate orders for any that may be required in the approaching spring, to ensure its being carefully executed.—Works, 1 to 4, Keppel Row, New Road. N.B. Many new designs of vases and other ornaments have been added during the present year.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

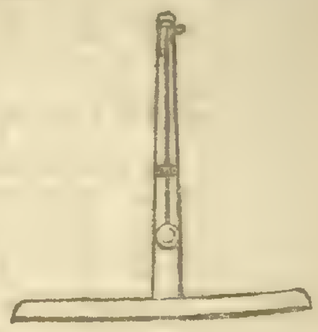
Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.



WEIR'S SPIRIT DRAINING LEVEL. Price 30s.; Case 1s.

Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain.

Price 15s. Terms cash.

Illustrated Catalogues sent post free.

EDWARD WEIR, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l*. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1856 may be had on application.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. PAGE & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London.
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr. Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. W. J. Epps, Maidstone.
" Caldwell, Knutsford.

COLT'S PATENT SIX-SHOT REVOLVERS.—The favourite size for Officers, Army, Navy, and Merchant Service, weight 2 lbs. 8 oz., rifle bored. Also, three sizes POCKET REVOLVERS, for travellers and house protection. A large stock of London-made ready for immediate delivery. Holsters, Belts, Pouches, Cartridges. Description and Price Lists furnished.—Order of SAMUEL COLT, the Patentee and Manufacturer, 14, Pall Mall, London.—Beware of counterfeits.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

JOHN WHITEHEAD, Preston, Lancashire, MAKER of HEATING APPARATUS for WARMING CHURCHES, PRIVATE MANSIONS, GREENHOUSES, &c.

The Apparatus on the POLMAISE SYSTEM unites the functions of a Ventilating and Warming Apparatus, providing for the discharge of foul air, at the same time that it furnishes a supply of pure warm air which may be regulated to almost any desirable temperature. It is free from dust, from noxious or offensive exahalations, and from all danger of fire. It is extremely simple, requiring no skill or great care in its management: the first cost is small, and with regard to economy of fuel it is confessedly superior of all other.

In the construction of HOT-WATER APPARATUS, care is taken to perform the work in a durable and substantial manner, so as to obviate the necessity for frequent repairs, or the possibility of any derangement in its working. It is simple, easy to control, requires little attention, and is quite safe and economical in respectof fuel.

Testimonials forwarded on application. Experienced Engineers sent to any part of the Kingdom, and plans, specifications, and estimates furnished on application.

GLASS FOR HORTICULTURAL PURPOSES. Good 15 oz. Sheet in Squares cut to size:—

Not exceeding	per foot	Not exceeding	per foot
8 inches long ...	... 1½*d.*	24 inches long ...	... 2¼*d.*
12 " " ...	... 1¾*d.*	30 " " ...	... 2½*d.*
16 " " ...	... 2*d.*	40 " " ...	... 2¾*d.*

T. & W. FARMILOE, 12, Rochester Row, Westminster.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 8*d.* per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

JAMES PHILLIPS AND Co. have the pleasure hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.*				8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*		
7 by 5, and 7½ by 5½ ... 13*s.*				9 by 7, and 10 by 8 ... 13*s.* 6*d.*		
11 by 9,	12 by 9,	13 by 9,	14 by 9	...	...	15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10	...	...	16 0
	16 " 10,	17 " 10,	18 " 10	...	...	
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11	...	16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12	...	...	17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12	...	...	18 0
16 " 13,	17 " 13,	18 " 13,	20 " 13	...	...	
	22 " 13,	24 " 13	...	...	...	
20 " 14,	22 " 14,	24 " 14	...	...	...	
10 " 15,	22 " 15,	24 " 15	...	...	...	
	20 " 18	...	...	...	...	... £1 2 0

Boxes charged 2*s.* each, but returnable at full prices.

ORCHARD HOUSES.

SIXTEEN-OUNCE SHEET GLASS FOR ORCHARD HOUSES, THE SAME QUALITY AS WE SUPPLY TO MR. RIVERS, and of various dimensions, always on hand, at 18*s.* per 100 feet.

Double-crown Glass of various dimensions in 100 feet boxes.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¾*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet, 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, London.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices. Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25*s.*; galvanised do., 30*s.*; cast iron, 35*s.* each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street, London.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains Designs and Prices of every description of BED-ROOM FURNITURE, as well as of 100 Bedsteads and Prices of every description of Bedding sent free by post.—HEAL & SON, Bedstead, Bedding, and Bed-room Furniture Manufacturers, 196, Tottenham Court Road, W.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

CELEBRATED HAIR PREPARATIONS.—ALEX. Ross's LIQUID HAIR DYE, easily applied, being the best in the world. Sold from 3*s.* 6*d.*; sent free for 54 stamps. ALEX. Ross's Hair Destroyer or Depilatory, for removing superfluous hair from the face, neck, arms, and hands, 3*s.* 6*d.* per bottle, sent for stamps; free by post, 8 extra. ALEX. Ross's Cantharides Oil, for strengthening the hair, and producing whiskers, 3*s.* 6*d.*; sent free for 54 stamps. ALEX. Ross's Face Powder, or Pomadore, from 1*s.* the packet; free, 14 stamps. Liquid Rouge, 2*s.* 6*d.* per bottle.—ALEX. Ross, 1, Little Queen Street, High Holborn. Wholesale Agent, BARCLAY, Farringdon Street, London.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice is now made known as a public duty throughout the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 16*s.* 6*d.* by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

ALLSOPP'S PALE ALE IN IMPERIAL PINTS.

HARRINGTON PARKER AND CO. are now delivering the October Brewings of the above celebrated Ale. Its surpassing excellence is vouched for by the highest Medical and Chemical Authorities of the day. Supplied in bottles, and in casks of 18 gallons and upwards, by HARRINGTON PARKER & Co., 5½, Pall Mall.

HOW TO BREW SPLENDID ALE AT 7*d.* PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1*s.* 9*d.* per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny post stamps. Sent, post-free, to any address. Direct to FISHER & SON, publishers, Kingsland, London. Established 1847.

GIFTS OF FRIENDSHIP AND AFFECTION.—The almost insuperable difficulty so frequently experienced in the selection of an appropriate article for presentation which will fully convey in an acceptable, attractive, and useful form the kindly intention of the giver, and at the same time merit the appreciation and regard of the recipient, is now entirely removed by an inspection of the varied attractive MANUFACTURES displayed in the magnificent Show Rooms of Mr. MECHI'S Establishments, 112, Regent Street, 4, Leadenhall Street, London, and at the Crystal Palace, Sydenham, consisting of the newest and choicest patterns in ladies' and gentlemen's dressing cases, workboxes, writing desks, dressing and carriage bags, inkstands, bagatelle tables, caskets, tazzas, French bronzes, and bijoux of the newest and most novel description. The papier mâché department presents a large variety of the most beautiful designs in work tables, chess tables, desks, blotting cases, inkstands, tea trays, pole screens, teapoys, envelope cases, multiformeas, cabinets, tea chests and caddies, jewel boxes, &c., table and small cutlery of every description.

☞ Same prices charged at all the Establishments.

CLOSE OF HOLIDAYS.—The return of Youth to their respective Boarding-Schools induces a solicitude from Parents and Guardians for their personal comfort and attraction, and ROWLANDS' MACASSAR OIL, for accelerating the growth and improving and beautifying the hair; ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions; and ROWLANDS' ODONTO, or Pearl Dentifrice, for rendering the teeth beautifully white, and preserving the gums, are considered indispensable accompaniments for the attainment of those Personal Advantages so universally sought for and admired. Beware of spurious imitations. The only genuine of each bears the name of "ROWLANDS" preceding that of the article on the wrapper or label.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

HOLLOWAY'S OINTMENT AND PILLS THE ONLY INFALLIBLE REMEDIES FOR THE CURE OF ERYSIPELAS.—Charles Howard, of Abergavenny, Monmouthshire, was grievously afflicted for three years with Erysipelas, until he almost lost his sight and hearing. He consulted the most eminent physicians in the neighbourhood without deriving the least benefit from their advice; at last he determined to have recourse to HOLLOWAY'S Ointment and Pills, when by persevering in the use of both he was perfectly cured in less than two months after every other means had failed.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

TO BE DISPOSED OF, Two Pens of TOULOUSE GEESE of the very best quality. Each Pen consists of a Gander and two Geese.—Apply to JOHN NUNN, Bailiff, at Ruxley Lodge, near Esher.

TO NURSERYMEN, SEEDSMEN, GARDENERS, &c.

ON SALE, a large quantity of very stout BAG MATS, large-sized, DUNNAGED MATS, and a considerable quantity of CART and VAN COVERS, from the Crimea, at a low price. Old and new Archangel Mats, old and new Sacks and Bags of every description on hand.

JOHN HENRY, 31, Mark Lane, City.

FOR SALE, TWO NEW GREENHOUSES, highly finished and ready for fixing. Size of No. 1 is 33 feet by 17 feet in the clear. This house has secret gutters and moulded cornices; also worked mullions all round, the backs of which are chamfered, and the whole of the rafters worked to match. The sashes are made to open all round, and has folding doors at each end.

No. 2 is 45 feet long by 18 feet in the clear, span roof, octagon ends, with secret gutters, and handsome moulded cornices; also the mullions are moulded 1¼ inch on, with lamb's-tongue moulding. The rafters are also moulded, the whole of the lights to match, and the sashes have elliptic heads and bars to match. Both houses have been made of the very best materials, and glazed with 16 oz. sheet glass, and will be disposed of at a very low rate.—Particulars may be had of the Owner, who may be seen on Tuesdays and Fridays from 3 to 4 o'Clock at Mr. SOMMERVILLE'S Nursery, Garden Road, St. John's Wood; and Mr. PATTERSON'S Nursery, 11, Clarendon Place, Maida Vale, Thursdays and Saturdays, from 12 till 4.

TO NURSERYMEN, GARDENERS, & OTHERS.

TO BE DISPOSED OF, a BUSINESS in the above line, with a good connexion, situate in the fashionable and improving town of Margate, Isle of Thanet, with a good Dwelling House, Greenhouses, Pits, and all requisite Buildings for carrying on a large trade. Nearly 2 acres of good Land walled in, and in first-rate condition, with a good supply of water. Rent 30*l.* per annum. The Stock is small and saleable, coming-in moderate. Immediate possession can be had. Satisfactory reasons given for leaving.—For further particulars apply to Mr. STROUD, Swiss Cottage, Margate.

CORN MILL IN EAST KENT.

TO BE LET ON LEASE, the CORN MILL at Charlton, Dover, for 7 or 14 years, from the 6th of April next, on account of the decease of the late owner. This Mill possesses advantages which few country mills offer. It is brickbuilt, in perfect repair, and is now being refitted with machinery constructed on the newest and most improved principles. It will contain 10 pairs of stones. It has an unfailing supply of water power. It is near the Railway Station. It has been established for centuries, and has long enjoyed a gristing trade, yielding a considerable income, and susceptible of easy increase. It is admirably situated for retail trade. On the same stream there are several other Corn Mills; but all, except Charlton Mills, are periodically straitened by want of water; while even when water is most abundant, Charlton Mill will be found able to do with ease more work than all the other mills on the same stream in combination. The Mill and the adjoining Store House are capable of containing five thousand quarters of wheat. The several buildings, which embrace a commodious stable and cart house, are lighted with gas. If the tenant should desire such an arrangement, a house will be built for his accomodation. To an enterprising miller possessed of capital, Charlton Mill offers very rare advantages—For further particulars, apply to G. T. THOMPSON, Esq. Solicitor, Dover.

4, Great Russell Street, Covent Garden, 1857.

JOHN KERNAN,

IN OFFERING TO HIS FRIENDS AND THE PUBLIC THE ANNEXED

LIST OF VEGETABLE AND FLOWER SEEDS,

WHICH INCLUDES EVERY NOVELTY INTRODUCED UP TO THE PRESENT SEASON,

BEGS TO ASSURE HIS CUSTOMERS THAT HE HAS SPARED NO TROUBLE IN SECURING EVERY ARTICLE AS GOOD AS IT COULD POSSIBLY BE PROCURED.

PEAS. Per qt.—*s. d.*

Harrison's Perfection, white 5 0
„ Glory, blue... ... 5 0
Eugene 5 0
Early Emperor 1 0
Shilling's Early Grotto ... 1 0
(Early and large, and a fine late Pea.)
Bishop's new long-podded 1 0
Fairbeard's Champion of England 1 0
Fairbeard's Surprise ... 1 0
British Queen 1 0
Knight's Dwarf, green and tall 1 0
Scimetar 0 9
Woodford or Nonsuch ... 1 0
Victoria Marrow 1 0
Napoleon 5 0
Dwarf green Mammoth ... 1 6
With all other varieties worth cultivating.

BEANS. Per qt.

Early Mazagan 0 6
Sword Longpod 0 8
Hangdown... ... ... 0 6
Taylor's Windsor ... 0 8
Johnson's Wonderful ... 0 8
Green Genoa 0 8
Dwarf French, of sorts ... 1 0
Scarlet Runners 1 0
Painted Lady do.... ... 1 0

Per oz.

Beet, fine London Red ... 0 6
„ Silver, or Seakale ... 0 6
„ Whyte's black ... 0 6
Borecole, new heading, per paper 0 6
„ red and white variegated, for garnishing 0 6
„ dwarf curled, per oz... 0 6
Brussels Sprouts (foreign seed, fine) per oz.... 0 9
„ English do. ... 0 6
Kohl Rabi, per paper ... 0 6
Savoy, green curled, per oz. 0 6

BROCCOLI. Per oz.

Myatt's Early Purple Cape 1 0
Miller's Dwarf 1 0
Chappell's Cream ... 1 0
Dancer's Early White ... 1 0
Somner's Late White ... 1 0
Willcove White, late ... 1 0
Grange's Early White—from the original raiser 1 0
Invisible White 1 0
Purple Sprouting 1 0
Walcheren... ... ... 1 0
Imperial Winter 1 0
Dwarf Siberian 1 0
Purple Syrian 1 0

CABBAGE. Per oz.

Nonpareil 0 6
Shilling's Queen 0 6
Atkin's Matchless ... 0 6
Enfield Market 0 6
Knight's Early Dwarf ... 0 6
Early York 0 6
Large York 0 6
Early Battersea 0 6
Couve Tronchuda, p. paper 0 6
Red Dutch 0 6
And all other kinds in cultivation.

CARROT. Per oz.

Early forcing Horn ... 0 6
Early Scarlet Horn ... 0 4
Long Orange 0 3
Fine Surrey 0 3
Altringham, per lb. ... 1 0
White, for Agriculture, p. lb. 1 0
Parsnip, Hollow-crown, per oz. 0 3

CAULIFLOWER. Per oz.

Mercer's fine Pearly ... 1 0
London Particular ... 1 0
Large Asiatic 1 0
Walcheren 1 6

PARSLEY. Per bush.

Plain, for sheep-walks and early lambs 14 0
Extra curled, per oz. ... 0 3

CRESS.

Plain, per pint 0 6
Curled 1 0
American, per oz. ... 0 3

CRESS. *s. d.*

Water, per paper... ... 0 6
Mustard, per pint ... 0 6

CELERY. Per oz.

Coles's Superb Red ... 0 6
„ White 0 6
Seymour's Superb White 0 6
„ Superb Red ... 0 6
New Rose, solid 0 6
New Giant 0 6

CUCUMBER. Per paper.

Crawshay's Ne Plus Ultra 1 0
Victory of Bath 0 6
Acme of Perfection ... 0 6
Syon House 0 6
Weedon's Free Bearer ... 0 6
Early Frame 0 3
Kerrison's 0 6
Walker's Rambler ... 0 6
Windsor Prize 0 6
Early Handglass 0 3
Early Ridge 0 3

MELONS.

Seymour's Golden Perfection 0 6
True Syon House 0 6
Snow's Hybrid Green-flesh 0 6
Beechwood 0 6
And all the better sorts grown for this market.

ENDIVE.

New Imperial, per packet 0 6
Batavian, per oz. 0 6
Green curled 0 6
White curled 0 6

Herbs, all the kinds, p. pkt. 0 6

LETTUCE. Per oz.

Bath Cos, black seeded ... 1 0
Brighton Cos 1 0
Imperial Cos 1 0
Victoria Cabbage... ... 1 0
Green Paris Cos 1 0
White Summer Cabbage 1 0
Fine London White Cos... 1 0
Paris Cos 1 0
Drumhead 1 0
Bath Cos and others ... 1 0

ONION. Per oz.

James's Long Keeping ... 0 6
Fine White Spanish ... 0 6
Globe 0 6
Strasburgh... ... ... 0 6
Deptford 0 6
Silver-skin 0 9
Tripoli 0 6
Blood red 0 6
Two-bladed, for pickling 0 6

RADISH. Per oz.

New Scarlet Olive-shaped, a delicious new variety 0 3
New Rose 0 3
Early frame, per pint ... 1 0
Long Scarlet 1 0
Red and White Turnip ... 1 6
Black Spanish, per oz. ... 0 3

SPINACH.

New Flanders, per pint ... 0 6
Round, or Summer ... 0 6
Lettuce-leaved (new) ... 0 6
New Zealand, per oz. ... 0 3

TURNIPS. Per oz.

Early Snowball 0 3
Red American Stone ... 0 3
Teltow, for stewing ... 0 3
Early Dutch 0 3
Yellow Maltese 0 3
„ Stone 0 3
Early Snowball, per lb. ... 2 0
Early Dutch (earliest), true imported 2 0

Vegetable Marrow, p. pkt. 0 3
Gourds, ornamental ... 0 6
„ cw't 0 6

AGRICULTURAL TURNIPS

Yellow Bullock per lb.—1 0
Skirving's Swede... ... 1 0
Laing's ditto 1 0
Ashcroft ditto 1 0
Dale's Hybrid 1 0
Red Round 1 0
White Round 1 0
White Globe 1 0
Oxheart 1 0

Per lb.

Drumhead Cabbage ... 2 6
Thousand Headed ... 1 6

Furze, per lb., 1*s.* Broom, 1*s.*
Coarse Grasses for Game Covers, 8*s.* per bushel.
Yellow Globe and Long Red Mangel Wurzel, per lb., 1*s.*
White Silesian or Sugar Beet, per lb., 1*s.*
Chevalier Barley; Hopetoun, Tartarian, Sandy, and other Oats.
Flax, from Riga seed, one year grown in this country.
A fine collection of all the best Permanent Grasses (hand picked), separate or mixed. If mixed, per bushel, 8*s.*
Sweet Vernal, the earliest and most suitable Grass for early Lambs, 2*s.* per lb.
White, 1*s.*, and Red Clover, 9*d.*; Lucerne, 1*s.*; and Trefoil, 6*d.*
Kohl Rabi, for Agriculture, per lb., 2*s.*
Italian Rye-grass. Spring and Winter Tares.
A few of the very finest Grasses for Lawns, per lb., 1*s.* 6*d.*
30 papers of Hardy Annuals, 5*s.*
15 „ „ 2*s.* 6*d.*

Myatt's fine new Strawberries.
Asparagus plants, according to age, per 100, 2*s.* 6*d.* to 5*s.*
Seakale plants, according to age, per 100, 5*s.*; do. for forcing, 10*s.*
Dulley's Early Scarlet Admirable Rhubarb, per root, 1*s.*
Myatt's Victoria do. (the largest in cultivation), 1*s.*
Mushroom Spawn, per bushel, 5*s.*
Cornwall's Victoria Raspberry, per dozen, 2*s.* 6*d.*
All the fine new Raspberries, 2*s.* 6*d.* to 3*s.* per dozen.
Seeds of all the new Strawberries, Raspberries, Gooseberries, and Currants, per paper, 6*d.*; with Tree Seeds recommended to Emigrants.

POTATOES.

Per bushel.—*s. d.*		Per bushel.—*s. d.*	
Soden's Early Oxford ...	8 0	Ash-leaved Kidney ...	8 0
Barnard's Early Frame ...	8 0	Fluke Kidneys	5 0
Shilling's Early Prolific	8 0	Forty-fold	5 0
Kirke's True Ash-leaved Kidney	8 0	Early Hen's Nest... ...	5 0
Walnut-leaved Kidney ...	8 0	Early Shaw	5 0
		Prince Regent's	5 0

And many other most productive late kinds; also seed saved from the best varieties, 6*d.* per packet.

Garlic, per lb., 6*d.* Shallots, per lb., 6*d.*
Budding and Pruning Knives.
Russia Mats, 1*s.* 6*d.* each. Cuba Bass, per lb., 2*s.*
Buckwheat, Indian Corn, Rape, Hemp, &c., for Aviaries.
The trade supplied on moderate terms with every article true to its kind. Catalogues may be had on application.

FLOWER SEEDS.

Superb German and Prussian Stocks, 24 distinct varieties, for exhibition, the collection, 8*s.*
12 varieties of do., distinct in colours, 4*s.*
12 autumn flowering do., in distinct colours, 4*s.*
A mixture of all the finest varieties of Ten-week, per paper, 6*d.*
12 varieties of Brompton Stocks, 4*s.*
A mixture of Brompton do., per packet, 6*d.*
12 named varieties of Hollyhocks, 3*s.*
8 named varieties of Marvel of Peru, 2*s.* 6*d.*, fine, for the front of [Shrubberies.

Per packet.—*s. d.*		Per packet.—*s. d.*	
Abronia umbellata ...	0 6	Convolvulus minor, striped	0 3
Achimenes, seeds and bulbs		Clary, white topped ...	0 6
Ageratum albiflorum ...	0 6	CLIMBERS.	
Alstrœmeria, of sorts ...	0 6	Cobœa scandens	0 6
Anagallis, of sorts ...	0 6	Calampelis scaber ...	0 6
Amethystea cærulea ...	0 3	Lophospermum erubescens	0 6
Anemone, fine mixed ...	0 6	„ Hendersoni	0 6
Antirrhinum (all the new kinds)	0 3	Loasa aurantiaca	0 6
Argemone grandiflora ...	0 3	Maurandya Barclayana ...	0 6
„ Barclayana ...	0 3	„ new scarlet ...	0 6
„ speciosa ...	0 3	Tropæolum peregrinum ...	0 6
Aquilegia glandulosa, fine	0 6	„ pentaphyllum	0 6
„ fragrans ...	1 0	„ tricolorum	0 6
„ fine mixed German varieties	0 6	„ grandiflorum	1 0
Asters, 12 distinct German vars, in sealed packets	4 0	„ trimaculatum	0 6
A mixture, including all the colours of above ...	0 6	„ minor coccineum	0 6
Asters, 12 distinct French varieties	4 0	Ipomœa rubra cærulea ...	0 6
A mixture, including all colours of above ...	0 6	„ punctata... ...	0 6
Auricula, from fine named flowers ...	1 0	„ rosea	0 6
„ alpine	0 6	Thunbergia alata... ...	0 6
Brachycome iberidifolia...	0 6	„ alba ...	0 6
„ alba, new ...	0 6	„ aurantiaca ...	0 6
Balsams, 12 very fine distinct colours, all double	5 0	„ new yellow...	0 6
„ mixture of above	0 6	Collinsia grandiflora ...	0 3
Bartonia aurea	0 3	„ bicolor	0 3
Blumenbachia insignis ...	0 6	„ Bartsiæfolia ...	0 6
Browallia, of sorts ...	0 6	„ multicolor ...	0 6
Calceolaria, new sp. (annual)	1 0	Cowslip, fine mixed ...	0 6
Calceolarias, from a collection of named shrubby kinds	1 0	Dahlia scabigera, dwf. lilac	0 6
Calceolarias, from Herbaceous do....	1 0	„ fine mixed... ...	0 6
Calendrinia discolor ...	0 3	Datura fastuosa, purple ...	0 6
„ grandiflora ...	0 3	„ „ white ...	0 6
„ umbellata ...	0 6	„ ceraticaule ...	0 6
Campanula pulcherrima...	0 3	Delphinium or Larkspurs	0 3
„ Lorei, blue ...	0 3	Ditto, biennial and perennial varieties	0 3
„ „ white...	0 3	Digitalis or Foxglove ...	0 3
„ stricta ...	0 3	Dianthus, double white Indian pink ...	0 6
„ sylvatica ...	0 3	„ double Indian ...	0 3
„ grandis ...	0 6	„ Cheri	0 3
Catananche bicolor ...	0 3	„ Garnierianus ...	0 6
Chœnostoma fastigiata ...	0 6	„ superbus nanus .	0 6
Cistus guttatus, very dwf.	0 6	„ imperialis, very double	0 6
Clintonia pulchella ...	0 6	And others.	
„ elegans ...	0 3	Didiscus cæruleus ...	0 6
Cockscomb, dwarf scarlet	0 6	Eucharidium grandiflorum	0 3
Cuphea, all the kinds ...	0 6	Eutoca viscida	0 3
Cineraria, selected from the latest new kinds ...	1 0	Egg plant, white	0 3
Commelina alba	0 3	„ purple ...	0 3
„ cœlestis ...	0 3	Eschscholtzia, 3 sorts ...	0 3
Carnation, from named flowers	1 0	„ new white	0 6
Clarkias, all the varieties	0 3	Erysimum Perofskianum	0 3
Coreopsis, new marbled ...	0 6	Fuchsia, from named sorts	0 6
„ tinctoria ...	0 3	Gaillardia picta	0 6
„ Drummondi ...	0 3	„ Josephus, new	0 6
„ nigra (new) ...	0 3	„ Richardsoni ...	0 3
Candytuft, new crimson...	0 3	„ aristata ...	0 3
„ purple... ...	0 3	Gaura Lindemani ...	0 6
„ white	0 3	Globe Amaranthus, of sorts	0 3
„ sweet-scented .	0 3	Geum splendens	0 6
Convolvulus major ...	0 3	Geranium, from fine sorts	1 0
„ minor ...	0 3	Gilia, of sorts	0 3
„ do. new dark	0 3	Grahamia aromatica ...	0 6
		Gramnathes gentianoides	0 6
		Godetia, all the new sorts	0 3
		Heartsease, from first-rate prize flowers	0 6
		Humea elegans	0 6
		Helichrysum macranthum	0 6
		„ bracteatum album	0 3
		Heliotropium peruvianum	0 6
		„ Voltaireanum	0 6
		Hibiscus, of sorts... ...	0 3

FLOWER SEEDS.

Per packet.—*s. d.*		Per packet.—*s. d.*	
Heliophila araboides ...	0 3	Papaver marcelli	0 3
Helianthemum, Rock Cistus	0 3	„ nudicaulis ...	0 3
Hollyhock, Chinese ...	0 6	Poppy, carnation, mixed	0 3
„ fine mixed ...	0 3	Peas, sweet, all the colours, separate or mixed ...	0 3
Ipomœa coccinea	0 6	Pentstemon, of sorts ...	0 6
„ Burridgi	0 6	Perilla nankinensis ...	0 6
„ quamoclit... ...	0 6	Phlox Drummondi ...	0 6
Ipomopsis elegans ...	0 6	„ „ white ...	0 6
Isotoma axillaris	0 6	„ Leopoldi (new) ...	1 6
Jacobæa, double crimson	0 3	„ new, scarlet	0 6
„ „ purple ...	0 3	„ oculata	0 6
„ new lilac ...	0 3	„ perennial mixed ...	0 6
„ yellow	0 6	Picotee, from named flowers	1 0
Kaulfussia ameloides ...	0 3	Platystemon californicus	0 3
HANDSOME ORNAMENTAL GRASSES ..... per paper, 6*d.*		Potentilla	0 3
Larkspurs, 12 distinct Per pkt.		Polyanthus, fine mixed ...	0 6
German vars.	2 6	Portulacca splendens ...	0 6
„ mixed dwarf		„ Thellusoni ...	0 6
Rocket ...	0 3	„ grandiflora ...	0 6
Leptosiphon densiflores ...	0 3	„ striata alba ...	0 6
„ androsaceus	0 3	„ Gilliesi ...	0 6
„ luteum ...	0 6	„ yellow	0 6
Loasa aurantiaca	0 6	Primula sinensis (white fringed) ...	1 0
Limnanthes grandiflora...	0 6	„ lilac	1 0
„ Douglasi ...	0 3	„ large crimson ...	1 0
„ rosea	0 6	„ cortusoides ...	0 6
„ sulphurea odorata	0 6	„ rubra striata ...	2 6
Linum grandiflorum album	0 6	Rhodanthe Manglesi ...	0 6
„ „ rubrum	0 6	Salpiglossis, new scarlet	0 6
Lobelia heterophylla major	0 6	„ fine mixed...	0 6
„ ramosus alba ...	0 6	„ new yellow	0 6
„ „ rosea ...	0 6	Salvia Ræmeria	1 0
„ gracilis alba ...	0 6	Salvia, of sorts	0 6
And others ...	0 3	Sanvitalia procumbens ...	0 3
Lotus Jacobæus	0 3	Saponaria calabrica ...	0 6
„ nova sp.	0 6	„ ocymoides ...	0 6
Lupinus Hartwegi ...	0 3	„ multiflora ...	0 6
„ „ roseus	0 6	Schizanthus Hookeri ...	0 6
„ nanus	0 3	„ Grahami ...	0 6
„ Cruikshanki ...	0 3	„ retusus alba...	0 3
„ affinis	0 3	„ humilis ...	0 3
„ monogynia ...	0 6	„ Priesti ...	0 3
Lychnis, of sorts	0 3	„ venustus ...	0 3
Malope grandiflora ...	0 3	Schizopetalon Walkeri, very sweet	0 6
Mallow, new zebra ...	0 3	Sphænogyne speciosa ...	0 3
Malva miniata	0 3	Streptocarpus Rexi ...	0 6
Madaria corymbosa ...	0 6	Silene pendula alba ...	0 6
Marvel of Peru	0 3	„ Schafta	0 6
Marigold, dwarf pigmy French	0 6	„ compacta	0 6
Other varieties	0 3	Stock, white pyramidal ...	0 6
Maurandya, new white ...	1 0	„ Buck's Intermediate, 16 out of 20 will come double ...	0 6
Mesembryanthemum tricolor	0 6	„ Chapman's Scarlet Ten-week ...	0 3
Mignonette, new large, per oz.	0 6	„ Shepherd's White ...	0 3
Mignonette, per oz. ...	0 6	„ „ Purple ...	0 3
Mimosa sensitiva... ...	0 6	Sedum cæruleum, for rockwork	0 6
Mimulus, from 12 distinct named varieties ...	0 6	Sultan, yellow	0 3
„ moschatus ...	0 3	„ white and purple .	0 3
Martynia fragrans ...	0 6	Tagetes signata	0 3
Myosotis palustris (Forget-me-not)	0 6	„ lucida	0 3
Nasturtiums, of all sorts...	0 3	Thunbergia (*see* Climbers).	
Nemesia floribunda ...	0 6	Tropæolum (*see* Climbers).	
„ versicolor, new	0 6	Tropæolum speciosum ...	1 0
„ compacta, new	1 0	Viscaria oculata	0 3
Nemophila insignis major	0 3	„ new dwarf ...	0 6
„ insignis alba ...	0 3	„ white	0 6
„ discoidalis ...	0 3	Violet, Russian (ever-flowering)	0 6
„ maculata ...	0 3	Verbena, a mixture of best sorts	0 6
„ aurita alba ...	0 6	Wallflower, blood red ...	0 3
„ striata	0 6	„ double German	0 6
Nierembergia splendens...	0 6	„ changeable ...	0 6
„ violacea ...	0 3	„ 8 vars. of imported German	2 6
„ fine mixed	0 6	Zinnia elegans coccinea ...	0 6
Nolana atriplicifolia ...	0 3	„ purpurea	0 6
„ paradoxa	0 3	„ aurea	0 6
„ grandiflora alba ...	0 6	„ mixed from 20 separate varieties ...	0 6
Nycterinia selaginoides ...	0 6		
„ capensis ...	0 6		
Œnothera Drummondi ...	0 6		
„ macrocarpa ...	0 6		
And others...	0 3		

Ornamental Trees and Shrubs of all descriptions.
Cedrus Deodara, Cryptomeria japonica, Taxodium sempervirens, 2*s.* 6*d.* to 10*s.* 6*d.* each; all the new Pinus.
Named Double Anemones and Ranunculuses; Gladiolus Brenchleyensis and gandavensis; Tigridia pavonia and conchiflora, with many other flowering Bulbs and Herbaceous Plants, which may be planted out till the middle of May.
Carnations, Picotees, and Pinks, per pair, from 1*s.* to 3*s.* 6*d.*
All the better named Heartsease from 6*s.* to 30*s.* per dozen.
Fine named Dahlias, per dozen, 6*s.* to 12*s.*
„ Chrysanthemums, new kinds, 6*s.* to 12*s.*
Standard Dwarf and Climbing Roses, 1*s.* to 2*s.* 6*d.* each.
Rivers' Miniature Fruit Garden, with directions for culture and root pruning, 2*s.*—Rivers' Orchard House, 2*s.*
Rivers' new edition of the "Rose Amateur's Guide," 3*s.* 6*d.*
Rivers' new Fruit Catalogue, 6*d.* [should distribute to cottagers.
Paxton's "Cottage Calendar," 3*d.*, which ladies and gentlemen
Collections of 24 Annuals, mixed, recommended by Dr. Lindley as suitable for Shrubberies, 5*s.* [on the most liberal terms.
Seeds for distribution by gentlemen to their tenants and cottagers
Seeds selected and carefully packed for Australia, North and South America, India, and New Zealand, in the most secure way to arrive safe at any of the above places.

Ladies and gentlemen relying upon the judgment and experience of JOHN KERNAN, instead of being supplied (as is often the case) with what is neither useful nor ornamental, may depend upon having a selection of the most useful and indispensable Vegetables to any amount named, by the parties forwarding him their orders. The same economy will be observed in the choice of Flower Seeds. J. K. feels it almost needless to observe that the liberality of discount will be with the amount.

Old Meadow Turf, which will take a considerable time to decompose and char by the regular or natural means, may be produced by the following simple and short process:—Place four bricks raised two on two above 3 feet distance from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine and allowing your Turf to remain until charred it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin of the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other *until October.*

SEEDS SELECTED AND CAREFULLY PACKED FOR ALL CLIMATES.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex. Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, January 24, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 5.—1857.] SATURDAY, JANUARY 31. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next Meeting of this Corporation for the EXHIBITION of FRUIT, EARLY FLOWERS, FORCED VEGETABLES, and other objects of Horticultural interest, and the ELECTION of FELLOWS, will be held on TUESDAY, February 3, at 2 P.M.

Admission only by Fellow's personal introduction, Ivory Tickets, or Written Order.—21, Regent Street, S.W.

HORTICULTURAL MEETINGS AT THE BRISTOL AND CLIFTON ZOOLOGICAL GARDENS.—Two Horticultural Fêtes will be held during the ensuing Season at these Gardens, on THURSDAY, May 28, and THURSDAY, August 27. The Schedule of Prizes will be ready by Feb. 1, and may be had on application to the Honorary Secretary, Clifton.

BRITISH POMOLOGICAL SOCIETY, 20, Bedford Street, Covent Garden.—The next Meeting of the Society will be held on THURSDAY, February 5, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

BRITISH POMOLOGICAL SOCIETY.—PREMIUMS FOR NEW AND SEEDLING GRAPES.—At the first September meeting, the date of which will be duly advertised, Three Prizes will be awarded for New and Seedling Grapes, if such are exhibited as will be considered worthy thereof by the Council, as follows:—

TWO GUINEAS for the best Seedling Grape having a Muscat flavour.

TWO GUINEAS for the best Seedling Grape of any other description, not having a Muscat flavour.

(Those varieties will be considered seedlings which are at the time of exhibition in the hands of not more than two parties, who represent the raisers and propagators.)

TWO GUINEAS for the best Grape not a Seedling raised in this country, and not in general commerce.

(This class is intended to comprehend newly introduced varieties from other countries, and those which have been lost sight of or neglected.)

KITCHEN GARDEN AND FLOWER SEEDS.

CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, Wandsworth Road, London, S., s[illegible] the above of the best quality. A Catalogue can be had on a[illegible]cation.

NURSERY & SEED ESTABLISHMENT, DUMFRIES, N.B. ESTABLISHED, 1787.

THOMAS KENNEDY AND CO. are now prepared to execute orders for GARDEN and FLOWER SEEDS which have been procured direct from eminent Seed collectors in this country and on the Continent. Their NEW DESCRIPTIVE CATALOGUE may be had postage free on application.

*** Free delivery, see Catalogue.

1, WELLINGTON STREET, STRAND.

J. MAY AND CO. beg to announce that they have received their new Stock of VEGETABLE and FLOWER SEEDS, selected from the best growers. A Catalogue comprising the most useful kinds is just published, and will be sent post free on application.

Jenkins's Red Matchless Celery, half-ounce packets 2*s*. 6*d*., can only be obtained as above. Collections of Hardy and half-hardy Flower Seed from 2*s*. 6*d*. and upwards.

Saynor and Cooke's Pruning and Budding Knives.

PRINCE OF WALES RASPBERRY.

WILLIAM CUTBUSH AND SON have still a quantity of their PRINCE OF WALES RASPBERRIES, acknowledged to be the *finest Red variety in cultivation*. For prices and testimonials see Catalogues, which will be forwarded free on application.—Highgate Nurseries, London, N.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

GLENNY'S IMPROVED BALSAM, from Double Flowers, 3 inches over, 6 classes, 37 stamps; mixed, 13. GLENNY'S SEED LIST for amateurs, free, by sending a directed envelope. GLENNY'S COMPANION TO THE ALMANACKS, with Portrait, free for 13 stamps.—Fulham, S.W.

THE NEW DWARF EARLY FORCING CAULIFLOWER (Haage's of Erfurt), 100 Seeds, 13 stamps; ACROCLINIUM ROSEUM (the new annual that beats Rhodanthe), 20 Seeds, 13 stamps.—G. GLENNY, Agent, Fulham, S.W. Glenny's Almanack, 13 stamps.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at 20s. per acre, or Clovers and Common Rye-grass at 19s. per acre.*

As the demand for these is very great, and the supply limited, early orders are requested and recommended.

Royal Berkshire Seed Establishment.—Jan. 31.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.

THE ABOVE KINDS OF CLOVERS will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SEED POTATOES,

SUTTON AND SONS, SEED GROWERS, Reading, *have a large Stock of the early kinds of* POTATOES *very true and free from disease. Prices, &c., will be sent post free on application.*

CAMELLIAS, AZALEAS, AND FERNS.—Camellias with flower-buds, 30*s*. and 42*s*. per doz. Chinese Azaleas with flower-buds, 18*s*. and 30*s*. per doz. A great variety of Ferns at moderate prices.

CHANDLER & SONS, Wandsworth Road.

FERN CATALOGUE.

ROBERT SIM'S New DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent.

SEED CATALOGUE.—26th ANNUAL EDITION.

BASS AND BROWN'S New Descriptive SEED CATALOGUE contains the finest new Vegetable Seeds in cultivation, with the choicest novelties in Flower Seeds. Also choice BULBS for spring planting. Copies sent free on application.—Sudbury, Suffolk.

KITCHEN GARDEN AND FLOWER SEEDS.

CHARLES TURNER'S CATALOGUE of Seeds contains many NEW THINGS offered for the first time, and can be had on application.

Especial attention is devoted to the Seed business, and every article offered is of the best quality, and in many instances of very superior quality.—Royal Nursery, Slough.

SEED ESTABLISHMENT, WESTERHAM, KENT.

JOHN CATTELL begs to announce that his CATALOGUE OF KITCHEN GARDEN SEEDS for 1857 may be had gratis and post free on application. It contains a very select collection, the great part of which are of J. C.'s own saving.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

SEEDS.

A DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Catalogue, which will be forwarded on application.

Royal Nursery, Great Yarmouth, Norfolk.

ASPARAGUS AND SEA KALE.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100	... ...	2*s*. 6*d*.
Ditto 3 years old, per 100	... ...	3 6
Sea Kale, strong ... ... „	... ...	7 0

Royal Nursery, Great Yarmouth, Norfolk.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of Grape Vines struck from Eyes for Planting or Forcing in Pots, from 4 to 8 feet long. He is forcing some of the same which is showing well for fruit.

Shacklewell Road, Stoke Newington, N.E.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Jan. 31.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. TO THE TRADE.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.

BASS & BROWN, Sudbury, Suffolk.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s*. 0*d*. | LORD PALMERSTON 5*s*. 0*d*.

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

TO THE SEED TRADE.

PEAS.—Early Emperor, Early Ringwood Marrow, Flack's Victory Imperial, Woodford's Marrow, &c. The above at low prices. Trade prices of Seeds in general may also be had.—BASS & BROWN, Sudbury, Suffolk.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.—9, Mansion House Street, London.

ONE HUNDRED BUSHELS OF SKIRVING'S IMPROVED SWEDE, grown from large selected bulbs, warranted, 23*s* per bushel.

ORANGE GLOBE and LONG RED WURZEL, 28*l*. per ton. Apply to Mr. EPPS, Maidstone.

MOSS ROSES.—Three or Four Thousand good Plants for Sale.—For particulars apply to ALEX. DANCER, Nurseryman and Seedsman, Fulham.

HEAVIEST LANCASHIRE SHOW GOOSEBERRIES, strong plants, per dozen ... ... 6*s*. 0*d*.

BLACK NAPLES AND BLACK GRAPE CURRANTS, per dozen 3 0

JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

TO MARKET GARDENERS AND OTHERS.

FOR SALE, at 8*s*. per thousand, BLACK NAPLES CURRANT TREES, 2 or 3 years old, cut back every year. An allowance in price to Gardeners and the Trade.—Apply to WILLIAM POWELL, Heath Lane, Homerton.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

QUICKTHORN.

CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.

PINUS MARITIMA (one-year seedlings).

C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed-growing Establishment, Sleaford.

TREE CARNATIONS.

ISAAC DAVIES has a fine Stock of the above to offer at reduced prices. They are 2 feet high, healthy, strong, and bushy.—Larkfield Nursery, Wavertree, Liverpool.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

FOREST TREES.

FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

TO PLANTERS.

TO BE SOLD, cheap, 100,000 SCOTCH FIRS, 12 to 18 inches, and 18 inches to 2 feet; 20,000 HIGHLAND PINES, 1 foot to 1½ foot. The plants are very stiff, and grown upon high exposed land; will take, up with good fibrous roots.—Price upon application to J. SMITH, Tansley Nursery, near Matlock, Derbyshire.

GLENNY'S ONE PENNY NEWSPAPER

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers. Gloucester.*

COLE'S DEFIANCE RED CELERY has proved itself the best Red Celery for exhibition purposes or for common use; it is exceedingly solid, of exquisite flavour, attains a large size, and keeps better than any other sort in cultivation. To be had in sealed ½-oz. packets, free by post, for 12 postage stamps.—The DWARF WHITE INCOMPARABLE, so highly recommended, for 12 postage stamps. Also Cole's Dwarf Solid Red, and Crystal White, in ½-ounce packets, each free by post for 6 postage stamps.

N.B. The trade supplied by the lb. Price on application.

WILLIAM COLE, Withington, near Manchester.

CONIFERÆ.

WM. WOOD AND SON are offering the undermentioned on very moderate terms. Prices will be given on application.

Abies cærulea, 2 to 3 feet
Araucaria imbricata, 1 foot and upwards
Cedrus Deodara, 1 to 1½ ft. & do.
„ „ robusta, 1 to 1½ ft. do.
„ „ viridis, 1 foot
Cryptomeria japonica, 1 to 1½ ft.
Cupressus ericoides, 1 to 1½ feet
„ funebris, the Funereal Cypress, 3 ft, very bushy
Also 4 and 5 ft. perfect spec.
Cupressus Goveniana, 1 to 1½ ft. also 3, 4, & 5 ft., large spec.
Cupressus Lambertiana, 1 & 2 ft.
„ macrocarpa, 1 and 2 feet and 3, 4, & 5 ft., splendid spec.
Juniperus glauca, 1 foot, fine
Pinus insignis, 2 to 2½ ft. very fine
Taxodium distichum pendulum, 3 feet
Irish Yews, 4 and 5 feet
Thuja japonica, 1 ft., very fine

The smaller plants quoted above are in pots; the large specimens are in the open ground and will move with balls of earth. Parties requiring quantities will be liberally dealt with.

Extra fine Dwarf-trained Peaches, magnificent Trees.

PHLOXES.—A very superb collection including the best new kinds from 6*s.* to 18*s.* per doz. Catalogues free on application.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6*d.* and 1*s.*)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

GERMAN FLOWER SEEDS,

In collections from our own inspection when in flower on the continent. These we can with confidence recommend. Descriptions of the following New Plants will also appear:—

BANKS' NEW FUCHSIAS,

Including three white sepal varieties, each with a distinct coloured corolla; two varieties possessing red sepals, and each of distinct character; and others with quite a new and graceful form of flower. A new and beautiful coloured Plate of six of the above varieties is now ready, and can be had for 12 stamps.

NEW VERBENAS,

Raised by Messrs. Banks, Breeze, and Evans. A coloured Plate of these novelties is in preparation, price 12 stamps.

NEW ERECT GLOXINIAS,

Raised by M. Jæger, the original introducer of this form of flower.

NEW HYBRID BOUVARDIAS,

Raised by Mr. Parsons, from Longiflora, hybridised with B. Leiantha.

NEW STRIPED GERANIUM,

Raised by Mr. Grieve. The best and only one worth growing.

Mr. Elphinstone's new Ornamental Foliaged Geraniums, with red and other coloured zones.
Mr. Morgan's Hybrid Bedding Geranium, splendid colour.
Mr. George Cunningham's New Rhododendron, quite hardy, and the first of its colour.
New Petunia, Delphinium, and Shrubby Calceolaria, &c. Other novelties beside the above will be noticed in this Catalogue.

Wellington Nursery, St. John's Wood, N.W.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S

NEW SEED CATALOGUE (26th Annual Edition),

Contains the finest Vegetables in cultivation, carefully grown by them from pure and well selected stocks.

It having been the custom in our establishment for 30 years past to test the comparative merits of Vegetables, our own practical knowledge of this branch of our business enables us to give our attention to the growing of such only as we have proved to be of real merit. The number of varieties of recent introduction having now swelled the lists of names offered by the trade to a very large extent, our endeavour has been annually to prune away certain varieties from our Catalogue for the introduction of the newer and improved of each class, reserving however those of the best older sorts.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These are particularly recommended to the notice of Amateurs not keeping regular Gardeners. The collections we have furnished have met with the highest approval, and will be found on trial such as will not be surpassed. Supplied as usual as follows. (See full particulars in Catalogue.)

No. 1, £3 | No. 2, £2 | No. 3, 25*s.* | Collections for Small Gardens, 10*s.* 6*d.* and 15*s.*

A few choice New Seeds (Descriptions see Catalogue).

NEW PEAS.		s. d.
Harrison's Eugenie	per qt.	5 0
„ Napoleon	„	5 0
„ Glory	„	3 6
„ Perfection	„	3 6
Rising Sun	„	5 0
Beck's Gem	„	1 6
Dickson's Favourite	„	2 6
King of the Marrows	„	2 6
Epps's Lord Raglan	„	2 0
„ Monarch	„	2 0

		s. d.
Broccoli, the new Penzance,	per packet	1 0
Cauliflower, Stadtholder	„	1 0
Celery, Incomparable white	„	0 6
Cucumber, choicest	„	6*d.* to 2 6
Mammoth Gourd, from a fruit weighing 1 cwt.	„	1 6
Imported Brussels Sprouts	per oz.	1 0
French Horn Carrot (earliest)	„	0 6

For many other choice new, see Catalogue.

	s. d.
Peas, 16 from finest, 1 qt. each	16 0
„ 10 from finest, 1 qt. „	10 0
„ 8 fine sorts, 1 qt „	6 0
Broccoli, 10 packets of 10 finest, for succession	5 0
„ 6 packets of 6 do.	3 0
Lettuce, 6 packets of 6 do.	2 0

CHOICE FLOWER SEEDS.

Our List will be found to contain as select a collection as can be brought into a catalogue, with all the new gems of the season. The usual arrangement of colours, heights, time of flowering, hardiness, duration, the Climbers also specified, and embracing every necessary information for purchasers. Useful instructions for the culture and growth of Seeds are supplied with each order.

FLOWER SEEDS IN ASSORTMENTS.—We beg strongly to recommend these assortments, for which see Catalogue.

IMPORTED GERMAN SEEDS.—Superb collections of these (see Catalogue).

BULBS AND ROOTS FOR SPRING PLANTING.

Very splendid collections of Ranunculus, Anemones, Gladiolus, Iris Germanica, and Primula, Lilium lancifolium, and other superb Lilies, Tigridias, Oxalis, and a great variety of other Roots (see Seed Catalogue).

ACHIMENES AND GLOXINIAS.

Superb Continental and other varieties (including the beautiful erect flowering Gloxinias), tubers of which are now ready, and will make fine flowering plants this season.

SEED CATALOGUES SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20*s.*) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli; Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities £3 3 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN 2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES 1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN ... ... 0 [illegible]

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

NEW HYBRID CUCUMBER "PERFECTION."—This is undoubtedly one of the finest varieties ever yet offered to the public; it is a splendid black spine, length [illegible] inches; a very free setter and an abundant bearer. There were fine fruit cut from plants last year on the 1st of March, and the same carried a good crop till the middle of October. The plants are not at all liable to rust or mildew, which is the case with most other varieties. It will set its fruit as well in the middle of December and January as in April. If ever there was a Cucumber superior to all others this is the variety, and it is well worthy of the name given to it, and will be sure to become as great a favourite as all other hybrid varieties sent out by me. It always grows of an even size from stem to point, and never clubs as many others do. As a Cucumber for Exhibition nothing surpasses it. Fruit of it was given to a medical gentleman last spring, who spoke of it as being the wholesomest and most digestible of its kind he had ever eaten: it being so very firm, solid, and crisp, and not seedy and watery as Cucumbers generally are. Seed of this superb Cucumber is now ready to be sent out at 3*s.* 6*d.* per packet.

The following fine varieties of Cucumbers and Melons, which have been thoroughly proved and have given the greatest satisfaction to all purchasers, can be supplied:—

CUCUMBERS.

Sir Colin Campbell	2*s.* 0*d.*	Sunderland Wick	[illegible]
Captivation	2 0	Hunter's Prolific	1 [illegible]
General Canrobert	2 0	Mill's Jewess	1 [illegible]
Phenomena	2 0	Cheltenham Surprise	1 [illegible]
Ipswich Standard	2 0	Manchester Prize	1 [illegible]
Lord Kenyon's	2 0	Sion House (true)	1 [illegible]
Essex Hero	1 0	Cuthill's Black Spine	1 [illegible]
Victory of Bath	1 0	Conqueror of the West	1 [illegible]
Gordon's White Spine	1 0	Lynch's Star of the West	1 [illegible]

MELONS that surpassed all others at the great exhibition of the Crystal Palace, and were awarded First Prizes.

	s.	d.		s.	d.
M'Ewen's Arundel Hybrid Scarlet-flesh	1	6	Bowood	[illegible]	[illegible]
M'Ewen's Arundel Hybrid Green-flesh	1	6	Victory of Bath	[illegible]	[illegible]
Monro's Crystal Palace Hero	1	6	Cashmere	[illegible]	[illegible]
Monro's Golden Gage	1	6	Camerton Court	[illegible]	[illegible]
The Queen	1	0	Beechwood	[illegible]	[illegible]
Orion	1	0	Windsor Prize	[illegible]	[illegible]
Golden Drop	1	0	Emperor	[illegible]	[illegible]
Green Gage	1	0	Fleming's Hybrid Persian	1	[illegible]
Bromham Hall	1	0	Blackall's Green-flesh	1	[illegible]
Incomparable	1	0	Bailey's ditto	1	[illegible]
Golden Ball	1	0	Snow's Hybrid	1	[illegible]
			Golden Perfection	1	[illegible]
			Scarlet King	1	[illegible]

One packet of either of the first six Cucumbers mentioned and one of either of the first four Melons, and a packet of the Cucumber Perfection, will be sent for 6*s.*

A remittance must accompany every order in cash or penny postage stamps, and the whole, or any part, as the case may be, will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. H. Low & Co., Clapton
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso
Dulwich, Surrey.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

MYATT'S
PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s.*; per peck, 2*s.* 6*d.*; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION	...	£2 15 0
No. 2.—Ditto	Ditto	1 15 0
No. 3.—Ditto	Ditto	1 0 0
No. 4.—Ditto	Ditto	0 10 0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S COLLECTIONS OF GARDEN SEEDS,
THE BEST YET OFFERED.
KITCHEN GARDEN SEEDS.

	£	s.	d.
No. 1. A complete Collection for one year's supply of a large Garden	3	0	0
No. 2. A complete Collection, in smaller quantities ...	2	0	0
No. 3. Ditto ditto ditto ...	1	10	0
No. 4. Ditto ditto ditto ...	1	0	0
No. 5. Ditto ditto ditto ...	0	15	0
No. 6. Ditto ditto ditto ...	0	10	6

A List of the sorts and quantities contained in each Collection will be sent Post Free in return for one postage stamp; and if some of the sorts are already possessed, increased quantities of others will be given in lieu of those to be omitted.

HARDY AND SHOWY FLOWER SEEDS (POST FREE),
Which may be sown where they are intended to bloom.

A Collection of the best 100 sorts known	£1	1	0
A Collection of the best 50 sorts known	0	10	6
A Collection of the best 36 sorts known	0	7	6
A Collection of the best 24 sorts known	0	5	0

BOKHARA CLOVER, BORAGE, AND OTHER SEEDS FOR BEES.

Carriage Free by Rail to almost all parts of the Kingdom.

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Great improvement may be effected by sowing 8 to 12 lbs. per acre of SUTTON'S Renovating Seeds, which consist of Perennial Clovers and Grasses of the finer kinds for improving the bottom.

An increase of several Tons of Hay per acre has been thus effected on many Meadows and Upland Pastures. The Seeds should be sown early. Price reduced to 9d. per lb., or 80s. cwt.

From Mr. G. Norrington, Rectory Farm, Taplow.

"About five years ago I wrote to you to send me a mixture of Grass seeds to sow upon 10 acres of old pasture. At the time I took the farm the 10 acres of meadow was almost useless. I now have a most excellent pasture."

From C. F. Thruston, Esq., Talgarth.

"Your seeds have answered admirably. Turnips, Mangels, Carrots, and Parsnips are superb. Your Grass seeds also have answered well. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable; Clover and other seeds springing up where nothing but the poorest pasture had been previously, and I think that a field of 9 acres sown with your RENOVATING MIXTURE, is now one of the finest in our neighbourhood. The Garden Seeds I have had from you exceed by far any that I have bought elsewhere."

SUTTON & SONS *also supply Grass Seeds for laying down Land to Permanent Pasture at a moderate expense*, the sorts being selected in accordance with the nature of the soil to be laid down, particulars of which may be obtained by post.

Many Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.

Goods delivered Carriage Free by Rail.

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—

ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CHOICE STOVE, GREENHOUSE, AND OTHER SEEDS.

HOOPER AND CO., SEEDSMEN, &c., Centre Avenue, Covent Garden Market, London (W.C.), have the pleasure of announcing that since the publication of their usual Catalogue of Flower Seeds they have received a very choice collection of Seeds of Stove, Greenhouse, and Hardy Shrubs and Climbers, Hardy and Half Hardy Herbaceous Plants, Carnations and Picotees of the finest descriptions, in collections and mixtures, warranted to produce 6 to 8 good double flowers, with some choice Annuals, &c., the whole of which have been ripened in the climate of Italy in the year 1856, and are such as they can recommend with the greatest confidence. A Catalogue of them will be forwarded on application; and it is respectfully requested that a Post-office Order, or Stamps, accompany each order from unknown correspondents. The stock being limited, an early application is desirable.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

THE EXECUTION OF ORDERS.—N.B. *It is* Messrs. SUTTON'S *invariable practice to* acknowledge the receipt *of an order by return of post, if it cannot be executed immediately; therefore if, in any instance, an order posted for them is neither executed immediately nor acknowledged, the letter may be presumed to have miscarried, through informality of address or some other mistake.*—Reading, Jan. 31.

VEGETABLE AND FLOWER SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now sending out the above Seeds, comprising many newly introduced and valuable varieties, and all carefully selected from true stocks. They solicit the favour of speedy orders, which will ensure an early delivery. Catalogues will be sent free on application.

Their Stocks of AGRICULTURAL SEEDS and GRASSES for Alternate Husbandry, Permanent Pasture, &c., are of very superior quality this season, being the result of repeated and very careful selections. Priced Catalogues are in course of publication. Everything connected with their Trade can be supplied in any quantity from their London branch.

27, Great George Street, Westminster.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
„ stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London.

T. LOCKHART, FLORIST, Fulham, near London, S.W., is sending out 100 roots of SCOTCH RANUNCULUS, in 20 finest edged and striped sorts, for 30*s.*; 100 roots DUTCH RANUNCULUS, in 20 brilliant self-coloured sorts, for 30*s.*, with instructions for their treatment, and carriage free to any railway station in England. Also the following very choice seeds:—

Dianthus purpureus fl. pleno	1	0	per packet.
„ venustus	1	0	„
Lockhart's Victoria Cabbage and Lettuce	2	6	per ounce.
„ Rosette Collared Cabbage ...	2	0	„
England's Defiance Cucumber	2	0	per packet.
The Wonderful Curled Parsley	1	0	„
The Fulham Early Round Potato ...	3	0	„
Genuine Early Ash-leaf Kidney... ...	3	6	„
Strawberry plants, in 4 best sorts ...	4	0	per 100.

Remittances expected from unknown correspondents. Money orders payable at Walham Green, Fulham.

SUPERB SEEDLING CALCEOLARIAS, ETC.

JOHN CATTELL has now ready to send out fine strong Seedling Plants, in single pots, of his superb varieties of CALCEOLARIAS; they will produce flowers of very large size, and every shade of colour. 5*s.* per dozen, or 36*s.* per 100, hamper included; plants from the store pans can be sent free by post at 5*s.* per dozen.

J. C. has also fine healthy plants of the under-named splendid FRENCH GERANIUMS, which are fit for immediate shifting; strong plants of any 12, 18*s.*; or 12 smaller plants, 12*s.*, hamper included:—Madame Lamoricière, James Odier, Medaille d'Or, Auguste Miellez, Jacques Duval, General Eugène Cavaignac, Auguste Odier, Colonel Faissy, Adèle Odier, Eugène Scribe, Chauvieri, Elize Miellez, Madame Lefio, Adolphe Odier, Dr. Andry, Gloire de Bellevue, Madame Chereau, Monte Christo, Coquette, Astrea, Madame James Odier, Zaria.

Extra fine varieties of Show and Fancy.
Geraniums 6*s.*, 12*s.*, and 18*s.* per dozen.

VARIEGATED LEAVED GERANIUMS.

	Each—s.	d.		Each—s.	d.
Attraction (Kinghorn) per dozen 12*s.*	1	6	Golden Admiration ...	1	6
Attraction (Gaines's) ...	1	0	Mountain of Light ...	0	9
Annie (Kinghorn) ...	2	6	Mrs. Lennox	2	6
Alma (Turner)	2	6	Silver King	1	0
Countess of Warwick (Kinghorn	2	6	Silver Queen	1	0
			Variegated Queen ...	2	6

SCARLET GERANIUMS.

	Each—s.	d.		Each—s.	d.
Beauty of Chipstead ...	0	9	Beauty of Coombe Bank...	1	0
General Pelissier (Kinghorn)	2	6	Trentham Scarlet Gem	1*s.* to 1	6

Fine healthy plants of the following:—Leschenaultia biloba splendens, Hunt's fine free flowering variety, each 2*s.* 6*d.* to 3*s.* 6*d.*

INDIAN AZALEAS.

	Each—s.	d.	s.	d.		Each—s.	d.	s.	d.
Admiration (Ivery)	2	6	to 21	0	Empress Eugenie...	3	6	to 21	0
Criterion (Ivery) ...	2	6	to 21	0	Magnificens, the best white			2	6
Gem (Ivery) ...	21	0	to 42	0	Magnificens, small specimens in 24s or 8-in. pots			21	0
Eulalie (Van Geert)	3	6	to 21	0					
Striata formosissima	2	6	to 7	6					

Fine plants of the best older kinds 12*s.*, 24*s.*, 30*s.*, and 42*s.* per doz.

A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

NEW GARDEN SEEDS.

W. J. EPPS, SEED MERCHANT and GROWER, respectfully calls attention to his large stock of new and genuine Seeds. Having nearly 100 acres of land entirely for the growth of Seeds, and a direct correspondence with the Continental and other celebrated growers, he is in a position to offer great advantage to purchasers; all seeds warranted of the best description. Catalogues sent on application. Noblemen, clergymen, and others, who have large or small establishments, will find a great advantage in purchasing the following collections:

No. 1 COLLECTION, sufficient for one year's cropping of a large garden, consisting of 24 quarts of the best Peas, inclusive of Lord Raglan and Monarch, and all the leading and best kinds of seeds in equal proportions ...	£3	0	0
No. 2 do. do. do. in equal proportions	2	0	0
No. 3 do. do. do. do.	1	0	0

Lists of sorts and quantities sent on application.
Seed Establishment, Maidstone and Ashford.

COLLECTIONS OF CHEAP & GENUINE GARDEN SEEDS.

CHARLES ALEXANDER, SEEDSMAN and FLORIST, 30, West Register Street, Edinburgh, is now prepared to supply complete Collections of VEGETABLE SEEDS, for various sized Gardens, suitable for the climate of Scotland, ranging as under.

No. 1, COMPLETE COLLECTION, for a large Garden	£3	0	0
No. 2, do. do. for a Medium sized Garden	2	0	0
No. 3, do. do. for a small Garden	1	0	0
No. 4, do. do. do. do.	0	10	0

All Orders Carriage Paid to any Steam Port or Railway Station in Scotland. Detailed Lists of the quantities which may be altered to suit parties on application.

M'Ewen's Arundel Castle Crystal Palace Prize
Hybrid Scarlet Flesh Melon ... ... 1*s.* per packet.
do. do. Green ... 1*s.* per packet.

Nursery, Larkfield, Trinity, where a select list of Greenhouse and Stove Plants, Florists' Flowers, Shrubs, &c., are sold at moderate prices.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5*s.* each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

SUPERIOR EARLY BROCCOLI.

MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—Celebrated and invaluable for its earliness, coming into use early in February; a full sized handsome head, of excellent quality but a shy seeder, price 1*s.* 6*d.* per packet. Highly favourable testimonials, too numerous for insertion, from gardeners in various counties. New Seed can be had in sealed packets from the following Agents in London:—HURST & M'MULLEN, Leadenhall Street; MINIER, NASH, & Co., 60, Strand; CHARLWOOD & CUMMINS, Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON & Co., Truro, Cornwall.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

The Gardeners' Chronicle.

SATURDAY, JANUARY 31, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Feb. 3—Horticultural ..... 2 P.M.

THE case of MARTIN *v.* ROE, recently referred to by a correspondent, and just decided by the Court of Queen's Bench, settles a question of great importance relating to the removal of hothouses. It appears that the late Rev. JOHN MATTHEW, being rector of Melbury Osmond, built in the rectory garden two hothouses, consisting of low brick walls with frames of wood carrying sliding sashes. The sashes were not fixed to anything, but the frames rested on the walls, and were imbedded in mortar there. After the death of Mr. MATTHEW, the plaintiffs, who were his executors, removed the sashes and frames, taking the latter out of the mortar in which they were imbedded, but doing no more damage to the walls than was unavoidable. The defendant, who succeeded Mr MATTHEW as rector, claimed the frames and sashes so removed, got possession of them and refused to give them up, whereupon he was sued by the plaintiffs. The question in dispute was this:—In whom was the property in the things removed? The defendant claimed them as rector, on the ground that they were left by the deceased incumbent as part and parcel of the freehold, whilst the plaintiffs claimed them on the ground that the hothouses in question were ornamental erections made by Mr. MATTHEW and removable by him in his lifetime, and that consequently they, the plaintiffs, as representing him, were at liberty to remove whatever portions they could, provided they did not injure the defendant's freehold, and the judges decided in the plaintiff's favour.

Our readers must be cautioned against supposing that this decision authorises any one to remove a hothouse erected by himself. The rector of a parish

is in a peculiar position. Whatever a rector is bound to leave to his successor, that successor is in like manner bound to transmit in proper repair to his own successor. If therefore a rich incumbent chose to erect all sorts of fancy buildings on his land and were bound to leave them, he would in effect have it in his own power to impose an intolerable burden on those who followed him. Hence it is that Lord CAMPBELL in giving judgment declared that an incumbent not only is not bound, but that he ought not, to transmit to his successor luxuries of the kind in question, and that it was quite clear that Mr. MATTHEW might in his lifetime have removed the whole erection. This reasoning, as is obvious, has no application to ordinary persons.

As regards the frames which were fixed by mortar in the manner above described, it was truly remarked that nothing which is attached to anything else can be removed without some damage appreciable or inappreciable. In the words of the judgment, "In all cases of this kind injury to the freehold must be spoken of with less than literal strictness. A screw or a nail can scarcely be drawn without some attrition, and where all the harm done is that which is unavoidable to the mortar laid on the brick walls, this is so trifling that the law, which is reasonable, will regard it as none. Upon any other principle the criterion of injury to the freehold would be idle."

We have quoted this language because although it must be taken as having been used with reference to the dispute immediately before the court, it tends to render more certain the answer to the question, what is meant by being fixed? a question upon which rival claimants of fixtures are seldom if ever agreed. As between incumbents it is now settled that though part of a hothouse is fixed by being imbedded in mortar on a wall, it is nevertheless not so fixed as to become part of the freehold and to pass along with it to the successor of the builder of the house.

HAVING in our last number stated at length the evidence relied upon by those who disbelieve in the doctrine of degeneracy among ligneous or perennial plants, or as it is more commonly called, the WEARING OUT OF RACES, we may now examine the arguments used in the *Scottish Gardener* on the opposite side.

This writer commences by stating "that the question is not one of authority but of evidence, and that it is to be settled not by subtle and questionable arguments derived from Vegetable Physiology, but by the statistics of facts and observations. Mr. KNIGHT, though a physiologist of the highest class, proceeded by the method of experiment and induction, and with all deference, we must contend that he can be soundly answered only in the same way." To this we might perhaps agree if any such "statistics of facts and observations" as is contended for really existed; but where are they? The whole discussion has arisen in consequence of the absence of them. Some facts indeed are undeniable; some evidence exists upon which an argument may be raised. But the facts themselves are thought to be susceptible of more explanations than one, and in short there is nothing which deserves to be produced under so high-sounding a name as statistics. While therefore the few facts or supposed facts that really exist must receive proper attention, the question must after all be decided very much by reason and inference.

It is admitted on all hands that the species of plants undergo no perceptible change in the course of time. That being so, and species being multiplied through all time either by seeds or subdivision, seeds themselves being no more than a kind of subdivision, the seedlings or other offspring should themselves undergo no change. Now since what we call varieties are for the most part seedlings, it is inconceivable that they should be subject to extinction in brief time while other seedlings, not called varieties, endure for ages. The name cannot make the difference. It does indeed happen among plants as among men that one individual is from the beginning sickly and becomes short lived; and it must be admitted that such cases form an exception to the rule. But the present argument does not include such cases; on the contrary, it is applied wholly to plants which are healthy and vigorous from the beginning, no other kinds being propagated.

The supposed high antiquity of certain existing varieties of fruits has been relied on in support of the permanence of races. Some kinds of Grapes, Apples, Pears, &c., now in cultivation have been thought to be identical with those of the ancients. In his learned history of ancient and modern wines, Dr. HENDERSON cites several cases of this kind, not positively indeed, but as being extremely probable. And FÉE, GALLÉSIO, and others have believed that some of the ancient Pears and Apples still remain in cultivation. This our Scottish friend wholly disbelieves. "Writing," he says, "in seclusion, we have not access to Dr. HENDERSON's volume; but knowing something of COLUMELLA, we will say that if the learned doctor has identified any of the Grapes mentioned by that ancient writer, he has performed a philological miracle. No one who has not examined the subject can have any conception of the credulity, and proneness to rash conjecture, which prevail among antiquarian naturalists. The keen edge of historical criticism has never been applied, and probably never will be to the Roman 'Scriptores de re rustica.' We speak advisedly when we say that those who quote the Commentators on COLUMELLA and PLINY might as well quote any old wife in the parish. Modern writers have not been always sufficiently guarded in this respect." This is perfectly true; and we are ready to admit that the identification of ancient and modern varieties has often been fanciful, or even absurd. But if any one case can be reduced to a certainty, we conceive that the doctrine of degeneracy of races receives a fatal blow. Such an instance, we believe, occurs in the Græcula or little Greek Grape of PLINY, said to have a very tender berry (*acinus*, which we cannot translate *skin* as Mr. RILEY does), and a cluster extremely small. Surely this was the modern Corinth or Currant Grape. When, indeed, we consider the great longevity of the Vine, it is more probable than the contrary, that others of its ancient races do still exist. To say nothing of the enormous Vines recorded by PLINY, or of those which our officers found the other day in the Valley of Baidar, it is sufficient to name the examples recorded by TARGIONI-TOZZETTI in the Journal of the Horticultural Society (ix. 156). "GIOVANNI TARGIONI-TOZZETTI, our author's grandfather, in his travels in Tuscany, quotes one in the woods near Montebamboli, the trunk of which two men could not embrace. SANTI found a Vine at Castellottieri in the Maremma, torn up by a storm in 1787, whose trunk is preserved in the botanic garden at Pisa, with a stem $5\frac{1}{2}$ feet in circumference; and Prof. TARGIONI has himself recorded in the article 'Botanical Chronology' in the *Dictionary of Natural History*, printed at Florence by BATELLI, two Vines near Figlini, in the upper Val d'Arno, with trunks 5 feet in circumference. The doors of the Cathedral of Ravenna are made of Vine wood." Specimens of this magnitude must have been of great antiquity, might have been planted by Pliny himself, and we presume preserved to the last the inherent qualities of their race. Cuttings, however, not having been taken from these plants we have no proof that their peculiar properties were susceptible of further extension; our own *opinion* is that they would have been found unchanged; the *opinion* of our Scottish friend is, we presume, the other way.

In another case, of less antiquity indeed, but ancient enough for the argument, the tendency to degeneracy is we think wholly negatived. It is a recorded fact that the Grand Duke COSMO III. of Tuscany imported into Italy somewhere about the year 1680 a Pear at that time famous in Portugal under the name of Dorice. The cost of this having been one hundred golden doubloons the sort received the name of Pero cento doppie, by which it is still known, as well as by that of the Duke's Pear. Although the age of the variety when it was brought to Italy from Portugal is unascertainable, yet we may fairly suppose that by this time it is 250 years old; but we nowhere find that it has degenerated.

Next week we shall endeavour to pursue this inquiry with reference to modern domestic varieties.

New Plants.

192. TAINIA BARBATA.

T. barbata; foliis longo-lanceolatis 5-costatis, paniculâ laxâ tomentosâ pauciflorâ, pedicellis ovario duplò longioribus pilis planis barbatis, sepalis labelloque acuminatis. (Erioidea *Griffith itin. notes, p.* 83. *ic.* 302.)

The original species of Tainia is unknown to us except from Blume's Bijdragen; but we imagine this must belong to the genus. (Tijsman and Binnendÿk's Tainia fimbriata seems to be an Ania.) In Griffith's works above quoted it is well described, with a tolerably characteristic figure. In some respects however both require correction. On the flower stalks, mixed with soft down, are numerous very remarkable flat brown bodies which Griffith calls ramenta; they are really simple cells, filled with brown chromule even when fresh, and with the form of a common paper-knife blade; somewhere near the middle is a distinct cytoblast with fine grumous matter surrounding it. The pollen masses are 8 in number, concavo-convex connected in fours by the usual powdery matter of the Bletian Orchids, which matter holds so fast to the gland or upper stigmatic process as to bring it away in the form of a soft transverse band. The stigma has three distinct equidistant narrow lips, the gland being one of them.

This is a terrestrial plant with the ovate green pseudobulb of Ania latifolia, and the plaited leaves of a Bletia. The flowers are distant, on a long loose lateral downy panicle 2 feet and more long, yellowish streaked with red, of no beauty; their stalks including the ovary are 2 inches long, and the spaces between them on the axis as much; on one side of the stalks, in an irregular line, grow multitudes of the flat brown hairs above described, but they do not occupy any part of the surface of the ovary. The sepals are falcate and directed upwards, the petals linear and reflexed, the lip dorsal, ovate acuminate, pressed against the column with whose lengthened foot it is jointed; within its point is a small tubercle. The stigma is a circular depression at the top of the face of the plano-convex somewhat bordered column, which is half the length of the lip; the anther is a kind of cowl, below which, near its base, grow 2 cells, each containing 4 equal concavo-convex round pollen masses held together by pulverulent matter, and they ultimately attach themselves to the soft separable gland of the stigma (one of the stigmatic lips), which is much exaggerated in Griffith's figure.

We received a live specimen of this curious thing from Mr. Loddiges last October. It is native of the Khasia hills, where Griffith found it growing on trees of Gordonia, on the descent of the Suniassee valley. We also have it, through the kindness of Mr. Veitch, from Mr. Thomas Lobb, who met with it in the same region.

LAW OF HOTHOUSES—IMPORTANT JUDGMENT.

IN the Queen's Bench: *Martin and another, Exors. of John Jenken Matthew* (Clk.) v. *Robert Roe* (Clk). The judgment of the Court delivered by Lord Campbell was in the following words:—

"In this case the testator, Matthew Robert Roe (clerk), being incumbent of Melbury Osmond, erected in the rectory garden, on a spot entirely detached from the parsonage-house, two hothouses respectively 22 feet 10 inches, and 47 feet in length, by 14 feet 9 inches, and 17 feet 6 inches in depth, consisting of low brick walls on which mortar was spread, and bedded into this mortar wooden frames and glasswork—the glasswork sliding up and down on pullies and not fixed.

"The plaintiffs after his death removed this frame and glass-work, taking it from the mortar in which it was bedded, doing no damage thereby except what was unavoidable to the mortar. The defendant who has succeeded as rector afterwards took these materials from the possession of the plaintiffs, claiming them as belonging to him as such rector, and we are called on to decide simply and without any question as to the time or manner of the first removal by the plaintiff in which of the two parties was the property in the materials so removed. In considering which question we treat the removal by the plaintiffs as having been in fact effected without injury to the freehold. In all cases of this kind injury to the freehold must be spoken of with less than literal strictness. A screw or a nail can scarcely be drawn without some attrition, and when all the harm done is that which is unavoidable to the mortar laid on the brick walls, this is so trifling that the law, which is reasonable, will regard it as none. Upon any other principle the criterion of injury to the freehold would be idle.

"We have found no decision nor authority of any text-book precisely governing this case, and we consider it therefore on principle.

"In the first place, it seems clear that had the testator in his lifetime done what the plaintiffs have done since his death, the defendant could not have sued them for dilapidations. The character of the building would have justified the incumbent in the removal of the whole of it; only he must have restored the garden to its former condition, if in the removal he had occasioned any injury to it amounting to waste. For the duty of a present, and the right of a succeeding incumbent as such are correlative. Any matters of needless expense, or luxury, or ornament, in which the present incumbent, to gratify his own taste, has indulged himself (blameably or not is immaterial), he is not only not bound, but he ought not, to transmit to his successor. If the successor may recover damages from the executors because such things have been removed by their testator, there can be no doubt he in his turn must maintain them; and what he must maintain he must also rebuild when decayed by his fault, and so the benefice will become permanently saddled with a useless burden, and an indefinite, it may be ruinous expense. Hothouses, Pineries, and conservatories do not in this respect differ from observatories, menageries, or aviaries. They are equally what in a provincial constitution of 1236 (21 H. 3) are called "impensæ voluptuosæ," as distinguished from "necessariæ" (cited in Wise and Metcalfe, 10 B & C, 314).

"The parsonage and the glebe are for the decent and suitable residence and sustenance of the incumbent, and are to be maintained according to the intention of the law out of the revenues of the benefice. The parsonage and the glebe the succeeding incumbent is entitled to receive from his predecessor—the former of such convenience and character as he found it, and in good condition—properly repaired, or even rebuilt if by his neglect that has become necessary; the latter in good repair and order with its buildings and fences. Whatever he is entitled to receive he must transmit, and the extent to which in any particular case this reciprocal right and duty will go must be determined by a liberal and sensible consideration of the circumstances. It is impossible from the nature of the thing to lay down a more precise rule. Therefore cases may occur which are near

the dividing line, and so present a practical difficulty; but what we have now to deal with, viz., hothouses nearly 70 feet in length, present none. The testator did an unnecessary, probably a very unwise and unsuitable act in erecting them, and when he had done so there was a *locus penitentiæ.* Nothing prevented him from removing at once all that was mere fixture, and this is all that we need decide now, though, as we have already intimated an opinion, we have no difficulty in deciding, if necessary, that he might have removed the whole erection.

"Thus far we have been upon the strict law of dilapidations; in which the deceased incumbent is always supposed to have committed a wrong, for which, from the peculiar nature of his holding and of the property, there was no one who could sue him, but for which by the custom and contrary to the general rule of law an action lay against his personal representative; and it is only with reference to this peculiar law of dilapidations that our previous remarks must be considered as made.

"It is of course a different and perhaps a more difficult question, if the incumbent at his death leave entire on the glebe and in good repair an erection which he might have himself removed, the executor may within a reasonable time after his death remove such parts of it as are in their nature fixtures and capable of removal without injury to the freehold. The case now supposed is that of an erection which if the deceased had left out of repair the successor could not have maintained any action for dilapidations; which he himself therefore will not be bound to keep in repair; which imposes no burden on him; which he may remove. For it would be unreasonable to hold that he might not remove, however useless or unsuitable to the living or even inconvenient to the occupation of the parsonage or glebe, that which for any one of these reasons he was not bound to keep in repair.

"The question thus stated stands apart from the peculiar law of dilapidations. It has no reference to the character of the testator as incumbent of a benefice, or to the relation between him and the defendant as predecessor and successor in the same incumbency. The testator has committed no waste either voluntary or permissive; he has left on the glebe that which he might have removed, and which being left imposes no duty on the successor. It is that which if he had himself severed it from the freehold would clearly have reverted to his estate and gone to his personal representative. Then has he, by leaving them so united to the freehold as the case states, annexed them inseparably to it; so that they are no longer part of his personal estate?

"Messrs. Amos and Ferard in their excellent book on the Law of Fixtures, 1st ed., 129, say—"It may, it is conceived, be laid down that an incumbent, or his executor, will in general be entitled to fixtures of the same description as those which form part of the personal estate of a deceased tenant for life." It may be worth while observing that there is a distinction between an incumbent and ordinary tenant for life; that the former has at no time any reversioner with any present interests or rights whatever. When the latter annexes anything to the freehold, or in any way meddles with it, he annexes to or meddles with that in which some other person or persons has or have at the moment an existing interest which may be increased or decreased in value by what he does, and which the law will protect. But neither the patron of the benefice nor the future unknown successor has any such interest in the parsonage or glebe. If any one can interfere it is the ordinary, and he not in respect of any interest vested in him, but to advance the general public object of endowments to the clergy.

"This seems a reason for enlarging the rule as between the executor and successor, where the subject matter in dispute is not of a kind that can be considered as inalienably attached to the benefice, as in such case there would be no ground even for the interference of the ordinary. Suppose the case of an observatory which an incumbent having built should take down again, it would be altogether absurd to talk of the ordinary interfering to prevent him.

"When, however, the cases between the executors of tenant for life and remainder man are looked into they will be found to depend each on its peculiar circumstances; the character, the use, the mode of attachment, the facility of severance, the injury to the freehold by severance. In regard to an ecclesiastical benefice the character and object of the building to which the chattel is attached, and for which it has been so attached, seem of very great consequence in determining whether there was any intention to separate it permanently and irrevocably from the personal estate.

"Here, then, is an erection in itself purely matter of luxury and ornament, which the testator might have pulled down, but which he probably wished to enjoy as long as he lived in the benefice, and therefore did not remove. To this and for the purpose of completing that luxurious and ornamental creation a chattel is attached without injury to the freehold. We think the inference is that it never ceased to be a chattel during the testator's life; that it continued to be so at the moment of his death, and therefore passed as part of the personal estate to the executors. Had this chattel been merely screwed, or had it been as a telescope in an observatory strongly secured, as such instruments commonly are, to what is part of the building itself, we think no question whatever would have been made; and this seems to us to present no substantial difference in principle.

"Our judgment will therefore be for the plaintiffs."

VEGETABLE PATHOLOGY.—No. CL.

620. PARASITÆ (*Polyporus, Dædalea,* &c.*)—I have hitherto considered those Fungi only which are true parasites and live at the expense of the living tissues of the matrix, exhausting their vitality and ultimately inducing death. There are however a great many Fungi which, though they affect living vegetables, and are present in their tissues as minute mycelium during health, prey upon these structures only when old age, disease, or accident has already reduced their powers of resistance or brought on partial decomposition. The presence of mycelium in the cells of apparently healthy plants has been shown by Reissek and others, and I believe that Mr. Quekett has lately made a valuable series of observations on the same subject, though I have no information on the matter, except from verbal report. Certain it is that mycelium is deposited in considerable quantities in decayed structures surrounded on every side by healthy tissue, through which the spores or minute spawn must necessarily have penetrated, except such phenomena are to be explained by spontaneous generation, a doctrine which is losing ground every day, even in the minds of the most speculative of our continental neighbours.

621. It is quite obvious that all organic structures must have a limited existence. Life may be carried on for a hundred years or more in individual cells or in an aggregation of such individuals; new layers may be deposited year after year within the cells till the cavity is all but obliterated, but after a time the cell walls will become incapable of performing their functions, vitality is in consequence impaired or ceases altogether, and the mycelium which was already present attacks the walls and rapidly increases: neighbouring tissues become tainted by the putrefactive ferment, the affected tissue obtains communication with the external air, and the perfect Fungus is at length developed. No sooner has this process been completed than the mycelium spreads still more rapidly by favour of external circumstances, and in a few years the whole tree perishes. This is a process which may be traced from time to time in the case of such Fungi as *Polyporus hispidus* and *Polyporus squamosus*, and if the Fungus has once gained possession of the upper part of a tree, the evil is generally so widely diffused that the case does not admit of remedy. If the upper part of an Apple tree, for instance, be attacked by *Polyporus hispidus*, as is frequently the case, attempts may be made by heading down to induce a new growth. But in the majority of instances the process will be found useless. New shoots may at first be made, but in a few years the general vitality will be reduced so low that the shoots will not be properly nourished and the tree will fail. This is not indeed equally the case with every species of Fungus. Plum trees, for example, which have been attacked by *Polyporus igniarius*, will make a healthy growth and produce fruit for some years. After a time however the new branches will inevitably suffer like the old.

622. Internal decay attended by mycelium is not however always consequent upon mere decrepitude. In some cases undoubtedly the spores or spawn of Fungi are more readily admitted to the interior from below, or decay accompanied by such rudiments of Fungi may extend in the same direction. In the Larch rot the disease undoubtedly appears first in the main roots, from which decay extends upwards till the centre of the trunk is hollow without any serious external symptoms, inasmuch as the outer layers of tissue are still healthy. These however are at last involved, and the tree assumes a sickly aspect and dies. In other cases where trees are grown from old stocks, which are always more or less decayed, the seeds of disease are often imbibed from the first moment of growth. Such trees never produce sound timber, and in the case of Oaks may usually be known by the foxy tint of the heart wood. In other respects the wood may be apparently sound, but if it is employed in building, or in any other way where circumstances may favour the development of the latent mycelium, *Dædalea quercina* will soon make its appearance and induce rapid decay.

623. These are, however, far from being the only species which though not true parasites accelerate decay where it has once commenced. *Agaricus ostreatus, A. ulmarius*, and many other species have similar habits, as have a host of *Polypori*, besides those mentioned above. Where the evil has once commenced, and it is desirable if possible to save the affected tree, the only remedy is to cut out freely the part where the fungus has appeared, to wash the cavity with a solution of corrosive sublimate or some other substance destructive to the mycelium of Fungi, and then to prevent all access of the external air by some impervious composition. *M. J. B.*

* *Polyporus* from πολυς, many; and πορος, a pore. *Dædalea* from δαιδαλος, complicated, in consequence of the sinuous pores.

NEW ROSES.

In a note at foot of Mr. Paul's article on "New Roses," page 363, you say, "Not only Mr. Paul, but many correspondents, differ from Mr. Rivers in his estimation of certain kinds." This is as it should be; for when cultivators differ many important truths are often elicited. Let us therefore hope that some of your "many correspondents" will kindly and quietly give us their opinions. In page 329 I say, "The new Roses sent out in 1855 have not cut a brilliant figure:" I ought to have added, "but few of," which gives the exact state of the case. I name but few, and their goodness cannot be disputed; for Triomphe de l'Exposition, Arthur de Sansal, Ornement des Jardins, Triomphe d'Avranches, Mathurin Regnier, Bacchus, and Victor Trouillard will hold their ground for some time. These are all I name, and your readers will, I think, be glad to know from your correspondents why they differ in opinion from my estimation of them. I repeat that Prince Léon and Jules Margottin (as it bloomed here last summer) are unrivalled in their line of colour.

It is quite time that amateurs should know the value of those long lists of "New Roses" advertised in the spring of the year, before many of them have even bloomed once, and every Rose grower should so reduce his catalogue as to offer *only those* that are distinct and good. The day must come for this; and not only for Roses, but florists' flowers, Coniferous trees, and shrubs, of which so many trifling varieties, with scarcely any shade of difference, are offered in catalogues. Fruit trees, Rhododendrons, ornamental trees and shrubs, and Herbaceous plants—all these must be cut down to a sensible standard, that is, to such as are really ornamental and distinct. It only requires ccurage to bear the opposition that interested parties will be sure to offer. Even kitchen garden seeds require this pruning down, for how many honest, industrious gardeners—good for the kitchen garden, but not educated quite up to the present day—are puzzled to have to select from a list of 30 or 40 sorts of Peas, Broccoli and Cabbages following after—why it requires almost the "wisdom of Solomon" to know what to sow. To return to Roses; in a catalogue of Roses for the present season now before me, nearly 200 varieties of Hybrid Perpetual Roses are named and described. Out of this number about 90 are rose or shades of rose colour. Now I may be singular, but it seems to my sober ideas that if about 20 of the best of the rose-coloured varieties had been inserted, the list would have been more acceptable to the amateur and purchaser of Roses, who, when he looks into such a vast array of names to select a few, must plunge into a sea of trouble. Now, would it not be advisable for Rose growers to put on one side all envy and jealousy, and unite in giving annually a list of Roses every one of which can be honestly recommended to the public. This would create halcyon days for the lovers of Roses. With my present ideas, I would rather allow a good new Rose to remain in abeyance one year than bring it out with a chance of bringing on disappointment. A new Rose, in my opinion, should not only be a good Rose but distinct in character from those already in cultivation. Many new Roses are good, well-shaped, and all that can be wished for, and perhaps, after all, only rose, pale rose, blush, flesh-coloured, or crimson in colour; in fact, with nothing new about them but their name.

Of the new varieties of the present season a few words may be interesting. M. Trouillard, the raiser of Victor Trouillard, sends out two varieties, raised from the Géant; one described as "rouge sanguin," the other "rouge éblouissant," in colour, and offers "the property" of three other seedlings, raised also from the Géant, for 2500 francs, or 100*l.* What is intended by the property is the entire stock, the purchaser having the privilege of naming the varieties, as has been the case with the Bourbon Prince Albert and others of Messrs. Paul, the Duchess of Norfolk with Messrs. Wood, and so on. This law also holds good with the property of seedling flowers purchased in England. Messrs. Lucombe and Pince bought the Rose Devoniensis as a seedling, and named it.

Among the new Roses of the present season we have the following, remarkable only, in my opinion, for their little variation in colour, and yet their names will serve to make a goodly list of "New Roses" for next spring. I attach their descriptions, as given by their raisers.

Prince Impérial, beau rose carminé, a seedling from La Reine.
Berceau Impérial, rose carné, très tendre.
Marie Aviat, rose lilacé.
Comte Cavour, rose vif.
Marie Louise de Vitry, rose carmine.
Belle Anglaise, rose carné.
Adelaide Fontaine, rose tendre.
Audubon, rose clair.
Madame Schmidt, rose lilacé, from La Reine.
Mademoiselle Alice Leroy, rose très tendre.
Mademoiselle Therèse Appert, rose tendre.
Madame Hélody, rose virginal.
Dr. Rushplu, rose.
Mademoiselle de Labathe, rose éclatante.
General Wolfe, rose satiné.
Madame Boissière, rose.
Madame de Genzard, rose tendre.
Mademoiselle Pauline Chateau, rose tendre.
Eugenie Leprovost, rose.
Ernest Bergman, rose vif.

These are all new Hybrid Perpetual Roses, and all shades of rose colour. Now, can there be anything strikingly distinct from the numerous beautiful varieties we already possess? There is one new bright yellow Noisette Rose likely to put in the shade the two American Noisettes—Augusta and Alice Gray—and, indeed, all but the glorious Cloth of Gold. This was raised at Rennes, in Brittany, from Noisette Lamarque, and, judging from Rennes being a much colder place than Lyons or Angers, the birthplaces of so many of our new Roses, likely to prove hardy; it is called Triomphe de Rennes. It is a source of much vexation to cultivators of Roses for sale to propagate a large number of plants from some variety received with a good character, and then to find it good, but not distinct enough to recommend. The young plants grow so freely and bloom so finely in the nursery, that the imagination is

worked upon, the Rose is thought really pretty; and so, instead of throwing away the stock of plants, which requires a great amount of courage, the variety is placed in the catalogue with a smooth character. This is why, I am led to suppose, we all retain too many mediocre Roses.

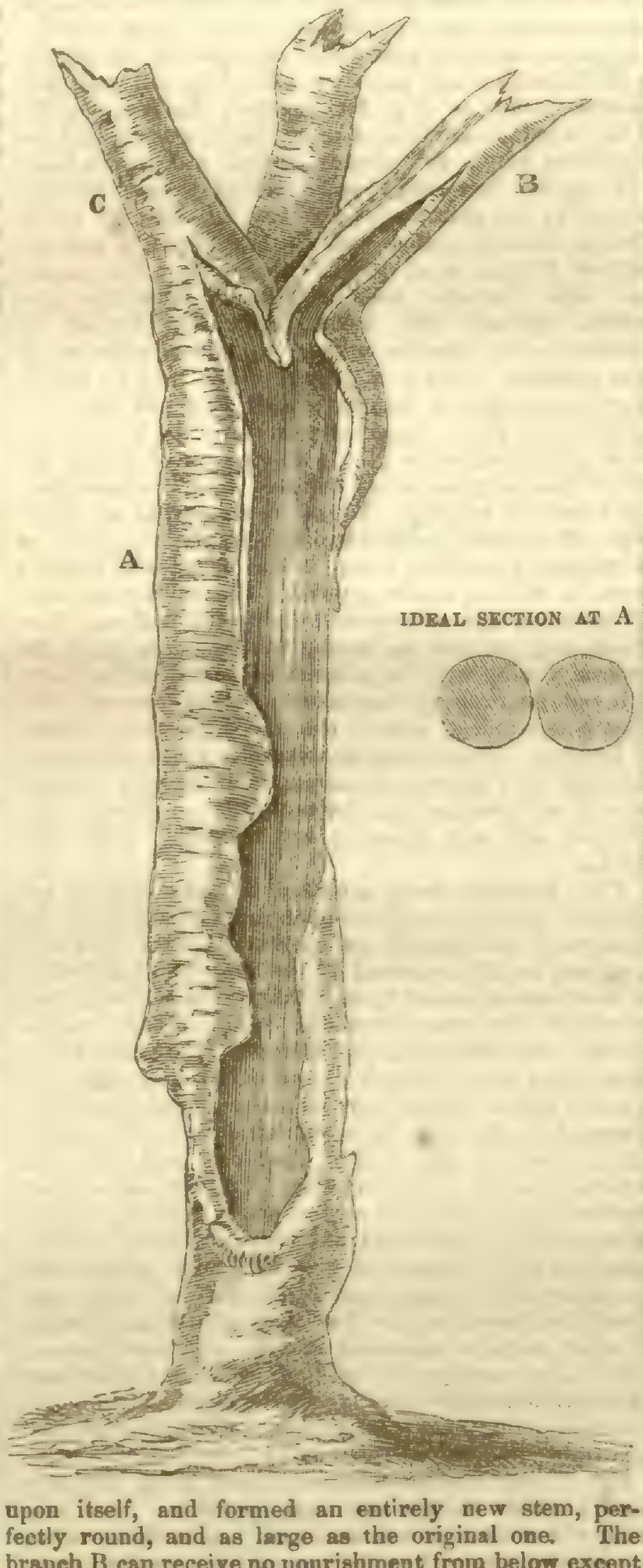
Botanists now well know to what a great extent our botanical catalogues are crowded with the names of hundreds of insignificant varieties of plants, classed as species by the older botanists and compilers, and are well aware that the day of reform must come. Let florists and fruitists and nurserymen take the initiative, and show them the way by thoroughly pruning their catalogues, retaining only plants and flowers and trees of real interest and distinctness of character. *Mr. Rivers in Turner and Spence's Florist, Fruitist, and Garden Miscellany.*

Home Correspondence.

Polmaise Stoves.—Having observed several articles in your columns in reference to my Polmaise heating apparatus, I apprehend it may be interesting to your readers to have some further account of it. My attention has been particularly called to a communication which appears in your Number of Jan. 3, 1857, p. 6, requesting some specific details of my Polmaise stove, and I have pleasure in complying with that requisition. No plan or drawing, however, that I could give would convey any accurate idea of it, inasmuch as its success depends chiefly upon the just adaptation of its parts to the particular situation for which it is destined, and also upon the careful construction of the stove, and the proper execution of the work generally. The stove itself is an oblong square box made of strong boiler plate iron, carefully selected so as to be free from fissures or any unsoundness, and firmly riveted together so as to be air-tight at the joints. This box contains the furnace and ash-pit, each supplied with a peculiar air-tight door, so as to control the combustion with the utmost precision. The furnace is lined with fire-brick, so that the fire does not come in contact with the iron. It is furnished with a smoke flue so placed as to carry off the least possible amount of heat, and it is surrounded by the hot air chamber, which in turn is enclosed in a brick casing. The hot air chamber is constantly supplied with fresh air, derived either from the external atmosphere, or from the room warmed, but the latter case is only applicable to buildings of some magnitude and provided with the necessary ventilating apparatus. The air as it becomes warmed proceeds from the hot air chamber along flues distributed throughout the area to be supplied, and passes into the room through sliding gratings: a system of ventilation is adopted in unison with the apparatus which allows the air of the room to pass off as it becomes unfitted for respiration, so that a continual circulation is thus carried on. The whole thing is very simple, and does not appear to involve any very great novelty of principle. Its remarkable simplicity is its great recommendation, but it is, as I have said, more in the details of its construction, and in the excellency of the workmanship and material of the stove and fittings themselves, that we find the great advantage arising from the Polmaise apparatus. In the first place the site of the stove is important; it should be placed in an excavation or basement story, and at a proper depth. The dimensions and form of the warm air flues and of the cold air drain, and their inclination and position in regard to any air currents in the building, or other local conditions by which it may be effected, is of great importance. Unless these matters are properly attended to, the best possible apparatus would not work well; it might even have a reverse action, working the wrong way altogether. Mr. Cramb, (Jan. 17, pp. 38,) mentions a case of the kind: "the air in the house passed into the hot air chamber and out at the cold air drain," doubtless for want of attention to the points I now insist upon. Then again, as regards the construction of the stove: if it be put together with any of the various cements commonly used it will constantly give off an offensive and noxious vapour; or if the plates of the stove are insufficiently strong, or exposed to the direct action of the fire, it is probable the air may become more or less decomposed, and unfit to support either animal or vegetable life. Also, unless it be made absolutely air-tight, it will permit the escape of most pernicious gases—products of the combustion of coke or coal. The accurate fitting of the doors of the furnace and ash pit is also an important feature. With regard to the results, I have a stove erected to warm three rooms, each 90 feet long. It is kept in action night and day, consumes from 4 to 6 cwt. of coke per week, requires attention only once in 24 hours* (burning without any care from Saturday until Monday), keeps up an agreeable and regular temperature, and does not give out any dust or offensive odour. It is moreover quite free from risk of fire. This is my assertion. I can support it by a great number of references, but that would be beyond the scope of this communication. I will send you, in the shape of an advertisement which will be found in your next No., several testimonials of great worth, which your readers will have an opportunity of consulting. *John Whitehead, Preston.*

Effect of Oxide of Manganese on Rose Flowers.—Will you have the kindness to inform me whether the effect produced on Roses by the application of oxide of manganese is sufficient to justify the trial of it? I have been informed by a chemical friend that it produces a much greater brilliancy in the colour of the flowers than can be obtained by any other description of manure. If you are aware of it, as I have no doubt you are, can you give me a hint how and in what quantities it should be supplied? I should conjecture that it should be sparsely used in a dry state, either mixed with the loam in which the Roses are planted, or sprinkled on the surface of the ground. My friend assured me that there were no deleterious (to plants) properties in it. At the same time he told me that he had tried the effects of gelatine on Lilies, and nothing could exceed the richness and abundance of flowers which ensued. *H. S. T., Calverton Cottage, Stoney Stratford.* [We are totally unacquainted with the action of these substances.]

Barked Rhododendron Stem.—I beg to send you the accompanying sketch, which I think very forcibly illustrates some points in vegetable physiology. The stem from which the sketch is taken is that of a Rhododendron, from which by some accident a considerable length of bark was forcibly separated, but without being itself severed either below or above. The original stem, *i.e.*, so much of it as is shown without bark, is quite dead; but the bark has curled inwards



upon itself, and formed an entirely new stem, perfectly round, and as large as the original one. The branch B can receive no nourishment from below except by a retrograde motion of the sap after entering the branch C. The leaves on B are slightly less luxuriant than those on C and the other branch. The section is merely an ideal one for the purpose of comparing the size of the new stem with the dead one. One would however like to procure an actual section for the purpose of examining the organisation of the wood. But the plant is a valuable one and precludes that. *L.*

Polmaise Heating.—"A Looker On" seems to wish for more information as to the size of Whitehead's stoves, and the work they do. The stoves are 5 feet high by 2 feet square. The two schools, which are heated by one stove, are 9 yards by 7 yards each, and far more heat can be commanded than is required. The church which the other stove heats is 31 yards by 17 yards. The second stove was added not so much because more heat was wanted, as for the purpose of trying a brick stove and how Polmaise would work when the hot air was introduced above the level of the floor. I consider Whitehead's stove alone sufficient for the church. *W.*——I have always felt much interest in the Polmaise system, and am glad to see it again discussed in your columns. Without going to the expense of a 20*l.* stove I have made a good many experiments, and to a certain extent have succeeded; but I have also found what Mr. Cramb complains of. Sometimes my stove works admirably, and a fine stream of fresh warm air fills the house with a genial glow; but perhaps the next day (everything being in precisely similar condition, except it may be the wind which I had not thought of blaming) the hot air refused to come into the house and wasted itself through the cold air drain. Of course the remedy was to shut the latter, but then I no longer had the advantage of fresh air. I must also add, that the heat diminishes more rapidly when the damper is put in for the night. As regards the hot air chamber, would the difficulty of the hot air escaping be obviated by sinking the cold air drain with a bend 18 inches below the surface? Supposing the chamber to be 6 feet by 3, what should be the size of the drains.

Mildewed Vines.—I applied the "Procédé Grison" last year to my Vines, which had suffered terribly the year previous from mildew, with complete success; as did also a nursery bedding-out gardener on my suggestion. We only complain of the milky spot (itself quite innocuous) that remains on the leaves. *Clericus.* [The Procédé Grison here mentioned is the following:—1 lb. of flowers of sulphur and an equal quantity by measure of fresh slaked lime. When these are intimately mixed they are put in an iron or glazed earthenware pot containing 5 pints of water; this mixture is made to boil for 10 minutes and kept stirred all the time. The pot is then taken off the fire and the mixture allowed to settle; when it has done so about 4 pints of the clear liquid is bottled for use. Before using, however, each pint of the liquid is mixed with 12½ gallons of water.]

Rain at Cirencester in 1856:—

	Inches.		Inches.
January	3.35	Brought forward ...	16.88
February...	2.10	August	4.20
March	1.58	September	3.95
April	3.33	October	3.35
May	3.95	November	1.10
June	1.27	December	2.02
July	1.30		32.80
Carried forward ...	16.88	Average of 12 years ...	31.9

—*Thos. C. Brown.*

Asparagus Forcing.—Various means have been employed to obtain this vegetable as near perfection in winter as possible, and considering its long career as a favourite at almost every table, it is surprising there should be any difference of opinion regarding the state in which it should be eaten. There, however, is so, some preferring it blanched and some green. The first complain that when forced it is tough, springy, &c., and blame the cook, and not unfrequently the gardener, the first for improper cooking, the second for injudicious culture. "We prefer it," say they, "white as Seakale, *à la Français*," and they might add—"done to rags" and tough as shoe leather; two results which are inseparably connected with the state in which the gardener is bound to produce it but which it is impossible for him to remedy. And to see the otherwise fine bundles of "Grass" exposed for sale in Covent Garden (there are exceptions however) and in greengrocers' windows, one would suppose white to be the colour most esteemed. I have often wondered if it paid for the trouble of blanching, yet it does, for growers have produced it so these 40 years and still produce it in that condition, and people still buy it and still call it tough, but eat it, and why? Certainly not because our French neighbours do, for few ever ate good Asparagus in France. The remedy is simple—don't buy. Condemn all white Asparagus, and patronise all who grow it green; then there will be an end to all tough uneatable, uncookable "Grass," for if it pays to grow it white, why not to grow it green. Many cover their beds in spring with from 4 to 6 inches of soil, and suppose they get longer "Grass." This is wrong in principle; for all below the surface cuts to waste, and thus actually reduces the length of the usable head. In all places of any note now-a-days the method of cultivation pursued insures quite opposite results. Refined taste prefers it green, and the gentleman's gardener who does not comply to the letter is inexcusable. In my time I have met with those who preferred it blanched, and I have had to grow it so, but after tasting it green the French were all wrong, and green was ever after the colour. I will now detail my practice, and although there may not be anything new in it, it may serve to excite an interest in the subject. To begin at the beginning then, I sow my seed thinly on a fine day early in March, on a well prepared piece of light sandy soil, in beds 2 feet apart, three rows in each, 1 foot from plant to plant, just covering the crowns with finely sifted soil. I water well and through the summer with strong liquid manure. I cut a few strong heads only the succeeding summer, and the following winter I begin to force it. I should mention that I grow my Celery in what is called the lazzy bed system, viz. four rows in a 5 feet bed, with an equal space between. In two years I thus trench over just as much ground as I require for two years of Asparagus, and from the quantity of manure used for the Celery, and the thorough pulverising which the soil receives, I have always found it an excellent preparation for Asparagus. I have a span-roofed pit heated by water with a bed 4 feet by 120 long, part of which is occupied with Cucumbers, French Beans, &c., the rest with Asparagus. I begin in November; I take the plants up carefully, place 3 inches of any sort of soil on the slate covering of the tanks, on which I pack the roots and cover with

* Ordinarily it requires fuel once in 12 hours, but by diminishing the activity of the fire it may be made to last 24 or even 36 hours. This depends upon the adjustment of the doors.

half an inch of finely sifted soil. I water well all the time the bed is in bearing with water warmed to the temperature of the bottom heat, which is about 90°. At from four to six days from the time of putting in, I can cut Asparagus which can compete with any of summer growth, of a fine green colour, crisp, and well flavoured, and which has been much esteemed by all who have tasted it. Many may not have the convenience I have, but with a two-light frame equal results may be obtained. Abundance of light, air, water, and, above all, a rapid growth, are the essential points to be remembered in the management of forced Asparagus. *W. Watt, Aswarby Park, near Folkingham.*

Roses and Rose Catalogues.—I must send one more line about Roses. I rejoice to think that my original communication has drawn forth so much discussion, and only regret that Mr. Paul should suppose from my language that I wished to impute any dishonesty to the dealers, though I am still of opinion (and not alone) that the catalogues are calculated to mislead persons who depend for selection on them only. No doubt actual inspection, where possible, is the safest guide; but few buyers can enjoy that privilege, and I think no one can deny the uncertainty of catalogue descriptions from the extracts I gave in the case of Williams's Climbing Rose, and others: besides, Mr. Paul says the descriptions are comparative; but what is the use of that, if you cannot compare the Roses, and the descriptions of the Roses I named will bear comparison with any in the catalogues. The fact is, as the "White Rose of Yorkshire" says, there are too many varieties, and I doubt whether 40 could be selected from the Hybrid Perpetuals having all the necessary qualities he names, not to speak of distinctness. I do not wish to enter into any more particulars of the case; the whole was done with good intent, and here let it rest, unless any other lovers of Roses, either amateur or professional, will give us further experiences. I must, however, add a word in favour of Madame Laffay (so much abused), from no less an authority than Mr. Rivers, who says, in the October Number of "The Florist," it is "still one of the best of the Hybrid Perpetual Roses," while I find him also writing this remarkable sentence:—"The new Roses sent out in 1855 have not cut a brilliant figure." I have also to say a word in reply to "G. H.," that as to Madame Masson (Hyb. Perp.) I have not grown it, being told by the first Rose dealer in this kingdom that it was a bad grower, so there is a mistake somewhere. And as to General Jacqueminot, I have seen many blooms of it, and never doubted more than any one else about its being a "fine flower," but I say still it is only semi-double. I should also be glad to know whether "G. H." or any one has grown Gloire de Dijon "out of doors north of the Tweed," and if so, to give us the method and the result. *A. R.*

Poplar within Poplar.—A few months ago some old Poplar trees were cut down in the churchyard here; some of them I had cut into pieces about a foot in length to be split up for firewood. My man, who had been splitting up some of the logs last week, brought me in a stout stake about an inch and a half in diameter, which he had found in the centre of one of the logs. On searching the next corresponding log was discovered, and a further portion of the stake was found occupying almost exactly the centre. The log was 18 inches in diameter. I enclose the portion which immediately covers the stake; about 6 inches of solid wood has been split off all round. It may be a not unusual thing; but it was new to me and seemed curious. The knots on the enclosed stake look as if they had been cut with a knife previous to their enclosure. I send it to you in case you think it worth notice. *P. T. Ouvry, Vicar of Wing.* [Such cases have been seen before. They seem to differ among themselves as to the cause. In the present instance we suppose that some late hard frost destroyed the young alburnum or cambium, and thus prevented the usual adhesion between the consecutive layers of wood.]

Labels.—Take a sheet of zinc, mark out with a sharp knife the sizes you require, stamp the holes and paint white; when dry write the names with a blunt lead pencil in a good round hand, then varnish, and break off as required. These will last for years, and are not affected by weather. *Sigma.*——"An Amateur" will find the label advertised in your columns last spring (p. 298) a great improvement on his pieces of zinc written with metallic ink; certainly they cost more, but where appearance is an object they are both handsome, light, and durable. I will not go so far as your correspondent of last week to say they will last for ever, but considering the cost will last long enough. How they are done for the money is a mystery, as they are all done by hand, and have a polish like enamel. *J. Davis, Bromyard.* [Nothing of this appears in the advertisement, which gives no information whatever.]

Societies.

ENTOMOLOGICAL, *Jan.* 5.—W. Wilson Saunders, Esq., F.R.S., &c., President, in the chair. Mr. Samuel Stevens exhibited a box of Lepidoptera recently received from Mr. Wallace, captured at Sarawak and Borneo, containing many beautiful and remarkable species of moths. Mr. Hunter exhibited on behalf of Mr. Reading, of Plymouth, four living specimens of the very rare Carabus imtricatus, taken on Moss in that neighbourhood; also a specimen of Glæa erythrocephala taken on Ivy blossoms in November, being the second recorded British example of the species. Mr. S. Stevens exhibited a most beautiful new butterfly belonging to the genus Callithea, taken by M. De Gand in Peru, for which he proposed the name of C. De Gandi; likewise a remarkable Curculio from Burmah with singularly elongated and incrassated hind legs. Mr. Wollaston exhibited a large box filled with minute Coleoptera, being portion of his captures during his last visit to Madeira. Mr. Wollaston also read a paper on the British species of the genus Atomaria, containing descriptions of 24 species of these minute beetles. Mr. Lubbock called attention to a remarkable memoir lately published by Von Siebold, entitled "Wahre Parthenogenesis bei Schmetterlinge und Bienen," on the theories relative to the generation of bees and other insects. A letter from Mr. Marshall was read relative to the reputed capture of six specimens of Pieris Daplidice, near Glasgow. Mr. Pascoe also read a paper containing descriptions of new exotic Longicorn beetles.

Notices of Books.

Messrs. Longmans have published, under the name of *Wae Yàng Jin*, a journal of an *Eight months' cruise* in a sloop of war to Loochoo, Japan, and Pootoo, kept by Mr. Halloran, a master in the Royal Navy. The account of what little was seen of China will be read with interest by those who are not familiar with the relations of previous travellers, or who prefer a plain unvarnished tale to literary decoration. The worthy author knowing nothing of natural history gives us no information respecting the plants he saw; but his surveying operations on the coast of Japan may show our collectors how hopeless for the present will be their attempts to penetrate that land of promise. So jealous of foreigners to this day is the Government that it was by no means easy for even a boat's crew to land; although the authorities were civil and hospitable after their own manner. One evening in Jeddo bay the little sloop was completely surrounded by a guard of boats; but Mr. Halloran must tell his own tale:—

"On our side we loaded our guns with grape and canister shot, placed sentries provided with ball cartridge at different parts of the vessel, and kept one watch at quarters all night. Each of the Japanese boats moored around us carried several immense lanterns; and the number of lights displayed being ranged in a circle, of which our brig was the centre, they produced a curious and pleasing effect, their reflection on the still surface of the water appearing like so many streams of fire diverging from the sides of our Lilliputian representative of the majesty of old England. The next day, Wednesday, May 29, at 6 A.M., we had about 50 boats alongside, each one containing a ton or more of water. Although we had enough on board for 40 days, the mandarins insisted on our receiving it; so, after filling up all our tanks, casks, &c., we were obliged to pump the remainder on deck and let it run out through the scuppers. Our commander sent his card (written in Japanese characters on red paper) to his Highness the Governor of Jeddo; but he returned it, saying it was against the law to hold communication with foreigners; that they would send us water, firewood, vegetables, and fowls, if we required them, and then, as we should have received all that we could desire, we must go away. In the afternoon the commander, wishing me to sound the bay, mentioned the subject to the head mandarin, who had just come on board; and he, being jealous of my landing, insisted on going with me. Indeed, I was not sorry to have him, as I had to pull within the range of several forts, some of which would very probably have fired on the boat had not one of their own officers been in it.

"Accordingly I started at 1 P.M. in the second gig with my two-sworded companion and a well-armed crew, and attended by the interpreter Otto. I first landed on some rocks called Aska-Sima, or Seal Island, about a mile and a half from the ship, and procured a base line by measuring the angle subtended by the brig's mainmast. Here I took a round of angles and several sets of sights for determining the longitude, my worthy mandarin friend looking on with undisguised wonder, and, I fancy, firmly believing that I was performing some diabolical act of conjuration which was to bring destruction to the whole of the Japanese empire.

"Trembling with fear and alarm, he entreated me to return on board, assuring me, as well by signs as through the interpreter, that should the Emperor hear that he had sanctioned my proceedings he would infallibly lose his head. I continued, however, sounding and taking bearings until near sunset, and by the time I returned on board, at about 6 P.M., my poor companion was nearly frightened to death, lying along the stern sheets of the boat sobbing and moaning most piteously. On reaching the deck he turned to me, and as well as he could speak for tears, assured me that the Emperor would politely request him to rip up his own bowels, or send an invitation for his head without his body, as soon as we were gone; but after drinking a glass or two of Cherry brandy he appeared to forget his troubles, and, I doubt not, will live many years to boast of having been the first Japanese mandarin who ever went out surveying. Thursday, May 31st, at 6 A.M., several mandarins came on board and earnestly requested that we would take our departure forthwith; but the wind being light and contrary we could not immediately comply with their request, and were quite unable to make a move until nearly noon. In the interval the commander held a long conversation with them through the interpreter, and the officers gathered round to profit by the information elicited from them. At length one of them produced two pieces of Japanese money, which were the first we had seen; they were both parallelograms; one of silver, of about the weight and thickness of a half-crown, the other of gold, rather heavier than a half-sovereign, and both said to be of the same value, namely 16 mace, or 5*s.* 4*d.*; showing that with the Japanese silver is nearly as precious as gold, the former being about double the value of English currency, and the latter only one-half. Each coin had a raised border of leaves, and the Emperor's name engraved in the centre.

"On the reverse side was stamped the value of the coin and the maker's name. The mace above-mentioned consists of 100 thin copper coins, with a square hole in the middle, strung on a cord; and the value of the whole number is about 4*d.* The separate pieces are known by the name of cash, and their individual value may be expressed thus, $\frac{4d.}{100}$; this coin and the mace are the common currency in China. At about $11^h\ 30^m$ we weighed and made sail; my surveying companion of yesterday assuring me that he was sorry that we were going, although he was very glad to get rid of us. He was much pleased at my giving him several cards with my name on them,—a piece of paper with European writing upon it being considered by these people as a great curiosity."

On another occasion, in Simodi Bay:—"In the evening, when the ship was anchored and the sails furled, I landed with a party of hands for the purpose of hauling the sein. The mandarins who had boarded us immediately on our arrival expostulated loudly against this proceeding, promising to bring us as much fish as we could make use of, if we would only refrain from landing; and they very earnestly represented the danger that their heads would be in if we persisted in doing so; but when they found that we persevered in our intention they contented themselves with placing sentries all along the beach, to prevent our intruding further into the country, and were soon apparently much amused by our method of using the net, and many of them good-naturedly lent us a hand to haul it on shore."

The Japanese themselves appear to be a well conducted civil race, among whom a stranger might live in safety and comfort. At least such is Mr. Halloran's opinion, with which we conclude:—

"In personal appearance the Japanese are fair, and have a pleasing expression of countenance; and their urbanity and kindness to strangers, as well as to each other, is very remarkable. During the time we were in their ports, although our decks were daily crowded with them, I never saw the smallest expression of annoyance or bad temper; and whenever anything that was likely to be curious or interesting to them was pointed out to their notice, instead of pushing and crowding to get a sight of it, as the English would do under similar circumstances, each man seemed most anxious to occupy as small a space of room, and to impede his neighbour's view of the object, whatever it might be, as little as possible. In short, they appear to be naturally a kind-hearted and polite people. Dr. Ainslie, in his report to Sir Stamford Raffles, states that the Japanese females mix freely in society, and are under none of the restrictions imposed by the Chinese on the ladies of the 'Flowery Land;' but though several of the fair sex are said to have gone on board the 'Morrison,' not one favoured us with a visit, although hundreds of men were continually on our decks. It may readily be supposed that the numbers coming in and going out of the ship would give an easy opportunity to any one of them, so disposed, to steal such small articles as he might take a fancy to; but, much to their credit, not a single instance of even an attempt at theft occurred while they were with us."

A second edition has appeared (Longmans) of Mr. Shortland's interesting account of the *Traditions and Superstitions of the New Zealanders*, of which some account was given in our columns in 1854 (p. 839). The additions do not occupy upon the whole more than about 16 pages beyond the original edition, but the matter has been rewritten in some instances, and such corrections have been introduced as a more complete knowledge of the Maori language has suggested to residents in the colony.

Garden Memoranda.

MESSRS. E. G. HENDERSON'S NURSERY, WELLINGTON ROAD, ST. JOHN'S WOOD.—The show houses here are now gay with Indian Daphnes, whose fragrance renders them especial favourites, Chinese Primulas, forced Hyacinths, Narcissi, and early Tulips. To these must also be added Cinerarias, Cyclamens, Hippeastrum aulicum, which is one of the best of Amaryllids for early work, the cheerful yellow flowered Jasminum nudiflorum, and the double pink, white and scarlet Peaches, which by means of a little gentle forcing become loaded with blossoms, and have a charming appearance at this season of the year. Solanum pseudo-capsicum, well furnished with round polished bright orange fruit, variegated leaved Geraniums, and tree Carnations, were likewise introduced here and there with good effect. Within the last few years these perpetual blooming or tree Carnations have deservedly received considerable attention; they have become well varied in colour, and are really very handsome. With some however they do not flower so freely as they should do, a fault which Messrs. Henderson attribute to their being over potted—a practice which they are found to dislike.

If kept in moderate sized pots, well attended to while growing and introduced into heat in succession, they will flower freely and continuously all through the winter, and form useful plants for "cutting from."

In previous reports we have more than once alluded to a house here filled with Evergreen flowerless plants, tastefully grouped and traversed by a narrow winding gravel walk. The same arrangement is still maintained. No stages are employed; the whole of the plants which are in pots are placed on the floor, which keeps the roots cooler in summer than they would be in more elevated situations, and by means of introducing large standard and pyramidal Bays, Camellias, Variegated and other Yuccas, Dasylirions, Grevilleas, and other fine foliaged plants, a degree of variety and interest is kept up which ordinary houses of the kind do not possess. This therefore must be considered a step in the right direction. In the centre is a little cistern surrounded with rockwork, overhung with the bright green Grass-like Isolepis gracilis, a plant remarkably useful for this kind of decoration, and also for placing in hanging baskets, either in the stove or greenhouse; it, however likes the warmth of a stove best.

Among Bhotan Rhododendrons, Messrs. Henderson have flowered the one called Jenkinsi; it has large white sweet-scented blossoms like those of Dalhousiæ; but purer white, it is said, than those of that kind. Boothi, a variety that has not yet flowered, is also set for bloom.

Of new Camellias Archduchesse Marie is stated to be one of the best. It is red with a white stripe down the centre of each petal. In an intermediate house were young plants of the Chusan Palm, and on the rafters above them Tropæolum Triomphe de Gand was throwing out here and there its brilliant orange blossoms. By means of a little heat this may be kept in flower all through the winter.

In the stove little was in bloom except Exacum zeylanicum, whose large blue blossoms are very showy. One or two Ardisias were in fruit; the best of these was crispa, whose leaves are nearly 6 inches in length, its berries are most brilliant and produced in great abundance. Ixora salicifolia is found to be somewhat difficult to manage on its own roots. To get a good plant of it it must be worked on coccinea, placing a graft of the Willow-leaved species on every branch of the stock that is suitably placed for forming the foundation of a handsome specimen. By this means a good plant may be obtained in a comparatively short time. We noticed here examples of Amherstia nobilis and Begonias, among which the most striking were picta and splendida; of these the first has a zone of white on every leaf, and the last is so thickly covered with crimson hairs as to make the young leaves resemble scarlet plush. The new drooping Gesnera Blassi was also in bloom. This will be found a useful addition to the class of plants to which it belongs. Among other novelties was an Allamanda from South America, reported to have blue flowers. The beds and shelves of this stove, as well as those of some of the other houses, were edged with toothed Lycopod, which when kept trim and neat has a good effect.

In cool houses were immense quantities of variegated Geraniums, Cyclamens, among which the pretty little dwarf kind called Atkinsi was beautifully in bloom; young plants of the charming Lapageria rosea which is found to do best in well drained bog earth such as Orchids are grown in, and the handsome Fern called Gymnogramma peruviana, the upper as well as the under sides of whose fronds look as if they had been powdered with flour. Of hybrid Veronicas one raised between decussata and Andersoni was beautifully in flower; it most resembles the first-named parent, but it is said to be a more abundant bloomer.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Endeavour to maintain a mild and sweet atmosphere. If any plant becomes infested with insects remove it immediately to be thoroughly cleaned; no course of culture will succeed without thorough cleanliness. As regards stove plants now is a convenient time to repot such of the Orchids as require it. If the necessary material for the purpose is not yet prepared it should be done at once. Abundance of peat cut into cubes, varying from 1 inch to 2 inches in size, fresh sphagnum and charcoal in lumps with a sufficient supply of crocks should be all at hand. The peat may be half-charred and the sphagnum soaked in boiling water to destroy insects. Commence potting those showing signs of growth, and follow up in this order. In the Geranium house slightly increase the quantity of water—fumigate if a single fly appears, give air if mild, but beware of cold draughts. Cut down, number, and remove decayed Chrysanthemums; let them go dry in a cold pit. Cinerarias which are cramped in their pots may soon have a shift; likewise Chinese Primroses for spring work. In forcing pits introduce bulbs, Roses, Pinks, American Shrubs, Lilacs, &c., in steady succession. Keep up a bottom heat of 75° and an average surface temperature of 60° at night and 70° by day with air occasionally. In cold frames or pits, should the weather keep open, begin to water slightly such stores as appear to be suffering for want of moisture. Introduce stock of choice Verbenas, Heliotropes, Petunias, and other things intended for dress beds or borders to some warm and light situation in the houses or pits at work, in order that they may furnish abundance of early cuttings.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is maintained by means of fermenting materials, such beds as may have been recently renewed should be carefully watched, and if the heat at the bottom of the pots is found to exceed 90° the pots should be slightly raised in order to prevent injury to the roots. It is not usual now to subject the roots of Pines to a temperature of 110° or more, as we have seen growers of the old school quietly doing, but it is still too common a practice to allow the bottom-heat at times to become too strong, throwing the plants prematurely into fruit or otherwise injuring them. VINERIES.—Discontinue syringing Vines that are showing fruit; but secure sufficient moisture in the atmosphere by frequently syringing the passages, &c. Be satisfied with as low a temperature at night as will be safe under the present condition of the Vines, but take advantage of sunshine to raise it considerably in the day-time, and be cautious how cold air is admitted where the Vines are in leaf. As the Grapes are cleared from late houses, prune and wash the Vines with soft soap, and a little soot and lime, also thoroughly clean the woodwork, glass, &c., and have everything clean and ready for next campaign. PEACH HOUSE.—Discontinue syringing where the blossoms are beginning to open, but secure a nice, moist, healthy state of the atmosphere by sprinkling the passages, &c., as may be necessary, but avoid anything like dampness while the trees are in bloom. Maintain a steady night temperature of 50° to 55° while the trees are in flower. Take every possible opportunity of admitting fresh air, and where the external air can be made to pass over the heating apparatus, so as to get warmed before coming in contact with the plants, a gentle circulation should be constantly kept up until the fruit is fairly set. Avoid the admission of currents of dry cold air, however, which would be most injurious to the trees. FIGS.—See that trees planted out are properly moist at the roots, and also keep those in pots and tubs carefully supplied with water, for any excess as respects the presence or absence of moisture at the root is very dangerous after the appearance of the fruit, and is the frequent cause of its dropping off. Maintain a moist atmosphere, and if necessary to water the border, use tepid water, giving enough to nicely moisten the whole of the soil. Let the temperature range from 50° or 55° at night to 60° or 65° by day, giving air whenever it can be done with perfect safety.

FLOWER GARDEN AND SHRUBBERY.

Those who have alterations to accomplish this spring in the way of planting and groundwork must now lose no time. In planting large shrubs it is an excellent practice to half fill the holes intended for the plant or tree with the rakings of the pleasure-grounds, which should always be reserved in heaps in back places for that purpose. This imparts an unusual degree of luxuriance to the plants, and assists them in making a vigorous start. Look over and correct the general outlines of ornamental plantations. Break into all hedge-like lines; form bold recesses where space will admit of it, and endeavour to create intricacy and variety. The lines of irregular plantations or shrubberies should be corrected in this way at least every three years, for however well they may have been designed at first, the unequal growth of trees will in some degree alter the original plan. Re-arrange masses of American plants; some of the more delicate Azaleas, &c., are frequently overgrown and injured by the grosser kinds of Rhododendrons. Biennials may soon be planted in flower borders or beds. See to bulbous tribes; stir amongst them and protect if necessary. When mild give air to and examine half hardy plants; see that they do not suffer from confined damp.

HARDY FRUIT AND KITCHEN GARDEN.

Now is a convenient time to set about planning how every inch of ground is to be occupied for the whole year if possible. Laths should be written upon and placed at the heads of the quarters descriptive of the kind of crop, the manuring, and what succeeded by. It is necessary also, in order to follow up a systematic rotation of crops, to keep a cropping book corresponding with the labels. Most persons will have laid in their stock of seeds for the year. The old remains of last season should be thoroughly examined, and all the seeds deemed safe for the current year reserved and some mixed with the new samples. A little Cauliflower and a pinch of brown Cos Lettuce should be sown in boxes and placed in a house at work. Also some white Spanish and Portugal Onions to be transplanted in highly manured ground. Sow a little Parsley, a little early dwarf Cabbage seed, a little Round Spinach, and a pinch of early Dutch Turnip on a warm slope. A plot of ground should be forthwith appropriated to slopes which should of course run east and west; they are most convenient about 3 feet 6 inches in width. They should if possible be attached to the frame ground, as many of the articles as Radish, Horn Carrot, early Lettuces, &c., will require occasional covering with litter, and frequent attention. Slopes of this kind after carrying their spring or early summer crops will be equally eligible for autumn ones, more especially for Endive, autumn Carrots, or for raising the stock of winter Lettuces. The sooner Asparagus beds are manured and soiled the better. Plant Horseradish, Seakale, and Jerusalem Artichokes as soon as possible; follow up planting Potatoes, at least the early kinds; soil them over 8 inches deep and draw off with rakes or hoes 2 to 3 inches in the first week of April as a cleaning process. Proceed with nailing and pruning, except of Figs and Apricots; get the latter covered soon to protect the blossom; when that can be readily distinguished finish the pruning of these also. Thin orchard trees, dress for American blight, clear off Moss, Lichens, &c. Make cuttings of choice Gooseberries, Currants, &c., taking care to pick out the buds at the lowest end of the shoot, in order to avoid suckers.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Jan. 29, 1857, as observed at the Horticultural Gardens.

Jan.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 23	27	29.355	29.145	45	31	38.0	39	41	W.	.04
Satur. 24	28	29.126	29.062	42	33	37.5	39	41	N.W.	.17
Sunday 25	[illegible]	29.594	29.229	39	30	34.5	39	40½	N.E.	.55
Mon. 26	1	29.805	29.613	36	30	33.0	39	40	N.E.	.13
Tues. 27	2	29.865	29.847	36	19	27.5	38	40	N.E.	.00
Wed. 28	3	29.839	29.766	37	18	27.5	38	40	N.E.	.00
Thurs. 29	4	29.872	29.778	32	14	23.0	37	39½	N.	.00
Average..		29.636	29.491	38.1	25.0	31.5	38.4	40.3		.39

Jan. 23—Clear; cloudy with clear intervals; fine; rain.
— 24—Densely clouded; rain; cloudy and cold.
— 25—Rain; cloudy; fine.
— 26—Sleet; rain; snow and rain.
— 27—Densely clouded; white clouds and cold; sharp frost.
— 28—Clear and frosty; fine; sharp frost.
— 29—Severe frost; clear and frosty throughout; severe frost at night.
Mean temperature of the week 6 8-10 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Feb. 7, 1857.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	42.9	31.4	37.1	12	0.52 in.	5	6	1	2	3	7	3	4
Mon. 2	43.6	30.6	37.1	12	0.75	2	6	4	3	2	7	5	2
Tues. 3	44.1	30.9	37.5	14	0.35	2	4	4	3	2	11	3	2
Wed. 4	44.4	33.1	38.8	15	0.31	3	4	3	1	6	8	4	2
Thurs. 5	44.8	33.0	38.9	13	0.39	2	3	2	2	3	10	4	5
Friday 6	45.8	33.3	39.5	15	0.25	2	3	3	3	4	6	7	3
Satur. 7	46.7	33.8	40.2	16	0.29	2	2	3	—	4	11	6	3

The highest temperature during the above period occurred on the 1st, 1852, and 3d, 1850—therm. 57 deg.; and the lowest on the 5th, 1839—therm. 10 deg.

Notices to Correspondents.

DOG ROSE STOCKS: *Sub.* These are not sold by nurserymen. You must get them from country people in your neighbourhood, who for a small remuneration will be very glad to procure them for you.‡

FERNS: *Agnes C.* When grown under a bellglass they ought to require no drainage, because there should not be in such situations any fluid water, but merely water suspended in the air in the form of invisible vapour. When the vapour condenses it soon rises again. The right way is to put some lumps of soft sandstone into the case, work peat between them, plant the Ferns in the peat, water them thoroughly, pour off the superfluous water, and then cover them up. All Ferns grow freely thus except Trichomanes and Hymenophyllum, which want much more water than others. Of course you must not plant Ferns that grow too large for the cases. Small kinds do best.

FOREIGN SWINDLERS: *A Devonian.* It is very reprehensible in a Newspaper to lend itself to such a flagrant imposture. We have year by year endeavoured to guard people against these swindlers, but in vain. Curiosity is stronger than common sense, and ignorance abounds in quarters where at least a little intelligence should be looked for.

FUNGI: *M G.* The supposed fungus on Raisins is the seed vessel of some Trifolium. *M. J. B.*

HOLLY HEDGES: *Clericus* says, "About 17 years ago I planted a Holly hedge of considerable length, in two rows distant 1 foot 6 inches from each other, and the plants in each row distant 1 foot 3 inches. It is now from 8 to 10 feet high, but grown deplorably thin at the bottom. I propose in May to cut the whole down as low as I can, provided I leave a bud or enlargement in the bark where a break seems probable. Is my intention as regards time and manner right? Is the thinness attributable to the two rows? If so, shall I remove by the root the weakest plants, not adhering to the same row, so as to leave but one row somewhat irregular? 'It was never cut down since it was originally planted.'" The last sentence within inverted commas explains the cause of the thinness complained of. Don't remove any of the plants. Cut them all down early in April to within 6 inches of the ground; and take care that the strong first year's shoots are themselves cut back to one-third of their length in April 1858; after which the plants must be so pruned or clipped as to be narrower at top than bottom by fully one-half. If your old plants are too far apart, fill up the interstices with healthy young plants next August or September.

INSECTS: *W H.* The insect reared from the seed of Picea nobilis is one of the Chalcididæ, and has generally been considered as a parasite upon the larva of some moth which is the real cause of the mischief, but which has not yet been discovered. *W.*

LAW OF GREENHOUSES.—Our numerous inquirers respecting this subject will find it fully discussed in another column.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*X Y Z.* Stipa pennata.

ROSES: *M A.* If you cut off the extremities of your flowering shoots of your Bourbon and Perpetual Roses in June, so as to prevent their first flowering, it will doubtless have the effect of causing them to bloom more freely late in autumn. With La Reine and other sorts this kind of treatment is often practised.‡

SULPHUR: *Clericus.* By no means leave the pipes always sprinkled with sulphur; use it freely when wanted, but employ it at no other time.

THE FORMS AND LAWS OF MATTER: *G.* Excuse us for saying that the remark is strictly correct. No physiologist, or if you love fine words no histologist, who deserves to be named, has said what you allege. It is one thing to read an author and another to understand him. Besides, the question is answered by eyesight without the aid of authority.

VIBURNUM MACROCEPHALUM: *Old Sub* It is deciduous.‡

VINE MILDEW: *Const. Reader.* Sulphur is an effectual remedy for this pest provided it is applied the moment it first makes its appearance. Grison's mixture (see p. 70 of to-day's Paper) is also reported to be equally efficacious in subduing the evil.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
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Beg to call the attention of Agriculturists to their MANURES FOR AUTUMN SOWING, which by a judicious blending of Nitrogen with the mineral constituents taken from the soil by Cereals, produce good crops without exhausting the land.

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

ESTABLISHED 1812.

TURNIP MANURE.—This valuable fertiliser has been used for the last twelve years with great success by most of the eminent Agriculturists throughout England, and stands unrivalled in the *weight* and *quality* of the bulbs which it produces; it is besides especially beneficial to the *Grain Crops* which follow, while *Clover* is rarely found to fail after the first application. Some of the crops produced by this Manure last year weighed upwards of 30 tons per acre. GRASS, BARLEY, CLOVER, and WHEAT MANURES; also BONE, GUANO, and SUPERPHOSPHATE of LIME, warranted of the best quality.—Apply to

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TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

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Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

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COTTAM AND COTTAM, ST. PANCRAS IRON WORKS, Old St. Pancras Road, *opposite the Old Church*, where the processes of manufacture may be seen. Every description of Fencing and Iron Works. Price List per post or on application.

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CUPISS'S CONSTITUTION BALLS.

The excellent condition of the Cart Horse which obtained the First Prize at the Royal Agricultural Society's Exhibition at Norwich, in 1849, the proprietor informed Mr. Cupiss, was mainly attributable to the frequent use of the Constitution Balls. Mr. Nunn, Secretary to the Diss Farmers' Club, obtained the first prize at this local Show, for the best fat bullock, and he writes, "the Constitution Balls were a most valuable assistance in getting my bullock in high condition;" and he further adds, "I found with continued high feeding the animal frequently became glutted, when upon giving him a dose of your Balls his appetite was restored, his spirits enlivened, while his appearance rapidly improved, and I am satisfied without the use of the Balls I could not have got my bullock into such prime condition, in so short a time."

The Constitution Balls are prepared only by FRANCIS CUPISS, M.R.C.V.S. Author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the horse whilst taking them. Also a Pamphlet of Testimonials from many Gentlemen who have used the Balls in various complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

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The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1½ inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 0*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

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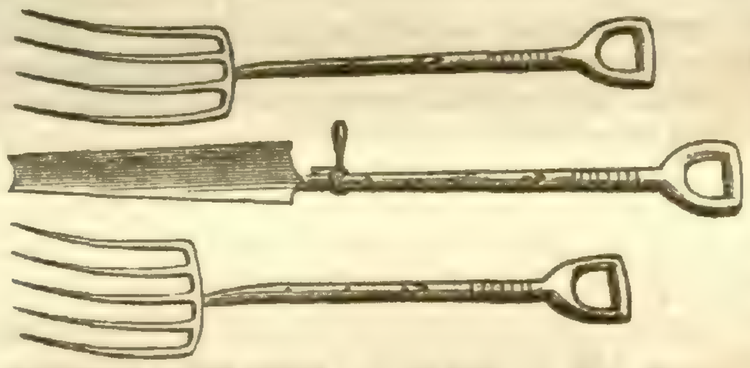

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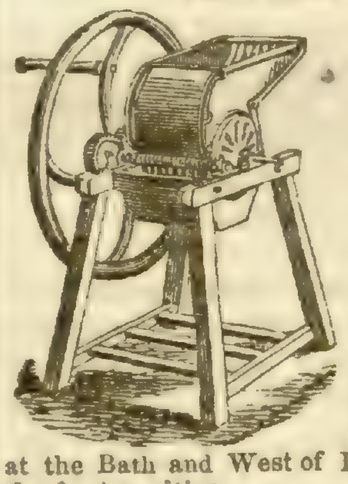

PRICES.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	... 43 ...	118 ...	2 minutes.
PHILLIPS'S	... 43 ...	181 ...	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

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"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22 1856.

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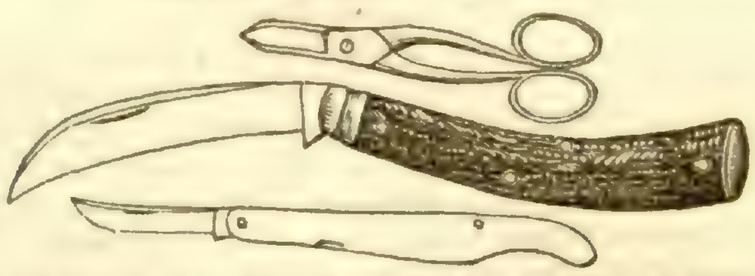
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PAXTON WORKS, SHEFFIELD.



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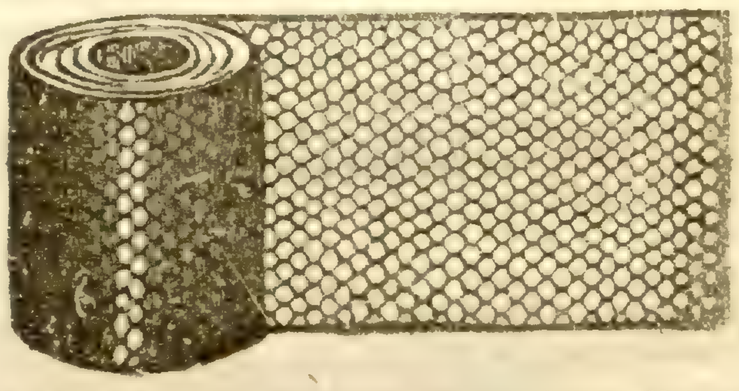

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	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9½ „	7½ „
1⅝-inch „ 24 inches wide	5½ „	4½ „
1⅝-inch „ strong, do.	6½ „	5¼ „
1⅝-inch „ intermediate, do.	7½ „	6 „
1⅝-inch „ extra strong, do.	10 „	8 „

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE PRICES OF FARM SEEDS *being now fixed for the present season,* SUTTON & SONS *will be happy to forward their* LIST, *post free, on receipt of one penny stamp.*

Royal Berks Seed Establishment, Jan. 31.

The Agricultural Gazette.

SATURDAY, JANUARY 31, 1857.

WE perceive in the report of the last half-yearly meeting of the Highland Society the announcement of a supplementary charter just granted by the Crown for the purpose of constituting a committee of the Highland Society, to be called "The Council of the Highland and Agricultural Society of Scotland on Education." The object of this Council, as stated by Sir J. S. FORBES, is to enable the Society to superintend the agricultural education of all the students who choose to come forward for a diploma to be granted by the Society, certifying their proficiency in the arts and sciences connected with agriculture. The Council will take the requisite steps to direct the course of study to be adopted, and to superintend the examination of the students before distributing the diplomas. This will no doubt be found of very great importance in enabling young men who are

studying practical agriculture in Scotland to find situations in different parts of the country, and carry the well-known fame of the practical agriculture of Scotland to distant lands where their services may be required. The Council will consist of the Lord Justice-General, the Lord Advocate, the Dean of Faculty, the Professors of Agriculture, Anatomy, Botany, Chemistry, Natural History, and Technology in the University of Edinburgh, along with seven members of the Society, to be chosen by the directors, and approved of by a general meeting. The Society is empowered, on the report of the Council, to prescribe a course of study, and to enact all regulations necessary in regard to the mode and subjects of examination of the students. The first step requisite being the constitution of the Council by the appointment of the seven elected members, and as their nomination must receive the sanction of a general meeting, the directors submitted the names of the following gentlemen, so as to enable the Council to report upon the course of study, &c., before the next general meeting in July:—Sir GEORGE CLERK, Sir WILLIAM GIBSON-CRAIG, Sir ALEXANDER MAITLAND, JOHN FINNIE, Swanston; JOHN MILLER, of Leithen; ROBERT RUSSELL, Kilwhiss; and JOHN WILSON, Edington Mains. Sir J. FORBES added that he was sure the names of these gentlemen would be guarantees of the efficient and satisfactory carrying out of the charter.

GUANO at 14*l.* a ton will certainly create a brisk competition in the manure market, and it ought to excite in our columns a full discussion of the relative merits of the manures competing with it.

There is not now a more important agricultural subject that can be discussed. The ensuing three or four months will empty all the stores of the London Manure Company, the Nitro-phosphate Company, the Wool Manure Company, and many others; and it would be of great service if those who have put these several manures to the test would relate their experience of each for the benefit of those who cannot or who will not purchase guano at the higher price. We have many letters asking for information on the subject, and several giving it. As a sample of the former we publish the following. "AGRICOLA" writes as follows:—

"Now that the price of guano has reached a height that almost prohibits its use, I am in hopes that some other fertiliser may be found as a substitute, and should be glad if I could provoke a discussion in your journal which might give your readers, myself among the number, the benefit of learning the experiences of persons who have used other artificial manures and noticed their effects upon different qualities of land, and more particularly with regard to the application of superphosphate of lime used upon meadows where the herbage is fine, or on the contrary, on newly-drained ground where the Grass is coarse and rushy. In my case I want some efficient manure which may produce a beneficial effect upon a quantity of meadow land, thorough drained, 4 feet deep and 30 feet apart, during the last winter.

"The farm is situated too far from a town to enable me to get any manure from that source. By the operation of draining I shall destroy a great many of the Water Grasses, whilst, without manure, it will be a long time before the dry land Grasses will take their place.

"I have seen guano, three cwts. to the acre, change the herbage of a peat bog in the course of two years from a growth of Rush and Cotton Grass into a very fair sward, but then at present prices, carriage, &c., included, it would cost 45*s.* an acre to apply such a dressing, so that I am anxious to hear what others in the same position as myself are thinking of doing. I know that in Cheshire they have been applying bones at a very great expense and with excellent results to renovate their worn-out pastures, but then the produce warrants a liberal outlay. If however these surprising effects are produced by coarsely ground bones which must remain a long time on the ground before the fertilising matters they contain become soluble, and thus capable of being assimilated by the plants, one would be inclined to think that a tenth part of the quantity laid on in the shape of superphosphate where the phosphoric acid is in a great measure set free, ought to produce the same effect, that is, for one or two years. What that effect is likely to be on the land I have described I hope to learn in your Journal, for with regard to my lands I know from experience that unless some manure is applied their condition will be rendered worse rather than better by the draining.

"Some persons advise the free use of lime. I know that lime will produce a certain improvement, and render the Grass sweeter and more palatable to the cattle, but I want something that will act more as food and less as medicine, in which relation I consider manure and lime stand towards each other in the effects they produce."

The following, again, from a correspondent who sends us his name and address, relates an experience of the merits of one of the many fertilisers which are manufactured to compete with guano:—

"H. H." says—"I wish your correspondents would state some of their experiences on these subjects. Last April I made a comparison of the merits of wool manure and Peruvian guano—the former procured from the Patent Wool Manure Company—the latter from an agent of Messrs. GIBBS. I applied both manures at the rate of 3 cwt. per acre to a crop of Mangel Wurzel sown on the ridge. The guano was applied to the first ridge, the wool manure to the second, and so on alternately; all the ridges had an equal supply of farm-yard manure previously ploughed in. The crop was a good one, but there was no perceivable difference of superiority in one ridge over another. Unfortunately the crop was not weighed, but by ocular estimation the produce of the wool manure in this experiment was equal to the guano. Owing to the rise in price of the latter I shall most likely apply half Peruvian guano and half wool manure (about 2 cwt. of each) to my crops of spring corn, instead of making use of guano solely as I did last year.

"I shall also make a comparative experiment of the two applied separately to Oats. The Wool Manure Company and the Nitro-phosphate Company both advertise in your columns, and your correspondents would do a service to each other if they would state their experiences of any artificial manures as applied to Oats, Barley, Peas, Beans, or green crops. I should state that the wool manure I used for the Mangel Wurzel was especially prepared for that crop."

We give these letters this prominence that those who have any experience on the subject to relate may see of what importance it is that it should now be given.

MR. JOSHUA TRIMMER has issued a prospectus * on the undeveloped resources of Estates, which although essentially it is a personal advertisement is yet so instructive a *resumé* of the relations of geology to agriculture that we have no hesitation in giving it all the publicity in our power.

Maps of the surface soil and of the substratum are both of them suggested. The latter would be on the principle of an ordinary geological map—but much more full and detailed in the information given. "The information which a landowner can obtain from the best geological map which he can purchase is merely this: that within certain areas he will find a certain group of fossils imbedded in a group of strata of very variable mineral composition." But it is plain that this variable mineral composition is alone the point in which the owner is interested. The same rock geologically may be siliceous or calcareous or claystone—it may be limestone burning into good lime or a limestone of no agricultural value—it may be of half a dozen different uses as building materials. Such a geological report as MR. TRIMMER proposes would contain detailed information on all these points—on which of course the mineral value of an estate materially depends.

"On none of these important points could the landowner obtain any information from any public geological map extant, nor from any map which there is ever likely to be, unless he should undertake a systematic examination of the geology of his own estate. The expense of such a survey, though trifling for the owner of the property, is too great for the State to undertake for the benefit of individuals. As another instance of variations in the composition of different beds on the same formation, take the chalk. A casual observer, and one whose geology is derived only from geological maps, would set this down as a rock of very uniform composition; but it contains a variety of beds, differing considerably in composition, and in their applicability to lime burning either for a cement, for manure, or for a building stone—for some of its beds are hard enough for this purpose—or as a mineral manure in the unburned state. It is principally chalk, either from the undisturbed beds, or from beds of transported chalk, mixed, in the superficial accumulations, more or less with clay, which has wrought such a revolution in the value of the light soils of Norfolk, raising them in value from less than 3*s.* an acre to more than 30*s.* Yet so loose is agricultural nomenclature, that all these substances pass under the names of marl and clay; the very same substance which on one side of the country is called marl being called clay on the other. The lower chalk, again, graduates insensibly into the upper green sand, and contains the phosphatic nodules and soluble silica, of which we have heard so much of late. The soluble silica, under the name of marl, which it much resembles, though it does not contain a particle of calcareous matter, has long been used with great advantage on some of the neighbouring soils; while on others adjoining them, neither the phosphates nor the soluble silica produce the least effect, because there is already sufficient of those substances in their composition.

"There are otherparts of the stratified series which contain phosphatic nodules, and even in the granite some of the richest phosphates have been found, so that the search for them, even in the poorest of our granitic districts, is by no means hopeless."

The principal portion of the report relates however to proposed maps of the variations of soil dependent on the superficial deposits. Soils are alluvial, local, or erratic, and these last are much the most numerous. They are composed of the fragments, large and small, and derived from a great variety of rocks, which have been transported from various distances, often hundreds of miles, by causes not now in operation. This transported matter frequently extends to the depth of several hundreds of feet. When it varies only to 2 feet it constitutes the soil and subsoil to the greatest depth to which cultivation extends; while the operations of the deepest drainers seldom exceed 4 or 5 feet. The agricultural importance of these superficial deposits must therefore be obvious, though our present geological maps take no cognisance of them."

In addition to the questions of the origin and composition of the soil, the other facts to be attended to in estimating its quality are enumerated—as "depth, colour, permeability by water, capability of retaining moisture, elevation above the sea level, aspect, and whether the variations of soil cover large or small areas. These, together with contiguity to centres of population and convenience of transport for its produce, are the elements in the value of land."

On most of these subjects any one combining the qualifications of the geologist with those of the agriculturist is likely to make a much more useful report than could be expected from the man of merely local agricultural experience, however practised in land valuation he may be. The remainder of MR. TRIMMER's prospectus shows how his geo-agricultural reports would bear on the subjects of drainage, road making, and land division.

* Prospectus of Reports on the undeveloped Resources of Estates, and means of improving them, proposed to be made by Mr. Bullock Webster, assisted by Mr. Trimmer.

PLEURO-PNEUMONIA.

As several additional cases of pleuro have occurred since my first communication on its treatment, I propose to occupy your pages with a more particular description of the symptoms and appliances whilst they are fresh in my memory. The first of these was reported as off her food on the 10th December. On proceeding to the examination, I found her pulse and breathing but slightly affected. During a day or two she eat but little; on the 12th a perceptible increase in the pulsation and respiration occurred. She was then sent off, and was killed on the 15th. On examination her lung on each side was slightly injured, but no other organic damage was perceptible; her store of loose fat was 112 lbs. These appearances indicate that up to the time she was reported ailing, she had been in a thriving state. The premonitory symptoms in this case were more early and mild. I purposely abstained from applying remedies; had I resorted to these I scarcely doubt that they would have been successful.

Within a day or two her companion, standing in the same stall or booth, was reported ill. As this shed, used for fattening only, is half a mile distant from my homestead, I did not attend till nearly 11 A.M. I found the symptoms very marked; the horns and feet quite chill, pulsation 60 per minute, respirations accelerated, and the characteristic husky cough. On applying the ear to the side the sound was suspicious. On close inquiry the attendant admitted that the feeding at 6 o'clock the evening before the cow had not eaten up its steam food, but had consumed its Turnips. I found fault with him for not having reported this immediately. On opening the vein the blood was unusually warm and dark in colour: nearly 6 quarts were taken from her. On coagulation there appeared an unusual proportion of water—a symptom common in this disease. The appliances I have described (*Agricultural Gazette*, December 6th), were resorted to; for a week little variation occurred, though we could clearly discover damage to the left lung, which is usually attacked first. If sliced Turnips were placed before her she would not eat them; on the feeder putting them into her mouth she slowly chewed and swallowed them. The gruel with sugar and olein, and such quantities of treacle and sulphur as kept her bowels moderately open, was given regularly three times a day, together with 2 oz. sweet nitre. I gave doses, 4 oz. each, of liquor ammoniæ acetatis. I tried this alternately with sweet nitre, giving three doses of 6 oz. each for three consecutive days. The effect was more strongly diuretic with a less activity of the skin. As I think it highly important to keep up the activity of the skin, I should not recommend an excessive stimulating of the urinary secretion at the expense of that

of perspiration. Eight days after the commencement of her illness the animal began to eat more, and on the tenth considerably so, with the resumption of her cud, her pulse being 54 per minute. On the 11th day a change for the worse took place; she eat less, her pulse increased to 64, and her respirations to more than 70 per minute, accompanied occasionally with grunts, which in this animal I had scarcely till then observed. I took from her full 3 quarts of blood, which was hot (the experimenter in testing the heat of the blood should have regard to that of his hand or finger; if this be chill he should use means to warm it; a thermometer constructed for the purpose would indicate the temperature more correctly). I scarcely recollect an instance in which I have resorted to bleeding so long after the disease has begun; after this tartar emetic and digitalis were given in the morning's and evening's gruel. The olein with other ingredients, as already described, was continued; with this the health of the animal sensibly and gradually improved. On the 28th of December, 17 days after illness began, she was supplied with ordinary food, which she consumed with appetite. This animal will doubtless have lost in live weight, but it will be more in bulk than in condition, as she handles much the same; that her skin has been active may be safely inferred, as throughout her illness she has showed a disposition to lick herself, though at times prevented, evidently by soreness resulting from her ailments. Her left lung is doubtless considerably damaged. This animal, with the former, was in an advanced stage of fattening.

Two milk cows have been attacked during the same period: I omit notice of one beyond that she was restored in a short time, and without, as I hope, any serious damage. The other was first noticed on Saturday the 27th of December. She was in low condition, was bought after calving a month previous, and was giving 14 quarts of milk per day. Her blood was unusually warm and her breathing disturbed. As the aperients used did not appear to take effect 1 lb. of treacle and 6 oz. of sulphur were given in the gruel next morning. Towards evening she became much relaxed, in which state she continued during the whole of the next day. In the afternoon her respirations were observed to be 74 and the beat of her pulse 60 per minute. Being of opinion that her extreme laxness added to her distress I continued to watch her symptoms till about 11 o'clock in the evening, when her pulsations had increased to 68 per minute. I then, though with doubt and hesitation, took 2 quarts of blood from her; and gave evening and morning the dose of tartar emetic and digitalis. The gruel, with Indian meal and full allowance of olein, but without treacle and sulphur, was regularly supplied. On the following day the symptoms assumed a milder form. She soon began to eat and to resume her cud. On the 8th inst. (January) she was removed from the sick room to her stand with the other milk cows. Her yield of milk is at present full 12 quarts per day, with every expectation that in the course of a short time she will regain her former quantity of 14 quarts!

I now beg attention to the condition of this animal on the 2d day after the commencement of her illness, when her respirations reached 74, and her pulsations 60 to 68 per minute. The attendant and myself, who by experience can form some though probably not an accurate estimate, on applying our ear to each of her sides, plainly perceived a strong current of air passing through with little or no interruption. Her blood was unusually warm; she was secreting milk at the rate of six quarts per day, while owing to her extreme laxness, her food was passing through her too quickly.

Does it not appear probable that the animal was prompted by her exigencies to double her inhalations to induce what M. Vierordt accomplished by voluntary effort, a greater consumption of carbon; and if this be admitted, does it not appear plain that one likely means of affording relief is to supply in her food substances peculiarly rich in carbon in a form easily available?

I rather expected that this animal, from her short but severe attack, would have escaped without damage to her organism; but in this I am mistaken, her left side lung has doubtless suffered. My observations throughout on the various animals I have treated have denoted pulsations during the attack of 60 to 70; they have occasionally reached 80 per minute. The usual pulsations are about 45 per minute.

The respirations have ranged from 45 to 55 per min. In no instance since I began these observations have I found the respirations to exceed the pulsations, except in the one I have just described. The normal respirations are 30 to 35 per minute. The cost in medicine has been comparatively little; the whole, including the oil, but without the sugar, treacle, or other nutritive ingredients of the gruel, not having reached 10*l.*

I took advantage of a visit of an agent of Messrs. Price & Co. to this village, to order through Mr. Place, our druggist, a supply of coco-olein, which cost but half the price of that hitherto used for medicinal purposes.

In a former *Gazette*, No. 49, Dec. 6, I stated the loss of live weight to be from 1¼ to 1¾ each. That a considerable proportion of this will be in bulk will be clear, when we consider that the normal evacuations of excrement are 70 to 80 lbs. per 24 hours; by the use of aperients these will probably be nearly doubled in the first 24 hours after the medicines have operated. Latterly by greater caution in the use of laxatives after the first dose, and by moderating these so as to keep the bowels open, but not relaxed, the condition of the cows has been better maintained.

I have also observed that cattle whose lungs have been injured are found comparatively deficient in loose fat. I have not heard of an exception to this.

The yield of milk I find diminishes but little, if any, beyond what might be expected from the loss of time and condition. A cow which was seized with the complaint early in September, and which suffered severely, her milk being reduced during her illness to a gill each milking, or a pint per day, after recovery in October gave 14 quarts per day, which quantity she maintains up to this time, January 14th, but I am not equally satisfied as to the quality. On testing the milk of this cow by a lactometer, I find the proportion of cream deficient in comparison with that of cows which have been free from this complaint; indeed my whole dairy produce (more than half of my cows in milk having suffered from disease) is deficient in proportion of butter in comparison with what it has been for several seasons whilst on similar food. This deficiency in butter may in some degree be owing to the lowered condition of the cows. I am however disposed to ascribe it more to the damaged lung. Any defect in an organ of such essential importance to the due performance of every function of the animal, may reasonably be supposed to influence the quality of the product. I propose to subject this to further test. I have in the mean time given instructions that no cow which has suffered from this complaint shall be further used for breeding and milk, but fattened and sold to the butcher.

I have now described at some length the means I have used. I have also explained my views as to the relation of cause and effect, the motives which have influenced me in the treatment of this disease, by which, since I became more versed with and more practised in adapting means to each phase of the complaint, I have in every instance succeeding in effecting a recovery.

From August up to the close of December my sick stall has scarcely been free from occupants. Out of 17 treated for pleuro-pneumonia 15 have recovered. I have before stated that two of my neighbours had applied like means with success, each to one animal. Since then, having learnt that Mr. Simpson's (of Ripley) cattle were suffering, I gave him particulars of my treatment. I hear from him that having then lost two he had applied like means to a third, using cod liver oil in lieu of coco-olein, also with success.

If this treatment has been attended with more favourable results than what has hitherto been observed, and as far as my information goes, the number restored represents more nearly that lost by ordinary treatment, the conclusion is obvious — that either the disease I have had to deal with has been milder or the means used more efficacious. On this experience will decide, but let me caution the experimenter, not by nostrums of his own nor by varying the proportions of the medicines used, and of which he does not from experience know the potency, nor by want of proper and diligent attention, to mar the result and then blame the means employed.

The history I gave of Mr. Garrett's Galloways is so common as to be generally applicable to the cattle first affected with this complaint. It is likewise to a great degree descriptive of my own. My milk cows and those treated in similar manner being first, and more particularly affected; still after prevailing so long and to such an extent, it appears to have assumed an epidemic character. Several cattle bought in from different parties, and without, as far as I know, any predisposition, have latterly suffered from the disease. *Thomas Horsfall, Burley Hall, Jan.* 14.

Home Correspondence.

The Journal of the English Agricultural Society.—I see we are likely soon to have a new number of the Journal of the Royal Agricultural Society. I have long thought this the most important and useful of all the agricultural periodicals, at least as far as my knowledge of agricultural literature goes; but I think it a great pity that there is not more management exercised in the details of editing and publishing it. In the first place the price is too high, and this keeps it unknown to a large part of the agricultural community. Then it is published at no definite time; and worse than this, the information is stale, it seems as if it were published "behind time." Would any one believe that the members of this great society are as yet without any official account of last year's meeting, and that the last number of the Journal published in the middle of 1856 contained the account of the show at Paris in 1855, and a report of the Agriculture of Durham written in 1854. It is a pity to see the fine opportunities of diffusing agricultural knowledge which this society possesses to some extent lost by the want of efficient management and a little energy. It appears to me that a number of the Journal should be published within a week or two of the country meeting, and should contain a properly digested report on the whole exhibition, not such a fragmentary performance as we were favoured with in No. 36. All new implements, and important improvements in old ones, should be illustrated with clear and sufficient figures, not like the cut of a steam boiler on p. 511, vol. xvi., without any description attached unless the paragraph on p. 510 (beginning "An eight horse-power, &c., invented, improved, and manufactured by the exhibitors," and which does not inform us who these ingenious exhibitors are,) refers to it. I think, too, on the subject of illustrations that your columns should be enriched by drawings of new implements or processes. When illustration is applied to every other art and science, and periodicals and newspapers are full of it, why should the Royal Agricultural Journal and the *Agricultural Gazette* be behind the age in this important point? What a vague idea we who live in remote places have of Boydell's engine, Fowler's plough, or Sigma's hoe! *A. H. F. C.*

Homœopathic Treatment of the Cattle Lung Disease.—About nine years ago I purchased 10 bullocks, forward in condition, and put them to Turnips and hay; in the course of three months symptoms of the lung disease were apparent. I sent for the farrier who treated two, the first thus attacked, to the best of his ability, but without any good effect. In the course of 10 days he recommended them to be slaughtered, as there was no hope of recovery. Many of the others were also similarly attacked, and immediately sent to the slaughter-house. The loss was considerable. The next year I provided myself with homœopathic books and medicine, and again purchased a lot of 10 bullocks in November. About two months after they had been on Turnips and hay the lung disease began to manifest itself. The first thus suffering was to all appearance quite as bad as any of those of the previous year. The treatment was as follows:—Bryonia eight globules dry, on the tongue, four times in the day; then phosphorus in the same proportions for three days; then sulphur ditto. Results:—The second day slight improvement; fourth, the grinding of the teeth and discharge from the mouth subsided; the sixth day the beast began to eat, and soon after the appetite was restored. Such was nearly exactly the case with three others of the same lot. The fifth was so slightly improved by the same treatment that at the end of a fortnight it was slaughtered. In one side of the lungs was found a large fleshy unhealthy substance weighing five stone. This system I have adopted now for nine years. The amount of stock subject to this treatment upon an average every year has been 11 cart horses and mares, 1 riding brood mare, 8 colts, 10 bullocks; also 2 carriage horses, 2 riding do., and swine. I have had occasionally other cases of the lung disease with about the same results, viz., one out of five so far restored as to suffer no material drawback. My losses in stock in general have not been so great as they were prior to the adopting this plan. I cannot call to mind any case but the death of a sow besides those above alluded to. My success has been more strikingly great in active diseases, such as inflammation, colic, gripes, &c.; at present I have never failed here. To conclude these observations, my farrier's bill was never less than 10*l.* in any one year, and never more than 18*l.* These last nine years it has been only the amount of the books and medicine, say 2*l.* or 3*l.* *in toto. C. W.*

The Mona Breed of Cattle.—In reply to the wish you have expressed to receive further accounts of Welsh breeds of cattle, I beg to subjoin the following statement of a Mona bull of 4 years old, which has been killed by the butcher to whom I sold him since I wrote last upon this subject. The animal was of most beautiful symmetry, very small in the bone, and short in the leg; it was sold at 6*d.* per lb., and it weighed 15 score 10¼ lbs. per quarter, making a total of 1241 lbs. for this young animal, which has been pastured in a valley by no means rich ground, and only put up to feed the last few months, without any oil-cake or extraordinary forcing aliment. His chief diet has been Mangel Wurzel and other roots with chaff; in fact the meat was principally flesh, with no more fat than could be properly consumed with it. The money produce was 31*l.* 1*s.* I think your agricultural readers will agree that this breed ought not to be neglected. It is still to be had pure in the Island of Anglesea. I before mentioned that the cows are very superior; they are principally black and mouse colour, and give a very good average of milk of rich quality. They are of a very quiet docile nature. Press of time will not allow of further description of other valuable breeds of Welsh cattle, which will be reserved till a future opportunity. I will therefore now conclude by remarking that I am confident if any person ambitious of having profitable and ornamental cows were to give a fair trial to the pure Mona or Isle of Anglesea breed, they would never give them up. Also that oxen or bulls of this breed would be sure to carry off prizes at the great agricultural shows. *A Practical Cow-Keeper.*

A Paring Plough.—I have read the paper on ploughs in yours of Saturday last. I have looked in vain at the late agricultural shows for the paring plough made patent by Mr. Evans, of Sherstone. I saw one last spring at Malmsbury, a large heavy cast iron implement, which was at once pronounced a failure, the principle of which I understood was copied from one used at Weston Birt, invented by a Mr. Woolf, the farm bailiff, and the copy and patent much annoyed the inventor; who, on the other being spoken unfavourably of, ordered his smith to complete one in wrought iron. The result was a light one horse implement capable, according to his challenge at that time, of performing what no other of the kind ever before professed. Annoyed at the reported further copying, Mr. W. challenges to compete with the said implement for, I believe, 25*l.*, as I understood, to see if by any means Mr. E. had obtained copy of his new implement. But the latter was not to be drawn. Now what we want is exactly what this Mr. W. proposes to have—a one horse parer. I went over out of curiosity to see turf cut privately by this implement, and must say, much to my gratification, no breast plough I ever saw could pare so evenly, and in every way to such perfection. This person may feel annoyed, and be

in a situation that makes him independent of any profit that may be derived from such an invention, but I think it a pity some friend had not reconciled him to Mr. Evans, and so between them have brought out the implement, as I hear he says it cannot be managed to have a common plough, as Mr. E. professes to have, and a perfect parer in the same implement, especially for one horse; that he has tried it on his father's farm, somewhere in Shropshire, and found it impossible, besides having all the present plough-makers to contend with in an implement partly intended to supersede them. And now Mr. E. so acting (I believe unthinkingly) has, I fear, prevented us having, at least for some time to come, what we so much stand in need of, and no doubt was intended for us, if the inventor had not been so interfered with. A perfect implement would soon repay the outlay, and I for one would willingly subscribe my one or even five pounds towards it. That this may meet the eyes of both parties, and be the means of bringing the implement out to perfection is the worst wish of *A Wiltshire Farmer.*

The Black Potato.—Your correspondent "E. S. D." seems to have mistaken the black-skinned for the Black Potato, both of which I have kept for many years, only planting a few sets of the latter yearly to keep up the variety as a curiosity. When boiled it has the same appearance all through as Red Cabbage, so that for table use its colour will always be against it, as also the flavour I did not relish equal to other sorts, but should your correspondent "G. R. Prosser," who was inquiring after it, wish a few, he will have them on communicating with *R. Farquhar, Gardener, Fyvie Castle, Fyvie, Aberdeenshire, N.B.*——Allow me to correct you and your corrector "E. S. D." in the matter of Black Potatoes. If dark purple is to be taken for black, then of a certainty "Black Potato there is"—one too not simply black externally, but black through. The variety I allude to (although not common, is by no means rare in this neighbourhood) is known as the "Soot Ball;" is a robust grower, tolerably productive, and somewhat subject to disease. I have cultivated the variety as a curiosity for several years; its colour, however, has hitherto effectually deterred me from partaking of it. *J. Cheyne, Warwick.*

Salt for Barley.—In reply to the inquiry of "H. F. H." in your last Number, I beg to refer your correspondent to vol. v., p. 267, of the Royal Agricultural Society's Journal, where he will find a very instructive and illustrative paper on the subject of his inquiry. I have for some years used salt—the dirty refuse salt from the manufactory at 12*s.* or 13*s.* per ton—to a considerable extent. I have top-dressed Barley in the spring with not exceeding 3 cwt. per acre, usually 2 cwt.; but this salt is also thinly scattered in all my manure heaps as they are formed. I have not made any comparative experiments in reference to Barley with or without salt, as Mr. Hannam has done; but though the general character of the Barley in the neighbourhood is that it is of rough, coarse quality as compared with much grown in Wilts and Berks, I am warranted in assuming that the salt treatment has been beneficial, as my Barley has, ever since I used salt, brought a ready sale at the highest price of the market. My Barley this year weighs 56 lbs. to the bushel, and a large brewer told me lately that the heaviest corn which had come to his brewery this season weighed 54½ lbs. per bushel. Your correspondent states that his Barley is very apt to be laid under ordinary circumstances. Yet he is about to sow Barley this spring after "an excellent crop of Swedes, the whole of which will be consumed by sheep upon the ground, the sheep having also in addition ½ lb. of Linseed-cake, and ½ lb. of cut Clover per head daily." Under such treatment he may safely rely upon a laid crop and ruined Clover. Under such circumstances I should suggest the expediency of his taking a crop of spring Wheat to be followed by Barley. *C. L.*——I can give some practical information to your correspondent "H. F. H." Last year I grew a crop of Barley on a similar field to his in soil, and 5 acres in size. I had had an excellent crop of Swede Turnips, the whole of which I ate on with sheep, allowing them ½ lb. of Linseed-cake per head daily, giving them also the run of 14 acres of pasture, besides hay in severe weather, being afraid that if I consumed the whole crop of Turnips in addition to the oilcake upon the field, it would be too rich for Barley. At the latter end of May the Barley was so luxuriant that some parts of the field were even then laid, although the seed was thinly sown. To remedy this I sowed 4 cwt. of salt per acre, the Grass and Clover seeds having appeared above ground (salt destroys the seeds if they have not germinated); the effect was almost instantaneous; the Barley stood erect, and remained upright, and very strong and bright in the straw until nearly ready for the sickle, when the wet weather set in which was so destructive to the corn in the northern counties, and laid a portion; but if the salt had not been applied the crop was so heavy that I believe it would have been almost worthless; as it was I reaped a very heavy crop of sound grinding Barley. The Grass and Clover seeds are at this present time in a far more healthy state, and stronger, than I have hitherto been able to grow them on land where salt has not been applied. I also sowed 4 cwt. of salt mixed with 2 cwt. of guano per acre on my Wheat with great success. The land has long been Clover sick; and although I am yet unable to say what effect the spring frosts will have on the young Clover, I have not before known it look so strong and healthy at this period of the year, which I attribute entirely to the salt. I believe it is a mistake to consume the whole of a heavy crop of Turnips on a field with oilcake added thereto; that one-half the crop would produce a better and equally heavy crop of malting Barley. Last autumn I spent several weeks with Mr. Rashleigh, at Menabilly, in Cornwall. The herring nets, when landed from the boats in his harbour, were taken to an adjoining pasture field and laid out on the Grass to dry. For days after their removal the horses, cows, and sheep pastured to an inch on the very ground they had covered, deserting the remainder of the pasture except to lie down on, and they nibbled the salt-watered Grass as fine as a lawn. They taught me a lesson which I shall not forget to apply to my own pastures early in March. *W. Ferrand, Jan.* 26.

Early Agricultural Training.—Whilst the exhibition of poultry is generally encouraged as affording incentives to improve the breed of fowls, there is another consideration which has not received that attention which its importance deserves. This is its capability to advance self-training and good habits among our youths. Mr. Houghton very wisely in the late Crystal Palace Show admitted rabbits, and it is with respect to these animals I wish, with your permission, to offer a few remarks in regard to the subject of exhibiting rabbits for prizes being made the means to further useful practical education and self-training. It is obvious that the ends to be accomplished in rearing a rabbit to win a prize are improved qualities with perfect health, and therefore fine condition of the animal. To triumph in the first will not only need the acquisition of knowledge but its employment with judgment in selecting the breeding stock combined with considerable care, attention, thought and skill, to properly rear the young, and weed out the inferior ones, whilst the regular attention to feeding, great cleanliness and proper housing, imperatively required to attain the second—although a pleasure—are necessities of self imposition which must result in accomplishing moral and industrial self-training, regular and good habits, with a degree of self reliance which are most desirable to inculcate as fitting youth for that "battle of life" which their destiny may call them to. If these views are correct and if the boy be father to the man, and good habits—chiefly the result of good and moral training—are second nature, is it not important to consider whether classes at these exhibitions should not be established and confined to animals, &c., belonging to and reared by lads under a fixed age? If classes for these objects were added to our country agricultural shows, what appropriate incentives would it create in the embryo farmer to study the subject of breeding and improving his stock of rabbits, &c., by giving it that indispensable care, thought, exercise of judgment, and attention to cleanliness which to insure to him the best chance of triumphing over his schoolfellows and compeers at the show, will demand from him, the exercise of which cannot fail to confer suitable educational and industrial training, whilst success would increase the value of his stock and further bring into play business skill and practice. I have avoided saying anything in regard to poultry, it being obvious much that is advanced respecting rabbits is applicable to them. Rabbits however by requiring very regular feeding, attention to quality of food, great cleanliness, and being confined—chiefly separately—are more on a parallel with stall cattle and for self training present greater claims to consideration. Besides, when we see by the Crystal Palace Show that so many of our clergy are breeders and improvers of poultry, that "fancy" is in abler hands than mine. *W. Wooler.*

Sugar Feeding.—Have the fattening properties of sugar ever been tried upon poultry, sheep, or cattle? If not, it seems worthy of experiment; but it should be in moderation, for Ruffs and Reeves fed exclusively with sugar were found to die from inanition. *M. S. B.* [Treacle has been used in cattle feeding with success.]

Societies.

SCOTTISH METEOROLOGICAL.—At the half-yearly meeting of this Society, Dr. Stark, the Secretary, then read a paper on the object of the Association. It is expected that, at all the stations, observations will be made with the barometer, self-registering maximum and minimum thermometers, Mason's hygrometer, and rain gauge; and that the direction of the winds will be noted twice daily at the hours of observation. Several of the observers at these stations will, in addition, furnish returns of the temperature of the soil at different depths, or the temperature of springs or wells; others, again, will note the presence of electricity or of ozone in the atmosphere; others, again, will register the amount of sunshine and of cloud, the highest temperature in the sun's rays, and the lowest degree of cold from radiation during the night. It is, however, expected that the observers at all the stations will register the occurrence of any special meteorological phenomena, as, for instance, severe gales of wind, storms of thunder and of lightning, excessive falls of rain, &c.; and that they will also furnish observations in connection with the periodical return of the seasons, as indicated by the arrival and departure of migratory birds—the budding, leafing, flowering, and fruiting of trees and shrubs—the sprouting, earing, ripening, and cutting down of the grain crops, &c. It is very desirable that at different parts of the country individuals should be found who would confine their attention to one or two limited points of inquiry—as, for instance, the condition of the air as to electricity and ozone—or, a still more fertile subject, zealously and ably pursued by the Marquis of Tweeddale, the temperature of different soils at different depths, both in their undisturbed states, and in different circumstances as to drainage, depth of cultivation, and kind of crop. The superintending committee have in the meantime recommended that these depths should be 3 inches and 12 inches; but any one wishing to investigate the subject thoroughly should have four thermometers, and these placed at 3, 6, 12, and 24 inches from the surface. From the observations made at all the stations, we hope in time to be able to deduce conclusions of practical value. We do not intend to limit these inquiries to the human race, but to extend them to the diseases among cattle, and the animal kingdom generally. Another, on a very important object, we have in view, and which we purpose to investigate, is the effect of atmospheric phenomena on vegetation. Under this head we shall endeavour to trace the meteorological phenomena which operate favourably or unfavourably on the white and green crops. We further propose to collect facts which may throw light on the general climate of our island, more especially as connected with its insular position, and endeavour to give a satisfactory reason for our general climate being so much milder than is due to our position on the globe, or to our parallel of latitude. And, lastly, we purpose to collect facts for the elucidation of the phenomena of storms, whether of wind, rain, or thunder. We shall endeavour to ascertain whether these have certain routes or tracks which they usually traverse, and whether they bear out the now generally received circular theory. I have now come to say a few words on a subject relative to the bearings of meteorology on agriculture in Scotland. So very little is known of the effect of different meteorological phenomena on agriculture that almost all which has been published on the subject, in so far as I have been able to ascertain, rests on premises which will not bear investigation. It has, for instance, been assumed as proved that much more rain falls on the west coast than on the east; and as it has been at the same time taken for granted that Cereals prefer a dry to a moist climate, it has been concluded that the eastern side of our island was better adapted for raising white crops—the western side for Grass and green crops. This assumed greater fall of rain on the west coast, however, is just one of the things not yet proved, and even though it should turn out that more rain did fall on the west coast, its humid effects might be quite neutralised by the greater force of the winds there. But the agricultural statistics, in so far as yet published, do not bear out the above assertions, for, taken as a whole, as much Wheat per acre seems to be raised in the western counties as in the eastern; and as to green crops, the weight per acre of such crops on the east coast will bear comparison with anything raised on the west. One other subject it is desirable to bring under your notice, viz., the effect of the quantity of rain which falls in a district, and the time when that fall occurs, on the employment of lime or mineral salts as manures. The Meteorological Returns which I at present publish prove that very different quantities of rain fall in districts even closely adjoining, and that the time of the year when the greatest fall occurs is not the same for all districts. From want of knowledge on these points much money has been uselessly expended, and the most conflicting statements made as to the true value of chemical manures. One farmer has found their application of the greatest possible benefit to his crops; another has experienced from their use nothing but loss of his crop and hurt to his land. Farmers often hear of the evils of overlimed land; but, strange to say, when such soil is chemically examined, the lime is not found to be in excess, but rather the reverse. But what I desire to point out is, that what is true of seasons is also true of localities. A farmer in the neighbourhood of Edinburgh, for instance, could not use with advantage to his crop half the quantity of lime or of nitrate of soda which a farmer a few miles to the south or in Haddington could do. The small quantity of rain which falls in Edinburgh and its neighbourhood would not be sufficient to prevent these chemical manures burning up, as it were, the crop; while the greater quantity of rain which falls to the south of Edinburgh and in Haddingtonshire would enable the farmer in these localities to derive the full benefit of both these agents. *Abridged from the North British Agriculturist.*

Farm Memoranda.

THE FOREST OF HAINAULT, or that portion of it being Crown property, nearly 2000 acres (there being nearly or quite another 2000 still disafforested thrown out to the inhabitants as common right), was enclosed about three years back, and the whole taken by the present tenant, Mr. John Alison, upon lease, the Crown disafforesting, erecting homesteads, and thoroughly draining the whole, charging 6 per cent. upon the outlay of building and draining. The draining was contracted for by Mr. Fowler, and the tiles made by him on the estate. The depth of parallel drains mostly 4 feet, width at top 18 inches, bottom 3 inches; cost of cutting varies from 5*d.* to double that price per rod; distance between parallel drains from 20 to 25 feet on clay, and 40 to 50 feet on gravel; size of pipe 1¾ inch, cost 24*s.* per thousand; the open ditches are about 6 feet across the top and about 7 feet deep. The draining was superintended for the Crown by a gentleman of the name of Moody. The first year little was done in the way of cropping, the land not being cleared. The

second year (last year) nearly 700 acres of Potatoes were planted, some on land which had been ploughed the winter before and some planted on just one ploughing out of the state of forest. The crop was far beyond what might have been expected, and prices although not at first part of the season remunerating afterwards mended and made up; rather more than 200 acres of Red Wheat, all good, and some of it yielding 5 quarters and three London loads of straw per acre; between 200 and 300 acres of Oats, about 30 acres of Swedes, very good, about 30 acres of Mangel, with one exception (Mr. Adams) said to be the best in the neighbourhood, averaging nearly 30 tons per acre, considered a good crop this season; beside a large growth of White Turnips, Broccoli, and other green crops for the London markets. The soil is mostly generous loam, admirably adapted for the growth of green crops. The working strength of the whole consists of nearly 100 horses, value of 40*l.* to 50*l.* each, and six bullock teams. The farm is supplied with manure, the consumption of which is very great, by barge to Ilford, a distance of three miles. They have had the contract for the Woolwich barracks, the number of horses kept being between 3000 and 4000, making about 12 three horse waggon loads a day, which must be cleared daily, to effect which a staff is kept over there, and it is brought by barge to Ilford. They have this year nearly 1000 acres of Wheat, the plant looking well; and will not grow more than 500 acres of Potatoes; but calculate, from the improved condition of the land (and so great is this that one farm is designated by the neighbouring farmers as Mr. Alison's garden farm), that they will nearly equal the tonnage of last year. The remainder of the land will be under various crops. Beside manure they are greatly indebted to the liberal use of guano for much of their success.

Notices of Books.

An Essay on the Therapeutical Effect of Purgatives on the Horse. Read before the Veterinary Medical Association of London; 1855-6. To which was awarded the Society's Silver Medal. By John Field, M.R.C.V.S. Longman.

A very full and intelligent discussion of its subject, based upon extensive experience in this particular branch of medicine, as well as upon large general acquaintance with the theory and practice of the profession. We extract its opening paragraph as an illustration of its style:—

"In administering medicines, various circumstances must be taken into consideration. For instance, the state of aggregation, as it will sometimes modify their effect; thus, morphia is more active in solution than in the solid state; and again, chemical combination, for two substances being mixed will sometimes form inert compounds; and further, organic peculiarities, the properties of Grasses being considerably modified by the nature of the soil in which they are grown, and the manner of cultivation, age, and climate. The quantity to be administered must be determined on a just consideration of the age, size, race, sex, and temperament; mode of life is also an important element, especially as affecting the human subject—it must not be overlooked by the veterinary practitioner. The repetition of medicines also interferes with their effects, as in the use of opium—a woman named Galvini took more than two hundredweight in a period of thirty-four years. Diseased conditions of the body will materally diminish or augment the effect of medicines; opium is administered in cases of tetanus, but with diminishing effect. The nature of a part to which a medicine is applied will have an important bearing on the result; as, for example, the stomach is much more susceptible than the skin: hence, carbonic acid, which acts as a positive poison when taken into the lungs, is but a gentle stimulant when taken into the stomach."

Notices to Correspondents.

BREAKING UP GRASS LAND: *H S M.* Your poor light land had better be simply dug one spit deep, first dressing the surface with 80 or 100 bushels of lime. And you may hoe in Oats or Vetches, and take Potatoes next year.

CLOVER: *Urban.* We have not much faith in gypsum. If there are blanks you had better scarify them and sow Vetches along with a little guano. You should throw gas water among compost, and you may spread gas lime on the stubbles at once. It would do to mix dung with a heap of mould and gas lime soaked with gas water. About "Sigma's" dibble see below.

CONSERVATIVE LAND SOCIETY: *Inquirer.* We should have been glad to have advised you; but we are entirely ignorant of it.

CORN BRUISER: *S S Y.* Turner, of Norwich; Deane, Dray, & Co.; Burgess & Key, or any other commission agent will procure it, and their advice is likely to be trustworthy.

COTTAGE ARCHITECTURE: *W Eve*, of Manor Farm, North Ockendon, Romford, offers "A Reader" information on this point.

COUNTRY BREAD: *M H.* We are unable to help you. If you wish to find an altered address the Post Office will do it for you.

SCHEME OF CULTIVATION. The answers to the Society of Arts' questions given last week were by Mr. Thomas Baker, Bury Farm, Stapleford, Cambridgeshire.

SHEEP FED IN SHEDS: *W Eve*, of Romford, says, if constantly fed with good chaff no more deaths need be feared, whether fed upon Rape, Cabbage, or any other kind of roots.

SIGMA'S DIBBLE: *F B.* The statement in the pamphlet published by Ridgway, Piccadilly, is that "Sigma's" implements will be advertised in the *Gardeners' Chronicle* as soon as a stock of them are ready for sale.

SUBSTITUTES FOR GUANO: *Scot.* We keep your question for the present, and hope to excite a discussion on the subject of it.

THE TURBINE WHEEL: *Holmscale.* Many thanks. We will not trouble you to send the drawings. It will be sufficient to name for our correspondent's information, Mr. Thomson, the patentee Belfast.

THICK AND THIN SEEDING, &c.: *Aphis.* We do not know anything of the "aphis powder;" but we know "Sigma" very well, and shall be happy to introduce you to him.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

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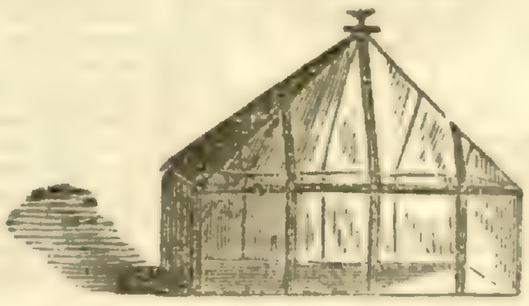

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See *Gardeners' Chronicle* first Saturday in each month.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices, Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25*s.*; galvanised do., 30*s.*; cast iron, 35*s.* each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street, London.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. PAGE & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
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Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr. Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minter, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. W. J. Epps, Maidstone.
" Caldwell, Knutsford.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

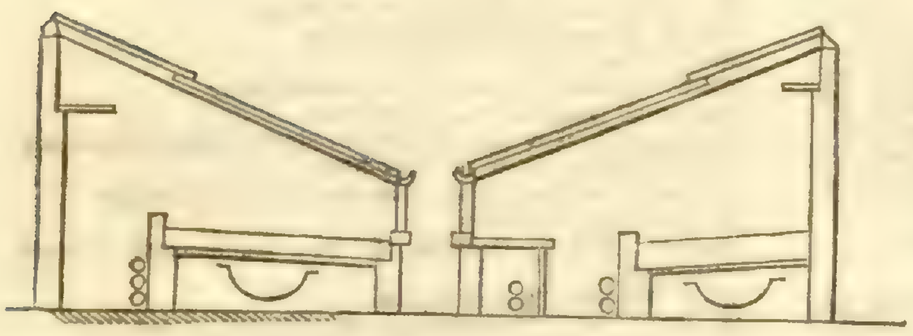
A General Catalogue for March 1856 may be had on application.

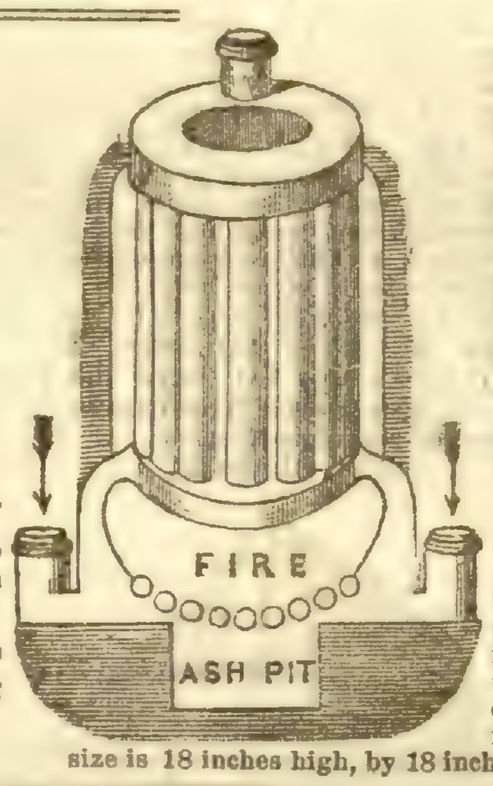
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our Improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

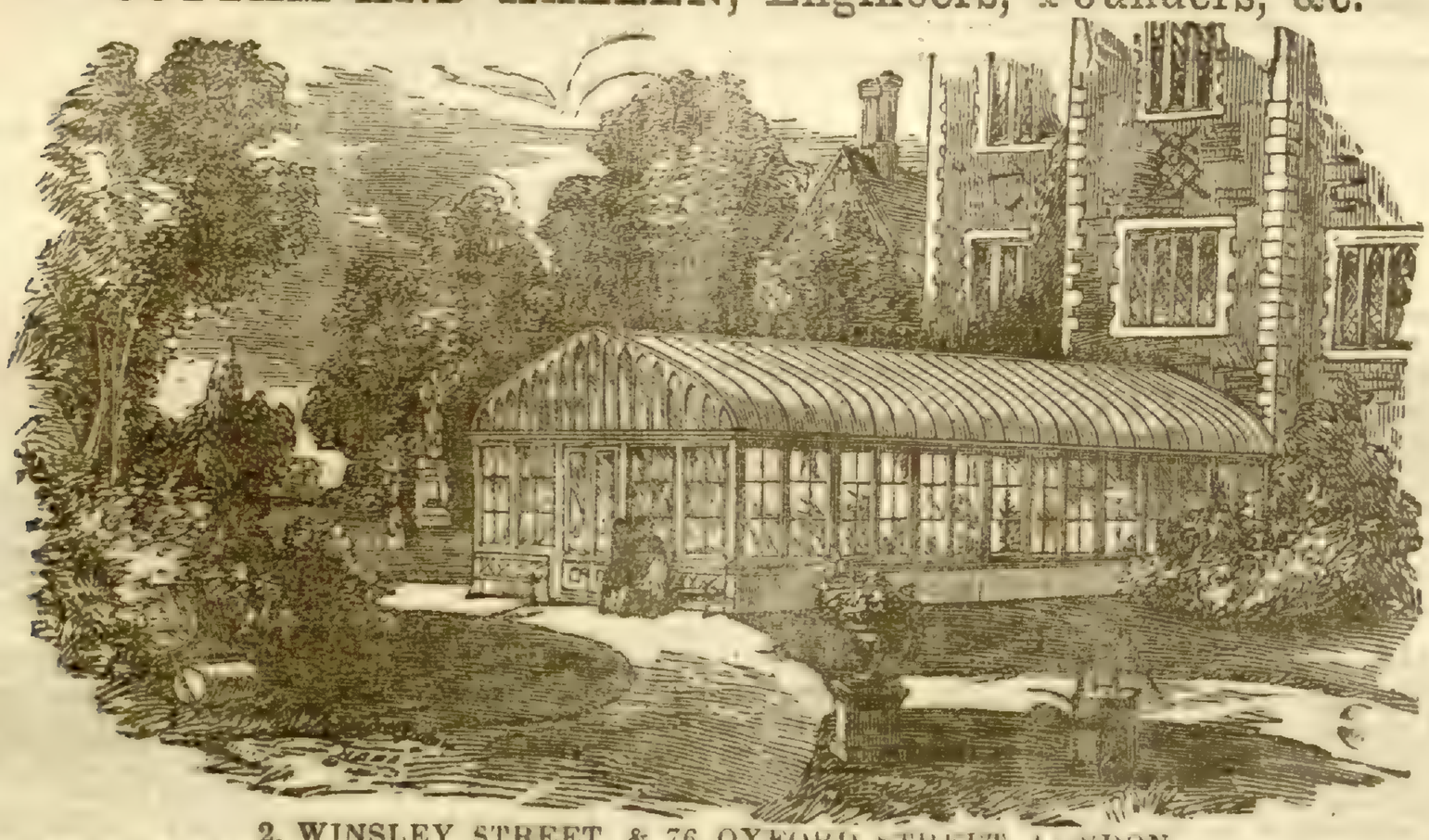
JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

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EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works. Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

FOUNTAINS.—As the preparation of Stone Work for this purpose generally occupies several months, AUSTIN AND SEELEY respectfully solicit immediate orders for any that may be required in the approaching spring, to ensure its being carefully executed.—Works, 1 to 4, Keppel Row, New Road. N.B. Many new designs of vases and other ornaments have been added during the present year.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d*. each, of METCALFE's celebrated Alkaline Tooth Powder, 2*s*. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s*. per dozen; Desserts to match, 9*s*. 6*d*.; if to balance, 6*d*. per doz. extra; Carvers 4*s*. 3*d*. per pair; larger sizes, from 19*s*. to 26*s*. per dozen; extra fine Ivory, 32*s*.; if with silver ferrules, 37*s*. to 50*s*.; white bone Table Knives, 7*s*. 6*d*. per dozen; Desserts, 5*s*. 6*d*.; Carvers, 2*s*. 3*d*. per pair; black-horn Table Knives, 7*s*. 4*d*. per dozen; Desserts, 6*s*.; Carvers, 2*s*. 6*d*.; black wood-handled Table Knives and Forks, 6*s*. per dozen; Table Steels, from 1*s*. each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38*s*.	48*s*.	60*s*.
Dessert ditto and ditto „	30*s*.	35*s*.	42*s*.
Tea ditto ... ... „	18*s*.	24*s*.	30*s*.

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's
Table Spoons and Forks, per dozen	12*s*.	28*s*.	30*s*.
Dessert ditto and ditto	10*s*.	21*s*.	25*s*.
Tea ditto	5*s*.	11*s*.	12*s*.

DISH COVERS AND HOT-WATER DISHES in every material, in great variety, and of the newest and most recherché patterns. Tin Dish Covers, 6*s*. 6*d*. the set of six; Block Tin, 12*s*. 3*d*. to 28*s*. 9*d*, the set of six; elegant modern patterns, 34*s*. to 58*s*. 6*d*. the set; Britannia metal, with or without silver-plated handles, 76*s*. 6*d*. to 110*s*. 6*d*. the set; Sheffield plated 10*l*. to 16*l*. 10*s*. the set; Block Tin Hot-water Dishes, with wells for gravy, 12*s*. to 30*s*.; Britannia metal, 22*s*. to 77*s*.; electro-plated on nickel, full size, 11*l*. 11*s*.

The additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street, W.; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to MISS COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

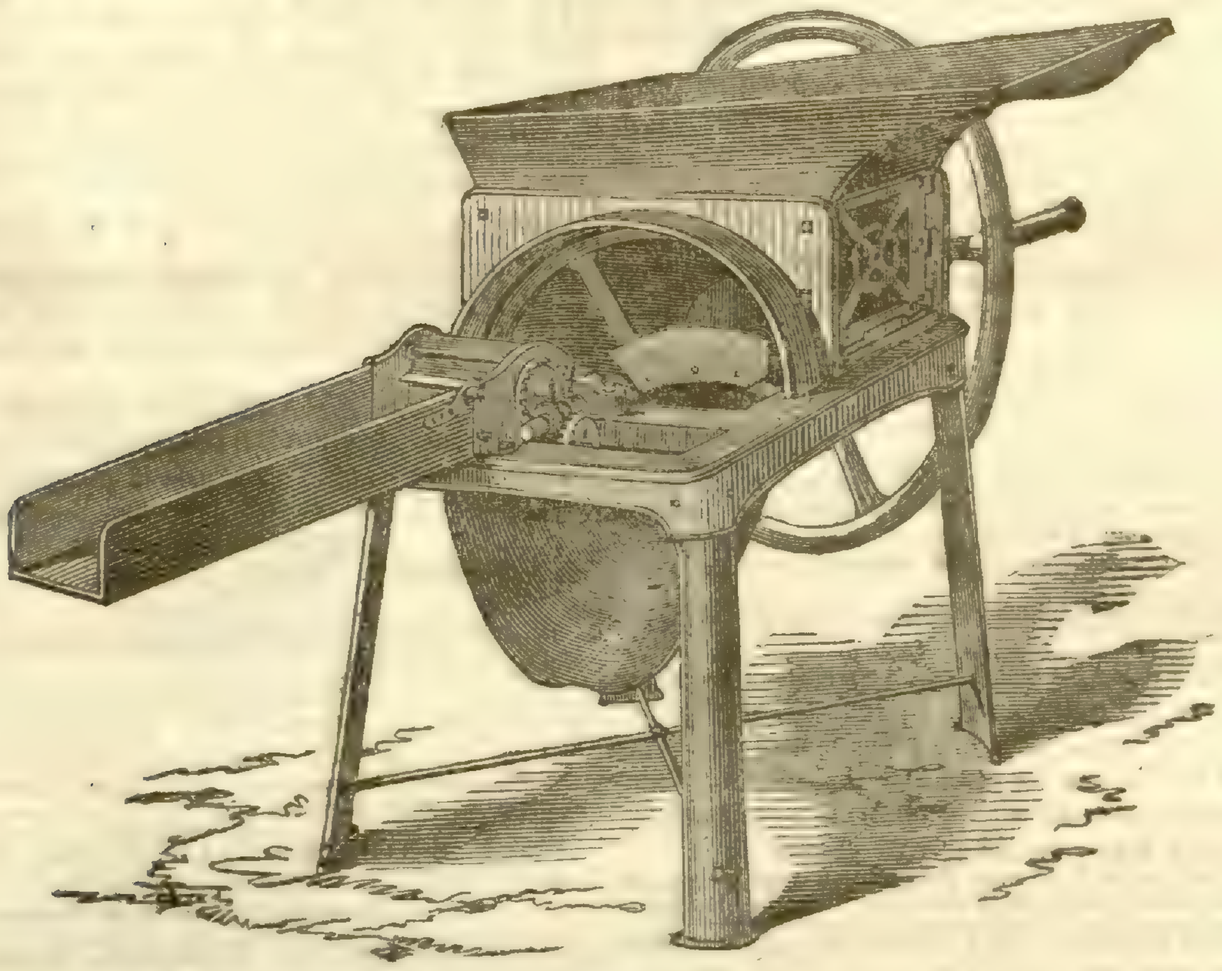
DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s*., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

CLOSE OF HOLIDAYS.—The return of Youth to their respective Boarding-Schools induces a solicitude from Parents and Guardians for their personal comfort and attraction, and ROWLANDS' MACASSAR OIL, for accelerating the growth and improving and beautifying the hair; ROWLANDS' KALYDOR, for improving the skin and complexion, and removing cutaneous eruptions; and ROWLANDS' ODONTO, or Pearl Dentifrice, for rendering the teeth beautifully white, and preserving the gums, are considered indispensable accompaniments for the attainment of those Personal Advantages so universally sought for and admired. Beware of spurious imitations. The only genuine of each bears the name of "ROWLANDS" preceding that of the article on the wrapper or label.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

ASTHMA COUGHS.—DR. LOCOCK'S WAFERS give instant relief and a rapid cure of Asthma, Coughs, and all disorders of the breath and lungs. They have a most pleasant taste. Price 1*s*. 1½*d*., 2*s*. 9*d*., and 11*s*. per box.—Sold by all medicine vendors.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY
Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10s.
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0s.
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

B. SAMUELSON, Britannia Works, Banbury.

CLOSING OF THE MUSEUM OF ORNAMENTAL ART AT MARLBOROUGH HOUSE.—On and after the 7th of February this Museum, including the Soulages Collection, will be closed in order that the contents may be removed to South Kensington, and the Bernal Collection may be packed and sent to Manchester. NORMAN MACLEOD, Registrar.
South Kensington, Jan. 31.

NOTICE OF DIVIDEND.
BANK OF DEPOSIT.
No. 3, PALL MALL EAST, LONDON.
Established A.D. 1844.

THE WARRANTS FOR THE HALF-YEARLY Interest, at the rate of 5 per cent. per annum, on Deposit Accounts, to the 31st December, are ready for delivery, and payable daily.
Jan. 31, 1857. PETER MORRISON, Managing Director.
Parties desirous of Investing Money are requested to examine the plan of the BANK OF DEPOSIT. Prospectuses and Forms for opening Accounts sent free on application.

ALLSOPP'S PALE ALE IN IMPERIAL PINTS.
HARRINGTON PARKER AND CO. are now delivering the October Brewings of the above celebrated Ale. Its surpassing excellence is vouched for by the highest Medical and Chemical Authorities of the day. Supplied in bottles, and in casks of 18 gallons and upwards, by HARRINGTON PARKER & Co., 5½, Pall Mall.

HOW TO BREW SPLENDID ALE AT 7*d.* PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1*s.* 9*d.* per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny post stamps. Sent, post-free, to any address. Direct to FISHER & SON, publishers, Kingsland, London. Established 1847.

DR. DE JONGH'S
LIGHT-BROWN COD LIVER OIL
Has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.
Its leading distinctive characteristics are:
COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS, AND CONSEQUENT ECONOMY.

OPINION OF C. RADCLYFFE HALL, ESQ., M.D., F.R.C.P.E., *Physician to the Torquay Hospital for Consumption, Torquay, Author of "Essays on Pulmonary Tubercle," &c.*
"I have no hesitation in saying that I generally prefer your Cod Liver Oil for the following reasons:—I have found it to agree better with the digestive organs, especially in those patients who consider themselves to be bilious; it seldom causes nausea or eructation; it is more palatable to most patients than the other kinds of Cod Liver Oil; it is stronger, and consequently a smaller dose is sufficient."

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.*; Quarts, 9*s.*; capsuled and labelled with Dr. DE JONGH's Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by many respectable Chemists throughout the United Kingdom.
WHOLESALE AND RETAIL DEPOT,
ANSAR, HARFORD & CO., 77, Strand, London, W. C.
DR. DE JONGH'S SOLE BRITISH CONSIGNEES.
By whom the Oil is daily forwarded to all parts of the Metropolis.

COLT'S PATENT SIX-SHOT REVOLVERS.—The favourite size for Officers, Army, Navy, and Merchant Service, weight 2 lbs. 8 oz., rifle bored. Also, three sizes POCKET REVOLVERS, for travellers and house protection. A large stock of London-made ready for immediate delivery. Holsters, Belts, Pouches, Cartridges. Description and Price Lists furnished.—Order of SAMUEL COLT, the Patentee and Manufacturer, 14, Pall Mall, London.—Beware of counterfeits.

DRESSING CASES.
AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Penknives, Strops, Paste, &c. Shipping orders executed.
The same prices charged at all the Establishments.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains Designs and Prices of every description of BED-ROOM FURNITURE, as well as of 100 Bedsteads and Prices of every description of Bedding sent free by post.—HEAL & SON, Bedstead, Bedding, and Bed-room Furniture Manufacturers, 196, Tottenham Court Road, W.

BEDS, MATTRESSES, AND BEDSTEADS.—WM. S. BURTON'S NEW LIST of BEDS, BEDDING, and BEDSTEADS is now ready, and can be had gratis.
The quality of beds, mattresses, &c., of every description he is able to guarantee; they are made on the premises, in the presence of customers; their prices are in harmony with those which have tended to make his house ironmongery establishment the most extensive in the kingdom.

Feather beds	from	£1	5	0	to	£8	0	0
German spring mattresses ...	"	2	8	0	"	7	0	0
Horse hair mattresses ...	"	0	16	0	"	5	0	0
Wool mattresses	"	0	7	6	"	4	0	0
Flock mattresses	"	0	5	6	"	0	18	0
Best Alva and cotton mattresses	"	0	6	6	"	0	19	0
Sheets per pair	"	0	7	6	"	2	6	0
Blankets each	"	0	3	0	"	1	4	0
Toilet quilts	"	0	4	0	"	1	7	6
Counterpanes...	"	0	2	6	"	0	15	0
Portable folding bedsteads ...	"	0	12	6	"	4	15	0
Patent iron bedsteads, with dove-tail joints	"	0	15	0	"	9	0	0
Ornamental brass ditto ...	"	2	10	0	"	20	0	0
Children's cots...	"	0	15	6	"	5	0	0
Bed hangings, in every variety per set	"	0	14	0	"	10	0	0

39, Oxford Street, W; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, Oxford Street, London.

IT IS TRUE ECONOMY ALWAYS TO HAVE IN THE HOUSE A BOX OF
PARR'S LIFE PILLS.—Those who use them judiciously have seldom occasion to resort to doctors, or to take any other medicine.
*** ASK FOR PARR'S LIFE PILLS.
Sold by all respectable Chemists and Medicine Vendors in town or country, in Boxes, price 1*s.* 1½*d.* and 2*s.* 9*d.*; and in Family Packets, 11*s.* each. Protected and guaranteed in every country by the English Government Stamp, which is affixed to each box of the genuine medicine.

HOLLOWAY'S PILLS AN EXTRAORDINARY REMEDY FOR LIVER AND STOMACH COMPLAINTS.—Mark Dewell, of Milsom Street, Bath, was afflicted for 7 years with a disorder of the Liver and Stomach, Indigestion, loss of appetite, and extreme debility, consequently quite unable to follow his occupation. He had consulted the most eminent medical men in town and country without any beneficial result. At last he had recourse to this valuable remedy, which in a short time effected a wonderful change for the better, and in two months his health was re-established.—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. GUIDICY, Smyrna; and E. MUIR, Malta.

DORKINGS FOR SALE.—One Hundred pure bred DORKING HENS of the dark grey and speckled varieties.—For particulars, apply to JOHN COATES, Escrick, York.

FARM WANTED, to Rent from 160 to 200 Acres, which will be well Cultivated and Manured. Good references given.—Address J. D., Mr. A. Baldry's, 5, Bolingbroke Row, Walworth Road, London.

FARM TO BE LET.—A Gentleman wishes to meet with a Tenant of capability and capital for a FARM of from 200 to 300 acres of first-rate quality and in the highest condition as to drainage improvements, &c., it having been in his own occupation for the last 11 years.—W. S., Burbige's Library, Grove Terrace, Bayswater.

TO BE LET, a small but very advantageous NURSERY and SEED BUSINESS, situated in the improving neighbourhood of Sunninghill, and close to the Ascot station of the South-Western Railway. With a good Dwelling-house, a large Greenhouse, and a Propagating House. Pits, Frame, &c. Stabling for two horses, Cart-shed and Packing-shed. May be entered upon immediately. Ground well stocked with fine Evergreens, &c.—For particulars apply to Mr. WHOMES, Nurseryman, Windsor, Berks.

NURSERY BUSINESS.
TO BE DISPOSED OF, an excellent BUSINESS in the country, in close proximity to five market towns; in a central situation. Coming in very moderate.—For further particulars apply to M. G., Post Office, Sutton Berger, Chippenham.

THAMES DITTON, SURREY.
TO MARKET GARDENERS.
TO BE LET, A MARKET GARDEN WITH COTTAGE AND BUILDINGS. Immediate possession.—Messrs. DRIVER are instructed to Let, with immediate possession, a highly productive Market Garden with Cottage and Buildings thereon, eligibly situate at Thames Ditton, Surrey, within a quarter of a mile of the Railway Station there, thus affording great facility for transit to the London Markets, and close to Hampton Court Palace. This capital Market Garden is of a most productive character, and contains about 6 acres well and abundantly stocked with Apple, Pear, Plum, and other Fruit Trees; also Gooseberry, Currant, and Raspberry Bushes, &c.—For Rent and other particulars, apply to Messrs. DRIVER, Surveyors, Land Agents, and Auctioneers, 5, Whitehall, London.

CORN MILL IN EAST KENT.
TO BE LET ON LEASE, the CORN MILL at Charlton, Dover, for 7 or 14 years, from the 6th of April next, on account of the decease of the late owner. This Mill possesses advantages which few country mills offer. It is brickbuilt, in perfect repair, and is now being refitted with machinery constructed on the newest and most improved principles. It will contain 10 pairs of stones. It has an unfailing supply of water power. It is near the Railway Station. It has been established for centuries, and has long enjoyed a gristing trade, yielding a considerable income, and susceptible of easy increase. It is admirably situated for retail trade. On the same stream there are several other Corn Mills; but all, except Charlton Mills, are periodically straitened by want of water; while even when water is most abundant, Charlton Mill will be found able to do with ease more work than all the other mills on the same stream in combination. The Mill and the adjoining Store House are capable of containing five thousand quarters of wheat. The several buildings, which embrace a commodious stable and cart house, are lighted with gas. If the tenant should desire such an arrangement, a house will be built for his accomodation. To an enterprising miller possessed of capital, Charlton Mill offers very rare advantages—For further particulars, apply to G. T. THOMPSON, Esq. Solicitor, Dover.

Sales by Auction.

TO BOTANISTS.
MR. J. C. STEVENS is directed to Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, February 9, at One o'clock precisely, the HERBARIA AND LIBRARY OF THE BOTANICAL SOCIETY OF LONDON, removed from their rooms, Bedford Street, Covent Garden, in consequence of the dissolution of the Society.—May be viewed on Saturday prior and morning of Sale, and Catalogues had at Mr. J. C. STEVENS's Offices, 38, King Street, Covent Garden; if for the country by inclosing two postage stamps.

CAMELLIAS AND OTHER PLANTS FROM GHENT, WITHOUT RESERVE.
MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, February 6, at 1 o'clock precisely, about 1000 CAMELLIAS and DWARF INDIAN AZALEAS, with flower-buds, 100 strong roots of the beautiful Scarlet Erythrina Cristagalli, and 200 roots of Chilian Alstræmerias.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W. C.

PINE CONES FROM CALIFORNIA.
MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, February 13, at 1 o'Clock, a consignment of PINE CONES, just received from California, including Wellingtonia gigantea, Pinus insignis, P. radiata, P. Sabiniana, P. Lambertiana, P. amabilis, Cupressus macrocarpa, Taxodium sempervirens, &c.—Catalogues one week before the Sale of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

MONTHLY POULTRY SALE.
MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, February 3d, at 12 o'Clock precisely, 260 Lots of Choice POULTRY and PIGEONS, including Polands and Hamburghs from the celebrated stocks of C. E. Coleridge. Esq.; Cochins from the yard of the Rev. G. Gilbert; Spanish and Dorkings from Mr. G. Botham and a well-known Suffolk breeder; Bantams, and other sorts. Also a selection from the renowned stud of Carrier Pigeons of W. W. Hayne. Esq., of Croydon Common, whose birds were so much admired at the recent Exhibition at the Freemasons' Tavern.—Catalogues by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King St., Covent Garden, W.C.

TO MARKET GARDENERS, MATERIAL DEALERS, AND OTHERS.
STOCK, CROP, TREES, AND ERECTIONS OF A MARKET GARDENER, NEAR TO DEPTFORD DOCKYARD AND ALBERT STREET, LOWER ROAD, DEPTFORD.
MR. W. T. ATWOOD will Sell by Auction, on the Premises, on TUESDAY, Feb. 3, at 11 o'Clock, the LIVE and DEAD STOCK, comprising 20 Boxes and Lights, Hand-glasses, Carts, a capital 6-inch wheel Waggon, Spring Van with pole and shafts, Implements, Tools, quantity of Timber, the complete Erection of a large Shed and other Erections, an excellent Range of Forcing Houses, 51 feet by 12, an active Chesnut Mare, Iron Pumps, sundry old Furniture, the Crops on the land, Seeds, and other articles, about 700 Pear and Apple Trees (part timber), a quantity of healthy-bearing Fruit Trees, and a quantity of excellent Rhubarb Roots.—The whole may be viewed the day previous to the Sale, and Catalogues had of the Proprietor, Mr. ELSDEN, on the premises; the Globe Tavern, Lower Road, Deptford; Prince of Wales, Albert Street; Inns in the London Markets; and of Mr. W. T. ATWOOD, Auctioneer and Land Agent, Mortlake, Surrey.

SPECIMEN ROSES IN POTS FOR EXHIBITION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX

WM. WOOD AND SON beg to offer fine specimen plants of that superb Tea Rose GLOIRE DE DIJON, in 9 to 15-inch pots. The plants are exceedingly strong and bushy, varying from 2 to 3 feet in height, and are peculiarly adapted for exhibition or for forcing. From 3*s.* to 5*s.* each.

DWARF HYBRID PERPETUAL ROSES on 4-inch stems, established in 6-inch pots either for greenhouse culture or for forcing, 24*s.* per dozen.

ROSES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in offering the following, all first-rate plants. Extra tall Standards (fine picked stocks), from 5 to 8 feet high, budded with 3 to 6 of the best varieties of climbing and perpetual Roses in each stem, suitable for conspicuous places, on lawns, &c., 3*s.* 6*d.* to 5*s.* each. Selected Standards, 6 and 8 feet stems of the Crimson Boursoult Rose, or Amadis for training, 3*s.* 6*d.* each.

Per doz.—	*s.*	*s.*	Per doz.	
Fine Half Standards	24	...	Hybrid Perpetual and Bourbon on 6-in. stems	12 to 18*s.*
Superb Df. Standards	18	to 24	Climbing Roses, mixed	4*s.*
Fine Dwarfs	12	to 18	Dwarf do. do.	4*s.*
Climbing and Noisette	9	to 12		

Plants added to compensate for distant carriage. Catalogues free on application.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10*s.* 6*d.* each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

SEED PURCHASERS CAN SAVE TWENTY PER CENT.

W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order our complete collections for one year's supply, 10*s.*, 20*s.*, 30*s.*, and 40*s.* each, or double quantities of 40*s.* for 70*s.*; 420 packages containing 24 quarts of Peas, &c.

CHOICE FLOWER SEEDS post free; 100 sorts, 17*s.* 6*d.*; 50 sorts, 9*s.* 6*d.*; 25 sorts, 5*s.* Superior CALCEOLARIA SEED, 50 dwarf sorts, 2*s.* 6*d.* per packet. General Lists on application.

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Manetti Stocks, 50*s.* per 1000.
Hardy Heaths, in variety, 25*s.* per 100.
Menzieas polifolia and alba, 30*s.* per 100.
Standard and half standard Roses, by name, 4*l.* per 100.
Dwarf do. do. do. 50*s.* per 100.
Blush China Roses, strong, 15*s.* per 100.
Double Yellow Primroses, 20*s.* per 100: or 3*l.* for 400.

A remittance or reference expected from unknown correspondents

LYNCH'S STAR OF THE WEST CUCUMBER.

CHARLES SOUTHBY begs to inform the Public that he has grown the above Cucumber for the last two years, and last year supplied many of his customers with the seed, which gave unbounded satisfaction, and he can still recommend it as being the largest and finest Cucumber grown.

Six Seeds, 1*s.* 6*d.*; Twelve do., 2*s.* 6d.

Vegetable Seeds of the first quality supplied in collections—if preferred—in the same quantities and at the same prices as those advertised by other houses.—High Street, Clapham.

LYNCH'S STAR OF THE WEST CUCUMBER.—This has proved itself during the last two seasons to be one of the very best Cucumbers for general use.

Mr. Joseph Hamilton, the celebrated Cucumber grower, and author of the "Hamiltonian System of Pine Growing," in a letter dated October 1st, 1856, says:—

"LYNCH'S STAR OF THE WEST IS A GREAT FAVOURITE OF MINE, AND I WILL USE MY BEST ENDEAVOURS TO RECOMMEND THE SORT TO ALL MY FRIENDS."

	Per packet.—*s. d.*
SIX SEEDS FOR	1 6
TWELVE SEEDS FOR	2 6
TWELVE LARGE PACKAGES FOR PRESENTS FOR	20 0

Apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have for Sale a pure stock of Seedling and Transplanted native HIGHLAND SCOTCH PINE PLANTS, raised from seed collected in the celebrated native Forests of Strathspey.

J. G. & Co. have had the honour to receive the numerous premiums awarded by the Highland and Agricultural Society of Scotland during the last 20 years for the cultivation of the true Highland Pine. They also abound in Seedling Larches, Seedling Transplanted Deodars, Seedling Sycamore, Pear Stocks, &c., well adapted to the trade. Priced Lists will be furnished on application.

KIDNEYS.—ASHLEAF, 7*s.* per bushel; FLUKES, 5*s.* per bushel; DAWE'S MATCHLESS, 6*s.* per bushel, a very fine sort and large croppers, strongly recommended for a white Kidney to use in the spring. Has withstood the disease three years in succession. All other kinds of Seeds equally low and warranted. Prices sent upon application.

JOHN BELL, Covent Garden, and King's Cross Potato Market, Great Northern Railway. Post-office orders payable at Charing Cross. New bags, 1*s.* 6*d.* each.

CHARLES NOBLE, having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he is in a position to execute any orders with which he may be favoured, and respectfully requests that all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.—Jan. 31.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.— The Nursery, Bagshot, Surrey, Jan. 31.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen. 238, High Holborn, London, W.C.

W. DRUMMOND AND SONS beg to intimate that their CATALOGUE OF VEGETABLE AND FLOWER SEEDS is now ready, and may be had post free on application. This Catalogue contains only such varieties as are really worth cultivating, and each having a short but accurate description affixed, the Gardener and Amateur can draw out their seed list correctly and without trouble.—*Seeds delivered carriage free; for particulars see Catalogue.*

Seed and Implement Warehouse, Stirling, N.B.; and 58, Dawson Street, Dublin.

PERMANENT PASTURE GRASSES.—*Gentlemen intending to lay down Land to Permanent Pasture, or for two or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 32s. per Acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

TRENTHAM COCOA-NUT MELON.—The following Houses have been supplied with seeds of this Melon:—Messrs. Hurst & M'Mullen, London; J. Sutton & Sons, Reading; J. Wrench & Son, London; Noble, Cooper, & Bolton, London; Garaway, Mayes, & Co, Bristol; F. & A. Dickson & Son, Chester; A. Henderson & Son, Edgeware Road, London; Thos. Davies & Co., Liverpool; Mr. G. Tynan, Liverpool.

Packets of Six Seeds, 2*s.* 6*d.*; Fifteen do., 5*s.*

WILLIAM THOMAS, Nurseryman and Seedsman (Lich Gates), Market Place, Wolverhampton.

SHOW AND FANCY DAHLIAS.

JOHN SLIPPER, Villa Nursery, Camden Town, London, begs to offer good sound POT ROOTS at the following low prices:—

100 Roots in 100 fine varieties, true to name, for 1*l.* 5*s.*
100 " 50 " " 1*l.* 2*s.* 6*d.*

Post-office Orders to be made payable at Camden Town, N. W.

J. SLIPPER'S New Catalogue of Greenhouse and Bedding Plants will be ready in February, and may be had for Two Postage Stamps.

FLORISTS' FLOWERS AND SEEDS.

CAREY TYSO, FLORIST, &c., Wallingford, Berks, begs to offer choice assortments of

*RANUNCULUSES, 100 superb named sorts,	40*s.* to £4	0*s.*	0*d.*
*DOUBLE ANEMONES, 100 ditto	21*s.* to 1	6	0
CARNATIONS and PICOTEES, 25 pairs ...	37*s.* to 3	0	0
PANSIES, fine sorts, per dozen	5*s.* to 0	12	0

*IMPORTED GERMAN SEEDS:—ASTERS, STOCKS, LARKSPURS, BALSAMS, ZINNIAS, &c., of best quality in assortments, 2*s.* 6*d.* each. *Annual Seeds, 25 packets, 5*s.*

C. TYSO'S Floral Catalogue for 1857 may be had for one label.

* These articles can be forwarded by post.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following SUPERB FLOWER SEEDS:—

Antirrhinum, from 100 varieties	per packet	0*s.*	6*d.*
Double Daisy, from 60 fine named varieties	"	0	6
Pansy, from 100 best Show varieties ...	"	1	0
Hollyhock, from 50 superb Show varieties	"	0	6
Polyanthus, from 50 superb Show varieties	"	0	6
Verbena, from 100 best new varieties ...	"	1	0
Linum grandiflorum coccineum, TRUE ..	"	0	6

67, High Street, Battle, Sussex.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s.* per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

FRUIT TREES (DWARF TRAINED).

	s.	*d.*
PLUMS, 60 of the best kinds ... ... each	2	6
PEARS, 150 of the best kinds ... ... "	2	6
MOORPARK APRICOTS ... ... "	3	6
PLUMS and PEARS, dwarf standards, all the best kind for pyramids (healthy young trees) ... ... each	2	6
The new and beautiful Collinsia bicolor alba, per packet	1	0
C. Bartsiæfolia alba ... ... "	0	6

And a collection of 50 of the newest and most showy Annuals for 10*s.* 6*d.*, free by post, or 100 sorts for 20*s.*

Also collections of Garden Seeds of the best quality from 10*s.* to 60*s.* per col. Sorts forming each collection on application to

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset.

N.B.—All kinds of Nursery Stock grown largely; also a most complete collection of CONIFERÆ. Catalogues sent on application.—Jan. 31.

SEED CORN FROM THE CHALK.—TALAVERA, RED NURSERY, and RED HYBRID, the best Wheats for Early Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c. &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

Just published,

LAND DRAINAGE. A Letter addressed to Lord Berners on the KEYTHORPE DRAINAGE. Price 1*s.* 6*d.* By J. BAILEY DENTON, Drainage Engineer.

METCHIM, Parliament Street, London.

NOTICE.—REPRINT OF THE

NATIONAL GARDEN ALMANACK, 1857.—So numerous, influential, and urgent are the demands for further supplies of the National Garden Almanack, Horticultural Trade Directory, and Florists' Diary for 1857, that notwithstanding the distribution of seven-eighths of the type its reprint becomes imperative. One thousand additional copies are thus early subscribed for—a second 100 by Mr. James Veitch, of the Royal Exotic Nursery, Chelsea, S.W. As no time can be lost, every advertisement or subscriber's name must be promptly to hand to insure insertion in its proper place.

JOHN EDWARDS, 20, Sharp's Alley, London, E.C.; Office of "Gossip for the Garden," price 6*d.* monthly.

"WHEELER'S LITTLE BOOK," or Select Seed List for 1857, is now ready. A copy will be forwarded on receipt of three postage stamps.

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

BOUND EDITION OF

RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY.—*At the solicitation of several very influential Customers, the Proprietors have been induced to publish a Bound Edition of this Popular Work, and copies may be obtained through any Bookseller, or from the Counting House, Union Road, Plymouth, in exchange for 18 penny stamps free by post.*

Apply to WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

IMPORTANT TO PURCHASERS OF SEEDS.

SUTTON'S SEED CATALOGUE, *with prices, will be sent post free on receipt of one penny stamp.*

Also,

SUTTON'S AMATEUR'S GUIDE IN HORTICULTURE AND AGRICULTURE; *free by post for twelve penny stamps, or gratis to purchasers of Seeds.*

SUTTON & SONS, Seed Growers and Merchants, Reading.

Now ready, price 1*s.*,

MORTON'S NEW FARMERS' ALMANACK, for 1857.

BLACKIE & SON, Warwick Square, Newgate Street, London; and all Booksellers.

Second Edition, Now Ready, Price 1*s.*, post-free 13 stamps,

GLENNY'S GARDEN ALMANAC AND FLORISTS' DIRECTORY FOR 1857.

London: GEORGE COX, King Street, Covent Garden.

Just Published,

THE SCOTTISH GARDENER for February. Price 6*d.*, Stamped 7*d.*

London: HOULSTON & WRIGHT.

THE FARMERS' HERALD, published monthly, price 3*d.*,

London: GROOMBRIDGE & SONS, 5, Paternoster Row.

Now ready, Third Edition, 8vo, price 12*s.* 6*d.*,

THE PRACTICAL GRAZIER. By A. HENDERSON. With Thirty-five Illustrations.

GROOMBRIDGE & SONS, Publishers, 5, Paternoster Row; and all Booksellers.

SOWERBY'S ENGLISH BOTANY.

First Edition, Royal Octavo.

The few remaining Copies of this Work, forming 36 Volumes, and containing 2592 Plates full coloured, in Numbers, at 25*l.* per Copy, published at 55*l.*

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SOWERBY'S ENGLISH BOTANY.

Second Edition. Reduced 25 per cent.

The Work, containing 2754 Plates partly coloured, forms 12 volumes, and will be sold at 20*l.* per copy, cloth boards, publishing price, 27*l.* 7*s.* Vols. I. to VII., comprising the Flowering Plants (1576 Plates), 10*l.* 10*s.* cloth boards; published at 14*l.* 7*s.*

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Now ready,

SOWERBY'S FERNS OF GREAT BRITAIN. Illustrated by JOHN E. SOWERBY. The Descriptions by CHARLES JOHNSON, Esq. 49 Plates, cloth boards, full coloured, 21*s.*; partly coloured, 14*s.*; plain 6*s.*

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SOWERBY'S FERN ALLIES: A Supplement to "The Ferns of Great Britain." Flexible boards, 31 plates: full coloured, 18*s.*; partly coloured, 9*s.*

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BRITISH POISONOUS PLANTS. By C. JOHNSON, Esq. Flexible boards, crown 8vo, with 28 Plates. Full coloured, 7*s.*; plain, 5*s.*

JOHN E. SOWERBY, 3, Mead Place, Lambeth.

Now ready, price 1*s.*,

ARTIFICIAL MANURES, THEIR VALUE, ADULTERATIONS, &c. By Dr. A. VOELCKER, Royal Agricultural College, Cirencester.

Also by the same Author, price 1*s.*,

FOOD FOR CATTLE, THE ECONOMY OF FOOD, &c.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 6.—1857.] SATURDAY, FEBRUARY 7. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—SPRING MEETING, February 3, 1857.

AWARD OF PRIZES.

FOR COLLECTIONS OF FRUIT OF HOME GROWTH.

First Prize, 1*l.*, Mr. Tillyard, Gr. to the Right Hon. the Speaker,

FOR COLLECTIONS OF FRUIT AND VEGETABLES OF FOREIGN GROWTH.

First Prize, 1*l.*, Mr. Lewis Solomen, of Covent Garden Market.

FOR PINE APPLES.

First Prize, 1*l.*, Mr. Ingram, Gr. to Her Majesty at Frogmore, for a smooth-leaved Cayenne.

Second Prize, 15*s.*, Mr. South, Gr. to A. Davenport, Esq., Capesthorne, near Congleton, for a Black Prince.

Third Prize, 10*s.*, Mr. Jones, Gr. to the Dowlais Iron Co., for the same.

GRAPES.

First Prize, 1*l.*, Mr. Fleming, Gr. to the Duke of Sutherland, Trentham, for Muscat, White Tokay, and Barbarossa.

Second Prize, 15*s.*, Mr. Ingram, Frogmore, for New Fruit of West's St. Peter's.

Third Prize, 10*s*, Mr. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for Muscats.

FOR COLLECTIONS OF VEGETABLES.

First Prize, 10*s.*, Mr. Ingram, Gr. to J. J. Blandy, Esq., V.P.H.S., High Grove, Reading.

Second Prize, 5*s.*, Mr. Tegg, Gr. to A. Pryor, Esq., Roehampton.

MISCELLANEOUS.

Prize 10*s.*, Mr. Geo. Young, Gr. to W. Stone, Esq., Dulwich, for ripe fruit of Musa Cavendishi.

A Certificate of First Class, Mr. Standish, for Camellia reticulata flore pleno.

Prize 10*s.*, Mr. Williams, Gr. to Mr. Fairie, of Liverpool, for a Collection of Cut Flowers.

Honourable Mention, Mr. Cutbush, Nurseryman, Highgate, for a Collection of Hyacinths.

BRITISH POMOLOGICAL SOCIETY.—PREMIUMS FOR NEW AND SEEDLING GRAPES.—At the first September meeting, the date of which will be duly advertised, Three Prizes will be awarded for New and Seedling Grapes, if such are exhibited as will be considered worthy thereof by the Council, as follows:—

TWO GUINEAS for the best Seedling Grape having a Muscat flavour.

TWO GUINEAS for the best Seedling Grape of any other description, not having a Muscat flavour.

(Those varieties will be considered seedlings which are at the time of exhibition in the hands of not more than two parties, who represent the raisers and propagators.)

TWO GUINEAS for the best Grape not a Seedling raised in this country, and not in general commerce.

(This class is intended to comprehend newly introduced varieties from other countries, and those which have been lost sight of or neglected.)

HORTICULTURAL MEETINGS AT THE BRISTOL AND CLIFTON ZOOLOGICAL GARDENS.—Two Horticultural Fêtes will be held during the ensuing Season at these Gardens, on THURSDAY, May 28, and THURSDAY, August 27. The Schedule of Prizes is now ready, and may be had on application to the Honorary Secretary, Clifton.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

WORCESTERSHIRE CHAMPION CUCUMBER.

JOHN JENNINGS can still supply Seeds of the above first-rate Black Spine Cucumber, 12 seeds, 2*s.* 6*d.*; six seeds, 1*s.* 6*d.*—Furze Hill Nursery, Shipston-on-Stour.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Feb. 7.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s.* 0*d.* | LORD PALMERSTON 5*s.* 0*d.*

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

GLENNY'S IMPROVED BALSAM.—Caution!—Every grain of seed sent out under this name, *except in Sealed Packets, with Instructions signed by* G. Glenny, is a fraud upon the buyer, however respectable the vendor. Six classes, 37 stamps; mixed, 13. White, Yellow, Rose, Purple, Crimson, Scarlet, or variations, separate 13 stamps.—Fulham S.W.

SEED POTATOES,

SUTTON AND SONS, Seed Growers, Reading, *have a large Stock of the early kinds of* POTATOES *very true and free from disease. Prices, &c., will be sent post free on application.*

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED *may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.*

John Sutton & Sons, Seed Growers, Reading, Berks.

SEED CATALOGUE.—26th Annual Edition.

BASS AND BROWN'S New Descriptive SEED CATALOGUE contains the finest new Vegetable Seeds in cultivation, with the choicest novelties in Flower Seeds. Also choice BULBS for spring planting. Copies sent free on application.—Sudbury, Suffolk.

ROSES.

A. PAUL AND SON respectfully announce that their ROSE CATALOGUE for 1856-7 will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can now be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station: ¾ from Reading.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

KITCHEN GARDEN AND FLOWER SEEDS.

CHARLES TURNER'S CATALOGUE of Seeds contains many NEW THINGS offered for the first time, and can be had on application.

Especial attention is devoted to the Seed business, and every article offered is of the best quality, and in many instances of very superior quality.—Royal Nursery, Slough.

SEEDS.—Butler & M'Culloch's DESCRIPTIVE CATALOGUE of VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

Butler & M'Culloch, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

SEED ESTABLISHMENT, WESTERHAM, KENT.

JOHN CATTELL begs to announce that his CATALOGUE of KITCHEN GARDEN SEEDS for 1857 may be had gratis and post free on application. It contains a very select collection, the great part of which are of J. C.'s own saving.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

NURSERY & SEED ESTABLISHMENT, DUMFRIES, N.B.

Established, 1787.

THOMAS KENNEDY AND CO. are now prepared to execute orders for GARDEN and FLOWER SEEDS which have been procured direct from eminent Seed collectors in this country and on the Continent. Their NEW DESCRIPTIVE CATALOGUE may be had postage free on application.

*** Free delivery, see Catalogue.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

SEED CORN FROM THE CHALK.—TALAVERA, RED NURSERY, and RED HYBRID, the best Wheats for Early Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c. &c., may be had at market prices on application to Mr. H. Raynbird, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in Youell & Co.'s Catalogue, which will be forwarded on application.

Royal Nursery, Great Yarmouth, Norfolk.

ASPARAGUS AND SEA KALE.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100	... ...	2*s.* 6*d.*
Ditto 3 years old, per 100	... ...	3 6
Sea Kale, strong ... ... „	... ...	7 0

Royal Nursery, Great Yarmouth, Norfolk.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of Grape Vines struck from Eyes for Planting or Forcing in Pots, from 4 to 8 feet long. He is forcing some of the same which is showing well for fruit.

Shacklewell Road, Stoke Newington, N.E.

TO THE SEED TRADE.

PEAS.—Early Emperor, Early Ringwood Marrow, Flack's Victory Imperial, Woodford's Marrow, &c. The above at low prices. Trade prices of Seeds in general may also be had.—Bass & Brown, Sudbury, Suffolk.

HAIRS' DWARF MAMMOTH PEAS (True).

DUNCAN HAIRS AND CO. have still a small parcel of the above Peas remaining. The stock is the original, and the sample fine. Price and samples can be had on application by letter.—7, Albert Street, Camden Road, N.W.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s.* per quart, with an allowance to the trade.—9, Mansion House Street, London.

TO SEED GROWERS, ETC.

WANTED, from 10 to 15 quarters of TRUE SANGSTER'S NUMBER ONE PEAS.—Apply with sample and price to Clarke & Co., 86, High Street, Borough London, S.E.

ONE HUNDRED BUSHELS OF SKIRVING'S IMPROVED SWEDE, grown from large selected bulbs warranted, 23*s.* per bushel.

ORANGE GLOBE and LONG RED WURZEL, 28*l.* per ton.

Apply to Mr. Epps, Maidstone.

HEAVIEST LANCASHIRE SHOW GOOSEBERRIES, strong plants, per dozen ... ... 6*s.* 0*d.*

BLACK NAPLES AND BLACK GRAPE CURRANTS, per dozen 3 0

John Holland, Bradshaw Gardens, Middleton, Lancashire.

MOSS ROSES.—Three or Four Thousand good Plants for Sale.—For particulars apply to Alex. Dancer, Nurseryman and Seedsman, Fulham.

WANTED IMMEDIATELY, 4000 or 5000 ROSE STOCKS, for Standards, Half-standards, and Dwarfs.—Address, stating lowest price, W. H. Davis, St. Mary's Hill Newbury.

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to George Taylor, Jun., Fruit Salesman, St. John's Market, Liverpool.

PINE APPLES WANTED IMMEDIATELY, from 2 lbs. to 3½ lbs. each, at 5*s.* 6*d.* per lb.—Forward to George Taylor, jun., Fruit Salesman, St. John's Market, Liverpool.

PINE APPLE PLANTS.—Any person having PINE PLANTS to dispose of, may hear of a purchaser by sending particulars of sort and price.—A. B., Post Office, 99, Albany Street, Regent's Park.

TO MARKET GARDENERS AND OTHERS.

FOR SALE, at 8*s.* per thousand, BLACK NAPLES CURRANT TREES, 2 or 3 years old, cut back every year. An allowance in price to Gardeners and the Trade.—Apply to William Powell, Heath Lane, Homerton.

ASPARAGUS.—Several thousands of fine strong ASPARAGUS as under:—

2 years ... ... 15*s.* per 1000 | 3 years ... ... 20*s.* per 1000

Apply to the Executors of Mr. Nesham, Abbey Wood, Bexley, S.E.

BOX EDGING.—Several thousand yards of the above in fine condition.—For particulars apply to Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

QUICKTHORN.

CHARLES SHARPE AND Co. have a large quantity of the above to offer of various ages. Prices and samples may be had on application.

PINUS MARITIMA (one-year seedlings).

C. S. and Co. have a surplus stock of the above, price on application.—Nursery and Seed-growing Establishment, Sleaford.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

TO PLANTERS.

TO BE SOLD, cheap, 100,000 SCOTCH FIRS, 12 to 18 inches, and 18 inches to 2 feet; 30,000 HIGHLAND PINES, 1 foot to 1½ foot. The plants are very stiff, and grown upon high exposed land: will take up with good fibrous roots. Price upon application to J. Smith, Langley Nursery, near Hadlock, Derbyshire.

SUTTON'S MONSTER LETTUCES.

THE LARGEST AND QUICKEST GROWING LETTUCES ARE "SUTTON'S SUPERB WHITE COS," AND "SUTTON'S SUPERB GREEN COS."

The Editor of the *Gardeners' Chronicle*, in a critique on Lettuces, says of the first of these—

"*This is the very best Cos Lettuce, very large, leaves hooded at the top, so that they close in without tying; blanching white, crisp, so excellent that one would suppose no higher degree of perfection could be obtained as regards a Summer Lettuce.*" And of the other he says—

"SUTTON'S SUPERB GREEN COS.—*This very much resembles the preceding, but is a darker green, and hardier, therefore is preferable for sowing early in spring, and also for autumn use.*" Seeds may be had (if ordered immediately) in packets 1s. each, post free.—Address,

SUTTON & SONS, Seed Growers, Reading, Berks.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at* **20s.** *per acre, or Clovers and Common Rye-grass at* **19s.** *per acre.*

The great produce of the above-named mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31, 1856.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

☞ As the demand for these is very great, and the supply limited, early orders are requested and recommended.

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," are required for so many acres, when the proper quantities will be sent.—Royal Berkshire Seed Establishment.

NEW HYBRID CUCUMBER "PERFECTION."—This has proved to be one of the finest black spine varieties ever yet offered to the public for early forcing and all other purposes for which a Cucumber is required. Seed of the above is now ready to be sent out at 3s. 6d. per packet.

For further particulars, with a List of numerous other fine varieties of Cucumbers and Melons, and prices of the same, see this Paper of January 31, 1857, page 66.

A remittance must accompany every order in cash or penny postage stamps, when the whole, or any part, as the case may be, will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
" " a fine stock of the best Gold-striped Hollies 2 and 3 feet high

Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Feb. 7.

CHARLES NOBLE, having retired from the business lately carried on by the Firm of STANDISH & NOBLE, is now establishing a NURSERY on his own account, near the Sunningdale Station, South-Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that he is in a position to execute any orders with which he may be favoured, and respectfully requests that all communications be addressed CHARLES NOBLE, Nurseryman, Bagshot, Surrey.—Feb. 7.

1, WELLINGTON STREET, STRAND.

JOSEPH MAY AND CO. beg to announce that they have received their new Stock of VEGETABLE and FLOWER SEEDS, selected from the best growers. A Catalogue is just published, and will be sent post free on application.

JENKINS' RED MATCHLESS CELERY, half-ounce packets, 2s. 6d.; less packets, 1s.; has taken the lead for years in Covent Garden Market.

15 papers Showy HARDY ANNUALS... ... 2s. 6d.
30 do. do. do. 5 0

SAYNOR'S PRUNING and BUDDING KNIVES, and everything requisite for the Kitchen and Flower Gardens at moderate prices.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N., London.

HAWKES' CHAMPAGNE RHUBARB.—This most desirable variety is now offered to the public. It has stood the severest test that can be applied, and has beaten every thing in Covent Garden and other London markets in realising higher prices, from its magnificent colour and size. It has been seen by the very highest authorities, and pronounced to be a most valuable introduction. In earliness it equals the Prince Albert, but of a deeper colour, and much greater bearer. It forces remarkably well, and is very hardy, 2s. each, 18s. per doz.

RHUBARB, Myatt's Victoria... ... ... per doz. 8s. 0d.
" " Linnæus ... ... " 8 0
" Mitchell's Royal Albert ... " 8 0

FASTOLFF RASPBERRY (true), unequalled for the size of its fruit and richness of flavour; fine strong canes 10s. per 100 of the genuine stock as supplied by us to her Majesty and most of the Nobility, as well as having two Prizes awarded it by the Horticultural Society of London.

RASPBERRY—Belle de Fontenay... ... per 100, 16s. 0d.
" Large White ... ... " 18 0
" Magnum Bonum ... ... per doz. 3 0
" New Monthly fruiting ... per 100, 18 0

LAING'S MAMMOTH CELERY, the largest yet grown, weighing 10 to 12 lbs. per head, perfectly solid and flavour unsurpassed, and will not run to seed the first season and rarely the second. Sealed packets 1s. and 2s. each, and post free.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

SUPERB SEEDLING CALCEOLARIAS, ETC.

JOHN CATTELL has now ready to send out fine strong Seedling Plants, in single pots, of his superb varieties of CALCEOLARIAS; they will produce flowers of very large size, and every shade of colour. 5s. per dozen, or 36s. per 100, hamper included; plants from the store pans can be sent free by post at 5s. per dozen.

J. C. has also fine healthy plants of the under-named splendid FRENCH GERANIUMS, which are fit for immediate shifting; strong plants of any 12, 18s.; or 12 smaller plants, 12s., hamper included:—Madame Lamericière, James Odier, Medaille d'Or, Auguste Miellez, Jacques Duval, General Eugène Cavaignac, Auguste Odier, Colonel Faissy, Adèle Odier, Eugène Scribe, Chauvieri, Elize Miellez, Madame Leflo, Adolphe Odier, Dr. Andry, Gloire de Bellevue, Madame Chereau, Monte Christo, Coquette, Astrea, Madame James Odier, Zaria.

Extra fine varieties of Show and Fancy, Geraniums 6s., 12s., and 18s. per dozen.

VARIEGATED LEAVED GERANIUMS.

	Each—s.	d.		Each—s.	d.
Attraction (Kinghorn), per dozen 12s. ...	1	6	Golden Admiration ...	1	6
Attraction (Gaines's) ...	1	0	Mountain of Light ...	0	9
Annie (Kinghorn) ...	2	6	Mrs. Lennox	2	6
Alma (Turner)	2	6	Silver King	1	0
Countess of Warwick (Kinghorn	2	6	Silver Queen	1	0
			Variegated Queen ...	2	6

SCARLET GERANIUMS.

	Each—s.	d.		Each—s.	d.
Beauty of Chipstead ...	0	9	Beauty of Coombe Bank...	1	0
General Pelissier (Kinghorn)	2	6	Trentham Scarlet Gem	1s. to 1	6

Fine healthy plants of the following:—Leschenaultia biloba splendens, Hunt's fine free flowering variety, each 2s. 6d. to 3s. 6d.

INDIAN AZALEAS.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Admiration (Ivery)	2 6 to	21 0	Empress Eugenie...	3 6 to	21 0
Criterion (Ivery)	2 6 to	21 0	Magnificens, the best white		2 6
Gem (Ivery)	21 0 to	42 0	Magnificens, small specimens in 24s or 8-in. pots		21 0
Eulalie (Van Geert)	3 6 to	21 0			
Striata formosissima	2 6 to	7 6			

Fine plants of the best older kinds 12s., 24s., 30s., and 42s. per doz.

A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1l. to 5l. and upwards. For Specified List of VEGETABLE SEEDS, J. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

MYATT'S PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10s.; per peck, 2s. 6d.; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet. Samples of the haulm may be seen at the following firms in London, of whom the Peas may be had, or of their agents in the country, in quart packets at 5s. each.

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.

Price 5s. per quart. Usual allowance to the trade.

SEEDS THE BEST FOR AMATEURS.—Send a directed envelope for GLENNY'S list of subjects recommended. CHRYSANTHEMUM SEED, imported, 37 stamps; ACROCLINIUM ROSEUM (splendid new Annual), 13 stamps. Haage's NEW FORCING CAULIFLOWER, 100 seeds, 13 stamps. FLORISTS' FLOWER SEEDS, such as Hollyhock, Geranium, Calceolaria, Cinneraria, Polyanthus, Auricula, &c. GLENNY'S Companion to the Almanacks, with Portrait, 13 stamps.—Fulham, Middlesex, S. W.

TO THE LOVERS OF DELICIOUS FRUIT.

ORION MELON, the winner of all the FIRST PRIZES for two successive years at the Crystal Palace, Regent Street, and Ipswich, for beauty, weight, and flavour.

Crystal Palace Fête.—"The heaviest Melon, 1st Prize, weighed 5 lbs., was communicated by Mr. Boreham. The variety we believe was named 'Orion,' a green-fleshed sort, which was also awarded the First Prize for good flavour."—*Gardeners' Chronicle*, 31st May.—Six seeds out of the Prize Fruit, 1s. 6d., free by post.

THOMAS WILD, Ipswich.

LYNCH'S STAR OF THE WEST CUCUMBER.—This has proved itself during the last two seasons to be one of the very best Cucumbers for general use.

Mr. Joseph Hamilton, the celebrated Cucumber grower, and author of the "Hamiltonian System of Pine Growing," in a letter dated October 1st, 1856, says:—

"LYNCH'S STAR OF THE WEST IS A GREAT FAVOURITE OF MINE, AND I WILL USE MY BEST ENDEAVOURS TO RECOMMEND THE SORT TO ALL MY FRIENDS."

	Per packet.—s.	d.
SIX SEEDS FOR	1	6
TWELVE SEEDS FOR	2	6
TWELVE LARGE PACKAGES FOR PRESENTS FOR	20	

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—

ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CHOICE STOVE, GREENHOUSE, AND OTHER SEEDS.

HOOPER AND CO., SEEDSMEN, &c., Centre Avenue, Covent Garden Market, London (W.C.), have the pleasure of announcing that since the publication of their usual Catalogue of Flower Seeds they have received a very choice collection of Seeds of Stove, Greenhouse, and Hardy Shrubs and Climbers, Hardy and Half Hardy Herbaceous Plants, Carnations and Picotees of the finest descriptions, in collections and mixtures, warranted to produce 6 to 8 good double flowers, with some choice Annuals, &c., the whole of which have been ripened in the climate of Italy in the year 1856, and are such as they can recommend with the greatest confidence. A Catalogue of them will be forwarded on application; and it is respectfully requested that a Post-office Order, or Stamps, accompany each order from unknown correspondents. The stock being limited, an early application is desirable.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli: Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities £3 0 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN 2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES 1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN 0 15 0

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

EXCELLENCE AND ECONOMY COMBINED.
SUTTON'S COLLECTIONS OF GARDEN SEEDS,
THE BEST YET OFFERED.
KITCHEN GARDEN SEEDS.

	£	s.	d.
No. 1. A complete Collection for one year's supply of a large Garden	3	0	0
No. 2. A complete Collection, in smaller quantities ...	2	0	0
No. 3. Ditto ditto ditto ...	1	10	0
No. 4. Ditto ditto ditto ...	1	0	0
No. 5. Ditto ditto ditto ...	0	15	0
No. 6. Ditto ditto ditto ...	0	10	6

A List of the sorts and quantities contained in each Collection will be sent Post Free in return for one postage stamp; and if some of the sorts are already possessed, increased quantities of others will be given in lieu of those to be omitted.

HARDY AND SHOWY FLOWER SEEDS (POST FREE),
Which may be sown where they are intended to bloom.

A Collection of the best 100 sorts known	£1	1	0
A Collection of the best 50 sorts known	0	10	6
A Collection of the best 36 sorts known	0	7	6
A Collection of the best 24 sorts known	0	5	0

BOKHARA CLOVER, BORAGE, AND OTHER SEEDS FOR BEES.
Carriage Free by Rail to almost all parts of the Kingdom.
Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION	... £2	15 0
No. 2.—Ditto Ditto	... 1	15 0
No. 3.—Ditto Ditto	... 1	0 0
No. 4.—Ditto Ditto	... 0	10 0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

NEW GARDEN SEEDS.
W. J. EPPS, SEED MERCHANT and GROWER, respectfully calls attention to his large stock of new and genuine Seeds. Having nearly 100 acres of land entirely for the growth of Seeds, and a direct correspondence with the Continental and other celebrated growers, he is in a position to offer great advantage to purchasers; all seeds warranted of the best description. Catalogues sent on application. Noblemen, clergymen, and others, who have large or small establishments, will find a great advantage in purchasing the following collections:

No. 1 COLLECTION, sufficient for one year's cropping of a large garden, consisting of 24 quarts of the best Peas, inclusive of Lord Raglan and Monarch, and all the leading and best kinds of seeds in equal proportions ... £3 0 0
No. 2 do. do. do. in equal proportions 2 0 0
No. 3 do. do. do. do. 1 0 0
Lists of sorts and quantities sent on application.
Seed Establishment, Maidstone and Ashford.

SEED PURCHASERS CAN SAVE TWENTY PER CENT.
W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order our complete collections for one year's supply, 10s., 20s., 30s., and 40s. each, or double quantities of 40s. for 70s.; 420 packages containing 24 quarts of Peas, &c.

CHOICE FLOWER SEEDS post free; 100 sorts, 17s. 6d. 50 sorts, 9s. 6d.; 25 sorts, 5s. Superior CALCEOLARIA SEED, 50 dwarf sorts, 2s. 6d. per packet. General Lists on application.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have for Sale a pure stock of Seedling and Transplanted native HIGHLAND SCOTCH PINE PLANTS, raised from seed collected in the celebrated native Forests of Strathspey.

J. G. & Co. have had the honour to receive the numerous premiums awarded by the Highland and Agricultural Society of Scotland during the last 20 years for the cultivation of the true Highland Pine. They also abound in Seedling Larches, Seedling Transplanted Deodars, Seedling Sycamore, Pear Stocks, &c., well adapted to the trade. Priced Lists will be furnished on application.

TREES FOR NEW ZEALAND AND AUSTRALIA.
THOMAS RIVERS begs to call attention to the following extract from a letter recently received from New Zealand.

"Nelson, August 3, 1856.

"The Trees seem to be nearly all alive, appear healthy, and are now putting forth their buds and give promise of doing well; the sorts are admirably selected, and furnish a supply much needed."

The Trees alluded to in the above were young Fruit Trees packed the first week in February in a close wooden case, in a material it is supposed never before employed, and unpacked in New Zealand in perfect health the last week in June. Cases of Trees for the above and other distant colonies packed free of charge in the same cheap and efficacious manner on receipt of orders.—Nurseries, Sawbridgeworth.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. TO THE TRADE.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.
BASS & BROWN, Sudbury, Suffolk.

FINE FRAME CUCUMBERS.
WOOD AND INGRAM beg to offer the following excellent varieties of Frame Cucumbers, in packets, 1s. each, post free:—Cheltenham Surprise, Godfrey's Black Spine, Manchester Prizefighter, Turnbull's Fine Frame, Snow's Horticultural, Conqueror of the West, Telegraph, General Canrobert, Kelway's Defiance, Read's Superb, Improved Sion House, Hunter's Prolific, and Manchester Hero.
Huntingdon Nurseries, Feb. 7.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

MESSRS. SUTTON'S *Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.* The prices are moderate, particulars of which may be had post free.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

VEGETABLE AND FLOWER SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now sending out the above Seeds, comprising many newly introduced and valuable varieties, and all carefully selected from true stocks. They solicit the favour of speedy orders, which will ensure an early delivery. Catalogues will be sent free on application.

Their Stocks of AGRICULTURAL SEEDS and GRASSES for Alternate Husbandry, Permanent Pasture, &c., are of very superior quality this season, being the result of repeated and very careful selections. Priced Catalogues are in course of publication. Everything connected with their Trade can be supplied in any quantity from their London branch.
27, Great George Street, Westminster.

SEED ESTABLISHMENT, HIGHGATE.
WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection,* they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8s.	Forty-fold ...	per bushel 6s.
Walnut-leaf do.	... ... 8s.	British Queen	... ... 6s.
Fifty-fold do.	... ... 8s.	Purple Regent	... ... 6s.
New Boston do.	... ... 6s.	Early Shaws	... ... 6s.
Early Frame	... ... 8s.	York Regent	... ... 6s.
Flourball	... ... 6s.	Bags included,	

A remittance accompanying Orders is respectfully requested from unknown correspondents.
HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

TO THE TRADE.
THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—
Manetti Stocks, 50s. per 1000.
Hardy Heaths, in variety, 25s. per 100.
Menzieas polifolia and alba, 30s. per 100.
Standard and half standard Roses, by name, 4l. per 100.
Dwarf do. do. do. 50s. per 100.
Blush China Roses, strong, 15s. per 100.
Double Yellow Primroses, 20s. per 1 0: or 3l. for 400.
A remittance or reference expected from unknown correspondents.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10s. 6d. each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.
A. PAUL & SON, Nurseries, Cheshunt, Herts.

MELVILLE'S WHITE MAY BROCCOLI.—A very superior, new, and distinct variety, colour pure white, habit very dwarf and self protecting. Weight of specimens when ready dressed for use on 10th May last, 1¾ lbs. each. For full particulars see "Cottage Gardener" of June 3d last, page 171.

Having been fortunate in procuring a quantity of seed of this very valuable Broccoli from the introducer, Mr. Melville, we beg to offer it in sealed packets at 2s. 6d each post free.

Address JAMES DICKSON & SONS, Seed Growers, &c., 102, Eastgate Street, Chester; or Market Place, Manchester.

*** A detailed List of Vegetable and Flower Seeds is published, and may be obtained post free upon application, as well as Priced Lists of Forest Trees, Fruit Trees, Ornamental Shrubs Evergreens, &c., grown at the Newton Nurseries, near Chester.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12s. to 18s. and 30s. per dozen.

VERBENAS, the finest varieties, from 4s. to 8s. per dozen.

PETUNIAS, at from 4s. to 8s. per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.
Tollington Nursery, Hornsey Road, Islington, near London, N.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

FLOWER AND VEGETABLE SEEDS.
JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

W. DRUMMOND AND SONS beg to intimate that their CATALOGUE OF VEGETABLE AND FLOWER SEEDS is now ready, and may be had post free on application. This Catalogue contains only such varieties as are really worth cultivating, and each having a short but accurate description affixed, the Gardener and Amateur can draw out their seed list correctly and without trouble.—*Seeds delivered carriage free; for particulars see Catalogue.*

Seed and Implement Warehouse, Stirling, N.B.; and 58, Dawson Street, Dublin.

SHOW AND FANCY DAHLIAS.
JOHN SLIPPER, Villa Nursery, Camden Town, London, begs to offer good sound POT ROOTS at the following low prices:—
100 Roots in 100 fine varieties, true to name, for 1*l.* 5*s.*
100 " 50 " " 1*l.* 2*s.* 6*d.*
Post-office Orders to be made payable at Camden Town, N. W.
J. SLIPPER'S New Catalogue of Greenhouse and Bedding Plants will be ready in February, and may be had for Two Postage Stamps.

COLE'S DEFIANCE RED CELERY has proved itself the best Red Celery for exhibition purposes or for common use; it is exceedingly solid, of exquisite flavour, attains a large size, and keeps better than any other sort in cultivation. To be had in sealed ½-oz. packets, free by post, for 12 postage stamps.—The DWARF WHITE INCOMPARABLE, so highly recommended, for 12 postage stamps. Also Cole's Dwarf Solid Red, and Crystal White, in ½-ounce packets, each free by post for 6 postage stamps.

N.B. The trade supplied by the lb. Price on application.
WILLIAM COLE, Withington, near Manchester.

SUPERIOR EARLY BROCCOLI.
MITCHINSON'S PENZANCE, OR EARLY WHITE CORNISH BROCCOLI.—Celebrated and invaluable for its earliness, coming into use early in February; a full sized handsome head, of excellent quality but a shy seeder, price 1s. 6d. per packet. Highly favourable testimonials, too numerous for insertion, from gardeners in various counties. New Seed can be had in sealed packets from the following Agents in London:—HURST & M'MULLEN, Leadenhall Street; MINIER, NASH, & Co., 60, Strand; CHARLWOOD & CUMMINS, Covent Garden; NUTTING & SONS, Cheapside; or from MITCHINSON & Co., Truro, Cornwall.

PERMANENT PASTURE GRASSES.—*Gentlemen intending to lay down Land to Permanent Pasture, or for two or three years' lay, are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable.*

Price 24s. to 32s. per Acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

THE ALSIKE HYBRID CLOVER.—PERENNIAL RED CLOVER.—TRUE PERENNIAL WHITE CLOVER.
THE ABOVE KINDS OF CLOVERS will take well on land which has proved Clover-sick when sown with the common kinds of Clover. They are all included in Messrs. SUTTON'S Mixture of Grass Seeds for Permanent Pasture, and they may be purchased separately.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW SORTS OF PEAS.
SUTTON AND SONS can supply Harrison's Napoleon, Eugenie, Alliance, Climax, Glory, Perfection, Epps' Lord Raglan, Sutton's Early Champion, Prizetaker, and every Horticultural novelty which may from time to time be advertised in this Paper, by whomsoever introduced, though they of course cannot recommend any article until they have had time to test it in their Nursery and trial ground.
Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 7, 1857.

Now that Parliament has reopened, a recent decision of the Court of Exchequer relative to the conveyance of cattle by rail deserves consideration by all classes of the community, and especially by gardeners, whose goods are generally very perishable.

By the general law of this country a common carrier is bound, for reasonable reward, to receive for conveyance and to carry any goods which he may be able and accustomed to carry. He is also bound to take care of the goods entrusted to him, and as long as they are in his custody as carrier he is responsible for their loss and for any damage which may accrue to them, unless it arises from such accidents as are caused by what lawyers call acts of GOD or the QUEEN'S enemies. Carriers of course have always sought to restrict this extensive liability on their part by making the sender agree that they shall not be responsible for certain things; for then the carriers' responsibility must be measured not by the ordinary law but by the terms of the special agreement made between them and their employers. This seems fair enough; for if any agreement is entered into it should be abided by.

Railway companies, who are common carriers, take advantage of this, and refuse to carry anything in the absence of some special agreement limiting their liability. The agreement is made by the

delivery of a ticket on which all sorts of special conditions are printed, and the acceptance of this ticket by the sender of the goods is deemed an agreement on his part to accede to the conditions printed on it. Nay, even if he protests against the conditions but nevertheless sends the goods, the judges hold that he sends them on the only terms on which the company receive them, and is accordingly bound by the very terms against which he may vehemently have protested. If, now, the things are lost or damaged, or if they are delayed so long as not to arrive in time for the market for which they were intended, and the sender seeks redress, in 99 cases out of every 100 he will be told that he has agreed not to hold the company responsible for the accident which has occurred, and that he therefore has no ground of complaint.

As in point of fact there is no other mode of carriage except by rail, it is obvious enough that the public are to a great extent at the mercy of the railway companies. It is very true that railway companies have no right to refuse to carry goods unless upon their own terms; but if they do, the only remedy is an action for not carrying, and this does not by any means meet the mischief. Generally speaking the goods must go by rail, and it is better to send them so, and take the chance of accidents, than not to send them at all and then to sue the company for refusing to carry. The insufficiency of this remedy had become so apparent that the Legislature was lately induced to try and protect the public by declaring all notices, conditions, and agreements limiting the liability of railway companies, void. If the act of Parliament had stopped there the remedy would have been complete; but unfortunately the act continues, "unless such notice, &c., shall be deemed *reasonable*" by the court or judge who may have to try a dispute turning on it. The result is just what might have been expected, and the act has little if any value. Jurymen and not judges are the most competent persons to decide what is reasonable in such cases. If any doubt be entertained as to this, the cases which have been determined since the act came into operation will more than suffice to remove it. The judges of the Court of Common Pleas have intimated that a condition "that in the case of goods conveyed at special or mileage rate the company will not be responsible for any loss or damage *however caused*" is just and reasonable, so that the company would not in fact be bound to take any care whatever, nor indeed be responsible for loss or damage arising from the grossest carelessness of their own people. Would any jury have so held? In the case decided by the Exchequer and alluded to above, some cattle were sent by rail and were put, not into a cattle truck, but into a van closing with a lid, and used for carrying salt. During the journey the top of the van, which at starting had been set open so as to let in air, fell, and of the 16 oxen in the van 10 were dead or dying from suffocation, and four were grievously injured. The learned barons, however, held that the company was not responsible. The reasons were as follows: 1st, the drover who accompanied the cattle saw them put into the salt vans and did not object; 2d, he signed a ticket on which was printed a condition exempting the company from "all risk or responsibility in respect of any loss or damage arising on the loading or unloading, from suffocation or from being trampled on, bruised, or otherwise injured in transit, from fire or from any other cause whatsoever;" 3rd, because the drover, instead of riding with the cattle and looking after them, rode with the guard and neglected the cattle.

Had this case been decided on the third ground we should not have thought it worthy of notice, although it will be observed that even if the drover had been ever so attentive and the accident had occurred, the company would not have been responsible because of the condition. The condition was held reasonable, and on that ground, and because the drover did not object to the trucks, the company got off. The company had received due notice that cattle trucks would be wanted, and they ought to have provided them; instead of that they offer salt vans! if any objection had been made the cattle in all probability could not have gone at all by the train desired, and the drover had therefore no option in the matter. Besides, what does a drover know of railway carriages? As to the reasonableness of the condition, we confess our inability to discover it. The fact is the Legislature has made a mistake; the question of reasonableness or unreasonableness either ought not to be taken into account at all, or if it be it should have been made determinable by a jury and not by a judge.

This is of the utmost importance to all who send perishable articles, whether fruit, vegetables, flowers, stock or farming produce, to a distance from home, and we would suggest to all members of Parliament who are interested in agricultural matters that the subject is one for them to take in hand. We will even venture to add that it is their duty, as well as immediate interest, to ensure the amendment of laws which place us all at the mercy of railway companies. No one indeed can doubt that if the directors of these bodies are permitted by law to be irresponsible agents they will ride roughshod over the Kingdom and become a public nuisance.

OUR readers may perhaps recollect the case of BROADBENT *v.* THE IMPERIAL GAS COMPANY, which was a suit in Chancery instituted by a market gardener at Fulham to restrain the defendants from making gas in such a way as to injure him. The case was heard before the Vice Chancellor WOOD, who decided it in the plaintiff's favour.

At the time the judgment was pronounced we drew attention to it (see the *Gardeners' Chronicle* for 1856, p. 771), and we have now much pleasure in stating that an appeal by the Company against the decision has lately been dismissed by the Lord Chancellor. It is gratifying to find that the specious arguments adduced by the Company to the effect that it was much more for the public interest that MR. BROADBENT should be compelled to move or be ruined than that half London should be left without gas, were emphatically denounced by his Lordship. The decision is a great triumph of right over might, and shows that justice may be obtained by poor men although denied by powerful incorporated companies.

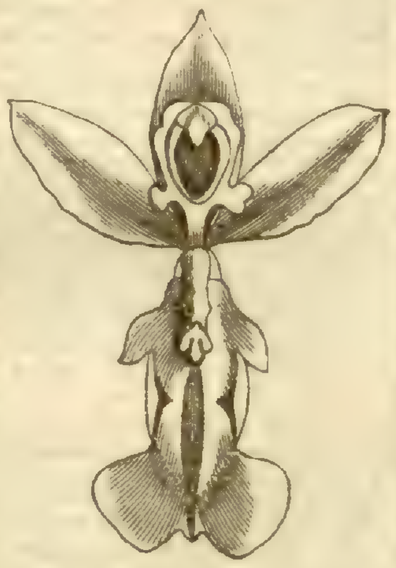
MR. GEORGE M'EWEN, formerly gardener to the late Duke of NORFOLK, is appointed Superintendent of the Horticultural Society's Garden at Chiswick.

New Plants.

193. ONCIDIUM BIFRONS.

O. (Tetrapetala micropetala) labelli pandurati lobis lateralibus post medium constrictum porrectis acutis intermedio latiore bilobo apiculato, cristâ lineari apice obtusè tridentatâ, clinandrio marginato, columnæ alis emarginatis infrastigmaticis, racemo paucifloro, bracteis acuminatis pedicellis (uncialibus) brevioribus, pseudobulbis ovalibus ancipitibus diphyllis, foliis chartaceis ligulatis basi canaliculatis racemo multò longioribus.

Flowers pure yellow in a few-flowered raceme much shorter than the leaves, which are like those of Oncidium flexuosum, are 10 inches long, rather spreading and blunt. In appearance this somewhat resembles a Gomeza, but is clearly an Oncidium, though little related to any published species. In such an arrangement as that of the *Folia Orchidacea* it will stand between cucullatum and pubes. The contraction in the middle of the lip and in front of the lateral lobes is very remarkable.



Mr. Loddiges, from whom we received it, reports that it came from Mexico. We cannot say much of its horticultural importance.

ON GRAFTING.

Can a precise period be assigned for grafting, and are the principles rational upon which the operation is considered to be founded? Such are the questions which we propose to examine in this paragraph, and it will be evident that they are complex, and cannot be resolved without entering into considerable detail. If, in fact, we look at them in a general point of view, it will be seen that, to give a reply, the various laws, modifications, and ramifications previously treated on must be taken into account. In the first place we perceive, that for all kinds of grafts, and for the different periods at which they should be made, it is less the appearance than the principle that should be examined; that they are all based upon one invariable principle, which, from not having as yet been studied sufficiently deep, has given rise to various hypotheses.

In fact, according to the conditions in which we are placed, whether they result from climate, or any other cause, according to the nature of the plant, the different modes of grafting adopted, the operation varies within limits which may be called indefinite. However this may be, there are in this, as in all things, general rules, and these we are about to explain; but as the subject is of the greatest importance, in order to make ourselves well understood, it will be necessary to revert to some of the principles that have already been laid down, so that the explanations necessary to the solution of the present question may be given.

It has been established as a fact, that organic life exists in all parts of plants; that each of these parts when separated acts like the whole united; that it absorbs and evaporates; that its innate life, in a word, its vital force, can remain for some time, but a time must arrive when it becomes annihilated if it does not receive fresh nourishment. From this it will be readily understood, that so long as these extreme limits are not reached detached scions may be employed for grafting, and that with more or less success, according to the time which has elapsed since their separation from the tree.

Further, it has been acknowledged, that this active principle, this organic life, manifests itself by the presence of a fluid which circulates in all the parts of plants, and this fluid is the sap. Now, as in another place we have compared and likened this sap to the blood which flows through all the parts of animals; and as this comparison is well founded, it directly follows that its flow is continuous; for, like as the stoppage of the circulation of the blood causes the death of the animal, so that of the sap causes the death of the plant. But, as in the latter, life independent of organic laws is also subjected to the atmospheric conditions under which it is placed, and is to a certain extent dependent on the climate in which it grows, it also follows that the flow of the sap is also more or less active at certain periods, according to the state of the weather.

These principles are strictly true, and if they appear to admit of an exception in the case of deciduous plants, in which life seems entirely suspended for a time, still this exception is only apparent; to convince one's self of this it is sufficient to bore, in winter, the stem of certain deciduous trees, and see the liquid run out. Another proof that the flow of sap is never interrupted is supplied by Evergreens, which, being always growing, always require a fresh supply of nutritive matter and a continuous circulation of the sap. What is true of the latter cannot be false as regards the former, for one cause cannot produce such opposite effects in cases so nearly alike. It is then clearly demonstrated, that the flow of the sap never ceases in plants, that there is only with a certain number a period of torpor, which may well be compared to the sleep of certain animals, in which for several months life seems to be suspended, although all the vital functions are carried on as in a waking state.

Let us again bring to mind a principle which must never be lost sight of, that all living beings, whatever they may be, only exist on the absolute condition of absorbing certain principles, and after having elaborated and assimilated a certain portion of them, rejecting that which is unfitted for their nourishment—hence the two distinct functions of absorption and evaporation. It is these two functions which constitute all the phenomena of life visible to us.

Absorption and evaporation take place under the influence of two principal agents or movers; the one, internal, designated vital force, of which the result visible to us is the production of sap; the other, external, is the atmospheric air, but the action of this alone continually causing evaporation would soon occasion the death of the individual, by wasting its fluids, if these were not continually restored. It results from this law, as we have already said, that every portion taken off a plant must perish sooner or later according to its nature, and the conditions in which it is placed; for the continuity of the vessels being interrupted, the liquids cannot reach the parts separated, and the air, continually carrying away from it fluids which are not restored, dries it up; and the more herbaceous the plant, and the more numerous its leaves, the sooner does this take place. Thus, the air which is one of the first conditions of life may also be the cause of its extinction.

Whenever continuity of vessels is broken, the part separated can only preserve life for a time, in proportion as it is protected from the action of the external air. This is done in grafting under bell-glasses, in which case success is almost always certain, even when the scions are in full leaf. But if the operation of grafting is performed in the open air in summer, death will be speedy in proportion to the quantity of foliage on the grafts, and according as they are more or less herbaceous. In fact, in the latter case the tissues are very watery, and as at this period the air is very dry, it tends to evaporate with greater rapidity all the liquids with which it is in contact. This is the reason why the drying up of the herbaceous parts of plants is always so rapid.

All these principles having been established, it is easy to understand that, except in winter, when vegetation seems to be entirely suspended by severe frosts, it is always possible to graft, by preserving as much as possible, especially in summer, the grafts from contact with the air. The same reason explains why cleft grafting is performed in spring; this is in fact the period when plants shake off the state of torpor in which they remained during winter; the sap being in consequence less watery, and its evaporation much less rapid, the graft has time to unite to the stock before it is dried up.

Spring, which has been chosen for cleft grafting, is not the only period at which that operation can be performed; the advantages which this season possesses are all presented by the autumn; the operation may even be performed all the year round by protecting the grafts with a bell-glass, if the subjects are small, in which case herbaceous shoots may be employed, and even all their leaves may be preserved. If the stocks are too large for bell-glasses, grafts should be taken from the best ripened shoots, and the whole of the leaves should be cut off, leaving only the petioles. The grafts may then be surrounded with a coil of paper, or merely with leaves, which must remain round the graft for some time.

We may now resume our subject, saying: the flow

of sap in plants never entirely ceases, and grafting may be performed throughout the year, provided the necessary precautions are taken; for the essential point, presuming the manipulation has been well performed, is to prevent evaporation of the sap contained in the scion until the latter has united and become consolidated with the stock.

Although it has been demonstrated, indisputably, that grafting may be performed almost at any period, it must not therefore be concluded that its performance is at all times equally advantageous; for very frequently, not only on account of the precautions which must be taken, but also from the risk of failure which attends an operation under unfavourable circumstances, the trouble is not compensated by the result.

With regard to grafting plants in pots, there is no particular period for performing the operation, provided the rules which have been laid down are attended to, nevertheless, spring and autumn are the best seasons. All hardy trees are usually grafted in spring, although the autumn is also a very favourable period, and even ought in some cases to be preferred. It is after the end of August when the young shoots are sufficiently matured that the operation is performed, the leaves being cut off as above recommended.

We must, however, make some observations on autumn grafting, and point out certain inconveniences with which it is attended. As at that period the vegetation of the tree has become much less active, and in many species is even on the point of stopping, if the stock is completely cut back there is a risk of its dying. Indeed the sap, being then very slow in its circulation, no longer tends to rise, and there is nothing to draw it up when the top of the stock is cut off; it stops, or rather it obeys the universal law of gravity, and descends in consequence of its own weight. The remaining part of the stem is thus deprived of all nourishment, its bark shrivels, it dries up, and gradually dies down. Frosts ensuing increase the evil, and frequently complete the destruction of the tree; therefore, when grafting is performed in autumn some shoots should be left on the stock at top, to maintain the circulation of the sap, and consequently preserve life in the stock and enable it to transmit nourishment to the scion. The same drawbacks do not exist, or are much less serious, when grafting is performed at the surface of the ground; the results also are always better.

As it is the nature of man to wish to explain everything, and seek for a reason to justify his mode of action, one has been assigned in regard to the period of grafting, and it is said: To graft successfully the sap must be flowing in the stock, and the vegetation of the scion about to commence. Now, it is evident to us that this assertion is fallacious; that it appears to be scarcely applicable to cleft grafting in spring, and does not explain how the union takes place. When grafting is performed in summer, and even in autumn, can it be said that the sap is commencing to flow in the stock, and about to do so in the scion; since, on the contrary, it is in its full flow in the former case, and on the point of stopping in the latter? How then can we by this argument explain budding, which is performed when the sap both of the stock and that of the shoot from which the bud is taken is in such full flow that the bark can readily be detached from either? This, in our opinion, shows, in the clearest manner, the incorrectness of this mode of reasoning, and confirms our theory that to ensure the taking of the scions it is sufficient to prevent the evaporation of the sap which they contain until their union with the stocks is completed. A clear proof is afforded by budding; in fact when this operation is performed the sap is in a very fluid state in both stock and bud; the latter, the part detached, is very small, and furnished with only one leaf, of which the blade, the part by which evaporation chiefly takes place, is cut off; but as the bud is soon placed under the bark of the stock, and closely tied round, evaporation from it cannot take place, and as, on the other hand, the sap of the stock with which it is in contact is likewise in a very fluid state, the bud is placed in the best possible conditions for succeeding. Therefore a few days are sufficient for effecting the junction and rendering adhesion complete. *Guide Pratique du Jardinier Multiplicateur; par E. A. Carrière.*

VEGETABLE PATHOLOGY.—No. CLI.

624. PARASITÆ (*Mosses, Lichens, Algæ*). — The Cryptogams which have hitherto been considered as affecting vegetables are either true parasites or organisms living at the expense of vegetable tissues in a state of decay, which are often in connection with others possessed of much vitality, which it is their property gradually to impair. The greater number of the productions included under the divisions Mosses, Lichens, and Algæ have no pretension to be strictly parasites at all, as they simply use the plant on which they grow as they would any inorganic mass of the proper consistence, as a matrix on which when firmly attached they may be properly exposed to those climatic conditions on which their welfare depends. It is true that some Lichens are, like their allies amongst Fungi, developed beneath the true cuticle of the leaves on which they grow, while others are intimately combined with the living tissues of the bark, but these are few in number and seldom materially noxious to the mother plant. A far greater number are attached to bark already dead, and therefore cannot immediately affect the living tissues beneath, while some are attached to living bark, and in consequence are deservedly held in reprobation.

625. It is scarcely to be denied that the bark of young shoots exercises a material influence on the general health of trees. Even when they are covered with leaves light acts upon the young tissues, and when these have fallen, some influence is still excited by means of the bark so long as the external coat retains its vitality. When this is gone, it is of little consequence how the external surface is clothed, except so far as extraneous growths may afford a nidus for insects, or prevent the evaporation of superfluous moisture which may act injuriously upon healthy subjacent structures. Under such circumstances Cryptogams may in cold weather even afford beneficial protection. But where these plants are established in any numbers upon branches whose bark is still in full activity, the access of light will be prevented and injury ensue. It is, however, worthy of observation that where the soil and situation agree perfectly with the plant, such Cryptogams can never establish themselves. The young bark will spread so rapidly as to keep the young Moss or Lichen constantly on the stretch, so that it cannot thrive. Where, however, the parasite once gains the advantage it will be sure to keep it so long as circumstances remain the same, because their evil effects will be aggravated by its growth. The parasite will then spread from the branches to the fruiting spurs, and the produce will be small or worthless.

626. The great promoter of such parasites is bad draining, a condition which, so long as it exists, is most injurious to fruit trees. But this is not the only condition by which mossing is favoured. Deficiency of nutritious matter in the soil, or the penetration of the roots into ungenial strata, may be equally productive. It is of no use therefore to remove the parasites if the circumstances which favour their presence are not amended. Temporary relief may indeed be given, but unless constant attention be paid they will soon be established as vigorously as here.

627. True Mosses seldom grow on young and vigorous shoots. They require indeed a little soil for their first establishment, and this they can find only where the bark is cracked or its external layers are more or less decayed. Under such conditions they may sometimes extend over the spurs which come from larger shoots, but it is only in very damp countries that they can be at all injurious.

628. The case is otherwise with Lichens, which pass in ordinary language under the name of Mosses, though they have never anything like true leaves and very rarely assume, except when wet, tints verging upon green. These are completely creatures of air, and most frequently live entirely at the expense of any nutritious matter which may be conveyed by dew or rain. One only in this country is truly parasitic upon the leaves of Evergreens, and that in situations so damp and dark that nothing can reasonably be expected to flourish.

629. It is in such situations also that the only Alga which is really hurtful is commonly developed. On Evergreens or other shrubs under the drip of trees and on the north side of trunks the green mealy Alga, known under the name of *Chlorococcum vulgare*, Greville, is often extremely troublesome, indirectly from the untidy appearance which it produces, and directly by its effect upon the health where green leaves are the matrix upon which it grows. Nothing, however, will amend the evil except the destruction of the trees by which the affected plants are overshadowed. In the case of Lichens the branches must either be carefully scraped, or some of the mixtures applied which are recommended by writers on horticulture, taking care that the mixture is one which will not injure the tree. A solution of corrosive sublimate in lime-wash is perhaps the best in careful hands, but it is easy to injure the tree as well as its parasites. An excellent plan is given in this Journal for April 5, 1856. The trees are first to be scraped with a trowel, and a wash is then to be applied consisting of a peck of fresh cowdung, half a peck of lime, some wood-ashes, and a quarter of a pound of lampblack. The ingredients are to be mixed with as much urine and soapsuds in a boiling state as will form them into a thick paint, which may be laid on with a brush. *M. J. B.*

NEW ROSES.—PAUL *v.* RIVERS.

IN an article on New Roses in last week's *Chronicle*, extracted from the "Florist," Mr. Rivers expresses a hope that some of the correspondents will "quietly give their opinions on the subject." In a previous article in the "Florist" by Mr. R. he says, "The new Roses sent out in 1855 have not cut a brilliant figure." In an article published in the succeeding numbers, and penned before I saw this statement, I gave it as my deliberate opinion that "the present year had been more fruitful than many in the introduction of really valuable novelties." These antagonistic views may, I think, be fairly taken as the points at issue. Subsequently however Mr. R. qualifies his remarks by the words, "I ought to have added few of, which gives the exact state of the case," naming five varieties of 1855, and two of 1856. It unfortunately happens that few can pass an accurate judgment on these differences of opinion; the many may however shortly be in a position to do so if they will only watch and wait, and in the meantime it may prove interesting to hear the question quietly discussed. I shall commence my remarks from the first article in the "Florist" (see p. 326, &c.). The statistics there given merely show what was known to every cultivator of Roses, that numbers of worthless new kinds are annually sent out at high prices, and it is only just to say that Mr. Rivers is neither the first nor the only one who has used his influence to check this dishonest practice. I cannot however agree with Mr. Rivers "to excuse our floral friends over the water" for sending out new Roses under false descriptions that cannot be honestly recommended; it is only due to them, however, as a body to say, that there are those among them who have as high a sense of honour as any English cultivator.

Whatever the new Roses of 1855 may have done at Sawbridgeworth, I adhere to my opinion formed from the blooming at the Cheshunt Nurseries, that the present season has been more prolific than many in the introduction of valuable novelties. I cannot agree with Mr. R. in the high value he sets on the "Perpetual Moss Roses." Certainly they are new, and there is something in the name, but I regard our present varieties merely as the germ of a group which will require years of close and successful cultivation before its presence becomes indispensable in the Rose garden. At the close of this article Mr. R. remarks—"One, after 30 years of admiration, is apt to become fastidious, and to require great perfection in shape, in colour, and in habit." This is no doubt true, and perhaps may be taken to account for the severe treatment the new Roses of the last year have met with at his hands. Although, in the "Florist" of October 1855, Mr. Rivers writes "one almost fears the point of perfection has been attained, and that no better Roses than those we now possess can or will be originated," it would perhaps be hardly fair to infer that Mr. R. doubts the progression of races. This indeed cannot be, for while depreciating new Roses he recommends a list of no less than 28 new varieties of Pears (see *Gardeners' Chronicle* of the 27th of December last). It seems rather that he has forgotten the old proverb—"Nature does not advance by leaps," and expects too much from his "old friend of thirty years standing the Rose." This proverb applies with peculiar force to the various families of flowers. Every raiser of seedlings knows that Nature does not advance by leaps. To look on new Roses as they appear from year to year improvement is perhaps not great. If we are seeking for striking results we must look backward into the storehouse of Time. I remember many years ago the late Sir Abraham Hume, who was a great patron of gardening, presenting my late father with half a dozen roots of single Dahlias. How were they prized; every seed was saved and sown, and when the single row of flat petals surrounding a yellow disc was converted into a double flower, how great was the acquisition considered! Those were halcyon days for lovers of Dahlias. The ground was new and uncultivated, and numbers of valuable kinds, real acquisitions, were readily obtained. As the improvement went on, "Excelsior," the improver's motto, his standard ever receding as he advanced, the ascent became more difficult and gradual. But it still went on. If we compare the best modern Dahlias with the original single ones or even with the early double ones, we cannot fail to be impressed with the results. I remember also my young eyes being delighted with the beautiful portraits of Pelargoniums in Sweet's work, but what are they in point of beauty compared with the Pelargoniums of this day? Here again Nature did not advance by leaps, the improvement was gradual, and if we had neglected those very gradual advances we must have foregone the present grand results. But let me come to my Roses, and I will in this instance look back eight years only, in order to show more vividly the effects of gradual improvement.

In 1848 the "Rose Garden" was published, wherein all Roses then under cultivation, good and bad, new and old, are described. In 1853 (a period of five years) the varieties since introduced were described in a supplement, and among them I find—Moss: Duchesse d'Abrantes, Gloire des Mousseuses, Madame Alboni, Princess Alice (Paul's), not one of the "others" mentioned by Mr. Rivers as purchased in France, the purchaser retaining the right of naming them, but raised by my own hands from seeds gathered and sown in the Cheshunt Nurseries. Hybrid French: Comtesse de Ségur. Hybrid Chinese, &c.: General Lamoricière, Paul Ricaut, Vivid (also raised in the Cheshunt Nurseries). Hybrid Perpetual: Alexandrine Bachmeteff, Angelina Granger, Auguste Mie, Baronne Hallez, Baronne de Heckeren, Caroline de Sansal, Comte de Nanteuil, Duchesse d'Orleans, Enfant du Mont Carmel, General Bedeau, General Brea, General Castellane, Graziella, Joan of Arc, Lady Stuart, Laura Ramand, Lion des Combats, Louise Peyronny, Madame Duchere, Madame Phelip, Madame Rivers, Noemi, Paul Dupuy, Prince Léon, Rosine Margottin, Souvenir de Leveson Gower, Standard of Marengo, Triomphe de Paris, William Griffiths, Louise Odier. Tea-scented: Canary, Madame Villermoz, Narcisse. Bourbon: Dr. Lepestre, Prince Albert (Paul's), Reveil, Sir J. Paxton, Souvenir d'un Frère, Varace.

Here are 48 really valuable varieties introduced in five years, and I would ask what would our Rose gardens of the present day be without them? So good are they that they have become "familiar in our mouths as household words." And I believe there are as good new Roses being gradually introduced now as then, although accompanied as then with shoals of rubbish. It is very pretty to talk of fine crimson Tea Roses, yellow Hybrid Perpetuals, and yellow Moss, but how are we to obtain them? It sounds like the echo of some

nursery rhyme. Nature does not advance by leaps. I do not however say they will never be obtained, but they have been a desideratum long thought of and asked for, and their long absence proves satisfactorily to my mind that the most skilled in these mysteries yet lack the knowledge or means of obtaining them. Is it then wise to reject the good things provided because we cannot at once realise some visionary scheme? *

The question of large and small collections I will, if you think it desirable, discuss next week. *William Paul, Nurseries, Cheshunt, Herts.*

Home Correspondence.

Hazard's System of Heating.—Your correspondent, "A Looker On," seeks some practical information on heating, and invites me to give it. Much has been said of the Polmaise system, and I am always prepared to admit that it has its merits and demerits; indeed, my own system is an improvement on the Polmaise. I saw its defects and endeavoured to find a remedy—my friends tell me with some success. The details "A Looker On" asks for would be of no use to him whatever; I leave theories to amateur lecturers and such people, and will content myself with giving your correspondent a little of my own practical experience. In the practice of heating I do not find the inquiry to be what amount of heat can be given per minute, but what amount can be given from a certain quantity of fuel? "A Looker On" will be able to judge for himself from the following: the Fig house at Welford Park, Berks, is 46 feet by 14 feet, and contains an area of about 5796 cubic feet. It was formerly heated by a Polmaise stove or hot plate 3 or 4 feet square, consuming a barrow of coke in 24 hours. The apparatus I erected in its stead presents a radiating surface of 80 superficial feet and the consumption of coke is just one fourth that required for the Polmaise stove. The Vinery is one of two houses; each compartment 34 feet by 16 feet, one boiler supplying the heat to the pipes in both houses. One of my patent heat extractors of 90 feet radiating surface warmed one of the houses without the aid of the hot water, simply from the waste heat from the boiler flues. This is practical information for your correspondent to judge upon. If he will favour me with his address, I shall be happy to send him my pamphlet on the matter. As to the pipes becoming loose, I can only say that Mr. Cramb's experiences are delusory, inasmuch as it must be evident that that gentleman abused my apparatus as much in its use as he has now in giving the public his "candid" experiences. However, as Mr. Cramb had publicly stated that my apparatus failed in two years' use, I immediately wrote to Messrs Reynolds, of Bristol, who have been using one for 10 years, and the following is the reply:—"Bristol, Jan. 21, 1857. We have much pleasure in stating that the heating apparatus you erected in our warehouse in 1847 remains in a good state of preservation. We have it in constant use every day at this season, and entirely approve of it. It has cost us next to nothing for repairs since it was put up. Thomas & George Reynolds." This scarcely bears out Mr. Cramb's assertions. Permit me to give one more from the many replies I have received from gentlemen who have used my apparatus for a long period. "Mr. Lane, of Somerset House, Clifton, has had one of Mr. Hazard's original patent apparatus in his hothouse and greenhouse in constant use since the year 1846. The firebox and pipes are still in good condition. It has not cost 3*l.* for repairs since it was erected. Heavy crops of Cucumbers have been produced under its influence in the hothouse. The apparatus is a large size and serves both houses, together 50 feet long." As you published Mr. Cramb's experience, I claim from you the kindness of publishing these experiences of my own as well as others. I will only observe in conclusion that "A Looker On" is quite right when he says that had Mr. Cramb not over-heated my apparatus the pipes would have stood; in very truth there is no difficulty about the matter whatever. *Robert Hazard.*

Thawing of Snow round Trees and Shrubs.—I have noticed within the last day or two that the snow has thawed in a circle round the stems of my shrubs and trees, evergreen and deciduous, arising apparently from heat given out from the tree. I do not think it is owing to the wind agitating the stems of the plants, as we have had so little, and the stubs of cut down shrubs not liable to the action of wind have also cleared a space for themselves. The thaw is more remarkable perhaps in a bed of Spruce Fir seedlings; these little plants seem tired of their confinement, and almost every individual has his breathing hole, and rejoices in freedom. Do plants give out heat constantly? *Boule de Neige.* [Yes, when the soil wherein the roots lie is warmer than the air.]

Turpentine.—I observe that one of your correspondents is making inquiry as to the effect of this upon trees. I found it to answer the following purpose when everything else had failed. To get rid of scale on Orange trees I took a small quantity of turpentine in an earthen pan, and as I did not use it at once it was absorbed by the pan. I then added about three times the quantity of warm water, which was strongly impregnated with turps. To this I added a small piece of soda, and the same of soap. This was applied by the hand in the manner of washing, and it answered, as I have stated, satisfactorily. *J. Divers, Maidstone.*

* Let me, say I, rigidly reject new names where there is neither distinctness nor improvement, but accept with gratitude any new feature or advance, however small.

Forced Asparagus.—I quite agree with Mr. Watt (see p. 70), respecting the superiority of green over blanched Asparagus, but he evidently has failed to express intelligibly how he prepares his plants. "I sow (he says), my seed thinly on a fine day early in March on a well prepared piece of light sandy soil, in beds 2 feet apart, three rows in each, 1 foot from plant to plant, just covering the crowns with finely sifted soil." Surely he must mean that he plants in the manner described, or how could he "cut a few strong heads only the succeeding summer?" *John Gadd, The Gardens, Bignor Park, Petworth.*

Rose Gloire de Dijon.—This Rose has been grown here at Falkirk, 50 miles north-west of the Tweed, for the last three years, and no Rose ever bloomed more beautifully than it has done. Although it is a Tea, it is more hardy and can stand 20 degrees of frost better than almost any Bourbon will do, except Souvenir de la Malmaison and one or two others, at least that is my experience of it. The severe frost which visited this part of Scotland on the 3d December last has killed many Roses. All my plants of that fine China, Mrs. Bosanquet, have been killed, including one which I have grown for 10 years, and Gloire de Dijon seems quite unhurt; consequently this will be a good variety to seed from, provided the strength of the constitution can be preserved, and the depth and intensity of the yellow colour increased. *James Neilson, Rose Hall, Falkirk.*

Double Convolvulus.—I observe that one of your correspondents asks if there is a double Convolvulus, and he evidently means the annual, a variety sent out by the German seedsmen. I have myself tried it, and I find it not sufficiently true to offer it among other annuals, as only one among many plants raised ever came double and often all return to the old single variety. *A. H.*

Weather at Weybridge in Surrey.—Permit me to send you the result of my observations on the weather at this place during the last year, being the first year I have resided and kept a record here. If others in different parts of the country would make their meteorological observations public through the medium of your journal, I think the interests of an important branch of science would be materially served. The thermometers used are three by Negretti and Zambra, suspended between 2 and 3 feet from the ground in a situation on the highest part of Weybridge Heath—freely exposed and properly screened from direct sunshine and radiation—except, of course, the sun thermometer.

1856.	Inches.
Mean height of Barometer	29.826
Range of ditto	1.900
Mean height of Thermometer:—	
Highest { In the sun	64°.795
Highest { In the shade	51°.849
Lowest	41°.055
Range of Thermometer	84°.500
Mean temperature	49°.952
	Inches.
Jan. 13. Barometer, highest	30.570
Sept. 28. Ditto lowest	28.670
Aug. 2. Thermometer, highest—	
In the sun	108°.000
" " In the shade	99°.000
Dec. 1. Thermometer lowest in the night of ...	14°.500
Rain-fall in inches 21.559	
Number of Wet Days: (*i. e.* days during the greater part of the interval between sunrise and sunset of which rain or frozen water fell)	87
Number of days on some part of which rain or frozen water fell	175
Driest month ... ... March	
Wettest ditto ... ... May	
Prevailing wind ... ... SW	
Jan. 24, Feb. 6, April 14, 15, & 16 } Highest winds { May 7, July 9, Dec. 6, 7, 8, 9, & 12	
On 25 days a N wind prevailed.	
On 55 days a NE "	
On 8 days an E "	
On 7 days a SE "	
On 32 days a S "	
On 93 days a SW "	
On 19 days a W "	
On 26 days a NW "	

W. F. Harrison, Bartropps, Weybridge Heath.

State in which new Roses are "sent out."—None of your correspondents on the Rose controversy have alluded to one of the causes of amateurs being shy of new Roses (I mean the first year they are advertised), which is, the wretched weakly grown plants that we so often receive from the nurserymen, pushed buds of the same year's insertion for standards, and for dwarfs little bits of cuttings just struck in pots under glass, which never arrive at such strong plants as those struck in the open air. I speak of great men, and not only from my own experience; I hear my friends complain bitterly, and see their plants. It is a pity a Rose should be introduced before there is a good strong stock of it. I will not now enter into the Old *versus* New Rose question, as there are first-class flowers among both, but I do agree with "H. P." that General Jacqueminot is not sufficiently double; I counted the petals of several flowers growing on strong plants in first-rate Rose soil, and 35 was the maximum. I tried a flower of Baronne Hallez close by, and behold 107. One very good new Bourbon I see passed over by "G. H.," viz., Sir J. Paxton, bright rose shaded with crimson, and a first-rate pillar Rose. Brennus and Chénédolé have been most ungratefully passed over by the admirers of the *ancien régime.* Although I see another in the field, I retain my former signature, viz. *Paul Ricaut.*

Large Oak Trees.—The following is extracted from the "Wonders of Nature and Art":—"The large Oak which was felled in the year 1810 for the use of his Majesty's Navy, grew about four miles from the town of Newport, Monmouthshire; the main trunk, at 10 ft. long, produced 450 cubic ft., one limb 355, one do. 472, one do. 235, one do. 106, one do. 113, and six other limbs of inferior size averaged 93 ft. each, making the whole number 2.426 cubic ft. of sound convertible timber. The bark was estimated at six tons, but as some of the heavy body bark was stolen out of the barge at Newport, the exact weight is not known. Five men were 20 days stripping and cutting down this tree, and a pair of sawyers were five months converting it without losing a day (Sundays excepted). The money paid for converting only, independent of the expense of carriage, was 82*l.*; and the whole produce of the tree when brought to market was within a trifle of 600*l.* It was bought standing for 405*l.*; the main trunk was 9 feet in diameter, and in sawing it through a stone was discovered, 6 feet from the ground, above a yard in the body of the tree, through which the saw cut. The stone was about 6 inches diameter, and completely shut in, but round which there was not the least symptom of decay. The rings in its butt were carefully reckoned, and amounted to above 400 in number—a convincing proof that this tree was in an improving state for upwards of 400 years; and as the ends of some of its branches were decayed, and had dropped off, it is presumed it had stood a great number of years after it had attained maturity."—"Time's Telescope," vol. iii. Being engaged the other day near Southampton professionally I heard by accident of a very large Oak that was felled near that town a short time before, I believe on the Bevois Mount estate, late the residence of Pope; perhaps one of your correspondents in that town would oblige by giving the measurement, either rough or hewn, and the kind, &c. *W. H. R., Tunbridge Wells.*

Hot water and Hazard's "Heat Extractor."—My chief reason for offering the following remarks is to keep the subject of heating before the public eye, especially that of the horticultural world, until we have arrived at the only satisfactory conclusion, either that there is or there is not some better way of warming our hothouses than any that are at present resorted to. We have heard much in favour of the Polmaise system, and in this I include Hazard's, for in both the principle is the same, and few good gardeners will deny that this system has its peculiar advantages. A continual supply of pure warm air must be beneficial to the plants. This is Nature's system, and the more we can assimilate our artificial mode of treating plants to hers, the greater will be our success. The difficulty hitherto has been to obtain this effect without incurring risks for which no benefits could compensate. There have been cracks in the iron and leaks in the joints through which gases have escaped enough to prevent any judicious gardener from indulging in the luxury of a warm breeze? Can this be prevented? Mr. Hazard assures us that it can. I can only conceive it possible when Mr. Hazard has trained a corps of stokers to manage his apparatus. It is in vain to expect that under-gardeners will so nicely calculate the amount of fuel as not occasionally to overheat and endanger the whole of the plants; therefore good practical gardeners will at all times prefer security to a luxury that must be purchased at so much risk. But, let me ask, is there no possible combination of the two systems, represented by warm air and warm water, which will at once furnish regularity of temperature and the introduction of genial air moderately warmed. Mr. Hazard says (see *Gardeners' Chronicle*, Jan. 10, 1857), "Give me only the waste heat from the smoke from one of the best warming apparatus, and I will produce you a greater quantity of pure warm air than you can obtain from the apparatus itself." The best working boiler combined with the patent heat extractor would, by the economy of fuel, soon repay any extra cost in the first outlay; and practical gardeners as well as proprietors would rejoice in the effects of such a combination. Is this impossible? I leave it for others to say, and throw out the hint for the purpose of eliciting the opinions of practical men on a subject so important to the horticultural world. *J. H. H. H.*

Rose Catalogues.—A correspondent of yours, "A. R.," doubts the hardiness of the Gloire de Dijon. I cannot answer for it "north of the Tweed," but at Hildenley, near Malton, in Yorkshire, I have had two or three standards of it in the open garden for two or three years, and it seems to be at least as hardy as the Souvenir de Malmaison. If it be so, no Rose at present known surpasses it, or perhaps equals it, being as it is a most vigorous healthy grower, with fine foliage, a most abundant flowerer from July to December, a very fine flower and exceedingly sweet. Unless a Rose has all these qualities, and is perfectly hardy besides, I cannot think that it has any claim to be called first-rate, and so far I must agree with "A. R." and with Mr. Rivers in thinking that a great many nurserymen's catalogues are not what they ought to be, when they state only the prominent merits of a new Rose, and do not give its character in other respects. Every real lover of good flowers and fine fruit must feel that he is very greatly indebted to Mr. Rivers for his attempts to remedy this evil, and to point out what is really the best and most worth cultivating, but in truth it is a task far beyond the powers of one man to do this completely. It can only be done successfully by the combined experience of several good judges in different parts of England; and with respect to fruit, which is a more important part of the question than flowers, I hope to live to see a pomological committee of the Horticultural Society take up the subject as the Society ought to do, so as to let the cultivators of fruit trees know all the peculiar characters of all the better kinds of fruits, and of the trees which produce them,

under the different circumstances of soil and climate under which they are required to be produced. In the mean time the experience of each individual who has taken an interest in the growth of any of them is a step, though perhaps a very small one, towards this object. I venture therefore to give my opinion of a few of the Roses which I have tried at Hildenley, where the soil is naturally a stiff clay, and the garden soil therefore of a strong tenacious character. Prince Leon, which is no doubt a fine Rose, seems to me to have not quite a vigorous enough habit of growth to be called a first-rate Perpetual, somewhat like some of the Bourbon Roses, but it may be accidental, as I have only two or three plants of it. The Gloire de France, which has a fine flower, has such a bad habit of growth as to be quite worthless. Paul's Victoria, however beautiful to look at, has no scent, and is quite inadmissable as a first-rate Rose. There seems to be much variety of opinion about William Jesse and General Jacqueminot. My chief objections to the former are its too slender habit of growth, and its not being a true Perpetual, merely flowering in the summer and again late in the autumn. The latter no doubt is not quite double; but it seems to be a very vigorous, handsome growing hardy variety, with a most brilliant colour and very sweet; from the texture and size of the petals the flower is very beautiful, more so than many which are much more perfectly double. Being double is no merit except so far as it makes a flower more beautiful. To consider it a merit in itself is to judge falsely and empirically, and so far to set up a false standard of taste, and no one who has seen it doubts the extreme beauty of the flower of General Jacqueminot. With me Madame Laffay is certainly not first-rate in size or shape. Amongst the old Roses the Duchess of Sutherland more nearly approaches perfection in all respects than any that I am acquainted with, but the flowers would be more beautiful if they were a little more cupped; in this respect Naomi surpasses it, but then it is a slender bad grower. I have not yet sufficiently tried the new Roses, but Jules Margottin and Madame Masson seem so far to promise well of those which I have tried. An old Hybrid China Rose, called Crowder's Stadtholder, approaches more nearly to perfection in all respects than any other that I know; and Paul Ricaut is good. This latter, by the bye, sometimes flowers in the autumn. *C. W. Strickland.*

Polmaise Heating.—I cannot understand the difficulty which one of your correspondents experiences in "the hot air refusing to come into the house and wasting itself through the cold air drain." I never met with anything of the kind, nor do I see how it is possible, provided the cold air drain has a very quick fall from, and the hot air drain a very quick rise into, the building to be heated. It seems to me that some of your correspondents, not excepting Whitehead himself, confuse two distinct methods of heating—the old Cockle and Polmaise. The principle of Polmaise, as I understand it, and which I never heard of till I found it in your pages many years ago, is the warming the same air again and again, and the keeping it in constant motion. The admission of fresh air is a separate affair altogether, and must be provided for by independent means. Only let us stick to the simple principle of Polmaise, and the wind may blow as it likes and where it likes, without interfering with our calculations; but if we combine the old Cockle with Polmaise and admit the external air into the hot air chamber very possibly we may come to grief. I believe this to be sound doctrine. *W.*

Barked Tree Stems.—Perhaps it may be interesting to your readers to mention an instance similar to that of the barked Rhododendron figured in your last Number. A young Spanish Chesnut in the park at Nostell Priory was some years ago barked by the deer, to about 3 feet from the ground, with the exception of a small strip of bark on one side. The new wood which formed, instead of as is usually the case growing round the dead part of the stem, forced it aside until it broke in two parts, and stood out from the new stem like two dead branches, one close to the ground, the other 3 feet above it. As the tree has grown these have rotted off, and I believe no trace of the wound now remains. *C. W. S.*

Pruning Oak Trees.—Your remarks on this subject have induced me to send you some observations which I sent to the late Mr. Loudon, and which he inserted in his Magazine in 1834, as applicable to the Oak in a much earlier point of its growth:—"In reply to Mr. Bree's inquiry as to the policy of planting Oaks, where they are the principal objects, two or three years before the plantation is filled up with the nurses, I have no doubt that this would answer extremely well; but it would be inconvenient, as it would interfere more or less with the cropping of the land in the interval; and without more care than usually characterises those to whom the tillage of land is intrusted, the Oaks would in all probability be injured. From Mr. Bree's observations I am inclined to doubt whether he adopts the plan of cutting off the young Oaks close to the ground two or more years after planting. If the Oak is strong and well rooted when planted, and the nurses are planted small, that is to say, two years after their removal from the seed bed, and the Oak planted at the same time is cut off two years afterwards, provided the soil be well adapted to Oak, he will find the principal shoot from the stool (the others being pruned away) will very speedily equal the nurses in growth. It is quite surprising how much faster and straighter the Oak grows under this treatment. In 1829, a coachman having put his horses to a carriage in my yard, left them, and they started off; the turn in the road being very short, they got among the opposite shrubs, and, to my annoyance, they broke off a Lucombe Oak close to the ground; it was a handsome shrub, but had made very little growth upwards. The next spring I was surprised to see a fine vigorous shoot from the broken stool. I immediately pared away the broken parts, and applied a composition to protect it from the wet. I have just now measured the tree to the top of last year's shoot, being four years' growth; the height is exactly 12 feet 3 inches, and the girth, at 1 foot from the ground, is just 12¼ inches. The stem is as straight as a ramrod, with ample branches spreading from the base, after the manner of a fine Spruce Fir, and by the end of this season the stool will be so completely grown over that it would hardly be discovered that the stem was not of one growth from the beginning. I mention this as an accidental illustration of the advantage of the process recommended in this and in my former letter. *Charles Lawrence, Cirencester, July* 11, 1834." As soil and circumstances vary, it is unsafe to prescribe any mode of treatment as universally applicable. At this time I had a plantation of some 10 years' growth, of Larch and Ash, interspersed with Oak. Though the soil was heavy, with clay underneath and apparently more suitable for the Oak, this had made very little progress, comparatively. The bark looked unkind; and instead of having any leader, the heads formed a set of small straggling branches. The result of the accident I have recorded induced me to cut off all the Oak in the plantation to about 3 or 4 inches from the ground, and in the following winter I selected the best shoot and cut away the others. The result has more than answered my expectations, for the young shoots grew away like a Larch, and the young trees are now infinitely superior to any Oaks in this district, though of much larger growth. No one could discover but that they had grown direct from the acorn. The Lucombe Oak referred to in the foregoing observations now measures 5 feet 6 inches in circumference, at 1 foot from the ground. *C. L.*

Rain, &c., Itchen Abbas, 1856:—

	Rain.	Wet Days.	Thunder and Lightning.
January...	3.60	22	...
February	1.77	13	...
March	1.05	7	...
April	4.64	19	2
May	4.40	19	...
June	1.61	10	8
July	0.94	14	1
August	3.22	19	3
September	3.04	18	1
October	3.08	12	...
November	0.99	8	...
December	3.62	15	2
Total	31.96	176	12
Monthly average	2.66	15	1
Average of six previous years	2.36	14	1

—*W. W. Spicer.*

A Simple Contrivance for Transplanting Trees from place to place with facility, without injury to the ball of earth, and that which is of the greatest importance, without lifting the tree from the ground to the carriage—thereby admitting of a much larger ball than usual being attached to it—has long been a desideratum. I will endeavour to describe a plan invented by a Mr. Thomas, a very intelligent landscape gardener, which combines all the requisites, and has been used in this neighbourhood with great success and satisfaction to all parties. Take a sheet of iron 4 feet square and one-eighth of an inch thick. We must suppose one side to be the front; on the front therefore rivet two strong iron staples, one near, but not close to, each corner; these staples must be cleft to admit and embrace the iron sheet; rivet also two staples behind, so that a horse, or two or three men, may by means of ropes drag the contrivance on either side. The tree is to be placed upright on this iron sheet, and fastened to it by cords passed through the four staples; it can now be dragged over the ground without any shaking, and as it slips over the surface without much labour, and as no lifting has been required to place the tree on the carriage, very large balls can be conveyed with the tree, thus lessening the risk of moving. Should any one require a sheet of iron fitted up in this manner, the same can be obtained for a small sum from a person of the name of Noakes, ironmonger, Lamberhurst, Kent. *Sigma.*

Societies.

HORTICULTURAL, *Feb.* 3.—Rev. L. Vernon-Harcourt in the chair. The following were elected Fellows:—

Mrs. Brooks, Woodcote Park, Epsom
Mrs. Dorin, The Mount, Chepstow, Monmouthshire
Whitehall Dod, Esq., Bryndinerth, Conway
Edwin Chadwick, Esq., C.B., Montague Villas, Richmond
Hugh Falconer, M.D., F.R.S., 31, Sackville Street
Frank D. Lambert, Esq., West Croydon
J. C. Walton, Esq., Broxbourne, Herts.
J. Ruck, Esq., Jun., Sutton Court, Surrey
J. R. Webb, Esq., Calcot, Berks.
W. Phillips, Esq., Reigate Lodge, Reigate
J. Sutherland Law, Esq., 27, Holles Street, Cavendish Square
Thomas How, Esq., Gordon House, Turnham Green
John Harpur, Esq., Wellingborough
T. Thomson, M.D., F.R.S., Superintendent of the Hon. East India Company's Gardens, Calcutta
H. Ramsay Baines, Esq., Esher Lodge, Esher
Robert Mangles, Esq., Sunning Hill, Berks
Francis Cook, Esq., Richmond
Thos. Best, Esq., Red Rice, Andover
James Holmes, Esq., 4, New Ormond Street
Mr. A. G. Sutton, 1, Bridlesmith Gate, Nottingham
Mr. Wm. Cutbush, Nurseryman, Barnet
Mr. Charles Lee, Nurseryman, Hammersmith
Mr. G. S. Rogers, Nurseryman, Southampton
Mr. Wm. Hurst, Seedsman, Leadenhall Street
Mr. McPherson, Gardener, Radbourne Hall, Derby.

Among subjects of exhibition were some of unusual interest, and considering the coldness of the weather they were more numerous than could have been expected. Mr. Standish of Bagshot sent an example of the double-flowered Camellia reticulata—a variety which the Chinese were known to possess, but which has never before been introduced to this country. This new variety was sent to Bagshot some years since by Mr. Fortune from the north of China. He bought it from a Chinaman under the representation that it was a double reticulata, which has proved to be the fact. It entirely resembles reticulata in leaf, the flower is a vivid crimson and quite double, and the plant is said to be a much better grower than even that gigantic kind; a bloom on a strong plant about three weeks since was reported to measure 5¾ inches across, and to be perfectly double; but the one on the specimen shown was not so large, as it was on a small side branch. When planted out however, and a strong plant, Mr. Standish had no doubt that it will grow and produce blooms of enormous size. It must therefore be regarded as a great acquisition. Mr. Roser, gr. to J. Bradbury, Esq., sent a very fine specimen of Erica mutabilis. A seedling Heliotrope was contributed by Mr. Dunsford, of Chingford, and a variegated Verbena came from Mr. Turner, of East Barnet. Mr. Cutbush, of Highgate, sent a dozen fine forced Hyacinths.

Of Fruit there were some admirable exhibitions. Mr. Jones, of Dowlais, sent a noble Black Prince Pine Apple, weighing 6 lbs. 10 oz.; Mr. South, gr. to A. H. Davenport, Esq., had another fruit of the same kind weighing 4 lbs. 13 oz.; and Mr. Ingram, of the Royal Gardens, Frogmore, sent an exceedingly handsome smooth leaved Cayenne Pine weighing 6 lbs. 12 oz. The last-named exhibitor also furnished a dish of new West's St. Peter's Grapes, black as Sloes, and though small, beautiful specimens for this early season of the year. The great exhibition of Grapes was, however, contributed by Mr. Fleming, gr. to the Duke of Sutherland at Trentham. It consisted of White Tokay, plump and beautiful; Muscat of Alexandria, fine bunches just beginning to shrivel and having that rich golden yellow colour which it is so desirable to find in this variety; and Black Barbarossa, very fine, though not so large they say as it has sometimes been grown. Such a varied and fine collection of Grapes, it was remarked, could only be produced at this time of year from such princely gardens as those from which they were furnished. Mr. Hill, gr. to R. Sneyd, Esq., exhibited a boxful of very excellent Muscat Grapes. Mr. Tillyard, gr. to the Rt. Honourable the Speaker at Heckfield, sent a collection of fruit, consisting of a nicely ripened Queen Pine Apple, Black Hamburgh Grapes excellent for fruit of that kind at this time of year; and Winter Nelis, Ne Plus Meuris, Easter Beurré, Glou Morceau, and Knight's Monarch Pears, all specimens of which any gardener might well be proud. Fine as these were, however, they bore no comparison with some fruit of foreign growth shown by Mr. L. Solomon, of Covent Garden. The latter consisted of enormous specimens of Easter Beurré, apparently quite ripe; Beurré Rance, Belle Auvergne, St. Germain, Catillac, and Bon Chrétien Pears; and the White Calville and Reinette du Canada Apples. These, one and all of them, were specimens which, for size and beauty, it is hopeless for English cultivators to endeavour to compete. We hear they were worth 30*s.* a dozen in the market. Mr. Solomon also sent a collection of foreign vegetables, consisting of large white Asparagus and what is termed Sprue, Artichokes, and French Beans, together with an excellent salad, in which were Lettuces, Endive, and Barbe du Capucin, all of which are now being largely imported to Covent Garden Market. From Mr. Tegg, gr. to Arthur Pryor, Esq., came very good Ash-leaved Kidney Potatoes and Asparagus; and Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading, sent some very nice forced Rhubarb, Seakale, and Mushrooms. Mr. Judd, gr. to Earl Spencer, produced examples of Brussels Sprouts, to prove what he has often asserted, that this vegetable could be had as fine from home grown seed as from that imported from Belgium. The specimens shown, which were in every way excellent, were stated to have been raised from seed, which (or rather the stock of it) had been in Mr. Judd's possession for 16 years. He had had it, he said, from his father, who had grown the same sample for more years than he had done, a fact which he considered calculated to set the matter so long disputed at rest, that no good Brussels Sprouts could be grown except from Belgian seed. That from which the specimens shown were raised, he added, was saved in 1849; it was therefore seven years old, a proof that good seeds do not lose their vitality so soon as many believe them to do.

A most beautiful bunch of the Cavendish Banana was exhibited by Mr. Young, gr. to W. Stone, Esq., of Dulwich. It weighed 16 lbs., and, what is somewhat unusual with bunches of this fruit, the whole of the pods of which it was composed were quite ripe; although heavier bunches have been exhibited, it was mentioned

that none in every way so perfect as this had ever been brought under the notice of the Society.

Mr. Williams, gr. to Mr. Fairie, of Liverpool, furnished a collection of cut flowers, in which were Lælia superbiens, cut from the noble plant purchased by that gentleman at the Horticultural Society's sale of Orchids; the red-eyed Calanthe vestita, Cœlogyne cristata, Camellias, Early Tulips, and the old-fashioned Diosma ovata, a Cape plant from which the Hottentots derive a perfume which is held in great esteem by them; but which to Europeans would be considered anything but agreeable. A young stem of the Rice paper plant (Aralia papyrifera) cut in the Island of Formosa by Mr. Fortune (whom we observed in the room) was exhibited by that gentleman. It was stated that there is now no doubt that Formosa yields the greater part of the Rice paper of commerce. This beautiful substance, he added, is largely consumed in the Canton and Fokien provinces. In the city of Foo-Chou-foo, every lady wears artificial flowers made from it. It is estimated that this place alone consumes about 30,000 dollars worth of it annually! The cheapness of this article in the market shows that it must be very abundant in its place of growth. One hundred sheets, each about three inches square, can be bought for the small sum of three halfpence. One almost wonders, as Mr. F. remarked, that it is not more sought after by workers in artificial flowers in Europe. Rice paper itself is the pith of the plant (which is produced in great abundance in proportion to the wood) cut into thin plates by the Chinese.

From the garden of the Society came Eugenia Ugni, various Epacrises and Conifers, among which was the true Californian Cupressus M'Nabiana, a hardy kind introduced by Jeffrey. It was stated to be identical with C. glandulosa, so named on account of its having a prominent gland on the back of the leaves; it may also be of importance to know that C. Goveniana is occasionally sold for this plant, which is much more valuable than that now common kind of Cypress.

Attention was directed by the Vice-Secretary to drawings of Maxillaria venusta, Selenipedium Schlimi, a Lady's Slipper-like plant, and Odontoglossum phalænopsis, three new Orchids which have lately been brought into notice in Belgium, and which for singularity of form and brilliancy and beauty of colours may well vie with any of that favourite class now in cultivation.

Dr. Lindley also briefly described Boucherie's process of charging timber of inferior quality with substances which rendered it equal to Oak, a full account of which appeared at p. 756 of our last year's volume.

A list of prizes awarded on the occasion will be found in our advertising columns in another page of to-day's paper.

Notices of Books.

Liddell's History of Rome (7*s.* 6*d.* 12mo., Murray, pp. 768) is intended to be a companion to the Student's Gibbon lately noticed (p. 40). Like that work it forms a well printed solid volume abundantly illustrated with woodcuts of coins, maps, plans, and some charming bits of scenery. Dean Liddell states that it is "slightly abridged from the larger work in 2 vols, 8vo, published last year, in order to make it range with Smith's History of Greece." The volume has a good index, and will doubtless form a very acceptable school book.

England's Greatness; its Rise and Progress in Government, Laws, Religion, and Social Life; Agriculture, Commerce, and Manufactures; Science, Literature, and the Arts. By John Wade. 12mo., Longmans, pp. 815.

This long title is the prefix of a stout volume, and fully explains what the author conceives it to contain. Let us hope that his readers will not be disappointed. For ourselves, we must confess our inability to discover anything about the rise and progress of science, or much about that of agriculture; or anything peculiarly novel in treatment, judicious in criticism, or satisfactory in arrangement in other subjects. The volume should have borne a less vainglorious title.

Messrs. Lawson's Gardeners' Calendar for 1857 has reached us. We can only say, as we said formerly, that it is worthy to be supended in every seedroom and gardener's office in the Kingdom. It is impossible for a sheet of its size to contain more practically useful matter

The Ladder of Life, and the *Haunted House* (Routledge). are two pleasant stories, agreeably told, and the latter well translated from the German of Gerstaecker. They may be recommended as being among the best of the cheap Railway publications.

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Pursue steadily the directions as regards temperature, &c, laid down in previous Calendars. Slight advances in heat may be made on bright days, but if cloudy skies intervene revert immediately to decreased warmth, and let the humidity be in the same ratio. Let climbers be looked over, and if an early display of their beauties is required, some of the irregular wood may be pruned away forthwith. Passifloras and others may receive this treatment; but permanent plants, as Acacias, &c., will of course form an exception. Those who are growers of Epacrises, Correas, Leschenaultias, Polygalas, &c., will soon enjoy a rich treat in those charming tribes. Frequent introductions and removals are the order of the day here, and of course there should be a constant interchange in all other plant houses. Camellias at this time require abundance of water. Keep a sharp eye on Ericas, Epacrises, &c, that are potbound; some of these will require liberal watering. In the forcing pit keep the bottom-heat up to 80°, and increase the atmospheric heat to 80° likewise for a couple of hours on sunny afternoons, with occasionally a slight syringing at such periods. If the pit has a hot-water pipe or flue in it great pains must be taken to secure moisture in the air, without plenty of which many things must prove a failure. If there are two pipes, a flow and return, which is of course generally the case, the bottom pipe should rest in a cemented trough deep enough to enable the water to cover the pipe when necessary, and from 6 to 9 ins. wide. Water less or more should be at all times kept in the trough, at least from this period forward. As regards cold pits or frames, a calculation should be immediately made as to how far the inmates of these structures will be able to supply the masses in the pleasure ground; frost and damp will have doubtless reduced the number of some kinds. Strong plants or pots of "stores" which had become well-established in autumn, of Verbenas, Fuchsias, Petunias, Heliotropes, Salvias, Calceolarias, &c., should be removed forthwith to some of the houses or pits at work, to enjoy if possible a moderate bottom-heat, watering them with liquid manure. These will quickly furnish abundance of early cuttings which should be slipped off and propagated at once. Water sparingly here at present, not using any, if the plants keep healthy without it.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is maintained by means of fermenting materials such beds as may have been recently renewed should be carefully watched, and if the heat at the bottom of the pots is found to exceed 90° the pots should be slightly raised in order to prevent injury to the roots. It is not usual now to subject the roots of Pines to a temperature of 110° or more, as we have seen growers of the old school quietly doing, but it is still too common a practice to allow the bottom-heat at times to become too strong, throwing the plants prematurely into fruit or otherwise injuring them. Indeed we believe that more harm is done to Pines by too much bottom-heat than by any other cause, and success cannot reasonably be expected while the roots are occasionally subjected to a baking heat. Maintain a steady bottom-heat of about 85° during the growing season, but depend upon it that 90° cannot be exceeded with safety. See that the soil about the roots of growing plants is not allowed to become too dry, and secure a moist state of the atmosphere, but use the syringe carefully until the sun becomes more powerful to dry the hearts of the plants. VINERIES.—Careful attention will be necessary with houses where the Vines are fairly in leaf. Take every opportunity to admit fresh air to strengthen the shoots and foliage, &c.; but do this cautiously, and by small openings near the heating apparatus, and shut up early in the afternoon letting the thermometer rise to 80°. Where the Vines are in bloom, let the night temperature range between 60° and 65°, raising it 10° by day, and Muscats need hardly be expected to set well unless they can be kept some 5° warmer; but it will be better in every case to let the temperature sink a few degrees on sharp nights than to over-heat the pipes, and render the atmosphere unhealthy. While the syringe cannot be used the evaporating pans must be kept at work, and the floors, &c., sprinkled in the morning or as often as may be necessary to secure a moist state of the atmosphere; for unless this is attended to, red spider will be very apt to make its appearance. But perhaps the great cause of red spider is an unhealthy root action, producing thin, weakly foliage, which despite the most careful inside management is sure to be attacked by this pest, therefore use every means to secure a dry, warm state of the borders. Give Vines in pots a liberal supply of manure-water in a tepid state.

FLOWER GARDEN AND SHRUBBERY.

Continue to make the necessary preparations for clumps or masses by sweetening or renewing the soil. Plant out things of biennial character in masses where requisite as soon as the weather shall have become favourable; in borders the rearrangement of perennials had better stand over until the latter begin to bud in March. Lose no time in finishing the planting of trees or shrubs.

HARDY FRUIT AND KITCHEN GARDEN.

Sow Tomatoes in heat, also Sweet Basil, Sweet Marjoram, &c.; get hand-glasses up immediately for Cauliflowers in pots; enrich the stations very much, adding fresh loam also if at hand. Turn out four strong plants from the pots, one in each angle. They should be well soaked with liquid manure previously. Get Seakale and Rhubarb for next year's forcing planted immediately on rich ground trenched; throw a hillock of old tan, ashes or sand round each crown to coax them on through the vicissitudes of the weather in February and March. Plant Box edgings where requisite, and thoroughly drain any portion of the garden which exhibits the least appearance of stagnation. Where water is apt to stand on the surface, through the puddling properties of heavy rains, try to improve the texture by a dressing of sand, ashes, lime rubbish, charcoal dust, &c. Plant Horse-radish, if not done; trench it deep in placing manure at the bottom of the trench. In the orchard get all planting finished as soon as possible, and stake and mulch. Remember to drain thoroughly. Nowhere is this advice more necessary than in the orchard. Although Apples and Pears are fond of adhesive soils, they will never prove profitable where water is allowed to accumulate. Examine all old or overborne trees; many trees of this character may soon be renovated by applying manure to the extremities of their roots, as also by good top dressings, which should always be applied the moment the leaf begins to fall, early in autumn.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Feb. 5, 1857, as observed at the Horticultural Gardens.

Jan. and Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep	Wind	Rain
Friday 30	5	29.841	29.615	38	30	34.0	35	38½	N.W.	.00
Satur. 31	6	29.849	29.597	39	8	23.5	34	38	S.W.	.00
Sunday 1	7	29.906	29.853	35	14	24.5	33	38	S.W.	.00
Mon. 2	8	29.601	29.512	38	24	31.0	35	38	S.W.	.00
Tues. 3	9	29.964	29.641	35	24	29.5	35	38	S.W.	.00
Wed. 4	10	30.245	30.106	34	13	23.5	35	37½	E.	.00
Thurs. 5	11	30.146	29.934	42	36	39.0	35	37½	S.W.	.14
Average..		29.936	29.751	37.3	21.3	29.3	34.5	37.9		.14

Jan. 30—Sharp frost; slight fog; clear; fine.
— 31—Snowing; clear; very severe frost at night.
Feb. 1—Severe frost; hazy; cloudy; sharp frost.
— 2—Snowing; overcast; cloudy; frosty.
— 3—Hazy: cloudy; frosty at night.
— 4—Frosty; bright sun; sharp frost at night.
— 5—Frosty; occasional sunshine; overcast; thawing.
Mean temperature of the week 8½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Feb. 14, 1857.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	45.4	33.4	39.4	16	0.51 in.	1	3	3	1	4	12	4	3
Mon. 9	45.6	31.9	38.8	12	0.40	—	5	2	2	1	13	5	3
Tues. 10	44.5	30.1	37.3	12	0.52	4	6	2	2	5	7	3	2
Wed. 11	44.3	30.2	37.2	13	0.34	8	4	1	—	5	7	2	4
Thurs. 12	44.5	29.9	37.2	13	0.28	3	5	—	—	5	10	6	2
Friday 13	44.1	29.9	37.0	11	0.30	2	3	4	1	6	8	5	2
Satur. 14	45.6	31.8	38.7	11	0.50	1	2	3	2	4	10	7	2

The highest temperature during the above period occurred on the 10th, 1831—therm. 65 deg.; and the lowest on the 11th, 1845—therm. 3 deg. below zero.

Notices to Correspondents.

BOOKS: *E T.* In order to acquire "a competent knowledge of Botany," it is indispensable to begin with the beginning. School Botany, by Prof. Lindley, should be thoroughly mastered, and then you may proceed further. We know not to what French work you allude; probably the "Flore Elementaire des Jardins et des Champs" by Maoul and Decaisne may answer your purpose hereafter.

BOX: *Olitor.* Your edging is killed by the sea-spray. Keep it off by a thick belt of Pinus Pinaster and austriaca, Sycamores, Hazels, Evergreen Oaks, Portugal Laurels, Yews, Hollies, &c. Tender-leaved plants will not suit you.

DISEASE IN GOLD FISH: *T T.* Your fish are doubtless attacked by Achlya prolifera—a kind of Conferva which lays hold of them, spreads over their bodies, and soon kills them. You will find a full account of the disease with a woodcut representation of the plant at p. 3 of our volume for 1845.‡

GARDENERS' BENEVOLENT INSTITUTION: A Constant Reader's letter is forwarded to the committee.

HEATING: *E G.* Certainly water will flow either to the right or left, or both ways at once; but great care is required to have the levels and rises exactly corresponding with each other. We would also remark that the rectangular elbows are very objectionable.

HOLLIES: *W H.* We prefer September; but since you have the plants trench the soil down to the gravel, and if it has formed a pan break through the pan with a pickaxe. Plant them in two rows a foot apart and the plants nine inches asunder in the rows, the plants in one row alternating with those in the other. When planted give the ground a good mulching with half rotten stable manure.

LAWNS: *Tyro.* Use per acre 2 lbs. Avena flavescens, 5 lbs. Crested Dogstail, 5 lbs. Festuca duriuscula, 18 lbs. fine-leaved Rye-grass, 3 or 4 lbs. Poa trivialis, 7 lbs. White Clover, and 2 lbs. of the small yellow ditto.‡

NAMES OF FRUITS: *Cobo.* As far as can be judged from a specimen grown in Guernsey, your Apple is most probably Dumelow's Seedling; and if so, you will find the young wood is very much spotted.—*J S W.* Your long-keeping Apple is very like the Norfolk Stone Pippin; the latter is usually longer-shaped than the specimen received.—*R G.* Not known; small and of no merit, or else something unsuited to the climate in which it has been grown.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that in future, not more than four plants may be sent us at one time.—*S S Y.* It is Oxalis versicolor, a kind of Wood-sorrel, and native of the Cape of Good Hope.—*W K.* Senecio Petasitis.

PINUS NOBILIS: *F W F.* Sow your seeds of this in shallow pans in yellow loam, and place them in a cold frame. Keep the latter close until they are up; afterwards let them have plenty of air whenever the weather is at all favourable.‡

PLANTING: *R G T.* Plant Yews, American Arbor Vitæ, Evergreen Oaks, Red Cedars, and Sycamores among Pinasters or Pinus nigricans. Any of these might be so placed as to become single trees. For fences Privet is bad, Quick good, Holly, when it grows well, better.

RATES: *A Young Gardener*, if a ratepayer, must pay highway rates even although he should always live in a balloon.

THE CAMBERWELL UNITED GARDENERS' BENEFIT SOCIETY. In reply to some correspondents' question, we have now to state that upon inquiry we can learn nothing respecting the auditors except one of them, who is reported to be a respectable man. Inquirers must therefore trust to their own investigation. We can do no more. The last printed report is before us, and it represents that the Society received during the year 87*l.* 1*s.* 5*d.*; expended, 51*l.* 18*s.* 6*d.*, and has 397*l.* 5*s.* 5*d.* invested or in safe hands. Further inquiry must be made of Mr. Stunell, Camberwell Green.

TIMBER PRUNING: *Inquirer.* The case you put is one which we shall advert to very soon in a leading article. No stump should be left unless with live spray upon it. We recommend you to consult Brown's Forester as to the question of thinning.

VINES: *P O.* You had better make your border now; the materials appear suitable. The Mill Hill will do in the same house with the Black Hamburgh. To these you may add Black Prince, Royal Muscadine, and Sweetwater; and if you have room for another, you may take White Tokay or Black Barbarossa, both of which are good keepers.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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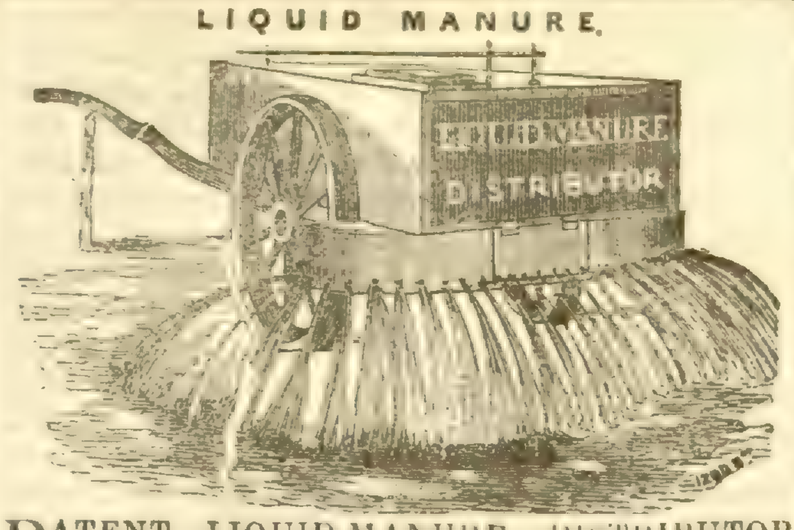

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A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
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Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

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Price of Pump and Union, 50*s.*

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Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 10 0
2¾ „	long 3 „ 3 „	gutta percha,	1 14 0
3 „	ditto 3 „ 6 „	or cast iron	2 8 0
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4 „	ditto 3 „ 6 „	as required.	3 3 0
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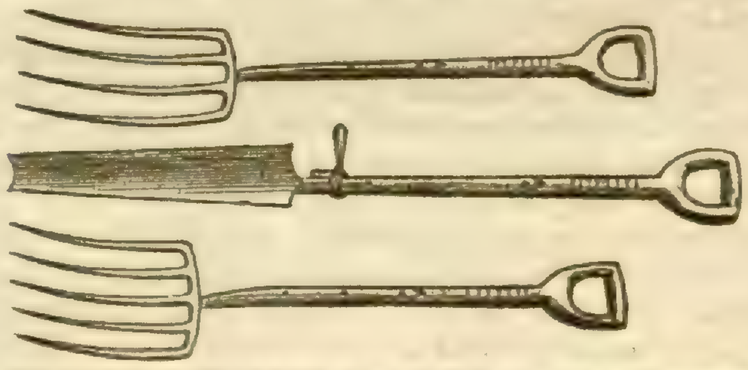

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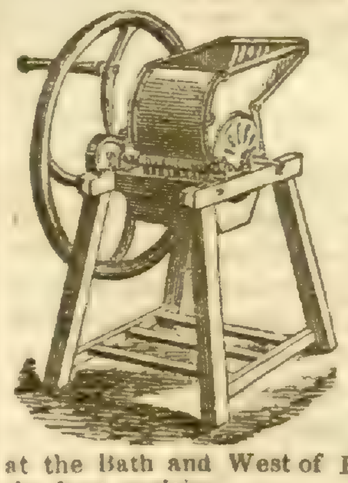

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THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, Esq., *Myremill, by Maybole, Ayrshire.*
"May 20th, 1850.

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22 1856.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE PRICES OF FARM SEEDS *being now fixed for the present season,* SUTTON & SONS *will be happy to forward their* LIST, *post free, on receipt of one penny stamp.*
Royal Berks Seed Establishment, Feb. 7.

The Agricultural Gazette.

SATURDAY, FEBRUARY 7, 1857.

THE LONDON FARMERS' CLUB held one of their monthly meetings on the evening of the 2d instant. In a lengthened opening address Mr. BAKER, of Writtle, treated of the manufacture and application of manures, pointing out the means by which home-made fertilisers might have their enriching powers preserved, and how by their being systematically applied to the soil the largest possible returns might be obtained from them. His subject necessarily led him to treat of the making of manures in open yards *versus* in covered courts, and to point out the enormous loss sustained by the farmer in having his manure heap bleached by rains and drained of its soluble and most potent ingredients. Like every other agriculturist who has rightly studied the question, Mr. BAKER is an advocate for covered homesteads—as much perhaps from their affording the best facilities for properly preparing the manures of the farm, as from the fact that in their having a concentrated arrangement they ensure the economical carrying out of the every day working operations. And certainly it is a matter of the first importance to the farmer that he should be enabled to prepare his manure in such a way that it shall possess the greatest possible power when applied to the soil. A time there was—and not so many years ago either—when a little stream of strong brown liquid might have been seen trickling and running quietly away from the homestead of many a farm—even where the general management was thought to be superior. Nay, the time has not yet passed

when this reckless waste has ceased to throw discredit on our farming systems, and to entail a money loss upon the farmer.

To some farmers of antiquated notions it may not seem the essence of bad management to allow the essence of their manure heaps to run to waste, but scarcely any man who knows what it is to have brains will be longer ignorant on such a vital point as this. As well might JOHN throw out JANET'S tea and bid her sup the leaves to obtain nourishment as that the farmer now-a-days should dress his land with home dung which has been deprived of its soluble salts, and vainly imagine that it will be as much enriched by it as if the dressing were a manure which had been carefully made under cover. But the prevention of waste in the drainings of manure heaps is of value also in effecting a very great improvement on the climate surrounding the farmer's dwelling-house. The startling fact was alluded to at the meeting by Dr. LEWIS that there is a larger proportion of deaths amongst farmers' children than amongst those of almost any other class in the community. Now, though there may be other reasons for this state of things, yet it cannot be doubted that it is to a large extent owing to the tender lungs of these children being injured by their inhaling ammoniacal emanations.

In treating of the manufacture of home manure, Mr. BAKER very rightly recommended that the different kinds such as those coming from stables, stalls, and boxes, should be regularly mixed together as made, and kept firmly trodden so as to prevent undue fermentation. Those farmers who tip over the cleanings of their cattle-houses and allow the barrow loads to lie unspread are unquestionably great losers by taking such a course, and if they wish to mend their practice they cannot adopt these suggestions a minute too soon. For the storing of yard dung in the fields Mr. BAKER prefers to excavate a receptacle in some shaded place, and then after the heap has been made as solid as possible and of the proper size, he covers it over with a foot of earthy or clayey matter. Mr. PAYNE in stating his experience said he preferred a covering of 2 or 3 inches of salt to clay or earth, and found it of great value as a fixer of the dissipated ammonia. Perhaps however a modification and a union of both systems would be best. First lay an inch or two of salt over the surface of the heap and then cover it with 4 or 5 inches of earth. Should this not be considered sufficient a slight covering of sawdust moistened with sulphuric acid will increase the fixing power of the surface coating.

While all the members of the Club who were present seemed to agree with the principles laid down by the introducer of the subject in so far as regarded the preparation of home manures, there was considerable diversity of opinion respecting the mode of their application. The chairman — Mr. WALLIS — and several other speakers considered that there was no more profitable way of applying farm-yard manure than as a top-dressing to the young Grasses after a Barley crop. All who had adopted the practice appeared to think highly of it, particularly as it resulted in the production of a good root of Clover, which in its turn insured a productive crop of Wheat. At first sight this system appears to make science and practice antagonistic to each other, but a little inquiry will afford conclusive proof that they never were more harmonious in pointing to one sure and general result. This was clearly pointed out by Mr. NESBIT, who stated that apart from the direct fertilising influence of the manure the fibrous covering left on the surface prevents an amount of injury by frosts to the roots of the Clover plant which might otherwise be entailed. And really when we examine into the matter we shall see that there can be no serious objection to the practice if it is only rightly carried out. As there is or ought to be comparatively little evaporation at the time the manure is applied, the atmosphere will rob it of a very small amount of its volatile constituents. If evenly spread over the surface the first rain will wash its soluble ingredients into the roots of the young Clover plants, and these being thereby enabled to lay in a store of nutritive sap will be ready to begin a vigorous growth on the first appearance of vegetative spring weather. The principle, however, of applying manures to the surface without their being immediately covered in is dangerous enough in some cases, and if not skilfully carried out may end in serious loss to the farmer. From the investigations of Dr. VOELCKER —who by the way though a "German chemist" as Mr. BAKER supposed, is one of our best known English chemical Professors—it is obvious that there is usually only a small portion of volatile ammonia present at one time in ordinary farm-yard manure. Well, so long as there is little evaporation home-made dung may be safely spread on the surface of the ground; but if Dr. VOELCKER'S facts are to be acted upon in every case, as Mr. WALLIS seemed disposed to recommend, there is of necessity an end to anything like discriminate scientific management. Why, if we apply manure to the surface of a field in hot summer weather, will any man, whether he be theoretical or practical, for a moment suppose that in that case there will be no greater loss from atmospheric action than if the application were made in the dead of winter. Yet this is exactly the conclusion which Mr. WALLACE seemed to arrive at in stating that he and some of his neighbours could grow better Turnips by leaving the manure in a great measure exposed on the surface than by having it at once wrought into the soil. There are accidents and agencies which might give such a result in the case of a root crop, but at all events the land must necessarily suffer from exhaustion in the following years of the rotation. When manure is near the surface it renders up its constituents sooner than when it is more deeply buried, and even by exposing it for a few weeks in winter its mineral and organic matters will undergo changes tending to hasten their solubility. This is probably the reason why some of the best farmers in the Lothians find it beneficial to allow the winter-applied manure to lie spread some time before it is ploughed in; but what they can do in winter with considerable advantage and a slight loss they cannot do in summer without a very serious sacrifice. *M.*

BOOK FARMING:—The rules of any art take their origin of course in a process of "trial and error" by which the experience of a single individual may have led him to a tolerably successful result, and they are corrected in the course of years by comparison with the methods and results to which others similarly engaged may independently have been led. This teaching by technical experience is, as everybody knows, a source of constant progress and improvement in the art of agriculture. Intelligent men acquainted, not it may be with a longer but with a wider experience of their business than their neighbours, are continually introducing methods in new neighbourhoods which elsewhere they have known to be successful. This is the correction of the rules of Art by Practice.

As time goes on, an experience gathered in other walks of observation is brought to bear upon the art in question. Students of Nature and of other *arts* examine this, and just in proportion to the extent of their previous attainments they see in the results before them the counterparts of a myriad of corresponding facts already ascertained by them in other fields. These they have read as the result of natural agencies, with whose operations they have thus become so well acquainted that they at once perceive where the methods which they see employed fail to give full play to those natural tendencies by which, through the rules, the results of art arise. And this is the correction of the rules of art by science.

And when a full knowledge of Nature elsewhere shall have been completely brought to bear upon the processes which any art employs so as to insure their perfect accordance with the known laws of Nature, then science will have done its utmost for the art in question. But till this is done, or rather to the extent to which it has not yet been done the rules of art of course must be defended simply on the ground of the comparatively limited experience which the art itself has furnished. The art of agriculture is still in this predicament. There is a large portion of its field on which scientific men are still at work. Hardly any of its results, indeed, can be said to be wholly accounted for. One does not need an exact knowledge of the sciences in their relationship to agriculture to know that many of the influences under which the soil, the plant, the animal is placed are still unreduced to rule. Our results in the field, the fold-yard, and the dairy are affected by the apparent caprice and irregularity of out-field causes as well as by the uniform and steady operation of those influences which can be regulated and foreseen. Agriculture in fact seems rather on the boundary line than within the field of many of the sciences, just where their rule is making rapid inroads on the vast territory by which each is surrounded. You cannot expect certainty and exactness here any more than you could look for the safety and decorum of civilisation on a frontier that is being continually broken by the incursions of savages. It is just there, however, that a community will most value the order and security existing at least on one side of them, and so agriculturists have reason to be thankful for what of certainty and confidence the researches of philosophers have given them. It is very true that this certainty has reference rather to principles than to details—that in order to the successful prosecution of the art every one of us must for himself and by experience strike the average of a large body of unforseeable liabilities — that its rules originally founded on these averages are still to be defended chiefly on the ground of their results *upon the whole;* still these principles and these rules together constitute a being fairly ordered system of skilfully applied knowledge, and they are certainly necessary to be understood by the agricultural student?

And cannot the knowledge of them be communicated orally? Cannot the student hear and read what there is to learn under either of those heads? Can he not, for instance, learn from books the fundamental principle that material atoms are immutable? And cannot he thus become acquainted with the nature of those atoms with which in air and soil the farmer has to deal? Can he not from books learn all the uses of these atoms as the building material of plants and animals? And the rules which experience has taught, and which the principles confirm, by which these atoms are economised, and waste of agricultural building material is avoided—cannot he store his memory with them at his desk? Will not books or conversation describe to him the processes of tillage by which the soil is made a storeroom of these atoms? And the art of land drainage, by which rain-water having gathered from the air and soil a quantity of this building material, is hindered from carrying it at once to waste into the neighbouring brook—is it not capable of description? Cannot the student learn from lectures, or from books, the methods of saving and economising those portions of this building material which in farm manure are added to the land? Those methods, too, of arranging the succession of our crops by which the stores accumulated in the land are drawn upon in the order least likely to interfere with a continual supply;—all this certainly may be communicated orally. And so may every other principle and every other maxim, rule, injunction, which practice and experience have laid down, and which these principles either explain, correct, or justify. A man who knows all that books can tell him or, that can be poured into his ear on agriculture, can enumerate every detail in the whole range of farm practice, and every item in the chain on which its theory depends. He can tell you every process in the field, the farm-yard and feeding-house proper to every month, connected with every plant and animal, characteristic of every district. He can describe the failures and successes of every kind of farming in every county in the kingdom. He can give you all the methods, all the rules, all the results of agriculture; and he can bring to bear all the light which all the sciences have given him in criticism, condemnation, justification, as the case may be, of every detail in all this mass of information. Of course such knowledge and ability is useful to the farmer. It includes indeed that which, acquired one way or another, is essential.

This then is the case for oral instruction in a scheme of agricultural education. In what proportion the present position of the art which it thus describes is due to technical and in what to scientific correction of its original rules is a separate question. The point at present under consideration is the possibility of our learning from a written or a spoken account of it.

And now let us hear the case quite as strong upon the other side, if so it must be called, for the need of practical instruction. These *words*, it will be said, in which your well-read agricultural student expresses what he has thus acquired may have been originally spoken by one in whom they indicated knowledge—but at second-hand they are but words. It is not in their power fully to convey the ideas which they may have been originally intended to express. Put this so-called knowledge to the test, and you will find that until it has been rectified or rather vivified by actual practice, it will prove insufficient. The student will find the means, which in practised hands suffice, altogether insufficient. He will be behindhand with his operations, and they will fail from faulty execution as well as from being out of season; for their proper execution depends not only on the knowledge of the master but on his ability to direct his men, and the labour of the farm cannot be expected, in unpractised hands, to be either economically or efficiently performed. Nor can the marketing, on which its profits so materially depend, be expected to succeed. It must be remembered agriculture is a business as well as an art; its proper end is a sufficient money return for the capital invested in it. And so it is that the most accomplished student who ever left an agricultural lecture room or college has obviously that to learn which lectures cannot teach him before he can be called an accomplished agriculturist.

You may be taught in class rooms all the sciences which explain all agricultural results. You may learn

the plan and even the full details of a well arranged agricultural year; but you may be assured that your annual result may be bad, notwithstanding a good plan and its details, and even good it may be, in spite of their defects, according to the tact and skill and business habits which you bring to bear on their superintendence; and these are what you cannot learn from lectures or from books. This it is well to bear in mind, else you will be disappointed when you leave your agricultural studies for the field on which you are to apply them, and instead of the noble scope for intellectual exercise and enjoyment which you had expected in the profession of agriculture, and which most truly may be found in it; instead of the scope for developing large plans and well-arranged series of operations which you had expected in the art of agriculture, and which doubtless it provides, you find to your dissatisfaction that the real and principal truth of the matter is that you have entered on the business of farming—a retail business, too—depending no doubt in all its facts on those great natural laws expounded by the geologist, the botanist, and chemist, depending also for its results on the skilful arrangement and adaptation of your means to the end desired, but depending for its profits upon the personal superintendence by the master of the minutes and the pence expended whether in labour or in stock, far more than on anything else whatever.

This, then, is the case for the practical part of an efficient agricultural education. It should not be stated as if antagonistic to the other; neither is the antagonist; each is the complement of the other. Both are needed—they are perfectly consistent—as consistent obviously as language is with the fuller meaning which experience gives it.

EXPERIMENT IN POTATO GROWING.

THE experiment chronicled below was made entirely for the experimenter's own instruction and guidance in his future operations. It having led to results satisfactory in regard to produce, while the returns from the different modes of manuring were contrary to generally received opinions, in proving—1st, the decided inferiority of guano alone as a manure; and 2d, the superiority of small Potatoes as seed above sets cut from ordinarily sized tubers—it is believed that its publication will be at the present time of some value and interest.

The field in which the Potatoes were planted is a clayey loam, drained, and in fair manurial condition. It was planted with Regent Potatoes grown on a sharp gravelly soil. The whole field, except the drills experimented upon, was manured with well-prepared farmyard manure at the rate of 15 single horse cart loads per imperial acre in the drill, to which was added 2 cwt. of Peruvian guano sown broadcast across the drills. The planting was executed from 24th to 26th of March, the lifting from 23d to 25th of October, and the total crop of the field was 5¼ tons per imperial acre of sound Potatoes; with perhaps about ½ ton per acre of diseased ones (these were not weighed), and the sound ones were of such good size that 4½ tons per acre came up to the shipping gauge of a 1½-inch riddle.

This in ordinary years would not be reckoned a very great result; but this year, when the failure is so extensive, it may be considered as very satisfactory; and the writer ascribes it almost entirely to early planting, for he found that another field planted late in April with the same Potatoes, though with a soil and situation much more favourable, did not produce much above one-third of the quantity noted above.

The drills were appropriated to each different mode of manuring described below; and with the exception of the three planted with small tubers the rest had precisely similar seed, namely sets cut from moderately sized Potatoes.

		tons	cwt.
Lot 1. Manured at the rate of 4 cwt. of Peruvian guano	produced per imperial acre	4	9¼
" 2. Same manuring, and top-dressed with 2 cwt. guano on 3d July	"	3	16¼
" 3. Manured at the rate of 25 loads of dung	"	4	18¾
" 4. Same manuring, and top-dressed with 2 cwt. guano on 3d July	"	4	15½
" 5. Manured at the rate of 15 loads of dung and 2 cwt. guano ...	"	5	8½
" 6. Same manuring, and planted with small Potatoes	"	5	10½

It will be observed that in each case of top dressing the result was to diminish the produce, and this notwithstanding that it had the effect of keeping the shaws green and apparently growing long after the others had withered away. It will also be observed that those planted with guano alone, and with dung alone, were behind the others in produce; indeed their inferiority to Nos. 5 and 6 (which were a type of the general produce of the field) was evident all through the season up to September, when 1, 2, and 4 kept greener longer than the others. A mixed manure would thus appear peculiarly favourable to Potato growing, and the plan of half dung, half portable fertilisers, has the additional recommendation of facilitating the early accomplishment of the planting; on which, as already remarked, much of the success and safety of the crop depends.

This year, when guano is almost unattainable, we believe that a mixture consisting of three parts of dissolved bones, one of common salt, and one of nitrate of soda, would form a good substitute, one which we would recommend for adoption. We may remark in conclusion, that the cup variety seems thoroughly worn out, and to plant it longer involves the almost certainty of failure; the Regent has been not quite so long in cultivation, but it also appears to be declining much in vigour of growth. The new kind, the Fluke, is a great bearer on heavily manured soils; but it will not, in field cultivation (whatever it may do in gardens), grow from cut sets, small ones planted whole are the only means of procuring a crop; and as they grow few and of a large size, the difficulty of procuring seed is considerable. A variety known in the west of Ireland as "the Protestant" was brought over in 1854 by the writer. The first year the produce was unsatisfactory, but in 1855 and 1856 the produce was great—8 and 10 tons per imperial acre—growing with strong shaws and long spreading roots, and having an almost entire immunity from taint. They are a round white kind, and our Potato factors advise us that they are worth in the London market within 10*s.* per ton of the price of Regents. *S., Inverness-shire.*

CANADIAN AGRICULTURE.

I HAVE great pleasure in answering the questions of "An intending Emigrant" as far as lies in my power, for I consider Canada the right hand of England, and would be glad to see it filled with good men and true, who have the affection for their native land all Britons ought to have. As regards taking out implements and articles of various sorts, I would set my face against a hand flour-mill, for Wheat can be ground and dressed far cheaper in a public mill than by a small one turned by hand. The golden rule in doing anything in Canada, as well as farming, is to obtain the greatest possible results from the least possible labour, as owing to the scarcity of labourers it is impossible to do anything as cheaply by hand as by machinery; and by a little of what the Yankees call "log rolling," *i. e.* mutual assistance, one can always get a few bags of Wheat to the mill without a great loss of time. Churns can be bought out there of various makes and very good qualities. Cottage stoves are what Canadians are particularly choice in, and have an enormous variety of. A chest of good carpenter's tools, however, well selected, of the useful carpenter's stamp, not of the small fancy article kind, would be very useful. Attention should be paid to the temper of them, for I have had a strong chisel snap in my hand like a piece of glass, from having incautiously used it when frozen through.

As regards cart wheels and axles, I believe a pair of them, such as manufactured by Messrs. Crosskill, would be very useful, as a cart is extremely handy in small jobs about a place, though for general work not equal to the lumber waggon—a most ingenious contrivance composed of four large wheels connected together by a perch with so much action allowed it that the fore wheels could almost upset without turning the hind wheels, a pole swinging up and down on a long pin, a set of swingtrees fastened to the pole by a pin through the doubletree, so that each horse must take his share of the work, and can give and take in rough ground, and a bolster on the top of each axle with an upright piece at each end, between which can be fixed every style of box or rack, the whole composing by far the best waggon for actual use I ever saw, inasmuch as the horses have the greater part of their strength left for the load. As far as the rifle goes, they can be bought very good and very cheap in Canada, if required. I say if required, as they are a very idle sort of implement, denoting a great waste of time, and consequently of money; game requiring such an article, such as deer, bears, &c., become scarcer every year, and take a deal of time to get at. A good fowling-piece on the contrary, what with the quail and wild duck in autumn, and pigeons in spring and autumn, gives a pleasant rest and change without a great sacrifice of time.

I should feel inclined to recommend by way of implements such things as a horse-power engine with threshing machine, chaff-cutter, Oat-bruisers, and Turnip-cutter attached, so as to do all that sort of work by horse-power. I had one of Messrs. Barrett, Exall, & Andrews' (of Reading), one of their patent safety horse gears, two horse-power fitted for three horses, so as to run easy, and can say from experience that it was perfection. Two small horses could work it if required, by care in feeding (with one of their own threshing machines) without turning a hair, and one horse in it drove a chaff-cutter with the most perfect ease. The advantage of it was that when work was over the draft poles were unshipped and a box made on purpose turned over the cylinder, which was then protected from all injury. I would not recommend anybody to take them out at first, but when the farm is bought and everything ready they can be shipped from London to Quebec in the spring, and thence it is all water carriage almost to where the farm may be.

Should an emigrant be a bachelor a residence for some time with a farmer would be of immense advantage to him, for it would not only show him the way in which things are done, and I would beg him, if he sees things done differently from what they are at home (delightful word, by which England is always known in Canada, and long may it be so), not to be in a hurry to condemn; but it would also teach him the value of the articles he will have to purchase, which may save his pocket most materially, particularly in land, as that is rising so fast in value that some hardly know what to ask, and he might throw away many pounds in that way. As far as the price of land goes, a good farm in the county of Oxford, 6 miles away from Woodstock, on a good road, is worth about 10*l.* the acre, sterling money, and within that distance of anything like a town, wood land is as valuable as cleared land, owing to the demand for wood as fuel in the town; beyond that, of course, the expense of hauling takes away the profit to a great extent. Land at 2*l.* an acre might be met with at a distance, on a bad road, but not near a town. In fact all over Canada land is getting more valuable every day, and sells very rapidly. Some 40 or 50 miles north of Woodstock, near Goderich, on Lake Huron, five townships were sold the summer before last in three days, immediately on the necessary surveys being completed, and the land put up for sale. Now as townships contain many of them 50,000 acres of land, after deducting a large margin for land bought by speculators in spite of laws directed against them, there must have been an immense tract filled up with actual settlers. Bought in such a way it can be got at about 4 dollars an acre, or even less, but then everything has to be done, and there are no roads, and few shops to supply yourself at, and those generally at a great distance.

With regard to the Peterborough, Durham, and Northumberland districts they contain both good land and good men, but more people leave them to come west than leave the west to go east; in fact, nobody ever goes east in Canada or the States, the land being generally both dearer and more worked out there. I do not know the districts personally myself, and only judge by what I hear and the stock I have seen brought thence, and that part of the country holds as good shorthorn stock as can be found in the world. More to the westward Devons are rather in favour.

It may be asked if I recommend Canada so strongly, and certainly I think it an admirable country, why am I here? I would answer that it was my misfortune, not my fault, my lungs, not my head, that drove me to a place where there is little, if any, winter. The sole objection to Canada being that the snow, which lies on the ground in the upper province generally for nearly three months; and the cold, which sometimes, though not often, falls below zero, though of no consequence to healthy frames, are rather trying to those who like myself cannot endure confinement, and yet have their constitutions a little shaken.

Before I conclude this I should like to protest against the injustice of an article in the *Daily News* which appeared some two months ago, and which I first saw noticed in a Canadian paper, with a most indignant protest against the ignorance displayed in it. It compared the progress of the States, as contrasted with that of Canada, by the simile of a Minié rifle and a bow and arrows, stating that while the men of the States were using every appliance of science and capital to push forward in the race of improvement, the Canadians never changed or made use of their intellects in the least. Such knowledge the writer of the article in question never could have derived from papers or writers in the States, for they have always appreciated Canada, and are thirsting to possess it. On the contrary, I have seen articles in their papers showing that the increase and prosperity of Canada was beyond their own. He never could have derived it from a visitor to those countries, for even with the usual course taken by tourists, viz., coming into Canada at Niagara, crossing the lake to Toronto, and thence by steamer down the St. Lawrence to Montreal (which seems to give them, Smorl-tork like, knowledge enough), must have seen that public works in Canada are superior to those in the States. Perhaps he would wish to insinuate that the magnificent range of cut stone wharves and docks at Montreal are inferior to the mangy tumbledown old wooden affairs at New York, that are hardly safe to go on. Did he ever compare the St. Lawrence and Welland ship canals with the large canal between Buffalo and Albany? Did he ever consider that the population of one country numbered fifteen times that of the other? I can fearlessly assert that in nothing is Canada behind the States; on the contrary, in everything it stands foremost.

I must now conclude my unreasonably long letter by saying that I shall be most happy to answer any questions that may be put to me to the utmost of my power. *A Canadian Farmer.*

Home Correspondence.

Blood Manure.—Allow me to protest against the system now too commonly observed of calling things by the wrong name, thereby misleading the public. In the *Gazette* of the 24th ult., I observe that in the paper denominated "A Scheme of Cultivation," the writer states (7) that he should require for his roots 4 tons of blood manure. Now blood manure, properly so called, is simply dried blood—a very good manure for grain, and as an adjunct to others for roots, but so deficient in phosphates as to be by no means a suitable manure for Turnips. The so-called blood manure which is found to succeed for roots is neither more nor less than superphosphate of lime, in which a certain quantity of ammonia or nitrogen is procured from blood instead of bones or flesh. It may be good or bad according to the per centage of soluble and neutral phosphates contained, and it is neither better nor worse for having its nitrogen from blood instead of any other source. It is therefore manifestly unfair to call it by a name which does not represent its character or the constituent to which its value is principally owing. There is nothing new in the use of blood for manure. The writer has used it with bones and

sulphuric acid years ago, and it has been for many years collected and dried in the metropolis, and sold alone or mixed with other manures. The supply is however limited, and as there are other purposes to which blood is applied besides manure, and as all manufacturers have the power of purchasing and using it if they please, so that no parties can have an undue supply except by giving a price higher than their neighbours (if not a price beyond its value), it would certainly be better to call it by another name, and not deprive superphosphate of lime of the merit which is justly due to it, lest there may be some danger of the manure becoming by and bye somewhat like the play of Hamlet with the part of Hamlet left out; or, in other words, blood manure without any blood in it. It is well known that blood and flesh are almost identical in composition, the latter containing rather more water, viz., about 81 per cent. *I call a Spade a Spade.*

Is the Pleuro-Pneumonia the disease that is commonly called the Murrain or Lung Disease?—If so, the following is my experience of it. About the beginning of last May I had an Alderney in calf fail, and I, not knowing what with, sent for the veterinary surgeon, and he pronounced it murrain and incurable, but the animal being in a lean state I wished him to try and cure it, but it was without success. A few days after I met one of my neighbours, and in the course of conversation he told me he had some stuff that would cure it if I would pay implicit attention. Of course I promised to do so should I have another one fail. A few days after I had another heifer fail and I sent for the veterinary surgeon, and at the same time posted off myself to receive my neighbour's stuff (as he called it) and directions. On my return I found the veterinary surgeon there; he pronounced it to be murrain, and advised me to kill the heifer directly; but having confidence in my nostrum, and being anxious to try it I engaged with the veterinary surgeon to come every day for a week and watch the progress of the disease. He agreed to do so, but assured me the animal would not require attendance for two days. I then gave the animal into the care of a trustworthy man, who never left it night or day until it was perfectly well, which was within the week. I have since had several fail and always cured them. The following is the course pursued:—In one pint of spring water put four, five, or six drops of phosphorus 3 (a homœopathic medicine) according to the size of the animal. Let this dose be repeated every four hours until a slight improvement is perceptible, when you should gradually lengthen the interval between the doses to five, six, or seven hours, and so on until it gets to 12, and then discontinue it altogether. The animal should be kept as quiet and warm as possible, and as the appetite is generally very bad it should be encouraged to eat by all possible means, and the most nutritious food possible, such as ground Oats, oil-cake, roots, &c., but on no account to be drenched with any thing but its medicine, which it will soon take with little trouble if gently used, as it is not at all unpleasant. I believe it very important to attend implicitly to the above directions. *A Cockney Farmer.*

Societies.

AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND: *Economic Manure.*—The following is an analysis by Professor Apjohn, alluded to in the proceedings of the Council of the above Society:—

"32, Lower Bagot Street, 22d Nov., 1856.

"Underneath you have the composition of the so-called manure, forwarded for analysis by Mr. Corcoran. In 100 parts I find it to consist of the following materials:—

Water		25.22
Sand	Insoluble in water	1.90
Phosphoric acid		.19
Lime		.17
Mixed oxides of iron		6.40
Phosphoric acid		.07
Lime		.11
Protosulphate of iron (green vitriol)		6.72
Sulphate of lime		16.32
Sulphate of magnesia		.64
Sulphate of soda		37.77
Sal ammonia		1.19
Free muriated acid		3.30
		100.

By other direct experiments the following data were obtained:—

Total sulphuric acid in 100 parts	38.62
Do. muriatic acid	4.11
Do. ammonia (by combustion)	.381

The iron, too, present as proto-oxide was found to be to that present as peroxide in the ratio of 6.6 to 1. The useful ingredients of this manure are the sulphate of lime and the sulphate of soda, the former of which reaches nearly 7 and the latter nearly 38 per cent. Of phosphoric acid and ammonia it contains mere traces; and, conducting the calculation in the usual way, I find its money value to be but 2*l.* 13*s.* 2*d.* per ton. From this, too, I believe a deduction should be made, in consequence of the presence of green vitriol, which, instead of being a useful constituent, is known to be prejudicial to vegetation.

"Captain Croker, Secretary, &c." JAMES APJOHN.

HEXHAM.—*The Landlord's Interest in a Lease, and its tendency to promote Good Cultivation.*—At the annual meeting of this Club, Mr. Grey, of Dilston, spoke on this subject as follows. He said,—It would be in the remembrance of most of the gentlemen present that a number of farmers in this neighbourhood undertook to draw out a set of covenants for lease, which they thought would be just and beneficial to both landlord and tenant. This was a one-sided affair, because it was prepared entirely by farmers; and in certain papers distinguished for their liberality and the great abilities of their writers, these covenants had been very much canvassed and very much condemned, although they were drawn out by farmers themselves, as covenants to which they were willing to subscribe. It was necessary to remark that no contract whatever could be expected to be satisfactory which was not founded upon principles of strict justice. There was a great difference between the mere manufacture of wearing apparel and the manufacture of human food, and it was not just to either party to maintain that land should be managed and considered merely in the same view as a cargo of merchandise or a bale of cotton or wool. What was land? Was it not the property of an individual? It was that from which he drew his living, and to which he looked for the support and education and settlement in life of his family, and it was his right, interest, and duty, as the father of a family, to see if he granted a lease of his land for 10, 18, or 20 years that that land was let under such conditions as were likely to bring it back to him in as good a state as it left him, or at least without any great deterioration. He wished to show that there was justice and necessity in a landlord having certain restrictions in a lease in preference to leaving it open. But besides his interest in the management of the property, the landlord had a large investment upon that property in the shape of buildings, inclosures, &c. All these things it was his duty to see were preserved in good condition, and they well knew that, in the hands of some tenants, if there were no restrictions in the lease, the very contrary of these results would be brought about. An objection had been made to the system of granting leases—and he thought there was some argument in it—that it could not be expected that a man should farm equally well up to the end of his lease, as he did at the beginning, but he thought to obviate this difficulty it was possible to manage so as to do full justice to the land by maintaining its fertility and not make the landlord the loser. He had himself introduced something of the sort, and he believed that in the very lease drawn out by the committee there was a proposition that if a farmer did not wish to renew his lease he should have an equivalent for his unexhausted manure. Another objection was that in this country leases were hereditary property, and they knew that here as elsewhere men who took leases were mortals. Now if land should be given into the hands of a person without any restrictions at all, however great might be the confidence reposed in that person by the owner, he would have no security that the tenant would live out even a third part of the lease. At his death it might fall into the hands of any person, a seaman or a tailor, and was it to be supposed that his heir, whoever he might be, was to be allowed to make mincemeat of the land—to plough up the Grass land, to cultivate the better portions of the soil, neglect the inferior, and go on making all he could at the expense of the farm, until at length the landlord was obliged to go to enormous expense to put his property in the same state as when he let it? He read in a newspaper the other day, an article ridiculing the provisions in a lease which imposed penalties on tenants who sold the straw off a farm without bringing back an equivalent in manure. Now he did not think this was deserving of ridicule. He recollected before nitrates, phosphates and guano were discovered that there was no other way of preserving the fertility of land but by converting the straw into manure. It was not, therefore, unreasonable that if a tenant were so situated, near a large manufacturing town for instance, that he found it profitable to sell his hay or straw, he should be required to bring back an equivalent. He had already said that there were men to whom it would be safe to grant an open lease. They must be men of great judgment, experience, honesty, and of adequate capital, but it was impossible to know what might be their circumstances before the lease expired. He had much intercourse with farmers, and knew some who farmed well and were excellent persons, but again he had seen some of a different class. And this was quite inevitable. There were some who farmed ill through ignorance; these were, perhaps, to be pitied. Others farmed ill through penuriousness, and under the impression that a penny saved was a penny gained, and would not lay out a pound in manure although they knew it would bring them in two pounds. There were some who farmed ill from worse motives, he feared, and especially when the lease drew near its expiration. Now if a landlord saw that a farmer whose lease was about to expire was wasting his produce instead of reducing it into manure, was he not entitled to put a check upon him and say, "My property shall not be wasted in that way?" He thought they would agree with him that there was some necessity for such a restriction. There was another thing which deserved to be mentioned. A good deal of injury was done to the land by neglecting to clear out the ditches, in order that the rains and floods might drain off properly. And if a man were so slovenly as to allow his drains to get filled up, and the wet to soak into the soil, was there anything unreasonable in a landlord seeking a person to clear out his drains and ditches at the tenant's expense? And yet this provision was quibbled at as injurious to the tenantry. It was said again, "Let tenants alone; they are compelled to farm well for their own benefit;" but every man had not the sense to know, or the liberality to see and act for his own benefit. If he had, why should a farmer stint his land of manure, when he knew that for every 50*l.* expended in its purchase, he might expect to receive 100*l.*? He believed most of the money which was made in former times by sheer economy, by early rising and late sitting, by great watchfulness, and the extreme of carefulness. He could recollect a very decent old man, who had risen from being a farm steward to be a farmer himself, and who had not been long in one place till he got another. He (Mr. G.) took the liberty of asking him one day how it happened that he was getting one farm after another, and thriving as he seemed to be? The old man said, "I am the first up in the morning and the last in bed at night. I see every furrow that is drawn; and, what is more, some people can get money, but do not know how to keep it; now, when I get one shilling, I do not spend it, but I wait until I get another to put on the top of it, and so it accumulates." Farmers could not do so now, for although industry and energy were always desirable, they must have better principles upon which to work with respect to the laying out of money. There were now manures which were required to ensure the success of certain kinds of crops, and money must be expended upon these, and it was not sufficient to get up in the morning, but the farmer must call in the aid of science, and proceed upon scientific principles. The chairman then reverted to his original proposition, that a landlord must have protection for his property; where he found an honest man he would, he said, give him a *carte blanche* to do as he pleased, but, inasmuch as a man might go down in the world, and might be compelled by the force of circumstances to take advantage, however unwillingly, of the open character of his lease, it was only right and proper that there should be reasonable restrictions in every lease which should ensure the return of the land to its owner in the same state as it was when he let it.

Review.

Land Drainage.—A Letter to the Right Hon. the Lord Berners, on The Mode of Draining practised at Keythorpe, with which are contrasted the advantages of Systematic Drainage. By J. Bailey Denton, Draining Engineer, F.G.S., &c. Metchim, 20, Parliament Street, Westminster.

This is a clever controversial pamphlet, conveying too a great deal of positive truth and sound advice on the practice of land drainage. Mr. Trimmer's views, to which it is opposed, are fairly stated as follows:—

"(1.) That the distribution of soils 'follows certain general laws subject to particular variations' which are to be ascertained by investigation.

"(2.) That the opinion once prevailing, that the superficial deposits were diluvium derived from the strata on which they rest, is erroneous.

"(3.) That, on the contrary, a very large proportion of the whole area of this country is covered by transported matter divided into two characteristic formations, viz., the '*erratic tertiaries*' which form the subsoil when they cover the older strata, and the '*warp drift*' which generally forms the surface soil.

"(4.) That the erratic tertiaries are again divided into two distinct compositions,—the lower, boulder clay, *non-porous*, and the upper, rolled gravel and sand, *porous*.

"(5.) That sometimes the upper, *i.e.*, the porous bed is wanting, and then the lower, *i.e.*, the non-porous bed, becomes the subsoil. At other times both beds (i.e. the erratics altogether) are wanting, and the outcropping older strata become the subsoils, and as there are various clays pervading these strata the frequency of a clay subsoil is accounted for.

"(6.) That the partition line between the surface soil and subsoil may be distinctly observed, and when the subsoil is clay may be made available in draining 'two-thirds of the whole drainable land of Great Britain.'

"(7.) That the partition line between surface soil and subsoil in a majority of instances takes the distinct form of *ridge and furrow*.

"(8.) That when the subsoil is clay—whether it be transported clay or clays of the older strata—it is impervious, and therefore it would be unprofitable to disturb it.

"(9.) That in a majority of instances the ridges and furrows of the subsoil run in the line of the greatest descent. The furrows thereby become ready made troughs or natural drains for the conveyance of the water of drainage passing through the surface soil.

"(10.) That artificial drains cut across the ready made ones, i.e. the furrows will intersect them and carry off the water of drainage in the most economical manner."

Mr. Denton denies the existence of any such ridge and furrow structure of the subsoil as could be made use of in general practice by the land drainer. He says:—

"I have searched with an honest endeavour to find evidence of Mr. Trimmer's views from the moment I first became acquainted with them in 1853 until the present time, during which period I have superintended the cutting of more than 2000 miles of drains, seldom passing a day without inspecting drainage works on one geological formation or another, and the only instances of a ridge-like shape of subsoils of any extent that have come under my notice are at Ditton in Lancashire on the new red sandstone formation, and at Hemingby in Lincolnshire, where drifted matter covers a narrow outcrop of the Kimmeridge clay. In both these instances, however, the ridges or banks run across the fall of the land, and the depths of the porous beds are sometimes 2 feet only and sometimes beyond the reach of the most enthusiastic deep drainer."

The difficulties in the way of any use of this furrowed structure of the subsoil are put thus:—

"Mr. Trimmer says that his furrows 'follow the line of greatest descent,' and to take advantage of them 'the Keythorpe drainer cuts his drains through these subterranean watercourses, diagonally crossing them at such an angle as still to maintain a sufficient fall and to prevent the water from playing pranks, &c.' Now, what practical men wish to know is—

"(1.) If the bottoms of the furrows are longitudinally irregular as they are stated to be, what is to prevent the accumulation and retention of water in the hollows? Surely it cannot be consistent with good drainage to have sundry subterranean pools of water within a foot or two of the surface; and such must be the case if there are undulations in the course of the furrow which act as dams and keep the water back in the furrow.

"(2.) How do the Keythorpe drainers manage to hit, by their diagonal lines having a continuous fall, the varying bottom

of the furrows? Some furrows are admitted to be 2 feet deep, some 4, and some 8 feet and more. It appears practically impossible to hit them all.

"(3.) If the Keythorpe drainers carry their diagonal drains sometimes below and sometimes above the bottom of the furrow, what is to induce the water flowing down the furrows in the line of greatest descent to forsake that course (which is the one having the greatest influence upon water) and take to the diagonal cross drain?

"(4.) By what means do the Keythorpe drainers induce the water flowing down the furrows in the line of greatest descent to rise upwards into diagonal cross drains when it has a ready passage at command in the furrows themselves?

"Until these questions are answered satisfactorily it appears to me that practical men are without data to comprehend the way in which the 'Keythorpe drainers' have succeeded in doing that which it is represented they have done."

Mr. Denton then leaves his statement of the principles on which the Keythorpe practice is alleged to be successful, and describes the practice itself. In point of depth he shows that a large proportion of the drainage at Keythorpe is under 3 feet—in point of permanence he alludes to the incompatibility of shallow drains with that deeper and more efficient tillage which is gradually becoming the agricultural rule. As to cost, that should not have been referred to at all, efficiency being denied. It is however referred to, and Mr. Denton points out what it *would have been* had all the drains he saw mapped down been as deep as in his opinion they ought to have been. This however is of course begging the question—the actual cost of the process is what it must be judged by in connection with the actual result derived from it. We have no doubt that Mr. Trimmer will answer Mr. Denton; and it will not be necessary in order to the defence of his principles that he should succeed in justifying Lord Berners' drainage. The idea of using the furrows which Mr. Trimmer has seen for facilitating the drainage of land was made prior to his acquaintance with Lord Berners' agricultural experience. That may be a success or otherwise, but even though it should prove a failure Mr. Trimmer's position will not have been affected.

Whether he will succeed under ordinary circumstances in making any use of this furrowed structure of the subsoil unless in merely exceptional cases still remains to be proved. He is right, we think, in making this Keythorpe system but a very small matter in comparison with the other benefits which a knowledge of geology confers upon the agriculturist.

Certainly he must not think that any drainage involving such shallow conduits as Mr. Denton speaks of will be admitted now-a-days as satisfactory. We entirely agree with this pamphlet in all that it says on the possibility and efficiency of deep drains in clays.

Miscellaneous.

Sheep Balls.—A note has been received from Mr. Groom, transmitting one of the largest "Sheep Balls" which has been met with, measuring 13 inches round. It is well known that these balls consist of a succession of layers of imperfectly digested vegetable fibre. Whether the action by which this matter is accumulated is due to functional disorder, or to the fact of the animal eating plants insusceptible of perfect digestion by a healthy stomach, remains yet to be proved: this to the stock-owner, however, appears to be of small moment, as it seems to interfere but little with the health and condition of the animal affected. Mr. Groom says of this particular ball, "it was taken out of a fat sheep four years old: there were many others in the sheep, but this was the largest. As far as I have seen, they do not appear to be injurious."

Notices to Correspondents.

CLERGYMEN IN CANADA: *A Canadian Farmer* says: "In reply to 'W. R.'s' inquiries, I would say that if he requires information on the point he mentions, he had better write to the Secretary of the Church Society, Toronto, who will give him all the information he requires. I can only say that a clergyman of the Church of England meets with a great deal of opposition (from the infinite variety of sects), and receives but a poor remuneration for it; so that in point of actual pecuniary return for his labours he will not be so well off as he might be here, should he have a comfortable living at present. 300*l.* a-year is a large income in Canada, I should think very few possessed it. On the other hand, he will find a very large field for the exercise of his high and holy calling, and can look his children in the face without fear for their future welfare, as nobody need want a comfortable independence who will earn it. I would recommend 'W. R.' if he is inclined to take such a step, by no means to buy land without previous consideration; but to wait a little while and see what other openings there may be for his sons, as he may find a more profitable occupation than farming for them. In Canada there is no absurd prepossession in favour of young men who think nothing dishonourable except work: on the contrary, nothing is held to disgrace a gentleman except idleness and not paying his bills; honest industry is reckoned an honour. If 'W. R.' should make up his mind to emigrate, I shall be happy to give him any information in my power at any time."

COPSE WOOD: *Nolens.* If your purpose is to get the land into regular arable culture afterwards, you may as well trench at once; because it will have to be done hereafter if it be not done now. Thus if you merely wish to get a rough crop to stand for game this year, sufficient cultivation for the purpose may be given to the surface with a heavy hoe to fit it for the Buckwheat or the Barley you intend to sow.

IRISH COMPANY: *Aliquis* asks if any of our readers can inform him how the Irish Company for distilling peat by Mr. Rees Reece's process has succeeded, or where information respecting it may be found?

POOR WASTE LAND: *P.* You had better pare and burn rather than plough in order to get a crop of Turnips or Rape to feed off for a grain crop next year. It will cost you probably 30*s.* an acre to pare, burn, and spread the ashes. You must then plough shallow, burying the ashes; cross-plough deeper; sow some superphosphate or guano broad-cast; and harrow it in and drill the sand on the flat. After the Turnips are eaten off plough shallow or scarify before sowing the Wheat.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
„ Douglasi, 1½ to 3 ft.
„ Menziesi, 1 to 3 ft.
„ Morinda, 3 to 10 ft., very fine
„ rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 2 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft. (The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
„ Lambertiana, 1½ to 3 ft.
„ torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
„ „ Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
„ Benthamiana, 1½ ft.
„ Cembra, 1 to 5 ft.
„ excelsa, 4 to 8 ft., very fine
„ insignis, 1 to 6 ft.
„ Lambertiana, 1 to 6 ft.
„ Llaveana, 1 to 2 ft.
„ monticolor, 1 to 2 ft.
„ muricata, 1½ ft.
„ Pallasiana, 2 to 2½ ft.
„ Strobus nivea, 1 to 3 ft. (the Snow Pine.)
Picea nobilis, 1 to 2 ft.
„ Nordmanniana, 1 ft.
„ Pinsapo, 1 to 4 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
„ glauca, 6 to 9 in.
„ intermedia, 1 to 1½ ft.
„ japonica, 1 to 1½ ft.
„ gigantea, 1 ft.
„ minima, 6 to 9 in.
„ Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
„ Canadensis, 1 to 2 ft.
„ Cheshuntensis, 3 to 5 ft.
„ Dovastoni, 1 to 2 ft.
Taxus elegantissima, 1 to 2 ft.
„ gold striped, 1 to 4 ft.
„ Irish, 1 to 5 ft.
„ stricta, 1 to 4 ft.
„ common, 1 to 5 ft.
„ „ Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best var., 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties, 2 to 6 ft.
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
„ „ Weeping, 8 ft. stems
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems
Scarlet Horse Chesnut, 6 to 10 ft., very fine
„ Maple, 8 ft.
„ Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
„ „ variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
„ Beech
„ Elms, 8 to 10 ft. stems
„ Mountain Ash
„ Willow
„ American Willow, 8 ft. stems
„ Kilmarnock „ 6 ft. stems
„ Roses, 8 ft. stems

Christmas Roses
Delphinium Barlowi
Gentiana acaulis
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks, a very large stock, strong and perfectly healthy (see Descriptive Catalogue).
Roses (see Descriptive Catalogue)
Azalea indica, Camellias, Epacris, Ericas — A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT List of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written application.

Nurseries, Cheshunt, Herts.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. H. Low & Co., Clapton
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso

Dulwich, Surrey.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6*d.* and 1*s.*)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

FLORISTS' FLOWERS

Of extra quality, saved from named and first-class Flowers (for second qualities see Catalogue).

	Per packet—*s.* *d.*		Per packet—*s.* *d.*		Per packet—*s.* *d.*
Auricula, finest	2 6	Cockscomb, crimson	0 6	Hollyhocks	1 0
Do. Alpine	0 6	Do. new rose	0 6	Mimulus	1 6
Calceolaria, extra	2*s.* 6*d.* and 5 0	Do. giant	1 0	Pansy	1 6
Do. new dwarf show	2 0	Geranium, fancy	2 6	Petunia	1 6
Cineraria	2 6	Fuchsias	1 6	Phlox, French	1 0
Carnation	2 6	Gloxinias, erect flowering	2 6	Primula, single fringed	2 6

CHOICE AND NEW FLOWERS

Of extra merit and highly recommended.

Atroclinium roseum	1*s.* 0*d.*	Grevillea robusta	3*s.* 6*d.*	Gaillardia splendidissima	0*s.* 6*d.*
Delphinium cardiopetalum	0 6	Lilium giganteum	1 0	Cosmidium Burridgeanum	1 0
Ditto formosum	1 0	Rhododendron ciliatum	1 0	New Marvel of Peru	0 6
Collinsia bicolor alba	0 6	Ditto javanicum	1 0	„ Marygold	0 4
Ditto marmorata	0 6	Stephanotus floribunda	2 6	„ Phlox Drummondi	0 6
Calendrinia umbellata	0 6	Poppy, dwarf, white & pink fringed	0 6	Saponaria calabrica	0 3
Nemophila new, white edged	0 6	Sweet William, new varieties.		Ditto, new variety	0 6
Victoria Scarlet Stock, new	0 3	Ipomœa violacea	1 0	New Tropæolum	1 0
Linum grandiflorum rubrum 6*d.* &	1 0	Obeliscaria pulchella	1 0	Lupinus Dunetti superbus	1 0
Ditto (white anthers)	1 6	New Yellow Nasturtium	1 0	Ditto Hartwegi albus	1 0
Oxalis rosea	0 6	„ dwarf everlasting do.	0 6	Ditto hybridus superbus	0 3
Salvia argentea	1 0	„ scarlet Salpiglossis	0 4	Ditto pubescens elegans	1 0
Tritonea aurea	0 6	Escholtzia tenuifolia	0 6	Ditto tricolor elegans	1 0

Truffaut's French Asters in collections, each... 3*s.* 6*d.* and 5*s.* 6*d.*
E. G. H. & Son's Camellia-flowered Balsams, in collections, 3 6
New Hyacinth-flowered Larkspur, in collections ... 3 0
Aquilegias, in collections ... 3 6

Stocks, new, large flowering, in collections ... 2*s.* 0*d.*
do. new, large pyramidal do. ... 5 0
do. Hybrid Perpetual do. ... 4 0
do. Giant Cape do. ... 5 0

Maurandyas, Cobœas, and other Climbers.

Dioscorea Batatas, roots at 3*s.* per doz. | Napoleon III. Cucumber (3 seeds), 3*s.* | Lady Antrobus Cucumber, p. pkt., 2*s.* 6*d.*

For other Culinary novelties, &c., see Catalogue.

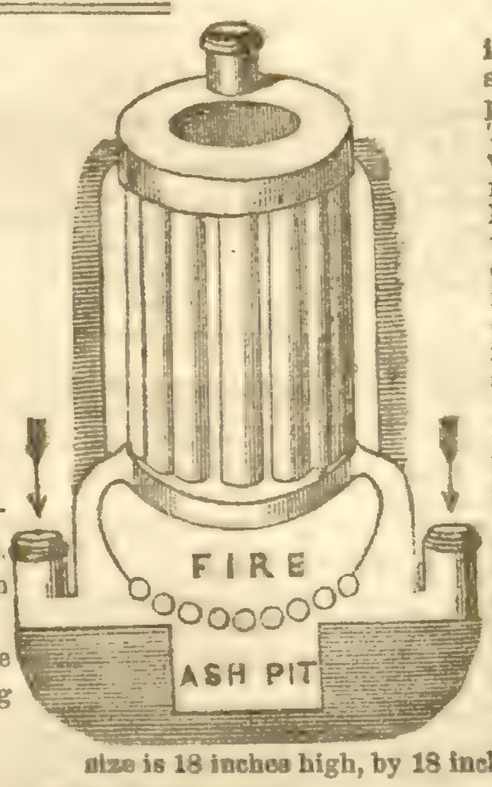
Wellington Nursery, St. John's Wood, N.W.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

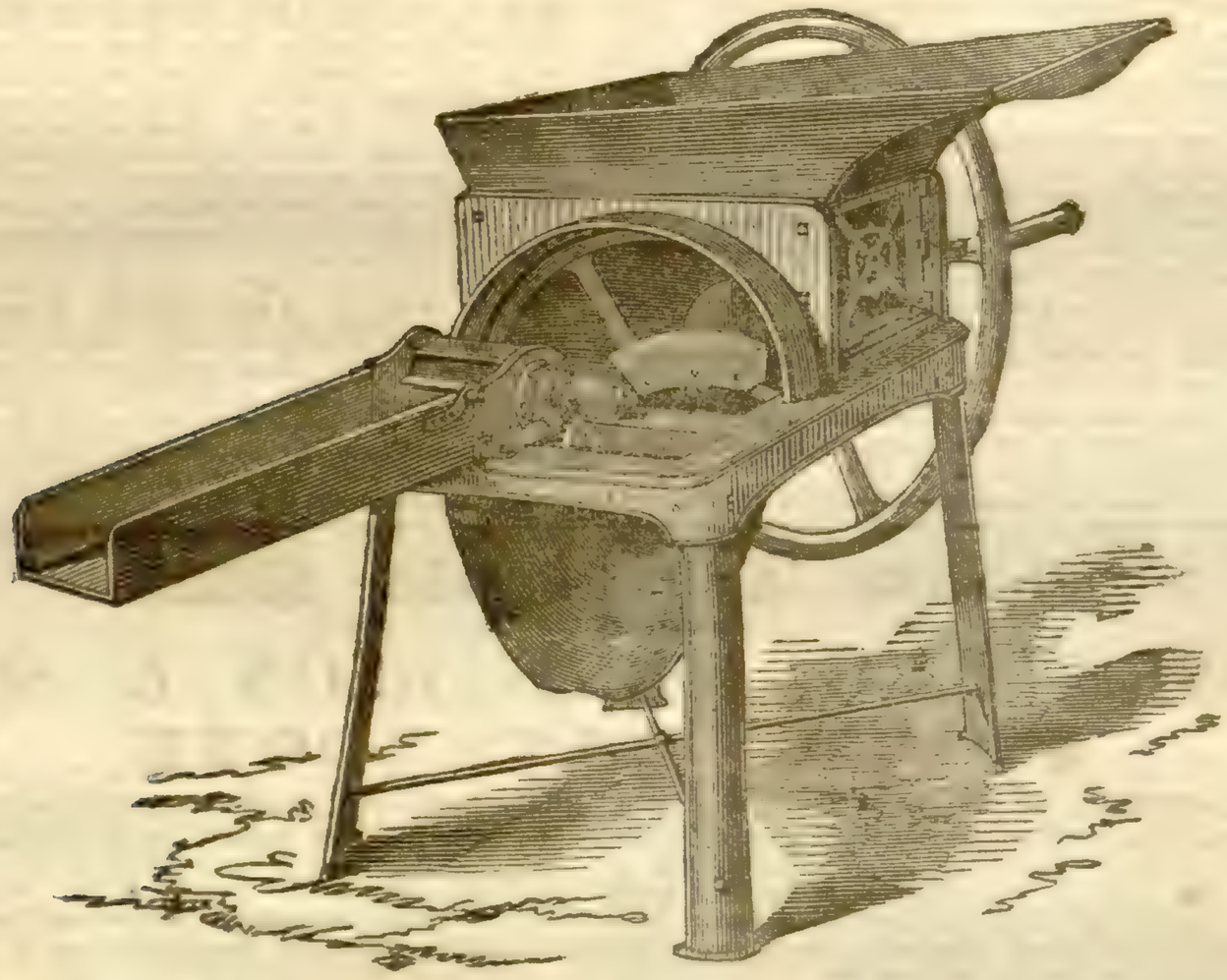
J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY

Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

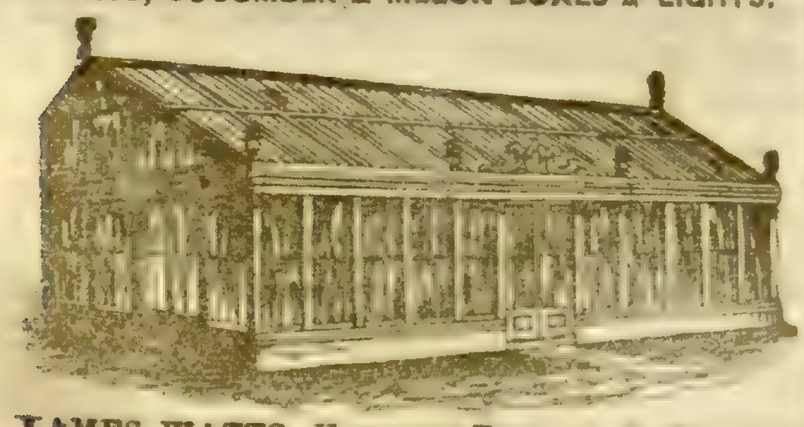
TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10*s.*
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0*s.*
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

B. SAMUELSON, Britannia Works, Banbury.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water. Prices and Estimates furnished upon application.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardener's Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

JOHN WHITEHEAD, Preston, Lancashire, MAKER of HEATING APPARATUS for WARMING CHURCHES, PRIVATE MANSIONS, GREENHOUSES, &c.

The Apparatus on the POLMAISE SYSTEM unites the functions of a Ventilating and Warming Apparatus, providing for the discharge of foul air, at the same time that it furnishes a supply of pure warm air which may be regulated to almost any desirable temperature. It is free from dust, from noxious or offensive exahalations, and from all danger of fire. It is extremely simple, requiring no skill or great care in its management: the first cost is small, and with regard to economy of fuel it is confessedly superior of all other.

In the construction of HOT-WATER APPARATUS, care is taken to perform the work in a durable and substantial manner, so as to obviate the necessity for frequent repairs, or the possibility of any derangement in its working. It is simple, easy to control, requires little attention, and is quite safe and economical in respect of fuel.

Testimonials forwarded on application. Experienced Engineers sent to any part of the Kingdom, and plans, specifications, and estimates furnished on application.

HOT AIR.

From R. A. HORNBY, Esq., *Wansfell, Windermere.*
January 5, 1857.

Sir,—I do not hesitate to send you the testimonial you desire. Your Stove was constructed in 1849; it has been in work ever since, except in summer, and has been uniformly easy to manage, cheap to feed (if the price of the best coke be considered), and excellent for the health of plants, either in Stove or Greenhouse. It has required no repair beyond a few fire-bricks. A common gardener looks to it. The fire lasts fully 12 hours in winter nights, the thermometer ranging from 65° to 54°. If any gentleman wishes to see the Stove in operation, the gardener will attend on him, my own illness entirely precluding me from correspondence or the reception of visitors.—I am, Sir, your faithful servant, ROBERT A. HORNBY.

From REV. W. HORNBY, *St. Michaels-on-Wyre, near Garstang.*
December 8, 1856.

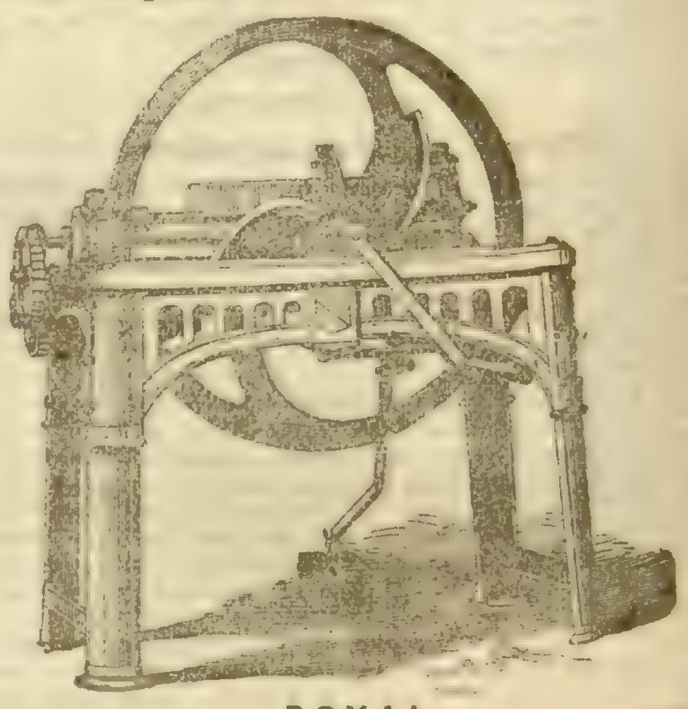
I have much pleasure in informing you that the Hot-Water Apparatus you have lately put up in my garden answers perfectly, but I am by no means disposed to give up the Polmaise system, which I should certainly have employed if the situation would have allowed it. Your Polmaise Stove, in the church and school, are all that I could desire.

From W. THISTLETHWAITE, *Esq., Ludlow Grove, near Wilmslow.*
December 3, 1856.

Your Warming Apparatus for the centre of our large building has been entirely successful. The heat is uniformly diffused, under good control, free from draughts, and in all respects very agreeable. My only dwelling house is part of the north wing of the building, and is dependent on open fires. The rooms being large and rather lofty are difficult to heat in cold weather, and I have pretty much concluded to put a small apparatus up on the same plan for my own house.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."—*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.
PRESTON MEETING, 1856.
AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—
The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—
The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

SHEET GLASS FOR CONSERVATORIES, &c., 16 to 18 oz., cut to size up to 44 by 30, at 2*d.* per foot, and estimates given for Glazing do. in any part of the country, at HICKSON'S Foreign Glass Warehouse, 46, Long Acre.

Established 1840.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under 6	by 4	at 1¼*d.*	is	£0 12 6
From 6 by 4	„ 7	„ 5	„ 2*d.*	„	0 16 8
7 „ 5	„ 8	„ 6	„ 2¼*d.*	„	0 18 9
8 „ 6	„ 10	„ 8	„ 2½*d.*	„	1 0 10
10 „ 8	„ 12	„ 9	„ 2¾*d.*	„	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. „ 3½*d.* to 5*d.* „ „ „
26 oz. „ 3½*d.* to 7½*d.* „ „ „

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

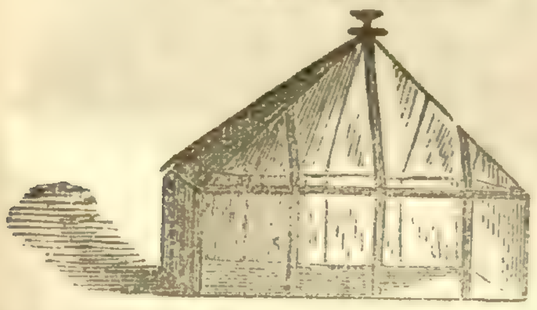
PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to JAMES HETLEY & Co., 35, Soho Square, London.

HAND GLASSES, AQUARIA, &c.

JAMES PHILLIPS AND CO. have the pleasure to draw attention to their prices of Hand Glasses, &c., carefully packed and sent to any part of the kingdom.

HAND GLASSES.



12 inches	Each 6*s.* 0*d.*	18 inches	Each 9*s.* 0*d.*
14 „	„ 7 0	20 „	„ 10 0
16 „	„ 8 0	24 „	„ 12 0

Painted and glazed with 16 oz. Sheet Glass. If open at top, 1*s.* extra.

PROPAGATING GLASSES.

2 inches diameter, each	0*s.* 3½*d.*	11 inches diameter, each	1*s.* 6*d.*
3 „ „	0 4½	12 „ „	1 9
4 „ „	0 5½	13 „ „	2 0
5 „ „	0 6½	14 „ „	2 6
6 „ „	0 8	15 „ „	3 0
7 „ „	0 10	16 „ „	3 6
8 „ „	1 0	17 „ „	4 0
9 „ „	1 2	18 „ „	5 0
10 „ „	1 4	19 „ „	6 0

20 inches diameter, each ... ... 7*s.*

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5*s* 0*d.*	12 inches diameter, each	4*s.* 6*d.*
13 „ „	6 0	13 „ „	5 0
14 „ „	8 0	14 „ „	5 6
15 „ „	9 0	15 „ „	6 6
16 „ „	10 0	16 „ „	7 0
17 „ „	12 0	17 „ „	8 0
18 „ „	13 0	18 „ „	10 0
19 „ „	14 0	19 „ „	11 6
20 „ „	15 0	20 „ „	12 6

Syphons, each ... ... 2*s.* *d.*

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GREENHOUSE SYRINGES, &c.

PATENT WATERING ENGINES, MACHINES, AND SYRINGES of every description, with the latest improvements. Manufactured only by RICHARD READ,
35, Regent Circus, Piccadilly, London.
Descriptions sent Post Free.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. PAGE & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr. Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
„ Hurst & M'Mullen, Seed Merchants, London.
„ A. Henderson & Co., Pine Apple Place, London.
„ Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
„ Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
„ John Edmondson & Co., Seed Merchants, Dublin.
„ B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
„ James Dickson, Sons, & Co., Nurserymen, Manchester.
„ Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
„ Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.

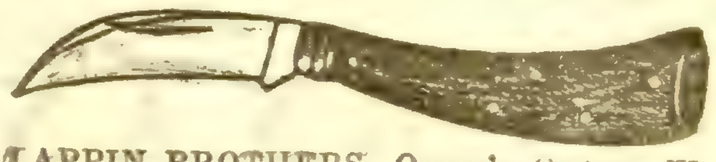
J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minter, Nash, & Co., Strand, London.
„ Osborn & Sons, Fulham, Middlesex.
„ Rollisson & Son, Tooting.
„ A. Paul & Son, Cheshunt, Herts.
„ Bainbridge & Hewison, York.
Mr. W. J. Epps, Maidstone.
„ Caldwell, Knutsford.

SMOKY CHIMNEYS.—The best cure is KITE'S PATENT ALBERT CHIMNEY CAPS, patronised by Her Most Gracious Majesty—200 on Buckingham Palace; in use also on St. James's Palace, Claremont, Windsor Castle, Ordnance Departments, Government Offices, Public Buildings, &c. Also extensively adopted by the Nobility, Gentry, and the public in general. Wrought iron, 25*s.*; galvanised do., 30*s.*; cast iron, 35*s.* each; the latter as durable as the building itself. The merits of this invention are proved by practical experiments; they are likewise architectural in appearance.

Depôt, BARTON'S Iron Works, and Manufactory for the Patent Stable Fittings and Enamelled Mangers. Address JAMES BARTON, 370, Oxford Street London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works. Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield

YOUNG INKERMAN.—This celebrated STALLION will receive a limited number of MARES, at the Bury Farm, Stapleford, Cambridgeshire. He won the first Prize in the Dray Horse Class, Chelmsford, 1856, when only three years old, competing against all ages. Young Inkerman foaled 80 mares out of 100 last season.—Apply to Mr. THOMAS BAKER, Stapleford, on or before the 10th of March.

FARM WANTED, to Rent from 100 to 140 Acres, which will be well Cultivated and Manured. Good references given.—Address J. D., Mr. A. Baldry's, 5, Bolingbroke Row, Walworth Road, London.

WANTED TO RENT, Half an Acre or an Acre of LAND, for one year from Christmas last, close to a Railway Station on the South-Western or Richmond Line, not exceeding 10 miles from the Waterloo Station.—Address A. Z., *Gardeners' Chronicle* Office.

WANTED, from 20 to 50 Acres of MARSH LAND, at low Rental. Also an OSIER BED, near some Railway Station.—Address C. D., *Gardeners' Chronicle* Office.

TO NURSERYMEN, SEEDSMEN, GARDENERS, & OTHERS.

TO BE DISPOSED OF BY TENDER, the whole of the Stock in Trade of Mr. Thomas Veitch, 195, High Street, opposite Broadgate, Exeter. The Stock has been recently purchased by Mr. Veitch, and will be found well assorted.—May be viewed any time previous to MONDAY, the 16th day of February inst., on which day Tenders will be opened at 12 o'clock, at the offices of Mr. GEORGE DOWN, Cathedral Yard, Exeter, from whom any further information may be obtained.

TO BE LET, a small but very advantageous NURSERY and SEED BUSINESS, situated in the improving neighbourhood of Sunninghill, and close to the Ascot station of the South-Western Railway. With a good Dwelling-house, a large Greenhouse, and a Propagating House. Pits, Frame, &c. Stabling for two horses, Cart-shed and Packing-shed. May be entered upon immediately. Ground well stocked with fine Evergreens, &c.—For particulars apply to Mr. WHOMES, Nurseryman, Windsor, Berks.

CORN MILL IN EAST KENT.

TO BE LET ON LEASE, the CORN MILL at Charlton, Dover, for 7 or 14 years, from the 6th of April next, on account of the decease of the late owner. This Mill possesses advantages which few country mills offer. It is brickbuilt, in perfect repair, and is now being refitted with machinery constructed on the newest and most improved principles. It will contain 10 pairs of stones. It has an unfailing supply of water power. It is near the Railway Station. It has been established for centuries, and has long enjoyed a gristing trade, yielding a considerable income, and susceptible of easy increase. It is admirably situated for retail trade. On the same stream there are several other Corn Mills; but all, except Charlton Mills, are periodically straitened by want of water; while even when water is most abundant, Charlton Mill will be found able to do with ease more work than all the other mills on the same stream in combination. The Mill and the adjoining Store House are capable of containing five thousand quarters of wheat. The several buildings, which embrace a commodious stable and cart house, are lighted with gas. If the tenant should desire such an arrangement, a house will be built for his accomodation. To an enterprising miller, possessed of capital, Charlton Mill offers very rare advantages.—For further particulars, apply to G. T. THOMPSON, Esq., Solicitor, Dover.

Sales by Auction.

PINE CONES FROM CALIFORNIA.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, February 13, at 1 o'Clock, a consignment of PINE CONES, just received from California, including Wellingtonia gigantea, Pinus insignis, P. radiata, P. Sabiniana, P. Lambertiana, P. amabilis, Cupressus macrocarpa, Taxodium sempervirens, &c.—Catalogues one week before the Sale of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

PUTNEY.—TO TIMBER MERCHANTS, BUILDERS, NURSERYMEN, MARKET GARDENERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, near the Fox and Hounds, close to the Railway Station, Putney, on WEDNESDAY, February 18, at 11 o'Clock, the erection of a Timber-built Dwelling House consisting of 8 Rooms and Cellar; also about 50 Large Timber Trees, including Ash, Oak, Elm, Sycamore, Cedars, &c.; 600 Ash, Fir, Acacia and other Poles; a capital 2-Horse Double Roller, with single shaft; about 3 acres of White Round Turnip, a quantity of Ornamental Trees, Evergreens and Shrubs, together with sundry Household Furniture, &c.—May be viewed three days prior to the Sale; Catalogues may be had at the Fox and Hounds, Putney; of the principal Seedsmen in London; and of the Auctioneers, American Nursery Leytonstone, Essex.

PYRGO PARK, ESSEX.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction, on the premises, Pyrgo Park, Havering, near Romford, Essex, on MONDAY, February 23, at 12 o'clock, the choice GREENHOUSE PLANTS, comprising about 70 Camellias, 4 to 7 feet, consisting of all the approved varieties, well set with bloom-buds; 100 specimen Geraniums; also Azalea indica, Daphne, Cactus, Gloxinias, Achimenes, Calceolarias, Verbenas, Fuchsias, &c.; together with sundry effects.—May be viewed prior to the Sale, on application to Mr. PAIN, at the mansion. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

THE

ALEXANDRE HARMONIUM

AT

SIX GUINEAS.

ALEXANDRE AND SON have made this Harmonium at the lowest price possible, to bring the Instrument within the means of all Classes.

It is in an Oak Case, with four Octaves; is alike calculated for PRIVATE HOUSES and for CHAPELS;

AND IS

INDISPENSABLE TO THE SCHOOL ROOM.

(The Six Guinea Harmonium will be taken in exchange for any of the more expensive description, without loss or diminution.)

ALEXANDRE & SON OBTAINED THE SOLE MEDAL OF HONOUR AT THE GREAT EXHIBITION AT PARIS (1855).

Their Harmoniums have been pronounced the best by

ROSSINI, AUBER, ADAM, THALBERG, LISZT, &c.

AND BY THE

PROFESSORS OF THE CONSERVATOIRE DE PARIS.

THE MORE EXPENSIVE HARMONIUMS RANGE FROM

10 to 55 GUINEAS.

THESE ARE BROUGHT TO THE GREATEST PERFECTION, AND ARE EQUALLY ADAPTED TO THE

CHURCH OR DRAWING-ROOM,

AS AN

ACCOMPANIMENT TO THE VOICE OR PIANOFORTE.

Messrs. CHAPPELL have just received a number of ALEXANDRE'S celebrated

HARMONIUM PIANOFORTES,

Which combine the excellencies of both Instruments. The two can be used in combination by the same performer, or each Instrument is perfect in itself. Price from Forty to One Hundred and Fifty Guineas.

AN IMMENSE STOCK OF

PIANOFORTES

BY THE BEST MAKERS,

From **TWENTY GUINEAS** upwards, which can be thoroughly recommended and warranted.

Messrs. CHAPPELL & CO. have just opened a number of

NEW ROOMS FOR INSTRUMENTS,

Enabling the Purchaser to select a Pianoforte or Harmonium from the

LARGEST STOCK IN LONDON,

AND TO TRY THE MERITS OF THE VARIOUS MAKERS SIDE BY SIDE.

Full Descriptive Lists of Harmoniums and of Pianofortes will be sent on application to

CHAPPELL & CO.,

50, NEW BOND STREET, & 13, GEORGE STREET, HANOVER SQUARE.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 7.—1857.] SATURDAY, FEBRUARY 14. {Price Fivepence. Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY.—PREMIUMS FOR NEW AND SEEDLING GRAPES.—At the first September meeting, the date of which will be duly advertised, Three Prizes will be awarded for New and Seedling Grapes, if such are exhibited as will be considered worthy thereof by the Council, as follows:—

TWO GUINEAS for the best Seedling Grape having a Muscat flavour.

TWO GUINEAS for the best Seedling Grape of any other description, not having a Muscat flavour.

(Those varieties will be considered seedlings which are at the time of exhibition in the hands of not more than two parties, who represent the raisers and propagators.)

TWO GUINEAS for the best Grape not a Seedling raised in this country, and not in general commerce.

(This class is intended to comprehend newly introduced varieties from other countries, and those which have been lost sight of or neglected.)

"LONDON MARKET."—A LETTER dated as above was received on the 7th February last by a gentleman residing a few miles from town. Without further particulars nothing can be done. Will the writer of the letter be good enough to furnish them either personally or by letter? Strict confidence observed. Expenses of every kind paid.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of Grape Vines struck from Eyes for Planting or Forcing in Pots, from 4 to 8 feet long. He is forcing some of the same which is showing well for fruit.

Shacklewell Road, Stoke Newington, N.E.

WORCESTERSHIRE CHAMPION CUCUMBER.

JOHN JENNINGS can still supply Seeds of the above first-rate Black Spine Cucumber, 12 seeds, 2*s*. 6*d*.; six seeds, 1*s*. 6*d*.—Furze Hill Nursery, Shipston-on-Stour.

PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong plants well established in small pots, 10*s*. per dozen, package included.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

VERBENAS.

ANDREW AND GEORGE BRAID, NURSERYMEN, SEEDSMEN, and FLORISTS, Hendon, Middlesex, beg to offer 5000 strong healthy plants in store pots, at 1*d*. per plant, including all the best new varieties. Also 1000 seeds of Godfrey's CUCUMBER, at 1*s*. per packet.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s*. 0*d*. | LORD PALMERSTON 5*s*. 0*d*.

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

MITCHINSON'S NEW PENZANCE EARLY BROCCOLI. TO THE TRADE.—Having saved a few lbs. of this superb BROCCOLI, we are prepared to offer it to the trade on very reasonable terms. Price on application, also prices of Vegetable and Flower Seeds to the trade.

BASS & BROWN, Sudbury, Suffolk.

TO THE SEED TRADE.

PEAS.—Early Emperor, Early Ringwood Marrow, Flack's Victory Imperial, Woodford's Marrow, &c. The above at low prices. Trade prices of Seeds in general may also be had.—BASS & BROWN, Sudbury, Suffolk.

CHAMPION OF ENGLAND PEA.

CHARLES SHARPE AND CO. begs to inform the Trade that they have a large stock of the above PEA, of their own growing, the price of which may be obtained on application.—Nursery and Seed Establishment, Sleaford.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.—9, Mansion House Street, London.

FRESH IMPORTED GERMAN FLOWER SEEDS. POST FREE.

SUTTON AND SONS, Reading, Berks, have just received a choice importation of GERMAN FLOWER SEEDS, a List of which will be sent gratis and post free on application.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, SEED GROWERS, Reading, Berks. Remittances or references are requested from unknown correspondents.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at* **20s.** *per acre, or Clovers and Common Rye-grass at* **19s.** *per acre.*

As the demand for these is very great, and the supply limited, early orders are requested and recommended.

Royal Berkshire Seed Establishment, Feb. 14.

SEED POTATOES,

SUTTON AND SONS, SEED GROWERS, Reading, *have a large Stock of the early kinds of* POTATOES *very true and free from disease. Prices, &c., will be sent post free on application.*

FLUKE, ASHLEAF, DAWE'S MATCHLESS, true samples, to be obtained at JOHN BELL's Potato Depôts, Covent Garden Market, and Great Northern Railway. Prices on application.

PARKER'S RAGLAN POTATO.—The above Potatoes are now offered to the public at 7*s*. per stone of 14 lbs. in canvas bags or sacks to any order.—Address, Mr. JOHN PARKER, junior, Burnley Road, Accrington, Lancashire.

P.S. A liberal allowance to Seedsmen.

ASH-LEAF KIDNEY POTATOES FOR SALE, carefully selected, price 8*l*. per ton; 4*l*. 10*s*. half ton; 5*s*. per bushel; sacks 2*s*. each.—Post-office Orders payable to WILLIAM G. K. BREAVINGTON, Vicarage Farm, Hounslow.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6*s*.; 15 ditto, ditto, 4*s*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*. A large stock of Hollyhock plants and Pansies in pots.—Catalogues of the above may be had on application to the Nurseries, Haverhill, Suffolk.

NURSERY & SEED ESTABLISHMENT, DUMFRIES, N.B.
ESTABLISHED, 1787.

THOMAS KENNEDY AND CO. are now prepared to execute orders for GARDEN and FLOWER SEEDS which have been procured direct from eminent Seed collectors in this country and on the Continent. Their NEW DESCRIPTIVE CATALOGUE may be had postage free on application.

*** Free delivery, see Catalogue.

SEED CATALOGUE.—26th ANNUAL EDITION.

BASS AND BROWN'S New Descriptive SEED CATALOGUE contains the finest new Vegetable Seeds in cultivation, with the choicest novelties in Flower Seeds. Also choice BULBS for spring planting. Copies sent free on application.—Sudbury, Suffolk.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

SEED ESTABLISHMENT, WESTERHAM, KENT.

JOHN CATTELL begs to announce that his CATALOGUE OF KITCHEN GARDEN SEEDS for 1857 may be had gratis and post free on application. It contains a very select collection, the great part of which are of J. C.'s own saving.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had for one stamp, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Catalogue, which will be forwarded on application.

Royal Nursery, Great Yarmouth, Norfolk.

ASPARAGUS AND SEA KALE.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100 ... ... 2*s*. 6*d*.
Ditto 3 years old, per 100 ... ... 3 6

Royal Nursery, Great Yarmouth, Norfolk.

BOX EDGING.—Several thousand yards of the above in fine condition.—For particulars apply to YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

CHINESE YAM (DIOSCOREA JAPONICA).—Fine large Roots, 1*s*. 6*d*. each; or small Bulbs, 6*s*. per doz., with hints on cultivation.—SUTTON & SONS, Reading.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT's Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

MOSS ROSES.—Three or Four Thousand good Plants for Sale.—For particulars apply to ALEX. DANCER, Nurseryman and Seedsman, Fulham.

ROSES.

H. LANE AND SON have still on hand a very large collection of ROSES, Standard and Dwarf worked.

Also Dwarfs on own Roots of all the most popular sorts.

Dwarfs in Pots for forcing, well established in large quantities.

Catalogues may be had on application.

The Nurseries, Great Berkhampstead, Herts.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have to offer (fit for immediate forcing) PEACHES and NECTARINES, &c., in pots, well established, and well set with bloom-buds.

The different Catalogues may be had on application.

FOREST TREES.

FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

LARGE FOREST AND ORNAMENTAL TREES FOR PLANTING PARKS, CEMETERIES, &c. &c.

W. J. EPPS has a large quantity of the above he can supply very cheap. Also a large stock of very fine Specimen Conifers. Prices and size sent on application.

Nurseries, Maidstone and Ashford, Feb. 14.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

WANTED, a quantity of Well-grown Transplanted SPRUCE FIR, about 1½ feet in height.—Apply to W. CROWDER, Nurseryman, High Street, Horncastle.

WANTED IMMEDIATELY, 100 to 200 STANDARD DAMSON TREES. Growers having them to dispose of are requested to communicate particulars of height, kinds, and price to WILLIAM MASTERS & SON, Exotic Nursery, Canterbury, and East Nursery, Maidstone.—Canterbury, Feb. 14.

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

PINE APPLES WANTED IMMEDIATELY, from 2 lbs. to 3½ lbs. each, at 5*s*. 6*d*. per lb.—Forward to GEO. TAYLOR, jun., Fruit Salesman, St. John's Market, Liverpool.

TO MARKET GARDENERS AND OTHERS.

FOR SALE, at 8*s*. per thousand, BLACK NAPLES CURRANT TREES, 2 or 3 years old, cut back every year. An allowance in price to Gardeners and the Trade.—Apply to WILLIAM POWELL, Heath Lane, Hounslow.

HEAVIEST LANCASHIRE SHOW GOOSEBERRIES, strong plants, per dozen ... ... 6*s*. 0*d*.

BLACK NAPLES AND BLACK GRAPE CURRANTS, per dozen 3 0

JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

VICTORIA RASPBERRIES.

GEO. CORNWELL is now sending out his Canes of the above at 15*s*. per 100; New Monthly Autumn Fruited, 12*s*. per 100; White, 10*s*. per 100. G. C. has been awarded a prize for fruit of the Victoria wherever exhibited, the Horticultural, Botanical and Surrey Gardens, Societies, &c.

Market Gardener, Barnet.

CUTHILL'S BLACK SPINE CUCUMBER, &c.—The Trade can still be supplied by the ounce, also in packets of 12 Seeds at 1*s*. Green's Lady Autrobus, Winter Cucumber, 2*s*. 6*d*.; and Cuthill's New White Spine, 2*s*. 6*d*. per packet of 10 seeds each. His three Pamphlets always on sale.

The Princess Royal, Prince of Wales, and Black Prince Strawberry Plants.—JAMES CUTHILL, Camberwell, London, S.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the buttom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5s. per quart. Usual allowance to the trade.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet.

Samples of the haulm may be seen at the following Firms in London, of whom the Peas may be had, or of their Agents in the country, in quart packets at 5s. each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S
NEW SEED CATALOGUE (26th Annual Edition),

Contains the finest Vegetables in cultivation, carefully grown by them from pure and well selected stocks.

It having been the custom in our establishment for 30 years past to test the comparative merits of Vegetables, our own practical knowledge of this branch of our business enables us to give our attention to the growing of such only as we have proved to be of real merit. The number of varieties of recent introduction having now swelled the lists of names offered by the trade to a very large extent, our endeavour has been annually to prune away certain varieties from our Catalogue for the introduction of the newer and improved of each class, reserving however those of the best older sorts.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These are particularly recommended to the notice of Amateurs not keeping regular Gardeners. The collections we have furnished have met with the highest approval, and will be found on trial such as will not be surpassed. Supplied as usual as follows (See full particulars in Catalogue.)

No. 1, £3 | No. 2, £2 | No. 3, 25s. | Collections for Small Gardens, 10s. 6d. and 15s.

A few choice New Seeds (Descriptions see Catalogue).

NEW PEAS.		s. d.
Harrison's Eugenie ...	... per qt.	5 0
" Napoleon ...	... "	5 0
" Glory ...	... "	3 6
" Perfection...	... "	3 6
Rising Sun	... "	5 0
Beck's Gem	... "	1 6
Dickson's Favourite ...	... "	2 6
King of the Marrows ...	... "	2 6
Epps's Lord Raglan ...	... "	2 0
" Monarch ...	... "	2 0

		s. d.
Broccoli, the new Penzance, per packet		1 0
Cauliflower, Stadtholder ...	"	1 0
Celery, Incomparable white	"	0 6
Cucumber, choicest... ...	" 6d. to	2 6
Mammoth Gourd, from a fruit weighing 1 cwt. ...	"	1 6
Imported Brussels Sprouts...	per oz.	1 0
French Horn Carrot (earliest)	"	0 6

For many other choice new, see Catalogue.

	s. d.
Peas, 16 from finest, 1 qt. each ...	16 0
" 10 from finest, 1 qt. " ...	10 0
" 8 fine sorts, 1 qt " ...	6 0
Broccoli, 10 packets of 10 finest, for succession	5 0
" 6 packets of 6 do.	3 0
Lettuce, 6 packets of 6 do.	2 0

CHOICE FLOWER SEEDS.

Our List will be found to contain as select a collection as can be brought into a catalogue, with all the new gems of the season. The usual arrangement of colours, heights, time of flowering, hardiness, duration, the Climbers also specified, and embracing every necessary information for purchasers. Useful instructions for the culture and growth of Seeds are supplied with each order.

FLOWER SEEDS IN ASSORTMENTS.—We beg strongly to recommend these assortments, for which see Catalogue.

IMPORTED GERMAN SEEDS.—Superb collections of these (see Catalogue).

BULBS AND ROOTS FOR SPRING PLANTING.

Very splendid collections of Ranunculus, Anemones, Gladiolus, Iris Germanica, and Primula, Lilium lancifolium, and other superb Lilies, Tigridias, Oxalis, and a great variety of other Roots (see Seed Catalogue).

ACHIMENES AND GLOXINIAS.

Superb Continental and other varieties (including the beautiful erect flowering Gloxinias), tubers of which are now ready, and will make fine flowering plants this season.

SEED CATALOGUES SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20s.) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S
PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2s. 6d.; trade packets, 5s., 10s., and 20s.

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6d. and 1s.)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

GERMAN FLOWER SEEDS,

In collections from our own inspection when in flower on the continent. These we can with confidence recommend. Descriptions of the following New Plants will also appear:—

BANKS' NEW FUCHSIAS,

Including three white sepal varieties, each with a distinct coloured corolla; two varieties possessing red sepals, and each of distinct character; and others with quite a new and graceful form of flower. A new and beautiful coloured Plate of six of the above varieties is now ready, and can be had for 12 stamps.

NEW VERBENAS,

Raised by Messrs. Banks, Breeze, and Evans. A coloured Plate of these novelties is in preparation, price 12 stamps.

NEW ERECT GLOXINIAS,

Raised by M. Jæger, the original introducer of this form of flower.

NEW HYBRID BOUVARDIAS,

Raised by Mr. Parsons, from Longiflora, hybridised with B. Leiantha.

NEW STRIPED GERANIUM,

Raised by Mr. Grieve. The best and only one worth growing.

Mr. Elphinstone's new Ornamental Foliaged Geraniums, with red and other coloured zones.
Mr. Morgan's Hybrid Bedding Geranium, splendid colour.
Mr. George Cunningham's New Rhododendron, quite hardy, and the first of its colour.
New Petunia, Delphinium, and Shrubby Calceolaria, &c. Other novelties beside the above will be noticed in this Catalogue.

Wellington Nursery, St. John's Wood, N.W.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Feb. 14.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20s.
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20s.
25 American Azaleas, do., do., do., 16s.
Hardy Heaths, Ledums, and Kalmias, per doz., 6s.
12 " Rhododendrons, including scarlet, white, and rose, 12s.
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15s.
Greenhouse Azaleas, best new vars., per doz., 12s. to 18s.
Camellias, fine sorts, well set with buds, per doz., 30s.
50 choice hard-wooded Greenhouse Plants, one of a sort by name, 45s.
12 Orchidea Plants, one of a sort, fine species, 40s.
24 choice Ericas, one of a sort, small pots, by name, 16s.
12 fine Chrysanthemums, new, large and small flowered, 6s.
Best Climbing Roses of sorts, per doz., 6s.
Fine Standard and Half Standard Roses, 12s. to 15s. per doz.
50 Dwarf Roses, on their own roots, by name, 16s.
Cedar of Lebanon, in pots, 2 feet, well grown, per dozen, 10s.
Various choice Hardy Climber, for walls, trellis, &c., p.doz., 10s.

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 2s. 6d. each, or 26s. per dozen.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each, 2s.
Fine Gooseberries, Currants, and Raspberries, per dozen, 3s.
Filberts, new, thin-shelled and red-skinned, per dozen, 4s.
Strong Vines, in pots and out, best sorts, per dozen, 18s.
Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Vines, grown expressly for pot culture, per dozen, 18s.
Ornamental Forest Trees and Evergreen Shrubs in any quantity

Albion Nursery, Stoke Newington, London.—Feb. 14.

CHOICE PLANTS, &c.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

AZALEA, varieties of Indica, comprising the following and other equally choice kinds, good bushy plants in large and small 48-sized pots, at 12s. and 15s. per dozen, viz.: Aurantia elegans, Exquisite, Fulgens grandiflora, Constance, Prince Albert, Murrayana, ignescens, Lateritia grandiflora, Conqueror, Emily, decora, Rosea punctata, carminata.
CAMELLIAS, in choice new kinds, without bud, 21s. per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12s. per doz.; smaller do., 9s.
ERICAS, of finest kinds, bushy plants in 48's, 12s. per dozen.
GREENHOUSE PLANTS, in 50 select kinds, for 50s.
PERPETUAL FLOWERING OR TREE CARNATIONS BLOOMING SUMMER AND WINTER.—A very choice and select collection of the above beautiful class in good good healthy plants at 12s. and 18s. per dozen.
FERNS.—A fine collection of rare Exotic species, 18s. to 24s. per dozen.
ROSES, Standard and Half Standard, of the best Hybrid Perpetuals, 18s. per dozen.
ROSES.—A fine collection of the choice varieties of Hybrid Perpetuals, well established in pots, fit for forcing, 18s. per doz.
DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, 18s. per dozen. This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue
STATICE MARITIMA ROSEA, AND PSEUDO ARMERA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3s. per dozen.
GYNERIUM ARGENTEUM, THE NEW PAMPAS GRASS.—Strong plants, 2s. 6d. each.
CINERARIAS.—A choice collection of all the best kinds, 9s. per dozen.
PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, 9s. per dozen, including that fine new Phlox Countess of Home.
PANSIES.—A fine collection of all the new and first-rate flowers, 9s. per dozen.
DEUTZIA GRACILIS.—Fine strong plants for forcing, 9s. per dozen.
LILY OF THE VALLEY.—Strong for forcing, 5s. per 100.
PÆONIES.—A choice collection of 20 new varieties for 20s.
HERBACEOUS PLANTS.—A very extensive and select collection of the handsomest kinds, including those adapted for rock work, 6s. per dozen; 30s. per 100.

CHOICE FRUIT TREES (WARRANTED TRUE TO NAME).

APPLES, Dwarf, in best selection, good heads			... 9s.	per doz
" Trained	"	"	... 30s.	"
PEARS, Standard	"	"	... 12s.	"
" Dwarf	"	"	... 8s.	"
" Trained	"	"	... 30s.	"
PLUMS, Dwarf	"	"	... 9s.	"
" Trained	"	"	... 36s.	"
PEACHES, Dwarf-trained, in fine strong trees,			36s. to 60s.	"
NECTARINES	"	"	36s. to 60s.	"
APRICOTS	"	"	36s. to 60s.	"
CHERRIES, Dwarf, in fine variety ...		...	... 9s.	"
" Trained	"	...	36s. to 42s.	"

GOOSEBERRIES, 50 of the finest varieties by name, good bushes, selected for size and flavour, 30s. p.100; 4s. "
CURRANTS.—Improved large White Dutch, Black Naples, Raby Castle (red), large Red Grape, Ogden's Black, and Fox's Red Grape, 4s. per dozen; Knight's Sweet Red, Knight's large Red, Cherry Red, large and fine, and Wilmot's White Grape, 6s. per dozen. These are the most desirable kinds in cultivation, and are highly recommended.
RASPBERRY FASTOLFF (TRUE), strong well-rooted canes, 10s. per 100; Large White Raspberry, 18s. per 100: New Monthly Fruiting, 18s. per 100; Belle de Fontenay, 16s. per 100.
STRAWBERRY SIR HARRY (TRUE), strong plants, 6s. "
" ADMIRAL DUNDAS, do., 20s. per 100, 3s. "

ASPARAGUS, Giant, 2 years	...	...	... 2s. 6d.	per 100
" " 3 years	...	...	... 3 6	"
" " extra strong, for forcing			5 0	"
RHUBARB, Myatt's Victoria	...	...	... 8 0	per dozen
" " Linnæus	...	...	... 8 0	"
" Mitchell's Royal Albert	...	...	8 0	"
" Hawke's Champagne, new and fine, 2s. each	...	...	... 18 0	"

All Orders of 2l. and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

It is respectfully solicited that all Post-office Orders be made payable to YOUELL & Co., Yarmouth, Norfolk.

Royal Nursery, Great Yarmouth, Norfolk.

NEW GARDEN SEEDS.

W. J. EPPS, SEED MERCHANT and GROWER, respectfully calls attention to his large stock of new and genuine Seeds. Having nearly 100 acres of land entirely for the growth of Seeds, and a direct correspondence with the Continental and other celebrated growers, he is in a position to offer great advantage to purchasers; all seeds warranted of the best description. Catalogues sent on application. Noblemen, clergymen, and others, who have large or small establishments, will find a great advantage in purchasing the following collections:

No. 1 COLLECTION, sufficient for one year's cropping of a large garden, consisting of 24 quarts of the best Peas, inclusive of Lord Raglan and Monarch, and all the leading and best kinds of seeds in equal proportions ... £3 0 0
No. 2 do. do. do. in equal proportions 2 0 0
No. 3 do. do. do. do. 1 0 0

Lists of sorts and quantities sent on application.
Seed Establishment, Maidstone and Ashford.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION ... £2 15 0
No. 2.—Ditto Ditto 1 15 0
No. 3.—Ditto Ditto 1 0 0
No. 4.—Ditto Ditto 0 10 0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

COLLECTIONS OF CHEAP & GENUINE GARDEN SEEDS.

CHARLES ALEXANDER, SEEDSMAN and FLORIST, 30, West Register Street, Edinburgh, is now prepared to supply complete Collections of VEGETABLE SEEDS, for various sized Gardens, suitable for the climate of Scotland ranging as under.

No. 1, COMPLETE COLLECTION, for a large Garden £3 0 0
No. 2, do. do. for a Medium sized Garden 2 0 0
No. 3, do. do. for a small Garden 1 0 0
No. 4, do. do. do. do. 0 10 0

All Orders Carriage Paid to any Steam Port or Railway Station in Scotland. Detailed Lists of the quantities, which may be altered to suit parties, on application.

M'Ewen's Arundel Castle Crystal Palace Prize Hybrid Scarlet Flesh Melon ... ... 1s. per packet.
do. do. Green ... 1s. per packet.

Nursery, Larkfield, Trinity, where a select Stock of Greenhouse and Stove Plants, Florists' Flowers, Shrubs, &c., are sold at moderate prices.

EXCELLENCE AND ECONOMY COMBINED.

SUTTON'S COLLECTIONS OF GARDEN SEEDS,
THE BEST YET OFFERED.
KITCHEN GARDEN SEEDS.

	£	s.	d.
No. 1. A complete Collection for one year's supply of a large Garden	3	0	0
No. 2. A complete Collection, in smaller quantities ...	2	0	0
No. 3. Ditto ditto ditto ...	1	10	0
No. 4. Ditto ditto ditto ...	1	0	0
No. 5. Ditto ditto ditto ...	0	15	0
No. 6. Ditto ditto ditto ...	0	10	6

A List of the sorts and quantities contained in each Collection will be sent Post Free in return for one postage stamp; and if some of the sorts are already possessed, increased quantities of others will be given in lieu of those to be omitted.

HARDY AND SHOWY FLOWER SEEDS (POST FREE),
Which may be sown where they are intended to bloom.

A Collection of the best 100 sorts known	£1	1	0
A Collection of the best 50 sorts known	0	10	6
A Collection of the best 36 sorts known	0	7	6
A Collection of the best 24 sorts known	0	5	0

BOKHARA CLOVER, BORAGE, AND OTHER SEEDS FOR BEES.

Carriage Free by Rail to almost all parts of the Kingdom.

Address, JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

RENDLE'S COLLECTIONS OF SEEDS.—*We have for many years sent out these Collections of Seeds, which have given, we may say, universal satisfaction. They combine excellent germinating qualities, superior sorts, and may be deemed economical in the truest sense of the word.*

A great many who had our Collections in years gone by now recommend them freely to all their friends, and we trust that we shall at all times retain the confidence so cordially reposed in us. The Collections are offered at the following scale:—

No. 1. COMPLETE COLLECTION, SUFFICIENT FOR A LARGE GARDEN, for one year's supply, comprising 20 quarts of Peas of the very best sorts for succession; Eight varieties of Beans; Eight of the best sorts of Broccoli; Ten varieties of Cabbage; Nine of Lettuces; Seven sorts of Onions; with a full supply of Turnip Seed, Spinach, Beet, Broccoli, Carrot, Cauliflower, Celery, Cress, Cucumber, Endive, Leek, Melon, Mustard, Parsley, Parsnip, Radish, Sweet and Pot Herbs, and every other sort of Culinary Vegetable Seed in liberal quantities £3 0 0
No. 2. COMPLETE COLLECTION FOR A MODERATE SIZED GARDEN 2 0 0
No. 3. COMPLETE COLLECTION IN SMALL QUANTITIES 1 5 0
No. 4. COMPLETE COLLECTION FOR A SMALL GARDEN 0 15 0

The quantities included in the above collection will be found detailed at length in RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY FOR 1857, *which can be obtained in exchange for seven postage stamps from*

WILLIAM E. RENDLE & CO., Seed Merchants, Plymouth.

CHOICE STOVE, GREENHOUSE, AND OTHER SEEDS.

HOOPER AND CO., SEEDSMEN, &c., Centre Avenue, Covent Garden Market, London (W.C.), have the pleasure of announcing that since the publication of their usual Catalogue of Flower Seeds they have received a very choice collection of Seeds of Stove, Greenhouse, and Hardy Shrubs and Climbers, Hardy and Half Hardy Herbaceous Plants, Carnations and Picotees of the finest descriptions, in collections and mixtures, warranted to produce 6 to 8 good double flowers, with some choice Annuals, &c., the whole of which have been ripened in the climate of Italy in the year 1856, and are such as they can recommend with the greatest confidence. A Catalogue of them will be forwarded on application; and it is respectfully requested that a Post-office Order, or Stamps, accompany each order from unknown correspondents. The stock being limited, an early application is desirable.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their Hollyhock Seed in packets at 1s. 6d., 2s. 6d., and 5s. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosery, Bungay, Suffolk, Feb. 14.

TO GENTLEMEN AND PLANTERS.

H. LANE AND SON have to offer in large quantities the undermentioned well-grown plants, having taken great care in their removal:—

Araucaria imbricata, splendid plants, from 1 to 4 feet
Arbor-Vitæ, in sorts
Azaleas, Ghent, in fine variety
Beech, Norwegian, copper, &c.
Berberis Darwini
Cedrus Deodara, beautiful shape and well grown, forming perfect specimens, from 2 to 9 ft.
Cedrus Libani, do. do., from 2 to 10 feet
Chesnuts, standards, very ornamental, 5 to 10 feet
Cryptomeria japonica, 2 to 6 ft.
Cupressus funebris, compact, 2ft.
" Lambertiana, 2 to 3 feet
Cytisus, standards in sorts, also Laburnums
Daphne, in varieties
Deutzia gracilis, nice compact plants for forcing
Elms, fine trees, from 10 feet upwards
Fitz-Roya Patagonia
Heaths, in extensive collection
Hibiscus (Althæa Frutex), standards and dwarfs
Holly in variety (green and variegated, large and small
Juniperus, well-grown plants of most sorts
Laurel, Portugal, very bushy, 3 to 6 feet
Laurel, Portugal, standards, fine specimens for lawns
Kalmias, small, fit for forcing
Kalmias, larger sizes, very fine
Mahonias
Picea Cephalonica, 1 to 4 feet
" Fraseri, very fine, from 3 to 8 feet
" nobilis
" Nordmanniana
" Pinsapo, 1 to 3 feet
" " 3 to 5 feet, and 3 feet through
Pinus cœrulea, very handsome, 1 to 5 feet
" excelsa, 1½ to 8 feet
" insignis, beautiful plants, 4 to 7 feet
Abies Douglasi, from seed, 4 to 10 feet
" Morinda, do., 2 to 7 feet
" orientalis, nice compact plants
Poplars, good variety of sorts
Rhododendrons, by name, a good collection of popular sorts
Ribes, in sorts
Taxodium sempervirens, 4 to 8 feet
Weigelia amabilis and rosea
Yew, adpressa, very fine
" compact, beautiful compact plants
" do., upright variety
" coriacea or japonica
" Dovaston, fine weeping
" elegantissima
" Gold-striped
" Irish, the finest lot possible

Carriage of all goods paid to London. Catalogues may be had on application.—The Nurseries, Great Berkhampstead, Herts.

SUPERB SEEDLING CALCEOLARIAS, ETC.

JOHN CATTELL has now ready to send out fine strong Seedling Plants, in single pots, of his superb varieties of CALCEOLARIAS; they will produce flowers of very large size, and every shade of colour. 5s. per dozen, or 36s. per 100, hamper included: plants from the store pans can be sent free by post at 5s. per dozen.

J. C. has also fine healthy plants of the under-named splendid FRENCH GERANIUMS, which are fit for immediate shifting; strong plants of any 12, 18s.; or 12 smaller plants, 12s., hamper included:—Madame Lamoricière, James Odier, Medaille d'Or, Auguste Miellez, Jacques Duval, General Eugène Cavaignac, Auguste Odier, Colonel Faissy, Adèle Odier, Eugène Scribe, Chauvieri, Elize Miellez, Madame Lefio, Adolphe Odier, Dr. Andry, Gloire de Bellevue, Madame Chereau, Monte Christo, Coquette, Astrea, Madame James Odier, Zaria.

Extra fine varieties of Show and Fancy.
Geraniums 6s., 12s., and 18s. per dozen.

VARIEGATED LEAVED GERANIUMS.

	Each—s.	d.		Each—s.	d.
Attraction (Kinghorn), per dozen 12s.	1	6	Golden Admiration ...	1	6
Attraction (Gaines's) ...	1	0	Mountain of Light ...	0	9
Annie (Kingborn) ...	2	6	Mrs. Lennox	2	6
Alma (Turner)	2	6	Silver King	1	0
Countess of Warwick (Kinghorn	2	6	Silver Queen	1	0
			Variegated Queen ...	2	6

SCARLET GERANIUMS.

	Each—s.	d.		Each—s.	d.
Beauty of Chipstead ...	0	9	Beauty of Coombe Bank...	1	0
General Pelissier (Kinghorn)	2	6	Trentham Scarlet Gem	1s. to 1	6

Fine healthy plants of the following:—Leschenaultia biloba splendens, Hunt's fine free flowering variety, each 2s. 6d. to 3s. 6d.

INDIAN AZALEAS.

	Each—s. d.	s. d.		Each—s. d.	s. d.
Admiration (Ivery)	2 6	to 21 0	Empress Eugenie...	3 6	to 21 0
Criterion (Ivery) ...	2 6	to 21 0	Magnificens, the best white		2 6
Gem (Ivery) ...	21 0	to 42 0	Magnificens, small specimens in 24s or 8-in. pots		21 0
Eulalie (Van Geert)	3 6	to 21 0			
Striata formosissima	2 6	to 7 6			

Fine plants of the best older kinds 12s., 24s., 30s., and 42s. per doz.

A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2s. 6d. per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2s. per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garden
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. H. Low & Co., Clapton
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso

Dulwich, Surrey.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10s. 6d. each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3s. 6d. to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
" stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N., London.

R. M. STARK begs to intimate that his LIST OF GARDEN AND FLOWER SEEDS for the season is now ready. Besides securing a supply of all the old varieties from the purest stocks, he has added every novelty likely to be useful. He would particularly recommend the following new Flower Seeds, most of which he had an opportunity of seeing last season in flower:— Per packet—s. d.

Acroclinium roseum, a fine large rose-coloured Everlasting, in the way of Rhodanthe	1	0
Bidens ferulæfolia, fine foliage	0	6
Collinsia bicolor flore albo	0	6
" multicolor marmorata	1	0
Cucumis perennis, a new Perennial Gourd	1	0
Cosmidium Burridgeanum	1	0
Gypsophila muralis	0	6
Lupinus Hartwegi flore albo	1	6
Nemesia versicolor compacta	1	0
Obeliscaria pulcherrima, allied to Rudbeckia, colour of flower resembling a striped French Marigold	1	0
Polycolymna Stuarti, fine large white Everlasting ...	1	0

Veronica Syriaca, fine new annual species, with gentian-blue and white flowers, for bedding.

German Flower Seeds of the most approved sorts, mixed or in collections.—Edgehill Nursery, Edinburgh.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above variety of RHUBARB, feeling confident from its superior quality and reduced price to give the greatest satisfaction. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11th, 1853:—

"Very good, and a most beautiful crimson; compared with others it is remarkable for the small amount of acidity it contains."—ED.

Price—1 year old Plants ... ... 1s. 6d. each.
" 2 year old Plants ... ... 2 6 "

With usual discount to the Trade.

Orders addressed to ROBERT SALT, Seedsman, Longton, Staffordshire, or to the following agents, will meet with strict attention:—Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Messrs. Francis & Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, Nurserymen, 102, Eastgate Street, Chester; Messrs. Burgess & Kent, Nurserymen, Penkhull, Staffordshire; and Mr. Charles Turner, Royal Nursery, Slough, Bucks.

A remittance from unknown correspondents.—Longton, Feb. 14.

VECETABLE AND FLOWER SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now sending out the above Seeds, comprising many newly introduced and valuable varieties, and all carefully selected from true stocks. They solicit the favour of speedy orders, which will ensure an early delivery. Catalogues will be sent free on application.

Their Stocks of AGRICULTURAL SEEDS and GRASSES for Alternate Husbandry, Permanent Pasture, &c., are of very superior quality this season, being the result of repeated and very careful selections. Priced Catalogues are in course of publication. Everything connected with their Trade can be supplied in any quantity from their London branch.

27, Great George Street, Westminster.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 14, 1857.

WHILE speaking (see p. 68) of old races of plants still, for aught we know to the contrary, as full of vigour as ever, we should have mentioned what Count ODART, in his elaborate treatise upon the races of Grapes (*Ampélographie universelle*, or *Traité des cépages, Paris*, 1849), states respecting some of them. It appears that the variety now called Pineau was known in 1394, when it was named Pinoz in the Ordonnances du Louvre. DON SIMON ROXAS CLEMENTE, the learned historian of the Vines of Andulusia, says that there still grow at Rias, in the province of Grenada, Vines that were planted in the time of the Moors, and that they differ in nothing from others planted in modern times. The same writer is also of opinion that the Cornichon of Paris has preserved its peculiarities through all time; upon which Count ODART remarks that it was described six centuries ago by the celebrated Arabian author EBN-EL-BEITHAR, under the name of Cadin Barmak or Ladies' finger, as it is called in

Asia Minor. It must hence, we submit, be conceded that if the varieties of plants so degenerate it is not among Grapes that degeneracy is to be found.

In reality the arguments adduced to establish the doctrine of wearing out are for the most part derived from some supposed facts in the history of the Apple, the Pear, and the Potato. It is an acknowledged fact that the Golden Pippin Apple, the Redstreak, the Golden Harvey, and others, are now for the most part in a state of decay, that the Herefordshire orchards no longer know their once familiar faces, and that attempts to reinvigorate them in England fail. The fact is admitted; but what is the inference? Our "Scottish Gardener" says they are worn out and irrecoverable. We say irrecoverable perhaps, but not necessarily worn out.

We beg it to be observed that we have no recent example of this degeneracy. All the cases quoted or quotable are those of varieties raised long enough ago to have fallen into decrepitude from neglect during that dark time of English gardening which intervened between the middle of the eighteenth century and the beginning of the nineteenth. Our theory is that during this period fruit trees generally, when cultivated as open standards, were allowed to run wild and fall into bad health; that when cuttings were taken from them for propagation they carried disease with them, which disease, acquiring more and more intensity, ultimately exterminated them except in a few places. This view seems to us to be consistent with the fact that some diseased varieties recover health when placed in favourable situations, as Madeira or the United States, which is wholly inconsistent with the hypothesis of degeneration. For how does Mr. Knight, the great champion of degeneracy, explain what he understands by it? His words are these. "From the result of these experiments, and from the general failure of every attempt to propagate every old variety of the Apple, I think I am justified in the conclusion, that all plants of this species, however propagated from the same stock, partake in some degree of the same life, in the habits of its youth, its maturity and its decay; though they will not be any way affected by any incidental injuries the parent tree may sustain after they are detached from it." And again:—"The fact that all trees of the same variety of fruit, where each tree partakes necessarily of one common life, are in their habits strongly connected with those of the first original tree of the variety, is, I think, placed beyond the reach of controversy."

Let us vary this language, retaining what we conceive to be its true meaning. "An Apple tree, A, born of some A B, has 50 years appointed as its term of life or health. At 25 years it is in full vigour, and is largely multiplied by pieces of its body (scions). These children of its vigour will not exist more than 25 years longer. At 40 years of age it is in incipient decay; and the offspring obtained from it have only ten years to live; and so on." Is this credible? We think not. "Mr. Knight," says the Scottish Gardener, "estimated, with what degree of correctness we do not pretend to say, that the ordinary duration of a variety of the Apple was about 200 years, but he added, that by certain expedients, it might be made to last three times that period. Overlooking the latter part of the statement, some have taken the former part of it with mathematical precision, and because trees, even in the orchards of Herefordshire, are more than 200 years old, they have concluded that Mr. Knight is wholly wrong." It certainly strikes us as a singular way of maintaining the hypothesis of degeneration to say that it may take effect in the same variety in either two hundred years or in six hundred years, about which there cannot be any kind of evidence. Such a sentence is a virtual abandonment of the whole speculation, for being interpreted it really means neither more nor less than that degeneracy may take effect within a fixed period or not at all.

Our northern friend attaches no importance to the renovation of a sickly race when carried to a good climate:—

"We are not surprised that 'diseased European Apples and Pears' should enjoy a temporary restoration from the warm summers of Long Island and Pennsylvania. The proofs drawn from the fine climates of France and Madeira do not weigh much. When consumptive patients are sent to Nice, Montpelier, or Funchal, they are confessedly in a bad way. The tendency in their case is undeniably established. Many die there, many come home to die, and others to betake themselves to respirators and sanatariums. At best they are restored to unstable health and ceaseless apprehensions. We must wait to see whether the Golden Pippin trees, brought from France, and now in the garden of the London Horticultural Society, shall continue long in a healthy state. We have heard of a bronchitic patient who enjoyed 10 years of recovered health in Rome, and who was subsequently reduced by one winter in Edinburgh to as bad a state as ever. With all deference to Dr. Lindley, we consider the tendency to degeneration to be established in the case of the Golden Pippin.

"The favourite Ribston Pippin Apple, we regret to say, has also been obliged to put on the respirator, and is on its way to the sanatarium. From the time that the original tree in Yorkshire was *in extremis*—we do not at present know whether it is actually alive or dead—this valuable variety was almost everywhere infected with canker. In Scotland, at least, except perhaps in a few warm places and dry soils near the sea, it has become a wall tree. It was not always so. It is a part of our early recollections of East Lothian, to which we have already taken the liberty to refer, that two or three standard trees, in an orchard of considerable elevation above the sea, and of by no means a dry subsoil, produced at least a cartload of fine fruit, which, though not so large, became in the course of the winter as golden as those grown on walls. The trees were dead long ago. We question whether so many fruit of the Ribston Pippin have been borne in any one year, recently, by all the standard trees in that county, one of the most propitious in Scotland. That some are still grown is evident, from the few scabbed specimens seen in the fruiterers' shops in Edinburgh, but unless we are deceiving ourselves, like the Spanish Marquis in Gil Blas in regard to the Peaches, they are very far from being equal to those we admired in our youth. In this case, too, we hold the tendency to degeneration established.

"We might adduce many other instances which must be familiar to cultivators. Take the Hawthornden Apple, for example—'it is in a state of decay,' says Mr. Macintosh, a convert to Dr. Lindley's views. We might also mention the Golden Cluster Apple, the Dutch Codlin, &c., or take the following fact from abroad:—M. de Jonghe, Brussels, planted 50 varieties of Pear trees, received from France. 'Cultivated as standards, without shelter, in 15 years, 15 of them successively died off, barren, and suffering from various diseases.'—*Gardeners' Chronicle*, 1856, p. 597. This skilful cultivator, unwilling to admit the principle of degeneration from age, tries to account for his loss by various causes, for which we must refer to the passage cited. To us it appears that his experience does not differ from that of hundreds of gardeners in this country.

"Now, what does the evidence adduced amount to? We find that the once celebrated Red-streak has crept out of the knowledge of Dr. Lindley. We find that the Golden Pippin, from which hogsheads of cider were manufactured in Herefordshire, has betaken itself to walls, or has gone to France and Madeira for its health. We find the Ribston Pippin forsaking districts of country where it once flourished, and drawing towards the sea-shore. We find many other Pears and Apples *in pari casu*, and all of them, as well as those already mentioned, deeply infected with canker. 'It is disease,' says Dr. Lindley. We may examine that argument more particularly afterwards; meanwhile we say, well, let it be disease, but then we ask if the Golden Pippin, in consequence of disease, cannot be grown as a standard in large breadths of country where it was formerly cultivated as a cider Apple, is it not degenerating? The prevalence of disease, and of disease increasing in malignity, is an unmistakeable symptom of decay. We might as well say that the Red man of America or the Aborigines of Australia are not degenerating, because their downward course has been precipitated by the imported luxuries and vices and diseases of civilisation. On these grounds we ask a general verdict in favour of the views of Mr. Knight."

Such are the words of the *Scottish Gardener*. We wonder that so acute a writer should not have seen how inconsistent with Mr. Knight's theory is his own argument, and how consistent with physiological certainty is that which we presume to offer. If races supposed to be dying because they had in the beginning only a given span of life, yet nevertheless do grow with renewed vigour under new influences, and thus extend their existence to six hundred years, or as we may otherwise say, into a limitless future, it seems to us clear that they had not in the beginning only a given span of life. The two statements are self-contradictory and irreconcileable. On the other hand, when we say that a race has become diseased and is therefore dying, and that so long as the original cause of disease, whether bad treatment, or bad climate, or bad soil shall continue, it will become more and more diseased till it dies out, we say what is physiologically intelligible. For as every piece of a tree when converted into another tree carries with it such peculiarities as belonged to its parent, so it will carry disease, as well as other properties. But it may shake off that disease when it finds itself in a good climate, and recover its original health. Assuming the life of man to be fourscore years and ten, man will die be he where he may, when that period shall arrive; he does not extend his life to "three times that period" by going to Montpellier, or Nice, or Funchal, although he may for a few years. In his case the term of life is fixed within certain narrow limits. In trees no such limits exist.

NEW ROSES.—Paul *v.* Rivers.

In this my second article I will briefly consider the question of large and small collections of vegetables, fruits, and flowers, but more especially of Roses. I agree with Mr. Rivers that it is desirable to cut down the varieties of vegetables, fruit trees, and flowers to a "sensible standard," and this would tend as much or more to the advantage of the grower than to that of the purchaser. But I apprehend this theory may be pushed too far and is easier to accomplish with vegetables and fruits than with trees and flowers, because the palate is less variable than the eye of taste. I would say to all who have not already done so, cut down your lists so far as to render it impossible for a purchaser to select anything bad or indifferent, but beyond this, as a large grower, I am not prepared to go. To confine my remarks to Roses, Mr. Rivers must from long experience be well aware that persons possessed of an equally correct taste will not always select the same varieties of flowers. What one will reject another will highly approve, and in this dilemma who is to fix the standard? Does he think the amateur will waive his claim to select such varieties as may please his own taste in favour of any grower's standard, however "sensible?" I opine not, and in support of this opinion I make the following extract from the January number of the *Scottish Gardener*, where the Rose question is cleverly reviewed by a writer apparently seeking truth without prejudice. "Some nurserymen cultivate only the Roses which have a secondary period of flowering in autumn; and even Mr. Rivers is swaying towards that result. Prefixed to his catalogue of summer Roses he has the following paragraph:—'The numerous varieties of this class, once nominally more than 2000, have now become of secondary interest, except for showing as single blooms for prizes, owing to the introduction of so many beautiful autumnal Roses, more particularly the varieties of Hybrid Perpetuals, which now comprise all that is most perfect and beautiful in form and colour. A summer Rose-tree, whether bush or standard, when its flowers have passed away is a most uninteresting object; in a few years, it is most probable that, with the exception of Moss Roses, summer Roses will be spoken of as things that were.' With all deference to Mr. Rivers' acknowledged authority and taste, we must protest against this doctrine, in behalf of Scotland at least. We will not give up our summer Roses. They are on the whole hardier and better adapted for our climate than the Hybrid Perpetuals, many of them raised at Lyons or in some of the warmer districts of France, and with a large infusion of China blood in them. Many of the former, such as Coupé d'Hébé, Chenédolé, Kean, Madame Zoutman, and some hundred others in the same families, 'make glorious summer' in July, when our weather is at the finest; and at that season, so far as we have seen, they are as yet not quite equalled by the Hybrid Perpetuals. In Scotland, at least, the flowering of the latter in September and October—greatly to be prized in itself—is only a faint Indian summer compared with the full orbed glory of the former season. Now, we can fancy another class of growers whose soil is light and warm saying, "We will not give up our very full Roses, although in the best Rose soils they may be indifferent or uncertain;" another class, "We will not give up our sweet-scented or brilliantly coloured flowers, although the florist may pronounce them deficient in shape or fulness," and so on throughout the whole range of varieties. In support of growing a moderately large collection of Roses I would say a cultivator with a large connection has not only to consult a variety of tastes, but a variety of soils, climates, purposes, &c., and it is well known to the least experienced that the same varieties are not equally good in different climates, situations, and soils. Thus, the South and West of England receive annually thousands of Roses which would not flourish in the North, and thousands travel to the North which would not meet with general approval if transmitted to the South or West. Again, the United States and some of our colonies absorb a different stock, while the West Indies and similar climates take varieties which would be rejected by all others. Now, I apprehend it should be the object of a large grower to meet the requirements of all; if he cultivate only for one class of customers he must rest satisfied with a very limited trade. But I will go back to the question of taste, and seek an illustration from an analogous point of view—the article of dress. What is it that draws the crowds from various parts of the country to the large drapery shops in London and elsewhere? Evidently not quality and cheapness alone or combined, though these may have some weight in the matter; the great secret is novelty and variety, the power of choice. Where, then, is the advantage of the small list over

large one—the difference being only as 450 to 700? The large collection includes the various items of the small, and many equally select besides. Never was a greater fallacy promulgated than to say the small list offers the purchaser advantages, provided that, which is a fair assumption, nothing bad is inserted in the other, and the descriptions are equally accurate. Those who know Roses can easily pick out the best for their individual purposes; those who do not will not find perplexity in the smallness of the difference. The question of a large or small collection of a flower seems to me more a grower's than a buyer's question. If a grower does not mind the trouble of cultivating a moderately large collection of Roses of different degrees of merit, do the interests of the buyer suffer? Nay, rather the reverse. Many buyers are not willing to pay first class prices, and there are many purposes for which first class Roses are not absolutely required. The grower of a moderately large collection acts on the principle of the publisher who publishes at the same time two editions of a book; the one in the first style large and handsome, the other small, less elegant, but still good and useful. Now by this plan it is found the sale of the last edition is not sensibly diminished while the cheapness of the other creates a demand among those who while admirers would not otherwise have become purchasers. Thus an extended sale is secured, and producers and purchasers are mutually benefited. In conclusion, I would ask the uninitiated to pause and consider whether in the recent efforts to depreciate new Roses there may not be an interest of old Roses—the old shopkeepers of commerce—as well as of new. And in the complex movements on this wondrous ball I would say, take heed lest in steering to avoid Scylla you strike against Charybdis. *William Paul, Nurseries, Cheshunt, Herts.*

VEGETABLE PATHOLOGY.—No. CLII.

626. PARASITÆ (*Insects*). Having considered the effects produced on vegetables by parasites belonging to the same kingdom with themselves, it remains in completion of that portion of our subject which treats of maladies arising from external causes to notice those which spring from insect parasites. Multitudes of insects cause more or less important injury to vegetables, by preying on their leaves, burrowing into their substance, destroying their anthers or pistils, or in other ways; but these, however injurious, do not affect the structure of the parts, or cause any organic change except such as may arise from the wounding of the cells, and in consequence exposing them to the corroding effects of the external air and damp. Eggs again may be present in the nascent organs without producing any immediate injury, but when hatched the larvæ may feed upon the seeds or other organs, and produce mischief the same in kind with that which is effected by mature insects. In these cases the eggs may be either deposited on the outer surface in some convenient situation for the penetration of the larva when hatched into the part destined for its nourishment, or in the substance of the tissues themselves by means of a rupture effected by the mother insect in the external surface, without producing any particular action of the tissues, or causing any change in the general appearance of the organs themselves. In very many cases, however, the effect is very different. No sooner is the egg deposited than important changes take place in the tissues with which it is in contact; the cells are immensely multiplied, their nature, dimensions, and the character of their contents altered, and a host of curious growths appear upon the plant known by the name of Galls, simulating parasitic Fungi and often confounded with them by superficial observers. The egg of the insect at length is hatched in the midst of the hypertrophied tissues produced by its presence, and in many cases a deposit of starch is prepared in the cells which serves the larva for nutriment, while a wall of thick coated cells is at the same time generated which protects the young insect from external influences till the stock of nutriment is exhausted and the insect is ready to leave its prison to undergo further changes in the earth, or after having gone through its proper course from the larva to the perfect insect, to make its way at once into the world to propagate its species after a greater or less interval of time.

627. This action upon the surrounding tissues is in some respects not unlike what takes place with parasites in the animal kingdom, as when the infant tape worm has made its way into the liver or cerebral cavity. The firm wall produced within the Gall by the irritation caused by the presence of the insect is not more surprising than the cysts of the brain and liver in sheep and pigs by the presence of the tapeworm larvæ, nor indeed so marvellous as the concentric cysts known under the name of hydatids. Nor again are strange animal substances deposited amongst the tissues the only ones capable of producing great changes in the surrounding cells. The spores and young mycelium of Fungi are often no less powerful in causing hypertrophy of the parts where they are present, a fact which is plain enough in many of our own parasitic Fungi, but is peculiarly marked in the case of the *Æcidium* which attacks the Elder in the United States, or the *Podisoma* of American Junipers.

628. The extent of the injury depends in great measure upon the organs on which the Galls are developed. When confined to the leaves, except their number is excessive the injury is not appreciable. But almost every part of the plant is liable to attack, and if the part affected by the germen, anthers, or other organs of fructification, abortion or sterility often ensues. In some cases, as in that of Vibrios, not only is the organ changed in external appearance, but the multitudes of animals which at once attack it soon devour its substance, and render it unfruitful. *M. J. B.*

ROSES.

IN heading an article about such sweet flowers (the "flower of love" of Theophrastus), do not, I pray you, employ again that odious law phrase reminding your readers of big wigs and bitter feelings rather than of "love among the Roses." I cannot discover any controversy between myself and Mr. W. Paul; he seems to differ from me in his estimate of Perpetual Moss Roses. This is quite *en règle*. He is, although younger, not perhaps so poetical as I am. I look at a Moss Rose in September not with a florist's eye; besides this, we Rose growers seldom or never agree in our likings. I have had and intend to have (D. V.) many pleasant meetings with my neighbours Paul, Lane, and indeed all the principal Rose growers (we occasionally agree in our estimate of a Rose), and I know of nothing more agreeable than these friendly discussions and our interchange of visits in Rose-tide. It appears to me that our great aim ought to be not to overload our catalogues with names, but carefully to select only such Roses as are thought by a majority of us growers to be good. Since October 1853, that is in four years, including the autumn of 1856, there have been named and sent out in France nearly 200 new Hybrid Perpetual Roses. From these some really fine Roses have been selected and now beautify our gardens, but to a certainty too many have been retained in our catalogues with not exactly false, but what I may term smooth characters, such as are often given to indifferent servants to get them situations. This must be all changed; if a Rose has a weak point it should without hesitation be given in describing it. I feel that I have "oft offended" in this respect, but then one's eyes were blinded by novelty and the fascination of a new Rose, so that in describing its beauty under very favourable circumstances its defects were for the time forgotten. I will give a few examples of the weakness of us Rose growers, and trust to effect a cure by thus pointing out our defects. Firstly I will commence with my own catalogue, referring your readers to that and the other catalogues published last autumn, and giving what in my opinion ought to have been added to the descriptions.

HYBRID PERPETUAL ROSES.

Names.	Additions that should have been added to Descriptive Paragraphs.
Alexandrine Bachmeteff ...	Flowers rather too flat.
Enfant du Mont Carmel ...	Does not always open well.
Lady Stuart	Not a free autumnal bloomer.
Beranger	Flowers too flat.
General Bedeau	A delicate grower, unless in the richest soils.
General Castellane	The same.
General Brea	The same.
La Reine	Does not open well unless in dry and warm weather.
Adam Paul	Seldom or never opens.
Blanche Portemer	Flowers small; a very bad grower.
Deuil de Willermorz	Flowers small.
Emperor Napoleon	Flowers badly shaped.
Eugène Sue	Opens badly.
General Jacqueminot	Not double enough.
Joan of Arc	A bad grower in most soils.
Lion des Combats	Flowers not finely shaped.
Madame Hector Jacquin ...	Rarely blooms in autumn.
Mère de St. Louis	Not double.
Prince de la Moskowa	Semidouble only.

There are many other Roses of this family requiring a little extra description, although I fear it would spoil their sale—so much the better if it leads to truth and fair dealing. I have only to add that any Rose catalogue containing 200 varieties of Hybrid Perpetuals, Roses all with smooth characters, is not up to the present day, and must be changed.

I observe the phrase used by Mr. Paul that "Nature does not advance by leaps." True, as far as regards unassisted Nature, but decidedly false when applied to gardening Nature. The Dog Rose is a Dog Rose still; but the old Moss and old double yellow Roses must have been the result of a grand leap, as was the Crimson Perpetual, still one of our most fragrant and charming Roses, which made its appearance when none but the most insignificant and imperfect autumnal blooming Roses were known. There are many other remarkable leaps in gardening Nature that might be recorded—the Golden Pippin, the Ribston Pippin, and the old Nonpareil were all long leaps; and among Pears the Winter Nelis was such a leap as all the progressive culture of the late Van Mons has failed to equal; the Greengage Plum must have been a prodigious leap, making its appearance when, as far as we know, none but inferior Plums were known. Mr. Paul refers to my descriptions of new Pears. I have given, as far as my knowledge of them will allow me, any peculiarity detracting from their usefulness; and I feel more than ever convinced that the utmost truth and candour ought now to characterise all our descriptions of fruits and flowers, for crowded as are our catalogues with new productions, they are quite indispensable if we wish to give confidence to purchasers. New Roses may be inserted in catalogues, because there are many amateurs who like to buy a new Rose be it good or bad, but they should not have a good character till they are found to deserve it.

With regard to property in seedling flowers alluded to in "New Roses," I fear I have told a trade secret; but I trust the day for such old-(garden)-world secrets is past. I hold that the authorship (if the term may be employed) of a seedling fruit or flower cannot be bought or sold; as well may some vain rich man ask a Thackeray or a Dickens to sell him a novel and allow his name to be placed on the title page as its author. The unworthy and untruthful fashion of a florist placing his name to a seedling flower, the property in which he had purchased, originated, I think, when the furor for Dahlias was at its height; but as seedling flowers are like books, the result of brain-work, I hold the name of the author ought to be retained. If I remember correctly, the Pelargoniums of Mr. Forster and other celebrated raisers always retained their names as the raisers, although the property, that is the entire stock, was in several instances purchased by Mr. Turner and others. This is as it should be; in like manner the new Rose Victor Trouillard should have the name of Trouillard after it, and Mr. Standish named as the proprietor or introducer of it; and Bacchus, now the property of Messrs. Paul, should have the name of the raiser attached to it. There can be no injury to the introducer or purchaser if this method is adopted; it will look fair and candid, and not appear to be like, as it now does, "sailing under false colours." I hope to be understood. I have no fear, or envy, or jealousy; I have lived long enough to forget them; but I wish to see our most agreeable profession (well, never mind, it is a fine word) conducted in the most open-handed and open-minded manner. *Thomas Rivers.*

Home Correspondence.

Hazard's Stove.—Although in my case the erection of this stove was wholly under my superintendence, yet it was put up strictly in accordance with Mr. Hazard's instructions. While the operation of forcing was being carried on, my assistant was daily if not hourly under my notice, and received whatever advice was necessary, so that I am responsible for all that happened. Although Mr. Hazard thinks a fire-flue of little consideration, yet to me it is infinitely more valuable than being under incessant terror from the insecurity of his stove. I am not insensible to the beneficial effects produced upon vegetation by the admission of a continual succession of fresh warm air to hothouses, but it must be accomplished by means in several respects different from any that I have yet seen in use. "What could be expected," says Mr. Hazard, "but that the apparatus must eventually become out of order, with a gardener attending to it whose care led him to keep up a degree of heat enough to burn out Beelzebub." Let me inform Mr. H. that the heated air never at any time exceeded what was necessary to keep the temperature in the house at a proper standard. Will Mr. Hazard oblige me by stating where he discovered that I employed 200° of heat under scorching sunshine? The heat spoken of was employed in very severe weather, and even a greater pressure was used when circumstances required it; but when scorching occurred the air was just warm enough to admit of ventilation. Allow me to remind my opponent that I did not complain of too much heat, but that I had bitterly to regret having to contend with injurious effects accompanying it, and I do not believe, had the roof been removed, that this would altogether have remedied the evil. The charge that the steaming apparatus was abused is a mistake. What gardener, with the smallest amount of experience, would sanction the production of vapour by throwing cold water on highly heated iron? If we are to have our forcing houses heated by warm air, an apparatus must be provided able to discharge a large volume at a low temperature, and to do this by Mr. Hazard's stove, the price would more than double that of hot water. The fact is, Mr. Hazard has stood sponsor for more than his invention could possibly accomplish, and here your correspondent "A Looker On" has hit the right nail on the head. I repeat that I was satisfied in a great measure with the working of his apparatus till the disaster before alluded to occurred. But let me state a few more facts. Had I been of a contrary opinion is it reasonable to suppose that I would have recommended my employer, H. G. G. Ludlow, Esq., to use a 60*l.* apparatus to warm his new church, which it never did comfortably unless the external temperature stood as high as from 30° to 35°, and up to the present time the same complaint exists. We were obliged to light the fire on Saturday shortly after mid-day, keep it burning at full force till 9 or 10 o'clock, and have it stirred again by 8 o'clock on Sunday morning. At the present time it is lighted on the Friday instead of Saturday, and the consumption of fuel is beyond what would easily be believed. Will Mr. Hazard take upon himself to say that he was not consulted in this case? He attended to Mr. Ludlow's invitation, selected the situation for the stove, and gave all the directions for the arrangement of the warm-air flues shortly after the foundation of the church was begun. He sent one of his own men to put the apparatus together, which was done exactly in the same way and the joints filled with the same material that was sent to me for the one in the garden. With all Mr. Hazard's professional advice, we were, as in the case of the Vine house, obliged to close the cold-air channel from the outside and consume the air in the church, as there was a continual reaction of the warm air when the wind blew from particular quarters. All happened under my own superintendence, and I can therefore speak confidently to every fact. Will Mr. Hazard state whether another of his 60*l.* stoves was not placed in Horningsham church by my recommendation during the curacy of the Rev. W. Popham, and will he favour your readers with its mode of action, as it was, as in the case at Heywood, under his entire control? My experience with Mr. Hazard's stove has extended over a period of five years, during which I gave its capabilities unceasing attention. I cannot surely, therefore, be accused of laying before the public a hasty and immature opinion in the matter. *Alex. Cramb, The Gardens, Tortworth Court, Gloucestershire.*

Village Post Offices.—I quite sympathise with your correspondent "W. J." on this subject. Very little attention is paid to the wants of rural districts by the Post-office authorities. And yet there can be little doubt that if a delivery daily was established in every village and hamlet many more letters would be written, and ultimately such a measure would prove remunerative, perhaps in less time than it took to make the penny postage pay; for it must never be forgotten that at first the plan of Rowland Hill did not succeed, and that these rural districts amongst others were heavily taxed to make up the deficiency thus caused. After all, such a plan would be but an extension of the penny postage system; and I can conceive no greater incentive to education among the poor than the certainty that their letters would reach their destination equally soon when addressed to a poor man as to a rich—to one living in a village as to one dwelling in a town. The Parliamentary representatives of counties ought to look to this question. I think, too, with "W. J.," it would have a beneficial tendency on the point of wages. *T. F. O., Cambridgeshire.*

Converting a Strong Clay Soil into a Kitchen Garden.—Will any of your correspondents have the kindness to inform me how I can improve the soil of a kitchen garden formed of very stiff clay, so that in wet seasons

in particular it may be cultivated with more pleasure and less labour? When the soil is not so tenacious no doubt burning the subsoil to a certain depth and mixing it with the surface soil, after the land is well drained, would much improve it; but some of your readers may have had long experience of the best mode of cultivating such land to make it productive by the application of manure, lime, &c., or by the mixture with the clay of other lighter soils, turf, &c.; and if they will state what they can with confidence recommend I shall feel truly obliged? *S. E.*

Oriental Oaks.—Your correspondent in the *Gardeners' Chronicle* would do a service if he would explain which of the two Oaks of the Crimea is the true pubescens, and what the other is, and whether the true pubescens is the same as that of the Troad and of southern Austria—and as that so called in German gardens, and to be seen at Frankfort, Wiesbaden, &c., in the public walks. I have had it here but lost it. I do not remember seeing it on the Bosphorus; but I do remember there the shrubby coccifera (which is occasionally to be had seedling in our nurseries), and the long pointed acorn which at the time I thought belonged to it; but I suppose did not, as the coccifera that bears here has a blunter, shorter acorn, and scaly cup like a miniature Ægilops. As for Zan, I have it from Loddiges, but it seems only a var. of Cork, which I suspect is liable to many vagaries. Does your Quercus australis bear acorns at Chiswick? [No.] The whole hardy part of the genus wants revision, and a hint from the *Gardeners' Chronicle* would get many country gardeners to work at it. Just the sort of thing for small grounds and paddocks or arboretums. *S., Dorsetshire.*

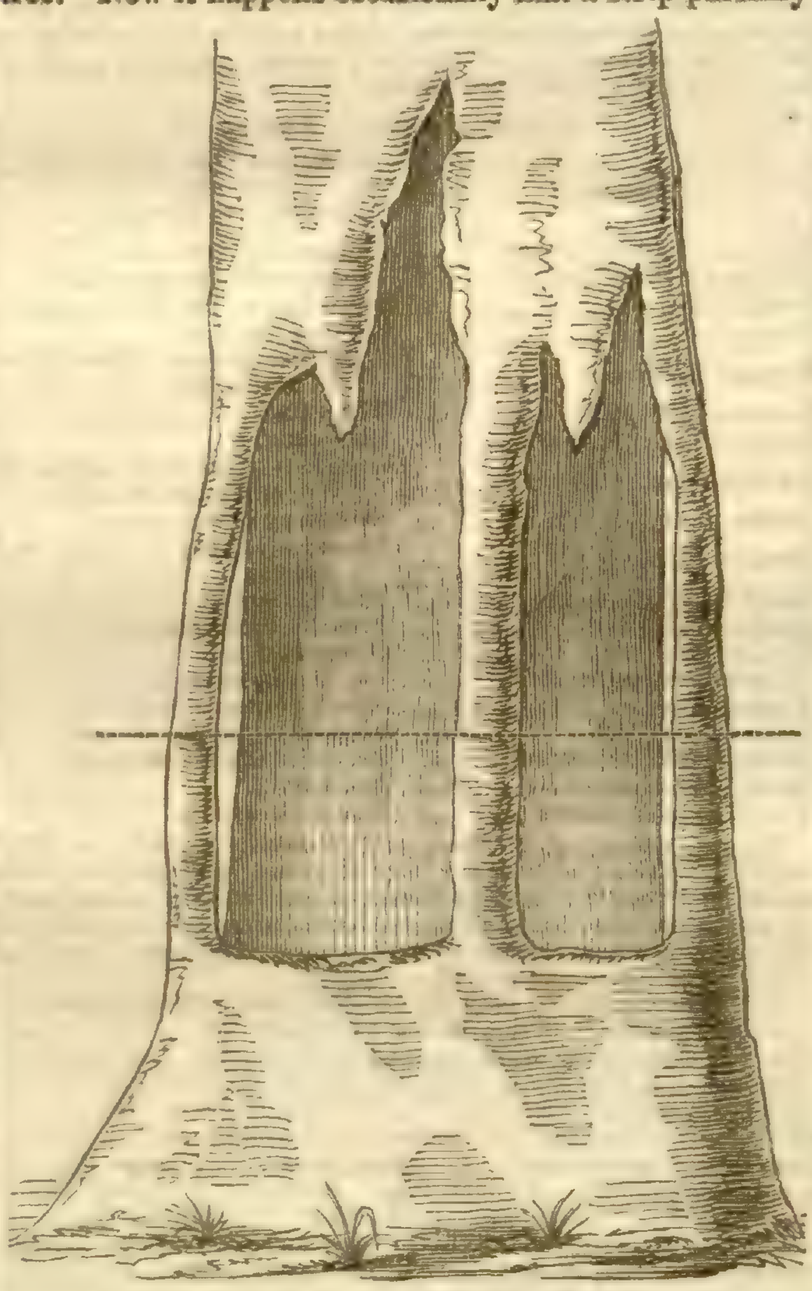
Plants suitable for "Masses" in a Shady Court.—I remember that, a week or two ago, in noticing the well known nurseries of Messrs. Henderson at St. John's Wood, you described the pleasing effect produced by a house appropriated entirely to evergreen plants and those of flowerless but elegant forms. I have been attempting something in the same way; not however in a glazed house, but in an open garden court which is too shaded and confined to allow even the smallest success in the cultivation of flowering plants. I have hitherto found that Magnolias, Yuccas, Myrtles, Ferns, and Ivies do very well, and in the summer pots or tubs of Oranges—which flower here in luxurious health from May to November—are introduced with good effect. I want, however, to mass together for permanent effect throughout the year a larger variety of such evergreen or graceful foliage, and shall feel much obliged by the suggestion of any appropriate additions to the list of hardy plants which I have quoted. *C., Devonshire.*

Double Convolvulus.—In answer to "A Subscriber" in p. 54 respecting this, permit me to say that I had a packet of seed under that title two years ago, of course mixed seed, as almost all supposed valuable seeds are (I speak from experience), and one or two plants came in which the stamens were converted into petals, abortive things which spoilt the flower. "A Subscriber" may take my word for it that it is not worth growing. The plant is the Convolvulus minor. Can you tell me whether the female of Garrya elliptica is to be procured in this country, and where? *A. R.* [We do not know. She is very ugly.]

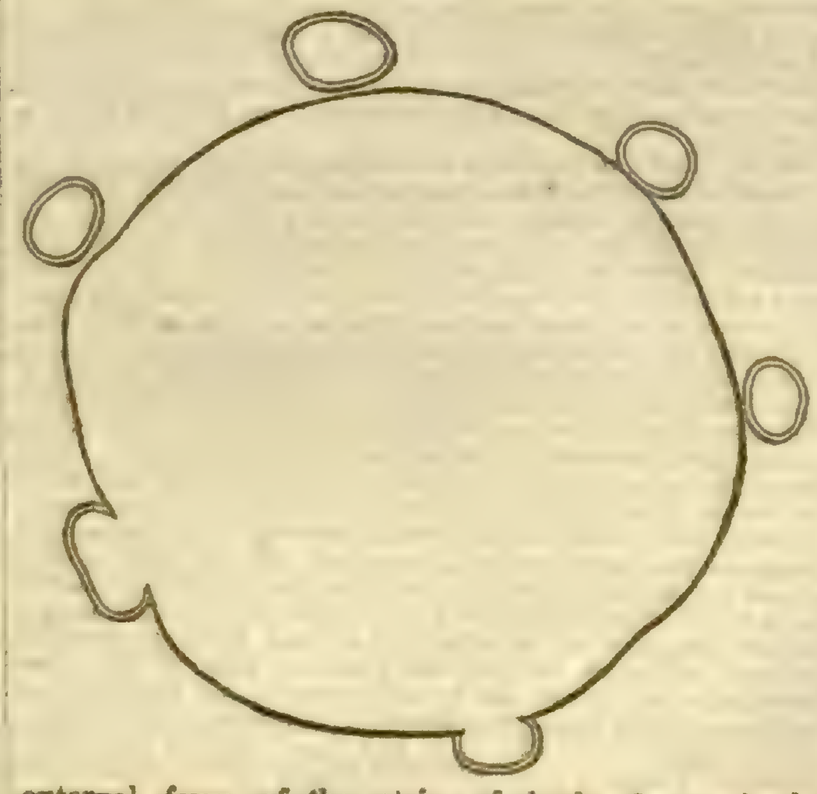
Jerusalem Artichokes.—Is there any method of growing these so as to insure their having distinct and well shaped roots? Ours have grown large, and have been very productive, but have been joined together, so as to cause great waste in preparing them for cooking. Let me also ask if the present is a proper time for heading back pyramidal Apple trees planted last autumn? *C. M.* [We should not touch them with the knife till next year. If they require attention in the summer the finger and thumb are the best pruners.]

Watering Plants in Pots.—Many dwellers in the country who have a large heart for flowers, but means not sufficiently ample to keep a gardener, contrive nevertheless to indulge themselves with the luxury of a conservatory, which is devoted generally to the growth of miscellaneous plants. With the "Theory and Practice of Horticulture" to supply general principles, and the *Gardeners' Chronicle* for specific directions, nothing is wanting to insure a tolerable amount of success, at least as long as the proprietor is on the spot. But suppose him to be called away for three or four days by business or pleasure, who is to water the plants? William can grow Cabbages to admiration, but is slow to learn the necessity of proportioning the supply of water to the requirements of each plant; and if he has learnt this lesson he is still unable to discriminate between the bibulous and totally abstinent. I have hit upon a plan which makes me independent of William, and, supposing it to be new, venture to forward it to you for the benefit of whomsoever it may concern. When shifting such plants as Chrysanthemums, which will submit to no stint of moisture, at a season when to water Geraniums would be fatal, I pass through the drainage-hole of the pot a strip of list, one end of which I imbed in the soil and allow the other end to hang down an inch or so through the hole. The pot is then placed in a common earthen saucer half filled with water, but is prevented from actually coming in contact with the water by being raised on a frame about an inch high, which is itself set to stand between the saucer and the pot. By this contrivance the plants are saved from standing in a pond, and nevertheless are kept constantly moist by the water which ascends by capillary attraction through the list. William is directed to water only such plants as are furnished with saucers, and the Geraniums are preserved from dropsy. The rests or frames which I use are the earthenware "stilts" employed in the potteries to prevent the pieces of ware from touching one another in the furnace. As they are spoiled for their original use by once passing through the fire, they are thrown away by the thousand as worthless, but they even then answer my purpose as well as if they were made for that special design. Several forms of these stilts are employed. The most convenient for my purpose may be defined thus:—a slender ring of white earthenware furnished with three equi-distant vertical points above, and as many below, so that in whatever way it is placed it is supported on three points and presents three more to support what may be placed on it. *C. A. Johns.*

Barked Tree Stems.—In your Number of the 31st January I observe a communication, with a sketch, headed "Barked Rhododendron Stem," describing an accident which the writer considers to be interesting, as illustrating some points of vegetable physiology. The following description, with accompanying sketch, may perhaps be worth notice as illustrative of the same processes on a more extended scale. You are probably aware that, in New South Wales, the bark of some species of Eucalyptus is extensively used by Europeans as well as by the aborigines for purposes of roofing or shelter. The latter frequently construct their temporary habitations during bad weather of portions which are detached below from the trunks of large trees with the hatchet, and torn off by main force without the precaution of cutting them on all four sides, so as to shape them into parallelograms. Large irregular portions are thus sometimes removed, leaving other portions hanging in strips, more or less detached from the tree. Now it happens occasionally that a strip partially



separated is left attached to the trunk below, as well as above, continuing to be a medium of circulation between the roots and branches. This circulation, although generally producing a reunion with the stem, occasionally when the separation is considerable does not do so; but, without any material change, by curling in the



external form of the strip of bark, forms it by successive layers on the under side of bark and wood into a distinct and perfect stem, wholly detached in a portion of its length from the parent trunk. I have endeavoured to illustrate this in the accompanying sketch. It is intended to represent an ideal section from memory of a trunk of a tree, 3 or 4 feet in diameter, which I have frequently examined, and which at the point where the section is supposed to be taken may be said to have four or five stems, distinct from the original one, but united to it above and below. At this point the whole of the bark has at some period been completely detached, and the original trunk killed, but the circulation having been maintained through several strips left attached above and below, these strips have been gradually converted into perfect stems. I have frequently wished to cut this tree down, or at all events to detach a portion of it to examine the condition of the supplementary stems. In health the branches and foliage are not materially different from other trees of the same species growing near it. *W. Macarthur*, 4, *York Street, St. James's.*

Turkish Plants.—You have probably some correspondents at Constantinople this winter. Before it is too late recommend them to look out for the following plants, with a view to sending home both specimens for your inspection, and seeds, &c., for distribution:—

Trifolium uniflorum, pink and white	Banks of the Bosphorus.
Ornithogalum nanum	Banks of the Bosphorus.
Orchis and Ophrys, several sp.	In the market.
Grape Hyacinths and congeners	Gardens, and perhaps wild.
Quercus pubescens	Bosphorus and Troad.
" coccifera	Bosphorus and Troad.
" infectoria	Bosphorus and Troad.
" ægilops	Bosphorus and Troad.
Pistacia Terebinthus	A large tree, and different from that of the South of France and Mediterranean.
Tulipa, with linear petals ...	Gardens.
Poterium spinosum	Wild.
Hedera chrysocarpa	Do.
Smilax excelsa	A different thing from ours.
Horizontal Cypress	Cemeteries.

—*S.*

The Greenhouse Case.—As the defendant in the case "Martin *versus* Roe" lately tried in the Court of Queen's Bench (a report of which appeared in your Paper of the 31st ult.), perhaps you will allow me to correct a misstatement which I notice in the account. Your correspondent states that "after the death of Mr. Matthew, the plaintiffs, as executors, removed the sashes and frames, taking the latter out of the mortar in which they were bedded, but doing no more injury to the wall than was unavoidable," and that (I) the defendant claimed the frames and sashes so removed, got possession of them, and refused to give them up, whereupon I was sued by the plaintiffs. In answer to this I beg to state distinctly and positively that the plaintiffs never took possession of any part of the frame-work or glass, and that the houses remain up to the present time as they were when I was presented to the living. I would also observe that the "low brick wall, 2 feet high," on which the frame-work is said to rest, is on the north side 49 feet long and upwards of 11 feet high, and in one part more than 15. The houses were built in the usual way, the frames on the north side firmly fixed, by being screwed to the woodwork; the upper sashes on the south side were (as is usual) sliding up and down with pulleys—the lower lights fixed in the same way as those on the north side—the whole of the east and west sides being fixed by screws. The judgment given by the Court of Queen's Bench will of course settle any question which may now arise; but as up to the present time the law has been considered to be that hothouses, greenhouses, and conservatories built on the glebe (in the substantial manner these were, the ground having been removed for the foundation,) passed with the freehold to the next incumbent, I considered I was bound for the benefit of the living to make the claim I did, especially when advised that if I allowed them to be removed without its being proved that they belonged to the executors, at my decease my representatives might be obliged to restore them. So many instances, too, were mentioned to me of hothouses being allowed to pass with the livings without any dispute, that I felt I could not act otherwise, when the view I had taken was moreover supported by the best legal opinions. *Robert Roe, Melbury Osmond.* [We should be very sorry if it were supposed that we imputed a vexatious defence in this case; on the contrary, we think the defendant perfectly right in bringing it before the court. Our remarks were entirely founded upon Lord Campbell's judgment, of which we took the trouble to obtain an authentic report. We may as well take this opportunity of correcting the accidental error of calling the testator Matthew Robert Roe instead of John Jenken Matthew.]

Rose Gloire de Dijon.—Your correspondent "A. R." mentioned in one of his communications that this Rose would not succeed well north of the Trent, and apparently still in doubt, he asks for further information on the subject. Having grown it north of the Tweed, I beg to tell him that not only it has flowered north of that river, but that it grows and blossoms freely 50 miles north of the Grampians, and upwards of 200 miles north of the Tweed. It is, however, on a wall with a south aspect, and budded upon a yellow Banksian Rose. On it are also growing Lamarque and Cloth of Gold—"Noisettes;" both these grow luxuriantly, making shoots in one season of nearly ½-inch diameter, and flowers through the summer and autumn very freely. My opinion is, that there is no better stock for these fine Roses than the Banksian—it is never infested with red spider or green fly. No protection has ever been given to any of these Roses, and they have flowered freely after the severest winters; this Banksian is growing close to another plant of Cloth of Gold, of which an account is given at page 597 of your vol. for 1852, where it is stated to have produced 200 flowers within 12 months of the insertion of the bud. *J. Webster, Gordon Castle.*——It has been stated, that

Gloire de Dijon would not live 10 miles north of the Trent. My nurseries here are situated 20 miles north of it, close on the Peak of Derbyshire, and it has not only withstood the severity of the last two winters worked as standards, but it has also bloomed in great perfection, and it appears to me to have a constitution equally robust with that of Souvenir de Malmaison. My own opinion is that it is much hardier if not equal in this respect to the Hybrid Perpetuals, and as a pillar Rose, or for verandahs, or even grown as a standard, it must most assuredly become a general favourite. *A. Godwin, Ashbourn.*

Rain at Goodamoor, Plympton St. Mary, Devon, 1856:

	Inches.	Days.		Inches.	Days.
January	7.50	on 21	Brought forward	33.69	„ 105
February ...	4.42	„ 15	August	4.16	„ 16
March	3.03	„ 4	September ...	6.84	„ 28
April	7.67	„ 16	October	3.84	„ 8
May	4.48	„ 13	November ...	1.52	„ 13
June	4 11	„ 19	December ...	5.53	„ 17
July	2.48	„ 17			
Carried forward	33.69	„ 105		55.58	„ 187

—*Henry Hele, Treby.*

Rain at Holme on the Dart, Devon, in 1856:—

	Inches.		Inches.
January	11.25	Brought forward ...	40.43
February	7.30	July	1.67
March	3.95	August	3.75
April	9.35	September	5.39
May	6.09	October	4.89
June	2.49	November	1.30
		December...	9.17
Carried forward ...	40.43	Total...	66.60

—*The Rev. Thomas Hullah.*

Rain at Burraton-Sheepston, Dartmoor, in 1856:—

	Inches.		Inches.
January	7.11	Brought forward ...	31.62
February	5.30	July	2.57
March	2.98	August	3.34
April	7.31	September	7.15
May	5.10	October	4.64
June	3.82	November	1.57
		December	5.59
Carried forward ...	31.62	Total	56.48

Henry Terrell.

Large Oaks.—A correspondent expressed a wish last week for the description, size, &c., of a large Oak recently cut on the Bevois Mount Estate. I have obtained from Mr. A. Skelton, the manager of the estate, the following particulars:—It contained 20 loads of timber, and 5 feet from the ground it measured 6 feet diameter; the stick alone contained 13 loads. Mr. Lush, the gardener, states it to be the White Oak of the New Forest, Q. Robur pedunculata. *George S. Rogers, F. H. S.*

New Grapes.—In your report of the Horticultural Society's last meeting you make special mention of some new West's St. Peter's Grapes, shown by Mr. Ingram, gardener to her Majesty at Frogmore. On the 10th September, 1856, I happened to pay a visit to Frogmore; I was kindly shown through the houses along with a celebrated Grape-grower from this neighbourhood, and well do I remember a remark made by him on passing through a house of West's St. Peter's Grapes just then taking (what gardeners term) their first swell; it was "How late they are." Now it must be obvious to all that Grapes "taking their first swell" on the 10th of last September must of necessity be ripe before January 1st, 1857. Will you therefore have the kindness to tell us whether you consider the Grapes in question new or old? I am inclined to think the latter. *J. D., Manchester.* [You are quite mistaken. The Grapes were new; and the first ripe in the house. The others in the house were still unripe.]

Roses.—I have read Mr. Paul's recent article on this subject with great care; but it seems to me to be very like a grave Indian "talk," many words but a very small result. He has given us a pleasing episode about Dahlias, coupled with a reiterated denial of the saltatory propensities of Nature; probably the dear old lady is a little too advanced in years for such unfeminine exercises; but it also appears to me that she has very little to do with hybridising Roses, an art in which our gallant allies, in a very ungallant manner, give her the cut direct. Mr. Paul as an Englishman, and of course a ladies' man, is more polite, and gives her the credit of Devoniensis, Géant des Batailles, and all the bead roll of distinguished Roses. I do not fear with Mr Rivers that the point of perfection has been attained; after all the Hybrid Perpetuals are rather coy in displaying their charms, and I hope to see the autumnal varieties making glorious summer in the cloudy days of October, which they are very far from doing at present. Among the 48 varieties described by Mr. Paul as being indispensable and so familiar in our mouths (I wish the names did not require so much mouthing), I am surprised to see Joan of Arc, Baronne de Heckeren, Voran, and Reveil, varieties which my nurseryman calls "miffy (?) things;" my heart has been very sick with deferred hope, having been obliged to replace them annually. Lady Stuart and Rosine Margottin are two much like Madame Rivers, the queen of blushes; Lion des Combats is a fine gentleman who must not be curiously examined. Hath not Alexandrine Bachmeteff a green eye? The budding charms of Canary are not fulfilled in her maturity, and as for Sir J. Paxton, is there any merit in him, save a rapid growth? What is the nursery rhyme of which yellow Moss, yellow Hybrid Perpetuals, and crimson Tea-scented Roses constitute the echo—rather an Irish echo, isn't it? After having satisfactorily disposed of the nursery rhyme echoes, Mr. Paul wishes to know if it is wise to reject good things? Certainly not, by any means; but for goodness sake relieve long suffering amateurs from the indifferent and superfluous. In conclusion, I hope Mr. Rivers will nail his colours to the mast, and that Mr. Paul will take "Excelsior" for his device, or "go ahead," as it is translated by profane Yankees. *What d'ye Lack.*

Societies.

LINNEAN, *Feb.* 3.—F. Booth, M.D., V.P., in the chair. A. H. Haliday, Esq., M.A., J. E. Howard, Esq., and E. J. Lowe, Esq., were elected Fellows. The following papers were read:—1. "Description of a new species of Pausus," by J. O. Westwood, Esq.; 2. "Description of a new species of Pulex (P. Imperator, Westw.) found in a bedstead at Gateshead," by J. O. Westwood, Esq.; 3. "Note on the cultivation of Mosses," by the Rev. H. H. Higgins. The author's Bryarium consisted of a glass case 4 feet 6 inches long, 22 inches from back to front, and 26 inches high, fitted with shelves and having two doors, one of which was generally left only partially closed. The plants were kept in separate pots and never removed from the case, but kept in the shade and frequently watered with a syringe. Some care was taken to procure suitable kinds of soil, but in most instances soil had been but sparingly used, the pots being more than half filled with drainage. In this bryarium about 240 species had been planted; and the paper consisted chiefly of notes of the result. Among many instances of failure or of but partial success, the author mentioned some instances in which the results had been quite satisfactory, among which were the following:—Grimmia pulvinata proved a charming little plant for cultivation, but required to be kept rather dry; Aulicomnion palustre was another most desirable kind for cultivation, growing freely, the tall pseudopodia being both abundant and interesting; Leptobryum pyriforme is one which should be excluded, as it became a perfect pest, growing everywhere but in its own pot; Bryum nutans and corneum both produced their fruit freely; Physcomitrium pyriforme fruited so densely as to completely hide the leaves; the Bartramias were stated to be on the whole the best and most satisfactory Mosses for cultivation; "nothing of the kind," observes the author, "can exceed them in beauty of colour, growth, and fruit;" the species of Fissidens were also gems for cultivation, and it was mentioned that the author's plant of F. adiantoides was a portion of a specimen which had been in cultivation for 20 years; Leskea sericea and polycarpa were other very beautiful and suitable species for cultivation; the Hypnums were found to be of straggling habit, and seem to have their vitality chiefly confined to their extremities, for if cut off the plant will not throw up fresh shoots from the root, but perishes, while the extremities if planted make vigorous growth; finally, Hookeria lucens proved to be alike beautiful in winter and summer, never changing or losing its delicate freshness. These, it appeared from the author's experience, were the most desirable Mosses for cultivation. G. Bentham, Esq., exhibited specimens of various Jacarandas, or Rosewoods, sent from Rio Janeiro by Prof. Alemão, and made some interesting observations respecting them.

Notices of Books.

Ceylon: Past and Present, by Sir George Barrow, Bart 12mo., Murray, pp. 196.

We do not find that these pages are the result of any personal knowledge of Ceylon; the volume would rather appear to be the work of an amateur in love with the adventures of Knox. In fact the first 80 pages consist mainly of extracts from the well known narrative of that most trustworthy historian. The books of previous writers and sundry official reports furnish the remainder of the author's matter. Among other things there is a short essay on Ceylon Horticulture by Chief Justice Sir Hardinge Giffard, from which we may make an extract or two.

"The chief dangers to be apprehended to the esculent vegetables of Europe, when cultivated here, are from the heavy rains; these not only wash the young plants and seeds out of the ground, but by the violent change of temperature produced in the plants when more matured, by the intense heat of the sun breaking upon them after heavy showers, they are destroyed with a rapidity scarcely credible. A Cabbage, exposed to heavy rain, and afterwards to four or five hours of burning sun, will become so rotten as to fall down in mere jelly.

"But the indigenous plants of Ceylon seem not to be affected in this way; they endure these violent transitions of temperature without apparent injury, and were the number of esculent native vegetables greater than those we have—ameliorated so far by cultivation as to be capable of supplying the absence of those of Europe—we might perhaps, as the easiest course, direct our principal attention to them; but they afford little variety and less temptation to our taste. The place of Greens from Cabbage or Spinach is ill supplied by the Basella (country Greens), Rumex vesicanies (*Qu.* vesicarius) (country Sorrel), or Amaranthus (Tampali); Windsor Beans, by Phaseolus fabæformis; French Bean by Dolichos; Potatoes by Yames (*Qu.* Yams) or Convolvulus tuberoses (*Qu.* Batatas); and here the comparative catalogue would terminate.

"In addition to these we have, as belonging to the kitchen garden, the produce of some of the larger trees—the Bread-fruit in particular—which affords an excellent and abundant supply; the Jack fruit, little used by us but largely consumed by the natives; the unripe Papaw boiled; and the pods of the Murunga—so delicious when dressed with curry: to these may be added the Beendikoi and Brinjal.

"The European vegetables which have been found to succeed near Colombo are principally Asparagus, Watercress; Cabbage, of the Early York, Drumhead, Sugar loaf, and Red Dutch varieties; Turnips, Dutch and purple; Knole-cole (*Qu.* Knob-Kohl); Radishes, long, white, and scarlet London, white and red Turnip, and black; Spanish Celery (what is that?), solid and red-stalked; Endive, green-curled, white-curled, and Batavian; Lettuce, Cabbage; Parsley, curled and large rooted; Mint, Spear and Pepper; Peas, early Charlton, dwarf Spanish and dwarf Marrowfat; French Beans, Negro, Black, and Canterbury, or white; Carrots, Horn and Orange; Beet, red and white.

"The cultivation of Potatoes in the maritime provinces has been often attempted, and, excepting perhaps in one experiment, made in the high lands of the Morwa Korle about six years since, generally in vain. In the Kandyan districts, particularly at Materate and Fort M'Donald, they have been cultivated more successfully; and there is no reason to suppose that they may not hereafter become a valuable source of supply from the higher districts of Kandy. Not many years have elapsed since they were first attempted in the high lands of Hindostan, and they are now not only in very general use throughout that country, but a considerable article of export."

"Of fruits known in Europe, the Grape and the Pomegranate only are cultivated with any success in Ceylon, and the former only in Jaffna; Apples, Pears, Plums, Cherries, Peaches, and the delightful variety of small fruits, which are found in an English garden, are unknown, excepting by a few specimens of them lately imported. The two first have been planted of late at Kandy, but are not advanced enough to ascertain whether they will bear; and some Peach trees, raised by the late General M'Donal at Grand Pass, have often blossomed, but never formed any fruit.

"Strawberries (the alpine) have been cultivated successfully in the Kandyan districts, and in some degree at Colombo; a species of Raspberry has been found wild in the higher parts of Kandy; Melons have been raised. Water Melons and Cucumbers are abundant. To General M'Donal and to Messrs. Kerr and Moon, the superintendents of the Botanic Garden, we owe the introduction of many fruits new to this island; amongst others, the Persian Almond, the Lovi-lovi, Wampu, Lu-chee, Rambutan, the Loquot—most of which are already naturalised, and increase the display of our deserts. The Lemon has of late been introduced, and appears to thrive well in the soil of Ceylon."

By the way we wonder that Sir George should not have recognised in Knox's Jombo fruit one of the common Eugenias called Jambos, well known to Europeans under the name of Jamrosades.

The author of the *Opium Revenue of India* (Allen & Co., pamphlet) asks whether it is "right to take three millions sterling from the Chinese beyond the cost price of the drug, as the condition of their enjoying the forbidden indulgence of opium smoking!" To this we say, Why not? We take millions from our own people in the form of taxes upon gin and Tobacco. Gin-drinking and Tobacco-smoking are habits of the same class as opium-smoking; harmless or agreeable in moderation, pernicious in excess. It is the same with opium, and we perceive no reason why the Chinese should be relieved from a tax upon their pleasures, any more than the English, or why the Bengalese should not have a profit upon their farms as well as ourselves. The author of the pamphlet is perfectly right in describing the hostility to the opium trade as a "senseless outcry."

A new *Monthly Gardening and Botanical Periodical* is announced to appear in Holland, embracing every department of horticultural practice and science. Its editors are Professor de Vriese and M. de Siebold.

Messrs. Cutbush & Son, nurserymen, Highgate, have sent us their descriptive priced *Catalogue of Kitchen Garden Seeds, &c.* It is remarkably free from the useless lumber which formerly occupied the pages of such publications.

Parts 7, 8, and 9, of *Seemann's Botany of H.M.S Herald* (Reeve) are before us. They include the botany of N.W. Mexico and the Flora of Hong Kong, the latter compiled from the numerous partial accounts already published. The introductory remarks upon this subject occupy eight pages, and convey a good idea of the climate and physical peculiarities of this island. It very rarely freezes. In the hottest month, which is September, the thermometer reaches 93°; in the coldest, which is December, it did not fall lower than the average of 47° in six years. This however only represents we presume the weather of the town and not of the surrounding mountains; so that it is not a good guide to the gardener. This should be borne in mind by those who are anxiously watching their Rhodoleias in the hope of one day seeing their beautiful flowers, concerning which we presume that Dr. Seemann will afford full information in his next number. The plates are as usual admirable representations of new or little known plants, among which is Camellia spectabilis, a species apparently much allied to C. reticulata.

A work on French fruits called *Le Jardin Fruitier du Muséum ou Iconographie de toutes les Espèces et Variétés d'Arbres Fruitiers cultivés dans cet établissement, avec leur description, leur histoire, leur synonymie, etc.,* is announced in Paris from the pen of the eminent Botanist M. Decaisne. It is to appear monthly in small 4to, each number containing 4 coloured plates, price 5 francs. Pears are to be taken first. M. Decaisne announces his intention to sweep clean away such vulgar (*banale*) names as Beurré, Colmar, Bergamot, which he says have lost all meaning, and he will propose one name only for each sort of Pear, to the

exclusion of the crowd of names now producing chaos everywhere. Let us hope that the intended revolution will not end in worse confusion still.

Garden Memoranda.

MESSRS. LEE'S NURSERY, HAMMERSMITH.—In an intermediate house here, associated with Medinilla magnifica, of which Messrs. Lee have a fine stock, was a beautiful specimen of Imatophyllum miniatum, a Clivia-like plant which produces handsome large bright orange blossoms, set closely together on the top of a stout upright flower stem. Owing to their size and richness of colour, three or four of these flowers, when open at one time, which is generally the case, have a striking effect, and as fresh buds are being constantly pushed for many weeks in succession, the interest and beauty belonging to the plant is maintained for a lengthened period. Although it is now some 8 or 9 years since this plant was first brought into notice, yet it is comparatively little known, a circumstance arising from its being difficult to increase. It seldom produces seed; it has, therefore, to be increased by division, which in plants of this description is necessarily a slow process. Messrs. Lee have, however, succeeded in obtaining some nice young plants of it, which will soon be finely in flower. These will, doubtless, have the effect of making the plant better known, which it well deserves to be.

In a house in which young Vine eyes had just been placed for starting into growth, was a quantity of the Chinese Dielytra spectabilis beginning to push, and several examples of Rhododendrons ciliatum and glaucum, both loaded with flower buds; of these the former is especially showy and useful.

Of Epacrises and Cape Heaths there is here an immense variety; some of the latter are in cold pits well banked up round the sides with soil, and covered on the top during severe weather with mats. In this way Heaths are found to winter safely. Messrs. Lee state that a point of great importance in their management is giving them soft water; without this they say the best soil and management will be found ineffectual in producing plants every way in first-rate condition.

A house here is devoted entirely to grafting purposes; it is built against the north side of a wall; immediately in front is a row of boxes filled with grafted plants of the finer sorts of Conifers, &c. These have moveable glazed lids hinged at back, and they stand on a bed to which a slight amount of bottom-heat is given by means of hot water in iron pipes. A flue from the furnace which heats these is led along the back of this house, and over this is another range of cooler boxes to which the plants after the grafts have taken are transferred to harden, preparatory to their being removed to cold pits. Under these conditions the grafting of most plants can be conducted with the most perfect success. Plunged in a slight bottom-heat here, but with their tops in a cool atmosphere, was a number of young plants of that most lovely of all greenhouse climbers the Lapageria rosea. Thus situated and potted in a well-drained and porous soil, they appeared to be making unusual progress. Deutzia gracilis is another plant which likes a very gentle bottom heat while growing but no top warmth. This is planted out here in spring on a spent hotbed; it is allowed to grow in the open air all the summer, and in autumn it is taken up and potted for forcing. In this way it makes abundance of roots, ripens its wood well, and when gently forced becomes literally covered with snowy blossoms.

In the New Holland houses were many fine specimens of excellent cultivation; a plant of Hedaroma tulipiferum was especially remarkable. It was about 4 feet high, nearly as much through, and loaded with flowers; the latter were not fully expanded, but sufficiently so to show that they would be of the richest and deepest colour. When skilfully grown and well flowered this must be admitted to be one of the handsomest of greenhouse plants of comparatively recent introduction. Boronias and Eriostemons were also coming into flower, and we likewise noticed some fine examples of Pimelea Neipergiana and spectabilis.

Of Standard Bays we remarked some admirable specimens, as well as of Portugal Laurels and Hollies. The two latter are grown out of doors. They had stems straight as gun barrels and beautiful heads. In doors were some nice Orange trees, a few of which were in fruit. Of these the best was said to be "Bigarade Royale," a sort reported to flower and fruit very freely.

The plants in the principal stove were arranged with much taste, a point to which we are glad to see nurserymen turning their attention. In this house were some handsome variegated plants, Rhopalas, and other fine foliaged things, which, judiciously intermixed as these were with the ordinary inmates of the house, have a very fine effect. The roof, too, was ornamented with Orchids hung up in baskets; in one of these was a lovely Phalænopsis, with leaves unusually robust and healthy. One of the end walls of this stove was hid under an evergreen drapery of Ficus repens and barbata, two plants invaluable for this kind of decoration.

A cast iron pump in this house was pointed out to us as being worthy of notice. It is called the fountain pump. It works with the greatest ease, does not get out of order, and is comparatively cheap.

In one division of the propagating house tan has been substituted for hot water in brick and cement tanks as a means of affording bottom-heat. In another compartment of the same house these tanks which, after many years' use, had become somewhat leaky, have been all lined with zinc; this it is thought will answer well. Propagators, however, in general prefer tan to hot water for striking plants on. The potting benches connected with this and other houses are all made of slate—a material which is largely employed in this establishment not only for benches and for shelves for setting plants on, but even for roofs. It is clean and very durable.

Fruit trees in pots are largely grown in this nursery; they are at present out of doors; those two years old are in beautiful condition, and most of them well furnished with fruit buds.

We noticed here some hand-lights which seem worth recommending; their four upright sides are made of zinc, on which is set a moveable top with a handle to lift it by. Air can thus be readily given to whatever is inside, and on account of the sides being zinc and not glass, there is no breakage.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—This structure should now be full of interest, and where much attention is paid to flowers it ought to be as full of beauty as at any period of the year. Camellias done blooming should if possible be removed forthwith to some of the houses at work; a moist atmosphere or temperature averaging 65°, and a canvas shading overhead, are the requisites in order to cause them to produce wood freely and large leaves. The shading must by no means be neglected. Climbers in this house should have a thorough dressing about this period, cutting away weak and decayed wood and shortening back shoots (to furnish back wood) previous to the growing season. Some little increase of temperature may now take place in stoves, and that chiefly, as before observed, in the afternoon by shutting up early and using plenty of moisture, taking care to thoroughly dry the foliage previously by means of a free circulation of air. In Orchid houses a thermometer averaging 65° by day may suffice, allowing it to range to 70° or 75° on sunny afternoons by closing the house early. Look over the fastenings of those on blocks or in baskets; renew the wires where necessary. Fasten a little fresh material on those not to be shifted, but beware of burying the buds on the eve of germination; apply baits for snails and cockroaches most assiduously, and attend closely to the extirpation of all scale. Examine and shift where necessary stove plants in general, and cut back some of the kinds after flowering, to produce cuttings. For mixed greenhouses it is somewhat difficult to give precise directions. Plants of all climes occasionally obtain a place here, and no special treatment in regard to temperature can long be indulged in with impunity. As a principle, therefore, of frequent and somewhat harmless application, we would advise a rather free increase of heat on sunny days early in the afernoon for a few hours' sinking at night to the old point or nearly so. In this structure there will frequently be found Ericas, Pelargoniums, New Holland plants, bulbs, &c., and even Orchids; a division of these families should therefore be made; let the Orchids, bulbs, and plants of hot climes occupy the warmest end with little air, and the Ericas, &c., the other with a freer circulation; the Pelargoniums may stand midway.

FORCING DEPARTMENT.

LATE VINERIES.—Where it is desirable to have Grapes fresh and plump after Christmas, a house should be devoted to the purpose; and if the kinds selected are the true varieties of St. Peter's and the Barbarossa as black Grapes, and the White Muscat and Charlesworth's Tokay for white ones, cultivators may be satisfied that the desired end will be attained. Numerous writers on this point assert that Grapes should ripen in September to keep well; we have, however, found it very difficult to keep Grapes ripening at that time fresh through January. As our Vinery is very steep, we may perhaps obtain more light in November than some others; but, certainly, we have ripened Grapes in that month of the above varieties (excepting the Barbarossa), which have been equally well coloured and flavoured as those ripened at a much earlier period; and we managed to keep the leaves green and fresh through the greater part of January by simply covering the borders with warm litter, to preserve the roots in action. We name this, as fresh Grapes and green leaves are a boon at that period. To obtain the above, we shade the Vines, to prevent their breaking before May. Bring on the successional forcing houses, and pay every attention to the regulation of fire-heat, and admission of air. The bunches in the early house will now require thinning, which should take place directly the berries are discernible; aim at doing the work principally at the first operation; do not handle the bunches with dirty hands, nor allow anything greasy to touch them. Keep the house in a moderately moist state, by steaming the heating apparatus twice or oftener daily, but not during sunshine. PEACH HOUSE.—Go over the newly set fruit, and give them a slight thinning.

FLOWER GARDEN AND SHRUBBERY.

As before observed see that all planting is completed forthwith. Improve as much as possible all outlines. Plant fresh masses or groups where necessary, and introduce specimen plants where fitting opportunities offer. Much mischief is done by planting single specimens in recesses; these should be carefully preserved as a general rule to give deep shadows, and to throw the prominent features into bold relief. The demand for bedding out plants (in the spring) is frequently greater than the room devoted for their wintering can supply. It will in this case be necessary to commence propagating to make good the deficiencies. For all the soft-wooded and free growing plants a common dung frame, having a slight bottom-heat, will suffice; fill up to within 12 inches of the glass, upon which place 4 inches of dry sandy soil, in which the cuttings may be put directly you can procure a young growth for the purpose. As the display of flowers during the early summer months depends mainly on the health of the stock at planting time, it will save labour and increase the size and healthiness of the plants by turning them out of their pots or cutting pans into low pits or frames; a light sandy compost will serve for them to grow in.

HARDY FRUIT AND KITCHEN GARDEN.

See to the due preparation of ground for crops in general, but beware of carrying on these operations when the soil is wet; better be a fortnight too late with any given crop. Where kitchen gardens are composed of light sandy soil, it is better dug or trenched some weeks before it is wanted for some crops; Broad Beans, for instance, like a firm hold of the soil.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Feb. 12, 1857, as observed at the Horticultural Garden.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain
Friday 6	12	29.875	29.836	49	33	41.0	38	38	S.W.	.01
Satur. 7	13	29.783	29.696	45	32	38.5	40	38	S.W.	.00
Sunday 8	○	29.651	29.537	38	36	37.0	39	38½	S.W.	.02
Mon. 9	15	29.591	29.475	46	35	40.5	41	39	S.	.05
Tues. 10	16	29.753	29.642	51	33	42.0	43	39½	S.W.	.01
Wed. 11	17	30.009	29.821	52	27	39.5	43	40	S.W.	.03
Thurs. 12	18	30.348	30.262	50	23	36.5	40	40	W.	.00
Average..		29.858	29.781	47.3	31.3	39.3	40.5	39.0		.13

Feb. 6—Slight rain; fine; cloudy at night.
— 7—Overcast; brisk south-west wind; cloudy.
— 8—Overcast; cloudy; slight rain at night.
— 9—Fine; rain at night.
— 10—Fine; cloudy; slight rain.
— 11—Cloudy; rainbow at 8 A.M.; fine throughout; rain at night.
— 12—Clear and fine throughout; frosty at night.

Mean temperature of the week ¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Feb. 21, 1857.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	46.6	31.0	38.8	10	0.25 in.	3	3	2	—	5	8	7	3
Mon. 16	45.8	30.8	38.3	5	0.23	5	4	2	3	—	8	6	3
Tues. 17	45.6	31.1	38.4	11	0.32	3	2	3	3	3	6	9	2
Wed. 18	44.2	31.0	37.6	13	0.30	4	2	4	1	4	7	6	—
Thurs. 19	44.5	31.1	37.8	11	0.64	5	2	4	5	1	7	4	3
Friday 20	44.9	30.9	37.9	16	0.51	3	4	3	4	1	8	3	3
Satur. 21	46.0	31.9	38.9	16	0.20	2	7	3	5	—	7	6	1

The highest temperature during the above period occurred on the 21st, 1846—therm. 58 deg.; and the lowest on the 17th, 1855—therm. 2 deg.

Notices to Correspondents.

CELERY: *A L.* Mr. Gordon, who has charge of the Horticultural Society's kitchen garden, reports that he found "Laing's Mammoth Red Celery" very excellent, solid, and red.

EUGENIA UGNI: *J M.* The kind of treatment which would suit a Myrtle will also suit this. It will be found to grow freely in good rich loam; if kept under glass it will blossom in spring and ripen its fruit early in autumn.‡

FLOWER GARDEN: *W G* has not replied to our inquiry.

FRUIT TREES FOR AUSTRALIA: *Sub.* Prune them hard in, and pack them closely in a box in finely sifted perfectly dry earth. In the bottom put a stratum of soil, then a layer of trees, then some more earth, and so on till the whole are packed. Thus buried top and root in dry soil and tightly fastened down they will be found to travel safely. ‡

HOLLOW TREES: *A Const R.* When trees have small decayed hollows scoop out all the rotten wood down to the quick, get the hollow clean, and then fill in with lime and clay well worked together, or with any sort of cement; taking care that the exposed part is quite smooth and slopes downwards so as to shoot off water.

HOT-WATER PIPES: *J M.* The paint you mention, viz., lamp black and oil, will suit these perfectly.‡

ICE: *J B.* Your account reads well enough, and if you have really taken all proper precautions the ice will probably keep. If you have put your straw on like a thatcher, so as to shoot the rain well off and not let it get through, no more thatch should be wanted. You say nothing about the drainage.

MELONS, &c.: *Cavanensis.* The Beechwood and Bromham Hall are two very good varieties. For Cucumbers take Cuthill's Black and White Spines and Ayres' Perpetual.‡

NAMES OF FRUITS: *A McDonald.* Your beautiful-looking Orange is the "Large Orange of Nice."

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Anon.* Peperomia clusiæfolia; Lycopodium 1 is pubescens, 2 is helveticum.

PLANS OF GARDENS: *A B Z.* We regret to say that our arrangements do not enable us to comply with your wishes. Would it not be better to consult some landscape gardener.

PLANTING: *W B.* Scotch Firs, Cedars of Lebanon, Deodars, Taxodium distichum, Abies Canadensis. Larch will grow for seven or eight years in such a place, but must be expected to begin to rot by that time.

POMEGRANATES: *Ella.* To make Pomegranates flower in pots you must not make them grow too luxuriantly. If they run to wood they cannot form flowers. Our climate is too damp. They require to be roasted in the sunshine during all our autumn, rested further in winter, stimulated into growth under glass in April, and again exposed to all the sunlight possible in autumn, water being then very sparingly applied.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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(Established 1840).

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Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.
EDWARD PURSER, Secretary.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

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1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.

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PRIZE HORSES AND NEAT CATTLE.—No Animal can be highly fed for a continuance without producing disease of some kind, unless the ill effect is counteracted by Medicine, and the safest and best for this purpose is
CUPISS'S CONSTITUTION BALLS.

The excellent condition of the Cart Horse which obtained the First Prize at the Royal Agricultural Society's Exhibition at Norwich, in 1849, the proprietor informed Mr. Cupiss, was mainly attributable to the frequent use of the Constitution Balls. Mr. Nunn, Secretary to the Diss Farmers' Club, obtained the first prize at this local Show, for the best fat bullock, and he writes, "the Constitution Balls were a most valuable assistance in getting my bullock in high condition;" and he further adds, "I found with continued high feeding the animal frequently became glutted, when upon giving him a dose of your Balls his appetite was restored, his spirits enlivened, while his appearance rapidly improved, and I am satisfied without the use of the Balls I could not have got my bullock into such prime condition, in so short a time."

The Constitution Balls are prepared only by FRANCIS CUPISS, M.R.C.V.S. Author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3s. 6d. per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the horse whilst taking them. Also a Pamphlet of Testimonials from many Gentlemen who have used the Balls in various complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

IMPROVEMENT OF GRASS LANDS
BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

CONSIST of the finest GRASSES and PERENNIAL CLOVERS, producing great improvement in the Pasture, and at a small expense. *Quantity of Seed required, 8 to 12 lbs, per acre.* Price reduced to **9d. per lb., or 80s. per cwt.** Sow in February, March, and April.

The great improvement effected by sowing Messrs. SUTTON's Renovating Mixture is most satisfactory, and to those who have not studied the various properties and habits of Grasses, the results are quite surprising. The following extracts from letters are similar to many others received unsolicited:—

From MR. THOMAS BOWICK, *Steward to Lord Leigh, Stoneleigh Abbey Farm, Feb.* 3, 1857.

"The RENOVATING MIXTURE with which you supplied Lord Leigh last season, for 40 acres of old turf, has more than equalled our expectations. We attended strictly to your suggestions for its application, and have every reason to be satisfied with the result. I would add that the other Seeds supplied have each proved clean, true to name, and active in vegetative powers."

From SHAFTESBURY WALMSLEY, Esq., *Mottistone, Isle of Wight, Oct.* 1, 1856.

"The Grass Seeds were extremely good and answered my purpose uncommonly well; they gave me a famous crop of hay last summer, 2½ tons per acre, where I never saw anything but bents and rubbish grow before. I strongly recommend your Renovating Seeds; they are clean, and I believe safely to be depended upon."

From Mr. J. HALLETT, *Blackford Farm, Highclere, Oct.* 3, 1856.

"The Grass Seeds you sent me last season have given me the greatest satisfaction, inasmuch as the plot of ground where they were sown, which before seemed almost past growing anything, is now growing as beautiful a plant of herbage as any one could wish to see."

From ALEXANDER C. FORBES, Esq., *Swanston House, Whitchurch, Feb.* 16, 1856.

"You will be pleased to hear that the Renovating Seeds I sowed, and which I thought had failed, are now coming up in great abundance."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send to me a Mixture of Grass Seeds to sow upon 10 acres of old pasture. At the time I took the farm the 10 acres of meadow were almost useless. I now have a most excellent pasture."

From MISS ANDREWS, *Norton Villa, near Swansea, Oct.* 6, 1856.

"Your Renovating Mixture we had last year more than answered our expectations."

From the Rev. JOHN GUTHRIE, *Vicarage, Calne, Sept.* 30, 1856.

"I have no hesitation in expressing my great satisfaction at the manifest improvement both to lawn and pasture from the seeds which I received from you, though I was somewhat late in the sowing."

From Mr. W. MEEKINS, *Gardener to the Dowager Lady Truro Bowes Manor, Southgate, Sept.* 30, 1856.

"I am much pleased with the Renovating Seeds I got last season from you, as in every meadow where I sowed it I found great improvement both in quantity and quality, also the lawn was very much improved by the mixture you sent me, and my employer was much gratified with the results both in our pasturage and on the lawns, and wishes me again to procure mixtures from you when the time arrives for sowing."

From C. F. THRUSTON, Esq. *Tulgarth.*

"Your Seeds have answered admirably. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable, Clover and other Seeds springing up where nothing but the poorest pasture had been previously; and I think that a field of 9 acres sown with your Renovating Mixture is now one of the finest in our neighbourhood."

From Sir DAVID CUNYNGHAME, *Wellesbourne House, Warwick.*

"The meadows that were renovated with your Seeds are looking very well. I cut nearly 2 tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre."

From the Rev. ALEXANDER WATSON, *Rectory, Bridestowe, Exeter, Oct.* 2, 1856.

"I am very much pleased with your Grass Seeds and Renovating Mixture. Your Beet also is a most brilliant and deep colour."

INSTRUCTIONS ON IMPROVING OLD PASTURES.

Heavy harrows should be drawn over the old turf early in the spring, to loosen the soil for the admission of Seeds of the finest and most nutritive kinds of Perennial Natural Grasses and Clovers, which, if sown freely, will occupy the numerous small interstices between the Grasses already growing, and thereby prevent the luxurious growth of coarse Grasses and noxious weeds. It is a good practice to sow these Seeds at the same time as the top-dressing is applied, but this is by no means necessary.

☞ *Having greatly reduced the price of our* RENOVATING MIXTURE, *we doubt not that our liberal terms will encourage the more extensive use of the same. Our Grass Seeds have for many years been allowed to be best, and now we may add that they are the cheapest. Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds.* **Grass Seeds for Laying down Permanent Pasture, 24s. to 32s. per acre.**
Seeds carriage free to all parts, except small parcels. Catalogues post free.

JOHN SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SUTTON'S FINE LAWN GRASS SEEDS, FOR MAKING NEW, OR IMPROVING OLD GARDEN LAWNS. Price 1*s.* per lb., 2*s.* 6*d.* per gallon, or 20*s.* per bushel.

The following is an extract of a letter received from Prof. LINDLEY.

"Messrs. SUTTON:—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. (Signed) JOHN LINDLEY."

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

QUANTITY OF SEED REQUIRED.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming new lawns 3 bushels or 60 lbs. is the quantity required per acre; or 1 gallon to 6 rods (or perches) of land.

FOR CEMETERIES, BOWLING-GREENS, PARK LAWNS, &c., where the *very finest* kinds are *not* required, another mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16*s.* per bushel.

EXTRACTS FROM LETTERS RECENTLY RECEIVED:—

From Mrs. EDWARDS, *Rhyd y Gois, Caermarthen, March* 26, 1856.

"The Lawn Grass Seed you sent last year turned out beautifully."

From WM. SYMONDS, Esq., 6, *Belfield Terrace, Weymouth, Aug.* 26, 1856.

"The Lawn Grass Seed I received from you answered admirably."

From Sir GLYNNE WELBY, *Denton Hall, Grantham, Oct.* 1, 1856.

"The Lawn seed with which you supplied me last year answered perfectly."

From the Rev. F. KITSON, *Hemyock Rectory, Wellington, June* 17, 1856.

"The fine Grass Seed for lawns which Messrs. SUTTON sent in the spring has given great satisfaction."

From Capt. GAPE, *Portardulais, Llanelly, July* 5, 1856.

"Capt G. will be obliged by Messrs. SUTTON sending him more of the same Lawn Grass Seed as they sent him before, which was very good indeed."

SUTTON & SONS *also supply Grass Seeds for Permanent Pasture, mixed expressly to suit the Soil, which are never known to fail.* Price 24*s.* to 32*s.* per acre.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SEEDS CARRIAGE FREE.—All Seeds procured from WILLIAM E. RENDLE & Co., Seed Merchants, are delivered carriage free, as follows:—
ORDERS CARRIAGE PAID.

All orders for Seeds above £1 (excepting heavy articles, as Grain, Tares, Clover, Seed Potatoes, &c.) will be delivered FREE OF CARRIAGE *to any Railway Station between Plymouth and Paddington.*

All orders above £2, with the above exceptions, FREE *to any Station on the* BROAD GAUGE RAILWAYS, *or to any Market Town in Devon and Cornwall, or to Cork, Dublin, and Liverpool by Steamers.*

All orders for Seeds above £5, with the above exceptions, will be delivered FREE OF CARRIAGE TO ANY RAILWAY STATION IN ENGLAND AND WALES, *and to any Steam Port in England, Wales, Scotland, and Ireland.*

For further particulars apply to WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

TO AGRICULTURISTS, WHERE A SUPPLY OF WATER EXISTS WITH A GOOD FALL.

TURBINE WHEEL FOR SALE, suitable for turning Farm Machinery, and capable of working from two to four-horse power, according to the fall of water. Warranted new.—For further particulars, apply to Messrs. WIGHTMAN & Co., Chard.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS. NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

MESSRS. SUTTON'S *Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.* The prices are moderate, particulars of which may be had post free.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Agricultural Gazette.

SATURDAY, FEBRUARY 14, 1857.

IN that part of the recent discussion at the LONDON FARMERS' CLUB which related to artificial manures the monopolisers of Peruvian guano got some obloquy thrown upon them in connection with the late advance in its price, but one of the speakers very properly remarked that while this was scarcely just it was practically of no advantage in cheapening manures. And certainly if we wish to fight successfully against a monopoly which has legal right on its side, we must do something more than grumble about it. There is no doubt that nitrogenous compounds cannot be got so cheaply in any other form as in that of guano, but now that Peruvian has advanced to famine prices the farming interest will be compelled to seek elsewhere for a supply of available nitrogen. This Mr. NESBIT affirmed could only be obtained from the sea, and in his estimation the plan to adopt was to encourage as far as possible the fishermen on our coasts to catch fish for direct manurial purposes.

While rightly adding in this and other ways to the supply of nitrogenous matters, it is well to remember that by a little judicious care in the use of guano and other portable fertilisers, a very great saving may be effected. When these substances are applied to ill-ploughed unfrosted land, which has not been previously harrowed, or when they are used in top-dressing young Grasses so late in the season that they can scarcely be washed in by rain, the certainty is that they will not be so effective as they might have proved under more favourable circumstances. Much may

be done also to economise manures by employing the right kind for the right crop. Guano is so universally beneficial in promoting the growth of field plants, that we are liable to overlook the fact that there are other substances which when applied to particular crops produce nearly equal results. Thus superphosphate tells well upon the Turnip crop, and nitrate of soda and sulphate of ammonia upon the Cerealia. And with the use of a due proportion of ammoniacal substances there is every reason to believe that superphosphate applied in *moderate* quantity to the cereal crops will prove remunerative.

It will be doing something to break down a manure monopoly which has to be contended with in various forms if purchasers will only deal with those sellers and manufacturers of artificials who sell by analyses. The "Economical manure" dealers, and sharks of various kinds that profit by the confidence placed in them will thus be driven from the market, and the fair dealer properly encouraged. But let every farmer be assured also that even in saving soap-suds, dish washings, and refuse of all kinds about the house and homestead, he will soon have a good substitute for several hundredweights of guano. One gentleman stated before the Club that his waste matters of this kind were worth 20*l.* a-year to him, and by using Chandler's water drill in applying most of his portable manures, he effected a further saving of very considerable value.

It is right unquestionably that the Government and the National Agricultural Societies should protect the interests of the agriculturist by finding out and securing new deposits of guano; but they ought not and cannot be relied upon to do this. It is needless in farmers waiting till these bodies move—rather let them act promptly themselves, as a body specially organised for the purpose of obtaining either from one quarter or another a proper supply of portable manures, and thereby they will be doing more to break down a hurtful monopoly than they could do in any other way. Let the farming interest be true to itself, and there is no fear but the Government and the National Societies will be prompted to effective co-operative action. *M.*

THE lack of guano from Peru, whether arising from actual diminution of the stores or from that mismanagement which seems to be inseparable from monopoly, will have two effects, arising out of the consequent rise in the price of the article. It will not only induce a greater economy of home manures, whether those of the farm yard or those which our home manufacturers supply, but it will induce greater activity and energy in the search after other guanos and manures in foreign lands.

The islands in Koorya Morya Bay on the coast of Arabia, the expedition to which and its failure we alluded to some weeks ago, seem to be covered with a deposit of equal quality with that of Ichaboe. Mr. CAIRD's recent account of them and of the expedition to them given in the *Times* newspaper shows that the failure of the expedition has arisen from the inability of the Indian Government under the circumstances of the Persian war to give the armed protection which the trading vessels sent there needed. The agricultural importance of the case will probably ensure an armed protection for any future expedition, and it would seem that we may expect large supplies from that quarter, though too late for use in the present year. Mr. SMITH, second in command of the expedition, a man of energy and intelligence, who had loaded guano both at Ichaboe and the Chinchas, gave Mr. CAIRD such information as leaves no doubt on his mind of the great extent and value of this guano deposit. Mr. SMITH, with about 20 labourers, commenced working the guano at a spot on the Island of Haski, and, after breaking a crust half an inch in thickness, they dug into pure guano, a depth of 6 feet, without any sign of change or coming to the bottom, and in a day and a half turned out about 90 tons. They were forced to desist by the Arabs; but the ammoniacal odour was so strong that they could scarcely work in the hole which they had made. The whole plain was covered with the deposit, as likewise were two other islands in the same group. To this Mr. SMITH spoke from personal examination. The islands swarm with myriads of seafowl. Samples of the guano are in this country, and on analysis prove to be very dry, and much of the same quality as Ichaboe. The quantity estimated to be on these islands is between 1,000,000 and 2,000,000 tons.

Mr. CAIRD's letter does good service by drawing public attention to that particular aspect of the subject from which practically the most useful result is to be obtained. He points out that to a man cultivating 50 acres of green crop, and using 4 cwts. of guano per acre the recent rise in its price is equivalent to an additional rent of 4*s.* an acre on the farm, or a fresh impost of six times the present amount of his income tax. He then gives the history of the Koorya-Morya expedition. The islands were ceded to Great Britain by the Imaum of Muscat, and became colonial property. Captain ORD was to be rewarded for his discovery by a certain royalty per ton on the exports of the first six years, and had he been in any way protected in his proceedings we should have been receiving several ship loads of the material at the time that the news arrived of his failure. "The fact, however, of a valuable and extensive guano deposit has been ascertained; the islands have become the property of Great Britain by a title which must have been deemed valid by the Government, and it is not too much for the agricultural and shipping interest to expect that the British Government will take immediate measures to assert and maintain their right. If immediate and effective steps are taken, there is yet time for many ship loads of guano to be imported before the close of the present year.

"Here then," says Mr. CAIRD, "is a ground for definite action on the part of the agricultural interests against the Peruvian monopoly. The discovery of Ichaboe kept down the price of Peruvian guano for many years. A like effect will assuredly follow the introduction of extensive supplies from any other quarter. Successive Governments during the last six years have directed their attention to this object, and now that a source of supply has been discovered, all that is wanted is that it should be secured. Our national agricultural societies, having no political organisation, cannot act with much effect on the Government; but let the farmers throughout the country take the matter up in earnest, let them urge it on their representatives in Parliament, and, as it is a question in which all British interests are united, it will soon obtain that degree of attention from Government which its great importance demands."

A CORRESPONDENT in a recent number of the *Agricultural Gazette* called attention to his mode of cattle feeding. He has a lot of small cattle (some of them sold fat at 42 stones each), fed on half a cwt. of pulped Turnips and 2 lbs. of Rape-cake and 20 lbs. of cut Wheat straw daily. "They are always full and seldom on their feet, except at feeding time." The account he gives indicates that they are doing very well; and he asks—"Do you think the cattle could assimilate a greater portion of nourishment? I have no wish to have my food pass through them unappropriated by the system."

Now this is a question which we are unable to answer. The elements of the case are not before us. It is not sufficient that we are told the food in question contains daily $1\frac{1}{2}$ lb. of nitrogen, 11 lbs. of starch, and $\frac{3}{4}$ lb. of fat—that the proportion of the nitrogenous to the non-nitrogenous elements is as 1 to 8—nor even, taking the more practical aspect of the question, that the daily cost of the food is about 5*d.*, while the animals which are now in "a very lean state," are expected to be "fat by the end of May." The fitness of food depends not on the general consideration of animal nutrition but on the character of the animals in question, and of that we have no sufficient account. Well bred short-horn cattle would make the full use of a much richer diet than the one here specified—while ill-bred mongrel starvelings would waste it.

We have before us an instance illustrative of this—a flock of mountain sheep from Lancashire have been introduced into one of the southern counties where on pastures richer than where they had been bred, on Swedish Turnips, too, given to them there, it was expected that their progress would be proportionably faster. This, however, has been hardly the case. When fed on richer food they became liable to disease, and even when the quality of the feeding was reduced so as to suit their health, the rate of improvement was not so much the quicker as to pay for the greater cost of food beyond what they would have had in Lancashire. The Grass and Swedes and hay that they have had would have made more mutton on the body of a Down or Leicester sheep, and have yielded a larger money return though given to sheep costing it may be 35*s.* or 40*s.* each, than to the mountain flock which were imported at a cost of little more than a pound a head.

The same holds true in other breeds and animals. The feeding which we hear of as given to well-bred shorthorn steers in the feeding yards of Yorkshire, Lincolnshire, and Norfolk, may be profitable there, and wasteful under other circumstances. Shelter, warmth, and quiet are profitable everywhere, and nutritive food of course must make more mutton, beef, or pork, than what is innutritious, but here, as in every other branch of agriculture, general rules must be accommodated to circumstances. The degree of every particular style of treatment must be accommodated to the individual character of the animal and the general character of the breed to which it belongs. The most profitable management of a well-bred animal involves outlay in shelter, food, and attendance that would be thrown away upon a Kyloe.

WE learn from the *Moniteur*, greatly to our astonishment, that the Agricultural Show at Paris announced and organised for occurrence during the first week in June next, will not take place.

THE STEAM PLOUGH.

I had the pleasure the other day of witnessing Mr. Fowler's new steam plough at work on the farm of Mr. Chater, near Slough; and I wish the public to know that machinery has at last been set in motion which really can plough with economy as well as efficiency. Since the Chelmsford and Boxted trials last July very great improvements have been made in the framework and steering of the ploughs; the anchorages at the ends of the work are now self-acting, being shifted forward when required, by the same wire rope that hauls the plough up and down the field, and this is supported upon friction rollers, mounted on light frames so as to lighten friction and reduce the draught. The engine and saw was one of Ransome and Sims' 10-horse portable engines, and so stationed along with the windlass that a length of more than half a mile of rope could be led on to embrace about two days' work on one side, and, when that was completed, plough an equal extent of ground on the other. Owing to a wrong pressure-gauge being then on the engine I was unable to compute the power engaged; but the attendant considered it to be about eight or nine horse-power; and this kept three ploughs in work at once, with about half a-mile of rope out, at a pace of about two miles and a quarter per hour. In two hours the extent of ground ploughed was about 1 acre 25 perches—say, at the rate of five acres in a short winter day. Five men were working the engine, windlass, and plough, and a man and horse were fetching water; and the total expenses—including 5*s.* per day for interest, wear and tear, &c., and allowing one removal of the engine and tackle every fourth day, I estimated at 38*s.*, or about 7*s.* 7*d.* per acre. But the machinery was not working at its full advantage; the four-plough implement ought to have been used instead of the smaller three-plough frame, which would be best had the land been heavier, and thus a smaller percentage of power would have been consumed by the tackle and a larger proportion been available for ploughing. Were it allowable so to trespass on your space I could give you figures for all I assert; and I believe it to be a fair statement of the capabilities of the apparatus, as I saw it in work, to say that it could just as well have been ploughing six as five acres per day, thus making the cost 6*s.* 4*d.* per acre. By adopting another form of windlass, with self-winding mechanism, it appears to me that the labour of one man might be dispensed with, bringing the expense down to only 6*s.* per acre. The field was a very level Wheat-stubble, and the ploughs, going $5\frac{1}{2}$ inches deep, were bringing up one inch of fresh unmoved soil, an operation considered by farmers and labourers on the spot to be good stiff work for a pair of horses in a common plough, and worth, I suppose, about 7*s.* per acre at the lowest computation of the expense of horse-teams. The furrows were beautifully straight, the bottom smooth and and even, the slices well turned and laid; and the only improvement needed seemed to be the addition of skim-coulters, to bury the surface vegetation perfectly. Mr. Fowler is able to plough very light land, I was informed, for 3*s.*, and heavy land for 6*s.* per acre; and he is now trenching for his Royal Highness Prince Albert, on Shore Farm, 10 inches deep, at 15*s.* per acre. For turnwrest, or one-way work, it is now proved that the steam-plough can operate more cheaply than horse-ploughs; while there are other practical advantages which completely establish its superiority.

And now, Sir, suffer me to ask whether Mr. Fowler has received the encouragement that he deserves, not so much from the general public as from the Royal Agricultural Society—the professed patron and rewarder of all great improvements in tillage machinery? The society offered a prize of 500*l.* for "the steam cultivator which shall in the most efficient manner turn over the soil, and be an economical substitute for the plough or the spade." Only one of the competitors who appeared at Chelmsford attempted to show how much land could be "turned over" in a given time. Mr. Boydell's traction-engine did not actually perform enough ploughing to determine the cost of its labour; Mr. Smith's steam implements did not plough at all, but effected a novel kind of tillage not answering to the Society's "conditions;" but Mr. Fowler's plough and trenching plough were evidently so nearly equal to the duty demanded that an adjourned trial was resolved upon. The judges' report of the trials at Boxted Lodge has not been published, and the consulting engineer's determination of the power, expenses, and other items remain, therefore, unknown; but the newspaper accounts at the time stated that in a level field of great length (and so requiring an excessive length of wire rope to be travelling at once), about 21-horse power was employed; the work proceeded at the rate of about eight and a half acres per day of 10 hours (turning at the end included), and the total expenses

with interest, wear and tear, removal to the field, &c., amounted to a trifle over 7*s.* per acre, while the cost by horse labour would have been about the same sum. The quality of the work was universally considered to be very regular and well done; and the germs of improvement were easily discernible in various parts of the apparatus. The Society lately held a special council to decide respecting the adjudication of the prize. Although so closely approaching to the cost of horse labour, the steam plough had not fulfilled the strict letter of the "conditions," and so the "undivided sum" of 500*l.* could not be awarded. Perhaps a handsome pecuniary remuneration was thereupon spontaneously voted by the council for Mr. Fowler's wonderful exertions and success in the solution of a great agricultural problem? No. A gold medal, as some mark of distinction and encouragement? No. Not a farthing—not a tangible acknowledgment in any shape has been offered him. After six years of astonishing public success in the application of portable steam-power and wire-rope and pulley-apparatus to drainage and tillage—after expending many thousands of pounds, overcoming extraordinary mechanical difficulties, and the still stouter prejudices of the farming world—after draining many thousands of acres by his novel and marvellous method, and achieving at last a greater measure of success in steam ploughing than any other inventor has yet shown us, John Fowler has received from the Royal Agricultural Society (the great promoter of all improvements that can benefit husbandry), the munificent encouragement and assistance of—nothing. I beg pardon. At the Lincoln meeting in 1854 the judges manifested their appreciation of his genius by conferring upon him a silver medal; and, if I remember rightly, an exceedingly useful cottage cooking stove, a one-horse cart, and some corrugated piping obtained for their exhibitors the like high honour on the same occasion.

I do not know that any great blame attaches to the Society; the good souls keep to their rules, and carefully watch against the creeping in of "a precedent;" but the point is, if they go on year after year giving handsome premiums to the identical old ploughs, hoes, drills, &c., that have duly pocketed and puffed the honour for many successive meetings, and have nothing to bestow, either in accordance with the "terms of their offer," or beyond and in spite of them, upon an inventor who stands almost in a class by himself, and who, by amazing exertion of thought, physical energy, and outlay of capital, has produced a novel order of machinery sufficient to revolutionise our method of draining and cultivation, will not the public begin to inquire where are the national spirit and enterprise of such a society?

However, if the Society dare not remunerate John Fowler, I have no hesitation in affirming that his invention is now so far advanced and so thoroughly recognised and appreciated by the agricultural community that his personal success is independent of all prize-lists whatever. *I. A. C. in the Times.*

MEMORANDA FOR THE AGRICULTURAL STUDENT.

ON THE FERTILITY OF THE SOIL.

READ Schubler's Essay on "Physical Properties of Soils" in vol i. of English Agricultural Journal; Coleman's Essay on Fertility, in vol. xvi; pp. 342, 331, 425, 442, 451, 512, 537, 570, 586, 602, 617, 618 in the vol. for 1855 of the *Agricultural Gazette.* Essay on Maintenance of Fertility in newly broken-up land, in vol xi., English Agricultural Journal.

Fertility is determined by the character of the soil, as a warehouse in which food for plants is stored, and as a vehicle of that food to the roots of plants, and as a laboratory in which that food is prepared. In each of these aspects the chemical and the structural character of the soil affect its fertility.

I. The physical properties of soil as commonly enumerated include:—1, The weight of the soil per cubic foot given in the following table under cols. *a* and *b*. 2. Its capacity for water, given under col. *c*,—100 lbs. of soil will drip after the addition of the several weights of water stated. 3. Its power of absorbing moisture from the air. Thus Sir H. Davy found that 1000 lbs. of a fertile soil from East Lothian absorbed in an hour 18 lbs.; a loam from Somersetshire, 16 lbs.; from Mersea, Essex (worth 25*s.* an acre), 13 lbs.; a sandy soil (18*s.*), 11 lbs.; a coarse sand (15*s.*), 8 lbs.; the sand of Bagshot Heath, 3 lbs. Schübler's figures indicating the increased weight gained by 1000 lbs. of soil on exposure to the air for 24 hours are given in col. *d* in the table below. 4. Its liability to lose water on exposure to the air is indicated in col. *e*, which reads thus—of 100 lbs of water in a wet sand, 88 lbs. were lost on exposure for a given time to the air, and so in the other cases specified (Schübler). 5. Its power of absorbing heat is given in cols. *f* and *g* below, where the colour of the several soils is stated, and the temperature to which in the sunshine they were severally raised from 77° Fah., on exposure from 11 A.M. till 3 P.M. is stated. 6. The adhesive powers of soils are indicated in cols. *h*, *i* and *j*, where the relative force needed to crush small cubes of dried earth (clay being 100) is given in col. *h*, the actual force of adhesion to a square foot (iron or wood) of the several soils mentioned being given in cols. *i* and *j*. 7. The contraction of soils on drying is given in col. *k*, 1000 parts of the moistened earth diminishing in bulk the number of parts there stated. 8. The capillary power of soils. 9. The fineness of the state of division in which the soil exists. Read Mr. Rham's Essay on the Analysis of Soils, in English Agricultural Journal, vol. i.—See also Tull's Husbandry on this subject, and the Rev. S. Smith on Lois-Weedon Culture.

PHYSICAL PROPERTIES OF SOILS.

	a Dry	*b* Wet.	*c*	*d*	*e*	Colour.	*f* Dry.	*g* Wet.	*h* Dry.	*i* Wood.	*j* Iron.	*k* Parts.
Silicious sand ...	111	106	25	...	88	Yellowish grey	112	99	0	lbs. ...	lbs. ...	0
Calcareous	114	141	39	8	76	Whitish ditto	112	90	0	...	...	0
Sandy clay	...	...	40	26	52	Yellowish Ditto	111.4	98.2	57.3	7.9	8.9	60
Loamy clay	88	124	50	30	45		112.1	99	68.8	10.6	11.4	89
Stiff clay	80	119	61	38	35	Yellowish grey	112.3	99.3	83	17.2	18.9	114
Pure clay	76	115	70	42	32	Bluish grey	113	95.5	100	27	29	183
Carbonate of lime	58	103	85	31	28	White	109.4	96.1	5	14.3	15.6	50
Slatey marl	...	...	34	29	68	Brownish red	115.8	101.8	21	4.9	5.5	35
Humus	35	81	181	45	20	Brownish black	117.4	103.6	8.7	8.8	9.4	200
Garden mould ...	68	102	89	22	29	Blackish grey	113.5	99.5	7.6	6.4	7.5	149
Common arable soil	84	119	52	...	32	Grey	111.7	97.7	33.6	5.8	6.4	120

II. As to the chemistry of the subject, the following table indicates the quantity of mineral matter which an ordinary crop of Wheat, Beans, Turnips, and Clover contains; the first line giving the quantity per acre, and all the other figures quantities per cent.

	(32 bushels) WHEAT.		(32 bushels.) BEANS.		(20 tons.) TURNIPS.		(6½ tons. CLOVER.	
	grain. lbs.	straw. lbs.	grain. lbs.	straw. lbs.	bulb. lbs.	top. lbs.	red lbs.	white lbs.
Quantity of ash per acre in a crop	33	151	56	151	320	123	292	...
Silica ...	3.35	67.88	0.88	3.86	3.43	3.99	3.34	3.68
Phos. acid	46.	5.43	31.87	7.35	9.74	6.17	6.35	11.53
Sulph. acid	.33	3.88	4.50	3.21	12.43	8.43	4.18	7.4
Carb. acid	...	...	1.94	22.73	6.38	10.04	16.93	18.03
Lime ...	3.4	6.23	8.65	21.29	11.14	28.49	35.39	26.41
Magnesia	12 3	2.74	6.55	4.88	3.01	2.81	11.22	8.15
Peroxide of iron	.79	.74	0.36	0.9	1.09	1.68	0.97	1.96
Potash ...	29.97	12.14	42.12	21.16	36.98	15.4	14.85	14.33
Soda ...	3.9	.6	1.9	4.56	6.76	2.84	1.40	3.72
Chloride of Potas.	...	...	0.34	0.9	.59	5.04	2.96	...
Chloride of Sodm.	.09	.22	1.90	9.05	7.81	15.30	2.36	4. 92

The ingredients specified must be found in the soil or the plants will not grow: and that fertile soils contain them the following analyses testify:—1, is by Mülder, of a recent alluvium; 2, by Liebig, a fertile alluvial soil; 3, Liebig, a barren sand; 4, by Sprengel, a subsoil, on the soil over which Sainfoin died off in its second or third year.

	1	2	3	4
Organic matter	8.324	11.2	1.5	...
" acids	3.679			
Potash	1.026	.21	.005	.30
Soda	1.972	.89		
Ammonia	.062	...	...	...
Lime	4.09	5.8	.03	0.2
Magnesia	0.13	.84	.006	.24
Peroxide of iron ...	9.089	6.1	1.8	5.81
Protoxide "	.35	...	...	
Protoxide of manganese	.28	0.09	tr.	.24
Alumina	1.36	5.7	0.6	1.97
Phosphoric acid ...	.466	.43	.19	0.98
Sulphuric acid	.896	.21	.002	1.39
Carbonic acid	6.08	3.9	...	...
Chlorine	1.24	.2	.006	tr.
Soluble silica	2.3			
Silicates	57.646	64.8	95.84	90.03
Loss	1.116			

The ammonia present in clay soils is indicated in the following analyses by Professor Way:—

	Ammonia
Top soil near Farnham contained ...	.029 per cent.
Subsoil, 2 feet deep	.018 "
Ditto, 3½ feet deep	.008 "
Subsoil of drift loamy soil (Farnham) ...	.01 "
Salt clay, not manured for 20 years ...	.012 "
Ditto, 4 feet deep	.008 "

Calculate from this the actual quantity present in soils of given depths.

The fertility of a soil is practically indicated by the quality and quantity of its vegetable produce. It is practically maintained by drainage, liming, altering texture of soil (marling, claying, burning), manuring, tillage, and selection of fitting crops in fitting rotations.

Illustrative instances:—West Norfolk; Lincolnshire Fens and Wolds; home grounds in Dairy districts.

Home Correspondence.

Draining—does increased depth compensate for increased distance between the drains?—That increase in the depth of drains increases the area of their action is a truth that is now generally admitted; although from not feeling the full force of this truth there are still many who in their practice as drainers are afraid to avail themselves of the advantage that additional depth gives, and the ordinary practice is still too much governed by limits which are unnecessarily close. As an instance of what may be done by a few judiciously planned deep drains, I would notice some extensive draining done lately in the parish of Bampton, Oxford, by Mr. Wm. Bryan Wood, of Chippenham, I might almost say for the purpose of reclaiming land, so wet and so valueless has it hitherto been. In the first instance a new cut of upwards of a mile in length had to be made to carry off the drainage of the higher district, which in times of heavy rain had no access into the river and flooded the country. By means of this cut and some open dykes with which it has been necessary to intersect the land, an outfall into a lower part of the river has been found for the drainage, that has enabled the depth of the draining to be reached to which I would refer, at the same time that they have prevented the frequent floodings which were previously common. When I first saw this land about 8 years ago, the Grass land was covered with Flags and Rushes, and the parts under cultivation were thrown up into high ridges, divided by deep wide furrows which on account of their wetness were kept in permanent Grass, the tops of the ridges alone being ploughed; the ditches generally stood nearly full of water, even in the height of summer. All this must now be received on the faith of representation, for little remains to give an impression of the former state of the land. I saw this land about a fortnight back (the end of January) when I had to pass through floods to get to it, which made the change wrought by the draining the more remarkable. The new cut was carrying off a body of water larger than the river (the Thames) itself contained, and I might have walked over the 175 acres in high shoes without getting wet-footed. The ditches were all dry, and last summer appears to have killed the Reeds with which they used to abound. The land lies level and flat, and now that it is drained the soil is found to be not clay as it was supposed to be, but a mixture adapted to the growth of grain and roots. It generally rests on beds of gravel, crossed by banks of clay. Since it was drained some of the Grass land has been broken up and the old ridges are fast disappearing, and I have no doubt the intelligence and better farming of the new tenants will soon show this land to be of first-rate quality. This change has been effected as follows: 43 acres 2 rods 13 perches in the occupation of Mr. Townsend have been drained by 647 rods of drains laid at depths of from 4 to 8 feet, the greater part being over 5 feet deep, and the cost including outfalls and engineering is only 82*l.* 19*s.* 11*d.*; 132 acres 30 perches in the occupation of Mr. Gillett have been drained by 2340 rods of drains, laid at depths of from 4 to 9 feet, and the total cost is only 304*l.* 0*s.* 9*d.* By means of the deep cutting across the clay banks that basined up the water in the beds of gravel, the water has been let out, and the gravel beds lie always open to receive the water that falls upon them. Had this land been attempted to be drained in the ordinary way, and the depth of the drains been limited to 4 feet, the expenditure would have been double, and I am sure the effect would have been far less satisfactory. *Hewitt Davis,* 3, *Frederick's Place, Old Jewry, Feb.* 9.

Leaf Feeding.—If my friend Ben Giles's object in repeated hoeings is solely to promote chemical changes in the soil and to seal them up in it, I have been, and I still stand, alone as a leaf-feeder from the soil. If he confines leaf feeding to atmospheric food as others do, his hoeings cannot tend to the nutriment of plants by their leaves. Now, if the pores of aerial leaves are on the under sides of the leaves, if a plant or a leaf suffers when the leaves are reversed, and if the leaves make efforts to recover their natural position, surely there must be some good and substantial reason for it. I rely very much upon this provision. M. De Candolle asserts very positively this property of leaves. Can we for a moment imagine these pores or stomata have been placed on the under sides of the leaves to receive a descending fluid? Our hoeing operations are so superficial that it is hardly possible to conceive they can have any immediate effect upon the roots or can mechanically promote the disintegration of the soil, except as they do away with the sealing up of the surface by breaking the superficial crust, and so admitting air to act on the soil; yet the effects of these hoeings are very quickly apparent; but that which facilitates the ingress of the air must equally facilitate its egress. I think among others one of the great advantages of this perfect working of the surface is, that while it allows the lighter rains to penetrate so far into the soil as to prevent immediate evaporation, and gives time for them to soak into the under soil, it also, as continually as it is formed, breaks up this puddled crust formed by the finer particles of clay. In pursuing these hoeings I allow of two objects, the one to facilitate chemical changes in and between the inorganic matters in the soil, and the organic ones existing there and in the air; the other to facilitate the escape of the combinations so effected as well as of those more purely organic for the feeding of the leaves, in which it appears we differ.

Mr. Ben Giles adduces the escape of effluvia from farm-yard manure as a concession to my argument, but stronger instances may be brought forward in the healthful odour from a fresh ploughed field and the fetid exhalations from a fresh-stirred rank churchyard. That these effluvia contain inorganic matters as well as organic may be affirmed, for such matters exist in, or are brought into, a soluble state in the soil, and therefore are capable of volatilisation. That the leaves of plants are furnished with functions to receive them, and that they do so may be surmised from aerial leaves having their pores in their under sides, while those leaves which lie on the surface of water are not so furnished, but have them on their upper sides, and subaqueous leaves have them not. It is also strongly in favour of this view that our deep-rooted Clovers are immediately benefited by a top dressing of dry matters in the droughts of summer, when the dews and light rains can hardly be supposed to wash them down to these deep roots, and are indeed seldom more than sufficient to effect partial evaporations; that the Peruvians manure the plants (the leaves) rather than their arid sands with the quick evaporating guano; that the Chinese do the same with their night-soil, and both one and the other do so several times during their growth. In the mountains of Donegal they were (before the disease) accustomed to manure their Potatoes a second time when several inches high, with much consequent increase of produce. From all this may we not conclude that there are reasonable grounds to believe that plants receive much of their nutriment through their leaves from the soil by evaporation of the soluble matters in it, and that the solution of these matters as well as their evaporation is promoted by continuous breakings up of the surface. *J. M. Goodiff.*

Details of Manure.—Although farmers purchase a large portion of artificial manures annually, they yet obtain their principal supply from the exuviæ of the farm; at least they ought to do so, and will do to a greater extent in proportion to their knowledge of its value, and their desire to improve the produce of their occupation. One feature of such home manufacture we take to be the clearing entirely of the homestead some time before harvest, say in June or July, after which time any autumn supply must depend upon the extent to which soiling horses may be practised, the number of cattle and sheep fed under cover, and the quantity of pigs kept. On a considerable farm of 400 or 500 acres the amount of trodden straw and refuse, used with Tares, Rye-grass, Clover, and other green food, will enable the tenant to have a tolerably large heap ready for the Wheat after Clover, or for the Clover after Barley, and this is the extent of his manufacture of manure before the stock is housed for the winter. Then everything depends upon the quantity of root crops, the constitution of the farm, and the capital of the farmer. Beasts of all ages should be nearly in the proportion of 4 head of cattle to every 20 acres of land, unless a large stock of young horses take their place, and at least half this number should be supplied with from 4 lbs. to 8 lbs. of Linseed cake per day, or an equivalent quantity of Beanmeal or other fattening food. He will have his horses and stock sheltered in a variety of sheds and yards, several of which about Christmas will require to be cleared. Our plan is in all cases to cart the manure from the yards to the field where it will be used, or to some convenient spot near at hand, and pack up in a large rectangular heap full 6 feet high, capping it with road mortar, ashes, or ordinary soil dug from a trench round the manure heap. In two or three weeks after being thus formed fermentation will ensue, and it may be turned over to lay a few weeks longer to acquire a good ammoniacal smell; it may then be carted where it is wanted, and at once ploughed in, if not on seed or Grass land. In forming these heaps we pile a yard high from the carthorse stables first, then a yard thick from the bullock hovels or yards, and finish with any stackyard scrapings or second-rate stuff, as we find the whole gets impregnated and made useful, particularly if a few loads of town manure be added to strengthen or enrich the other materials. By thus mixing matters together in a large solid bulk you insure the whole becoming good serviceable stuff; some men are silly enough to imagine they make too much manure, and it is partly true applied to the poor fire-fanged effete article that I occasionally see carted from the yard into small heaps for spreading at once on the soil; there is too much of such immature dirty or dry straw, but if the right sort is used as soon as a lively heat is apparent we can hardly imagine it possible with a judicious rotation of crops to have enough, or at least to have any to spare. It will be evident that by this practice there are no old heaps of manure for autumn use, but we may express our conviction that the sooner manure in proper condition is ploughed in for fallow crops the better. Turnips like a fine tilth, so do Carrots and Coleseed. If the land can be prepared a month before it is sown, how much better than having to crush and harrow — crush and harrow for everlasting, and then have land so lumpy that you cannot hoe your Turnips. By getting the manure in early, the land (if an average loam) will be mellowed by the manure and spring rains, and a moist seed bed can be easily obtained by a light ploughing, and when rolled after seeding the field will look like a garden instead of bunches of straw sticking up all over the field to harbour flies and vermin. *J. W., Peterborough.*

Summer Fallow.—It is a custom of this country that an outgoing tenant is entitled to two-thirds of the away growing crop of Wheat if summer fallowed, the outgoer to harvest the crop at his own expense. After a crop of Oats (reaped in September, 1854), the land was fallowed in May or June following, and after liming and manuring was sown with Wheat in September, 1855, during the tenancy. The outgoer claims two-thirds of this crop, but the incomer objects, and states that to constitute a summer fallow the land should have been ploughed in autumn and fallowed in spring. Will you please give me your opinion fully on this point in your next valuable publication? The outgoer obtained nothing from the land after the Oats, and before the fallowing, and he contends that if he has not properly fallowed or cultivated his land, or has rendered himself liable to an action for a breach of husbandry at the suit of his landlord, his fallowing in May or June is nevertheless a summer fallow, entitling him to two-thirds of the away growing crop. The question to be decided between them is, "What is a summer fallow?" *A Welsh Farmer.* [We should think that the land in question had received a summer fallow according to your account of what was done.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Feb.* 4.—Mr. EVELYN DENISON, M.P., President, in the chair. Fifty-three new members were elected.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the report on the accounts of the Society, and laid before the Council the usual quarterly statement of the income and expenditure, and of the assets and liabilities of the Society. The current cash-balance (including the subscription of 1500*l.* from Salisbury) in the hands of the bankers was 2723*l.*

EXPENSES.—On the motion of Lord Portman, the following resolution was agreed to:—"That a Committee be appointed to inquire into the expenses of the Society, with power to consider specially what arrangements can be made to diminish the expenses of the country meetings of the Society. That the Finance Committee, with the Presidents, Trustees, and Vice-Presidents, be the said Committee, and be requested to report to the Council Meeting in March."

HOUSE.—Mr. Raymond Barker, Chairman of the House Committee, reported on the execution of the repairs ordered at a former Council.

JOURNAL.—Mr. Thompson, Chairman of the Journal Committee, laid on the table a copy of the new Journal, along with a report from the Committee, referring, among other topics, to the new index of the previous volumes of the Journal, and announcing the satisfactory arrangements made with the Royal Veterinary College for the publication of lectures delivered by the professors of the institution before the members of the Society.

CHEMICAL LECTURES.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported the recommendation of the committee that lectures on the following subjects should be delivered by Professor Way, the consulting chemist to the society, in the course of the present season:—

I. On the solubility of manures, and to what extent it is desirable.
II. On the relation of the soil to vegetation.

SALISBURY MEETING.—Lord Portman, Chairman of the General Salisbury Committee, reported the progress of the inquiries of the Committee on points connected with the preparation of the Show-yard and the question of a Pavilion dinner. The council accepted from the authorities of Salisbury a schedule of prizes for Hampshire Down sheep, amounting to 120*l.* Colonel Challoner, chairman of the Implement Committee, reported the recommendations of that committee on the subject of the terms and conditions of the prizes to be offered in that department of the show. Orders were then given by the council for the final arrangement and publication of the two prize sheets for the Salisbury meeting.

MEMBER OF COUNCIL.—On the motion of Mr. Milward, seconded by Mr. Hudson, of Castleacre, Mr. Thomas Pain, Mayor of Salisbury, was unanimously elected a member of the council, in the vacancy occasioned by the lamented decease of Mr. Woodward.

GUANO DEPOSITS.—A communication having been read from Mr. Caird, in reference to the guano deposits at Koorya-Moorya, on the coast of Arabia, the President was requested by the council to wait upon the Earl of Clarendon, as a deputation from their body, and to represent to his lordship the importance, at the present time, of the supplies to be derived from that locality.

WEEKLY COUNCIL, *Feb.* 11: Mr. RAYMOND BARKER, V. P., in the chair.

DEPOSITS OF NITRE.—Prof. Way, the Consulting-Chemist to the Society, presented the report of his chemical examination of the mineral specimens received at the Foreign Office from Pernambuco, and transmitted to the Society by direction of the Earl of Clarendon. The most remarkable of these specimens was one of almost pure saltpetre, which Prof. Way valued at 38*l.* per ton. The nitrous deposits whence this specimen had been obtained extended beyond a range of 20 miles.

Further communications were announced from the Foreign Office announcing the discovery of immense tracts of other saline substances in the neighbourhood of Para in Brazil.

ARABIAN GUANO.—Mr. Caird, in reference to the late guano expedition to the Koorya-Moorya Islands, produced a sample of the guano which he had received from Captain Ord that morning, the quality of which seemed greatly to resemble that of Ichaboe. Captain Ord had arrived from Bombay in the steamer Colombo yesterday, and had brought with him large samples of the guano which would be immediately placed in the hands of Prof. Way for analysis. On the single island of Haski he estimated the quantity of guano at upwards of one million tons, and there were likewise very large deposits on two other islands in the same bay, all of which had been ceded by the Imaum of Muscat to the British Government. Had it not been for the war with Persia the necessary armed protection against the pirates of the coast would have been afforded, and many cargoes might have been by this time on their way to England. As there was now some hope of that war being brought to a speedy conclusion, Mr. Caird was happy to announce that by last night's mail the officer second in command of the last expedition had been despatched to Bombay to organise a second expedition, in the hope that the Bombay Government might then be able to spare a ship for their protection, the Government here having promised to recommend that aid to be granted if the other demands of the service admitted. Every exertion would be made to load one or two small cargoes before the setting in of the monsoons in May, in order to have as early a test as possible both of the quality and quantity in bulk. It might of course happen that, with so little time to work upon, it might be impracticable to accomplish this; but at all events matters would now be put into a train for commencing operations on a large scale immediately after the monsoons in August next. The importance of securing this supply for England could not be overrated. It was the best means in their power of checking the Peruvian monopoly. But there was also a mode of operating on that monopoly which he for one was determined to adopt. He would not use the Peruvian guano at all at its present price, but would substitute superphosphate, bone, &c. for his root crops, and nitrate of soda for his corn and Grass crops. In this opinion he was strengthened by that of his friend Mr. Hudson, of Castleacre, who had come to a similar determination, and though he was averse to any principle of exclusive dealing, yet he believed they were justified in meeting this monopoly in any effective manner, and he had no doubt that a pretty unanimous determination on the part of British agriculturists to abstain from the use of Peruvian guano while the price continued so high, would have a telling effect on the Peruvian monopoly.

A discussion ensued—

1. On the injurious effects arising from the improper use of guano on imperfectly drained land, especially in the case of root crops, and in that of pregnant ewes and other animals fed upon them; and on the greater economy of manure from ordinary sources.
2. On the improvement gradually introduced into the manufacture of superphosphates.
3. On the adoption of measures for effecting a reduction in the present high charge for guano.
4. On the frauds practised by unprincipled and irresponsible persons, intermediate between the importer and the local salesman, for the purpose of adulterating guano.
5. On the question of damp and damaged guano being now kiln-dried, mixed up with sound guano, and the whole mixture sold as genuine guano.
6. On the preference farmers had shown for Ichaboe over Peruvian guano for Turnip crops, in consequence of the less amount of ammonia and the greater proportion of phosphates the former contained.
7. On the white crust of phosphate of lime covering deposits near the Red Sea, in consequence of the decay of the organic matter, and the concretion of the mineral substances in that manure, this crust, now valued at 6*l.* or 7*l.* per ton, having been thrown into the sea by thousands of tons as worthless, from ignorance of its real value, for the purpose of getting to the guano-beds beneath it.
8. On the form in which manure must be presented to the roots of plants in order to be absorbed as food: and on well mixing manure with the soil in autumn.
9. On the question of drill-manuring, and whether the manure is by them presented under the most favourable conditions to the plant.

These points were discussed with much interest by Mr. Caird, Prof. Way, Mr. Alcock, M.P., Mr. Fisher Hobbs, Mr. Cavendish, Prof. Simonds, and the Rev. L. Vernon Harcourt.

CATTLE DISEASE.—Communications were also received from the Foreign Office on the subject of the Mecklenburg Cattle Distemper. Professor Simonds remarked that the English Government had interdicted the importation of cattle from Prussia, while the Swedes and Government had interdicted the importation of English cattle: the ground of interdiction in the latter case being the fear of introducing pleuro-pneumonia. The mouth and foot disease of 1839, which existed in the English markets and showed itself strongly in the late Paris Show, was occasioned by the animals' over-exertion (during transit by steamers and railways), and an unusual privation from food.

The meeting concluded with statements connected with—

1. Mr. Athawe's new lever-fork for loosening the soil between rows, manufactured by Parkes, of Birmingham, and sold by Burgess & Key, Newgate Street.
2. On the price of ploughing by horses under different circumstances, compared with ploughing by steam apparatus; and on the durability or otherwise of wire ropes used in the latter case for traction, and the wear and tear generally of steam-ploughing, economically considered.
3. On the early attempts at steam locomotives on common roads, at Glasgow, Brighton, and in the Kent Road; the machine in the first case exploding, in the second being unable to go up a hill, and in the third being incapable of being stopped on going down one.

4. Mr. King's Australian wine, of fine Hungarian quality, as the first produce of wine-growing in that British colony.
5. Specimens of the agricultural products of Algeria, collected during the past long vacation in that province of France by Mr. Wingrove Cooke, and by him presented to the Society.

The Council, having ordered their usual acknowledgments for the favour of the communications made to them, adjourned.

Notices of Books.

The Journal of the Royal Agricultural Society of England. Vol 17. Part II. John Murray.

The current "Part" contains a number of very useful articles, the result not only of experience in the field and laboratory but of literary research. A very extraordinary paper in this latter respect is contributed by Mr. T. F. Jamieson, of Ellor, Aberdeenshire, in which the author brings to bear not only agricultural experience but the testimony of English, French, and German agricultural chemists and writers on "The Action of the Atmosphere on newly deepened land." The cultivation of moor land is discussed by Mr. R. Smith, of Exmoor, in all the detail and with the practical usefulness which experience enables. Mr. Caird and Mr. Paget give the results of their experience in the cultivation of Mangel Wurzel—the former especially illustrating by his crops of the past year the value of common salt as a manure for this particular crop. A full report is given on the Agriculture of Warwickshire by Mr. H. Evershed, rendered still more interesting and instructive by a number of valuable and suggestive foot-notes from the pen of Mr. Hoskyns. We have, in addition to these, an essay on the Construction of Labourers' Cottages—on the Natural History of British Grasses—and on the different methods of Deepening the Soil—respectively by Mr. Isaac, of Bath; Professor Buckman, of Cirencester; and Mr. Peter Love, late of Naseby. The Lois-Weedon culture is the subject of a long report by Messrs. Lawes and Gilbert; and Professor Way contributes an additional report confirming a former one on the composition of rain-water. In addition to these, there are a number of shorter papers and reports printed in this volume, and there is appended to it a most valuable index to the 16 volumes which have now been published.

Calendar of Operations.

FEBRUARY.

WEST SUSSEX, *Feb.* 3.—We are still in the dull season; there is little that we can do in the fields, especially where the land is a little heavy, as one day's injudicious working at this season will cause us many regrets during the summer. We may venture a little in the autumn, and trust to the winter frost to put it right; but to work heavy land when wet in the spring has the effect of making it so hard during the summer that it is impossible for plants to thrive. On the lighter lands the weather has permitted work to be carried on without interruption, so that they will be ready to take the first opportunity of commencing the seed time. We have had such rapid changes in the temperature that sheep in the fields have not done so well as usual in some cases, especially ewes and lambs, and the lambs have not been so forward as we were led to expect, so that there will not be so early a supply as usual, and we may expect high prices at their first coming in. The Wheat generally looks well, and will no doubt make a good start as soon as the milder weather comes. Turnips have stood the winter better than usual, as we have not had any severe though frequent frosts, and having a good supply of hay, they last longer than the same quantity would do at other times. The rick yards are being thinned pretty fast, notwithstanding the dull markets, and I should think that unless we have very large importations, prices must advance, as millers do not keep much in hand. But though our average prices are lower than last year's, it is more on account of the quality, as good Wheat, such as was common last year, still commands from 64*s.* to 70*s.*, which is not so much below last year. The sowing of Peas and Beans will be set about as soon as the land is in working order. Our markets are not over supplied with meat, but still sales are heavy, though at fair prices. *G. S.*

Notices to Correspondents.

ADDRESS: *A Correspondent* resident near Haverfordwest asks for the address of a "Practical Cowkeeper" who wrote about the Mona breed of cattle.

BONES: *Tyro.* Break them first—if in no other way, by a hammer; riddle them, and put the larger fragments into the tank along with half their weight of sulphuric acid, and an equal weight of water. After these bones have been acted on, mix in the smaller bits, till the bones are about three times the weight of the acid present. Give them plenty of time to get reduced.

DAIRY: *W P.* Read the article on Dairy and on Farm Buildings in the "Cyclopædia of Agriculture" (Blackie).

DISINFECTANT: *T B P.* We should suppose that the liquid manure properly disinfected might be applied without risk of its producing a nuisance; but you will yourself ascertain the character of the manure after the disinfectant has been applied.

DRAINING: *E L S.* Smith's (of Deanston) pamphlet was published many years ago by Messrs. Drummond, of Stirling. It is impossible to say what depth your land should be drained without viewing it, but as a general rule we have confidence in the propriety of 4-foot drains in clay subsoils.

GORSE: *New Subscriber.* We have given the experience of the Rev. W. D. Fox and others in its favour often, having none of our own. It is believed in its crushed state to be as nutritive as Clover and other green food, worth probably 15*s.* a ton, while it costs very little indeed. It is suitable for all kinds of farm stock, and especially for milk cows.

SODA ASH: *C J J.* It is carbonate of soda uncrystallised and impure. One cwt. per acre is a sufficient dressing, and it is more likely to be of service if added to farm manure, and applied for green crops or for Beans.

TO CORRESPONDENTS.—A question on the value of certain manures whose composition was given has been mislaid—will the inquirer be so good as repeat it?

TREACLE: *Mary.* It has been used with good effect, as you will see at p. 44. 1856. 1 lb. of treacle a day may be given to the cow poured over straw chaff—she will soon take to it. As to Italian Rye-grass it is generally considered a biennial; but it will last longer if cut continually and hindered from seeding. We should prefer ploughing it up and sowing full Grass seeds in the regular way to scattering seeds over the Rye-grass stubble.

WHEAT: *E C, Derby.* Sow 2 bushels per acre of Fenton White or Spalding Red, or Talavera Wheat, as soon as the frost is out of the ground. You had better put in Talavera if the ground is not too rich. If it is likely to grow much straw put in the shorter-strawed Fenton.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. PAGE & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, [Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, [Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr. Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich
Mr. T. McKenzie, Seed Merchant, Pine Street, Cork.
Mr. J. Walker, Nurseryman, Thame.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbringe Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. W. J. Epps, Maidstone.
" Caldwell, Knutsford.

IRON COLLAR BAR HURDLES.—These Hurdles, from their construction with Collared Bars and manufactured with Patent Machinery, have more than *twice the strength and durability* of those in ordinary use, and are no more expensive. Sheep Hurdles (ordinary), or with Patent Collar Bars, 4*s.* 6*d* each; Cattle Hurdles (ordinary), or with Patent Collar Bars, 5*s.* 6*d.* each; Ox Hurdle (ordinary), or with Patent Collar Bars, 7*s.* 9*d.* each; Deer Hurdle (ordinary), or with Patent Collar Bars, 8*s.* 6*d.* each

COTTAM AND COTTAM, ST. PANCRAS IRON WORKS, Old St. Pancras Road, *opposite the Old Church*, where the processes of manufacture may be seen. Every description of Fencing and Iron Works. Price List per post or on application.

SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½	...	12*s.*	8 by 6, and 8½ by 6½	... 13*s.* 6*d.*
7 by 5, and 7½ by 5½	...	13*s.*	9 by 7, and 10 by 8	... 13*s.* 6*d.*
11 by 9, 12 by 9, 13 by 9, 14 by 9				... 15 0
12 „ 10, 13 by 10, 14 „ 10, 15 „ 10				} 16 0
16 „ 10, 17 „ 10, 18 „ 10				
12 „ 11, 13 „ 11, 14 „ 11, 15 „ 11, 16 „ 11				... 16 6
13 „ 12, 14 „ 12, 15 „ 12, 16 „ 12 ...				... 17 0
17 „ 12, 18 „ 12, 19 „ 12, 20 „ 12				}
16 „ 13, 17 „ 13, 18 „ 13, 20 „ 13				} 18 0
22 „ 13, 24 „ 13				}
20 „ 14, 22 „ 14, 24 „ 14				}
10 „ 15, 22 „ 15, 24 „ 15				}
20 „ 18				... £1 2 0

Boxes charged 2*s.* each, but returnable at full prices. Larger sizes cut to order in squares. 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½*d.* per foot. Twenty-one Ounce, 3½*d.*

Foreign Sheet Glass, in cases of 200 feet, 34*s.*, 38*s.*, 40*s.*, and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GREENHOUSE SYRINGES, &c.

PATENT WATERING ENGINES, MACHINES, AND SYRINGES of every description, with the latest improvements. Manufactured only by RICHARD READ,
35, Regent Circus, Piccadilly, London.
Descriptions sent Post Free.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

PROTECTION FROM THE MORNING FROST.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22 1856.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

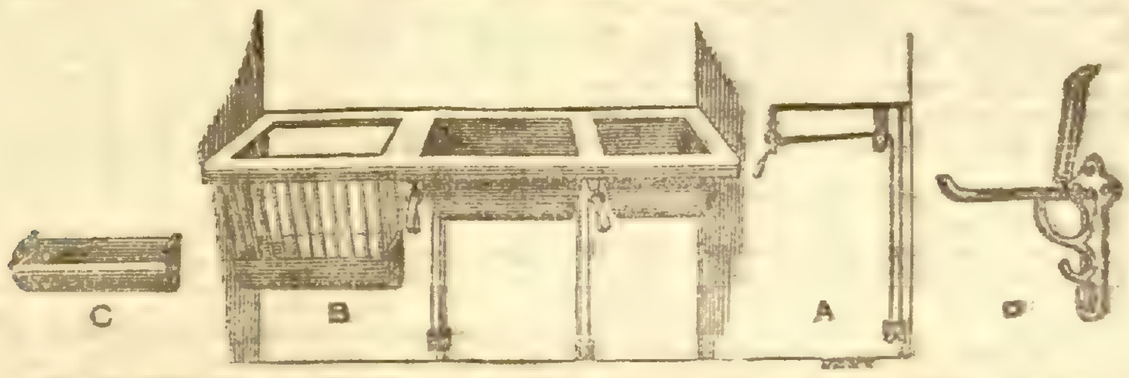
"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

New Patent Inventions for Stable Requisites.

Awarded a Prize at the Paris Exhibition, and Patronised by the English and French Governments.



COTTAM AND HALLEN,

THE Original INVENTORS of the PATENT ENAMELLED MANGER RACK and WATER TROUGH AS ONE FIXTURE, to which they have made important additions, the main features of the same being explained in the description and engraving.

A *represents* the Patent Halter Guide and Collar Rein, the ball of which is taken to the back of the manger, works with ease and freedom up or down the guide bar, and is noiseless in its operation, as also a sure preventative against the most restive horse being cast in the stall.

B The Patent Portable Seed Box can be instantly detached from the Rack without disturbing the hay. The saving of the seed in a clean and useful state, either for agricultural purposes, or mixing with the food in the manger, is alone sufficient to claim general notice.

C The Seed Box detached, made of Galvanised Sheet Iron light and durable.

D The Patent Saddle and Harness Bracket combined, can be used with great advantage in Harness Rooms, where space is an object, as the long portion of the bracket can be turned up out of the way when not in use.

COTTAM & HALLEN, the Inventors, have designed these Fittings on strictly scientific principles, and they are, if not perfect, the most in keeping with the science of the present day of anything yet produced. The facts of their having been extensively introduced by architects of known practical experience, besides obtaining the favour of both the English and French Governments, are valuable proofs of their utility.

COTTAM'S MANGERS are constructed in the best possible manner, both as to form and utility, are cleanly in appearance, durable, and impervious to infection; manufactured Plain, Galvanised, or Enamelled.

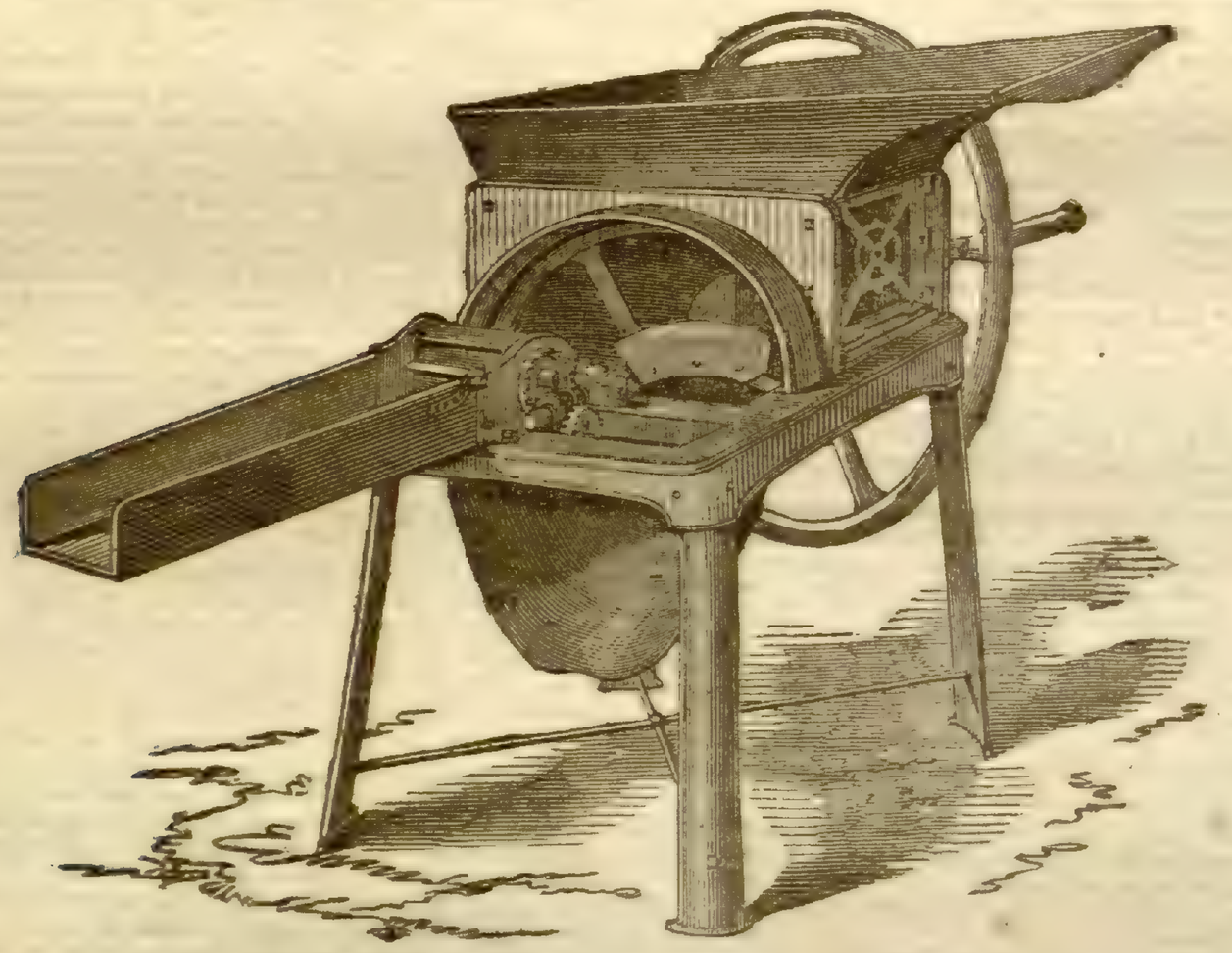
Improved Stable Guttering, with moveable safety covers, Sanitary Traps, Stable Pumps, Patent Loose Box Fittings, Harness-room Appendages, and every article in Stable Furniture. Chaff Cutters and Oat Bruisers, kept on show at

COTTAM & HALLEN'S WORKS, 2, Winsley Street, Oxford Street, London.

WARMING AND VENTILATING.—Illustrated Catalogues and Estimates gratis on application.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY

Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

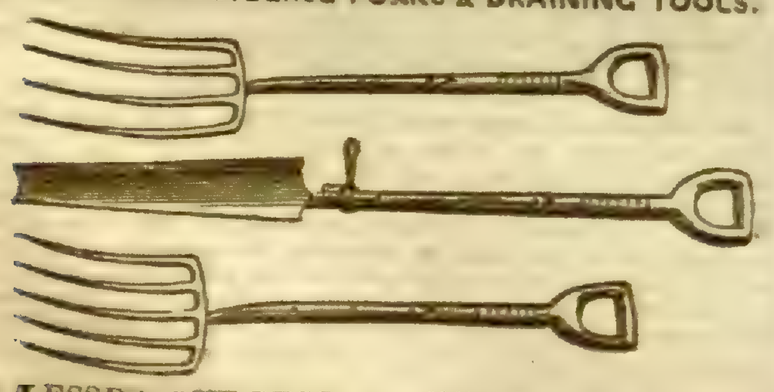
TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10s.
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0s.
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

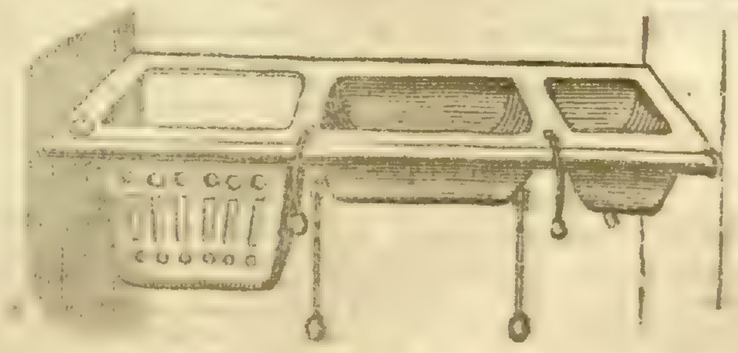
B. SAMUELSON, Britannia Works, Banbury.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



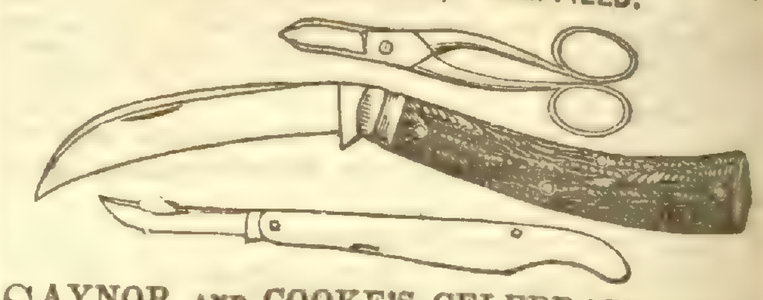
MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
95, Newgate Street, London.

BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.
JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2¾ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

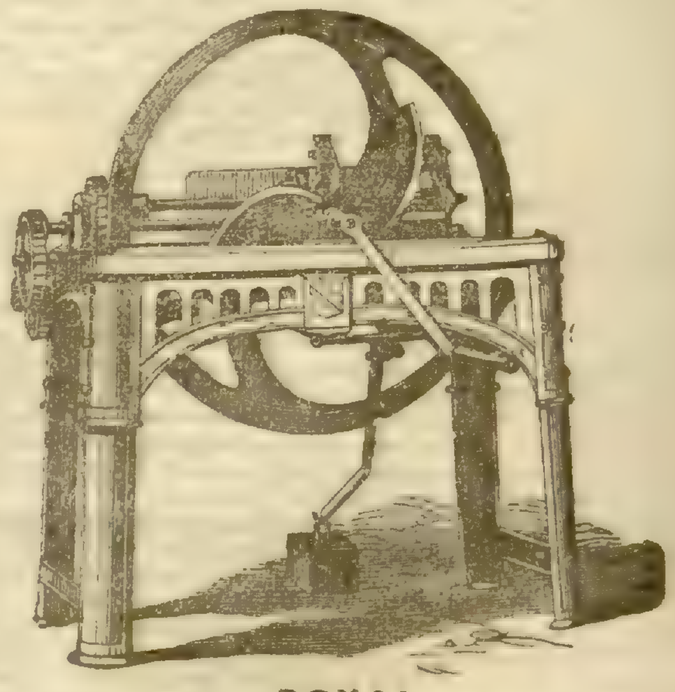
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."
—*Mark Lane Express.*



ROYAL
NORTH LANCASHIRE AGRICULTURAL SOCIETY.
PRESTON MEETING, 1856.

AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—

The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—
The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

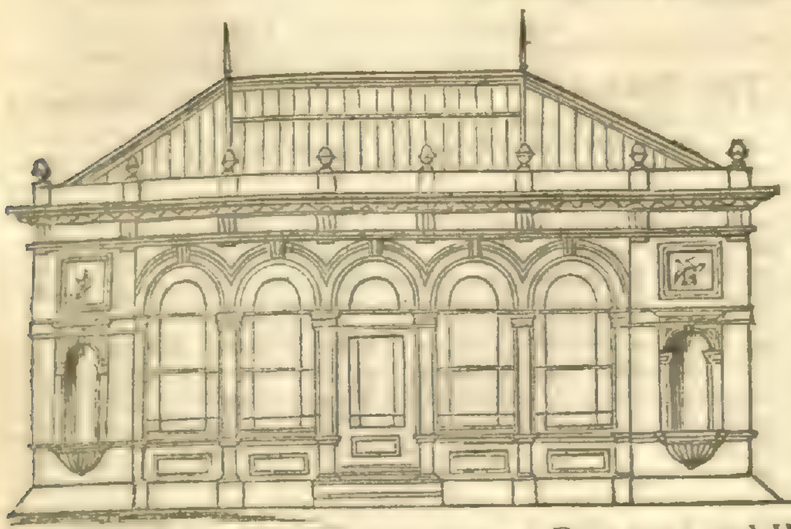
Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

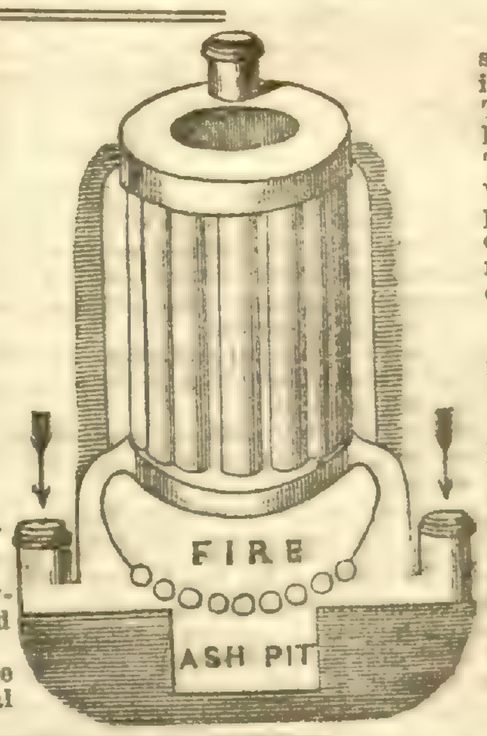
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. manufacture *these* Boilers of all sizes. The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

FOR SALE.—TEN NEW HOT and GREENHOUSES and CONSERVATORIES, from 8 feet to 32 feet in length, and which will be sold at Second-hand Prices, as the ground must be cleared at once. Standing at E. DENCH'S Patent Hot-House Works, King's Road, Chelsea, and at Granby Nursery Grounds, Mornington Place, Hampstead Road.

JOHN WHITEHEAD, Preston, Lancashire, MAKER of HEATING APPARATUS for WARMING CHURCHES, PRIVATE MANSIONS, GREENHOUSES, &c.

The Apparatus on the POLMAISE SYSTEM unites the functions of a Ventilating and Warming Apparatus, providing for the discharge of foul air, at the same time that it furnishes a supply of pure warm air which may be regulated to almost any desirable temperature. It is free from dust, from noxious or offensive exahalations, and from all danger of fire. It is extremely simple, requiring no skill or great care in its management: the first cost is small, and with regard to economy of fuel it is confessedly superior of all other.

In the construction of HOT-WATER APPARATUS, care is taken to perform the work in a durable and substantial manner, so as to obviate the necessity for frequent repairs, or the possibility of any derangement in its working. It is simple, easy to control, requires little attention, and is quite safe and economical in respect of fuel.

Testimonials forwarded on application. Experienced Engineers sent to any part of the Kingdom, and plans, specifications, and estimates furnished on application.

HOT AIR.

From R. A. HORNBY, Esq., *Wansfell, Windermer*, Jan. 5, 1857.

Sir,—I do not hesitate to send you the testimonial you desire. Your Stove was constructed in 1849; it has been in work ever since, except in summer, and has been uniformly easy to manage, cheap to feed (if the price of the best coke be considered), and excellent for the health of plants, either in Stove or Greenhouse. It has required no repair beyond a few fire-bricks. A common gardener looks to it. The fire lasts fully 12 hours in winter nights, the thermometer ranging from 65° to 54°. If any gentleman wishes to see the Stove in operation, the gardener will attend on him, my own illness entirely precluding me from correspondence or the reception of visitors.—I am, Sir, your faithful servant, ROBERT A. HORNBY.

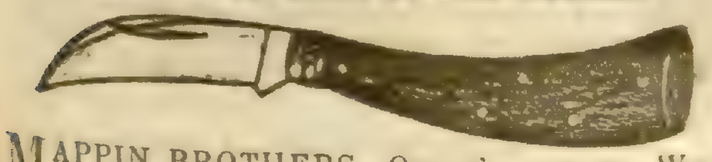
From REV. W. HORNBY, *St. Michaels-on-Wyre, near Garstang.* December 8, 1856.

I have much pleasure in informing you that the Hot-Water Apparatus you have lately put up in my garden answers perfectly, but I am by no means disposed to give up the Polmaise system, which I should certainly have employed if the situation would have allowed it. Your Polmaise Stove, in the church and school, are all that I could desire.

From W. THISTLETHWAITE, *Esq., Ludlow Grove, near Wilmslow.* December 3, 1856.

Your Warming Apparatus for the centre of our large building has been entirely successful. The heat is uniformly diffused, under good control, free from draughts, and in all respects very agreeable. My only dwelling house is part of the north wing of the building, and is dependent on open fires. The rooms being large and rather lofty are difficult to heat in cold weather, and I have pretty much concluded to put a small apparatus up on the same plan for my own house.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

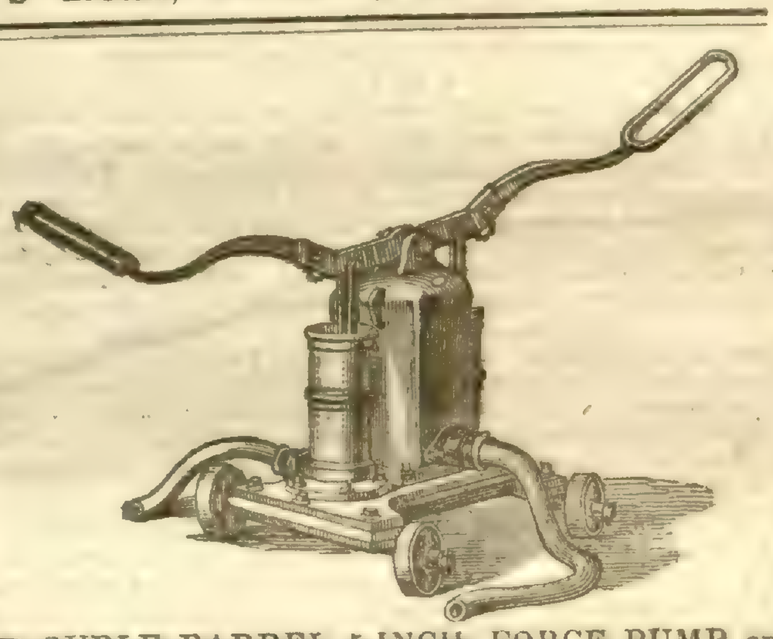
MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

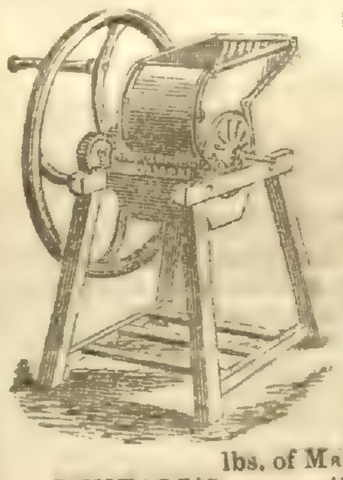
MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.



DOUBLE BARREL 5-INCH FORCE PUMP OR AGRICULTURAL FIRE ENGINE, with cast-iron barrels and brass valve seatings, a strong cast-iron vessel, with suction and delivery pipe with caps, and two 2¼-inch nuts and wastes, mounted on four cast-iron wheels, with jointed socket handles for six or eight men.

With 6-inch wheels	... ...	£18 0 0
With 12 „ „	... ...	19 10 0

JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.



BENTALL'S PATENT PULPER.

PRICES.		£ s. d.
R. P. A.	... ...	8 8 0
R. P. B.	... ...	6 6 0
R. P. C.	... ...	5 5 0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

PATENT WEATHERPROOF GLAZING, Ridge and Furrow Conservatories, Greenhouses, Vineries, Orchard Houses, &c., with the most improved form of construction and heating. Illustrated Prices on receipt of 4 stamps.

Address, ALFRED KENT, Horticultural Builder, Chichester.

GARDEN LABEL.—Neat, durable, and well-executed Label for Plants and Trees. Parties not acquainted with this Label can have a specimen sent by forwarding three postage stamps to F. H., Ludbury North, Salop.

YOUNG INKERMAN.—This celebrated STALLION will receive a limited number of MARES, at the Bury Farm, Stapleford, Cambridgeshire. He won the first Prize in the Dray Horse Class, Chelmsford, 1856, when only three years old, competing against all ages. Young Inkerman foaled 80 mares out of 100 last season.—Apply to Mr. THOMAS BAKER, Stapleford, on or before the 10th of March.

DORKINGS FOR SALE.—One Hundred pure bred DORKING HENS of the dark grey and speckled varieties.—For particulars, apply to JOHN COATES, Escrick, York.

WANTED TO RENT, Half an Acre or an Acre of LAND, for one year from Christmas last, close to a Railway Station on the South-Western or Richmond Line, not exceeding 10 miles from the Waterloo Station.—Address A. Z., *Gardeners' Chronicle* Office.

TO BE LET, a small but very advantageous NURSERY and SEED BUSINESS, situated in the improving neighbourhood of Sunninghill, and close to the Ascot station of the South-Western Railway. With a good Dwelling-house, a large Greenhouse, and a Propagating House. Pits, Frame, &c. Stabling for two horses, Cart-shed and Packing-shed. May be entered upon immediately. Ground well stocked with fine Evergreens, &c.—For particulars apply to Mr. WHOMES, Nurseryman, Windsor, Berks.

TO BE SOLD, THE LEASE OF A NURSERY, 3 miles from Covent Garden, containing 3000 feet of Glass, and about 6000 Plants, with Dwelling and other conveniences. May be entered on in March or June next. Rent and Taxes low. Price 5 00*l*.—Mr. WARD, Stationer, Camberwell Green, Surrey.

TO BE LET, A FLORIST AND FRUITERER'S BUSINESS, well situated in one of the oldest and most frequented thoroughfares out of London.—Address A. Z., *Gardeners' Chronicle* Office.

TO FLORISTS AND GARDENERS.

SALE OF RARE AND VALUABLE PLANTS.

TO BE SOLD by public roup, in the Garden of the late Patrick Wilson, Esq., Maxwell Place, Kelso, on WEDNESDAY, the 25th day of February current, an extensive and choice COLLECTION of rare and valuable Herbaceous and Alpine Plants, Bulbous Roots, Roses, Ornamental Shrubs and Trees, Fruit Trees, Auriculas, and Auricula Stage, Frames, large and small, Hand-Glasses, Garden Tools, &c. After the Sale, the Garden will be let in three lots. Roup to begin at 10 o'clock.—JAMES FAIRBAIRN, Auctioneer, Kelso, Feb. 14.

STANDARD AND OTHER ROSES, CAMELLIAS, AZALEAS, &c. &c.

MR. HASLAM will Sell as above at the Mart, on THURSDAY, February 26, and March 5, at 1 o'Clock. N.B. All goods to the amount of 10*s*. and upwards packed and delivered free of charge to Parcels Delivery Company. Mats and baskets allowed for when returned.—Epping, February 14.

Sales by Auction.

CHOICE POULTRY.—EXTRA SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Feb. 17, at 12 o'Clock precisely, 250 Lots of POULTRY selected from the yards of Sir Archibald Macdonald, Rev. Mr. Hutchinson, Mr. Timothy Mason, Mrs. Henry Fookes, and other breeders of choice stock, including Spanish, Dorkings, Cochins, Brahmas, Polands, Hamburghs, Game, Black-crested White Polands, experimental birds from the yard of Mr. Tegetmeier, Buenos Ayres and Rouen Ducks, Chinese Geese, &c.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

PUTNEY.—To TIMBER MERCHANTS, BUILDERS, NURSERYMEN, MARKET GARDENERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, near the Fox and Hounds, close to the Railway Station, Putney, on WEDNESDAY, February 18, at 11 o'Clock, the erection of a Timber-built Dwelling House, consisting of 8 Rooms and Cellar; also large Timber Trees, 600 Ash, Fir, Acacia and other Poles; a capital 2-Horse Double Roller, with single shaft; about 3 acres of White Round Turnip, a quantity of Ornamental Trees, Evergreens and Shrubs; 100 Dwarf-trained Peaches and Nectarines; an assortment of choice worked Dwarf Roses; together with sundry Household Furniture, &c.—May be viewed three days prior to the Sale. Catalogues may be had at the Fox and Hounds, Putney: of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

PYRGO PARK, ESSEX.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the premises, Pyrgo Park, Havering, near Romford, Essex, on MONDAY, February 23, at 12 o'clock, the choice GREENHOUSE PLANTS, comprising about 70 Camellias, 4 to 7 feet, consisting of all the approved varieties, well set with bloom-buds; 100 specimen Geraniums; also Azalea indica, Daphne, Cactus, Gloxinias, Achimenes, Calceolarias, Verbenas, Fuchsias, &c.; together with Four 1, 2, and 3 Light Boxes, 18 Hand Glasses, Garden Engine, Water Barrow, Iron Roller, Five Barrows, Garden Tools, and sundry effects.—May be viewed prior to the Sale on application to Mr. PAIN on the Premises, where Catalogues may be had; also of Mr. DUNNETT, Golden Lion Inn, Romford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Hally to Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, February 26, at 12 o'Clock, about 200 Camellias, from 1 to 5 feet, including all the approved kinds, beautifully furnished with bloom buds; also fine Standard and Dwarf Roses, choice American Plants, together with Lilium lancifolium rubrum, &c.; Otaheite Oranges; Rose Devoniensis, Verbenas, Fuchsias, Dahlias in dry roots, &c.—May be viewed the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

TO THE LOVERS OF DELICIOUS FRUIT.

ORION MELON, the winner of all the FIRST PRIZES for two successive years at the Crystal Palace, Regent Street, and Ipswich, for beauty, weight, and flavour.

Crystal Palace Fête.—"The heaviest Melon, 1st Prize, weighed 5 lbs., was communicated by Mr. Boreham. The variety we believe was named 'Orion,' a green-fleshed sort, which was also awarded the First Prize for good flavour."—*Gardeners' Chronicle*, 31st May.—Six seeds out of the Prize Fruit, 1*s.* 6*d.*, free by post.

THOMAS WILD, Ipswich.

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Manetti Stocks, 50*s.* per 1000.
Hardy Heaths, in variety, 25*s.* per 100.
Menziesia polifolia and alba, 30*s.* per 100.
Standard and half standard Roses, by name, 4*l.* per 100.
Dwarf do. do. do. 50*s.* per 100.
Blush China Roses, strong, 15*s.* per 100.
Double Yellow Primroses, 20*s.* per 100: or 3*l.* for 400.

A remittance or reference expected from unknown correspondents.

THE BIRMINGHAM ROOT SHOW,

SUTTON'S PRIZE MANGEL WURZEL.—These superior kinds of Mangel Wurzel took the First Prize in each class at the Birmingham Great Root Show, open to all England, and the same kinds exhibited on Messrs. SUTTON'S Stand at the Baker Street Show would doubtless have been equally distinguished if prizes for roots had been given on that occasion.

J. SUTTON & SONS, Seed Growers, Reading, Berks, have at present a good Stock of Seed of the above, which they are selling at moderate prices, according to quantity required. Early orders are requested, to prevent disappointment.

SUTTON'S New Seed List, with Prices, may now obtained, post free.

SEED CORN FROM THE CHALK.—TALAVERA, RED NURSERY, and RED HYBRID, the best Wheats for Early Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c. &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

TO THE TRADE, AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING.

FOR SALE.—Seven hundred worked Thorns, new Double Scarlet, Single ditto, and White, 4 to 6 feet strong.

1000 Turkey Oak, 3 to 6 feet.
800 Limes, very handsome, 8 to 15 feet.
500 Laburnums, 6 to 10 feet.
200 Pinus Douglasi, 6 to 8 feet, raised from seed.
3000 Dwarf Roses.
Standard Rhododendron Ponticum, 4 to 6 feet, for working.

Apply to GEORGE S. ROGERS, Red Lodge Nursery, near Southampton.

FRUIT TREES (DWARF TRAINED).

	s.	d.
PLUMS, 60 of the best kinds ... ... each	2	6
PEARS, 150 of the best kinds ... ... „	2	6
MOORPARK APRICOTS ... ... „	3	6
PLUMS and PEARS, dwarf standards, all the best kind for pyramids (healthy young trees) ... ... each	2	6
The new and beautiful Collinsia bicolor alba, per packet	1	0
C. Bartsiæfolia alba ... ... „	0	6

And a collection of 50 of the newest and most showy Annuals for 10*s.* 6*d.*, free by post, or 100 sorts for 20*s.*

Also collections of Garden Seeds of the best quality from 10*s.* to 60*s.* per col. Sorts forming each collection on application to

JOHN SCOTT, Merriott Nurseries, Crewkerne, Somerset.

N.B.—All kinds of Nursery Stock grown largely; also a most complete collection of CONIFERÆ. Catalogues sent on application.—Feb. 14.

SEEDLING THORNS AND FOREST DITTO.

CHARLES DALY AND SON beg to inform the Trade that they will sell 1-year THORNS at 3*s.* per 1000; 1-year transplanted, 7*s.* 6*d.* do.; 2-years transplanted, 12*s.* do.; 2-year Seedling SPRUCE FIR, 2*s.* 6*d.* per 1000; 2-year Seedling SCOTCH FIR, 1*s.* 3*d.* do.; 1-year Seedling BEECH, 3*s.* per 1000. Free in Liverpool or Glasgow, for cash only, paid to Messrs. HURST & M'MULLEN, London, or to the advertiser with orders.—Coleraine, Feb. 14.

Early Seed Potatoes sold cheap.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have for Sale a pure stock of Seedling and Transplanted native HIGHLAND SCOTCH PINE PLANTS, raised from seed collected in the celebrated native Forests of Strathspey.

J. G. & Co. have had the honour to receive the numerous premiums awarded by the Highland and Agricultural Society of Scotland during the last 20 years for the cultivation of the true Highland Pine. They also abound in Seedling Larches, Seedling Transplanted Deodars, Seedling Sycamore, Pear Stocks, &c., well adapted to the trade. Priced Lists will be furnished on application.

JOHN HENCHMAN, JUN., Edmonton, London, is now sending out—

CAMELLIAS, double white and fimbriata, full of flower buds, at 24*s.*, 30*s.*, and 36*s.* per dozen.

CHINESE AZALEAS, fine named varieties, worked on short stems with large heads full of flower, at 42*s.* per dozen. Choice mixed varieties, on own roots, full of flower, at 15*s.*, 18*s.*, and 24*s.* per dozen.

GHENT AZALEAS in pots, choice named sorts, full of flower, 18*s.* and 24*s.* per dozen.

CALCEOLARIAS, choice Seedlings, in 60-pots, 6*s.* per dozen. Ditto, for Specimen Plants, in 32-pots, 18*s.* per dozen.

CYTISUS or GENISTA FRAGRANS, strong bushy plants full of flower, at 9*s.* and 12*s.* per dozen.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

LYNCH'S STAR OF THE WEST CUCUMBER.—This has proved itself during the last two seasons to be one of the very best Cucumbers for general use.

Mr. Joseph Hamilton, the celebrated Cucumber grower, and author of the "Hamiltonian System of Pine Growing," in a letter dated October 1st, 1856, says:—

"LYNCH'S STAR OF THE WEST IS A GREAT FAVOURITE OF MINE, AND I WILL USE MY BEST ENDEAVOURS TO RECOMMEND THE SORT TO ALL MY FRIENDS."

	Per packet.—s. d.
SIX SEEDS FOR	1 6
TWELVE SEEDS FOR	2 6
TWELVE LARGE PACKAGES FOR PRESENTS FOR	20 0

Apply to WM. E. RENDLE & Co., Seed Merchants, Plymouth.

NEW HYBRID CUCUMBER "PERFECTION."—This has proved to be one of the finest black spine varieties ever yet offered to the public for early forcing and all other purposes for which a Cucumber is required. Seed of the above is now ready to be sent out at 3*s.* 6*d.* per packet.

For further particulars, with a List of numerous other fine varieties of Cucumbers and Melons, and prices of the same, see this Paper of January 31, 1857, page 66.

A remittance must accompany every order in cash or penny postage stamps, when the whole, or any part, as the case may be, will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

COLE'S DEFIANCE RED CELERY has proved the best Red Celery for exhibition or for common use; it is exceedingly solid, of exquisite flavour, attains a large size, and keeps better than any other sort in cultivation. To be had in sealed ½-oz. packets, free by post, for 12 postage stamps.

The DWARF WHITE INCOMPARABLE, so highly recommended, for 12 postage stamps. Also COLE'S DWARF SOLID RED, and CRYSTAL WHITE, in ½-ounce packets, each free by post for 6 postage stamps.

N.B. The trade supplied by the lb. Price on application.

WILLIAM COLE, Withington, near Manchester.

ROSES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in offering the following, all first-rate plants. Extra tall Standards (fine picked stocks), from 5 to 8 feet high, budded with 3 to 6 of the best varieties of climbing and perpetual Roses in each stem, suitable for conspicuous places, on lawns, &c., 3*s.* 6*d.* to 5*s.* each. Selected Standards, 6 and 8 feet stems of the Crimson Boursault Rose, or Amadis for training, 3*s.* 6*d.* each.

Per doz.—s.	s.	Per doz.	
Fine Half Standards	24 ...	Hybrid Perpetual and Bourbon on 6-inch stems	12*s.* to 18*s.*
Superb Dwarf Standards	18 to 24	Climbing Roses, mixed ...	4*s.*
Fine Dwarfs	12 to 18	Dwarf ditto. ...	3*s.*
Climbing and Noisette	9 to 12		

Plants added to compensate for distant carriage. Catalogues free on application.

SPECIMEN ROSES IN POTS FOR EXHIBITION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON beg to offer fine specimen plants of that superb Tea Rose GLOIRE DE DIJON, in 9 to 15-inch pots. The plants are exceedingly strong and bushy, varying from 2 to 3 feet in height, and are peculiarly adapted for exhibition or for forcing. From 3*s.* to 5*s.* each.

DWARF HYBRID PERPETUAL ROSES on 4-inch stems, established in 6-inch pots either for greenhouse culture or for forcing, 24*s.* per dozen.

MAGNIFICENT DWARF-TRAINED "PEACHES."

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON can recommend with much satisfaction their fine Stock of the above; the Trees are vigorous, healthy, and well trained.

CONIFERS.—SPECIMEN PLANTS OF

Cupressus macrocarpa.	Cedrus Deodara.
„ Goveniana.	„ robusta and viridis.
„ funebris.	And other Conifers.

N.B. A remarkably fine stock of Laurustinus and Ornamental Trees and Shrubs.

Catalogues on application, gratis and post free.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s.*	Forty-fold ...	per bushel 6*s.*
Walnut-leaf do.	... ... 8*s.*	British Queen	... ... 6*s.*
Fifty-fold do.	... ... 8*s.*	Purple Regent	... ... 6*s.*
New Boston do.	... ... 6*s.*	Early Shaws	... ... 6*s.*
Early Frame	... ... 8*s.*	York Regent	... ... 6*s.*
Flourball	... ... 6*s.*	Bags included,	

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

SEED POTATOES, &c.

Per bushel—s. d.		Per bushel—s. d.	
Early Ten Week	8 0	Fluke	6 0
Shilling's Frame	8 0	Forty-fold	5 0
Ash-leaved Kidney ...	8 0	Shaw	4 0
Walnut-leaved do. ...	8 0	Regents	4 0

15 papers SHOWY HARDY ANNUALS... ...	2*s.* 6*d.*
24 do. do. ...	5 0
20 Choice do., including several new kinds ...	10 0

Free by post, with every requisite for the Kitchen and Flower Garden at moderate prices.

JOSEPH MAY & Co., 1, Wellington Street, Strand, near Waterloo Bridge.

KIDNEYS.—ASHLEAF, 7*s.* per bushel; FLUKES, 5*s.* per bushel; DAWE'S MATCHLESS, 6*s.* per bushel, a very fine sort and large croppers, strongly recommended for a white Kidney to use in the spring. Has withstood the disease three years in succession. All other kinds of Seeds equally low and warranted. Prices sent upon application.

JOHN BELL, Covent Garden, and King's Cross Potato Market, Great Northern Railway. Post-office orders payable at Charing Cross. New bags, 1*s* 6*d.* each.

MYATT'S PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s.*; per peck, 2*s.* 6*d.*; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in growing in our stock in excellent condition, and can offer them on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

FINE FRAME CUCUMBERS.

WOOD AND INGRAM beg to offer the following excellent varieties of Frame Cucumbers, in packets, each, post free:—Cheltenham Surprise, Godfrey's Black, Manchester Prizefighter, Turnbull's Fine Frame, Snow's Superlative, Conqueror of the West, Telegraph, General Cambridge, Kelway's Defiance, Read's Superb, Improved Sion Hill, Hunter's Prolific, and Manchester Hero.

Huntingdon Nurseries, Feb. 14.

TO ORCHID EXHIBITORS.

R. WARNER having purchased a gentleman's collection and many imported Plants, has many duplicates and a few strong flowering specimens (such as P. amabilis with 4 flowering stems; Calanthe masuca with 11 shoots, some enough to throw up 2 to 3 flower stems each,) of some of the best varieties of Show Orchids to part with, either by sale or in exchange for other varieties. Winter Flowering Orchids would be preferred in exchange.—Application by letter to T. BAKER, Gardener to Robert Warner, Broomfield, near Chelmsford.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Morny (fine early French), Prince of Wales (Ingram's). A few more but well-rooted plants of Underhill's Sir Harry, at 15*s.* per 100. The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen, Eleanor (do.), Old Pine, Keens' Seedling, Goliath, Kitley, Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

SEED PURCHASERS CAN SAVE TWENTY PER CENT.

W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order our complete collections for one year's supply, 10*s.*, 20*s.*, 30*s.*, and 40*s.* each, or double quantities of 40*s.* for 70*s.*; 420 packages containing 24 quarts Peas, &c.

CHOICE FLOWER SEEDS post free: 100 sorts, 17*s.* 6*d.*; 50 sorts, 9*s.* 6*d.*; 25 sorts, 5*s.* Superior CALCEOLARIA SEED, 50 dwarf sorts, 2*s.* 6*d.* per packet. General Lists on application.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS, now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free on application. Great care has been exercised in the selection, and every article may be relied upon as being true to name and of the finest quality. A remittance or reference to accompany orders from unknown correspondents.—Paradise Nursery, Sisters and Hornsey Roads, Holloway, London, N.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

THE CATALOGUE for 1857 of the BLASS GARDEN AT ELBERFELD (Rhenish Prussia) has been published, and may be had gratis and post-paid on application post-paid as usual.

It contains about 600 species of Ferns (50 species of Tree Ferns), 160 species of Palms, Pandaneæ and Cycadeæ, 150 species of Aroideæ, a highly copious collection of Orchideæ and greenhouse plants of other genera, among them the latest novelties which the garden is owing to its extensive importations. The prices are very moderate. Particular attention is called to the golden veined Anæctochilus intermedius and Lobbianus, which are offered at the low price of 3 thalers Prussian currency, a price which makes these splendid plants accessible to every cultivator.

BLASS GARDEN, Elberfeld, Feb. 14.

THE MOST CONCISE AND USEFUL SEED CATALOGUE YET PUBLISHED.

SUTTON'S NEW PRICED CATALOGUE is now *ready, and will be sent (post free) on receipt of a Penny Stamp.* It contains select Lists of

NEW FLOWER SEEDS	AGRICULTURAL SEEDS
KITCHEN GARDEN SEEDS	SEED POTATOES

Also,

SUTTON'S AMATEUR'S GUIDE IN HORTICULTURE and AGRICULTURE free by post on receipt of 14 penny stamps, which will be returned to purchasers of Seeds.

Royal Berkshire Seed Establishment, Reading, Feb 14.

"WHEELER'S LITTLE BOOK," *or Select Seed List for 1857, is now ready. A copy will be forwarded on receipt of three postage stamps.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

BOUND EDITION OF RENDLE'S PRICE CURRENT AND GARDEN DIRECTORY.

—*At the solicitation of several influential Customers, the Proprietors have been induced to publish a Bound Edition of this Popular Work, and copies may be obtained through any Bookseller, or from the Counting House, Union Road, Plymouth, in exchange for 18 penny stamps free by post.*

Apply to WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London: and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden, in the said Co.—SATURDAY, February 14, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 8.—1857.] SATURDAY, FEBRUARY 21. {Price Fivepence. Stamped Edition, 6d.

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MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions of PLANTS, FLOWERS, FRUITS, &c., for the present year, will be held in the Society's Gardens, Old Trafford, Manchester, on TUESDAY and WEDNESDAY, the 26th and 27th May; WEDNESDAY and THURSDAY, the 24th and 25th June; and WEDNESDAY and THURSDAY, the 26th and 27th August.—For Schedules and Particulars apply to the Secretary.

By order, JOHN SHAW, Secretary.

Council Room, 40, Princess Street, Manchester, Feb. 21.

THE HANOVERIAN BAND AND FLORAL FETE COMMITTEE beg to announce to Exhibitors that the First FLORAL FETE will take place in Sydney Gardens, Bath, on WEDNESDAY, May 13.—HY. SMITH, Hon. Sec.

All communications to be addressed to the Hon. Secretary, 29, Old Bond Street, Bath.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, SEED GROWERS, Reading, Berks. Remittances or references are requested from unknown correspondents.

FRESH IMPORTED GERMAN FLOWER SEEDS. POST FREE.

SUTTON AND SONS, Reading, Berks, have just received a choice importation of GERMAN FLOWER SEEDS, a List of which will be sent gratis and post free on application.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of Grape Vines struck from Eyes for Planting or Forcing in Pots, from 4 to 8 feet long. He is forcing some of the same which is showing well for fruit.

Shacklewell Road, Stoke Newington, N.E.

TWENTY-FOUR BEST HOLLYHOCKS.—One Hundred SEEDS saved from the best Show varieties in cultivation. Free by post, 1s.—THOMAS WILD, Ipswich.

SPECIMEN ROSES IN POTS FOR EXHIBITION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON beg to offer fine specimen plants of that superb Tea Rose GLOIRE DE DIJON, in 9 to 15-inch pots. The plants are exceedingly strong and bushy, varying from 2 to 3 feet in height, and are peculiarly adapted for exhibition or for forcing. From 3s. to 5s. each.

DWARF HYBRID PERPETUAL ROSES on 4-inch stems, established in 6-inch pots either for greenhouse culture or for forcing, 24s. per dozen.

ROSES.

H. LANE AND SON have still on hand a very large collection of ROSES, Standard and Dwarf worked.

Also Dwarfs on own Roots of all the most popular sorts.

Dwarfs in Pots for forcing, well established in large quantities.

Catalogues may be had on application.

The Nurseries, Great Berkhampstead, Herts.

ROSES.

A. PAUL AND SON respectfully announce that their ROSE CATALOGUE for 1856-7 will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

TO THE ROSE TRADE.

BIRCHAM AND WARD are still in possession of several thousands of PERPETUAL ROSES, consisting of the leading kinds, dwarfs, and on stems from 15 to 30 inches, which they offer at reduced prices. Also a large stock of strong Dwarf Plants of the best Show Roses at 30s. per 100.

Heckenham Rosary, Bungay, Suffolk.

CHAMPION OF ENGLAND PEA.

CHARLES SHARPE AND CO. beg to inform the Trade that they have a large stock of the above PEA, of their own growing, the price of which may be obtained on application.—Nursery and Seed Establishment, Sleaford.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

WORCESTERSHIRE CHAMPION CUCUMBER.

JOHN JENNINGS can still supply Seeds of the above first-rate Black Spine Cucumber, 12 seeds, 2s. 6d.; 24 seeds, 1s. 6d.—Furze Hill Nursery, Shipston-on-Stour.

VICTORIA RASPBERRIES.

GEO. CORNWELL is now sending out his Canes of the above at 15s. per 100; New Monthly Autumn Fruited, 20s. per 100; White, 10s. per 100. G. C. has been awarded a prize for fruit of the Victoria wherever exhibited, the Horticultural, Botanical, and Surrey Gardens, Societies, &c.

Market Gardener, Barnet.

TO GENTLEMEN ENGAGED IN PLANTING.

RARE AND HARDY CONIFERS, HARDY ORNAMENTAL SHRUBS AND CLIMBERS, SELECT GREENHOUSE AND HARDY PLANTS, NEW AND CHOICE FRUITS, &c. &c. Full particulars of the above are given in YOUELL & Co.'s Catalogue, which will be forwarded on application.

Royal Nursery, Great Yarmouth, Norfolk.

ASPARAGUS.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—

Asparagus, Giant, 2 years old, per 100 ... ... 2s. 6d.
Ditto 3 years old, per 100 ... ... 3 6

Royal Nursery, Great Yarmouth, Norfolk.

BOX EDGING.—Several thousand yards of the above in fine condition.—For particulars apply to YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

WANTED, 1000 Plants of Mixed POLYANTHUS, HEPATICA, and PRIMULAS, for a border.—Address, stating lowest price, D.C.L., *Critic* Office, 29, Essex Street, Strand.

LYCESTERIA FORMOSA.

WANTED, 2000 of the above, from 12 to 18 inches.—Apply, with cash price, to CHAS. ALEXANDER, Nurseryman and Seedsman, Edinburgh.

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

WANTED, a quantity of well grown BIRCH.—Apply (stating size, price, &c.) to J. and J. GAITSKELL, Nurserymen and Seedsmen, Hall Santon, Whitehaven.

WANTED, Transplanted LARCHES, 2 to 3 feet and 3 to 4 feet; also BLACK THORNS.—Apply, stating quantity and price, to FISHER, HOLMES, & Co., Handsworth Nursery, Sheffield.—Feb. 21.

WANTED to PURCHASE, a quantity of TRANSPLANTED OAKS, 2 to 2½ feet, stiff stout plants, clean grown, well rooted, and with good leaders. None but such as are above described need be offered.—Apply, stating quantity and lowest price, to FRANCIS and ARTHUR DICKSON & SONS, Nurserymen, Chester.

PINE APPLES WANTED IMMEDIATELY, from 2 lbs. to 3½ lbs. each, at 5s. 6d. per lb.—Forward to GEO. TAYLOR, jun., Fruit Salesman, St. John's Market, Liverpool.

PINE APPLES.—100 fine Plants of the best sorts to be disposed of, 50 for Fruiting this year.—Apply to Y. H., Bentcliffe Old Hall, Eccles, Lancashire.

PINES.—About 200 healthy Plants to be Sold cheap.—Address, Box 188, Post Office, Manchester.

TO MARKET GARDENERS AND OTHERS.

FOR SALE, at 8s. per hundred, BLACK NAPLES CURRANT TREES, 2 or 3 years old, cut back every year. Also true FASTOLF RASPBERRY CANES, 6s. per hundred.—Apply to WILLIAM POWELL, Heath Lane, Hounslow.

CAMELLIAS.

TO BE DISPOSED OF, five splendid Plants, 12 feet high, in full bearing condition, suitable for large private or public gardens.—For terms and particulars apply to MR. JAMES STEVENS, Auctioneer, Clapham Common, S.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have to offer (fit for immediate forcing) PEACHES and NECTARINES, &c., in pots, well established, and well set with bloom-buds.

The different Catalogues may be had on application.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

LARGE FOREST AND ORNAMENTAL TREES FOR PLANTING PARKS, CEMETERIES, &c. &c.

W. J. EPPS has a large quantity of the above he can supply very cheap. Also a large stock of very fine Specimen Coniferæ. Prices and size sent on application.

Nurseries, Maidstone and Ashford, Feb. 21.

MOORE'S DELPHINIUM FORMOSUM.

W. MOORE begs to offer fine blooming plants of this splendid variety that will SEED this season at 6s. per dozen; price to the Trade per 100 on application.—Dereham Nursery, Feb. 21.

MIRABELLA PLUM STOCKS.

W. MOORE can supply the Trade with fine plants of the above at 40s. per 1000; also prepared Cuttings of the same at 10s. per 1000. They will grow 90 per cent. and make fine stuff the first year.—Dereham Nursery, Feb. 21.

NEW AZALEAS AND CAMELLIAS.

T. GAINES begs to say he has a few good Plants of the following still on hand:—Azalea rosea alba, 15s.; Napoleon the Third, 15s.; also Camellia compacta alba, 21s., which may be seen in bloom at the Nursery, Surrey Lane, Battersea, S.W.

CAMELLIAS.

CHANDLER AND SONS beg to inform their friends and the public that their Collection of CAMELLIAS is now coming into bloom. They have also a variety of Ornamental Plants, Ferns, &c., for the Drawing Room and Conservatory.—Wandsworth Road, London, S.

"HOW TO GROW DIOSCOREA SUCCESSFULLY," AND "HOW TO CUT BROCCOLI IN SUCCESSION THROUGHOUT THE YEAR."—SEE

SUTTON'S AMATEUR'S GUIDE IN HORTICULTURE AND AGRICULTURE for 1857, just published. It will be sent post free to any address on receipt of 12 Penny Stamps, or gratis to Purchasers of Seeds.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

TO FARMERS AND OTHERS.—Send one stamp for J. H. COTTRELL'S AGRICULTURAL LIST, about 30 per cent. under those Seedsmen who puff so much.

J. H. COTTRELL, 2, High Street, Birmingham, successor to F. WARNER, and managing partner in the late firm of DAWE, COTTRELL, and BENHAM. Established 28, Cornhill, London, 1720. No connexion with any other house.

GENERAL CATALOGUE.

S. GAINES begs to invite the attention of the public to his unrivalled lists of GERANIUMS, including Show, Fancy, and Continental varieties. Also Fuchsias, Azaleas, Camellias, Verbenas, Ferns, Ericas, Epacris, Chrysanthemums, Rhododendrons, and Bedding Plants, &c.—Can be had free by applying at the Nursery, Surrey Lane, Battersea, S. W.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT List of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written application.

Nurseries, Cheshunt, Herts.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

CHARLES TURNER'S SPRING CATALOGUE of DAHLIAS, GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, and the Soft-wooded Plants is now ready, and contains many novelties offered for the first time. Can be had on application.—Royal Nursery, Slough.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had for one stamp, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

DAHLIA, HOLLYHOCK, PANSY, AURICULA, POLYANTHUS, DELPHINUM, ANEMONE, &c.—Seed saved *as directed in Glenny's Garden Almanack for Amateurs* desirous of raising novelties. Thirteen stamps per packet.—G. GLENNY, Horticultural Agent, Fulham, S. W.—GLENNY's Garden Almanack free for 13 stamps.

PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong plants well established in small pots, 10s. per dozen, package included.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, has upwards of 6000 strong Plants, including all the English and Scotch varieties of merit, at 6s., 9s., and 12s. per dozen.

Lancashire Show GOOSEBERRY TREES 6s. 0d. per dozen
Extra fine PANSY SEEDS ... ... 2 0 per packet.

Catalogues now ready.

LAING'S MAMMOTH CELERY, the largest yet grown, weighing 10 to 12 lbs. per head, perfectly solid and flavour unsurpassed, and will not run to seed the first season and rarely the second. Sealed packets 1s. and 2s. each, and post free.

This fine variety was highly spoken of in the *Gardeners' Chronicle* of last week, page 104.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

NEW PHLOXES.—An extensive and select collection of the above beautiful showy tribe of Herbaceous Plants, comprising the fine and newly introduced varieties from the Continent. May be obtained at 10s. per dozen, package included.

YOUELL & Co., Royal Nurseries, Great Yarmouth, Norfolk.

HEAVIEST LANCASHIRE SHOW GOOSEBERRIES, strong plants, per dozen ... ... 6s. 0d.
BLACK NAPLES AND BLACK GRAPE CURRANTS, per dozen 3 0

JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

ASH-LEAVED KIDNEY POTATOES (WARRANTED TRUE).

WOOD AND INGRAM beg to offer a very pure stock of the above at 6s. per bushel. Price to the Trade on application.—Huntingdon Nurseries, Feb. 21.

FLUKE, ASHLEAF, DAWE'S MATCHLESS true samples, to be obtained at JOHN DELL'S Potato Depôts Covent Garden Market, and Great Northern Railway. Prices on application.

ASH-LEAF KIDNEY POTATOES FOR SALE, carefully selected, price 8l. per ton; 4l. 10s. half ton; 5s. per bushel; sacks 2s. each.—Post-office Orders payable to WILLIAM G. K. BETHAVINGTON, Vicarage Farm, Hounslow.

TO ORCHID EXHIBITORS.

R. WARNER having purchased a gentleman's collection and many imported Plants, has many duplicates and a few strong flowering specimens, such as P. amabilis, with 4 flowering stems; Calanthe masuca with 11 shoots, strong enough to throw up 2 to 3 flower stems each, of some of the best varieties of Show Orchids to part with, either by sale or in exchange for other varieties. Winter Flowering Orchids will be preferred in exchange.—Application by letter to T. HARRIS Gardener to Robert Warner, Broomfield, near Chelmsford.

IMPORTANT TO PLANTERS AND COMPANIES FORMING NEW PARKS.

WILLIAM JACKSON AND Co., Bedale, will supply the following choice stock at the annexed very low prices, grown in their exposed and extensive Nurseries in North Yorkshire. Parties requiring largely would not be disappointed with a personal inspection, to select on the spot what they want.

12 Abies Menziesi, 3 to 5 feet	£1	10s.	0d.
12 „ Morinda, 3 to 4 feet, 25s.; 4 to 5 feet	1	10	0
12 „ Douglasi, 3 feet, from seed	2	2	0
12 Pinus Cembra, 4 to 5 feet, fine specimens	2	2	0
12 „ Pallasiana, 3 to 4 feet, ditto	6	6	0
12 „ excelsa, 2 to 3 feet, 24s.; 3 to 4 feet	1	16	0
12 Cedrus Deodara, 2 to 3 feet, 30s.; 3 to 4 feet ...	2	10	0
12 „ ditto, 4 to 5 feet, handsome specimens ...	5	0	0
12 Cedar of Lebanon, 1½ to 2 feet, 18s.; 2 to 3 feet ...	1	5	0
12 „ ditto, 3 to 4 feet, 35s. to	2	2	0
12 Picea Pinsapo, 4 feet, very bushy	12	12	0
12 best kinds showy hardy Azaleas, 2 feet	0	18	0
12 ditto ditto Rhododendrons, 2 to 3 feet, scarlet, purple, white, and crimson, selected from above 100 fine kinds	1	0	0
12 Tree Pæonia, flowering plants, three best varieties	2	2	0
12 Fancy Æsculus, 5 to 6 feet, 9s. to	0	12	0
12 „ Cratægus, 5 to 6 feet, 6s. to	0	9	0
12 Standard Berberis dulcis, 4 to 5 feet...	2	2	0
12 „ grafted new scarlet Persian Lilac... ...	1	0	0
12 „ „ great flowered Lilac	0	12	0
12 „ Rhododendrons, large heads	6	6	0
50 „ Roses, select fine varieties on 3 feet stems	3	0	0
100 Dwarf Roses, good showy kinds, two of a sort ...	1	10	0
100 „ good mixture	1	0	0
100 good Showy Herbaceous Plants, two of a sort ...	1	10	0
100 Limes, strong and transplanted, 4 to 5 feet ...	1	0	0
100 English Oaks, thrice transplanted, 7 to 10 feet ...	1	0	0
1000 Evergreen Privets, Myrtle-leaved, for fancy hedges	1	10	0
1000 „ „ for strong fences and coverts ...	1	5	0
1000 Hollies, 6 in., 30s.; 6 to 9 in., 40s.; 9, 12, to 15 in.	3	0	0
1000 Laurels, 1½ to 2 feet	3	0	0

Good dwart Box for edging, 2d. per yard.

Transplanted Quickthorn, from 15s. to 25s. per 1000.

Norway Spruce Fir, 2 ft., 2 to 3 ft., 3 to 4 ft., very fine, prices on application.

FRUIT TREES—Per dozen.

Apricots, Peaches, and Nectarines, dwarf-trained ... 42s. to 48s.
Ditto ditto ditto standards ditto ... 60s.
Morella, and other Cherries, strong ditto ... 12s. to 18s.
Ditto ditto ditto ditto ditto ... 60s.
Dwarf Plums, Pears, and Cherries, for orchard houses, strong fruiting plants ... ... 24s.
Giant Asparagus, 3 years' old, 2s.; 4 years' old, 3s. per 100.
Seakale, 2 years old, 5s. per 100.

For large quantities low special rates for the carriage to long distances will be granted. A reference or remittance is respectfully solicited from unknown correspondents.—Feb. 21.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
„ „ 1 and 2 feet by the 100
„ „ 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
„ insignis, ditto ditto
„ Montezumæ, fine plants, 3 and 4 feet high
„ Benthamiana, in large quantities from seed
„ macrocarpa ditto ditto
„ Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
„ Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
„ nobilis, in quantities from seed [grafted
„ ditto, 1, 2, and 3 feet, with perfect leads, and none of them
„ grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
„ „ several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
„ Lebanon, 2, 3, 4, and 6 feet
„ „ some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
„ Goveniana, 2, 3, and 4 feet
„ Lawsoniana, from seed
„ MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
„ Chinese, 2, 3, and 4 feet
„ „ a fine lot, 7, 8, and 10 feet
„ Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
„ Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens 10 and 12 feet high
„ Golden Yews by the thousand, 1½, 2, and 3 feet high
„ „ worked, 4, 5, 6, and 8 feet
„ „ worked on Irish, and very ornamental, 5 to 8 ft.
„ elegantissima (or new striped), in large quantities, 1½ to 3 ft.
„ Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
„ adpressa, fine bushes, 2 and 3 feet
„ adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
„ occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
„ Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
„ „ smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
„ Clanbraziliana, ditto ditto
„ elegans, ditto ditto
„ Gregori, ditto ditto
„ compacta, ditto ditto
„ pygmæa, ditto ditto
„ pyramidalis, ditto ditto
„ diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
„ „ a fine stock of the best Gold-striped Hollies 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyræas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S
PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2s. 6d.; trade packets, 5s., 10s., and 20s.

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6d. and 1s.)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

FLORISTS' FLOWERS

Of extra quality, saved from named and first-class Flowers (for second qualities see Catalogue).

	Per packet—s. d.		Per packet—s. d.		Per packet—s. d.
Auricula, finest	2 6	Cockscomb, crimson	0 6	Hollyhocks	1 0
Do. Alpine	0 6	Do. new rose	0 6	Mimulus	1 0
Calceolaria, extra ... 2s. 6d. and	5 0	Do. giant	1 0	Pansy	1 0
Do. new dwarf show ...	2 0	Geranium, fancy	2 6	Petunia	1 0
Cineraria	2 6	Fuchsias	1 6	Phlox, French	1 0
Carnation	2 6	Gloxinias, erect flowering	2 6	Primula, single fringed	2 6

CHOICE AND NEW FLOWERS

Of extra merit and highly recommended.

Atroclinium roseum	1s. 0d.	Grevillea robusta	3s. 6d.	Gaillardia splendidissima... ...	0s. 6d.
Delphinium cardiopetalum ...	0 6	Lilium giganteum	1 0	Cosmidium Burridgeanum ...	1 0
Ditto formosum	1 0	Rhododendron ciliatum	1 0	New Marvel of Peru	0 6
Collinsia bicolor alba	0 6	Ditto javanicum	1 0	„ Marygold	0 6
Ditto marmorata	0 6	Stephanotus floribunda	2 6	„ Phlox Drummondi	0 6
Calendrinia umbellata	0 6	Poppy, dwarf, white & pink fringed	0 6	Saponaria calabrica...	0 6
Nemophila new, white edged ...	0 6	Sweet William, new varieties.		Ditto, new variety	0 6
Victoria Scarlet Stock, new ...	0 3	Ipomœa violacea	1 0	New Tropæolum	1 0
Linum grandiflorum rubrum 6d. &	1 0	Obeliscaria pulchella	1 0	Lupinus Dunetti superbus... ...	1 0
Ditto (white anthers) ...	1 6	New Yellow Nasturtium	1 0	Ditto Hartwegi albus	1 0
Oxalis rosea	0 6	„ dwarf everlasting do.... ...	0 6	Ditto hybridus superbus... ...	0 3
Salvia argentea	1 0	„ scarlet Salpiglossis	0 4	Ditto pubescens elegans	1 0
Tritonea aurea	0 6	Escholtzia tenuifolia	0 6	Ditto tricolor elegans	1 0

Truffaut's French Asters in collections, each... 3s. 6d. and 5s. 6d.
E. G. H. & Son's Camellia-flowered Balsams, in collections, 3 6
New Hyacinth-flowered Larkspur, in collections 3 0
Aquilegias, in collections 3 6

Stocks, new, large flowering, in collections ... ... 2s. 0d.
do. new, large pyramidal do. 5 0
do. Hybrid Perpetual do. 4 0
do. Giant Cape do. 5 0

Maurandyas, Cobœas, and other Climbers.

Dioscorea Batatas, roots at 3s. per doz. | Napoleon III. Cucumber (3 seeds), 3s. | Lady Antrobus Cucumber, p. pkt., 2s. 6d.

For other Culinary novelties, &c., see Catalogue.

Wellington Nursery, St. John's Wood, N.W.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6s.; 15 ditto, ditto, 4s.; best mixed, 200 seeds, 1s. 6d.; 400, 2s. 6d. A large stock of Hollyhock plants and Pansies in pots.—Catalogues of the above may be had on application to the Nurseries, Haverhill, Suffolk.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
„ Douglasi, 1½ to 3 ft.
„ Menziesi, 1 to 3 ft.
„ Morinda, 3 to 10 ft., very fine
„ rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 2 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft. (The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
„ Lambertiana, 1½ to 3 ft.
„ torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
„ „ Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
„ Benthamiana, 1½ ft.
„ Cembra, 1 to 5 ft.
„ excelsa, 4 to 8 ft., very fine
„ insignis, 1 to 6 ft.
„ Lambertiana, 1 to 6 ft.
„ Llaveana, 1 to 2 ft.
„ monticolor, 1 to 2 ft.
„ muricata, 1½ ft.
„ Pallasiana, 2 to 2½ ft.
„ Strobus nivea, 1 to 3 ft. (the Snow Pine.)
Picea nobilis, 1 to 2 ft.
„ Nordmanniana, 1 ft.
„ Pinsapo, 1 to 4 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
„ glauca, 6 to 9 in.
„ intermedia, 1 to 1½ ft.
„ japonica, 1 to 1½ ft.
„ gigantea, 1 ft.
„ minima, 6 to 9 in.
„ Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
„ Canadensis, 1 to 2 ft.
„ Cheshuntensis, 3 to 5 ft.
„ Dovastoni, 1 to 2 ft.
Taxus elegantissima, 1 to 2 ft.
„ gold striped, 1 to 4 ft.
„ Irish, 1 to 5 ft.
„ stricta, 1 to 4 ft.
„ common, 1 to 5 ft.
„ „ Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best var., 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties, 2 to 6 ft.
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
„ „ Weeping, 8 ft. stems
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems
Scarlet Horse Chesnut, 6 to 10 ft., very fine
„ Maple, 8 ft.
„ Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
„ „ variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
„ Beech
„ Elms, 8 to 10 ft. stems
„ Mountain Ash
„ Willow
„ American Willow, 8 ft. stems
„ Kilmarnock „ 6 ft. stems
„ Roses, 8 ft. stems

Christmas Roses
Delphinium Barlowi
Gentiana acaulis
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks, a very large stock, strong and perfectly healthy (see Descriptive Catalogue).
Roses (see Descriptive Catalogue)
Azalea indica, Camellias, Epacris, Ericas — A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published

Nurseries, Cheshunt, Herts.

NEW PURPLE DAHLIA PURPUREA.

T. DALE, FLORIST, Armley, near Leeds, Yorkshire, can confidently recommend this Flower as the best sent out in its class, having been exhibited successfully at York, Bradford, and Halifax, and pronounced by all who have seen it a decided improvement. Purpurea is a constant lively purple flower, petals well cupped, good outline, high centre, very compact. Mr. Glenny says—"Purpurea is a pretty colour, scarce among the purples, and good average form. T. D. has been very fortunate."—See *Lloyd's Newspaper*, Oct. 19.

Good Plants sent out in April, 10s. 6d. each, with discount to the Trade.

TO GENTLEMEN AND PLANTERS.

H. LANE AND SON have to offer in large quantities the undermentioned well-grown plants, having taken great care in their removal:—

Araucaria imbricata, splendid plants, from 1 to 4 feet
Arbor-Vitæ, in sorts
Azaleas, Ghent, in fine variety
Beech, Norwegian, copper, &c.
Berberis Darwini
Cedrus Deodara, beautiful shape and well grown, forming perfect specimens, from 2 to 9 ft.
Cedrus Libani, do. do., from 2 to 10 feet
Chesnuts, standards, very ornamental, 5 to 10 feet
Cryptomeria japonica, 2 to 6 ft.
Cupressus funebris, compact, 2 ft.
„ Lambertiana, 2 to 3 feet
Cytisus, standards in sorts, also Laburnums
Daphne, in varieties
Deutzia gracilis, nice compact plants for forcing
Elms, fine trees, from 10 feet upwards
Fitz-Roya Patagonia
Heaths, in extensive collection
Hibiscus (Althæa Frutex), standards and dwarfs
Holly in variety (green and variegated, large and small
Juniperus, well-grown plants of most sorts
Laurel, Portugal, very bushy, 3 to 6 feet
Laurel, Portugal, standards, fine specimens for lawns
Kalmias, small, fit for forcing
Kalmias, larger sizes, very fine
Mahonias
Picea Cephalonica, 1 to 4 feet
„ Fraseri, very fine, from 3 to 8 feet
„ nobilis
„ Nordmanniana
„ Pinsapo, 1 to 3 feet
„ „ 3 to 5 feet, and 3 feet through
Pinus cœrulea, very handsome, 1 to 5 feet
„ excelsa, 1½ to 8 feet
„ insignis, beautiful plants, 4 to 7 feet
Abies Douglasi, from seed, 4 to 10 feet
„ Morinda, do., 2 to 7 feet
„ orientalis, nice compact plants
Poplars, good variety of sorts
Rhododendrons, by name, a good collection of popular sorts
Ribes, in sorts
Taxodium sempervirens, 4 to 8 feet
Weigelia amabilis and roses
Yew, adpressa, very fine
„ compact, beautiful compact plants
„ do., upright variety
„ coriacea or japonica
„ Dovaston, fine weeping
„ elegantissima
„ Gold-striped
„ Irish, the finest lot possible

Carriage of all goods paid to London. Catalogues may be had on application.—The Nurseries, Great Berkhampstead, Herts.

NEW POTATOES.

JAMES GOBLE, GARDENER and SEEDSMAN, Bicester, Oxon, is now sending out a New, very Early and Prolific KIDNEY POTATO, called THE PROLIFIC FIRST FRUIT. It is very handsome, remarkably free from disease, early, a good bearer (15 sets producing half a bushel), and is well calculated for Gardeners who grow for the early markets. This Potato was exhibited at one of the Shows of the Royal Oxfordshire Horticultural Society, and obtained a Prize and First Class Certificate. Price 10s. per bushel.

J. G. is also prepared to send out at 5s. per quart a New Marrowfat Seedling Pea, called "THE EMERALD PEA." This Pea also obtained a Prize and First Class Certificate at Oxford, and will be found one of the best out, being very large, good flavoured, capital bearers, and running about 4 feet high. Early application is requested as the stock is small.—The above will be delivered free at the Bicester Station, or in Oxford, on receipt of Post Orders.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION	... £2 15	0
No. 2.—Ditto Ditto	1 15	0
No. 3.—Ditto Ditto	1 0	0
No. 4.—Ditto Ditto	0 10	0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

NEW GARDEN SEEDS.

W. J. EPPS, SEED MERCHANT and GROWER, respectfully calls attention to his large stock of new and genuine Seeds. Having nearly 100 acres of land entirely for the growth of Seeds, and a direct correspondence with the Continental and other celebrated growers, he is in a position to offer great advantage to purchasers; all seeds warranted of the best description. Catalogues sent on application. Noblemen, clergymen, and others, who have large or small establishments, will find a great advantage in purchasing the following collections:

No. 1 COLLECTION, sufficient for one year's cropping of a large garden, consisting of 24 quarts of the best Peas, inclusive of Lord Raglan and Monarch, and all the leading and best kinds of seeds in equal proportions ...	£3 0	0
No. 2 do. do. do. in equal proportions	2 0	0
No. 3 do. do. do. do.	1 0	0

Lists of sorts and quantities sent on application.
Seed Establishment, Maidstone and Ashford.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Feb. 21.

CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, now offers nice young plants of 15 of his best half shrubby CALCEOLARIAS of 1856 for 21*s.*, hamper included.

Very choice Calceolaria seed, 2*s.* 6*d.* per packet.

H. M. will have another set of 12 new seedling Calceolarias to offer about the first week in April, price 2*l.* 10*s.* the set, hamper included. The following is Mr. GLENNY's opinion:—

"Calceolarias:—Mine blooms beautiful in colour, all above average in properties—a very fine set to go together. We doubt if any nine known varieties could compete with them without losing."—*Lloyd's Newspaper, Aug.* 10, 1856.

The above prices are for cash only, therefore all orders accompanied by a post office order payable at Leeds will be promptly attended to. Postage stamps received in payment of the seed.

Plants given to compensate for carriage. A descriptive list of the new Calceolarias may be had the first week in March.

DELPHINIUMS, ETC.

JOHN CATTELL having a very large stock of the under-named articles can supply the Trade, Public Companies, and others requiring them in large quantities, on very advantageous terms.

Delphinium Hendersoni, Barlowi, and grandiflorum maximum may be had by the 1000; Delphinium Mooreanum, Wheeleri, hybrida flore pleno and magnificum may be had by the 100; and also the following:—Gentiana acaulis, strong; Hepatica, single blue and double red; Gynerium argenteum; Lychnis, double scarlet; Wahlenbergia grandiflora; Phlox Countess of Home, and other very fine varieties; Dielytra spectabilis; double yellow Rockets; the old but scarce Fair Maid of France; also Ghent and English Azaleas of the finest varieties, and extra fine plants; late and early Dutch Honeysuckle, Spiræa callosa, Pyrus japonica, Lonicera flexuosa, Passiflora cærulea, Daphne pontica, Deutzia gracilis, Juniperus ericoides, Pinus insignis, one and two years; Thujopsis borealis, one year; Thuja incurvata, one year; &c., prices of which may be had on application.
Nurseries, Westerham, Kent.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2*s.* 6*d.* per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2*s.* per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garde
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs. Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. H. Low & Co., Clapton
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso
Dulwich, Surrey.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

VEGETABLE AND FLOWER SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN and NURSERYMEN to Her Majesty the Queen, and to the Highland and Agricultural Society of Scotland, respectfully intimate that they are now sending out the above Seeds, comprising many newly introduced and valuable varieties, and all carefully selected from true stocks. They solicit the favour of speedy orders, which will ensure an early delivery. Catalogues will be sent free on application.

Their Stocks of AGRICULTURAL SEEDS and GRASSES for Alternate Husbandry, Permanent Pasture, &c., are of very superior quality this season, being the result of repeated and very careful selections. Priced Catalogues are in course of publication. Everything connected with their Trade can be supplied in any quantity from their London branch.
27, Great George Street, Westminster.

ROYAL BERKSHIRE SEED ESTABLISHMENT

COOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to
SUTTON & SONS, Seed Growers, Reading, Berks.

ROSES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in offering the following, all first-rate plants. Extra tall Standards (fine picked stocks), from 5 to 8 feet high, budded with 3 to 6 of the best varieties of climbing and perpetual Roses in each stem, suitable for conspicuous places, on lawns, &c., 3*s.* 6*d.* to 5*s.* each. Selected Standards, 6 and 8 feet stems of the Crimson Boursault Rose, or Amadis for training, 3*s.* 6*d.* each.

Per doz.—	*s.*	*s.*	Per doz.	
Fine Half Standards	24	...	Hybrid Perpetual and Bourbon on 6-inch stems	12*s.* to 18*s.*
Superb Dwarf Standards	18 to 24			
Fine Dwarfs	12 to 18		Climbing Roses, mixed ...	4*s.*
Climbing and Noisette	9 to 12		Dwarf ditto. ...	8*s.*

Plants added to compensate for distant carriage. Catalogues free on application.

MAGNIFICENT DWARF-TRAINED "PEACHES."

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON can recommend with much satisfaction their fine Stock of the above; the Trees are vigorous, healthy, and well trained.

CONIFERS.—SPECIMEN PLANTS OF

Cupressus macrocarpa.	Cedrus Deodara.
" Goveniana.	" robusta and viridis.
" funebris.	And other Conifers.

PHLOXES.—A very superb collection, including the best and newest kinds, 6*s.*, 9*s.*, 12*s.*, and 18*s.* per dozen.

HERBACEOUS PLANTS.—A fine collection, 6*s.* to 12*s.* p. doz.

N.B. A remarkably fine stock of Laurustinus and Ornamental Trees and Shrubs.—Catalogues on application, gratis and post free.

SEEDLING LARCH & OTHER SEEDLING FOREST TREES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON offer the following SEEDLINGS:—

1-year Alder.	1-year Chinese do., bedded.
1 " Ash.	1 " Tartarian do. do.
2 " do., very fine.	1 " Upright Cypress, Seedlings.
1 " Beech.	
1 " Quicks.	2 " Daboecia polifolia, bedded strong.
2 " Yews.	
2 " Larch Fir, very fine.	1 " Pinus excelsa, bedded.
2 " Scotch do. do.	1 " " laricio, do.
1 " American Arbor-vitæ, bedded.	1 " Taxodium distichum. (Deciduous Cypress.)

N.B. Transplanted Ash, 2 to 3 and 3 to 4 ft.; Spanish Chesnuts, 2½ ft.; Alder, 3 to 5 ft., &c.—Prices may be had on application.

BETTERIDGE'S SUPERB QUILLED ASTERS.

CHARLES TURNER begs to announce that Mr. BETTERIDGE has placed in his hands the entire stock of Seed saved from his collection of Splendid ASTERS, 24 blooms of which obtained the 1st Prize at the Crystal Palace in September, 1856. C. T. has no hesitation in saying that the Seed is saved from Flowers of unusual quality, and can now be had in

		s.	*d.*
Collections of 10 varieties		5	0
Small packets of mixed Seeds		1	0

CHARLES TURNER begs also to recommend the following:—

The Cottager's Kale, a new hardy and very productive Kale of great excellence	per pkt.	1	0
Incomparable Dwarf White Celery, the best of all ...	"	1	0
Cucumber, Ipswich Standard, true...	"	1	0
" Himalaya, a very fine Exhibition variety ...	"	1	6
" Frogmore, one of the best and most useful kinds grown	"	1	0
" Maunder's Hand-glass Cucumber	"	1	0
True Batavian Endive, superior to the ordinary variety	"	1	0
Powell's Early Red Tomato, ripens earlier than the common sort, dwarf habit	"	1	0
Melon, Orion, green-flesh, a very fine variety	"	1	6
" Frogmore, scarlet flesh, a very fine variety ...	"	1	6
" Golden Ball, a small and delicious Melon ...	"	1	6
Linum grandiflorum rubrum, rich crimson, true ...	"	1	0
Delphinium formosum, a beautiful perennial variety, if sown in March will flower in the summer	"	1	6
Obeliscaria pulcherrima, a new and hardy perennial, figured in "The Florist" for Nov. 1856	"	1	6
Sweet William, extra quality	"	0	6
Tree Lupine, from Oregon, a handsome variety of pyramidal growth, and covered with yellow flowers, biennial		1	6
Acrolinium roseum, a handsome Rodanthe-like annual ...		1	6
Veronica Syriaca, a beautiful blue annual		2	6
Very choice Hollyhock, in 12 distinct named varieties, separate, the collection		5	0
Ditto, ditto, mixed	per pkt.	2	6
Very choice Calceolaria, extra quality		2	6
" " Cineraria " "		2	6
" " Dahlia " " ... ... 1*s.* and		2	6
" " Mimulus " "		1	0

For descriptions of the above, and particulars of other choice Vegetable and Flower Seeds, see Catalogue, which can be had on application.—Royal Nursery, Slough, Bucks.

JOSEPH MAY AND CO. beg to offer the following Seeds, &c., which may be relied upon as genuine.

	Per packet.—*s.*	*d.*
FRINGED PRIMULA SINENSIS	2	6
" white do.	2	6
CINERARIA, fine mixed	1	0
CALCEOLARIA, from spotted flowers	1	0
AURICULA, from prize flowers	2	6
FUCHSIA, from named flowers	1	0
JENKINS' RED MATCHLESS CELERY... ...	1	0
COLES' DEFIANCE RED	1	0

RIVERS' ROSE AMATEURS' GUIDE, new edition, 3*s.* 6*d.*
" ORCHARD HOUSE, 2*s* 6*d.*
" MINIATURE FRUIT GARDEN, 1*s.* 6*d.*

The above will be sent free by post on receipt of stamps or Post-office order.

For list of Potatoes see last week's Paper.
1, Wellington Street, Strand, near Waterloo Bridge.

SPLENDID NEW RHUBARB "CRIMSON PERFECTION."

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above variety of RHUBARB, feeling confident from its superior quality and reduced price to give the greatest satisfaction. It is very early and productive, and the interior of the stalks are of a crimson colour. See *Gardeners' Chronicle*, June 11th, 1853:—

"Very good, and a most beautiful crimson; compared with others it is remarkable for the small amount of acidity it contains."—ED.

Price—1 year old Plants	1*s.* 6*d.*	each.
" 2 year old Plants	2 6	"

With usual discount to the Trade.

Orders addressed to ROBERT SALT, Seedsman, Longton, Staffordshire, or to the following agents, will meet with strict attention:—Messrs. Hurst & M'Mullen, Seedsmen, 6, Leadenhall Street, London; Messrs. Francis & Arthur Dickson, Nurserymen, 106, Eastgate Street, Chester; Messrs. James Dickson & Sons, Nurserymen, 102, Eastgate Street, Chester; Messrs. Burgess & Kent, Nurserymen, Penkhull, Staffordshire; and Mr. Charles Turner, Royal Nursery, Slough, Bucks.

A remittance from unknown correspondents.—Longton, Feb. 21.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet.

Samples of the haulm may be seen at the following Firms in London, of whom the Peas may be had, or of their Agents in the country, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at* **20s.** *per acre, or Clovers and Common Rye-grass at* **19s.** *per acre.*

The great produce of the above-named mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31, 1856.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," are required for so many acres, when the proper quantities will be sent.—Royal Berkshire Seed Establishment.

SUTTON'S FINE LAWN GRASS SEEDS, FOR MAKING NEW, OR IMPROVING OLD GARDEN LAWNS. Price 1*s.* per lb., 2*s.* 6*d.* per gallon, or 20*s.* per bushel.

The following is an extract of a letter received from Prof. LINDLEY.

"MESSRS. SUTTON:—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. (Signed) JOHN LINDLEY."

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

QUANTITY OF SEED REQUIRED.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming new lawns 3 bushels or 60 lbs. is the quantity required per acre; or 1 gallon to 6 rods (or perches) of land.

FOR CEMETERIES, BOWLING-GREENS, PARK LAWNS, &c., where the *very finest* kinds are not required, another mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16*s.* per bushel.

EXTRACTS FROM LETTERS RECENTLY RECEIVED:—

From MRS. EDWARDS, *Rhyd y Gois, Caermarthen, March* 26, 1856.

"The Lawn Grass Seed you sent last year turned out beautifully."

From WM. SYMONDS, Esq., 6, *Belfield Terrace, Weymouth, Aug.* 26, 1856.

"The Lawn Grass Seed I received from you answered admirably."

From Sir GLYNNE WELBY, *Denton Hall, Grantham, Oct.* 1, 1856.

"The Lawn seed with which you supplied me last year answered perfectly."

From the Rev. F. KITSON, *Hemyock Rectory, Wellington, June* 17, 1856.

"The fine Grass Seed for lawns which Messrs. SUTTON sent in the spring has given great satisfaction."

From Capt. GAPE, *Portardulais, Llanelly, July* 5, 1856.

"Capt G. will be obliged by Messrs. SUTTON sending him more of the same Lawn Grass Seed as they sent him before, which was very good indeed."

SUTTON & SONS *also supply Grass Seeds for Permanent Pasture, mixed expressly to suit the Soil, which are never known to fail.* Price 24*s.* to 32*s.* per acre.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 21, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Feb. 25—Society of Arts..... 8 P.M.

THE importance of CANADA as a field for emigrants has been repeatedly shown in these columns. That it is of all countries that which best suits an honest hardworking rural population unable to find employment at home is incontestable. It has been so for many years; not a case can be quoted of disappointed expectations where the emigrant has

carried out with him health, strength, and prudence, without which no success can be attained either abroad or at home. The admirable raw produce sent from Canada to the Great Exhibition of 1851 must be fresh in the memory of all who are interested in the British colonies. It was worthy of the best of the old countries, and was marvellous as proceeding from one which may be called new. In saying this we by no means forget our antipodean friends or dream of undervaluing them. They too have all that industry and enterprise can obtain: they are rich in their own productiveness, and rank among the strongest outworks of England; but they are afar off, months must elapse before they can be reached, and the cost of a voyage is serious. Canada on the other hand is next door, a few weeks will land the emigrant in the midst of the Free Grants, and the cost of reaching them is trifling. Now too the Grand Trunk Railway of Canada offers facilities of transport unknown before.

Such being the indisputable facts connected with this great country, we gladly avail ourselves of some excellent observations in a late number of the *Canadian News*—a newspaper published in London once a fortnight—once more to draw attention to the importance of Canada to those who are considering whither they should emigrate; and especially of the Free Grants, offered to settlers by the Canadian Government.

These lands are equal to any in the whole province for farming purposes. They are capable of producing abundant crops of winter Wheat of excellent quality and full weight, and also first-rate crops of every other description of farm produce, such as are grown in the best and longest cultivated districts in that part of the country. When fully populated, they will be capable of sustaining in comfort and happiness *eight millions of people.*

Water for domestic use is everywhere abundant, and there are, besides, numerous streams and falls of water, capable of being used for manufacturing purposes.

Each grant is for 100 acres, for which application must be made to any of the local Government agents, who are required by the Government to furnish the fullest information to all parties applying for it. The intending settler may be a native of any country, but he must be at least 18 years of age. He is required to take possession of the land allotted to him within one month, and to build a house (at least 20 by 18 feet). He must put into a state of cultivation at least 12 acres of his land in the course of four years, as well as reside on the lot during that period. The Government having made the roads, the settlers have to keep them in repair. These several conditions being complied with, the settler will receive from the Government, free of all cost, the title deeds of his property. If a family comprising several settlers, entitled to lands, prefer to live on a single lot, the Government accords permission to do so, provided that the condition of bringing 12 acres of land into cultivation on each lot within four years, be complied with. Failure to perform the foregoing requirements of the Government will cause the immediate loss of the assigned lot of land. Their fulfilment puts the holder in possession of a freehold estate, over which he and his family can ever afterwards exercise the fullest rights of property, without further restriction or condition of any sort.

According to the ratio of progress which Canada has made during the last ten years the value of land, on an average, doubles within that period. This enhanced value, it should be remembered, is acquired irrespective of any improvements made by settlers. In many counties its value has increased *five-fold* in ten years.

It is, however, important to state that no one can enter upon these grants without some capital .It is computed by persons on the spot that something like the following expenses must be provided for, supposing the emigrant's family consists of five persons, three of whom are young children:—Provisions *for one year* will cost 41*l.* 12*s.* 6*d.* currency; seed, 4*l.* 2*s.* 6d.; and other necessaries, comprising cooking utensils and the usual requirements of a humble family (including a pig), 10*l.* 7*s.* 1*d.*, making a total of 56*l.* 2*s.* currency, equal to about 45*l.* sterling. The purchase of provisions *for a whole year* in advance might, perhaps, be dispensed with, but it is certain that no one with a wife and three young children should take up a grant with less available sum than 30*l.* sterling, as, even with 45*l.*, he will have to work at a lumbering establishment for four months during his first winter; for which however he will earn, say 42*l.*, and he will be at no expense except for his clothing, as he is found at these establishments both in provisions and washing.

On reaching his ground the settler will knock up a log hut, made from the trees he clears away; this with the aid of neighbours who always assist without charge, is an affair of a week or so. He next sets about clearing and burning the felled trees for the sake of their ashes, of which more presently, and then proceeds to crop. The first crop early in June on his first cleared acre is Potatoes. Then the clearing the second acre begins, and should be finished in time to plant it also with Potatoes. About 8 acres can be cleared by an industrious man by the middle of October. If a man can afford to buy a potash kettle and coolers (their value is about 11*l.* sterling), he can, with very little skill, convert the 480 bushels of ashes which his 8 acres have yielded him, into three barrels of potash, for which he will receive about 18*l.* sterling. But as it is probable that he will not be in a condition to purchase these articles, he must sell his ashes, which will realise him, at 3*d.* currency per bushel, about 5*l.*, and so he goes on for three years clearing and cropping, herding pigs, and ultimately setting himself up with a pair of bullocks and a sow, all which his profits will gradually enable him to acquire.

By the end of the third year he will cease to be satisfied with his log-house. A cottage will spring up built of timber. If the wife have a taste for flowers, these will begin to make their appearance around the house. The first barn will no longer serve—its place is supplied by one twice as big; a cow-house and stable are added, and by the end of the fourth, certainly by the end of the fifth year, there will be a farm-yard, as well stocked with cattle, pigs, and poultry as any comfortable farmer could wish to be possessed of.

"The foregoing," says our contemporary, "is no imaginary picture. There are *thousands* of persons in Canada at the present time who arrived there within the last 12 years penniless, and are now the cultivators and owners of cleared farms, varying from 50 to 200 acres in extent. Most of them, after earning a few pounds at day labour, settled down in localities which were then the very heart of the untrodden forest, but are now well filled with a population every member of which, with scarcely an exception, is *sober*, industrious, and thriving."

We need only add that a town mechanic does not make a good settler in the forest. His habits unsuit him, and he can bring his labour and skill to a better market. His place is in the towns and cities, with pay about one-third more than in the old country. Clerks and all persons accustomed only to situations in offices are likewise unsuited for emigration to the rural districts.

With the number of the *Canadian News*, from which we gather these particulars, appears a useful map of the country, which people who think of emigrating will do well to procure.

We are often asked by our readers what the law is relating to the growth of Tobacco in private gardens. The prohibition of the growth of Tobacco is to be found in an old Act of Charles the Second (12 Car. II. c. 34), the material sections of which are set out below. The Act is extended to the whole of the United Kingdom by the 1 & 2 Wm. IV. c. 13, which also authorises the seizure of home grown Tobacco, and makes the possession of it by manufacturers a legal offence.

The Act of Charles is as follows:—

"§ 1. No person or persons whatsoever shall or do from and after the first day of January in the year of our Lord one thousand six hundred and sixty, set, plant, improve to grow, make, or cure any Tobacco, either in seed, plant, or otherwise, in or upon any ground, earth, field, or place within the kingdom of England, dominion of Wales, islands of Guernsey or Jersey, or town of Berwick-upon-Tweed, or in the kingdom of Ireland, under the penalty of the forfeiture of all such Tobacco or the value thereof, or of the sum of forty shillings (increased by a later statute to 10*l.*) for every rod or pole of ground so planted, set, or sown, as aforesaid, and so proportionably for a greater or lesser quantity of ground.

"§ 4. Provided always, and it is hereby enacted, That this Act, nor anything therein contained, shall extend to the hindring of the planting of Tobacco in any Physick Garden of either University, or in any other private garden, for Physick or Chirurgery only, so as the quantity so planted exceed not one half of one pole in any one place or garden."

It therefore appears that the growth of Tobacco in the United Kingdom, whether for sale or not, is absolutely prohibited; but that by way of special favour Tobacco may be grown on not more than half a pole of land situate in any physic garden belonging to either of the Universities of Oxford or Cambridge, or in any other private garden for physic or chirurgery only, but in no other place.

We doubt whether any real hardship is inflicted by this Act, considering how very worthless English grown Tobacco is.

The War of the Roses. Is it not time for the campaign to terminate and for the belligerents to go into summer quarters? We think so.

HORTICULTURAL JOTTINGS.—No. III.

MADE DURING A JOURNEY TO PARIS, OCTOBER, 1856.

It is vain to expect to find in French gardens the high keeping, the correctly defined outlines of figures, or that attention to neatness of detail which prevails so much in this country. From this condemnation I must except the parterre in front of the Palace of the Tuileries, which was certainly perfection as to neatness, and which was tolerably gaudy with a profusion of common Marygolds and some scarlet Geraniums. I noticed here some very nice half standard Persian Lilacs, which are annually pruned back so as to encourage the growth of the young wood. They thus presented a mass of blossoms, which when in flower must be very beautiful, and be particularly telling when Paris is most gay. I also observed the same treatment applied to the Althæa frutex with the same results. Here too the trees which form the avenues are most miserable abortions, stunted and crippled in every way. There is an Orangery with some very fine trees in it, and I observed some trophies in the shape of sculpture brought from Sebastopol. I also noticed some trees in an avenue which were newly planted (I was told by a Scotchman), but certainly the mantle of Sir Henry Stewart had not fallen upon him, nor could he have had any knowledge of "protecting properties," for they were long slender poles without a branch, and from 12 to 14 feet in height, and each supported by three monstrous stakes.

The gardens of the Luxembourg seem to be the favourite resort of the most plebeian part of the population of Paris; there are a few flowers near the palace, which are very mediocre, and the rest of the garden is for promenade between rows of trees which impart no shade.

St. Cloud is an old palace on a small scale. It has many pleasant vistas and arcades, and the view over Paris from a terrace walk is a very fine one.

The Bois de Boulogne is the most agreeable place which I saw. I started from the Rue de Rivoli, passing the splendid fountains in the Place de la Concorde, along the fine avenue of the Champs Elysées, and under the grand triumphal arch at the end, where I came upon the best specimen of a macadamised road which I have ever seen. It is very broad, slightly curved, and perfectly smooth and level. Proceeding along it we soon came to plantations of young trees, and a fine piece of water, and advancing further reached a flower garden called the Catalan. It was Sunday, and all the world of Paris seemed to be there, the day being a very fine one. It was very charming to see the multitude of well dressed persons all conducting themselves in the most quiet and proper manner. Here was a Marionnette theatre in which a performance was going on, and there was a pavilion in which was a most superb collection of cut Dahlias charmingly arranged as to contrast. The parti-coloured flowers were very beautiful; they were exhibited by M. Mézard Jun. The peculiarities of the flower garden were these: Veronica speciosa was in great use to cover the ground in shady corners, where it was planted from pots in full flower, and looked very pretty. A small bright blue China Aster was very largely planted for an edging, and a plant called by them Artemisie, much like our Ox-eye Daisy, was much planted in rows. Add to these a great and constantly recurring patch of common Marygolds, and you have the principal elements of a French garden in October. The trees which constitute what is called the Bois de Boulogne are very artistically grouped, and would be effective were they not unfortunately all of one size, which produces a perfect monotony, the constant repetition of which becomes irksome. It is always seen that groups in which a large tree or two combine with smaller ones are much more picturesque than where all the parts are uniform in size and character. But this the French do not appear to understand, for nothing can be worse than their management in this respect. Their flower gardens are very deficient in what the late Mr. Loudon would have called "gardenesque" management, and their Grass, which forms but a poor thin turf, is but badly kept.

The Jardin des Plantes is a very large establishment, containing some fine specimens of Palms and other stove plants. But the art of cultivation is set at defiance, as it is in most scientific gardens; myriads of long poly plants with a few leaves far removed from the ground are here standing thickly together, and each having a long Latin name, and appearing to bewail their unhappy existence, for it cannot be called life.

It is an institution which ranks highly in the annals of science, but I never saw one so unprepossessingly arranged. The man who enjoys it must be truly the votary of science, for it is deficient in every popular attraction. There is a large collection of geological specimens here. I presented my introductions to M. Neumann and M. Cappe, the managers of the plant and fruit departments, and from both of them I received the most kind and polite attention and information.

I saw the pyramidal fruit trees (Pears) so highly spoken of by Mr. Thompson, and can fully corroborate all he said in their favour. They are managed with

great skill and judgment, and no one can have such trees unless he is a great enthusiast and devotes as much of his time to them as M. Cappe does.

In one part of the garden I noticed that some experiments were being tried with various plants for hedges and fences.

It was early on a fine morning that I visited the Marché de la Madeleine, the principal flower market at Paris. This is held upon the broad pavement that surrounds the Madeleine Church, a very beautiful structure. Here were to be seen bouquets suited for the duchess, and indeed for all grades down to the humble cottager. They were very prettily and artistically made, many of them all of Rose buds and Violets, and the market women were busy in making up a fresh supply from loose flowers. A large quantity of plants for decorative purposes were here, with the pots all neatly enveloped in white paper; the kinds consisted of free growing Ericas, Chrysanthemums, Roses, and a large quantity of Veronica speciosa, which is here a most useful plant, being literally covered with bloom. One thing which made a marked impression on my mind was the vividness of all the colouring of flowers. At the palace of the Petit Trianon, a short distance from Versailles, the colour of the old Salvia splendens was truly gorgeous; while at the Grand Trianon the display of Dahlias equalled that already noticed at Fontainebleau. Those who have only seen the Dahlia under our murky sky have no conception of its beauty in France, and arranged as the colours were most tastefully, I never before saw anything so imposing in the floral way.

When speaking of St. Cloud I ought to have noticed the Chesnut trees there, which excepting the occasional Oaks at Fontainebleau were the only really fine trees I saw anywhere. On my way to that palace, we passed over a bridge across the Seine, where the reaches of the river were most beautiful.

I visited Neuilly and saw the far-famed establishment of M. de Miellez. Camellias are largely grown here, and he has an enormous winter garden with some fine plants of Camellias in it. In it is a portion in turf through which runs a ditch, which I could in no way reconcile with our English notions of beauty. It is an extensive place altogether, and the proprietor is a man of spirit for attempting so much. *H. Bailey.*

ST. GERMAIN GRIS D'HIVER PEAR.

When I resided at Rouen I heard of a variety of the St. Germain Pear which was designated as the St. Germain Gris to distinguish it from the old variety, the fruit of which is greenish white. I thought at first that the grey colour was merely owing to a difference of aspect. To make sure, I obtained grafts and worked some of them on the common or white St. Germain, planted against a wall in the Jardin des Plantes at Rouen. The grafts, which were placed so as to form some of the principal branches of the tree, succeeded well.

On examining the collection in September last, I observed a great difference in the fruits borne by the tree. All those on the branches which originated from my grafts being as completely grey [or russeted] as a Reinette Grise Apple, whilst the others were green. There was also a slight difference in the form of the fruit; it was somewhat less tapering towards the eye. I have lately tasted both sorts; the St. Germain Gris is higher flavoured. There is no particular difference in the wood and leaves. The St. Germain Gris is therefore a very distinct variety from the common or White St. Germain. With regard to its origin, I have been unable to discover anything further than that it has long been known in the neighbourhood of Rouen. *Du Breuil, in Revue Horticole*, for Jan. 1857.

[A St. Germain Gris was received many years ago into the collection of the Horticultural Society; but it proved to be the same as the common St. Germain, long cultivated in this country. The Rouen variety may, however, be different. Variations of the same original individual are induced by some peculiar circumstances of soil and situation unfavourable to the normal character of the variety, and to an extent that would lead one to suppose a totally distinct individual had been produced. For instance, it will readily be admitted that the Verte Longue Panachée Pear is a mere variation of the Verte Longue, although in some cases the yellow stripes on the fruit, and even on the young shoots, are very conspicuous. But some trees propagated from one of that sort have been observed to have nearly lost the striped character. So much so, that we believe it possible, by well selected scions, by growing the trees in different soil, and by repeated propagation, to bring the variety to its original condition; and so it may be with the St. Germain Gris, different, on the high authority of M. Du Breuil, as it is found to be at the present time.]

RUSTIC FURNITURE FOR COTTAGE GARDENS.

In an age when efforts are making to improve the cottage labourer, and to insure him a proper share of happiness within his own sphere, the state of his dwelling must be the first object of consideration. But after seeing that it is rendered as far as possible convenient within for cleanliness, comfort, and, above all, for the due separation of the different members of his family, the outside of his house, his garden, and it may be his orchard claim a share of attention, not merely as a source of profit but of pleasurable occupation and harmless delight.

The culture of his bed of flowers, the Vine or the Pear tree on his cottage front, and the beehive at his door, are sources of beauty pleasing to himself, and adding to the charms of the country and the delights of his neighbours also. Every agricultural labourer is more or less accustomed to the use of the rougher carpenter's tools, and I venture to send you a few hasty sketches and directions by which he will be able, out of the loppings of his orchard, to frame a few picturesque

No. 1.

seats and tables to rest him from his toils and enjoy the odour of his flowers and the hum of his bees.

All that is required for their construction is a saw, an auger, an axe, a gouge, and a few nails; the requisite skill is possessed by every man of common intelligence, and the taste grows by its exercise.

In the choice of wood, the Apple, gnarled and bossed into natural rosettes by frequent pruning and Nature's efforts to heal the wounds, is the best suited for the purpose; but Pear, Plum, or Oak are also suitable from the frequent bendings and elbows in their growth. The wood should be dry before working; it may

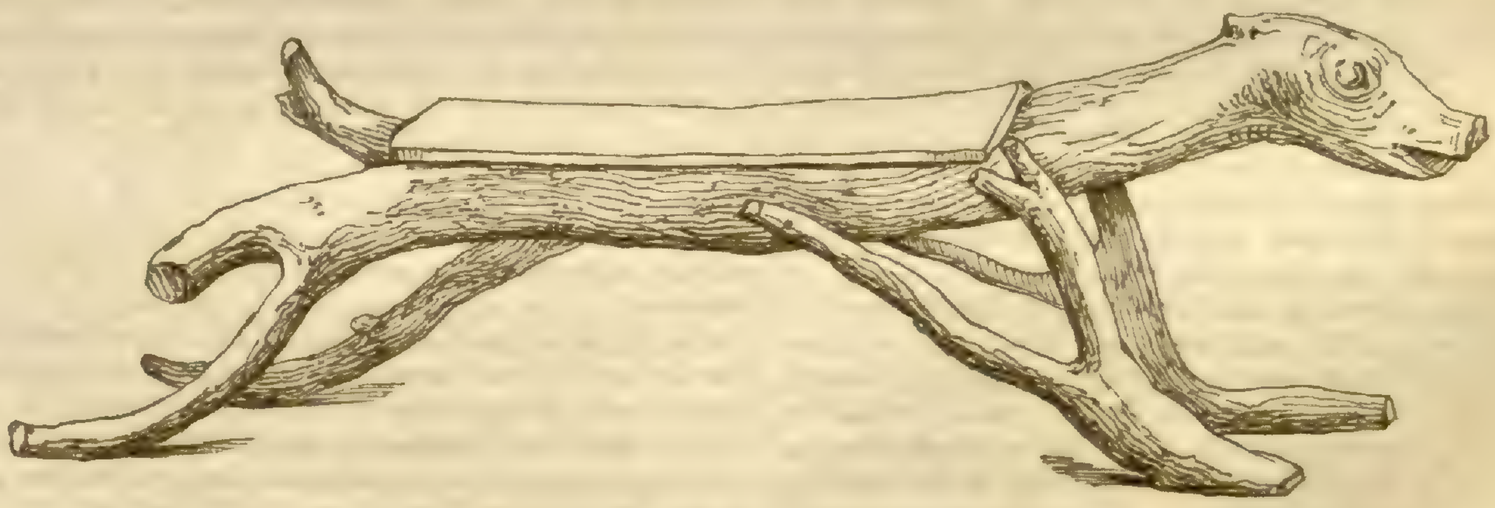
No. 3.

either be used with the bark on and a coat or two of paint applied after the manufacture of the article, or the bark may be removed and the work finished with a coat of imperial varnish; this is so far preferable as the bark, if the paint is not renewed, is apt in a year or two to separate and peel off.

The adaptation of the natural growth of the branch to the required purpose must have the first consideration, and some little practice is necessary to arrive at this. In No 1, the triple fork of a branch of a tree simply reversed and flattened forms the leg of a stool, on which a rounded piece of plank is nailed to complete

No. 2.

it. In No. 2, a portion of the trunk from which the branch springs is flattened, as are also the two forked ends, to form points of secure support, and two rounded pieces of plank are added for the seats, the branch being flattened to receive and bed them securely. Some judgment is requisite both to choose a proper branch, and also to find the best points at which to shorten and adapt it to its resting on the ground. In Nos. 3 and 4, branches are spliced on to the main stem or front to form legs, and the seat made either as in the former instance by pieces of plank, or by smoothing the top of the main branch when this is tolerably thick



No. 4.

in itself. In No. 4, advantage is supposed to be taken of some of the knots and excrescences to give a grotesque resemblance to an animal, since I have always found a strong tendency to the grotesque in the simple minds of country labourers. Such forms may be infinitely varied, they easily suggest themselves, and are a source of much pleasure in their construction.

The labourer will easily advance from the four first forms to Nos. 5, 6, 7, 8. In No. 6, a thicker plank, of Elm perhaps, should be chosen, and the edges slightly bevelled from beneath—the holes should be bored with an auger, and the feet wedged in from the top. In this, as in the other figures, the difficulty consists in the choice and arrangement of such pieces as will interweave together, and form stiffening braces to the work. The tops of the tables may be formed of Fir plank, and have a stout split batten underneath them. If the branchings will not naturally brace the legs, pieces may be grafted on; and in such cases, the application of the gouge to the edges of the part sawn across, as seen on the edge of the chair No. 8, will often quite take away the unpleasant effect of the junction.

It only remains to explain how the more complicated seats, Nos. 10, 11, 12, and 13, have their backs and arms made sufficiently symmetrical. A branch being chosen having the requisite bend, it must be sawn down the middle perpendicularly to the shape which is required. Opened out it forms two symmetrical sides properly handed, with a rounded side for the front, and flat behind. The frame of the back of No. 13, the two front legs, and the two arms are formed in this manner. The rest of the construction is easily achieved from the previous remarks. Flower baskets such as shown in Nos. 9 and 14 may be manufactured by covering old butter firkins or other packing casks with split Hazel rods, either perpendicularly applied, as trellis, or in any other decorative arrangement; taste in such matters speedily growing with the exercise of the habit of construction.

The labourer who has tried and succeeded in making some of these simple appendages to his garden will soon be led on to the construction of rustic fences, porches, &c. He will learn to weave the branches into grotesque and picturesque combinations—to pave the floor with pebbles or with short pieces of the branch sawn across and placed perpendicularly in sand. With the decoration and improvement of his cottage and garden self respect and comfort in his home will grow, increased by this occupation of his time which will remove him from improvident habits and alehouse companions. *R. R.*

[We shall publish these clever designs weekly till they have all appeared; readers are therefore requested to take care of the foregoing observations.]

Home Correspondence.

Roses (an Old Lady's Grumble).—What a coil our old friends are making! I assure you that I am quite in a flutter of venerable indignation, especially with Mr. Paul, to think that after the kindness I have shown him for years past, he will persist in "cutting" me for new acquaintances—Russian female spies, and French "intrigantes," who I am sure are no better than they should be (I can't help speaking strongly); I have made up my mind that I will not be pushed aside for any of them, for all their fine titles. I appeal to my champion, Mr. Rivers; won't Mr. Lane do battle in my behalf? I think I see him shrugging his shoulders and saying, "Poor old Rose, she's no use now;" but how delicately he caressed me when he first saw me! how he winked and grinned, he's such a dear man, and so devoted to our sex. Since I first "came out" I have made many valuable friends whom I can introduce without scandal, among them the respectable Baron de Larrey; though he does wear the colours of the Duchess of Sutherland, he is not so shy as her grace, and how he bloomed last autumn, in a green old age! When Colonel de Rougemont is dressed in his best uniform does he not somewhat outshine his relative the Baronne Prevost?—dear old lady, she doesn't much care about dress, and is quite content with her place in the hearts of her admirers. I confess that I intrigued a good deal to get an introduction to the Commander-in-Chief Lord Raglan; he is certainly very gorgeous in his laced jacket, very different to that coxcomb General Jacqueminot. There is something solid about the Englishman, but that conceited general, I detest him, though he is my countryman; he is like too many of them, showy and empty. Dear Mr. Paul! do write something about us like ourselves, gay and sparkling; you are too heavy; we can't understand your analogies; are you not wrong in your allusion to Scylla and Charybdis? My snuffy old professor used to

tell me that those blundering mariners of antiquity knocked their heads against Scylla in their anxiety to avoid an unpleasant bath in Charybdis. You say the reverse. And, Mr. Rivers, why do you go back to that old fellow Theophrastus? Am I not the same flower that "Mary to Anna conveyed?" I don't like those old Greeks and Romans. What business had they to defile us by covering their greasy pates with our flowers? I suppose when they went home a little "excited," they told their wives (poor suffering creatures) that they felt faint from our overpowering odour—it wasn't the "salmon" then. Why go back to those old creatures? Our descent is respectable enough; but I don't boast of that. Those canny North Britons can't help interfering, they say they won't give up my summer friends (did you ever know a Scotchman give up anything?); my fleeting friends are very beautiful, but I don't believe they have better constitutions than my own sisterhood. Weren't they "raised" in a warm climate? I could mention the names of some of my young friends who will surpass them, but I am afraid you will call me an old gossip. Will you let me another time? Please ask Mr. Paul what he means by "complex movements on this wondrous ball;" my old friend and acute lawyer D'Aguesseau could make nothing of the sentence, and I've almost spoilt my complexion puzzling over it. I can't help thanking Mr. Rivers; his writings are as soothing as the murmur of many rivulets to our ruffled plumes. Surely there's something in a name. I present my affectionate consideration to the ponderous and classical Mr. Paul; I forgive him for his slighting remarks; but as I am a Frenchwoman, if he insults me any more I will appeal to my "beau sabreur" and blustering hero, Géant des Batailles, who will see justice done me. *Madame Laffay* (*Remontante*).

Gold Fish.—I have about a dozen gold fish in a concrete pond out doors, in which are three or four common Water Lilies—a film similar to mould on decaying fruit seems to grow upon them, at first round the mouth and eyes, and extending over the body till they die—the Lilies flourish and bloom freely, and the water is clear. What is the matter with the fish? and what can be done to cure them? I have also a fine plant of the Irish Fern Trichomanes radicans growing under an 18-inch bell-glass in leaf mould and loam, with a plentiful drainage of potsherds, broken stone, and charcoal; it is throwing up four or five strong fronds, and is now very flourishing, and has been planted about 18 months; but the surface is one continued mass of worm casts, and I am afraid the worms will injure it. What can I use to destroy them without hurting the plant? I am afraid of lime-water; would tobacco-water injure it? If any of your correspondents will kindly answer this question they will oblige *J. C. S., Southampton.* [Your fish are doubtless attacked by Achlya prolifera—a kind of Conferva which lays hold of them, spreads over their bodies, and soon kills them. You will find a full account of the disease with a woodcut representation of the plant at p. 3 of our volume for 1845.]

Pea Tops.—Having several quarts of old Peas by me last year, I sowed them at intervals during the winter thickly in shallow boxes. They came up slowly and strongly. When about 5 inches high I cut them off close to the earth, and boiled them in the same way that Cabbage is done with plenty of water with the lid off. I dished them up plain, in the same way in which I do Jerusalem Artichokes, and they made a capital dish. It is the "additions" which spoil the flavour and make them disagree with people. I can only say that Pea tops form one of the most delicious of vegetable dishes. *James Cuthill, Camberwell, London.*

True "Oldacre's West's St. Peter's" Grape.—In 1836 I erected a Vinery with a view to carry out the system of growing Vines in large pots, by means of stems coiled round the interior surface of each pot, a plan proposed by Mr. John Mearns, then gardener at Welbeck. The attempt did not then succeed; and several fine cuttings of the "West's St. Peter's" were obtained from Mr. Oldacre himself, near Stoke Green; these being struck in heat, advanced rapidly, and in due time were planted in deeply wrought earth within the house. These last plants throve, and soon produced long rods, which reached the one end to the S.W., and returned on the stretched wires to the N.E. end. Fertility was great, and crop after crop was gathered (without severe forcing) till September, 1846, when the first symptoms of the Grape disease made their appearance—clusters became mouldy, and dozens were cut off and buried in the ground. The cluster itself is not much shouldered, the skin is very thin, the berry is of a dark shining purple, and the taste is extremely delicious; the only objection to this Grape is the excessive delicacy of texture of the skin, which renders it liable to crack, hence it is a fruit exclusively for home consumption, not for sale, owing to the difficulty of packing for safe travelling. The long existing disease has at length disappeared in most districts from the open air Grapes. *Vitis.* [We are not aware that what is universally known as West's St. Peter's Grape has an unusually thin skin.]

Female Garrya elliptica.—I am glad to see that a correspondent, more favoured than myself, has at length succeeded in eliciting some intelligence of Garrya elliptica fœmina. For, however uncomplimentary your notice of poor Mrs. G., who is not interested in the description of the wife of a distinguished popular character? And though the wife of "G. E." may fail in attracting admiration, she certainly has high claims to our respect and gratitude as a mother; who knows what, with favourable treatment, she may yet do for us, varying in her progeny perhaps as much as the Oak or Mahonia? *O. P.*

Coppice Wood in the S. of England.—In passing through different localities in the south of England, the extent of hill and dale under coppice wood naturally arrests attention. The crop (if it may be so termed) consists principally of Hazel and Ash, with in many parts an intermixture of a few sickly Oak saplings, apparently struggling for existence, owing to the periodical cuttings of the coppice, leaving them naked (if I may so speak), thereby inducing unhealthiness. Some, it must be admitted, are comparatively healthy, but at the best timber trees of this description never arrive at a valuable size. There is a pretty large area of ground on the estate the woodlands of which I have the management of under this sort of crop, the average yearly rent of which has never exceeded 12*s.* per acre to the proprietor. It was therefore resolved that the ground under coppice should be turned to better account by trenching a great part of it, thereby converting it into arable land, and planting the remainder with young timber trees where it was considered inaccessible to the plough. With this view I commenced operations, and have got about 80 acres trenched or rooted, and a large space of hilly ground cleared, and in the way of being planted with young trees. It has been stated that an acre of ground planted with Fir produced on an average 2 tons of timber per annum; if so, this will far exceed the value that could be derived from a crop of coppice wood in the same situation. Without taking into consideration the insufficient shelter coppice wood affords, owing to the periodical cutting it sustains, the following statement will show that it is more profitable to have the land under tillage than coppice.

Average expenses of trenching or rooting per acre, 9*l.*

	£	*s.*	*d.*
Rent received for the land when trenched per acre per annum	1	10	0
Ditto, ditto, when under coppice wood, &c.	0	12	0
	£0	18	0

It will thus be seen that there are 18*s.* available for interest on the outlay on 10 per cent. per annum, which is no mean consideration. I have not taken into account compound interest that might be derived from the rent were it drawn at short intervals, as is generally done when the land is under the plough. When it is under coppice wood the rent is only obtained on an average once in 12 years; it will therefore be seen that in this respect there is a considerable disadvantage to proprietors. From what has been stated it is to be inferred in regard to coppice wood, as found in the south of England, that it is far from being a valuable crop, and I have no doubt that the same statements respecting it hold good on other properties. I would therefore strongly advise proprietors to give this subject mature consideration. *W. Brown, Wood Manager, Milton Abbey, Blandford, Feb.* 17.

The discussion upon Roses has been more amusing than interesting. I do not see that the information sought has yet been found. If I rightly understand what is required by the amateurs who have entered into the discussion, it is not which of the two twelves (named by "A. R." and Mr. Paul) is the best, but which are the best 12 Roses for exhibition? As I have been an extensive cultivator of Roses (for sale) for many years, I will venture to give an opinion on the subject, but in doing so I will not, for the present, take into account the summer Roses, although many of them are as perfect and beautiful as the Perpetuals; I will, however, revert to them before I finish this communication. In looking over the class of Hybrid Perpetuals which are now so popular, and very justly so, I find a difficulty in naming the best 12, for this reason—that when 12 are marked I see others so nearly equal to them that it is really difficult to decide. However, after carefully considering all points, including constancy of bloom and habit of plants, &c., the following in my opinion are the best 12:—Duchesse de Montpensier, General Negrier, Laura Ramond, Lucie de Barante, Madame Guillot, Madame Guinnoisseau, Madame Place, Madame Rivers, Madame Vidot, Prince Leon, Reine des Fleurs, and William Griffiths. The above are perfect in outline, full, of medium size, free blooming, distinct, and of good habit of growth. I will now name 12 more which are scarcely inferior to the above, but unfortunately a few of them are dwarf and rather delicate in habit:—Auguste Mie, Baronne Hallez, General Bedeau, General Castellane, Graziella, Madame Cambacères, Madame Ducher, Madame Lamoricière, Madame Phelip, Madame Martell, Paul Dupuy, and Prince Chepitouzikoff. The 24 Roses I have just named are selected purposely for exhibiting as cut flowers in stands, or as single blooms, and the majority of them are somewhat modest in their colouring, but nevertheless they are very, very beautiful, and Prince Leon and two or three others are magnificent. But the majority of Rose buyers (in private establishments) want them more for show and display in the garden than for purposes of exhibition, and therefore will require to know which are the best for that purpose. I will name 24 of the most brilliant and magnificent, *i. e.*, those that are either very striking in colour, or very large and noble in appearance, with other indispensable properties combined. The brilliant are—Deuil de F. Willermoz, Duchess of Norfolk, Géant des Batailles, General Brea, General Jacqueminot, Jules Margottin, Le Lion des Combats, Lord Raglan, Madame Fremion, Souvenir de Leveson Gower, Standard of Marengo, Triomphe de Paris. The noble are—Alexandrine Bachmeteff, Baronne Prevost, Baronne Heckeren, Caroline de Sansalles, Colonel Rougemont, Duchess of Sutherland, Duchesse d'Orleans, Jeanne d'Arc, La Reine, Louise Peronny, Madame Domage, Madame Masson. It will be observed that my remarks have been confined entirely to the class of Hybrid Perpetuals, and why should I, or any one, select from any other class when only 48 varieties are wanted? More perfect, more beautiful, or sweeter Roses are not to be found in the whole range of the catalogues. But 48 varieties is a small collection of Roses now-a-days, and there are many who will require more; I will therefore refer them to the Bourbon class, and here are 12 "real gems" for exhibiting—Acidalie, Colonel Ferissy, Dumont du Courset, George Cuvier, Henri Lecoq, La Gracieuse, Louis Odier, Menoux, Proserpine, Souchet, Souvenir de la Malmaison, Le Marechal du Palais. The next are 12 more brilliant for display or grouping—Dupetit Thouars, François Herincq, La Quintinie, Omer Pacha, Marquis de Moyria, Paul Joseph, Prince Albert, Queen (not brilliant, but must be in), Reveil, Souvenir d'un Frere, Souvenir de l'Exposition, Vicomte de Cussy. The Bourbons are more continually in bloom than Hybrid Perpetuals, for every shoot they make is crowned with flowers, the petals are very bold and of great substance, and consequently very lasting; but they are not so sweet as Hybrid Perpetuals. The habit of the plants, generally, is compact, the foliage large and fine deep green, but they will not stand a severe winter so well as the previous class. I must not omit to plead a little for "our old favourites" the summer Roses. Amongst them are still to be found some of the sweetest, most perfect, and beautiful. None can surpass such as Coupe d'Hébé, Paul Ricaut, Sophie de Marseilly, La Ville de Bruxelles, La Volupté, Triomphe de Jametz, Boule de Nanteuil, Letitia, Kean, Phareriens, General Jacqueminot (H. C.), General Lamoricière, &c., not forgetting a dozen of the best Mosses. But those only bloom for a month and then they are done for the season; still those I have just named, and a few others, ought not to be discarded, but mixed with the Perpetuals, which would add considerably to the splendour of the Rose garden in summer, and the Perpetuals, if properly managed, would keep up a succession of bloom until late in autumn. What I have written is intended for those asking information (in the discussion upon Roses now going on in your columns) and likewise for beginners and those who have only a limited space to spare for Roses and wish to furnish it with only first-rate sorts. I cannot conclude, however, without a comment upon opinions already expressed in the discussion. I do not think that "A. R." was in earnest when he named those twelve "pets of his" as not yet beaten! I imagine it was what in common parlance is called "chaff," meant to draw out the opinions of others. The best that can be said of them is that they are "good old Roses;" but with two or three exceptions (which I have named in the above selections) they are certainly below second-rate at this day. He has also fallen into an error as regards "Gloire de Dijon" in saying it could not be grown out of doors north of the Trent. This is jumping at conclusions without proof, trial, or any information respecting it. I reside a good distance north of the northern extremity of the Trent, and Gloire de Dijon has stood out here this winter without the least protection when the thermometer was down to 6° and when many other Tea Roses were completely killed, and several Bourbons and some Hybrid Perpetuals were killed down to the top of the snow, while Gloire de Dijon growing close by the side of the above was not the least discoloured. It is perfectly hardy, and that is worth knowing, for it is a splendid Rose. Although as a grower for sale I have said but little in favour of the new Roses (especially of last season), nevertheless I do not condemn them. I have said all I can (honestly) for those that have been more than one year in the country, and no one can form a correct opinion of those which are newer, for when they are first received in this country they are generally very small and weakly plants. Then to get up a stock to meet the demand for them, they are hard cut in for grafts, potted and placed under artificial treatment, and during the season they are cut again and again for propagation. Of course they will bloom even under those circumstances, but not in a manner to be fairly tested until the second season, when two or three may be fit company for the best 12, and two or three others will occupy places according to merit, and the remainder will sink into oblivion, as several have done during the last two or three years, such for instance as Adam Paul, Charles Bossiers, Eugène Sue, Fairy Queen (Paul's), Queen Victoria, Robert Burns, &c. Those were not all palmed upon us by our novelty-loving neighbours across the Channel, and yet they were sent out with as flaming descriptions as any Frenchman could supply, and how have they stood the test of three years? It is as necessary to keep a watchful eye on the sources from whence such worthless varieties come, as from whence real acquisitions proceed. *Thomas Appleby, Rose Mount Nursery, York.*

Converting a strong Clay Soil into a Kitchen Garden.—In 1848 I was engaged in Lincolnshire, where my employer had bought about half an acre of land adjoining his garden of the railway company. The top soil had been taken off for levelling the railway with, and it left a solid blue clay. He did not expect that it would be of much use to him. I had it first well drained 4 feet deep and trenched 2 feet deep, and then 12 cart-loads of rotten frame manure and 6 chaldrons of lime were put on it and well forked in. After this treatment I never saw finer vegetables than those grown upon it,

and the ground was dry and worked easily. *John Newton, East Lodge, Enfield Chase.*

New Flower and Kitchen Garden Seeds.—I am sure I shall not appeal to your gallantry in vain, Mr. Editor, when I ask you to lay aside for a few moments your more weighty editorial labours to listen to and advise a lady in a garden dilemma; and when I tell you how much I am in love with gardening, with what interest I watch over my favourite plants and administer to their wants, how I rejoice when they flourish and mourn when they decay, you will, I am sure, not deem your attention bestowed on an unworthy correspondent. And moreover I must tell you that I am—a—that is—that my interest and affections are concentrated in gardening and flowers, and that, consequently, as you will readily believe, the failure or success of my attempts is more keenly felt by me than by very many—shall I say, more fortunate—lady readers of your Paper. Simmonds who does my gardening and all the numerous duties of an "odd man" tells me it is high time we procured our yearly stock of seeds, and that he thinks we ought to discard a few of the older kinds in favour of what he terms "wonderful new things that beats the old uns holler." Now, to this I have no objection; on the contrary, I rather incline to a few novelties, as it increases the interest in one's garden, if I can be certain that, in discarding old kinds, I shall not be supplanting them with inferior or worthless ones. The recollection of previously purchased "novelties" is not at all favourable, and I am therefore desirous of placing myself under your guidance or of that of some of your numerous correspondents, to give me a list of really valuable novelties both in kitchen garden and flower seeds. To be valuable to me, such recommendation must be from actual experience, and for such I, as well as hundreds of your readers besides, will I am sure be grateful. You will possibly say, why not select from some of the numerous catalogues published by the seedsmen? I have endeavoured to do so; but have invariably risen from the attempt fully bewildered. At this moment I have before me nearly a dozen seed lists, some of great pretensions, others of none, and I confess that if I were to select from any, it would be from the latter. In some of these lists I find enumerated nearly 60 sorts of Peas, 30 or so of Beans, 40 of Broccoli, and of other kinds of garden seeds in proportion. And then the names too. Here are exhausted all the superlatives of the English language. Here are Queens, Lords, and Emperors, Rivals, Champions, and Conquerors, &c. Now how can I be expected to unravel the mysteries enshrined here, or to select with any confidence among so many high and mighty candidates for distinction? True, I am guided in some degree by being assured that the climate of ——shire is particularly favourable for the growth of seeds, and that Messrs. So and So have just harvested a choice selection in good condition; yet I cannot trust my own choice, even though "Wheeler's little book" will do something for me. Should any of the seeds which you or others may be kind enough to recommend to me have to be procured from distant parts of the country, I find there will be no difficulty in getting them, for (and I mention it here for the benefit of your readers) parcels are now actually conveyed by railway, and it is even said (astounding fact if true) that steamers convey from English ports to Ireland and other countries similar packages. I shall look anxiously for a reply from some of your obliging correspondents. Simmonds, who is waiting to post this, reminds me that we intended purchasing some new Strawberries, but were bewildered with novelties—I mean the names. If I may plant yet, pray name one or two good new kinds. *Caroline.*

Roses.—I entirely agree with Mr. Rivers in his general views as regards trade, which, if I rightly comprehend his article of last week, amount to this:—We should consider it our privilege as well as interest to protect from fraud those who trust in us. Further let me assure him that I entertain the same friendly feeling which he displays. If being comparatively a young man I may be allowed to go so far, I would also say with him, "I have no fear or envy or jealousy," and if I cannot add "I have lived long enough to forget them," I believe I may sincerely say I have ever been too busy and too happy in my calling to find room for their existence or conditions for their growth. The question of old and new Roses is now fairly before the public, and had better be ended than suffered to degenerate into "idle talk." The most sceptical will doubtless have been satisfied by the abundance of well-attested evidence that the most questioned and maligned of my new favourites—the Gloire de Dijon—is not only first-rate but suited to a climate very far "north of the Trent." My application of one phrase, "Nature does not advance by leaps," I must pause momentarily to defend. Mr. Rivers says, "True as regards unassisted nature, but decidedly false when applied to gardening nature." Now, I contend it is true in both cases, and that the question is one of degree rather than of fact. Mr. Rivers fairly enough quotes certain instances in support of his views, which he styles "remarkable." Now why, I would ask, are these instances considered "remarkable?" Is it not because they are of rare occurrence—and if so, are they not exceptions—and as such do they not go to prove my rule? I am perfectly conversant with the cases quoted by Mr. Rivers, and could adduce others within my own experience, witness Springfield Rival Dahlia, where these remarkable leaps have disappeared before the steady power of progressive culture. Would any vegetable physiologist—would any gardener (scientific or practical) seriously repudiate progressive culture, and be content to wait for these remarkable leaps? Few indeed are they, and far between. The question of attaching the purchaser's or raiser's name to a seedling is usually made a condition of the purchase. And for this reason. The raiser is often unknown to fame, and the purchaser fairly enough uses his own name as a guarantee of good faith to the public. There is no fraud or deception effected or intended, and no secrecy that I am aware of is ever practised. The curious in these matters may readily ascertain the most minute known points of a variety's history. *William Paul, Nurseries, Cheshunt, Herts.*

Forced Asparagus.—The quotation made by Mr. Gadd (see p. 88) should read thus:—"I sow my seed thinly on a fine day early in March on a well prepared piece of light sandy soil. The March following I transplant to 4 feet beds, 2 feet apart, three rows in each, and 1 foot from plant to plant, just covering the crowns with finely sifted soil," &c. *W. Watt, Aswarby Park.*

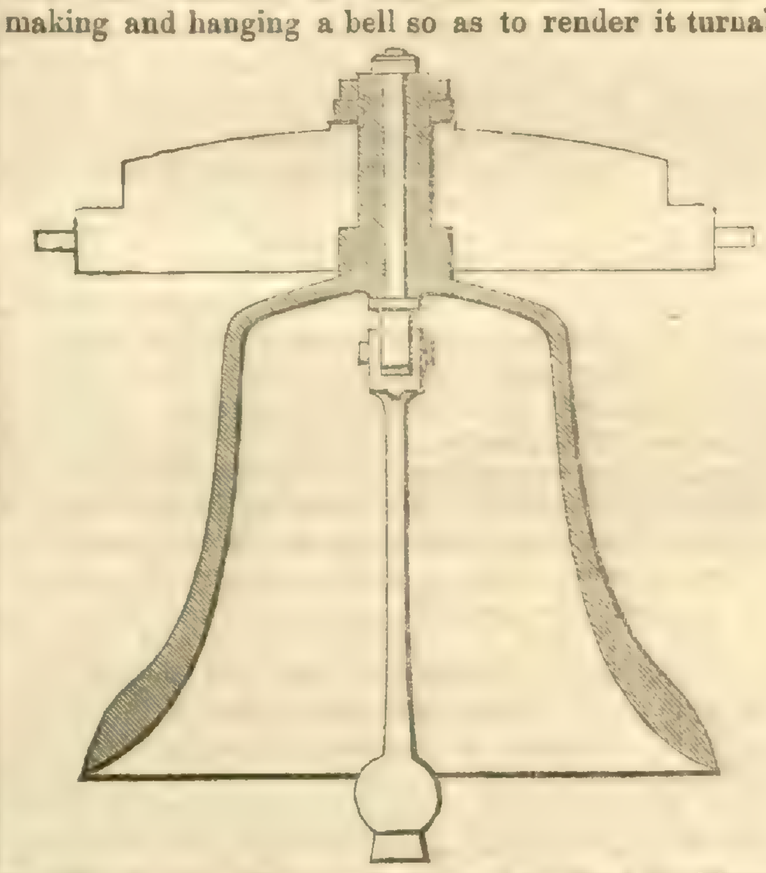
Notices of Books.

The Queen's University in Ireland (Hodges) is a most able description by Sir Robert Kane of the progress and present state of the Queen's Colleges in Ireland. It chiefly consists of the address delivered by him last November as President of Queen's College, Cork, but is accompanied by an appendix containing some important notes upon the statistics of the subject.

The Great Bell of Westminster. A letter to E. B. Denison, Esq., M.A., Q.C., by W. L. Baker, C.E. Nichols and Sons; Parkers. Pamphlet, pp. 15, 4*d.*

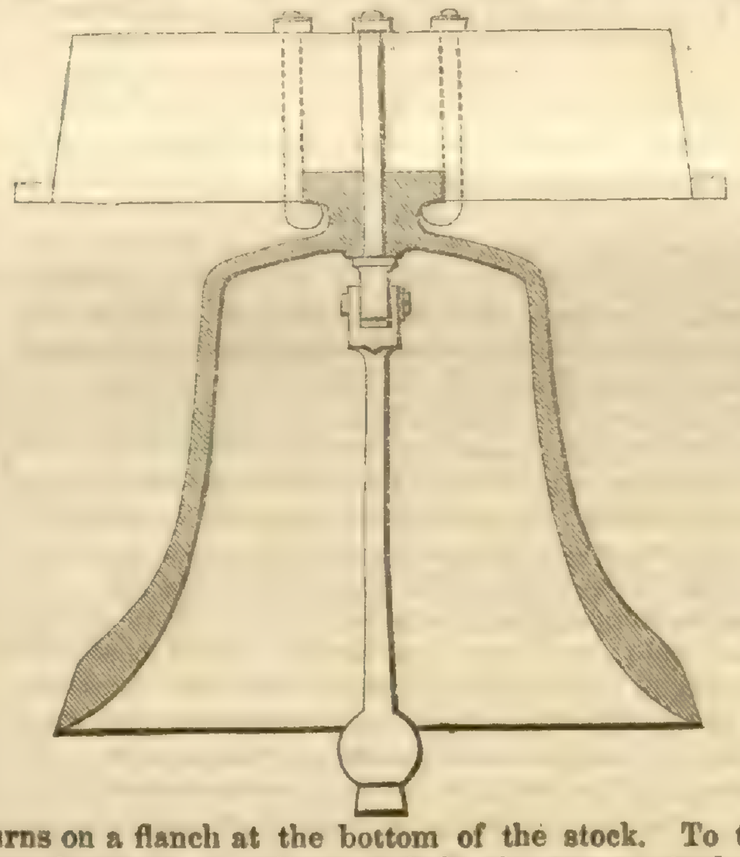
One of the great peculiarities of "Big Ben" of Westminster is, we believe, the novel manner in which it is swung. All persons acquainted with church bells are aware that their inevitable fate is destruction. The clapper by constantly striking the same points of the sound bow wears away the metal of the bell in the course of time, and in the long run produces a couple of holes. Ordinary bells are hung in the stock in such a way that they cannot be turned so as to present different points of the sound bow to the action of the clapper; all that can be done with them when worn is to take them off the stock, turn them one quarter round and put them on afresh. This remedy however is both difficult and expensive and can only be applied once, for two more holes are gradually beaten in the sound bow, and the bell is, if not destroyed, at all events most seriously injured.

In 1854 the author of the pamphlet before us took out a patent for a new method of hanging bells, and the essence of his invention consisted in making and hanging a bell so as to render it turnable



in the stock. The method, as described by himself, was by passing a central bolt through the crown of the bell, or by attaching a bolt or casting an axis on the top of the crown, and then by means of a toothed wheel or endless screw turning the bell round on this bolt or axis, so that the blows of the clapper instead of falling constantly on the same parts of the sound bow would be spread over its whole circumference. A bell made and hung on this principle was exhibited at the Paris Exhibition, and a prize medal was awarded to the inventor. In March 1855, a paper describing the invention was read at the Institute of British Architects, and then for the first time the learned Queen's Counsel hit upon *his* method of making and swinging Big Ben.

The two accompanying cuts show at a glance the points of resemblance and difference between the rival bells. The top figure is an outline of the bell which gave Mr. Denison the idea of Big Ben represented in the bottom figure. The difference is simply this, that whilst Mr. Baker's bell is supported by one bolt and turns on a nut or flanch at the top of the stock, Mr. Denison's is supported by one bolt and some bent hooks, and



turns on a flanch at the bottom of the stock. To the apprehensions of ordinary minds, the two methods of suspension are substantially the same. All the credit however of the invention is awarded by the public to Mr. Denison. It is therefore, we think, only fair and just to Mr. Baker that the above facts should be publicly known, for whether Mr. Denison has or not been legally guilty of an infringement of Mr. Baker's patent, the pamphlet before us proves to demonstration that undue advantage has been taken of his invention by a learned gentleman who does not himself acknowledge the obligations which those acquainted with the matter clearly see he is under.

The 6th Part of *Chatin's Comparative Anatomy of Plants* (Baillière) is still confined to parasites, among which are included Bartsia, Euphrasia, Rhinanthus, and Pedicularis.

Of *Dr. James Copland's Dictionary of Practical Medicine,* Part XVIII. (Longmans) has just appeared. It reaches as far as "Vaccination," and we see that another number will complete this very important work.

Physic and its Phases (a pamphlet, Simpkin & Co.,) is a poetical satire upon the medical profession, to which we leave it for examination and report. Whatever its poetical deficiencies may be, it makes up in bitterness and personality. In the sentiments of the following lines we shall however all agree.

And wherefore, Soldiers! to our Country's shame,
Is there no record yet of THOMSON's name;
No stone to mark how that devoted one
By the red Alma, when the fray was done,
In mercy to the wounded of the overthrown,
Remained to do his godlike work—alone!
Wherever he looked were marks of fire and steel
Spent shot and shell, dismounted gun and wheel,
The broken sabre and the cloven helm,—
All that could daunt the soul or overwhelm;—
Corpses in heaps, the dead and staggering steed,
And groups of wounded in their direst need!
Yet there the gallant Scot maintained his post,
Beside a remnant of the Russian host,
Whose wounds—such wounds! his orders were to dress
And soothe the sufferers in their mad distress.
Foes to a man! right pleasant patients they—
Eight hundred Calmucks who had lost the day!
But down he knelt beneath the lowering heaven,
And, in pursuance of the orders given,
Went to his duty with a manly heart—
Soldier and Surgeon—true to either part!
With only one attendant who could speak
His country's tongue,—amid unceasing shriek,
And groan, and wail, and cry, woful to hear—
The raven and the vulture hovering near—
There, unappalled by all those sounds and sights,
Nobly he toiled two fearful days and nights—
Limb after limb examined and bound up,
And poured the cordial balsam in the cup;
Desisting only when himself struck down,
The unconscious winner of a world's renown!
Not better they who battle blade in hand,
Support the martial glories of their land,
Than he, who by no stirring passions warmed,
Flings down his sword where all beside are armed,
And while the bullets whistle round his head,
In field, or trench,—perchance his gory bed,—
Soothes and sustains his comrades under fire,
With a devotion no neglect can tire

Garden Memoranda.

MESSRS. HENDERSON'S NURSERY, PINE-APPLE PLACE.—The show house here is now about as gay as a house of the kind could possibly be even in the height of summer. Early Tulips, Crocuses, Hyacinths, and other forced bulbs were abundant and fine; the brilliant red little Chinese Azalea obtusa was loaded with flowers, which, on account of the richness of their colour, are very suitable for bouquets. Chinese Primroses and Cinerarias made an admirable display, as did also the little Sikkim Rhododendron cilpatum, of which there is stated to be here a dwarf variety. Of plants producing yellow blossoms none were more showy than the common Cytisus racemosus, which is constantly in great demand about London for window decoration. Rhododendron javanicum was producing blossoms of unusual brilliancy, and among soft-wooded things were some very prettily-bloomed Pelargoniums of the early flowering class. Among larger plants were Camellias, Orange trees in flower and fruit, and Acacia longifolia, which is one of the handsomest of the sorts that admit of being grown in pots. On an end wall of a cool Heath-house was a good specimen of the handsome Lapageria rosea, which is reported to have been very finely in blossom. It is planted out in a porous well drained border of peat and loam where it can receive what it likes, abundance of water while growing without becoming water logged. It may be mentioned that blossoms of this delightful climber may be kept fresh and beautiful even in a warm sitting room for weeks after being cut by merely inserting the stalks to which they are attached in a little water, or even wet Moss or sand.

In stoves were some very fine variegated and other plants remarkable for fine foliage, such as Dracænas, Crotons, Rhopalas, &c., which have of late become so fashionable. On the back wall of one of the Orchid houses we also noticed, growing most luxuriantly, Ficus repens and barbata, the latter with leaves nearly 8 inches long and 4 inches wide. For covering damp walls in warm houses nothing can possibly be better than these two plants. They attach themselves to the brickwork like Ivy, and require no other artificial support.

Of tender Ferns this establishment possesses a valuable collection to which a house is exclusively devoted, and they are also freely intermixed with the inmates of other houses, which are thus rendered more interesting than they possibly could be without them. Among the different kinds we noticed the rare Pteris scaberula—a New Zealand variety, with finely divided fronds and dwarf neat habit. Among better known sorts were several handsome specimens of the Gold Fern. The whole were just being started into growth in a moist warm atmosphere.

Most of the plants in this establishment were neatly labelled with zinc labels, the faces of which were painted with white lead and written on with common ink. The zinc being flexible when stuck into the pots admits of being bent in any way in which the name can be most easily read, an advantage which wooden labels do not possess. They are also said to be very durable.

Amphicome Emodi we noticed in the propagating house. It is said to be a hardy perennial of considerable value in the decoration of rockwork and such like places. It has not, however, flowered in this country yet that we know of. Associated with it was also a plant called Centaurea argentea, which it was stated would be found most suitable for edgings to beds which looked best with a light silvery leaved margin. Hitherto Cineraria maritima has been a favourite in some places for that purpose; but this plant it is thought will supersede it.

Among the new kinds of Conifers were Thujopsis

borealis, and the Selaginella-like Arthrotaxis. The latter is a New Zealand plant, at present very scarce in gardens.

Fruit trees in pots are grown for orchard-house purposes. They are wintered out of doors in ridges of decayed manure in which the pots are plunged. Those we saw were well furnished with fruit buds, and in every way well managed specimens of their respective kinds.

A pretty piece of fancy rockwork has been put up round a pond here. It is made of coke and burrs from the brick fields, fastened together and covered over with Portland cement, which gives it the appearance of grey rock. It stands the weather well; by the exercise of a little taste and skill a neat rockery may thus be constructed with even such common materials as those just mentioned.

Miscellaneous.

Future of the Universe.—On the whole, these groups and systems of the geologist—imperfectly interpreted as they yet undoubtedly are—present a long series of mineral mutations, and of vital gradation and progress. Not progress from imperfection to perfection, but from humbler to more highly organised orders, as if the great design of Nature had been to ascend from the simpler conception of materialism to the higher aims of mechanical combination, from mechanism to the subtler elimination of mind, and from mentalism to the still nobler attribute of moralism, as developed alone in the intellect and soul of man. From the lowly Sea-weeds of the silurian strata and marsh-plants of the old red sandstone, we rise (speaking in general terms) to the prolific Club-mosses, Reeds, Ferns, and gigantic Endogens of the coal-measures; from these to the Palms, Cycads, and Pines of the oolite; and from these again to the Exogens or true timber-trees of the tertiary and current eras. So also in the animal kingdom: the graptolites and trilobites of the silurian seas are succeeded by the higher crustacea and bone-clad fishes of the old red sandstone; these by the sauroid fishes of the coal-measures; the sauroid fishes by the gigantic saurians and reptiles of the oolite; the reptiles of the oolite by the huge mammalia of the tertiary epoch; and these in time give place to existing species, with man as the crowning form of created existence. This idea of gradation implies not only an onward change among the rock-materials of the earth, but also, as plants and animals are influenced in their forms and distributions by external causes, new phases and arrangements of vitality—the creation of new species, and the dropping out of others from the great scheme of animated nature. And such is the fact even with respect to the current era. The mastodon, mammoth, and other huge pachyderms that lived from the tertiary into the modern epoch have long since become extinct, leaving their bones in the silts and sands of our valleys. The elk, urus, bear, wild boar, wolf, and beaver are now extinct in Britain; and what takes place in insular districts must also occur, though more slowly, in continental regions. The dodo of the Mauritius, and the dinornis of New Zealand, are now matters of history; and the same causes that led to the extinction of these seem hurrying onward to the obliteration of the beaver, ostrich, elephant, kangaroo, and other animals whose circumscribed provinces are gradually being broken in upon by new conditions. Such facts as these, taken in connection with the physical changes that are continually taking place on the surface of the globe, necessarily lead to speculations as to the conditions and phases of the Future. Respecting these, however, it were in vain to offer even the widest conjecture. Subjected as our planet is to the numerous modifying causes already described, we know that vast changes are now in progress, and that the present aspect of nature will not be the same as those she must assume in the eras that are to follow. But what may be the nature and amount of these changes, what the new conditions brought about by them, or what the races of plants and animals adapted to these conditions, science has yet no available means of determining. This only the philosophical mind rests assured of, that, be the future vicissitudes of the globe what they may, they will continue to be the harmonious results of Law and of Order; and that, as throughout the whole of the past, so throughout the whole of the future, the great COSMICAL DESIGN which geology now labours to reveal, will be steadily upheld by the Omniscient omnipotence of Him "with whom is no variableness, neither shadow of turning."—*Advanced Text-Book of Geology*, by *David Page, F.G.S.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Dispense with fire heat here as much as possible; a temperature of 55° by day and 45° by night will be sufficient for general purposes. Do not allow the heat to increase much by means of sunshine. There is as much skill displayed in retarding certain flowers as in hastening their flowering in the first instance, and to this end a thin canvass screen should always be at hand to throw on the roof during the midday hours of very bright days. Continue repotting such Orchids as need that operation. Stanhopeas, Acroperas, Dendrobiums, &c., suspended in baskets or on blocks will now either require syringing occasionally or watering by some means. Many of these will have received little water since the end of October, and will have become excessively dry. Blocks may occasionally be soaked for a few minutes overhead in tepid water; also baskets if very dry. If syringing is resorted to choose a bright sunny day for the purpose, and perform the operation early in the morning. On such occasions keep a brisk fire, and give air freely until the afternoon, for the purpose of drying up moisture. Winter-flowering stove plants now exhausted should be cut back a little and left to break, when they may be disrooted and placed in smaller pots; these will make large and early specimens for next autumn, whilst cuttings from them struck immediately they break will furnish succession plants of a smaller size for dressing front shelves with. The temperature should now be allowed to rise freely on bright days early in the afternoon, remembering that a rise by means of sun heat alone can do no harm for a few hours even at this period, provided it does not exceed 80°. Do not forget to sow a little Cineraria and Chinese Primrose seed; this, with another good sowing in April, will furnish a supply through the next autumn and winter. Attend to ornamental trellis plants. They should be always in high dress, and to accomplish this frequent attention is necessary. Forcing bulbs, as Hyacinths, Narcissi, &c., should after blossoming have their leaves tied up, and should be transferred to a cold frame, and when severe weather has passed away they should be turned out of pots to feed in prepared beds. Clerodendrons may now be disrooted and potted in smaller pots in a fibrous soil and started in a mild bottom-heat. Continue to increase atmospheric heat and moisture in the forcing pit at fitting periods. Attend to things for succession. Watch the "worm in the bud" of Moss Roses; fumigate for thrips, &c., and see that the plants are duly watered with tepid liquid manure. Some little water will now be required in cold pits or frames. Give plenty of air all night in favourable weather and propagate stock for bedding out.

FORCING DEPARTMENT.

PINERY.—Recently potted stock will not require much water at the root for a few weeks, and it should not be heavily syringed until the plants get hold of the fresh soil, and start into free growth. Keep the atmosphere soft and moist by gentle syringings on the mornings of bright days, and sprinkle the passages, &c., frequently. Plants swelling their fruit will be greatly benefited by manure water in a clear state, which may be given as often as the soil requires watering. With plenty of moisture in the atmosphere a night temperature averaging from 70° to 75°, allowing it to rise to 85° with sunshine and a gentle circulation of air, will be beneficial to these. VINERIES.—As soon as the berries are fairly set, cut off all superfluous bunches at once, and get those left thinned as speedily as possible. It is a very common practice with young gardeners to overcrop Vines, and the result is small, ill-coloured, ill-flavoured fruit, and disappointment. Aim at securing fruit of first-rate quality, which will be more satisfactory than any quantity of inferior stuff. But depend upon it that the way to do this is to thin early and severely. The quantity proper to be left must be regulated by the strength and vigour of the Vines, &c., but it should be remembered that it is quite possible to overcrop the most promising Vine. If the border is covered with fermenting materials see that the heat is not allowed to decline. The buds will now be breaking in the succession house, and when this is the case the night temperature may range from 55° to 60°. Take advantage of bright days to shut up early in the afternoon with a moist atmosphere, allowing the thermometer to rise to 75° for about two hours. FIGS.—Watch carefully for any indications of red spider or brown scale, both being terrible pests when allowed to gain a footing on the foliage. See that the borders are in a moist healthy state, and attend to stopping the shoots before the fourth or fifth leaf, so as to get the wood matured, in order to secure a second crop. PEACHES.—If there is the least apprehension of red spider play the syringe freely on trees where the fruit is fairly set, and commence the process of disbudding. If green-fly makes its appearance fumigate at once. See that the inside borders are properly supplied with water. After the fruit is set let the temperature range about 60° at night, but rather under than above this on cold nights, and with sunshine and a circulation of air it should range about 75° during the day.

FLOWER GARDEN AND SHRUBBERY.

Attend well to thorough cleanliness; hoe through or otherwise dress all margins or beds where Crocuses, Anemones, Snowdrops, Primulas, and other spring flowers are peeping. Plant out Hollyhocks directly. This noble flower is well deserving of general cultivation. Its bold spire-like form stands out in fine relief in masses of flat-headed shrubs. Put in root cuttings, in a brisk bottom-heat, of Bouvardias, and some kinds of Geraniums difficult to strike in the ordinary way, or of which cuttings are scarce to be got. Sow in small pots Maurandyas, Lophospermums, and other plants of that kind to get them strong by May. Keep the pleasure-grounds swept and rolled frequently, to keep down Moss.

HARDY FRUIT AND KITCHEN GARDEN.

A proper rotation of crops in this department having been secured the next best advice is to watch the fluctuations of the weather, and endeavour to do all planting and sowing whilst the ground is in a mellow state. Sow some early Parsley, a sprinkling of early Cabbages, Dutch Turnips, Onions for drawing, young Normandy Cress, successional Peas and Beans, and a little early Celery in boxes on a slight heat. If early spring-sown Cauliflowers and Lettuces are forward enough get them pricked out. Continue to plant out winter Cauliflowers in rich and sheltered spots, and get winter Lettuces out in a similar manner. Warm slopes artificially prepared by high manuring, and where at hand old lights or mats on hoops are the grand essentials. In the orchard bring up arrears forthwith; make sure of thorough draining. Plant high both at bottom and top. Get nailing finished. Provide against all insects, and protect as far as possible all opening blossoms.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Feb. 19, 1857, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind.
Friday 13	18	30.291	30.262	46	25	35.5	40	40	W.
Satur. 14	19	30.249	30.187	47	22	34.5	41	40	W.
Sunday 15	20	30.112	30.056	48	26	37.0	41	40	E.
Mon. 16	21	30.073	30.049	55	26	40.5	41	40	S.
Tues. 17	☾	29.992	29.966	56	34	45.0	41	40	S.
Wed. 18	23	29.999	29.964	55	33	44.0	42	40	S.W
Thurs. 19	24	30.145	30.093	48	30	39.0	43	40¼	S.W
Average..		30.123	30.084	50.7	28.0	39.3	41.3	40.0	

Feb. 13—Frosty; fine; slight frost at night.
— 14—Hazy clouds; fine throughout; sharp frost at night.
— 15—Foggy; fine throughout; slight frost.
— 16—Dense fog; clear, with bright sun; very fine throughout.
— 17—Foggy; fine; cloudy.
— 18—Slight fog; very fine; cloudy at night.
— 19—Slight drizzle; hazy; fine; cloudy.

Mean temperature of the week 1 1-5th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Feb. 28, 1857.

Feb.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	45.6	33.0	39.3	14	0.29 in.	3	5	7	—	2	[illegible]	[illegible]	[illegible]
Mon. 23	46.9	31.9	39.4	11	0.44	5	5	1	3	—	[illegible]	[illegible]	[illegible]
Tues. 24	46.9	34.1	40.5	16	0.60	3	2	2	3	4	[illegible]	[illegible]	[illegible]
Wed. 25	48.0	33.5	40.8	16	0.92	4	1	5	1	4	[illegible]	[illegible]	[illegible]
Thurs. 26	47.4	33.6	40.5	18	0.48	5	2	3	4	1	[illegible]	[illegible]	[illegible]
Friday 27	47.7	34.6	41.2	16	0.40	3	5	3	2	6	[illegible]	[illegible]	[illegible]
Satur. 28	48.8	33.9	41.3	13	0.84	1	6	5	—	2	[illegible]	[illegible]	[illegible]

The highest temperature during the above period occurred on the 26th 1846—therm. 64 deg.; and the lowest on the 23d, 1855—therm. 18 deg.

Notices to Correspondents.

ARBORICULTURE: *W F.* The only work which answers all your requirements is Loudon's Arboretum Britannicum, in 8 vols. 8vo, of which the four last are useless; it may perhaps be had without them.

BOOKS: *Hortulanus.* Solly's Rural Chemistry, Johnson's Lectures on Agricultural Chemistry; Kemp, How to Lay Out a Small Garden, Loudon's Edition of Repton; Price on the Picturesque.

CONIFERS: *A P.* Loudon's Arboretum Britannicum contains very copious information upon the old kinds, but the latest and most complete work is *Carrière's Traité général des Conifères*, Paris, 1855, in 1 vol. 8vo. Price must be learned from booksellers.

CRANBERRY PLANTS: *W P L.* We never recommend dealers. Apply to your nearest nurseryman.‡

GRAPES: *G L.* The only way to keep Grapes after they are ripe is to hang them up in a dry and very airy place not more exposed to the sun. The Portugal Grapes that come here packed in sawdust are thick skinned and gathered before they are ripe, which is the reason why they are so worthless.

HORSERADISH: *J S C.* You can only eradicate it by continually destroying it as it appears. If every bit is pulled up as far as it is seen above ground, die it must in a year or so. But if you neglect watching it, Horseradish will be more than a match for you.

HORTICULTURAL SOCIETY: *J E.* Certainly.

LOBELIA RAMOSA NANA: *A Constant Reader.* This plant, although sown now in heat and pricked into pots, will not match in height with Lobelia speciosa and L. ramosoides, but it will in colour and duration of bloom. We are quite unacquainted with what is called Veronica syriaca in gardens. The real species is a miserable little annual not worth one farthing.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Phyllis.* Certainly not the dreaded Anacharis alsinastrum. The fragments are in the present state indeterminable. If you will favour us with a specimen in the summer we will tell you what it is. The autumnal Mezereum is propagated by grafting on the common sort.

ORANGE BOXES: *A M D.* Slate is beyond all question the best material. The fall-down sides we prefer. The next best material is teak.

ROMAN CEMENT: *Twelve Years.* Build your pedestal with Portland cement, and let it become thoroughly dry. It will then take paint well, especially if primed with red lead. If your paint scales off it is the fault of the painter, who ought to know whether work is dry enough to be painted or not.

ROSE DES ALPES: "*A Dublin Subscriber.*" This is the Rosa alpina, not at all valued in gardens, but much admired on its native mountains. Such is the effect of *contrast.*

SUCCULENTS: *N B.* Jamaica is no place for succulents. You may get there Turk's Cap Cactuses, and common Opuntias, but nothing worth freight.

TUSSOCK GRASS: *S C.* We are unable to say where this may now be procured, unless through Messrs. Lawson, of Edinburgh. You had better procure Watson's Tourist's Guide; it is a very good book, and the only one of its kind.

VINES: *H P.* The distance in inches at which spurs on Vines should be apart cannot be precisely stated, for the shoots of some varieties are longer jointed than others. You may leave half as many spurs as there were eyes on the original shoot from which the spurs proceed. In spur-pruning it is safe to cut back to two eyes, and leave only one shoot if two shoots push.‖

WATER: *X Y Z.* Water will not be unfitted for orchard-house purposes by being caught in a cistern done over inside with a coating of pitch; but coal tar is to be feared until the whole of the volatile matter proceeding from it has disappeared.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*: Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

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THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.
EDWARD PURSER, Secretary.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.

4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay WILLIAM CLIFFORD, Sec.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

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The Agricultural Gazette.
SATURDAY, FEBRUARY 21, 1857.

THE letter by our correspondent "I. A. C." on Mr. FOWLER'S steam plough, which was published in the last number of this Journal, had appeared some weeks ago in the *Times* newspaper; but we delayed its republication until the report of the Agricultural Society's judges could be given with it. The trials of this implement at Boxted Lodge in August last were extremely successful, but they were under the circumstances most likely to ensure success. A level furrow 500 yards long

is an altogether exceptional thing, and was calculated to bring about a better result as to quantity of work per unit of time than is likely to be attained under ordinary circumstances. The power required however would be greater when a long rope was drawn over the ground than when a shorter one sufficed. The result upon the whole therefore, as given by Mr. AMOS, of the Boxted experiment, must be modified in both ways, in order that it may appear as an average probability. It seems that of one hour and six minutes during which the implement was in the hands of the engineer, only 16 minutes were lost in shifting anchors—the plough was moving 49½ minutes of the whole time, and during those minutes 3 roods and 1 perch were ploughed—the power taken being 21¼ horses. The cost per acre is made the subject of an elaborate calculation, including the several items of coal, labour, and oil, water, interest, and wear and tear, and removal from one place to another, and it comes out as equal to "7*s.* 2½*d.* per acre nearly." The judges say that "the work of common ploughing both on light and heavy soil was extremely well done, and two subsoil ploughs were drawn with great steadiness through the strongest land at a depth of 10 inches, which on trial required the power of 10 horses to pull them." This was the result of the trial at Chelmsford. As to the Colchester experiment, "the judges are of opinion that the cost of the like work by horse power would be at least 7*s.* per acre, leaving the cost of the two processes almost identical. Under these circumstances, although the judges cannot say that the conditions of the prize are fully met, yet the improvement effected is so great, and the prospect of early and complete success so probable, that they specially recommend Mr. FOWLER's apparatus to the favourable notice of the Council in consideration of the skill he has displayed, the labour and expense incurred, and the degree of success he has so honourably achieved."

The judges having thus declared the conditions on which the prize was offered unfulfilled, the Council as trustees of the means placed at their disposal had no alternative in the matter, and could not do otherwise than as "I. A. C." complains they did. Whether some special or some fitting mark of that sympathy which Mr. FOWLER's efforts have universally commanded from members of the Society individually could not have been devised by those who represent them may be reasonably asked, but Mr. FOWLER knows full well that if ever he is adequately rewarded for his costly labours in this matter, it will be not by the patronage of societies or individuals, but by the actual commercial value of the means at which, as the result of those labours, he has arrived; and as indicating a possible success of this kind we are glad to learn that he is employing his steam-driven ploughs and cultivators in executing tillage operations by contract in different parts of the country.

WE received from a Scottish correspondent some few days ago an inquiry as to the relative value of various substitutes for guano; and several correspondents since then have been describing their experience on a subject which is just now of especial interest. The Highland Society were last Wednesday occupied with the same topic—their chemist Dr. ANDERSON having most seasonably made it the subject of a lecture before the members of the Society. The effect of the present high price of guano is reducing the purchases of the farmers around Edinburgh in some cases from 20 tons to 5 tons, on the year's application, and the difference has to be invested in other manures—blood and wool and superphosphate—and it was thus to them of particular importance that they should be informed which was likely to make the best return. Dr. ANDERSON had thus a considerable audience, and they left better satisfied, we think, than they came that the present high price of guano is not to be looked upon as a calamity. DR. ANDERSON in the very interesting paper which he read gave it for his opinion on grounds which he very fully discussed, that the present price of guano is excessive—beyond that which the present state of the market for its several ingredients would justify. And Mr. FINNIE, of Swanstone, in an exceedingly valuable paper which was also read to the meeting, pointed out the practical results to which the present state of things will lead—(1), the pressure which will be brought to bear on Government, which will ensure a thorough examination of what may be called the guano zone—(2), the greater economy which will probably be exhibited in the management of home manures, and of home sources of ammonia and phosphoric acid—and (3), a stoppage of that wasteful use of guano with which Mr. FINNIE charged himself and other Scottish farmers, and which often employed seven or eight cwts. to do the work of three.

To the points of the discussion upon these we shall refer again.

THE farmer will soon be preparing himself for the campaign against his mortal enemies, the WEEDS of the year of grace—'57. Ever since agriculture has taken possession of the land a deadly war has been maintained not only against the natural denizens of the soil, but also against many foreign invaders. It would indeed appear that some species of weeds, such as Nettles, Henbane, Burdock, Sow-thistles, Docks, &c., track agriculture wherever it extends its dominion. Cultivation actually introduces a large number of species in its train, and those, too, of a kind which for the most part are highly prolific. To what extent this is true may be gathered from the following species observed in one day in the month of July on some cleared ground in a new settlement in the neighbourhood of Saratoga Springs, N.Y.:—

LIST OF INTRODUCED PLANTS—SARATOGA.

Botanical names.	Popular Names.	Remarks.
Cnicus arvensis	Corn plume Thistle ...	Canada Thistle of the Americans, very common in the States.
Carduus lanceolatus ...	Lance-leaved Thistle ...	Fields and road sides (Beck).
Chrysanthemum leucanthemum...	White Ox-eye Daisy ...	Fields in the States are often white with this plant.
Leontodon Taraxacum ...	Dandelion	Introduced but almost everywhere naturalised (Beck).
Verbascum Thapsus ...	Hoary Mullein ...	About earth works, hedge-rows, and in arable fields.
Prunella vulgaris ..	Self Heal, ...	In agrarian districts.
Linaria vulgaris ...	Common toad-Flax. ...	Common about homesteads; the other species of the genus, as our own agrarian forms L. spuria and elatine, have also been introduced into the States.
Ranunculus acris	Upright Crawfoot ...	Abundant in the fields and road-sides.
Plantago lanceolata	Ribwort Plantain ...	In all fields and road-sides.
" *major*	Great round-leaved Plantain ...	Abundant;—perhaps only the agrarian form of P. media.
Polygonum convolvulus ...	Creeping Buckwheat ...	In hedges and among corn. Black Bindweed (Am.)
" *Hydropiper* ..	Biting Persicaria ...	Common in damp places by the roadside.
*Triticum repens**	Common Couch	A too common agrarian.
Agrostis vulgaris ...	Squitch, Florin, Bent Grass ...	The varieties of this Grass are as common about clearings as with ourselves.
" *alba* ...		
" *stolonifera* ...		

Here, then, we see that cultivation has greatly increased the list of weeds, and what is true with respect to America is equally so all over the world, and so it ever has been; and it is also true that such weeds as are more particularly agrarian not only spread as new land is taken possession of, but in many instances, notwithstanding the most strenuous efforts made to subdue them, absolutely increase in vigour of constitution, and annually get a firmer footing in the soil; and to such an extent is this the case, that farmers have too often come to the conclusion that weeds are not only an absolute necessity but a wise provision in agriculture, and hence we find SINCLAIR, in the "Hortus Gramineus Woburnensis," 4th edition, p. 323, after reviewing the wonderful powers of reproduction of the common corn Thistle (*Cnicus arvensis*), making use of the following language:—

"Now, what is the inference from the facts that Couch-grass and Thistles can by no means be extirpated? Is it not perpetual exertion, fallowing, and agricultural labour? Some may be inclined to say, 'A melancholy reflection!' But I say *no*, not at all. Providence could not have better contrived than that exertions should be perpetual, and that success should be in proportion. There is not a weed that we ought to wish out of our fields unless we remove and destroy it; because, if there were none, or very few, all fields would be clean, and no praise could light on superior modes of tillage. Some may say again, 'So much the better.'—But I say *no*. Does any man think that our various soils would have been sufficiently pulverised and worked had there been no enemies of this sort to challenge forth our labours? Sterility would have seized upon our Turnip lands, which only continued in a state to bear their relations of crops, by the necessary periodical renewals of their fertility. So might all our clays have gone to perpetual Grass, for neglect of proper tillage would have rendered them unprofitable."

We need not stop to analyse these statements, as they sufficiently contradict each other. It is no more necessary for agriculture that wild plants should hold a place in our fields than that we should keep up a stock of savages in our land in order to stimulate us to maintain the blessings of civilisation. On reviewing, therefore, the present aspect of the war with weeds, we are compelled to conclude that it is not in a satisfactory state; subjugation of these enemies is only partial, and the efforts directed against them have been but desultory and uncertain. We hear of no systematic plan of action with regard to them. Here and there may be seen farms kept so clean as that weeding is but a small item in the yearly expenditure: Couch has been banished, nor is its presence felt to be necessary in order to stimulate the intelligent farmer to "work and pulverise his land" to the extent that his crop requires, and though these instances are confessedly rare they are still sufficient to show that weeds are by no means a necessity to enforce the solution of the problem of agriculture.

With regard to other pests, real or imaginary, men have combined to ensure their subjugation. Societies for the eradication of weeds, the study of their nature and their habits, which should put into better action the machinery in use on farms, and give instructions to road surveyors as well as farmers on the subject, would be more unquestionably a public benefit than all the Farmers' Clubs which now direct so much energy and pains to the attainment of a very modified good.

* Most of the European Grasses have become naturalised in America; at least a dozen introduced species may be gathered from almost any settlement; they are, however, not added to this list, which is intended to have reference not only to those gathered at a single place, but such as may more truly be considered as weeds.

THE FOUR BROTHERS.

COMMUNICATED BY MARTIN DOYLE.

M. LAVERGNE, member of the Central Society of Agriculture in France, has sketched, under the above title, the relative positions in life of the sons of a land proprietor at whose death his estate was divided in equal shares among them according to the prevailing law and practice of that country. The case is probably an imaginary one, at least in some respects, unless we can admit the probability that the respective wives of four brothers had equal fortunes. In all the other details the circumstances are quite natural, and they are aptly illustrative of some domestic realities in our own social system.

I have taken no other liberties with the original than to increase the total amount of property—but exactly preserving the proportions in detail—in order to give it the resemblance of an ordinary estate in Great Britain or in Ireland.

"Upwards of 20 years ago the proprietor of an estate valued at 24,000*l.* died, leaving it to be divided equally among his sons, without exercising his right of giving a somewhat larger sum to the eldest. This young man by a amicable settlement with his brothers was allowed to possess three-fourths of the estate, charging it with 6000*l.* for each of two brothers, the third preferring to take his share altogether in land.

"The eldest married a lady who had 3600*l.* in money; this he applied to the part payment of two brothers, undertaking to pay 5 per cent. interest on the balance. Thus he involved himself in the difficulty of paying 420*l.* a-year interest. Now his whole income was but 540*l.*; therefore he had only clear 120*l.* a-year, but his house and demesne were of considerable value to him.

"From the respectability of his family and his position as a land proprietor he considered himself obliged to keep up appearances pretty nearly as his father had done with a much larger income, free from incumbrances. He was soon heavily in debt, and of course had not a shilling to expend on real improvements, such as draining and manuring his land. Some bad seasons brought short crops, while children were growing up around him and household expenses therefore increasing. In short, in a few years he was a ruined man, and his property came to the hammer.

"The second brother became a law student, and expended his annual income and more in pursuit of his profession, and in wasting some years in fruitless expectation of an official appointment. At length he purchased a notary's office and practice, for which he paid a large portion of his wife's fortune. The income arising from his professional labours averaged 350*l.* a-year; and he also had the interest money charged on the family estate, so that he had about 600*l.* a-year. But as he lived in an expensive town, and maintained his family in a very respectable manner, he rather lived beyond his income than within it.

"The third brother had less trouble or anxieties than either of the former ones; he quietly cultivated his farm, married a wife with the same amount of fortune which his brothers received; and this he put out at interest. His lands produced him at first 180*l.* a year; the interest of his wife's money yielded as much more, and living in the country with little expense, he was able to expend every year a considerable part of his income in draining, marling, making artificial meadows, and collecting a prime stock of cattle, so that his property is worth donble what it was 20 years ago. He has at least 700*l.* a-year of income, has brought up a large family, and lays up money every year.

"The fourth brother, as the second did, gave up his

share of the paternal estate to his eldest brother for 6000*l.* He only received, however, 2400*l.*, the remainder being a lien on the property. With the above sum and his wife's fortune he took on a long lease a large farm containing some hundreds of acres. This was in bad condition when he got possession of it; but with great energy and judgment he laid out most of his available money in improving it. His interest in this farm, with live stock, crops, and implements, would now be worth, if sold, 8000*l.* to him; his yearly profit is about 800*l.*, and be it remembered he has 180*l.* a year interest money paid out of his eldest brother's former property. Some of his children assist him in managing the complicated business of the farm, and he can save two-thirds of his income. It was supposed that he would have bought part of the family property, but he preferred remaining as a tenant farmer under moderate rent and with an abundant money capital. The different lots in life of the four brothers are often the subject of conversation in their native place, and most people think that the third brother, though not the richest, is in the most favourable position, because he has not run any risks; whereas the fourth brother undertook to pay a large rent on a tract of land originally unproductive. The result, however, has shown what skill, economy, and industry can effect for the tenant farmer. The great surprise is among his neighbours that a man so comparatively rich does not aspire to be a proprietor of land instead of being the mere cultivator of it. But on the other hand they see the danger of possessing the ownership of much land if overcharged, as in the instance of the elder brother—who had no capital—whom they once thought the most enviable of the family. The extent of property in his case was but a short-lived semblance of social importance."

MEMORANDA FOR THE AGRICULTURAL STUDENT.

II.—ON LAND DRAINAGE.

Read Mr. Parkes' essays in the Journal of the English Agricultural Society—Mr. Girdwood's essay in Blackie's Cyclopædia of Agriculture—Mr. Henry Stephens on Land Drainage in the Book of the Farm—Mr. Bailey Denton's pamphlet on Land Drainage, published by Ridgeway.

Food enters plants chiefly as dissolved in water. The relations of water to the plant and to the soil are therefore of the first importance. Water is a powerful solvent, extracting soluble matters from the air and from the soil through which it passes. The air in rain-water contains one half more oxygen, and three to six times more carbonic acid than the air of the atmosphere. Rain-water also contains nitric acid and ammonia—not so much however as had been supposed before Mr. Way's analyses of the contents of the Rothamsted rain-gauges.

Mr. Way found that the rain falling on an acre in Hertfordshire during several the months of 1855 contained the following quantities of nitric acid and ammonia:—

	Gallons of rain water per acre.	Nitric acid.	Ammonia.	Total Nitrogen.
		Grains.	Grains.	Grains.
January	13,523	230	1244	1084
February	22,473	944	2337	2167
March	52,484	1102	4513	3995
April	9281	325	1141	1024
May	52,575	1840	4206	3939
June	41,295	3303	5574	5447
July	157,713	2680	9620	8615
August	59,622	3577	4769	4870
September	34,875	732	3313	2917
October	124,466	4480	7592	7414
November	55,950	1007	3021	2949
December	39,175	661	2436	2180
Total	663,332	2.98 lbs.	7.11 lbs.	6.03 lbs.

There were thus about 3 lbs. of nitric acid and 7 lbs. of ammonia, containing altogether 6 lbs. of nitrogen in the year's rainfall per acre.

The contents of rain water, its solvent powers exerted on the mineral and other matters useful as food for plants in the soil, and its relations to temperature are the three points on which its fertilising influences depend.

Water gets into land in three ways: 1st, as rain falling on the surface; 2d, as spring water; 3d, by capillary attraction exerted on a wet subsoil.

Water leaves the land in three ways: 1st, by running off its surface; 2d, by evaporating from its surface; 3d, by percolating through its substance. In the first case it is wholly inoperative except in so far as it does mischief by carrying off the finer surface particles of the soil either in solution or otherwise. (The case of a water meadow is not inconsistent with this assertion.) In the second case it carries off, in great measure to waste, matters capable of evaporation, and useful as food for plants, which it holds in solution; but the most considerable result of evaporation is the loss of heat consequent upon it. As much heat as the burning of 2 or 3 ounces of coal could produce is lost by the evaporation of 1 lb. of water.—Dalton's gauge indicated an annual evaporation of 24 inches out of 33 inches of an annual rainfall. Dickenson's gauge indicated an evaporation of 15 out of 26. Mr. Milne Home's results on the subject indicated a still smaller quantity of the annual rainfall as leaving the land by percolation through it.—During this, the third way in which water leaves the soil, it introduces into the land the temperature of the air, it introduces atmospheric elements into the soil, it dissolves food out of the land and carries it to the roots of plants: it also carries some of this food to waste into the drain. On this last point the following figures give Mr. Way's results:—

SAMPLES OF DRAINAGE WATER.

Mr. Pain's fertile field. Grains per gallon.		Mr. Acland's poor clay. Grains per gallon.	
Ammonia.	Nitric Acid.	Ammonia.	Nitric Acid.
(1) ... .018	7.17	(1) ... ·003	4.78
(2) ... .018	14.72	(2) ... trace	2.99
(3) ... .018	12.72	(3) ... ·012	.628
(4) ... .012	1.95	(4) ... ·012	.12
(5) ... .018	3.45	(5) ... trace	.485
(6) ... .018	8.05		
(7) ... .006	11.45		
(8) ... .018	3.91		

Mr. Acland's case is the one representing ordinary experience. There is less ammonia though a great deal more nitric acid carried away in drainage water than is brought in rain water. And the mischievous influences which in this way might have been anticipated from the percolation of rain water through the soil are for the most part checked by those absorptive properties of the soil which Mr. Way has investigated.

The principal practical benefit derived from drainage is the easier and cheaper cultivation of which drained land is capable. The greater fertility of such land is in a measure due to the whole substance of it, its whole internal surface being brought under the influence of air and rain-water.

The object of drainage then is to induce the percolation of rain-water through the soil. To this end conduits are laid under ground at such a depth and at such intervals as experience finds sufficient. And the points connected with the practice to be considered are (1), the depth as limited by the outfall, as desirable in the interests of fertility, and as necessary owing to the constitution of the soil; (2), the frequency and capacity of the drain to correspond with the rain-fall and with the character of the soil; (3), the arrangement of the drains uniform to correspond with the uniformity of the supply in rain, or irregular to correspond with the subsequent irregular distribution of the rain-water throughout the soil.

(1). As to depth—its principal limit is cost—it is desirable on the ground of the greater depth of material being thus fertilised and made useful to the plant. Drains 2 and 3 and 4 feet deep may, other things being equal, cost 3*l.*, and 4*l.*, and 5*l.* per acre—but there are thus brought into use 18, 30, and 42 hundred tons of earth per acre, which is after the rate of 600, 700, and 800 tons for every pound of expenditure—so that the deeper costlier drain may be the cheaper in the end. But depth is regulated to some extent by the capillary attraction of the soil upon the water which it holds, a considerable height of column to give the weight necessary to force that attraction being required.

(2). The frequency of drains must be greater according to the greater quantity of water falling in a given time as rain, to which the climate exposes the land to be drained, and according to the difficulty of percolation which the land presents. In practice the quantity of exit provided in the least efficient drainage is sufficient for the removal of the largest probable rain-fall. The size of the pipe is determined by other considerations than the quantity of water they have to deliver—a larger pipe is rendered desirable by the fact that when a smaller one is used a very slight displacement breaks the continuity of the pipe.

The following is the annual rain fall of Great Britain:

	Yearly.		Spring Months.		Summer Months.		Autumn Months.		Winter Months.	
	Rain fall. Inches.	Rainy days. No.	Rain fall. Inches.	Rainy days. No.	Rain fall. Inches.	Rainy days. No.	Rain fall. Inches.	Rainy days. No.	Rain fall. Inches.	Rainy days. No.
Cornwall ...	38.13	146	7.07	33	7.87	27	11.00	35	12.19	51
Gloucester ...	30.2	159	7.52	37	7.83	40	8.99	42	7.78	38
Lancashire ...	34.11	...	6.19	...	9.78	...	10.80	...	7.28	...
Bute	38.50	157	7.21	...	8.45	...	12.59	...	10.37	...
Suffolk ...	23.27	149	4.95	27	5.80	38	6.75	43	5.77	41
Middlesex ...	24.80	178	4.81	43	6.67	44	7.43	43	5.86	48
Nottingham ...	25.88	177	6.87	48	5.90	37	6.41	37	5.90	55
Fife	30.02	135	6.40	32	9.31	37	9.61	35	5.00	31
Perth	24.56	147	4.32	30	5.15	38	8.94	44	5.05	35

The interval between drains is to be determined by the rain fall and the capability of percolation. The depth of drains should be allowed very little influence on the interval. The direction of drains should be right down the slope, simply because when once the water gets into them, the shortest way out of the field is the best.

(3). The arrangement of the drains at varying intervals is necessary sometimes, to suit the varying distribution by which rain-water is accumulated in certain spots, so that springs and swamps are produced. The Keythorpe system is but a modified case of spring drainage—tapping stores and reservoirs of water within the soil, rather than providing a uniform exit from the uniform downfall of the rain. Elkington's drainage was founded on a more direct attention to those exit holes of subsoil reservoirs of water which, when left to their natural operation, swamped whole fields, whereas the artificial exit which he provided removed the water before it rose into the soil.

Home Correspondence.

Artificial Manures.—One of your correspondents suggests the value of the experience of individuals with different artificial manures, and agreeing strongly with the suggestion I beg to send you the result of my slight experience with one or two of them. Last spring a friend praised very highly the effects of Odams' nitro-phosphate or blood manure upon his corn crops. Wishing to try its effect upon Grass land I obtained 2 cwts. adapted for corn (it is made for corn and Turnips, the corn manure containing most blood, and was recommended by the agent for Grass), and it was sown in April upon half an acre of upland meadow. Rain soon followed, but it certainly had no good effect upon the Grass; if anything, it was detrimental, and when the hay was cut it certainly was not better on the half acre than on the adjoining parts of the meadow, nor was the after Grass in the slightest degree improved. This meadow has been mowed every year for many years; it is usually dressed with farm-yard manure, but for the last two or three years previous to this it had no manure except the half acre I have mentioned. The soil I should call a gravelly loam; a rotten quarry is underneath it. I have also several times dressed a small patch of Grass land on similar soil with superphospate of lime, but never obtained a beneficial result.—With regard to draining land I cannot help thinking that the nature of the land and the source of the water ought to govern the depth of the drains. We have in Wales frequently the coal worked out completely under a field, but the colliery very seldom drains the field. I have a field, the coal under which has been lately worked, and the field—a very wet one—is quite as wet now as it was before the coal was excavated from under it. *D. S.*

Deodorisers and Disinfectants.—These terms have of late years been rendered "familiar as household words," chiefly to those who are concerned in, or suffer from, the offence created by the sewage drainage of towns. Croydon could testify to the veracity of this assertion made by the writer, who, at the commencement of the work, had every opportunity to witness the processes soon brought into active operation. But now to quit a subject which involves so much difficulty and great expenses, bearing as it does upon the pollution of rivers and streams, I come at once to the great fact that Nature has provided a complete deodoriser that does and will meet every emergency, by destroying foul matters, and rendering them perfectly innocuous. The ground or earth is that agent; for it can be safely asserted that in every case where loosened soil is made to bury any offensive and putrifying substance there decomposition is at once checked. Let us now examine the basis upon which the fact rests. It is within the experience of most observant cultivators of farm or gardens that foul and putrifying liquid manures—such as old cow-wash, and the drainage of dunghills, if made to pass through a quantity of mould—are found to be deodorised, and deprived of colour or taint. The writer acquired his first knowledge of this truth by having found a quantity of green and fetid liquor in a garden pan; a plant in a pot was near at hand, and without any particular object he poured the water over the earth in the pot. It gradually penetrated and passed through the soil, and was at once seen to be entirely deprived of smell or colour. *J. T.*

Paring Ploughs—In reply to a "Wiltshire Farmer" in yours of 31st ult., as far as I am concerned I have but little to say. I had written a detailed account of the whole affair, intending it for publication; but the above person's letter appearing, I shall for the present at least withhold it. I beg leave here to thank my Wiltshire friend for his kind offer, but ere long I hope to send forth a parer such as he seems to wish for more to his satisfaction. Respecting the one made patent, I consider that any person desirous of so doing may safely manufacture it—as I would voluntarily come forward with sufficient proof that the implement was regularly used here previous to its being patented—on exactly the same principle as described in the published account of the invention. And I only felt annoyed because the invention was made patent before I had an opportunity of bringing it to the perfection I intended. *William Woofe, Weston Birt, near Tetbury.*

Mangel Wurzel.—Having frequently seen Mangel Wurzel in the fields very much mixed, I had always considered it to be owing to the carelessness of the parties who grew the seed. Having tried some samples this month, to test their growing properties, I was surprised to find that amongst some Red Globe some of the seeds produced both yellow and red Mangels from the same seed. Thinking I was mistaken the seed was tried again, and each one placed wide apart in a shallow pan, and the result is that several have vegetated in the same way, viz., with red and yellow from the same seed, one of which I enclose with this, as I am not aware of this having been noticed before. *W. H.*

Breeding of Rabbits.—As Mr. Wooler justly observes at page 76, if prizes were offered at the agricultural shows for the best breed of rabbits it would be a great encouragement to boys, and teach them to be kind and thoughtful to the wants of animals, and with a few hutches divided into stalls, a model feeding yard might be formed and carried out systematically. The number of breeding does should be fixed by the convenience; two does with two breeds each early in spring would keep up a good supply for stall-feeding in the following winter, and would form a nice delicacy for the table. These would be very fine by autumn, and might be fed for the table or the market or be kept over for showing. I commenced rabbit breeding at the age of six years, and must confess that I had more pleasure in marketing my stock and pocketing the money than feeding for the table; nor do I remember giving consent for more than two to be killed for our own eating. The weight of one was 8¼ lbs.; the other was equally fine but not weighed, and the flesh might have been taken for turkey. I con-

tinued breeding for many years, when other employment compelled me to give it up until February 1856, when I engaged with a gentleman to breed not less than 150 rabbits by the end of July in the same year. On the 5th of February I bought my first two does, and I increased my stock until I had ten does in full breeding, and by the end of July I had 270 fine and healthy, when I gave over for the season. Few boys would be able to carry rabbit breeding to such an extent; but there can be no doubt that those rabbits would have left a great profit at 4*d.* per pound. The breed was a mixture between the Angola and the common tame rabbit, consequently they were large; on one occasion I killed one three months old, which weighed 5 lbs., and the flesh beautifully white. The buck was a year old when I bought it; it was weighed alive several times in the summer of 1856 to gratify curiosity, but the weight varied—at one time it reached 11 lbs. This rabbit is still alive, but not in my keeping. The whole of this stock was turned out on a square plot of Grass about 40 yards in width, but divided into two plots with wire for a change every six days; this was necessary to prevent disease. Every kind of food was tried to keep them healthy on so small a space, and the effect was most satisfactory. *Thorp Perrow.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *Feb.* 18.—Mr. MILES, M.P., Vice-President, in the chair.

Communications were laid before the Council from the Rev. Thomas Cator, on the stoppage of drains by fibrous substances; from the Rev. G. F. Holcombe, on the combination of muscular power with the weight of the animal body constantly changing its centre of gravity, applied to the working of Turnip-cutters and other small machines usually kept in motion by the muscular power of the arms only; from Mr. Charles Poppy, communications on the subject of the cultivation of Millet as a stall-feeding and stover crop; from the Earl of Clarendon, a despatch from Mr. Vines, English Consul at Pará, in Brazil, on the probability of large deposits of guano along the Atlantic coast of South America, and in its bights, and on the actual existence of abundance of saltpetre on both sides the Cordilleras; as well as the occurrence in the district of Hullaga, not only of crystalline beds of common salt, covering an area of 4000 square miles, but a positive mountain, on the Tiraca, 70 miles N.E. of Tarrapoló, in Peru, of the same salt, only slightly mingled with gypsum—the water communication between these localities and the ports of Pará or Macapá being uninterrupted; from Mr. Long on the value of sugar-scum as a manure; from Mr. Breach and Mr. Perry, suggestions for the construction of steam-ploughing apparatus; and from Mr. Grimstone, of Highgate, a supply of his Egyptian Peas.

These communications having been received with the usual acknowledgments, discussions ensued on topics having reference to them as well as to the following points:—

1. On the best mode of applying liquid manure for green crops.
2. On the action and effects of Chandler's water-drill.
3. On the advantages of following that drill by the roller and presser.
4. On the care required in not exceeding the proper amount of guano with the water drill; and the advantage of a full supply of the superphosphate.
5. On the economy of applying manure to the crop, and not diffusely to the soil; and the question whether in the case of the water-drill, the manure was not applied too widely to the land, instead of especially to the crop.
6. On the return to many of the older systems of manuring, as in the case of bones.
7. On the best means of facilitating the draught of drills over the land.
8. On the Locust Bean, and the peculiar combination of elements which renders it a fattening food for cattle.
9. On the Norwich Rice-cake.

These discussions led to the communication of much personal experience on their practical bearing from Mr. Miles, M.P., Mr. Dent, M.P., Lord Camoys, Professor Way, Mr. Scott, Rev. L. Vernon Harcout, and Professor Simonds.

Mr. Miles took that opportunity of referring to the late Mr. Pusey's experiments four years ago on the advantages of Chandler's Water-Drill, made by Reeves, of Westbury. He had compared its effects with that of the dust-drill, and found that with 6 cwt. of superphosphate per acre in each case the water-drill produced 13½ tons of Turnips, while the dust-drill only produced 6½ tons. Mr. Pusey had deduced the following general results from his experiments:—

1. After some years' experience of these two drills, he determined to abandon the use of the dust-drill in flat drilling, and to use the water-drill only.
2. By means of the water-drill, it was an advantage that the operation may at once proceed in dry weather.
3. That the manure, by its use, was better diffused in the soil for each rootlet to feed upon.
4. That the expense of about 4*s.* per acre for ashes required by the dry drill was saved by using the water-drill.
5. That the water-drill required much less labour of horses and men; especially as by means of gutta-percha pumps the boys who drive can fill the water-carts also.
6. Generally, that where water is at command within a reasonable distance, the water-drill should supersede the dust-drill altogether in flat-work for Turnips, such as is used in the south of England.

Mr. Miles having seen these experiments during their progress could fully bear testimony to the value of Chandler's Water-Drill, as ascertained by Mr. Pusey and others, both in reference to the action of the superphosphate and other manures. Mr. Miles added, that there never was a time when farmers were in greater want than at the present moment of what might be termed *auxiliary* manures.

The Council adjourned to Wednesday the 18th of February, at 12 o'clock.

HIGHLAND AND AGRICULTURAL.—*The Agriculture of Canada and the United States.*—Mr. Russell of Kilwhiss gave a lecture on this subject recently before the members of the Highland Society, from which, as reported in the *North British Agriculturist*, we make the following extracts:—He said,

The area capable of growing autumn Wheat in America was not a large one, as the land required to be of a particular description. He had not gone far over the Wheat region of North America before he was led to suspect that the peculiarities of the American climate had a great influence in modifying the ideas which were entertained respecting the qualities of land best suited for Wheat. They had heard of the valley of the Genessee being a fine Wheat region, and so it really was. But a very large portion of Genesse soils would not be envied by any of them. Its surface was undulating, and was covered with sands, gravels, and boulder clay. Yet the limestone gravels in the Genessee district were so genial to the growth of Wheat and Red Clover, that these two crops were grown alternately. No doubt the productive qualities of the American light lands for the growth of Wheat were owing to their remarkable adaptation for bearing Clover, but it soon became evident to him that Wheat could be much easier raised on secondary land in America than in Scotland. The best Wheat lands in America were of a sandy or gravelly nature. Wheat was apt to grow too rank and luxuriant on rich soils, which were invariably planted with Indian corn. The very fact of Wheat growing too luxuriant on rich soils was of itself sufficient to demonstrate that it could be easier raised upon secondary soils than with us. If they would just consider for a moment the peculiarities of the climate of Scotland and of America, the explanation of the phenomena was not difficult. The American farmers sowed their Wheat in the light lands very early in autumn, and before the frosts set in the plants were thickly matted over the ground. Scotch farmers, on the other hand, looked upon Wheat that was thick and forward in autumn on light soils as little else than ruined. They were induced to sow late for the purpose of obtaining growth in summer, because, among other reasons, it was found that all plants that were forced early forward in our cold springs required a much larger quantity of manure. But again, the American farmer fell back upon autumn growth for the production of Wheat on the same principle that we would fall back on summer and autumn growth for the production of a crop of Turnip seed. This was a fine illustration of Liebig's law that time was equivalent to manure—ammonia and carbonic acid. The winter is very cold in America, and spring can hardly be said to exist. Vegetation is completely held in check till May, when summer bursts out at once. During the season in which the Wheat grows, the rains, according to Dr. Dwight, principally fall in thunder-showers, with a hot and moist atmosphere. Under such conditions they would easily perceive that vegetation would advance with vigour, and that less manure (ammonia) was required to give a certain number of bushels of Wheat in Canada than in Scotland. Just contrast the fervid weather of May and June in Canada with the lukewarm weather of the same months in Scotland, and they could not fail to recognise the elements that rendered the maxims of the Canadian farmer very different, with respect to raising Wheat, from our own. To show them the influence of the rapid increase of temperature on the Wheat plant, he might mention that, so far as he knew, the common varieties of winter Wheat could not be sown in spring in any part of America. When they were sown, they had no tendency to seed that year. The spring Wheat that he had seen in America was chiefly an annual variety, very similar in appearance to our April Wheat. But many of them would wonder how the land could be kept clean in the Genessee district under the rotation of Wheat and Clover without any fallow crop intervening. Nevertheless, under good management, it could be so. The Clover fields which were to be sown with Wheat in autumn were broken up by a deep furrow in June and July. By this means, the roots of the perennial weeds were subjected to the broiling heats of those months, and the surface was repeatedly scarified during the dry intervals of the weather. These operations have the effect of destroying the most of the weeds. This economical system of management pursued in the Genessee district was gradually extending throughout the Western States and Canada, wherever the soil was similar in its nature. The size of the farms in the Genessee country was usually from 190 to 300 acres. A large portion of the land was well cultivated.

LONDON.—*Management of Manures.*—We give a very condensed report of the discussion on this subject which took place a week or two ago. It was opened by Mr. Baker, of Writtle:—He said,—

Manures were produced on farms in four different ways—by adopting the old principle of open farmyards, surrounded by sheds or buildings; by covered farmyards, where the entire surface was covered over, and the water prevented from falling upon the manure; by stall-feeding; and, lastly, by box-feeding. Under the first, the great difficulty was the large amount of water which at certain periods of the year fell upon the manure. The second method had not been introduced very largely on account of expense. There could be no doubt that if covered homestalls were erected at the landlord's expense, he would receive back on his farm during a single lease the entire cost of construction. He now came to box-feeding. Under this system boxes of certain dimensions (say 10 feet square) were provided, and the animals were placed in them; floors were sunk 2 to 3 feet below the level, and by means of raising the trough in which the animal fed a large quantity of manure was produced in a highly concentrated state. Stall-feeding was resorted to in the fattening of first-class cattle, and consequently the manure which was produced by such a process was of a highly concentrated character. Now, if that were removed from the cattle day by day, as was frequently the case, it instantly entered into fermentation, and much of its valuable properties was lost. Wherever, therefore, cattle were fed in stalls, it was necessary to cart the manure and spread it evenly over the surface, so that there would be a regular admixture of the best with the inferior portion. Too much care could not be bestowed on the spreading. If it were shot down in heaps very much injury would arise to the manure itself, as would be seen in the subsequent crop. He had now to consider the quality of good farm-yard manure which was produced by the various methods in use. He found, on investigation, that a cow feeding on 100 lbs. of Grass gave 71 lbs. of solid and liquid deposit. An ox would produce 1¼ cwt. while feeding on Turnips and Mangel Wurzel, and would require from 24 to 28 lbs. of straw daily; in all, about 150 lbs. of solid and liquid manure would be produced by an ox daily. This was in winter. An ox, if kept feeding continually on Turnips, corn, and hay, in the ordinary mode, would produce, in the seven months of winter, about 12 tons of manure; and, if foddered in summer, about 7 tons more. Thus it would altogether produce about 19 tons in the yard. In box-feeding an ox would consume about 21 lbs. of straw daily, upon a hundred feet range. In four months a single ox of average weight, say from 80 to 90 stone of 8 lbs. each, would produce about 11 cubic yards of manure; the production would be 33 cubic yards if it were constantly kept in a box for the whole year. A well-fed horse would give 9½ tons of solid and liquid manure per annum, and would require 2¼ tons of straw; altogether it would make in a stable 12 tons of manure per annum. The difference in quantity of manure as between the horse and the ox was not much; the difference in quality was very great. As, however, much manure was necessarily wasted when a horse was in the field, they of course could not assume as much to be made as if he were constantly under cover and foddered. He now came to the question how much manure 100 acres of good arable land might be made to produce in a year. If they assumed that the farm would produce 4 qrs. of Wheat per acre, 6 qrs. of Barley, 7 or 8 qrs. of Oats, and 3 or 4 qrs. of Peas and Beans, they would then tell how much manure it ought to yield. He maintained that it would produce sufficient manure in four years to manure it over once, at the rate of 16 tons per acre; though if it were manured by two operations instead of one, the benefit derived would be much greater. For every acre there would be 16 tons of manure made off the farm, if it were well managed. This quantity he held to be quite enough to keep the farm in a good state of cultivation; but if, in addition, some guano were imported on the farm for the production of roots, cultivation would be carried on more beneficially. He came now to sheep manure; he held that the field was the proper place for sheep. Sheep never appeared so comfortable in a yard as in the field; and recourse to the former was attended with this disadvantage, that a less quantity of manure was made by 100 sheep in a yard than the same number in a field. Now, having directed attention to the production of manure, he would allude to the management of it. However disposed farmers might be to proceed scientifically, they were generally governed by other considerations, and especially by the state of the weather. Manure could only be carted to the land when little injury would be done in the process; and, as was sometimes the case, it was carted in a wet autumn, the injury thus caused outweighed any benefit which the farmer could reasonably expect. It followed from what he had said that if manure were left in a concentrated state, free from the action of air so as to prevent fermentation, a larger amount of its constituent properties would be retained than under an opposite system. If there were an excavation 3 or 4 feet deep, and from 12 to 16 feet wide, manure shot into that excavation, and well consolidated there, would not enter into a state of fermentation, and consequently all the constituent properties of the manure would be retained until it was applied to the land. In like manner a shady position was preferable to one where the manure would be exposed to the action of sun and air. In whatever way the thing was done, the manure should be consolidated as much as possible, the sides and ends trimmed off cleanly, and the surface covered with about a foot of earth, and well beaten down so as to render any escape of gas impossible. Many practical farmers maintained, as he had before intimated, that the best manure for Turnips was decomposed manure. He granted that such was the case; but, then, it was produced at a considerable loss. If it must be applied in that state, the question was how the decomposition might be best effected. Shortly before conveying it to the field, say 12 or 14 days, they should turn over the heap, when it would of course enter into active fermentation; they should then cover it with earth or some substance to prevent the escape of ammonia; and in that state of fermentation when, as it was said, it would neither dig nor fork, it was in the best condition for being applied to the land. The management should be such, that as fast as the manure was carted out it was ploughed in; as fast as the ploughing was performed the seed was deposited, and if the process was carried out uniformly, there would no doubt be a good crop of plants. There was another system which was practised throughout the whole of the corn growing districts of the kingdom; he referred to the system of top-dressing. In his own experience he had never found manures act so beneficially as when they were applied to Clovers in the autumn. The application of manure to root crops deserved attention. They frequently found that for the production of a crop of Mangel Wurzel 20 loads per acre of the best manure the farm would produce were applied. Twenty loads carted and spread could not be estimated at less than 6*l.* per acre. Such was the power of this root that to whatever extent it might be manured it extracted most of the constituent properties of the manure. Since the introduction of guano, however, and other artificial manures, a very large proportion of this consumption has been saved to the farmer. By applying 3 cwt. of guano at a cost say of 40*s.* per acre, and adding a little salt, an excellent crop of Mangel Wurzel could be secured. Now, as regarded the application of guano, it had been shown that the direct application of it for grain crops ought never to exceed 2 cwt. per acre. It had also been ascertained that it should be applied partly in April and partly at the latter end of May, when the land was in a moist state. In the case of Turnips, it should be applied not at the ploughing for the Turnip crop, but at the previous ploughing. On being sown it should be turned in with a shallow furrow, and rolled down, and it should then remain until the season arrived for sowing the Turnips. Under that mode of proceeding no portion of its fertilising powers would be lost. He had for many years used from 1000 to 2000 bushels of soot per annum. In some years the effects which it produced were exceedingly good, while in others they were scarcely visible: the difference arose from its being applied in the one case in dry weather, and in the other in moist weather. Another useful manuring substance was salt. If salt were always sprinkled on manure heaps as they were carted out, the benefit would be distinctly visible in the subsequent crops. Of the valuable properties of superphosphate of lime and bones he need say nothing to a meeting like that. Having thus spoken of what might be termed natural manures, he would say a word or two with regard to those manures which were strictly artificial, and in which there was now so much competition. Some of these manures were very valuable, and their utility was becoming more and more appreciated. He would recommend all present, in procuring them, not to deal with any but persons of repute, and persons whom they knew to be trustworthy. He had had samples of manure sent to him as presents by manufacturers, accompanied with a request that he would be kind enough to state his opinion as to the results. Having tried the experiment, and found the result satisfactory, he could not do otherwise than report favourably: but what was the consequence? Why, he was afterwards blamed by farmers, who said that in consequence of seeing his name appended to a certificate they had bought manure which produced no such effect as had been described. The truth was that the manure sent to him and that which was afterwards sold were totally different in quality (laughter). This showed the necessity of caution in purchasing artificial manures. There ought in all cases to be a written guarantee as to the constituent properties of the article; and then the seller could be held responsible.

Mr. Sidney said that the guano of Peru stood exactly in the same position as our coal or iron; and if we visited France, Germany, or any other manufacturing country on the Continent, we constantly heard talk of the tyrannical preponderance of Great Britain, which was as much as to say that we were able to undersell them by the production of better and cheaper articles than themselves. Just like that was the position of the guano merchant, and neither the Government nor Parliament could do anything to prevent Peru from making the best of the national riches it possessed. Whilst he said that, however, it was the business of the English agriculturist to do that which he had never yet attempted to do, namely, endeavour to find out other manures which would act as well as guano. To complain of the course adopted by the Peruvian Government, or by Messrs. Gibbs, their agents, was all "bosh." (Laughter.)

Mr. Pain (Beds) said: As to Mangel Wurzel, his practice was to cart the manure on the land in autumn, plough it in, and allow it to remain until the following spring, when, as soon as the weather was favourable, he took an opportunity of working the surface of the soil, having first applied 2 or 3 cwts. of guano to it per acre. The guano being thus worked in, he next rolled the soil, and proceeded immediately to

put in the seed; and hitherto by the adoption of this practice, he had succeeded very well. The more solid the ground could be made for Mangel Wurzel the better; for with artificial manure the land required to be in that condition to keep the crop growing and bring it to maturity. In the management of the Turnip crop he always deferred carting his manure until late in the spring, in order to prevent the escape of ammonia; and, instead of covering his dunghills with earth, as was Mr. Baker's method, he generally covered them with about 4 or 6 inches of salt, which effectually accomplished that object. In this state he allowed the heaps to remain until within a week or 10 days of the time when he required to use them. He then turned them over, and put in the manure for his Turnip crop. On all farms the manure was drawn out at a given period, and he had invariably found that, if it were carted in heaps, and the carts drawn over them for the purpose of making them as solid as possible, with a good layer of salt, there was no fear of the ammonia being lost.

Mr. Purser said that the chief demand for guano prevailed from January to the end of March. For the Turnip crop they would of course resort to phosphates and other manures, containing nitrates of equal effect with guano; but a substitute for the present emergency was what they had chiefly to look to now, and his own practice had shown him that there was nothing equal to sulphate of ammonia, mixed with superphosphate and salt, as a top-dressing for Wheat. For the Barley crop there was no top-dressing equal to guano; at all events, that was the result of his own experience; and for Oats he should imagine that nitrate of soda as a top-dressing would be beneficial.

Mr. Kemp (Lincolnshire) had for years adopted the system of carting all his farmyard manure fresh out of the yard and using it new on his seeds, by which means he got a much better crop, whether for grazing or mowing. He maintained that they ought not to use farmyard manure for the Turnip crop. He had not done so for years, having found it to be more beneficial for his seeds. His artificial manures he always applied in a liquid state. Mr. Baker had intimated that they might as well sow their money as their guano during the dry windy month of March. He remembered once travelling through Yorkshire, and seeing five or six waggons laden with soot, standing in a field. Inquiring what they did there, he was told they were "waiting for rain," the weather at the time being very dry. But had that manure been applied to the Wheat or Barley in a liquid state, which was by far the best and most economical method of doing it, there would have been no occasion whatever to "wait for rain," and the benefit would have been seen at once. All artificial manures, whether for Turnips or top-dressing for corn, ought to be applied in a liquid state. At one time he was at an utter loss to know how to apply liquids to the land; but, as soon as Chandler's liquid manure drill made its appearance, he got over the difficulty at once. He had since constructed a large tank near his house, into which everything in the shape of soapsuds, dish washings, &c., was made to pass; and the deposits in that tank were worth at least 20*l.* a-year to him, whereas they formerly all flowed into the river. Let them turn their attention, then, to the use of liquid manure and sewage matter, and he was as certain as that he was standing there that they would no longer have need for guano.—The Chairman had heard for many years about the deterioration of manures by the escape of ammonia, but his experience taught him to regard it as a myth; and he was glad to have that opinion confirmed by an able article published in the last number of the Journal of the Royal Agricultural Society, and which emanated from the pen of Dr. Voelcker, Professor of Chemistry at the College at Cirencester. He believed that manure was never so advantageously applied as on the surface; and that, so far from deteriorating or losing anything by exposure to the atmosphere, it caused more benefit to the upper soil, where it was desirable that its effects should be made most apparent.

The following resolution was agreed to:—"That the judicious management of farmyard and artificial manures is to preserve their various constituent properties from waste by fermentation or exposure to atmospheric action, and that their qualities are more fully secured by assimilating them with the soil as speedily as possible."

Calendar of Operations.

FEBRUARY.

WESTER ROSS, *Feb.* 10.—After a protracted season, peculiarly variable, we have been favoured with a few days of fine, open weather, in which the ploughs have been again at work turning over the remainder of the green crop lot where it was not previously completed, and breaking up the leas for Oats. The coming season must be a busy one, for much work lies before us. Because of the lateness of the harvest and the wetness of the land the usual breadth of autumn Wheat was not got sown; so, although the quantity sown will be less than last year, there still remains a good deal to be laid down. The autumn sown Wheat appears thickly planted, and is quite far enough advanced at this early period. Our Wheat of last year's growth is giving little satisfaction to any party; farmers, millers, bakers, and consumers, are alike loud in their complaints, and not without reason. We are inclined to conclude that from the protracted exposure to wet in harvest there was an incipient vegetation, although the growth was scarcely perceptible to the eye, which makes our flour so inferior, and our bread so unpalateable; for even those samples which weigh from 61 to 62 lbs. per bushel, and in which little or no sprout can be detected, but which were exposed to the wet, yield very inferior flour to that to which we have been accustomed. We cannot have good bread this year without being indebted to our friends abroad for a large admixture of flour from their better harvested grain. If this be the character of our finer Wheats, and better samples, what is to be said of our inferior kinds? For these there has been very little demand, and those who have been fortunate enough to have a chance of selling have been necessitated to accept a very low price. Much of it indeed is unsaleable as grain, and will be ground into meal, and disposed of at a figure unremunerating enough. Farmers who were exposing for sale samples of black Wheat which should have been red, are taking comfort from the fact that many others are in a similar predicament. It is somewhat unfortunate that the advance in the price of guano should have taken place when the price of Wheat is so low; but ill as we can afford to buy it at such a price, we can still worse afford to do without it or a substitute, and should a substitute be adopted it would be well to be fully satisfied that it was worth the money.

Notices to Correspondents.

BUILDINGS: *C.* Apply to the Secretary of the Land Improvemen Company, 52, Parliament Street. We think their powers wil meet your case. As to Sainfoin you had better resow your seed. This will be more likely to answer than transplanting. You might lightly cultivate or heavily harrow it before sowing, which should be done when the land is moist.

HOP CULTURE: *Ten Years' Subscriber.* A full account is given by Mr. Paine, in Blackie's Cyclopedia of Agriculture. The process of establishing a new Hop ground consists in deep and thorough tillage and heavy manuring during the previous year, bedding cut layers or shoots of the previous year's crop in March, which at Michaelmas become "nursery sets," three of which are to be planted then in "hills" 6 or 7 feet apart every way. The detail of the process is too long for description here. The whole article is well worth reading and studying.

MEADOWS: *Inquirer.* We do not suppose that superphosphate will have anything like the effect of guano on your meadows. If you use it add 1 cwt. of nitrate of soda to 2 cwt. of it per acre.

WATFORD BAKER: *M H.* You will find that your question was answered the same week that it was received. The Post Office will find the address of the missing Baker for you.

ROBERT PARKER begs to offer the following, of which he possesses a large stock, in strong and healthy plants:—

	s.	d.
Araucaria excelsa (Norfolk Island Pine), each ...	21	0
Azalea indica of sorts, from per doz.	18	0
Camellias of sorts, from per doz.	24	0
Cyclamen Atkinsi, flowering bulbs, each... 3*s.* 6*d.* to	5	0
Delphinium formosum, the finest variety ever offered, per doz.	18	0
Epacrises of sorts, from per doz....	18	0
Ericas of sorts, from per doz.	12	0
Ferns, hardy, from per doz.	9	0
„ stove and greenhouse, from per doz.	18	0
Gymnogramma peruviana argyrophylla	21	0
Gynerium argenteum (Pampas Grass), per doz. ...	18	0
Orchids, Exotic, from per doz.	42	0
Selaginella, of sorts, from per doz.	18	0

A Priced and Descriptive Catalogue of Plants is published also of Hyacinths and other Bulbous Roots, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway. N., London.

R. M. STARK begs to intimate that his LIST OF GARDEN AND FLOWER SEEDS for the season is now ready. Besides securing a supply of all the old varieties from the purest stocks, he has added every novelty likely to be useful. He would particularly recommend the following new Flower Seeds, most of which he had an opportunity of seeing last season in flower:—

	Per packet—s.	d.
Acroclinium roseum, a fine large rose-coloured Everlasting, in the way of Rhodanthe	1	0
Bidens ferulæfolia, fine foliage	0	6
Collinsia bicolor flore albo	0	6
„ multicolor marmorata	1	0
Cucumis perennis, a new Perennial Gourd	1	0
Cosmidium Burridgeanum	1	0
Gypsophila muralis	0	6
Lupinus Hartwegi flore albo	1	6
Nemesia versicolor compacta	1	0
Obeliscaria pulcherrima, allied to Rudbeckia, colour of flower resembling a striped French Marigold	1	0
Polycolymna Stuarti, fine large white Everlasting ...	1	0
Veronica Syriaca, fine new annual species, with gentian-blue and white flowers, for bedding...	2	6

German Flower Seeds of the most approved sorts, mixed or in collections.—145, Princes Street, Edinburgh.

ESTABLISHED ABOUT HALF A CENTURY.

BASS AND BROWN'S

NEW SEED CATALOGUE (26th Annual Edition),

Contains the finest Vegetables in cultivation, carefully grown by them from pure and well selected stocks.

It having been the custom in our establishment for 30 years past to test the comparative merits of Vegetables, our own practical knowledge of this branch of our business enables us to give our attention to the growing of such only as we have proved to be of real merit. The number of varieties of recent introduction having now swelled the lists of names offered by the trade to a very large extent, our endeavour has been annually to prune away certain varieties from our Catalogue for the introduction of the newer and improved of each class, reserving however those of the best older sorts.

VEGETABLE SEEDS.

ASSORTED COLLECTIONS OF FIRST-RATE QUALITY.

The Collection No. 1 will contain 20 quarts of Peas, 10 varieties of Broccoli, 8 of Lettuces, and all other Vegetables in equal proportions. For List of Collections Nos. 1, 2, and 3, see Catalogue. If any not required, enlarged quantities of others sent to make up the amount.

COLLECTION No. 1, for a Large Garden	£3	0	0
COLLECTION No. 2, reduced quantities	2	0	0
COLLECTION No. 3 „	1	5	0
COLLECTION Nos. 4 and 5	15*s.* and 10*s.*		

FLOWER SEEDS—BEST ASSORTMENTS,

Including a large number of those offered separately below.

100 varieties select and new Annuals	15*s.*	0*d.*
50 vars. do., 8*s.* 6*d.*; 30 for 5*s.* 6*d.*; 20 for	4	0
20 vars. best dwarf Annuals in large packets, for filling beds, 7*s.* 6*d.*; 12 for	5	0
20 vars. choice Greenhouse Annuals, 7*s.* 6*d.*; 12 vars....	5	0
20 „ „ Perennials, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, 7*s.* 6*d.*; 12 vars.	5	0

CHOICE IMPORTED SEEDS.

The following—Collections with which we have been annually supplied—have excited general admiration, and should be grown in every garden:—

IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stocks, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do., packets 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new White Dwarf Wall-leaved, 6*d.* and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed, fine, 6*d.* and ...	1	0
6 superb vars. Perpetual Emperor, blooming two or three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do....	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	0

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue

A FEW NEW AND CHOICE FLOWER SEEDS SELECTED FROM THE CATALOGUE.

PACKETS SIXPENCE EACH—EXCEPT PRICED.

(Those marked thus* have been omitted in the Catalogue).

HARDY ANNUALS.
Calliopsis nigra nana.
* „ coronata, 4*d.*
Cosmidium filiforme.
„ Burridgeanum.
Cenia turbinata variegata.
Centaurea depressa rosea.
Centranthus macrosiphon albus.
Chenopodium atriplis.
Cochlearia acaulis.
Collinsia Bartsiæfolia alba.
„ multicolor marmorata, 1*s.*
„ bicolor albiflora.
Eutoca viscida alba striata, 1*s.*
Kaulfussia amelloides rosea.
Leptosiphon aureum.
Linum grandiflorum rubrum, 1*s.*
Lupinus Dunnetti superbus, 1*s.*
„ Hartwegi albus, 1*s.*
„ tricolor elegans (or pubescens elegans) 1*s.*

HALF HARDY ANNUALS.
Alonsoa Warcsewicsi.
Aster pæoniflora, from fine French vars., 4*d.*
„ Bishop's prize, 4*d.*
Acroclinium roseum, 1*s.*
Calceolaria chelidonioides, 4*d.*
Gutterizia gymnospermoides.

HALF HARDY ANNUALS.
Lobelia ramosus nanus.
„ „ major.
„ „ rosea.
*Lindheimeria Texana.
Nemesia bicolor, 4*d.*
„ „ compacta.
Palafoxia Texana.
Salvia Rœmeriana, 1*s.*
Tropæolum minus coccineum.
„ Schurianum striatum.

GREENHOUSE AND TENDER ANNUALS.
Balsam ex. from imported.
„ Smith's superb in sealed pkts., 8 sep. vars., 2*s.* 6*d.*
„ „ mixed, 2*s.*
Clintonia pulchella atrovidacea.
Grammanthes gentianoides.
„ lutea.
Gomphrena aurantiaca.
Ipomœa limbata.
„ violacea vera, 1*s.*
Phlox Drummondi, fine, 3*d.*
„ Leopoldi hybrid.
„ fine scarlet, 4*d.*
„ alba oculata.
Portulacca, 6 fine vars., separate, for 1*s.* 9*d.*
„ fine mixed, 4*d.*

GREENHOUSE AND TENDER ANNUALS.
Salpiglossis atrosanguinea.
„ coccinea.
„ atrococcinea, 1*s.*
„ grandiflora, new large.
*Sabbattia campestris, 1*s.* 6*d.*
Schizanthus Grahami carnea.
Thunbergia, 5 fine vars., separate, for 1*s.* 9*d.*
„ fine mixed, 4*d.*

HARDY BIENNIALS AND PERENNIALS.
Abronia umbellata.
Antirrhinum, from finest, 1*s.*
Aquilegia glandulosa (true).
Carnation, from named, 2*s.* 6*d.*
Dianthus Dunnetti superbus.
„ superbus nanus, ex.
Gladiolus, fine early.
„ choice named, 1*s.*
Hollyhock, choice named, 1*s.*
* „ ex., from 20 finest vars., [2*s.* 6*d.*
Mimulus, choice.
Obeliscaria pulcherrima, 1*s.*
Papaver medicaule aurea.
*Pentstemon, ex., saved from magniflorum, grande, Themisteri, and other finest varieties, 2*s.* 6*d.*

HARDY BIENNIALS AND PERENNIALS.
Phlox, choice mixed
Potentilla, splendid mixed, 1*s.*
„ extra from finest select varieties, 2*s.* 6*d.*
Ranunculus, very choice, 2*s.* 6*d.*
Sweet William, Burridge's new dark.

GREENHOUSE PERENNIALS.
Calceolaria, very choice, 1*s.*
„ ex. from new flowers, 2*s.* 6*d.*
Calendrinia umbellata.
Cineraria, choice, 1*s.*
„ extra from finest, 2*s.* 6*d.*
Commelina celestis variegata.
Geranium, choice, 1*s.*
„ extra from new vars. 2*s.* 6*d.*
„ finest Fancy, 1*s.* 6*d.*
Gloxinia, choice. [2*s.* 6*d.*
„ extra from superb new vars.,
Heliotropium, mixed, finest.
Lotus Jacobeus luteus.
Nycterinia selaginoides.
Petunia from new and choice, 1*s.*
Primula sinensis fimbriata, mixed, very choice, 1*s.*
Verbena, mixed choice, 1*s.*
„ from choice new, 2*s.* 6*d.*

BULBS AND ROOTS FOR SPRING PLANTING.

ACHIMENES, strong tubers, 12 beautiful varieties ...	6*s.*	0*d.*	
„ 12 do. very choice	10	6	
GESNERIA Geroldiana, 24*s.* per dozen ... ... each	2	6	
„ Zebrina, 15*s.* per dozen ... ... „	1	6	
„ Zebrina compacta ... ... „	3	6	
„ Suttoni subalba ... ... „	2	6	
„ purpurea compacta ... ... „	2	6	
(The above five varieties, fine tubers, for 10*s.*)			
GLOXINIAS, 12 choice varieties	12	0	
„ 12 extra, newer varieties	20	0	
AMARYLLIS formosissima, Jacobean Lily, per dozen	5	0	
GLORIOSA planti, each, 2*s.* 6*d.* to	3	6	
GLADIOLUS gandavensis ... ... per dozen	3	6	
„ floribundus ... ... „	2	6	
„ 8 superb varieties of gandavensis habit	12	0	
RANUNCULUS, 100 choice named varieties	30	0	
„ 50 choice do.	15	0	
„ mixed, very fine, per 100	10	0	
RANUNCULUS, mixed, extra ... ... per 100	15*s.*	0*d.*	
„ fine border mixed ... ... „	5	0	
„ Aigle Noir, dark ... ... per dozen	5	0	
„ Œil Noir, finest black ... ... „	10	0	
„ Early Turbans, per 100, Scarlet, 3*s.*; Golden, 4*s.*; Seraphique Yellow	4	0	
(100 of each of the above three sorts for 10*s.*)			
„ Hercules, large White Turban, per dozen	2	6	
ANEMONES, 50 superb named double	12	6	
„ finest large mixed do. ... per 100	6	0	
„ La Brillante Eclatante, single scarlet „	7	6	
IRIS Germanica, 40 superb varieties	45	0	
„ per dozen, 9*s.* and 12*s.*; extra... ...	20	0	
DIELYTRA spectabilis, strong sorts, 40*s.* p. 100; p. doz.	6	0	
TIGRIDIA speciosa, 1*s.* each ... ... per dozen	10	0	
„ canariensis, 1*s.* each ... ... „	10	0	
„ pavonia ... ... „	2	6	
TRITONEA aurea, 2*s.* 6*d.* each ... ... „	24	0	

CATALOGUES No. I., II., & III. FOR THE PRESENT SEASON SUPPLIED ON APPLICATION.

☞ GOODS CARRIAGE FREE (*not under* 20*s.*) *to all the London Termini; also to all Stations on the Colchester Line between London and Norwich.*

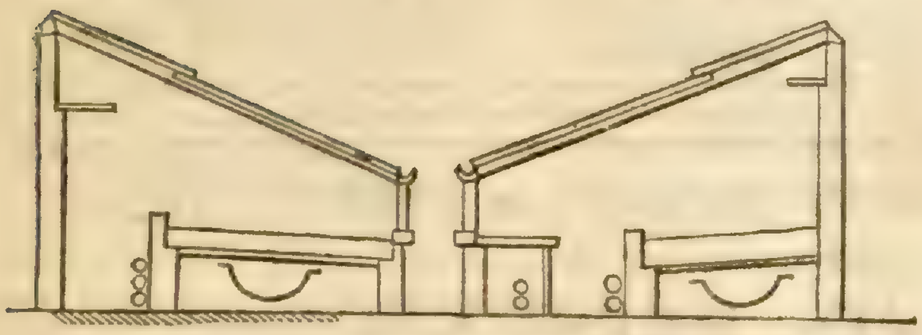
BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

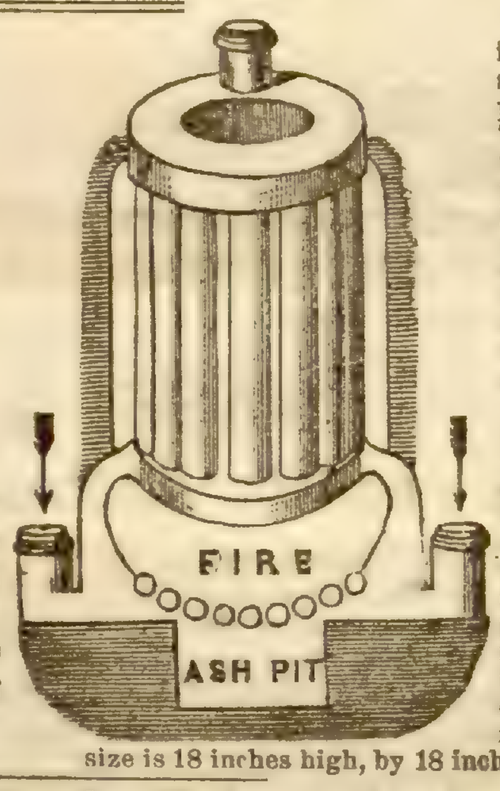
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

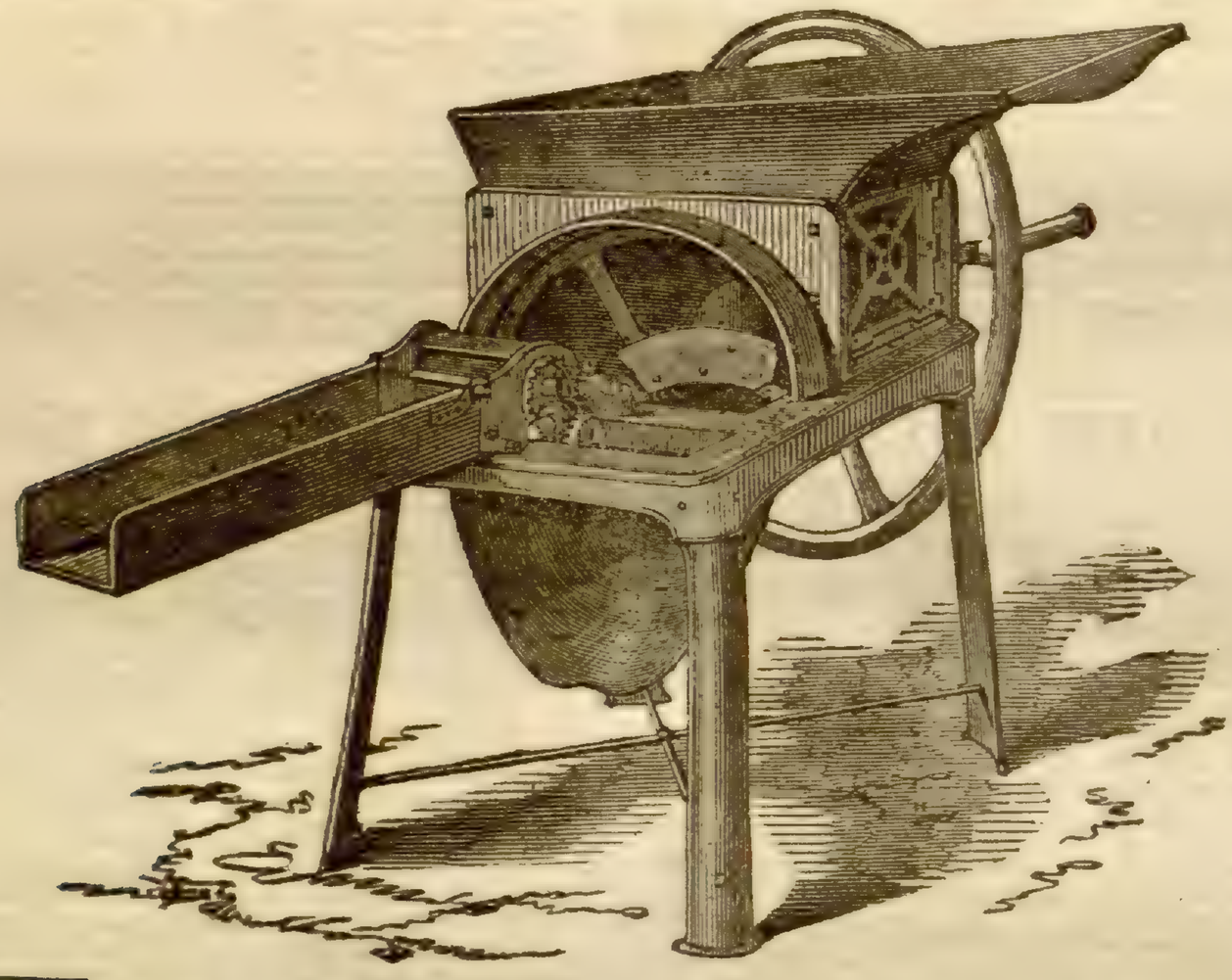
J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building an Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ROOTS GRATED, CHAFF CUT, AND THE FOOD MIXED AT ONE OPERATION BY

Samuelson's New Patent Combined Machine.



THIS Machine is designed to meet the wants of Agriculturists using a mixture of Roots and Chaff. It consists of a combined Root Grater and Chaff Cutter, so arranged on the frame that the cut Chaff and Roots are intimately mixed as they leave the knives, and fall through the same shute or spout. The mixture taking place while the grated Root is in a wet state, is much more complete than if the Chaff and Roots are cut separately and afterwards mixed by hand.

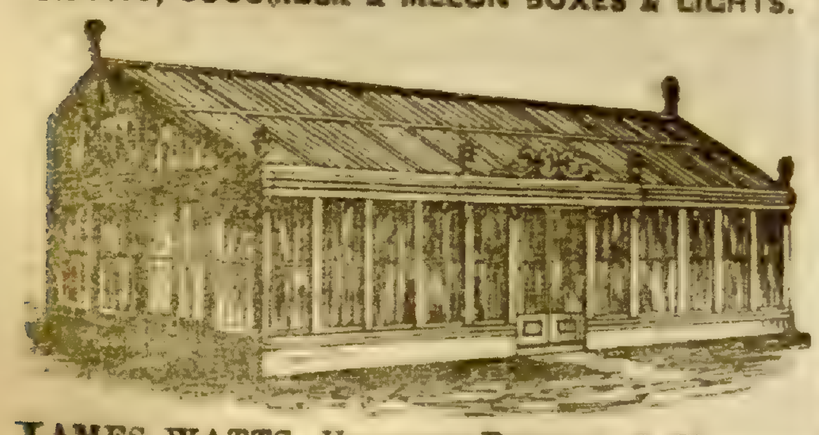
TURNIPS or CHAFF can be cut separately if required. The Machine only occupies the space of one Chaff Cutter or Turnip Cutter.

Price, for hand-power ... ... £6 10*s.*
Ditto, for horse-power, or it can be worked by a man and boy ... ... £9 0*s.*
Delivered to almost any Railway Station in England.

The above, and also SAMUELSON'S PATENT GARDNER'S TURNIP CUTTERS, GRATERS, PULPERS, CHAFF CUTTERS, ROLLER MILLS, and other food-preparing and Agricultural Implements may be procured of any respectable Ironmonger or Implement Dealer in town or country, or direct from

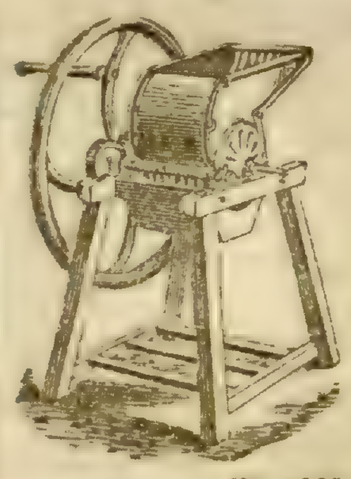
B. SAMUELSON, Britannia Works, Banbury.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.



BENTALL'S PATENT PULPER.

PRICES.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	48	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

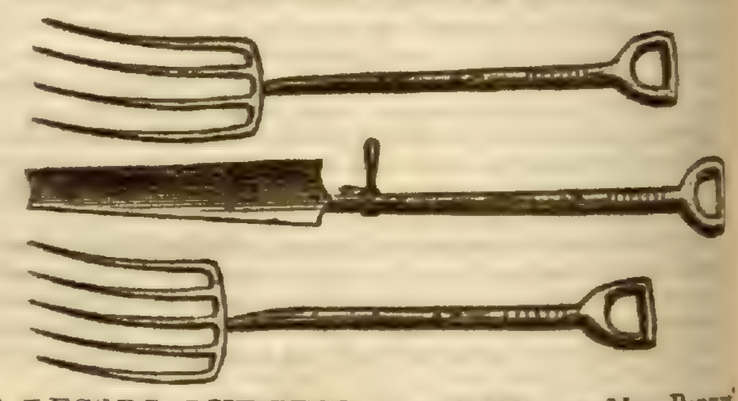
Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	chort 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto ditto		2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

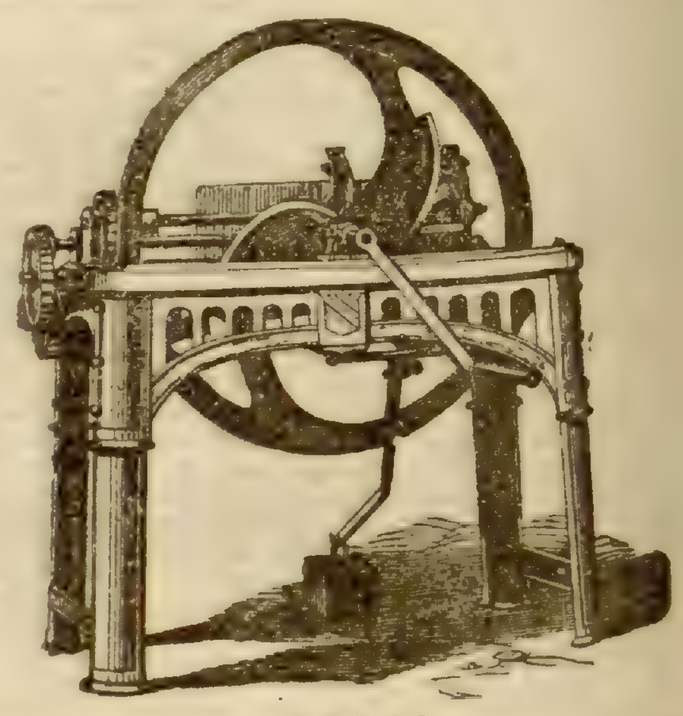
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."—*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.

PRESTON MEETING, 1856.

AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—

The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—

The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

TO GARDENERS.

HENRY HETHERINGTON, Fallowfield, near Hexham, Northumberland, begs to inform Gardeners and others that he has constructed a new FUMIGATING MACHINE on an improved principle and far superior to the Machines now in use both in power and general utility, discharging more smoke from the tobacco-holder in five minutes than any other will do in four hours, and constructed of material of great durability and good workmanship, with brass fittings and turnings. Prices 1*l.* 12*s.* 6*d.* and 1*l.* 15*s.* Post-office Orders made payable at Hexham.

If not satisfactory to the purchaser the Machine may be returned (free of expense), when the purchase-money will be refunded.

The following Testimonials from gentlemen's Gardeners in the neighbourhood speak for its practical utility:—

"MR. HETHERINGTON,

"Sir,—Your newly improved Fumigator is decidedly superior to any other instrument of the kind I have ever seen. It effects a great saving of tobacco, and is admirably adapted for fumigating Fruit Trees, Budded Roses, and other open air plants. By putting a cloth over the trees and capping the Roses, I can smoke them all in a very short time, thereby entirely clearing them of insects.—I am, Sir, yours, &c.

"THOMAS SIMMONDS, Gr. to Miss Allgood, Lincoln Hill."

"MR. HETHERINGTON, "Wigham Hall, Jan. 16, 1857.

"Sir,—Your fumigator came safe to hand, and I return you a thousand thanks for recommending to me such a valuable article. I have had it at work three times, and it gives me every satisfaction. No gardener ought to be without one. I have a small pit in which I collect all my plants when they require fumigating. I can fumigate the whole with 2 oz. of tobacco in two minutes.—I am, your's respectfully,

"WILLIAM SHARPE, Gr. to G. C. Atkinson, Esq."

"MR. HETHERINGTON, "Chesters Gardens.

"Sir,—In requesting me to give you a testimonial respecting the merits of your newly improved fumigator, I am glad of the opportunity thus afforded me of recommending to all gardeners so perfect an instrument, effecting, as it does, so considerable an economy both in tobacco and labour. I have six pits of an average size, all of which I can fill in a few minutes with 4 oz. of tobacco. I find also that by affixing a hose to the end of the tube it will convey the smoke to a great distance, indeed I feel fully convinced that were its advantages more generally known it would entirely supersede all other instruments of the kind now in use.—I am, Sir, yours respectfully,

"TEMPLE CHARLTON, Gr. to John Clayton, Esq., Chesters."

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. PAGE & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, [Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, [Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich
Mr. T. McKenzie, Seed Merchant, Pine Street, Cork.
Mr. J. Walker, Nurseryman, Thame.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

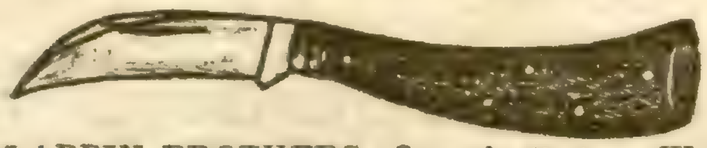
HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

FOR SALE.—TEN NEW HOT and GREEN-HOUSES and CONSERVATORIES, from 8 feet to 32 feet in length, and which will be sold at Second-hand Prices, as the ground must be cleared at once. Standing at E. DENCH's Patent Hot-House Works, King's Road, Chelsea, and at Granby Nursery Grounds, Mornington Place, Hampstead Road.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

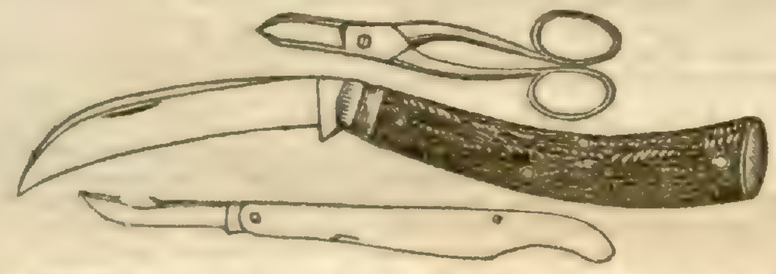
MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

* Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

PAXTON WORKS, SHEFFIELD.

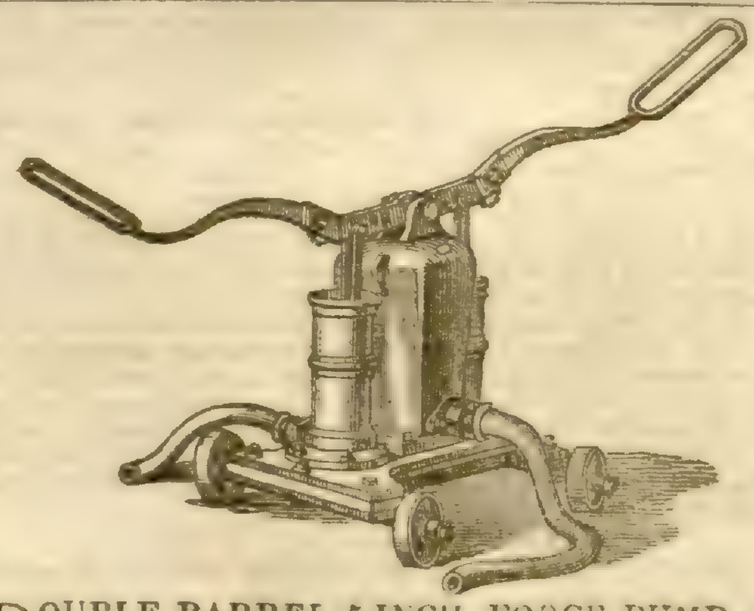


SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.



DOUBLE BARREL 5-INCH FORCE PUMP OR AGRICULTURAL FIRE ENGINE, with cast-iron barrels and brass valve seatings, a strong cast-iron air vessel, with suction and delivery pipe with caps, and two 2½-inch nuts and wastes, mounted on four cast-iron wheels, with jointed socket handles for six or eight men.

With 6-inch wheels	£18 0 0
With 12 " "	19 10 0

JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY, of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

ASTOUNDING REMEDY.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH BAKER, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

WANTED, the ADDRESS of any Gardener or his Employer, wishing to have samples, with particulars and prices, free by post, of HAYTHORN'S HEXAGON GARDEN NET, used in most Gardens, and recommended by all the principal Gardeners.—Copy Address, Mr. HAYTHORN, Nottingham

YOUNG INKERMAN.—This celebrated STALLION will receive a limited number of MARES, at the Bury Farm, Stapleford, Cambridgeshire. He won the first Prize in the Dray Horse Class, Chelmsford, 1856, when only three years old, competing against all ages. Young Inkerman foaled 80 mares out of 100 last season.—Apply to Mr. THOMAS BAKER, Stapleford, on or before the 10th of March.

THAMES DITTON, SURREY.—TO MARKET GARDENERS.
TO BE LET, A MARKET GARDEN, WITH COTTAGE AND BUILDINGS.—IMMEDIATE POSSESSION.

MESSRS. DRIVER are instructed to Let, with immediate possession, a highly productive MARKET GARDEN with Cottage and Buildings thereon, eligibly situate at Thames Ditton, Surrey, within a quarter of a mile of the Railway Station there, thus affording great facility for transit to the London markets, and close to Hampton Court Palace. This capital Market Garden is of a most productive character, and contains about 6 acres well and abundantly stocked with Apple, Pear, Plum and other Fruit Trees; also Gooseberry and Raspberry Bushes, &c.—For rent and other particulars, apply to Messrs. DRIVER, Surveyors, Land Agents, and Auctioneers, 5, Whitehall, London.

TO BE LET, A GREENHOUSE AND A FLOWER GARDEN, facing the road, near to the Crystal Palace, and almost adjoining the Anerley Railway Station. Rent very moderate. A Cottage adjoining may also be had.—Apply to Mr. HEY, 67, Newington Causeway, Borough.

TO BE LET, after Lady Day next, A FARM of 500 acres of MEADOW, PASTURE, and ARABLE LAND, tithe free. About 150 acres of Rough Pasture may be had with the Farm. A useful, dry, healthy estate producing excellent Roots, Corn, and Grass Crops. Well placed for markets.—For particulars apply to W. B., Post Office, Honiton, Devon. References required.

TO BE SOLD, A NURSERY, FLORIST'S, AND SEED BUSINESS in a main road, on the Surrey side of the Thames, within two miles of Covent Garden. The Premises consist of a Six-roomed House, Seed Shop, Greenhouses and Pits, heated with water, and every requisite for carrying on a small business, at the low rental of 28*l.* per annum. A good connection of day and yearly work, and satisfactory reasons given for disposing of it.—Apply to Messrs. NUTTING & SONS, Seedsmen, 46, Cheapside, London.

DORKINGS FOR SALE.—One Hundred pure bred DORKING HENS of the dark grey and speckled varieties—For particulars, apply to JOHN COATES, Escrick, York.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, March 3, at 12 o'Clock precisely, 240 Lots of CHOICE POULTRY, comprising Cochins from the celebrated studs of Mr. Punchard and the Rev. G. Gilbert, Spanish and Dorkings from Lady Margaret Macdonald, Mr. Gelderd, and other well known yards; Gold and Silver Hamburgs, Brahmas, Bantams, Ptarmigans, Ducks, &c., and a fine lot of Pigeons from a well-known breeder in the midland counties.—Catalogues by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

STANDARD AND OTHER ROSES, CAMELLIAS, AZALEAS, &c. &c.

MR. HASLAM will Sell as above at the Mart, on THURSDAY, February 26, and March 5, at 1 o'Clock. N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to Parcels Delivery Company. Mats and baskets allowed for when returned.—Epping, February 21.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Hally to Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, February 26, at 12 o'Clock, about 200 Camellias, from 1 to 5 feet, including all the approved kinds, beautifully furnished with bloom buds; also fine Standard and Dwarf Roses, choice American Plants, together with Lilium lancifolium rubrum, &c.; Otaheite Oranges; Rose Devoniensis, Verbenas, Fuchsias, Dahlias in dry roots, &c.—May be viewed the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone.

PYRGO PARK, ESSEX.

MESSRS. PROTHEROE AND MORRIS are directed to Sell by Auction on the premises, Pyrgo Park, Havering, near Romford, Essex, on MONDAY, February 23, at 12 o'clock, the choice GREENHOUSE PLANTS, comprising about 70 Camellias, 4 to 7 feet, consisting of all the approved varieties, well set with bloom-buds; 100 specimen Geraniums; also Azalea indica, Daphne, Cactus, Gloxinias, Achimenes, Calceolarias, Verbenas, Fuchsias, &c.; together with Four 1, 2, and 3 Light Boxes, 18 Hand Glasses, Garden Engine, Water Barrow, Iron Roller, Five Barrows, Garden Tools, and sundry effects.—May be viewed prior to the Sale on application to Mr. PAIN on the Premises, where Catalogues may be had; also of Mr. DUNNETT, Golden Lion Inn, Romford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, Feb. 21.

SEED PURCHASERS CAN SAVE TWENTY PER CENT.

W. STEWARD AND CO., Plymouth, the only firm supplying SEEDS, PACKING IN ADDITION TO CARRIAGE FREE. The most economical plan is to order our complete collections for one year's supply, 10*s*., 20*s*., 30*s*., and 40*s*. each, or double quantities of 40*s*. for 70*s*.; 420 packages containing 24 quarts of Peas, &c.

CHOICE FLOWER SEEDS post free; 100 sorts, 17*s*. 6*d*. 50 sorts, 9*s*. 6*d*.; 25 sorts, 5*s*. Superior CALCEOLARIA SEED, 50 dwarf sorts, 2*s*. 6*d*. per packet. General Lists on application.

POLYANTHUS SEED.

JAMES WOODS is now sending out his POLYANTHUS SEED, saved with more than ordinary care from named and good laced flowers, which he can recommend with confidence. Having had numerous Testimonials from different parts of the kingdom of good and valuable flowers being raised from his Seed, it needs no further comment.

A Packet of Seed to grow 300 Plants, with directions for sowing, price 1*s*. per packet; or sent free on receipt of 13 postage stamps; or six packets for 5*s*.—JAMES WOODS, Florist, Harwich, Essex.

COLE'S DEFIANCE RED CELERY has proved the best Red Celery for exhibition or for common use; it is exceedingly solid, of exquisite flavour, attains a large size, and keeps better than any other sort in cultivation. To be had in sealed ½-oz. packets, free by post, for 12 postage stamps.

The DWARF WHITE INCOMPARABLE, so highly recommended, for 12 postage stamps. Also COLE'S DWARF SOLID RED, and CRYSTAL WHITE, in ½-ounce packets, each free by post for 6 postage stamps.

N.B. The trade supplied by the lb. Price on application.

WILLIAM COLE, Withington, near Manchester.

NURSERY STOCK.

H. AND R. STIRZAKER have to offer the following Transplanted Trees, fine healthy, hardy grown stuff, at prices most reasonable upon application:—Alder, Ash, common and Mountain Birch, Chesnut—Spanish and Horse, Elm—Wych and Grafted, (Larch, Scotch, Spruce, Silver, and Balm of Gilead Firs extra transplanted,) Hazel, Hornbeam, Holly Green, Limes, Oak—English and Turkey, Poplar, Privet Evergreen, Willows, Briar Sweet, austriaca Pine, Juniper English, fine. The above can be supplied any size from 1 to 6 feet, at per 1000.

Lancaster Nurseries.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

GLENNY'S IMPROVED BALSAM.—The sale of Seed as Mr. GLENNY'S, unless in his own sealed and signed packets, is a fraud upon the buyer. Six classes, 37 stamps, mixed, 13: best 12 hardy Annuals, 36; best 12 tender, 60; both, 84 Stocks, Asters, and Larkspurs in great variety.—GLENNY'S Companion to the Almanacks, 13 stamps. His Seed List for Amateurs if a directed envelope be sent, Fulham, S. W.

MYATT'S
PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s*.; per peck, 2*s*. 6*d*.; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s*. per quart, with an allowance to the trade.—9, Mansion House Street, London.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas: also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s*. per quart. Usual allowance to the trade.

SEED CORN FROM THE CHALK.

TALAVERA, RED NURSERY, and APRIL, the best Wheats for Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l*. to 5*l*. and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

VEGETABLE AND AGRICULTURAL SEEDS.

ROBERT PARKER begs to inform his friends and patrons that his PRICED CATALOGUE for the present season is now ready, and will be forwarded post free upon application. Great care has been exercised in the selection, and every article may be relied upon as being true to name, and of the finest quality. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s*.	British Queen	per bushel 6*s*.
New Boston do.	... ... 6*s*.	Purple Regent	... ... 6*s*.
Early Frame	... ... 8*s*.	Early Shaws	... ... 6*s*.
Flourball	... ... 6*s*.	York Regent	... ... 6*s*.
Forty-fold	... ... 6*s*.		

Bags included,

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

SEED POTATOES FOR SALE, a good sample and true:—

ASH-LEAVED KIDNEYS ... ... 10*s*. per cwt.
ARNALL'S EARLY do. ... ... 12*s*. "

Apply to J. C. ARNALL, Ferrybridge, Yorkshire.

The Advertiser has frequently tested his Early Kidneys with the true Ash-leaf, and has always found the former to yield far more abundantly; and when planted alternately in the same row, to be ready for use ten days earlier than the latter. The flavour and appearance of the tubers are precisely the same.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. COBBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s*. 0*d*. | LORD PALMERSTON 5*s*. 0*d*.

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10*s*. 6*d*. each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Manetti Stocks, 50*s*. per 1000.
Hardy Heaths, in variety, 25*s*. per 100.
Menziesia polifolia and alba, 30*s*. per 100.
Standard and half standard Roses, by name, 4*l*. per 100.
Dwarf do. do. do. 50*s*. per 100.
Blush China Roses, strong, 15*s*. per 100.
Double Yellow Primroses, 20*s*. per 100: or 3*l*. for 400.

A remittance or reference expected from unknown correspondents.

TO THE TRADE, AND GENTLEMEN ENGAGED IN ORNAMENTAL PLANTING.

FOR SALE.—Seven hundred worked Thorns, new Double Scarlet, Single ditto, and White, 4 to 6 feet strong.
1000 Turkey Oak, 3 to 6 feet.
800 Limes, very handsome, 8 to 15 feet.
500 Laburnums, 6 to 10 feet.
200 Pinus Douglasi, 6 to 8 feet, raised from seed.
3000 Dwarf Roses.
Standard Rhododendron Ponticum, 4 to 6 feet, for working.

Apply to GEORGE S. ROGERS, Red Lodge Nursery, near Southampton.

TO THE TRADE.

JOHN PALMER, NURSERYMAN, Annan, begs to inform his Friends and the Trade generally that he has at present to offer of good quality as follows:—

600,000 1 year	...	Seedling Beech.
1,000,000 2 year	...	" Norway Spruce.
500,000 1 year	...	" Pinus austriaca.
1,000,000 1 and 2 year		" Native Scotch Fir.
50,000 1 year	...	" Rare Virginian Cedars.

Prices, which are very moderate, may be had on application.

SEEDLING THORNS AND FOREST DITTO.

CHARLES DALY AND SON beg to inform the Trade that they will sell 1-year THORNS at 3*s*. per 1000; 1-year transplanted, 7*s*. 6*d*. do.; 2-years transplanted, 12*s*. do.; 2-year Seedling SPRUCE FIR, 2*s*. 6*d*. per 1000; 2-year Seedling SCOTCH FIR, 1*s*. 3*d*. do.; 1-year Seedling BEECH, 3*s*. per 1000. Free in Liverpool or Glasgow, for cash only, paid to Messrs. HURST & M'MULLEN, London, or to the advertiser with orders.—Coleraine, Feb. 21.

Early Seed Potatoes sold cheap.

JOHN GRIGOR AND CO., Nurseries, Forres, N.B., have for Sale a pure stock of Seedling and Transplanted native HIGHLAND SCOTCH PINE PLANTS, raised from seed collected in the celebrated native Forests of Strathspey.

J. G. & Co. have had the honour to receive the numerous premiums awarded by the Highland and Agricultural Society of Scotland during the last 20 years for the cultivation of the true Highland Pine. They also abound in Seedling Larches, Seedling Transplanted Deodars, Seedling Sycamore, Pear Stocks, &c., well adapted to the trade. Priced Lists will be furnished on application.

WYCHWOOD FOREST, OXON.

OAK TIMBER.—To be Sold, by Tender, by order of the Commissioner in charge of her Majesty's Woods, Forests, and Land Revenue, upwards of 7000 OAK TREES, some of them being of large size. Wychwood Forest is near the Ascott and Charlbury Station, on the Oxford, Worcester, and Wolverhampton Railway.—Sealed Tenders to be sent on or before 31st March next to the Office of Woods, 1, Whitehall Place, where particulars of the Timber, and the Conditions of Tendering, may be obtained; at the Office of Mr. JOHN PLUTTON, 9, Whitehall Place; and of Mr. GEO. MOODIE, of Potter's Hill Lodge, Ascott, near Charlbury, who will show the Timber.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

CHOICE STOVE, GREENHOUSE, AND OTHER SEEDS.

HOOPER AND CO., SEEDSMEN, &c., Centre Avenue, Covent Garden Market, London (W.C.), have the pleasure of announcing that since the publication of their usual Catalogue of Flower Seeds they have received a very choice collection of Seeds of Stove, Greenhouse, and Hardy Shrubs and Climbers, Hardy and Half Hardy Herbaceous Plants, Carnations and Picotees of the finest descriptions, in collections and mixtures, warranted to produce 6 to 8 good double flowers, with some choice Annuals, &c., the whole of which have been ripened in the climate of Italy in the year 1856, and are such as they can recommend with the greatest confidence. A Catalogue of them will be forwarded on application; and it is respectfully requested that a Post-office Order, or Stamps, accompany each order from unknown correspondents. The stock being limited, an early application is desirable.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s*. per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Mamies (fine early French), Prince of Wales (Ingram's). A few small but well-rooted plants of Underhill's Sir Harry, at 15*s*. per 100. The following do. do., at 5*s*. per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.), Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

NEW HYBRID CUCUMBER "PERFECTION."—This has proved to be one of the finest black spine varieties ever yet offered to the public for early forcing and all other purposes for which a Cucumber is required. Seed of the above is now ready to be sent out at 3*s*. 6*d*. per packet.

For further particulars, with a List of numerous other fine varieties of Cucumbers and Melons, and prices of the same, see this Paper of January 31, 1857, page 66.

A remittance must accompany every order in cash or penny postage stamps, when the whole, or any part, as the case may be, will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s*. to 18*s*. and 30*s*. per dozen.

VERBENAS, the finest varieties, from 4*s*. to 8*s*. per dozen.

PETUNIAS, at from 4*s*. to 8*s*. per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

JOHN HENCHMAN, JUN., Edmonton, London, is now sending out—

CAMELLIAS, double white and fimbriata, full of flower buds, at 24*s*., 30*s*., and 36*s*. per dozen.

CHINESE AZALEAS, fine named varieties, worked on short stems with large heads full of flower, at 42*s*. per dozen. Choice mixed varieties, on own roots, full of flower, at 15*s*., 18*s*., and 24*s*. per dozen.

GHENT AZALEAS in pots, choice named sorts, full of flower, 18*s*. and 24*s*. per dozen.

CALCEOLARIAS, choice Seedlings, in 60-pots, 6*s*. per dozen. Ditto, for Specimen Plants in 32-pots, 18*s*. per dozen.

CYTISUS or GENISTA FRAGRANS, strong bushy plants full of flower, at 9*s*. and 12*s*. per dozen.

THE BIRMINGHAM ROOT SHOW,
SUTTON'S PRIZE MANGEL WURZEL.—These superior kinds of Mangel Wurzel took the First Prize in each class at the Birmingham Great Root Show, open to all England, and the same kinds exhibited on Messrs. SUTTON'S Stand at the Baker Street Show would doubtless have been equally distinguished if prizes for roots had been given on that occasion.

J. SUTTON & SONS, Seed Growers, Reading, Berks, have at present a good Stock of Seed of the above, which they are selling at moderate prices, according to quantity required. Early orders are requested, to prevent disappointment.

SUTTON'S New Seed List, with Prices, may now obtained, post free.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—SATURDAY, February 21, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 9.—1857.] SATURDAY, FEBRUARY 28. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next Meeting of this Corporation for the Exhibition of FLOWERS, FRUIT, and VEGETABLES and the Election of Fellows, will be held on TUESDAY, March 3, at 2 P. M. Admission only by Fellow's personal introduction, Ivory Tickets, or Written Order.—21, Regent Street, S. W.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUITS this season will be held on WEDNESDAYS, May 20th, June 17th, and July 1st. Tickets of admission may be obtained at the Gardens only by Orders from Fellows or Members of the Society. Price on or before SATURDAY, May 9th, 4*s*., after that day, 5*s*., and on the days of Exhibition, 7*s*. 6*d*. each.—A new arrangement of the Fruit will be adopted.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W.C.—The next Meeting of the Society will be held on THURSDAY, April 2, to which Members and Fruit Growers generally are invited to send Specimens for Examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; Annual Subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions of PLANTS, FLOWERS, FRUITS, &c., for the present year, will be held in the Society's Gardens, Old Trafford, Manchester, on TUESDAY and WEDNESDAY, the 26th and 27th May; WEDNESDAY and THURSDAY, the 24th and 25th June; and WEDNESDAY and THURSDAY, the 26th and 27th August.—For Schedules and Particulars apply to the Secretary.

By order, JOHN SHAW, Secretary.

Council Room, 40, Princess Street, Manchester, Feb. 28.

CAULIFLOWER PLANTS.

JOHN SALT has a few hundred fine strong Plants at 5*s*. per 100, packing included. Post-office Orders payable at Brompton.—2, Harriet Street, Stanley Bridge, Fulham, S.W.

WORCESTERSHIRE CHAMPION CUCUMBER.

JOHN JENNINGS can still supply Seeds of the above first-rate Black Spine Cucumber, 12 seeds, 2*s*. 6*d*.; six seeds, 1*s*. 6*d*.—Furze Hill Nursery, Shipston-on-Stour.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

CAMELLIAS.

CHANDLER AND SONS beg to inform their friends and the public that their Collection of CAMELLIAS is now coming into bloom. They have also a variety of Ornamental Plants, Ferns, &c., for the Drawing Room and Conservatory.—Wandsworth Road, London, S.

PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, has upwards of 6000 strong Plants, including all the English and Scotch varieties of merit, at 6*s*., 9*s*., and 12*s*. per dozen.

Lancashire Show GOOSEBERRY TREES 6*s*. 0*d*. per dozen
Extra fine PANSY SEEDS ... ... 2 0 per packet.
Catalogues now ready.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6*s*.; 15 ditto, ditto, 4*s*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*. A large stock of Hollyhock plants and Pansies in pots.—Catalogues of the above may be had on application to the Nurseries, Haverhill, Suffolk.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, Feb. 28.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.

BRITISH QUEEN ... 5*s*. 0*d*. | LORD PALMERSTON 5*s*. 0*d*.

Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

TO THE ROSE TRADE.

BIRCHAM AND WARD are still in possession of several thousands of PERPETUAL ROSES, consisting of the leading kinds, dwarfs, and on stems from 15 to 30 inches, which they offer at reduced prices. Also a large stock of strong Dwarf Plants of the best Show Roses at 30*s*. per 100.

Hedenham Rosary, Bungay, Suffolk.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, SEED GROWERS, Reading, Berks. Remittances or references are requested from unknown correspondents.

THE ALSIKE CLOVER.

SUTTON AND SONS have one of the finest parcels of Seed in Europe of this valuable CLOVER, and they can strongly recommend it from experience, both for permanent pasture and alternate husbandry.

Royal Berkshire Seed Establishment.—Feb. 28.

FRESH IMPORTED SILESIAN BEET.

MESSRS. SUTTON, SEED GROWERS, Reading, have some genuine WHITE SUGAR BEET SEED, just imported, price 1*s*. per lb.

MANGEL WURZEL SEED.—Purchasers of large quantities will be treated liberally.—For prices apply (stating the quantity required) to

SUTTON & SONS, Seed Growers, Reading.

EVERGREEN RYE-GRASS OR DEVON EAVER.—This variety is very perennial in its nature, and will stand the rigour of the winter well; hence it derives the name Evergreen.—7*s*. to 8*s*. per bushel, 6*d*. per lb. The undersigned have a fine stock of the true kind saved expressly for them.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

PERENNIAL RED CLOVER, OR COW GRASS. Trifolium pratense perenne.—The West of England is famous for this variety of Red Clover, which is of very permanent duration. The leaves are more woolly than the Common Red. We have some very superior samples this season, saved expressly for us.—10*d*. and 1*s* per lb.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

IMPORTANT TO PLANTERS AND COMPANIES FORMING NEW PARKS.—See Advertisement in *Gardeners' Chronicle* of the 21st February, page 114.

WILLIAM JACKSON & Co., Bedale.

LARGE FOREST AND ORNAMENTAL TREES FOR PLANTING PARKS, CEMETERIES, &c. &c.

W. J. EPPS has a large quantity of the above he can supply very cheap. Also a large stock of very fine Specimen Coniferæ. Prices and size sent on application.

Nurseries, Maidstone and Ashford, Feb. 28.

ONE YEAR SEEDLING ALDERS.

WILLIAM WOOD AND SON have a fine stock of the above to offer; also fine transplanted PORTUGAL LAURELS, 3 to 4 and 4 to 6 feet specimens. Prices on application.—Woodlands Nursery, Maresfield, near Uckfield, Sussex.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

FOREST TREES.

FOWLER AND WRIGHT, SEEDSMEN & NURSERYMEN, Glasgow, respectfully intimate that they have a fine Stock of Seedling and Transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

FRUIT TREES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have to offer (fit for immediate forcing) PEACHES and NECTARINES, &c., in pots, well established, and well set with bloom-buds. Also Dwarf-trained APPLES and PEARS, splendid plants.

The different Catalogues may be had on application.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

TAXODIUM SEMPERVIRENS.—50,000 Seeds of the above (gathered in December, 1856) are now offered to the trade at 10*s*. 6*d*. per 1000.—E. G. HENDERSON & SON, Wellington Nursery, St. John's Wood, N.W.

*** CAMELLIA JENNY LIND can now be seen in bloom at their establishment.

LEYCESTERIA FORMOSA.

WANTED, 2000 of the above, from 12 to 18 inches.—Apply, with cash price, to CHAS. ALEXANDER, Nurseryman and Seedsman, Edinburgh.

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

HEAVIEST LANCASHIRE SHOW GOOSEBERRIES, strong plants, per dozen ... ... 6*s*. 0*d*.
BLACK NAPLES AND BLACK GRAPE CURRANTS, per dozen 3 0

JOHN HOLLAND, Bradshaw Gardens, Middleton, Lancashire.

ONE HUNDRED TO 200 GREENGAGE TREES FOR SALE.—The Advertiser has the above quantity of prime Standard Greengages on sale, from 7 to 10 feet high, very strong and straight. All orders containing a Post-Office Order for the required amount payable to FREDERICK SUTTON, at Royston Office, will receive prompt attention. Price from 9*s*. to 12*s*. per dozen.—Address F. SUTTON, Bassingbourne, Cambs.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

CHARLES TURNER'S SPRING CATALOGUE OF DAHLIAS, GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, and the Soft-wooded Plants is now ready, and contains many novelties offered for the first time. Can be had on application.—Royal Nursery, Slough.

GROOM.—H. MATTHEWS (Son-in-law and Successor to the late H. GROOM), Florist and Nurseryman, Clapham Rise, Surrey, begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had post free on application.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had gratis, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

SEEDS.

LOUIS VAN HOUTTE'S SUPPLEMENTARY CATALOGUE OF KITCHEN, FLOWER AND TREE SEEDS is now ready at Mr. R. SILBERRAD'S Office, 5, Harp Lane Great Tower Street, London.—Ghent, Belgium, Feb. 28.

The Seeds are delivered free in London.

ROSES.

LOUIS VAN HOUTTE'S CATALOGUE OF ROSES is to be had at Mr. R. SILBERRAD'S Office, 5, Harp Lane, Great Tower Street, London.—Ghent, Belgium, Feb. 28.

ROSES.

H. LANE AND SON have still on hand a very large collection of ROSES, Standard and Dwarf worked. Also Dwarfs on own Roots of all the most popular sorts, Dwarfs in Pots for forcing, well established in large quantities. Catalogues may be had on application.

The Nurseries, Great Berkhampstead, Herts.

NEW PHLOXES.—An extensive and select collection of the above beautiful showy tribe of Herbaceous Plants, comprising the fine and newly introduced varieties from the Continent. May be obtained at 10*s*. per dozen, package included.

YOUELL & Co., Royal Nurseries, Great Yarmouth, Norfolk.

NEW PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong Plants, well established in small pots, 10*s*. per dozen, package included.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

LAING'S MAMMOTH CELERY, the largest yet grown, weighing 10 to 12 lbs. per head, perfectly solid and flavour unsurpassed, and will not run to seed the first season and rarely the second. Sealed packets 1*s*. and 2*s*. each, and post free.

This fine variety was highly spoken of in the *Gardeners' Chronicle* of last week, page 104.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

DAHLIA, CHRYSANTHEMUM, HOLLYHOCK, PANSY, AURICULA, POLYANTHUS, DELPHINIUM, ANEMONE, &c.—Seed saved *as directed in Glenny's Garden Almanack for Amateurs* desirous of raising novelties. Thirteen stamps per packet.—G. GLENNY, Horticultural Agent, Fulham, S.W. GLENNY'S Garden Almanack free for 13 stamps.

SODEN'S EARLY OXFORD AND WALNUT-LEAVED KIDNEYS may be obtained true and free from disease, at 8*s*. per bushel.

JOSEPH MAY & Co., 1, Wellington Street, Strand.

CHINESE YAM (DIOSCOREA JAPONICA).—Fine large Roots, 1*s*. 6*d*. each; or small Bulbs, 6*s*. per doz., with hints on cultivation.—SUTTON & SONS, Reading.

ASH-LEAVED KIDNEY POTATOES (WARRANTED TRUE).

WOOD AND INGRAM beg to offer a very pure stock of the above at 6*s*. per bushel. Price to the Trade on application.—Huntingdon Nurseries, Feb. 28.

FLUKE, ASHLEAF, DAWE'S MATCHLESS, true samples, to be obtained at JOHN BELL'S Potato Depôts, Covent Garden Market, and Great Northern Railway. Prices on application.

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Hardy Heaths, by name, 25*s*. per 100.
Menziesia polifolia and alba, 30*s*. per 100.
Standard and half standard Roses by name, 4*l*. per 100.
Dwarf Roses, by name, 50*s*. per 100.
Do. do., good kinds, by name, 25*s*. per 100.
Strong Pillar and Climbing do., 25*s*. per 100.
Double Yellow Primroses, 20*s*. per 100; or 8*l*. for 400.

A remittance or reference expected from unknown correspondents.

DOUBLE ITALIAN TUBEROSE ROOTS, 4*s*. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 16, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1 (20 quarts Peas, and all other Vegetables in proportion), for one year's supply	£3	0	0
Collection No. 2, in reduced proportions	2	0	0
Collection No. 3, "	1	5	0
Collections for Small Gardens, Nos. 4 and 5, 15s. 6d. &	0	10	6

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections Nos. 1, 2, and 3, see Catalogue.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Adverments in the *Gardeners' Chronicle* of Feb. 21, page 125.

Smith's New Balsams, 6 varieties, separate ... 2s 6d.
" " in larger packets, mixed 2s.

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7s. 6d.; 12 vars.	5	0

FLORIST FLOWERS, &c., SAVED FROM CHOICE COLLECTIONS.

Per packet.—	s.	d.
Hollyhock, ex., saved from 20 finest vars. of our collection	2	6
Pentstemon, ex., from grandis, magniflora, Themisteri, and other choice vars.	2	6
Phlox, hardy vars., choice	0	6
Potentilla, ex., from our finest new	2	6
Calceolaria, ex., from choice new vars.	2	6
Geranium, ex., from choice new vars.	2	6
" from finest fancy	1	6
Gloxinia, ex., from superb vars.	2	6
Petunia, new and choice	1	0
Primula sinensis fimbriata, from extra fine vars.	1	0
Verbena, from choice new	2	6

CHOICE IMPORTED GERMAN SEEDS.—IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	s.	d.
30 superb vars. dwarf German Stocks, 5s.; 15 vars. ...	3s.	0d.
Choice mixed do., packets, 6d. and 1s.; new pale sulphur	1	0
Fine dwarf carmine, 6d.; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6d.; new White Dwarf Wall-leaved, 6d. and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6d. and 1s.; mixed, fine, 6d. and ...	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5s.; 12 vars.	3	0
12 superb vars. Globe flowering do....	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	0

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20s.) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18s. per dozen.

PINKS.—The finest first-class show Pinks, by name, 9s. to 12s. per dozen pairs.
" Fine mixed border ditto, 6s. per dozen pairs.

All orders of 2l. and upwards are delivered carriage free to London, Peterborough, Manchester, Newcastle and Hull, as well as to any railway station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.—Per Post Prepaid.

	Per pkt.—s.	d.
CALCEOLARIA, from the handsomest spotted and blotched varieties	2	6
MIMULUS, ditto, ditto	2	6
GLOXINIA, from 20 varieties	2	6
PRIMULA SINENSIS FIMBRIATA (red and white) of various shades, selected from the most beautiful vars.	1	6
PANSY, saved from 100 of the best vars., by name ...	2	6
POLYANTHUS, do. 50 do. do. ...	2	6
VERBENA do. 50 do. do. ...	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do. ...	2	6
SWEET WILLIAM, from the new and beautifully-edged varieties	1	0
DAISY, saved from 50 of the new Belgian kinds, by name	1	6
ANTIRRHINUM, saved from 20 best named varieties ...	1	0
ANEMONE, from the most showy and brilliant kinds ...	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

FLOWER SEED (Annuals).—YOUELL & Co. beg to offer a very select collection of these, comprising all the new and most brilliant hardy varieties at 5s. per 30 packets, per post free.

Postage stamps received in payment.

YOUELL & Co., Royal Nursery, Great Yarmouth.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20s.
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20s.
25 American Azaleas, do., do., do., 16s.
Hardy Heaths, Ledums, and Kalmias, per doz., 6s.
12 " Rhododendrons, including scarlet, white, and rose, 12s.
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15s.
Greenhouse Azaleas, best new vars., per doz., 12s. to 18s.
Camellias, fine sorts, well set with buds, per doz., 30s.
50 choice hard-wooded Greenhouse Plants, one of a sort by name, 45s.
12 Orchidea Plants, one of a sort, fine species, 40s.
24 choice Ericas, one of a sort, small pots, by name, 16s.
12 fine Chrysanthemums, new, large and small flowered, 6s.
Best Climbing Roses of sorts, per doz., 6s.
Fine Standard and Half Standard Roses, 12s. to 15s. per doz.
50 Dwarf Roses, on their own roots, by name, 16s.
Cedar of Lebanon, in pots, 2 feet, well grown, per dozen, 10s.
Various choice Hardy Climber, for walls, trellis, &c., p.doz., 10s

CHOICE FRUIT TREES.

Fine Standard and Dwart-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 2s. 6d. each, or 26s. per dozen.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each, 2s.
Fine Gooseberries, Currants, and Raspberries, per dozen, 3s.
Filberts, new, thin-shelled and red-skinned, per dozen, 4s.
Strong Vines, in pots and out, best sorts, per dozen, 18s.
Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Vines, grown expressly for pot culture, per dozen, 18s.
Ornamental Forest Trees and Evergreen Shrubs in any quantity

Albion Nursery, Stoke Newington, London.—Feb. 28.

BETTERIDGE'S SUPERB QUILLED ASTERS.

CHARLES TURNER begs to announce that Mr. BETTERIDGE has placed in his hands the entire stock of Seed saved from his collection of Splendid ASTERS, 24 blooms of which obtained the 1st Prize at the Crystal Palace in September, 1856. C. T. has no hesitation in saying that the Seed is saved from Flowers of unusual quality, and can now be had in

	s.	d.
Collections of 10 varieties	5	0
Small packets of mixed Seeds	1	0

CHARLES TURNER begs also to recommend the following:—

The Cottager's Kale, a new hardy and very productive Kale of great excellence ... ... per pkt.	1	0
Incomparable Dwarf White Celery, the best of all ... "	1	0
Cucumber, Ipswich Standard, true... ... ... "	1	0
" Himalaya, a very fine Exhibition variety... "	1	6
" Frogmore, one of the best and most useful kinds grown ... ... "	1	0
" Maunder's Hand-glass Cucumber ... ... "	1	0
True Batavian Endive, superior to the ordinary variety "	1	0
Powell's Early Red Tomato, ripens earlier than the common sort, dwarf habit ... ... "	1	0
Melon, Orion, green-flesh, a very fine variety ... ... "	1	6
" Frogmore, scarlet flesh, a very fine variety ... "	1	6
" Golden Ball, a small and delicious Melon ... "	1	6
Linum grandiflorum rubrum, rich crimson, true ... "	1	0
Delphinium formosum, a beautiful perennial variety, if sown in March will flower in the summer ... ... "	1	6
Obeliscaria pulcherrima, a new and hardy perennial, figured in "The Florist" for Nov. 1856 ... ... "	1	6
Sweet William, extra quality ... ... "	0	6
Tree Lupine, from Oregon, a handsome variety of pyramidal growth, and covered with yellow flowers, biennial	1	6
Acrolinium roseum, a handsome Rodanthe-like annual ...	1	6
Veronica Syriaca, a beautiful blue annual	2	6
Very choice Hollyhock, in 12 distinct named varieties, separate, the collection	5	0
Ditto, ditto, mixed ... ... per pkt.	2	6
Very choice Calceolaria, extra quality	2	6
" " Cineraria " "	2	6
" " Dahlia " " ... ...1s. and	2	6
" " Mimulus " "	1	0

For descriptions of the above, and particulars of other choice Vegetable and Flower Seeds, see Catalogue, which can be had on application.—Royal Nursery, Slough, Bucks.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the Public that he is now sending out a set of NEW and DISTINCT CINERARIAS, the finest ever yet offered to the public, for which he begs to refer below to the testimonials of parties who have grown them for trial.

1. ATTRACTION, white, beautifully edged with blue, a superb shape.
2. AURORA, bright crimson self, a very abundant bloomer, and early.
3. BARON, very dark purple self, good shape, and extra large.
4. BEAUTY OF LEAMINGTON, white, edged with purple crimson, the finest of that class yet sent out.
5. ELIZA, white, beautifully tipped with light blue, very showy (dwarf).
6. STANDARD OF PERFECTION, white, with dark purple edge, a very early bloomer.
7. SCHAMYL, beautiful blue self, light disk.
8. SULTAN, bright plum colour, very distinct from anything in cultivation.
9. SURPRISE, white centre, margined with a beautiful dark maroon, very showy and dwarf.
10. GENERAL CANROBERT, clear white, beautifully edged with carmine, an abundant bloomer, one of the finest.

Specimen blooms on application.

TESTIMONIALS.

"Warwick, May 29, 1856.

"Sir,—In answer to yours respecting the Cinerarias, I have flowered them. I can with confidence recommend 10 of them as very good showy flowers. The 'Beauty of Leamington' is as good a Cineraria as I have yet seen. 'Attraction' is the best blue-edged one I believe that is out.—Yours truly,

"To Mr. Raper. ROBERT WILSON."

"Arboretum, Teachbrook Road, Leamington, Sept. 8, 1856.

"Mr. Raper, Dear Sir,—I have given your Cinerarias a fair trial, and I think, as a collection of 10, both as regards the shape of the flowers, the variation of their colours and habit, they are not to be equalled. "WM. MILTON, Superintendent."

"Doncaster, July 19, 1856.

"Sir,—I am extremely sorry I neglected answering yours respecting the Cinerarias—I consider them first-rate. I got the first and second prize for six, at our Show, with three or four of yours in each collection.—I remain, yours respectfully,

"J. MILAN."

"Ranelagh Nursery Gardens, Leamington.

"Mr. Raper, Dear Sir,—I am happy to bear testimony to the worth of the 10 Cinerarias you are now sending out, being quite distinct in colour, of good form, and first-rate habits.—I am, dear Sir, yours very truly, THOS. MANDER."

15s. the set of 10; or 2s. each, if less than the set is taken.

E. RAPER, Florist, &c., 53, Regent Street, Leamington.

FOR SALE.—TEN NEW HOT and GREEN-HOUSES and CONSERVATORIES, from 8 feet to 32 feet in length, and which will be sold at Second-hand Prices, as the ground must be cleared at once. Standing at E. DUNCE'S Patent Hot-House Works, King's Road, Chelsea, and at Granby Nursery Grounds, Mornington Place, Hampstead Road.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roots, and every description of metal work. Prices, &c., at the Manufactory as above.

TODD'S IMPROVED PROTOXIDE PAINT, being INDESTRUCTIBLE by HEAT, is recommended for hot climates, Painting Boilers, Steam Pipes, Hothouses, &c. It preserves iron from oxidation, wood from decay, and masonry from dampness. In stuccoed buildings it prevents the discolouration formed by vegetation. Being free from deleterious qualities, houses may be painted with it while occupied. It is of the lightest stone colour, but may be tinted with any other required.

TODD'S PATENT PAINT COMPANY (Limited). 58, King William Street, London Bridge (E.C.), where Testimonials from Railways, Engineers, Shipowners, and others may be seen.

IRON COLLAR BAR HURDLES.—These Hurdles, from their construction with Collared Bars and manufactured with Patent Machinery, have more than *twice the strength and durability* of those in ordinary use, and are no more expensive. Sheep Hurdles (ordinary), or with Patent Collar Bars, 4s. 6d each; Cattle Hurdles (ordinary), or with Patent Collar Bars, 5s. 6d. each; Ox Hurdle (ordinary), or with Patent Collar Bars, 7s. 9d. each; Deer Hurdle (ordinary), or with Patent Collar Bars, 8s. 6d. each

COTTAM AND COTTAM, ST. PANCRAS IRON WORKS, Old St. Pancras Road, *opposite the Old Church*, where the processes of manufacture may be seen. Every description of Fencing and Iron Works. Price List per post or on application.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2s. 6d.; trade packets, 5s., 10s., and 20s.

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6d. and 1s.)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

GERMAN FLOWER SEEDS,

In collections from our own inspection when in flower on the continent. These we can with confidence recommend. Descriptions of the following New Plants will also appear:—

BANKS' NEW FUCHSIAS,

Including three white sepal varieties, each with a distinct coloured corolla; two varieties possessing red sepals, and each of distinct character; and others with quite a new and graceful form of flower. A new and beautiful coloured Plate of six of the above varieties is now ready, and can be had for 12 stamps.

NEW VERBENAS,

Raised by Messrs. Banks, Breeze, and Evans. A coloured Plate of these novelties is in preparation, price 12 stamps.

NEW ERECT GLOXINIAS,

Raised by M. Jæger, the original introducer of this form of flower.

NEW HYBRID BOUVARDIAS,

Raised by Mr. Parsons, from Longiflora, hybridised with B. Leiantha.

NEW STRIPED GERANIUM,

Raised by Mr. Grieve. The best and only one worth growing.

Mr. Elphinstone's new Ornamental Foliaged Geraniums, with red and other coloured zones.
Mr. Morgan's Hybrid Bedding Geranium, splendid colour.
Mr. George Cunningham's New Rhododendron, quite hardy, and the first of its colour.

New Petunia, Delphinium, and Shrubby Calceolaria, &c. Other novelties beside the above will be noticed in this Catalogue.

Wellington Nursery, St. John's Wood, N.W.

JOSEPH MAY AND CO. beg to offer the following SEEDS, which may be relied upon as genuine:—

	Per packet—s.	d.
FRINGED PRIMULA SINENSIS	2	6
CINERARIA, fine mixed	1	0
CALCEOLARIA, from spotted flowers	2	6
AURICULA, from prize flowers	2	6
FUCHSIA, from named flowers	1	0
HEARTSEASE, PETUNIA, HOLLYHOCK, and BALSAM	0	6

1, Wellington Street, Strand.

HOLLYHOCKS.

A. PAUL AND SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants IN PERFECT HEALTH as follows:—

Very superior show varieties ...	42s. to 60s.	per doz.
Superior do. do.	24s. „ 36s.	„
Good named sorts	12s. „ 18s.	„

Bloomed Seedlings in separate colours, 30s., 45s., and 63s. per 100. These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers: they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21s. per 100.

For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1s., 2s. 6d., and 5s. per packet according to quality.—Nurseries, Cheshunt, Herts.

HAWKES' CHAMPAGNE RHUBARB.—This most desirable variety is now offered to the public. It has stood the severest test that can be applied, and has beaten every thing in Covent Garden and other London markets in realising higher prices, from its magnificent colour and size. It has been seen by the very highest authorities, and pronounced to be a most valuable introduction. In earliness it equals the Prince Albert, but of a deeper colour, and much greater bearer. It forces remarkably well, and is very hardy, 2s. each, 18s. per doz.

RHUBARB, Myatt's Victoria...	per doz. 8s.	0d.
„ „ Linnæus ... ... „	8	0
„ Mitchell's Royal Albert ... „	8	0

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12s. per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's). A few small but well-rooted plants of Underhill's Sir Harry, at 15s. per 100. The following do. do., at 5s. per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.) Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, now offers nice young plants of 15 of his best half shrubby CALCEOLARIAS of 1856 for 21s., hamper included.

Very choice Calceolaria seed, 2s. 6d. per packet.

H. M. will have another set of 12 new seedling Calceolarias to offer about the first week in April, price 2l. 10s. the set, hamper included. The following is Mr. GLENNY's opinion:—

"Calceolarias:—Mine blooms beautiful in colour, all above average in properties—a very fine set to go together. We doubt if any nine known varieties could compete with them without losing."—*Lloyd's Newspaper, Aug.* 10, 1856.

The above prices are for cash only, therefore all orders accompanied by a post office order payable at Leeds will be promptly attended to. Postage stamps received in payment of the seed.

Plants given to compensate for carriage. A descriptive list of the new Calceolarias may be had the first week in March.

DELPHINIUMS, ETC.

JOHN CATTELL having a very large stock of the under-named articles can supply the Trade, Public Companies, and others requiring them in large quantities, on very advantageous terms.

Delphinium Hendersoni, Barlowi, and grandiflorum maximum may be had by the 1000; Delphinium Mooreanum, Wheeleri, hybrida flore pleno and magnificum may be had by the 100; and also the following:—Gentiana acaulis, strong; Hepatica, single blue and double red; Gynerium argenteum; Lychnis, double scarlet; Wahlenbergia grandiflora; Phlox Countess of Home, and other very fine varieties; Dielytra spectabilis; double yellow Rockets; the old but scarce Fair Maid of France; also Ghent and English Azaleas of the finest varieties, and extra fine plants; late and early Dutch Honeysuckle, Spiræa callosa, Pyrus japonica, Lonicera flexuosa, Passiflora cærulea, Daphne pontica, Deutzia gracilis, Juniperus ericoides, Pinus insignis, one and two years; Thujopsis borealis, one year; Thuja incurvata, one year; &c., prices of which may be had on application.

Nurseries, Westerham, Kent.

SMITH'S SUPERB BALSAMS.

F. AND A. SMITH beg to announce to the public that they are sending out their superb BALSAM SEED in sealed packets, containing eight separate and distinct colours of six seeds each, 2s. 6d. per packet.

Also mixed do. in colours of unequal proportions, but the same in number, 2s. per packet.

The above have been selected with great care from the most double of a stock of 10,000 plants, and have been much commended during the flowering season by those who saw them.

They were exhibited at most of the Metropolitan Shows, and obtained the First Prizes at the Botanic Gardens, Regent's Park, and the Crystal Palace.

F. & A. S. have received many testimonials of the excellence of the varieties sent out by them last season.

The under-mentioned Firms have received a supply of Seed for sale:—

Messrs. Bass & Brown, Sudbury, Suffolk
Messrs. Brown & Austin, Argyll Arcade, Glasgow
Mr. W. Clark, 25, Bishopsgate Street, London
Messrs. Cutbush & Son, Highgate, Middlesex
Mr. W. N. Dawe, 36, Moorgate Street, London
Mr. E. P. Dixon, Hull, Yorkshire
Messrs. W. Drummond & Sons, Stirling and Dublin
Mr. E. P. Francis, Hertford
Mr. F. Godwin, Sheffield
Messrs. A. Henderson & Co., Edgeware Road, London
Messrs. E. G. Henderson & Sons, Wellington Road, London
Messrs. Hooper & Co., Centre Avenue, Covent Garde
Messrs. A. Paul & Son, Cheshunt, Herts
Messrs. W. E. Rendle & Co., Union Road, Plymouth
Messrs. W. Rollisson & Sons, Tooting, Surrey
Mr. C. Southby, High Street, Clapham
Messrs. Sutton & Sons, Reading, Berks
Mr. J. Tynan, 68, Great George Street, Liverpool
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Veitch, King's Road, Chelsea
Mr. T. F. Winstanley, 28, Market Place Manchester
Messrs. Jas. Dickson, Sons, & Co., 23, Market Place, Man-
Messrs. H. Low & Co., Clapton [chester
Messrs. F. Holmes & Co., Sheffield
Messrs. T. Brigden, Railway Arcade, London Bridge
Messrs. Hurst & M'Mullen, Leadenhall Street
Mr. R. F. Darby, Cirencester
Messrs. Stuart & Mien, Kelso
Mrs. Wood, Barbourne Nurseries, Worcester.

Dulwich, Surrey.

SPECIMEN ROSES IN POTS FOR EXHIBITION.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON beg to offer fine specimen plants of that superb Tea Rose GLOIRE DE DIJON, in 9 to 15-inch pots. The plants are exceedingly strong and bushy, varying from 2 to 3 feet in height, and are peculiarly adapted for exhibition or for forcing. From 3s. to 5s. each.

DWARF HYBRID PERPETUAL ROSES on 4-inch stems, established in 6-inch pots either for greenhouse culture or for forcing, 24s. per dozen.

ROSES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON have much pleasure in offering the following, all first-rate plants. Extra tall Standards (fine picked stocks), from 5 to 8 feet high, budded with 3 to 6 of the best varieties of climbing and perpetual Roses in each stem, suitable for conspicuous places, on lawns, &c., 3s. 6d. to 5s. each. Selected Standards, 6 and 8 feet stems of the Crimson Boursault Rose, or Amadis for training, 3s. 6d. each.

Per doz.—	s.	s.	Per doz.	
Fine Half Standards	24	...	Hybrid Perpetual and Bourbon on 6-inch stems	12s. to 18s.
Superb Dwarf Standards	18 to 24		Climbing Roses, mixed ...	4s.
Fine Dwarfs	12 to 18		Dwarf ditto. ...	3s.
Climbing and Noisette	9 to 12			

Plants added to compensate for distant carriage. Catalogues free on application.

MAGNIFICENT DWARF-TRAINED "PEACHES."

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WM. WOOD AND SON can recommend with much satisfaction their fine Stock of the above; the Trees are vigorous, healthy, and well trained.

CONIFERS.—SPECIMEN PLANTS OF

Cupressus macrocarpa.	Cedrus Deodara.
„ Goveniana.	„ robusta and viridis.
„ funebris.	And other Conifers.

PHLOXES.—A very superb collection, including the best and newest kinds, 6s., 9s., 12s., and 18s. per dozen.

HERBACEOUS PLANTS.—A fine collection, 6s. to 12s. p. doz.

N.B. A remarkably fine stock of Laurustinus and Ornamental Trees and Shrubs.—Catalogues on application, gratis and post free.

SEED CORN FROM THE CHALK.

TALAVERA, RED NURSERY, and APRIL, the best Wheats for Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

TO GENTLEMEN AND PLANTERS.

H. LANE AND SON have to offer in large quantities the undermentioned well-grown plants, having taken great care in their removal:—

Araucaria imbricata, splendid plants, from 1 to 4 feet
Arbor-Vitæ, in sorts
Azaleas, Ghent, in fine variety
Beech, Norwegian, copper, &c.
Berberis Darwini
Cedrus Deodara, beautiful shape and well grown, forming perfect specimens, from 2 to 9 ft.
Cedrus Libani, do. do., from 2 to 10 feet
Chesnuts, standards, very ornamental, 5 to 10 feet
Cryptomeria japonica, 2 to 6 ft.
Cupressus funebris, compact, 2ft.
„ Lambertiana, 2 to 3 feet
Cytisus, standards in sorts, also Laburnums
Daphne, in varieties
Deutzia gracilis, nice compact plants for forcing
Elms, fine trees, from 10 feet upwards
Fitz-Roya Patagonia
Heaths, in extensive collection
Hibiscus (Althæa Frutex), standards and dwarfs
Holly in variety (green and variegated, large and small
Juniperus, well-grown plants of most sorts
Laurel, Portugal, very bushy, 3 to 6 feet
Laurel, Portugal, standards, fine specimens for lawns
Kalmias, small, fit for forcing
Kalmias, larger sizes, very fine
Mahonias
Picea Cephalonica, 1 to 4 feet
„ Fraseri, very fine, from 3 to 8 feet
„ nobilis
„ Nordmanniana
„ Pinsapo, 1 to 3 feet
„ „ 3 to 5 feet, and 3 feet through
Pinus cœrulea, very handsome, 1 to 5 feet
„ excelsa, 1½ to 8 feet
„ insignis, beautiful plants, 4 to 7 feet
Abies Douglasi, from seed, 4 to 10 feet
„ Morinda, do., 2 to 7 feet
„ orientalis, nice compact plants
Poplars, good variety of sorts
Rhododendrons, by name, a good collection of popular sorts
Ribes, in sorts
Taxodium sempervirens, 4 to 8 feet
Weigelia amabilis and rosea
Yew, adpressa, very fine
„ compact, beautiful compact plants
„ do., upright variety
„ coriacea or japonica
„ Dovaston, fine weeping
„ elegantissima
„ Gold-striped
„ Irish, the finest lot possible

Carriage of all goods paid to London. Catalogues may be had on application.—The Nurseries, Great Berkhampstead, Herts.

FOR PRESENT PLANTING.

BASS AND BROWN beg to offer as under, of strong and well-established Plants:—

	s.	d.
Hardy Herbaceous Plants, 100 showy vars.	30	0
„ „ 100 do., including new	50	0
„ „ selections, per dozen ... 6s. to	9	0
Rock Plants, 25 fine vars. 12s., or 12 for	7	6
Antirrhinums, 12 fine vars., 6s.; 12 vars., very fine ...	9	0
Delphinium Barlowi, per doz., 9s.; bicolor, white centre, per dozen...	7	6
Do. elegans, per dozen, 6s.; elegans alba, per dozen ...	7	6
Dielytra spectabilis, per doz., 6s.; per 100	40	0
Iris Germanica, a very superb collection, p. doz., 9s., 12s., &	20	0
„ „ fine mixed, per doz., 3s.; per 100	18	0
Pentstemon, 12 superb and distinct vars.	9	0
Phlox, 25 fine vars., 10s. 6d.; 25 superior newer vars. ...	15	0
„ collection of 26 superb new vars. of 1856, for ...	50	0
„ 12 vars. of the same	24	0
Potentilla King of Crimson, the finest crimson grown flower, 2½ inches across, each	3	6
Do., a splendid collection, per dozen, 6s., 9s., and	15	0
Hollyhocks, a choice collection, per doz., 9s., 18s., and ...	25	0
Dwarf Rock Cistus, 24 beautiful vars., very attractive for rockery or beds, 15s.; 12 vars.	7	6
Chrysanthemums, Pompones, and large flowered, fine, p. doz.	7	6
Carnations, fine varieties, per dozen pairs	18	0
Picotees „ „	18	0
Pinks „ „	10	0
Ribes, 6 fine distinct varieties	5	0
Flowering Shrubs, 20 vars., fine and distinct	10	0
Hardy Climbing Plants, per doz. ... ... 9s. and	12	0
Roses, of choice sorts, 100 dwarfs, in 50 vars.	45	0
„ „ per doz., 6s., 12s., and	18	0
„ Climbing, finest sorts, per doz.... ... ... 6s. to	12	0
Strawberries, of the finest new and others (see Catalogue).		
Gooseberries, finest prize sorts, 25 vars.	10	6
„ good named sorts, 4s. per doz.; mixed, p. doz.	2	6
Currants, of the finest sorts, per dozen ... 3s. and	4	0
Rhubarb, Bailey's Early Monarch, earliest grown, each ...	2	6
„ Royal Albert, Linnæus, and Victoria, per doz....	7	6
Grayson's Giant Asparagus, per 100	3	6

BULBS and ROOTS for SPRING PLANTING, comprising Ranunculus, Anemones, Gladioli, &c. See Catalogue.

CATALOGUES for this Season to the present time. Nos. I., II., and III. supplied on application.

GOODS CARRIAGE FREE (not under 20s.) to all the London Termini, and all Stations between London and Norwich, Colchester Line.—BASS & BROWN, Sudbury, Suffolk.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1l. to 5l. and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

MOORE'S DELPHINIUM FORMOSUM.—Seeds in packets at 2s. 6d. to be had of NUTTING AND SONS, Seedsmen, 46, Cheapside, E.C. The habit of this plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2s. 6d.

COLLECTIONS OF CHEAP & GENUINE GARDEN SEEDS.

CHARLES ALEXANDER, SEEDSMAN and FLORIST, 30, West Register Street, Edinburgh, is now prepared to supply complete Collections of VEGETABLE SEEDS, for various sized Gardens, suitable for the climate of Scotland, ranging as under:—

No. 1, COMPLETE COLLECTION, for a large Garden	£3	0	0
No. 2, do. do. for a Medium-sized Garden ...	2	0	0
No. 3, do. do. for a small Garden	1	0	0
No. 4, do. do. do. do.	0	10	0

All Orders Carriage Paid to any Steam Port or Railway Station in Scotland. Detailed Lists of the quantities, which may be altered to suit parties, on application.

M'Ewen's Arundel Castle Crystal Palace Prize
Hybrid Scarlet Flesh Melon ... ... 1s. per packet.
Do. do. Green ... 1s. per packet.

Nursery, Larkfield, Trinity, where a select Stock of Greenhouse and Stove Plants, Florists' Flowers, Shrubs, &c., are sold at moderate prices.

PAGE AND CO.'S COLLECTIONS OF VEGETABLE SEEDS. CARRIAGE FREE.—These Collections give great satisfaction, and are strongly recommended.

B. P. & Co. have given the greatest care in selecting the most approved and useful varieties.

No. 1.—COMPLETE COLLECTION ...	£2	15	0
No. 2.—Ditto Ditto	1	15	0
No. 3.—Ditto Ditto	1	0	0
No. 4.—Ditto Ditto	0	10	0

The quantities in the above complete Collections will be found more liberal, and the prices 10 per cent. less than any house in the kingdom.

B. PAGE & Co.'s Catalogue is now ready, and will be forwarded free. It should be in the hands of all who want something comprehensible.

B. PAGE & Co., Seed Merchants and Growers, 37 and 38, Oxford Street (facing the Railway Terminus), and 58, Above Bar, Southampton.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1857, Edited by JOHN C. MORTON, Esq., can now be had through any Bookseller, or from Messrs. WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

SUTTON'S FARM SEED LIST, WITH PRICES FOR MARCH AND APRIL, and Instructions on Cultivation, will be ready in a few days, and will be sent gratis, post free to any address.—Royal Berkshire Seed Establishment, Feb. 28.

The Gardeners' Chronicle.

SATURDAY, FEBRUARY 28, 1857.

MEETINGS FOR THE ENSUING WEEK

MONDAY,	March	2—Entomological	8 P.M.
TUESDAY,	—	3 { Horticultural	2 P.M.
		3 { Linnean	8 P.M.
WEDNESDAY,	—	4—Society of Arts	8 P.M.

IT has long been known from drawings and specimens preserved in spirits that there grows at Penang a variety of the PINE APPLE which, instead of producing a single fruit, bears a considerable number each as perfect as if it grew alone. Some have thought that this was merely an accidental monstrosity, due to the rich soil and hot damp

atmosphere of the Indian Archipelago, and they have been confirmed in that opinion by finding that when the "branching Pine Apple" plants, brought from Malacca, have fruited in England, they possessed none of the tendency in question. Others, on the other hand, have believed that whatever may be the original history of the habit of branching it was one that, like other habits, must have become fixed in the constitution of some of the Malay Pine Apples, and would manifest itself in other countries under suitable circumstances. That plants called Branching Pine Apples brought from India should have only borne unbranched fruit might be accounted for by suckers of the common Pine Apple having been sent to Europe.

It was the more improbable that the branching habit in question should suddenly disappear in Europe when it was considered that it existed at the end of the 17th century, when Rumphius was the Dutch Governor of Amboyna. The six last books of this writer's great work left Amboyna in 1695, and in one of them the Branching Pine Apple is described as follows: — "When the Ananas grows in rich soil all round, at the base of the fruit grow out other crowns of like nature, ten often in number, of the same form as the upper one but smaller. These crowns bear beneath them certain small fruits, of which however none come to perfection, but must be broken off lest they should draw away the nourishment of the (principal) fruit." It is thus evident that the Pine Apple had begun to branch two centuries ago, and it was contrary to all experience that a tendency two hundred years old should be instantly lost in an English hot-house.

That this view was the correct one is now demonstrated. Among the curious plants sold to the Crystal Palace Company by Mr. Loddiges was an unfruited specimen of this branching Pine Apple. Under the skilful management of Mr. Eyles it soon produced three young ones, and these having now arrived at maturity are found to possess the branching habit much as it is described by Rumphius. The specimen before us is 10 inches long, 12½ inches round in the widest part, and has a weak cockscomb crown. At its base sprout out 13 small Pine Apples each from 2½ to 4 inches long, and terminating in a slender imbricated crown. It is expected that the specimen will keep long enough to be exhibited at the meeting of the Horticultural Society in Regent Street on Tuesday next, on which occasion Chinese drawings of the plant in full vigour will be produced by way of illustration.

What gives this production peculiar interest is the proof which it offers of all the "pips" or flowers of the Pine Apple being leafbuds in a state of abortion. While in that condition the parts all swell, the centre is fixed, and a "pip" is the result. But if, owing to high temperature, excessive moisture, unusual stimulants, or any other disturbing cause the customary abortion is removed, then each pip sprouts into a branch, assuming the Pine Apple conformation, and a brood of little fruits is the result.

We are glad to learn from the report of the Gardeners' Benevolent Institution that its finances are in a very satisfactory state. The receipts for 1856 are 1215*l.*, including the munificent donation of 242*l.* from His Grace the Duke of Northumberland. In the same period 483*l.* have been paid for Pensions and Gratuities, 400*l.* have been invested in the funds, and a balance remains with the bankers of 337*l.* The stock now standing in the name of Trustees amounts to 4100*l.* consols. The only item in the expenditure which we are inclined to criticize is that of 28*l.* for what is called "Balance dinner account," by which is meant, we presume, that the anniversary dinner cost more by that amount than the tickets produced.

That it is the custom among tavernkeepers to make these extra charges we know; but we would really suggest to the Committee, who are men of business, whether they cannot escape from so great an imposition. It amounts to exactly the pensions of one male and one female, who are thus deprived of the assistance which the charity would be too glad to afford them.

The subject being brought once more under public notice, we venture to add that in such a wealthy country as this, in which Horticulture is a universal necessity, and where it displays an amount of skill and intelligence that we look for in vain elsewhere, it is to be hoped that much larger funds than what have been hitherto collected will be soon supplied. The subscription list consists of a long array of names; but they are chiefly of gardeners, more willing than able to support their indigent brethren. The contributions from other sources are much fewer than the wants of the charity imperatively demand, and which society can well afford to supply, especially now that the income tax falls back to a peace standard. Our limited space unfortunately prevents our mentioning the names of all who have thus contributed to the support of poor old gardeners and their still poorer widows; but we hope that the following list of donations amounting to 20*l.* and upwards will show that in the opinion of persons well able to judge, the charity before us is one upon which a few spare guineas may be as well bestowed as upon any one in the kingdom. We take the names as they come in the printed list. The Queen and Prince Albert, 50*l.*; the Duke of Devonshire, President, 137*l.*; Mr. A. Anderson, 21*l.*; Mr. Bohn, 31*l.* 10*s.*; Mr. Thomas Baring, 21*l.*; Mrs. B., of Easton, 21*l.*; Lord Carlisle, 21*l.*; Messrs. Chance & Co., 21*l.*; Mr. James Cook, 21*l.*; Mr. Edward Denyer, 21*l.*; Lord Robert Grosvenor, 21*l.*; Mr. Thomas Grissell, 21*l.*; Mr. Robert Hanbury, 47*l.* 5*s.*; Mr. R. Steiner Holford, 21*l.*; Mr. H. T. Hope, 31*l.* 10*s.*; Messrs. Henderson, of Pine Apple Place, 31*l.* 10*s.*; Professor Lindley, 35*l.* 15*s.*; Mr. S. Laing, 21*l.*; Messrs. J. and C. Lee, 31*l.* 10*s.*; Mrs. L., of Balham Hill, 21*l.*; Mr. Joseph Martineau, 31*l.* 10*s.*; Mr. Mechi, 23*l.* 2*s.*; Messrs. Minier & Co., 26*l.* 5*s.*; the Duchess of Northumberland, 253*l.* 6*s.*; Mr. G. Warde Morman, 21*l.*; Lord Overstone, 21*l.*; Sir Joseph Paxton, 105*l.*; Sir S. M. Peto, 21*l.*; Baron Rothschild, 31*l.* 10*s.*; Mr. S. Rucker, 31*l.* 10*s.*; Messrs. Rothschild, 21*l.*; Mr. Rivers, 21*l.*; Mr. Geo. Ure Skinner, 33*l.* 6*s.*; Mr. Jas. Veitch, Jun., 31*l.* 10*s.*; Messrs. Wrench & Sons, 50*l.* 10*s.*; Messrs. Waterer & Godfrey, 21*l.*

An analysis of the subscription list shows that it includes the names of 2 Royal Personages, 4 Dukes, 9 Earls or other noble persons, 151 Gentlemen, 153 Horticultural Tradesmen, and 360 working gardeners, a small number for so great an Empire, but one that we feel persuaded would be rapidly augmented was the public at all aware of the pressing necessity there is for such an institution. It can do no more at present than provide 12*l.* a year for 12 poor infirm old women, and 16*l.* a year for twenty-two worn out gardeners, all of irreproachable character. Of these, with the exception of one man aged 48 who is totally blind, the youngest is 61 and the oldest 90. We hope to see the day when the pensioners shall be at least a hundred. And we earnestly appeal in this behalf to the thousands of persons in affluent circumstances who benefit by the labours of gardeners, and who support the innumerable charities of this most charitable nation. Communications should be addressed by post to Mr. E. R. Cutler, 14, Tavistock Row, Covent Garden, London, W.C., who will furnish all inquirers with full particulars relating to the Institution.

An old and zealous correspondent, "R. T. C.," has left at our office two most interesting seedlings, the produce of one plant (a florist's Picotee), and it is believed of one seed pod, fertilised by either a dark Sweet William, the ordinary Indian Pink, or one of Vilmorin's Garden Dianths of the Indian Pink race. The experiment which led to so curious a result will have indeed to be repeated next season in order to ascertain whether one seed pod produced both forms, and what was the male parent. But we have here the important datum that Picotees and Carnations, for "R. T. C." has seedlings from both, will breed freely with certain other Dianths. What a wide field for improvement is thus opened! Imagine Sweet Williams with enlarged flowers and the delicate markings of the florist's Carnation, the same in the quasi-annual Indian Pink, and our own native mountain Pink, from which some beautiful fairy Carnations might possibly spring. In these cases "R. T. C." suggests that the Carnation should be the pollen parent, and though many, probably all, of the first cross would be selfs and partake only of the dark or normal colour of the Carnation, striped flowers would doubtless soon appear.

Of the two young plants now in our possession, one has quite the appearance of a common garden Pink; and the other is very like a Sweet William; yet they are both said to be out of the same seed pod, and that of a Picotee. It would therefore seem certain that the last at least is a true mule.

ON LOW TEMPERATURES

WHICH DO NOT AFFECT THE VITALITY OF PLANTS, AND ON THE METHOD OF ELIMINATING THEM FROM MEAN TEMPERATURES.

(From Adolphe De Candolle's Géographie Botanique.)

The vegetative functions of a phenogamic plant may be considered as suspended, when a degree of cold below the freezing point has penetrated their tissues and the earth surrounding their young roots. Slight chemical changes and a feeble circulation may go on at low temperatures, especially in evergreen plants, but these are rare phenomena, and may be neglected in the present investigation.

Every plant requires a certain amount of heat above that of the freezing point of water for germination, for the circulation of the sap, for the development of its leaves, its flowers, and its fruit. If seeds are sown at a temperature of 32° to 40°, the majority, instead of germinating, appear to remain inactive below a certain degree of heat, and to sprout when that is exceeded, though the continual fluctuations of temperature and the slowness of the first operations of germination prevent us from ascertaining with any precision what that degree is. Seeds of plants from hot climates germinate badly in Europe, except in stoves; they appear to require a relatively higher degree of temperature than the plants of our own climate do. And so it is with the other functions of such species. With us Wheat and Barley sown in autumn germinate before winter; but after attaining a certain height the young plant makes no further progress till the accession of a certain amount of heat in spring, and for the evolution of its flowers a still greater amount is necessary. In proof of this we frequently find the plants of hot countries living for several years in our climate, but never flowering. The heat accumulates daily, and the sum of these accessions of temperature becomes very great. What therefore is required is not heat in the abstract, but such an amount as shall exceed a certain degree (below which the functions of the plant are suspended).

M. Charles Martins has put the argument in favour of this view with great force and clearness thus:—"All plants do not vegetate at the same temperature; in some the sap commences to ascend when the temperature is only a few degrees above the freezing point; others require an increase of 20° to 30°; plants of hot climates require a temperature of 60° to 70°; in short, every plant is its own thermometer, whose zero corresponds to that temperature below which its vital functions are suspended. Consequently in endeavouring to ascertain the sum of the temperatures which determine the flowering and fruiting of a plant, only those temperatures which are above the zero of the species should be taken, for these alone stimulate the plant to perform its functions and maintain them in action. Thus alone we obtain a true measure of the heat indispensable to the development of flowers and fruits, whereas if we start from the freezing point of water we add a number of degrees which are too low to affect vegetation at all." M. Martins adds that Arctic and Alpine plants are the only exception, inasmuch as their vegetative functions commence at a temperature scarcely above the freezing point, as soon as the snow commences to thaw.

The above is translated from M. de Candolle, and it is very important that the obvious truths it inculcates should be borne in mind, for they lie at the foundation of an accurate acquaintance with the action of temperature. There is only one point in it that appears to require a little comment, which is M. Martins' observation that Arctic and Alpine plants resume their vegetative functions at a temperature "à peu près avec la temperature de 0° (32° Fahr.) dès que la neige passe à l'état liquide." Now, there appear to be two important and indeed fundamental points overlooked here; firstly, that the temperature of the earth beneath the snow is in most cases considerably above the freezing point before the snow has melted off it, and vegetation recommenced; and secondly, that the water which trickles away from the melting snow is at once raised far above the freezing point, owing to the small quantities in which it is given off, and the large heated surface over which it flows.

Observations made on the soil when covered with snow in winter prove that its temperature at a few inches beneath the surface is considerably and often many degrees above the freezing point; and in the process of thawing the snow melts, not so much from its upper surface evaporation and drainage as from its under; there is always a considerable space between the lower surface of a melting snow-bed and the underlying vegetation where the temperature is considerably above the freezing point; and the water drained from the melting snow is exposed to this temperature before penetrating the soil, when it rapidly acquires the still higher temperature of the subsoil, and by conduction distributes a comparatively high temperature over the whole surface of the latter. In all cases therefore of perennial plants their vegetative functions are not recommenced until the temperature of their organs has risen very considerably above the freezing point; and with regard to the germination of annual plants upon soils covered during the winter with snow, we have often had occasion to remark that this does not take place before the soil has become much heated from the direct effect of the sun's rays.

In support of this view we may be allowed to quote some experiments of our own, made with a view of ascertaining this temperature of the earth at elevations covered with snow during many months of the year.

J. D. H.

(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CLIII.

629. Parasitæ (*Galls*).—Notwithstanding the labours of Réaumur and others who have paid especial attention to those insects which cause alterations of structure from the deposit of eggs in or about the young or tender organs of plants, or to the composition of the galls themselves, no part of natural history perhaps was involved in greater obscurity, till the appearance of the remarkable paper of Dr. Lacaze-Duthiers, published in 1853 in the Annales des Sciences Naturelles. His researches, however, were necessarily confined to indigenous species, and were directed more to the structure of the galls themselves than to their develop

ment, a point which is exposed to peculiar difficulties, as such inquiries not only necessarily extend over a long time, but require a personal witness of the first deposit of the egg by the mother insect. They are, moreover, complicated by the fact that several insects may spring from the same gall, in consequence of the larvæ themselves being used for the deposit of eggs by other insects.* If we reflect that the common Oak produces some 10 or 20 different galls, in the most different situations, that the different parts of the plant cannot be in a fit condition for their reception except in its native place of growth, that such deposits take place at very different periods, and that the insects are often so small as to require a magnifier for their examination, we may have some notion of the difficulties which attend such inquiries. It is plain that the most ardent naturalist, whatever his intelligence, might find all his efforts baffled in the investigation of the parasites of this one tree alone, and his difficulties would be scarcely less in other cases, as he would have little chance of assisting at such operations in his own working room. The number moreover of these parasites is very great. Many European galls have not as yet been referred to the insects which produce them, and the exotic forms, which are no less numerous, are at present almost unknown except as to their external aspect.

630. The cause of their formation is at present involved in great obscurity. As in other analogous cases many theories have been adduced, but most of these rest on few or insufficient data. The mere presence of a strange body is clearly insufficient, without the assumption of some specific action of the matters contained within the thin coat or coats of the egg upon the surrounding tissues, through which they may act by endosmose, as otherwise there could not be at once that extreme diversity of form and constancy of development which attends the several parasites. The injection of a specific irritant poison on the deposition of the egg is certainly as easy a solution of the matter, and this view is supported by the constant recurrence of the same series of phenomena when the human body is inoculated with some specific virus, as cow-pox. Experiments have not at present been directed to the solution of this point, though they promise greater chance of success than any extended researches as to the effects which follow the deposit of the eggs themselves.

631. Many modes of classifying these productions have been proposed by authors. That of Lacaze-Duthiers has the merit of being simple, consisting merely of two divisions which comprehend respectively external and internal galls. The first comprises those in which the gall is altogether exterior to the organ on which it grows, except at the point of attachment; the second those in which the gall is immersed in the tissues, and either consists in a simple hypertrophy of the whole, or of a single part only which merely acts by pressure on the surrounding tissues. In the study of exotic galls, such as that on an Ochnaceous plant, figured in Lindley's Vegetable Kingdom, p. 32, or one from Pará, figured in Hooker's Journal of Botany, Oct. 1849, it would be necessary to form a third division, consisting of such galls as after the formation of the hard layer of thick walled cells, which immediately encloses the nutritious matter protecting that and the young larva from outward agents, burst through the tissues and appear as external gall, though they do not consist of the same parts as those galls which are truly external.

632. In the first division we have such galls as Oak spangles, gall nuts, Oak apples, the spinose galls of the Rose; the bedeguar of the same plant, which attracts notice from the development of numbers of glandular hairs upon its surface; the artichoke galls of the Oak, in which the bractes are preternaturally multiplied, while they inclose in their centre a globose true external gall; the root-like galls of *Poa nemoralis*, and many other curious structures. The internal galls are sometimes developments of the pith or other especial parts of the organ in which they are formed, the egg being lodged within the gall itself, or they are false galls, consisting merely of hypertrophied leaves, stamens, or petals, variously curled or arched, either converted entirely into processes somewhat like those of Cephalotus or Nepenthes, or producing such processes in some particular part of their lamina. In such cases the insect is not internal, but whether Aphis, Acarus, or *Cecidomyia*,† lives upon the inner walls of the one or many chambered process protected from the weather, but having communication with the atmosphere by an aperture below. The inner wall may in such cases be simply hypertrophied or it may be covered with hairs. Such false galls may either arise from the juices being drawn to the particular parts by the suction of the insects, or as before they may be conjectured to arise from some especial virus consequent on the penetration of the insect's proboscis. In some cases, as in the Larch, the buds are converted under the influence of the parasite into little cones, which constitute a sort of false gall; or, as in the Apple tree, the bark may be cankered and distorted under the attacks of the woolly Aphis. *M. J. B.*

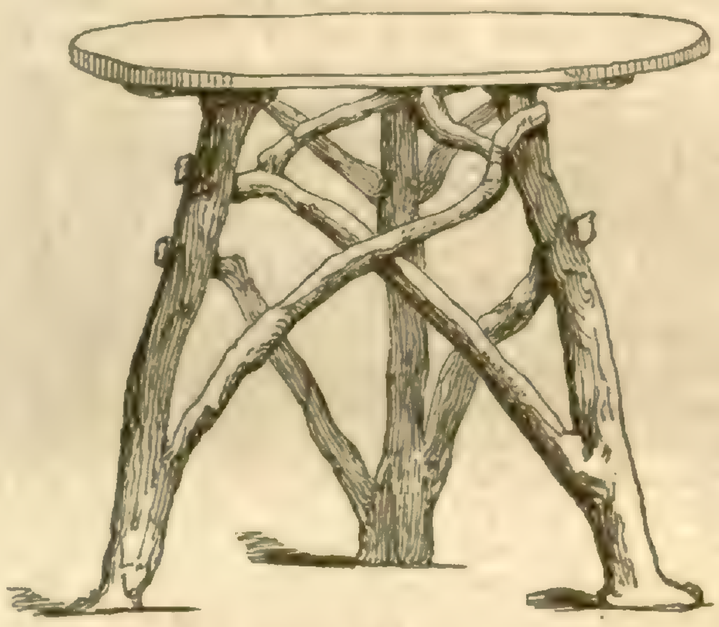
* On this and other points consult Dufour's paper on the Galls of *Verbascum* and *Scrophularia* in Annales d. Sc. Nat., Jan., 1846. The *Cecidomyia* of the *Verbascum* for instance may nourish species of *Miscampus*, *Eulophus*, and *Stomatia* either by direct or indirect parasitism.

† In the case of the *Cecidomyia*, according to Dufour, the unopened corolla is pierced in order to insert the egg. The hypertrophy then is due to the puncture rather than to the egg, which could scarcely act before it is hatched on the otherwise uninjured walls of the corolla.

RUSTIC FURNITURE FOR COTTAGE GARDENS (*see page* 117).

No. 5.

No. 6.



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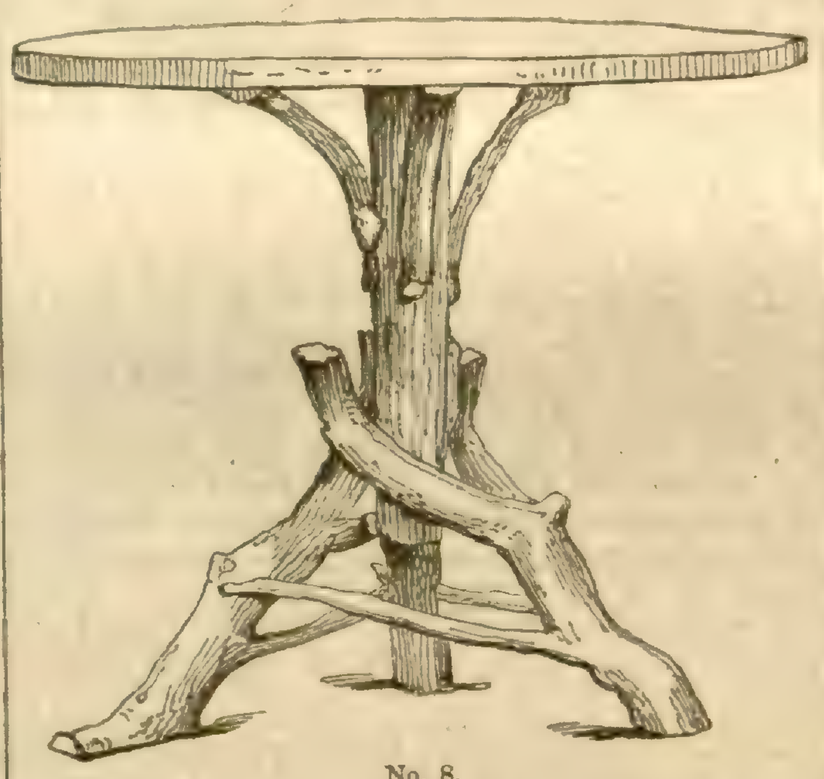

No. 8.

(*To be continued.*)

HOW ARE THE CELLS OF PLANTS FORMED?

ONE of the most important questions in Vegetable Physiology is whether the formation of cell-membrane is essentially a vital process, or whether it may be ever regarded as the result of purely chemical conditions. In living plants and animals, it is quite certain that new cells arise either in the contents of other cells or in matter, as organisable lymph, in contact with living tissues, but the question is whether in cases where it is clear that there can be no vital energy, sacs of cellulose or of other chemical composition can be formed similar to those which occur in living plants or animals. Two memoirs are now before us, the contents of which afford occasion for reflection on this point.

The first was published by Reissek in 1851, under the title "On the artificial formation of cells in boiled Potatoes." He found that the first effect of boiling was to coagulate the starch grains within their cells, while the cell walls themselves became cracked and torn, and were ultimately more or less completely resolved into dextrine. The coagulated mass was next covered with a thin granular somewhat reticulated coat, which in process of time became even and uniform, and finally formed a new cell-wall consisting, like the original sac, of cellulose. In general a single mass only of coagulated starch was involved in a distinct membrane, but sometimes two or even three masses were surrounded by a common coat of cellulose. The sac, according to Reissek's views, had arisen partly from the dextrine derived from the old cell wall, and partly from the coagulated starch and juice of the tuber, especially if imperfectly ripened.

The other case is one lately reported in the *Botanische Zeitung* (Sept. 19, 1856), by Regel, and is far more wonderful. A report had been made by Cienkowski of the spontaneous origination of living organisms in putrid Potatoes. The report was so curious that it became a matter of much interest to repeat the observations, but Regel tried in vain to obtain the same results till he used the same water with that in which the putrid Potatoes had been macerated by Cienkowski. As this water swarmed with Infusoria and minute Algæ it was quite obvious that no great weight could be attached to the occurrence of such productions, even though the species might be different. It is not therefore to this part of the investigation that we can turn with much interest. There is however matter connected with the formation of cell membrane which, when taken in conjunction with the observations of Reissek, deserves much attention. The starch grains themselves in this case were the subjects of new membrane formation, and not the component parenchym. A few days after putrefaction has taken place some of the smaller starch grains are surrounded by a very transparent membrane, which splits when strongly compressed, is dissolved by concentrated sulphuric acid, while Liquor Potassæ dissolves only the starch within. There is no doubt therefore about its being actually a membrane. In process of time a membrane of the same nature may be seen in the act of separation from larger starch grains, but of a different chemical composition from the starch itself. If matters remained in this condition it might be naturally concluded that this is nothing more than the separation of a membrane originally present from the mass of starch within, but the same process takes place again and again at the expense of the starch till the amylaceous matter is reduced to a very small nucleus, and sometimes two or more starch grains are surrounded by a common membrane, exactly as the parenchym cells observed by Reissek.

The further development of swarming granules within the starch mass, and of infusoria with long thread-shaped processes by means of which they moved, has no reference to the question of cell formation, and is so evidently involved in uncertainty for reasons mentioned above, that we shall not advert further to it. The part, however, which relates to the origination of one sac of cellulose within another from the starch is so exactly parallel with that of the formation of a single bag of cellulose round the coagulated mass of starch grains in boiled Potatoes, that it deserves close consideration. The sacs in either case, however perfect, seem purely chemical productions, and there is not the slightest pretence that membranes so formed are endowed with any of those qualities which are called vital. In cases, however, where new cells are produced within or in contact with living organisms, though the formation of the sac may take place round a particular centre according to purely chemical laws from the mass which surrounds that centre, it does not follow that it should be entirely void of that mysterious energy called life, though the natural inference would be to regard the inclosed protoplasm of the cells as the principal seat of vital agency rather than the cell-walls themselves. *M. J. B.*

Home Correspondence.

Hazard's System of Heating.—Perhaps a few remarks upon this system of heating from one who has had the working of two of Mr. Hazard's apparatus may not be destitute of interest, and they may be the means of inducing others who live in the immediate neighbourhood where this plan originated to state their candid and unprejudiced opinions regarding its merits or demerits. My experience entirely coincides with that of Mr. Cramb of Tortworth Court (see Jan. 17, p. 38), as may be gleaned from the following observations:—At Cote House, near Bristol, Mr. Hazard erected one of his patent apparatus, which he guaranteed should heat efficiently a range of glass consisting of three houses, two of which were small Vineries, the other an ordinary greenhouse; the erection was wholly under his superintendence and that of his men. Upon trial it was soon found to be quite inadequate to the work it was intended to accomplish, it being found incapable of heating efficiently more than one of the houses. Mr. Hazard was apprised of this. It was subsequently determined that a separate fire and ordinary brick flue should be adopted to heat the greenhouse and assist the second Vinery. In the first place the cold air drain was formed outside, but from its frequent tendency to cause a reaction of the warm air, when the wind blew from particular quarters, the gardener (Mr. Munro) was induced to abandon the channel on the outside altogether and substitute one inside the house, by which means the internal air was consumed and heated again and again, precisely as intimated by Mr. Cramb. By this new arrangement matters went on better than before; nevertheless great inconvenience was constantly experienced by the frequent emission of deleterious gases from the pipes owing to the cracking and wasting away of the material with which the joints were filled. Atmospheric moisture was intended to be produced by means of what Mr. H. called a "Refrigerator," which consisted of small perforated copper pipes through which water descended on

the heating pipes below, thereby causing or generating an intensity of hot steam almost unendurable by vegetation. This Refrigerator, as a matter of course, was soon abandoned and recourse had to some better method, such as damping absorbent materials placed over the chamber as well as suspending flannel over each of the ventilators, which was constantly kept saturated with water. The other apparatus to which I refer was one that Mr. Hazard erected in the Durdham Down Nurseries for heating a small house, generally used for forcing flowers. This answered tolerably well for a short time; irremediable symptoms of derangement, however, soon presented themselves, which eventually induced the proprietors to abandon it, and substitute in its room an ordinary brick flue, which I well remember answered very satisfactorily. Allow me now to refer to Mr. Hazard's article of the 10th January (page 20), where he makes the following observations:—"Of hot water I would beg to observe that it is expensive in first erection and in after use, and all experienced gardeners admit that the waste heat up the chimney is very great. It was to obviate this that I invented my heat extractor, and I can only say to those who your correspondent states will ever prefer the hot-water system, examine the merits of the Patent Heat Extractor." This invention I am of opinion would be found infinitely more useful in Mr. Hazard's apparatus than in any I ever witnessed, as may be judged from the following facts. At Cote a thermometer was lowered 18 inches from the top of the chimney, which very rapidly indicated 220° Fahr., this being the highest point the thermometer was capable of indicating; and permit me to observe that at the time of observation no more fire was in demand than was absolutely necessary for the maintenance of a constant temperature. As regards the extra expense in the first erection of a hot-water apparatus, I believe that an efficient and lasting hot-water apparatus may be obtained at a price very little above that of Mr. Hazard's invention, as will be seen from what appeared in the *Gardeners' Chronicle* of the 14th inst. from the pen of Mr. Cramb, who states that a 60*l.* stove was used to heat the church at Horsingham. Surely 60*l.* would be found to go a considerable way in heating a structure by hot water! Add to Mr. Hazard's apparatus the price of his Heat Extractor, coupled with the perpetual terror one is frequently subjected to from its insecurity, and it will be evident on which side the balance turns. *H. M., Lyme, Feb.* 21.

Rose—General Jacqueminot, H. P.—I am sorry to see any mark of disparagement put upon the character of such a constant and faithful officer as the General. He is entitled to be spoken of in a much more respectful manner than the way in which Madame Laffay has been pleased to do in your columns. It would be a pity indeed if anything which has been said about this Rose should be the means of deterring amateurs and lovers of good Roses from adding the General to their collection, as now-a-days a Rosetum would be incomplete and look very dim without him, as he has sufficient colour in himself to light up any collection. When the Géant des Batailles made his appearance about 10 years ago it was, if I may use other people's words, the greatest "leap" in colour that had been made in Roses for 20 years before that time, and the Géant kept his place and kept it well till General Jacqueminot entered the field and "leaped" completely over the head of the Géant. Every one knows that he might have been nothing the worse of a few more petals, but his intense glowing colour, unlike that of any other Rose, makes up for all deficiency in that respect. The General is an early riser, and should be seen betwixt 6 and 7 o'clock in the morning unfolding his gorgeous robes, when he stands out unsurpassed like "the hero of a hundred fights." *Paul Ricaut, Falkirk.*

Polmaise Heating and "Heat Extractors."—Your correspondent "M." (Feb. 7, page 87*a*) thinks I confound the true Polmaise principle with the old cockle. I think he will perceive on reference to my letter that the distinction was present in my mind, although I may not have clearly enforced the difference. My words are—"The hot air chamber is constantly supplied with fresh air derived either from the external atmosphere or from the room warmed." I concede that the latter is the true Polmaise, and perhaps it would be well to provide a modified term for the modified apparatus. The strict Polmaise principle is not always applicable. It would not do so well for a comparatively small room as for a church, and in the latter case more regard would be necessary to the purity of the air than would be necessary in dealing with a conservatory or a greenhouse. With regard to the various contrivances for "extracting heat," I would just say one word. It will be generally found that this extraction is augmented by increasing the area of heating surface; and in order to increase the area, so many joinings and complications are introduced, or such inconvenient forms are resorted to, that the difficulty of working, and the frequent repairs necessary, and the choking and leaking, and other endless trouble are more than equivalent to the saving effected. *John Whitehead, Preston.*

Dioscorea Batatas.—Having noticed several articles in your columns respecting this esculent, I have sent you the following weights and dimensions, the produce of two tubers or sets, turned out of pots early last summer into a heap of loam intended for potting. One tuber weighs 2 lbs. 2 oz., and measures 2 feet 4 inches in length, and 7¾ inches in circumference; the other tuber, or rather three tubers they may be termed as they are joined together at the top but branch off into three distinct ones, measure respectively 2 feet 1 inch, 1 foot 2 inches, and 1 foot 9 inches in length, each of the three measuring from 5½ inches to 5¾ inches in circumference, and weighing together 2 lbs. 4½ ounces. The tubers were taken up in autumn but not weighed until the present time, very probably therefore they have become rather lighter, having been exposed in a dry airy place since they were taken up. *J. Griffin, Nurseryman, Bath.*

Amherstia nobilis.—A specimen of this magnificent stove tree is now in flower at Wynyard Park, the seat of the Marchioness of Londonderry; it is, I believe, the second plant of the kind which has blossomed in this country. The specimen now under notice was imported in the year 1852, being then but 9 inches high; it flowered for the first time in January, 1855. It is now a fine healthy tree with 17 flower spikes upon it, of which some are now in bloom, and have been for a week past. They will also be coming into flower daily for some time to come. *J. Stewart, Wynyard Park.*

Jerusalem Artichoke Tops.—The stalks and leaves of the Jerusalem Artichoke look rough, but if cut off when the plant is a foot or so high, and boiled in salt and water, with the lid off, they make a capital dish, which has exactly the flavour of the root. I have also been thinking (for I have not tried the plan) that if the roots were planted thickly in boxes slightly covered over with mould and then put into heat, either to be blanched like Seakale, or allowed to be green if approved of, it would be the means of rendering this root more valuable than it is at present. *James Cuthill, Camberwell, London.*

Rain at Ham, Plymouth, in 1856:—

	Inches.	Days.		Inches.	Days.
January	2.58	on 21	Brought forward	22.50	on 71
February	3.99	„ 10	July	2.17	„ 14
March	3.01	„ 5	August	3.96	„ 14
April	6.81	„ 15	September... ...	4.44	„ 18
May	3.41	„ 13	October	3.44	„ 6
June	2.70	„ 7	November... ...	1.09	„ 9
			December... ...	4.80	„ 14
Carried forward	22.50	„ 71	Total	46.40	„ 146

—*The Rev. C. Trelawny.*

Orchids that bloom in winter.—Having often heard it remarked both by gardeners and others, who are not very well versed in the growth of exotic Orchids, that they could never take any interest in their culture on account of their want of gaiety in winter, I beg to furnish a list, principally of the commonest and cheapest kinds in cultivation, and all to be had in flower in the months of January and February, when it is generally supposed nothing can surpass the conservatory for floral beauty. They are as follows:—

Cypripedium insigne
„ venustum
„ barbatum
Brassavola glauca
„ venosa
Dendrobium tetragonum
„ heterocarpum
„ nobile (varieties)
Epidendrum longicolle
„ floribundum
„ Cochleare
„ ciliare latifolium
„ myrianthemum
Maxillaria picta
„ glauca
„ variabilis lutea
„ Parkeri
Lælia anceps
„ acuminata
Angræcum viridescens
Leptotes bicolor
„ serrulata, and similar varieties
Barkeria Skinneri
Oncidium sphacelatum (the short spiked var.)
„ reflexum
„ leucochilum
„ Cavendishi
„ incurvum
Odontoglossum pulchellum
Lycaste Skinneri
Calanthe vestita (best variety)
Cycnoches chlorochilum
Catasetum (varieties)
Wailesia picta
Zygopetalum Mackaii
Phalænopsis amabilis
„ grandiflora
Ansellia africana
Sophronitis grandiflora
„ cernua
Cirrhopetalum Medusæ
Oncidium Papilio
„ incurvum

I scarcely need say that as the season advances I might add to my list weekly as regards quantity and superior sorts. *R. B.*

Calystegia pubescens.—Having observed one or two articles in your Paper concerning the double Convolvulus, and as the parties have evidently been disappointed in their wishes, perhaps Calystegia pubescens, or double Chinese Convolvulus (which I have seen twice in blossom), may answer the purpose just as well. The first time I saw it was at a country gentleman's house whither a few friends and myself had gone to see an ancient British tumulus that had been opened. The plant was growing by the hall door, and struck me by its singularity and beauty. The owner was absent by accident, and the ladies of the family did not know the name; but gave me a blossom and part of the root. On looking over the Horticultural Society's Journal for 1846, a woodcut of this very plant presented itself to my great delight, of which I send the description:—"Calystegia pubescens, raised from a small portion of the root found in a dead Pæony root, in Box No. 22, from Mr. Fortune's mission in China. The box was sent from Shanghai, and stated to contain a plant of the double Convolvulus, which was supposed to be dead when received at the Garden in June, 1844. This curious plant approaches very nearly to the C. sepium or larger Bindweed of our English hedges, from which it differs in having firmer and smaller leaves, much narrower bracts, and a fine pubescence spread over every part. It is the first plant of its order that has been mentioned as producing double flowers. They are about as large as those of a double Anemone, but the petals are arranged with the irregularity of the Rose; they are of a pale very delicate pink, and remain expanded for some days. The calyx is quite unchanged. The exterior petals are very much lacerated and irregular in form; those next the centre are narrow, drawn together in a kind of cone; the next central are completely concealed by those without them and diminish until they are mere scales, analogous to those which may be found in the first buds which burst in spring. Not a trace can be found in stamens or pistil. It is probably quite hardy if planted in a dry situation. It requires a rich loamy soil, and is easily increased by the roots. The roots very much resemble those of the common Bindweed (Calystegia sepium). It flowers freely in June and August. It is a very handsome climbing plant with large double flowers, which are produced freely."—Sept. 19, 1845. Such is the account in the Journal quoted above. Again, I saw the same kind of plant growing up the stem of a half standard Rose (which it concealed admirably), and looking very handsome, in the gardens of the Hon. Robert Clive, Oakley Park, near Ludlow, which he kindly throws open to the public at the Bromfield flower show. An acquaintance tells me it has only one fault, and that is it will scramble so about a garden if the soil is light, on which account he always grows it in a tub, otherwise I should say it would make an admirable bedding plant. *F. N., Ludlow.*

Crimean Oaks and Plants found near Constantinople.—In answer to your correspondent requesting to know which of the two Oaks I described in the Crimea was the true pubescens, I must admit, from either a mistake of mine or the printer's, the answer and description were rather vague, but the one I spoke of as having a downy variegated foliage while budding, and a grey green later afterwards, is the pubescens. The other bright green variety is, I believe, merely pedunculata; I do not remember to have seen Quercus pubescens on the Bosphorus, the Oaks there being coccifera, with a small very blunt acorn nearly enveloped altogether in the cup, the Oak with a long acorn on pendulous stalks, and the very miniature stiff-stalked acorn growing two or three in a cluster, the most perfect doll's acorn or fairy acorn one can imagine. I believe the true Quercus Zan or Mirbecki not to be at all like Quercus suber, which latter is very like Q. Ilex in habit and foliage, hard stiff brittle evergreen leaves; now Zan has large broad foliage of rather thin texture, semi-evergreen, narrow towards the footstalk, and very wide towards the upper end, and indented as much as Quercus pedunculata. Those I had gathered growing in the Cork wood, near Gibraltar, growing amongst the Cork and Quercus gramuntia, have been fully 6 inches long and about 3 wide. I see that another correspondent "S." is inquiring about plants near Constantinople; I send a small list for his information:—Cornus mascula or Akania of the Greeks, Kizzijick or Redwood of the Turks, from the wood of which they obtain the dye of their red fez, and the fruit stewed and mixed with water forms the most delicious acid drink in hot weather, and very useful in diarrhœa, being astringent (the flavour being like Raspberry vinegar). Can one produce plants of this Dogwood in England, I wonder? [It is only the old Cornelian Cherry, common in old-fashioned shrubberies.] Then there is Peppermint, Cistus, pink and white, Lavender, Arbutus, Privet, Pyracantha, Thorn, Judas tree, Mint, Jasminum revolutum, the true dusty-leaved pale-blush Damask Rose, a white and pink Dog-Rose, Dictamnus fraxinella, the pretty sweet-scented Erica arborea, its pure white flowers smelling like May blossom, and Pteris aquilina and Lastræa lobata. The horizontal Cypress mentioned is merely a seedling variety of C. fastigiata, about a fifth part of the seed growing in that manner. *Derru.*

Horticultural Society.—Now when this Society is about to be replaced upon a solid footing, permit me to use a sailor's phrase, viz., "Let us have a long pull, and a strong pull, and a pull altogether." Nurserymen derive immense benefit from such a society as the Horticultural, owing to the great stimulus it gives to their trade. I wish to suggest to Mr. M'Ewen, the newly appointed manager, in whom every gardener has the greatest confidence, that he must be an experimentalist in all new things, fruits, vegetables, and flowers; that the Society should issue a catalogue every autumn and as early as possible of the most approved things, cutting out all the aliases and worthless things, putting at once a stop to the manufacturing of all sorts of things as if by magic, as is now the case. The price of such catalogue to be 1*s.*; seed merchants will see at a glance that I am writing for their good, but against seed manufacturers. I would also propose that every new fruit, flower, or vegetable be sent to the Society, to be there tried before sending out. This, I am sure, will greatly benefit all parties concerned. Lastly, gentlemen, as an encouragement to their gardeners, would be doing much good by making them members of the Society. *James Cuthill, Camberwell, London.*

Change of Colour in Boletus luridus.—Most of your readers have witnessed the beautiful change from pale yellow to blue which takes place almost instantaneously when the pileus of Boletus luridus, or some closely allied species of the tube-bearing fungi, is broken. Archdeacon Robinson took great pains some years since to ascertain the cause, and came to the conclusion that the change of colour was due to an alteration of the molecular arrangement of the juice in consequence of exposure to the atmosphere without any actual chemical change. Professor Schœnbein has lately published some remarks on the subject, an abstract of which is given in *Botanische Zeitung* for Nov. 21, 1856. The conclusion at which he has arrived is different from that of Archdeacon Robinson, and is decidedly in favour of the existence of a chemical condition consisting of a combination of a peculiar substance with oxygen. The Professor had already observed that many organic substances are capable of such an association

with oxygen, that while they form no chemical union with it, they easily part with it to other bodies capable of oxydisation. This is the case with oxygen combined with Guaiacum, and he was led to believe from similarity of phenomena, that a like condition obtained in the flesh of Boletus luridus. A fragment which has turned blue from exposure to air almost instantaneously loses its blue tint when exposed to a stream of sulphuretted hydrogen, and in turn acquires a greenish blue tint when submitted to a weak atmosphere of chlorine, bromine, iodine or hyponitrous acid. When fragments which have become blue are exposed to air for some time, they acquire a brown tint, and lose the capability of becoming blue again whatever agent may be applied. If the fungus is crushed in alcohol, it assumes at first a yellow green, and then a pale yellow, but if a tincture is made by maceration for 24 hours in alcohol and expression of the juices, a deep brownish yellow fluid is obtained, which does not alter its colour by exposure to the atmosphere, but acquires a greenish blue tint by the application of a number of bodies which produce a blue tint in fresh tincture of guiacum, as weak watery solutions of chlorine, bromine, peroxide of manganese, peroxide of lead, the peels of raw Potatoes exposed to atmospheric air, &c. The greenish blue of the tincture of Boletus is due to the combination of some yellow matter with the pure blue substance which arises from the union of a peculiar principle with oxygen. The tincture in respect of its relation to oxygen is so similar to that of tincture of Guaiacum that Schœnbein concludes the proximate cause of the colouring must be the same in both. In the Guaiacum he believes the blue colour to arise from a feeble combination of the resin with ozonised oxygen, in the same way in which starch combines with iodine, and since the peculiar colourable substance is extracted from the Boletus by alcohol, it must, like Guaiacum, be of a resinous nature, though he has not succeeded in obtaining the colourable matter in a state of purity. He supposes that there is yet another substance in the Boletus which acts upon atmospheric oxygen as the matter or matters do which are found in the peels of Potatoes and in many other plants, and have the property of turning the tincture of Guaiacum blue, and that thus there is a substance in Boletus luridus capable of ozonising atmospheric oxygen, and entering into combination with it, from which it easily passes into the resin of the Guaiacum or Boletus and other matters capable of the reception of oxygen. The flesh of certain fungi which do not acquire a blue tint when exposed to the atmosphere was saturated with tincture of Guaiacum, and more or less speedily, according to age and species, acquired a blue tint, while with the tincture of Boletus it assumed a greenish blue. The expressed juice of these fungi when applied to the tinctures produced the same results, and since these tinctures can only acquire their respective blue and green blue tints by ozonised oxygen, such extracted juice must either contain ozonised oxygen in a greater or less quantity or must have the property of absorbing common oxygen, ozonising it, and entering into combination with it, and then parting with it to the resin of the Guaiacum or Boletus. The juice of the fungus when boiled loses its power of producing a blue tint, nor does it recover it when exposed to oxygen. At ordinary temperatures the ozonised oxygen may remain unaltered in the juice, but it gradually acts upon it in such a way as to destroy its power of producing a blue tint even when exposed to the air. Dilute white of egg mixed with the same juice, if the temperature is raised, robs it of its ozonised oxygen, and destroys its power of causing a blue tint. *M. J. B.*

New Way of striking Dwarf Scarlet Geraniums.—The late Mr. Catleugh, of Sloane Street, Chelsea, was the first to discover the plan of rooting cuttings of Geraniums of all sorts in the open air without shading. This was some 30 years ago, and the method is still practised. Mr. Robert Lloyd, gardener to W. Scorer, Esq., Champion Hill, has effected a fresh improvement on this plan; he cuts off large branches and strikes them in the manner mentioned above. By this plan he gets a two years' old dwarf scarlet at once, strong, bushy, and fine, making the plant altogether earlier, with a more profuse bloom. One plant takes the place of eight or ten upon the old system. In striking, Mr. Lloyd tells me that he does not lose one branch. *James Cuthill, Camberwell.*

Societies.

LINNEAN, *Feb.* 17.—Prof. Bell, President, in the chair. V. H. A. Holberton, Esq., was elected a Fellow. D. Hanbury, Esq., exhibited specimens of the fruit of Cycas revoluta, from Foo-Chow, China. The following papers were read:—1. "Note on the so-called perforations of Rhynchonella," by Dr. Carpenter. 2. "Description of a new species of Euplectella" (E. Cucumer, Owen), by Prof. Owen. 3. The commencement of a "Memoir on the characters and subdivisions of the class Mammalia," by Prof. Owen. In this elaborate and learned memoir, after describing the various modes in which the mammalia have heretofore been classified, the author enters into an explanation of the system which his own observations have led him to adopt.

ENTOMOLOGICAL: ANNIVERSARY MEETING, *Jan.* 26.—W. W. Saunders, Esq., F.R.S., President, in the chair. The Treasurer's accounts having been audited, showed a prosperous state of affairs, with a larger balance in hand than on any previous occasion. Messrs. Wollaston, Grut, Pascoe, and J. E. Gray were elected new members of the Council in the room of four members retiring from length of service or non-attendance. The President and other officers were re-elected without opposition, and the President delivered an address on the state of the Society, and on the general progress of Entomology.

Feb. 2.—H. T. Stainton, Esq., in the chair. Mr. Samuel Stevens exhibited a box of beautiful moths and butterflies collected by Mr. Bates on the river Ega in Brazil. Mr. Janson read a note on the nomenclature of a species of Staphylinidæ belonging to the genus Bledius recently captured on the coast of Devonshire by Mr. Parfitt. A paper was read by Mr. E. Newman on binary species of insects suggested by the occurrence in many genera of Lepidoptera of two British species very closely resembling each other, such as the two clouded yellow butterflies, the two red underwing moths, &c. A list of upwards of seventy such pairs of species had been drawn up. Mr. Stainton said, that in many of the instances the binary division was untenable, as intermediate species occurred on the Continent, and Mr. Lubbock observed that the cases cited by Mr. Newman were simply instances of the close affinity existing between the most nearly allied species, which nobody had ever questioned. Mr. Newman also read the description of a supposed new species of Carabus from the Morea. Mr. Waterhouse stated that without any attempt at discrimination with allied species in such a numerous genus, an isolated description like this was nearly worthless; the author having fallen into errors which such a comparison would have prevented. A conversation took place on the different kinds of mould with which collections of insects are attacked, and the best means of preventing the mischief arising therefrom; also on the use of pins coated with varnish of different colours, in order to prevent the growth of verdigris and the development of grease, and also with the view of distinguishing different localities.

HORTICULTURAL OF CEYLON.—*Nov.* 26 and 27, 1856. We learn from the *Colombo Observer* that this was a meeting of some importance, as indeed is sufficiently shown by the following enumeration. We at a distance are most especially gratified at seeing how much the commercial products of this island, oils, timber woods, textile materials, &c., occupied attention. Punctually at 4 P. M. the gates of the Racket Court Garden were thrown open, and a large concourse of people, comprising all the *élite* of the Colombo society, was admitted through a path meandering between flower beds, to see and study a grand display of Nature's workmanship selected from the animal, vegetable and mineral kingdoms, and spread out in all their gorgeousness and beauty under the picturesque canopy of the Circus Bungalow covered over with creepers and crowned by a Cocoa-nut leaved diadem. His Excellency the Governor and Lady Ward, the patron and patroness of the Society, presided on the occasion. The uniform of the military officers and the sombre garments of the civilians contrasted with the graceful dresses of the fair sex, and blended with the rich and fanciful costume of the Asiatics formed a checquered scene enlivened by the music of military bands in attendance. The Exhibition building was partitioned off into two rings—the one being outer and larger—the other inner and smaller. The centre was occupied by a raised dais. The benches lying on the outer ring were allotted to the Modliars and Mohandirams of the various Corles of the Western Province. Mr. C. H. Bandarenaike, Modliar, of the Cina Corle, brought in the largest collection of fruits and Yams. He exhibited also a vegetable monstrosity in the shape of a Cocoa-nut plant with eight stems branching off the same seedling. A cane of his, 200 feet in length, and his Nipara or Kittool juice converted into delicious sugar, attracted much attention. In the collection of Mr. Casie Chetty, Modliar, of Hapitigam Corle, were found the best specimens of Ceylon-grown Cotton, candles prepared from Vegetable Wax, the fruit, kernel and flour of the Madu tree. The Tapioca tree was exhibited by this Modliar in all its various uses. Cinnamon and Coir Rope of the finest quality were amongst other objects contributed by Mr. Rajepakse, Modliar, of Kaderani Cinnamon Gardens. Jeronis de Zoysa, Modliar, of Morotto, sent in the largest Cocoa-nuts and the best Mangoes. Coffee was not forthcoming, nor was it supplied by any other person. Negombo was represented by different species of Tobacco, Cotton, fine grain, and other interesting articles sent in by Mr. Mendis, Modliar, and Harmanis, Police Vidahn. Next in turn was Mr. Dassenaike, Modliar, whose forte lay in varieties of Rice, Plantains, King Cocoa-nuts, and Areka-nuts. Mr. Valentyne De Saram, Modliar, was distinguished by his collection of Yams, Melons, Mangoes, and Oranges. His Kittool flour was much admired. Mr. David de Alwis, Modliar, contributed among other things Ceylon Ginger, Paddy, Cocoa-nut fibre, and Yams of various descriptions. The Salpity Corle Modliar was noted especially for his Oranges. Migel Perera, Vidahn Aratchy of Ragame, exposed Tapioca, Arrow-root, and fibres prepared from 30 different plants. In the collection of Mr. A. Mendis, Modliar, of Morotto, were found many interesting articles. A glass case contained 35 live specimens of fresh-water fishes from the Cantura and Cotta rivers. There were 95 samples of Ceylon-grown timber with an English list of their names encased in a neat Ebony box: various kinds of Ceylon and foreign coins were neatly arranged in a tray covered with glass. There were also exhibited by this Modliar other articles of curious workmanship carved out of Ebony. Boxes containing specimens of the most rich and exquisite native workmanship in ivory and silver were laid out in order on the table allotted to Mr. D. De Rubeyro. Vinegar extracted from the Jack fruit was the property of Mr. A. Dias, Mohandiram of the Cutchery. Mr. Livera, Mohandiran, exhibited some good specimens of English vegetables grown in pots. In the portal of the buildings was placed a table on which were spread out a great many varieties of oils contributed by Mr. C. P. Layard. In the inner ring of the building were ranged rows of flowers in pots. Part of it was also occupied by the Industrial School, Colombo. Amongst those who contributed to this department were noticed with praise Mrs. Temple, Mrs. Staples, Miss Layard, Mrs. Duff, Dr. Thwaites, Mr. Nietner, Dr. Wambeek, Mr. Stork, and Mr. Martenez, and Migel Perera, Vidahn Aratchey, of Ragame. Amongst flowers in pots the China Asters from Mr. G. W. Stork's garden merited especial notice. The Industrial School, under the superintendence of the Rev. Mr. Thurstan, sent arranged on a pink ground, in the best order possible, fibres from 20 different plants, including the Pine, the Plaintain, and the Aloe, three different kinds of Coir fibre; articles of various forms and colours manufactured from the wild Date leaves; carved wood work executed with great delicacy; Arrow-root and Tapioca of the best description; dried Plaintain fruit; the finest Cocoa-nut oil; carved Cocoa-nut shells; tats in great variety; a marine aquarium; and a glass case enclosing Ferns of various kinds. Mr. Wright, of Peradinea, contributed 3 specimens of carpets prepared from Plaintain fibre, wool, and silk obtained from silkworms reared on his grounds. The dais in the centre was exclusively allotted to cut flowers, jungle flowers, and bouquets. Success in this department was to be mainly attributed to the liberality of Mrs. Temple, Miss Layard, Mrs. Staples, Dr. Wambeek, and Mr. Martenez, whose rich collections of Pinks, Carnations, Petunias, and Dahlias extorted the admiration of every visitor. As to birds and animals, there was perched on the portal of the Bungalow an eagle in all severity. This was exhibited by Mr. Misso. There were also to be found parrots and pigeons from Australia, bantams from China, fowls from Cochin China, jungle fowls and a cross between the jungle and domestic fowls exhibited by Mr. C. Dias, and Guinea fowls, white turkeys, partridges, and ducks. In the grounds adjoining were tethered a great many animals, amongst which we noticed an elephant, the property of Mr. Layard, elks, deer, goats, Persian goats, a porcupine and a Persian cat. The prizes were distributed by his Excellency the Governor on the first day of the exhibition.

Notices of Books.

Personal Narrative of the Origin and Progress of the Caoutchouc or India Rubber Trade, &c. By Thos. Hancock. 8vo, Longmans, pp. 283.

We have many personal narratives, but not one more interesting and instructive than this; interesting because of the important processes that it elucidates, instructive as showing out of how small, we may say, insignificant a beginning those processes have been extracted by patient industry and skill of no common order. Mr. Hancock is the father of the Caoutchouc manufacture; it is to him we owe everything of importance connected with that large branch of industry; whether we rest on an air-tight bed, or float on an air-tight boat, or are sheltered by a water-tight cloak, or walk dry shod through the mud, it is to Mr. Hancock that our thanks are due. Nor must we forget the assistance which the medical practitioner has derived from his flexible tubes and elastic stoppers, or the gardener from his vulcanised hose, or the decorator from his medallions, tracings, and bas reliefs, or the comb-maker from his hard preparations, or the engineer from his elastic springs. In short, there is scarcely a trade, profession, or occupation which has not felt the benefit of his ingenuity. Even the lawyer has to thank his elastic bands for getting rid of red-tape and tying.

And out of what has all this sprung? The milk of a tree growing in tropical America, hardened by mere exposure to the air into a substance wrongly called gum, and while soft moulded by savages into bottles and grotesque forms, was sent to Europe in 1736 by De la Condamine. For years it was used for nothing except rubbing out pencil marks, and at one time fetched a guinea an ounce; but in the year 1855 above five million pounds' weight were imported into Great Britain, from different parts of the world, of which 935,000 lbs. were re-exported.

How this has been brought about, with what patience under failure, what perseverance against want of means, what struggles with the difficulties that surrounded the ingenious inventor, Mr. Hancock relates in his own simple manner, and to his pages we refer the reader seeking for details. "It is a singular fact," says our author, "that although this substance had attracted the notice of chemists from the earliest date of its importation into Europe, and some of the ablest had employed themselves upon it, they failed to discover any means of manufacturing it into solid masses or to facilitate its solution. I was at first imbued with the notion that, to make it useful, I must find a good solvent; and I think my first experiments were directed to some attempts to dissolve it in oil of turpentine, but I found I could only make very thin solutions, and these dried so badly, or rather not at all, that they were useless. The oil of turpentine then procurable was no doubt of inferior

quality; when pure it dries perfectly. This was about the year 1819. Failing in making useful solutions, I began to think it might be applied as an elastic to various purposes, particularly to articles of wearing apparel. I knew that, although perfectly flexible and extremely elastic when warm, it became rigid when exposed to a low temperature, but still that the warmth of the body was sufficient; consequently, when in use, it retained its elasticity. After various trials, I entertained no doubt that I could adapt it to many uses where elasticity was desirable." And from this grew up the vast fabric of his invention.

Not entirely, however; for there was no end of unexpected impediments. When he attempted to adapt his elastic material to articles of dress the needle holes tore out, the cutting knives would not work, the new springs would not stand wear, but snapped and were returned upon the maker's hands. As the manufacture made progress waste pieces accumulated fast, and the supply of raw material being insufficient it became necessary to use up the cuttings, but it was found that they would not reunite. This difficulty was overcome in the year 1820, and from that time the manufacture of India-rubber articles as a great branch of trade may be said to date.

For the numberless experiments, most of which of course ended in failure, and all the details of that triumphant success with which Mr. Hancock's inventive genius was ultimately crowned we must refer the reader to the volume itself, 15 pages of which are occupied by a mere enumeration of the articles now made out of rubber.

The following new pamphlets are upon our table, viz., *Dr. Smith on the efficacy of small doses of morphia in Hooping Cough, &c.* (from the Edinb. Med. Journal); *Pagan on road reform; a plan for abolishing all Turnpikes, Statute Labour*, &c. (Blackwoods); *What is to be done with our Criminals?* By C. Pearson, Esq. (Hall and Virtue).

Messrs. Routledge are bringing out a 4to edition of *Shakspeare* in shilling monthly numbers, copiously illustrated with woodcuts after the designs of John Gilbert. We can only say that it is extremely well done, and will prove a most welcome addition to everybody's library of cheap books. Some of Dalziel's woodcuts would be well placed in the most costly books of the kind.

Miscellaneous.

Processes and Conditions of Petrifaction.—The process of petrifaction, generally speaking, consists in the infiltration of stony matter into the pores of vegetable or animal substances. In some instances the organic body has almost entirely disappeared, and the stony matter has been so gradually substituted, particle for particle, that the petrifaction presents a perfect resemblance in its minutest parts to the original structure. Petrifaction has been artificially imitated by burying bones in mud, clay, and lime, and it has been found that after a time the bones become black, harder, and heavier; and had the process been continued, they would have eventually been undistinguishable from true fossils. Springs holding lime or flint in solution are familiar examples of petrifying agents when they convert pieces of moss, straw, twigs, and branches, into calcareous and siliceous mattar. Lime and flint are perhaps the most abundant petrifying substances in nature; but many fossil bones and shells are converted into metallic crystals, vegetable remains into bituminous masses like coal, and not unfrequently trunks of trees have their forms perfectly preserved in a strata of fine-grained sandstone. Without entering upon the obscure and as yet little studied processes by which organic substances are preserved in the crust of the earth, we may notice a few of the more obvious, rather with a view to indicate the nature of the subject than attempt to teach its details. A shell, like the common cockle, may be buried in a mass of calcareous mud, and when so enclosed it is of itself composed of carbonate of lime and a little animal matter. As it remains imbedded chemical changes take place—the animal matter decomposes and passes off in a gaseous state, and its place is supplied by an additional infiltration of lime from the mass. If iron in solution be present in the mud, the sulphuretted hydrogen arising from the animal decomposition will unite with the iron, and the shell will become coated or incrusted with shining iron pyrites, or sulphuret of iron. As the calcareous mass becomes consolidated into limestone-rock, the shell will also become hard and stony, but still preserving its form to the minutest ridge and corrugation of its exterior surface. By-and-by, carbonated waters may filtrate through the pores of the limestone; the shell may be dissolved entirely, and leave only a hollow cast of its form. Another change may now take place: water holding silicious matter may percolate through the rock, and the hollow shell-cast be filled entirely with flint. As with flint, so with crystallised carbonate of lime, with iron pyrites, or even with a soft clayey deposit that yields to the scratch of the nail. All these are possible changes, and changes which every day present themselves to the palæontologist; and as with a shell, so with a tooth, a fragment of bone, a fish scale, a mass of coral, the net-work of a leaf, or the woody fibre of a drifted pine-branch. The structure of the organism is always more or less preserved, and forms a basis for the petrifying solution, which thoroughly pervades it without disturbing the arrangement of those parts on which its characteristic form depends. It is this form or external character which enables the palæontologist to compare and classify fossils with existing plants and animals; and it is this internal arrangement of cell and fibre, as revealed to the microscope, that enables him to detect bone from shell, and the bone of a bird from the bone of a mammal.—*Advanced Text-Book of Geology, by David Page, F.G.S.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Camellias, Acacias, Cytisus, Rhododendrons, Eutaxias, Epacrises, Correas, Azaleas, and last but not least, Roses should now be a blaze of beauty where plant growing is well attended to. They will soon require abundance of water, to which clear liquid manure should be occasionally added. Dispense with fire-heat as much as possible. Let canvas screens be at hand for shading slightly the brightest parts of the house for two hours or so on sunny days. In stoves Orchids will now be pushing fast, and many of the blocks and baskets of Stanhopeas, Gongoras, Dendrobiums, &c., will require to be syringed; let this be done early on sunny mornings, and give air freely for a couple of hours for fear of moisture lodging amongst the buds. In shifting large specimens in pots, break the pot carefully without injuring the roots, and shift the whole mass at once. Terrestrial Orchids in general will do better in loamy turf, and leaf mould not too much decayed, blended with the lumps of peat. Renew Moss on blocks forthwith. Attend to disrooting and pruning back Justicias, Vincas, Clerodendrons, Eranthemums, Geissomerias, Plumbagos, Poinsettias, Erythrinas, &c., at least those exhausted by flowering and a few for early work. Those done first will be earliest next autumn and winter. Force on Fuchsias where fine and large specimens are required; a moist atmosphere, with a slight degree of shading, will run the shy sorts into wood and retard their flowering. Those wintered in cellars should now be potted, in order to give them a start for the decoration of lawns or the flower garden. Brugmansias, if in pots, should be disrooted and started in peat. Shift when necessary Australian and Cape plants in a growing state, likewise Pelargoniums, Calceolarias and Cinerarias, with a view to having fine specimens. Pot successions of Gloxinias and Achimenes, and keep them rather dry and warm. In forcing pits keep Roses free from insects, watering frequently with liquid manure. Dutch bulbs should not be permitted to stay long here. Hyacinths lose much of their effect when their bells are too far asunder through having had too much excitement in proportion to light. Sow tender annuals. Do not forget Phlox Drummondi and Rhodanthe Manglesi, &c. Give air to cold pits at all times when there is no frost. Pot off stores for the flower garden and get them forward, more especially scarlet Geraniums, Heliotropes, Verbenas, &c.

FORCING DEPARTMENT.

PINERY.—Give plants swelling their fruit as much liquid manure-water as the state of the soil will permit, and afford them a thoroughly moist atmosphere day and night. Admit fresh air when the thermometer rises to 80° or 85°, but do this by opening the ventilators on one side of the house only, and by no means allow currents to blow through the house and rob the atmosphere of its moisture. See that a steady bottom-heat of from 80° to 90° is maintained, but do not exceed the latter. Let succession plants start slowly into growth, which will induce a compact sturdy habit. Do not exceed 60° by night here, and give a little air when the glass rises to 75°; keep the atmosphere moist; also attend to the bottom-heat, and see that the soil is not allowed to become too dry or get sodden, which is apt to be the case from syringing heavily, which, however, is a very bad practice. The syringe should be used merely to dew the plants, and when the soil requires water a good soaking of clear weak manure-water should be given. VINERIES.—As the berries swell in the early house look over the bunches carefully, with a view of ascertaining whether they have been sufficiently thinned, and go over any bunches at once which may require a second thinning, for it is great injustice to leave the berries to be cut out after they are stoned, which is by no means an uncommon practice. PEACHES.—Keep the young shoots neatly and regularly tied in, so as to admit light and air freely to the foliage, and keep green fly and red spider at a distance; also apply sulphur immediately if mildew is perceived. Look to previous Calendars and be careful not to push succession houses too fast. Keep the atmosphere moist, but avoid using the syringe on trees in blossom.

HARDY FRUIT AND KITCHEN GARDEN.

Make sowings forthwith on properly situated beds of the following vegetables—Green Kale, Savoy, Leeks, Brussels Sprouts, Cauliflower (a pinch), and dwarf Cabbages; also a little Pomeranian Cabbage; a sprinkling of some good late spring Broccoli may also be added. Get in plants of Parsley; soot dressings have been highly recommended for this crop. Give a slight salting to Asparagus beds and Seakale ground, and dress with soot all Strawberry plantations requiring manure. Sow Peas, Beans, and Radishes as soon as the former sowing is fairly above ground. Prick out very early Celery in a frame. Old Melon bed dung made firm is good, and prevents tap roots. Sow all herbs, sweet Marjoram, and sweet Basil, on heat. Cover up with litter all early slopes of Radishes, Horn Carrots, &c., whilst the sun shines (about 3 o'clock), and water them once a week with tepid clear manure. As regards fruit trees protect by all possible means the blossom. Straw ropes, mats, canvas, bunting, Fir boughs and Fern should all or some of them be in requisition. As soon as nailing is finished, in the case of Peach trees, mix sulphur and soap water with clay to the thickness of paint, and draw a band of the mixture between the shoots in all directions; this once done, and that well, will help very much to secure the trees from red spider. Proceed with grafting, following in the order in which the buds break. Thrust a wisp of hay once a week into white Broccoli, the heads of which are showing, for fear of frost.

FLOWER GARDEN AND SHRUBBERY.

A thorough collection of the best hardy annuals should now or very soon be sown. They are of most service and most esteemed before the gay masses of Verbenas, Pelargoniums, &c., come to perfection. Where a frame or pit is at liberty sow them in small pots in loamy soil, and do not turn them out until they are slightly pot-bound; the flower then gains the predominance, and the great proportion of this above the leaf constitutes the chief beauty of many annuals; they are more easily protected also from slugs. Get Dahlias in heat directly for propagation.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Feb. 26, 1857, as observed at the Horticultural Gardens.

Feb.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain
Friday 20	25	30.180	30.129	52	30	41.0	43½	41	S.W.	[illegible]
Satur. 21	26	30.278	30.227	53	33	43.0	43	41	S.W.	[illegible]
Sunday 22	27	30.255	30.230	55	25	40.0	44	41½	S.W.	[illegible]
Mon. 23	28	30.264	30.230	52	24	38.0	44	41½	S.W.	[illegible]
Tues. 24	[illegible]	30.154	30.039	53	22	37.5	43	42	S.W.	[illegible]
Wed. 25	1	30.280	30.128	42	22	32.0	42	41½	S.W.	[illegible]
Thurs. 26	2	30.461	30.451	51	23	37.0	42	41½	S.W.	[illegible]
Average..		30.267	30.205	51.1	25.5	38.6	43.1	41.4		[illegible]

Feb. 20—Dense fog; fine; slight shower in forenoon; slight frost.
— 21—Foggy; overcast; cloudy at night.
— 22—Fine; slightly clouded; fine; frosty.
— 23—Foggy; dense dusky haze; fine; frosty at night.
— 24—Overcast; foggy; fine; frosty.
— 25—Dense fog; hazy and cold; rain; frosty at night.
— 26—Frosty; bright sun all day; frosty.

Mean temperature of the week 1 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending March 7, 1857.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	47.4	34.7	41.1	13	0.62 in.	5	3	2	3	4	6	4	[illegible]
Mon. 2	49.1	36.0	42.6	12	0.45	3	4	3	—	3	10	[illegible]	[illegible]
Tues. 3	49.3	33.0	41.2	13	0.28	2	6	3	1	3	8	6	[illegible]
Wed. 4	48.9	32.0	40.4	10	0.48	3	9	1	3	3	6	5	1
Thurs. 5	48.1	31.4	39.7	9	0.40	2	7	3	2	4	7	4	[illegible]
Friday 6	47.9	31.8	39.8	11	0.26	1	9	3	1	2	5	[illegible]	[illegible]
Satur. 7	49.0	32.1	40.5	11	0.11	3	6	4	1	4	8	3	2

The highest temperature during the above period occurred on the 1st, 2d, and 3d, 1846—therm. 60 deg.; and the lowest on the 5th, 1845—therm. 13 deg.

Notices to Correspondents.

BOILERS: *T J M D.* The case is entirely one for a solicitor; we never give a legal opinion. Your remedy lies we presume in the county court.

BOOKS: *J W.* Roberts on the Vine, with the exception of the use of carrion in the borders. It is published by Longmans. We do not know the price.—*D E.* Glendinning on the Pine Apple Moore on the Cucumber and Melon. For prices you must apply to booksellers.—*R Windford.* Begin at once with Lindley's School Botany, studying first the systematical and then the physiological part. You cannot begin too soon.

BULB: *York.* A Turnip is not a bulb, but a large root. A bulb is a large bud.

HARDY PLANTS TO COVER A WALL N.E. AND W.: *H H.* Pyracantha, Cotoneaster, any of the small leaved sorts, American Creeper, small leaved Ivy, Camellias, and Fuchsia Riccartoni, if you are not to the north of London; any of the Cephalotaxi, Taxus adpressa, Glycine sinensis, Jasminum nudiflorum, yellow berried Holly and yellow berried Yew kept nicely pruned, Clematis flammula, montana, and viticella.

HEATING: *Anon.* The second plan is the best; but great care will be required in getting levels, &c. Take care you do not fall into unskilful hands, like a correspondent who after putting up a very expensive apparatus has been obliged to pull it all down again.

LARGE TREES: *W T Rivers.* Mr. Barron, Elvaston, Derby.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W & B.* 1, Pteris serrulata; 2, Nephrodium molle; 3, Goniopteris tetragona. There is no modern work containing descriptions of British and foreign Ferns. Sir W. Hooker's Species Filicum when completed will be the best. One volume and the first part of the second volume is published. *S.—T F R.* Peziza coccinea.

NEW FLOWER AND KITCHEN GARDEN SEEDS: *Caroline.* A catalogue has been sent here for you. What are we to do with it.

PELARGONIUM DAVEYANUM: *R T C* is so good as to say he can help our correspondent "A B" to a genuine plant of this old sort.

THE SCOTTISH GARDENER: *R Maher.* We shall resume the discussion as soon as the space at command and other circumstances will permit.

THE YEW TREE: *Deodar.* It is a popular error to suppose that those trees which do not bear berries are poisonous, and that those which do are not so. The Yew leaf is under all circumstances an acro-narcotic poison, producing in the human system giddiness, prostration of strength, vomiting, spasms, irregular action of the heart, ending in death. Nevertheless, in small doses the leaves act as an emmenagogue, as might be expected, considering the relation of the Yew and the Savin. Cows and other animals have perished from feeding on the leaves. It is, however, said that the leaves are not equally dangerous at all seasons, which is extremely probable. The notion that Yew trees bearing berries are not poisonous probably arises from the fact that the pulpy cup (or berry) of the Yew seed is itself harmless. Children suck it with impunity; but if the seed is crushed before being swallowed the poisonous action immediately ensues. If the seeds are swallowed whole their hard shell seems to prevent the escape of the poisonous principle, and they are soon evacuated.

VINERY: *S F W.* By all means let it be span-roofed, not less than 18 feet wide, with the S. end of glass, and the N. of brick-work. Plant the Vines so as to go up both sides; we prefer that method.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

LONDON MANURE COMPANY
(Established 1840).

In consequence of the further rise of 1l. per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

Trustees.

Abel Smith, Esq., Jun., M.P., Walton House, Ware, Herts.
Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-Gen. Hall, M.P., Weston Colville, Linton, Cambridge.
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Offices, 109, Fenchurch Street, London.
Manufactory — Plaistow Marshes, Essex.

The Directors of the above Company have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and having secured nearly the whole of the Blood produced by the butchers of the metropolis,* and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and the fact that they and the Shareholders themselves FARM UPWARDS OF 30,000 ACRES OF LAND, cannot fail to afford a guarantee and protection to their brother farmers.

BLOOD MANURE FOR TURNIPS.

The Phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Super-phosphate of Lime, and, the Blood supplying Nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or, if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B.—For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though two or three cwt. per acre will produce a superior crop to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20 or 30 tons an acre; so that an addition of eight or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

It is now upwards of four years since the Patent for the Manufacture of this Manure was taken out, and the great success which has attended its application, BOTH FOR CORN AND ROOTS, has produced a great demand for it;—the success has led other manufacturers of Manure to adopt (as far as they can without infringement of the Patent) the title of Blood Manure for their manufacture, and Blood Manure is offered by most makers. But the Directors of this Company have thought it right, for the protection of their own interest, as well as for the information of the consumer, to collect statistics from the Clerk of the Cattle Market, Salesmen, and Butchers of London, showing the quantity of blood produced in the Metropolis and suburbs, and how it is disposed of.

By these statistics it will be seen that this Company receives nearly the whole of the blood produced in the metropolis—what they do not receive is principally used by sugar bakers—leaving a very small quantity indeed to be manufactured into manure by any other persons or companies; and the Directors of this Company wish the agricultural public to be made properly acquainted with these facts.

* STATISTICS OF THE PRODUCE OF BLOOD IN LONDON:—

The number of Beasts, Sheep, Horses, Calves and Pigs, slaughtered in London, during the year 1856...	821,705	
The average produce of Blood from this number of animals is...	802,900	Gallons.
The Nitro-Phosphate or Blood Manure Company (Limited) have received during the year 1856	771,000	"
Or nearly 2,500 gallons per day.		
Balance for sugar bakers and other purposes...	31 900	"

Every bag contains 2 cwt., is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised agents of the Company.

SUTTON'S GRASS SEEDS

AT THE ROYAL FARMS, NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, and LAWNS, are now sown at the Royal Farms, at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest estates in the kingdom. Messrs. SUTTON'S Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.

SUTTON'S MIXTURES FOR LAYING DOWN LAND TO PERMANENT MEADOW OR PASTURE.

The sorts contained in these Mixtures are grown in different localities, and gathered separately by the hand expressly for this purpose, by which means all noxious weeds are excluded; they consist of the most nutritive kinds of Fescues, Poas, Sweet Vernal, Perennial Clovers, Loliums, &c., and each sort being kept separate, they are subsequently mixed in such sorts and proportions as are most suitable to the soil to be laid down. The quantity we usually supply is 2 bushels of light Seeds and 12 lbs. heavy Seeds per acre. Price 24s. to 32s. per acre.

*** *For large quantities, special contracts may be made at reduced prices.*

THE MIXTURES ABOVE REFERRED TO ARE MIXED EXPRESSLY AS UNDER:

MIXTURES FOR CLAYS AND HEAVY MARLS.
MIXTURES FOR SHARP GRAVELS AND LIGHT SOILS.
MIXTURES FOR DRY SANDY SOIL.
MIXTURES FOR GOOD LOAMS OF MEDIUM TEXTURE, OR GOOD BARLEY LAND.
MIXTURES FOR RECLAIMED MARSHES AND HEATH LANDS.
MIXTURES FOR CHALKY UPLANDS AND SHEEP DOWNS.
MIXTURES FOR WATER MEADOWS.
MIXTURES FOR PARK LAWNS.

EVERGREEN GRASSES FOR CHURCHYARDS AND CEMETERIES.

SUTTON'S RENOVATING MIXTURE,

For Improving Parks, Meadows, and Pastures, 9d. per lb., or 80s. per cwt; (8 to 12 lbs. per acre required).

MIXTURES FOR ONE, TWO, OR THREE YEARS' PASTURE OR HAY.

These we can supply of best quality, at 20s. to 24s. per acre. In ordering these mixtures it is necessary to state whether they are required principally for pasture or for hay.

MIXTURES OF CLOVERS AND RYE-GRASS

To be sown with Corn, for a crop of Clover, &c., in the following year. These we can supply of best quality at 19s. per acre, or 20s. with ITALIAN Rye-grass.

SUTTON'S FINE LAWN GRASS SEEDS.

The finest garden lawns are formed from these Seeds, which are perfectly free from weeds and coarse Grasses. Price of seeds, 1s. per lb., or 20s. per bushel. Quantity required for making new Lawns, 3 bushels, or 60 lbs. per acre; for improving old Lawns, 10 to 15 lbs.

SUTTON'S PRICED LIST OF FARM AND GARDEN SEEDS
WILL BE SENT POST FREE ON RECEIPT OF ONE PENNY STAMP.
ALL KINDS OF SEEDS CARRIAGE FREE EXCEPT SMALL PARCELS.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12l. 15s. per ton, packages included; in less quantities at 13l.

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

CRYSTAL PALACE.—POULTRY SHOW.—GRAND EXHIBITION OF CHICKENS, GOSLINGS, DUCKLINGS, TURKEY POULTS, AND PIGEONS.—The Directors beg to announce that the Summer Exhibition of Poultry will take place on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, August 8th, 10th, 11th, and 12th. The Prize Lists, Rules, and Regulations will be ready for delivery on the 1st May.

The Second Grand Winter Exhibition of Poultry of all ages will take place on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, January 9th, 11th, 12th, and 13th, 1858.—All communications to be addressed to Mr. WILLIAM HOUGHTON, Secretary to the Poultry Exhibition.

By Order GEO. GROVE, Secretary.

KING'S COLLEGE, LONDON.—A COURSE of SIXTEEN LECTURES on AGRICULTURE and the MANAGEMENT of LANDED PROPERTY, by J. LOCKHART MORTON, Esq., will be commenced on MONDAY, 27th April, at 3 P.M. Introductory Lecture Free. Subject—"How to make the most of Landed Property." A Syllabus of the Course may be obtained from Mr. MORTON, 26, Parliament Street, Westminster, S.W., or from the Secretary King's College, London. W. C.

R. W. JELF, D.D., Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.

Offices, 52, Parliament Street, London.

HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
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4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay WILLIAM CLIFFORD, Sec.

TO AGRICULTURISTS, WHERE A SUPPLY OF WATER EXISTS WITH A GOOD FALL.

TURBINE WHEEL FOR SALE, suitable for turning Farm Machinery, and capable of working from 2 to 4-horse power, according to the fall of water. Warranted new.—For further particulars, apply to Messrs. WIGHTMAN & Co., Chard.

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Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S,
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E
Assistant to Chemical Professor—A. Sibson.
Manager of Farm—J. Coleman.

Students are admitted after the Summer and Winter Vacations—also in April and October. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40l. per annum.

The chief attention of the students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry; Geology, Botany, Veterinary Medicine and Surgery, Surveying and Civil Engineering which have been so arranged that, where time is of consequence, a course of Lectures on each of the aforesaid subjects may be attended in two sessions or one twelvemonth, though a longer period is recommended to those who wish to go thoroughly through each department. The students are periodically examined in the subject of these Lectures, and receive honorary certificates and prizes, according to their proficiency. There is an Elementary Class for those who are too young or too backward to attend the regular courses with advantage

The Practical Instruction in Agriculture is given by the Farm Manager on the Farm, where the students have an opportunity of becoming acquainted with and taking part in the manual operations of Husbandry.

A well appointed Laboratory is devoted to instruction in Chemical Manipulation and Analysis, which are taught to each class of students in succession, under the superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring, in the use of the Theodolite and other instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

A Veterinary Hospital is fitted up for the reception of diseased animals of all descriptions, with Pharmacy, &c., attached, where the students have opportunities of taking part in dispensing the medicines employed, and of witnessing dissections, operations, &c.

A good system of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural Information in general.

Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy, Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

RENDLE'S FARM DIRECTORY FOR 1857. By JOHN C. MORTON, Esq. Price 1s.; Bound Edition, 1s. 6d. SIMPKIN, MARSHALL, & Co., London.

SUTTON'S FARM SEED LIST WITH PRICES FOR MARCH AND APRIL and Instructions on Cultivation will be ready in a few days, and will be sent Gratis and post free to any address.—Royal Berkshire Seed Establishment.

The Agricultural Gazette.
SATURDAY, FEBRUARY 28, 1857.

THE report in another page of the discussion before the Highland Society on the present state of the guano trade will be read with interest. Mr. FINNIE's comparison of our present position with that of the first year or two of our guano imports when the manure was sold at a price that fell at once before the light thrown on it by the chemist, is calculated to reassure us. A corresponding fall is not to be expected now, because

high as the existing price at present is it does not equal that from which Peruvian guano fell some years ago after the manufacturers of artificial guano had been set agoing, and after Ichaboe had been discovered. Both of these causes will however have been set in operation once more by the recent rise in price. Koorya Moorya will take the place of Ichaboe, and the artificial manure market will be spurred on to redoubled activity. In order to the full efficiency however of the Ichaboe of 1856 and 1857, it must, like that of 1845 and 1846, be freed from the influence of monopoly. The grant for years of the control which its discoverer claims is precisely the mode of rewarding him which will most diminish the value of his discovery to English agriculturists. Captain ORD's claim to a reward is one which every one admits, and it is for the interests of agriculture that it should be liberally acknowledged. But a new monopoly, such as that which has left us in the lurch as regards Peruvian supplies, must not be permitted if the influence of the agricultural body can hinder it. And we are glad to see that this was one of the points urged by the Highland Society's deputation on Lord STANLEY of Alderley.

The points urged were :—1st. The importance of securing possession of, and protecting shipments from the Koorya Moorya Islands on the Arabian coast. 2d. The propriety of fitting out a special expedition, carrying a chemist with analytic apparatus, to explore the latitudes in the Pacific where deposits of guano or nitrate of soda may be expected to exist. 3d. The impropriety (admitting a private discoverer's right to ample reward) of practically establishing a new monopoly, by granting an exclusive right to ship, as has been conceded for five years to Captain ORD, in the Arabian Gulf.

Lord STANLEY expressed himself favourably in regard to the two first points ; the third may not improbably be brought under the notice of both Houses of Parliament.

The value of Captain ORD's discovery is dependent on the quantity and quality of the guano deposit which he has found, and on both points the information which has appeared is satisfactory. Mr. CAIRD estimates the quantity on one of the islands at 1,000,000 tons, and the composition appears from the following analyses, which were communicated to a meeting of the Penicuick Farmers' Club, near Edinburgh, last week, by Mr. THOMAS M'LEAN. He said :—

The deposits of this guano were discovered several years ago by a Captain ORD, and after various attempts to make some such arrangements with different parties as would secure for him a reward for his discovery, he at length, along with two merchants in Liverpool, succeeded in obtaining a license from Government to ship as much guano as they could or chose, to the United Kingdom within five years, by paying a small royalty per ton on the quantity imported, and with certain conditions or restrictions which I have understood to be of a mild character in their bearing upon the copartnery, and a beneficial one for the British agriculturist. I believe it was also a condition in the transaction that Government should send a ship of war to protect the shipping operations in case of need. About the month of July last, I was first made acquainted with the arrangement I have referred to, and naturally feeling a lively interest in the matter, I went to Liverpool in August for the purpose of procuring as much information on the subject as possible. I was introduced to one of the copartnery in the enterprise. He showed me a good many samples of the new guano, and the following analyses of three of them by Mr. Huson, of Liverpool :—

Analyses of three samples Arabian guano received overland—

Azotised organic matter and fixed salts of ammonia	12	23	31
Phosphate of lime	72	50	38
Fixed alkaline sulphates and muriates ...	4	8	5
Sulphate of lime	0	0	0
Moisture	6	12	12
Silica	6	7	14
	100	100	100
Ammonia...	8	6	9

These analyses correspond to those of Ichaboe guano, which according to Dr. URE and Mr. TESCHERMACHER contained from 4½ to 9½ per cent. of ammonia, and from 26 to 35 per cent. of phosphate of lime. We may be sure, therefore, that when once the trade is protected against the force by which Captain ORD's expedition was rendered fruitless, the influence of Koorya Moorya will be very much what that of Ichaboe was on the price of Peruvian guano and of all other fertilisers.

But the immediate effect of the existing high price will be beneficial in a variety of ways—as for instance, in inducing that search after other stores in the guano zone which cannot fail to be successful. It is not only on the coasts of Peru or Arabia that we have rainless shores frequented by sea fowl, and a Government expedition such as that of which Lord STANLEY held out an expectation will no doubt enlarge our resources from abroad. But our home resources will also be more carefully economised. Both manure manufacturers in towns and manure manufacturers in the country —the farmers themselves—will be led to look more narrowly into their proceedings ; and the latter more especially will economise, not only in the matters themselves which they accumulate for use as manures, but in the manner of using them, so as to render what they use more directly and more wholly efficient for the purposes aimed at. To these points however we must refer again.

THE discussion on the Keythorpe system of drainage appears for the present to have been brought to an end by an exchange of letters between Messrs. TRIMMER and BAILEY DENTON on the pamphlet published by the latter, in which the criticisms of the former are treated by Mr. DENTON as if they had been merely an amusing literary exercise. And to some extent we suppose that they are the clever exhibition of "irony in fun" which Mr. DENTON takes them for.

Among the points, however, to which Mr. TRIMMER more seriously directs attention is the obstacle arising from their various depths, in the way of furrows on a clay formation becoming when filled by porous soil and subsoil, drains, by conduits cut across them. On this Mr. TRIMMER refers to diagrams —vol. vii. of the English Agricultural Journal,— giving actual sections of the soils and subsoils he had examined, and he says :—

"Those diagrams were drawn to scale from actual sections, and I could have multiplied them to any extent from the numerous marl and clay-pits opened in Norfolk for the improvement of the land. I request the reader to observe how small a portion of the deepest furrows falls below the line of 3 feet." The inference being that a cross-cut 3 feet deep would empty the great majority of them.

Mr. DENTON's strictures on the Keythorpe drainage, which do not however as we have said necessarily fall upon the Keythorpe *system* as advocated by Mr. TRIMMER before he was acquainted with Keythorpe as an illustration of it, are met thus :—

"Under this head Mr. DENTON does not attempt to controvert the testimony of those numerous and competent witnesses who have declared that the land is effectually drained : neither does he offer a particle of proof that the soil of the field in which the ploughing match took place (only a few hours after the cessation of a heavy rain of forty hours' continuance) was not what it was described to be. All he contends for is, that the Keythorpe drainage should not be called a system—a term for which he appears to have a great abhorrence when applied to any draining but his own ; though what his system is, whether at equal or unequal intervals, he has not informed us. He repudiates the 'lazy gridiron system ;' and he rejects drains at unequal intervals, those intervals being determined by trial-holes, and by the subterranean conditions of the surface of the retentive bed, which renders draining necessary. On what principle then, I would ask, does he regulate his distances ? Are his drains at equal or unequal intervals ? Are they invariably with the fall of the surface, or are they not ? These are questions which, as my friend would say, must be answered, before we can get at the facts of the case.

"As regards the economy of the Keythorpe system, it is useless for Mr. DENTON to attempt to mystify the subject with a mass of figures, or by reference to some of the drains having been laid, by way of experiment, with wooden conductors. The cheapness of the Keythorpe system, as he has often been told, does not arise from the shallowness of the drains nor the price of labour and materials, but from the small number of drains with which a given area can be laid dry, if attention be paid to the subterranean conditions and to the form of the surface of that retentive bed, without which draining would not be required.

As compared with equidistant drains at intervals of 8 yards, the saving by the Keythorpe system amounts to one half in the number of drains required. As compared with equidistant drains at intervals of 10 yards, it amounts to one-third.

You may make your drains of what depth you please ; you may charge what price you please for labour, materials, and superintendence, so that you use the same prices for the Keythorpe and the 'gridiron' systems ; and still the Keythorpe system will be the cheapest by from 30 to 50 per cent."

It seemed fair to give the defence of Mr. TRIMMER, as we have to some extent given the attack of Mr. DENTON : the system however appears to us more akin to the practice of Spring drainage than of that uniform drainage which is needed to ensure that percolation of rain-water through the soil and subsoil, on which so much of the current fertility of the land depends. The Keythorpe system acts, as we have said, by tapping stores and reservoirs of water in and under the soil rather than by providing an uniform exit for the uniform downfalls of the rain. The purpose it serves is a very valuable one, and where the system is applicable it appears to do a great deal of good at comparatively little cost.

COVERED FARM YARDS.

Now that the importance of protecting the farmer's live stock from inclement weather is becoming generally felt and acknowledged, and the economical management of manures a matter of necessity, it must be of advantage to the agricultural world to communicate the particulars of any instance in which these results have been obtained by the conversion of old farm buildings to such objects, without incurring that lavish expenditure which too often accompanies similar schemes.

I have recently had the pleasure of inspecting some alterations of this kind made by William Courtenay Morland, Esq., of the Court Lodge, Lamberhurst, Kent, on a farm on his estate in his own occupation ; and it struck me that I had seldom witnessed more ingenuity displayed in the accomplishment of the desired end, at so moderate a cost.

By the assistance of Mr. Morland's bailiff (Mr. Robertson) I am enabled to give a plan and description of the buildings, &c., which I submit are sufficiently useful to warrant a space for them in your valuable columns.

I may premise that they are not given as a model of arrangements of this kind, but as an instance of ingenious and economical adaptation of old farm buildings to modern purposes.

Firstly, an old barn was converted into a chaff house, with loft over, sufficiently large to contain a chaff-cutter and corn-crusher, both worked by steam power ; and a compartment for storing roots, connected with a boiling house, fitted up with boiler, pump, &c. At right angles to this, and with one end adjoining the root and boiling rooms, is a convenient new building, 59 ft. × 21 ft. containing two rows of cattle boxes with a central path. At right angles again and parallel with the chaff house are the sheep pens, also new, with open sparred floors, the space beneath being filled with wood ashes, and receiving the manure. These buildings are well ventilated. On the side of the yard opposite to the cattle boxes is a barn, fitted up with a threshing machine.

There is a straw house conveniently connected with the dry stock yard, which latter is exceedingly simple and convenient. It contains the hay and straw house, a cow or calving compartment, and a large yard, 52 ft. × 29 ft. ; all conveniently divided and covered with one roof ; the details of the materials, &c., used in which, with the cost of construction, are given below. The roof of this yard is ingenious and yet simple. It is covered with slates, chequered, for ventilation, and contains a double rack, with mangers, for the stock to feed from. The cattle of different ages are also conveniently divided ; and a good supply of water is maintained.

There are also attached to these buildings, piggeries, a wood lodge, and an engine house.

The sheep are not turned out from the time they enter until fit for the butcher. They are kept very quiet, and, to use Mr. Morland's own observation, "they have only two things to do—feed and sleep."

The healthy appearance of the cattle shows that the system of treatment adopted is good. They are in fine condition, although (I am informed by Mr. Robertson) only fed on Oat straw and 1 lb. of cotton cake daily. This may be attributed, in a great degree, to their being sheltered.

The last year's calves prove that the system of feeding throughout is worthy of notice. They will be sold fat before they are two years old, and probably weigh from 75 to 80 stone. Their food consists of 1 bushel of Hay and straw mixed in equal proportions, with 2 lbs. of cotton cake, 2 lbs. of Bean meal, and 1 lb. of Maize. They are allowed half a bushel at 6 A.M., and the other half at 10. At 1 a feed of Swedes, and in the evening another feed of stewed food, warm. They are then left for the night. They stand in single boxes, which, when filled, contain 10 loads of dung. This is carted to the fields intended for roots, and at once ploughed in with a two-horse plough, about six inches deep. A subsoil plough follows this, which moves the earth six inches deeper ; making 12 inches altogether, whilst the manure is only buried six inches deep. This system of cultivation on land drained four feet deep and well subsoiled enables Mr. Morland to grow large root and other crops, where formerly it would have been pronounced folly to attempt it.

Cost of roofing yard at Pullens, exclusive of timber—size, 29 ft. × 52 ft.

	£	s.	d.
1950 brown Bangor slates, 11 by 22 ...	16	8	6
12 squares coarse sheet glass, 17 by 30	1	10	10
Paid for slating, labour and nails ...	3	0	0
Carpenter and boy framing and putting up roof, 12 days	2	14	0
Assistance from farm men at do. ...	1	10	0
3000 feet of sawing at 4s. per hundred ...	6	0	0
	£31	2	10

Timber Used.

		in.	in.
35 pair 15½ feet rafters		2	by 4
160 feet of plating		4	by 6
110 " " Purlin		3	by 5
50 " " Lion beam		4	by 5
56 " " Collars		3	by 7
50 " " Braces		3	by 3
75 " " Quartering		2½	by 3
5	9-feet Posts	6	by 6
500	feet of Slating Slips		
80	" " Weather boards		
100	" " Eaves board		

I am glad to have it in my power to state that Mr. Morland will be happy for his farm and buildings to be inspected by any gentleman who may deem it worth his while to visit them, and I feel confident Mr. Robertson will willingly afford all the explanations that may be wished. *G. T.*

MEMORANDA FOR THE AGRICULTURAL STUDENT.

III.—LAND DRAINAGE, *continued.*

IT is the interest of either landlord or tenant, provided the latter have a 14 years' interest in the land, to drain it. The latter can use with the consent of the former any of the Land Draining Companies in England—the Land Improvement Company only in Scotland. The following Table indicates the addition to rent which is payable (money being worth 3, 4, 5, and 6 per cent.) so as to clear off principal and interest in the years named respectively:—

No. of years in which loan is to be repaid	Annual instalment to repay £100 (Denton).			
	3 per cent.	4 per cent.	5 per cent.	6 per cent.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
5	21 16 8½	22 9 3	23 1 11½	23 14 9¼
10	11 14 5½	12 6 7	12 19 0	13 11 9
12	10 0 11	10 13 1½	11 5 7¾	11 18 6¾
14	8 17 0½	9 9 4	10 2 0½	10 15 2
16	7 19 2¾	8 11 7¾	9 4 6½	9 17 11
18	7 5 5	7 17 11½	8 11 1	9 4 8½
20	6 14 5	7 7 2	8 0 5¾	8 14 4½
25	5 14 10½	6 8 0¼	7 1 11	7 16 5
30	5 2 0½	5 15 8	6 10 1½	7 5 5
35	4 13 0	5 7 2	6 2 2	6 18 0
40	4 6 7	5 1 1	5 16 7	6 13 0
50	3 17 9½	4 13 1	5 9 7	6 6 9¾

Contrast the annual cost of "faggot" draining every 8 or 10 years at 2*l.* per acre with the annual cost of a permanent drainage at 5*l.* per acre, with money borrowed as above.

In commencing drainage prepare a general plan for the farm or estate. Seek, in the first place, by straightening water-courses and draining springs, to give rapid exit for all the water that comes into the land otherwise than from the clouds. In the after drainage of the land the general rule is to commence the drainage of the lowest part first, attending to the final outfall first of all. There are exceptional cases where the drainage of a higher land may to some extent remove water at once which fed the lower grounds. (Read Girdwood's account of Spring Drainage in Blackie's Cyclopædia of Agriculture.) When spring water is removed, drain as deep (to 4 feet) as the outfall will permit, and with such attention to uniformity of interval as the adhesiveness or porosity of the soil shall indicate. Notwithstanding the outcry against rules and systems in drainage—uniformity of interval *is* the rule, and the so-called "gridiron" system is the safest; departures from either being exceptional.

Before carrying out the system however let all such obstacles and nuisances (crooked hedge rows, old ditches, and timber) as it is intended to remove be removed.

Trial holes are useful to determine the interval which may be desirable between the minor drains. Ascertain the experience of your neighbours on this point. Widen the interval, because the soil admits of the more easy percolation of the water, not because you have made your drains deeper.

The cost of digging 4 feet deep drains 1 foot to 14 inches wide at top to receive a 2-inch pipe at bottom may be from 6*d.* per rod of 5½ yards in homogeneous clays to any greater sum when the pickaxe may be needed. Tiles may cost 20*s.* a 1000 for 2-inch size, 30*s.* for 3-inch, 44*s.* for 4-inch, 60*s.* for 5-inch. The following Table is taken from Bailey Denton's pamphlet:—

Cost of Drainage per acre, 4 feet deep (Denton).

(1) Labour of cutting and filling in.
(2) Material—pipes at 18*s.* to 20*s.* a 1000.
(3) Haulage, 2*s.* 6*d.* per 1000.
(4) Pipe laying and finishing, 1*d.* per rod.
(5) Superintendance.
(6) Extra for mains.
(7) Iron outlet pipes and masonry.
(8) Collars if used.

	18 feet apart.	24 feet apart.	30 feet apart.	40 feet apart.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
(1) 6*d.*	3 13 11	2 15 0	2 4 0	1 13 0
(2)	2 5 9	1 14 3	1 7 5	1 0 6
(3)	0 6 4	0 4 9	0 3 9	0 2 9
(4)	0 12 2	0 9 2	0 7 4	0 5 6
(5)	0 5 0	0 5 0	0 5 0	0 4 0
(6)	0 2 0	0 2 0	0 2 0	0 2 0
(7)	0 1 6	0 1 6	0 1 6	0 1 6
	7 6 1	5 11 8	4 11 0	3 9 3
(8)	1 2 10	0 17 1	0 13 8	0 10 3
Total ...	8 8 11	6 8 9	5 4 8	3 19 6
1. 8*d.*	4 17 9	3 13 4	2 18 8	2 4 0
2.	2 13 7	2 0 10	1 13 3	1 5 7
3.	0 6 4	0 4 9	0 3 9	0 2 9
4.	0 12 2	0 9 2	0 7 4	0 5 6
5.	0 5 0	0 5 0	0 5 0	0 4 0
6.	0 2 0	0 2 0	0 2 0	0 2 0
7.	0 1 6	0 1 6	0 1 6	0 1 6
	8 18 4	6 16 7	5 11 6	4 5 4
8.	1 6 9	1 0 5	0 16 7	0 12 9
Total ...	10 5 1	7 17 0	6 8 1	4 18 1

Mains may require 4-inch pipes at the outfall, gradually smaller near the upper end. A long minor drain may need 1, 1½, and 2-inch pipes as you approach its junction with the main. Its water should *fall* into the main pipe, and the junction should be with a curve, not abruptly. Open ditches should be avoided if possible. When necessary their sides should slope with a fall of from 1 in 1 to 1 in 2, according to the material. They are necessary as a preliminary drainage in peat soils and bogs. Small open ditches (15 inches deep or so) laid with a regard to local outbreaks of water, are a great and cheap (1½*d.* per rod) improvement of mountain pasture. There are various cheap (untrustworthy) expedients in drainage by which tiles are dispensed with. Such is the faggot drainage of Essex, &c., the wedge drainage of many a clay land district, the "hollow" drainage of Gloucestershire pasture lands, the mole plough drainage also common in S.W. England. Mr. Fowler, of Bristol, has improved on this by dragging in a string of pipes after the "mole," and so rendering the conduit permanent. This he does by a steam driven machine.—Drain stoppages arise very rarely from direct infiltration, generally either by the growth of root fibres, or the formation of peroxide of iron in the drain water. The remedy for the former is extra depth, and care for the joints where the danger is great, and for the latter thorough cultivation by which iron may be peroxidised in the soil, not in the water which drains out of it. A uniform slope in the drains tends to diminish the risk of stoppage, and a small pipe (if large enough) is better than a large one.

Whatever system of drainage be adopted, see that it be thoroughly done. "Nothing is stronger than its weakest part," and a defective patch may check the cultivation of the whole field. Subsoil ploughing across the drainage tends to its immediate and increased efficiency.

On Mr. Parkes's idea that greater depth will permit wider intervals, and Lord Wharncliffe's combination of deep and shallow drains on what is called the "herring-bone" system on Mr. Hutchinson's idea of air drainage—plans all more or less (as I believe) untrustworthy—consult the volumes of the English Agricultural Society's Journal. On Keythorpe drainage, read Mr. Trimmer's and Mr. Bailey Denton's pamphlets (Metchim, Parliament Street, Westminster). On shallow drainage for pasture lands, read Hewitt Davis's "Essays" (Ridgeway). On the general practice of land drainage read Girdwood, Stephens, Denton, Parkes.

The means at the command of landowners for this and other permanent improvements of the land are—1st. The 4,000,000*l.* of public money (all bespoken); 2d. West of England Drainage Company, accepting for their outlay a permanent rent charge on the land; 3d. The General Land Drainage Company, who take for 50 years a rent charge varying according to the market value of money, for outlay in draining, building, &c.; 4th. The Land Improvement Company, who alone have powers in Scotland, and who take a rent charge for 25 years for similar expenditure.

NEATNESS IN FARMING.

[THIS paper constitutes No. XIII. of a series of articles on Home-Farm Management by Mr. J. Lockhart Morton, the various numbers of which appeared in our last year's volume.]

The common, and in some respects the trivial everyday matters which call for attention in the managing of a farm, can in no case be overlooked without a serious loss to the farmer. Just as sure as national prosperity is to a large extent the result of individual industry, as certain is it that a farm which is really well managed, is so, both in detail, and in the aggregate. A farmer, for example, who imagines that his success must depend in a great measure on deep ploughing and liberal manuring, and who pays little attention to the purging of his fields of perennial and annual weeds, may no doubt succeed in growing heavy and remunerative crops; but he is notwithstanding a waster and a loser by taking only half measures of this kind. And discreditable as the existence of weeds on a leased farm certainly is, their being abundant on an example farm is still more so. High farming must be accompanied by a systematic cleaning of the soil if it is to be deserving of the name.

Let us see for a little what is usually done on a farm, where if there is not a total disregard of the usual means by which weeds are destroyed, there is at least very little attention paid to preventative measures. The foulness of many a farm is occasioned by mismanagement at the farmstead. To prevent the loss of a few grains of corn which may be amongst the barn-siftings, the latter are often thrown out to the poultry-yard. With the cleanings, therefore, of this yard, countless thousands of vital seeds are carried into the dung-court and thence to the fields, which are thus polluted to an extent that can scarcely be conceived. Surely it would be far better to lose a few hungry grains of corn than to sow the land in this way with weeds, which it will not be possible to extirpate for many years. As a general rule it may also be stated that on farms that are much infested with weeds there must have been gross carelessness in the making of manures. It is true that soils of good quality will rapidly become foul if just let alone; but it is too often the case that they are put into this condition by the expenditure of a considerable amount of thoughtless labour on the part of a bad farmer. The desire to make a large quantity of manure, or perhaps even the necessity of something being done to keep his half-starved pigs in life, induces him to throw weeds and every available sort of vegetable rubbish into the dung-court and piggeries, and as a necessary consequence, if they remain unfermented, the fresh seeds that are present germinate whenever they come near enough the surface of the land to which the manure has been applied. If proper care were taken both to prevent weeds from running to seed in the fields, and from being put into the dung-yard in a vital state, there would be a greater number of clean samples of grain in our markets than are to be found at present.

As it is one of the principal branches of good farm management to keep the soil free from weeds, I shall describe shortly how this may be done on a home farm. If the land is foul the first thing in cleaning it is to get all the seeds that are near the surface to germinate. For this purpose it is advisable after each ploughing or stirring of the soil to leave the pulverised surface undisturbed for a week or ten days of growing weather. When a green crop is wished this will probably interfere with the time of sowing, and from this and other causes there are instances in which it is of decided advantage to lay the ground for once into bare fallow, in preference to putting it under a root crop. Land which has for a long period been lying in a foul state cannot well be thoroughly cleaned by any ordinary preparation for a green crop, but if put under fallow and so frequently stirred that not only all the root weeds are exposed to and killed by atmospheric action, but that scarcely an ungerminated seed is left in the soil to a considerable depth, the immediate loss of a crop will be much more than made up for by the cleanness of subsequent crops. It is only when land is very foul or is so clayey that it cannot be pulverised except at an unprofitable expense that naked fallowing is commendable, but in these cases it is at times perhaps the most profitable course that can be adopted. Assuming that the soil has been got into a tolerably clean state, the necessary means to keep it in that condition are more preventative than anything else. For this purpose the cereal crops should all be drilled and regularly horse-hoed; besides a saving of seed by the use of the drill and the keeping down of weeds by the hoes, the stirring of the surface will of itself repay—in the improved crop—all the cost of labour. Whether it be amongst grain or root crops the seeding of a weed should by no means be tolerated on a properly managed example farm. It was recently very well shown in a leading article in these pages, that our common field weeds produce enormous numbers of seeds; and no wonder then that a poor unweeded Potato or Turnip crop should be the forerunner and principal cause of the foulness of the soil for several years to come. Should the green crop be too poor in any case to smother the weeds a sufficient number of female workers or active children ought to be kept employed to rid the land of its foulness; and on the pickings being collected into heaps they should be well smoked or nearly charred by fire: or they may be mixed with hot lime, or otherwise fermented, in preference to being carted into the manure yard in their natural state.

And what shall be said of the manager of a home farm who permits roadsides, hedge backs, ditches, and adjoining plantations to produce as many seeds of weeds as would pollute the land under his charge, however clean it might otherwise be! It may seem a small thing to disregard the weeds that come to maturity on the sides of farm roads. Not so, however, to those who have given proper attention to the subject; for apart altogether from the seeds, which, from being winged by nature to fly with the wind, scatter themselves so readily over a large district of country, the scrapings and ditch cleanings of these roads laid from time to time on the land, necessarily defile it in a degree scarcely to be imagined. In all cases, therefore, means should not only be taken to extirpate every kind of noxious plant which may be grown within the bounds of a home farm, but wherever there is a weed left in the ground, its head should at least be lopped off as soon as the fruit-stalk appears. Some will be inclined to say no doubt that there cannot be any necessity for being so very particular in regard to the destruction of weeds; keep the soil tolerably clean, they will add, and though a few straggling weeds should spring up it will matter very little on the whole. But surely in this there is neither logic nor common sense. If millions of weeds are bad things, and by their scourging effects on the soil are detrimental to the farmer's profits, so must thousands and hundreds of them be injurious—only in a smaller degree. Assuredly true economy indicates the propriety of keeping the weed pests of the farm within proper bounds, and for this purpose the right plan is to start and maintain a war of extermination against them, Once they are sufficiently reduced in numbers to render it justifiable to say that the farm is really "clean," the cost of keeping down those that remain will be nearly nominal.

Good management requires a bailiff to be very careful in the cleaning of the hedges of a home farm. Irrespective of the advantages which result from his destroying weeds by this means, he is also to some extent enabled to put the fences into satisfactory order, and both for the sake of profit and ornament farm hedges should always be kept in a fencible state. With regard to ditches it may only be said, that in order to prevent the growth of weeds, and increase the extent of cultivated land, none of them should be left open, if a drain tile can be got at a moderate price, large enough to contain the water running in them. All the drain mouths and outfalls on the farm should be examined at least once a year, and carefully cleaned out. To keep open ditches and outfalls clear, as well as to make vegetable manure, all the shed leaves from hedgerows ought to be raked up in autumn—though generally speaking the fewer hedgerow trees there are on a farm so much the better. If shelter is needed, strips and clumps of wood are better than hedgerows for affording it. The intersecting roadways should never be allowed to go out of repair, and everything about them and about the fields of a well-managed farm ought to display an amount of order and neat-handedness in the finish, which will please even a fastidious eye. It is not to throw money away on trifles savouring more of ornament than of profit, as is very frequently the case on first-class manor farms, that I would recommend this course, but that ornament may be made subservient to profit. It may not pay to dig up all the little corners and strips in a field that the plough cannot reach if the crop is to afford all the remuneration, but it will pay to prevent these places from being the nurseries of weeds, and the encouragers of slovenliness on a larger scale. Every little thing of this sort if attended to in the right way and at the right time, is not by any means costly, and yet in the aggregate the beneficial effects resulting from careful attention to "littles" are most important in making home farms exemplars not merely of high farming, but also of neatness, order, and care even in the most minute details of general management. *M.*

(To be concluded by the next paper, which will be on Farm-yard Management.)

Home Correspondence.

Potato Growing.—The communications of your correspondents on this subject are all of them valuable, but we are not yet agreed as to the leading points to be attended to in the cultivation of the Potato. As regards the rules laid down by Mr. Knight that the distance of the rows should be governed by the height of the top, and that the rows should range north and south as nearly as practicable; these I think are very generally admitted to be leading points; but the questions—1st, whole tubers or cut sets; 2d, large tubers or small ones; 3d, the distance of tubers or sets in the rows, have yet to be decided by more general experiment. Many years ago Mr. Knight assured me that he had raised of the Ashleaf Kidney Potatoes at the rate of 800 bushels to the

acre! I cannot for a moment doubt the accuracy of Mr. Knight, and yet can any one of your correspondents speak from his knowledge of half that quantity being raised? I fear we have not given that attention to Mr. Knight's suggestions which they really deserve, especially as regards the distance of sets in the rows—the apparent waste of ground, and the increased quantity of seed Potatoes required, are, I fear, scarecrows to half the growers. I yesterday planted a row 15 yards in length with half a peck of Ashleaf Kidneys, which after throwing out a few very small ones, gave me about 100 tubers, the whole of which I planted in the 15 yards (not quite 6 inches set to set). I drew a deepish drill with a three-corner hoe, and then dibbled them in at the bottom of the drill crown upwards. An acre planted at this rate would require, at a distance of 3 feet apart (by far too wide), at least 160 bushels of seed, and yet it would pay well if anything like Mr. Knight's quantity should be raised. I trust during this season of planting many experiments may be made towards the further elucidation of these important and interesting questions. *M., Clifton Park, Birkenhead.*

The Application of Manure.—In the discussion on the manufacture and application of manures at the monthly meeting of the London Farmers' Club held on the 2d inst. (Feb.), the top-dressing or leaving manure spread and exposed to volatilisation on the surface was treated of and favourably sustained by the chairman and some others; the consequent editorial remarks of the *Agricultural Gazette*, signed "M.," though they sanction such an application of manures during the winter months, yet hold it a losing game in the summer months. Now on my favourite principle of leaf-feeding I consider this latter opinion somewhat disputable, for, if there be truth in this theory, the vegetable food volatilised during the winter, and which may be greater than it is thought to be, is all lost to the manure depositor, for, as there is then scarcely any leaf to imbibe it, it passes into the air to descend from thence at some future period to the public and not to the individual benefit; on the contrary in the summer when vegetation is in full activity, myriads of hungry and greedy mouths are ever open to take in, probably, all that is offered to them by the volatilisation of the manure so spread on the surface. Yet I question whether this volatilisation or evaporation of the manure in the summer months is so great as it is supposed to be, for it must very much depend on the quantity of moisture present, as without moisture no volatilisation or evaporation of them can take place; the guano depôts are amassed in a climate whose summers and winters are much hotter than ours; they do not evaporate, but are preserved and accumulated in consequence of the absence of moisture; this preservation of the fertilising elements of the guano must be lost sight of in contemplating a loss of such elements in the exposure of manures to our summer heats and droughts. All top-dressings are practically admitted to be beneficial by the common practice of ages, and two instances I have noticed bear pertinently on the subject: the first occurred about 18 years ago, and then for the first time drew my attention to leaf-feeding; previously I was of the old school opinion that we could not bury our dung too deeply. On ground too poor and exhausted to give a crop of Potatoes I had, I do not recollect why, dibbled in some rows of Potato sets without any previous application of manure, which I afterwards drew on the surface, and this was so superficially worked into the soil during the growth of the Potatoes by the hoe, as in effect to lie on the surface as a compost, exposed fully to all evaporating influences, and I do not think I ever saw a heavier crop of Potatoes, and I have had 12 tons to the acre. A few years after I took a small piece of land all planted with Cabbage well dunged at the roots; wishing to have some Peas and Beans on it, I took up here and there a few rows of the Cabbages, which I planted in another part without manure, but which I afterwards applied on the surface, merely working it in by the hoeings the Cabbages received during their growth; these Cabbages became so superior to those from which they had been removed, that it was difficult to get people to believe they were the same plants. I have since then very much adhered in my practice to to manure all crops rather for the leaf than the roots—even Carrots and Parsnips. Onions I have had very fine on poor soils, with the manure spread on the surface, and only covered with the covering given to the seeds; I therefore readily believe that the superiority of the Turnip crops of Mr. Wallace and his neighbours was owing to their leaving the manure in a great measure exposed on the surface instead of having it at once wrought into the soil. I think I may say by so doing I have, with a minimum of manure, had fully fair average crops; indeed they have been admired as good ones. Yet favourably as I am induced to view the surface application of manures, I have to admit that we lose by so doing the advantages of those chemical actions in the soil which are brought about by burying our dung, and I believe our best practice would be to cover them up in the first instance, say by an autumn ploughing, and then by our spring operations bring them to the surface. In the summer application of guano and our other portable manures during the growth of crops, it is recommended to spread them in dropping weather with an intention of their being washed into the ground; but this very dropping weather is also certainly the most favourable to their volatilisation, and as in spring and summer evaporation from the soil is more active than absorption, these manures very probably never sink into the soil to such a depth as to be retained there, but are speedily in their solution evaporated and so pass into the air, and I would say they are even accelerated in their upward passage by the impelling evaporations of the waters of the subsoil. In some parts of the county of Donegal many years ago it was the practice to apply some additional manure (byre dung), when the Potatoes were 6 or 8 inches high; this was found, with increased produce, to keep the tops green and growing to a later period, thus protracting their ripening. Since the Potato failure this practice has probably got into disuse, for the object must now be to hasten the period of ripening. "S." of Inverness, in his experiments on Potato growing, finds similar effects, with the exception of increased produce, and this default arises no doubt from the general premature loss of crop; he says it had the effect of keeping the shaws green and apparently growing long after the others had withered away. This is a natural effect of promoting the growth of leaf by all such means as enable the earth to send up nutritive vapours for their food. *J. M. Goodiff.*

On Treating Cattle according to their Nature.—Your article in the Paper of Feb. 13, respecting the importance of treating each class of animals according to their separate natures and inclinations, deserves notice. I purchased about 150 Welsh mountain sheep late in the autumn of last year to fatten for our local demand; nearly a half of them were put on a five acre piece of Swedes, oats, hay and salt being also liberally supplied to them. The remainder had the run of some park land of about 40 acres, eaten well bare before they were put on it, and there was nearly a barrowful or so of Swedes given to them daily, and yet these last have improved more than the former, and have cost me little or nothing. I have killed or sold many from the Grass land at nearly 11 pounds the quarter, which is very good for our mountain sheep, while the same sheep on Swedes, &c., but confined to a 5 acre field would not come up to more than 10 pounds the quarter at the outside. Mountain sheep or mountain cattle must have their range, as well as their feed, and if you confine either one or the other too closely a loss inevitably occurs. *Taffy.* [Many thanks for your kind offer, which is most acceptable.]

Smoked Straw!—On going into the cabin of a small farmer the other day, I found him putting a quantity of straw on an open loft over his kitchen, which, like all other cabin kitchens, enjoyed the warm benefit of an abundance of smoke, the flues being so artistically constructed as to throw back most of the smoke of the fires. "What are you doing here?" "Putting up straw to smoke." "Straw to smoke?" "Yes; some time ago I observed that the straw of the corn kilns was greedily eaten by cattle (in the construction of our corn kilns, instead of tiles or iron plates being used, stone joists are placed across, on which straw is spread, which straw becomes smoked). I have since smoked my straw, and I find that the cows eat more freely inferior or stale straw when so smoked than they do that which has been fresh threshed out and unsmoked, thrive on it more, and come into season more readily." This man is very intelligent, and may be relied on for so far as his experience extends. Another man, a pensioned sergeant of the line, says that on his giving smoked straw to a cow which had refused the bull for two years, she came in season within a fortnight after he had commenced giving her the straw. I give this as I have it, as I think it a novel fact, and one worth giving publicity to and entitled to trial. It may be the effect is produced by the straw being given warm. It is to be observed that the firing used is peat, and that coal smoke might not be so well relished. If this prove so, possibly the smoke of wood or weeds might answer. *J. M. Goodiff.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

WEEKLY COUNCIL, *Feb.* 25.—Colonel Challoner, Trustee, in the chair. Messrs. Burgess and Key, of Newgate Street, favoured the Council with their attendance, for the purpose of explaining to the members the new mechanical mode, adopted in France and introduced by them into England, for distributing sulphur over such fruit and plants as may require the application of that dressing or of other pulverulent substances; and Mr. Keighley, of Hull, favoured the Council with his attendance for the purpose of giving details on the subject of the importation of the Carob Bean as an article of food for cattle.—Lord Berners stated, that having on the previous evening had a conversation with the Earl of Clarendon on the subject of the supply of guano from Koorya Moorya Bay in Arabia, he was glad to find that every effort would be made to render the importation of that manure as advantageous as possible to the farmers of this country.

The Council adjourned to their Monthly Meeting on the 4th of March.

HIGHLAND AND AGRICULTURAL, *Feb.* 18.—Dr. Anderson read a paper on the *Manures which can be most advantageously employed as substitutes for Guano.* After preliminary remarks on the theory of manures generally, he said:—

"The results of analysis have shown us that there are two substances always existing to a very small extent in the soil, namely, ammonia and phosphoric acid, and a third, viz., potash, which is rarely very abundant, while all three are most important constituents of plants. A special manure must be valuable therefore, exactly in proportion as it contains these substances, and especially the two former of them, and hence it is that guano maintains so high a position among fertilisers. If then it be wished to compare with one another a number of different manures, all that we have to do is to observe the relative quantities of these substances, and if we wish to calculate its money value, it is only necessary to ascertain the prices at which those substances can be purchased in the market. Agricultural chemists have endeavoured, as far as possible, to fix the market value of the different constituents of manures, and have arrived at results which differ somewhat from each other. The following table gives the value per ton attached to the principal constituents of such manures, by Mr. Way, Dr. Hodges, Mr. Nesbit, and myself:—

	Way.	Hodges.	Nesbit.	Anderson.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Ammonia	56 0 0	56 0 0	60 0 0	56 0 0
Insoluble phosphates ..	7 0 0	7 0 0	8 0 0	7 0 0
Soluble phosphates ...	32 13 0	25 0 0	24 0 0	28 0 0
Potash	30 16 0	20 0 0	...	20 0 0
Alkaline salts	1 0 0	1 0 0	1 0 0	1 0 0
Organic matters	1 0 0	0 10 0	1 0 0	...

These are supposed to represent fair average prices, but that of ammonia is rather under the present market price, which is at present from 60*l.* to as high as 68*l.* per ton. Further, it is to be noticed that though potash is stated, it is very doubtful whether, owing to the uncertainty of its action, it ought to be generally estimated. The same is true of the organic matters, which exist in the soil and the farmyard manure so abundantly that the few pounds added to an acre in the portable manures do not merit notice. An average Peruvian guano contains:—

Water	13.73
Organic matter and ammoniacal salts ...	53.16
Phosphates	23.48
Alkaline salts containing 3 of potash... ...	7.97
Sand...	1.66
	100.00
Ammonia	16.5
Phosphoric acid in the alkaline salts equal to 5.21 phosphate of lime	2.50

and calculating from the preceding tables, its value per ton is according to

Way	£13 19 0
Hodges...	13 0 0
Nesbit	13 12 0
Anderson, without potash	12 8 0
Do., with potash	13 0 0

I enter into these details regarding the valuation of guano, because they appear to me to be calculated to some extent to allay the apprehensions now existing among farmers by showing that the present price of guano cannot possibly be maintained. But I feel convinced that guano has frequently been used where other manures would have produced an equally good result at a less cost. Prominent among these stands superphosphate, both because of its results in the field, and because it can be and is manufactured in large quantities. A good sample may contain—

Water	16.64
Organic matter	12.04
Soluble phosphates	20.11
Insoluble phosphates	16.51
Sulphate of lime	9.15
Sulphuric acid	18.52
Alkaline salts	2.76
Sand...	4.27
	100.00
Ammonia	1.55

Estimating according to Mr. Way's plan, this superphosphate would be worth 8*l.* 16*s.* per ton, according to my own, 7*l.* 12*s.*, or, with ammonia at its present high market price, 7*l.* 16*s.*, and it would probably be sold at 7*l.* 10*s.* Such a superphosphate applied weight for weight, would, I apprehend, produce a result little inferior to Peruvian guano, at not much more than half the price. I believe, however, that all this could be done at a still lower price, were farmers to manufacture their own superphosphate, a plan which will sooner or later be adopted. Bone ash containing 75 per cent. of phosphates sells at 6*l.* per ton, but let us take it as costing the farmer 7*l.*, and sulphuric acid of specific gravity 1.7, technically called "pan acid," costs at present 5*l.* 6*s.* per ton, which is unusually high. One ton of this acid and about ¼ ton of water would be requisite to dissolve 2 tons of bone ash, and the product would cost 5*l.* 18*s.* per ton, and contain 46 per cent. of phosphates, at least one half of which would be soluble, but no ammonia. If the bone ash could be got at 6*l.* per ton, and pan acid at 4*l.* (which is not an unusual case), the superphosphate would cost only 5*l.* 10*s.*, while its value estimated in the usual way would not be less than 8*l.* per ton. Ammonia might be added to this substance in the form of sulphate; but whether this would be profitable I am not prepared to state, as it could only be determined experimentally, and there is no matter which under present circumstances it would be more important to submit to careful experiment during the coming summer. The great source of ammonia on which we at present rely is the manufacture of gas, and the cheapest commercial form of a pure ammonia compound is the sulphate. Now, when 17*l.* per ton is paid for that salt, the greater portion of the price goes for the sulphuric acid, which, so far as we know, has no agricultural value, and at all events could be obtained much more cheaply from other sources, and the cost of manufacture. The ammoniacal liquor of the gas works, after having been once distilled, can be obtained containing 20 per cent. of ammonia at a price which gives that substance at from 3*d.* to 3½*d.* per lb., or about 28*l.* per ton. The objection to its agricultural use is a very obvious one; the ammonia exists there chiefly as carbonate, and in that state is peculiarly liable to loss by evaporation into the air, and it is universally admitted that it ought to be fixed by sulphuric acid. It is to be observed, however, that we have no information of a satisfactory kind regarding the loss which the carbonate of ammonia actually does undergo. We know that a certain proportion of the ammonia in Peruvian guano is in that form of combination, but the amount of loss it suffers on that account is not known. It is clear, however, that if concentrated gas liquor were applied to the soil, the farmer could afford to lose one-third of it, and still have his ammonia cheaper than in the state of sulphate. I should propose the application at the rate of 2 to 3 cwt. per acre on grain crops, both alone and mixed with a certain quantity of bone ash, and I would suggest that the land should be made up in ridges, and the solution diluted to a proper extent poured into the bottom of the furrows, while the plough immediately following the application should be made to divide the ridge and cover the ammonia. This I should propose to do several days before sowing, for I apprehend it would not answer to put the seed near the strong ammoniacal fluid, and a few days should be allowed for it to disseminate itself through the soil. I throw this out as a suggestion for the consideration of farmers, and though it is quite possible that this method of application may be too expensive in practice, or that the ammonia may not operate as effectually, it is certainly worthy of trial. One hundredweight and a half of the ammoniacal fluid and the same quantity of bone ash might also be tried on Turnips, and should these applications prove successful, it will be possible to make a mixture as good as Peruvian guano at a cost of not more than 8*l.* per ton. There are many other sources from which nitrogenous matters might be obtained which are now much neglected, among which I may suggest dead horses and cattle, refuse hair, &c., &c., and last not least, the conversion of fish refuse and coarse fish into a manure is also deserving attention. If those fish were brought to land, cut

into thin slices, which could be easily done by the fishermen's families, and then laid out to dry on the stones, after sprinkling with a little salt; the dry mass would be worth about 6*l.* or 7*l.* per ton. All these are matters which merit attention, and should the present crisis lead to any of them being made available to agriculture, its effects will be more beneficial than otherwise. There is one other way in which it will act beneficially, for it will direct more attention to the economy of farmyard manure, which I believe to be one of the most backward departments of agricultural practice, and which has been kept back, to a great extent, by the cheapness of portable manures. Farmyard manure, except on the farms of the best agriculturists, is very much what it was a century ago, and there are few who could not introduce improvements. To this day nearly one-half of it is destroyed and wasted by keeping it in a state of active fermentation."

Sir J. S. Forbes read the following letter from Mr. Finnie, of Swanston. He said—

It is not so many years since guano was first introduced into this country, and then sold at 28*l.* per ton. By and bye, as the supply increased, it fell to 25*l.*, but at that price it was apparently to remain, when the late Professor Johnston and others entered the field as our analytic chemists. No sooner did he give forth to the agricultural community a list of substances which by due admixture might be used as a substitute for what was produced from natural sources, while it could be obtained at less than a third of the cost, than all at once the skill of an enlightened public, with all the resources at command, was made available. The refuse of every manufactory became an object of inquiry and importance, and very shortly we were inundated with endless varieties of portable manures. In this race of competition, coupled no doubt with the supplies of inferior guanos, such as Ichaboe and Chili, the Peruvian guano with all its vaunted superiority had to submit to a downward movement and ultimately succumb to a rate not exceeding 8*l.* per ton. Now, let me ask, are our prospects gloomier now than when guano stood at 25*l.* per ton? I venture to reply we have only to put the same machinery in motion, and results similar to those I have stated will follow; and certainly this can be done at present under circumstances much more likely to be attended with permanent and beneficial effects. There are now able and celebrated chemists presiding over every agricultural association at home and abroad. Manufactories both here and on the continent are every day increasing and developing additional supplies of refuse which, in the majority of cases, can all be turned to account when presented to the agriculturist in a fit state; and numerous are the individuals who, if properly encouraged, would be our foragers and purveyors of what would really be profitable for us to use. We have in London a company producing a manure at 7*l.* 10*s.* per ton, which leaves a handsome profit, manufactured from the blood and bones of the animals killed at the public slaughter-houses, two powerful agents we must admit, and why may not similar establishments exist throughout the United Kingdom? To make myself more explicit in regard to the abuse of guano, I may myself plead guilty to the charge. In the case of Turnips where no farm-yard manure was used, I have applied as much as from 7 to 8 cwt. guano per Scotch acre, and to Potatoes with a liberal supply of farm-yard manure as much as 6 to 7 cwts. Now, I have no hesitation in stating that experience has taught me it would have been more profitable had I restricted the quantity to 5 cwt. in the one case, and to 4 cwt. in the other; and the benefit would have been even still greater had I employed a mixture of Rape, dissolved bones, bone-meal, &c., in preference to guano alone in any of the proportions stated. I have also witnessed in East Lothian as much as 5 to 6 cwts. applied as a top-dressing to Wheat, and I feel perfectly confident that the enterprising tenants in that part of the country will be the first to confess it was a mistake. In various other respects also guano may be said to be abused, such as (1) in trusting to its agency alone for keeping up the fertility of the weaker description of soils in the country without returning these to pasture during the greater proportion of years, a hope which has always led to disappointment; (2), in supposing the best character of land can be profitably cultivated by reducing much the proportion of farm-yard manure and substituting guano instead; and the last and not least important instance of its abuse consists in applying guano alone, to the exclusion of every other portable manure, whereas a mixture would not only have given as good results at first, but have proved more permanent in its beneficial effects. It is a curious fact in practice that the guanos of an inferior class, when applied weight for weight with the Peruvian, have, upon the most reliable evidence, produced equal results, and that dissolved bones or bone meal have not been found to play a second part upon all land of a lightish description recently broken up from pasture. With these observations, which have extended to a greater length than I anticipated, I draw them to a close by simply expressing the conclusions at which I have arrived as to the mode of extricating ourselves from the apparent difficulty of the guano question. And first I would take leave to say that we, as agriculturists, are certainly bound to approach the Legislature and ask what we are reasonably entitled to, viz., that Government should render available all possible means of investigating every source from which a supply of guano can be obtained, even although it should be of second class quality, and surely we may as reasonably expect to be supported in our demand by the general community, seeing that the policy of the Government is in the direction of giving, and the wishes of the people in receiving cheap and plentiful food. But secondly, as past experience gives us but slight encouragement to place much dependence upon the assistance to be obtained from Government or the Legislature, we should exhaust for ourselves every other and available and known source of supply, or, in other words, encourage importers and manufacturers, by making fair trial of such other portable manures as may be brought into market, provided these are certified by the analysis of some well-known chemist. At the same time we should not forget to turn our attention more than ever to the dung heap at home, which I am convinced by judicious management may in every case be very much augmented, and which cannot be dispensed with, whether guano be high or low in price. And lastly, instead of employing guano by itself as formerly for Turnips and Barley on the lighter and weaker description of soils, let farmers use along with it an admixture of some other portable manure, highly charged with phosphates, such as bone meal, dissolved bones, or even guano of a secondary class, if unadulterated, and for Turnips and Potatoes on the heavier character of soils, employ along with guano some other nitrogenous manure, such as Rape dust, blood manure, &c., and while this course will be more profitable, it will tend materially to lessen the demand on the Messrs. Gibbs, and compel them soon to lower their colours and send in a flag of truce.

Notices to Correspondents.

BONES: *J Preston.* Boiled ground bones will have a more immediate effect on your pasture than *raw* ground bones. And though the latter contain more food for plants than the former yet money is better spent on the former, owing to the lapse of time over which the latter spreads its action. Bones are especially good for the Turnip crop. They are often adulterated with old plaster, &c. Blood and bone manure is more generally efficient than bones alone.

CLOVER: *G B.* Apply 1 cwt. of nitrate of soda, and 5 cwt. of gypsum per acre.

ECONOMIC MANURE: *Liverpool.* We believe that the economic and the economical manure referred to are one and the same.

SUPERPHOSPHATE ON GRASS: *B N F.* Thank you; it will appear next week.

TENANT RIGHT: *V X.* It seems to us that the claimant has done the other a very great service, one however for which, whatever the justice of the case may be, the law will not give him any return—but on this point he must consult his solicitor.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

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Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird. South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
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Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
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N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

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Mr. Charles Turner, Royal Nursery, Slough.
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" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
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Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
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Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
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12 „ 10,	13 by 10,	14 „ 10,	15 „ 10							16	0
	16 „ 10,	17 „ 10,	18 „ 10								
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11						16	6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12							17	0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12							18	0
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13								
	22 „ 13,	24 „ 13									
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10 „ 15,	22 „ 15,	24 „ 15									
	20 „ 18									£1	2 0

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BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GARDEN LABEL. — Neat, durable, and well-executed Label for Plants and Trees. Parties not acquainted with this Label can have a specimen sent by forwarding three postage stamps to F. H., Lydbury North, Salop.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 6*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering." In consequence of the advance in the price of wool and hair, on and after the 1st of March the price will be 1*s.* 8*d.* per yard.

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

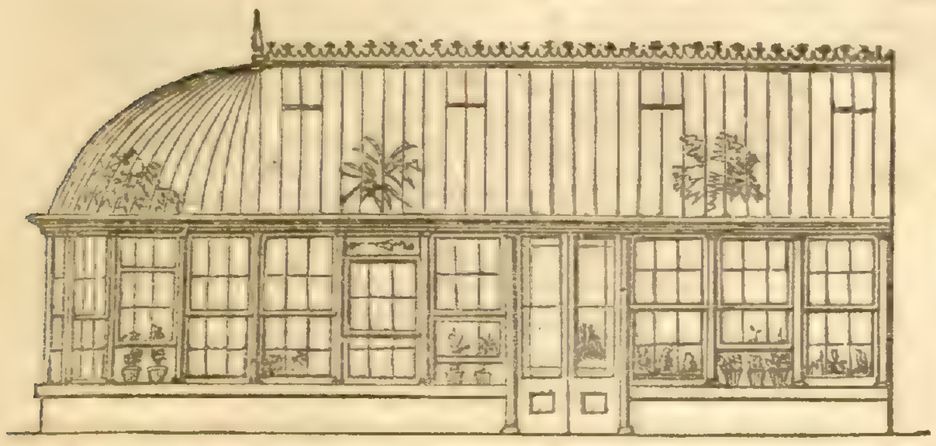
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

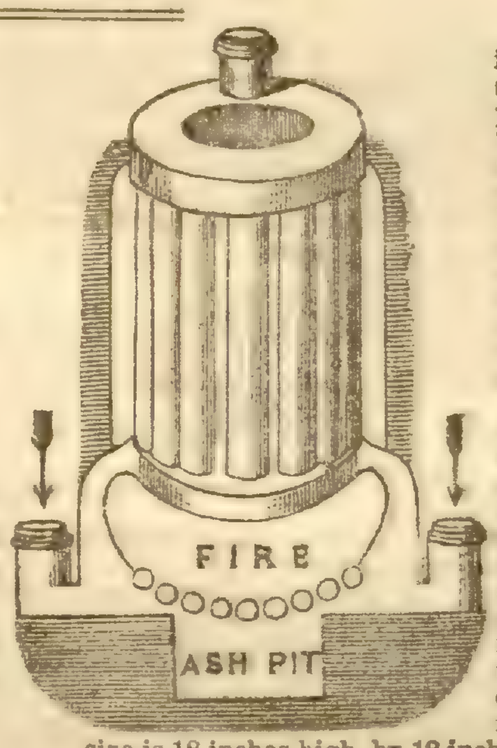
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building an Heating by Hot Water.

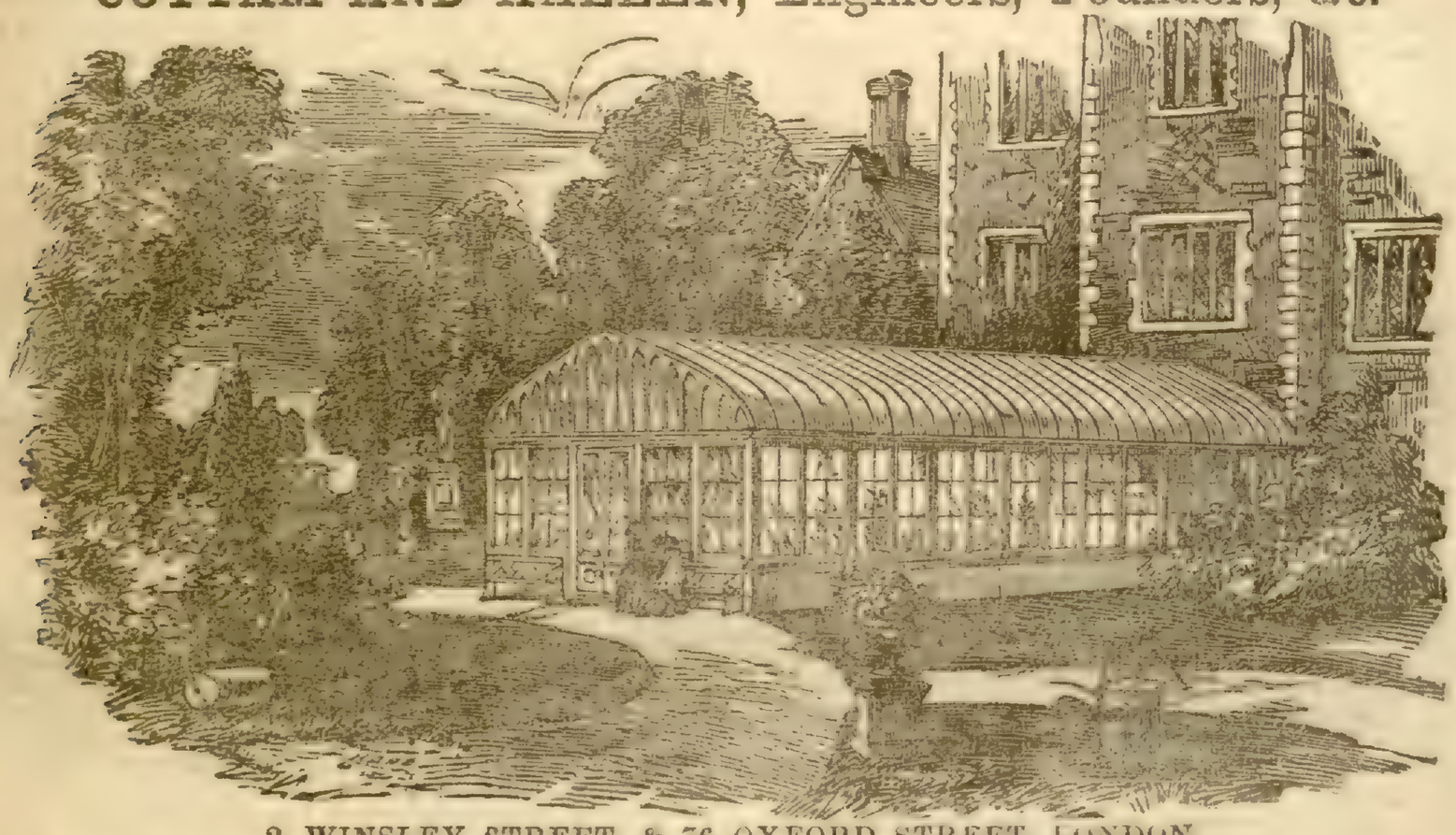


The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

COTTAM AND HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

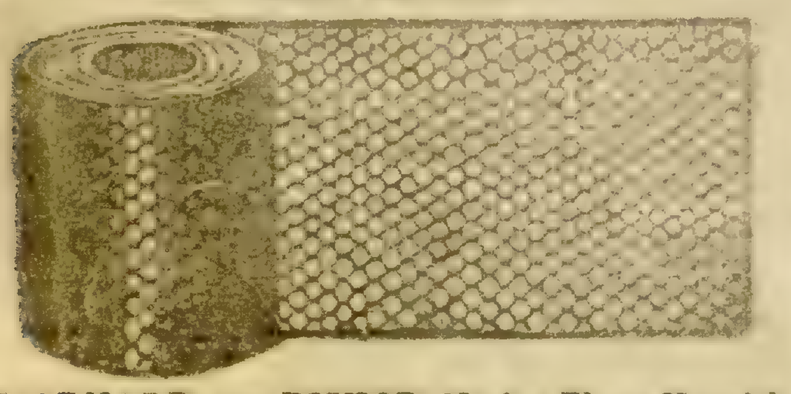
IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong, do.	6 ,,	4½ ,,
2 inch ,, intermediate, do.	7 ,,	5½ ,,
2-inch ,, extra strong, do.	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	6½ ,,	5½ ,,
1⅝-inch ,, intermediate, do.	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	10 ,,	8 ,,

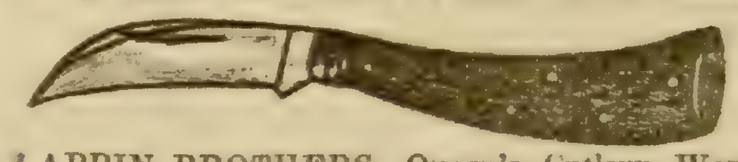
All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8¼*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

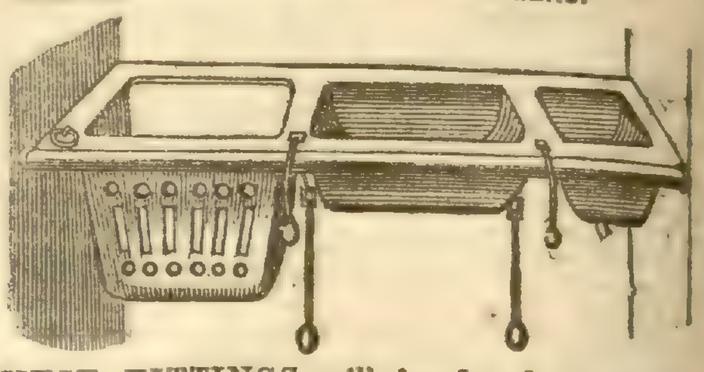
Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted: he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

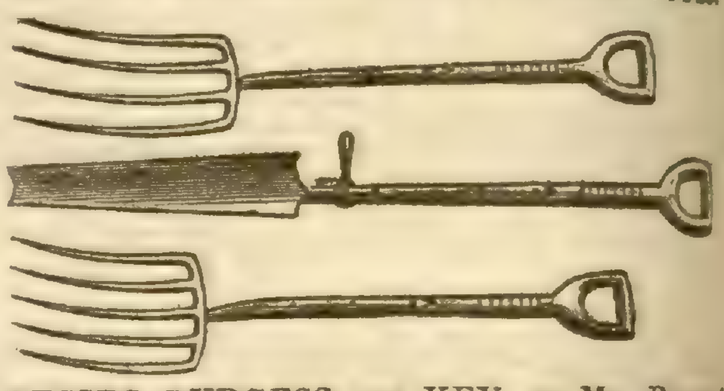
BARTON'S PATENT SAFETY STABLE FITTINGS, AND ENAMELLED MANGERS.



THESE FITTINGS will be found to possess all the latest and most important improvements, and are of the best manufacture. All kinds of Stable Furniture in stock. Iron Hurdles, Gates, Fencing, Tomb Railings, &c. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1	10	0
2½ ,,	long 3 ,, 3 ,,	gutta percha,	1	14	0
3 ,,	ditto 3 ,, 6 ,,	or cast iron	2	8	0
3½ ,,	ditto 3 ,, 6 ,,	flanged pipe,	2	12	0
4 ,,	ditto 3 ,, 6 ,,	as required.	3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

J. SEELEY begs respectfully to solicit early orders for any FOUNTAINS that may be required next spring—to prevent the operation of fixing from disordering the grounds late in the season.

Works, Nos. 1 to 4, Keppel Row, New Road, Regent's Park.

N.B. Many new Vases and Figures have been added during the past year.

JOHN WHITEHEAD, Preston, Lancashire, MAKER of HEATING APPARATUS for WARMING CHURCHES, PRIVATE MANSIONS, GREENHOUSES, &c.

The Apparatus on the POLMAISE SYSTEM unites the functions of a Ventilating and Warming Apparatus, providing for the discharge of foul air, at the same time that it furnishes a supply of pure warm air which may be regulated to almost any desirable temperature. It is free from dust, from noxious or offensive exahalations, and from all danger of fire. It is extremely simple, requiring no skill or great care in its management: the first cost is small, and with regard to economy of fuel it is confessedly superior of all other.

In the construction of HOT-WATER APPARATUS, care is taken to perform the work in a durable and substantial manner, so as to obviate the necessity for frequent repairs, or the possibility of any derangement in its working. It is simple, easy to control, requires little attention, and is quite safe and economical in respect of fuel.

Testimonials forwarded on application. Experienced Engineers sent to any part of the Kingdom, and plans, specifications, and estimates furnished on application.

HOT AIR.

From R. A. HORNBY, Esq., *Wansfell, Windermer*, Jan. 5, 1857.

Sir,—I do not hesitate to send you the testimonial you desire. Your Stove was constructed in 1849; it has been in work ever since, except in summer, and has been uniformly easy to manage, cheap to feed (if the price of the best coke be considered), and excellent for the health of plants, either in Stove or Greenhouse. It has required no repair beyond a few fire-bricks. A common gardener looks to it. The fire lasts fully 12 hours in winter nights, the thermometer ranging from 65° to 54°. If any gentleman wishes to see the Stove in operation, the gardener will attend on him, my own illness entirely precluding me from correspondence or the reception of visitors.—I am, Sir, your faithful servant, ROBERT A. HORNBY.

From REV. W. HORNBY, *St. Michaels-on-Wyre, near Garstang.* December 8, 1856.

I have much pleasure in informing you that the Hot-Water Apparatus you have lately put up in my garden answers perfectly, but I am by no means disposed to give up the Polmaise system, which I should certainly have employed if the situation would have allowed it. Your Polmaise Stove, in the church and school, are all that I could desire.

From W. THISTLETHWAITE, *Esq., Ludlow Grove, near Wilmslow.* December 3, 1856.

Your Warming Apparatus for the centre of our large building has been entirely successful. The heat is uniformly diffused, under good control, free from draughts, and in all respects very agreeable. My only dwelling house is part of the north wing of the building, and is dependent on open fires. The rooms being large and rather lofty are difficult to heat in cold weather, and I have pretty much concluded to put a small apparatus up on the same plan for my own house.

BENTALL'S PATENT PULPER.

PRICES.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

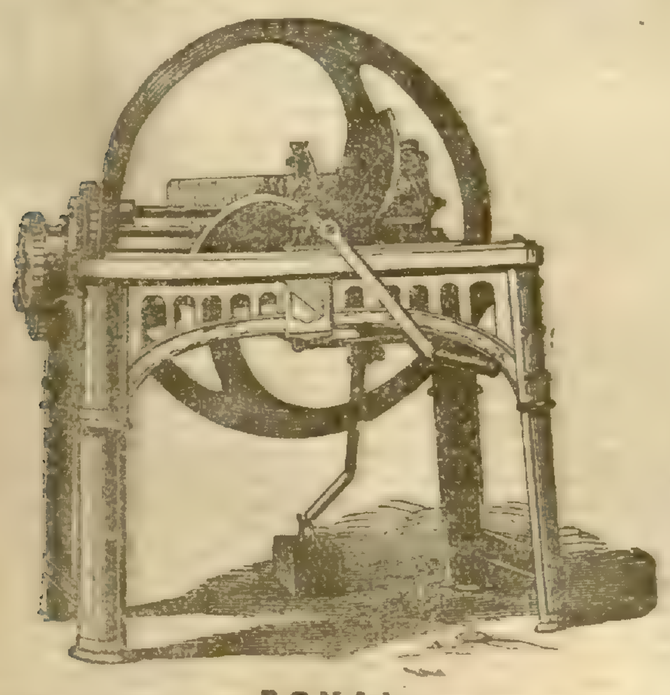
	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require." —*Mark Lane Express.*



ROYAL
NORTH LANCASHIRE AGRICULTURAL SOCIETY.
PRESTON MEETING, 1856.

AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—

The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

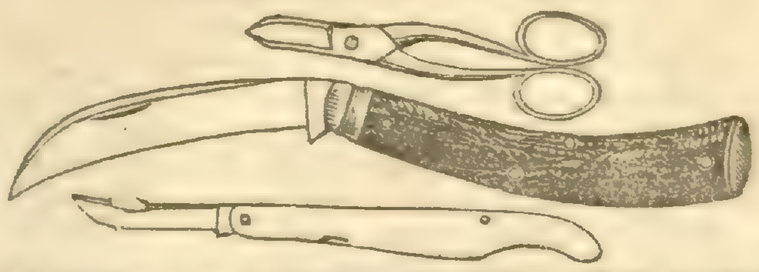
Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—

The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains designs and prices of 150 different articles of BEDROOM FURNITURE, as well as of 100 Bedsteads, and prices of every description of Bedding. Sent free by post.—HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose.

ROWLANDS' ODONTO, OR PEARL DENTIFRICE, stands unrivalled. Prepared from Oriental Herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

THE BELMONT GLYCERINE SOAP contains PRICE'S Pure Glycerine, distilled by their patent process from Palm Oil. It is recommended for washing infants and shaving, it softens the skin, and is a most agreeable toilet soap for general use.

PRICE'S CANDLES, which will not drop grease when carried. These used as Chamber Candles prevent damage to dresses and carpets. They should be burnt in the candlesticks made specially for them in imitation bronze, with cotton branch stems, and palm leaf feet, having stamped round the edge—"PRICE'S Patent Candle Company Limited." All the above may now be had retail through any druggist, perfumer, or grocer. The Soap in English ornamental boxes, price 6*d.*, 1*s.*, and 1*s.* 6*d.* each; the Candles in boxes, 1*s.* and 3*s.* Candlesticks, 2*s.* 6*d.* each. And wholesale at Belmont, Vauxhall, London.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

CELEBRATED HAIR PREPARATIONS.—ALEX. ROSS'S LIQUID HAIR DYE, easily applied, being the best in the world. Sold from 3*s.* 6*d.*; sent free for 54 stamps. ALEX. ROSS'S Hair Destroyer or Depilatory, for removing superfluous hair from the face, neck, arms, and hands, 3*s.* 6*d.* per bottle, sent for stamps; free by post, 8 extra. ALEX. ROSS'S Cantharides Oil, for strengthening the hair, and producing whiskers, 3*s.* 6*d.*; sent free for 54 stamps. ALEX. ROSS'S Face Powder, or Pomadore, from 1*s.* the packet; free, 14 stamps. Liquid Rouge, 2*s.* 6*d.* per bottle.—ALEX. ROSS, 1, Little Queen Street, High Holborn. Wholesale Agent, BARCLAY, Farringdon Street, London.

"THE LANCET" on DR. DE JONGH'S LIGHT-BROWN COD LIVER OIL:—"Dr. de Jongh gives the preference to the Light-Brown Oil over the Pale Oil, which contains scarcely any volatile fatty acid, a smaller quantity of iodine, phosphoric acid, and the elements of bile, and upon which ingredients the efficacy of Cod Liver Oil, no doubt, partly depends. Some of the deficiencies of the Pale Oil are attributable to the method of its preparation, and especially to its filtration through charcoal. IN THE PREFERENCE OF THE LIGHT-BROWN OVER THE PALE OIL WE FULLY CONCUR. We have carefully tested a specimen of Dr. de Jongh's Light-Brown Cod Liver Oil. We find it to be genuine, and rich in iodine and the elements of bile."

DR. DE JONGH'S COD LIVER OIL

Has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.* Quarts, 9*s.*; capsuled and labelled with Dr. DE JONGH'S Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by many respectable Chemists throughout the United Kingdom.

WHOLESALE AND RETAIL DEPOT,
ANSAR, HARFORD & CO., 77, Strand, London, W. C.
DR. DE JONGH'S SOLE BRITISH CONSIGNEES,
By whom the Oil is daily forwarded to all parts of the Metropolis.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary. 26, Great George Street, Westminster.

YOUNG INKERMAN.—This celebrated STALLION will receive a limited number of MARES, at the Bury Farm, Stapleford, Cambridgeshire. He won the first Prize in the Dray Horse Class, Chelmsford, 1856, when only three years old, competing against all ages. Young Inkerman foaled 80 mares out of 100 last season.—Apply to Mr. THOMAS BAKER, Stapleford, on or before the 10th of March.

TO NURSERYMEN, ETC.

FOR SALE, 1500 large ARCHANGEL MATS, new.—GARNOCK, BIBBY, & Co., Patent Cordage Manufacturers, Liverpool.

TO BE SOLD CHEAP, a neat new GREENHOUSE, 15 feet long by 9 feet wide, consisting of a front and two ends, door in one end, and lights hung all round; the roof a lean-to, consists of 5 lights long and two tier high, glazed and painted, &c., price 18*l.*—To be seen on application to Mr. DIXON, Greengrocer, near the British Prince, New Road, Shepherds' Bush, Hammersmith.

WANTED TO RENT, about an acre of Enclosed GARDEN GROUND, within 12 miles of London.—Address, stating terms, locality, &c., by letter only, prepaid to A. F., Mr. Hay's, Colonial Coffee House, 20, Gracechurch Street, London, E.C.

TO BE LET, for 100 Guineas Rental, or to be SOLD at a sacrifice, a GENTLEMANLY RESIDENCE in the best part of Fulham, standing in highly ornamental Grounds of more than an acre, with Rockwork, Ruins, Dell, and splendid Shrubbery; Drawing and Dining-room, Library, five Bedrooms, Offices, &c.—Apply to GEORGE GLENNY, Horticultural Agent, Dungannon House, Fulham. N.B. Several houses in the main road from 20*l.* to 35*l.* Omnibuses every 10 minutes all day.

TO BE LET, after Lady Day next, A FARM of 500 acres of MEADOW, PASTURE, and ARABLE LAND, tithe free. About 150 acres of Rough Pasture may be had with the Farm. A useful, dry, healthy estate producing excellent Roots, Corn, and Grass Crops. Well placed for markets.—For particulars apply to W. B., Post Office, Honiton, Devon. References required.

TO NURSERYMEN.

TO BE DISPOSED OF, on advantageous terms, and with immediate possesion, the Tenant being about to leave England, the STOCK IN TRADE of a NURSERY and SEED BUSINESS now in full operation in one of the best thoroughfares in the fashionable City of Bath.—Apply to Mr. SCAMMELL, Kensington Nursery, Bath. References to Mr. HENDERSON, Pine Apple Place, Edgware Road, London; or to Messrs. Low, Clapton.

WHITE-FACED SPANISH EGGS.

MR. RODBARD, of Aldwick Court, Langford, near Bristol, having taken prizes with his Spanish Fowls in 1856 and the present year at Birmingham, Bridgnorth, Crewe, Southwell, Gloucester, Hereford, Fareham, Dorchester, Bath and West of England at Yeovil, Bridgewater, Exeter, and Spanish Cup at Central Nottingham, has Eggs to part with from Prize Stock, at 1*l.* 1*s.* per dozen; Buff, White, and Partridge Cochin China, Black Breasted Red and Duckwing Game, at 6*s.* per dozen, all from Prize Stock; 1*s.* for box.—Post-office Orders to be made payable at Wrington.

STANDARD AND OTHER ROSES, CAMELLIAS, AZALEAS, &c. &c.

MR. HASLAM will Sell as above at the Mart, on THURSDAY, March 5, at 1 o'Clock. N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to Parcels Delivery Company. Mats and baskets allowed for when returned.—Epping, February 28

Sales by Auction.

PINE CONES AND SEEDS, ORANGE TREES, AZALEAS, AND A FEW IMPORTANT ORCHIDS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, March 6, at 1 o'Clock precisely, the remaining portion of the consignment of Pine Cones and Seeds from California; 4 pairs of fine Orange Trees, the property of a nobleman; specimen Azaleas, and a small consignment of Orchids from the East Indies.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

ANNUAL SALE.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomow Lane, on WEDNESDAY, March 4, at 12 o'Clock, about 200 choice Double Camellias, from 18 inches to 5 feet, consisting of all the approved kinds, beautifully furnished with bloom buds; Azalea indica; 100 strong Camellia Stocks; also a choice assortment of Standard and Dwarf Roses, a fine collection of American Plants, choice Dahlias in dry roots, Paeonias, Verbenas, Fuschias, Ericas, Epacris, Lilium lancifolium, &c.—May be viewed the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS AND OTHERS.

MR. J. WILLMER begs to announce that he will Sell by Auction at the Mart, City, on WEDNESDAY, March 11, at 12 o'Clock, a first-class collection of CARNATIONS, PICOTEES, PINKS, DAHLIAS in dry roots, choice AMERICAN PLANTS, &c. On view the morning of Sale.—Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

IN BANKRUPTCY—COLCHESTER.

MESSRS. SMITH AND COBB (who are jointly employed) will Sell by Auction on TUESDAY, March 10, and following days, upon the premises, Lexden Road, Colchester, the splendid NURSERY STOCK of Mr. Horatio Bunting.—May be viewed prior to the Sale, and Catalogues had in due course upon the premises, or of the Auctioneers, Colchester, Essex.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE to NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

BEDDED CABBAGE PLANTS.

JOHN CATTELL can now supply good plants of his superior sorts, BARNES, RELIANCE, &c., at 6*s.* per 1000, package included. Orders for 5000 and upwards will be delivered carriage free to London and to the Edenbridge station, South Eastern Railway. A remittance must accompany orders from unknown correspondents,

Nurseries, Westerham, Kent.

JOHN HENCHMAN, JUN., Edmonton, London, is now sending out CAMELLIAS, double white, good plants, with flower buds, at 24*s.* and 30*s.* per dozen. CHINESE AZALEAS, fine named varieties, worked on short stems, with large heads full of flower buds, at 42*s.* per doz.

A few handsome plants of magnificent Adolphe flore pleno, Semiduplex maculata, and other choice sorts, with flower buds, at 5*s.* each.

Ghent Azaleas, in pots, choice named sorts, with flower buds, at 18*s.* and 24*s.* per doz.

JOHN HENCHMAN, JUN., Edmonton, London, is now sending out—

CAMELLIAS, double white and fimbriata, full of flower buds, at 24*s.*, 30*s.*, and 36*s.* per dozen.

CHINESE AZALEAS, fine named varieties, worked on short stems with large heads full of flower, at 42*s.* per dozen. Choice mixed varieties, on own roots, full of flower, at 15*s.*, 18*s.*, and 24*s.* per dozen.

GHENT AZALEAS in pots, choice named sorts, full of flower, 18*s.* and 24*s.* per dozen.

CALCEOLARIAS, choice Seedlings, in 60-pots, 6*s.* per dozen. Ditto, for Specimen Plants, in 32-pots, 18*s.* per dozen.

CYTISUS or GENISTA FRAGRANS, strong bushy plants full of flower, at 9*s.* and 12*s.* per dozen.

GLENNY'S IMPROVED BALSAM.—The sale of Seed as Mr. GLENNY'S, unless in his own sealed and signed packets, is a fraud upon the buyer. Six classes, 37 stamps, mixed, 13; best 12 hardy Annuals, 36; best 12 tender, 60; both, 84 Stocks, Asters, and Larkspurs in great variety.—GLENNY'S Companion to the Almanacks, 13 stamps. His Seed List for Amateurs if a directed envelope be sent, Fulham. S. W.

NEW HYBRID CUCUMBER "PERFECTION."—This has proved to be one of the finest black spine varieties ever yet offered to the public for early forcing and all other purposes for which a Cucumber is required. Seed of the above is now ready to be sent out at 3*s.* 6*d.* per packet.

For further particulars, with a List of numerous other fine varieties of Cucumbers and Melons, and prices of the same, see this Paper of January 31, 1857, page 66.

A remittance must accompany every order in cash or penny postage stamps, when the whole, or any part, as the case may be, will be immediately forwarded.

EDWARD TILEY, NURSERYMAN, SEEDSMAN & FLORIST.
14, Abbey Church Yard, Bath, Somersetshire.

CHARLES SCHOFIELD offers strong Plants of the following Florist's Flowers, viz., 12 pairs CARNATIONS, extra fine, 12*s.* 6*d.*; 12 pairs PICOTEES, extra fine, 12*s.* 6*d.*; 25 SHOW PANSIES, 1*l.* Also selections of PANSIES, 4*s.*, 8*s.*, and 12*s.* per dozen; PINKS, extra fine, 4*s.*, 6*s.*, and 12*s.* per dozen pairs.

A Descriptive Catalogue now ready. Pansy Seed, Calceolaria ditto, Hollyhock ditto, 2*s.* 6*d.* each packet. The above all very select.—Knowsthorpe, near Leeds, Yorkshire.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s.* per quart, with an allowance to the trade.—9, Mansion House Street, London.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet.

Samples of the haulm may be seen at the following Firms in London, of whom the Peas may be had, or of their Agents in the country, in quart packets at 5*s.* each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

THE Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

CHOICE SEEDS FROM PERFECT SPECIMENS.

THOMAS WILD, Ipswich, confidently recommends the following superior Seeds, together with Latter's Treatise on the Cultivation of Primulas, coloured drawing. Testimonials, &c., free by post.

Orion Melon, 1*s.* 6*d.*; Standard Cucumber, 2*s.* 6*d.*; Latter's Primulas, of world-wide celebrity, 2*s.* 6*d.*; Hollyhock, Pansy, Dahlia, Gloxinia, Cineraria, Calceolaria, Polyanthus, Sweet William, and Balsam, at 1*s.* per packet, saved by growers who spare no expense to obtain the best.

WILLIAM HUSSEY begs to offer the under-named CUCUMBER and MELON SEEDS, warranted true, viz.:—Sir Colin Campbell, nine seeds, 1*s.*; Ingram's Hybrida, six seeds, 1*s.*; Lyne's Star of the West, six seeds, 1*s.*; Broomhall Melon, 12 seeds, 1*s.*; Nettled Beechwood, 12 seeds, 1*s.*; Adams's Green Flush, 12 seeds, 1*s.*; Scarlet Flush China, 12 seeds, 1*s.*

Horticultural Gardens, Norwich.

PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, until July next. All orders (not less than 20) to be accompanied with a Post-Office order on Birmingham.

	£	s.	d.		£	s.	d.
Twenty		12	0	Eighty	2	1	6
Forty	1	2	0	Hundred	2	8	0
Sixty	1	12	0				

Plants in pots, not less than 10, 1*s.* 3*d.* each.

MR. UNDERHILL'S TREATISE ON THE CULTIVATION OF THE STRAWBERRY, price 1*s.*—Address, MR. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

TO THE TRADE.

JOHN PALMER, NURSERYMAN, Annan, begs to inform his Friends and the Trade generally that he has at present to offer of good quality as follows:—

600,000 1 year ...	Seedling Beech.	
1,000,000 2 year ...	"	Norway Spruce.
500,000 1 year ...	"	Pinus austriaca.
1,000,000 1 and 2 year	"	Native Scotch Fir.
50,000 1 year ...	"	Rare Virginian Cedars.

Prices, which are very moderate, may be had on application.

GLADIOLUS, Cheap and good, for present planting:—

GANDAVENSIS, scarlet and orange ...	2*s.* 6*d.*	per doz.
OPPOSITIFLORUS, white and rose ...	2 0	"
PRINCE ALBERT, pink and crimson ...	5 0	"
RAMOSUS, salmon rose, varied	2 0	"

The above are beautiful free flowering varieties, suitable for growing in clumps.

To be had of WM. DENYER, Seedsman and Florist, 82, Gracechurch Street, London. E.C.

ASPARAGUS AND SEA KALE.—Having a very large stock of Asparagus and Sea Kale, we can supply almost any quantity at the following prices:—

Fine Sea Kale Roots	8*s.*	per 100
Strong	12*s.*	"
Large Crowns	20*s.*	"
Judd's Giant Asparagus, 2 years ...	3*s.*	"
" " 3 years ...	4*s.*	"

Much lower by the thousand.

We have at least 500,000 strong roots of Sea Kale and Asparagus, so that we can supply all orders with fine strong Roots.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

FOR PLANTING AT THIS SEASON

CAREY TYSO, FLORIST, &c., Wallingford, Berks, begs to offer choice assortments of

*RANUNCULUSES, 100 superb named sorts,	40*s.* to	£4	0*s.* 0*d.*
*DOUBLE ANEMONES, 100 ditto	21*s.* to	1	6 0
CARNATIONS and PICOTEES, 25 pairs ...	37*s.* to	3	0 0
PANSIES, fine sorts, per dozen	5*s.* to	0	12 0

*IMPORTED GERMAN SEEDS:—ASTERS, STOCKS, LARKSPURS, BALSAMS, ZINNIAS, &c., of best quality in assortments, 2*s.* 6*d.* each. *Annual Seeds, 25 packets, 5*s.*

☞ WANTED, roots of "Exhibitor" and "Gliacine" Ranunculus, warranted true.

C. TYSO'S FLORAL CATALOGUE for 1857 may be had for one stamp.

*These articles can be sent by post.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s.*	British Queen	per bushel 6*s.*
New Boston do.	6*s.*	Purple Regent	6*s.*
Early Frame	8*s.*	Early Shaws	6*s.*
Flourball	6*s.*	York Regent	6*s.*
Forty-fold	6*s.*	Bags included,	

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

KIDNEYS.—ASHLEAF, 7*s.* per bushel; FLUKES, 5*s.* per bushel; DAWE'S MATCHLESS, 6*s.* per bushel, a very fine sort and large croppers, strongly recommended for a white Kidney to use in the spring. Has withstood the disease three years in succession. All other kinds of Seeds equally low and warranted. Prices sent upon application.

JOHN BELL, Covent Garden, and King's Cross Potato Market, Great Northern Railway. Post-office orders payable at Charing Cross. New bags, 1*s.* 6*d.* each.

SEED POTATOES from the North of Scotland.—The Subscriber offers for Sale a new variety of Potato introduced by him from the west of Ireland—known there by the name of Protestants. They are round, white, of a fine quality, and have in 1855 and 1856 been grown on the subscriber's farms in Ross and Inverness-shires with great success; the crop being large (double that of Regents), and affected by taint in the most slight degree. Also FLUKES, price 15*s.* per 4 bushel sack (sack included), delivered in London, Liverpool, Newcastle-on-Hull. Orders with remittances to be addressed to ALEXANDER SIMPSON, Beauly, North Britain, who refers to the "Editor of the *Agricultural Gazette.*"

MYATT'S
PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s.*; per peck, 2*s.* 6*d.*; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

TO FARMERS AND OTHERS.—Send one stamp for J. H. COTTRELL'S AGRICULTURAL LIST, about 30 per cent. under those Seedsmen who puff so much.

J. H. COTTRELL, 2, High Street, Birmingham, successor to F. WARNER, and managing partner in the late firm of DAVIS, COTTRELL, and BENHAM. Established 28, Cornhill, London, 1770.

No connexion with any other house.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1½ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

CARPE DIEM, CARPE DIEM.—Some fine specimens of the PICEA NOBILIS, Nordmanniana, Pinsapo, cephalonica, Pinus ponderosa, Excelsa austriaca, insignis, macrocarpa, Abies Douglasi, Menziesi, Cedrus Deodara, Libani, Atlantica, Wellingtonea gigantea, and other Coniferæ; Araucaria, Taxodium sempervirens, Cryptomeria japonica, as well as a large assortment of every description of Nursery Stock, with one of the largest selections of Fruit Trees in the trade.—May be had from the establishment of DONALD & Son, Goldworth Nursery, Woking, Surrey, one hour by rail from Waterloo Station. All these plants have been been constantly removed, and will be sold cheap. Prices on application.

THE BIRMINGHAM ROOT SHOW,

SUTTON'S PRIZE MANGEL WURZEL.—These superior kinds of Mangel Wurzel took the First Prize in each class at the Birmingham Great Root Show, open to all England, and the same kinds exhibited on Messrs. SUTTON'S Stand at the Baker Street Show would doubtless have been equally distinguished if prizes for roots had been given on that occasion.

J. SUTTON & SONS, Seed Growers, Reading, Berks, have at present a good Stock of Seed of the above, which they are selling at moderate prices, according to quantity required. Early orders are requested, to prevent disappointment.

SUTTON'S New Seed List, with Prices, may now obtained post free.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, Feb. 28.

CHOICE STOVE, GREENHOUSE, AND OTHER SEEDS.

HOOPER AND CO., SEEDSMEN, &c., Centre Avenue, Covent Garden Market, London (W.C.), have the pleasure of announcing that since the publication of their usual Catalogue of Flower Seeds they have received a very choice collection of Seeds of Stove, Greenhouse, and Hardy Shrubs and Climbers, Hardy and Half Hardy Herbaceous Plants, Carnations and Picotees of the finest descriptions, in collections and mixtures, warranted to produce 6 to 8 good double flowers, with some choice Annuals, &c., the whole of which have been ripened in the climate of Italy in the year 1856, and are such as they can recommend with the greatest confidence. A Catalogue of them will be forwarded on application; and it is respectfully requested that a Post-office Order, or Stamps, accompany each order from unknown correspondents. The stock being limited, an early application is desirable.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker: the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10*s.* 6*d.* each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden in the said Co.—SATURDAY, February 28, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 10.—1857.] SATURDAY, MARCH 7. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—MEETING, Mar. 3, the following are the Awards:—

FIRST PRIZES.

Mr. Edmonds, Chiswick, for double Primulas & Vanda tricolor.
Mr. Fleming, Trentham, for New B. Hamburgh and other Grapes.
Mr. Tillyard, for Pears.
Mr. Ingram, for Forced Vegetables.
Mr. Lewis Solomon, for Foreign Vegetables.
Mr. Cutbush, of Highgate, for Hyacinths.

SECOND PRIZES.

Mr. A. Ingram, of Reading, for a Cyclamen persicum.

FIRST-CLASS CERTIFICATES.

Mrs. Henderson, Wellington Rd., for Monochætum ensiferum.
To the same, for Gesnera cinnabarina.
Messrs. Veitch & Son, for Thunbergia laurifolia.

SECOND-CLASS CERTIFICATES.

Mrs. Henderson, Wellington Rd., for Gesnera densiflora.
To the same, for a Collection of Cyclamens.
Messrs. Veitch & Son, for Correa cardinalis.

HONOURABLE MENTION.

J. Hawes, Esq., for a Case of Dissected Leaves.
Messrs. Veitch & Son, for Plants of Camellia Saccoi nova.
Mr. Butcher, of Stratford-on-Avon, for Barbarossa Grapes.

CRYSTAL PALACE FLOWER SHOW.—The SCHEDULES of PRIZES to be offered for Competition at the Exhibitions of the ensuing season are now ready, and may be had on application to the Secretary.
Crystal Palace, Sydenham, S.E., March 7. G. Grove, Secretary.

Notice of Removal from 21, Regent Street.

THE MEETINGS OF THE NATIONAL FLORICULTURAL SOCIETY for the Season 1857 will be held in the Library of St. Martin's Hall, Long Acre, London, W. C.

Days of Exhibition.

THURSDAY, March 26.
" April 23.
" May 7, 28.
" June 11, 25.
" July 2, 23.
" August 6, 20.
" Sept. 3, 17.
" October 1.
" November 12.

At these Meetings Ferns, Orchids, Stove, Greenhouse, and hardy flowering Shrubs, together with flowers, florists' Horticultural inventions, &c., will be received and adjudicated upon, and Certificates in three degrees of Merit awarded to such as the Censors may deem worthy. All subjects are received Free of Entrance Fee, whether contributed by Members or otherwise. Subjects from a distance, if sent carriage paid and addressed to the Secretary, will be carefully repacked and returned. All subjects must be entered and staged by 12 o'Clock, and the Chair will be taken at 2 o'Clock of each day.

Annual Subscription, 21*s*.; Gentlemen's Gardeners, 10*s*. 6*d*.; to whom is distributed immediately after each Meeting a full and descriptive printed report of all subjects submitted, with the Special Awards of the Censors.—All communications must be addressed to 20, Sharp's Alley, London, E. C.

John Edwards, Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions of PLANTS, FLOWERS, FRUITS, &c., for the present year, will be held in the Society's Gardens, Old Trafford, Manchester, on TUESDAY and WEDNESDAY, the 26th and 27th May; WEDNESDAY and THURSDAY, the 24th and 25th June; and WEDNESDAY and THURSDAY, the 26th and 27th August.—For Schedules and Particulars apply to the Secretary.

By order, John Shaw, Secretary.
Council Room, 40, Princess Street, Manchester, March 7.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY'S EXHIBITIONS for 1857 are fixed to be held on the following days:—Summer Show, WEDNESDAY and THURSDAY, June 24 and 25; Autumn Show, WEDNESDAY and THURSDAY, September 16 and 17; on the same grand scale as in former years.

Schedules are now ready and may be obtained of the Secretary, or of E. Spary, Queen's Graperies, General Superintendent of Exhibitions, and

Thos. Attree, Esq., Chairman. Edwd. Carpenter, Sec.
Brighton, March 7. St. James's Street.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that FOUR PENSIONERS will be added to the List in JULY next. All persons desirous of becoming Candidates are required to send in their testimonials and certificates to the Committee on or before MONDAY the 13th APRIL next, after which time they will not be received. Printed forms may be had upon application.

By order, E. R. Cutler, Sec.
14, Tavistock Row, Covent Garden, March 7.

AMATEURS AND GENTLEMEN'S GARDENERS may have a List of the few Seeds that are really useful on sending a directed envelope to G. Glenny, Dungannon House, Fulham, S.W. "GLENNY'S COMPANION" (with Portrait), and "GARDEN ALMANACK," 13 stamps each.

FOR PRESENT SOWING.

NEW ITALIAN RYE-GRASS SEED MAY NOW BE OBTAINED FROM SUTTON AND SONS, Seed Growers, Reading, Berks. Remittances or references are requested from unknown correspondents.

THE ALSIKE CLOVER.

SUTTON AND SONS have one of the finest parcels of Seed in Europe of this valuable CLOVER, and they can strongly recommend it from experience, both for permanent pasture and alternate husbandry.

Royal Berkshire Seed Establishment.—March 7.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.

John Sutton & Sons, Seed Growers, Reading, Berks.

IMPORTANT TO PLANTERS AND COMPANIES FORMING NEW PARKS.—See Advertisement in *Gardeners' Chronicle* of the 21st February, page 114.

William Jackson & Co., Bedale.

F. AND A. SMITH beg to inform the Floricultural public that their stock of BALSAM SEED is now exhausted.—Dulwich, Surrey, March 7.

THOMAS WILD, Ipswich, respectfully announces to the Horticultural world that his celebrated SEEDS are nearly sold out. Order without delay or disappointment will follow.

TO CUCUMBER AND MELON GROWERS.

H. SHERMAN can still supply strong plants at 1*s*. per pot. Cucumber and Mushroom Grower, Gooseberry Gardens, Hendon, N.W.

NEW AND CHOICE PANSIES.

HART AND NICKLIN, Florists, &c., Guildford, beg to offer first-class PANSIES at 10*s*. per dozen, or three dozen for a guinea, free by post, or package included.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, March 7.

HAWKE'S CHAMPAGNE RHUBARB, 18*s*. per dozen. Full particulars of the above will be found in Youell & Co.'s advertisement of last week, page 131.

Royal Nursery, Great Yarmouth.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

CHARLES TURNER'S SPRING CATALOGUE OF DAHLIAS, GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, and the Soft-wooded Plants is now ready, and contains many novelties offered for the first time. Can be had on application.—Royal Nursery, Slough.

R. M. STARK begs to intimate that his CATALOGUE OF FLORISTS' FLOWERS, GARDEN AND FLOWER SEEDS, &c., for the season is now ready. A carefully arranged LIST OF BRITISH AND EXOTIC FERNS has also just been published.

Edinburgh, Edgehill Nursery, March 7.

T. GAINES respectfully announces that his DAHLIA CATALOGUE for 1857 is now ready. It contains most of the approved varieties in cultivation; also his GENERAL CATALOGUE, both of which will be forwarded free by post upon application.—The Nursery, Surrey Lane, Battersea, S.W.

ROSES.

A. PAUL AND SON respectfully announce that their ROSE CATALOGUE for 1856-7 will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.

Nurseries, Cheshunt, Herts.

ROSES.

LOUIS VAN HOUTTE'S CATALOGUE OF ROSES is to be had at Mr. R. Silberrad's Office, 5, Harp Lane, Great Tower Street, London.—Ghent, Belgium, March 7.

SEEDS.

LOUIS VAN HOUTTE'S SUPPLEMENTARY CATALOGUE OF KITCHEN, FLOWER AND TREE SEEDS is now ready at Mr. R. Silberrad's Office, 5, Harp Lane Great Tower Street, London.—Ghent, Belgium, March 7.

The Seeds are delivered free in London.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GROOM.—H. MATTHEWS (Son-in-law and Successor to the late H. Groom), Florist and Nurseryman, Clapham Rise, Surrey, begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had post free on application.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had gratis, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

NEW PHLOXES.—An extensive and select collection of the above beautiful showy tribe of Herbaceous Plants, comprising the fine and newly introduced varieties from the Continent. May be obtained at 10*s*. per dozen, package included.

Youell & Co., Royal Nurseries, Great Yarmouth, Norfolk.

NEW PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong Plants, well established in small pots, 10*s*. per dozen, package included.

Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

BOX EDGING.—Several thousand yards of the above in fine condition.—For particulars apply to Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

AMERICAN MARROWS.

F. GODWIN, having just received an assortment of this beautiful vegetable direct from his American correspondents, offers them in packets containing four best varieties, at 1*s*. and 2*s*. each, post free.—Broadfield Nurseries, Sheffield.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT List of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written application.

Nurseries, Cheshunt, Herts.

LARGE FOREST AND ORNAMENTAL TREES FOR PLANTING PARKS, CEMETERIES, &c. &c.

W. J. EPPS has a large quantity of the above he can supply very cheap. Also a large stock of very fine Specimen Coniferæ. Prices and size sent on application.

Nurseries, Maidstone and Ashford, March 7.

PONTEFRACT NURSERY.

ONE HUNDRED THOUSAND two and three year transplanted BERBERIS AQUIFOLIUM; also two year Seedlings, fine healthy Plants, with all other kinds of Nursery Stock. Samples and price on application.

John Scholey, Pontefract.

CAMELLIAS.

CHANDLER AND SONS beg to inform their friends and the public that their Collection of CAMELLIAS is now coming into bloom. They have also a variety of Ornamental Plants, Ferns, &c., for the Drawing Room and Conservatory.—Wandsworth Road, London, S.

CAMELLIAS.

TO BE DISPOSED OF, Five splendid Plants, 12 feet high, in full bearing condition, suitable for large private or public Gardens.—For terms and particulars apply to Mr. James Stevens, Auctioneer, Clapham Common, S.

WANTED, about 500 PINE SUCKERS; also from 500 to 1000 RHUBARB PLANTS.—Address letters, stating price, &c., W., Post Office, Dedham, Essex.

WANTED, a quantity of good strong PINE SUCKERS cheap.—Direct X. Y., stating price, Post Office, Stratford, Essex.

VINES.

WANTED, a lot of Extra Strong VINES in pots, for Forcing.—Apply, with full particulars as to sorts and price, to Francis & Arthur Dickson & Co., Seed Merchants, 14, Corporation Street, Manchester.

NOTICE TO GARDENERS.

W[illegible]NTED IMMEDIATELY,
[illegible]PINE APPLES. | ASPARAGUS.
[illegible]USHROOMS. | CUCUMBERS.
Forw[illegible] to George Taylor, Jun., Fruit Salesman, St. John's Market, [illegible]verpool.

ASH[illegible]AVED KIDNEY POTATOES (Warranted True).

W[illegible] AND INGRAM beg to offer a very pure [illegible] of the above at 6*s*. per bushel. Price to the Trade on appl[illegible]on.—Huntingdon Nurseries, March 7.

FL[illegible], ASHLEAF, DAWE'S MATCHLESS, tr[illegible]mples, to be obtained at John Bell's Potato Depôts. Covent[illegible]len Market, and Great Northern Railway. Prices on applica[illegible]

SEED ESTABLISHMENT, SLEAFORD.

CH[illegible]RLES SHARPE AND CO. beg to offer the T[illegible]de their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

NEW AZALEAS AND CAMELLIAS.

T. GAINES begs to say that he has a few good Plants of the following still on hand:—Azalea roseæ alba, 15*s*.; Napoleon the Third, 15*s*.; also Camellia compacta alba, 21*s*., which may be seen in bloom at the Nursery, Surrey Lane, Battersea, S.W.

SELECT HOLLYHOCKS.

WILLIAM PERRY has a healthy Stock of the above for Sale, a list of which will be sent on application, inclosing one postage stamp.—Foreman at the Nurseries, Sawbridgeworth, Herts.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6*s*.; 15 ditto, ditto, 4*s*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*. A large stock of Hollyhock plants and Pansies in pots.—Catalogues of the above may be had on application to the Nurseries, Haverhill, Suffolk.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, March 7.

R. M. STARK begs to intimate that his LIST OF GARDEN AND FLOWER SEEDS for the season is now ready. Besides securing a supply of all the old varieties from the purest stocks, he has added every novelty likely to be useful. He would particularly recommend the following new Flower Seeds, most of which he had an opportunity of seeing last season in flower:—

	Per packet—s. d.
Acroclinium roseum, a fine large rose-coloured Everlasting, in the way of Rhodanthe	1 0
Bidens ferulæfolia, fine foliage	0 6
Collinsia bicolor flore albo	0 6
„ multicolor marmorata	1 0
Cucumis perennis, a new Perennial Gourd	1 0
Cosmidium Burridgeanum	1 0
Gypsophila muralis	0 6
Lupinus Hartwegi flore albo	1 6
Nemesia versicolor compacta	1 0
Obeliscaria pulcherrima, allied to Rudbeckia, colour of flower resembling a striped French Marigold	1 0
Polycolymna Stuarti, fine large white Everlasting	1 0
Veronica Syriaca, fine new annual species, with gentian-blue and white flowers, for bedding	2 6

German Flower Seeds of the most approved sorts, mixed or in collections.—145, Princes Street, Edinburgh.

THE BOWOOD MUSCAT GRAPE. (Figured in the January number, 1857, of "Florist.")—This is a Seedling raised at Bowood by Mr. Spencer, between the Cannon Hall and Muscat of Alexandria. It differs from both its parents in several important particulars. The bunches are broader and shorter than the common Muscat; the berries are larger, oval, and sometimes pear-shaped, of a yellowish white, changing to a deep amber when fully ripened. As every flower sets, the bunches are invariably full and compact, with the berries of a uniform size; it requires the bunches to be well thinned out to allow the berries to attain their full size. It has been proved to set well in a temperature comparatively low, but it requires nearly the same amount of heat to ripen it as the common Muscat; although it comes to maturity rather earlier than that variety, it keeps equally well, if not better. The habit is scarcely so strong as that of the Muscat, and it is eight or ten days later in breaking in the spring. It is a most prolific bearer, producing three or four bunches to each shoot, and has been proved to fruit admirably in pots.

Bunches of the Bowood Muscat were sent in November last to the Horticultural Society, for the opinions of Dr. Lindley and Mr. Thompson. At page 757 of the *Gardeners' Chronicle* for November 15, Dr. Lindley says, in reference to these specimens, "We have never seen a variety of greater promise, the appearance of the bunch and berries is most magnificent, the quality is much the same as the Cannon Hall Muscat."

Of this variety Mr. Thompson gives the following description:—"This is a very fine thing, and very distinct. The bunch is very large and well shouldered, with strong footstalks. Berries very large, oval, inclined to obovate. . . . The skin was greenish yellow, or of the same colour as that of the Muscat of Alexandria; but it was evident that the berries had not acquired the colour of complete maturity. [It was explained that the bunches were scarcely ripe, owing to the Vines being in a pit which was retarded in the spring; under more favourable circumstances they become of a deep amber, as shown in the plate, berries having been furnished to Mr. Andrews later, for the purpose of assisting him in making the colour correct to nature.] The flesh was firm, juicy, with a rich sugary Muscat flavour; seeds 2—4. This variety, from its being an abundant bearer and a free setter, forming magnificent well-shouldered bunches, appears to be highly deserving of cultivation."

The following is an extract from the Report of the Meeting of the British Pomological Society, November 6, 1856:—"Mr Spencer, of Bowood, brought bunches of his Bowood Muscat. It had been previously exhibited before the Society, but this time was riper, and in a better condition to be judged. Its flavour was pronounced quite equal to the Muscat of Alexandria, and was esteemed superior to that variety in the form of the bunch, which is compact and well-shouldered. It also appears to have the desirable acquisition of setting well."

Orders received by any of the undermentioned Agents, for delivery in October next, price 21*s.* each, with the usual discount to the Trade:—

Messrs. Austin and McAslin, Nurserymen, Glasgow
Messrs. Backhouse and Son, do., York
Messrs. Ballantyne and Son, do., Dalkeith, N.B.
Messrs. Geo. Cunningham and Son, do., Liverpool
Mr. William Cutbush, Highgate, near London
Messrs. Francis Arthur Dickson and Sons, Upton Nurseries, [Chester
Messrs. J. Dickson and Son, Newton Nurseries, Chester; and at 23, Market Place, Manchester
Messrs. Dickson and Co., Nurserymen, Waterloo Place, [Edinburgh
Messrs. Dickson and Turnbull, do., Perth
Messrs. Downie and Laird, do., Edinburgh
Messrs. Frazer and Co., do., Lea Bridge, Essex
Mr. S. Finney, Nurseryman, Gateshead, Durham
Mr. R. Glendinning, Chiswick Nursery
Messrs. Garaway, Mayes, and Co., Durdham Down, Bristol
Messrs. E. G. Henderson and Son, Nurserymen, St. John's Wood, London
Messrs. A. Henderson and Co., Pine Apple Place, London
Mr. Wm. Heale, Nurseryman, Calne
Mr. John Keynes, do., Salisbury
Messrs. Peter Lawson and Sons, Nurserymen, Edinburgh; and George Street, Westminster
Messrs. J. and C. Lee, Hammersmith Nursery, London
Messrs. Hugh Low and Co., Clapton Nursery, London
Messrs. Lane and Sons, Nurserymen, Berkhampstead, Herts
Messrs. Maule and Sons, Nurserymen, Bristol
Messrs Osborne and Sons, do., Fulham, near London
Mr. A. Pontey, Nurseryman, Plymouth
Messrs Paul and Son, do., Cheshunt, Herts
Mr. George Parsons, do., Brighton
Messrs. Wm. Rollisson and Sons, do., Tooting, Surrey
Messrs. Wm. Rendle and Co., do., Plymouth
Mr. T. Rivers, Nurseries, Sawbridgeworth, Herts
Messrs. Sutton and Sons, Nurserymen, Reading
Mr. R. Smith, The Nurseries, Worcester
Messrs. John Shaw and Co., 40, Princess Street, Manchester
Mr. Turner, Royal Nursery, Slough
Mr. James Veitch, jun., Royal Exotic Nursery, Chelsea
Messrs. James Veitch and Son, Nurserymen, Exeter
Messrs. Wheeler and Sons, do., Gloucester
Messrs. Wood and Ingram, ditto, Huntingdon
Messrs. Wood and Sons, do., Maresfield, Uckfield, Sussex
Mr. G. Wheeler, do., Warminster, Wilts.

ESTABLISHED 1805.

CARNATIONS PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name	18	0
12 „ extra fine „	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.
„ Fine mixed border ditto, 6*s.* per dozen pairs.

All orders of 2*l.* and upwards are delivered carriage free to London, Peterborough, Manchester, Newcastle and Hull, as well as to any railway station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.—Per Post Prepaid.

	Per pkt.—s.	d.
CALCEOLARIA, from the handsomest spotted and blotched varieties	2	6
MIMULUS, ditto, ditto	2	6
GLOXINIA, from 20 varieties	2	6
PRIMULA SINENSIS FIMBRIATA (red and white) of various shades, selected from the most beautiful vars.	1	6
PANSY, saved from 100 of the best vars., by name	2	6
POLYANTHUS, do. 50 do. do.	2	6
VERBENA do. 50 do. do.	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do.	2	6
SWEET WILLIAM, from the new and beautifully-edged varieties	1	0
DAISY, saved from 50 of the new Belgian kinds, by name	1	6
ANTIRRHINUM, saved from 20 best named varieties	1	0
ANEMONE, from the most showy and brilliant kinds	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

FLOWER SEED (Annuals).—YOUELL & Co. beg to offer a very select collection of these, comprising all the new and most brilliant hardy varieties at 5*s.* per 30 packets, per post free

Postage stamps received in payment.

YOUELL & Co., Royal Nursery, Great Yarmouth.

ACHIMENES AND GLOXINIAS.

F. GODWIN having an unusually large stock of the following Achimenes and Gloxinias, begs to offer them at 12*s.* per dozen.

ACHIMENES—Ambroise Verschaffelt, Carl Wolforth, Dr. Hopf, Edmond Boissier, Edouard Otto, fimbriata violacea, gigantea, Hendersoni, Ledmani, longiflora alba, Madame Hagenauer, Margaretta, picta, Sir Treherne Thomas, Venusta.

GLOXINIAS—Albert Courtin, Amelia, Cœlestina, Eugenie, Grand Sultan, Imperialis, Leonie van Houtte, Madame Bourgeois, Wilsoni.

GLOXINIA ERECTA—Carthusiana, Castilloni rosea, C. Haake, Ernest de Talleyrand, flammea, Hauptmann Winthe, Helen of Orleans, kermesina, Maria Paulowna, Victoria, Violette, virginalis.

For other varieties, F. G. begs to refer to his General Bulb Catalogue. The usual discount to the trade.

Broadfield Nurseries, Sheffield.—March 7.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
„ Douglasi, 1½ to 3 ft.
„ Menziesi, 1 to 3 ft.
„ Morinda, 3 to 10 ft., very fine
„ rubra, 1½ to 2½ ft.
Arancaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 2 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft.
Cedar of Lebanon, 3 to 10 ft. (The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
„ Lambertiana, 1½ to 3 ft.
„ torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
„ „ Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
„ Benthamiana, 1½ ft.
„ Cembra, 1 to 5 ft.
„ excelsa, 4 to 8 ft., very fine
„ insignis, 1 to 6 ft.
„ Lambertiana, 1 to 6 ft.
„ Llaveana, 1 to 2 ft.
„ monticolor, 1 to 2 ft.
„ muricata, 1½ ft.
„ Pallasiana, 2 to 2½ ft.
„ Strobus nivea, 1 to 3 ft. (the Snow Pine.)
Picea nobilis, 1 to 2 ft.
„ Nordmanniana, 1 ft.
„ Pinsapo, 1 to 4 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
„ glauca, 6 to 9 in.
„ intermedia, 1 to 1½ ft.
„ japonica, 1 to 1½ ft.
„ gigantea, 1 ft.
„ minima, 6 to 9 in.
„ Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
„ Canadensis, 1 to 2 ft.
„ Cheshuntensis, 3 to 5 ft.
„ Dovastoni, 1 to 2 ft.
Taxus elegantissima, 1 to 2 ft.
„ gold striped, 1 to 4 ft.
„ Irish, 1 to 5 ft.
„ stricta, 1 to 4 ft.
„ common, 1 to 5 ft.
„ „ Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best var., 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties, 2 to 6 ft.
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
„ „ Weeping, 8 ft. stems
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems
Scarlet Horse Chesnut, 6 to 10 ft., very fine
„ Maple, 8 ft.
„ Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
„ „ variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
„ Beech
„ Elms, 8 to 10 ft. stems
„ Mountain Ash
„ Willow
„ American Willow, 8 ft. stems
„ Kilmarnock „ 6 ft. stems
„ Roses, 8 ft. stems

Christmas Roses
Delphinium Barlowi
Gentiana acaulis
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks, a very large stock, strong and perfectly healthy (see Descriptive Catalogue).
Roses (see Descriptive Catalogue)
Azalea indica, Camellias, Epacris, Ericas — A fine stock of handsome plants.
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

FIRST-CLASS NEW FUCHSIAS, CINERARIAS, PANSIES, ETC.

WM. RUMLEY AND SONS are now sending out the under-named in fine healthy plants, hamper included, or free by post at the prices quoted.

FUCHSIAS.—The following choice new varieties, 9*s.* per dozen, six for 5*s.*, or 1*s.* each:—Admiral Boxer, Conqueror, Charlemagne, Favourite, Gem of Whitehill, Prince of Wales, Star, Venus de Medicis, Whidenia, Impératrice Eugenie, Prince Albert, Queen of Roses, Princess of Prussia, &c.

CINERARIAS.—The following extra fine new varieties of 1856, the six for 9*s.*, or 1*s.* 6*d.* each, viz.:—Duchess of Lancaster, Duchess of Wellington, Magnum Bonum, Purple Standard, Rose of England, and Serena.

Good show varieties, 5*s.* to 9*s.* per dozen.

PANSIES.—The following extra fine varieties 6*s.* per dozen or 6*d.* each, viz.:—Ariel, Argo, Ajax, Countess of Strathmore, Comet, Conqueror, Duke of Sutherland, Ellen, Emperor, Excelsior, Empress Eugenie, Flower of the Day, Lord Raglan, Mrs. Campbell, Marchioness of Bath, Mesmerist, Mrs. Cowell, Ostrich, St. Andrews, sulphurea splendens, Sir C. Napier, Satisfaction, Yellow Climax, &c.

Good show varieties 3*s.* and 4*s.* per dozen.

VERBENAS.—The best new varieties of 1856 5*s.* to 6*s.* per dozen.

GERANIUMS.—Extra fine 5*s.* to 42*s.* per dozen.

PETUNIAS, including the best new striped and spotted varieties, 6*s.* to 9*s.* per dozen.

HOLLYHOCKS, extra fine, 9*s.* to 12*s.* per dozen.

Shrubby Calceolarias, Heliotropes, Scarlet Geraniums, &c., 3*s.* to 6*s.* per dozen.

The above will be forwarded immediately on receipt of a Post-office order payable at Richmond, or a respectable reference.

Our General Descriptive Spring Catalogue of the above for 1857, also containing Dahlias, Greenhouse, Bedding, and Hardy Plants, is now ready, and may be had on application.

Gilling, near Richmond, Yorkshire.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 500
„ „ 1 and 2 feet by the 100
„ „ 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
„ insignis, ditto ditto
„ Montezumæ, fine plants, 3 and 4 feet high
„ Benthamiana, in large quantities from seed
„ macrocarpa ditto ditto
„ Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through, fine beautiful plants.
„ Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
„ nobilis, in quantities from seed [grafts
„ ditto, 1, 2, and 3 feet, with perfect leads, and none of them
„ grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
„ „ several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
„ Lebanon, 2, 3, 4, and 6 feet
„ „ some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
„ Goveniana, 2, 3, and 4 feet
„ Lawsoniana, from seed
„ MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
„ Chinese, 2, 3, and 4 feet
„ „ a fine lot, 7, 8, and 10 feet
„ Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
„ Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens 10 and 12 feet high
„ Golden Yews by the thousand, 1½, 2, and 3 feet high
„ „ worked, 4, 5, 6, and 8 feet
„ „ worked on Irish, and very ornamental, 5 to 8 ft.
„ elegantissima (or new striped), in large quantities, 1½ to 3 ft.
„ Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
„ adpressa, fine bushes, 2 and 3 feet
„ adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
„ occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
„ Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
„ „ smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
„ Clanbraziliana, ditto ditto
„ elegans, ditto ditto
„ Gregori, ditto ditto
„ compacta, ditto ditto
„ pygmæa, ditto ditto
„ pyramidalis, ditto ditto
„ diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
„ „ a fine stock of the best Gold-striped Hollies 2 and 3 feet high

Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyreas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses, Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application.

WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

JOSEPH MAY AND CO. beg to offer the following SEEDS, which may be relied upon as genuine:—

	Per packet—s.	d.
FRINGED PRIMULA SINENSIS	2	6
CINERARIA, fine mixed	1	0
CALCEOLARIA, from spotted flowers	2	6
AURICULA, from prize flowers	2	6
FUCHSIA, from named flowers	1	0
HEARTSEASE, PETUNIA, HOLLYHOCK, and BALSAM	0	6

1, Wellington Street, Strand, near Waterloo Bridge.

DOUBLE ITALIAN TUBEROSE ROOTS, 4s. per dozen.—The annual importation of the above-named beautiful and fragrant Flower has just been received, and large and well selected Bulbs may be obtained, without disappointment, at A. CORBETT'S Foreign Warehouse, 18, Pall Mall.

N.B. Printed regulations for treatment sent; also, just arrived, very moist and open Parmesan Cheeses.

CHARLES SCHOFIELD offers strong Plants of the following Florist's Flowers, viz., 12 pairs CARNATIONS, extra fine, 12s. 6d.; 12 pairs PICOTEES, extra fine, 12s. 6d.; 25 SHOW PANSIES, 1l. Also selections of PANSIES, 4s., 8s., and 12s. per dozen; PINKS, extra fine, 4s., 6s., and 12s. per dozen pairs.

A Descriptive Catalogue now ready. Pansy Seed, Calceolaria ditto, Hollyhock ditto, 2s. 6d. each packet. The above all very select.—Knowsthorpe, near Leeds, Yorkshire.

TO THE TRADE.

JOHN PALMER, NURSERYMAN, Annan, begs to inform his Friends and the Trade generally that he has at present to offer of good quality as follows:—

600,000 1 year	...	Seedling Beech.
1,000,000 2 year	...	" Norway Spruce.
500,000 1 year	...	" Pinus austriaca.
1,000,000 1 and 2 year		" Native Scotch Fir.
50,000 1 year	...	" Red Virginian Cedar.

Prices, which are very moderate, may be had on application.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming lawns. ... 1s. 9d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at* **20s.** *per acre, or Clovers and Common Rye-grass at* **19s.** *per acre.*

The great produce of the above-named mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31, 1856.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," are required for so many acres, when the proper quantities will be sent.—Royal Berkshire Seed Establishment.

THE BIRMINGHAM ROOT SHOW,

SUTTON'S PRIZE MANGEL WURZEL.—These superior kinds of Mangel Wurzel took the First Prize in each class at the Birmingham Great Root Show, open to all England, and the same kinds exhibited on Messrs SUTTON'S Stand at the Baker Street Show would doubtless have been equally distinguished if prizes for roots had been given on that occasion.

J. SUTTON & SONS, Seed Growers, Reading, Berks, have at present a good Stock of Seed of the above, which they are selling at moderate prices, according to quantity required. Early orders are requested, to prevent disappointment.

SUTTON'S New Seed List, with Prices, may now obtained, post free.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for a sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1s. per lb.

GLOBE RED, very fine and equally prolific. 1s. 3d.

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1s.

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1s. 3d.

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter; to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre. 4s. per lb.—A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety, 36s. per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36s. per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr. W. MILES, Mark Lane, London.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2s. 6d.; trade packets, 5s., 10s., and 20s.

In addition, it will contain nearly 2000 varieties of Flower Seeds, the whole of which are arranged under their different classifications, such as hardy, half hardy, and tender Annuals, Biennials, Perennials, Alpine, and Rock Plants, with choice varieties of Seeds of Greenhouse, Stove Palms, and Hardy Ornamental Flowering Trees and Shrubs, amongst which will be found select collections from their Correspondents in Australia, India, Cape of Good Hope, and the West Indies. In nearly all cases the height of the plant and colour of its flower is given, so that amateurs and persons unacquainted with the names will be able to select for themselves. The correct treatment of Linum grandiflorum rubrum verum is added, and will insure the raising of 99 seeds of every 100 of this beautiful and unique Bedding Plant. (Seed in packets, 6d. and 1s.)

A separate List of the most desirable and highly recommended Flower Seeds is given, with Notes and other Memoranda to guide the amateur in his selection.

TAXODIUM SEMPERVIRENS.

Fifty Thousand Seeds of the above (gathered in December, 1856) are now offered to the trade at 10s. 6d. per 1000.

☞ CAMELLIA JENNY LIND can now be seen in bloom at their establishment.

Wellington Nursery, St. John's Wood, N.W.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE to NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

JOHN HENCHMAN, JUN., Edmonton, London, is now sending out CAMELLIAS, double white, good plants, with flower buds, at 24s. and 30s. per dozen. CHINESE AZALEAS, fine named varieties, worked on short stems, with large heads full of flower buds, at 42s. per doz.

A few handsome plants of magnificent, Adolphe flore pleno, Semiduplex maculata, and other choice Azaleas, with flower buds, at 5s. each.

Ghent Azaleas, in pots, choice named sorts, with flower buds, at 18s. and 24s. per doz.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1 (20 quarts Peas, and all other Vegetables in proportion), for one year's supply	£3	0	0
Collection No. 2, in reduced proportions	2	0	0
Collection No. 3, "	1	5	0
Collections for Small Gardens, Nos. 4 and 5, 15s. 6d. &	0	10	6

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections Nos. 1, 2, and 3, see Catalogue.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Adverments in the *Gardeners' Chronicle* of Feb. 21, page 125.

Smith's New Balsams, 6 varieties, separate ... 2s 6d.
" " in larger packets, mixed 2s.

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7s. 6d.; 12 vars.	5	0

FLORIST FLOWERS, &c., SAVED FROM CHOICE COLLECTIONS.

	Per packet.—s.	d.
Hollyhock, ex., saved from 20 finest vars. of our collection	2	6
Pentstemon, ex., from grandis, magniflora, Themisteri, and other choice vars.	2	6
Phlox, hardy vars., choice	0	6
Potentilla, ex., from our finest new	2	6
Calceolaria, ex., from choice new vars.	2	6
Geranium, ex., from choice new vars.	2	6
" from finest fancy	1	6
Gloxinia, ex., from superb vars.	2	6
Petunia, new and choice	1	0
Primula sinensis fimbriata, from extra fine vars.	1	0
Verbena, from choice new	2	6

CHOICE IMPORTED GERMAN SEEDS.—IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stocks, 5s.; 15 vars. ...	3s.	0d.
Choice mixed do., packets, 6d. and 1s.; new pale sulphur	1	0
Fine dwarf carmine, 6d.; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6d.; new White Dwarf Wall-leaved, 6d. and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6d. and 1s.; mixed, fine, 6d. and ...	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5s.; 12 vars.	3	0
12 superb vars. Globe flowering do....	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	0

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20s.) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

THE Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

TO THE TRADE.

THOMAS CRIPPS, NURSERYMAN, &c., Tunbridge Wells, having a large stock of the under-mentioned goods, respectfully offers them at the following prices:—

Hardy Heaths, by name, 25s. per 100.
Menziesia polifolia and alba, 30s. per 100.
Standard and half standard Roses, by name, 4l. per 100.
Dwarf Roses, by name, 50s. per 100.
Do. do., good kinds, by name, 25s. per 100.
Strong Pillar and Climbing do., 25s. per 100.
Double Yellow Primroses, 20s. per 100; or 3l. for 400.

A remittance or reference expected from unknown correspondents.

POLYANTHUS SEED.

JAMES WOODS is now sending out his POLYANTHUS SEED, saved with more than ordinary care from named and good laced flowers, which he can recommend with confidence. Having had numerous Testimonials from different parts of the kingdom of good and valuable flowers being raised from his seed, it needs no further comment.

A packet of seed to grow 300 Plants, with directions for sowing, 1s. per packet; or sent free on receipt of 13 postage stamps; or six packets for 5s.—JAMES WOODS, Florist, Harwich, Essex.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to offer the following set of 20 extra fine show varieties, in strong well rooted autumn-struck Plants, at 12s. the set, hamper, package, &c., included:—

Argo, Paton & Small's.	Jeannie, Downie & Laird's.
Beauty, Downie & Laird's.	Lord Palmerston, Turner's.
Duke of Newcastle, Turner's.	Lady Jane, Youell's.
Earl of Cardigan, Holland's.	Mrs. Hampton, Hampton's.
Emperor, Hale's.	Memnon, Turner's.
Elta, Middlemas's.	Medora, Downie & Laird's.
Father Gavazzi, Holland's.	Nonpareil, Dickson & Co.'s.
Golden Drop, Chadwick's.	Queen Victoria, Dickson & Co.'s.
Great Western, Hooper's.	Sir C. Napier, Paton & Small's.
J. B. Gough, Downie & Laird's.	Yellow Supreme, Moorhouse's.

J. HOLLAND can confidently recommend the above as being flowers of first-class merit.

Older kinds, such as Miss Talbot, Nonsuch, Satisfaction, Fearless, Duke of Perth, Wonderful, &c. &c., 4s. per dozen.

A few packets of very choice Pansy Seeds, at 1s. and 2s. per packet.

Priced and Descriptive Catalogues now ready, and will be forwarded on application.—Post-office Orders payable at Middleton, Lancashire.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5s. per quart, with an allowance to the trade.—9, Mansion House Street, London.

NEW EARLY DWARF WRINKLED PEAS,—CLIMAX (BLUE), and ALLIANCE (WHITE).—These two valuable new Peas excel the two varieties introduced last season under the names of Glory and Perfection, in the large size of their closely trussed pods, which they bear in extraordinary profusion from the bottom to top of the haulm, in their excellence of flavour, and in being equally suited to market or private gardens, while like them they are as early as Double Blossomed Frame, and their average height is 2½ feet.

Samples of the haulm may be seen at the following Firms in London, of whom the Peas may be had, or of their Agents in the country, in quart packets at 5s. each:—

BATT, RUTLEY, & SILVERLOCK, 412, Strand.
BECK, HENDERSON, & CHILD, 11, Adelphi Terrace.
HURST & M'MULLEN, 6, Leadenhall Street.
MINIER, NASH, & NASH, 60, Strand.
NOBLE, COOPER, & BOLTON, 152, Fleet Street.
JACOB WRENCH & SONS, 39, King William Street, City.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5s. per quart. Usual allowance to the trade.

HORTICULTURAL SOCIETY OF LONDON,

21, REGENT STREET, AND CHISWICK GARDENS.

REGULATIONS TO BE OBSERVED AT THE EXHIBITIONS—1857.

SPECIAL GENERAL MEETINGS.

WEDNESDAY and THURSDAY, June 3 and 4; at the Garden. Open Free to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 a.m. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s.* Admission Tickets. Open to the public, with 5*s.* Tickets, at 2 p.m., June 3, or with 2*s.* 6*d.* Tickets, 2 p.m June 4.

On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends.

SATURDAY, October 24, at Willis's Rooms. Open to Fellows or their Ivory Tickets, accompanied by any two friends bearing 2*s.* 6*d.* Tickets, at noon; to other Visitors, with 2*s.* 6*d.* Tickets, after 1 p.m.

TICKETS are to be procured at the Society's Rooms, 21, Regent Street, upon the following terms:—

Five Shilling Tickets will be charged 3*s.* 6*d.* each to Fellows, if paid for on or before May 23. After that day the full price must be paid by all. These Tickets admit the bearer early, as above stated, or after 2 p.m. on June 3; or they will each introduce two persons after 2 p.m. on June 4, at the Gardens, or at Willis's Rooms, October 24, after 1 p.m.

Half-Crown Tickets will be charged 2*s.* each to Fellows, if paid for on or before May 23, for the June Meeting, on or before October 17, for the October Meeting. These Tickets admit the bearer to the Garden after 1 p.m., June 4, or at Willis's Rooms after 2 p.m., October 24.

N.B. On the days of Exhibition, Five Shilling Tickets will be charged 7*s.* 6*d.*, and Half-Crown Tickets, 3*s.* 6*d.* each.

SCHEDULE

OF OBJECTS THE EXHIBITION OF WHICH IS INVITED at the SOCIETY'S MEETINGS DURING THE YEAR 1857, in the SOCIETY'S ROOMS.

Judges, appointed for the purpose, will award Money Prizes and Certificates of three classes, for new or valuable articles according to their respective merit. Everything must be staged by 11 o'Clock, a.m.

Tuesday, April 7, 3 p.m. Orchids, Azaleas, Roses, Fruit, Vegetables, and other objects of Horticultural interest.
Tuesday, May 5, at 3 p.m. Orchids, Azaleas, Sikkim and Bootan Rhododendrons, Pelargoniums, Strawberries, other Fruit, Vegetables, and objects of Horticultural interest.
Tuesday, July 7, at 3 p.m. Ferns, good foliaged Plants, and Fruit.

EXHIBITION AT CHISWICK GARDEN.—Wednesday, June 3; Thursday, June 4.

Section I.—ORNAMENTAL PLANTS.

Classes.	Prizes offered.		
I. *a.* Fifteen Mixed Stove and Greenhouse plants in flower	£20	£15	£10
b. Ten do. do. ...	10	7	5
c. Six do. do. ...	5	3	2
II. *a.* Fifteen Orchids; ... (*Amateurs*)	20	15	10
b. Ten do. ... ... (*do.*)	10	7	5
c. Six do. ... ... (*do.*)	5	3	2
d. Fifteen do. ... ... (*Nurserymen*)	15	10	
III. *a.* Ten Chinese Azaleas...	10	7	5
b. Six do. ... (*Amateurs*)	7	5	3
IV. *a.* Eight Roses in pots; in 13-inch pots ... ... (*Amateurs*)	5	3	2
b. Twelve do. do. (*Nurserymen*)	7	5	3
c. Twenty-five do. cut specimens .. (*Amateurs*)	2	1	15*s.*
d. Fifty do. do. (*Nurserymen*)	2	1	15*s.*
Under *c.* and *d.* three trusses of each are to be exhibited as they are gathered. Any non-compliance with this rule will disqualify.			
V. Six Cape Heaths	4	3	2
VI. *a.* Eight Pelargoniums; in 8-inch pots (*Amateurs*)	7	5	3
b. Twelve do. do. ... (*Nurserymen*)	7	5	3
c. Six Fancy Pelargoniums; (*Amateurs*)	5	4	2
d. Eight do. do. (*Nurserymen*)	5	4	2
VII. *a.* Rhododendrons; in sixes	5	4	3
b. Do. Sikkim and Bootan kinds, whether in or out of flower—number unlimited—but one specimen only of a kind	5	4	3
VIII. Twenty Variegated plants	7	5	3
IX. Twelve Plants with fine foliage not in flower	5	4	3
X. Six Tall Cacti	3	2	1
XI. *a.* Ferns; Twelve Stove and Greenhouse	4	3	2
b. Do. Twelve Hardy	3	2	1
XII. Ten Lycopods; of not fewer than five kinds	2	1	15*s.*
XIII. Newly introduced or extremely rare species of ornamental plants in flower, not introduced by the Society			
XIV. The same; not in flower			
These must be handsome well-grown specimens showing the habit of the plants, or will not be entitled to a prize.			
N.B. The Medals in XIII. and XIV. will be awarded by the Society's officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare species can be exhibited under this number. *Nothing will be regarded as new which has been exhibited in a previous season.*			
XV. Single Specimens. (*No person can take more than one prize in this class.*)	2	30*s.*	£1 & 15*s.*

Classes.	Prizes offered.		
XVI. New Garden Hybrids ... ... From this class all Florists' flowers are excluded.	Certificates only.		
XVII. Miscellaneous ... ... Any Plants, of whatever kind, except Florists' flowers, may be shown under this class.			
XVIII. Florists' Flowers ... ... A tent will be set apart for these, and Judges appointed for the purpose, will grant Certificates of Merit of three degrees.			

Section II.—FRUIT.

XIX. *a.* Pine Apples, Providence and other large sorts	£2	£1	15*s.*
b. Do. Jamaicas, Queens, &c...	2	1	15*s.*
XX. Grapes; single dishes, each containing three bunches:			
a. Black Hamburgh	3	2	1
b. Other black kinds	3	2	1
c. Muscats	3	2	1
d. Other white kinds	3	2	1
XXI. Vines in pots; in threes	3	2	1
XXII. *a.* Eight Fruit Trees in pots (*Nurserymen*)	3	2	1
b. Six do. do. (*Amateurs*)	3	2	1
XXIII. *a.* Peaches; in single dishes	2	1	15*s.*
b. Nectarines; do.	2	1	15*s.*
XXIV. *a.* Melons, green or white-fleshed ..	1	15*s.*	10*s.*
b. Do. scarlet-fleshed	1	15*s.*	10*s.*
XXV. Figs; in sixes	15*s.*		
XXVI. *a.* White Cherries; in single dishes ...	£1	15*s.*	10*s.*
b. Black do.	£1	15*s.*	10*s.*
XXVII. Strawberries; in single dishes	£2., 30*s.*, 20*s.*, 15*s.*, 10*s.*		
XXVIII. Seedling fruits never shown before the present year	Certificates only.		

Exhibitors of Fruits will observe that Fruiterers are excluded from competition at this meeting.

Section III.—VEGETABLES.

I. Collection (*Market Gardeners*) ...	£2	30*s.*	£1
II. Collection (*Private Growers*) ..	£2	30*s.*	£1
III. Cabbages; in threes	10*s.*	7*s.*	5*s.*
IV. Cauliflowers; in threes	15*s.*	10*s.*	7*s.*
V. *a.* White Cos Lettuces; in sizes ...	10*s.*	7*s.*	5*s.*
b. Cabbage Lettuces; in sizes... ...	10*s.*	7*s.*	5*s.*
VI. Kidney Beans; hundred	10*s.*	7*s.*	5*s.*
VII. Early Peas; in pods	15*s.*	10*s.*	7*s.*
VIII. Asparagus; fifty heads not exceeding eight inches in length... ...	10*s.*	7*s.*	5*s.*
IX. Rhubarb	10*s.*	7*s.*	5*s.*
X. Potatoes; forced, not less than 3 lbs.:			
a. Kidneys	10*s.*	7*s.*	5*s.*
b. Rounds	10*s.*	7*s.*	5*s.*
XI. Carrots	10*s.*	7*s.*	5*s.*
XII. Turnips	10*s.*	7*s.*	5*s.*
XIII. Braces of Cucumbers	15*s.*	10*s.*	7*s.*
XIV. Mushrooms	10*s.*	7*s.*	5*s.*
XV. Salad; the best and most varied ...	£1	15*s.*	10*s.*

Section IV.—HORTICULTURAL MANUFACTURES.

Under this head the manufacturers of Horticultural goods of all kinds are invited to exhibit; it being the wish of the Society to offer to those engaged in providing for the wants of gardeners the same great advantages as the Royal Agricultural Society has so long offered to the farming interest.

Shelter, if required for the protecting of such articles, will be provided at the expense of the Society, and measures will be taken to cause such a report to be prepared as will do justice to all.

The expense of fittings or fixing to be borne by the Exhibitor.

It is not intended to award Prizes or Certificates of any kind in this part of the Exhibition; the Council of the Society feeling that the exhibition of such productions before a large assemblage of the most influential and intelligent members of the Horticultural community, will be productive of all the advantages that could be expected.

As some guide to Exhibitors, the following arrangement of subjects has been determined on:—

Class A.—Heating Apparatus: Boilers, Hot-water pipes, Furnaces, Flue Tiles fixed, &c.

Class B.—Machines: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps, and their Fittings, Hose, &c.

Class C.—Garden Tools: Spades, Forks, Hoes, Rakes, &c.

Class D.—Cutlery: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.

Class E.—Pottery: Garden Pots, Bricks for Horticultural purposes, Pipes, Flue Tiles unfixed, Paving Tiles, Border Edgings, &c.

Class F.—Labels: whether in Wood, Metal, or Glass; Plain, Enamelled, or otherwise lettered, &c.

Class G.—Objects of Decoration: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra Cotta, Fountain Designs, Ornamental Flower Pots, Encaustic Tiles, Flower Baskets, Brackets and Chandeliers for Conservatories, &c.

Class H.—Materials for Construction: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate Work, &c.

Class I.—Protecting Materials: Nets, Wire Work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.

Class K.—Bee Hives, with or without Honey, including all Apiarian Apparatus.

Class L.—Philosophical Instruments: such as Thermometers, Hygrometers, Actinometers, &c.

Class M.—Miscellaneous: for any articles used in Gardens which are not included in the other Classes.

In this division of the Exhibition, the Council will be glad to receive Foreign as well as Domestic manufactures.

All applications for space must be made on or before May 16, in the absence of which, articles will be liable to exclusion, and cannot be included in the Catalogue.

All articles exhibited in this Section must be delivered at the Garden not later than Saturday, May 30; and if they require fixing, must be fixed by that time, unless where special permission to the contrary shall have been granted by the Council.

Every article to be labelled by the owners, subject to general rules to be settled hereafter.

FRUIT EXHIBITION AT WILLIS'S ROOMS.—Saturday, October 24.

Classes.	Prizes offered.		
I. Collections of fruit (*Fruiterers only*)	£4	£3	£2
II. Grapes:			
a. Three bunches of Muscats	2	1	15*s.*
b. Do. of other White kinds..	2	1	15*s.*
c. Do. of Black Hamburgh ...	2	1	15*s.*
d. Do. of other Black kinds ..	2	1	15*s.*
e. Collections ... (*Foreigners only*)	4	3	2
f. Boxes of 15 lbs. weight (*Market Gardeners only*)	3	2	1
III. Pine Apples:			
a. Threes	3	2	1
b. Single specimens	2	1	15*s.*
IV. Pears, *of Home Growth:*			
a. Twelve sorts, six of each	3	2	1
b. Six sorts; six of each	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered.		
IV.—*Continued—d.* Single dishes of kitchen kinds, of one sort, containing six fruit ..	15*s.*	10*s.*	10*s.*
V. Pears; *of Foreign growth:*			
a. Twelve sorts; six of each	£3	£2	£1
b. Six do. do.	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
d. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VI. Apples; *of Home growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VII. Apples; *of Foreign growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered		
VIII. Oranges, Lemons, and Citrons:			
a. Collections of Foreign growth	3	2	1
b. Do. Home do.	2	1	15*s.*
IX. Peaches; single dish, containing six specimens	15*s.*	10*s.*	10*s.*
X. Nectarines do. do.	15*s.*	10*s.*	10*s.*
XI. Melons; single fruit	15*s.*	10*s.*	10*s.*
XII. Plums and Prunes; of either English or Foreign growth:			
a. A collection of three sorts, twelve fruit of each	1	15*s.*	10*s.*
b. Single dishes of one sort, containing twelve fruit	15*s.*	10*s.*	10*s.*
XIII. Figs	1	15*s.*	10*s.*
XIV. Alpine Strawberries	1	15*s.*	10*s.*
XV. Currants	15*s.*	10*s.*	10*s.*
XVI. Raspberries	15*s.*	10*s.*	10*s.*
XVII. Eugenia Ugni (See Note below)			

Note.—For Single Dishes of this valuable new Fruit Two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the 1st of £2, the 2nd of £1.

Fruit is expected to be as nearly ripe as circumstances will admit. Winter fruit will of course be unripe. Exhibitors are invited to decorate their stands with suitable Plants or other ornaments.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

"THE" GERANIUM CATALOGUE FOR 1856 AND 1857.

JOHN WESTWOOD'S CATALOGUE OF SHOW, FANCY, BEDDING, AND FRENCH GERANIUMS is now ready for delivery, and will be sent post free to all applicants. A detailed General Catalogue of Soft-wooded Plants will shortly be issued and delivered in like manner.

J. W. respectfully invites inspection of his Stock, now consisting of more than One Hundred Thousand Plants in vigorous growth, unequalled by any in England.

Floral Nursery, Acton Road, Turnham Green.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

SEED ESTABLISHMENT, HIGHGATE.

WILLIAM CUTBUSH AND SON beg most respectfully to intimate *that they have received their stock of* NEW SEEDS *well harvested; and as most of them are grown under their own immediate inspection*, they feel confident of their superior quality. Catalogues can be obtained free on application.

It is respectfully requested that all communications intended for us be addressed Highgate, London, N.

RHODODENDRON CAMPANULATUM (true), 1 to 1½ feet, very bushy, 4*l.* per 100.—The above handsome hardy Rhododendron may be planted for Ornamental Underwood where hares and rabbits abound. Here, although the winter has been very severe, not a leaf has been eaten.

CEDAR of LEBANON, strong plants, 1½ to 2 feet, 5*l.*; 2 to 3 feet, 7*l.* per 100.—Apply to WILLIAM JACKSON & Co., Bedale, Yorkshire.

CHOICE SEEDS FROM PERFECT SPECIMENS.

THOMAS WILD, Ipswich, confidently recommends the following superior Seeds, together with Latter's Treatise on the Cultivation of Primulas, coloured drawing. Testimonials, &c., free by post.

Orion Melon, 1*s.* 6*d.*; Standard Cucumber, 2*s.* 6*d.*; Latter's Primulas, of world-wide celebrity, 2*s.* 6*d.*; Hollyhock, Pansy, Dahlia, Gloxinia, Cineraria, Calceolaria, Polyanthus, Sweet William, and Balsam, at 1*s.* per packet, saved by growers who spare no expense to obtain the best.

CABBAGE AND CAULIFLOWER PLANTS.

G. H. PIKE begs respectfully to inform the public that he has a large stock of the above Plants for Sale. The sort of Cabbage is Shilling's Queen, price 5*s.* 6*d.* per 1000; Cauliflower Plants, 4*s.* per 100, package included. They are fine healthy plants. All orders must be accompanied with a remittance.—52, Walcot Street, Bath.

SUPERB NEW CINERARIAS.

E. RAPER begs to inform the public that he is now sending out a set of 10 new and distinct Cinerarias, the finest yet offered to the public, for which he begs to refer to his prospectus of description and testimonials, or see *Gardeners' Chronicle*, Feb. 28, 1857. Price 15*s.* the set of 10.—Address

E. RAPER, Florist, Regent Street, Leamington.

FIRST CLASS SEEDS.—Whatever has been sold as GLENNY'S Balsam Seed, except in his own sealed packets, is a fraud upon the buyers. Six classes, 37 stamps, mixed 13. Dahlia, Pansy, Hollyhock, Auricula, Polyanthus, Calceolaria, Cineraria, Heliotrope, Verbena, 13 each; Chrysanthemum, 30. —Fulham, S.W.

MOORE'S DELPHINIUM FORMOSUM.—Seeds in packets at 2*s.* 6*d.* to be had of NUTTING AND SONS, Seedsmen, 46, Cheapside, E.C. The habit of this plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2*s.* 6*d.*

CARPE DIEM, CARPE DIEM.—Some fine specimens of the PICEA NOBILIS, Nordmanniana, Pinsapo, cephalonica, Pinus ponderosa, Excelsa austriaca, insignis, macrocarpa, Abies Douglasi, Menziesi, Cedrus Deodara, Lebani, Atlantica, Wellingtonea gigantea, and other Coniferæ, Araucaria, Taxodium sempervirens, Cryptomeria japonica, as well as a large assortment of every description of Nursery Stock, with one of the largest selections of Fruit Trees in the trade.—May be had from the establishment of DONALD & Son, Goldworth Nursery, Woking, Surrey, one hour by rail from Waterloo Station. All these plants have been been constantly removed, and will be sold cheap. Prices on application.

SEED CORN FROM THE CHALK.

TALAVERA, RED NURSERY, and APRIL, the best Wheats for Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

RED APRIL SPRING WHEAT.—The Subscribers have to offer a considerable quantity of this fine variety of SPRING WHEAT for Seed, price 65*s.* per quarter, in lots of 5 quarters. Freight paid to Leith or London.

For late districts, and on land previously unaccustomed to grow Wheat, this variety is invaluable, being equally early and prolific as Oats. It should not be sown before April, and may be sown during May.—J. MORRISON & SON, Banff, N.B., March 7.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10*s.* 6*d.* each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, has upwards of 6000 strong Plants, including all the English and Scotch varieties of merit, at 6*s.*, 9*s.*, and 12*s.* per dozen.

Lancashire Show GOOSEBERRY TREES 6*s.* 0*d.* per dozen
Extra fine PANSY SEEDS ... ... 2 0 per packet.

Catalogues now ready.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

NEW PHLOXES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON have a superb collection of the above, including all the newest and best Continental varieties, at 12*s.* to 18*s.* per dozen; older varieties of sterling merit, 6*s.* to 9*s.* per dozen.

Herbaceous Plants, a fine collection, 6*s.* to 12*s.* per dozen.

N.B. A remarkably fine stock of Laurustinus and Portugal Laurels, &c. Also a few thousands of fine Transplanted Spanish Chesnuts, 2½ feet. Catalogues free on application.

GLADIOLUS, Cheap and good, for present planting:—

GANDAVENSIS, scarlet and orange	... 2*s.* 6*d.*	per doz.
OPPOSITIFLORUS, white and rose	... 2 0	"
PRINCE ALBERT, pink and crimson	... 5 0	"
RAMOSUS, salmon rose, varied	... ... 2 0	"

The above are beautiful free flowering varieties, suitable for growing in clumps.

To be had of WM. DENYER, Seedsman and Florist, 82, Gracechurch Street, London. E.C.

THE ALLIANCE POTATO, patronised by his Imperial Majesty the Emperor of the French, and the Nobility of England and Paris.—One peck of these celebrated White Kidneys can be obtained of the Grower only, Mr. JAMES COPELAND, Thames Street, Windsor, on receipt of a Post-office Order for 10*s.* 6*d.*, including package. This being the first season of their being offered to the public, a limited quantity only will be sold.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s.*	British Queen	per bushel 6*s.*
New Boston do.	... ... 6*s.*	Early Shaws	... ... 6*s.*
Early Frame	... ... 8*s.*	York Regent	... ... 6*s.*
Flourball	... ... 6*s.*		
Forty-fold	... ... 6*s.*		

Bags included.

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

SEED POTATOES from the North of Scotland.—The Subscriber offers for Sale a new variety of Potato introduced by him from the west of Ireland—known there by the name of Protestants. They are round, white, of a fine quality, and have in 1855 and 1856 been grown on the subscriber's farms in Ross and Inverness-shires with great success; the crop being large (double that of Regents), and affected by taint in the most slight degree. Also FLUKES, price 15*s.* per 4 bushel sack (sack included), delivered in London, Liverpool, Newcastle-on-Hull. Orders with remittances to be addressed to ALEXANDER SIMPSON, Beauly, North Britain, who refers to the "Editor of the *Agricultural Gazette*."

MYATT'S
PROLIFIC SEEDLING ASH-LEAF KIDNEY POTATO.

J. MYATT having succeeded in obtaining this valuable variety from seed of the Ash-leaf Kidney after three years' trial, is now enabled confidently to offer it to the public. It is nearly as early as its parent, of very superior excellence of flavour, and is truly prolific, producing 30 first-class tubers besides several middling size from each root. It is a short woody top variety, and has resisted the disease for the last three years. It is alike valuable to the nobleman and the peasant. Price per bushel, 10*s.*; per peck, 2*s.* 6*d.*; bags included.

To be had of JAMES MYATT, Evesham, Worcestershire; and J. MYATT, jun., Camberwell, Surrey. Remittance from unknown correspondents. Post-office orders payable to JAMES MYATT, Evesham; or JAMES MYATT, Camberwell.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants each, with a ball of earth, will prove a good crop this season; price 40*s.* per 100, and 6*s.* per dozen. Price to the trade per thousand can be had on application. All other Strawberries prove worth cultivation. Strong plants, with a ball of earth, and will fruit this summer, at 10*s.* per 100. Plants sent over of all kinds to compensate for distant carriage.—Apply to RICHARD S. YATES, St. Ann's Square, Manchester.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's). A few small but well-rooted plants of Underhill's Sir Harry, at 15*s.* per 100. The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.) Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

TO FARMERS AND OTHERS.—Send one stamp for J. H. COTTRELL'S AGRICULTURAL LIST, about 30 per cent. under those Seedsmen who puff so much.

J. H. COTTRELL, 2, High Street, Birmingham, successor to F. WARNER, and managing partner in the late firm of DAWE, COTTRELL, and BENHAM. Established 28, Cornhill, London, 1720.

No connexion with any other house.

SUTTON'S FARM SEED LIST, WITH PRICES FOR MARCH AND APRIL, and Instructions on Cultivation, will be ready in a few days, and will be sent gratis, post free to any address.—Royal Berkshire Seed Establishment, March 7.

The Gardeners' Chronicle.

SATURDAY, MARCH 7, 1857.

A CASE was lately brought before the Police Magistrate at Wandsworth, which is of rather considerable importance to GENTLEMEN'S GARDENERS and SALESMEN. There are gardeners who think it no harm to sell clandestinely their masters' flowers and fruit, and there are salesmen who make no scruple about buying such articles without asking questions. Some gardeners pretend that they do it for their master's advantage, although he does not know it: or, as recently happened to a friend of ours, coolly maintain that they have a right to do so; acting, we suppose, upon the good old maxim that "what's yours is mine, and what's mine is my own." For the information of those who hold these opinions, we invite their attention to the particulars of the case in question:—

CHRISTOPHER YOUNG (a gardener in the service of Mr. R. C. BOWDEN, of Clapham Common) and RICHARD BRIDGER, a labourer in the service of Mr. ERSWOOD, salesman, of Covent Garden Market, were charged before Mr. INGHAM with being concerned in stealing a quantity of cut flowers from the greenhouses of Mr. BOWDEN. The prosecutor had caused BLACKBURN, of the V division, to watch his premises in Wix's Lane, and at half-past 7 o'clock on Monday morning BRIDGER was seen to be admitted with two boxes by YOUNG. After three quarters of an hour he came out with the boxes, and when they were searched the officer discovered a quantity of Camellias (each flower being wrapped in wool), Primulas, and other greenhouse flowers. The officer stated that there were upwards of 60 Camellias, besides other flowers, in the boxes in the possession of BRIDGER; one box alone contained 69 Camellias. He had been over the prosecutor's greenhouses, and found that there was scarcely a plant in bloom. The prosecutor mentioned that during the season his supply of flowers had been very small, and *when he wanted any flowers to send to a friend he was told that there were none in bloom, but that after Christmas he might expect some.* ERSWOOD admitted that he had purchased cut flowers of the prisoner YOUNG for the last two years. When he first had dealings with him the prisoner said that there were a great many flowers in the greenhouse which were never used, and that he might as well sell them as allow them to die away. He had paid the prisoner about 3*l.* a month for flowers. It might average about 15*l.* a year. On one occasion he got some Primula plants for the prisoner, who said his master would not go to the expense of buying them, and that he would cultivate them for his own use. At the suggestion of the prosecutor the witness was asked whether, during the two years' transactions with the prisoner, he ever thought it his duty to inquire of the owner of the flowers, if it was with his sanction that they were sold?—The witness said he did not. *It was a common practice in Covent Garden Market to purchase flowers of gentlemen's gardeners.* He had bought flowers from Lord ELDON's premises for the last five years, and during the whole of that time he had never seen a member of the family, all his transactions being with the gardener. *If it was not for the gentlemen's greenhouses they would not be able to supply Covent Garden Market with flowers in the winter.*—Mr. INGHAM did not suppose that the witness did anything more than what all his brethren did in the market; but he would give all the salesmen in Covent Garden Market a hint through the witness. *If those flowers had been found in the possession of the witness, and could have been identified, he was liable to be charged for the unlawful possession of stolen property, and*

unless he could give a satisfactory account of how he became possessed of them, he could be punished with TWO YEARS' IMPRISONMENT AND HARD LABOUR. The witness said that if that were the case the whole of the salesmen in Covent Garden Market were liable to be brought before him. Mr. Ingham said the right course to adopt, as he knew it was the practice of gentlemen's gardeners to sell flowers, was, before any purchases were made, to ascertain of the owner whether the flowers were being sold with his consent. The prisoner Young admitted cutting the flowers, and said he was in the habit of doing so for the purpose of buying others to improve his master's stock. The magistrate said the case was clearly established against Young, who, he believed, had for years improved the stock for his own advantage and not for his master's. He should therefore fine him in the full penalty of 20*l.*, and 8*s.* value, or two months' imprisonment.

Let us hope that all parties will take warning by this example; the salesman included, who was fortunate enough to escape on the present occasion. No gardener has a right to sell his master's property either secretly or openly without his express directions, which is better if written. If the gardener does so he is a thief, and the law will treat him accordingly. No salesman has a right to purchase produce from gentlemen's gardeners without ascertaining that the gardener has sufficient authority to sell. If he does he becomes, in the eye of the law, a receiver of stolen goods and must take the consequences, the nature of which the salesman had the satisfaction of learning from Mr. Ingham's mouth, as is above related.

The Programme of the Meetings upon which the Council of the Horticultural Society has decided for the ensuing season is now published, and may be procured by all interested in Gardening. That part which is called the Schedule will be found in another column. It will be seen that among other changes, the Garden Exhibition will last two days, and that not only Vegetables but all sorts of Horticultural manufactured articles will be admitted. It is therefore time for parties interested in this part of the arrangement to bestir themselves and get into communication with the Secretary.

The new arrangements, relating to Exhibitors, are not numerous; and the following are the most important:—

A Committee of Five Exhibitors will be named to consider applications for Expenses consequent upon the Exhibition lasting Two days. Claims for expenses must be sent in writing to Regent Street, within Seven days after the Exhibition.

Passes and Breakfast Tickets will be issued to Exhibitors as follows:—For Classes containing 10 Plants and upwards 3 of each; for Classes containing 6 Plants and upwards 2 do.; for Classes containing 2 single specimens, or 2 dishes, 1 do. But no Exhibitor can have more than Six Passes and Six Breakfast Tickets; no Single Plant, Dish of Fruit, or Vegetable will entitle to either Pass or Breakfast Ticket.

It will also be observed that Fruiterers and Foreigners can exhibit fruit in October—and that Foreigners are invited to produce manufactured articles at the Garden in June.

Finally some important changes are made in the issue of tickets, large privileges being secured to Fellows of the Society both as to price, the numbers obtainable, and the advantages of early admission.

When the great Sir Charles Napier was governor of Cephalonia he wrote thus to his mother: "I am pleased at having made a garden in a convent six miles from the capital, with a view to teach the peasants how to garden. Being director of all convents, I took from the largest so much as would pay a soldier gardener and a Greek lad, whom the soldier is to teach. This boy is so eager that he has a part for himself which the soldier is not to touch. The vegetables are given away, not sold, and spare seeds also. All the nuns are becoming gardeners, earnestly watching the progress of the soldier, who by the way is a very handsome young man. Whether they are attracted by Beans or beauty is not known, but it is supposed by Beans, as the ladies average about 90 years each. The Greek lad's friends are already beginning to make gardens, and useful knowledge is thus planted."

This example has been followed in another direction by the military authorities in the Madras Presidency, as we learn from some official correspondence which arrived by the last Indian mail, the difference being that soldiers instead of nuns are invited to garden. It appears that Lieut.-Colonel Croggan, in command of the European artillery at Kamptee, having been allowed by the Commander of the Force there to have a piece of ground contiguous to the barracks, for the purpose of being cultivated as a garden for the benefit and amusement of the men during their leisure hours, applied to the Military Board for a supply of tools necessary for the purpose. The proposal was immediately recommended to the Governor. "We observe," said the Board, "that Government incurs considerable outlay in providing cheap beer, good canteens, and various other conveniences for the soldiers, and that the healthy and pleasant occupation of gardening may be promoted and encouraged by Government at a very trifling cost, by supplying tools." We are happy to say that the recommendation was not only complied with but carried further than the corps on whose behalf it originated, all European regiments being now permitted to have tools and gardens. Colonel Hamond, the acting Principal Commissary of Ordnance, suggested that every regiment should also have an annual grant of 200 rupees for the purchase of seeds. Colonel Richardson, commanding the 2d European Light Infantry, reporting on the subject says, "If the wish for gardening exists amongst the men, which I believe it always will do, with a little encouragement, there will be no difficulty in collecting funds as donations and subscriptions to meet fully all other necessary expenditure. This source of amusement was entered into and kept up with great spirit by the men of the 2d European Light Infantry at Secunderabad, and I need hardly add that the results were most beneficial to their health and happiness, and of considerable importance to the general discipline of the regiment." In short there seems to have been a general desire on the part of regimental officers to see their men employed in their leisure hours at so pleasant an employment.

A general order from Sir Wm. Gomm, the Commander-in-Chief in India, issued on the 6th February, 1856, points out the interesting fact that the measures sanctioned in the Madras had been previously put into execution in the north-western provinces. This order is so important that we reproduce it without curtailment.

"The Commander-in-Chief now desires to see this system *generally* established as a source of recreation among *all* European troops, and his Excellency therefore calls on commanding officers to use their best endeavours to encourage their men to adopt it without delay, wherever the nature of the ground adjoining their barrack ranges will permit, and having received the assurance of the most cordial and liberal assistance from the Supreme Government, both in the supply of tools, and the periodical allotment of suitable rewards, the Commander-in-Chief directs commanding officers of European troops, who may evince a readiness to avail themselves of this considerate indulgence, to apply officially to the Quartermaster-General of the army for more detailed information as to the precise course they are to pursue in furtherance of the same.

"Government have also most liberally extended the same privileges and advantages to all European non-commissioned officers, serving with Native corps and companies *at stations where European troops are located*, who may be desirous of participating in them.

"It is to be understood that these *barrack* gardens are not intended to supersede or discourage the already formed 'soldiers' garden' on a larger scale, established at some stations as a place of resort for soldiers and their families for exercise and amusement; but as the distance from the barracks at which *these* have necessarily been established often prevents many men, otherwise willing, from sharing in their cultivation, the Commander-in-Chief hopes the opportunity now offered to afford every man a healthful and cheering amusement at his own door, will be accepted as an earnest of his Excellency Sir William Gomm's warm interest in the soldiers' welfare, and a desire on his part to relieve the monotony of a barrack life in this country."

"The Commander-in-Chief in India desires to notify, for the information of all European troops under this Presidency, that with a view to promote the health and recreation of the European soldiers, by providing amusing occupation for the many idle hours of a barrack life, arrangements were last year authorised, with the sanction of Government, for instituting gardens in the *immediate vicinity* of each barrack range at Lahore, Sealkote, Rawul Pindee, and Peshawur.

"The system under which these gardens were established was as follows:—

"Officers commanding European regiments, troops, and companies, were directed to engage the voluntary and spontaneous efforts of their men to employ themselves in the cultivation of suitable garden plots, in close proximity to their own quarters; a space of about 30 or 40 feet broad on either side of the whole length or breadth of the barrack was marked off for the use of each company and the soil having been turned by the barrack department, the ground was made over for subdivision and allotment to those men who were willing thus to employ themselves.

"Gardening implements of all kinds (and seeds) were accordingly granted by Government on indent from the public stores, and suitable measures at once ordered to be adopted for providing the means of irrigating each barrack garden.

"The European troops at the stations named readily availed themselves of the amusement offered, especially the men of the artillery division at Meean Meer, who applied themselves so cheerfully to the cultivation of the sites allotted, that within a very few months the Commander-in-Chief had the gratification to see their barrack squares, ordinarily so bleak and bare, converted into well stocked gardens of flowers and vegetables; and at his Excellency's recommendation, Government rewarded their industry by the distribution of prizes to the most successful gardeners of each barrack."*

After reading this document it is impossible not to inquire whether an arrangement, which experience has shown to be beneficial in India, might not be carried out elsewhere; whether the troops quartered at home stations, as well as in the colonies, might not be induced to take up gardening as an amusement. What regimental officers can do in India they can do elsewhere; the expense of the operation is unworthy a moment's consideration, and were it as costly as it is the reverse it would even then deserve to be made the subject of experiment; for it is only by giving the soldier agreeable occupation that there can be any hope of weaning him from the attractions offered by the suttler.

EMIGRATION TO CANADA.

(*Condensed from Correspondence in the Times*).

Sir,—I send a copy of a letter received yesterday, with no other alteration than correcting its orthography. The writer is the son of a carter, a tenant of mine, who, at the time of his emigration, 16 years ago, had a family of six children to maintain, the eldest about 18 years. His ordinary wages were about 10*s.* a-week. My personal knowledge of the family to which the writer belongs justifies entire confidence in the truth of what is stated. *R. Steele, Week Green, Petersfield.*

"Salt Fleet, Ontario, Feb. 6, 1857.

"We are all doing very well. We have lived together or within a few miles of each other ever since we came to this country, till about three years ago. Since that time we have never been all together, though we see one another sometimes. William, Harriett, and James are living 150 miles hence; Harriett moved three years ago; William and James moved one year ago. This is a good country for men and girls who work out, for they are very scarce and wages high. A single steady man will get from 30*l.* to 40*l.* a-year, and board and washing; and a married man, who boards himself, will get 50*l.* a-year, house rent free, and keep for a cow. Men who work by the day get 3*s.* this time of the year; in summer 4*s.*; in haying they get 5*s.*; in harvest 8*s.* Men who work by the day get their board in this country. A good girl will get 12*l.* a year; a school miss 5*l.* a month, but she would have to board herself. Carpenters' and blacksmiths' wages are very high. It is good times for farmers now, for grain is high. Wheat is worth 7*s.* a bushel; Indian corn 4*s.*, Oats 2*s.*, Barley 5*s.*, and Potatoes 6*s.* Father has been renting farms these 12 years, and is doing very well. He bought a small place last year; there are 50 acres; he paid 200*l.* for it; it is 150 miles from where he now lives; there are 12 acres cleared, a house on it, and the rest is woodland. His time is out in a year where he is, and then he intends to move to his own place. He has two horses, two colts, four cows, and one yoke of oxen, 30 sheep, and farming utensils. He is worth more than 400*l.*, and mother has enough to do in her own house. William is married, and is now living on his farm. He has 100 acres of land, 45 of which are cleared. He is worth several hundred pounds. Harriett is married to an Englishman—a steady industrious man, who owns 200 acres of land. They have four children. They are living on their own place, and he is worth 1000*l.* John is a shoemaker, but that is a poor trade, so he quitted it and went to farming. He was married three years ago. It took him some time to learn his trade, at which he worked three years, so he is not so well off as some of us. He is married; has one little girl, and is worth 100*l.* James was married three years ago. They have three children; his wife had twins. He has 100 acres of land, and lives on it—10 acres cleared, the rest woodland, but he is clearing it up. He is worth hard upon 500*l.* George and Thomas live at home, and they go to school in winter. George is worth 100*l.*, and Thomas I don't think will leave home. Now, I have told you about the whole family but myself, and that I will tell you after a time. We have a railroad which runs right through Canada, and then from Canada to New York, which is 600 or 700 miles. It goes close to the place where father lives. Canada is greatly improved since we first came here, and the stock is greatly improved also. We had a very hard winter last year, and a dry summer followed, so that crops were light. I bought 100 acres of land three years ago, and then I went and lived there, except it was in harvest; then I used to go down where father and mother lived, and worked out. In 1855 I made 22*l.* 10*s.* in three months. In 1856 I made 24*l.* in three months and a half, but I don't expect to do as well as that again.

"In 1855 I made 14*l.* in 18 days. I was cutting Wheat by the acre. Another man and me have bought a threshing machine of 8-horse power. We have to

* 3 *Prizes of* 20 *Rs. each:* Gunners Reding and Meeson, Staff Sergeant Pierce, Quartermaster-Sergeant Hill. 4 *Prizes of* 15 *Rs. each*, Gunner Macgregor, Gunner Lang, Bombardier Quigley, Gunner Brown. 7 *Prizes of* 10 *Rs. each:* Gunner Rowley, Gunner Healey, Staff-Sergeant Quaid, Sergeant-Major Drain, Farrier Mackennon, Bombardier Ward, Corporal Quigley.

find four horses, and the farmers have to find the rest. We shall have 1*l.* per 100 bushels. William and James had a machine, and they made 200*l.* in four months clear of all expense. My place is nearly all woods, but I am getting some cleared, and I am worth 350*l.* I have told you all I can think of at present, and hope you will excuse my bad learning, which is my own fault. We long to hear from you. The people here are very kind to us, and we all like Canada well."

Mr. Molineux, Secretary to the Canada Company, 13, St. Helen's Place, adds that the Canadian Government has taken measures to ascertain the state of the labour market throughout the colony, so as to be able to point out to emigrants immediately they arrive the locality where employment awaits them. It is needless to enlarge upon the importance of such information to the emigrant, whose means generally are barely more than sufficient to defray the expenses of his passage; but it will be a great encouragement to him to find that facilities for obtaining immediate employment are preparing for him in the colony.

VEGETABLE PATHOLOGY.—No. CLIV.

633. PARASITÆ (*Galls*). External galls do not always arise from the deposit of an egg within the substance of a plant. A remarkable instance to the contrary is afforded by the root-like tufts which grow upon the stems of *Poa nemoralis*, where the gall arises like the internal pseudo-galls from the irritation produced by an insect attached to the outer surface. The case is so instructive that it is well worth notice.

634. It is to the treatise of M. Prilleux, in Annales des Sc. Nat. for 1853, that I am indebted for the information reproduced here. The stems of the Grass just mentioned bear not unfrequently above the knots ovoid masses of root-like processes about a quarter of an inch long which are white or slightly tinged with yellow, and as the summer advances brown. The internode is of course at first invested with a sheath, but as the gall swells the sheath bursts, and the filaments project curling round and clasping the stem, while they are frequently interlaced with each other, or become confluent, so as to present plates like those which are formed in the woolly masses of ice described by Dr. Caspary.

635. These bodies attracted the attention of the early naturalists, and modern observers have disputed about their nature, some considering them as mere tufts of adventitious roots like those which are so frequent on the common Laurel, while others, notwithstanding their inability to find any insect, regarded them as true galls. The fact is that the grub is seated between the sheath and the internode entirely external to the latter, and that in consequence of its presence the internode is modified. The question still arises, what is the nature of the filamentous bodies? Are they merely a hypertrophied condition of some of the external cellular tissue, or are they adventitious roots developed in consequence of some unusual stimulus? That they are not simply the latter appears from the fact that they are not protruded where adventitious roots are usually produced when Grasses root at the joints. Neither do they agree in structure with roots. A transverse section exhibits without any trace of pith or vessels a cylinder or bundle of fibres with thick walls, which, as is usually the case with such cells, are furnished with radiating canals which give them a dotted appearance in a longitudinal section. This bundle is surrounded by parenchym. In the true roots, on the contrary, though there are the same two tissues similarly disposed, there are besides four or five large punctated ducts. There is therefore no doubt about their nature, and the whole has just as much right to be considered a gall as if the insect had penetrated into the tissues of the internode.

636. It sometimes happens that the puncture of the insect not only affects the immediate part where the egg is deposited, but the exciting action is extended to neighbouring structures. If for instance the tip or growing point of the stem be punctured, all or a portion of the rudimentary leaves below this point become hypertrophied, and we have in consequence the galls surrounded and protected by imbricated hypertrophied bracts. Such galls are called by Lacaze-Duthiers mixed galls, as partaking at once of the nature of internal and external. The Artichoke gall of the Oak alluded to before is a familiar instance. Many external galls have the point of attachment hypertrophied, and therefore are more or less entitled to be called mixed.

637. The false galls referred to the internal section occasionally exhibit an hypertrophy of the external cells which become delicate and elongated into hairs, but in general the change is confined to the internal tissues, a change in fact essentially similar to that which takes place in leaves when attacked by aphides, as in the Red Currant, though there is no question, in popular estimation at least, as to the existence of galls. The curled leaves of *Laurus nobilis* inhabited by Psyllæ belong precisely to the same category with the blistered Currant leaves. These are referred to the internal galls by Lacaze-Duthiers, and indeed in strict sequence every case in which the tissues are in any degree altered by the presence of insects may be considered as capable of being grouped with those globular or cucullate forms which wear more evidently the appearance of galls.

638. There are other productions which have a great resemblance to galls, which have not at present been referred to their true origin. Such are the tumours upon the leaves and stems of the procumbent form of the common Ivy, in which at present no eggs or larvæ have been detected. We may also refer to the large excrescences which frequently grow on the roots of Ash and other trees, which however in all probability depend upon some formation analogous to that which causes the large tumours on the twigs of Birch and other trees. We shall have occasion to speak hereafter of a curious branched body on some tree in Sumatra,* of which the cause is equally unknown, though the production is beautifully symmetrical. *M. J. B.*

RUSTIC FURNITURE FOR COTTAGE GARDENS (*see page* 117).

No. 9.

No. 14.

(*To be continued.*)

HABITS OF THE SLOW WORM.

FROM what is recorded in works of reference, the slow-worm (Anguis fragilis), though the most accessible and easily managed of the reptile kind, seems to have engaged the particular attention of a few naturalists.

During several years, from daily observation of many individuals of uncertain age, and in every stage of development, from the egg till the seventh year, having accumulated a considerable number of facts regarding the economy of this interesting little animal, I am enabled to give some details which may serve more fully to elucidate its history.

The time occupied in sloughing, that is from the moment the scales become detached from the head till thrown off, occupies variously from one to two and a half hours; but with assistance, or perhaps with such aids as the animal might seek in a state of freedom, the process may be very quickly completed. So soon as the head scales are free, if the animal be taken in the hand and allowed to urge itself through the fingers, placed in such a way as to keep back the scales, detachment is effected in a few minutes—the animal, in apparent ecstacy, working its way out of its skin with elevated head and with lightning-like rapidity, playing, in its characteristic way, its long nimble tongue. But there are states, either of the animal itself, or arising from its treatment, when sloughing seems difficult; the scales seem too dry, are comparatively inflexible, and remain about the body in rings and shreds till bit by bit they are detached.

On 3d September, 1845, a litter was hatched all but under my own eye, and I had the parent in my possession from the preceding June. The young at this stage of existence were from 33 to 36 lines long, not thicker than a small earth-worm, and weighed from 11 to 13 grains. In this way I became possessed of 10 objects of special interest. During the first day, one was, no doubt, devoured by its parent, for I found half of the tail unconsumed, which the little creature had in all probability wriggled off in an instinctive struggle. On procuring small slugs, the young reptiles pounced upon them with artful avidity; and so voracious were they, that one of the slugs provided for the old animal was seized upon, although 10 times the weight of the creature that made the bold attempt. It was amusing to see the slug moving on in its even course with the slender reptile attached, tugging in vain for the victory. Though all did not grow equally, they on an average gained about an inch in length, with a proportionate growth otherwise, monthly, for the first year.

This reptile shuns the light, and is often found in long Grass, or under the new laid swath, where food is likely to be found. In seizing its prey something like a display of strategy is made. The object is marked, the animal hovers over its victim, arches its neck, and ultimately, though the action seems unnecessary, darts upon it. Whatever is seized is gorged, and apparently all but impossible masses are swallowed. I have seen—besides slugs, which it seems to prefer, and worms, which it feeds on readily—very small frogs and toads, and also caterpillars, to which it was restricted, taken; and I have good grounds for believing that its own young are not rejected. The manner of seizing its prey would suggest that it has to deal in a state of liberty with animals more active than the snail or worm.

The animal drinks equally slowly. If the water be on a level with its body, it elevates its head, curves its neck, and projects its long, notched tongue into the fluid, withdrawing and projecting it sluggishly for a considerable time. When satiated it seems delighted, raises its head high, waving it to and fro, performing something like smacking the lips, and accompanying the act with an audible chirp, a sound rarely heard at other times. Many were easily trained to take a drop of water from the tip of the finger.

Upon a flat surface the motions of the animal are awkward and ineffectual; among Grass, on the contrary, it urges itself on sweepingly, in a sinuous course, the sides of the body and tail being the motive agents. It has a very perfect reversing action—the retrograde motion without the slightest doubt; and, in addition, it has a sort of prehensile power in its tail, by which it can suspend its body. The respiration is peculiar; the animal expires at distant intervals, but no sooner is the expiration made than inspiration follows. In motion, like serpents, the animal is constantly darting out its long, partially cleft tongue. When in vigour, as in a fine warm day, the act is like one rapid dash; but when less energetic, as in the cold of the morning, the action can be made out very distinctly to consist of three distinct waggles of the tongue up and down. I have long sought to interpret this singular act without success; but I am disposed to think it has something to do either with the search after food, or with discerning obstacles. *Extracts from an important paper by Mr. Rankin, in the Edin. New Phil. Journal.*

COLOURING OF THE SKIN OF APPLES AND PEARS.

DUHAMEL, in his Treatise on Fruit Trees, says, that to encourage the colouring of kernel fruits, it is merely necessary, when they have attained their full size, to remove the leaves which shade them, first from one side, then from the other, and finally all round. He adds, that their colour may be rendered more brilliant by marking the side next the sun with a hair pencil dipped in cold water. This passage applies more especially to Pears. It suggested to M. de Flotow experiments, the results of which he has detailed in a lengthened article on kernel fruits in general. He selected some favourably situated fruit of the Napoléon, Beurré d'Hiver, B. Diel, Merveille de Charneux, and more particularly of the Poire longue blanche de Dechant, on which he had never observed at the time of ripening the least degree of redness, whilst the other varieties had several times exhibited a little red approaching to yellow or brown. He moistened these fruits in the morning, and repeated the operation several times during the day, when the sun shone upon them; and he continued this treatment as long as the weather permitted. The result of this experiment has justified the assertion of Duhamel. All the fruits thus moistened were remarkable among others of the same variety and on the same tree, by a more brilliant red. The Poire de Dechant, in particular, exhibited a decided red tint, while the fruit usually presents no such appearance.

M. de Flotow had remarked, but without being able to account for the fact, that in Apples and Pears which were striped on both sides the rays or stripes were longitudinal, that is, from the eye to the stalk, but never transversely, although he says that in several works on pomology, fruits are figured with the stripes in the latter direction. The results of the experiments have led to the conclusion that the action of the sun's rays upon the skin of fruits wetted or moistened by dew is the cause to which the production of these red bands is to be assigned. If, says he, fruits wetted by dew are observed whilst the rays of the rising sun strike upon them, it will be seen that the moisture collected in drops on the edge of the cavity in which the stalk is inserted, and on the sides, forming lines of moisture, of greater or less length according to the size of the drops, and according as the sun evaporates them with greater or less rapidity. It will be understood that there must be great differences in the streaking, according as the dews are more or less frequent, according as they are light or heavy, and according to the power of the sun's rays, and the fineness of the skin. It is likewise probable that the difference between the day and night temperatures has some effect in this respect; and streaked fruits are generally autumn or winter varieties. Pears are seldom streaked, or at least not distinctly so.

To throw some light upon the colouring of fruits, M. de Flotow has tried the action of acids and alkalies

* Described by Miquel in Linnæa, vol. xxvi., p. 285.

upon the skin. The following are briefly the principal results of his experiments. Strips of skin, removed from the fruit and cleaned, became intensely red when treated with dilute sulphuric acid; at the same time they yielded a red juice. The colour only became brighter, and more beautiful when treated with diluted hydrochloric acid. Ammonia restored the original colour. Other pieces of skin having been in the first place treated with ammonia became brown, and their colour darkened to such a degree that they appeared black; on the application of diluted sulphuric acid their natural colour was speedily restored. The Pomme douce d'Amérique, which is streaked with bright red and pale yellow, underwent no particular change when treated with sulphuric and hydrochloric acids, the red lines only becoming a little more conspicuous; and with ammonia they became of a blackish-brown colour.

Whilst leaving to botanists and chemists the explanation of these facts and several others contained in his memoir, M. de Flotow believes however that he can conclude from them that the matter which reddens the skin of fruits is totally different from the green matter which is also found there; and that it likewise extends to the flesh immediately under the skin. *Journal de la Société Impériale et Centrale d'Horticulture.*

TABULAR VIEW OF THE RESULTS OF FOURTEEN YEARS' OBSERVATIONS ON THE DEGREE OF COLD BORNE BY VARIOUS TREES AND SHRUBS IN THE GARDEN OF THE HORTICULTURAL SCHOOL NEAR KISCHENEW, IN BESSARABIA.

TRANSLATED FROM THE GERMAN.

The following Table is the result of the observations made by M. Doengingk, gardener to the Bessarabian Horticultural School during 14 successive winters from 1842 to 1856, upon the trees and shrubs growing in the open air in the garden of the establishment near Kischenew. It is extracted from a report of M. von Koeppen on the acclimatising (that is to say on the introduction) of plants in the south of Russia, inserted in the "Mélanges Russes of the Imperial Academy of Sciences of St. Petersburg," v. iii., part 2.

The data given by M. Doengingk on the climate of Kischenew are as follows:—

"The Bessarabian Horticultural School is situated at about two versts (a mile and a half) to the south of Kischenew, the government town of Bessarabia, under the latitude of 47° 2′ N. and a longitude of 46° 29′ E. (of Ferro, 28° 20′ E. of Greenwich). The country around is hilly, poorly watered, almost without wood, and at an elevation of about 280 English feet above the level of the sea. Its mean annual temperature is + 8.26° Reaum. The mean temperature of the spring is + 8·09° R., that of the summer + 18·20°, of the autumn + 8·75°, and of winter — 2°.*

"If this temperature is compared with that of more westerly regions of Europe lying under the same isothermal lines, it will be found that the summer at Kischenew is considerably warmer and the winter much colder.

"The characteristic feature of the winter of this place is its unsteadiness. Severe cold is often rapidly exchanged for thaw and rain, and again the thaw is followed by cutting frosts; the variations of temperature often reach in the course of a few hours to a difference of 15° R. or more (near 34° F.). Glass ice (*i. e.*, such as forms on the surface of ground after rain or a thaw) is very common. But tender plants are most affected by late spring frosts which often take place after very warm weather has begun, and reach — 3° to 4° R. (+ 25° to 22° F). Nevertheless the subjoined Table shows a large number of exotic species which bear it well, some with a slight protection, others without any at all. Generally speaking, the North American trees and shrubs require no protection at all.

"The best French stone-fruits, as also the best Apricots, Plums, and Cherries, succeed here admirably, and bear excellent fruits. The Vine, Peaches, and Almonds require but little protection, grow well, and their fruits in most years attain perfect maturity.

"The trees and shrubs which grow wild in the neighbourhood of Kischenew within a circuit of 50 versts are the following:—

Acer campestre	Pyrus malus
„ platanoides	Quercus pedunculata
„ pseudoplatanus	„ robur
„ tataricum	Rhamnus catharticus
Amygdalus campestris	Rhus cotinus
„ nana	Rosa canina
Berberis vulgaris	„ pumila
Carpinus Betulus	Rubus fruticosus
Cornus mas	Salix alba
„ sanguinea	„ cinerea
Corylus avellana	„ pentandra
Cratægus laciniata	Sorbus torminalis
„ monogyna rubra	Staphylea pinnata
„ oxyacantha	Tilia alba
Cytisus austriacus	„ microphylla
„ nigricans	Ulmus campestris
Euonymus Europæus	„ suberosa
„ verrucosus	Viburnum Lantana
Fagus sylvatica	Ligustrum vulgare
Fraxinus excelsior	Populus nigra
Hedera helix	„ tremula
Prunus avium	Viburnum Opulus
„ spinosa	Viscum album
Pyrus communis	Vitis vinifera

"This last (the wild Vine) is found in woods with small bunches of small reddish downy and tasteless Grapes, and appears rather to have established itself from the time of the Romans than to be really indigenous."

Tabular View of the Effects of Frost on the Trees and Shrubs planted in the Open Air in the Garden of the Horticultural School of Bessarabia, as observed during 14 successive years.

Name.	Country.	Growth.	Effect of Cold.
Abies alba	Canada	Slow	Bears the winter, suffers from heat.
— Nordmanniana... ...	Caucasus	Do.	Do. do.
Acer campestre var. tauricum	Crimea	Luxuriant	Bears the severest winters and ripens its seeds.
— Negundo	Virginia	Do.	The young shoots freeze at — 10° R., and the old wood at — 15°. The seeds ripen.
— rubrum	Virginia and Pennsylvania	Do.	The ends of the young shoots freeze at — 20° R.
— pseudoplatanus foliis variegatis	Europe	Good	Bears the severest winters.
Æsculus hippocastanum ..	Asia	Luxuriant	Do.
— pallida	North America	Good	Bears the winter.
Ailanthus glandulosa ...	China	Very rapid	The young shoots freeze at — 12° R., and the old wood suffers also at — 18°.
Amorpha fruticosa	North America	Luxuriant	At — 8° R. the ends of the young shoots freeze; at — 18° the whole plant freezes down to the root. It usually blossoms very freely and ripens abundance of seed.
— Lewisi	Do.	Do.	Do.
— pubescens	Do.	Do.	Do.
Ampelopsis hederacea ...	Do.	Middling	The young shoots freeze at — 18° R.
Amygdalus Persica flore pleno	Persia	Do.	The young shoots suffer at — 10° R., and at — 18° it freezes to the root.† It is not hardy enough for the Bessarabian climate, and requires protection.
Anthemis artemisiæfolia (Pyrethrum sinense) ...	China and Japan	Good	Freezes entirely at — 15° R. If covered it bears the winter.
Armeniaca dasycarpa ...	Persia	Very good	Bears the winter.
— vulgaris...	Do.	Do.	The young shoots freeze at — 20° R. It suffers most from the late spring frosts; on that account it is not always equally productive of fruit.
Artemisia abrotanum ...	South Europe	Do.	Bears the severest frosts.
Astragalus vimineus... ...	Siberia	Do.	Do.
Berberis canadensis	Canada	Do.	Bears the severest frosts of Bessarabia.
— sibirica	Siberia and Canada	Very luxuriant	Do., and ripens seed abundantly.
— vulgaris...	Europe	Do.	Do. do.
Betula alba	Do.	Weak	Suffers from the great heats, and does not last long.
Bignonia radicans	North America	Do.	The young shoots freeze at — 7° R.; at — 16° it freezes to the root. Covered up it bears the winter.
Broussonetia papyrifera ...	Japan	Very luxuriant	At — 8° R. the young shoots suffer, and at — 21° the one and two-year old wood.
Buxus sempervirens	S. Europe and Caucasus	Slow	Suffers more from the heat than from the cold.
Calycanthus præcox, L. (Chimonanthus fragrans). ...	Japan	Weak	Suffers much at — 6° R., and freezes entirely at — 17°. It must be well covered.
Caragana Altagana	Dahuria	Good	Bears the severest cold of Bessarabia.
— arborescens	Siberia	Do.	Do., and seeds freely.
— Chamlagu	Dahuria and China	Do.	Do.
— frutescens	Do.	Very good	Do.
Castanea vesca	South Europe	Good.	Young trees of one and two years old bore a frost of — 11° R. unprotected; the young shoots (of old trees?) only from at — 21°.
Catalpa syringæfolia... ...	Florida and Carolina	Luxuriant	The young shoots freeze at — 15° R.; the two-year old wood also suffered at — 21°.
Celtis australis	S. Europe and Persia	Do.	The points of the young shoots suffer at — 15° R.; and at — 20° the tree freezes to the ground. It ripens but little seed.
— glabrata...	Crimea	Do.	Do.
— occidentalis	Virginia	Do.	Do.
Cercis siliquastrum	Asia and S. Europe	Very luxuriant	At — 10° the young shoots suffer; at — 17° the Judas tree freezes to the root. It sometimes flowers very freely, and ripens its seed.
Clematis orientalis	Asia	Luxuriant	Bears the winter and ripens its seed.
— Vitalba	Europe	Do.	Do.
Clethra alnifolia	North America	Middling	Suffers at 10° R. Must be protected.
Colutea arborescens	South Europe	Very good	The young shoots freeze at the points at — 15° R.; and at — 22° the whole shrub freezes to the ground. It flowers and seeds freely.
— cruenta	Do.	Do.	Do.
— media	Do.	Do.	Do.
Cornus alba	Siberia	Very good	Bears the severest cold of Bessarabia.
— mascula fructu maximo	S. and Central Europe	Do.	Bears the weather well.
Corylus Colurna	Turkey and Greece	Slow	Do.
— tubulosa	South Europe	Do.	Do.
Cratægus coccinea	North America	Luxuriant	Bears every cold.
— Crus galli	Do.	Do.	Do.
— Douglasii	Do.	Do.	Do.
— fusca (subfusca, Ledeb.)	Do.	Do.	Do.
— glandulosa	Do.	Do.	Do.
Cupressus fastigiata	S. Europe and Asia	Slow	The points froze at — 6° R.; at 10° it freezes to the ground. So also when covered at — 17°.
— horizontalis	Do.	Do.	Do.
Cydonia chinensis	China	Do.	Bears — 16° R. without protection. At — 21° the one and two-year old wood froze.
— vulgaris	Persia	Very good	The young shoots freeze at — 20° R.
Cytisus Adami	"South Europe"	Luxuriant	The young shoots suffer at — 18° R.
— capitatus	Europe	Very luxuriant	Fears no frost, flowers and seeds freely.
— sessilifolius	Do.	Do.	Do.
— laburnum	South Europe	Luxuriant	At — 15° R. the young shoots suffer. At — 22° the tree freezes to the ground. It only flowers and seeds after mild winters.
Elæagnus angustifolia ...	S. Europe and Asia	Very luxuriant	Bears every cold and seeds well.
— latifolia	Do.	Do.	Do.
Escallonia glutinosa	South America	Weak	Without protection it will only bear — 9° R. It requires a very sheltered position.
Euonymus americana ...	North America	Very good	Bears the winter.
Ficus Carica	Asia and S. Europe	Do.	If covered up it will bear the winter. Without protection it freezes at — 8° R.
Fraxinus americana	North America		
— cinerea	Do.		
— elliptica	Do.		
— excelsior	Europe		
— excelsior pendula ...			
— epiptera	North America	Luxuriant	All bear the severest winters.
— ferruginea	Do.		
— ornus	South Europe		
— oxyphylla taurica ...	Crimea		
— platycarpa	North America		
— polemonifolia	Do.		
Genista canariensis	Canary Isles	Slow	The points suffer at — 8° R., and the whole plant freezes at — 14°.
Gleditschia caspica	Lenkoran	Luxuriant	The young wood suffers at — 20° R.
— horrida	China		
— macracantha	Asia		
— orientalis	Do.	Very luxuriant	Bear the winter well and occasionally ripen their seeds
— triacanthos	North America		
— — inermis	Do.		
Glycine (Wistaria) chinensis	China	Good	At — 6° R. the young shoots freeze; at — 10° the old wood freezes to the ground, but covered up it will bear — 21° without injury.
Gymnocladus canadensis‡ ...	Canada	Do.	Bears the winter.
Hippophae rhamnoides ...	Caucasus and Europe	Do.	Bears every degree of cold.
Hyssopus officinalis	S. Asia and S. Europe	Do.	Bears the severest winters and flowers and seeds freely
Jasminum fruticans	Caucasus and S. Europe	Weak	Suffers at — 12° R. and perishes at — 20°.
— officinale	Asia	Do.	Do.
Juglans nigra	North America	Good	Suffers at — 15° R.
— regia	Persia, &c.	Very good	At — 16° R. the young shoots freeze; at — 20° the old wood suffers also, and at — 22° the tree freezes entirely. It only fruits well after mild winters.
Juniperus communis ...	Europe	Slow	Fears no frost, but suffers from the heat.
— oblonga	Caucasus	Do.	Do.
— phœnicea	S. Europe & Cent. Asia	Do.	At — 21° R. the points were frozen.

* The maxima and minima are not given, but the greatest degree of cold mentioned in the table is — 22° Reaum. (— 17½° Fahrenheit.)

† On another occasion M. Doengingk says that the double Peach only suffered in its young shoots at — 13°, and froze to the ground at — 22°.

‡ In the Horticultural Garden at Ekaterinoslav there are some tall specimens of this tree.

TABULAR VIEW OF COLD BORNE BY TREES AND SHRUBS—*Continued.*

NAME.	COUNTRY.	GROWTH.	EFFECT OF COLD.
Juniperus sabina	Siberia—Caucasus	Do.	Fears no frost, but suffers from the heat.
— virginiana	Virginia	Do.	Do.
Kerria japonica	Japan	Good	Freezes at — 8° R. If covered it bears the winter.
Koelreuteria paniculata ..	China	Luxuriant	At — 18° R. the young shoots freeze; at — 20° it suffers to the third year's wood.
Lavandula latifolia	South Europe	Good	Bears the winter.
— spica	Do.	Do.	Do.
Liriodendron tulipifera ...	North America	Weak	The young shoots suffer at — 12° R.; at — 18° it freezes to the ground.
Lonicera caprifolium	S. Europe and Caucasus	Very good	Bear the winter.
— etrusca	South Europe		
— periclymenum ...	Do.		
— sempervirens ...	Virginia		
— tatarica	Siberia		
Magnolia acuminata ...	Carolina	Good	Suffers at — 10° R. Must be protected.
Melia Azedarach	Asia	Luxuriant	It was completely frozen when unprotected in a frost of —18° R. Covered up it bore a cold of — 14°, but at 21° it froze down to 2 inches from the ground.
Menispermum canadense ...	Canada	Do.	It freezes at — 16° down to the root, which does not suffer from frost.
Mespilus germanica	South Europe	Very good	At — 18° R. the young shoots freeze.
Morus alba	China and Persia	Luxuriant	Bears the winter.
— var. constantinopolitana	Do.	Do.	At — 18° R. the young shoots suffer, and at — 22° the old wood also freezes.
— macrophylla	Do.	Do.	
— Morettiana	Do.	Do.	
— nana	Do.	Do.	
— rubra	Virginia	Do.	Do.
— multicaulis	Philippines	Good	At — 10° R. the year's wood freezes, and at — 22° the whole tree to the root. It is not hardy enough for the Bessarabian climate.
Paliurus aculeatus	Crimea and Caucasus	Very slow	At — 15° R. the young wood freezes, and at — 22° the whole shrub.
Paulownia imperialis ...	Japan	Very strong	Suffers much at — 8° R., freezes to the ground at — 14°, and the root also at — 18°; covered up it bears the winter.
Persica lævis	Persia	Middling	The points of the young shoots freeze at — 15°; at — 20° the tree suffers very much; it does not attain above 10 or 12 years of age.
— vulgaris...	Do.	Tolerably vigorous	Do.
Philadelphus coronarius ...	South Europe	Very luxuriant	Bears the winter.
— gracilis	North America	Do.	Do.
— grandiflorus	Do.	Do.	Do.
— inodorus	Carolina	Do.	Do.
Picea vulgaris...	Europe, Asia	Very slow	Suffers more from the heat than from cold.
Pinus Cembra	North Europe, Siberia	Slow	All these Pines suffer more from the heat than the cold, yet they bear the climate.
— halepensis	Caucasus	Do.	
— larix	Europe and Asia	Do.	
— orientalis	Asia	Do.	
— strobus	Canada	Do.	
— sylvestris	Europe and Asia	Very slow	
Planera crenata ...	Caucasus	Good	Bears the climate.
Populus balsamifera (?) ...	Siberia	Very good	Bears the severest winter.
— dilatata	Italy and Greece	Do.	Do.
Prunus avium fl. pleno ...	South Europe	Tolerably vigorous	At — 15° R. the young shoots suffer; at — 22° it freezes entirely.
— cerasus fl. pleno ...	Do.	Very good	Bears the winter.
— laurocerasus	Asia	Weak	Suffers at — 5°, freezes at — 10° R. It requires good protection and a warm exposure. If well covered up it will bear all our winters.
Prunus Mahaleb	Asia	Very luxuriant	Bears the severest frosts; flowers and seeds freely.
— Padus	Europe	Do.	Do.
— bracteosa	Do.	Do.	Do.
Ptelea trifoliata	Virginia	Do.	Do.
Pterocarya caucasica... ...	Caucasus	Weak	At — 12° R. the young wood freezes, and at —18° the whole tree to the root.
Pyrus aria	Central Europe	Very luxuriant	Bears the winter.
— præcox	South Russia	Do.	Do.
— spectabilis	China	Middling	At — 10° R. the young shoots freeze; at — 17° the whole tree freezes to the root.
Rhamnus alaternus	South Europe	Weak	At — 8° R. it freezes to the root, and requires a very sheltered situation.
— dahuricus	Dahuria	Slow	Bears the winter.
Rhus typhina	Virginia, Pennsylvania	Very luxuriant	Bears the severest winters.
Ribes aureum	North America	Do.	Do.
— Beatoni	Do.	Do.	Do.
— procumbens	Dahuria	Very good	Bears the winter.
Robinia hispida	Carolina, Pennsylvania	Good	At — 14° R. the points of the young shoots suffer, and it freezes at — 22°. It generally dies here about the 10th year.
— monstruosa	North America	Luxuriant	Bears the winter tolerably.
— viscosa	Do.	Do.	Bear the winter well.
— tortuosa	Do.	Do.	Do.
— umbraculifera	Do.	Do.	Do.
— sophoræfolia	Do.	Do.	Do.
— pseudacacia	Do.	Do.	Do.
Rosa gallica	South Europe	Very luxuriant	The different varieties of these Roses generally pass the winter without covering, yet at — 15° R. the young shoots freeze.
— centifolia	South Europe and Asia	Do.	
— damascena	Do.	Do.	
— pimpinellifolia ...	Do.	Do.	
— indica	India	Do.	At — 10° R. the young shoots freeze; at — 18° it freezes to the ground. Covered up, it bears the winter.
— ferox	Crimea	Luxuriant	Suffers from none of our frosts.
— saxatilis...	Do.	Do.	Do.
Rosmarinus officinalis ..	South Europe	Slow	Suffers already at — 6° R., and freezes entirely at — 10°. Well covered up it will bear our winters tolerably well.
Rubus odoratus	North West America	Very strong	Bears the winter.
Ruscus aculeatus	Caucasus, Switzerland	Tolerable	At — 12° R. it freezes to the ground. It requires protection.
— hypophyllum	South Europe	Do.	Do.
Salix americana pendula ..	North America	Do.	Suffers at — 15° R., and must be protected.
— babylonica	Persia	Do.	Do.
— acutifolia	Europe	Luxuriant	Bears the winter.
— vitellina	Do.	Do.	Do.
Sambucus americana ...	N. America	Luxuriant	Bears the winter.
— nigra	Europe	Do.	Do.
— racemosa	Do.	Do.	Do.
Solanum dulcamara	Do.	Do.	Do.
Sophora japonica	Japan	Do.	At — 8° R. the points of the young shoots freeze; at — 21° the year's wood freezes.
Sorbus aucuparia	North Europe	Do.	As northern trees these bear the severest cold.
— domestica	Europe	Do.	Do.
Spartium junceum	South Europe	Do.	At — 8° R. the young shoots freeze; at — 15° the plant freezes entirely. Covered up it bears the winter.
Spiræa triloba	Siberia	Very good	Bears the winter.
— crenata	N. and Central Russia	Luxuriant	Do.
— salicifolia	Do.	Do.	Do.
— sorbifolia	Siberia	Do.	Do.
Symphoria racemosa	North America	Good	Do.
Syringa chinensis	China	Luxuriant	Do.
— Josikæa	Transylvania	Do.	Do.
— persica	Persia	Do.	Do.
— vulgaris	Do.	Do.	Do.
Tamarix gallica	South Europe	Very good	At — 20° the young shoots suffer.
— tetrandra	Do.	Do.	Do.
Taxus baccata	Europe	Slow	Bears the winter.
— pyramidalis	Do.	Do.	Do.
Thuja occidentalis	North America	Luxuriant	Do.
Tilia americana	Do.	Do.	Do.
— multiflora, Ledeb. ...	Abchasia	Do.	Do.
— rubra	North America	Do.	Do.
Ulmus fastigiata	Do.	Do.	Do.
— pendula	Do.	Do.	Do.
Viburnum opulus sterile ...	Europe	Do.	Do.
— Tinus	South Europe	Do.	At — 10° R. the the young wood suffers, and at — 18° it freezes to the root.
Vinca major	South Europe	Luxuriant	Do.
Xylophylla ramiflora... ..	North America	Do.	At — 18° the young shoots suffer. It flowers and seeds freely.

Home Correspondence.

Slugs.—Can any of your correspondents suggest a resource against slugs more effectual than mere hand picking or the use of lime? I have now for some years past suffered in my kitchen garden from such an extraordinary plague of small slugs, both black and white, as to render the cultivation of vegetables, not to say flowers, almost impossible. These slugs vary from half an inch to an inch and a half in length; we seldom see any larger; but the ground is so full of them, that though many thousands are destroyed by hand-picking every favourable morning, their number does not seem to be sensibly diminished. The conclusion to which I have come is that we have either destroyed or excluded from the garden (which is a walled garden of about an acre) some animal which feeds upon slugs. Whether any of the larger slugs, of which we have now none, or snails which I rarely see, are carnivorous, I do not know; or whether moles feed on slugs; but it is remarkable that the extreme plague of slugs is confined to the walled garden, whence moles are excluded, and where large slugs and snails have been destroyed. The adjoining external slips are less molested. I tried hedgehogs one year, thinking they might probably feed on the enemy by night, but without any perceptible result, and the hedgehogs were at last killed by accident. We appear to know very little about these pests. I originally acted on the supposition that the small slugs were the young of the larger black and yellow kinds, but these have now disappeared from my garden for a long time, and I imagine the small are a distinct species. They literally eat up everything root and crown. Phloxes, Lychnis, Orange Lilies, Chrysanthemums, which last were once magnificent with me, have almost disappeared under this infliction, and we are utterly at fault how to meet or mitigate it. In short, notwithstanding an almost incredible destruction, the enemy seems to increase. Is there any reason to suppose that the great white snail which exists in this neighbourhood is carnivorous, and would if imported to the garden devour its cousins! I have had young ducks quartered in the garden every spring till they grew mischievous, but without effect. *J. R.*

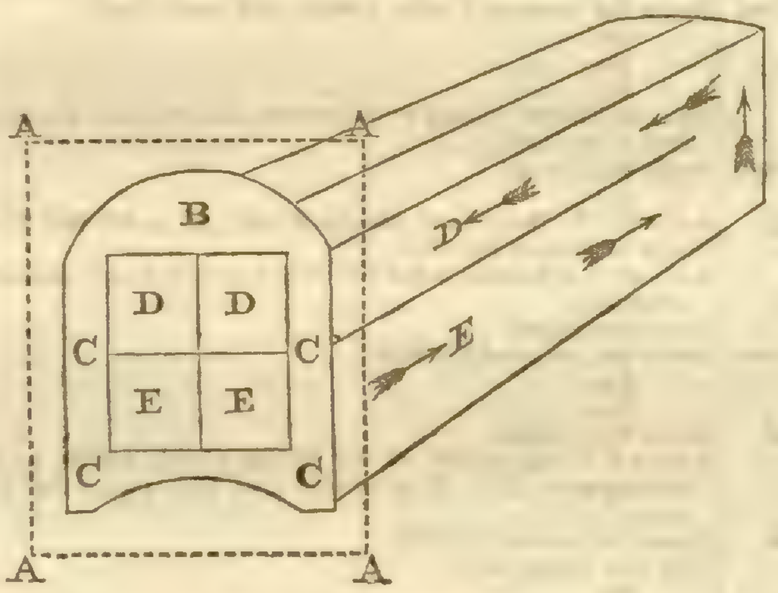
Roses.—I am glad to see that General Jacqueminot has met with a defender, and I can add my testimony that it is a Rose quite unequalled in colour by any "Remontante," and as if conscious of its internal deficiencies never expands so widely as to exhibit them. I will add a few words about Roses in general, for after all not much information has been gathered; accounts being very contradictory of various flowers, so that preference is still left uncertain. Every autumn lists are sent out which contain the names of many new sorts, and from the description it might be supposed they surpass all that had been raised before, and the price is high accordingly. To those then to whom the difference of 7*s.* and 2*s.* is of small importance, I would say, "Purchase them (I am speaking of amateurs in the strict sense, not of sellers); the enterprising growers who have introduced them deserve encouragement, for it is only from the introduction of novelties that good varieties can be obtained; and if they come up to the description, you have the pleasure of possessing them before your neighbours, and this is no little satisfaction." To those however who wish to have a really good selection without paying dear for it, I would give the advice to wait patiently. If a Rose keeps its character in the catalogue for two or three seasons you may be sure it is a good one, and do not discard old favourites. The Géant de Batailles and Baronne Prevost can never go out of fashion, and there are several others who, like them, are not only beautiful and fragrant, but really autumn flowers—General Jacqueminot being one of this class. Jules Margottin and Mrs. Rivers are fine and distinct, but for two seasons mine have only flowered in summer, whilst some others appear to be weak growers. You must scan the catalogue narrowly, and conclude that when an indispensable or desirable quality is not mentioned, the Rose is therein deficient. To be perfect, a Rose ought to have colour, form, size, fragrance, fulness of petals, freedom and continuity of flowering, and a habit of growth strong, without being coarse. Coupe d'Hébé fulfils all these conditions but continuity, and being a Hybrid Bourbon does not pretend to it. Mr. Appleby's observations are sensible, and the Roses he mentions for exhibition are unexceptionable; but excepting Prince Leon the colours are not brilliant, nevertheless Mr. A.'s classification may safely be depended upon, and is the best I have read in the late discussion. *O. G.*

The Melon in India.—It is a curious circumstance that though the Melon is a native of India, or at least grows wild there, its culture in its highest and best state is so far of an exotic character, that it is produced at a season of the year when it cannot grow naturally; for the best of all reasons, that at that season the natural soil is so dry and destitute of moisture the Melon seed cannot germinate; or if by chance there should be a fall of rain to moisten the earth sufficiently to enable the seed to germinate, the whole effect would be dissipated in a fortnight, and the young plant would perish before it was many days old. Premising that these observations relate to the western side of the peninsula of India, I may remark that the Melon is found in three states, viz.:—1. In a wild state. I have met with it growing in hard and barren soils, which carried a very scanty herbage of any kind. It springs up in June or July, according to the time the monsoon or rainy season commences, spreading its runners like the radii of a

circle, when it has free space, and ripening its fruit about September. The best specimens of these wild Melons are about the size of a duck's egg, oblong in shape, skin of a golden colour, and smooth, unfurrowed surface. They have a perceptibly fragrant odour when ripe, and the flesh, which is whitish and not thick, is subacid and very slightly sweet. 2. As it is cultivated in its natural season, the monsoon, very partially, and with little care and attention about the fields and gardens of the villagers. The characteristics of this kind are —size moderate, very large specimens being seldom or never seen; form, colour, and surface various; possessing the fragrant odour of the Melon when ripe; flesh generally whitish or slightly tinged with red, and either mealy or very firm, but never possessing the juicy melting quality found in Melons grown in the hot and dry season. A circumstance in which they all agree is the absence of sweetness, which appears to depend on the season of the year—perhaps the prevailing moisture of the air at this time—for the same seeds which in May produce Melons highly saccharine, produce fruit in September destitute of sweetness. Want of sweetness is accompanied by insipidity of flavour; but this is often more apparent than real; the flavour is merely disguised, and may be developed by sprinkling the slices of Melon with sugar. There is perhaps no fruit whose flavour is so disguised by want of sweetness as the Melon's, and which is so well restored or brought out by the addition of sugar. 3. As it is cultivated by artificial means during the dry and hot season from February to May, which constitutes the true Melon season. These are of all sizes, forms, colours, and qualities; very small and exceedingly large; round and oblong, plain and ribbed, smooth and netted; externally greenish, yellow, grey, and white; internally reddish, white, and of a greenish hue; many of very indifferent quality, little better than hybrid Cucumbers, others averagely good, and some of surpassing excellence. Of course they are only grown in places where the roots have access to moisture, the air being exceedingly dry, and at times even hot. The almost universal localities chosen for this purpose are the beds of rivers whose waters at this season are reduced to a small stream, and the Melon beds are formed in the pebbly channel which the waters have deserted. I am not aware that any other preparation is given to the beds than levelling the surface to a uniform height above the stream, so as to place the roots of the plants most distant from it in nearly as favourable a position for access to moisture as those nearest to it. The plants, I suppose, derive much of their nourishment from particles of organic and mineral matter deposited from the water in the gravelly bed. The seeds are planted in rows, about 2 feet apart from plant to plant, and from 2½ to 3 feet between the rows. After the plants have made some progress the native cultivators open a hole at the root of each plant, and insert a small handful of manure—fowl or pigeon's dung, I believe, being preferred. A ridge of gravel is then drawn up against the stems of the plants, leaving a furrow between the rows. This is all the cultivation they receive, and the produce of each plant is not great. The natives plant Melons and Cucumbers in the same beds, the consequence of which must necessarily be the hybridisation to a large extent of the Melons; and this may partly account for the great abundance of very indifferent Melons. It cannot be the fault of the climate, or of the mode of culture in other respects, as the most delicious Melons are met with grown in the same beds, and under the same treatment as the worst; it can only arise from not selecting good seeds, and from permitting hybridisation and the intermixture of bad sorts. The Melon is also occasionally grown in the drying bed of a tank or pond, and some of the finest quality I have met with were produced in such a locality. *J. H. H.*

Locusts in S. W. Australia.—I am seeking some information which I hope your correspondents may supply for the benefit of that part of western Australia in which M—— lives. The district is an extremely fertile one, but there industry receives a great check and discouragement from a perfect host of grasshoppers which appear all over the place just when the crops are green and half matured, and destroy every symptom of vegetation. The growth of the Potatoes (a great article of sale there to the American whaleships) is stopped; the Vines are attacked and bring nothing to maturity; all fruit trees are entirely stripped. All garden produce they quite destroy, and they have even now begun to attack the Wheat crops. I have seen the bush trees quite bare of leaves from their work, and I have a Peach-stone which they left on the tree, having eaten all the fruit that was on it. They have come every year since 1850. Rivers do not stop their progress over the country. Burning the country has been tried as far as it can but unsuccessfully. Trenches dug round the gardens and even round the trees do not stop them. These plagues are about an inch long; but they come in such hosts that the damage they do is out of proportion to their size. It is believed out there that they lay eggs and breed under the ground; therefore they know not how to kill them in that state. The curse that they are, and the consequent desirability of getting rid of them, must prove my excuse for troubling you with this long letter. *C.* [We earnestly invite the attention of naturalists and others who have personal knowledge of the best method of dealing with locusts, to this most important question.]

M'Sherry's Mode of Heating.—In the *Gardeners' Chronicle* of October 4, 1851, you directed attention to a small model of a Polmaise stove which I sent to the Great Exhibition of that year. I have since had much practical experience in heating, and many of the stoves which I erected from the year 1846 up to the present time continue to give entire satisfaction; in one or two houses however I did not succeed so well, owing to the difficulty of making either wrought iron stoves or metal plates stand when exposed to fire. The failures just alluded to annoyed me very much, and I set to work to construct a stove, to remedy the defect; the result I now send you, but in order that my views may be clearly understood, permit me to call my apparatus "M'Sherry's Trunk Boiler Polmaise Stove" (on account of its resemblance to that useful article). In shape the stove is, as I have said, like a round topped trunk, 6 feet long, 2 feet wide, and 2 feet high to the base of the arched top, which is the segment of a circle 6 inches high in the centre, and the bottom cambered 3 inches high; let a piece be cut out of one end of the trunk 16 inches wide by 18 inches high, and a box made 5 feet 8 inches long, 16 inches wide, and 18 inches high, open in one end. If this box is put into the cut end of the trunk, keeping the open end of the box out, it will represent a boiler with a top to allow steam to generate. It will also give a space (surrounded by water) in the body of the boiler 5 feet 8 inches long by 16 inches wide and 18 inches high for warm air; let this space be divided in the centre with an upright plate of strong sheet iron 5 feet 8 long, it must have a horizontal division also 5 feet long, which will reach within 8 inches of the back; these two divisions make four compartments in the boiler stove, the open end of which I call the front, which must have a flange 4 inches broad round the outside, at the bottom, sides, and top. To heat a house or houses (I don't care how long they are if on a straight line), I excavate at either end of the house as deeply as possible to get a place for the stove, and after making the ash pit and furnace of the size required, and providing stoke-hole and fire-door (of a particular kind) I then set on the stove (the front facing the house), and proceed with the work, making the flame and smoke go under the bottom to within four inches of the flange in front; it then rises at each side, and returns to the back, where it passes to the chimney, which should have a damper placed in it, as near the stove as it can be put. The boiler must have a supply cistern to feed it with water, which should rise to the level of the flame passing round the sides, viz., about 16 inches; the next part is to form the cold air drains and warm air flues, in doing which I begin



at the opposite end of the house to where the stove is, and sink a cold air drain, and another in the centre of the house (if convenient), dropping down perpendicularly as low as possible, and then allowing them to ascend regularly to the under compartments of the stove, where the cold air enters and passes to the back, rising into the upper chambers, from which it is thrown out in a continual stream of pure warm air. My next job is to diffuse this warm air through the house, and to keep it warm while circulating; to effect this, I make a warm air flue from the stove along the whole front of the house or houses. This flue I make 8 inches wide by 16 inches high in the clear, with sliding doors in the side under every second sash, the flue to be built with brick on edge, and covered with fire clay or terra cotta flues of the following dimensions, viz., 14 inches wide by 7 inches high, with a division in the centre to make two flues and small troughs, formed on the top to hold water for moisture, the solid parts of these flues to be 1½ inch thick. I next bring a steam pipe from the boiler into one of the tile flues, and the steam from it empties into the flue, and passes to the extreme end, then returns in the flue, and escapes by a waste pipe. This contrivance keeps up the heat in the warm air flue underneath, and also makes the tile flues themselves powerful auxiliaries in heating. To moisten the warm air when requisite, a tank is placed in front of the horizontal division of the stove where the warm air escapes; I would also recommend a small tank with a sliding cover (to shut when not required), to be set in the bottom of the warm air flue, opposite to the openings (where the air escapes into the house), with a stop-cock over each tank from the bottom of the tile flue to supply them with condensed steam (water), as by this plan moist air can be had in one house, and dry air (if wanted) in another house, from the same stove. The boiler should be made of very strong plate iron and have a safety valve; another steam pipe could be brought from it to steam food for cattle, where such would be an advantage, and a fire of slack culm and lime stone would work it admirably at a very trifling expense. The foregoing plan is intended for lean-to-houses; for span-roofs I would alter the dimensions of the boiler, and have the division (I mean the upright one (full of water). There should be a pipe to allow the condensed steam to return to the boiler. The first expense to carry out these plans would of course be considerable, but I am sure they would be efficient, and would require little (if any) outlay for repairs. Heating should not be made a matter of pounds, shillings, and pence; a considerable sum of money may be thrown away for want of laying-out a few pounds more in the beginning. *Michael M'Sherry, Limerick.*

Rain at St. Petroc Minor, Cornwall, in 1856:—

	Inches.
January	4.00
February	2.55
March	1.61
April	4.23
May	3.32
June	2.12
Carried forward ...	17.83

	Inches.
Brought forward ...	17.83
July	2.53
August	1.36
September	4.19
October	4.28
November	2.81
December	5.04
Total	38.17

—*The Rev. Sir Hugh H. Molesworth, Bart.*

Rain at Cobham, Surrey, in 1856:—

	Inches.	Days.
January	1.22	on 16
February ...	0.99	„ 11
March	0.72	„ 4
April	2.35	„ 13
May	3.55	„ 13
June	1.07	„ 7
July	0.72	„ 6
Carried forward	10.62	„ 70

	Inches.	Days.
Brought forward	10.62	on 70
August... ...	3.17	„ 14
September ...	2.01	„ 17
October ...	2.35	„ 13
November ...	1.07	„ 11
December ...	1.98	„ 17
	21.20	„ 142

—*Miss C. Molesworth.*

Rhizomorphæ.—Some remarks were lately made in this Journal on the true nature of Rhizomorphæ, in consequence of certain facts which had been reported by Bail in Botanische Zeitung, p. 799, 1856. Dr. Caspary states in the same journal, 1856, p. 897, that in the park at Berlin he has lately had occasion to examine a large quantity of Pinus sylvestris infested with Rhizomorpha subcorticalis, and that he convinced himself that in this case it was merely a peculiar condition of Trametes Pini, a fungus which has been found though once or twice only in Scotland, and which has some outward resemblance to the Dædalea of the Oak which is so often produced on what is called foxy timber, as stated in a late number of Vegetable Pathology. It will probably turn out that Rhizomorpha subcorticalis is a form assumed indifferently by many species of fungi when the mycelium is developed under a considerable degree of compression without access to light. It is worth observation, in connection with the development of the Dædalea on foxy Oak, that every Fir tree on which the Trametes and Rhizomorpha made their appearance, whether associated or alone, was in the diseased condition known by German foresters under the name of Rothfaul or Redrot. Dr. Caspary states finally that he has reason to believe that Polyporus suaveolens, a species of the same genus which grows on Populus pyramidalis, and Agaricus ostreatus occasionally appear in the Rhizomorphoid condition. *M. J. B.*

Rose Controversy.—I had not intended saying anything more in regard to this controversy, but will you allow me to state that I have not, but Mr. Appleby has "fallen into an error" when he makes me say that Gloire de Dijon "could not be grown out of doors north of the Trent." He will see, on reference to my letter, that I merely expressed a doubt on that point, and desired information. I gave an opinion, or rather expressed that doubt from my practical experience of the tenderness of the Thea roses generally even in this southern part of the kingdom, and I "jumped to no conclusion without trial or proof, or any information about it." *A. R.*

Coppice Wood.—Mr. W. Brown states that coppice woods in his locality consist of "Hazel, Ash, and sickly Oak saplings, apparently struggling for existence." Mr. W. B. further states that "at best timber trees of this description never arrive at a valuable size," and that "12*s.* per acre is the extreme yearly rent produced by such woodlands under his management." I doubt not for a moment that the coppice wood in Mr. W. B.'s locality may be composed of Hazel, Ash, and sickly Oak saplings, and it may be a partial crop of Whin and Broom. These form a crop that is seldom or never reared where economy is at all regarded. No tasteful eye acquainted with landscape beauties will turn away dissatisfied at a "hill and dale view" of well laid-out coppice wood, which if properly trained and timeously cut invariably constitutes a description of property that no reasonable proprietor will doubt the profitableness of; although portions of it should be "accessible to the plough," as the following table will show:—

The average quantity of stools on a properly reared acre of coppice wood is 855, averaging 4 stems to the stool, make in all 3420 stems, averaging 8 lbs. of bark on each stem, which amounts to 12 tons 4 cwt. 1 qr. and 4 lbs., at 5*l.* per ton, is	£ 61 1 5
Each stem containing 3 sq. ft. amounts to 10,260 sq. ft., at 1*s.* per foot	513 0 0
	£574 1 5
Deduct the expense of felling the trees and stripping the bark	50 0 0
Total income from 1 acre in 30 years	£322 1 5

or annual rental of 10*l.* 14*s.* 9*d.* The present value of this sum 30 years hence, computed at interest of 4 per cent. per annum, is 3*l.* 6*s.* 3*d.*, which is the amount of net gain that may or ought to be derived from well-managed coppice wood, and which it will be observed is rather more than double the sum Mr. W. B. assigns as the proper value. It may be here mentioned that the

periodical thinnings will amply defray the expense of management, &c. From this Mr. W. B. will see that he may have more than 1*l.* 10*s.* per acre for his coppice woods, and not incur an expenditure of 9*l.* per acre for trenching. That the Oak and Ash never arrive at a valuable size is a statement which requires no observation in this age of improvement; and if proprietors should confine their woodlands to places inaccessible to the plough, and from them only receive 12*s.* per acre as an annual rent, wood managing and forestry as a profession would soon be extinct. *James Whyte, Chopwell Woods, Ebchester.*

Hybrid Dianths.—As you have noticed hybrid Dianths, you may like to hear that the summer before last I fertilised a poor single pale red Carnation with the pollen of a crimson Spanish Pink; and likewise a Spanish Pink with the pollen of the same Carnation. I got seed from both crosses in fair number; namely, 77 seed from two pods of the Spanish Pink, and raised plenty of seedlings. In the eyes of a florist they would be, I presume, quite worthless from their straggling habit; but they were showy, and like most hybrids produced during a long time an extraordinary abundance of flowers. They varied somewhat in colour, but in no other respect; and one variety was of a really beautiful pale crimson. Taken in a mass there was no difference between the reciprocal crosses. Not one plant of either lot set a single seed. One plant came up identical with the Spanish Pink; no doubt owing to a few grains of the pollen of the Spanish Pink not having been removed; for Gærtner has shown that this is sometimes the result when a flower is fertilised with mixed pollen. I may add that Gærtner raised many hybrids between various species of Dianthus. *C. Darwin, Down, Bromley, Kent.*

Fruit Importation.—As we are likely to have our tables producing game killed in the north of Canada, what is to prevent our adding to this (when our railways are finished and steam-boats regularly running) the fruits of the East, now known only by name? No doubt that the greater part of them may be conveyed in the utmost perfection. Wrapped in silver paper and packed in sawdust we may receive them in the highest perfection, and at no very extravagant rate. Fish also may be sent over, and the tunny and other fish may be regularly sent to the London fish markets at a very cheap rate. Let a company be formed immediately to open the trade wherever practicable, and gradually to extend it as the means improve, and in a few years London will be the market of the world; and the Mediterranean one of the stew ponds of London. Perhaps Brighton might be made the port, and to send them to London by rail from thence. *Delta.* [Partly a dream—partly a possibility; hardly a probability.]

The Cocoa-nut.—Why may not a great improvement be made in the value of the Cocoa-nut? It is found that coral banks are soon covered with Cocoa-nut trees; why may not we then cover sandy banks round our numerous islands and barren rocks by delnging them with sea water raised by wind and always working when the wind blew! And the nut might perhaps be rendered more useful by being cut into slices, peeled and dried on kilns, and then ground to fine powder and mixed with Wheat flour and bread be made of it. It may turn out to be very servicable, and increase its value exceedingly. *Anon.* [Surely our correspondent does not suppose that Cocoa-nut trees will grow in these latitudes!!]

Foreign Cheats.—Having had a deciduous shrub resembling the Scarlet Dogwood sent me by my employer from Manchester, called the "Fraise arborea du Mer Rouge," or Tree Strawberry, the fruit of which is reported to weigh over 2lb, and the shrub itself to have been found in Africa by a Frenchman named Martin, and also a Scarlet Lilac, will you oblige me by stating whether either of the above are known to you? I enclose a small piece of the Tree Strawberry for your inspection. *Archibald Kay, Gardener, Lillesden, Hawkhurst, Kent.* [You have sent a bit of common Dogwood. We are perfectly astonished at men of intelligence allowing themselves to become the victims of such audacious imposture.]

Societies.

HORTICULTURAL, *March* 3.—Colonel Challoner in the chair. The following were elected Fellows:—

Mrs. Frances Dumergue, Abbey Farm Lodge, St. John's Lodge.
Wm. Fredk. Saunders, Esq., East Hill, Wandsworth.
Henry Bradbury, Esq., Bouverie Street, Whitefriars.
W. Jones Lloyd, Esq., Chesham Place.
John Noble, Esq., 50, Westbourne Terrace.
Mr. Ingram, Gr. to her Majesty at Frogmore.
Mr. Frost, Gr. to Lady Grenville at Dropmore.
Mr. Tillyard, Gr. to the Rt. Hon. the Speaker, at Heckfield.
Mr. Wm. Paul, Nurseryman, Cheshunt.
Mr. C. Fisher, Nurseryman, Handsworth.
Mr. Butcher, Nurseryman, Stratford-on-Avon;

and as an Honorary Member, H. Behrens, Esq., of Travemünde, nominated by the Council in consideration of the munificent aid afforded by him, a stranger to the Society, in the experiment of maintaining the Garden at Chiswick, Mr. Behrens having paid over the sum of 100*l.* to the Garden Fund.

Subjects of exhibition, considering the season, were numerous, and there was a large attendance of Fellows and their friends. Among fruit were beautiful bunches of new Black Hamburgh Grapes, from Mr. Fleming, gr. to the Duke of Sutherland, at Trentham. The same exhibitor also sent bunches of Barbarossa Grapes, fresh and fine, as if newly ripened; Muscat of Alexandria, and a nice dish of Black Prince Strawberries, well coloured and large for that kind. Black Barbarossa Grapes came from Mr. Butcher, of Stratford-on-Avon. Of Pears, Mr. Tillyard, gr. to the Rt. Hon. the Speaker, sent extremely well preserved specimens of Ne Plus Meuris, Easter Beurré, Beurré Rance, and Glou Morceau, some of which it will be seen are varieties that can seldom be kept so late in the season. Some nicely ripened Pine Apples from Wales were exhibited. A Black Jamaica, 3 lbs. 10 oz., came from Mr. Jones, gr. to the Dowlais Iron Company; and Mr. Price, gr. to W. Forman, Esq., of Penydarron House, Merthyr-Tydvil, sent a fruit of the same variety of Pine Apple weighing 2 lbs. 9½ oz., and a Ripley Queen 2 lbs. 10 oz.

Of vegetables Mr. Ingram, gr. to her Majesty at Frogmore, sent a collection, consisting of 100 heads of Asparagus weighing 12 lbs., a dish of French Beans, and a punnetful of Mushrooms, beautiful specimens, tastefully "set up." The Asparagus, it was mentioned, was from beds in the open ground covered with wooden shutters and artificially heated. A plan and full description of them will be found in our volume for 1847, p. 836. A basket of Mushrooms came from J. Allnutt, Esq., of Clapham. Of Foreign Vegetables, Mr. Lewis Solomon, of Covent Garden, again had a beautiful collection. It consisted of Asparagus and what is called "Sprue," very good new Kidney Potatoes, Artichokes, Green Peas, Cauliflowers, French Beans, new Horn Carrots, very fine, and a salad in which were very fine Endive, Turnip Radishes, and two sorts of Lettuces. These, though they must have been packed closely when travelling, were in excellent condition.

Among plants were some of considerable interest. Mr. Cutbush of Highgate produced a collection of Hyacinths in pots beautifully grown and flowered. Of *reds* he had Queen Victoria, Waterloo, R. Steiger, and Circe. *Blues:* Porcelain Sceptre, Baron Von Thuyll, Grande Lilas, a charming kind, and Blocksberg. *Delicate Pink:* Norma, a single variety, with large finely shaped flowers; and among *whites* were Tour d'Auvergne, Mary Stuart, &c. The mode of growing these flowers which Mr. Cutbush practises so successfully will be found at p. 630 of our last year's volume. Some capitally bloomed Camellias came from Messrs. Veitch. They consisted of several plants of "Saccoi nova," a handsome salmon pink variety which is sometimes called Augustina superba and other names, and the charming light kind, Countess of Orkney. Mr. Ingram, gr. to J. J. Blandy, Esq., also contributed the last-named variety. Mr. Allnutt had some light sort misnamed Marchioness of Exeter. From N. Hodges Nugent, Esq., came a small crimson, white striped variety of Camellia, not perhaps of much value in itself but extremely interesting, inasmuch as it showed a decided tendency to arrange its petals in a hexangular or star-like manner. That the Chinese possess Camellias with flowers having that peculiar form has often been reported; but hitherto all attempts to introduce them into this country have failed; all that have as yet been imported as hexangular Camellias having only produced blooms of ordinary shape. Mr. Nugent's specimen, however, though very incomplete, certainly showed, as we have just stated, an evident disposition to be of that class. Cyclamens, very gay and in considerable variety, were present, from Messrs. E. G. Henderson, of St. John's Wood, who also sent the following plants, viz., Gesnera cinnabarina and densiflora, two brilliant continental kinds, but with bad foliage; and a charming new greenhouse bush called Monochætum ensiferum. This was stated to belong to a race of most beautiful plants, inhabiting the high lands of Columbia. It has nice pink flowers which are produced in great abundance, and even after the petals drop, the bunches of scarlet claw-like stamens which they leave behind them still keep up a large amount of gaiety; it appears to be a plant of easy cultivation, and must certainly be considered a great acquisition. An extremely fine Cyclamen persicum came from Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. Of double white Primulas, six noble specimens, loaded with bloom, came from Mr. Edmonds, gr. to the Duke of Devonshire at Chiswick House. Cut flower-spikes of the new Thunbergia laurifolia came from Messrs. Veitch. It is a stove climber with large showy lilac blossoms, which when seen in the shape of long festoons from the rafters of a stove must be magnificent. The same firm also produced the charming Rhododendron jasminiflorum, and Correa cardinalis, one of the most brilliant flowered of the genus; but it has a bad foliage. Mr. Lawrence, gr. to the Bishop of Winchester, sent the shaggy Lady's Slipper (Cypripedium villosum), one of the rarest and best grown plants in the room. From Messrs. Jackson, of Kingston, came well grown specimens of double red and white Primulas, a variety of Lycaste Skinneri, and Oncidium cimiciferum, a new kind from Chiriqui.

Among Miscellaneous subjects was a case of skeleton leaves and seed vessels most skilfully anatomised, from J. Hawes, Esq., of Adelphi Terrace. Among them were even Quaking Grass and Fern leaves, the latter exhibiting their fructification and veins in the most perfect manner. Too much could scarcely be said in favour of the cleverness and dexterity with which these dissections had been performed. A skilfully executed picture-frame, representing the larger Bindweed twining round a branch, carved in Pear-tree wood, was shown by Mr. Perry, of 38, North Audley Street; it enclosed a water-colour drawing by the celebrated Van Huysum, the property of C. S. Bale, Esq. Mr. Robinson, of Thames Bank, Pimlico, furnished a model of a rising plant stage. The want of the means of placing plants at certain periods of their growth near the glass, and lowering them at will has long been felt. Mr. Robinson has now discovered a ready plan of doing this by means of weights and pulleys. In small houses the stage is made to move up and down merely like a common window sash; but in the case of larger stages, a capstan placed under the stage is employed in order to increase the amount of moving power. The plan promises to answer so well that Mr. Robinson has been induced to patent it.

From the garden of the Society came various Begonias, Chinese Primulas, the white and red-fruited Ardisia lentiginosa, the new Mignonette (Reseda grandiflora), two Acacias, and the useful Ageratum-like Conoclinium ianthinum.

Prof. Lindley briefly explained and illustrated by drawings the nature of the morphological disturbance exhibited by the branching Pine Apple furnished by Mr. Eyles, of the Crystal Palace Gardens, Sydenham, of which a full account will be found in last week's Number.

Notice was given that seeds and cuttings of fruit trees were ready for distribution to such Fellows as may signify their desire to receive them.

The programme of the arrangements for Exhibitions during the present season was distributed.

The Chairman announced that the Fellows now elected and those who may be elected on the 7th April, will be at once admitted to all privileges upon their payment of the subscription from May 1, 1857, to May 1, 1858.

Notices of Books.

Of the *Poetical Works of Byron*, a complete and very beautiful edition has been published by Mr. Murray, in a single volume of 685 pages in double columns. It does credit to the printing office of the Messrs. Childs, of Bungay.

Adulterations detected, or plain instructions for the discovery of Frauds in Food and Medicine. By A. H. Hassall, M.D. Longmans. Small 8vo, pp. 712.

We find nothing to praise in the tone or matter of this book. Dr. Hassall is never weary of expressing his admiration of Dr. Hassall, and his deep sense of the services that great person has rendered to the public. Others have the misfortune to entertain doubts upon this subject, and inquire not only whether the proceedings he has taken towards tradesmen are such as right-minded men can approve, but also whether the adulterations he thinks he finds in all directions are real or imaginary. For ourselves we confess to grave misgivings, and most certainly should not choose to endorse the statements found in the work before us. He indeed would be a bold man who should give such evidence in a witness box as we find in the pages before us. Let us point to a case or two by way of illustrating our meaning.

Under the article TEA the reader is taught to distinguish genuine leaves from those of Camellia Sasanqua, and highly magnified representations of both are produced. So far as the drawings are concerned the differences are striking enough; and we entertain no doubt that the artist drew what he saw. But no man of experience in these investigations would believe for a moment that such differences are constant; they may have depended upon the age of the leaf examined, and vary from leaf to leaf. We venture to affirm that Sasanqua leaves and Tea leaves are undistinguishable; to suppose the contrary is a mere delusion. Dr. Hassall next says that in some Twankay he found leaves "*of a kind* of Plum," a rather strange description to proceed from a man of science. However, he figures this "kind of Plum;" and we can only say that upon comparing it with the leaves of Prunus domestica, the only Plum with which we are acquainted, we find no more resemblance between the two than there is between the long acicular body which he figures as the chlorophyll cells of this "kind of Plum," and the chlorophyll cells themselves. We are then treated to long extracts from well-known papers by Mr. Warington and other writers upon the Chinese practice of colouring Teas for the English market; and he reports that his own investigations show nearly the whole of the green Teas imported into this country as retailed in the shops to be thus coloured. This is put into italics, by way we suppose of pointing out emphatically how great a discovery Dr. Hassall has made; the practice nevertheless being notorious and no adulteration after all. Adulteration we take to be the mixture of one substance with another furtively, and for the purpose of deception. But the Chinese glaze their teas openly in order to suit the taste of their customers, just as other manufacturers put brandy into their wine, or glaze upon their cotton goods.

Let us pass on to SUGAR; in his zeal for adulteration the ingenious author here includes mites in his denunciation, figures them and tells a long story about their ways of life; in like manner he classes mites and jumpers among the articles employed to adulterate CHEESE! and even charges the Thuringian farmers with mal-practices because they happen to like a cheese made with milk and Potatoes. When a grocer, in emptying

a sugar hogshead, scrapes off a morsel of the wood, that too is pronounced an adulteration and duly figured as such! Surely a man must have a singularly constituted mind who sees fraud in such an accident; does our learned author pretend to say that grocers furtively mix deal shavings with their sugar?

This is sufficient to show the general character of the work before us; and it only increases our doubt of the justice of many of the charges brought against dealers, especially when we see that the starches really employed in adulteration, to a scandalous extent, are spoken of in the most positive manner, as if there were no difficulty in recognising each sort with certainty. Every one who has had any practice in examining suspected samples knows that it is in very many cases impossible to say conscientiously from what plants the starch has been derived. We would suggest more caution to the learned author when he appears in a court of law.

Before Dr. Hassall runs a muck against tradesmen he should take care that his own books are not adulterated with superfluous, irrelevant and inaccurate matter. To dedicate such a volume to the honourable member for Birmingham is not the least strange circumstance observable in it, and looks very like a lively sense of future favours.

Perhaps too he will condescend to remember the advice which Dr. Marcet,* a really conscientious writer on adulteration, has given him. "It is of the utmost importance that the author of a work such as his should not only be perfectly impartial, but should carefully avoid overstating his case; he must remember that in no country in the world has trade acquired such extension as in Great Britain, and that many honest tradespeople might be seriously injured by an overcharged statement."

Garden Memoranda.

Messrs. Fraser's Nursery, Lea Bridge.—In the show house here a large amount of gaiety is kept up by means of Tulips, Azaleas, Epacrises, Kalmias, Calla æthiopica, Deutzia gracilis, Acacias, and forced bulbs. Among the Acacias ovata is worthy of especial notice; it is one of the earliest of the whole tribe to which it belongs; it comes finely into flower without the aid of artificial heat, and lasts long in blossom; its flowers though small are a particularly bright orange yellow and very showy. Of Azaleas it is found that standards force much better than dwarfs. On the former the blooms are not only produced with greater regularity than on the latter, but they are also individually more perfect in shape. Among light coloured Epacrises by far the best is candidissima; among pinks the old Hyacinth-flowered kind still maintains its position, and among delicate shades of that colour Kinghorni is good and showy. Deutzia gracilis is now an indispensable addition to the forcing house; it flowers most profusely and forms a good plant for cutting from. The Æthopian Calla being very different from its associates in form, served to make variety; its great white trumpet-shaped flowers standing up in bold relief from all others had a striking effect; these are much sought after for table bouquets. Hovea pungens makes a handsome ornament in the greenhouse at this season, its blossoms being of a colour that is extremely scarce among half hardy plants. They also have the good property of keeping gay for many weeks together. Metrosideros albicans we remarked here; it has a good foliage, and a deep crimson bottle brush-shaped inflorescence. This is a plant which, though highly ornamental, is now rarely met with in collections in this country, though it is common enough on the continent. Camellias have bloomed extremely well here this season. The whole surface of a long back wall of a cool house is covered with them, and we doubt whether a better in-door wall plant could be found than they make, being not only very showy when in bloom, but possessing a good foliage which looks well at all seasons. Among newer kinds was a sort named refulgens, a very promising flower, with a colour as deep as that of Chandleri. It also shows a disposition to bloom abundantly even in a small state.

Among stove plants the Hydrangea-flowered Ixora looks as if it would be a good plant for purposes of exhibition, being showy and of a charming orange colour. It also blooms freely early in the year. Franciscea calycina is also a good plant for winter and early spring decoration. Messrs. Fraser's best specimens of this however are at present in the horticultural exhibition which is now being held at Ghent. Conoclinium ianthinum is also a useful plant in stoves where blue colours are scarce. It is a most prolific bloomer when well managed, and it also has the good quality of lasting long in beauty.

Roses are about to be grown extensively out of doors here. We also noticed a number of young grafted plants on a shelf in one of the houses; the scions, stated to have been put on in January on Manetti, Celine, and other stocks had all taken freely; there was scarcely a failure among them. Hollyhocks are also propagated in the same house on cold shelves; the old roots are taken up, placed thickly on the shelf, and covered with a little mould; thus situated they push young shoots plentifully; the latter are slipped off, struck in a box under a small light, then removed and hardened off. Bedding plants are propagated here in a tan bed covered with small sashes in a span roofed house. They are found to succeed better in this way than on dung beds.

In the specimen house was a new Statice, a seedling from Halfordi, which appeared to be dwarfer and otherwise an improvement on that kind. Of Eriostemons one called lineare was in bloom; it has small narrow leaves which permit the flowers to be seen to good advantage.

It may be mentioned that in the open ground Phloxes are found to winter better and to make a more vigorous start in spring by being slightly covered with old tan. The slight protection which it affords seems to suit them.

* *On the Composition of Food and How it is Adulterated.* By W. Marcet, M.D. 8vo, Churchill.

Miscellaneous.

Sulphur and Vine Mildew.—On the reading of a letter addressed by M. Durieu, Director of the Botanic Garden of Bordeaux, to the Société Impériale et Centrale d'Agriculture, M. Payen stated that sulphur is now generally considered an efficacious cure for the Vine mildew, and that attention has been directed to the preparation of the flowers of sulphur in sufficient quantity; but it must be remarked that, unfortunately for the Vine cultivators of the south-east of France, the sulphur which they have received, being partly at least merely pulverised, was not so efficacious as could be wished, owing to its not being in a sufficiently fine state of division. However that may be, in 1856 about 3,500,000 kilogrammes, or 3444 tons of sulphur were used; and it is thought that in the present year new manufactories will be established, whilst the old ones have increased their means of preparation, and it is probable that the above quantity could now be doubled. The chambers for sublimation have been enlarged from 60 or 80 cubic metres, which they formerly were, to 300 or 400 cubic metres. [We trust our continental friends are sensible of the obligation they are under to Mr. Berkeley, the discoverer of the importance of sulphur as a remedy for this malady.]

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—At no period of the year perhaps is caution in the use of fire heat more needed than in the month of March. March winds are proverbial, and March suns are at times very bright. Now as these winds are by no means to be desired in hothouses the best plan is to keep down fire heat to the lowest possible pitch all the morning, and where forcing is going on, to have a lively fire for a couple of hours in the afternoon, say from 3 o'clock until 5. By these means the necessity of giving much air will be in a measure obviated, and the climate within maintained in a more wholesome state as regards moisture, &c. Frequent attention will be necessary at this period both to the giving of air and also to the taking it away gradually. A small reduction should be made soon after noon in forcing-houses, and the whole should be taken entirely away as soon as it is considered safe. Slight shading will now be of importance. Camellias growing should be so placed as to receive both more shade and also more atmospheric moisture than the general inmates of this house; they are in fact far better in a little close house by themselves, which should be kept up to 70° by day and 60° by night, receiving much the same treatment as Orchids at this period. Large specimens of Fuchsias should now receive liberal shifts; in fact with well regulated potting and thorough drainage they should be placed in their final pots or tubs at once. Growing Orchids will now require slight shading for a couple of hours during bright sunshine for fear of too copious a perspiration, also in order to retard Dendrobiums, &c., in blossom; the latter however will do extremely well in a dry warm parlour or drawing room, only they will require a good watering at the root occasionally. A moderate amount of atmospheric moisture will suffice for these plants when in flower; the growing specimens must at this period have a considerable increase. Now is a good time to sow imported or home saved seeds of tropical plants. Half fill the pots with drainage, use peat loam and silver sand in equal parts. Water thoroughly but slowly with a fine-rosed pot, and cover their surfaces with a good coat of sphagnum. They may be placed on a warm shelf in a shady part of the house. Heaths may now be shifted; use abundance of drainage and sandy heath soil full of fibres, thrust it in lumps round the ball now and then forcing down pieces of stone or lumps of charcoal, and finally coat over the surface with some of the finer portions of the soil, which should have a liberal amount of sand. The ball must be thoroughly moist before shifting, for if thoroughly dry no after watering can bring it right. Pot Cape or other bulbs as soon as the foliage is getting strong; use chiefly loam, leaf soil, and silver sand.

HARDY FRUIT AND KITCHEN GARDEN.

Look after seed sowing; get grafting also completed. Prepare a fresh plantation of Globe Artichokes if necessary by deep trenching and high manuring, for if encouraged in this way they will by judicious thinning keep much longer in bearing. Keep up a succession of Lettuces, and get those raised in boxes in heat pricked out in a warm situation highly manured. After planting out the winter Cauliflowers, there generally remains a quantity of small plants; these, if pricked out in a cool shady border on rich soil will make a succession, and form the connecting link between the principal winter plants and the spring sown ones. Silver skinned Onions should now be sown for pickling—the poorest soil in the garden is the fittest; work it when dry; throw it into high beds, the higher the better, and after sowing thickly tread it as hard as a turnpike road if possible. Top-dress Hautbois Strawberries in beds, also other kinds where the ground is somewhat exhausted as soon as the old leaves are cut away, and the plants thoroughly dressed. Finish off all nailing of wall trees and protect all possible. Tie down a good many of the weak and short-jointed branches of Pears and Plums on walls or dwarfed espaliers. This will be found much better than the old or spurring back method. In the mean time cut away all over luxuriant wood close to the stem. Destroy all insects before the trees bud. Clear away all scale, &c., using a wash composed chiefly of clay, water, and sulphur, on trees liable to insects.

FLOWER GARDEN AND SHRUBBERY.

The weather being unusually fine and vegetation tolerably forward, the mowing of lawns will soon require attention. Lawns or portions of them having a hungry sandy soil and liable to "burn" should have a slight dressing of some kind, every spring; even common soil will benefit them, as it induces another tier, if we may be allowed the term, of surface roots, of course increasing their number. However a dressing of marly or clayey soils in a highly pulverised state would obviate the tendency to burn. A slight dressing of guano has a capital effect in such case, having considerable saline properties. Those who desire to have Moss and Provins Roses through the whole summer should now cut back a portion for that purpose, merely pruning away the parts which have budded. Superflous suckers of Roses, Lilacs, &c., may be removed and planted out for successional stock, and the old stools of Roses richly top-dressed. The pruning of Roses in general must forthwith be completed.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending March 5, 1857, as observed at the Horticultural Gardens

Feb. and March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 27	3	30.453	30.392	53	29	41.0	42½	41½	S.W.	in.
Satur. 28	4	30.498	30.465	59	28	43.5	43	41½	S.W.	in.
Sunday 1	5	30.496	30.472	54	32	43.0	43	41½	S.E.	in.
Mon. 2	6	30.449	30.437	50	41	45.5	44	41½	E.	in.
Tues. 3	☽	30.399	30.328	50	28	39.0	44½	42	E.	in.
Wed. 4	8	30.180	30.076	50	23	36.5	44	42	S.W.	in.
Thurs. 5	9	30.354	30.090	49	38	43.5	44	42½	W.	in.
Average..		30.418	30.323	41.7	31.3	41.7	43.5	41.5		in.

Feb. 27—Frosty; overcast; cloudy at night.
— 28—Fine; very fine throughout.
March 1—Foggy; uniformly overcast; cloudy.
— 2—Foggy with slight drizzle; hazy; cloudy at night.
— 3—Uniform haze; fine; frosty at night.
— 4—Overcast throughout: sharp frost at night.
— 5—Clear and frosty; very fine; cloudy.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending March 14, 1857.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	49.8	32.3	41.0	10	0.17 in.	3	7	3	1	5	5	2	5
Mon. 9	50.6	32.3	41.4	8	0.47	2	4	3	2	4	8	4	4
Tues. 10	50.5	32.0	41.2	12	0.69	4	4	1	4	3	7	3	5
Wed. 11	49.9	32.3	41.1	10	0.33	1	4	3	5	3	10	3	3
Thurs. 12	51.0	32.1	41.5	13	0.24	5	4	3	3	3	8	4	3
Friday 13	51.0	34.6	42.8	10	0.36	3	4	5	1	5	8	3	2
Satur. 14	51.1	34.8	42.9	13	0.70	—	5	4	—	5	11	4	2

The highest temperature during the above period occurred on the 9th, 1826—therm. 68 deg.; and the lowest on the 10th, 1847—therm. 7 deg.

Notices to Correspondents.

Books: *An Old Sub.* Much gardening practice is unwritten—and unwritable, because it depends upon circumstances changing from day to day, and year to year, and place to place. You may consult with advantage Loudon's Encyclopædia of Gardening, Mackintosh's Book of the Garden, or much more humble books, such as Neill's Fruit, Flower, and Kitchen Garden, the Manse Garden, Lindley's Guide to the Orchard and Kitchen Garden, and Le Bon Jardinier, an excellent practical French work.

Bleeding Trees: *H B.* The bleeding will cease when the tree is in full leaf. Then cover the wound with rosin and pitch so as to prevent the access of air. You should have said what kind of tree it is. In future cut off large limbs in September.

Deformed Fruit: *A Constant Reader.* All your trouble arises from the roots of your trees having found their way into old undrained land. Drain deeply and thoroughly, and your fruit will no longer crack and be deformed. What you say about the drains, if we read your sentences rightly, does not at all satisfy us that we are wrong in our opinion.

Holly hedges: *Diss.* The cases are not parallel. Don't cut down your newly planted Hollies until they have thoroughly established themselves, and begun to grow in earnest, which cannot have happened yet. *Perhaps* they may be ready by April 1858.

Hysterophytal: *C J J.* What is the context? Hysterophytal (ὑστερος) signifies anything that comes late.

Kew Gardens: *Unex.* They are open to the public every week-day throughout the year from 1 till dusk; on Sundays from 2 to 6 in summer, and from 2 till dusk in winter.‡

Names of Plants.—*W C.* It seems to be a starved flower of the red variety of Lælia flava.—*A D.* Maxillaria variabilis.

Planting for Cover: *A D B.* To transplant Fern is a difficult operation, only because of the depth to which the workman must go to reach the true roots; the so-called roots being merely underground stems. To raise Ferns, especially Pteris aquilina or the Brake, from seed, is a garden operation much too tedious for large works. Under the drip of trees you can get up Berberis aquifolium, Tree Box, Yews, common Laurels, Privets, Brambles, the large Periwinkle, the large Tutsan (Hypericum calycinum), common Dogwood, Ivy, Hollies, perhaps Juniper, the common not the Swedish sort; which may be added coarse tussocky Grasses, of which Lawsons of Edinburgh keep a supply.

Poisons: *V G W.* We have nothing to do with strychnine or arsenic. Consult the village apothecary.

Prices of Seed: *G B.* We have no right to say what price a seedsman should charge—all depends on quality. One man will charge you 6*d.* for what another demands 1*s.*; the first may be, and very likely is, not worth a farthing. We see nothing unreasonable in the case you name. Quite the contrary. The firm of which you complain are persons of the highest respectability.

Public Servants: *Belgravia.* We should be unworthy of the influence which the public does us the honour to place in our hands if we permitted it to be employed for the advantage of any mere private interests. Our plain duty is to do that which in our judgment is right, not that which may be most agreeable to persons whether in power or out of power.

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Deputy-Chairman—John Collins, Esq., Myddelton Square, Pentonville.
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John Clayden, Esq., Littlebury, Essex.
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Robert Leeds, Esq., West Lexham, Norfolk.
Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
George Savill, Esq., Ingthorpe, near Stamford.
(*With power to add to their number.*)
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Solicitors—Messrs. Kingsford & Dorman, 23, Essex St., Strand.
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Manager.—James Odams, Esq.
Secretary and Chemist.—James Taylor, Esq., F.C.S.
Offices, 109, Fenchurch Street, London.
Manufactory — Plaistow Marshes, Essex.

The Directors of the above Company have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and having secured nearly the whole of the Blood produced by the butchers of the metropolis,* and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and the fact that they and the Shareholders themselves FARM UPWARDS OF 30,000 ACRES OF LAND, cannot fail to afford a guarantee and protection to their brother farmers.

BLOOD MANURE FOR TURNIPS.

The Phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Super-phosphate of Lime, and, the Blood supplying Nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or, if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.

N.B.—For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though two or three cwt. per acre will produce a superior crop to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20 or 30 tons an acre; so that an addition of eight or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.

It is now upwards of four years since the Patent for the Manufacture of this Manure was taken out, and the great success which has attended its application, BOTH FOR CORN AND ROOTS, has produced a great demand for it;—the success has led other manufacturers of Manure to adopt (as far as they can without infringement of the Patent) the title of Blood Manure for their manufacture, and Blood Manure is offered by most makers. But the Directors of this Company have thought it right, for the protection of their own interest, as well as for the information of the consumer, to collect statistics from the Clerk of the Cattle Market, Salesmen, and Butchers of London, showing the quantity of blood produced in the Metropolis and suburbs, and how it is disposed of.

By these statistics it will be seen that this Company receives nearly the whole of the blood produced in the metropolis—what they do not receive is principally used by sugar bakers—leaving a very small quantity indeed to be manufactured into manure by any other persons or companies; and the Directors of this Company wish the agricultural public to be made properly acquainted with these facts.

* STATISTICS OF THE PRODUCE OF BLOOD IN LONDON:—

The number of Beasts, Sheep, Horses, Calves and Pigs, slaughtered in London, during the year 1856... 821,705
The average produce of Blood from this number of animals is... ... ... 802,900 Gallons.
The Nitro-Phosphate or Blood Manure Company (Limited) have received during the year 1856 771,000 "
Or nearly 2,500 gallons per day.
Balance for sugar bakers and other purposes... 31,900 "

Every bag contains 2 cwt., is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised agents of the Company.

LONDON MANURE COMPANY
(Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.
EDWARD PURSER, Secretary.

MANURE.

THE NATIONAL GUARANTEED MANURE COMPANY (limited).—This Company's Manures are guaranteed and sold by analyses. Ten days are allowed to the purchaser for testing the qualities of the manures, and if found inferior to the analyses thereupon given at the head office, the Company will take back the manure, return the money paid, and defray all expenses; but after that period the right to object will not be recognised. For testimonials, analyses, and prices, apply at the head office, 2, Moorgate Street, City.

PATENT WOOL MANURE COMPANY.—(LIMITED).
Office, 81, Gracechurch Street, London.
Manfactories, Deptford and Walworth.
Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*
Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

AGENCY FOR A VALUABLE MANURE.—A Manufacturer is open to appoint a few respectable Agents for his Manure, which commands a ready sale, as its goodness is certified by 2000 Testimonials from all parts of the United Kingdom, and by many farmers who have used it several years.—Address, with occupation and references, R. T., at Mr. E. Colyer's, Printer, 17, Fenchurch Street, London.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
96, Great George Street, Westminster.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay WILLIAM CLIFFORD, Sec.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the Plans and execution of the Works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

IRON COLLAR BAR HURDLES.—These Hurdles, from their construction with Collared Bars and manufactured with Patent Machinery, have more than *twice the strength and durability* of those in ordinary use, and are no more expensive. Sheep Hurdles (ordinary), or with Patent Collar Bars, 4*s.* 6*d* each; Cattle Hurdles (ordinary), or with Patent Collar Bars, 5*s.* 6*d.* each; Ox Hurdle (ordinary), or with Patent Collar Bars, 7*s.* 9*d.* each; Deer Hurdle (ordinary), or with Patent Collar Bars, 8*s.* 6*d.* each

COTTAM AND COTTAM, ST. PANCRAS IRON WORKS, Old St. Pancras Road, *opposite the Old Church*, where the processes of manufacture may be seen. Every description of Fencing and Iron Works. Price List per post or on application.

ROYAL AGRICULTURAL COLLEGE,
CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.
Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
Assistant to Chemical Professor—A. Sibson.
Manager of Farm—J. Coleman.

Students are admitted after the Summer and Winter Vacations—also in April and October. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum.

The chief attention of the students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry; Geology, Botany, Veterinary Medicine and Surgery, Surveying and Civil Engineering which have been so arranged that, where time is of consequence, a course of Lectures on each of the aforesaid subjects may be attended in two sessions or one twelvemonth, though a longer period is recommended to those who wish to go thoroughly through each department. The students are periodically examined in the subject of these Lectures, and receive honorary certificates and prizes, according to their proficiency. There is an Elementary Class for those who are too young or too backward to attend the regular courses with advantage

The Practical Instruction in Agriculture is given by the Farm Manager on the Farm, where the students have an opportunity of becoming acquainted with and taking part in the manual operations of Husbandry.

A well appointed Laboratory is devoted to instruction in Chemical Manipulation and Analysis, which are taught to each class of students in succession, under the superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring, in the use of the Theodolite and other instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

A Veterinary Hospital is fitted up for the reception of diseased animals of all descriptions, with Pharmacy, &c., attached, where the students have opportunities of taking part in dispensing the medicines employed, and of witnessing dissections, operations, &c.

A good system of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural Information in general.

Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy, Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

THE NESBIT TESTIMONIAL. — It has been determined that this shall close on March 31st. Gentlemen who may wish to subscribe, or who have not yet forwarded their subscriptions, are requested at once to do so to the Hon. Sec., Mr. HENRY CORBET, 39, New Bridge Street, Blackfriars.

SUTTON'S FARM SEED LIST WITH PRICES FOR MARCH AND APRIL and Instructions on Cultivation will be ready in a few days, and will be sent Gratis and post free to any address.—Royal Berkshire Seed Establishment.

The Agricultural Gazette.
SATURDAY, MARCH 7, 1857.

MEETINGS FOR THE ENSUING WEEK

WEDNESDAY, March 11 { Agricultural Soc. of England .. Noon. / Society of Arts ..... 8 P.M.

THE great extension of our manure manufacture which is sure to follow the increased price of guano will more than ever make analyses and warranty needful as the security of purchasers. Neither of them are the custom yet, but until they are both in universal operation it is plain that roguery will prosper. Let honest dealers as well as their customers make the latter, and the former make them both, their customary practice, and those who seek to overreach will soon succumb.

This is the plan adopted by Mr. LAWES and others who sell guano and superphosphate of lime. They engage that the manures they sell shall contain a certain quantity of ammonia and of superphosphate. It is also the practice adopted by a Guarantee Company in London and by a private firm in Glasgow, and must soon become general. The purchaser keeps a sample in a sealed or stoppered bottle, and if he have any reason to doubt the genuineness of the manure its analysis is his remedy.

There are two principal reasons why analysis has not proved to be of that general agricultural utility which had been expected. The first is, that its results, however trustworthy, are not understood by the majority of those who purchase guano and other fertilisers. This was illustrated in a lecture lately by Professor VOELCKER, to which we shall direct attention soon. The other reason for the comparative rarity of analysis as the test of quality arises from its costliness; and to that we shall direct attention now.

There is hardly a more important agricultural subject. What would become of the majority of our sick if no remedy were possible except on payment of the guinea fee! What we need in agricultural analysis is a class of general practitioners who shall at a cheaper rate supply the agricultural remedy required.

Not very long ago we were shown the analysis of a soil, stating the silica, alumina, lime, magnesia, iron, organic matter and water which the soil contained, and for this three guineas were charged. A guano was sent some time since to a chemist of high standing by a Lothian farmer, and a letter intimating that it was genuine was received, and a guinea was demanded for the intimation. These however it may be truly said were exceptional cases of excessive overcharge. What is the

ordinary rule of practice in such circumstances? An analysis stating the phosphoric acid and the ammonia per cent. of a manure costs a pound or guinea. That is the general rule. And this too is a "privilege" secured to the members of our national societies. Now there cannot be a doubt that such men as Mr. Way and Dr. Voelcker, Dr. Anderson, and others could not undertake analyses for a payment smaller—their time is valuable in other ways, and for other purposes, so that we have no desire in these remarks to imply either that this is an unreasonble charge by them, or that a diminution of it could reasonably be demanded of them. Nevertheless a diminution of this charge we must have if analysis is to be any hindrance to roguery in the manure market, and there are men to whom application may be made. Why do not druggists and druggists' assistants in all our market towns undertake the work of analysis upon the manures sold close by them? What number in the hundred of the buyers is it likely will undertake the trouble of packing samples carefully, and sending them to London or Glasgow for analysis, and follow them by a Post-office order for a guinea apiece a fortnight afterwards when they shall have their respective tales ready for perusal? Ninety-nine will rather "take their chance" of honesty and safety.

There needs a policeman ready in the market place to take suspicious characters into custody at once, and do justice on them summarily at much smaller expenditure, whether of time, or cash, or pains. And we venture to say that if in any considerable country town where guanoes and superphosphates, nitrates and manufactured fertilisers are now being sold, some young "chemist" were to undertake the work of analysing specimens for the thousand purchasers of all these things, being on the spot and seeking "custom" between the purchase and delivery of the material bought, he would soon fill his hands with work.

To this end, however, we must divide the existing charges at least by four. A trustworthy opinion of the genuineness of a guano can very easily be given, and ought therefore to be obtained for half-a-crown. Such an opinion "will protect from fraud; but it is not calculated to assist in the choice of the best specimens when all are genuine: it will inform the applicant whether a specimen of guano or of oil-cake, for instance, be adulterated or not; but it will not touch the question of its relative value as a pure specimen. Such an opinion will only apply to ordinary market articles, as guano, oilcake, superphosphate of lime, sulphate of ammonia, gypsum, common salt."

We quote these words from the information given at the close of the Agricultural Journal on the charge by the chemist of the English Agricultural Society. Let us repeat that Mr. Way's list of charges are as low, no doubt, as the greater value of the time in such a case involved permits. But what farmers want is an immediate answer to their question at the cost of a single silver coin, and with no trouble to themselves. And this, there can be no doubt, they ought to have. And this too we venture to foretell will very soon be offered them. What the cost may be, and the value is, of a complete analysis must be discussed hereafter.

Are the farmsteads of the country such as they ought to be? Do they afford the farmer those facilities in preparing his grain for market and in feeding his stock that he ought to possess if he is to make the most of his land? We fear that it is impossible to give affirmative answers to these queries. Travel where one may he is sure to see inferior ill arranged inapplicable suites of farm buildings, which if good for anything are at least particularly adapted for rendering the everyday labours of the servants employed in tending the stock much less productive of practical results than they ought to be. Even where large and expensive homesteads have been constructed there is evidently in many a case a great deficiency of *practical* skill on the part of the designer. The various houses which ought to be ranged as nearly as possible alongside each other are perhaps placed on opposite sides of the steading. Instead therefore of the daily operations being carried on with the least possible expenditure of labour, they must be undertaken under all the disadvantages resulting from the buildings being unsuitable for the objects they were intended to serve. It is the farmer of course who suffers for all this, and it is not too much to say that on many a farm an inconvenient farmstead will entail a direct loss upon the profits of 50*l.* or 60*l.* a-year. Should a homestead on the other hand be so designed that a short and direct communication can be kept up between the different compartments requiring to be contiguous to one another, the farmer will without fail be a gainer, even perhaps in a greater degree than he is himself aware of.

It was long supposed to be indispensable to the production of a farmstead possessing anything like passable convenience, that it should consist of a series of buildings ranged round a central open yard, constituting the cattle sheds and dung court. As the roofs were usually unspouted and poured large quantities of water into the centre area, there was seldom any occasion on which complaint could justly be made in regard to the excessive richness of the manure. Home-made dung taken from such a court after being deprived of its soluble salts—which had possibly gravitated in a liquefied form to some neighbouring stream—had really very little fertilising effect. Well, both that the manure of the farm might be of better quality, and that the every day work on the farmstead might be more expeditiously gone about than was possible in an ill-arranged steading on the *open* principle, covered homestalls were introduced. By means of a properly designed enclosed steading, all the different divisions of which are practically under one roof, there can be no doubt that an immense saving of labour may be effected. But here comes the question put by almost every proprietor who is doubtful of covered homesteads being superior to any other—is it possible to secure good ventilation? And let it be at once admitted that it is a difficult matter to give good ventilation in buildings so arranged; but it is not by any means an impossible one. The plan is to supply pure air in small quantities at points where it can be conveniently admitted,—whether in the walls or roofs—in a much larger quantity aggregately than is necessary for the support of the respiration of the accommodated stock. If this is *properly* done, and the interior of the steading is kept scrupulously clean, there will be no fear of defective ventilation.

There are many cases, however, in which a combination of the *open* and the *covered* arrangement can be adopted with greater advantage than if either principle were adopted separately. The straw barn and the forage store should be placed alongside the feeding-house—in a great measure under one roof—and the stables, cart-houses, and other buildings, ought to be erected with sufficient open space in front to admit of the yard work connected with them being readily undertaken.

Whatever the nature of the farm buildings may be that are to be erected in any case the fact cannot be kept too distinctly before the mind, that unless the designer of such erections is practically acquainted with farming, and really knows the requirements of a farmstead he cannot satisfy practical men when his plans come before them. *M.*

A TABULAR STATEMENT

OF THE RESULTS OF HARDY AND SONS' TWENTY EXPERIMENTS OF GROWING CORN ON THEIR TWO FARMS, MALDON, ESSEX, 1856. THE PRODUCE SHOWING THEIR LOSS OR GAIN.

LIMBOURNE BROOK FARM.

No. of Field.	No. of acres.	Variety.	Seeding per acre.	Produce per acre.	Weight per bushel.	State of the Land.	How planted.	How cleaned and cultivated.	Expense per acre.	Weight of straw.	When sown.	Last crop	Dunged or not.	No. of Experiment.
1st	4¼	True Egyptian White Mummy	½ a bushel	5 qrs. 5 bush.	66 lbs.	Poor, & foul, mixed soil.	Drilled at 5 rows on each stetch of 7 ft. 4 in.	Scarified & hoed twice, & weeded	20*s.*	Very heavy and useful	November (too late)	Various seeds	Slightly dunged.	1
2nd	10	Rough Chaffed White	1 bushel	5 qrs.	64 lbs.	Poor & foul, heavy clay	Drilled 5 rows on 7 ft. 4 in. stetches	Scarified & hoed twice, & weeded	20*s.*	Heavy	November (too late)	Clover	Burnt earth and dung	2
"	"	A certain portion of 1 stetch	¾ thinned out by hand	2½ pecks	Best and heaviest.	...	...	...	...	Heaviest	...	...	...	3
"	"	Same portion on adjoining stetch	Not thinned out	2 pecks	64 lbs.	...	...	...	...	Heavy	...	...	...	4
3rd	2	Rough Chaffed	2 bushels	3 qrs, 4 bush.	64 lbs.	Poor & clean mixed soil	Broad casted	Hand hoed and weeded	6*s.*	Light	December (too late)	Peas and seeds	Dunged well	5
"	"	Certain portion of 1 stetch	1½ pecks	...	...	...	...	...	8*s.*	50 lbs.	...	...	...	6
"	"	Same portion of adjoining stetch	¾, thinned out 1¾ pecks	Heaviest	...	...	...	...	8*s.*	43 lbs.	...	...	...	7
"	"	1 stetch	1 bushel	5 qrs.	64 lbs.	...	...	...	8*s.*	Heavy	...	...	...	8
4th	8	Tartarian Oats	2 bushels	Not threshed estimt. 6 qrs.	Fine	Poor & foul	Broad casted	Charlock, weeded by women	12*s.*	Heavy	March (too late)	Various seeds and Wheat	Dunged slightly	9
"	"	1 stetch	¾ thinned out	8 qrs.	Heavy	...	...	...	...	Heaviest	...	...	...	10
"	"	Adjoining stetch	1 bushel	7 qrs.	Heavy	...	...	...	...	Heavy	...	...	...	11
"	"	Next stetch	3 bushels	5 qrs.	Light	...	...	...	...	Light	...	...	...	12

KNOWLE'S FARM.

1	8	Prolific Red Wheat.	½ bushel	4 qrs. 6 bush.	60 lbs.	Good, but very foul	Drilled 5 rows on each stetch.	Scarified, hoed, and weeded	20*s.*	Heavy	October	Peas	Half dunged: the other half best sample	13
2	2	Prolific Red and	1 peck	4 qrs.	60 lbs.	Good, but very foul	Drilled 2 rows on each side of the stetches	Scarified and hoed	20*s.*	Heavy	October	Beans	No dung, 60 bushels soot on the 2 acres	14
		Early Potatoes	6 bushels	100 bushels	56 lbs.	Good, but very foul	Drilled one row on the middle	3 feet space out of 4 forked	20*s.*	Dwarfy and light	March one centre row	Beans		15
"	1	Prolific Red	½ bushel	4 qrs.	60 lbs.	Good, but foul	Drilled 4 rows on a stetch	Forked and scarified	25*s.*	Heavy	October	Beans	...	16
"	1	Prolific Red	½ bushel	3 qrs. & good plant Lucerne	56 lbs.	Good, but foul	Drilled 4 rows on a stetch, and sowed broadcast with Lucerne	Weeded by hand, and hoed	30*s.*	Light, and corn blighted	October Lucerne in March	Beans	...	17
"	½	Prolific Red	¼ peck; transplanted 1 foot apart	4 qrs. Very fine	60 lbs.	Good, but very foul	4 rows on a stetch	Scarified, hoed, and forked	40*s.*	Very heavy	Sown in August, and transplanted in October	Beans	...	18
"	½	Prolific Red	½ bushel	1 qr.	50 lbs.	Good, but foul	4 rows on a stetch	Hoed	10*s.*	Failure, seed destroyed	March seed eaten by rooks	Beans	...	19
"	½	Peruvian Skinless Barley	1 pint	6 qrs.	60 lbs.	Good, but foul	4 rows on a stetch	Hoed	5*s.*	Heavy	March	Beans	...	20

DOES DEPTH COMPENSATE FOR INTERVAL IN LAND DRAINAGE?

MR. HEWETT DAVIS has put the question which demands the greatest attention from all those who are interested in land drainage—does depth compensate for distance? My own opinion is very decided on the point. In clay soils increased depth does *not* practically compensate for increased distance between the drains, although in theory depth should doubtless have an influence which should reduce the number of drains in any given space. The demands of vegetation and provision against injury fix the minimum depth at 4 feet. The cause of nearly all the dissatisfaction and disputes that have arisen is owing to the false calculations which have been made on the strength of this theory. No one of any experience has ever denied that gravels and sands will drain at distances proportionate to the depth of the drains! But do not let us mix the two questions. The question to be put and answered distinctly is, will clay lands answer to the compensating theory profitably!

Will you favour me by transferring to your columns the following extract from my recent paper on the Keythorpe Drainage, which I think will illustrate the question reverted to by Mr. Davis? *J. Bailey Denton, 52, Parliament Street, Westminster.*

The following is the passage alluded to:—

I am quite aware that persons of high character are to be found who uniformly prescribe a parallel arrangement of drains, and are content to deal singly with any field or area. Dense clays, of absorbent and retentive qualities, requiring *close* parallel draining and all the amelioration to be derived from uniform circulation of air and water throughout their mass, are thus treated in the same manner as the water-bearing strata of natural porous character, in which increased depth will compensate for increased distance, as was proved so triumphantly by the late lamented Mr. Livesey, of Stourton. Homogeneous soils, uniformly wet, are being treated similarly to diluvial, or drift gravel and sands exhibiting only partial wetness, in which a few occasional drains will do the service of a multitude, and little or no distinction is made between the more regular surfaces of the later deposits and the irregular and abrupt surfaces of the older formations. Hence, the denser clays and flatter lands are frequently not half drained, while the money thrown away upon other descriptions of soil and surface by unnecessary drains would, if applied to the clays and flat lands, secure for them the full benefit which they are capable of deriving from drainage, bearing in mind the homely truth, that all the draining in the world will not convert a soil with sixty per cent. of clay into a marl with its due proportion of lime, nor into a loam with its proportion of sand. It was only a short time back that I had occasion to look over some draining in progress by means of the Government Loan. The owner was dissatisfied both with the cost and the results. I found the work was entrusted (as is very usual I am sorry to say) to the superintendence of the bailiff, a very good farm servant, no doubt, but whose experience in draining was limited to the *drainage* of some 50 or 60 acres of one description of land. The clay lands, some of which were remarkably stiff, and contained 84 per cent. of clay, were being drained in precisely the same way as the marls with 56 per cent. of lime and the loams with 72 per cent. of drift-sand and gravel, and 10 per cent. of calcareous matter. When I asked the bailiff why he had adopted this uniform method of proceeding, he answered, "It is the Government system. I accompanied the inspector when he came here, and he told me he thought an 'average' width of 9 yards would do very well, and that if I did not exceed 6*l.* per acre the application would be allowed. So I have been very particular in keeping to the 'average' of 9 yards; I have not varied it an inch, and as it has not cost the money we spoke of I expect there will be no difficulty about it. I have been very particular," he again repeated with emphasis, "in keeping to the 9 yards, all 4 feet deep. The inspector may measure every drain if he pleases." This instance is literally true. The bailiff had drained 234 acres of land at a cost of 1164*l.*, without knowing the meaning of the word 'average." At least half the money had been thrown away, and the clays were still insufficiently drained. The denser clays should have been drained at intervals of 6 or at most 7 yards instead of 9 yards. To put intermediate drains between the existing drains will be doing, therefore, more than was originally necessary, although it is now the only way of effecting a remedy. The marls would have been effectually drained 13 or 14 yards apart, and the loams would have been effectually drained by a few occasional deep drains in the slacks and hollows, with spurs to meet outbursting springs or the diffused water of pressure, which the equi-distant drains of 9 yards apart as often missed as hit. How numerous are the cases of which this is typical!

MEMORANDA FOR THE AGRICULTURAL STUDENT.

IV.—LIMING, MARLING, CLAYING, AND BURNING SOILS.

Liming is done either in abundance once every quarter of a century or thereabouts, or less abundantly at shorter intervals. It is well to give an abundant liming on newly broken-up lands. The necessity of a recurrence to it will not arise for 20 years or more. And then, seeing that the fertility which is thus induced will, if well managed reproduce itself, I would again give an abundant liming—although the theory of the practice is on the side of small limings at frequent intervals.

Lime renders clays more friable—facilitates the cleaning of light lands—quickens the decomposition of vegetable matter in peaty soils and elsewhere—makes all soils more productive. Lime improves produce as to quality as well as quantity. The Turnip crop is healthier after it, the Barley crop is bulkier and ultimately better, Pulse crops are benefited by it, Potatoes are rendered more mealy and better. Read *Eng. Ag. Soc. Journ.*, vol. ii., p. 180—p. 410; vol. vi., p. 93; vol. xi., p. 409; *Highland Soc. Trans.*, July 1856, p. 347. Lime effects all this good by neutralising acid nuisances in the soil, by decomposing the vegetable matter it contains, by detaching useful mineral matter from useless positions in the soil, by directly furnishing a substance plants need as food; or by increasing, as Mr. Way believes, the powers of the soil as an absorbent of ammonia directly from the air; and by detaching from the stores of ammonia in the soil portions for the immediate use of plants. Lime should be applied hot from the kiln, on soil which does not hold water stagnant in it. It should be put dry on a dry soil, and may be either first made into compost with earth or laid out in small heaps and covered over, to be afterwards spread and ploughed shallow in. It may be applied either on a stubble which is to receive manure some months afterwards for a green crop, or directly previous to the seed time of a grain crop. As good a time as any is on a Clover stubble previous to ploughing it up either for Wheat or Oats. It is better applied when the soil is rich in vegetable matter than when all its efficiency will depend on what it can extract from the mineral part of the soil. The cost of the operation depends on the price at kiln (3*d.* to 6*d.* per bushel), distance of kiln (1 to 20 miles), subsequent manipulation (spread from carts or made into compost), quantity supplied (40 to 500 bushels); every particular varying so much that the total may be 1*l.* to 6*l.* or 8*l.* per acre. One bushel of lime weighs 80 to 100 lbs.—a cart load is 20 to 24 bushels. One load of shells loaded for the road will make 2 or 3 loads of slaked lime loaded for the field. Lime varies much in composition. In the following Table 1 is for Sunderland; 2 for Langton, Berwickshire; 3 for Burdie House, Edinburgh; 4 for Antrim; 5 for Dublin; 6 for Cirencester, in Gloucestershire; 7 and 8 for Connemara.

	1.	2.	3.	4.	5.	6.	7.	8.
Organic matter	0.50	...	...	...	...	...	...	...
Carbonate of lime	94.32	43.64	80.12	90.63	68.0	95.3	43.8	49.3
Carbonate of magnesia ...	2.00	33 49	.91	.38	...	.74	21.2	35.9
Alumina and oxide of iron	2.93	1.06	5.87	.08	9.5	...	...	...
Siliceous matter	...	21.5	15.15	.45	18.	2.9	20.2	2.6
Phosphate of lime	...	...	...	.1	...	.12	14 8	8.5

The following Table gives the composition of the ash or mineral part of our several crops, and indicates therefore the demands made by each on the lime as well as on the other mineral substances of the soil. Read chapter on Lime in Professor Johnston's "Agricultural Chemistry and Geology."

	Ash in 100 parts.	Ash in artificially dried plant.	Potash.	Soda.	Magnesia.	Lime.	Phosphoric Acid.	Sulphuric Acid.	Silica.	Peroxide of Iron.	Chloride of Sodium.	Chloride of Sodium.	No. of Analyses.
Wheat (grain) ...	1.67	1.93	29 97	3.90	12.30	3.40	46.00	0.33	3.35	0.79	0.19	...	32
— straw	5 10	3.84	12.14	0 60	2.74	6.23	5.43	3.88	67.88	0.74	0.22	...	10
Barley (grain) ...	2.34	2.43	19.77	3 93	8 55	2.58	35.20	1.03	26.49	1.43	0.47	...	10
— straw	5.36	...	18 40	0.68	4.13	8.08	3 20	2.13	54.56	3.33	6 95	...	3
Oats (grain) ...	2.90	3.02	16.76	2.49	7.70	3.92	18.19	1 29	47 08	0.64	0.20	0.14	7
— straw	5.10	...	19.14	9 69	3.78	8 07	2.56	3.26	48.42	1.83	...	...	2
Rye (grain)	1.35	1.60	26 00	7.91	11.17	4.19	46 34	0.71	3.36	1.25	...	0.26	3
— straw	...	...	17.19	...	2.41	9.06	3 82	0 83	64.50	1.36	0.57	0.49	...
Field Beans ...	4.00	...	33.25	10 60	7.99	5.77	37.57	1.00	1.14	0.56	0.81	...	3
— straw	...	...	53.08	1 60	6.69	19 99	7.24	1.09	7.05	0.22	4 26	...	4
Field Clover ...	3.00	...	36.30	7.11	8.54	5.36	33.52	4 39	0.52	0.08	2.16	...	4
— straw	...	...	4 73	...	6 88	54.91	4.83	6 77	20.03	0.40	...	...	...
Vetch	2.40	...	30.57	9.56	8 49	4.79	38.08	4.10	2.01	0.75	2.00	...	...
— straw	...	...	35.49	1.02	6 36	38.33	5.49	2.39	8.66	0.17	2.75	...	...
Hemp, whole Flax	6.37	4.54	9.93	0.50	5.47	42.91	5.26	1.28	8 20	2 71	1.41	...	4
Flax	6.05	...	19.13	6.96	4.59	21.05	9.87	6.54	5.62	3.85	5.80	0.81	9

	Ash in 100 parts.	Ash in artificially dried plant.	Potash.	Soda.	Magnesia.	Lime.	Phos. Acid.	Sul. Acid.	Silica.	Peroxide of iron.	Chloride of Sodium.	Chloride of Potassium.	No., of Analyses.
Turnip bulbs ...	0.78	5.43	36.98	6 76	3.61	11.14	9.74	12.43	3.43	1.00	7.85	0 59	10
Turnip tops ...	...	17.0	28 65	5.41	3.09	23.27	9.29	12.52	0.86	0 86	Cl. 16 05	...	...
Beet bulbs ...	0.88	6 30	30 80	12.19	2.91	3.65	4 19	3.03	4.44	1.24	24.55	...	4
Beet tops ...	1.87	...	21.26	7.01	8 66	8.65	5.15	5.80	1 99	0.96	33.96	...	...
Carrot roots ...	0.91	6.6	32.44	13.52	3 96	8.83	8 55	6.55	1.19	1 10	6 50	...	...
Carrot tops ...	4.12	18.2	7.12	10.97	2 92	32.64	1.67	6.20	4.56	2.40	13.67	...	...
Potato tuber, carbonic acid being deducted ...	...	3.92	55.75	1.86	5.28	2.07	12.57	18.64	4.23	0.52	7.1	...	...
Potato tops ...	...	14.96	28.02	16.26	7.09	16.96	7.62	6.88	3.85	1.05	Cl. 12.33	...	...
Cabbage leaves ...	...	22.0	11.70	20.42	5.94	20.97	12.37	21.48	0 75	0.60	Cl. 5.77	...	...
Meadow hay ...	...	8.06	21 73	4 85	4.91	13.93	9.85	3.15	29.77	1.53	8 86	...	4
Sainfoin	...	6.50	29.61	1.25	4.59	29.67	9.97	2.33	3.49	0 58	3.12	...	...
Lucerne	...	9.55	14.03	6 44	3.64	50.57	13.68	4.23	3 46	0.63	Cl. 3 3	...	...
Red Clover ...	...	11.17	16.10	40.71	8.28	21.91	4.12	1.06	2.60	0 40	4.73	...	...
Clover	...	7.7	35.47	0.67	8.40	32.80	8.40	3.33	7.06	0.40	5 8	...	...
Rye Grass ...	...	5.89	8.03	2.17	4 01	6.50	12.51	...	64.57	0.36	...	...	...
Hops	...	...	19 41	0.70	5.34	14.15	14.64	8.28	17 88	2 71	8 0	...	...
(Whole plant) ...	...	9.87	25.18	...	5.77	15.98	12.13	5.41	21 50	5.12	7 24	1.67	...
(leaves)	...	13.6	14.95	0.39	2.39	49.67	3.52	5.04	12.14	2.41	9.49	...	...
(bines)	...	3.74	24.35	...	4.10	38.73	6.92	3.44	6.07	0.25	6.47	6 94	...

Marl is of service because of the lime which it contains—because of the clay which it contains—and because of phosphoric acid or other substances which it may contain. Its services in agriculture are proved by the agricultural history of West Norfolk, of the Lincolnshire Fens and Wolds. The chalk marls have all the effects which characterise the use of lime. The cost of marling where the clay lies below the land, and 100 cubic yards per acre are applied, amounts to 85*s.* to 50*s.* an acre, according to the depth from which it is dug. Read on the subject vol. viii *Eng. Ag. Soc. Journ.*

Chalk marls vary much in composition—some lying under the chalk beds, containing large quantities of phosphate of lime—while other marls, also called chalk marls, in a similar geological position have been found to contain no lime at all, but large quantities of soluble silica, to which no doubt their efficiency is due. The so-called shell marl found on the shores of Cornwall and some parts of Ireland is carted long distances inland and applied to soils destitute of lime with good effect.

Burning soils is adopted to destroy unnecessary vegetable matter (Lincolnshire fens—peaty soils generally), to bring a newly broken up turf quickly into tilth, to render clays more friable, and to calcine calcareous soils. Peat ashes are made by burning for 2*s.* to 2*s.* 4*d.* per cubic yard. Turf is pared by breast plough for from 10*s.* to 18*s.* per acre, according to its toughness, and burned for from 10*s.* per acre, according to quantity of material, and the ashes may be spread for from 2*s.* to 4*s.* an acre. Burning is best done slowly for vegetable soils, in order that much may be merely charred. Clay-ashes are rendered useless by too rapid and intense a heat. Read Dr. Voelcker in *English Agricultural Journal* on this subject.

"Stifle burning," as carried on in the calcareous clays of Gloucestershire, is the best method of conducting the operation.

The burning of clay soils after drainage has in many instances proved of wonderfully fertilising influence. For instances, see *Journal English Agricultural Society*. Mr. Randall, of Eversham, and Mr. Baker, of Writtle, both describe their experience, the one in Worcestershire, the other in Essex.

FARM-YARD MANAGEMENT.

I conclude this series of letters by some remarks on the management of the farm-yard. If any one wishes to know how a farm is managed, let him go to the homestead and see the order things are kept in there. Should he find the stacks in the barn-yard like so many uncouth monster bundles of some ravelled material or other, pitched down anywhere at random, he may rest assured that the same slevenliness and want of arrangement will pervade every department of the farming operations. And if he go into the stables and cattle-houses and there find everything in a dirty reeking state, and the poor animals necessarily in a comfortless condition, he may be quite certain that the cultivated land on the farm is foul and badly managed also. No doubt there are cases in which the carrying out of a proprietor's or a bailiff's hobby, may result in some particular department being remarkably well managed, while others are in a great measure neglected: but these instances are exceptional, and in no way invalidate the assertion that in the majority of cases the order in which a farm-yard in all its parts is kept, may be taken as a true index of the general management of the farm. I shall describe very shortly the way in which the farm-yard ought to be kept.

Beginning with the stack-yard, it may be premised that no extra labour is incurred in so arranging and erecting the various ricks, that they shall both have an orderly and a neat appearance. It is the flat-headed and bulging stemmed stack that takes in rain most readily, and yet to the unskilful stacker the labour of building it is much greater, than that which the more handy man experiences in erecting his straight and neatly crowned rick. Then, even in thatching there can both be expedition, efficiency, and neatness, while by a rough heedless casting on of the straw there is considerable risk of inefficiency. The judicious manager of a barn-yard will see that the stacks are neatly built, well hearted, and carefully thatched at the earliest possible convenience. How much injury has been done in such a wet harvest as that of this year by leaving stacks unthatched for several days after they have been put up! Surely there can be no difficulty in having a liberal supply of straw and ropes ready for use, and a spare man or two to put them on at once. And would it not be of great advantage on large farms to have felt roofs in pieces to fit on to stacks of different sizes? A few light hooks and eyes attached to the overlapping pieces of felt, and strong cords to tie them down, would enable a man to protect a stack in a few minutes from the effects of either wind or rain. As soon as time permits, all the stacks in the barn-yard should be neatly trimmed. The saved heads of grain are worth something, but more than this, who would ever think of seeing a set of ragged unfinished stacks in the barn-yard of a properly managed proprietor's farm? Neatness of course is just as necessary in the erection of hay and straw stacks as in any other kind. No better evidence of mismanagement could be afforded than broken stacks of fodder rotting and growing green from rain being admitted, and yet the sight is by no means rare.

Another department of farm-yard management is the making of manures. Judging by the carelessness which is often witnessed in the preparing of yard-dung even by those who think themselves good farmers, one might almost be led to conclude that instead of its being a valuable fertiliser which cannot be dispensed with, it is a waste substance that must be got out of the way. How wasteful is it, for instance, to permit the very essence of a manure heap to flow into the nearest stream! A wise man this John Bull who so well knows the value of far-fetched guano, but who cares little about equally potent fertilisers at his own door. And then, apart from the liquid drainings, how careless good John is about the solid yard manure which will not do him the service of running away. Is it wet straw or mouldy hay he exposes in that way to be dried by the action of a scorching summer sun! Not at all, he is merely elevating the temperature a little of good "muck" that it may warm the soil when it goes into it. What does he care about ammonia or all the other hard-named stuffs which these fireside farmers, the chemists, tell him the sun and the wind will deprive him of! His father made good "muck" heaps before the half of these hairbrained fellows were born, and why therefore should he give any attention to them! It is

to be feared that on home farms, as well as elsewhere, there is much mismanagement in this department of farm economy.

A manure heap should be looked upon as a store of treasure—which it really is. Now as atmospheric action deprives it of some of its virtues, nothing can be more obvious than that it should be prepared under cover, and when stored at any time in the open field it ought to be carefully covered up with soil; but even in the every-day treatment of a manure heap much may be done to ensure its being of maximum value as a fertiliser, provided always, of course, it is the exuviæ of well-fed animals. When the cleanings of stables and cattle stalls are regularly spread, mixed together, and slightly watered, the fermentation of the heap is more uniform, and from various causes the manure is of better quality than it could otherwise be. And how much valuable manure may in many cases be made on a home farm by collecting vegetable and refuse matter of every kind, and after taking means by fermentation to destroy the vitality of the seeds it may contain, putting it either into the bottom of the manure court or into convenient heaps where the drainings from the latter can be thrown over it! Peat, road scrapings, and even clay may at very little expense be converted into excellent fertilisers by any farm bailiff who knows how to make the most of his half idle workmen in wet or stormy days. A cheaply formed compost house adjoining the manure-yard will always be found a profitable erection in which to carry out these operations. All the yards and roadways about the homestead should be frequently scraped and kept perfectly clean, and the collected material, if mixed up with some other substances and well saturated with urine, will make a superior manure for Turnips. With the view of converting straw into dung the yards of some farms are thickly laid over with it, but at best this is an unprofitable and slovenly way of making use of straw. Far better to procure cattle or pigs to act merely as manure-making machines than to follow such an unremunerative course.

Let us enter the farm buildings and see how the horses and cattle are accommodated. Here is the stable—but what is the matter with our olfactory nerves? Are our "noses out of joint" that they thus play false with us? Oh no! they are right enough; only we have got rather a sharp smack of the ammoniacal condiment with which John Bull thinks it right to season his horses to keep them "fresh" according to his pleasure. Rather a curious astringent that, John, and possibly you would do better to have a little "fresh" air in its place. Well! it is a fact that many stables, and those too connected with home farms, are disgracefully deficient in respect to ventilation, and are far from being in that cleanly state which they ought to be kept in. It is often the fault of the architect, but as frequently that of the farm servants, who studiously close up with straw every aperture they can reach. While care should be taken to admit a sufficient quantity of pure air, without producing injurious currents, it is necessary also to keep the floor of the stable scrupulously clean. Washing out with cold water is seldom thought of, but rarely can stables be kept perfectly sweet-smelled without occasionally having recourse to it. Of course in every case sawdust moistened with sulphuric acid, or ground gypsum should be scattered on the causeway to fix the volatile ammonia.

The cattle stalls and boxes are not so liable to be foul-smelled as the stable, but under bad management the animals are just as likely to be kept in a dirty uncomfortable state. When feeding animals are constantly tied up it is indispensably necessary to clear out the gutters twice a day—morning and evening. If this is done and the stalls neatly bedded with clean straw it will add greatly to the comfort of the cattle, and of course to some extent hasten the laying on of fat, or promote the secretion of milk if the stock is a dairy one. All the cattle houses ought to be occasionally washed out and kept as clean as possible. Cleanliness in any kind of cattle stalls, but particularly in those belonging to a dairy farm, is not only advantageous, but is indispensably necessary if first-class management is aimed at. In the care of cattle-boxes less attention is needed than is requisite with stalls. If the animals get plenty of straw and have their boxes cleaned out from time to time they need little other attention to ensure cleanliness. In every well-managed homestead both the horses and tied-up cattle will be well combed and cleaned; and while due attention will be given to the admitting of sufficient pure air, cold currents from open doors will be carefully prevented. Foulness in the skins of animals, either in the house or in the field, is usually the effect of mismanagement, and anything of this sort should never be seen on a farm which is in the proprietor's hand, for bad as it is on a let farm it is still worse there.

The only other point I shall allude to is the management of the barn. Those bailiffs who neglect to have the barn machinery well cleaned out after one kind of grain has been threshed before beginning to thresh another, do much injury by mixing varieties, and on the farms under their charge it is a rare thing to get a pure sample. As changes of seed are or may be expected to be more frequently made on home than on leased farms, and as tenant farmers sometimes think to get purer seed from their landlord than from a neighbouring farmer, it follows that the mixing of seed in the barn of the former may produce a double evil—a bad sample and want of confidence in example farming. Order, cleanliness, and neatness, are essential to the judicious managing of the barn. Every measure dish and each kind of riddle should have a place for itself, and when not in use be always found in its place. To prevent the sacks from disappearing—as they are in some cases very liable to do—there should be a drying place specially provided for them, where being kept under lock and key, the barn care-taker will be held responsible for the number he is entrusted with. Trivial as these and many other matters—which I must not refer to—may seem, it is only by strict attention to them that a farm can be managed in a really commendable manner.

To make home farming remunerative extravagance of every kind must be avoided, but at the same time the whole operations should be conducted in a substantial and masterly way. There is one rule which ought at all times to control the actions of a farm manager. The rule is this—nothing that can be well done to-day should on any grounds whatever be left undone till the morrow. If a bailiff cannot put this safe rule into practice of his own accord, there should be some power over him that by a judicious—not a petty interfering—pressure will insure attention to it. *M.*

Home Correspondence.

Nitrophosphate or Blood Manure—I find in your Paper of the 7th inst. a paragraph upon blood manure. Will you oblige me by inserting in your next that the blood manure I recommended in my scheme of agriculture is the Nitro-phosphate or blood manure patented by a Mr. Odams, and sent out in bags marked "Blood Manure"; so if Mr. Spade objects to its name I must refer him to Mr. Odams. Thanking you for the honour of having my scheme of agriculture in your Paper, *Thomas Baker, Bury Farm, Stapleford.*——One of your correspondents denounces the practice of vending artificial manures under misleading, if not altogether false appellations. I have a more serious complaint to prefer from being victimised as a purchaser of nitrophosphate, or blood manure, such was the name, recommended in a well-printed circular, with respectable names as directors of a company engaged in its manufacture. Last year I had a few bags of this Turnip manure, from the use of which no effects were discernible. Subsequently it was analysed, and reported to be all but worthless. Thus are farmers annually imposed upon unless they resort to vendors of established reputation, or take the security of an analysis previous to use. The more generally this plan is adopted the sooner will rubbish, under whatever imposing name, be expelled from the markets. *A Devonshire Farmer.*——Referring to the letter of a correspondent in a late number of your Journal calling attention to the misapplication of the term "blood manure," and at the same time pointing out what blood manure should be, and what the article sold under that term is, I would wish to put this question—as your correspondent says he manufactured a manure similar to that now sold under the title of blood manure by mixing blood with phosphates of lime and sulphuric acid, I should feel obliged if your correspondent would be good enough to describe the materials used, and the date when he began to manufacture such a manure. *Chemicus.*

Management of Grass.—I hoped to have seen some reply to the invitation in your leading article on the management of Grass land. I have a meadow which when I bought (with the farm) in 1853 was a bed of Rushes and rough sown coarse Grass. It had been mown time out of mind, dressed with ashes and fed by milch cows. I drained it 4 feet deep in the winter 1854-5, and drew a quantity of earth and rubbish on it. It was mown in 1855; there was a fair average crop, and the Rushes had in a great measure disappeared. In the spring of 1856 I applied superphosphate about 6 cwt. to the acre; the effect was astonishing—the Grass has been luxuriant, sweet, and full of Clover, no Rushes, no sour rough Grass, but a rich beautiful herbage of which the cattle are very fond. I keep a number of milch cows stalled, from 15 to 30, and they are turned into this meadow for some hours daily; they are always contented and never break the fence. I must add that my bailiff (who is one of the old school) attributes the vast improvement in this meadow as much to the drainage aud rubbish as to the superphosphate. I have another meadow which only came into my hands last Michaelmas. I have drained it 4 feet deep, and I shall dress it with bones or superphosphate. This meadow is now in about the same state as the other meadow was two years ago. I expect to make it as good as the other by similar treatment. *B. H. P.*

Damaged Clover Seed.—Having been unfortunately a grower of Clover seed this season, which, in consequence of the wetness of the weather, has become very much damaged, as I find to be generally the case in this district, I was induced to tell off a small quantity from the sample and divide it into two separate lots. These were sown in two separate pots and plunged in a hotbed; the result is that of the 137 seeds of Purple seed which appeared to be good 88 seeds only vegetated; of the Brown or damaged seed 250 seeds were sown, and 108 only vegetated. This was a fair proportion as to the general sample, which stands in the following arithmetical proportion:—Entire number of seeds sown, 387; number vegetated, 196; this is only five seeds more than one half. There was not any apparent difference in the vigour of growth in the plants from the damaged seeds. Therefore we might infer from this trial that it would be quite as economical to purchase fine new seed that could be warranted at 5*l.* per cwt. as to give 50*s.* per cwt. for the inferior or damaged. *John Rivers, Giffard Farm, Gilston.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *March* 4.—Mr. EVELYN DENISON, M.P., President, in the chair. Thirty-one new members were elected, and 14 candidates proposed.

FINANCES.—Mr. Raymond Barker, chairman of the Finance Committee, presented the monthly report on the accounts of the Society, from which it appeared that the current cash-balance in the hands of the bankers was 1613*l.*

EXPENCES.—Lord Portman, chairman of the Expences Committee, transmitted the report of that committee, the details of which, in the absence of his lordship, were explained by the President. The following resolutions were in reference to its recommendations:—

1. On the motion of Mr. Raymond Barker, seconded by Colonel Challoner, That no Pavilion-Building should this year be erected for the purpose of a dinner at the country meeting.

2. On the motion of Mr. Brandreth Gibbs, seconded by Mr. Turner (of Boston), That the General Salisbury Committee be requested to report to the Council under what other circumstances a dinner of the Society could most conveniently take place at the Salisbury meeting.

3. On the motion of Colonel Challoner, seconded by Mr. Hudson (of Castleacre), That Mr. Manning's offer to undertake the show-yard works at the Salisbury meeting be accepted.

4. On the motion of Mr. Hudson (of Castleacre), seconded by Mr. Turner (of Boston), That in the Implement Catalogue at the Country Meetings, the entry of each article should not exceed 12 lines of printed matter: the first six to be free of charge, but the remainder (one or more up to six) to be paid for by the exhibitor, at the rate of one shilling per line.

5. On the motion of Mr. Fisher Hobbs, seconded by Mr. Shuttleworth, That the exhibitors of implements should in future pay 2*s.* per foot run for the amount of shedding 20 feet wide, which they may engage to be constructed for them at the country meetings, by the Society's contractor of works.

The Report was then referred back to the Committee, with a request that the remaining topics of its recommendations might be printed and sent round to the several members of the Council for their consideration.

PRIZE ESSAYS.—Mr. Thompson, chairman of the Journal Committee, reported the renewal of the Prize for Microscopical Investigations; and the request that Members of Council would favour the Committee, before the 1st of May, with their suggestions of subjects for next year's prizes for essays.

CHEMICAL LECTURES.—Mr. Wren Hoskyns, chairman of the Chemical Committee, reported the recommendations of that Committee on the subjects of the Lectures to be delivered this season before the Members by Prof. Way, the Consulting-Chemist of the Society.

SALISBURY MEETING.—Mr. Cavendish, vice-chairman of the General Salisbury Committee, presented the report of that committee, detailing the steps they had taken in conjunction with the mayor of that city, for the preparation of the land for the purposes of the show-yard and the trial of field implements.

STEWARD OF CATTLE.—In the absence of Mr. Milward, the resolution of which he had given notice was carried unanimously, on the motion of Mr. Fisher Hobbs, seconded by Mr. Turner (of Boston), that Mr. Robert Smith should be appointed one of the stewards of cattle at the country meetings of the Society, in the place of the late Mr. Woodward.

TRUSTEE.—On the motion of Mr. Raymond Barker, seconded by Colonel Challoner, Mr. Bramston, M.P., was elected one of the trustees of the Society, to supply the vacancy occasioned by the decease of the Duke of Rutland.

JUDGES.—On the motion of Mr. Fisher Hobbs, seconded by Lord Feversham, a committee was appointed to inquire into, and report to the council, the best mode, in their opinion, of nominating and selecting judges for the country meetings of the Society.

LECTURES.—On the motion of Mr. Hudson (of Castleacre), seconded by Mr. Druce, it was arranged that Lectures by Professors Simmonds and Way should be delivered before the Members in the Council Room on the first Wednesdays of the ensuing months of April, May, June, and July, at 8 o'clock in the evening; the subject of the first of these lectures to be that of *Guano Deposits*, by Professor Way.

ARABIAN GUANO.—The President favoured the Council with the result of his interview with the heads of the Government in reference to the supply of Guano from the Kooria Mooria Islands. He reported that he had endeavoured to bring the arrangements between the discoverers of the Guano Islands and the Government to a satisfactory conclusion; and that the following terms had been settled between the Government and Messrs. Hayes & Co., according to which guano from the Islands on the coast of Arabia is to be imported into this country. Messrs. Hayes give up all pretensions to a monopoly under their grant. They propose to throw the trade open to all ships from the ports of this country, and to permit them to load on payment of the royalty of 1*l.* per ton, the Government having promised the presence of a ship of war for the security of the trade. It will be the interest of Messrs. Hayes to introduce into the United Kingdom, in the course of the next four years, during which their grant lasts, the largest possible quantity of guano. In this way their interest and that of the public becomes identical. They estimate that 100,000 to 150,000 tons of guano may be imported by next spring. This the President regarded as likely to be a most important service to the whole farming community, as the quantity and the open market must preserve a moderate range of prices. In the event of this being realised, no one, he thought,

would grudge to the discoverers the full and ample remuneration which such an importation of guano would afford them.

POLISH MURRAIN.—The Earl of Clarendon transmitted a despatch from the English Vice-Consul at Lubeck, stating that the murrain had again broken out in Mecklenburg; and that in consequence the authorities of Lubeck had prohibited the introduction of horned cattle from that State, unless provided with a certificate declaring them to be free from the disease. This despatch was referred by the Council to Prof. Simonds, the Veterinary Inspector of the Society, for the favour of his report.

VIENNA AGRICULTURAL MEETING. — The Imperial Agricultural Society of Vienna requested the Council to favour them with a deputation to the ensuing great meeting to be held in that city.

The Council adjourned to their Weekly Meeting on Wednesday, the 11th of March.

CHEMICO AGRICULTURAL: ULSTER, *Feb.* 6.—*Remedy for Diseases of the Skin.*—Mr. M'Leish read the following statement:—

"Permit me to call your attention to a material that I have used extensively for the last 25 years, and which, during a great portion of that time, had the effect of curing diseases of the skin of animals, such as scratching of the heels, irritation on the skin, mange, &c. I have also applied it to ring-worm on children, with perfect success, and to an old wound on a man's leg that, with the constant irritation, used to break out into an angry sore, with the same result; eruptions on the beard, and, in one instance, on the head, where the hair fell entirely off in consequence of a fever, and the skin was broken out in small ulcers all over, and where a great variety of specifics had been tried without the least success. After a few applications the head began to clean; and now there is a fine crop of hair, and the skin soft and pliable. In fact, everything in the shape of cutaneous disease, wherever I have applied this substance, has totally disappeared. The material itself is so simple, so easily procured, so cheap, and so perfectly harmless, should it not even do any good, that I hope its publicity, should you consider it of sufficient consequence to deserve that honour, will prove as useful to the friends of this society as I have found it to a very great number in my own experience. The article I refer to is the common Ammoniacal Liquor of the Gasworks, and the only thing to be observed particularly is to procure it perfectly free from tar, which can be easily done by filtering through paper; and where too strong to add a little water. How far this would answer for scab on sheep, I have not had an opportunity of judging, but from its uniform efficiency in removing cutaneous diseases in every instance where I have applied it, I have not a doubt of its usefulness in that particular."

Farmers' Clubs.

CENTRAL, *March* 2.—Mr. Owen Wallis in the chair. Subject, *The Improvement of Poor and Hilly Lands*, by Mr. Smith, of South Molton, Devon. After a few suitable remarks from the chairman—

Mr. Smith observed that "The best means of Improving the Cultivation of Poor and Hilly Lands" could not have fallen upon a member who is more completely surrounded by ground of that character than himself. The enclosing and reclaiming of poor land has long engaged the attention of the English farmer, and we have only to point to the marked success that has followed the enterprise and outlay of capital upon the lands of Norfolk, the heaths and wolds of Lincolnshire, the chalks of Wiltshire, the clays of Sussex, the fens of Cambridgeshire, or the reclaiming of hilly wastes, to show what has been done in days gone by. The great feature of these improvements appears to have been that of an admixture of soils. For instance, the sands, heaths, and wolds have been consolidated by marls, others by chalk, the peaty fen lands by clay, while the clays have been changed by draining. And mark! the whole of these mixtures have taken place with one common view of producing a soil that should, as nearly as local circumstances would admit, approach the valuable characters of our mixed loamy soils. The poor and hilly lands of England embrace a wide and formidable acreage of our island; they stand as beacons for extended enterprise. The questions then, arise—What are the local and peculiar influences bearing upon these poor lands? Why should they not receive a spirited outlay for their improvement? It is evident that for such an enterprise extraordinary encouragement and assistance must be given by the landlord. This may be given by low rents, long leases, permanent improvements, liberal security for unexhausted investments, or by artificial manures. This leads to the inquiry as to which soils are fit for improvement. The soils not susceptible of improvements are the siliceous or sandy, the peaty or vegetable, the calcareous and the clays. The siliceous are poor indeed. This arises from their being so remarkably porous in their nature that they can neither collect food nor retain manures that are put into them. Still, they have the merit of warmth on their side, and may, consequently, be made to bear good crops by the application of marl, clay, or chalk. This mixture has the desired effect of giving a more retentive soil, which, when coupled with the natural heat of the original soil, produces excellent crops, especially roots, from the more early germination of the seed. The peaty soils are of little value until they have been cultivated. These are improved by "claying," as adopted in the south of Lincolnshire, and Cambridgeshire. The calcareous soils, taken as a whole, are capable of improvement. These soils, being possessed of carbonate of lime in themselves, and not unfrequently resting upon heavier soils, which may be subsoiled to good effect, they are best improved by artificial manures and root crops. The poor clays are the least desirable of all soils, on account of the heavy outlay in cultivation, and the length of time occupied before they can be brought to pay, or even into a manageable state. Their poverty originates in the saturated state they have got into. Suitable drainage is the only safe passport to their permanent improvement. Having so far touched upon the characteristics of our poor soils, I now proceed he said to notice their capabilities of improvement. These may be reduced to two heads—viz., the light and heavy soils. The light soils embrace the sandy and chalk downs, heaths, and peaty ground. These, as previously mentioned, have been susceptible of improvement by the free admixture of marl or clay as a top dressing; but these practices have been frequently arrested by the difficulty of application, and the prospective difficulty in harvesting the crops upon hilly lands, while other poor lands have remained uncultivated from local difficulties or want of capital. Let us take an acre of average land, as Nature formed it, upon poor hilly ground, and give an estimate of its cost and produce during a period of four years, at the end of which we may fairly calculate that the land ought to be in an efficient state to be cultivated under the usual rotations of a farm. In carrying this plan of improvement out, I propose that the four years' rotation should be—1st year, roots, after the land has been properly broken up and manured, &c.; 2d year, roots a second time, grown cheaply; 3d year, seeded down with artificial seeds, after the Turnips, with a corn crop; 4th year, growing seeds, to be grazed by sheep. Such a system as this can *now* be most easily carried into effect by the free use of artificial manures, after the lands have been consolidated by marl, according to ancient custom. The consumption of these green crops by sheep upon the land has a decided effect upon the permanent improvement of the soil—first, by enriching it to an enormous extent; and secondly, by the mechanical effect produced upon the land by their feet. I need scarcely remark that, if artificial food were given to the sheep during the consumption of these crops, the work of improvement would be complete. The cost of improvement upon the light lands will stand thus:—

FIRST YEAR'S cost for Turnips.	£	s.	d
Paring and burning, or otherwise cleaning the surface soil	1	5	0
Two ploughings, draggings, rollings, &c.	1	5	0
One hundred loads of marl, at 9*d.* per load	3	15	0
Two cwt. guano, sown broadcast	1	10	0
Two cwt. superphosphate and farm ashes, drilled ...	1	0	0
Turnip seed, sowing and setting out, &c.	0	10	0
Rent and rates (should be nominal)	0	10	0
	£9	15	0

SECOND YEAR.—Turnips again.			
Ploughing, dragging and rolling, &c.	0	15	0
Artificial manures and ashes, drilled	1	10	0
Turnip seed, &c., rent and rates	1	0	0
	£3	5	0

THIRD YEAR.—Seeded, without corn.			
Ploughing, dragging, rolling, &c.	0	12	6
Artificial Grass seed, Rape seed, and sowing	1	0	0
Rent and rates	0	10	0
	£2	2	6

FOURTH YEAR.—Seeds for grazing.			
Top-dressing of artificial manure	1	10	0
Rent and rates	0	10	0
	£2	0	0

SUMMARY.—Cost of the four crops.			
First year's outlay	9	15	0
Second do.	3	5	0
Third do.	2	2	6
Fourth do.	2	0	0
	£17	2	6

Interest of capital, wear and tear of implements, &c., not charged.

SUMMARY.—Value of the four crops.			
First year's return, 17 tons of Turnips, at 6*s.*	5	2	0
Second do. 20 tons of Swedes and Hybrids, at 7*s.*	7	0	0
Third year's return, eatage of new seeds and Rape ...	2	10	0
Fourth do. seeds for grazing	2	10	0
	£17	2	0

It will be seen by this calculation, that the improvement of poor lands is a work of time and outlay of capital, but can be effected in the character of a commercial transaction—and this, if wished, without the cost of farm-buildings to any extent during the first four years of a lease. Still this can only be done by men of capital under long leases, low rents, and security for their unexhausted investment. These improvements have been effected by tenants' capital; but I see no reason why a landlord should not contribute his part in the shape of marling or artificial manures for the light lands, upon the same principle as he would drain the clays. This would be an equitable course, and make our figures more readable. This system of green crops and sheep farming is strictly applicable to all dry soils, especially such as have been over-cropped and exhausted of their vegetable matter. As regards the heavy soils, I would remark that these are proverbially wet and unkindly for tillage; and from their indisposition to the growth of roots, they are but rarely sought after. There are many varieties of clay, some of which are equal to any soils when drained, and afford good profit from their cultivation. But the very sound of a "poor clay-land farm" is enough for most men; and they rejoice in having nothing to do with. I need scarcely observe that efficient draining is the first great work to be performed. Then follows the pulverisation of the soil, to as great a depth as circumstances will admit, which may be accomplished by deep ploughing and subsoiling. The further improvement of the clays may be best effected by the growth of green crops, at the commencement of the rotation—not so much in this case for their consumption upon the land, as for the purpose of giving the newly-drained soil a sufficient time to correct itself before any corn crops are grown. The poor clays in their present state (without draining) are not to be trusted with the investment of tenants' capital; neither can they be improved by a tenant to a profit, as my subsequent figures will show. Therefore, for the permanent introduction of these soils into arable culture, some extraordinary efforts must be made, both by landlord and tenant. In the calculation for the light lands, it is shown that in four years the cost of their improvement (without wear and tear and interest of capital) will have been redeemed; but for the same work upon the clays full six years will be required to reinstate the outlay. With the view of showing the comparative data, I will supply a calculation extending over a six years' course of cropping, viz.:—

First Year.—Dead fallow, drained.
Second Year.—Spring fallows, liberally limed, then sown with white Mustard to be ploughed in; then sown with Grass seeds about the end of July.
Third Year.—Mixed seeds, mown.
Fourth Year.—Seeds for grazing, top-dressed.
Fifth Year.—Beans, sown on a winter furrow.
Sixth Year.—Wheat, sown with artificial manure.

STATEMENT OF OUTLAY.

FIRST YEAR—	£	s.	d.
By cost of draining (winter)	5	0	0
Three ploughings after draining, viz., in May, August (across), and November (for the winter) ...	1	10	0
Rent and rates (nominal)	0	0	0
	£6	10	0
SECOND YEAR—			
Spring ploughing, dragging, &c.	0	15	0
4 tons of lime, and carriage	4	0	0
Ploughing in lime and dragging, &c.	0	12	0
White Mustard seed and sowing	0	5	0
Ploughing in Mustard, &c.	0	10	0
Grass seed and sowing (end of July)	0	15	0
Rent and rates	0	10	0
	£7	7	0
THIRD YEAR—Seeds for Mowing.			
Rent and rates	0	10	0
FOURTH YEAR—Seeds for Grazing.			
Artificial manure, top-dressing	1	10	0
Rent and rates	0	10	0
	£2	0	0
FIFTH YEAR—Beans after Seeds.			
Winter ploughing	0	10	0
Seed Beans, sowing, and cleaning	1	5	0
Rent and rates	0	10	0
	2	5	0
SIXTH YEAR—Wheat.			
Broadsharing and cleaning Bean stubbles	0	15	0
Ploughing, dragging, and rolling	0	15	0
Artificial manure (broadcast)	2	5	0
Rent and rates	0	10	0
Seed Wheat and sowing	1	5	0
	£5	10	0

SUMMARY—SIX YEARS' OUTLAY.	£	s.	d.
First Year	6	10	0
Second Year	7	7	0
Third Year	0	10	0
Fourth Year	2	0	0
Fifth Year	2	5	0
Sixth Year	5	10	0
Total	£24	2	0

SUMMARY—SIX YEARS' RETURN.			
First Year—Dead fallow (no return)	0	0	0
Second Year—Eatage of young seeds	1	0	0
Third Year—Mixed seeds, mown, &c.	3	10	0
Fourth Year—Seeds for grazing	2	0	0
Fifth Year—Beans, 4½ qrs., at 26*s.*	8	2	0
Sixth Year—Wheat, 30 bushels, at 6*s.* 9*d.*	10	2	6
Total	£24	14	6

We have here the same dilemma in our profits as was shown in the cultivation of the light lands, and extending over a period of six years. This marked result clearly points to the conclusion that drainage must certainly be executed by the landlord, and if he paid for the lime in the second year, the tenant doing the carriage, he would reap his reward by improving the "fee simple" of the land, and also strengthen the position of his tenant, at the critical moment of his enterprise. There is yet this question to be answered,—Which are the best lands for future occupation, after they shall have been thus improved? I am aware that these soils have their several merits, and that they are adapted for two distinct branches of husbandry, and that while the one is producing roots, Grass, sheep, and corn, the other is producing Vetches, Beans, and Wheat. Upon this I venture no opinion, as, if I did so, it must necessarily lead me astray from my particular mission—that of introducing the subject upon the land. We now come to the poor hilly lands and commons. These are to be found in the more northern and western counties. They form a considerable tract of land, and require to be better known by the sons of agriculture in our thickly-populated counties. As an evidence of the increased interest taken in these open hill and common lands, I may refer to the extensive enclosures that have already taken place under the new enclosure act, and the enormous acreage that is now under the consideration of the Enclosure Commissioners. This progress is being made by the resident owners and farmers of the immediate neighbourhood. Another official instance may be given of these advances in Devon and Somerset. I will take these counties, and place them in juxtaposition with the favourite arable counties of Lincoln and Norfolk, to show their several assessed values for the property tax in 1815 and 1851. This is the official statement of their annual value of real property as assessed to the property tax, viz.:—

	1815.	1851.	Increase per Cent.	
	£.	£.		
Lincolnshire	2,061,830	3,009,456	46	106
Norfolk	1,540,952	2,463,893	60	
Devon	1,897,515	2,736,361	44	108
Somerset	1,900,651	3,111,703	64	

These comparisons give encouraging results, and show that we may yet see these almost countless acres of unimproved lands turned to a better account. These poor and hilly wastes, being usually situated in thinly populated and highly elevated districts, are not so suitable for the subsequent growth of corn as the poor sands and chalks of the more thickly populated and less elevated districts of the southern and eastern counties. In bringing these hilly lands into cultivation, it is usual, first, to pare and burn the surface soil and weeds. The land is liberally dressed with lime, and after the usual tillages, is sown with Turnips. I will give the cost, in comparison with the inland (improved) lands:—

UNRECLAIMED WASTE (DRY) LAND.	£	s.	d.
By paring and burning	1	0	0
By one ploughing and dragging, &c.	0	12	6
By 2½ tons of lime and carriage, at 20*s.*	2	10	0
By rent and rates	0	7	6
	£4	10	0

In the second year Turnips are again sown with artificial manures, or the land may at once be sown with Grass seeds without a corn crop, as otherwise adopted in the third year. The fourth year the seeds are grazed with sheep. The result of my farming upon this class of land has still further confirmed my views as to the value of green crops when these lands are first taken in hand. In conclusion he expressed a hope that as the wild duck and other water fowl have disappeared by the drainage of our fens—the rabbit warrens by the cultivation of the heaths and wolds—and the snipe by the drainage of our moors—we shall yet see our remaining difficulties overcome by the magical effects of artificial manures and successive green crops, as "the best means of improving poor and hilly land."

Mr. B. Webster asked Mr. Smith whether he was disposed to follow the course of proceeding which he had described if he were dealing with a soil and climate of a different character. Would he, for instance, apply it to the heaths of the dry portion of Kent in the vicinity of Tunbridge Wells?—Mr. Smith said it appeared to him that the general improvement of heaths, and of the class of dry lands referred to, would be obtained first by marling or chalking, and next by the use of artificial manures for the production of green crops. He would certainly be disposed to give animals artificial food.—Mons. Trehonnais wished to know what crop Mr. Smith would put on land newly gained from the sea—on such alluvial soil as was found in the eastern parts of the fens of Lincolnshire?—Mr. Smith said that alluvial soils would grow anything they pleased to grow in them. If they went deep enough they were sure to get a crop on the borders of Lincolnshire. In the case of alluvial soils, they had simply to clean the surface, and after that they might take a corn crop.—Mons. Trehonnais said he wanted to know what course of proceeding would be most advantageous. In France he had seen Grass growing spontaneously on lands newly reclaimed from the sea. That he had observed, for example, in Normandy, where a large bay having been reclaimed from the sea, the finest Grass grew spontaneously; and the question was, whether it were better to break up such land at once, or to let Grass grow upon it.—Mr. Smith said he should take Nature as his teacher. He had seen farming on both sides of the island—the dry side on the east, and the wet side on

the west. On the western side he tried an experiment in a Turnip field. He set apart an acre of land in the middle of a field, and prepared it in the usual way for Turnips—not drilling the Turnips—and they would perhaps be surprised to hear that that acre of land in the West of England was in the succeeding spring clothed with Grass. He should then in such matters take Nature as his guide. In a case like that which he had mentioned, he would grow Grass. In the other case referred to he would produce corn.—Mr. Sidney said he was glad that a subject on which there had been so much exaggeration had been treated that evening by a gentleman of great practical experience. There never arose a period of distress in this country, he added, but what some closet philosopher came forward with a scheme for putting an end to that distress by some patent mode of dealing with the waste lands of England. The other day, he said, there was a very large meeting of working men in Smithfield—not idle, worthless fellows, but industrious and respectable mechanics—and a gentleman of very mistaken views, though of very great talent and eloquence, introduced this subject. Mr. Ernest Jones told those whom he addressed, that there were in this country 20,000,000 of acres of good land which had never been touched by spade or plough; and that on these 20,000,000 acres of land a million families might be located as self-supporting English farmers; and he went on to tell his hearers a great many wonderful things in connection with this scheme. Mr. Sidney thought the present was a good opportunity of exposing the fallacy of such a scheme, which he statistically showed could never answer, and of informing the public that as a body farmers and all practical men were of that opinion. The acreage of waste lands he said was also very much over-rated; instead of 20,000,000 acres, as stated, he showed that leaving Scotland out of the question, there were not much more than 4,000,000 acres available for culture in England and Wales. After some further discussion on the subject of Mr. Smith's paper, the following resolution was proposed and carried; viz., that in addition to a judicious admixture by which most soils have hitherto been redeemed, poor hilly lands would now be most effectively improved by the free use of artificial manures, including lime, and the successive growth of green crops to be consumed upon the land.

LAXTON: *The Agricultural Sciences.*—Mr. W. Wallace Fyfe's address opened with some allusions to the present state of agriculture. He then proceeded to demonstrate the urgency for its promotion and improvement by exhibiting its bearings upon the questions of population and subsistence, as contrasted with the resources of the earth, and the industrial means of reducing pauperism and crime. He pointed out what agriculture in this country has to accomplish, in order to effect its share of social reformation, by giving a tabular statement of the waste and of the cultivated areas of the British Isles, and of the distribution of British culture—illustrating the accessions capable of accruing to the food of the population from what had already happened in the diminution of its consumption by horses since the introduction of railways, and the extension of steam power. He then proceeded to show the aid to be derived in agriculture from science, disposing of the roll of the applied sciences, as under:—

1. GEOLOGY, as representing the soil.
2. CHEMISTRY, as representing the relation of soil, plant, and animal.
3. VEGETABLE PHYSIOLOGY, as representing the life of the plant.
4. BOTANY, as representing the varieties and classification of plants.
5. ANIMAL PHYSIOLOGY, as representing the life of the animal.
6. ZOOLOGY, as representing the varieties and characteristics of animals.
7. METEOROLOGY, as representing climate, weather, and seasons.
8. HYDRODYNAMICS, as representing water, drainage, and irrigation.
9. PNEUMATICS, as representing the circulation of air, ventilation, &c.
10. MECHANICS, as representing implements, machinery, &c.
11. ENGINEERING, as representing agricultural operations, &c.

PROBUS.—At the annual ploughing match here the other day, Mr. Trethewy condemned the turnwrest plough. A few years since there was scarcely such a thing as a turnwrest plough, often improperly called a double plough. But at length the turnwrest ploughs came into general use, improvements were made in them, and at last it was thought no other ploughs were equal to them. The turnwrest ploughs in fact, in the hilly ground, were turning down the tops of the fields to the bottom, which rendered the upper part of the field quite useless, whilst the quantity of soil brought down was more than was required. In going over a farm with a tenant, who had a long two-acre field, and very sloping, he saw that the top of the field had been stripped by repeated ploughings, and a large portion of the soil turned down to the bottom, so that the farmer had only half of the field under the plough, and after some time would have none. Furze and Brambles had taken possession of the soil at the top, and followed down after the plough. He told him he saw the plough had notice to quit, being driven out by the Brambles and Furze. In Devonshire and Kent there were turnwrest ploughs, but not in many other counties, or in Scotland. They there ploughed straight up and down the hill, and consequently the soil drained itself. He did not know whether the common ploughs were not better for ordinary purposes than the turnwrest ploughs they used so generally in that district.

Review.

The Journal of the Manchester and Liverpool Agricultural Society, 1857. Haddock & Son, Warrington.

This pamphlet contains the general rules of the Society and its list of prizes offered for competition during the current year, viz. (1) for the best cultivated farm—for draining—for subsoiling—for irrigating—for laying land down to Grass—for marling—for tanks for liquid manure—for hedges; (2) for the best crops, Swedes, Mangel Wurzel, and Carrots; (3) for farm-servants and labourers; (4) for live stock, roots, seeds, and implements. The pamphlet also contains the general report of the committee for the past year, and the special reports of judges on the several classes competing during 1856. It concludes with a list of members of the Society.

In all respects it is a very full statement of the objects, methods, and to some extent the attained results of a Society which seems as thoroughly as any that we know to command the sympathies and rouse the energies of the agriculturists of a very interesting district.

We extract some passages descriptive of one of the "best farms" in the district of the Society's operations.

"Norley Hall, Pemberton, near Wigan, Reece Bevan, Esq., owner and occupier. Inspector's report: This farm contains 206 acres, and is this year in the following crops. Pasture, 60 acres; meadow, 38 acres, including 13 acres manured with dung-water, and 10 acres irrigated from a brook; Clover mown for hay and soiling, 29 acres; Vetches, cut for soiling, 2 acres; Wheat, 24 acres; Oats, off lea, 25 acres; Potatoes, 5 acres; Swedes, 7 acres; orchard, garden, homestead, occupation roads, woods, &c., 16 acres. Rotation adopted, 1st, Oats off Grass; 2d, roots, manured and cultivated in drills; 3d, Wheat; 4th, Oats; 5th, Clover and Grass seeds, to lie a few years. The stock kept are, 4 horses; 16 dairy cows; 6 stirks; 2 pigs, but generally more; 1 calf, but some years 5 or 6; total 29. Kept in summer on pasture, Clover and Vetches; and in winter on Turnips, oilcake, cut hay and straw steamed. Makes annually, on the farm, about 360 tons of manure. Purchases about 100 tons of horse and cow manure, 4 tons of guano, 3 of bones, and 15 of lime. Within the last 6 years 130 acres have been drained 3 feet deep and 15 feet apart. Some of mains are 10 feet deep, to enable pits and waste land to be drained. 45 miles of drains have been made, and the cost has averaged 6*l.* per statute acre. 4 miles of new Thorn fences have been raised. 15 acres have cost 10*l.* per acre in levelling and trenching, as the surface had sunk into holes, in consequence of coals having been got from beneath. 1¼ mile of a new occupation road has been made, at a cost of 500*l.* 8 acres of pits and waste land have cost 120*l.* to make into cultivable land. 65 acres have only been taken into hand this spring, and are yet undrained and unimproved. On the improved part, a great extent of old fences has been eradicated, but the length not stated.

"This farm lies in a wet climate, but not at a great elevation. Its surface, with the exception of a few fields, is tolerably level. The aspect inclines to the E. and N.E. The soil is a stiff clay loam, not very deep, and resting on a stiff tenacious clay subsoil. The homestead is central; the house and outbuildings are new, substantial, commodious, and convenient. An occupation road runs through the farm, and the fields lie right and left. This road has been well made, and is now in excellent order. The fences, on the improved part of the farm, (140 acres) have all been planted within the last six years, and have been kept clean, and cut to a hog mane shape, and are 4½ to 5 feet high, capital thick fences, 3 feet broad at the bottom. 10 acres of the 65 acres taken in hand this spring are old meadow irrigated from a brook, and require little improvement. The remainder is poor wet pasture with old bad fences upon it.

"On the improved part of the farm 4 acres of Wheat lost plant in the spring, and Oats have been sown amongst the Wheat, and both make a full crop. 4 acres of Wheat, sown this spring, after Turnips, are a very heavy, thick crop, but rather late and much ruffled by the rain, when inspected. 8 acres after Potatoes, a fine, thick, standing crop. 8 acres after Turnips, sown in autumn, with a white variety, a fine healthy crop and stood well. The 25 acres of Oats, a very thick strong crop. Clover and seeds of 1st and 2nd year, (then mown and carried) had evidently been clean heavy crops, and showing much Clover. Seeds of 3d and 4th year, fair crops of good herbage. Two fields showing a considerable portion of Cocksfoot and Timothy Grass, with a bottom of White Clover and Ribgrass. The Potatoes and Turnips were vigorous and clean, and the head ridges well fallowed and the fences dressed.

"There is shipponing for 24 cows, with good convenient calf bins; stable for 5 horses, loose boxes, and bull shippon. Large barn, threshing machine, a 6-horse steam engine, extensive steaming apparatus. Rooms for servants, tools, &c. A large and lofty dairy and milkhouse furnished with the best dairy utensils. In the farm-yard there is a circular tank, 10 feet diameter, and 8 feet deep, built and covered with brick work, and an iron pump fixed in it. In the dung yard there is a tank 27 ft. × 12 ft., and 4 ft. deep, covered with flags supported on iron pillars. There is also a rain water tank, near the house, of 7 ft. × 4 ft. and 6 ft. deep, arched over. There is an extensive piggery and yard. A convenient watering pond of about 30 ft. × 20 ft. All the field and yard gates are of iron, and the posts of stone. The whole premises, and all the improved part of the farm, are in perfect order, and exhibit considerable skill and perseverance in both proprietor and manager.—Inspected July 24th, 1856."

Miscellaneous.

Testimonial to John Hall Maxwell, Esq., C.B., Secretary to the Highland and Agricultural Society of Scotland.—The Scottish exhibitors at the late International Agricultural Exhibition held at Paris some time ago resolved to present Mr. Maxwell with a substantial mark of esteem—more especially on the ground of the valuable services rendered to them by him on the above occasion. The testimonial, consisting of two elegant silver soup tureens and surmounted with subjects emblematical of agriculture, was presented last week by the committee acting for the Scottish exhibitors, when Mr. Horne, of Langwell, in the name of the subscribers, presented the testimonial, and Mr. Maxwell expressed himself as highly gratified by this additional mark of their kindness.

Experiments with six Sorts of Manure.—In the month of February last, four different patches of 7 acres each were measured out and pegged on three farms near Tetbury, which we may call A, B, and C. The soil in each patch was part of the large field of stone brash, mixed with clay and barren sand in layers, which extends over North Wiltshire. The whole had been drained, but the herbage was poor, the Grasses coarse and thin, and the produce of hay in ordinary years seldom amounted to a ton per acre. In each of these patches the same course was pursued:—1 acre was left untouched as a standard of comparison; 1 acre was sown with 75 bushels of soot, at 6*d.* per bushel—1*l.* 17*s.* 6*d.*; 1 acre with 5 cwt. of bones, at 7*s.* 6*d.* per cwt.—1*l.* 17*s.* 6*d.*; 1 acre with 1½ cwt. of nitrate of soda, at 21*s.* 6*d.* per cwt., and 10½ cwt. of salt, at 1*s.* per cwt.—2*l.* 2*s.* 9*d.*; 1 acre with 5 cwt. of superphosphate of lime, at 7*s.* 6*d.* per cwt.—1*l.* 17*s.* 6*d.*; 1 acre with 3 cwt. of guano, at 12*s.* 6*d.* per cwt.—1*l.* 17*s.* 6*d.*; 1 acre with 7 loads of farm-yard dung, at 5*s.* per load—1*l.* 15*s.* At the time of the hay harvest an equal breadth was cut through the centre of these 7 acres, reckoned to be equal to one one-thousandth part of an acre; and in order to estimate the amount of hay which that Grass would produce 80 per cent. was deducted from the gross weights. The results were such as are shown below:—

		Weight of hay per acre, deducting 80 per cent. for drying.			Increased weight of manured over unmanured hay.			Increased value of manured hay at 8*l.* per ton.
		cwt.	qrs.	lbs.	cwt.	qrs.	lbs.	£ s. d.
Soot ...	A	26	3	34	4	3	8	0 14 6
	B	31	1	0	12	2	0	1 17 5
	C	12	0	16	4	1	4	0 12 10
Bones ...	A	26	3	4	4	2	16	0 13 11
	B	22	1	24	3	2	24	0 11 2
	C	9	0	12	1	1	0	0 3 9
Nitrate of soda and salt	A	23	3	20	1	3	4	0 5 6
	B	20	0	26	1	1	26	0 4 6
	C	6	3	24	0	3	16 loss	0 2 8
Standard...	A	22	0	16				
	B	18	3	0				
	C	7	3	12				
Guano ...	A	31	2	12	9	1	24	1 8 5
	B	26	1	10	7	2	10	1 2 9
	C	18	3	20	11	0	8	1 13 0
Superphosphate	A	28	1	16	6	1	0	0 18 9
	B	28	0	14	9	1	14	1 8 1
	C	17	3	12	10	0	0	1 10 0
Farm-yard dung	A	27	2	0	5	2	4	0 16 7
	B	20	3	9	2	0	9	0 6 3
	C	9	2	16	1	3	4	0 5 4

Mr. Sotheron Estcourt, in the Devizes Gazette.

Calendar of Operations.

MARCH.

FARM NEAR HEXHAM.—After one of the most various winters we remember, fine weather set in early in February, and has continued since, permitting the labours of the farm which had fallen into arrear to be brought up. A considerable breadth of Wheat after Turnips has been sown in good condition, though not to the same extent as last year. Should the fine weather continue a few days longer, Oat sowing will be commenced in dry and early situations. The Wheat sown before the new year is looking vigorous in spite of the trying winter. Seeds look rather weak and sickly; but if not checked by frost winds next month, we hope to have a good bite for our ewes and lambs. Turnips are plentiful, and since the favourable change in the weather both sheep and cattle have improved much, and are bringing long prices. *Hexham.*

Notices to Correspondents.

BOOKS: *A H L.* "The Dorking" and "Fowls" by Baily, 111 Mount Street, Grosvenor Square.

BUTTER: *H W.* The cows are no doubt out of health. Let them have exercise. Hay and water and exercise should make good milk and butter.

ECONOMIC MANURE: *Liverpool.* The things are no doubt the same. We have never yet seen a favourable report, except those published by the patentee.

OILCAKE: *Constant Reader.* Commence with ½ lb. daily, and increase to 1 lb. Rapecake has been given with equal effect. They will not eat it readily at first: but the first experience published of its efficiency—that of a Yorkshire farmer and land agent—was we believe on sheep.

SUBSTITUTES FOR GUANO; *X Y Z.* Superphosphate along with farm-yard manure is quite a sufficient substitute for guano for Swedes. Apply 3 cwt. per acre along with 10 or 12 tons of dung. Nitrate of soda, 1 or 1½ cwt., is better applied to corn crops, if used in place of guano.

SULPHATE OF AMMONIA: *J G.* One cwt. and a half or 2 cwt. of sulphate of ammonia per acre is a good dressing for an acre of Wheat. We would not apply superphosphate to grain crops; apply it to Swedes.

WHEAT: *S and W.* We regret that owing to absence from town the answer to your letter has been delayed; it will be sent to you privately

THE

ALEXANDRE HARMONIUM

AT

SIX GUINEAS.

ALEXANDRE AND SON have made this Harmonium at the lowest price possible, to bring the Instrument within the means of all Classes.

It is in an Oak Case, with four Octaves; is alike calculated for PRIVATE HOUSES and for CHAPELS;

AND IS

INDISPENSABLE TO THE SCHOOL ROOM.

(The Six Guinea Harmonium will be taken in exchange for any of the more expensive description, without loss or diminution.)

ALEXANDRE & SON OBTAINED THE SOLE MEDAL OF HONOUR AT THE GREAT EXHIBITION AT PARIS (1855).

Their Harmoniums have been pronounced the best by

ROSSINI, AUBER, ADAM, THALBERG, LISZT, &c.

AND BY THE

PROFESSORS OF THE CONSERVATOIRE DE PARIS.

THE MORE EXPENSIVE HARMONIUMS RANGE FROM

10 to 55 GUINEAS.

THESE ARE BROUGHT TO THE GREATEST PERFECTION, AND ARE EQUALLY ADAPTED TO THE

CHURCH OR DRAWING-ROOM,

AS AN

ACCOMPANIMENT TO THE VOICE OR PIANOFORTE.

MESSRS. CHAPPELL have just received a number of ALEXANDRE'S celebrated

HARMONIUM PIANOFORTES,

Which combine the excellencies of both Instruments. The two can be used in combination by the same performer, or each Instrument is perfect in itself. Price from Forty to One Hundred and Fifty Guineas.

AN IMMENSE STOCK OF

PIANOFORTES

BY THE BEST MAKERS,

From **TWENTY GUINEAS** upwards, which can be thoroughly recommended and warranted.

MESSRS. CHAPPELL & CO. have just opened a number of

NEW ROOMS FOR INSTRUMENTS,

Enabling the Purchaser to select a Pianoforte or Harmonium from the

LARGEST STOCK IN LONDON,

AND TO TRY THE MERITS OF THE VARIOUS MAKERS SIDE BY SIDE.

Full Descriptive Lists of Harmoniums and of Pianofortes will be sent on application to

CHAPPELL & CO.,

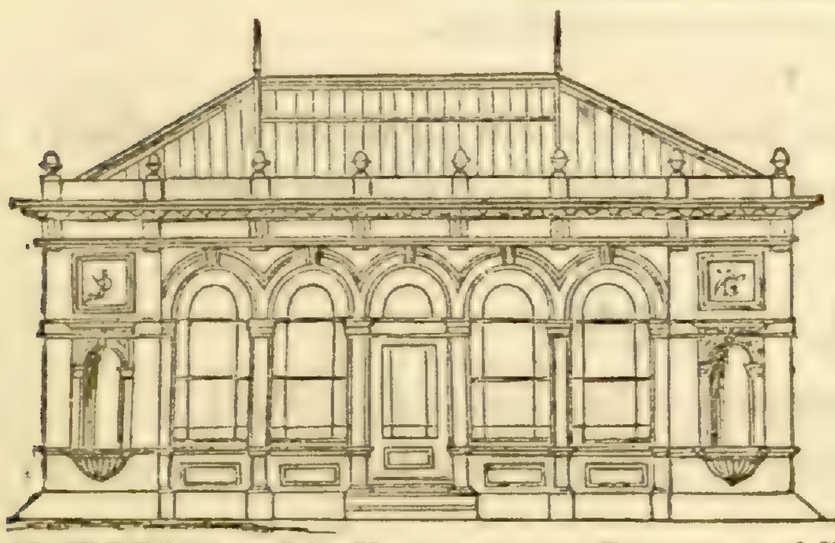
50, NEW BOND STREET, & 13, GEORGE STREET, HANOVER SQUARE.

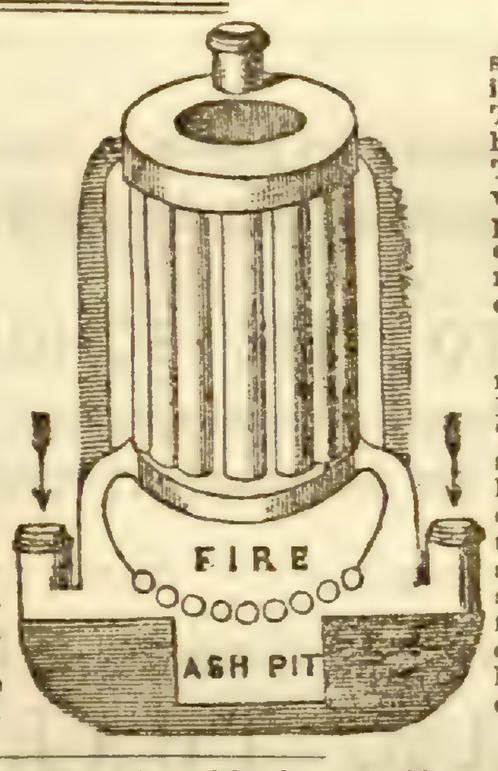
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

John Weeks & Co. manufacture *these* Boilers of all sizes The largest size measures 5 feet 6 inches high by 3 feet 6 inches diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

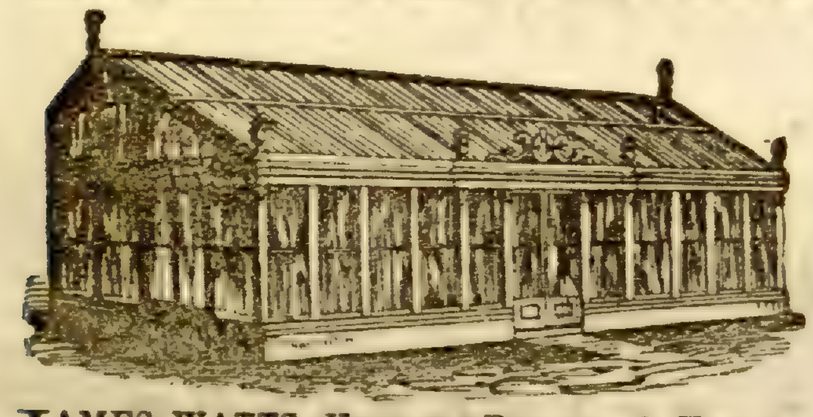
J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

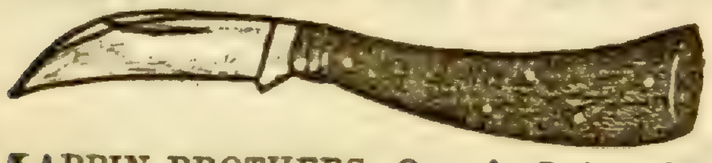
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility Gentry, and the Trade in most of the counties in England.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works. Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

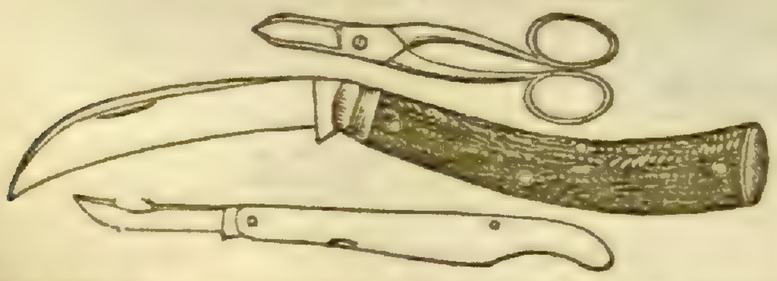
MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

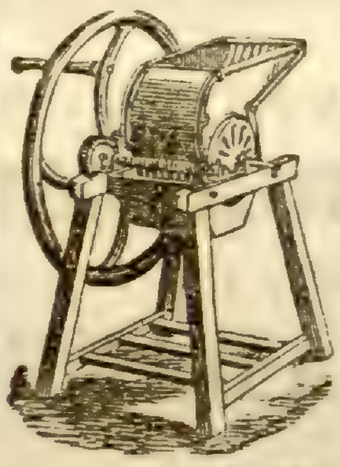
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

BENTALL'S PATENT PULPER.



Prices.	£	s.	d.
R. P. A.	8	8	0
R. P. B.	6	6	0
R. P. C.	5	5	0

THIS MACHINE is acknowledged by all who have examined it to be the best and cheapest yet invented as a Pulper. The subjoined trial by the Judges at the Bath and West of England Society goes far to put it in the best position.

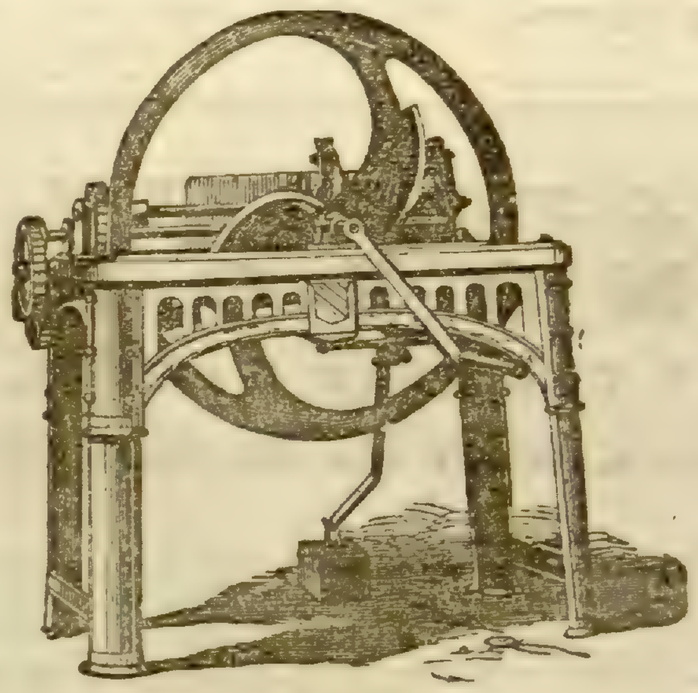
	lbs. of Mangel.	Revolutions.	Time.
BENTALL'S	43	118	2 minutes.
PHILLIPS'S	43	181	4 do.

It is quite true Mr. Phillips sued Mr. B. for an infringement of an alleged Patent granted to Mr. P. It is equally true that Mr. B. has got judgment against Mr. Phillips, who has paid the costs!!!

These Machines are sold by every respectable Ironmonger and Implement Vendor in the Kingdom.

☞ Manufactory, Heybridge, Maldon, Essex.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require." —*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY. PRESTON MEETING, 1856.

AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—

The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—

The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

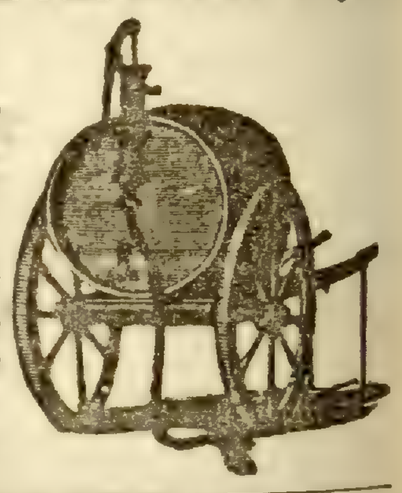
BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¼-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

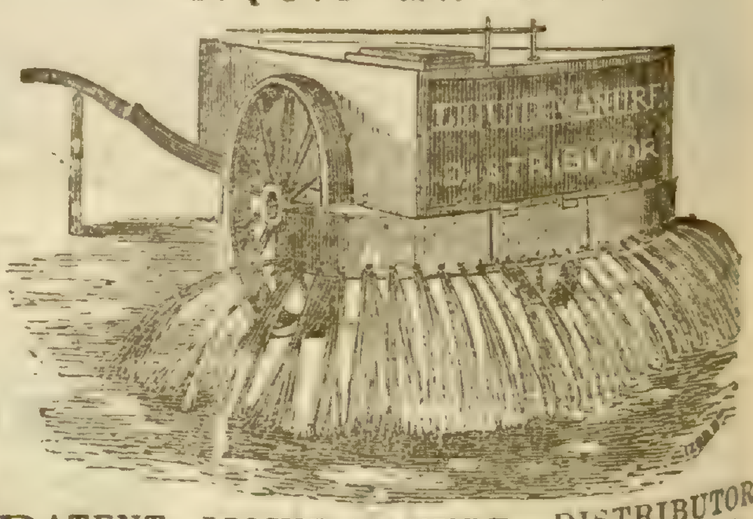
Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c. It has warranted not to clog up or otherwise get out of order. Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

PRIZES:—

A SPECIAL PRIZE at the Bath and West of England Show, 1856.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

THE VERY BEST MATERIAL

FOR THE PROTECTION OF BLOOMS OF PEACHES, NECTARINES, AND OTHER WALL TREES IS

SHAW'S TIFFANY.—A light, cheap, and durable fabric. Sold in pieces, 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece.—Sold by WM. WOOD & SON, appointed agents. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
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TO NURSERYMEN, ETC.

FOR SALE, 1500 large ARCHANGEL MATS, new.—GARNOCK, BIBBY, & Co., Patent Cordage Manufacturers, Liverpool.

FOR SALE, NINE NEW HOT and GREEN-HOUSES and CONSERVATORIES, from 8 feet to 32 feet in length, and which will be sold at Second-hand Prices, as the ground must be cleared at once. Standing at E. DENCH'S Patent Hot-House Works, King's Road, Chelsea, and at Granby Nursery Grounds, Mornington Place, Hampstead Road.

STANDARD ROSES, AZALEAS, HERBACEOUS PLANTS, &c.

MR. HASLAM will Sell as above, at the Mart, on THURSDAY, March 12, and every succeeding THURSDAY till April 2 inclusive. N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to the Parcels Delivery Company. Baskets and Mats allowed for when returned

Sales by Auction.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, March 12, at 12 o'Clock, 100 choice Double Camellias, from 18 inches to 5 feet, consisting of all the approved kinds, well set with bloom buds; Azalea indica; a choice assortment of Standard and Dwarf Roses; a fine collection of American Plants, choice Dahlias in dry roots, Pæonias, Verbenas, Fuchsias, Ericas, Epacris, Lilium lancifolium, &c.—May be viewed the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

IN BANKRUPTCY—COLCHESTER.

MESSRS. SMITH AND COBB (who are jointly employed) will Sell by Auction on TUESDAY, March 10, and following days, upon the premises, Lexden Road, Colchester, the splendid NURSERY STOCK of Mr. Horatio Bunting.—May be viewed prior to the Sale, and Catalogues had in due course upon the premises, or of the Auctioneers, Colchester, Essex.

TO GENTLEMEN, FLORISTS AND OTHERS.

MR. J. WILLMER begs to announce that he will Sell by Auction at the Mart, City, on WEDNESDAY, March 11, at 12 o'Clock, a first-class collection of CARNATIONS, PICOTEES, PINKS, DAHLIAS in dry roots, choice AMERICAN PLANTS, &c. On view the morning of Sale.—Catalogues at the Mart, and of the Auctioneer, Sunbury, Middlesex.

LEWISHAM, KENT.

TO NURSERYMEN, FLORISTS, GARDENERS, AND OTHERS.

MR. GEORGE F. CORBETT has been favoured with instructions from the Executors of the late Mrs. Willmott and Mr. B. Chaundy, the lease of the premises having expired, and the land being required for building, to Sell by Auction on TUESDAY, March 17, and following day, at 11 o'Clock each day, the whole of the NURSERY STOCK, comprising Evergreens, Forest and Fruit Trees, Deciduous Shrubs, a choice collection of Greenhouse Plants, &c. May be viewed three days prior to the Sale, and Catalogues had on the premises; at the Haunch of Venison, Maidstone; White Lion, Tenterden; Bull, Tunbridge Castle, Tunbridge Wells; Crown, Sevenoaks; Half Moon, Godstone; at the principal Inns in Bromley, Greenwich, Deptford, Woolwich, Lee, and Eltham; and of the Auctioneer, Land and Timber Surveyor, Lewisham, Kent, S. E.

LEWISHAM, KENT.

MR. GEORGE F. CORBETT has been favoured with instructions from the Executors of the late Mrs. Willmott and Mr. B. Chaundy, the Lease of the premises having expired and the Land being required for Building, to Sell by Auction, on THURSDAY, March 19, at 11 o'Clock, on the premises, near the church, Lewisham, the Agricultural Implements, Tools, and Utensils in Trade of the old-established Nursery, consisting of Carts, Waggons, Harrows, Ploughs, Handbarrows, and various Tools; also a quantity of Garden Lights, Hand-glasses, and the Brickwork to the ranges of Pits, Iron Pumps, and other items; a Stump of capital Meadow Hay, and a Stump of Clover.—May be viewed the day preceding and morning of Sale, and Catalogues had on the premises; at the principal Inns in Bromley, Sydenham, Deptford, Greenwich, Woolwich, Lee, Eltham, and Lewisham; and of the Auctioneer, Surveyor, and Appraiser, Lewisham, Kent, S.E

Sutton's Grass Seeds At the Royal Farms

Near Windsor, And in the Isle of Wight.

SUTTON'S GRASS SEEDS

FOR PERMANENT PASTURE, PARKS, AND LAWNS,

Are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

These Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.

Having for many years paid especial attention to the laying down Land to Permanent Pasture, we are well acquainted with the various soils of most parts of the United Kingdom, and the Natural Grasses suitable for each locality.

The following sorts may be had separate or mixed, at lowest market prices. All the best and most suitable of them are contained in our Mixtures. Cost of the best Mixtures for Permanent Pastures, **24s. to 32s. per Acre,** according to the sorts required for the land.

Alopecurus pratensis	Festuca elatior	Glyceria fluitans	Lotus corniculatus major	Phleum pratense major
Anthoxanthum odoratum	" gigantea	" aquatica	Medicago Lupulina	" " minor
Agrostis stolonifera	" heterophylla	Holcus lanatus	Poa pratensis	Petroselinum sativum
Avena flavescens	" pratensis	" avenaceus	" trivialis	Trifolium repens
Achillea millefolium	" ovina	Lolium italicum	" nemoralis	" pratense perenne
Cynosurus cristatus	" rubra	" perenne tenue	" angustifolius	" minus
Dactylis glomerata	" tenuifolia	" " Paceyanum	" fertilis	" hybridum
Festuca duriuscula	" hordeformis	" " sempervirens	" sempervirens	

There are now but few Counties in England wherein pastures may not be seen which have been formed with our Mixtures of Grass Seeds; it may therefore appear superfluous that we should publish anything in the way of testimonial. We will, however, quote the following from among many other letters now before us:—

From Mr. W. WARREN, *Bailiff to Lord Barrington, Beckett, Shrivenham.*

"The Grass Seeds we had last spring were most excellent."

From Mr. JOHN BRAKE, *Steward to Sir J. Palmer, Bart., Carlton, Rockingham.*

"Although drought prevailed throughout the last summer in this neighbourhood, the Permanent Grass Seed you supplied my friend with has now an excellent appearance, which is remarked by many."

From Sir WILLOUGHBY JONES, Bart., *Cranmer Hall, Fakenham Norfolk.*

"The Grass Seeds you supplied me with last year have produced an admirable pasture, far better than any seeds I have procured elsewhere."

From G. W. JOHNSON, Esq., *Editor of the "Cottage Gardener," West Highlands, Winchester.*

"Your selection of Grass Seeds answered perfectly on my soil:—a light loam on chalk, on the top of one of our conical-shaped downs."

From the Rev. JOSEPH GIBBS, *Clifton Hampton.*

"The pasture made with your Seed is every year improving, and getting more Clover in it; which is more than I expected, as the land hereabouts is not calculated to grow good natural Grass."

From the Rev. JAMES NIVEN, *Swanbourne Vicarage, Winslow Bucks.*

"The Grass Seed sown in March has proved very satisfactory. In ten weeks after sowing it was fit for grazing."

From Mr. DOWDESWELL, *Steward to R. B. Sheridan, Esq., Frampton Court.*

"The Grass Seeds turned out uncommonly well this season, and we have some very fine crops of Turnips, Swedes, and Mangel Wurzel."

From the Rev. Mr. WINGFIELD, *Gulval Vicarage, Penzance.*

"My Pasture, laid down with Seeds from you in March, 1851, is in a very luxuriant state, and in every way satisfactory. The Clover Seed, &c., sent during the present year, has grown admirably."

From W. W. ROOKE, Esq., *Woodside, Lymington.*

"The Grass Seeds you sent me were most excellent; every seed appears to have taken."

From Mr. YOUNG, *Gardener to the Right Hon. Earl of Craven.*

"His Lordship desires me to say, your Lawn and Park Grasses are most satisfactory."

From the Rev. A. HUXTABLE.

"Mr. Huxtable has the pleasure of acquainting Messrs. Sutton that their Grass Seeds of 1851 have turned out admirably."

From the Rev. THEOPHILUS SAULEZ, *Grazeley Parsonage.*

"As you are passing through Grazeley, I wish you would call and see my garden lawn, pasture, churchyard, which I sowed last spring with your Seeds, and this time last year was only a Bean field, but now a beautiful close green sward, and I am happy to say free from weeds."

From Mr. W. PRESTOR, *Kempshot Park.*

"In reference to the 20 acres of park laid down with your Mixture, it is utterly impossible (taking soil and situation into consideration) to have a better herbage than it does at this moment exhibit. The early kinds are now showing themselves very prominently; the Trefoils too are good and plentiful."

From Mr. J. A. LANGFORD, *Steward, Stonor Park, Henley-on-Thames.*

"Your Perennial Grass Seeds supplied to Lord Camoys some five years since, now affords a pasture that is the general admiration of the neighbourhood for its early springing, and the fineness and luxuriance of its herbage."

FINE LAWN GRASS SEEDS

FOR MAKING NEW OR IMPROVING OLD GARDEN LAWNS.

Price 1s. per lb., 2s. 6d. per gallon, or 20s. per bushel.

The following is an Extract of a Letter received from PROFESSOR LINDLEY.

"Messrs. Sutton:—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. (Signed) JOHN LINDLEY."

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

QUANTITY OF SEED REQUIRED.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming new lawns, 3 bushels or 60 lbs. is the quantity required per acre; or 1 gallon to 6 rods (or perches) of land.

FOR CEMETERIES, BOWLING GREENS, PARK LAWNS, &c., where the very finest kinds are not required, another mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16s. per bushel.

EXTRACTS FROM LETTERS RECENTLY RECEIVED.

From Mrs. EDWARDS, *Rhyd y Gois, Caermarthen, March* 26, 1856.

"The Lawn Grass Seed you sent last year turned out beautifully."

From WM. SYMONDS, Esq., 6, *Belfield Terrace, Weymouth, Aug.* 26, 1856.

"The Lawn Grass Seed I received from you answered admirably."

From Sir GLYNNE WELBY, *Denton Hall, Grantham, Oct.* 1, 1856.

"The Lawn Seed with which you supplied me last year answered perfectly."

From the Rev. F. KITSON, *Hemyock Rectory, Wellington, June* 17, 1856.

"The fine Grass Seed for Lawns which Messrs. SUTTON sent in the spring has given great satisfaction."

From Captain GAPE, *Portardulais, Llanelly, July* 5, 1856.

"Captain G. will be obliged by Messrs. SUTTON sending him more of the same Lawn Grass Seed as they sent him before, which was very good indeed."

Improvement of Grass Lands by Sowing Good Seeds of the most Suitable Kinds.

SUTTON'S RENOVATING GRASS SEEDS

Consist of the finest GRASSES and PERENNIAL CLOVERS, producing great improvement in the Pasture, and at a small expense. *Quantity of Seed required 8 to 12 lbs. per acre.* Price reduced to **9d. per lb., or 80s. per cwt.** Sow in February, March, and April.

The great improvement effected by sowing Messrs. SUTTON's Renovating Mixture is most satisfactory, and to those who have not studied the various properties and habits of Grasses, the results are quite surprising. The following extracts from letters are similar to many others received unsolicited:—

From Mr. THOMAS BOWICK, *Steward to Lord Leigh, Stoneleigh Abbey Farm, Feb.* 3, 1837.

"The RENOVATING MIXTURE with which you supplied Lord Leigh last season, for 40 acres of old turf, has more than equalled our expectations. We attended strictly to your suggestions for its application, and have every reason to be satisfied with the result. I would add that the other Seeds supplied have each proved clean, true to name, and active in vegetative powers."

From SHAFTESBURY WALMSLEY, Esq., *Mottistone, Isle of Wight, Oct.* 1, 1856.

"The Grass Seeds were extremely good and answered my purpose uncommonly well; they gave me a famous crop of hay last summer, 2½ tons per acre, where I never saw anything but bents and rubbish grow before. I strongly recommend your Renovating Seeds; they are clean, and I believe safely to be depended upon."

From Mr. J. HALLETT, *Blackford Farm, Highclere, October* 3, 1856.

"The Grass Seeds you sent me last season have given me the greatest satisfaction, inasmuch as the plot of ground where they were sown, which before seemed almost past growing anything, is now growing as beautiful a plant of herbage as any one could wish to see."

From ALEXANDER C. FORBES, Esq., *Swanston House, Whitchurch, Feb.* 16, 1856.

"You will be pleased to hear that the Renovating Seeds I sowed, and which I thought had failed, are now coming up in great abundance."

From Mr. G. NORRINGTON, *Rectory Farm, Taplow.*

"Five years ago I wrote to you to send me a Mixture of Grass Seeds to sow upon 10 acres of old pasture. At the time I took the farm the 10 acres of meadow were almost useless. I now have a most excellent pasture."

From Mrs. ANDREWS, *Norton Villa, near Swansea, Oct.* 6, 1856.

"Your Renovating Mixture we had last year more than answered our expectations."

From Mr. W. MEEKINS, *Gardener to the Dowager Lady Truro, Bowes Manor, Southgate, Sept.* 30, 1856.

"I am much pleased with the Renovating Seeds I got last season from you, as in every meadow where I sowed it I found great improvement both in quantity and quality, also the lawn was very much improved by the Mixture you sent me, and my employer was much gratified with the results both in our pasturage and on the lawns, and wishes me again to procure Mixtures from you when the time arrives for sowing."

From the Rev. JOHN GUTHRIE, *Vicarage, Calne, Sept.* 30, 1856.

"I have no hesitation in expressing my great satisfaction at the manifest improvement both to Lawn and Pasture from the seeds which I have received from you, though I was somewhat late in the sowing."

From C. F. THRUSTON, Esq., *Tulgarth.*

"Your Seeds have answered admirably. They were sown in spring, under rather unfavourable circumstances. The after Grass is remarkable, Clover and other Seeds springing up where nothing but the poorest pasture had been previously; and I think that a field of 9 acres sown with your Renovating Mixture is now one of the finest in the neighbourhood."

From Sir DAVID CUNYNGHAME, *Wellesbourne House, Warwick.*

"The meadows that were renovated with your Seeds are looking very well. I cut nearly 2 tons of hay to the acre, and three years ago the same land hardly produced half a ton per acre."

From the Rev. ALEXANDER WATSON, *Rectory, Bridestowe, Exeter, Oct.* 2, 1856.

"I am very much pleased with your Grass Seeds and Renovating Mixture. Your Beet also is a most brilliant and deep colour."

INSTRUCTIONS ON IMPROVING OLD PASTURES.

Heavy harrows should be drawn over the old turf early in the spring, to loosen the soil for the admission of Seeds of the finest and most nutritive kinds of Perennial Natural Grasses and Clovers, which, if sown freely, will occupy the numerous small interstices between the Grasses already growing, and thereby prevent the luxurious growth of coarse Grasses and noxious weeds. It is a good practice to sow these Seeds at the same time as the top-dressing is applied, but this is by no means necessary.

☞ Having greatly reduced the price of our **RENOVATING MIXTURE,** we doubt not that our liberal terms will encourage the more extensive use of the same. Our Grass Seeds have for many years been allowed to be the best, and now we may add that they are the cheapest. Meadows and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds. **Grass Seeds for Laying down Permanent Pasture, 24s. to 32s. per acre.** Seeds carriage free to all parts, except small parcels. Catalogues post free.

JOHN SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLATT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex. Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, March 7, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 11.—1857.] SATURDAY, MARCH 14. Price Fivepence. Stamped Edition, 6*d*.

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CRYSTAL PALACE FLOWER SHOW.—The SCHEDULES of PRIZES to be offered for Competition at the Exhibitions of the ensuing season are now ready, and may be had on application to the Secretary.

Crystal Palace, Sydenham, S.E., March 14. G. Grove, Sec.

Notice of Removal from 21, Regent Street.

THE MEETINGS OF THE NATIONAL FLORICULTURAL SOCIETY for the Season 1857 will be held in the Library of St. Martin's Hall, Long Acre, London, W. C.

Days of Exhibition.

THURSDAY, March 26.
" April 23.
" May 7, 28.
" June 11, 25.
" July 2, 23.
" August 6, 20.
" Sept. 3, 17.
" October 1.
" November 12.

At these Meetings Ferns, Orchids, Stove, Greenhouse, and hardy flowering Shrubs, together with florists' flowers, Horticultural inventions, &c., will be received and adjudicated upon, and Certificates in three degrees of Merit awarded to such as the Censors may deem worthy. All subjects are received Free of Entrance Fee, whether contributed by Members or otherwise. Subjects from a distance, if sent carriage paid and addressed to the Secretary, will be carefully repacked and returned. All subjects must be entered and staged by 12 o'Clock, and the Chair will be taken at 2 o'Clock of each day.

Annual Subscription, 21*s*.; Gentlemen's Gardeners, 10*s*. 6*d*.; to whom is distributed immediately after each Meeting a full and descriptive printed report of all subjects submitted, with the Special Awards of the Censors.—All communications must be addressed to 20, Sharp's Alley, London, E. C.

John Edwards, Secretary.

BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY'S EXHIBITIONS for 1857 are fixed to be held on the following days:—Summer Show, WEDNESDAY and THURSDAY, June 24 and 25; Autumn Show, WEDNESDAY and THURSDAY, September 16 and 17; on the same grand scale as in former years.

Schedules are now ready and may be obtained of the Secretary, or of E. Spary, Queen's Graperies, General Superintendent of Exhibitions, and

Thos. Attree, Esq., Chairman. Edwd. Carpenter, Sec.
Brighton, March 14. St. James's Street.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Council of the Botanical and Horticultural Society beg to announce that they have made arrangements with the Executive Committee of the "Art Treasures" Exhibition for an entrance from that building, and that the proprietors, with their families, together with the holders of the Botanical Society's Season Tickets about to be issued, will be admitted into the Gardens through that and every other entrance without charge.

The arrangements for the season are as follows:—

May 26 and 27.—Exhibition of Plants, Flowers, Fruits, &c.
May 29 and 30.—Exhibition of Tulips, adjourned from the Crystal Palace, Sydenham.
May to June.—Grand Exhibition of American Plants, which will continue for several weeks.
June 24 and 25.—Exhibition of Plants, Flowers, Fruits, &c.
Aug. 19 and 20.—Grand Exhibition of Carnations and Picotees.
Aug. 26 and 27.—Exhibition of Fruits, Flowers, &c.

In order to enable the public and strangers to avail themselves of these attractions, the Council are prepared to issue new Proprietors' Shares with all the privileges of present Membership at 5*l*. 5*s*. each, subject only to the future Annual Subscription of 1*l*. 1*s*., and also Season Tickets at 1*l*. 1*s*., admitting the purchaser only at all times during this year.

For Shares and Season Tickets, apply to the Secretary, 40, Princess Street, Manchester.

By order, John Shaw, Secretary.

Council Room, 40, Princess Street, Manchester, March 14.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that FOUR PENSIONERS will be added to the List in JULY next. All persons desirous of becoming Candidates are required to send in their testimonials and certificates to the Committee on or before MONDAY, the 13th APRIL next, after which time they will not be received. Printed forms may be had upon application.

By order, E. R. Cutler, Sec.

14, Tavistock Row, Covent Garden, March 14.

RHODODENDRON CAMPANULATUM (true), 1 to 1½ feet, very bushy, 4*l*. per 100.—The above handsome hardy Rhododendron may be planted for Ornamental Underwood where hares and rabbits abound. Here, although the winter has been very severe, not a leaf has been eaten.

CEDAR of LEBANON, strong plants, 1½ to 2 feet, 5*l*.; 2 to 3 feet, 7*l*. per 100.—Apply to William Jackson & Co., Bedale, Yorkshire.

AMATEURS AND GENTLEMEN'S GARDENERS may have a List of the few Seeds that are really useful on sending a directed envelope to G. Glenny, Dungannon House, Fulham, S.W. "GLENNY'S COMPANION" (with Portrait), and "GARDEN ALMANACK," 13 stamps each.

SUTTON'S FARM SEED LIST, with PRICES for MARCH and APRIL, is now ready, and will be sent gratis and post free.—Royal Berkshire Seed Establishment.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.

Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 14.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had gratis, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

THOMAS BARNES' CATALOGUE of New Dahlias, Fuchsias, Verbenas, Petunias, Chrysanthemums, Roses, Phloxes, and Miscellaneous Plants is now ready and may be had on application.—Dane Croft Nurseries, Stowmarket.

CHARLES TURNER'S SPRING CATALOGUE OF DAHLIAS, GERANIUMS, VERBENAS, FUCHSIAS, CALCEOLARIAS, and the Soft-wooded Plants is now ready, and contains many novelties offered for the first time. Can be had on application.—Royal Nursery, Slough.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GROOM.—H. MATTHEWS (Son-in-law and Successor to the late H. Groom), Florist and Nurseryman, Clapham Rise, Surrey, begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had post free on application.

VAN HOUTTE'S SPRING CATALOGUE will be ready at the end of this month, and then to be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

ROSES.

LOUIS VAN HOUTTE'S CATALOGUE OF ROSES is to be had at Mr. R. Silberrad's Office, 5, Harp Lane, Great Tower Street, London.—Ghent, Belgium, March 14.

SEEDS.

LOUIS VAN HOUTTE'S SUPPLEMENTARY CATALOGUE OF KITCHEN, FLOWER AND TREE SEEDS is now ready at Mr. R. Silberrad's Office, 5, Harp Lane Great Tower Street, London.—Ghent, Belgium, March 14.

The Seeds are delivered free in London.

FLOWER SEEDS.

12 varieties imported	FRENCH ASTERS	... ...	3*s*.
12 " "	GERMAN STOCKS	... ...	4*s*.
10 " "	MARVEL PERU...	... ...	2*s*.
12 " "	PRUSSIAN POPPIES	... ...	2*s*.

Seeds of the above can be had in packets mixed, 6*d*.
12 packets of the newest and best ANNUALS ... ... 6*s*.
Sent free on receipt of Post-office Order.—Joseph May & Co., 1, Wellington Street, Strand, near Waterloo Bridge.

THOMAS WILD, Ipswich, respectfully announces to the Horticultural world that his celebrated SEEDS are nearly sold out. Order without delay or disappointment will follow.

ASH-LEAVED KIDNEY POTATOES (Warranted True).

WOOD AND INGRAM beg to offer a very pure stock of the above at 6*s*. per bushel. Price to the Trade on application.—Huntingdon Nurseries, March 14.

FOR SALE, 30 to 40 Bushels ASH-LEAF KIDNEY POTATOES, warranted true.—Apply to W. P. Laird, Seedsman, Dundee.—March 14.

TO NURSERYMEN.—GRAPE VINES IN POTS.

J. EATON has a very fine Stock of GRAPE VINES struck from eyes, for planting out, strong, and quite ripe, from 4 to 6 feet long.

Shacklewell Road, Stoke Newington.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May price 5*s*.—To be had of Thos. Perry, Nurseryman, &c., Banbury.

WILLIAM FREMOW, Nurseryman and Florist, Turnham Green, W., offers 30 varieties of Showy Herbaceous Flower Roots for 3*s*. 6*d*. on receipt of postage stamps (carriage paid to London).

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

"TRUE BLACK BARBAROSSA GRAPES."

JOHN BUTCHER can supply fine Plants of this valuable late VINE, for quality and keeping superior to any late Grape in cultivation, for its merits Prizes have been awarded by the Horticultural Society of London at the following Meetings at 21, Regent Street:—October 19, 1852; October 18, 1853; February 21, 1854; February 6, 1855; March 18, 1856; March 3, 1857.—Fine Plants, 7*s*. 6*d*. each; good Plants, 5*s*.

Royal Nursery, Stratford-on-Avon.

NEW PHLOXES.—An extensive and select collection of the above beautiful showy tribe of Herbaceous Plants, comprising the fine and newly introduced varieties from the Continent. May be obtained at 10*s*. per dozen, package included.

Youell & Co., Royal Nurseries, Great Yarmouth, Norfolk.

NEW PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong Plants, well established in small pots, 10*s*. per dozen, package included.

Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

BOX EDGING.—Several thousand yards of the above in fine condition.—For particulars apply to

Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

DIELYTRA SPECTABILIS.—A quantity of very strong flowering roots of this beautiful hardy herbaceous plant, and well adapted for forcing, 9*s*. per dozen.

Youell & Co., Royal Nursery, Great Yarmouth.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.

John Sutton & Sons, Seed Growers, Reading, Berks.

NEW AND CHOICE PANSIES.

HART AND NICKLIN, Florists, &c., Guildford, beg to offer first-class PANSIES at 10*s*. per dozen, or three dozen for a guinea, free by post, or package included.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, March 14.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.

The American Nursery, Bagshot, Surrey.

SPECIMEN PLANTS OF TEA CLOIRE DE DIJON.

WM. WOOD AND SON beg to offer Specimen Plants of the above superb TEA-SCENTED ROSE in 9 to 15-inch pots. The plants are strong and bushy and are peculiarly adapted for exhibition. From 3*s*. to 5*s*. each. Hybrid Perpetual Roses in 6-inch pots on 4-inch stems, 24*s*. per doz.—Woodlands Nursery, Marestfield, near Uckfield, Sussex

VAN HOUTTE'S NEW ACHIMENES. — Subscribers in England: — Messrs. Hugh Low & Co.; R. Glendinning; James Veitch, Jun.; Wm. Rollisson & Sons.

TRADESCANTIA DISCOLOR VITTATA.

LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. and 35*s*. In London free.—Ghent, Belgium, March 14.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 3*s*. 6*d*. each, or 30*s*. per dozen. In London free until the 15th of April. The trade supplied.—Louis van Houtte, Ghent, Belgium, March 14.

TO FERN FANCIERS AND THE TRADE.

W. BARRON, Nurseryman, Architectural and Landscape Gardener, has a fine stock of Hardy FERNS which he can sell in quantities very cheap:—Osmunda regalis, the king of the British Ferns, from 3*l*. 10*s*. to 5*l*. per hundred, or from 1*s*. to 2*s*. 6*d*. each plant.

Skettv, near Swansea, March 14.

"SI[illegible]'S" CORN, BEAN, AND MANGEL [illegible]TERS, depositing the Seed in rows, at uniform depths a[illegible]ace, and in stated quantities per acre.—Apply through [illegible]WAY, 169, Piccadilly, London.

FOREST TREES.

FOWL[illegible] WRIGHT, Seedsmen & Nurserymen, Glasg[illegible]spectfully intimate that they have a fine Stock of Seedling and transplanted Forest Trees, Fruit Trees, Ornamental Trees and Shrubs, which they will sell on most reasonable terms.

WANTED, a few Transplanted OAKS, from 3 to 4 feet; also BIRCH about the same height.

J. C. Wheeler & Son, Nurserymen, Gloucester.

PONTEFRACT NURSERY.

ONE HUNDRED THOUSAND two and three year transplanted BERBERIS AQUIFOLIUM; also two year Seedlings, fine healthy Plants, with all other kinds of Nursery Stock. Samples and price on application.

John Scholey, Pontefract.

FOR SALE, 28 Strong FRUITING PINES, and 20 SUCCESSION, the property of a gentleman deceased.—For further particulars apply to John Davies, Gardener, Waldersea House, Wisbeach, Cambs.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

LARGE FOREST AND ORNAMENTAL TREES FOR PLANTING PARKS, CEMETERIES, &c. &c.

W. J. EPPS has a large quantity of the above he can supply very cheap. Also a large stock of very fine Specimen Conifer[illegible]. Prices and size sent on application.

Nurseries, Maidstone and Ashford, March 14.

CHEAP AND SELECT NURSERY STOCK.

IMPORTANT TO PLANTERS AND COMPANIES FORMING NEW PARKS.—See Advertisement in *Gardeners' Chronicle* of the 21st February, page 114.

COMMON LAURELS, 1 to 2 feet, strong transplanted, 2*l*. 10*s*. per 100.

PORTUGAL do., 1 to 2 feet, 20*s*.; [illegible] 1*l*. 10*s*. per 1000.—William Jackson & Co., Bedale, Yorkshire.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

FOR PRESENT PLANTING.

BASS AND BROWN beg to offer as under, of strong and well-established Plants:—

	s.	d.
Hardy Herbaceous Plants, 100 showy vars.	30	0
" " 100 do., including new	50	0
" " selections, per dozen ... 6s. to	9	0
Rock Plants, 25 fine vars. 12s., or 12 for	7	6
Antirrhinums, 12 fine vars., 6s.; 12 vars., very fine ...	9	0
Delphinium Barlowi, per doz., 9s.; bicolor, white centre, per dozen	7	6
Do. elegans, per dozen, 6s.; elegans alba, per dozen ...	7	6
Dielytra spectabilis, per doz., 6s.; per 100	40	0
Iris Germanica, a very superb collection, p. doz., 9s., 12s., &	20	0
" " fine mixed, per doz., 3s.; per 100	18	0
Pentstemon, 12 superb and distinct vars.	9	0
Phlox, 25 fine vars., 10s. 6d.; 25 superior newer vars. ...	15	0
" collection of 26 superb new vars. of 1856, for ...	50	0
" 12 vars. of the same	24	0
Potentilla King of Crimson, the finest crimson grown flower, 2½ inches across, each	3	6
Do., a splendid collection, per dozen, 6s., 9s., and	15	0
Hollyhocks, a choice collection, per doz., 9s., 18s., and ...	25	0
Dwarf Rock Cistus, 24 beautiful vars., very attractive for rockery or beds, 15s.; 12 vars.	7	6
Chrysanthemums, Pompones, and large flowered, fine, p. doz.	7	6
Carnations, fine varieties, per dozen pairs	18	0
Picotees " "	18	0
Pinks " "	10	0
Ribes, 6 fine distinct varieties	5	0
Flowering Shrubs, 20 vars., fine and distinct	10	0
Hardy Climbing Plants, per doz. ... ... 9s. and	12	0
Roses, of choice sorts, 100 dwarfs, in 50 vars.	45	0
" " per doz., 6s., 12s., and	18	0
" Climbing, finest sorts, per doz.... ... ... 6s. to	12	0
Strawberries, of the finest new and others (see Catalogue).		
Gooseberries, finest prize sorts, 25 vars.	10	6
" good named sorts, 4s. per doz.; mixed, p. doz.	2	6
Currants, of the finest sorts, per dozen ... 3s. and	4	0
Rhubarb, Bailey's Early Monarch, earliest grown, each ...	2	6
" Royal Albert, Linnæus, and Victoria, per doz....	7	6
Grayson's Giant Asparagus, per 100	3	6

BULBS and ROOTS for SPRING PLANTING, comprising Ranunculus, Anemones, Gladioli, &c. See Catalogue.

CATALOGUES for this Season to the present time. Nos. I., II., and III. supplied on application.

Goods Carriage Free (not under 20s.) to all the London Termini, and all Stations between London and Norwich, Colchester Line.—Bass & Brown, Sudbury, Suffolk.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1 (20 quarts Peas, and all other Vegetables in proportion), for one year's supply	£3	0	0
Collection No. 2, in reduced proportions	2	0	0
Collection No. 3, "	1	5	0
Collections for Small Gardens, Nos. 4 and 5, 15s. 6d. &	0	10	6

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections Nos. 1, 2, and 3, see Catalogue.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 1[illegible]0 varieties of these, see Adverments in the *Gardeners' Chronicle* of Feb. 21, page 125.

Smith's New Balsams, 6 varieties, separate ... 2s 6d.
" " in larger packets, mixed 2s.

FLOWER SEEDS—Best Assortments,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7s. 6d.; 12 vars.	5	0

FLORIST FLOWERS, &c., Saved from Choice Collections.

Per packet.—	s.	d.
Hollyhock, ex., saved from 20 finest vars. of our collection	2	6
Pentstemon, ex., from grandis, magniflora, Themisteri, and other choice vars.	2	6
Phlox, hardy vars., choice	0	6
Potentilla, ex., from our finest new	2	6
Calceolaria, ex., from choice new vars.	2	6
Geranium, ex., from choice new vars....	2	6
" from finest fancy	1	6
Gloxinia, ex., from superb vars.	2	6
Petunia, new and choice	1	0
Primula sinensis fimbriata, from extra fine vars.	1	0
Verbena, from choice new	2	6

CHOICE IMPORTED GERMAN SEEDS.—In separate colours, very fine and double.

30 superb vars. dwarf German Stocks, 5s.; 15 vars. ...	3s.	0d.
Choice mixed do., packets, 6d. and 1s.; new pale sulphur	1	0
Fine dwarf carmine, 6d.; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6d.; new White Dwarf Wall-leaved, 6d. and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6d. and 1s.; mixed, fine, 6d. and ...	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5s.; 12 vars.	3	0
12 superb vars. Globe flowering do....	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	0

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20s.) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to Bass & Brown, or to Stephen Brown.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

Established 1805.

CARNATIONS PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18s. per dozen.

PINKS.—The finest first-class show Pinks, by name, 9s. to 12s. per dozen pairs.
" Fine mixed border ditto, 6s. per dozen pairs.

All orders of 2l. and upwards are delivered carriage free to London, Peterborough, Manchester, Newcastle and Hull, as well as to any railway station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

CHOICE FLOWER SEEDS FOR PRESENT SOWING.—Per Post Prepaid.

Per pkt.—	s.	d.
CALCEOLARIA, from the handsomest spotted and blotched varieties	2	6
MIMULUS, ditto, ditto	2	6
GLOXINIA, from 20 varieties	2	6
PRIMULA SINENSIS FIMBRIATA (red and white) of various shades, selected from the most beautiful vars.	1	6
PANSY, saved from 100 of the best vars., by name ...	2	6
POLYANTHUS, do. 50 do. do. ...	2	6
VERBENA do. 50 do. do. ...	2	6
HOLLYHOCK, do. 60 of the most superb kinds, do. ...	2	6
SWEET WILLIAM, from the new and beautifully-edged varieties	1	0
DAISY, saved from 50 of the new Belgian kinds, by name	1	6
ANTIRRHINUM, saved from 20 best named varieties ...	1	0
ANEMONE, from the most showy and brilliant kinds ...	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence.

FLOWER SEED (Annuals).—Youell & Co. beg to offer a very select collection of these, comprising all the new and most brilliant hardy varieties at 5s. per 30 packets, per post free

Postage stamps received in payment.

Youell & Co., Royal Nursery, Great Yarmouth.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (Paul's).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10s. 6d. each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. Paul & Son, Nurseries, Cheshunt, Herts.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of Standish & Noble, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey. March 14.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to offer the following set of 20 extra fine show varieties, in strong well rooted autumn-struck Plants, at 12s. the set, hamper, package, &c., included:—

Argo, Paton & Small's.	Jeannie, Downie & Laird's.
Beauty, Downie & Laird's.	Lord Palmerston, Turner's.
Duke of Newcastle, Turner's.	Lady Jane, Youell's.
Earl of Cardigan, Holland's.	Mrs. Hampton, Hampton's.
Emperor, Hale's.	Memnon, Turner's.
Elta, Middlemas's.	Medora, Downie & Laird's.
Father Gavazzi, Holland's.	Nonpareil, Dickson & Co.'s.
Golden Drop, Chadwick's.	Queen Victoria, Dickson & Co.'s.
Great Western, Hooper's.	Sir C. Napier, Paton & Small's.
J. B. Gough, Downie & Laird's.	Yellow Supreme, Moorhouse's.

J. Holland can confidently recommend the above as being flowers of first-class merit.

Older kinds, such as Miss Talbot, Nonsuch, Satisfaction, Fearless, Duke of Perth, Wonderful, &c. &c, 4s. per dozen.

A few packets of very choice Pansy Seeds, at 1s. and 2s. per packet.

Priced and Descriptive Catalogues now ready, and will be forwarded on application.—Post-office Orders payable at Middleton, Lancashire.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20s.
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20s.
25 American Azaleas, do., do., do., 16s.
Hardy Heaths, Ledums, and Kalmias, per doz., 6s.
12 " Rhododendrons, including scarlet, white, and rose, 12s.
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15s.
Greenhouse Azaleas, best new vars., per doz., 12s. to 18s.
Camellias, fine sorts, well set with buds, per doz., 30s.
50 choice hard-wooded Greenhouse Plants, one of a sort by name, 45s.
12 Orchidea Plants, one of a sort, fine species, 40s.
24 choice Ericas, one of a sort, small pots, by name, 16s.
12 fine Chrysanthemums, new, large and small flowered, 6s.
Best Climbing Roses of sorts, per doz., 6s.
Fine Standard and Half Standard Roses, 12s. to 15s. per doz.
50 Dwarf Roses, on their own roots, by name, 16s.
Cedar of Lebanon, in pots, 2 feet, well grown, per dozen, 10s.
Various choice Hardy Climber, for walls, trellis, &c., p.doz., 10s

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 2s. 6d. each, or 26s. per dozen.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each, 2s.
Fine Gooseberries, Currants, and Raspberries, per dozen, 3s.
Filberts, new, thin-shelled and red-skinned, per dozen, 4s.
Strong Vines, in pots and out, best sorts, per dozen, 18s.
Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Vines, grown expressly for pot culture, per dozen, 18s.
Ornamental Forest Trees and Evergreen Shrubs in any quantity

Albion Nursery, Stoke Newington, London.—March 14.

CHOICE SEEDS FROM PERFECT SPECIMENS.

THOMAS WILD, Ipswich, confidently recommends the following superior Seeds, together with Latter's Treatise on the Cultivation of Primulas, coloured drawing. Testimonials, &c., free by post.

Orion Melon, 1s. 6d.; Standard Cucumber, 2s. 6d.; Latter's Primulas, of world-wide celebrity, 2s. 6d.; Hollyhock, Pansy, Dahlia, Gloxinia, Cineraria, Calceolaria, Polyanthus, Sweet William, and Balsam, at 1s. per packet, saved by growers who spare no expense to obtain the best.

BRITISH FLAG GERANIUM.

GEO. PARSONS, Florist and Seedsman to the Queen, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plant 7s. 6d. each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

HOLLYHOCKS.

A. PAUL AND SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants in perfect health as follows:—

Very superior show varieties ...	42s. to 60s. per doz.
Superior do. do.	24s. " 36s. "
Good named sorts	12s. " 18s. "

Bloomed Seedlings in separate colours, 30s., 45s., and 63s. per 100. These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers; they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21s. per 100.

For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1s., 2s. 6d., and 5s. per packet according to quality.—Nurseries, Cheshunt, Herts.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesneria zebrina; TYDÆA BARON DE PRIN, COUNT THEOD. DE MURAT, DR. PICOULINI ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30s. the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun. can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, March 14.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12s. to 18s. and 30s. per dozen.

VERBENAS, the finest varieties, from 4s. to 8s. per dozen.

PETUNIAS, at from 4s. to 8s. per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be rewarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

THE FINEST GLOBE ASTER SEED IN THE WORLD.

EDWARD TILEY begs to inform the lovers of this beautiful and unequalled flower that he has a fine stock of seed saved from 24 of the choicest varieties ever exhibited, producing every flower perfect, the shape being two-thirds of a ball, well filled up to that form in the centre, and all the petals beautifully quilled. E. T. has received numerous testimonials from those who have purchased it years past, speaking in the highest praise of the fine varieties produced from the seed they obtained of him.—Sold in packets at 1s. 6d. each.

Cineraria Seed from best named varieties, 1s. per packet.

Sweet William Seed, saved from all the choicest and most selected sorts as to size of flowers and distinction of colours, there being about 36 varieties, 1s. per packet.

Antirrhinum Seed, from one of the most superb collections in cultivation, 1s. per packet.

Hollyhock Seed, from 24 of the best named flowers 1s. per pkt.

Digitalis or Foxglove Seed, saved from flowers of the most beautiful kinds, there being about 20 distinct varieties of spotted, crimson, striped white, &c., 1s. per packet. Plants of the same, that will bloom well this season, 2s. 6d. per dozen, or 1l. per 100.

Fine dark Clove Carnation, 1s. per pair.

Seedling Hollyhocks, grown from seed selected from 36 of the best named varieties, 2s. 6d. per dozen, or 1l. per 100. They will bloom well this season, and generally produce fine double flowers. Good named varieties of Hollyhocks, 12s. per dozen. Any portion of the seed will be sent postage free, and the plants, hamper and package free.

A Post-office Order, or penny postage stamps, must accompany every order, when any portion, or the whole, as the case may be, will be immediately forwarded.

N.B.—E. T. can still supply seed of his unequalled new Cucumber Perfection, at 3s. 6d. per packet.

Edward Tiley, Nurseryman, Seedsman, and Florist,
14, Abbey Church Yard, Bath.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1s. per lb.

GLOBE RED, very fine and equally prolific. 1s. 3d.

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1s.

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1s. 3d.

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter; to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre, 4s. per lb.—A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety. 36s. per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36s. per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr. W. Miles, Mark Lane, London.

CLOVERS AND RYE-GRASS SEEDS.

SUTTON AND SONS *can supply the proper quantities of the best kinds of Clovers and Italian Rye-Grass Seed at* **21s.** *per acre, or Clovers and Common Rye-grass at* **20s.** *per acre.*

The great produce of the above-named mixture is shown by the following:—

From C. F. THRUSTON, Esq., *Talgarth, Machynlleth, July* 31, 1856.

"I cut a crop of Grass on June 2, which had been previously dressed with soot and guano. It was full ripe, and the Italian Rye-Grass was really 4 feet high, Clover in proportion. I am now (July 31) getting a second crop from it equally heavy."

In ordering it is only necessary to state that "Clovers and Italian Rye-Grass," or "Clovers and Common Rye-Grass," are required for so many acres, when the proper quantities will be sent.—Royal Berkshire Seed Establishment.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming lawns, ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9*d.* lb.; Swedes, 1*s.* lb.; Turnips, 1*s.* lb.; Hybrids, 1*s.* 3*d.* lb.; Improved Italian Rye-grass, 7*s.* 6*d.* per bushel.

GEORGE GIBBS & Co., 26, Down Street, Piccadilly, W.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

GRASS SEEDS FOR PERMANENT PASTURE.

THOMAS KENNEDY AND CO., Dumfries, N.B., beg to call special attention to their MIXTURES for laying down land to Permanent Pasture, which have hitherto given such universal satisfaction.

Mixtures for Permanent Pasture, 25*s.* to 30*s.* per acre.
Mixtures for Permanent Lawn Pasture, 26*s.* to 31*s.* do.
Mixtures for Lawns, Terraces, Bowling Greens, &c., 31*s.* to 36*s.* do.

Their PRICED LIST of AGRICULTURAL SEEDS is now ready, and may be had Postage Free on application.

FREE DELIVERY.—Seeds to the value of 2*l.* delivered Free of Carriage to the principal Railway Stations and Steam Ports in the kingdom.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE to NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

RISING SUN EARLY PEA.

FLANAGAN AND SON beg to offer the above new Pea as a valuable addition to the green marrow class. It possesses the properties of being nearly as early as the Emperor, with long dark green pods, and most bountiful in bearing. Height about 3 feet. This Pea is strongly recommended for market purposes. It retains its deep colour, and is an excellent general cropper. Price 5*s.* per quart, with an allowance to the trade. A general assortment of the best Garden Seeds, Catalogues of which can be had on application.

9, Mansion House Street, London, E.C.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

MOORE'S DELPHINIUM FORMOSUM.—Seeds in packets at 2*s.* 6*d.* and 1*s.* 6*d.* to be had of NUTTING & SONS, Seedsmen, 46, Cheapside, E.C. The habit of this plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2*s.* 6*d.*

CARPE DIEM, CARPE DIEM.—Some fine specimens of the PICEA NOBILIS, Nordmanniana, Pinsapo, cephalonica, Pinus ponderosa, Excelsa austriaca, insignis, macrocarpa, Abies Douglasi, Menziesi, Cedrus Deodara, Lebani, Atlantica, Wellingtonea gigantea, and other Coniferæ, Araucaria, Taxodium sempervirens, Cryptomeria japonica, as well as a large assortment of every description of Nursery Stock, with one of the largest selections of Fruit Trees in the trade.—May be had from the establishment of DONALD & Son, Goldworth Nursery, Woking, Surrey, one hour by rail from Waterloo Station. All these plants have been been constantly removed, and will be sold cheap. Prices on application.

LUCOMBE, PINCE, AND CO. very respectfully beg leave to announce that the superb specimens of

CAMELLIAS

in their celebrated Camellia House are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their new Show House is also filled with an extensive assortment of various choice Plants, which cannot fail to gratify those who pay their nursery a visit, as it is now, and will continue for a long time to be exceedingly brilliant and attractive with all the gayest spring and other flowers.

N.B. Flowers for balls, weddings, &c., carefully packed and sent to all parts of the kingdom. Recherché Bouquets made to order and duly forwarded.—Exeter Nursery, Exeter, March 14.

AZALEA INDICA PETUNIÆFLORA.—Nice bushy plants at 15*s.* each offered, to London free, by LOUIS VAN HOUTTE, buyer of the stock (four for three). Messrs. HUGH LOW & Co., R. GLENDINNING, and JAMES VEITCH, Jun., are able to give their opinion about the A. petuniæflora, having seen its flowers and bought plants of it.—Ghent, Belgium, March 14.

LAING'S MAMMOTH CELERY, the largest yet grown, weighing 10 to 12 lbs. per head, perfectly solid and flavour unsurpassed, and will not run to seed the first season and rarely the second. Sealed packets 1*s.* and 2*s.* each, and post free.

This fine variety was highly spoken of in the *Gardeners' Chronicle* of February 14, page 104.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

MESSRS. VEITCH AND SON have much pleasure in offering the two following plants, which they can with confidence recommend, and respectfully solicit early orders to insure good plants:—

FUCHSIA PRINCESS ROYAL (VEITCH), rich scarlet tube and sepals, beautifully reflexed, white corolla, free bloomer, and undoubtedly the best habit of all the white corolla varieties.

GERANIUM QUERCIFOLIUM FLORIBUNDUM (VEITCH), an excellent bedding variety; also admirably adapted for the window, being of very dwarf habit, blooming most profusely in small pots, and having the valuable property of retaining its flowers a long time. The flowers are large and round, colour a beautiful rose, with dark spots in upper petals.

Strong plants of each of the above will be ready for delivery the first week in April, at 7*s.* 6*d.* each. Prices to the Trade on application.

Exotic Nurseries, Exeter and Chelsea, March 14.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, March 14.

COLLECTIONS OF CHEAP & GENUINE GARDEN SEEDS.

CHARLES ALEXANDER, SEEDSMAN and FLORIST, 30, West Register Street, Edinburgh, is now prepared to supply complete Collections of VEGETABLE SEEDS, for various sized Gardens, suitable for the climate of Scotland, ranging as under:—

No. 1,	COMPLETE COLLECTION,	for a large Garden	£3 0
No. 2,	do.	do. for a medium-sized Garden	2 0
No. 3,	do.	do. for a small Garden ...	1 0
No. 4,	do.	do. do.	0 10

All orders carriage paid to any Steam Port or Railway Station in Scotland. Detailed Lists of the quantities, which may be altered to suit parties on application.

M'Ewen's Arundel Castle Crystal Palace Prize
Hybrid Scarlet Flesh Melon ... ... 1*s.* per packet.
Do. do. Green ... 1*s.* „

Nursery, Larkfield, Trinity, where a select Stock of Greenhouse and Stove Plants, Florists' Flowers, Shrubs, &c., are sold at moderate prices.

CHOICE IMPORTED FLOWER SEEDS.—Splendid Double German Stocks, New large flowering Ten-week (in 6 varieties), Dwarf Ten-week (in 12 varieties), Intermediate or Autumn-flowering (in 12 varieties), Emperor or Perpetual-flowering (in 6 varieties), Brompton (in 12 varieties), Splendid Double Asters, New French Pæony Bouquet (in 12 varieties), New French Dwarf Bouquet Pyramid (in 12 varieties), German Quilled and Striped (in 12 varieties). Splendid Double German Wallflowers (in 6 varieties), Zinnia (in 8 varieties), Salpiglossis (in 8 varieties). Each of the above sorts in mixed colours, 1*s.* per packet. Larger Packets with the colours separate, containing the number of varieties above-named, at 1*s.* 6*d.*, 2*s.*, and 2*s.* 6*d.* Splendid Double Hollyhock, 1*s.* to 2*s.* 6*d.* per packet. Collections of Showy Flower Seeds at 2*s.* 6*d.*, 3*s.* 6*d.*, and 5*s.* All Flower Seeds sent free by Post on receipt of Postage Stamps or Post-office Order.

BUTLER & MCCULLOCH, Seedsmen (established upwards of 100 years), South Row (opposite Southampton Street), Covent Garden Market, London.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, until July next. All orders (not less than 20) to be accompanied with a Post-Office order on Birmingham.

Twenty, 12*s.* | Forty, 1*l.* 2*s.* | Sixty, 1*l.* 12*s.*
Eighty, 2*l.* 1*s.* 6*d.* | Hundred, 2*l.* 8*s.*
Plants in pots, not less than 10, 1*s.* 3*d.* each.

MR. UNDERHILL'S TREATISE ON THE CULTIVATION OF THE STRAWBERRY, price 1*s.*—Address, Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants each, with a ball of earth, will prove a good crop this season; price 40*s.* per 100, and 6*s.* per dozen. Price to the trade per thousand can be had on application. All other Strawberries prove worth cultivation. Strong plants, with a ball of earth, and will fruit this summer, at 10*s.* per 100. Plants sent over of all kinds to compensate for distant carriage.—Apply to RICHARD S. YATES, St. Ann's Square, Manchester.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's). A few small but well-rooted plants of Underhill's Sir Harry, at 15*s.* per 100. The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.) Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

FIRST PRIZE HYACINTHS.

JAMES DICKSON AND SONS, NURSERYMEN and SEEDSMEN, Hanover Street, Edinburgh, have much pleasure in informing their numerous patrons and friends that at the GREAT FLOWER SHOW held here upon the 10th inst. after a keen competition (open to England and Ireland) they obtained the First Prize. The Prize Blooms can still be seen at their warehouse in Hanover Street. Lists can be had on application.—March 14.

CHARLES SCHOFIELD offers strong Plants of the following Florist's Flowers, viz., 12 pairs CARNATIONS, extra fine, 12*s.* 6*d.*; 12 pairs PICOTEES, extra fine, 12*s.* 6*d.*; 25 SHOW PANSIES, 1*l.* Also selections of PANSIES, 4*s.*, 8*s.*, and 12*s.* per dozen; PINKS, extra fine, 4*s.*, 6*s.*, and 12*s.* per dozen pairs.

A Descriptive Catalogue now ready. Pansy Seed, Calceolaria ditto, Hollyhock ditto, 2*s.* 6*d.* each packet. The above all very select.—Knowsthorpe, near Leeds, Yorkshire.

TO THE TRADE.

JOHN PALMER, NURSERYMAN, Annan, begs to inform his Friends and the Trade generally that he has at present to offer of good quality as follows:—

600,000 1 year	...	Seedling Beech.
1,000,000 2 year	...	„ Norway Spruce.
500,000 1 year	...	„ Pinus austriaca.
1,000,000 1 and 2 year		„ Native Scotch Fir.
50,000 1 year	...	„ Red Virginian Cedar.

Prices, which are very moderate, may be had on application.

NEW PHLOXES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON have a superb collection of the above, including all the newest and best Continental varieties, at 12*s.* to 18*s.* per dozen; older varieties of sterling merit, 6*s.* to 9*s.* per dozen.

Herbaceous Plants, a fine collection, 6*s.* to 12*s.* per dozen.

N.B. A remarkably fine stock of Laurustinus and Portugal Laurels, &c. Also a few thousands of fine Transplanted Spanish Chesnuts, 2½ feet. Catalogues free on application.

The Gardeners' Chronicle.

SATURDAY, MARCH 14, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, March 17	—Linnean	8 P.M.
WEDNESDAY, — 18	—Society of Arts	8 P.M.

THE question as to whether the YEW TREE is poisonous or not has been revived in a somewhat new form by a correspondent using the signature *Deodar*. That some difference of opinion upon the subject exists among our country friends was shown by the discussion which took place in our columns about 12 or 14 years ago, when some persons maintained that Yew leaves did no harm, others on the contrary describing the fatal consequences which had occurred among their own animals. So many new readers of the *Gardeners' Chronicle* have been added since the time when the question was agitated, that it will be useful to repeat briefly what evidence was produced at the period alluded to.

1. In Germany a countryman lost two out of three horses in consequence of the former having eaten the young shoots; that which escaped was unable to get at the Yew tree. 2. A horse died a few hours after eating Yew branches. The stomach was greatly inflamed. *The shoots were withered*, having been lying on the ground for a few days. 3. Two horses which had cropped the *fresh young shoots* died suddenly. 4. Withered Yew is reported to be a deadly and quick poison; so also are the fresh green shoots, as proved by some sheep belonging to the writer having died in a few hours in conse-

quence of having crossed some frozen water into a plantation full of Yew trees, upon which they browsed. 5. In the Yew plantations of Birling Hill, two miles north of Town Malling in Kent, cattle, sheep, and horses kept there never experience ill effects from eating green branches; but when a large tree was cut down one winter and the shoots left on the ground to wither, several bullocks and horses died, upon opening whose stomachs the bark and leaves of the Yew were found. 6. One of the former correspondents reaffirms that fresh leaves are harmless, but the withered ones deadly. 7. A Welsh correspondent says that in his neighbourhood where it is known that the Yew is poisonous, people believe that it is only so when cut by an edged tool, which imparts the poisonous qualities!; he inclines to believe that it is because branches so removed are allowed to wither, while the others are torn off fresh by the animals. 8. White, of Selborne, mentions numerous instances within his own knowledge of fresh as well as withered Yew having proved fatal to cattle. 9. A clergyman in Lincolnshire could never learn that the Yew trees in his churchyard did harm to the sheep that nibbled them. 10. At p. 268 of our vol. for 1848 will be found a very full and good account of the matter, the result of which is a confirmation of the poisonous qualities of fresh as well as withered Yew leaves.

The few opinions here expressed as to the non-poisonous quality of the Yew would no doubt be altered with more experience. It is however curious to observe that even Orfila, in his carefully conducted experiments, obtained conflicting results, which led him to conclude that the poisonous nature of the Yew must be modified by age and the situation in which it grows.

From *Deodar* we learn that in Hampshire people believe that the male Yew, which of course bears no berries, is alone poisonous, the female or berry-bearing plants being harmless. Something of this we have before seen recorded, though we cannot lay our hand upon the passage. But we are quite unable to believe that the opinion has any foundation in fact. Possibly some coincidence may have led to the idea; possibly it is merely a piece of superstition; possibly it may be a rustic theory invented to explain the conflicting evidence as to the action of the Yew. For that it is conflicting is indisputable, as indeed has just been shown; the Yew sometimes producing no apparent action, although generally causing rapid and sudden death.

In order to reconcile the opposite statements that have been made on the subject, Mr. Gyde, of Painswick, suggested that withered leaves were more poisonous than fresh ones in consequence of some new chemical action being set up during the period of their drying (see our vol. for 1844, p. 395). But since it is certain that fresh leaves are occasionally as dangerous as such as are withered, that view seems untenable; and for ourselves, until a better explanation can be given, we prefer the suggestion made at p. 417 of the same volume, that the differences which have been recorded have depended upon whether the animals have eaten the leaves upon a full or an empty stomach.

People love to be cheated. There is no doubt about it. Lies are charming; and the greater their dimensions the more easily are they swallowed. The wonderful, although impossible, carries with it a fascination which nothing can resist. John Bull under the eye of a mountebank, especially if he comes from a far land, is like a bird under the gaze of a serpent; with this difference, that the bird jumps down the reptile's throat, while the mountebank jumps into Mr. John's pocket. This is a national peculiarity, manifested everywhere, as showmen, quack doctors, patent medicine vendors, manure makers, miracle mongers, fortune tellers, political conjurors, joint stock company promoters, and every other sort and form of humbug know to their profit.

Such being part and parcel of the constitution of our worthy fellow countrymen, and the disease in question being absolutely chronic, as the learned would say, it seems useless to put men on their guard against the swindlers who swarm in all directions; as alas! we know it to be. So far indeed is naming these gentry from teaching people what to avoid, that they only rush to them the more. Nowhere is this more conspicuous than in the gardening world. The very man who grumbles at paying an honest tradesman a shilling for a red Moss Rose will gratefully deposit his two guineas in the palm of the knave who professes to sell him a yellow one. In short, it is only necessary to hire a shop in some London thoroughfare, and circulate handbills informing the gaping public that the celebrated foreign naturalist and traveller Herr Chetallsky has just arrived from remotest parts of the great Tartarian desert, that fertile country never trodden by the foot of man, where

> Cradled in snow and fann'd by Arctic air
> Fair Barometz displays her golden hair;
> Rooted in earth each cloven hoof descends,
> And round and round her flexile neck she bends;
> Crops the gray coral moss and hoary thyme,
> And laps with rosy tongue the melting rime;
> Eyes with mute tenderness her distant dam,
> And bleats her wants, a Vegetable Lamb.

To the announcement should be added a list of the invaluable natural products brought to London by Herr Chetallsky, and offered to the British public at from one to five guineas each. The list will of course include Apples weighing six pounds each; Pears as large as your head; Strawberries weighing a couple of pounds and growing on trees whose branches weep beneath the burthen, a great convenience to invalids who cannot stoop; Cherries bearing ripe fruit every month in the year; Asparagus, such as is served up at the table of the Great Mogul, having the valuable property of growing two feet in a day, and requiring neither water nor manure; Roses of surprising size, blue striped with yellow, black barred with crimson; Tulips the size of punch-bowls; Potatoes smelling of eau de Cologne, a most wonderful property never before heard of, and so on. To this must be added plenty of pictures, said to represent faithfully the novelties in question, executed after photographs obtained by an entirely new process, discovered in the Mountains of the Moon. All this prepared and well advertised the shop will soon fill with eager buyers, among whom of course figure the brilliant and highly educated youths who at our Civil Service examinations inform the admiring Commissioners that the Spanish Armada was destroyed by Marlborough, that the Roman walls in England were constructed in order to restrain the Tartars, that Marseilles is on the Rhine, as Swansea is at Norwich, and that Warren Hastings was tried by ordeal.

To simple people all this must seem an absurd exaggeration; but they are quite mistaken; announcements quite as remarkable are coolly made in the city of London in this present month of March, A.D. 1857, and find plenty of believers who joyfully pay their money and go their way rejoicing.

A correspondent informs us that the man Easwood, mentioned in our last, is not a salesman in Covent Garden, as the daily papers reported, but what is called a "Haggler," whatever that may be. A "Scottish Gardener," while condemning the malpractices to which we drew attention, is of opinion that they are caused in a great measure by the low wages paid by Gentlemen to their Gardeners.

EXHIBITION OF THE ROYAL SOCIETY OF AGRICULTURE AND BOTANY AT GHENT.

It is now five years since this Society held its last great exhibition; several minor meetings have taken place every year, but this one may be looked upon as an European affair, and thus, without exaggeration, it might well be termed, for in the noble Casino where it takes place are assembled princes and professors, amateurs and gardeners, from St. Petersburg to the Mediterranean Sea; the most complete success may be said to have attended the whole arrangements.

Thursday and Friday, 27th and 28th February, were allowed for the exhibitors to bring their plants and arrange them in groups according to their own tastes; of course, as in this country, the worst plants are not put in the front rank. Great artistic skill was exhibited in this matter, and the effect, as we shall show hereafter, as a whole was magnificent. Some collections were arranged not to be disturbed, others were grouped in various places on the floors and stages, in order that the jurors might examine them with greater facility. The society affords to exhibitors, especially those who bring subjects from a distance, the most ample assistance.

As the collections arrive the society's secretary takes down the name of every plant, and attaches to it a number, commencing with No. 1 and so on to thousands, so that each plant has a separate number, thus preventing all confusion as the collections are afterwards in some instances intermixed. As sheets of the different collections are written off they are dispatched to the printer, together with the result of the adjudications as they proceed, so that when the doors were opened on Sunday morning, every one entitled to admission had a book presented to him containing every person's plants as they were entered with the numbers attached to every individual plant; besides this, the names of the jurors are also given and the awards they have made. In this book are also given the names of the honorary and corresponding members, as well as of those who are foreign and resident; thus a complete guide is at once presented; for, with book in hand and the numbers before you, you have only to look and there is the name of the plant and the owner. This I consider to be a good improvement on our system, and for this reason: when a large concourse of people is assembled examining the specimens, numbers have always been found writing down the names of the most striking plants, and this they must do in full, thus blocking up the passages and preventing those from passing on who only wish to have a mere look at the plants, but alas! how many go away from our English shows, especially ladies, that will not run the risk of broken ribs, who only see at a distance those on the top of the stages over the heads of the crowd assembled before them. With the book in your hand you can make a mark opposite the name which is printed for you, and proceed onwards inconveniencing no one.

Let us now proceed to the system pursued in making awards. At 10 o'clock precisely on Saturday morning the jury assembled at the end of the Casino, when the names of all those invited were called over, and those present answered. This done, the next step was to divide those present into two sections previously arranged by the society, which places every person in the section with which he is best acquainted.

It may be mentioned, *en passant*, that it would seem strange in this country to find princes, dukes, and counts judges at a flower show, but so it happens on the continent; for in the section in which the writer of this was, there were the Prince Troubetskoy, of Moscow, Count de Gomer, of Amiens, and Count de Limminghe, of Namur. These are gentlemen celebrated alike for their immense wealth and for their patronage of horticulture.

The jury then proceeded to elect a president and secretary for each section. This is done by writing the name of the candidate you mean to vote for on a slip of paper and folding it up, when a person goes round and collects them in a basin. The names are then read over and noted by an official, when the numbers are declared. The President of the 1st section was Mr. Simon Brunelle, of Brussels; Secretary, Mr. Leon Leguay, of Paris; President of the 2d section, Mr. Morel, of Paris; Secretary, Mr. Edward Morren, of Liège. I may add that nearly all the jury were non-residents; they were invited from all parts of Europe—there were four from London. In the first section there were 40 judges, in the second 41. I imagine that I hear some one crying out, "They must be subdivided." Not so, however, for the whole of this congregated mass of all nations proceed alternately to examine, say the different collections of Azaleas of a specified class, and ballot, as in the case of the president; the successful candidates are then declared according to priority.* When this is done the next section enters the jury-room and goes through the same ceremony, and so on alternately until the whole is completed. The awards were certainly given without prejudice or favour. This ostentatious ceremony of judging consumed a whole day from 10 o'clock in the morning till dark, whereas I contend that six judges divided into the same number of sections could have performed the task quite as well in three hours. The multitude of jurors rendered the proper inspection of the subjects impracticable, and a discussion of their merits impossible. There must therefore of necessity have been a considerable amount of haphazard conclusions on the part of many of them. On application to the secretary the previous day I was at once granted permission to enter the Casino early in the morning. This afforded me an opportunity of thoroughly inspecting the subjects exhibited, and placed me in a better position than the other jurors. One word more on judging before I proceed to describe what may be more interesting to your readers; as has been observed, the names of those who give the decisions are published, which is also the case in this country. Here you may, however, discuss or question if you like the ability of the three persons who make the awards, although you cannot alter their decisions; but on the continent, from the number of jurors employed, this amounts to an impossibility.

In giving an outline of the exhibition, I shall only mention particular groups and individual plants which struck me as being remarkable, and which I noted down without regard to arrangement. I shall begin with Camellias, which formed a grand feature of the exhibition. In a collection of 15 sent by Mr. Delimon-Papelen were some noble plants. Since the show five years ago great progress has been made in the culture of this plant. This collection was as near perfection in every respect as possible; the mode of culture was such as deserves every publicity. Camellias, as we know, form themselves into bushes similar to a Portugal Laurel, so that only a very limited number can be got into an ordinary sized house. Mr. Papelen has obviated this objection; he keeps them to a single stem, which in many of his examples runs up 8 feet high, perfectly straight, the stem is exposed 6 or 8 inches above the pot, and as smooth as a gun-barrel; the form of the plant is a perfect cone, about 3 feet in diameter at the bottom, with intense green foliage, and loaded with flowers from the bottom to the top, not on one side only, but all round alike. His specimens of Double White, Vandenbossche, Donkelaari, imbricata, Mathotiana, fimbriata, jubila, &c., were masterly examples of the gardening art; there was not a stick nor a contorted branch. He obtained for them what was richly deserved, the gold medal; the same gentleman also obtained the first prize for another collection of Camellias, 40 specimens, smaller, but extremely well cultivated and bloomed; another prize was also awarded to this ardent cultivator for a superb specimen of Camellia Duchesse d'Orleans. Mr. B. Decoster had a very fine plant of Camellia Napoleon Eugenie. Rhododendrons were not remarkable either for their cultivation or the excellence of the kinds. Azaleas however made ample amends for this; of these there

* This is announced to the multitude outside by the firing of cannon at the conclusion of each decision during the whole day.

were some fine collections, and among them many grandly flowered specimens not unworthy of a great English show. Here Mr. Van den Hecke de Lembeke stood pre-eminent. The kinds were those well known to us. The system of culture adopted deserves to be brought prominently under the notice of our great plant growers. These specimen Azaleas had straight clean stems about 12 or 14 inches above the soil, and sturdy stems they have, for great numbers of them were 3 and 4 feet through the head and as much high, perfectly symmetrical in form, completely covered with bloom, and this on the 1st of March. Here, let me remark again, was no writhing and contorting of branches and not a single stake, nor indeed was such required, for they were as independent of such supports as the Orange trees at Versailles. Mr. A. Verschaffelt had also some very fine specimens cultivated in a similar manner; his Prince Albert, variegata, phœnicea splendens, and præstantissima were noble examples. He obtained the gold medal for the best 15 plants. Baron Heynderycx, the President of the society and a great patron of gardening, had also some very fine plants. Mr. D. Vervaene obtained the first gold medal for the 10 best new Azaleas, viz., Le Géant, Etendard de Flandres, Gloire de la Belgique, petuniæflora, Rubens, Belle Jeannette, pelargoniflora, Beauté de Ledeburg, papilionacea, Prince d'Orange. I may here state that in my opinion the four best, or at least most striking novelties were petuniæflora, a fine rosy purple, very brilliant and of excellent form; Gloire de la Belgique, a striped variety with large flowers; and Etendard de Flandres. Rubens is an orange red of good substance. I may mention here that close to these plants was a very fine new red Camellia, "Obtenu de semis." Mr. A. Van Geert produced a collection of plants in flower suitable for greenhouse temperature, and obtained the first prize; the Vicomte de Nieuport came in second. We are not often accustomed to see large collections of Amaryllis in fine bloom; here however were 90 pots in one place in splendid condition—a glorious sight; our attempts at this in England are contemptible compared with these. The first and third prizes were justly due to Baron Heynderycx, and the second to Mr. Ed. D'Hacce. The nurserymen also came out in Amaryllis equally strong, Mr. Jean Verschaffelt taking the lead. There was a bank of Hyacinths 50 feet long and 8 rows deep, with a mixture of Tulips, Narcissus, Crocus, &c., all truly grand.

We come now to the Orchids, which do not at all approach our London exhibitions of such plants; although there are good collections both in continental nurseries and private gardens, still a want of good culture was apparent in the whole of them. Mr. A. Verschaffelt was first; he had a grand plant of one of the best varieties of Dendrobium nobile in fine condition, 2½ feet high by 2½ feet wide; Vanda tricolor, var. Leopoldi, and Vanda suavis, both good; Odontoglossum Cervantesi, with 60 flowers open on it; Anguloa Clowesi, and others. Mr. Linden was second with some good plants, such as Phalænopsis amabilis, Odontoglossum Pescatorei, Vanda tricolor, &c.; and the Baron Heynderycx third.

Coniferæ always constitute an important feature of these displays, and as fine foliaged plants they can scarcely be excelled for decorative purposes. Mr. A. Van Geert was first with a group of 30 species; amongst them were grand plants of Cephalotaxus Fortuni, Dammara Browni, 4 feet high, Araucaria Cooki, 2½ feet, Torreya Humboldti, 4 feet, and Wellingtonia gigantea, 2 feet. Mr. Jean Van Geert was not much behind his son, and carried off the second prize. In the collections of dwarf Ferns there were some very rare kinds; Mr. de Kenchove de Limon was first, and Mr. A. Van Geert second. The tree Ferns were glorious examples of what enterprise can accomplish. In the collection of Mr. de Limon, who stood first, were some noble specimens 5 and 6 feet high. The prize for the best single specimen was awarded to Mr. de Limon, for Cibotium antarcticum, and the second to Mr. A. Verschaffelt for a grand plant of Balantium antarcticum.

(*To be concluded next week.*)

ON LOW TEMPERATURES WHICH DO NOT AFFECT THE VITALITY OF PLANTS.

(*Continued from p.* 132.)

In our last article upon this subject the winter temperature of the soil when covered with snow was stated to be in many cases above the freezing point when melting commenced, and considerably augmented before the dormant vitality of plants is aroused and germination of their seeds commences, and in supporting it I would invite attention to the following observations.

At Dorjiling, in the Sikkim Himalaya, lat. 27 N. and alt. 7000 feet, the temperature of the earth at 2 feet 7 inches beneath the surface was in December and January 5° above the monthly mean; in November and February, 4° to 5°; in March a few degrees below the mean temperature of the month, and in October above it; April and May being sunny it stands above their mean; June to September a little below the mean temperature of each respectively.

The result of all my observations, which at first sight appears most anomalous, is that the mean temperature of the soil at 2 or 3 feet depth is almost throughout the year in India above that of the surrounding atmosphere. This has also been ascertained to be the case in England by several observers, and the carefully conducted observations of Mr. Robert Thompson, at the Horticultural Society's Gardens at Chiswick, show that the temperature of the soil at that place is, on the mean of six years, at the depth of 1 foot 1° above that of the air, and at 2 feet 1½°. During the winter months the soil is considerably (1° to 3°) warmer than the air, and during summer the soil is a fraction of a degree cooler than the air.

In India, the sun's declination being greater, these effects are much exaggerated, the soil on the plains being in winter sometimes 9° hotter than the air, and at considerable elevations in the Himalaya much more than that; in summer also the temperature of the soil seldom falls below that of the air, except where copious rainfalls communicate a low temperature, or where forests interfere with the sun's rays.

At considerable elevations these effects are so greatly increased, that it is extremely probable that at certain localities the mean temperature of the soil may be even 10° warmer than that of the air; thus at Jongri, elevation 13,194 feet, the soil in January was 34.5°, or 19.2° above the mean temperature of the month, immediately before the ground became covered with snow for the remainder of the winter; during the three succeeding months, therefore, the temperature of the soil does not fall below that of the snow, whilst the mean temperature of the air in January may be estimated at about 20°, February 22°, March 30°, and April 35°.

This accumulated heat in the upper strata of soil must have a very powerful effect upon vegetation, preventing the delicate rootlets of shrubs from becoming frozen, and preserving vitality in the more fleshy roots, such as those of the large Rhubarb and small Orchids, whose spongy cellular tissues would no doubt be ruptured by severe frosts. To the burrowing rodents, the hares, marmots, and rats, which abound at 15,000 to 17,000 feet in Tibet, this phenomenon is even more conspicuously important; for were the soil in winter to acquire the mean temperature of the air, it would take very long to heat after the melting of the snow, and indeed the latter phenomenon would be greatly retarded. The rapid development of vegetation after the disappearance of the snow is no doubt also proximately due to the heat of the soil, quite as much as to the increased strength of the sun's direct rays in lofty regions. *J. D. H.*

RUSTIC FURNITURE FOR COTTAGE GARDENS (*see page* 117).

No. 10.

No. 11.

(*To be continued.*)

VEGETABLE PATHOLOGY.—No. CLV.

639. PARASITÆ (*Aphides**). The insects which are popularly known under the name of plant-lice are referred by authors to several genera, as *Aphis* containing those of the more common type, *Eriosoma* the woolly aphis of the Apple, *Rhizobius* the plant lice which inhabit the roots of *Hieracium pilosella* and some others of similar habits; *Chermes* the species which forms the purse-like pseudo-galls on the Poplar, &c. It is not, however, within our province to enter into entomological details further than to illustrate the part which insects bear in producing disease, or injuring seriously the objects of cultivation.

640. Amongst these the common plant lice are beyond all doubt the foremost. Scarcely a year passes in which some particular plant does not suffer intensely from this cause. Sometimes the Peach-wall, sometimes the Cherry-holt, sometimes the Rose-garden, and, what is of more consequence still, sometimes the Bean-field is so affected, as to yield little or no produce. The species, indeed, are extremely numerous, but the same species affects many different plants, so that their number is not so great as was once supposed, the difficulties which attend their investigation, arising mainly from the imperfection of preserved specimens, being so great as to lead to an empirical mode of arrangement like that which still prevails to a great extent amongst parasitic fungi.

641. The leaves on which the plant-lice are seated are frequently curled or variously distorted, but these parasites often attack principally the shoots and tender leaves before they are expanded, and this effectually prevents the proper development of the fruit. Those which appear in the spring are for the most part derived from eggs of the previous year, a few females only surviving the cold of winter. The young after three or sometimes four changes attain their perfect form, and within the space of 10 or 12 days, according to the particular species, give rise within a few months to a variable number of generations, each capable of producing at once a living progeny without fresh impregnation. Under a uniform high temperature this power has been preserved for the long space of four years. As autumn advances winged males are produced which impregnate the eggs destined to produce the plant-lice of the following spring. As a single individual brings forth about 90 young, and each of these in less than a fortnight is capable of yielding a new progeny, and as this power of producing young without further impregnation may extend to from 10 to 14 generations, the number capable of being produced by a single individual in the course of a few months is almost incredible. At a late period of the year when winged individuals are produced, the swarms are sometimes so dense as to obscure the light. Details of a swarm of the plant lice of the Peach are given by Morren, which was so thick as to make it impossible to see the houses from the middle of the streets of Ghent.†

642. The plant-lice live upon the elaborated sap of plants which they imbibe by means of their proboscis. The enormous quantity of nutritious matter which they imbibe may be imagined from the abundant saccharine fluid which exudes from the two horn-like processes towards the end of their abdomen. This matter is one of the causes of honey dew, and is the favourite food of ants, which irritate the plant-lice to force them to throw it out, and which sometimes carry them away to more convenient quarters, in consequence of which they were significantly named by Linnæus the ants' milch cows.

643. The swarms of plant lice are diminished to some extent by hosts of Diptera, which deposit their eggs within their bodies. The larvæ of lady birds also are their virulent enemies, a fact well known in the Hop grounds. But their numbers are so enormous that artificial means are resorted to for their destruction, and of these the most certain is the application of tobacco in the form of solution or vapour, or sometimes in the state of powder, or as it is called snuff. Almost the sole objection to such plans is the great expense in consequence of tobacco being charged with such an enormous duty. In large collections of plants, tobacco forms in fact a serious item of expenditure.

644. The woolly Aphides are not only distinguished by the downy substance secreted from their skin, but by the absence of the abdominal processes, an absence which occurs also in the genus *Rhizobius*. It is said that true plant lice do not exist in America; the woolly Aphis nevertheless is believed like some other plagues of the cultivator to be derived from that country. It was not known in England till the end of the last century, and its occurrence on the Continent is still more recent. It is one of the greatest scourges of the orchard, insinuating itself between the bark and wood, and if not checked producing incurable canker and distortion. As soon as it makes its appearance, the bark where it is seated should be brushed or cut out, and liquid tar rubbed in, and should it reappear another application may be made. With care the evil may be arrested, but if it has once been firmly established it is very difficult of complete eradication.‡ *M. J. B.*

* From α, privative, and φυω, I am born; according to the ancient notion of their spontaneous generation.

† Annales des Sc. Nat., sér. 2, vol. 6, p. 65. These clouds of plant lice were by no means confined to Ghent, but were witnessed in many parts of Belgium.

‡ For fuller details, see article Puceron in D'Orbigny's Dictionnaire d'Histoire Naturelle.

Home Correspondence.

Garden Tools.—Every good workman knows the value of a good tool. This is one of those truths which although universally known is not universally practised, for many of the tools and implements in common use are capable of much improvement. Take, for example, the wheelbarrows invariably seen in the gardens round London, and imagine if you can a more awkward implement. Now, as London professes to take the lead in all matters pertaining to gardening, one would expect to find there if anywhere the implements and tools best adapted to their respective purposes; but it is certainly not so in the case of wheelbarrows, for I have seen in remote country districts wheelbarrows which were

much superior in shape to the antediluvian articles above alluded to. These resembled in form the "navvy barrow," an implement admirably adapted for carrying a heavy load and for getting rid of it with facility; but were longer in the body and arms, higher in the wheel and legs, and more upright in the front and sides. I had a set made much after the same fashion by Mr. James Warner, of Richmond, Surrey, which the workmen greatly prefer to the old-fashioned box barrow. One of the barrows exhibited in the implement department of the Crystal Palace professes to be an improvement upon previous forms, inasmuch as by the wheel being placed more underneath the body, the wheeler has less of the weight of the load to carry upon his arms. The principle appears to be good; but whether it can be advantageously applied to barrows employed for the ordinary purposes of a kitchen-garden can only be ascertained by experience. Next after the wheelbarrow naturally come the tools for filling it—the spade and the shovel. Some of these are, in my judgment, nearly as good as they can be made, both in shape and in material. So far as my own experience goes, I prefer Parkes's and Lyndon's make, although no doubt other makers turn out very good articles of this class. Parkes's forks are immeasurably superior to the old-fashioned home-made articles which they have in a great measure superseded. Although so light and handy yet they are strong, in consequence of the excellence of the material they are made of; and in addition to their manifold uses as forks, in strong soils they may advantageously take the place of the spade for turning over the ground. I am convinced that if these forks had been used in the formation of the Crystal Palace gardens, the men employed there would have got through more work with less labour to themselves than they were able to do by toiling in that sticky clay with spades and shovels. The principal objection to these tools is their costliness; but after all, this objection is more nominal than real, for from their better quality they greatly outlast tools of an inferior stamp; and it is my opinion that they are more economical in the end than common tools of which the first cost may be considerably less. Gardeners and the employers of gardeners may depend upon it that not only in tools, but that in every article needful in gardens, even including men, the best will always be the cheapest, although costing the most money. There is little to be found fault with in some of the hoes and rakes as they are at present made. Of draw hoes I prefer those which have the eye or shank for receiving the handle attached to the blade or plate by means of a short neck; when the eye is fixed close down upon the plate the hoe is more apt to get clogged with soil. The thrust, or Dutch hoe, is, however, preferable for cutting up weeds, or for stirring the surface of the soil amongst growing crops. I have seen garden rakes of which the teeth resemble sixpenny nails; these might be all very well for very fine work, but for general purposes give me those of which the teeth are something like the blade of a pruning-knife in form. The mention of a knife reminds me that I have some fault to find with that indispensable instrument as it is at present made; not however with the quality, for that is generally pretty good, but with the shape of the blade. Every one acustomed to the pruning of wall trees is aware that in consequence of the branches being in contact with the wall, most of the cutting must necessarily be done with that portion of the edge which extends from the middle to the point of the blade, and that the back part of the edge, or the portion between the middle of the blade and the handle, is very rarely brought into use. Now in most modern pruning knives (I speak more particularly of sheath knives), the very part of the blade which has to do the most work is made much narrower than the part which has to do the least; and this is caused by the edge of the blade being made perfectly straight, while the back is curved and narrowed to a point. The consequence of this is that the forepart of the blade wears rapidly away at the edge, and in the course of time it gets to slant backwards, something like a shoemaker's paring-knife. For this and other reasons I prefer the slightly curved edge, as figured in Messrs. Mappin's advertisement in the *Gardeners' Chronicle*. Those straight edged blades, which are so fixed in the haft as to lean considerably forward, are an abomination, although they were approved, if not invented, by that great gardener Thomas Andrew Knight. Another cutting instrument, the scythe, has, if we may believe the testimonials in its favour which have appeared in newspapers and other periodicals, made a wonderful advance. I allude to "Boyd's Patent Double Action or Self-adjusting Scythe." This may deserve all the praise it has received, but before adopting it I should like to hear the opinions of gardeners who have given it a fair trial. I am myself disposed to think that its advantages over the old form are scarcely commensurate with its increased cost; for when a mower gets a new scythe-blade he always has it set to suit his own stroke, and as the same man always uses the same scythe, I cannot see that, except in some few special cases, the joints in Boyd's scythe are any great improvement. Another patent scythe of older date has its thin steel blade attached to a strong back rib, and it might naturally be expected that owing to this thinness these blades could be more readily sharpened than common scythes; but they are generally made so very hard that it is difficult to bring them to a good cutting edge. I was struck with the handy look of the American axes exhibited in the Crystal Palace in Hyde Park; yet these tools do not seem to find favour in the eyes of British husbandmen. Possibly, however, this may be owing to the difficulty of procuring American axes. My remarks have already extended to so great a length that I must not now attempt to review the multiplicity of instruments in the shape of shears, scissors, nippers, &c., which are to be seen in cutlers' and ironmongers' shops, many of which are certainly more ornamental than useful. The preceding observations were chiefly written before the schedule of the Horticultural Society was published in the *Gardeners' Chronicle*. From it I learn that the Council of the Society is desirous of having an exhibition of "Horticultural Manufactures." This is a capital idea, and I trust it will be worthily supported by those persons whose business it is to supply the wants of the gardening community with such articles. Might I here venture to suggest that if manufacturers would confine their ingenuity to the perfecting of such tools, implements, &c., as are really necessary in gardens, they would confer a much greater benefit upon gardening than by inventing a whole host of those pretty playthings that every now and then are brought forward as new garden tools. *A Gardener.*

Hydraulic Pressure.—A new fountain is about to be erected in a situation very considerably below the reservoir from which the water will be taken from some two or three hundred yards distant. Our gardener and the person who is to lay down the pipes say that by laying down very large conducting pipes, say 4 inches diameter, the water will be raised much higher by the jet than if the conducting pipes were smaller. My opinion is, that if the supply and delivery pipes are properly regulated, the diameter of the supply pipe has nothing to do with raising the jet higher; but that the elevation and pressure only will affect the height to which the water will be projected. If I am wrong I am sure that some of your readers will set me right. *O. P.*

Foreign Cheats.—Would Sir Joseph Paxton appropriate a small border at the Crystal Palace to the growth of such plants as "Fraise arborea du Mer Rouge" and the "Scarlet Lilac," with such further information respecting them as the fortunate purchaser would afford, or the laws of libel allow? I mention the Crystal Palace, because exposure there would be more universal than at Chiswick, and I expect the necessary dimensions of the border would decrease annually. *Diss.*

Slugs.—If your correspondent "J. R.," p. 153 *c*, will turn to p. 151 *b* in the last Number of your Journal, he will there see a resource suggested which I should be very glad if he would try; and if successful, report its success in some future Number of the *Gardeners' Chronicle*. I wish I could offer him a stock of slow worms to commence with. If Mr. Rankin's paper gives any information as to the readiest mode of procuring a number of live specimens, or the best provision to be made for their residence in a walled garden, you will probably favour your correspondents with further extracts therefrom. The cause of humanity invariably gains by an accession to the knowledge of the habits and instincts of animals. And the introduction of slow worms into gardens for the destruction of slugs may impress upon gardeners and their boys the distinction between the slow worm and the viper, and prevent the indiscriminate slaughter of the one in mistake for the other. *Diss.*——Having lately lived in a warm moist climate we were sadly beset with slugs; we could hardly set foot on our gravel walks without trampling on them. After trying various plans, such as hand-picking, bran, Cabbage-leaves, and lime, in the old-fashioned way, we found their numbers even increasing. We soon, however, found a remedy which I am of opinion is the only effectual one; it is as follows:—Get some fresh slacked lime, very fresh and quick, choose a fine dry evening, not earlier than 10 o'clock P.M. (indeed midnight would not be too late) when they are all out; throw the lime all over the ground, not heavily like manure, but lightly as Grass seed is sown, for the least dust is instant death to them, and next morning you will have the satisfaction of seeing them dead by thousands. This repeated as long as there are slugs (which will not be long) will thoroughly cleanse your garden, however pestered. It cleansed ours in a few weeks, and we have never had them since. *Devonia.*——Let your correspondent "J. R." examine the depth of their retreating holes carefully with a spade, collect a lot of faggots or old Pea sticks, or slack or small coal if at hand; lay them down in parallel rows from 10 to 12 feet apart, being guided by the depth required to be charred or smoked. Commence proceedings by kindling the ends of your parallel rows, with a spade raise the soil in large lumps, building them carefully over your fires, and as the fire burns along the rows keep adding the rough clods, covering all over with the fine or small soil. Be very careful not to burn it too much, or when you begin to level down the ridges, you will find your soil turning out in the shape of horse heads; merely put in as much faggot wood as will thoroughly char or smoke the soil to the depth of at least 15 inches, or at all events as deep as your enemies seem to make their retreat. When levelled down and well incorporated with the fresh subsoil you will find your soil greatly improved thereby for after cropping, and your slugs set at a distance. But after all, when done in the most careful manner possible, it is then only a patch-up for an old garden. Why not set to work, if your garden is well inclosed with good walls, and wheel your old soil out for improvement in the shrubbery and have it replaced with new from the meadow or cow pasture, which would be satisfactory to yourself and posterity for another half century? In selecting a site for a kitchen garden it ought to be the best the locality can afford, and should the soil be poor have it excavated to the depth of at least 2½ feet. Thorough drainage must not be neglected; when the levels are properly taken fill up with the best soils that can be found on the estate. When noblemen and gentlemen go to the expense of erecting costly walls and magnificent ranges of hothouses, no pains ought to be spared in putting the respective quarters of the kitchen garden in order for future cropping, as any oversight at this stage of proceedings will be the cause of many after crotchets, as every cubic inch of soil ought to be as carefully selected for the making of a first-rate kitchen garden as if it were chosen for the use of the potting bench. The kitchen garden is a useful appendage of an establishment, and cannot be dispensed with where vegetables are required in due season of superior quality, and that sometimes is not an easy matter when every cartload of dung or fresh soil has to be coaxed or squeezed through the fingers of the farm overseer. The poor gardener's difficulties of this kind are seldom an excuse for slugs devouring his crops, when he is expected to cope with his neighbour's gardener, with his horse and cart and the full range of the domain to suit himself, and that at the proper season. Let us take an old garden well walled and well covered with modern hothouses, with walks and shrubberies adjoining, everything in the highest degree of finish, except being perplexed with slugs. In this case I say wheel them hence, along with the heart-broken soil, renewing with fresh loam, which will make the garden as good as new. It looks rather a formidable job to set about, and cannot be done for nothing; but as it is not an every day or an every year undertaking, the expenses will be looked upon as a small item in the expenditure by those who prefer to eat tender and healthful vegetables to bad ones. No old garden soil will produce vegetables so sweet and nutritious as fresh maiden loam. *Miller.*

Locusts in S. W. Australia.—The complaint of your correspondent "C." (ante, p. 154) is but too well founded, whilst the remedies for destroying this plague of locusts are very difficult in their application. As the Australian species belongs to the same group as the migratory locust, the remedies which have been suggested for the destruction of the latter will doubtless be applicable to the former. Burning the country, without previous arrangements for the inhabitants acting in concert, is but of little use: if the locusts within a given space were driven (in the same manner as game for a battue) to a small central enclosure, they could then be more easily destroyed by fire, or, what is better, they could be beaten down as they are driven forward with broad switches or bundles of twigs. To do this, or indeed to effect any general remedy, the whole inhabitants of the infected district ought to act in concert. This labour should also be commenced as soon after the arrival of the locusts at a given spot as possible, whilst they are fatigued with their flight, or at night and morning, and in rainy weather, as they are but little disposed to fly at such times. A plan was tried in France, in 1810, of having sheets of linen fastened together with a bag between each pair. These were held up so as to form a barrier, towards which the locusts were driven in the manner above mentioned; and when they had settled upon the linen sheets the latter were shaken so as to make the locusts fall into the bags, which were then emptied into deep holes, and the locusts quickly covered over with earth and buried. This plan is also equally serviceable with the young voracious wingless specimens which are hatched from eggs deposited in the earth by the females. They change their skins several times before attaining the winged state, and as they can only hop about in their early state they are easily killed by strokes from bundles of twigs. For a time after emerging from the eggs they are gregarious, and if their hiding places be diligently sought for they may be destroyed by thousands. After their third or fourth moult they may be driven forward into deep holes and buried. *J. O. W.*

Jonesia Asoca.—A young plant 12 inches high of this magnificent stove tree is now in flower at the gardens of Josiah Spode, Esq. It was struck from a cutting on the 29th of April, 1856, and it now has on it a splendid truss of beautiful flowers. Is it usual for so small and rare a plant to produce such perfect flowers as this has done? *W. May, Gardener, Hawkesyard, Rugeley, Staffordshire.*

Root Pruning.—I have practised this for years with good effect in many cases, but may it not be overdone? Let me explain myself. I have several Plum trees, which have borne at times good crops, but they have grown of late very much to wood—"regular canes." They have been root-pruned several times, and even last spring, but with no better results. I have just now been examining them again, in case any of the tap roots might have been missed and gone down into the bad soil "till;" but I have found none; the whole of the roots, however, are such a mass of fibres that they can hardly be separated. Is not this the cause of growths such as I complain of, there being so many feeders? *N. G. A.*

Fraudulent Sale of Cut Flowers.—Florists, I am sure, round other towns as well as London are deeply indebted to you for your very just remarks upon the case of Bowden *v.* Young. I have myself been a florist for many years, and at one time I did a fair trade in Covent Garden; but somehow or other the florist's trade has been gradually getting worse of late years. We thought

that competition was the cause, the income-tax, or dear things in general; the idea of a paid servant selling his master's property for his own gain never entered our minds. This is a monstrous evil, and must at once be stopped. Supposing a butler was found selling his master's wine by the dozen, would a 20*l.* fine get him off! He would get off by getting out of the country. The gentleman who knows how to act the detective officer will soon find out where all his flowers, fruits, and forced vegetables go to. Every honest gardener must sincerely wish that a stop may be put to such evil practices. *A hardworking Florist.*

Potatoes in Tan.—I have been a Potato grower for nearly 30 years, and have therefore some experience in the matter. The following is my plan of planting Ashleaf or other first early Potatoes, which I have always found to succeed remarkably well. I first ridge my ground in autumn or winter in rows 2 feet apart, beginning at one end of the row and laying the ridge in three spadefuls 8 inches wide and a good draw deep, say 10 inches; laying the two outside spits first and then crowning them with one at top, and when at the end of the row I return back by the side of the first row, finishing the ground as I proceed, and leaving it to the frost to mellow. Then in January or the beginning of February I procure some old tan and place about 2 inches thick on the floor, and under the hot-water tank of a cool stove. I then take my Potatoes and place them singly on the top of the tan, pressing them gently in. When I have got a sufficient quantity done, which is about 12 bushels, I cover some more tan about 1 inch thick over the whole. I then take a brush and sweep it in between the Potatoes leaving them partly bare at top. I then take a watering can and give them a good shower to settle the tan between the Potatoes and do no more to them until they are ready to plant, which is when they begin to show their green buds all over the tan, and by this time they are a mass of roots and fibre. I then take them carefully up one by one, Potato fibres and tan all in a mat together, and place them carefully in a basket; I then proceed to plant a row between each ridge at the bottom about 9 or 10 inches apart, and if the young shoots are any way drawn or the ground cold I take a basket of old tan and cover up the young sprouts to protect them from perishing or being broken off by the filling-in, which I do with a fork, forking down each ridge upon each row of Potatoes, or if the land is light I fill in with a hoe. They are very little time before they are up, and generally come very early and produce a good crop of excellent quality. I always plant Ashleaf Kidney for the first crop, Flourball for second, and Prince Regent for a main crop. I have never found anything to beat those three for general purposes. *Richard Rilott, Donington, near Spalding.*

Societies.

LINNEAN, *March* 3.—Prof. Bell, President, in the chair. A. Newton, Esq., M.A., and the Rev. H. B. Tristam, M.A., were elected Fellows. G. Bentham, Esq., exhibited two curious instances of abnormal development in plants, the one being Orchis pyramidalis having all its flowers destitute of the usual spur, and the other Cardamine hirsuta, in which the leaves at the point of junction between the petiole and lamina had become proliferous. The latter specimens had been communicated by Miss Llewellyn, of Penllergare. Dr. Lindley remarked in reference to the Orchis that such cases had been observed, occurring not commonly but now and then, among cultivated species of this family, especially in the instance of Calanthe veratrifolia, and seemed to be connected with some disturbing cause generally influencing the other parts of the floral whorls. In reference to the proliferous Cardamine, he adverted to the fact that something similar had been before recorded. These proliferous growths, he suggested, were to be referred to the organising power of the cellular tissue, provided it were kept from decay for a sufficiently lengthened period for this to take effect. The following papers were read:—1. "A Synopsis of the Genus Clitoria," by G. Bentham, Esq. 2. The first of a series of papers to be entitled "Præcursores ad Floram Indicam," by Dr. J. D. Hooker and Dr. T. Thomson. These papers were to form a synopsis of the materials on which the Flora Indica of the same authors was intended to be based, the publication of the latter work having been for the present suspended. That read on this occasion had reference to the natural orders Stylidiaceæ, Goodenoviaceæ, Campanulaceæ, and Lobeliaceæ, the latter of which the authors propose to replace in Campanulaceæ. The general remarks by which the subject was prefaced included a third paper or memorandum by Mr. Bentham, "On the Principles that should be adopted in the Formation of Genera and Orders of Plants," the argument of which was mainly directed against the excessive multiplication of generic names introduced into ordinary botanical language. In juxta-position with this view, however, was the admission that the limits of genera and other systematic groups are so far arbitrary, that they may be very differently regarded by different observers.

Garden Memoranda.

NORTH CRAY PLACE, Kent, the residence of Western Wood, Esq.—This place, long celebrated for its fine gardens and park, has lately undergone considerable improvement. A range of new forcing-houses has just been put up. The first division was filled with Strawberries (principally Keen's Seedling) standing upon a curvilinear stage the shape of the roof; as a whole these were very fine, every plant being furnished with strong leathery leaves and from 10 to 15 good and finely formed fruit, many of which were colouring. These plants had been procured from early runners grown in a cool pit till growth was completed, when they were turned out beneath a south-east wall to ripen and prepare them for forcing early in December, prior to which they are top-dressed with the following preparation, consisting of good strong loam, cow and fowl's dung at least two years old. The next house was filled with fruiting Pines, which were remarkably strong, the fruit of many promising well. At the back of this house was a painted wooden trellis on which grew Cucumbers for winter use, fine fruit of Sion House and the old Lord Kenyon's Favourite, were hanging plentifully. The following house was filled with succession Pines, which promised to give an abundant return; beneath the tan bed in which the Pines were plunged was a good crop of Mushrooms, a preference being given to growing them here to having them in Mushroom-houses. The late house adjoining the range of old Vineries has been converted into an orchard-house, being filled with Peaches, Apricots, Figs, and other fruit in pots. The Peaches were finely blossomed, and we observed a good scattering of young Figs. In the next house the Vines were breaking strongly; some of them were old stools cut close back and a young shoot encouraged to replace them. French Beans, Early Potatoes, and succession Strawberries were here in abundance. Two years ago, Mr. Taylor, the gardener, lifted the roots of all his Vines entirely, moved away the soil, concreted and drained his border, and refilled with fresh material; the vigour of his canes shows that the step was decidedly one in the right direction. In the stove were some good plants of Orchids, especially Dendrobes beautifully in bloom; Gongora maculata, Phaius, and others, were flowering profusely, together with Epiphyllum truncatum very finely in blossom, and a few splendidly grown Lycopods and Ferns. This tribe has received here much attention. Adjoining this house was a range of pits filled with Neapolitan Violets flowering in great perfection; they are grown in what are generally termed 32-sized pots. In the plant houses we observed good plants of Aphelexis, huge specimens of Salvia gesneriflora for conservatory decoration, Leschenaultia formosa, Azaleas, and Heaths all in extremely good health, and carefully staked and tied. Three or four fine plants of Tropæolum tricolor were trained on circular trellises, the pots mossed during the growing season, and placed in order to furnish the trellis equally. These would not disgrace a metropolitan show. The conservatory is attached to the drawing-room; it was furnished with huge specimens of Azalea indica in full flower. There were also here in luxuriance Rhododendrons, Ghent Azaleas, Kalmias, and Roses, principally Hybrid Perpetuals, Cytisus, Camellias, Primulas, Lily of the Valley, &c. In the centre of the conservatory is a circular fountain, which plays during the summer months, but in the winter the basin is filled with half hardy and other Ferns. Out-doors we observed several rockeries made of burr bricks, tree stumps, &c., for hardy Ferns in cool retreats. A new Rosery has just been completed; it contains some hundreds of the finest varieties planted so as to form a semicircular group. The turf on the lawn had been taken up where it had become decayed, and was replenished by new. The walks have been turned and rolled, and looked clean and neat for the season of the year. Leading from the Rose garden, an old walk overhung with different shrubs has been removed, and a portion of the park taken in forming a curved slip, which serves for a fruit garden and private road to a secluded department which is used for forcing Seakale, Rhubarb, and Asparagus, on the old system of bottom heat in pits derived from fermenting leaves and dung. The kitchen garden was well stocked, and all spare ground ridged up. Pruning has been completed, and coping boards put over the wall trees to protect them; and for Apricots far advanced nets were being prepared to use as a screen. Walks of a durable character have been made of a mixture of sand and coal ashes. These are intended for a new fruit and kitchen garden, into which a portion of a field is now being converted.

Notices of Books.

Bermuda a Colony, a Fortress, and a Prison. By a Field Officer. 8vo. Longmans; pp. 287, with a map and coloured plates.

Few people know much of Bermuda, except those in immediate relation with it; and yet, considering its smallness, it is one of the more important possessions of the British crown; our American friends being held in check by its military position, and our dangerous classes finding there a prison from which there is no escape. The object of the author of the volume before us is to narrate its former history, to describe its present state, to insist upon its vast importance, and to point out its future destiny. Nor are these his only objects; he also describes unreservedly what he considers the extreme injustice as well as bad policy of our system of military promotion; the great official extravagance that has been tolerated in the colony; and the insufficiency of the punishment inflicted on the convicts, whose life he describes as enviable when compared with that of the garrison. From his remarks on the latter subject we select the following passage:—

"The English public is distracted by a multiplicity of projects for settling the much agitated question of the treatment of criminals, as to whether, finally, the main object is to be the defence of society, the reformation of its enemies, or a combination of both those measures.

"When England has had a sufficient personal experience of the 'work' to which hastily released convicts betake themselves with a stronger gusto than ever, she will learn to doubt official statistics pregnant with malefactors reformed upon paper. Then we may again hope that common sense will regain her empire over maudlin sensibility. Criminals of a deep dye cannot be mollified any more than great wars can be carried on with rose water. Before a Howard and a Fry interfered in the cause of humanity, even the innocent were often cruelly treated in prison; but for many years the national bias has tended towards the other extreme, and the guilty have been treated as unfortunate beings, claiming an especial degree of sympathy and kindness. (In former days robbers were hanged; but at present the only necks in danger are those of the robbed.) Let us hope that the happy medium may yet be found between legal cruelty and legal impunity to crime; but let us not imagine that mere education will either reform great criminals, or even prevent great crimes for the future." We suspect that these sentiments will find many an echo among the gallant officer's readers.

We read with great pleasure the following description of the government of Colonel now Sir Wm. Reid, whose invaluable labours are not known as they ought to be.

"In 1839, Colonel Reid assumed the Government, and did not quit it till near the close of 1846. During this period, that distinguished officer greatly improved the colony committed to his charge. His special attention was turned to three points, which had for some time been greatly neglected; namely, education, agriculture, and local improvements.

"With regard to local improvements, Governor Reid widened the eastern entrance of St. George's harbour, and made preparations to remove the sand bank by submarine explosions. He also projected the connecting of the main island with St. George's by means of bridges to either shore from Hen Island. The Bermudians attribute the non-execution of these latter plans to the vacillating conduct of Governor Reid's successor.

"The improvements in agriculture, introduced by Govenor Reid, have greatly advanced the wealth of the Island. The subject deserves, therefore, to be briefly considered in this place.

"During the earlier years of the colony, shipbuilding was strictly prohibited by the Company, who would not suffer a Cedar tree to be cut down without its sanction. The Bermudians therefore necessarily became agriculturists. But when the rule of the Company ceased, the natives zealously embraced the occupations of shipbuilding, commerce, and fishing, the previous restrictions acting as strong additional incentives to natural predilections. The most worthless slaves were employed in agriculture; the better ones as domestic servants and boatmen. This circumstance naturally brought agriculture into contempt. For a long time a white man could scarcely 'ever be induced to follow occupation in the fields.' Even at the present day, agricultural labourers demand very high wages, I believe as much as 3*s.* a day."

"Before therefore improvements in agriculture could be hoped for, it was necessary to eradicate some of the strongest prejudices of both the white and coloured population.

"That this has been in a great measure effected, is fully established by local statistics. In 1839, there were only three ploughs in Bermuda; in 1843, about four years after the arrival of Governor Reid, they amounted to 54; and in 1851, they had increased to 104. At present they are in general use, except in cases where the spade is preferred; as, for instance, in planting Potatoes—an article which is beginning to rival Arrowroot as a staple commodity."

Let us add that the plates, executed in lithotint from photographs, appear to be excellent representations of Bermudian scenery.

The Education of Character; with Hints on Moral Training. By Mrs. Ellis. 8vo, pp. 296. Murray.

A more able work than this has not lately issued from the press. Mrs. Ellis shall make her own statement, for we are conscious of our inability otherwise to do justice to her vigorous style:—

"It would be a waste of words and time, and especially of the reader's patience, to attempt to show the many fallacies, and above all the utter confusion, surrounding and inwrought with our ideas on the subject of education, as generally considered—a subject which ought to be the clearest and plainest of all, but which seems destined to entangle the ideas of those who listen, and attempt to understand, in a labyrinth of difficulties impossible to be overcome. Unless indeed one might venture to clear away a little of what I will not presume to call rubbish, but rather an accumulation of learned and recondite matter from the entrance pathway to that great temple where thousands upon thousands now stand and wait, ready for the dawning of another kind of intelligence than has yet enlightened the world.

"By what means soever the subject of education can be simplified and made clear, an incalculable amount of good may be effected. One individual may remove one difficulty, another may see better how to remove another, and so on, each working out his own part, however humble, until higher minds discover that a few practical workers have made clear and open standing

ground for them whereon to rest their arguments when they come forward to instruct mankind on the all-important subject of education.

"It is precisely in this manner, and simply with this view, that the suggestions I am about to offer are now thrown out. They are suggestions only, always experimental, and often crude. I pretend to no completeness of system, scarcely to any arrangement of ideas, so far as to render practical some of the plans proposed. I believe, however, that education is now in that particular stage of progress, or perhaps it would be more correct to say of *no* progress, in which help must be looked for on the side of simple, plain, and practical workers; not on that of great theorists, or even great scholars. The help most wanted by our country at the present time is on the moral, not the intellectual, side of education. It is here that weight is required, in order to render the social balance more equal; and it is here that simple earnest people, possessing intimate acquaintance with the world and its wants, are often the most clear and decided in that which they do understand, and understanding, feel."

The object of the entire volume is to sustain these propositions and to explain in what manner they can be practically worked out. The skill with which this has been effected, and the good sterling sense which pervades every page do equal honour to the authoress's head and heart. We most strongly recommend her suggestions to the consideration of every unprejudiced mind. Her chapter on poor men's wives is most especially admirable, for the concluding paragraphs in which we must find such room as is possible:—

"And such are the mothers of that class of beings from which to the greatest extent our gaols are filled. And seeing that this is so, we construct more prisons, and devise more plans for the reformation of juvenile offenders after they have fallen; until the great science of life would seem to be, how to get rid of the consequences of crime.

"When we reflect upon these things, upon the vast array of means employed for this purpose, including always the detection of the offenders and the retributive punishment of the offence—when we consider the widely extended and powerful agency kept always on the alert, with these objects in view—when we take into account all which pervades the lengthened trial and the awful judgment, and when we add to these the various penalties enforced for minor transgressions—the numbers of human beings incarcerated, exiled, or kept under some kind of bodily restraint—when we consider also those who watch, as well as those who suffer, it is impossible to restrain the secret but earnest desire that some of this effort, this time, and this vast outlay of means, could be expended upon the right training of the mothers in their early career; so that in some cases at least the children of such mothers should be taught to walk in the ways of order, decency, and comfort, that thus they might be less likely to become the victims of crime."

Miscellaneous.

Rain-fall in the North of Devon.—The most evident difference in the rain-falls of the East and West of England is in the simple amount; 24 inches, for example, being the mean annual fall at Chiswick, while at Truro it is 44 inches, and this difference is borne out by the observations so far taken in the North of Devon. From calculations made from the information I have been able to obtain, I am inclined to give the following as probably a near approximation to the actual truth. Estimated mean annual fall of rain in the North of Devon, 40 inches. Estimated quarterly distribution, in inches, 1st qr., 7.47; 2d qr., 10.67; 3d qr., 10.88; 4th qr., 10 98; or, among the seasons—winter (Dec., Jan., Feb.), 9.70; spring (March, April, May), 8.50; summer (June, July, Aug.), 11.50; autumn (Sept., Oct., Nov.), 10.30. Of the months, October is the wettest, the mean fall then being more than 5 inches, while in November, the driest month, it is not quite an inch and a half. June apparently is the next wettest, and March the next driest month. The above average however, though I believe sufficiently true of lands not exceeding ordinary elevations, is subject to wide variations. At Westland Pound (Kentisbury), 930 feet above the sea, 46 inches of rain fell in 1855, and this probably was several inches below the average; but at Braunton Lighthouse in the same year only 24 inches fell, which may be considered the usual amount there. The high land of Exmoor freely receives and condenses the vapour from the Atlantic, while the low lying land at the mouth of the Taw suffers the rain clouds to pass comparatively without tribute. *North Devon Journal.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Climbers in this structure will soon want frequent attention. Prune off all superfluous shoots; stop or pinch the points of luxuriant leaders, in order to induce a flowering habit in those which produce blossoms from the axils of their leaves, and keep them neatly tied and trained. Large Acacias will now require abundance of water; such as are growing beneath the floor level, or under stone covers should when watered have a thorough soaking. In stoves attend to shifting, watering and maintaining a free circulation of air. Continue to cut down, disroot, and repot such plants as have been flowering through the winter. These would be better removed to a bottom heat of 80° in some spare pit or frame and shaded, treating them like young Pines until they break, when they may if necessary be returned to the stove. Follow up the shifting, top-dressing, &c., of Orchids in general; syringe freely those on blocks or baskets. Let this be done early on sunny mornings, giving extra air with a little fire-heat on such occasions, in order to correct any excess of moisture. Growing Orchids should now be carefully shaded for two or three hours on bright days, more especially those which have been disturbed at the root; these would be far better removed to a house or pit by themselves, as the established plants which have remained undisturbed will enjoy more sunshine. In greenhouses keep up a lively circulation of air all the early part of the day, and dispense with fire-heat as much as possible. Where a house of this character has stove as well as common greenhouse plants in it a warmer climate than that of the common greenhouse should be maintained. To effect this, practise the early shutting up so much insisted on by all good gardeners, and on such occasions take care that the fire has been very low or out for an hour or two previously. The heat thus secured for the evening, if accompanied by sufficient atmospheric moisture will establish a healthy and short-jointed growth. Make a sowing of tender annuals if not already done. Pot off Balsams and Cockscombs, &c.; these things will do better by far, however, in a frame with fermenting materials close to the glass, well matted up at night. Continue potting off stock for the flower garden; also make cuttings constantly of Verbenas, Fuchsias, Petunias, Dahlias, Geraniums, &c.; they will all be wanted for some purpose. Shade newly potted Stocks, and more especially cuttings carefully, and remember that in making cuttings the leaf should not be allowed to flag and then an attempt made to restore it by abundance of water; the leaf should never be allowed to droop.

FORCING DEPARTMENT.

Pineries.—Attend carefully to the bottom heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is exceedingly apt to do after fresh materials have been added, either during bright weather, or where there are pipes under the bed. Where much fire heat is used it requires some practice and attention to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast until we may be favoured with more sunshine, when if all is right at the roots there will be no danger of drawing the plants, as would be the case in the present state of the weather. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom with the syringe. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up a regular succession of plants, which is the surest way of providing for a succession of fruit. Vineries.—See that the houses in which the Vines are not yet started are properly cleaned, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary in the succession houses, and see that the inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of this to Vines in pots.

HARDY FRUIT AND KITCHEN GARDEN.

A sowing of late spring Broccolies may now be made; they will, however, be sufficiently forward for general purposes if sown a fortnight later. See to having early Horn Carrots; to preserve these from slugs nothing is better than finely sifted cinder ashes, with the mere dust taken out of them. Be sure to salt all Asparagus and Seakale beds; little and often is the best way of applying it. The time is approaching for planting Asparagus; it should not be planted until 6 or 8 inches high. As regards fruit trees, continue to protect blossoms and to eradicate insects by all possible means. See that winter and early spring work amongst fruit trees is brought to a close forthwith. Finish the root pruning of all luxuriant trees; most people will have observed the effect of moving a large Pear tree very late in the spring; it generally becomes covered with blossom-buds. Such may be expected to be the effect of root-pruning at this period.

FLOWER GARDEN AND SHRUBBERY.

See that rolling, mowing, &c., proceed in due order. Now is the period for laying the foundation of a fine lawn, the pride of English gardening. Let all fresh turfing be completed forthwith; it is a good plan to scatter old tan thickly over it as a screen from the sun; until it gets hold occasional waterings are also essential. Early overgrown herbaceous plants may now be divided, the exterior portions of the stools should be reserved and the interior rejected. Be sure in planting them again to introduce fresh soil. Cut in all coarse evergreens and shrubs before the bud becomes too much advanced; this is a good time to cut in Holly hedges. Planting done after this time will require much attention in watering, and this at the very busiest season of the year, especially if large plants are removed, and it is too common a practice to put off such work to the last. Look over beds planted with bulbs, and where necessary stir the surface soil so as to keep it open and friable, and also to give it a fresh appearance. If the stock of bedding plants is still deficient get in cuttings in the most favourable position without loss of time. See to the propagation of Dahlias and Hollyhocks; the latter have of late years become so much improved that many consider them superior to the Dahlia in the effect which they produce when planted skilfully, and therefore especial attention should be paid to having a good supply of them. Cuttings slipped off the old plants with a heel, planted in very sandy soil, and afforded a gentle bottom heat, keeping the leaves as cool as possible, will be found to root perhaps more freely at this than at any other season. Get Calceolarias hardened off by removing them to a cold frame, and exposing them freely to air when the weather is at all favourable, preparatory to planting them in turf pits to make room under glass for more tender things.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending March 12, 1857, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 6	10	30.016	29.973	54	30	42.0	44	42	W.	[illegible]
Satur. 7	11	29 922	29.809	53	33	43.0	44	42½	W.	[illegible]
Sunday 8	12	29.556	29.470	47	28	37.5	44	42	W.	[illegible]
Mon. 9	13	29.992	29.715	44	27	35.5	45	42½	N.	[illegible]
Tues. 10	○	30.005	29.932	40	30	35.0	42	41½	S.W.	[illegible]
Wed. 11	14	29.989	29.875	40	25	32.5	43	41½	S.W.	[illegible]
Thurs. 12	15	30.002	29.990	45	28	36.5	42½	41	S.W.	[illegible]
Average..		29.940	29.823	46.1	28.7	37.4	43.9	42.1		.15

March 6—Fine; overcast; cloudy.
— 7—Fine throughout: cloudy at night.
— 8—Cloudy; snow occasionally; boisterous at night.
— 9—Boisterous, with snow and sleet; frosty.
— 10—Frosty; clear; cloudy and cold.
— 11—Overcast; cloudy; frosty at night.
— 12—Slight haze; cloudy; fine; frosty.
Mean temperature of the week 3¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending March 21, 1857.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	50.7	34.5	42.6	15	0.37 in.	4	5	1	4	4	6	3	[illegible]
Mon. 16	51 2	34.6	42.9	12	0.68	—	8	5	—	4	8	4	[illegible]
Tues. 17	49.5	33.2	41.4	14	0.36	4	6	4	—	3	6	5	3
Wed. 18	49.6	33.5	41.5	8	0.24	3	8	2	1	2	5	8	2
Thurs. 19	50.6	33.5	42.0	9	0.33	3	4	6	—	2	9	5	2
Friday 20	51.7	34.1	42.9	12	0.36	2	3	4	2	—	11	3	6
Satur. 21	51.6	34.1	42.9	14	0.21	7	3	1	3	4	6	5	2

The highest temperature during the above period occurred on the 19th and 20th, 1836—therm. 69 deg.; and the lowest on the 17th and 20th, 1836—therm. 16 deg.

Notices to Correspondents.

Hyacinths: *Grateful.* They should be well attended to after they have bloomed, great care being taken that the foliage does not get injured, as on this depends in a great measure their successful flowering afterwards, though they seldom bloom so finely as the first season from a good maiden bulb. When the leaves have perfected their growth, and have begun to assume a yellow tint water must be withheld, and when withered the bulbs may be dried off. The second season they may be planted out-of-doors in turfy loam, very rotten cow manure and leaf soil in equal parts, with say one-sixth silver sand. It is not necessary to lift Crocuses every year, but Tulips and Anemones are in general removed and replanted annually. ‡

Hysterophytal: *G J J.* This term was, we believe, first applied to Fungi by Fries, who, in contrasting them with Algæ, also called the latter Protophytes. He regarded Algæ as bodies born originally in an independent manner, like other plants, while Fungi are not born independently, but later than some other plant or matter out of which they originate. See *Fries Syst. Mycol.*, I. xxi.

Labels: *C A.* Zinc labels may possibly answer your purpose. A good ink for them is nitro-muriate of platinum, or they may be painted over with whitelead, and the names written on them with common ink.‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J W.* The Lichen called Peltigera canina.—*Finsbury.* Gnidia simplex.—*C M.* It is the common Bignonia radicans, which is perfectly hardy where it ripens its wood, but not elsewhere. B. grandiflora is more tender. When you get it put it in a hot south corner or on a wall where it loses no sun.

Paper in India: *W W.* Anything that yields fibre will make paper. You should apply to Mr. Budworth Sharpe, of Myddelton Square, Pentonville. The Journal of the Society of Arts, and Dr. Royle's book on the Productive Resources of India should be also consulted.

Peas: *Colchester.* For bottling one kind is about as good as another. Any of the green Marrowfats we should think would answer perfectly.‡

Rhododendron javanicum: *G W N.* Bud or graft it on R. catawbiense.‡

Vines: *W B.* The cause of your Vines being so bad can only be ascertained by examination on the spot.—*A Young Gardener* should inquire of some experienced neighbour; many circumstances may explain his case; but it is of no use to guess. Any experienced Grape grower will tell him, after inspection upon the spot, what is the matter and what to do.

Wild Roots: *A Constant Sub.* The common Orchis maculata and the Earth-nut Bunium Bulbocastanum cannot be improved by any known cultivation.

Misc.: *M G Y* Erysimum Peroffskyanum is a hardy annual, growing 1½ foot high. Sow it in April. Cut off the flower-stems of Hyacinths when you please, but do not touch the leaves. Take up Snowdrops and Crocuses when their leaves shall have died naturally; not sooner. Make good your Lawn by sowing seeds now; they cannot well be too thick.—*J A.* There is nothing in the Vine leaf in its present state to show what has produced the holes in it. They seem to have occurred when it was first forming and to have enlarged afterwards. They *may* have been eaten by some night-feeding insect: but the leaf, in its present state, looks as if it had been in a bad atmosphere. Don't let your Vinery rise higher than 55° at night at this season. As for the other leaves we suppose them to have been injured by cold acting on unripe wood, the result of bad drainage or a too damp atmosphere.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.
N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

F. C. HILLS' ARTIFICIAL MANURES.
SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

LONDON MANURE COMPANY
(Established 1840).
In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.
THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.
Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.
EDWARD PURSER, Secretary.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).
Trustees.
Abel Smith, Esq., Jun., M.P., Walton House, Ware, Herts.
Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-Gen. Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.
DIRECTORS.
Chairman—Jonas Webb, Esq., Babraham, Cambridgeshire.
Deputy-Chairman—John Collins, Esq., Myddelton Square, Pentonville.
Edward Bell, Esq., Tottenham, Middlesex.
John Clayden, Esq., Littlebury, Essex.
Richard Hunt, Esq., Stanstead Abbot, Herts.
Thomas Knight, Esq., Edmonton, Middlesex.
Robert Leeds, Esq., West Lexham, Norfolk.
Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
George Savill, Esq., Ingthorpe, near Stamford.
(*With power to add to their number.*)
Bankers—Messrs. Barnett, Hoare, & Co., Lombard Street.
Solicitors—Messrs. Kingsford & Dorman, 23, Essex St., Strand.
Auditor.—G. W. Brown, Esq., 28, Parliament Street.
Manager.—James Odams, Esq.
Secretary and Chemist.—James Taylor, Esq., F.C.S.
Offices, 109, Fenchurch Street, London.
Manufactory — Plaistow Marshes, Essex.
The Directors of the above Company have great pleasure in acquainting their friends and the agricultural community, that they have now completed their extensive Works and Machinery for the manufacture of their Manures; and having secured nearly the whole of the Blood produced by the butchers of the metropolis,* and a large stock of other necessary materials of the best quality, they are now in a position to supply their Patent Manure of the highest quality; and the fact that they and the Shareholders themselves FARM UPWARDS OF 30,000 ACRES OF LAND, cannot fail to afford a guarantee and protection to their brother farmers.
BLOOD MANURE FOR TURNIPS.
The Phosphates absolutely necessary for early development and rapidity of growth in the young stage of the plants are in a larger proportion in a soluble form than is usually met with in ordinary samples of Super-phosphate of Lime, and, the Blood supplying Nitrogen, the latter growth is also secured, hence the superiority of the Patent Manure. It may be used alone at the rate of 4 cwt. per acre, or, if farm-yard manure is used, 3 cwt. will be sufficient, with an equal quantity of fine mould or ashes.
N.B.—For this, as for all other root crops, an additional application of Blood Manure will much more than repay the additional cost. Though two or three cwt. per acre will produce a superior crop to that from a similar weight of Superphosphate of Lime, the application of a much larger quantity will be found even more remunerative. The rent and charges must be paid equally, whether the land yields 10, 20 or 30 tons an acre; so that an addition of eight or 10 tons of roots beyond the common crop costs nothing more than the price of the extra 2 or 3 cwt. of Blood Manure applied.
It is now upwards of four years since the Patent for the Manufacture of this Manure was taken out, and the great success which has attended its application, BOTH FOR CORN AND ROOTS, has produced a great demand for it;—the success has led other manufacturers of Manure to adopt (as far as they can without infringement of the Patent) the title of Blood Manure for their manufacture, and Blood Manure is offered by most makers. But the Directors of this Company have thought it right, for the protection of their own interest, as well as for the information of the consumer, to collect statistics from the Clerk of the Cattle Market, Salesmen, and Butchers of London, showing the quantity of blood produced in the Metropolis and suburbs, and how it is disposed of.
By these statistics it will be seen that this Company receives nearly the whole of the blood produced in the metropolis—what they do not receive is principally used by sugar bakers—leaving a very small quantity indeed to be manufactured into manure by any other persons or companies; and the Directors of this Company wish the agricultural public to be made properly acquainted with these facts.
* STATISTICS OF THE PRODUCE OF BLOOD IN LONDON:—
The number of Beasts, Sheep, Horses, Calves and Pigs, slaughtered in London, during the year 1856... 821,705
The average produce of Blood from this number of animals is... ... ... 802,900 Gallons.
The Nitro-Phosphate or Blood Manure Company (Limited) have received during the year 1856 771,000 "
Or nearly 2,500 gallons per day.
Balance for sugar bakers and other purposes... 31,900 "
Every bag contains 2 cwt., is marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised agents of the Company.

PATENT WOOL MANURE COMPANY.—
(LIMITED.)
Office, 81, Gracechurch Street, London.
Manfactories, Deptford and Walworth.
Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*
Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

MANURE.
THE NATIONAL GUARANTEED MANURE COMPANY (Limited).—This Company's Manures are guaranteed and sold by analyses. Ten days are allowed to the purchaser for testing the qualities of the manures, and if found inferior to the analyses furnished when sold, and notice be thereupon given at the head office, the Company will take back the manure, return the money paid, and defray all expenses; but after that period the right to object will not be recognised.—For testimonials, analyses, and prices, apply at the Head Office, 2, Moorgate Street, City; and Branch Offices, Bank St., Carlisle.

SOLUBLE PHOSPHATE.
BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*
To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

TO LANDOWNERS.
THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY.
Offices, 52, Parliament Street, London.
HENRY KER SEYMER, Esq. M.P., *Chairman.*
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. EQUAL FACILITIES WILL BE AFFORDED IN EITHER CASE.
4. The WHOLE cost of the works and expenses will, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to FIFTY YEARS for LAND Improvements and THIRTY-ONE YEARS for FARM BUILDINGS, whereby the instalments will be kept within such a fair percentage as the occupiers of the improved Lands can afford to pay WILLIAM CLIFFORD, Sec.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & CO., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.
The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.
1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.
1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead,	1 10 0
2½ "	long 3 " 3 "	gutta percha,	1 14 0
3 "	ditto 3 " 6 "	or cast iron	2 8 0
3½ "	ditto 3 " 6 "	flanged pipe,	2 12 0
4 "	ditto 3 " 6 "	as required.	3 3 0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.
May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.
The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS Milbank Street, Westminster

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

ROYAL AGRICULTURAL COLLEGE,
CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.
Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S,
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
Manager of Farm—J. Coleman.
Assistant to Chemical Professor—A. Sibson.
Students are admitted after the Summer and Winter Vacations—also in April and October. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum. The College Course of Lectures and Practical Instruction is complete in one twelvemonth, though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

SUTTON'S FARM SEED LIST, with PRICES for MARCH and APRIL, is now ready, and will be sent gratis and post free.—Royal Berkshire Seed Establishment, March 14.

The Agricultural Gazette.
SATURDAY, MARCH 14, 1857.

MEETINGS FOR THE ENSUING WEEK
WEDNESDAY, March 18 { Agricultural Soc. of England .. Noon. / Society of Arts ..... 8 P.M.

THE mere opinion of a man, however trustworthy it may be, is not so likely to give confidence in a guano or a superphosphate as actual information would be on the quantity of ammonia and phosphoric acid present in the manure in question. But so long as analysis involves so much cost and pains, it is out of the question to suppose that it can ever be of that usefulness which it would undoubtedly exhibit were it invariably in operation.

Messrs. ANTHONY GIBBS & Co. doubtless sell more guano through their agents than by themselves directly to the farmer: and there is probably not a manufacturer of fertilisers in the kingdom that does not do the same. Any certificate regarding quality at a central depôt is thus of little use. What the purchaser requires is some *local* means of ascertaining the quality of the article he is asked to buy. A sample for analysis must be taken from the bulk he sees before him. It will not satisfy him, or it should not do so, that an analysis, though signed by the very highest chemical authority—VOELCKER, ANDERSON, or WAY—is exhibited asserting the quality of a sample from a bulk in London or elsewhere that he has never seen. The bulk from which his purchase has been made lies in his own market town, and he wants the means of ascertaining *there* what the material is, and what its worth may be. He will not undertake the trouble of packing up a sample for analysis in London, sending it to the nearest railway station and writing two or three letters on the subject. A difficulty of this kind is quite sufficient, altogether apart from the cost of the analysis, to account

for the little use that is made of the chemist as the policeman of the manure market. There would be no difficulty at all, however, in taking a handful of the stuff across the street and giving the necessary instructions verbally for its examination *there*. And when means of this kind shall be at hand in every considerable country town we shall find that the chemist is, what he is well qualified to be, the entire check to the whole system of roguery in the manure market that is wanted.

The cost of the process of analysis, however, is after all the main difficulty in the way of its general use. This cost arises to some extent no doubt out of the expensive apparatus which is required, but mainly and indeed almost entirely from the *time* involved in its superintendence. We refer now to the analysis of manures. A process which occupies a day or two cannot be a cheap one; and when this day or two is of time as valuable as that of men who rank high in the scientific world, and whose engagements in other ways are of the most important kind, it is of course impossible but that the process should be a costly one. The remedies are—(1) to engage in this work young men whose time is not so valuable; and (2), to adopt such means as shall multiply the work to be done. A score of analyses could be carried on certainly in much less than 20 times the period of one; and we are quite sure that many a score of analyses would be forthcoming where now there is but a demand for one—if the labour of obtaining them were diminished and divided by one hundred, as it would be by multiplying local laboratories, and if the cost of obtaining it were diminished to one-fourth its present amount, as we believe it might.

What is the process of analysing guano? Its ammonia is distilled off under caustic potash into a receiver containing muriatic acid, which is afterwards carefully evaporated to dryness, and the muriate of ammonia left is weighed, and one third of it is ammonia. Its phosphates are by means of muriatic acid dissolved out of guano after combustion, and ammonia is added to the filtered liquid and the precipitate is collected, dried, burnt, and weighed; its weight *pretty nearly* indicates that of the earthy phosphates in the guano. These are the two steps essentially involved in the analysis of a guano. And in thus treating 100 grains what quantity of muriatic acid, caustic potash or ammonia is likely to be used?—certainly not a shilling's worth.

The process here described (we take it from Mr. Way's article on analysis in Morton's "Cyclopedia of Agriculture") is not a complete analysis of guano; it is not even capable of absolute accuracy. But it is just such a quantitative analysis as we want to save us from those who have spurious articles for sale; and if 40 or 50 such analyses were asked for every week, as during autumn, winter, and spring in many a county town they might, it would well remunerate any druggist in the town to undertake them for five shillings each.

The process is one requiring patience and dexterity—it is an education of the fingers merely that is wanted as a qualification—practice and perseverance would soon overcome any difficulties; and there is no reason why a guano should not be bought with as much confidence upon a five shilling analysis by a druggist's assistant as upon the costly certificates of our distinguished scientific men.

Let us add there is little fear that the latter will find their services less called for or less appreciated,—though every county town in the country contained their rival. The popularity and prevalence of the preliminary local investigation would ensure an increase, not a diminution, of demand upon the time and the services of the accredited masters in chemical science. The sales and purchases of farm manures are now so multitudinous and extensive that there is far more scope for fifty chemists now than there was for five 10 years ago: and people may have confidence here as in other relations of society—that attention to the interests of consumers, whether their demand be for manures or for certificates of their composition, is the best policy not only for them, but for those on whom the work of meeting this demand at present rests.

The proceedings during the past year of the Commissioners of National Education in Ireland, or rather of their subordinates in the department of model farms and agricultural schools, seem to have received severe criticism at the hands of the Irish press. Some of these strictures upon the expenditure in this department are obviously made in ignorance of the facts of the case, and though we do not profess to understand the subject thoroughly, nor to explain the continually heavy annual expenditure on some of the establishments, yet there is, in the knowledge that cheap educational establishments cannot expect to be profitable as farms and in the obvious unfairness of some of the criticism we have seen, sufficient to throw doubts upon the fairness of them all. As instance of the kind of remarks which in some cases have been made, we cite the following on the Kilkenny model farm.

"Leaving the chief farm on the 'model' principle, we find Kilkenny far up in the list of expenditure. Last year's outlay was 483*l.*, and the income 12*l.*, showing the handsome balance of 471*l.* in favour of agricultural quackery."

To this there is the following very satisfactory answer:—

"The *realities* of this case are the following:—The agriculturist took charge of the farm in March, 1855, very shortly after the Board had obtained possession of the land. Live and dead stock were of course purchased to consume the Grass and prepare the land for crops. Does it appear strange, then, that the receipts were not higher? It ought to strike any intelligent person that there must be some way of accounting for the discrepancy. The valuation of stock, crops, &c., amounted, at the end of the year, to 615*l.* 2*s.* 10*d.*

The balance sheet would therefore stand thus:—

		£	s.	d.
Expended, ...		483	16	8
Receipts, ...	£12 15 1			
Valuation, ...	615 2 10	627	17	11
Gain on year's farming,		£144	1	3

MEMORANDA FOR THE AGRICULTURAL STUDENT.

V.—AGRICULTURAL IMPLEMENTS.

(1) Tillage implements.
(2) Machines employed during the cultivation of plants—for sowing seed and manures—for hoeing crops, and reaping.
(3) Carriages.
(4) Implements used in preparing produce for market.
(5) Implements used in preparing food for stock.

300 acres of arable land cultivated on a six-years' course may require the following implements:—

8 carts and harvest bodies	£104	Brought forward ...	£218
4 ploughs and draught trees	20	1 Turnip sowing machine	7
4 pair of harrows	16	1 reaping machine	25
1 pair of light seed harrows	3	Barn implements, winnower, hummeller, weighing machine, sacks, &c.	30
2 cultivators	14	2 Turnip-cutters and 1 chaff-cutter	15
1 heavy roller and clod-crusher	15	Steaming apparatus	10
2 light do.	8	Stable implements, including harness	25
4 horse-hoes	10	Tools	10
1 corn-drill	25		
1 Clover and Grass-seed machine	3		
Carried forward ...	£218	Total	£340

Threshing machine (extra).

(1) *Tillage Implements.*—The plough—the most various in its form of any of them. In England this variety is gradually giving way; and the wheel ploughs as made by Howard, Ransome, Ball, and others, pretty nearly of one kind, is gradually taking its place. Except when the surface of the ground is very uneven, the wheel is a desirable appendage to the plough; the cutting parts of the plough should be at right angles to one another—the coulter truly upright—the edge of the share horizontal—the mould-board should be long and taper.

The skim coulter should be used where the object is to bury a surface growth entirely.

The draught of the plough varies from 24 to 36 stones, according to depth of work, weight of implement, form of mould-board. Speed does not affect draught. Price varies from 3*l.* to 5*l.*; double plough, 6*l.* to 8*l.*; turnwrest plough, 5*l.* to 8*l.* On subsoil ploughs, see some of the earlier volumes of the English Agricultural Journal. Beside the common plough we have the trench plough of M'Ewan, Cotgreave, and the Marquis of Tweeddale—the paring plough of Glover and others, the subturf plough of Sir E. Baker. The plough is combined with other tools; a sowing machine sometimes works within it—a harrow is sometimes combined with it—a set of revolving forks convert it into a Potato digger—a subsoil tine is sometimes attached to the common plough.

The harrow—a framework, varying in weight, generally rhomboidal, studded with teeth varying in number and in length and weight, uniform in distribution under the frame; costs 2*l.* 2*s.* to 4*l.* 10*s.*, according to weight and size.

The cultivator, a framework on wheels of varying height, carrying teeth of varying form and length and number and distribution, having an apparatus by which the frame is raised or lowered, and so the teeth placed at various depths in the ground. Among the various kinds may be named Finlayson's, as improved by Scorlan, of Haddington (7*l.*); Kirkwood's Grubber; the Uley Cultivator (10*l.*); Biddle's Scarifier (15*l.*); Bentall's Broadshare (7*l.* to 10*l.*); Coleman's Scarifier. The Norwegian harrow is a machine combining the harrow and clod crusher.

Drill harrows and horse-hoes belong to the class of cultivators; cost 2*l.* to 3*l.*, are convertible from hoes or grubbers into paring implements by shifting the tines in use. Garrett's horse-hoe (15*l*) cleans at once 7 to 10 intervals between the drills of corn, taking at once the same number of rows as were sown at once.

Rollers are either cylinders or discs of various forms, strung on a common axle. The cost from 4*l.* to 18*l.* The Northumberland clod-crusher has two parallel axles, the discs on each working in the intervals between those on the other. This principle is brought to bear in other forms of the implement, and in implements having other purposes in view. Gibson's rotatory forking machine acted in this way—"picking its own teeth."

The superiority of the cart to the waggon for ordinary agricultural uses has been amply proved.

The machines employed in plant cultivation include manure distributors, as Chambers's; Chandler's liquid manure drill is coming rapidly into use in districts where the Turnip seed time is late. The sowing machine acts on three different principles: (1) the Turnip sowing machine varying in the quantity sown according to the size of the hole through which the seed passes; (2) corn drills generally are made on the principle of spaces or cups in a revolving cylinder, which blocks up the hole in the bottom of the seed box through which the successive cupsfull pass; (3) the Suffolk drill acts by revolving cups on arms which lift their seed and throw it down the seed funnels to the ground. The Suffolk drill is the best of all the sowing machines; its principle is adapted to all sorts of seeds except clinging sorts. Garrett's corn horse hoe, a useful implement for cleaning drilled corn. Reaping machines are all modifications of the original Bell. M'Cormack's probably the best form of knife. Hussey's the cheapest machine, and practically as good as any. Hay-making machines belong to this class.

Machines for preparing produce for sale include threshing machines and winnowers, and the subjects mentioned here include the question of fixed or moveable barn works. The full machine, whether fixed or otherwise, contains threshing drum shaker, winnower, and separator. The best shaker is the English form. The Scotch cylindrical rakes are not shakers.

The best class of machines includes chaff cutters, cake-crushers, steaming apparatus, and other machines for preparing food for stock.

The chopping cutters are better for hand power, the continuous cutting machines are best for horse or steam power. The apparatus insuring an intermittent protrusion of the straw to be cut is not a necessary, and it is an expensive addition to the chaff-cutter. Turnip-cutters are revolving discs, on cylindrical or conical surfaces, with projecting knives, capable of cutting slices or finger-shaped pieces or shreds. These last, which are coming into use, furnish the food fit for mixing with chaff for food. Phillips' Turnip-grater is one of the best.

THE THICK AND THIN SOWING DISCUSSION.

In a late number of your Paper you illustrate your views on this question by the supposed experience of two farmers, one of the old, the other of the new school. The idea is amusing enough, but to carry with it a due degree of weight, there ought to be no exaggeration on either side, no getting up of the case for the sake of effect; but as near as possible a strict adherence at least to probability; truth in a case of mere imagination we can hardly expect. Without wishing in the least to impugn your general accuracy, judgment, and skill in matters agricultural, I am sure you will allow me to say that according to my notion, you have hardly given my friend "Farmer Holdfast" fair play, but magnified his defects, and, excuse me, a little exaggerated the merits of his competitor, "Mr. Newlight." At the hazard therefore of being taken for a Holdfast myself, I venture on the following remarks, the result of long experience, and an intimate acquaintance with the facts to which I am about to allude.

That in certain districts and on ungenial ugly working soils, much bad farming prevailed, and still continues to prevail, I do not for one instant deny; but it does not hence follow that all old farming was bad farming. Take, for instance, the counties of Norfolk and Suffolk; we know that from a very early period—I dare not say how long, but far beyond the remembrance of any one now living—the practice of dibbling, especially Wheat, Beans, and Peas, was almost universal, to the exclusion, I might say the extinction, of the old-fashioned broadcast system. This was followed, and is to the present day, in many cases, accompanied by the drill, of which Jethro Tull may be considered the inventor, about 1700; but received what may be called its finishing touches, some 80 years after, at the hands of the Rev. James Cooke, by whom my father, then occupying a farm in Suffolk, was supplied with one, which, like the Irishman's knife, now and then a new blade, or a new handle, lasted him more than half a century, and may be in use to this day for anything I know to the contrary; having been sold when he retired from business in 1833, being then in fair working condition. I may add, in reference to this implement, that though modified and improved in certain points by modern mechanics, the principle of Cooke's drill remains unaltered. Of this I am quite sure, that no drill could exhibit better work. But my present object is not so much with this or that particular implement as to show that if drilling or dibbling was in vogue some 80 or 100 years ago, the Holdfasts of that day could not have been the rough slovenly farmers you would make them out to be, for neither drill nor dibble could work among the huge clods of which you have given us such a photographic description. That land in such a rude, primitive state must be sown broadcast, and necessarily with an extra portion of seed, I do not for one moment pretend to deny; and I have no doubt that your Mr. Holdfast's 3 bushels would not go so far as 2 bushels, or even less than that deposited at equal depths by drill or dibble. What I contend for is, that you have stated a case which, except on the worst lands and the most wretched system or rather want of system, can hardly be said to exist; nor, as I have shown, in our best farming districts, has existed, for nearly a century.

But while admitting to their utmost extent the advantages of the drill or the dibble, I am no stickler for a very thin seeding by either; certainly not for the mere purpose of saving seed; which appears to me about as wise as to cut down the capital necessary to be spent in the cultivation of the land. The result in both cases is the one thing needful, no matter by what means obtained. But you object to any seeding which interferes with the process of tillering. Here we are at issue. I would prevent the necessity of tillering by a free allowance of seed; experience having long since convinced me of its superiority, both as to safety, early maturity, and uniformity of quality. To sow or drill that tillering may come is, in my view, to do evil that good may come. I admit that in case of a very thin plant, either from wireworm, severe frost, short allowance of seed, or any other calamity, I have no objection to tillering as the only chance of making the best of a bad bargain, but I demur to thin sowing for the mere love of tillering. I once knew a boy who hid his money in a hollow tree by the wayside, that he might enjoy the pleasure of finding that it had not been stolen when he revisited the spot. The thin seeders pretty much resemble that boy. If they get their own again, they may consider themselves lucky; more lucky than in my mind they deserve to be. I am not going into the question of an acreable proportion of seed. That cannot be determined by any fixed standard, but must depend on a variety of circumstances, nature and condition of the soil, size and quality of the grain, but above all by the

lateness or earliness of the time of sowing. One and a half bushel dibbled, or two bushels drilled, at the beginning of the autumn sowing, may in most seasons be trusted to as safely as three bushels at a more advanced period of the seed time.

Leaving this however an open question, on which farmers, like controversialists of a higher order, must agree to differ, I will conclude this somewhat rambling article by a few observations on a subject which has been already slightly adverted to in your columns, I mean the use of mixed seeds for a crop of corn, and more particularly of different varieties of the same genus; say, for instance, red and white Wheat, the produce of which I have frequently had occasion to observe is superior in quality, and not unfrequently in quantity, to either grown separately. I pretend not to account for the fact; I only know that it is so, and being so, I have often wondered that mixed, or as we call it in Norfolk, pied Wheat, should not be more generally grown, especially as it fetches a higher price in the market than red or yellow alone. The attainment of new varieties, pure and unadulterated, is to be sure a very important object, and great credit is due to Colonel Le Couteur and other experimentalists for their exertions in such a cause: but this need be no argument against mixing of stocks, however excellent in themselves, inasmuch as the better their individual qualities, the more favourable is likely to be their combined result.

The mixing of different sorts of corn for seed is, after all, no new thing. More than 300 years ago, Fitzherbert talks of growing Beans and Peas together; "and if it be very ranke grounde," he says, "put the more Beanes to the Pees, and the better shal they yelde when they be threshed." I suppose somewhat on the principle of our sowing Oats or Rye with Vetches, to serve as a sort of natural support to the climbing plants. In another part he speaks of sowing Wheat and Rye together: "blende corne," he terms it. "And this Wheat that shal be medled with Rye must be such Wheate as wyl sone be rype, and that is flaxen Wheat, polerd Wheat, or whyte Wheate."—*Boke of Husbandry.*

At a later period (1661) the Rev. John Meadows, of Ousden, Suffolk, mentions as one of the products of his living, "bullimung." According to Ray, this was a mixture of Oats, Peas, and Vetches;* which, as tithe paid in kind, was no doubt grown as delivered.

It is unnecessary to say more on the subject, except in conclusion to reiterate my recommendation of mixing white and red Wheat for seed, always taking care to select those varieties that will, as nearly as possible, ripen together. *Samuel Taylor, Gloucester.*

P.S. I meant, in reference to the alleged roughness and size of the clods on the Wheat lands of the olden time, to observe, that such a state of things ought not necessarily to have existed except in the practice of the most slovenly of the Holdfasts of those days, for that there were good as well as bad of that ancient and respectable family, there can be no doubt. They had their drill-rollers, and therefore need not, and ought not, to have been troubled with a very rough seed-bed, even on the stiffest soils. Mr. Johnson, in his "Farmers' Encyclopædia," tells us, "this implement has been well known to the farmers of Norfolk and Suffolk for the greater part of a century." I can speak to more than 60 years, my father having had one in use for upwards of 50 years, and I for 12 years after him, when it was sold on my retiring from business, being then in fair working condition, and for aught I know may be in existence yet. We used it for the double purpose of crushing clods on clay lands and making grooves for the reception of seed sown by hand on lighter soils, but mainly for the former, with a view to preparing the surface for the drill, by which, indeed, it had for many years been superseded as a means of depositing seed. It is an admirable implement, and every Holdfast ought to have got fast hold of one.

Home Correspondence.

Cloaca.—Among our resources as a succedaneum to guano the excrements, solid and liquid, of man should not be neglected. In England our receptacles are not the best adapted for the economical use of them; in towns this may not be, it is possible, amended; in the country however a plan of mixing them with some fixer and absorber might be beneficially and easily adopted; much then that is now lost would be saved, and the clearing away and application of them would cease to be so disgusting an operation. But while this is the case in England, in Ireland the loss is almost total. Human fæces in this participate in the same neglect with those of the cattle. In all the smaller towns and villages, in all country districts there is not one cabin in a thousand, I may say scarcely one in a county, that is properly provided. I wish I could call the attention of the owners of towns and villages to the neglect of insisting on proper places, both public and private, being erected on their properties. The so collecting and saving manure might even become a profitable investment. Liebig says (following Boussingault), "If we admit that the liquid and solid excrements of man amount on an average to 1½ lb. daily (5-4ths lb. of urine and ¼ lb. fæces), and that both taken together contain 3 per cent. of nitrogen, then in one year they will amount to 547 lbs., which contain 16.41 lbs. of nitrogen, a quantity sufficient to yield 800 lbs. of Wheat, Rye, Oats, or 900 lbs. of Barley. This is much more than is necessary to add to an acre of land to obtain, with the assistance of the nitrogen absorbed from the atmosphere, the richest possible crop every year. Every town and farm might thus supply itself with the manure, which, besides containing the most nitrogen, contains also the most phosphates; and if rotations of crops were adopted, they would be most abundant." Thus they might become independent of foreign supply. Now, taking the population of Ireland at seven millions, and even deducting so much as four millions for the present wasteful and imperfect use of it, we may by the adoption of very simple and inexpensive means acquire a manure which will produce us (say for the 3 millions) over 40 million lbs. of nitrogen, according to Liebig a sufficient quantity to yield 24 million lbs. of Wheat, affording at the same time the phosphates and ammonia, and which with natural supplies would be sufficient for 3 million acres of land. In Ireland where bog earth is so common, all that would be necessary would be a roughly constructed shed, and a heap of bog mould at hand, clay ashes would answer the purpose; either would increase the value of the manure and act as a deodoriser; clay unburnt would also do, indeed anything that would act as a fixer. Each cabin should possess such a rude shed, and public ones should be erected also. *J. M. Goodiff.*

High Feeding of Breeding Stock.—High feeding has generally been thought prejudicial to breeding stock; I have never found it so, rather the reverse. My theaves or shearling ewes, which took the first prize at Carlisle; at Carlow, in Ireland; at Malton, in Yorkshire; at Stow-on-the-Wold, and kept in high condition till late in the year, when they took the first prize at Hereford, bred lambs—one had two, and was fed the next year for Paris—took the first prize there and gold medal with her two lambs, one of which I would not sell for 50 guineas, and this year she has got three lambs, and has milk for all three; indeed, high feeding has made me so full of lambs this year that we hardly know what to do with them. I will send you a letter in a week or two on the Cotswold breed of sheep and their management. *T. Beale Browne, Hampen, Andoversford, Gloucestershire.* [Thanks.]

* Memoir of John Meadows, by the late Edgar Taylor.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *March* 11.—Mr. CROMPTON STANSFIELD in the chair.

CATTLE MURRAIN.—Communications were received from Viscount Palmerston and the Earl of Clarendon, in reference to the pleuro-pneumonia among cattle in this country and the murrain at present raging in Tauroggen and Mecklenburg. Prof. Simonds stated his views on this subject, and thought that the Government could not be too much on their guard by taking precautionary measures to exclude the murrain; he particularly dwelt, however, upon the importance of our obtaining an exact knowledge of the true pathology of the fearful disease which had traversed the continent of Europe, before deciding upon measures for the total exclusion of foreign live stock from our markets, the average imports of which into this country during the entire year of 1856 amounted weekly to 1602 head of cattle, 2789 sheep, and 190 pigs. The Chairman, Mr. Scott, Mr. Goold, and Mr. Vines also favoured the meeting with remarks on the same subject; and a letter was read from Mr. Etches.

CAROB BEAN.—Professor Way favoured the Council with the following analysis of Carob Beans imported from Sicily by Messrs. Hadley, of the Old Jewry, and supplied to him by Mr. Scott, of 5, Charing Cross.

SAMPLE OF LOCUST BEAN, ANALYSED DEC. 1855.

Moisture	13.43
Albuminous matter	4.06
Oil	6.76
Woody fibre	12.42
Sugar, gum, &c.	49.31
Other organic matter	7.60
Mineral matter	6.42
	100.00

In the sample of Locust Bean supplied by Mr. Scott, and analysed at the request of the Society, the seeds were found to constitute about 8 per cent. of the entire weight; they were separately examined for sugar and albuminous matter, with the following results:—

	Pods.	Seeds.
Sugar	60 per cent.	13.11 per cent.
Albuminous matter	3.23 "	13.90 "

March 10, 1857. J. THOMAS WAY.

RIDGE-DRAINING.—Mr. Arkwright, of Sutton Hall, Derbyshire, favoured the Council with a plan of the system of draining he had employed and found effectual on his estate at Sutton.

The Council adjourned to the 18th of March.

TAUNTON: *Artificial Manure.*—Prof. Voelcker, of the Royal Agricultural College, lately gave a lecture on this subject under the auspices of the Bath and West of England Agricultural Society, extracts from which are taken from the *Somerset County Gazette.* Professor Voelcker said:—

They frequently heard people give their opinion that artificial manures should possess all those characteristics which they justly esteemed in the home made farmyard manure. That was a great mistake. The fact was, that artificial manures and farmyard manure possessed qualities which rendered each peculiarly applicable to particular purposes. The peculiar composition of farmyard manure would bring that out plainly. Fresh manure possessed a large proportion of water and substances which, under the head of insoluble organic matter, were generally known to farmers as litter or straw. In the constituents of farmyard manure they found the bulk made up of matter possessing very little intrinsic value. That would appear by throwing a glance at the subjoined table, representing the composition of fresh and rotten dung:—

Composition of fresh and well-rotten farm-yard manure, composed of horse, pig, and cow dung.

	Fresh.		Well Rotten.	
	In natural state.	Dry.	In natural state.	Dry.
Water	66.17		75.42	
* Soluble organic matter	2.48	7.33	3.71	15.09
Soluble inorganic matter (Ash):				
Soluble silica	.237	.703	.254	1.035
Phosphate of lime	.299	.884	.382	1.554
Lime	.066	.185	.117	.476
Magnesia	.011	.033	.047	.193
Potash	.573	1.695	.446	1.816
Soda	.051	.153	.023	.140
Chloride of sodium	.030	.089	.037	.151
Sulphuric acid	.055	.035	.058	.235
Carbonic acid and loss	.218	.773	.106	.380
	1.54	4.55	.47	5.98
† Insoluble organic matter	25.76	76.15	12.82	52.15
Insoluble organic matter (Ash):				
Soluble silica	.964	2.865	1.424	5.70
Insoluble silica	.561	1.659	1.010	4.11
Oxide of iron alumina phosphates	.596	1.404	.947	3.85
Containing phosphoric acid	(.178)	(.528)	(.274)	(1.11)
Equal to bone earth	(.386)	(.822)	(.573)	(2.41)
Lime	1.120	3.335	1.667	6.78
Magnesia	1.43	·424	.091	.37
Potash	.099	.294	.045	.18
Soda	.019	.677	.038	.15
Sulphuric acid	.001	.210	.063	.29
Carbonic acid and loss	.484	1.722	1.295	5.26
	4.05	11.97	6.58	26.78
	100.00	100.00	100.00	100.00
* Containing nitrogen	.149	.44	.297	1.21
Equal to ammonia	.181	.53	.36	1.47
† Containing nitrogen	.494	1.46	.309	1.26
Equal to ammonia	.599	1.77	.375	1.53
Whole manure, containing ammonia in free state	0.34	.10	.046	.189
Do. do. in form of salts	0.88	.26	.057	.052

The value of all manures, whether produced by art or not, depended on three classes of substances. First in importance was ammonia, or substances containing nitrogen and furnishing ammonia on decomposition. Secondly, their value depended on the amount of phosphates contained in the manure in a state in which they were readily available; and, thirdly, in a minor degree, on the alkaline salts. Thus the constituents most valuable in a manure were the substances containing phosphoric acid and the substances containing nitrogen. Now, if they looked at the composition of farm-yard manures, they would be surprised at the small quantity of these valuable constituents. The quantity of nitrogen in farmyard manure hardly amounted to more than two per cent. They had in one ton of well-rotted manure, on an average, not more than 40lbs. of nitrogen—a very small quantity, which might be supplied by only a few hundredweight of guano. The proportion of phosphates in home-made manure was also very small. On the other hand, other constituents, such as lime, silica, and a few other cheap materials, were very abundant in common dung. But were those cheap constituents desirable in artificial manures? Certainly not, for a very simple reason—that most soils contained them in sufficient quantities. If not, they might be easily supplied with little cost. If, for instance, they wanted lime for their land, take and lime it. If they wanted silica, they could get it in any quantity, without purchasing it in artificial manures. The principal aim of manures ought to be to supply to the farmers those constituents which were specially deficient in home-made manure, and which were required in large quantities by all agricultural producers. This was the secret why artificial manures produced such astonishing effects. There were two kinds of manures—namely, guanos and superphosphates, which were especially esteemed as valuable fertilisers. Why was guano, when applied to Wheat crops, so beneficial to Cereals? Why did so small a quantity produce such a mighty effect, when applied to Wheat, Oats, and Barley? It was not on account of anything mysterious in guano. This efficacy depended upon real, and not imaginary substances. It was on account of the large proportion of nitrogen which it contained. The learned Professor then proceeded to point out this by a large diagram, and went on to say that for the last few years the per centage of ammonia had fallen off, so that the farmers ought to be now quite satisfied if they obtained guano with 16 per cent of ammonia in it. The value of superphosphate for root crops did not depend on anything mysterious. It was efficacious for root crops because it contained a large amount of phosphoric acid in a convenient form, and the root crop required a large supply of phosphate. The fact that ammonia benefited especially cereals, and phosphates root crops, he had no doubt, would bring under their notice the great care they must take in estimating the agricultural value of any manure. The efficacy of a manure was greatly influenced by the mechanical condition of the land. Land varied very much in this respect, and, as a matter of course, the same manures acted differently on land of different descriptions—in the one instance producing good crops, and in the other comparatively a poor one. In the second place, the composition of the soil experimented upon had a great deal to do with the efficacy of the manure. There were soils on which the best superphosphates had no effect, because they contained a sufficient quantity of phosphates. Soils on the green sandstone formation were not benefited by phosphates; and there were other descriptions of soils, on which superphosphate had no effect. It remained with the farmer to determine the wants of his land, and he thought they would be acting very foolishly in giving high prices for phosphates if the land was not deficient in phosphoric acid. In the third place, the mode and time of the application of artificial manures influenced their efficacy very materially. He had seen many artificial manures which had produced an injurious effect, because they had been applied injuriously. He had seen substances when applied to the land by themselves produce not half so good an effect as when mixed with apparently indifferent substances. To illustrate this, the learned doctor mentioned an instance where a gentleman had mixed some powered flint stone with some guano, with which he was highly delighted; in fact, he said that he would rather have one cwt. of guano mixed with two cwt. of flint stone than two cwt. of guano applied by itself for Wheat. He had no doubt that the reason why guano was superior when mixed with flint-stone was to be found in the finely-powdered condition of the manure, for the mixture could not be made without powdering the hard lumps of guano, and by mixing such guano with powdered flints, salt, or any diluent, they obtained a more bulky dressing, which might be spread on the land. No patches were to be seen, and the harvest was the better. Then, again, let them look at the superior efficacy of superphosphate when applied to land with a liquid manure drill. There could be no mistake about that; for by that means the manure was finely divided and more uniformly distributed with the soil than when carelessly applied. That mode of drilling was far preferable to using the solid drill or doing it by hand. Then as to the crops to which artificial manures were applied, which had a powerful

influence upon their efficacy—if they applied superphosphate on most soils to Wheat crops, they would, comparatively speaking, obtain but trifling results. When applied to root crops it produced a decided effect, but apply to Wheat crops an ammoniacal manure and they would get a most striking result. As a general rule they should take nitrogenised manures for Cereals, and phosphatic manures for root crops. The learned Professor, having touched upon the duties of scientific chemists in respect to manure questions between the producer and consumer, said that the latter was growing in scientific knowledge—in fact, so much so that in a few years it would be impossible for designing manufacturers to deceive them. He then proceeded to point out the spurious manures which were puffed forth to the world. The first he noticed was—

London Economical Manure.

Water	36 52	13.48
Organic matter	...	3.04
Oxide of iron and alumina	...	2 30
Sulphate of iron	23.75	25.84
„ lime (gypsum)	.86	32.42
„ magnesia...	.20	...
„ soda	15.14	18.40
Bi-sulphate of potash	4 67	...
„ soda...	10.92	...
Insoluble silicious matter (sand)	5.85	3.36
	100.05	100.00
Containing ammonia	.68	.30

The manufacturer of this manure generally sought his agents out amongst chemists and salt merchants, offering 2*l.* per ton commission. The manure was sold at 12*l.* a ton, thus netting a profit of 10*l.*, whereas the manufacturer of it needed no outlay or trouble. Not unfrequently the agency was taken by men who knew how to talk the farmer over over a glass of grog; and it was a tempting bait to do so, if he sold but 20 tons a day. The next case was—

Guano, so called.

	Mexican.	Essence of.
Water	5.33	8,28
Organic matter	3.52	13.11
Oxide of iron and alumina	...	3.59
Phosphate of lime	18.10	2.35
Sulphate of lime (gypsum)	...	15.17
Carbonate (chalk)	69.75	8.00
Chloride of sodium (common salt)	1.75	15.80
Insoluble silicious matter (sand, &c.) ...	...	34 29
Magnesia	1.35	...
Loss ...	20	...
	100.00	100.50
Containing nitrogen	.19	.52
Equal to ammonia	.23	.64

Composition of guano.

	1.	2.	3.	4.
Water	12.42	12.0(	11.32	11.54
Organic matter and ammonical salts	52.98	59.11	53.94	19.79
Phosphates of lime and magnesia (bone earth)	25.06	19.31	30.98	42.93
Alkaline salts, chiefly chlorides of potassium and sodium	8.26	8.13	6.62	4.78
Gypsum	...	..	...	1.70
Insoluble siliceous matter	1.50	1.45	14.50	9.36
	100.23	100 00	100.36	100.00
Yielding ammonia	17.21	19.30	11.80	4.35

The essence quoted above professed to be an extract of guano, and whilst it contained only 1 per cent. of ammonia, good Peruvian guano contained 16 per cent. It contained 2½ of phosphate of lime; the Peruvian, 24 to 25. He (the learned professor) wondered that farmers should give such persons a chance of redeeming their characters, so to speak, by trying their stuff. The next analyses were—

Of superphosphate of lime.

	1.	2.	3.	4.	5.
Water	19.26	20.53	14.40	22.03	20.39
Organic matter	16 12	14.76	8.93	trace	27.79
Soluble phosphate of lime ...	6.38	10.31	3 60	8.55	5 02
Equal to bone earth	(9.94)	(16.09)	(5.61)	(13.33)	(7.37)
Insoluble bone phosphate ..	22.16	17.72	6.83	none	1.56
Hydrated sulphate of lime (gypsum)	25.10	28.39	44.23	24 42	40.16
Burned gypsum	...	...	...	40.46	3
Alkaline salts	5.16	1.56	2.52	2.41	2.9
Sand	5.82	6.73	19.50	2.16	4.23
	100.00	100 0(	100.00	100.00	100.00
Per centage of nitrogen ...	1.66	853	1.44	17	1.11
Equal to ammonia	2.01	1.065	1.75	20	1.42

The lecturer went on to say that it was not to be expected that scientific men could give them a minute and correct estimate of the value of artificial manures; but he would communicate his practical knowledge to those who did not possess it. They could not expect all people to agree in forming an estimation on all things. A man of common sense would find out whether a man had sufficient practical knowledge of any matter to entitle him to confidence or not. It was very desirable that agriculturists should not be misled by statements which now and then were promulgated by designing men or interested parties. Whilst travelling in this portion of the country he had been made acquainted with the fact that his analyses were shown as a special safeguard to the farmers of the value of certain manures. He would caution every one to be careful, and, if any of the farmers had any doubt upon their minds, let them apply to him. He did not want to know the price of the manure; and if they desired to know its components, they would only have to pay the proper fees for analysis. His mere analysis did not give any guarantee of the manure offered to the public; therefore they might see his name attached to most wretched stuff. He, himself, had seen it attached to very bad manure. It was the too common practice for the agricultural public to inquire for the name of the party who analysed it, and then they were satisfied with it. To show the fallacy of that he would bring before them Binn's patent manure. This manure contained moisture 9, organic matter, 17, containing nitrogen .28, silica (which, in plain English, meant sand) 7.27, phosphate 4, carbonate of lime (chalk) 25, sulphate of lime (gypsum) 5, and common salt 11. That analysis had attached to it the name of Professor Way, and the manure was sold at 5*l.* per ton. It required very little trouble to find out the intrinsic value of such an article. In the prospectus it was stated that the manure had been analysed by Messrs. Campbell and Way, the latter of whom differed from the former, who gave no phosphate. That was, perhaps, for the best of reasons, because, when he analysed it, it had none. He knew cases where samples had been made especially for different chemists. He would recommend the farmers not to buy any manures without a guarantee, and would warn them not to be humbugged, even by analyses, for there was as much humbugging with them as with anything else. If he guaranteed so much phosphate and so much ammonia, on an average, that was all the farmers ought to require of him; and they should be satisfied, and not expect more. It was too often the case that farmers were only too anxious to exact too much from a manure maker, thus compelling him, in too many instances, to become a little shaky, for it threw a great temptation in his way to meet the taste of his customers. If an honest manufacturer saw another man making high profits without any trouble, risk, or capital, and he making no headway, why, the latter would either give up the business in despair, or become, as he had observed, a little shaky in his business. He said to himself, "Here am I going to a great deal of trouble and expense, and yet I cannot get on. That man over the way gets on, with hardly any attention to what he manufactures. I will add less phosphate of lime or ammonia next time, and take off 5*s.*, which will pay me better." And he accordingly did so, and got on better next time; and if he became not downright dishonest, he at any rate became a little shaky.

IRISH FLAX, *Feb.* 25.—Letters were read from some of the Society's Instructors, who were occupied in choosing land for Flax in the South and West, and in getting it prepared for the sowing. Their reports were generally favourable, as regarded the disposition of farmers to sow Flax, especially in the counties of Cork, Clare, Galway, Leitrim, Roscommon, and Longford. A report from Professor Hodges, with his analysis of the substance termed by Mr. Pye "Flax meal," was read to the meeting. This substance is the refuse of the stems of unsteeped Flax after the fibre has been separated. An analysis previously made by Professor Way, and communicated to the Society by Mr. Pye, was as follows:—

Moisture	3.58
Oil and fatty matters	7.02
Albuminous matter (containing nitrogen 1.25) ...	7.93
Woody fibre	39.11
Starch, gum, sugar, &c.	26.29
Mineral matter	16.07
	100.00

A sample having been sent by the committee to Professor Hodges for analysis, he reported as follows:—

"Composition of the meal obtained from the *Shove* of the Flax plant:—I have carefully examined the sample of meal, stated to have been prepared from the stem of the Flax plant, and proposed as a feeding material. Some years ago, as you are aware, I directed the attention of the Society to the amount, both of nitrogenised (flesh-forming) and of fatty (oleaginous) matters, contained in the straw of Flax, and it will be perceived that the composition of the meal examined does not differ very much from that of the entire straw, and cannot be regarded as indicating the high nutritive value which it has been asserted to possess. By a consideration of the subjoined analysis of oil-cake and of Flax-straw, you will be enabled to perceive the relative value of the meal. It remains, however, to be tried how far the employment of this substance would be agreeable to the digestive organs of the animal, or whether it would be capable of ready and healthy assimilation. Should the dry-scutching of the Flax plant be regarded as judicious, it will of course be desirable that experiments should be made in our farm establishments to decide the point, before consigning the *shoves* to the furnace fire, or the manure heap.

"100 parts of the following substances contain, respectively:—

	Flax Shove Meal.		Flax Straw.
	Undried.	Dried at 212°.	Dried at 212°.
Water	12.30	...	...
Nitrogenised (flesh-forming) matters	2.88	3.23	3.31
Oil and fatty matters	2.55	2.91	2.83
Gum and soluble matters, destitute of nitrogen	12.96	14.66	3.12
Insoluble woody fibre	61.97	70.92	87.63
Mineral matter...	7.34	8.28	3.11
	100.00	100.00	100.00

"Average composition of seven specimens of oil-cake, examined by Professor Anderson, of Glasgow:—

Nitrogenised matters	28.47 per cent.
Fatty matters	12.90 „
Gum, and other soluble matters	39.01 „

John F. Hodges, M.D."

Farm Memoranda.

LYME HALL, CHESHIRE.—Thomas Legh, Esq., received the prize of the Liverpool and Manchester Agricultural Society for draining for his tenantry in the year ending 12th May, 1856, the greatest quantity of land in proportion to the area of his estates, and on the best system.

Inspectors' Report.—The extent drained is 2439 acres; in length 983,075 yards, or upwards of 558 miles. This averages 402 yards, or 50 rods per acre. The soil varies from a light sandy loam and bog to a stiff clay loam, with a subsoil varying from sand, gravel, and rock to a dense impervious clay. The whole has been drained with pipe tiles; the mains varying from 4½ feet to 7 feet deep, and the branch drains from 4 feet to 5½ feet deep. The materials for a portion were carted three miles; but the greatest quantity were brought by canal 12 miles. The cost has been from 3*l.* 15*s.* to 7*l.* per acre.

Inspectors' Remarks.—This claim being for a very extensive drainage, extending into several townships, the surface of the land is very much diversified, varying from a dead flat to gentle undulations and steep hills. The inclinations are to almost every point of the compass, and to every angle up to perhaps 25° or 30°. In a great portion of the district the substratum is a regular jumble. These various circumstances required great skill in the drainer combined with considerable experience. The branch drains on the level or gently undulating surface ran parallel to each other and up the incline of the surface. In the more hilly parts the Keythorpe system has been more adopted than the parallel; the branch drains running in various directions as to the incline; in few cases directly up the incline, the direction being ruled by circumstances of subsoil and the inclination of the surface. The above remarks refer to the inclosed land. On a considerable portion of uninclosed moor land, and on which the inclination of the surface is steep, the drains are parallel, and directly up the incline. The branch drains, on most of the inclosed land, vary from 30 to 45 feet apart, and are 4 feet deep, laid with 2-inch pipe tiles. On the uninclosed land the drains are from 45 to 75 feet apart, 4 feet deep, and laid with 2-inch pipe tile.

The mains vary much in depth, and are laid with large pipes of various dimensions according to the extent of land drained into each main, and the quantity of water to be delivered. One main of very considerable length and into which a great extent of land is drained is from 4 feet to 8 feet deep, on account of the inequalities of the surface. This is laid with 10-inch pipes for a considerable length from the outfall. This main discharges a great quantity of water close to a village, and can thus be made useful for many purposes. The outfall is well secured, and has a clear fall without obstruction. This main runs through a quicksand of 50 yards in length, which cost great labour and expense. At certain given distances there is a cesspool sunk below the level of the pipes, walled round up to the surface of the land, and covered with a large flat stone, which can be lifted off at any time and the cesspool cleaned of filth. The other mains are not so extensive as this, but all have a good descent, and all the outfalls are clear and well secured. They mostly fall into brooks or rivulets, which have a quick descent, so that there is little danger of stoppages by flood and heavy rains. The whole work appears to be very judiciously executed and has produced a marked effect on the land. On the clay soils and subsoils, the inspectors considered the drains were too far distant to make the drainage perfect, or the land uniformly dry. Where the subsoil was of a porous nature there was little doubt of the proper effect on the whole surface.—Inspected in April.

Review.

The Journal of Agriculture and the Transactions of the Highland and Agricultural Society of Scotland. March 1857. Blackwood & Son.

THE current number of this Journal contains a review and justification of last year's statistical tables of Scottish produce—an interesting series of papers under the head of "Farmers' Note Book"—an agricultural history of the past quarter of the year—a meteorological review of 1856, by Mr. Towers—and notes on the novelties of the Smithfield Implement Show in Baker Street. The "Transactions of the Society" contains several papers read before monthly meetings, on the Agriculture of Canada and the States by Mr. Russell, and on substitutes for guano, both of which have been already referred to in our columns. There are also reports by members on the Oat crops, and on Mangel Wurzel. This last crop appears unsuited to the Scottish climate; the weight of Orange Globe and Imperial Red Mangels varies from 10 to 3 tons per imperial acre, when Swedes and Turnips varied from 11 to 23 tons.

The conclusion of Mr. Bowie's report on the Oat crop we give as an interesting confirmation of the impressions we have all along entertained that the practice of sowing less seed per acre than has been hitherto used in Scottish agriculture must prevail.

"What is the most plausible argument against sowing Oats thin? It is replied, Because it has a tendency to make them ripen late. In a late season like the last one this is granted; but in every instance in the writer's experience, the time lost in ripening was gained in winnowing in the stook: the thin-sown, being stronger in the straw, invariably required less time to make it fit for the stackyard. In the Mains of Kelly experiment all the lots were stacked the same day, although Nos. 3 and 4 were cut a week earlier than Nos. 1 and 2, and, by reference to the weight column, these proved heaviest per bushel, and consequently most valuable in the market. On the whole, it is believed that the opponents of thin-sowing of Oats are chiefly, if not altogether, those who have never tried it, or have done so improperly. Some may read these imperfect remarks, and instantly conclude that they only develop the experimenter's weak point: in short, that he is simply riding a hobby-horse. He, nevertheless, entertains much confidence in his hobby as a stout, somewhat slow, but safe nag, that will carry him and his thin-sowing theories safely into general practice."

The experiments reported resulted in the plots sown with 3 bushels of Oats per Scotch acre yielding 11¼ quarters per Scotch acre, while those sown with 5 bushels yielded only 10½ quarters. In another experiment the seed sown was 2½, 3, 4, and 5 bushels respectively, and the produce 10 quarters, 9 quarters 7½ bushels, 9 quarters 7¼ bushels, and 9 quarters 1¼ bushel per acre. In every case the ground pressed previous to being sown yielded more abundantly for it.

Miscellaneous.

Beetroot Distillery, Farningham.—Three Examiners of her Majesty's Excise are at this time in attendance at Farningham, near Dartford, in the county of Kent, superintending a Beetroot and Mangel Wurzel distil-

lery, erected by permission for experimental purposes by Messrs. William Dray and Co., of Swan Lane, London, on Mr. Dray's Farm at Farningham. At this distillery the advantages of agricultural distilleries will be largely and amply tested. Mr. Dray is feeding some hundred sheep and a number of bullocks on the residues of Beet after distillation—a system which has been pursued with great success on the Continent. Two millions sterling in value of Beetroot spirits were distilled in France last year, while in 1853 only twenty thousand pounds' worth was distilled. There is a peculiarity in the system pursued at Farningham, which is so contrary to all received notions on the subject that we will describe it. Instead of macerating the Beet and distilling the wort, the Beetroot is cut into long thin strips, one inch wide by an eighth of an inch thick, by means of a cutter, cutting three quarters of a ton in half an hour. It is then placed in vats containing three quarters of a ton each, and 300 gallons of a wort formed by macerating a certain quantity of Beet at the commencement of the operations, and which wort is used for the same purpose during the distilling months, which are from September 15th to April 15th in France, and from October 1st to May 1st in Belgium and Germany, for during these months the Beet and Mangel Wurzel are in the best state for distillation. After the slices are placed in the fermenting vats, about a quart of sulphuric acid is added to each vat. Fermentation sets in rapidly, and in 24 hours the slices are in a fit state for distillation. They are then withdrawn from the vats, and placed in upright cylinders of iron in Mr. Dray's distillery, which is calculated to distil five tons of roots in the 24 hours. The cylinders are 6 feet high and 2 feet in diameter. The slices are placed upon diaphragms, or plates of iron pierced with holes, ten in each cylinder. The cylinders are then hermetically closed, a current of steam is let into the bottom of No. 1, and in three quarters of an hour a raw spirit resembling small still whiskey is produced at proof. This spirit is allowed to run over till it falls to 20 under proof, when the steam is conducted from No. 1 into No. 2 cylinder, the escape of the alcoholic vapour being shut off. Thus the slices in No. 1 cylinder are completely deprived of their alcoholic matter by continuing the current of steam through them, and carrying it on into No. 2. In three quarters of an hour the escape pipe for conducting the alcoholic vapour from No. 2 to the worm being open, No. 2 begins to run off at 20 over proof, is again allowed to run down to 20 under, when the escape pipe is again shut, and the steam from No. 2 conducted into No. 3. In three quarters of an hour the spirit again runs off from No. 3. In the mean time No. 1 has been emptied of the slices and refilled, and the steam from No. 3 is allowed to enter No. 1. The spirit is collected into casks, and in the French distilleries is passed through a rectifying still ordinarily on two days in the week, and the produce is a perfectly neutral spirit of any required strength. We see by the foreign news in the *Times* of Wednesday that the spirit is in greater request in France than the grain spirits. This industry has caused a complete revolution in farming in France. In the districts of Valenciennes and St. Quentin, where it most prevails, the number of bullocks fattened has increased from 11,000 to 17,000, and the sheep fattened from 70,000 to 140,000. The amount of corn sown has also nearly doubled. As this production of food for cattle has greatly increased the production of manure, it has caused its usual results, a greater production of corn. Mr. Dray has kindly offered to allow persons to inspect his distillery on obtaining a card at his warehouses in Swan Lane, and the director will give every information which can be desired. *Civil Service Gazette.*

Enthusiasm on Clipstone.—But we must not pass over Clipstone Park with this brief notice. A farm of 1500 acres in garden cultivation requires some time in the examination. The flood dike, disdaining its natural and useless bed, rises upwards to its labours, traversing the hill-sides; omitting no opportunity of doing good. It is the alimentary canal of Clipston, feeding the flocks and herds and pouring a flood of wealth on either side, filling the farm-yards with the richest manure and the stack-yard with numerous hay stacks. Hence it is that all the dry, arid soils of Clipstone Park are becoming fruitful. The dike is a manure conduit washing the filth from 20,000 inhabitants, cleansing and sweeping the streets of Mansfield and Sutton from their impurities, and returning to their markets the finest beef and mutton and a quality of corn not excelled in any part of the world. The picture is beautiful; the scene magnificently poetic. No living artist could convey to canvas its brilliant colourings; Claude and Turner might have given the glories of its sunset, its woods, and all its picturesque beauties, with Old Birkland and the Parliament Oak in the distance. But neither Claude nor Turner ever put on canvas a flock of 1000 ewes, or a manure-heap containing 1300 cart loads! —*A North Derbyshire Farmer in the Derby Reporter.*

The Art and "Mystery" of Draining.—It is almost unnecessary to say that this mode of drainage (of which a detailed description like that in the text may perhaps be not inappropriately retained in a report of the county in which Elkington was born, and practised his system) is properly superseded by the modern practice of deep parallel drains. Except to meet the very rare case of insuperable difficulty of outfall, holes sunk below the bottom of a 4-foot drain to bring up water from greater depths are useless. The specific action of drains of proper depth and interval upon the adjacent soil is obviously the same, let the source of the fluid be what it may. Probably in no art to which they have ever been applied have the laws of hydrostatics been more outraged than in that of land drainage. Their extreme simplicity (compared with those which are concerned with elastic, imponderable, or invisible bodies) has often been the very stumbling-block of half-informed minds, which look for and exact a certain amount of the mysterious as an element inseparable from, and necessary to the dignity of, science. To such persons—and unfortunately "professed" drainers of local celebrity sometimes belong to the class—simplicity ("the test of truth") is distasteful, and demonstration useless. Thus in some very drain-needing parts of North Warwickshire it is a common belief that water "draws better" down a curved drain than a straight one; and, in one instance, it was not until after reiterated arguments, and, after all, not upon sincere conviction, that a man superintending the drainage of a rather level field could be persuaded that a "sharper" outfall could be obtained down one side of a square than by going round the three other sides, because there was a slight depression of the surface in the latter direction. *C. W. H. in the Journal of the Royal Agricultural Society of England.*

Calendar of Operations.

MARCH.

Cheshire, *March* 5.—Two of the least interesting months to the farmer have passed away with their usual dull routine of farm labour, and we have just entered upon one full of interest and enjoyment, especially when the weather is favourable for the different field operations that await it. Wheat sowing has, with few exceptions, been brought to a close, and Bean and Pea sowing where practised is progressing favourably. The autumnal sown Wheat is looking well generally, and a "winterproud" field is a very rare occurrence. We have heard very few complaints about the slug, and if the weather continues fine a little longer the root will be too firmly established to be much injured by it. Preparations are now being made for putting in the early Potato crop, which in about a fortnight will be at its height. Potatoes are dear in the market, and new ones will be much wanted as early as they can be produced. Many sales of fat stock have taken place, and prices on the whole have been satisfactory to the feeder. Turnips and Mangel Wurzel have kept well through the winter, and the cultivation of these valuable roots, as regards good tillage, manure, and a genuine quality of seed, appears to be better understood than formerly, and is evidently on the increase. The market price lately, to be carted away by the purchaser, has been for Swedes 14*s.* to 15*s.* per ton, and for Mangel Wurzel 18*s.* to 2 *s.*, according to quality, &c. Cheese has been in good demand at rather higher prices than before Christmas. Milking cows in healthy stocks have at recent sales been very dear, and are likely to continue so throughout the spring. The pleuro-pneumonia is still lingering in this county, and in some localities the losses from it have been very serious. The season has been favourable for ewes and lambs, and they are doing well generally. Store pigs are in demand, and maintain their former price. *W. P.*

Notices to Correspondents.

Bonedust: *S K.* Soak the bones thoroughly in water, and add to them one-third their weight of sulphuric acid, and let them remain together for a day or two before mixing with ashes to drill or spread in the field.

Gorse: *A.* Gorse when properly grown and consumed in combination with other fodder, is no doubt a highly nutritious food. Thousands of acres of waste land are well adapted to its culture; seed should be sown not later than August. The quantity of seed to sow per statute acre is about 15 lbs. The method of bruising has hitherto been a tedious process; but machines are now made for the purpose. Messrs. Richmond and Chandler's chaff-machine answers very well.

Guano: *J.* The arrangement proposed by the Liverpool merchants to whom the Koorya Moorya Islands seem to have been consigned is, that any one may carry the guano on paying 1*l.* per ton royalty. So Mr. Labouchere stated in the House the other night.

Home Farm Management: *F R S.* The last of this series by Mr. J. Lockhart Morton, of 25, Parliament Street, Westminster, was given last week under the head of Farm-yard Management, p. 159.

Irish Moss: *J D.* It is essentially a kind of starch—and not of very great value as food. We should not be inclined to be purchasers. Gas tar is of no agricultural value, and you had better not apply it to your dungheap.

Top-dressing: *A 12 Years' Subscriber.* For Clover you might apply 1½ cwt. of nitrate of soda and 5 cwts. of gypsum at less cost than 3 cwt. of guano at present price, and with probably greater effect. Your second letter is just received.

Weights and Measures: *F R S.* The Petition to Parliament which is recommended for general adoption cites the following instances of anomaly in this matter:—In Mark Lane, Birmingham, Warwick, Walsall, Stratford, Alcester, Worcester, Evesham, Kidderminster, Bromsgrove, Gloucester, Tewkesbury, Hereford, Ledbury, and generally through the counties of Warwick, Worcester, and Hereford, Wheat is sold by the bushel of 62 lbs., whilst in Monmouthshire generally Wheat is sold by the bushel of 80 lbs. At Nantwich, Shrewsbury, and Market Drayton, and Wellington, of 75 lbs. In Wolverhampton and Stafford, 72 lbs. to the bushel. In Manchester, English Wheat by the bushel of 60 lbs.; and American Wheat by the bushel of 70 lbs. At Liverpool, Bideford, and Torrington, Wheat is sold by the bushel of 70 lbs.; at Aberystwith by the bushel of 65 lbs.; at Carmarthen and Haverfordwest, by the bushel of 64 lbs.; at Hull and Boston, and Lincolnshire generally, 63 lbs.; and at Wakefield, Doncaster, and Leeds, by the bushel of 60 lbs.; at Aylesbury, Cirencester, Dorking, Farnham, Petworth, Uxbridge, Midhurst, Oxford, Robert's Bridge, Chichester, Brighton, Linfield, and East Grinstead, Wheat is sold by the "load" of 5 qrs. At Hitchin, Wheat is sold by the "load" of about 5 bushels; at Pontefract by the "load" of three; and at Bedford by the "load" of 5 bushels. At Royston and Stowmarket, Wheat is sold by the "load" of 488 lbs.; and at Ulverstone by the "load" of 144 quarts. At Bridgnorth, Wheat is sold by the "bag" of 11 scores; at Much Wenlock, by the "bag" of 11 scores and 4 lbs.; at Ludlow, by the "bag" of 11 scores and 10 lbs.; and at Leominster, by the "bag" of 12 scores. At Whitehaven, Wheat is sold by weight of 14 stone; at Nottingham and Grantham, Wheat is sold at 36 stone; whilst at Malton and at Scarborough, Wheat is sold by the weight of 40 stone. At Swansea, Wheat is sold by the "stack" of 3 bushels. At Barnard Castle, Darlington, and Morpeth, Wheat is sold by the "boll;" at Beccles, it is sold by the "coomb." At Preston and Garstang, Wheat is sold by the "windle" of 220 lbs.; whilst at Denbigh, it is sold by the "hobbitt" of 168 lbs.; and these are but samples of the universal confusion on the subject.

Weights of Grain in Mark Lane: *S W.* When sold by weight in this market Wheat is generally weighed 63 lbs. per bushel, and 54 lbs. English Barley, and 38 or 40 lbs. Oats, as agreed between the seller and buyer.

THE VERY BEST MATERIAL
For the Protection of Blooms of Peaches, Nectarines, and other Wall Trees is

SHAW'S TIFFANY.—A light, cheap, and durable fabric. Sold in pieces, 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece.—Sold by Wm. Wood & Son, appointed agents. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"TIFFANY," for SHADING CONSERVATORIES.—Manufactured by John Shaw & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

John Shaw & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
.. Caldwell, Knutsford.

PAGE AND CO.'S BLIGHT COMPOSITION.—Extra strong, 4*s.* per gallon, sufficient to make four. (Jars and barrels charged at cost price.) Ten gallons and upwards, Carriage Free to London.

B. Page & Co.'s Blight Composition, after six years' public trial, stands unequalled. It is used largely in the principal gardens in the kingdom, and found to be the cheapest and most effectual remedy ever known. A pamphlet of 16 pages is published, in which the opinions of the leading professional men in the world are subscribed to its merits, and which are further exemplified in a leading article by Professor Lindley, in the *Gardeners' Chronicle* of Oct. 25th, 1856, and may be had of the undernamed Agents:—

Messrs. Henderson & Co., Pine-apple Place, London
Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
Mr. E. Paul, Derby
Mr. G. Wheeler, Nurseryman, Warminster
Messrs. Masters & Son, Canterbury
Messrs. Downie & Laird, South Frederick Street, Edinburgh
Mr. E. Taylor, Malton, Yorkshire
Messrs. Chandler & Son, Wandsworth Road, London
Mr. Freeman, Woburn
Messrs. Fisher, Holmes, & Co., Handsworth Nursery, [Sheffield
Mr. J. Perkins, Northampton
Mr. W. J. Epps, Nurseryman, Maidstone and Ashford
Mr. C. Turner, Royal Nursery, Slough
Mr. J. Whomes, Pelargonium Nursery, Windsor
Messrs. Mitchinson & Co., Seed Merchants, Truro
Mr. F. Brewer, Nurseryman, Birmingham
Messrs. Wood & Ingram, Nurseries, Huntingdon
Mr. Baskerville, Bristol
Messrs. Leake & Smith, Bridgenorth
Mr. G. Davison, St. Peter's Street, Hereford
Mr. W. Garraway, Welwyn, Herts
Mr. R. M. Mills, Market Place, Bourn
Mr. Caparn, Seedsman, Newark
Mr. John Cattell, Seedsman, Westerham
Mr. Morgan, Nursery, Kidderminster
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
Messrs. Veitch & Son, Exeter
Messrs. Hooper & Co., Covent Garden
Messrs. Wm. Drummond & Sons, Dawson Street, Dublin
Mr. E. P. Dixon, Hull
Mr. J. C. Fox, Witney
Mr. H. Steel, Shefford, Beds
Messrs. Wood & Son, Barbourne, Worcester
Mr. J. F. Fraser, Nurseryman, Aylesbury
Mr. E. R. Greenus, Nurseryman, Watford
Mr. J. B. Austin, Chemist, Parsons Street, Banbury
Messrs. Brown & Austin, Nurserymen, &c., Argyll Arcade, [Glasgow
Mr. Graham, Chichester
Mr. Standish, Bagshot
Mr. John Sandy, Stafford
Messrs. Dickson, Farrell, & Co., Belfast
Messrs. Newcome, Stamford
Mr. Jefferies, Cirencester
Mr. Steel, Blandford
Messrs. Imrie & Son, Ayr
Mr. Pennington, S. Retford
Messrs. Gentle & Son, Peebles
Messrs. Saunders & Son, Abergavenny
Mr. John Farmer, Putney
Mr. H. W. Humphreys, Bangor
Messrs. Cutbush & Son, Highgate Nursery
Mr. Wild, Ipswich
Mr. T. McKenzie, Seed Merchant, Pine Street, Cork.
Mr. J. Walker, Nurseryman, Thame.

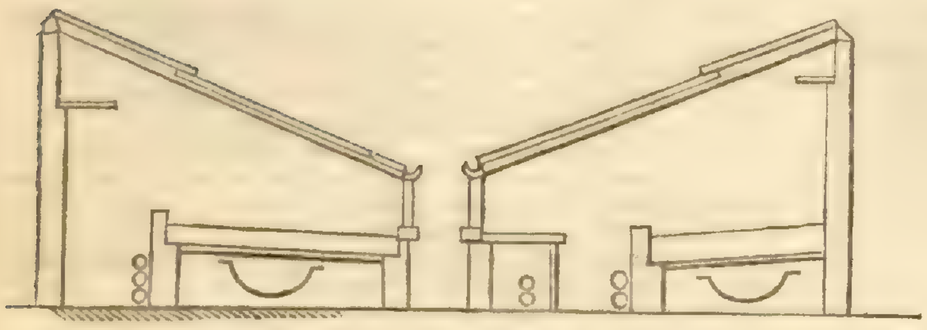
B. Page & Co., Seed Merchants and Growers, 37 and 38, Oxford Street, adjoining Radley's Hotel (10 yards from the Railway Station), and 58, Above Bar, Southampton. Communications by Post should be directed, Oxford Street, Southampton.

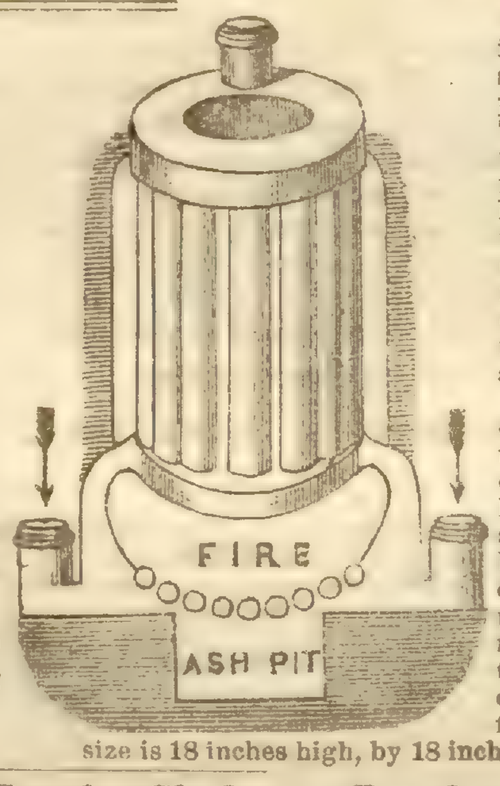
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

John Weeks & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., Horticultural Builders and Hot-Water Apparatus Manufacturers, Hothouses, Greenhouses Conservatories, Forcing Pits, &c., of every shape and size, both Plain and Ornamental.

Also our Improved Patent Tubular Boilers of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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BURGESS AND KEY'S LIFT PUMP.—THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

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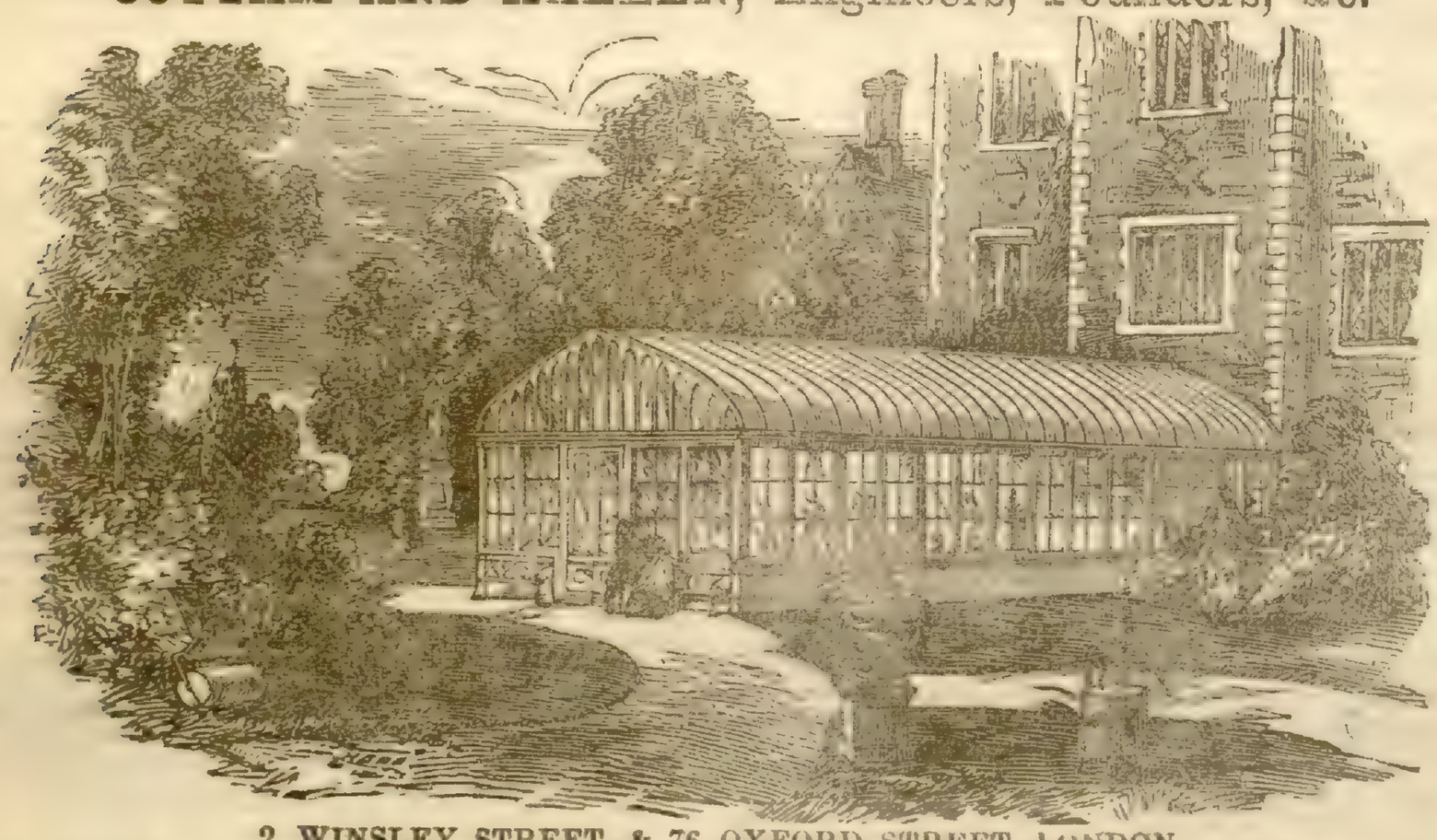

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
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Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

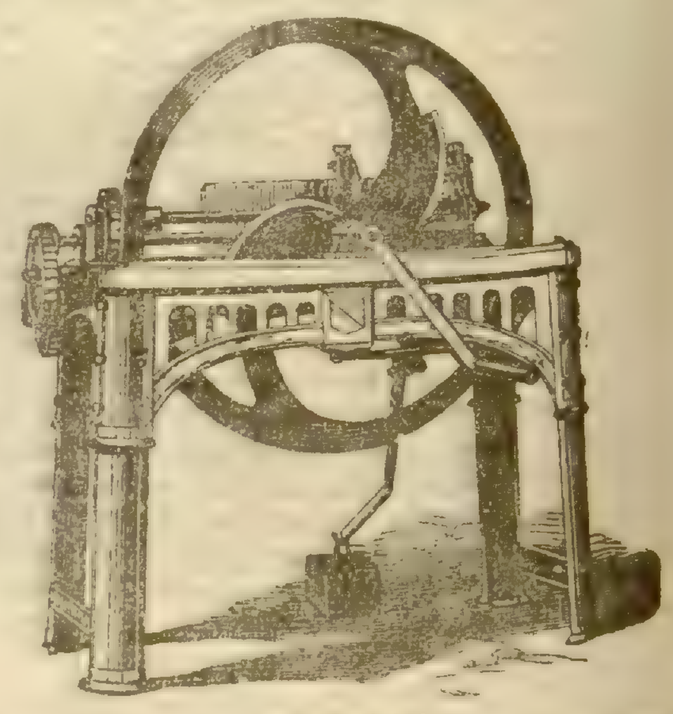
EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK,

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORES, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."—*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.

PRESTON MEETING, 1856.

AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to Richmond & Chandler—

The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

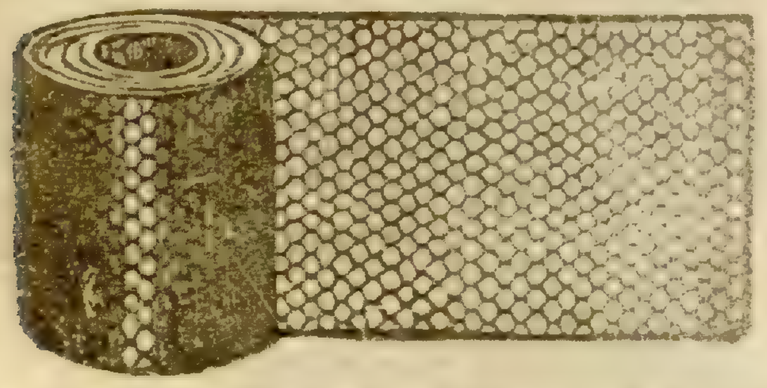
Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—

The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to Richmond & Chandler, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

GREAT REDUCTION IN THE PRICE OF GALVANISED WIRE NETTING.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong, do.	6 „	4¾ „
2 inch „ intermediate, do.	7 „	5½ „
2-inch „ extra strong, do.	9¼ „	7½ „
1½-inch „ 24 inches wide	5½ „	4¼ „
1½-inch „ strong, do.	6½ „	5¼ „
1½-inch „ intermediate, do.	7½ „	6 „
1½-inch „ extra strong, do.	10 „	8 „

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

TO NURSERYMEN, ETC.

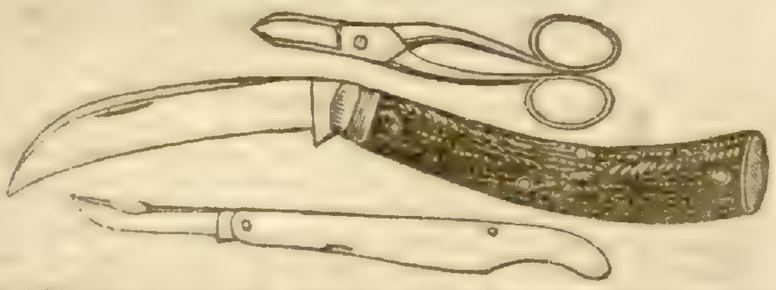
FOR SALE, 1500 large ARCHANGEL MATS, new.—Garnock, Bibby, & Co., Patent Cordage Manufacturers, Liverpool.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—Thomas Brittain & Co., Manchester; J. Ellison, Bread Street, Cheapside, London.

TO AGRICULTURISTS, WHERE A SUPPLY OF WATER EXISTS WITH A GOOD FALL.

TURBINE WHEEL FOR SALE, suitable for turning Farm Machinery, and capable of working from 2 to 4-horse power, according to the fall of water. Warranted new.—For further particulars apply to Messrs. Wightman & Co., Chard.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash :—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½	... 12s.	8 by 6, and 8½ by 6½	... 13s. 6d.				
7 by 5, and 7½ by 5½	... 13s.	9 by 7, and 10 by 8	... 13s. 6d.				
11 by 9,	12 by 9,	13 by 9,	14 by 9	...	...	15	0
12 „ 10,	13 by 10,	14 „ 10,	15 „ 10	...	...	16	0
	16 „ 10,	17 „ 10,	18 „ 10	...	...		
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11	...	16	6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12	...	...	17	0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12	...	...		
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13	...	...		
	22 „ 13,	24 „ 13	...	...	...	18	0
20 „ 14,	22 „ 14,	24 „ 14	...	...	...		
10 „ 15,	22 „ 15,	24 „ 15	...	...	...		
	20 „ 18	...	...	...	...	... £1	2 0

Boxes charged 2s. each, but returnable at full prices. Sizes differing from above cut to order in squares. 16 oz. from 2d. to 3d., 21 oz. from 2½d. to 5d. per foot.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2½d. per foot. Twenty-one Ounce, 3½d.

Foreign Sheet Glass, in cases of 200 feet, 40s. and 42s. per case.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best Manufacture and at the lowest prices.

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BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

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HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2d. to 3d. per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

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See *Gardeners' Chronicle* first Saturday in each month.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1s. 6d. per lb. by JOSEPH BAKER, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

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"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled. Prepared from Oriental Herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Price 2s. 9d. per box. CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 437 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10s. 6d. by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

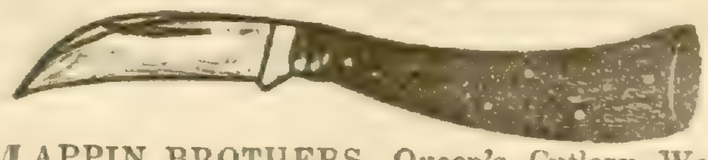
TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1d. per square yard; 200 yds, 14s.; 500 yds, 30s.; 1000 yds, 50s. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

BLOSSOM OF WALL FRUIT TREES.—WORSTED NET to set up when the blossoms cannot longer be kept back, and remain permanently fixed until taken down the latter end of May, when all danger from frost is over; price 7d. per square yard, in various widths.

R. RICHARDSON, 21, Tonbridge Place, New Road, London.

N.B. Plan of fixing it and samples sent free.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

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MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

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FENDERS, STOVES, AND FIRE IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE IRONS, and GENERAL IRONMONGERY, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; do. with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 2*l.* 15*s.* to 11*l.*; do. with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.*; Fire Irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s.* per dozen; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* p. pair; larger sizes, from 14*s.* 6*d.* to 26*s.* p. dozen; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per dozen; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per dozen; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per dozen; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38s.	48s.	60s.
Dessert ditto and ditto „	30s.	35s.	42s.
Tea ditto ... ... „	18s.	24s.	30s.

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen ...	12s.	28s.	30s.
Dessert ditto and ditto	10s.	21s.	25s.
Tea ditto	5s.	11s.	12s.

DISH COVERS AND HOT-WATER DISHES in every material, in great variety, and of the newest and most recherché patterns. Tin Dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 3*d.* to 28*s.* 9*d*, the set of six; elegant modern patterns, 34*s.* to 58*s.* 6*d.* the set; Britannia metal, with or without silver-plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield plated, 10*l.* to 16*l.* 10*s.* the set; Block Tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia metal, 22*s.* to 77*s.*; electro-plated on nickel, full sized, 11*l.* 11*s.*

The additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street, W.; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it is his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

ALLSOPP'S PALE ALE IN IMPERIAL PINTS.

HARRINGTON, PARKER, AND CO., are now delivering the October brewings of the above celebrated Ale. Its surpassing excellence is vouched for by the highest medical and chemical authorities of the day. Supplied in bottles, also in casks of 18 gallons and upwards, by HARRINGTON, PARKER, & Co., 5½, Pall Mall.

HOW TO BREW SPLENDID ALE AT 7*d.* PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1*s.* 9*d.* per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny post stamps. Sent, post-free, to any address. Direct to FISHER & SON, publishers, Kingsland, London. Established 1847.

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THE COUNCIL OF THE HORTICULTURAL SOCIETY are now ready to receive at the Gardens PLANTS of all NEW FRUITS not included in their Catalogue of 1853—as Apples, Pears, Plums, Peaches, Nectarines, Vines, Apricots, Cherries, Strawberries, &c.

As they will be tested in different situations, duplicates may be sent, and it is very desirable that good trees of all standard varieties, as Royal George and other fine Peaches, Black Hamburgh and Muscat of Alexandria Vines, Morello and May Duke Cherries, should be forwarded; which, by being planted alongside of the new kinds, will be found of great service for comparison.

The various kinds of Trained and Untrained Trees, as dwarfs, half and tall standards, also Maiden Plants with good heads, of such as Peaches and Nectarines will be acceptable.

It is confidently hoped that both Amateurs and Nurserymen will promptly aid the Council in this effort to ascertain, as far as the Society's means will allow, the REAL WORTH of New Fruits.

In a fortnight preparation will have been made to receive all *new* and *old* sorts of Culinary Seeds, as Peas, Potatoes, Broccolies, Lettuce, &c. These can be supplied in small quantities.

All parcels to be addressed to Mr. M'EWEN, 21, Regent Street, London, S.W.

N.B. The *new* Fruits and Seeds not in circulation and sent for trial, will not be distributed until authority to do so shall have been given by the parties sending the same.

GEO. M'EWEN, *Superintendent of the Garden.*

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—THE EXHIBITIONS OF PLANTS, FLOWERS, AND FRUIT this season will be held on WEDNESDAY, May 20th; THURSDAY, June 18th; and WEDNESDAY, July 1st. Tickets of Admission are now being issued, and may be obtained at the Gardens, only by orders from Fellows or Members of the Society, price, on or before Saturday, May 9th, 4*s*.; after that day, 5*s*.; and on the days of Exhibition, 7*s*. 6*d*. each. A new arrangement of the Fruit will be adopted.

SLEAFORD HORTICULTURAL SOCIETY.—The Annual Exhibition of this Society will be held on THURSDAY, July 23, when Prizes will be awarded to Members of the Society for FLOWERS, FRUITS, and VEGETABLES exhibited, according to merit; also for Cottagers' Productions; and on this occasion extra Prizes (open to all England) will be awarded for the

Best collection of 12 Stove and Greenhouse Plants, First prize	£5 0
Second prize	2 10
Ditto of 12 varieties of Fruit fit for Dessert and of good quality, first prize	2 0
Second prize	1 0
Ditto Stand of 24 Roses (varieties) Single Bloom, free from leaves and buds, first prize	2 0
Second prize	1 0

The Rules of the Society, with Schedules of Prizes, may be obtained on application to Mr. WARWICK, Treasurer; or to Mr. PEAKE, Hon. Secretary,—Sleaford, March 21.

TO NURSERYMEN, IMPORTERS OF PLANTS, ETC.

WILDING AND KENT, CUSTOM HOUSE AGENTS, 73, Mark Lane, E. C., London, undertake to receive from and forward to the Continent, all kinds of Seeds, &c., with utmost despatch and at low charges.

DAVID FERGUSON, when employed as LANDSCAPE GARDENER, where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for his own Time and Plans, his object being to dispose of his Plants, which he has in large quantities, both for present and future effect.—Stowe, Buckinghamshire.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—To be had of THOS. PERRY, Nurseryman, &c., Banbury.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

AMATEURS AND GENTLEMEN'S GARDENERS may have a List of the few Seeds that are really useful on sending a directed envelope to G. GLENNY, Dungannon House, Fulham, S.W. "GLENNY'S COMPANION" (with Portrait), and "GARDEN ALMANACK" 13 stamps each.

SUTTON'S FARM SEED LIST, with PRICES for MARCH and APRIL, is now ready, and will be sent gratis and post free.—Royal Berkshire Seed Establishment.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

THOMAS BARNES' CATALOGUE of New Dahlias, Fuchsias, Verbenas, Petunias, Chrysanthemums, Roses, Phloxes, and Miscellaneous Plants is now ready and may be had on application.—Dane Croft Nurseries, Stowmarket.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 21.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had gratis, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

HARDY ORNAMENTAL TREES, &c.

A. PAUL AND SON have just published a SELECT List of the above, with their Heights, English Names and Descriptions, which they will be happy to forward free by post in answer to written application.
Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON respectfully announce that their ROSE CATALOGUE for 1856-7 will be forwarded free by post in answer to written application.

The Stock never was in finer condition; the Pot Roses, owing to an improved system of cultivation, are larger, better rooted, and hardier in constitution than usual. Early orders are solicited.
Nurseries, Cheshunt, Herts.

VAN HOUTTE'S SPRING CATALOGUE will be ready at the end of this month, and then to be had at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

TRADESCANTIA DISCOLOR VITTATA.

LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. and 35*s*. In London free.—Ghent, Belgium, March 21.

VAN HOUTTE'S NEW ACHIMENES.—Subscribers in England:—Messrs. HUGH LOW & Co.; R. GLENDINNING; JAMES VEITCH, Jun.; WM. ROLLISSON & SONS

NOTICE TO GARDENERS.

WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to GEORGE TAYLOR, Jun., Fruit Salesman, St. John's Market, Liverpool.

WILLIAM FREMOW, NURSERYMAN and FLORIST, Turnham Green, W., offers 30 varieties of Showy Herbaceous Flower Roots for 3*s*. 6*d*. on receipt of postage stamps (carriage paid to London).

CARNATIONS.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PICOTEES.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PINKS.—Twenty-five pairs, fine named kinds, in strong healthy plants, 10*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.
Post-office Orders payable at Middleton, near Manchester.

NEW AND CHOICE PANSIES.

HART AND NICKLIN, FLORISTS, &c., Guildford, beg to offer first-class PANSIES at 10*s*. per dozen, or three dozen for a guinea, free by post, or package included.

TO THE LOVERS OF PANSIES.

JOSEPH NORRIS offers strong Unbloomed Seedlings, saved only from the newest and best named varieties, at 3*s*. per dozen, 20*s*. per hundred; named varieties, 6*s*. per dozen. Extra fine Pansy Seeds, 3*s*. per packet. Post-office Orders to be made payable at Hounslow.—Osterley Park Gardens, Hounslow.

PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, has upwards of 6000 strong Plants, including all the English and Scotch varieties of merit, at 6*s*., 9*s*., and 12*s*. per dozen.

Lancashire Show GOOSEBERRY TREES	6*s*. 0*d*. per dozen
Extra fine PANSY SEEDS	2 0 per packet.

Catalogues now ready.

THUNBERGIA LAURIFOLIA.

HUGH LOW AND CO. have to offer Plants of the above-named very Free Flowering New Stove Climber. For description, see *Gardeners' Chronicle*, 168 of the new plants, price 10*s*. 6*d*. each.—Clapton Nursery, March 21.

TO NURSERYMEN.—GRAPE VINES IN POTS.

J. EATON has a very fine Stock of GRAPE VINES struck from eyes, for planting out, strong, and quite ripe, from 4 to 6 feet long.
Shacklewell Road, Stoke Newington.

AZALEA "PETUNIFLORA."

W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5*s*. each; all the new Azaleas of last year, from 30*s*. to 60*s*. per dozen.—Maidstone, March 21.

WELLINGTONIA GIGANTEA.

JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.
The American Nursery, Bagshot, Surrey.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in VAN HOUTTE'S FLORA. Strong plants, perfectly hardy, at 3*s*. 6*d*. each, or 30*s*. per dozen. In London free until the 15th of April. The trade supplied.—LOUIS VAN HOUTTE, Ghent, Belgium, March 21.

PONTEFRACT NURSERY.

ONE HUNDRED THOUSAND two and three year transplanted BERBERIS AQUIFOLIUM; also two year Seedlings, fine healthy Plants, with all other kinds of Nursery Stock. Samples and price on application.
JOHN SCHOLEY, Pontefract.

ASH-LEAVED KIDNEY POTATOES (WARRANTED TRUE).

WOOD AND INGRAM beg to offer a very pure stock of the above at 6*s*. per bushel. Price to the Trade on application.—Huntingdon Nurseries, March 21.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, March 21.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

THOMAS WILD, Ipswich, respectfully announces to the Horticultural world that his celebrated SEEDS are nearly sold out. Order without delay or disappointment will follow.

The remaining fine Seedling Medinellas (splendid plants), to be sold very cheap, or exchanged for other plants.

PINE PLANTS.—A gentleman who is declining the growing of PINES has about 30 to dispose of, most of which are Queens; they are perfectly clean and very healthy.—For price and further particulars apply to Mr. F. GODWIN, Broadfield Nurseries, Sheffield.

PINE PLANTS FOR SALE.—About 50 Fruiting and 100 Succession PINE PLANTS to be sold, the former fine strong plants, some in and others showing Fruit, chiefly Queens. The whole in fine healthy condition, and warranted clean.—Apply to Mr. JAMES BROWN, Nursery Grounds, Hackney, Middlesex.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

HOLLIES.

WANTED TO PURCHASE, about 300 EVERGREEN or BLACK HOLLIES, 3 feet high, of a healthy and vigorous growth, bushy and well furnished from top to bottom.—Apply, stating price, &c., to A. D., 2, Avenue Road, Regent's Park.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

YEW TREES OR YEW HEDGE.

WANTED TO PURCHASE, 800 to 1000 PLANTS, 7 to 8 feet high.—Address, with terms, to A. B., Mr. Cleare, Dumb Bell, Taplow, Maidenhead.

GOOD CLOVER SEED.

GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

RED CLOVER SAVED IN WALES.

GEORGE CHIVAS, from his close proximity to the County of Denbigh, which is so famous for the growth of the above, is now prepared to supply SEED of the most genuine quality. It is much more hardy than English and Foreign Seeds, and holds root better. Samples and prices on application.
North-west of England Seed Establishment, Chester.—March 2.

TO THE SEED TRADE.

GEORGE TABER, of Rose Cottage, Rivenhall, near Witham, Essex, begs to inform the Trade that he has still on hand a small stock of excellent TURNIP, SWEDE, and MANGEL WURZEL SEEDS of the best sorts.

PRIZE GIANT ASPARAGUS.—Good Plants grown in same soil as those which were awarded the FIRST PRIZES at the London and Dublin Horticultural Exhibitions, 1855 and 1856, now on Sale. Healthy young Plants, 2*s*. per 100; larger and older ditto, 3*s*. per 100 (package included); and forwarded to all parts of the United Kingdom with dispatch by JOHN ABELL, Limerick.

STRAWBERRY AND CUCUMBER PLANTS, ETC.

CUTHILL'S PRINCESS ROYAL, 20*s.* per 100; 12*s.* for 50: The Black Prince, 5*s.* per 100. CUTHILL'S Prince of Wales sold out. Cucumber Plants, Black Spine, 1*s.* per packet. The best Melons 1*s.* per packet. J. C.'s Three Pamphlets, &c.—JAMES CUTHILL, Camberwell, London.

FIRST CLASS SEEDS.—Whatever has been sold as GLENNY'S Balsam Seed, except in his own sealed packets, is a fraud upon the buyers. Six classes, 37 stamps, mixed 13. Dahlia, Pansy, Hollyhock, Auricula, Polyanthus, Calceolaria, Cineraria, Heliotrope, Verbena, 13 each; Chrysanthemum, 30.—Fulham, S. W.

THE ALLIANCE POTATO, patronised by his Imperial Majesty the Emperor of the French, and the Nobility of England and Paris.—One peck of these celebrated White Kidneys can be obtained of the Grower only, Mr. JAMES COPELAND, Thames Street, Windsor, on receipt of a Post-office Order for 10*s.* 6*d.*, including package. This being the first season of their being offered to the public, a limited quantity only will be sold.

AZALEA INDICA PETUNIÆFLORA.—Nice bushy plants at 15*s.* each offered, to London free, by LOUIS VAN HOUTTE, buyer of the stock (four for three). Messrs. HUGH LOW & Co., R. GLENDINNING, and JAMES VEITCH, Jun., are able to give their opinion about the A. petuniæflora, having seen its flowers and bought plants of it.—Ghent, Belgium, March 21.

CHOICE SEEDS FROM PERFECT SPECIMENS.

THOMAS WILD, Ipswich, confidently recommends the following superior Seeds, together with Latter's Treatise on the Cultivation of Primulas, coloured drawing. Testimonials, &c., free by post.

Orion Melon, 1*s.* 6*d.*; Standard Cucumber, 2*s.* 6*d.*; Latter's Primulas, of world-wide celebrity, 2*s.* 6*d.*; Hollyhock, Pansy, Dahlia, Gloxinia, Cineraria, Calceolaria, Polyanthus, Sweet William, and Balsam, at 1*s.* per packet, saved by growers who spare no expense to obtain the best.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection of fine healthy plants for 21*s.*, package included; viz., Jessica, Empress, Virginia, exactum, Carlos, Lucy, Rosa, Majestic, Magnet, Enchantress, Virgin Queen, Serena, Attraction, Mochanna, Beatrice, Lord Mayor, Old Story, Chloe, Zeno, Seraskier, Ganymede, Phaeton, Magnificent, Gulielma, Cordelia, Rosamond, optimum, Rowena, Floretta, Queen of May.

Horticultural Gardens, Norwich.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, March 21.

NEW ROSE.—HYBRID PERPETUAL BACCHUS (PAUL'S).—This Rose is a seedling from the "Géant des Batailles;" the colour is brighter, the petals thicker; the flowers remaining twice as long on the plant without the faded appearance so objectionable in the parent. The plant is of hardy habit, of moderate growth. The flowers are large, full, well formed, and produced freely both in summer and autumn. It has received first-class prizes from the National Floricultural Society, the Royal Botanic Society, and the Crystal Palace Company.

Price 10*s.* 6*d.* each, standards and dwarfs, with the usual discount to the trade when three or more plants are ordered at once.

A. PAUL & SON, Nurseries, Cheshunt, Herts.

CARPE DIEM, CARPE DIEM.—Some fine specimens of the PICEA NOBILIS, Nordmanniana, Pinsapo, cephalonica, Pinus ponderosa, Excelsa austriaca, insignis, macrocarpa, Abies Douglasi, Menziesi, Cedrus Deodara, Lebani, Atlantica, Wellingtonea gigantea, and other Coniferæ, Araucaria, Taxodium sempervirens, Cryptomeria japonica, as well as a large assortment of every description of Nursery Stock, with one of the largest selections of Fruit Trees in the trade.—May be had from the establishment of DONALD & Son, Goldworth Nursery, Woking, Surrey, one hour by rail from Waterloo Station. All these plants have been been constantly removed, and will be sold cheap. Prices on application.

GRIMSTONE'S EGYPTIAN PEAS.—In reply to the many thousand inquiries about this delicious Vegetable, mainly owing to a notice in the "National Magazine," March 7, 1857, they are sold in bags signed and sealed with Vignette on outside, which contains the history and the only mode of cultivating. They require no sticks, bloom bell like. They are part of the produce of the only Pea resuscitated by Mr. WM. GRIMSTONE, presented to him by Dr. Pettigrew, F.R.S., who found them in a vase presented to the British Museum by Sir Gardner Wilkinson, whose letters are in the history. A 2*s.* 6*d.* bag is enough for a small family, postage 8*d.*; 5*s.* bag, postage 1*s.* 8*d.*; 10*s.* bag, 2*s.* 8*d.* postage.—All letters to WM. GRIMSTONE, Depôt, 52, High Street, Bloomsbury, London.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.

Price 5*s.* per quart. Usual allowance to the trade.

NEW BEDDING CALCEOLARIAS FOR 1857.

MR. JAMES SMITH, GARDENER to Lord Tenterden, of Hendon (the raiser of that great favourite Calceolaria, "SULTAN"), has the pleasure to offer three new varieties for the present Season, which will be found to possess very high qualifications, and much superior to any yet offered, viz.:—

RIVAL SULTAN.—Very dark crimson, of good shape, with dwarf, compact, strong woody habit, 5*s.* each.

SULTANA.—Bronze and crimson shaded, fine shape flower with good habit, 5*s.* each.

ORANGE SCARLET.—Good habit, with large orange scarlet flowers, 7*s.* 6*d.* each.

Mr. SMITH having placed the Stock into the hands of Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W., for disposal, respectfully requests the favour of all orders being sent to them, who will deliver strong plants on or about the 24 of April.

☞ TO THE TRADE.—When Three of each are ordered, one of each will be sent gratis.

*** The Stock of Plants for Sale is very limited. Early orders are invited.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

FLOWER SEEDS.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers:—

German Asters, 24 splendid varieties	5*s.* 0*d.*
" " 12 " "	2 6
" The above varieties mixed	1 0
French Asters (Truffauts), 12 varieties	3 6
German Stocks, 36 splendid varieties, brilliant and distinct colours	7 6
" " 24 varieties	5 0
" " 12 "	2 6
" The above brilliant colours mixed	1 0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2 0
The above 8 colours mixed	1 0
Wallflowers, 10 splendid varieties	3 6
Packet of the above mixed	1 0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, ESQ., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show. Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Bulle Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Homme House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

Collection No. 1 (20 quarts Peas, and all other Vegetables in proportion), for one year's supply	£3 0 0
Collection No. 2, in reduced proportions	2 0 0
Collection No. 3, "	1 5 0
Collections for Small Gardens, Nos. 4 and 5, 15*s.* 6*d.* &	0 10 6

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections Nos. 1, 2, and 3, see Catalogue.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

Smith's New Balsams, 6 varieties, separate ...	2*s* 6*d.*
" " in larger packets, mixed	2*s.*

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	*d.*
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

FLORIST FLOWERS, &c., SAVED FROM CHOICE COLLECTIONS.

Per packet.—	*s.*	*d.*
Hollyhock, ex., saved from 20 finest vars. of our collection	2	6
Pentstemon, ex., from grandis, magnifica, Themisteri, and other choice vars.	2	6
Phlox, hardy vars., choice	0	6
Potentilla, ex., from our finest new	2	6
Calceolaria, ex., from choice new vars.	2	6
Geranium, ex., from choice new vars.	2	6
" from finest fancy	1	6
Gloxinia, ex., from superb vars.	2	6
Petunia, new and choice	1	0
Primula sinensis fimbriata, from extra fine vars.	1	0
Verbena, from choice new	2	6

CHOICE IMPORTED GERMAN SEEDS.—IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

30 superb vars. dwarf German Stocks, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do., packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new White Dwarf Wall-leaved, 6*d.* and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed, fine, 6*d.* and ...	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do...	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	0

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 3*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20*s.*) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW PHLOXES.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON have a superb collection of the above, including all the newest and best Continental varieties, at 12*s.* to 18*s.* per dozen; older varieties of sterling merit, 6*s.* to 9*s.* per dozen.

Herbaceous Plants, a fine collection, 6*s.* to 12*s.* per dozen.

N.B. A remarkably fine stock of Laurustinus and Portugal Laurels, &c. Also a few thousands of fine Transplanted Spanish Chesnuts, 2½ feet. Catalogues free on application.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants each, with a ball of earth, will prove a good crop this season; price 40*s.* per 100 and 6*s.* per dozen. Price to the trade per thousand can be had on application. All other Strawberries prove worth cultivating. Strong plants, with a ball of earth, and will fruit this summer, at 10*s.* per 100. Plants sent over of all kinds to compensate for distant carriage.—Apply to RICHARD S. YATES, St. Ann's Square, Manchester.

BRITISH FLAG GERANIUM.

GEO. PARSONS, FLORIST and SEEDSMAN to the QUEEN, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange-scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plant 7*s.* 6*d.* each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

MOORE'S DELPHINIUM FORMOSUM.—Seed in packets at 2*s.* 6*d.* and 1*s.* 6*d.* to be had of NUTTING & Sons, Seedsmen, 26½, Upper Thames Street, E.C. The habit of the plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2*s.* 6*d.*

NOTICE OF REMOVAL.

NUTTING AND SONS, SEEDSMEN, have removed from Cheapside to their Warehouse at Paul's Wharf, 26½, Upper Thames Street, until Michaelmas, where they request the favour of all communications to be made.

Perennial Rye Grasses, and English and Foreign Italian do. Samples to the trade.

Long Red, Red Globe, Fine Long Yellow, and Yellow Globe Mangel Wurzel; Altringham, White Belgian, and Early Red Middle Carrot; with other Farm Seeds, and every variety for the Kitchen and Flower Garden worthy of cultivation.

CHOICE PLANTS, &c.

YOUELL AND CO., Royal Nursery, Great Yarmouth, Norfolk, beg respectfully to call attention to the following which they are now sending out in fine strong plants:—

CAMELLIAS, in choice new kinds, without bud, 21*s.* per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12*s.* per doz. smaller do., 9*s.*
ERICAS, of finest kinds, bushy plants in 48's, 12*s.* per dozen.
GREENHOUSE PLANTS, in 50 select kinds, for 50*s.* [dozen.
CINERARIAS.—A choice collection of all the best kinds, 9*s.* per
PERPETUAL FLOWERING OR TREE CARNATIONS BLOOMING SUMMER AND WINTER.—A very choice and select collection of the above beautiful class in good healthy plants at 12*s.* and 18*s.* per dozen.

CARNATIONS AND PICOTEES.	*s.*	*d.*
12 pairs of fine kinds by name, per dozen pairs ...	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.
" Fine mixed border ditto, 6*s.* per dozen pairs.
ROSES.—A fine collection of the choice varieties of Hybrid Perpetuals, well established in pots, 18*s.* per dozen.
DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, 18*s.* per dozen. This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue
DELPHINIUM BARLOWI AND MOOREANUM.—6*s.* per doz.
DIELYTRA SPECTABILIS.—Strong, 6*s.* per doz.; ex. do., 9*s.*
HOLLYHOCKS.—A fine collection of the best named varieties, 12*s.* per dozen.
OXALIA ROSEA AND FLORIBUNDA.—Two beautiful hardy herbaceous plants of dwarf habit, producing throughout the season a profusion of rose-coloured flowers, 6*s.* per dozen.
POTENTILLAS.—10 handsome varieties, by name, for 6*s.*
PENTSTEMONS.—A fine collection of all the best kinds, 9*s.* per dozen.
MIMULUS.—10 beautiful new varieties, 6*s.* per dozen.
CHRYSANTHEMUMS.—A first-rate collection of the newest and best kinds of Pompone and large flowering, 9*s.* per dozen.
PRIMROSES.—Double white and yellow, 4*s.* per dozen.
GEUM ATROSANGUINEUM.—Strong plants, 3*s.* per dozen.
STATICE MARITIMA ROSEA, AND PSEUDO ARMERIA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3*s.* per dozen.
MYOSOTIS AZONICA.—Strong plants of this beautiful hardy herbaceous plant, producing numerous heads of bright blue flowers of dwarf habit, 6*s.* per dozen.
ŒNOTHERA MACROCARPA.—Large yellow, 9*s.* per dozen.
SALVIA PATENS.—Strong roots of last season's growth, 9*s.* per dozen.
LOBELIA ROI LEOPOLD.—Fine blue, 6*s.* per dozen.
LYCHNIS DIOICA ALBA FLORE PLENO.—Fine double white, 1*s.* each.
LYSIMACHIA LESCHENAULTIA.—Fine rose colour, 1*s.* each.
DAISIES, NEW BELGIAN.—30 best varieties of this favourite plant, 4*s.* per dozen.
A fine COLLECTION OF HARDY CLIMBERS, 12*s.* per doz.
GYNERIUM ARGENTEUM, THE NEW PAMPAS GRASS.—Strong plants, 2*s.* 6*d.* each.
PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, 9*s.* per dozen, including that fine new Phlox Countess of Home.
PANSIES.—A fine collection of all the new and first-rate flowers, 9*s.* per dozen.
DEUTZIA GRACILIS.—Fine strong plants for forcing, 9*s.* per dozen.
LILY OF THE VALLEY.—Strong for forcing, 5*s.* per 100.
PÆONIES.—A choice collection of 20 new varieties for 20*s.*
HERBACEOUS PLANTS.—A very extensive and select collection of the handsomest kinds, including those adapted for rock work, 6*s.* per dozen; 30*s.* per 100.

All Orders of 2*l.* and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

It is respectfully solicited that all Post-office Orders be made payable to YOUELL & Co., Yarmouth, Norfolk.

Royal Nursery, Great Yarmouth, Norfolk.

GLADIOLUS, Cheap and good, for present planting:—

GANDAVENSIS, scarlet and orange ... 2*s.* 6*d.* per doz.
PRINCE ALBERT, pink and crimson ... 5 0 „

The above are beautiful free flowering varieties, suitable for growing in clumps.

To be had of WM. DENYER, Seedsman and Florist, 82, Grace-church Street, London, E. C.

THE FINEST GLOBE ASTER SEED IN THE WORLD.

EDWARD TILEY begs to inform the lovers of this beautiful and unequalled flower that he has a fine stock of seed saved from 24 of the choicest varieties ever exhibited, producing every flower perfect, the shape being two-thirds of a ball, well filled up to that form in the centre, and all the petals beautifully quilled. E. T. has received numerous testimonials from those who have purchased it years past, speaking in the highest praise of the fine varieties produced from the seed they obtained of him.—Sold in packets at 1*s.* 6*d.* each.

Cineraria Seed from best named varieties, 1*s.* per packet.

Sweet William Seed, saved from all the choicest and most selected sorts as to size of flowers and distinction of colours, there being about 36 varieties, 1*s.* per packet.

Antirrhinum Seed, from one of the most superb collections in cultivation, 1*s.* per packet.

Hollyhock Seed, from 24 of the best named flowers, 1*s.* per pkt.

Digitalis or Foxglove Seed, saved from flowers of the most beautiful kinds, there being about 20 distinct varieties of spotted crimson, striped white, &c., 1*s.* per packet. Plants of the same, that will bloom well this season, 2*s.* 6*d.* per dozen, or 1*l.* per 100.

Fine dark Clove Carnation, 1*s.* per pair.

Seedling Hollyhocks, grown from seed selected from 36 of the best named varieties, 2*s.* 6*d.* per dozen, or 1*l.* per 100. They will bloom well this season, and generally produce fine double flowers. Good named varieties of Hollyhocks, 12*s.* per dozen. Any portion of the seed will be sent postage free, and the plants, hamper and package free.

A Post-office Order, or penny postage stamps, must accompany every order, when any portion, or the whole, as the case may be, will be immediately forwarded.

N.B.—E. T. can still supply seed of his unequalled new Cucumber Perfection, at 3*s.* 6*d.* per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist,
14. Abbey Church Yard, Bath.

THE BOWOOD MUSCAT GRAPE. (Figured in the January number, 1857, of "Florist.")—This is a Seedling raised at Bowood by Mr. Spencer, between the Cannon Hall and Muscat of Alexandria. It differs from both its parents in several important particulars. The bunches are broader and shorter than the common Muscat; the berries are larger, oval, and sometimes pear-shaped, of a yellowish white, changing to a deep amber when fully ripened. As every flower sets, the bunches are invariably full and compact, with the berries of a uniform size; it requires the bunches to be well thinned out to allow the berries to attain their full size. It has been proved to set well in a temperature comparatively low, but it requires nearly the same amount of heat to ripen it as the common Muscat: although it comes to maturity rather earlier than that variety, it keeps equally well, if not better. The habit is scarcely so strong as that of the Muscat, and it is eight or ten days later in breaking in the spring. It is a most prolific bearer, producing three or four bunches to each shoot, and has been proved to fruit admirably in pots.

Bunches of the Bowood Muscat were sent in November last to the Horticultural Society, for the opinions of Dr. Lindley and Mr. Thompson. At page 757 of the *Gardeners' Chronicle* for November 15, Dr. Lindley says, in reference to these specimens, "We have never seen a variety of greater promise, the appearance of the bunch and berries is most magnificent, the quality is much the same as the Cannon Hall Muscat."

Of this variety Mr. Thompson gives the following description:—"This is a very fine thing, and very distinct. The bunch is very large and well shouldered, with strong footstalks. Berries very large, oval, inclined to obovate. . . . The skin was greenish yellow, or of the same colour as that of the Muscat of Alexandria; but it was evident that the berries had not acquired the colour of complete maturity. [It was explained that the bunches were scarcely ripe, owing to the Vines being in a pit which was retarded in the spring: under more favourable circumstances they become of a deep amber, as shown in the plate, berries having been furnished to Mr. Andrews later, for the purpose of assisting him in making the colour correct to nature.] The flesh was firm, juicy, with a rich sugary Muscat flavour; seeds 2—4. This variety, from its being an abundant bearer and a free setter, forming magnificent well-shouldered bunches, appears to be highly deserving of cultivation."

The following is an extract from the Report of the Meeting of the British Pomological Society, November 6, 1856:—"Mr Spencer, of Bowood, brought bunches of his Bowood Muscat. It had been previously exhibited before the Society, but this time was riper, and in a better condition to be judged. Its flavour was pronounced quite equal to the Muscat of Alexandria, and was esteemed superior to that variety in the form of the bunch, which is compact and well-shouldered. It also appears to have the desirable acquisition of setting well."

Orders received by any of the undermentioned Agents, for delivery in October next, price 21*s.* each, with the usual discount to the Trade:—

Messrs. Austin and McAslin, Nurserymen, Glasgow
Messrs. Backhouse and Son, do., York
Messrs. Ballantyne and Son, do., Dalkeith, N.B.
Messrs. Geo. Cunningham and Son, do., Liverpool
Mr. William Cutbush, Highgate, near London
Messrs. Francis Arthur Dickson and Sons, Upton Nurseries, [Chester
Messrs. J. Dickson and Son, Newton Nurseries, Chester; and at 23, Market Place, Manchester
Messrs. Dickson and Co., Nurserymen, Waterloo Place, [Edinburgh
Messrs. Dickson and Turnbull, do., Perth
Messrs. Downie and Laird, do., Edinburgh
Messrs. Frazer and Co., do., Lea Bridge, Essex
Mr. S. Finney, Nurseryman, Gateshead, Durham
Mr. R. Glendinning, Chiswick Nursery
Messrs. Garaway, Mayes, and Co., Durdham Down, Bristol
Messrs. E. G. Henderson and Son, Nurserymen, St. John's Wood, London
Messrs. A. Henderson and Co., Pine Apple Place, London
Mr. Wm. Heale, Nurseryman, Calne
Mr. John Keynes, do., Salisbury
Messrs. Peter Lawson and Sons, Nurserymen, Edinburgh; and George Street, Westminster
Messrs. J. and C. Lee, Hammersmith Nursery, London
Messrs. Hugh Low and Co., Clapton Nursery, London
Messrs. Lane and Sons, Nurserymen, Berkhampstead, Herts
Messrs. Maule and Sons, Nurserymen, Bristol
Messrs. Osborne and Sons, do., Fulham, near London
Mr. A. Pontey, Nurseryman, Plymouth
Messrs. Paul and Son, do., Cheshunt, Herts
Mr. George Parsons, do., Brighton
Messrs. Wm. Rollisson and Sons, do., Tooting, Surrey
Messrs. Wm. Rendle and Co., do., Plymouth
Mr. T. Rivers, Nurseries, Sawbridgeworth, Herts
Messrs. Sutton and Sons, Nurserymen, Reading
Mr. R. Smith, The Nurseries, Worcester
Messrs. John Shaw and Co., 40, Princess Street, Manchester
Mr. Turner, Royal Nursery, Slough
Mr. James Veitch, jun., Royal Exotic Nursery, Chelsea
Messrs. James Veitch and Son, Nurserymen, Exeter
Messrs. Wheeler and Sons, do., Gloucester
Messrs. Wood and Ingram, ditto, Huntingdon
Messrs. Wood and Sons, do., Maresfield, Uckfield, Sussex
Mr. G. Wheeler, do., Warminster, Wilts.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to offer the following set of 20 extra fine show varieties, in strong well rooted autumn-struck Plants, at 12*s.* the set, hamper, package, &c., included:—

Argo, Paton & Small's.	Jeannie, Downie & Laird's.
Beauty, Downie & Laird's.	Lord Palmerston, Turner's.
Duke of Newcastle, Turner's.	Lady Jane, Youell's.
Earl of Cardigan, Holland's.	Mrs. Hampton, Hampton's.
Emperor, Hale's.	Memnon, Turner's.
Elta, Middlemas's.	Medora, Downie & Laird's.
Father Gavazzi, Holland's.	Nonpareil, Dickson & Co.'s.
Golden Drop, Chadwick's.	Queen Victoria, Dickson & Co.'s.
Great Western, Hooper's.	Sir C. Napier, Paton & Small's.
J. B. Gough, Downie & Laird's.	Yellow Supreme, Moorhouse's.

J. HOLLAND can confidently recommend the above as being flowers of first-class merit.

Older kinds, such as Miss Talbot, Nonsuch, Satisfaction, Fearless, Duke of Perth, Wonderful, &c. &c., 4*s.* per dozen.

A few packets of very choice Pansy Seeds, at 1*s.* and 2*s.* per packet.

Priced and Descriptive Catalogues now ready, and will be forwarded on application.—Post-office Orders payable at Middleton, Lancashire.

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether erect or trailing, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have been careful to exclude all which are shy bloomers, or have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

Twenty extra fine varieties, all distinct and beautiful	5*s.*	0*d.*
Fifty „ „	10*s.*	6*d.*
One hundred „ „	20*s.*	0*d.*

Flower Seeds sent Free by Post.—Postage Stamps taken in payment.

J. C. WHEELER & SON, Seed Growers, Gloucester.

A BARGAIN!

JOHN SLIPPER, Villa Nursery, Camden Town, will be prepared to supply, on and after the 20th of April, the following plants for bedding, &c., to all who may favour him with a Post-office order for 1*l.* 10*s.*, which will include the charge for hamper, booking, &c.:—

12 fine DAHLIAS (strong and healthy plants),	in 12 distinct vars.
12 choice FUCHSIAS,	ditto	12	ditto
12 choice VERBENAS,	ditto	12	ditto
12 CALCEOLARIAS and AGERATUMS,	do.	6	ditto
12 Scarlet and other GERANIUMS,	ditto	8	ditto
12 { CUPHEAS, LOBELIAS, and GAILLARDIAS, }	ditto	6	ditto
12 { SALVIAS, HELIOTROPES, and ANTIRRHINUMS, }	ditto	12	ditto

84 named and approved flowers, giving ... ... 68 fine distinct vars., carefully selected from a large assorted stock of the best kinds in cultivation.

N.B. When desired, any one of the above varieties will be substituted for the same number of another. Early orders are requested, which will be sent out in rotation with as little delay as possible.

PLANTING.

A. PAUL AND SON respectfully invite attention to the following Abridged List of HARDY ORNAMENTAL TREES, of which they have a large stock in splendid condition on sale at very moderate prices, which will be given on application.

Abies alba, 1½ to 2 ft.
„ Douglasi, 1½ to 3 ft.
„ Menziesi, 1 to 3 ft.
„ Morinda, 3 to 10 ft., very fine
„ rubra, 1½ to 2½ ft.
Araucaria imbricata, 2 to 5 ft.
Arbutus, 2 ft.
Aucubas, 1½ to 2 ft.
Bays, Sweet, 1 to 2 ft.
Box, 1 to 3 ft.
Chinese Privet, 1 to 1½ ft.
Cotoneasters, 1 to 2 ft.
Cedrus Deodara, 2½ to 10 ft. } Cedar of Lebanon, 3 to 10 ft. (The largest and finest stock in the country.)
Cedrus Africanus, 3 to 6 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Corneyana, 1½ ft.
„ Lambertiana, 1½ to 3 ft.
„ torulosa, 1 to 2 ft.
Juniperus, all the leading sorts, 1 to 6 ft.
Laurel, Portugal, 2 to 6 ft.
„ „ Standards, 8 ft.
Laurestinus, 1½ to 2½ ft.
Mahonia aquifolia, 1 to 2 ft.
Phillyreas, 3 to 5 ft.
Pinus austriaca, 3 to 4 ft.
„ Benthamiana, 1½ ft.
„ Cembra, 1 to 5 ft.
„ excelsa, 4 to 8 ft., very fine
„ insignis, 1 to 6 ft.
„ Lambertiana, 1 to 6 ft.
„ Llaveana, 1 to 2 ft.
„ monticolor, 1 to 2 ft.
„ muricata, 1½ ft.
„ Pallasiana, 2 to 2½ ft.
„ Strobus nivea, 1 to 3 ft. (the Snow Pine.)
Picea nobilis, 1 to 2 ft.
„ Nordmanniana, 1 ft.
„ Pinsapo, 1 to 4 ft.
Rhododendrons, 100 finest vars.
Thuja aurea, 6 in. to 1½ ft.
„ glauca, 6 to 9 in.
„ intermedia, 1 to 1½ ft.
„ japonica, 1 to 1½ ft.
„ gigantea, 1 ft.
„ minima, 6 to 9 in.
„ Wareana, 1 to 5 ft.
Taxodium sempervirens, 3 to 8 ft.
Taxus adpressa, 1 to 4 ft.
„ Canadensis, 1 to 2 ft.
„ Cheshuntensis, 3 to 5 ft.
„ Dovastoni, 1 to 2 ft.
Taxus elegantissima, 1 to 2 ft.
„ gold striped, 1 to 4 ft.
„ Irish, 1 to 5 ft.
„ stricta, 1 to 4 ft.
„ common, 1 to 5 ft.
„ „ Fan, 3 to 5 ft.

Acacias, of sorts, 3 to 8 ft.
Beech purple, best var., 3 to 10 ft.
Elms, of sorts, 6 to 10 ft.
Flowering Shrubs, in 300 species and varieties, 2 to 6 ft.
Laburnums, 6 to 8 ft.
Limes, 3 to 10 ft.
Mountain Ash, 8 ft.
„ „ Weeping, 8 ft. stems
Poplars, of sorts, 6 to 10 ft.
Persian Lilacs (Standards), 4 to 5 feet stems
Scarlet Horse Chesnut, 6 to 10 ft., very fine
„ Maple, 8 ft.
„ Oak, 1 to 8 ft.
Spanish Chesnut, 6 to 8 ft.
„ „ variegated, 6 ft.
Sycamore, 8 to 10 ft.
Tulip Trees, 1 to 10 ft.
Thorns, of sorts, 6 to 8 ft.
Weeping Cytisus
„ Beech
„ Elms, 8 to 10 ft. stems
„ Mountain Ash
„ Willow
„ American Willow, 8 ft. stems
„ Kilmarnock „ 6 ft. stems
„ Roses, 8 ft. stems

Christmas Roses
Delphinium Barlowi
Gentiana acaulis
Lilium longiflorum
Lily of the Valley
Russian Violets
Hollyhocks, a very large stock, strong and perfectly healthy (see Descriptive Catalogue).
Roses (see Descriptive Catalogue)
Azalea indica } A fine stock of handsome plants.
Camellias
Epacris
Ericas
Fruit Trees (see Descriptive Catalogue)
Grape Vines, from eyes, 6 ft., stout & well ripened, very fine
Tarragon, Sage, Thyme, and Herbs in general

As many of the above are raised by the thousand, a considerable reduction in prices will be made when a large quantity of one article is required. The whole have been frequently removed, and are very handsome; the Evergreens rise with close balls of earth. Carriage free to London. For particulars of general Stock, see Catalogues just published.

Nurseries, Cheshunt, Herts.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

GRASS SEEDS FOR PERMANENT PASTURE.
ITALIAN AND PERENNIAL RYE-GRASS.
CLOVERS AND COW GRASS.
TURNIPS, SWEDE, AND MANGEL WURZEL,
AND ALL SEEDS FOR THE FARM.

Carriage free, and of excellent quality.

J. C. WHEELER & SON, Seed Growers, Gloucester.
Established more than 130 years.

GRASS SEEDS FOR PERMANENT PASTURE.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, beg to say that for many years they have paid particular attention to the proper selection of Grass Seeds for Permanent Pasture, and they can offer a very excellent assortment at 30*s.* per acre, all properly mixed, and delivered Carriage Free.

"Charlton Kings, Cheltenham, December 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "WILLIAM JORDAN."

"Blythe Court, Newnham, December 8, 1856.

"I think it due to you to say that all the seeds you have supplied me with for the last four years have been exceedingly good. With respect to your mixture for permanent pasture, it is my belief that it cannot be surpassed. "WM. BROWN."

J. C. WHEELER & SON, Seed Growers, Gloucester. Established more than 130 years.

GRASS SEEDS FOR PERMANENT PASTURE.

THOMAS KENNEDY AND CO., Dumfries, N.B., beg to call special attention to their MIXTURES for laying down land to Permanent Pasture, which have hitherto given such universal satisfaction.

Mixtures for Permanent Pasture, 25*s.* to 30*s.* per acre.
Mixtures for Permanent Lawn Pasture, 26*s.* to 31*s.* do.
Mixtures for Lawns, Terraces, Bowling Greens, &c., 31*s.* to 36*s.* do.

Their PRICED LIST of AGRICULTURAL SEEDS is now ready, and may be had Postage Free on application.

FREE DELIVERY.—Seeds to the value of 2*l.* delivered Free of Carriage to the principal Railway Stations and Steam Ports in the kingdom.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
„ „ 1 and 2 feet by the 100
„ „ 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
„ insignis, ditto ditto
„ Montezumæ, fine plants, 3 and 4 feet high
„ Benthamiana, in large quantities from seed
„ macrocarpa ditto ditto
„ Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
„ Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
„ nobilis, in quantities from seed [grafted
„ ditto, 1, 2, and 3 feet, with perfect leads, and none of them
„ grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
„ „ several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
„ Lebanon, 2, 3, 4, and 6 feet
„ „ some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
„ Goveniana, 2, 3, and 4 feet
„ Lawsoniana, from seed
„ MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
„ Chinese, 2, 3, and 4 feet
„ „ a fine lot, 7, 8, and 10 feet
„ Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
„ Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens 10 and 12 feet high
„ Golden Yews by the thousand, 1½, 2, and 3 feet high
„ „ worked, 4, 5, 6, and 8 feet
„ „ worked on Irish, and very ornamental, 5 to 8 ft.
„ elegantissima (or new striped), in large quantities, 1½ to 3 ft.
„ Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
„ adpressa, fine bushes, 2 and 3 feet
„ adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
„ occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
„ Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
„ „ smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
„ Clanbraziliana, ditto ditto
„ elegans, ditto ditto
„ Gregori, ditto ditto
„ compacta, ditto ditto
„ pygmæa, ditto ditto
„ pyramidalis, ditto ditto
„ diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3, and 4 feet high
„ „ a fine stock of the best Gold-striped Hollies 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyreas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

HORTICULTURAL SOCIETY OF LONDON,

21, REGENT STREET, AND CHISWICK GARDENS.

REGULATIONS TO BE OBSERVED AT THE EXHIBITIONS—1857.

SPECIAL GENERAL MEETINGS.

WEDNESDAY and THURSDAY, June 3 and 4; at the Garden. Open Free to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 a.m. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s.* Admission Tickets. Open to the public, with 5*s.* Tickets, at 2 p.m., June 3, or with 2*s.* 6*d.* Tickets, 2 p.m June 4.

On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends.

SATURDAY, October 24, at Willis's Rooms. Open to Fellows or their Ivory Tickets, accompanied by any two friends bearing 2*s.* 6*d.* Tickets, at noon; to other Visitors, with 2*s.* 6*d.* Tickets, after 1 p.m.

TICKETS are to be procured at the Society's Rooms, 21, Regent Street, upon the following terms:—

Five Shilling Tickets will be charged 3*s.* 6*d.* each to Fellows, if paid for on or before May 23. After that day the full price must be paid by all. These Tickets admit the bearer early, as above stated, or after 2 p.m. on June 3; or they will each introduce two persons after 2 p.m. on June 4, at the Gardens, or at Willis's Rooms, October 24, after 1 p.m.

Half-Crown Tickets will be charged 2*s.* each to Fellows, if paid for on or before May 23, for the June Meeting, on or before October 17, for the October Meeting. These Tickets admit the bearer to the Garden after 1 p.m., June 4, or at Willis's Rooms after 2 p.m., October 24.

N.B. On the days of Exhibition, Five Shilling Tickets will be charged 7*s.* 6*d.*, and Half-Crown Tickets, 3*s.* 6*d.* each.

SCHEDULE

OF OBJECTS THE EXHIBITION OF WHICH IS INVITED at the SOCIETY'S MEETINGS DURING THE YEAR 1857, in the SOCIETY'S ROOMS.

Judges, appointed for the purpose, will award Money Prizes and Certificates of three classes, for new or valuable articles according to their respective merit. Everything must be staged by 11 o'Clock, a.m.

Tuesday, April 7, 3 p.m. Orchids, Azaleas, Roses, Fruit, Vegetables, and other objects of Horticultural interest.
Tuesday, May 5, at 3 p.m. Orchids, Azaleas, Sikkim and Bootan Rhododendrons, Pelargoniums, Strawberries, other Fruit, Vegetables, and objects of Horticultural interest.
Tuesday, July 7, at 3 p.m. Ferns, good foliaged Plants, and Fruit.

EXHIBITION AT CHISWICK GARDEN.—Wednesday, June 3; Thursday, June 4.

Section I.—ORNAMENTAL PLANTS.

Classes.	Prizes offered.		
I. *a.* Fifteen Mixed Stove and Greenhouse plants in flower	£20	£15	£10
b. Ten do. do. ...	10	7	5
c. Six do. do. ...	5	3	2
II. *a.* Fifteen Orchids; ... (*Amateurs*)	20	15	10
b. Ten do. ... ... (*do.*)	10	7	5
c. Six do. ... ... (*do.*)	5	3	2
d. Fifteen do. ... ...(*Nurserymen*)	15	10	
III. *a.* Ten Chinese Azaleas...	10	7	5
b. Six do. ... (*Amateurs*)	7	5	3
IV. *a.* Eight Roses in pots; in 13-inch pots ... ... (*Amateurs*)	5	3	2
b. Twelve do. do. (*Nurserymen*)	7	5	3
c. Twenty-five do. cut specimens ... (*Amateurs*)	2	1	15*s.*
d. Fifty do. do. (*Nurserymen*)	2	1	15*s.*
Under *c.* and *d.* three trusses of each are to be exhibited as they are gathered. Any non-compliance with this rule will disqualify.			
V. Six Cape Heaths	4	3	2
VI. *a.* Eight Pelargoniums; in 8-inch pots (*Amateurs*)	7	5	3
b. Twelve do. do. ... (*Nurserymen*)	7	5	3
c. Six Fancy Pelargoniums; (*Amateurs*)	5	4	2
d. Eight do. do. (*Nurserymen*)	5	4	2
VII. *a.* Rhododendrons; in sixes	5	4	3
b. Do. Sikkim and Bootan kinds, whether in or out of flower—number unlimited—but one specimen only of a kind	5	4	3
VIII. Twenty Variegated plants	7	5	3
IX. Twelve Plants with fine foliage not in flower	5	4	3
X. Six Tall Cacti	3	2	1
XI. *a.* Ferns; Twelve Stove and Greenhouse	4	3	2
b. Do. Twelve Hardy	3	2	1
XII. Ten Lycopods; of not fewer than five kinds	2	1	15*s.*
XIII. Newly introduced or extremely rare species of ornamental plants in flower, not intreduced by the Society			
XIV. The same; not in flower			
These must be handsome well-grown specimens showing the habit of the plants, or will not be entitled to a prize.			
N.B. The Medals in XIII. and XIV. will be awarded by the Society's officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare species can be exhibited under this number. *Nothing will be regarded as new which has been exhibited in a previous season.*			
XV. Single Specimens. (*No person can take more than one prize in this class.*)	2	30*s.*	£1 & 15*s.*

Classes.	Prizes offered.
XVI. New Garden Hybrids ... ... From this class all Florists' flowers are excluded.	Certificates only.
XVII. Miscellaneous ... ... Any Plants, of whatever kind, except Florists' flowers, may be shown under this class.	
XVIII. Florists' Flowers ... ... A tent will be set apart for these, and Judges appointed for the purpose, will grant Certificates of Merit of three degrees.	

Section II.—FRUIT.

XIX. *a.* Pine Apples, Providence and other large sorts	£2	£1	15*s.*
b. Do. Jamaicas, Queens, &c...	2	1	15*s.*
XX. Grapes; single dishes, each containing three bunches:			
a. Black Hamburgh	3	2	1
b. Other black kinds	3	2	1
c. Muscats	3	2	1
d. Other white kinds	3	2	1
XXI. Vines in pots; in threes	3	2	1
XXII. *a.* Eight Fruit Trees in pots (*Nursery men*)	3	2	1
b. Six do. do. (*Amateurs*)	3	2	1
XXIII. *a.* Peaches; in single dishes	2	1	15*s.*
b. Nectarines; do.	2	1	15*s.*
XXIV. *a.* Melons, green or white-fleshed ...	1	15*s.*	10*s.*
b. Do. scarlet-fleshed	1	15*s.*	10*s.*
XXV. Figs; in sixes	15*s.*		
XXVI. *a.* White Cherries; in single dishes ...	£1	15*s.*	10*s.*
b. Black do.	£1	15*s.*	10*s.*
XXVII. Strawberries; in single dishes	£2., 30*s.*, 20*s.*, 15*s.*, 10*s.*		
XXVIII. Seedling fruits never shown before the present year	Certificates only.		

Exhibitors of Fruits will observe that Fruiterers are excluded from competition at this meeting.

Section III.—VEGETABLES.

I. Collection (*Market Gardeners*) ...	£2	30*s.*	£1
II. Collection (*Private Growers*) ...	£2	30*s.*	£1
III. Cabbages; in threes	10*s.*	7*s.*	5*s.*
IV. Cauliflowers; in threes	15*s.*	10*s.*	7*s.*
V. *a.* White Cos Lettuces; in sizes ...	10*s.*	7*s.*	5*s.*
b. Cabbage Lettuces; in sixes... ..	10*s.*	7*s.*	5*s.*
VI. Kidney Beans; hundred	10*s.*	7*s.*	5*s.*
VII. Early Peas; in pods	15*s.*	10*s.*	7*s.*
VIII. Asparagus; fifty heads not exceeding eight inches in length... ...	10*s.*	7*s.*	5*s.*
IX. Rhubarb	10*s.*	7*s.*	5*s.*
X. Potatoes; forced, not less than 3 lbs.:			
a. Kidneys	10*s.*	7*s.*	5*s.*
b. Rounds	10*s.*	7*s.*	5*s.*
XI. Carrots	10*s.*	7*s.*	5*s.*
XII. Turnips	10*s.*	7*s.*	5*s.*
XIII. Braces of Cucumbers	15*s.*	10*s.*	7*s.*
XIV. Mushrooms	10*s.*	7*s.*	5*s.*
XV. Salad; the best and most varied ...	£1	15*s.*	10*s.*

Section IV.—HORTICULTURAL MANUFACTURES.

Under this head the manufacturers of Horticultural goods of all kinds are invited to exhibit; it being the wish of the Society to offer to those engaged in providing for the wants of gardeners the same great advantages as the Royal Agricultural Society has so long offered to the farming interest.

Shelter, if required for the protecting of such articles, will be provided at the expense of the Society, and measures will be taken to cause such a report to be prepared as will do justice to all.

The expense of fittings or fixing to be borne by the Exhibitor.

It is not intended to award Prizes or Certificates of any kind in this part of the Exhibition; the Council of the Society feeling that the exhibition of such productions before a large assemblage of the most influential and intelligent members of the Horticultural community, will be productive of all the advantages that could be expected.

As some guide to Exhibitors, the following arrangement of subjects has been determined on:—

Class A.—Heating Apparatus: Boilers, Hot-water pipes, Furnaces, Flue Tiles fixed, &c.

Class B.—Machines: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps, and their Fittings, Hose, &c.

Class C.—Garden Tools: Spades, Forks, Hoes, Rakes, &c.

Class D.—Cutlery: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.

Class E.—Pottery: Garden Pots, Bricks for Horticultural purposes, Pipes, Flue Tiles unfixed, Paving Tiles, Border Edgings, &c.

Class F.—Labels: whether in Wood, Metal, or Glass; Plain Enamelled, or otherwise lettered, &c.

Class G.—Objects of Decoration: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra Cotta, Fountain Designs, Ornamental Flower Pots, Encaustic Tiles, Flower Baskets, Brackets and Chandeliers for Conservatories, &c.

Class H.—Materials for Construction: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate Work, &c.

Class I.—Protecting Materials: Nets, Wire Work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.

Class K.—Bee Hives, with or without Honey, including all Apiarian Apparatus.

Class L.—Philosophical Instruments: such as Thermometers, Hygrometers, Actinometers, &c.

Class M.—Miscellaneous: for any articles used in Gardening which are not included in the other Classes.

In this division of the Exhibition, the Council will be glad to receive Foreign as well as Domestic manufactures.

All applications for space must be made on or before May 16, in the absence of which, articles will be liable to exclusion, and cannot be included in the Catalogue.

All articles exhibited in this Section must be delivered at the Garden not later than Saturday, May 30; and if they require any fixing, must be fixed by that time, unless where special permission to the contrary shall have been granted by the Council.

Every article to be labelled by the owners, subject to general rules to be settled hereafter.

FRUIT EXHIBITION AT WILLIS'S ROOMS.—Saturday, October 24.

Classes.	Prizes offered.		
I. Collections of fruit (*Fruiterers only*)	£4	£3	£2
II. Grapes:			
a. Three bunches of Muscats	2	1	15*s.*
b. Do. of other White kinds..	2	1	15*s.*
c. Do. of Black Hamburgh ...	2	1	15*s.*
d. Do. of other Black kinds ..	2	1	15*s.*
e. Collections ... (*Foreigners only*)	4	3	2
f. Boxes of 15 lbs. weight (*Market Gardeners only*)	3	2	1
III. Pine Apples:			
a. Threes	3	2	1
b. Single specimens	2	1	15*s.*
IV. Pears, *of Home Growth:*			
a. Twelve sorts, six of each	3	2	1
b. Six sorts: six of each	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered.		
IV.—*Continued*—*d.* Single dishes of kitchen kinds, of one sort, containing six fruit ..	15*s.*	10*s.*	10*s.*
V. Pears; *of Foreign growth:*			
a. Twelve sorts; six of each	£3	£2	£1
b. Six do. do.	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
d. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VI. Apples; *of Home growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VII. Apples; *of Foreign growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered.		
VIII. Oranges, Lemons, and Citrons:			
a. Collections of Foreign growth	3	2	1
b. Do. Home do.	2	1	15*s.*
IX. Peaches; single dish, containing six specimens	15*s.*	10*s.*	10*s.*
X. Nectarines do. do.	15*s.*	10*s.*	10*s.*
XI. Melons; single fruit	15*s.*	10*s.*	10*s.*
XII. Plums and Prunes; of either English or Foreign growth:			
a. A collection of three sorts, twelve fruit of each	1	15*s.*	10*s.*
b. Single dishes of one sort, containing twelve fruit	15*s.*	10*s.*	10*s.*
XIII. Figs	1	15*s.*	10*s.*
XIV. Alpine Strawberries	1	15*s.*	10*s.*
XV. Currants	15*s.*	10*s.*	10*s.*
XVI. Raspberries	15*s.*	10*s.*	10*s.*
XVII. Eugenia Ugni (See Note below)			

Note.—For Single Dishes of this valuable new Fruit Two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the 1st of £2, the 2nd of £1

Fruit is expected to be as nearly ripe as circumstances will admit. Winter fruit will of course be unripe. Exhibitors are invited to decorate their stands with suitable Plants or other ornaments.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

CALCEOLARIAS! CALCEOLARIAS!

JOHN COLE begs respectfully to inform the lovers of CALCEOLARIAS he is now prepared to offer strong unbloomed Seedlings from his select stock. Without pots, 4*s.* per dozen; 25*s.* per 100.

J. C. begs further to say his collection of Calceolarias the last few summers have been the admiration of all who have seen them. The Trade liberally supplied.—Keyfield Nursery, St. Albans.

CHEAP AND SELECT NURSERY STOCK.

IMPORTANT TO PLANTERS AND COMPANIES FORMING NEW PARKS.—See Advertisement in *Gardeners' Chronicle* of the 21st February, page 114.

COMMON LAURELS, 1 to 2 feet, strong transplanted, 2*l.* 10*s.* per 1000.

PORTUGAL do., 1 to 2 feet, 20*s.*; 2 to 3 feet, very bushy, 1*l.* 10*s.* per 100.—WILLIAM JACKSON & Co., Bedale, Yorkshire.

RHODODENDRON CAMPANULATUM (true), 1 to 1½ feet, very bushy, 4*l.* per 100.—The above handsome hardy Rhododendron may be planted for Ornamental Underwood where hares and rabbits abound. Here, although the winter has been very severe, not a leaf has been eaten.

CEDAR of LEBANON, strong plants, 1½ to 2 feet, 5*l.*; 2 to 3 feet, 7*l.* per 100.—Apply to WILLIAM JACKSON & Co., Bedale, Yorkshire.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosary, Bungay, Suffolk, March 21.

SPECIMEN PLANTS OF TEA CLOIRE DE DIJON.

WM. WOOD AND SON beg to offer Specimen Plants of the above superb TEA-SCENTED ROSE in 9 to 15-inch pots. The plants are strong and bushy and are peculiarly adapted for exhibition. From 3*s.* to 5*s.* each. Hybrid Perpetual Roses in 6-inch pots on 4-inch stems, 24*s.* per doz.—Woodlands Nursery, Maresfield, near Uckfield, Sussex.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE to NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

MAY'S NEW PETUNIA ROSE OF ENGLAND.—The above magnificent new Petunia is a seedling saved from 20,000, and is, without exception, one of the finest, and will become one of the most noted bedding Plants. It is of a hardy robust habit, growing quite shrubby, and very different to other Petunias in that respect. It is one complete mass of bloom all summer and autumn, of close compact habit. The colour is bright rose, shaded and mottled with crimson, and the form circular, the petals thick, and of great substance; 5*s.* each, or three for two Plants ordered. To be sent after the 1st of April.

Address HENRY MAY, Hope Nurseries, near Bedale, Yorkshire.

MAY'S VICTORIA LARGE RED CURRANT.—The above most desirable fruit should be in every garden. Its berries grow to an immense size; it has obtained the highest awards in England and in America; it carried off the Massachusetts Horticultural Society's Gold Medal three years in succession. Fine strong three year old plants, 2*s.* per doz. or 12*s.* per 100; also Black Bang up Currants, 1*s.* 6*d.* per dozen, 10*s.* per 100. The trade supplied on liberal terms.—Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

NEW VERBENAS OF 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, Dandy, La Stella, Loveliness, Mrs. A. Clive, Eugenie, Victory, Viscountess Evelyn, Impératrice Elizabeth, Imperialis, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Pre-eminent, Crimson Perfection, Lady Kerrison, Nosegay, Standard Bearer, Cedo Nulli, Criterion, King of Sardinia, Tranby, Sir C. Campbell, Dr. McLean, Lord Raglan.

Fine plants of the above, free by post, 4*s.* per dozen.

Address HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, March 21.

LUCOMBE, PINCE, AND CO. very respectfully beg leave to announce that the superb specimens of CAMELLIAS in their celebrated Camellia House are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their new Show House is also filled with an extensive assortment of various choice Plants, which cannot fail to gratify those who pay their nursery a visit, as it is now, and will continue for a long time to be exceedingly brilliant and attractive with all the gayest spring and other flowers.

N.B. Flowers for balls, weddings, &c., carefully packed and sent to all parts of the kingdom. Recherché Bouquets made to order and duly forwarded.—Exeter Nursery, Exeter, March 21.

FLOWER SEEDS.

12 varieties imported	FRENCH ASTERS	... ...	3*s.*
12 " "	GERMAN STOCKS	... ...	4*s.*
10 " "	MARVEL PERU...	... ...	2*s.*
12 " "	PRUSSIAN POPPIES	... ...	2*s.*

Seeds of the above can be had in packets mixed, 6*d.*

12 packets of the newest and best ANNUALS ... ... 6*s.*

Sent free on receipt of Post-office Order.—JOSEPH MAY & Co., 1, Wellington Street, Strand, near Waterloo Bridge.

HIGHGATE NURSERIES, LONDON, N.

WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s.* 6*d.* each. Usual discount to the Trade.

They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.

CHIVAS' PRICED LIST OF FARM SEEDS. SPRING, 1857.

GEORGE CHIVAS will forward his PRICED LIST OF FARM SEEDS, free by post, and it will be found a most correct and complete publication.

North-west of England Seed Establishment, Chester.

MESSRS. VEITCH AND SON have much pleasure in offering the two following plants, which they can with confidence recommend, and respectfully solicit early orders to insure good plants:—

FUCHSIA PRINCESS ROYAL (VEITCH), rich scarlet tube and sepals, beautifully reflexed, white corolla, free bloomer, and undoubtedly the best habit of all the white corolla varieties.

GERANIUM QUERCIFOLIUM FLORIBUNDUM (VEITCH), an excellent bedding variety; also admirably adapted for the window, being of very dwarf habit, blooming most profusely in small pots, and having the valuable property of retaining its flowers a long time. The flowers are large and round, colour a beautiful rose, with dark spots in upper petals. It was exhibited at the Crystal Palace Horticultural Show on the 25th of June last, and was awarded the First Class Prize as a seedling for bedding purposes.

Strong plants of each of the above will be ready for delivery the first week in April, at 7*s.* 6*d.* each. Prices to the Trade on application.

Exotic Nurseries, Exeter and Chelsea, March 21.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s.*	Early Shaws	per bushel 6*s.*
New Boston do.	... ... 6*s.*	York Regent	... ... 6*s.*
Forty-fold	... ... 6*s.*	Bags included.	

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's). The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.) Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesneria zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30*s.* the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, March 21.

TO FERN FANCIERS AND THE TRADE.

W. BARRON, NURSERYMAN, ARCHITECTURAL and LANDSCAPE GARDENER, has a fine stock of Hardy FERNS which he can sell in quantities very cheap:—Osmunda regalis, the king of the British Ferns, from 3*l.* 10*s.* to 5*l.* per hundred, or from 1*s.* to 2*s.* 6*d.* each plant.

Sketty, near Swansea, March 21.

CAMELLIAS.

CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, beg to inform their friends and the public that their extensive collection of CAMELLIAS is now in flower. They have also a great variety of Azaleas, Ferns, and Flowering Plants.—Wandsworth Road, London, S.

The Gardeners' Chronicle.

SATURDAY, MARCH 21, 1857.

ONE of the most unexpected suggestions that have lately been made is that of infusing vigour into plants by *candying their roots or seeds.* At least we so translate the word PRALINAGE, as employed by M. D'ILLIERS, the advocate of the system. It is true he does not employ sugar in his process, but a very different class of substances; and perhaps the term encrusting would have done as well; but candying may stand. In his pamphlet on this subject* the author in the first place goes into the qualities of several known manures, from animal black to guano, and then proceeds to explain how he applies their peculiar properties in his candying process. Let us follow him as briefly as the subject will permit.

Animal black, or animal charcoal, that is to say bones charred in close vessels after having been used by the sugar refiners, contains from 29 to 70 per cent. of phosphate of lime, and from 7 to 35 per cent. of nitrogen, the quantities depending upon the nature of the organic matter taken up in the process of clarification. This substance only suits certain soils, especially such as are siliceous, or non-calcareous, particularly if they are damp and cool. It especially suits newly cleared land. If in a state of fine division it is well adapted to Cruciferous plants in general, and to Grasses, including corn, but it seems to have little effect upon leguminous crops. Care must, however, be taken not to use it fresh from the sugar refiners, because the sugar detained in it, when fermented, produces lactic, acetic, and butyric acids, which are injurious to vegetation. If left long enough for the animal matter to change ammonia results, which neutralises the acids. It ensures good crops of Beet and Rape if used in the form of candy, as will be presently described, or if dusted over roots previously moistened. Potatoes, Dahlias, Asparagus are much benefited by the application; and transplanted trees take readily if their roots are wetted and then dusted with it, about two pints of it being added to the bottom of the hole in which they are placed.

Bone dust acts much in the same way, but experience shows that it produces the best effect when mixed with animal charcoal.

The flesh of animals, prepared by burying them in beds of quicklime covered by earth or other processes, is another invaluable substance.

Woollen rags, horns, feathers, and all sorts of hair, if acted upon in large vessels by caustic potash, are reduced to the liquid state, and then contribute largely to the strength of the candy. A variety of other well known substances is also susceptible of being so employed. At last we come to the candy itself.

It does not very clearly appear either from the pamphlet before us or from the *Journal du Loiret* of Jan. 15 of the present year, for which we are indebted to the courtesy of M. D'ILLIERS himself, how the process is effected. As far as we can collect from detached expressions, it seems to consist in mixing strong manures such as have been just described, especially liquid horn and wool, with gelatine, immersing therein the roots or seeds to be operated on, and drying the jelly by animal charcoal; or perhaps in mixing all these substances in the first instance, and then plunging the seeds or roots into the mixture, which forms a crust or candy, and readily dries. Be this as it may, we are assured by M. D'ILLIERS that the effect is most satisfactory. Here we must translate his words:—

"The candying of seeds appears to unite in the highest degree the conditions of œconomy and direct action on plants. It was only necessary to find some practical method of carrying it out expeditiously, solidity being at the same time secured, and coating the seeds with a thick layer of animal black, without exciting fermentation. It will be seen that the use of animal black in this manner has the advantage of protecting seeds from contact with the air, which might bring on changes in them. They will keep good for an indefinite time under such a coating, which preserves them from decay and from the attacks of insects, not only in the

* *Des substances d'origine animale, servant à la composition des différens engrais livrés au commerce par l'usine de Ste. Hélène, &c. et du Pralinage. Orleans,* 1856.

granary, but when committed to the earth." After describing the phænomena of germination, which we need not repeat, M. D'Illiers thus proceeds :—

"As soon as the plant is formed all the substances that had adhered to the seed are found to be distributed with perfect regularity round all the rootlets, whose office it is to nourish the stem. The sheathing leaves of corn plants, after rain, conduct to the stem a sufficient quantity of water to form a current that carries with it the impalpable matter of the candy by every one of the passages which are found at the neck of the root under the form of rootlets. This matter is only stopped by its arrival at their points, where the spongioles are found, organs especially intended to seize upon liquids saturated with all the fertilising substances which enter into their organisation."

Hence it appears that the crust of manure candy applied to seeds or roots is not washed off by rain as might have been supposed, but dissolves slowly and flows over the nascent surfaces, accompanying them in the whole course of their development. Such at least is, we believe, the substance of the 32 pages before us. How far the ingenious author may be right, or whether he deceives himself we are not in a position to say, no evidence upon the subject having yet reached this country. We find, however, in the *Journal du Loiret* that on the 20th of last December specimens showing the effects of the candying process were laid before the Agricultural Society of Orleans. These specimens consisted of young plants of Wheat which had been sown on the 12th of November, *i. e.* five weeks before. Each seed had been encrusted with 200 times its own weight of candy, which formed a hard thick casing round the seed. All are reported to have been notably superior to the Wheats of the neighbourhood. For ourselves we cannot say that this experiment carries to our minds any conviction that candied seeds are permanently better than others. To satisfy a practical English mind a totally different kind of proof is necessary. It is understood that M. D'Illiers proposes to furnish that proof, till the arrival of which we leave the question to the consideration of all whom it may concern; adding one thing only, that it does not bear upon its face the absurdity which belongs to the practice of steeping seeds in manure, a folly which now has gone into nothingness.

In the meanwhile it is curious to see that we have a seed candier at home. Mr. William Brotherton, "oil merchant to the Queen," tells us* that his "researches, combined with practical experience, prove that the ancient Egyptians, Greeks, and Assyrians cultivated their *Flax by propagation*." This is indeed a discovery; we are astonished that the learned author should not have also ascertained that the Egyptians, Greeks, and Assyrians increased the human race by propagation. This discovery we are informed was made from examining "a Greek lamp and an Egyptian painting, the latter representing a male figure dropping into the ground small balls." Her Majesty's oil merchant has bethought him that these balls must have been formed of Flax seed, with some of its own gum to assist the development of the root, and an additional matter, found out to be pigeons' dung. So he has caused such balls to be made, and recommends their use to the cultivator. Each pellet is as big as a musket ball, tolerably hard, and consists of some 30 or 40 seeds firmly held together in the manner described.

We confess to some doubt about the likelihood of advantage resulting from going back to Egyptian, Greek, or Syrian husbandry. Mr. Brotherton has however dedicated his notions to the Royal Agricultural Society, whose business it will be to look to them.

We invite the particular attention of Potato Growers to the following remarks.

A very interesting memoir on the disease which has infested the Vineyards in every part of the continent has lately been published by M. Marès,† the Secretary of the Agricultural Society of Montpellier, which not only gives a very lucid summary of all that is known respecting the malady, but details his own experience of the benefits of the application of flowers of sulphur in an extensive Vineyard. Provided the application is sufficiently early and repeated as often as the disease reappears, it seems quite certain that the sulphur is a specific, and as effectual in the Vineyard as it has been proved to be in the Hopground, while the expense does not bear so high a ratio to the produce as to be any drawback in the hands of skilful and intelligent cultivators. Care however must be taken that ground sulphur is not substituted for the more minutely divided flowers of sulphur, as the chemical action between the nascent oxygen and the sulphur is not so energetic in the one case as in the other, if it takes place at all. Every cultivator in England is now aware that his Grape crop is safe if he thoroughly understands his business, and therefore as we have no Vineyards ourselves it may seem almost superfluous to draw attention to the subject. We have however an ulterior object in doing this at the present moment. Our Hops and Vines are safe, and both by the application of the same remedy; why, then, should our Potatoes fail year after year, when it is merely a small white parasitic fungus which affects them as well as the Vine and Hop? Let us see, then, how the case stands.

The *Oidia* of the Vine and Hop, if not the same species, are at any rate very closely allied. Their mycelium as a general rule creeps over the surface of the leaves, and therefore the part of the fungus on which the production of the spores depends, is easily brought in contact with the sulphur, and the whole parasite fails. If the mycelium sometimes traverses the intercellular spaces of the leaves, this is not generally the case, and the greater portion, therefore, of it is exposed. In the Potato disease on the contrary we have a fungus belonging to a totally different genus, which may or may not be as easily affected by the sulphur if brought in contact with it. The fertile threads of this fungus uniformly make their appearance through the stomates, and therefore if the sulphur comes in contact with them, it does not follow that the whole plant should be cut off as in the case of the *Oidia*, where the death of one portion of mycelium may prove the destruction of all above or beyond it. The mycelium therefore may be exhausting the soft tissues of the leaf within, even when the fertile external branches are destroyed; besides which one form of fruit in these parasitic species of *Botrytis* is uniformly produced amongst the cellular tissue of the leaves. Added to this difficulty of effectually bringing the sulphur in contact with the mycelium is the fact that the tubes themselves are often affected with mycelium, which must traverse every branch till it makes its appearance at the stomates.

It has been lately shown by Prillieux (Ann. d. Sc. Natur. 1856, vol. v, p. 267) that even healthy cells in the roots of the common Bird's Nest Orchis are very often traversed by the mycelium of some mould, and we have seen many instances of the same kind in Potato tubers. If then any assistance is to be derived from sulphur, the application *should be made in the first instance when the sets are planted.* It is our intention to make experiments this year with a view to ascertain whether the application of flowers of sulphur to the sets, which should be divided so that the sulphur may be applied not only to the outer surface but to the tissues themselves, will have any beneficial effect in preventing the disease. It cannot be expected in so deep-seated a malady to be at once completely effectual, even should it exercise some beneficial influence. The crop, therefore, must be carefully watched, and on the very first appearance of undoubted *Botrytis*, sulphur, not merely finely ground, but in the form of sublimate, must be applied by means of a sulphurator, and the application repeated if necessary. *Mere dredging will not be sufficient*, as the *Botrytis* affects principally the under surface of the leaves. At the same time a breadth of the same seed should be planted in the same soil, without any previous precautions. Such experiments are easily made, and if undertaken by several hands, may lead at least to a negative if not to a positive result. It is one step at least towards cure, to know what will not cure. Facts have lately come under our notice which seem to show that sulphur is not a specific against all mould; but we shall have some future opportunity of recurring to this subject. For the present we must be content with recommending the subject to our readers, though all attempts towards remedy have hitherto proved so unsuccessful. Certain it is that during the last year there were cases of Potato disease almost as virulent as those of 1845. *M. J. B.*

We find in the *Manchester Examiner* the following letter.

Sir,—Observing in your paper of yesterday's date a paragraph, extracted from the *Gardeners' Chronicle*, referring to me, having the presumption to designate as a "foreign cheat," and stating that the "Fraise Arborea de la Mer Rouge," or tree Strawberry, which I have sold, is only common Dogwood, I beg you will immediately offer me the opportunity to defend myself by your medium. I am attached to the establishment of the "Ecole des Fermes" (Farms' School) at Grenoble, Department of the Isère, which is supported and assisted by the Government of France, for developing every novelty in horti- and floriculture; paying large premiums, as was the case two years ago, for the Strawberry tree, say 18,000f., or about 750*l*., to propagate it to the public, after due attention and care, at a much cheaper rate and with perfect security. Under such auspices I arrived at Manchester about two months ago, and every transaction has been met by me openly and perfectly honest. Requesting you to have the justice of inserting this, and ready to face any other explanation, I remain, &c., T. Giraud, de Paris.

17, Princess Street, Manchester, March 11, 1857.

Upon this the Editor of the *Examiner* very justly remarks that the paragraph from the *Gardeners' Chronicle* makes no reference to M. Giraud or any other person, but simply expresses a scientific opinion as to the true character of a particular plant sent to the Editor for that purpose.

For ourselves we have to add that we never before even heard of this Mr. T. Giraud de Paris. Since however he has volunteered the above statement, we shall take the liberty of remarking that in the returns, preserved in the *Bureau d'enseignement agricole* at Paris, relating to the *ferme école* of the department of the Isère, the name Giraud is not to be found even among pupils or workmen. We further say that the French Government never gave any assistance whatsoever to any person of that name, in connection with the *ferme école*, and what is more we declare that the chief officer of the *Bureau d'enseignement*, under whose sanction the sum of 18,000 fr. must have been paid, had it been paid at all, knows nothing whatever of the circumstance.

It is not for us to suggest what course the purchasers of the "Fraise Arborea de la Mer Rouge" should take. Their solicitors will doubtless give them good advice how to proceed.

EXHIBITION OF THE

ROYAL SOCIETY OF AGRICULTURE AND BOTANY AT GHENT.

(*Concluded from p. 173.*)

New plants were plentiful indeed, more especially in the collection of Mr. Linden. He had a large specimen of Gesnera cinnabarina, and Monochætum ensiferum, a fine plant from Colombia, with a profusion of purple flowers. There was a vast number of quite new plants with beautiful foliage in Mr. Linden's collections, of which little yet is known. Mr. A. Verschaffelt had also a very choice assemblage of rare plants, and some of them remarkable for their striking foliage; so also had Mr. A. Van Geert, the Count de Limminghe, and Dr. Siebold; those of the latter were all from Japan, but in bad condition.

Mr. Glendinning, of Chiswick, exhibited leaves and a drawing of his new variegated Farfugium grande. Mr. Andrews, of London, was awarded a silver medal for a number of drawings of flowers taken by him from nature. Among other drawings were some well executed plans of gardens by M. Vanhulle, an artist, I believe, belonging to the establishment of M. Van Houtte.

Of bouquets there were some fine examples, which were put together with great taste and skill. The arrangement of some wedding bouquets was as follows:—1, White Camellias, Lycopods, and Ferns only; 2, White Camellias, white Azaleas, white Persian Lilac, Lily of the Valley, Ferns, Lycopods, and white Epacris; 3, White Camellias, blue Violets, Myrtle, Grass and Moss; 4, White Camellia, white Azalea, and Violets only; 5, Camellia jubila, double white Primula, white Syringa, white Persian Lilac, Lily of the Valley, and Ferns. In my last I omitted to mention a new white Camellia named Mrs. Percival, which deserves notice; it is of fine form and I think quite distinct.

As previously stated, some of the plants were grouped for the decision of the judges, others were not. A magnificent assemblage of Palms, reminding one of Messrs. Loddiges' grand collection, filling one large circle of the Casino and reaching nearly to its vaulted ceiling, 30 in number, was an object of admiration; and no wonder, for they were in splendid health, and many of them extremely rare. Of variegated and fine foliaged plants there were numerous specimens, consisting of Aloes, Begonias, Bromelias, and Rhopalas; of the latter the Count Limminghe sent some fine things. He had 10 species of Oreopanax, 2 of Didymopanax, and 3 of Rhopala.

Having thus given a brief outline of this magnificent exhibition, I may state that as soon as the jurors had left the Casino the society's staff set to work to arrange the plants for the following day. This is an important affair, and indeed one in which our continental friends leave us a day's march behind. The numbering of the plants permits many of the collections to be dispersed with a view to artistic effect. When we entered the Casino on Sunday morning the scenic effect was beyond description. The Casino having circular recesses obviates the monotony which a parallelogram or a long tent covered with canvas always exhibits. These recesses have columns at their corners, where Palms and tree Ferns, elevated on pedestals, stood out in bold relief. On the right was a bank of Palms up to the ceiling, surrounded with choice Orchids and other rare Exotics. On the left Camellias were a blaze of bloom, reaching even to the ceiling; these were surrounded with tree Ferns and Palms; then passing on through groups of well varied and interesting plants we arrived at masses of Amaryllids on the one hand, and

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* *The Olive, the Rape, and the Flax, their products and their cultivation.* Lanford.—A pamphlet.

† Mémoire sur la Maladie de la Vigne par M. Marès, Secretaire de la Société d'Agriculture de Montpellier. Paris. Bouchard-Huzard, 1856.

on the other in front, forming the extreme end of the Casino, was a circular stage of Rhododendrons, Azaleas, Amaryllis, and other flowering plants, reaching quite to the ceiling and producing a most gorgeous effect, especially when viewed from the entrance end of the building, the Palms and tree Ferns with their airy foliage adding intensity and brilliancy to the colours of the flowering plants.

At 10 o'clock precisely the doors were thrown open to the jury and members of the society, who strolled about in anxious expectation for the arrival of the King and Royal family. During the intervening period, however, the various collections were examined with evident satisfaction and delight, for every one here is either an amateur gardener or a professional one. The knowledge of rare and curious plants which some of the amateurs possess is quite astonishing. A little before 12, cannon announced the King's approach, when a hearty foreign welcome took place outside the Casino; within all was calm, so much so that not a sound was heard, and this decorum was maintained as long as the Royal family remained. The King examined the whole collection very minutely for more than an hour; he then retired to prepare for a grand banquet which awaited him and his suite. He possesses a good knowledge of plants, and is an ardent admirer of improved cultivation, which has of late years made great progress in Belgium. In a conversation which I had with his Majesty, he discussed with much ability the merits and demerits of English culture, and adverted to the late Mrs. Lawrence's plants as being the perfection of English gardening; these he had attentively examined at our London exhibitions.

Many of the plants, some of which are brought from a great distance, remain in the Casino for nearly a week, which would necessarily subject them, especially stove plants, to a severe trial; but this is obviated in a great measure by the introduction of stoves in various parts of the building, so as to maintain a temperature of from 55° to 60°, and it was astonishing to observe the freshness even of Orchids at the termination of the exhibition.

In conclusion, permit me to say that the kindness received from the officials will long be remembered by me, and that their exhibition must be acknowledged to be a great triumph, evincing, as it did, that in Belgium at least the progress of gardening is making rapid progress. *R. Glendinning.*

VEGETABLE PATHOLOGY.—No. CLVI.

645. PARASITÆ (*Scale, Mealy Bug, &c.*)—Amongst the pests to which the cultivator is exposed few are more annoying or more difficult of extirpation than the curious insects known under the name of scale, mealy bug, &c., which are characterised by their females being mostly of extremely sedentary habits, and living beneath a scale which fits tight to the plant, while the proboscis of the animal is inserted firmly into the tissues, and the body in consequence so gorged by the rich and constant nutriment as frequently to lose almost every trace of external organs. The males on the contrary are winged and more or less active, and after they have arrived at their full growth seem to require no further nutriment, but live merely for the propagation of the species. In consequence of the close fitting of the covering the fumigation which is fatal to Aphides does not affect them, or in those cases where the males are destroyed a succession is constantly supplied from the multitudinous eggs.

646. Some of these animals produce matters which are of great importance in the arts. Shellac, for instance, is produced from a species which inhabit Figs in India; Cochineal from one which affects Cacti, wax from *Coccus Pela* and some others, while a spurious Cochineal is obtained from *C. polonicus*, which lives upon the roots of *Polygonum cocciferum* and *Scleranthus perennis*, and was in great request before the discovery of the true Cochineal. Our own native species, however, and the greater part also of exotic species are dreadful pests without any redeeming qualities.

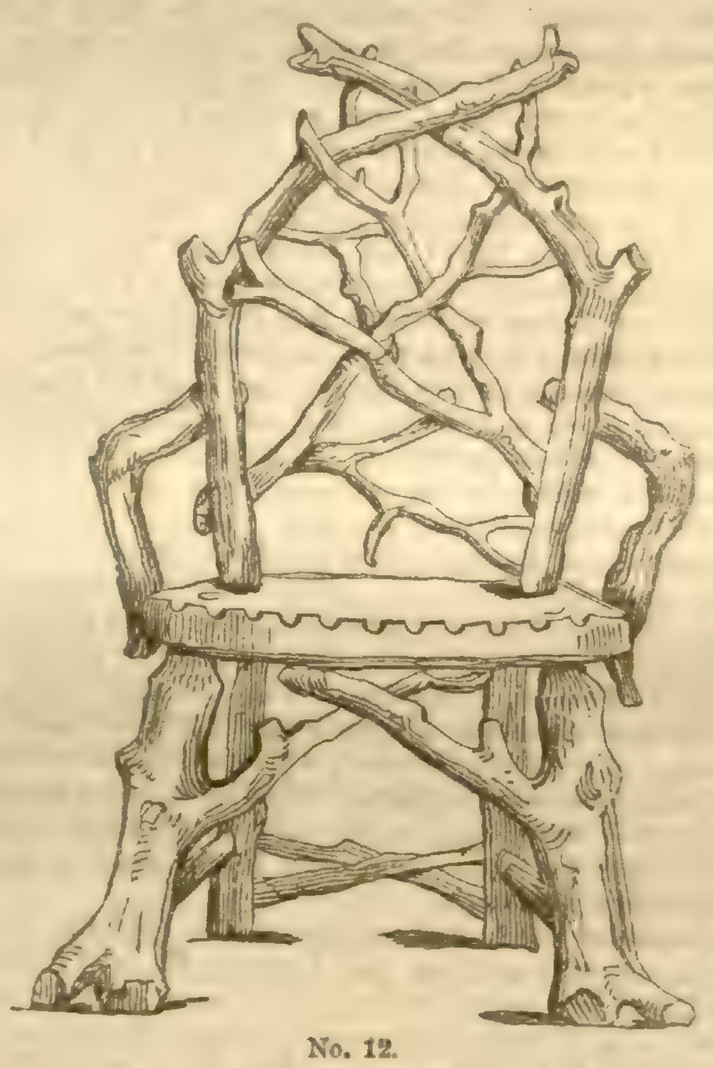
647. Cocci are divisible into three natural groups, the first of which, as *Coccus Vitis* and *Hesperidum*, is known by the scale being permanently attached to the body of the female; in the second, as in the scale of the Apple, Pear, &c. (known under the name of *Aspidiotus*), the covering may be lifted up without injuring the animal beneath; while in the third, as in *Coccus* or *Pseudococcus Adonidum* (for which the name of *Trechocorys* or running bugs has been proposed), the females are powdered over with matter exuded from their body, and are not stationary but run about both when they are old and young.

648. *Coccus Hesperidum* is the pest of Orange gardens in the countries where Oranges and other allied plants are cultivated, and in Ceylon the same species occurs on Coffee, which however does not seem to be nearly so fatal as one (or possibly two species) of which an account is given in Hooker's Journal of Botany, Dec., 1850, which has produced immense mischief to the Coffee plantations of Ceylon. In these cases, as in some others, the excrement of the insects is sweet and greedily devoured by ants, which wait upon the Cocci as they do upon the Aphides. As in the latter case the leaves which are covered by the exusion are soon rendered black by *Cladosporium herbarum* and other parasites, so the plants affected by the Cocci are attacked by various species of *Capnodium* and *Antennaria* which effectually complete the work of destruction commenced by the insects, incrusting the leaves with a thick black felt, which effectually prevents all action of light and blocks up the stomates.

649. In all these cases prevention is easier than cure, though prevention is far from being easy. Many new species are from time to time introduced into our hot-houses with exotic plants which prove intolerable pests. The utmost vigilance therefore is needful to prevent their introduction, and to arrest the first symptoms of their prevalence if unfortunately introduced. No fumigation, sprinkling with sulphur and lime, or syringing with hot water or chemical solution is effectual, except, in most cases, with equal prospect of injury to the plants themselves. The best way is to have recourse to the mere manual labour of scraping, brushing, and sponging, and when the pest arrives at a great height, either in the conservatory or in the open air, the safest plan is at once to destroy the affected plants if practicable.

650. Besides the Cocci above mentioned, other allied plagues attack our Cabbages and other plants, as *Aleyrodes proletella, Chelidonii*, &c., while they are no less destructive to Exotics, as *Aleyrodes Cocois* to the Cocoa Palm, than true Cocci. A species of the same genus has made its appearance lately at Kew and Chiswick, supposed to have been derived from Mexico, which attacks the Mexican species of *Gonolobus, Bignonia, Solanum* and other soft-leaved plants. If the females in this case are destroyed by the ordinary process of fumigation when perfect, the young are so protected by the hairy shield that they are not affected, and myriads appear again in a few days. A very curious insect allied to the mealy bug appeared lately at Kew on the Palm of the Seychelles islands, but happily has not spread. It is a species of *Dorthesia*, "the males of which are elegant little two-winged creatures, with a thick bundle of very long delicate white straight filaments at the extremity of the body, forming a thick tail. The substance of these filaments appears to be a waxy secretion, like that of the Chinese wax insect.* The females, on the contrary, are flat, emitting thick flakes of this waxy material from the sides of the body, which give them somewhat the appearance of tortoises in miniature."† *M. J. B.*

RUSTIC FURNITURE FOR COTTAGE GARDENS (*see page* 117).



No. 12.

(*To be continued.*)

ASCENT OF CHIMBORAZO.

IN 1802 Humboldt and Bonpland attempted to ascend Chimborazo, but were prevented by an impassable barrier of rocks which they reached at an elevation of 5900 yards. Thirty years later, in 1831, M. Boussingault attempted the ascent, and although he succeeded in attaining an elevation of 6000 yards, he also was stopped by rocks which he could not pass. In July 1856 we (that is M. Remy and Mr. Brenchley) determined to endeavour to get to the top; we accordingly spent two whole days in walking round the mountain and examining it through telescopes, in the hope of discovering a practicable route, but in this we were unsuccessful, and accordingly we deferred the execution of our plan. After having visited Pichincha, Cotopaxi, and other giants of the Andes, we again reached the foot of Chimborazo on the 2d of November, 1856. We encamped at a height of 4700 yards, a little below the snow line, in a valley situate between the Arénal and the place where the road to Riobamba branches off from the road to Quito. We took shelter under a large inclined rock, which screened us from the north-west wind. Notwithstanding the rain which fell in the afternoon, the night was fine; the sky was studded with myriads of stars, and Chimborazo stood out in grand relief from the azure vault of heaven. On the morning of the 3d November, at 5 o'clock, and before it was well light, we started from our camp with a coffee-pot, two thermometers, a compass, lucifers, and some tobacco. The top of Chimborazo bore N.E., and the wall of the Inga (Ingaberca) was behind us. A steep sandy hill with projecting rocks separated us from the snow, and was sufficiently tiring to induce two natives who accompanied us to return at once to the camp. After passing this hill we got upon some soft sand at the bottom of a valley, which we followed, and from the extremity of which the summit of the mountain was distinctly visible. At 6 o'clock we were on the snow. Here we were amused by watching humming-birds chasing each other, and were not a little astonished to find some plants in flower over a considerable extent of perpetual snow. They were a Caryophyllaceous plant, some Composites, amongst others a Culcitium and a Chuquiragua, a dwarf Umbelliferous plant (Oreomyrrhis), two sorts of Violets, with leaves collected into a tuft, a Crucifer with rosettes, and a small Gentian with large red flowers. We did not find Saxifraga Boussingaultii of Brongniart which we were anxious to obtain, as it is said to grow at a higher elevation than any other flowering plant. After half an hour's walk over the snow, vegetation suddenly ceased, and we saw no living thing except a couple of partridges and a few Lichens belonging to the families Idiothalami and Hymenothalami. At this part of our journey we each made up a bundle of dry branches of Chuquiragua, and put it on our backs. We then again proceeded on the snow, which became every moment deeper and deeper, but which nevertheless was firm enough to bear our weight without our sinking further than a couple of inches, and this, by preventing us from slipping, was very advantageous in ascending the rapid slope of the mountain side. We felt the cold in our hands and more especially in our feet. The mountain was so steep that we were surprised at the vertical distance gained at every step. Nothing was seen likely to stop us, and by walking zigzag we hoped to get to the top without difficulty. The steepness was however so great that we were soon compelled to halt frequently for breath, and we suffered so much from thirst that we kept some snow almost constantly in our mouths. But we felt no oppression or any other of those disagreeable symptoms described by the generality of persons who have ascended to great heights, and we have come to the conclusion from what we experienced, not only on this occasion but on others also, that the rarity of the air is not the cause of those ailments which are so often complained of on ascending high mountains. When we first arrived at Quito we suffered like other people from shortness of breath, but after we had been to the crater of Pichincha we were never troubled again with this symptom, and we are much more inclined to attribute the disagreeable sensations complained of to sudden change of climate, and to the fatigue which is the necessary result of all such expeditions.

As we got higher and higher we rose above the peaks of the Cordilleras, and had a boundless view of immense valleys. But a light mist, which at first looked like a spider's web on the sides of the mountains, soon broke up into white clouds and these gathered together and approached the foot of Chimborazo, and then in a few minutes rose up to where we were, and becoming visibly denser and denser soon prevented our seeing anything at a distance of 20 paces. At half-past 9 the fog was so thick that at a few yards from us it was as dark as night. We still went on, taking care, however, to watch the compass, in order to keep clear of a precipice on our right. We soon found the slope less steep; we breathed more freely and walked more easily. A terrible storm, however, now came on; the lightning flashed in a manner unknown at a distance from the equator, and afraid lest our footprints should be lost by a fall of snow or hail, we were reluctantly compelled to halt. We immediately therefore lighted our fire of Chuquiragua wood, boiled some water in our coffee-pot, and inserting the thermometer in the water, found the mercury rise to 77.5°, it having stood at 1.7° 5 feet above the edge of the snow. At five minutes past 10 we descended as fast as we could, and reached our camp at 1 o'clock in the afternoon. The storm raged the whole time with terrific violence, and at 3 o'clock a frightful tempest of rain, hail, snow, and wind assailed us under our rock and lasted till night. The next day we could see nothing except one vast surface of hail. Indubitable signs of another storm compelled us to hasten down to Guaranda instead of again trying the ascent. On calculating the height to which we had attained we were not a little surprised to find that we must have been to the top of the mountain. From repeated observations of our own, 290.8 may be taken to represent the number of yards in height which corresponds with a fall of 1° in the boiling point of water on a centigrade thermometer. If B represents the boiling point at the altitude x, we have

$$x = (100 - B) \times 290.8,$$

which in our own case gives 6543 yards as the altitude actually attained by us. The height of Chimborazo, according to Humboldt, is 6544 yards, and we must therefore have got to the top. Whether we are right or not in this supposition, we are at all events enabled to say for certain that the summit of Chimborazo is perfectly accessible. *L'Echo du Pacifique.*

* The down on the common woolly Aphis appears to be of the same nature.

† Illustrations of Cocci and allied genera will be found in this Journal in the following places, which it may be useful to indicate. *Coccus testudo* and *patellæformis*, 1843, p. 444, 518. *C. Pela*, 1853, p. 532. *Aspidiotus Nerii*, 588: *Proteus*, 676; *conchiformis* 736; *ostreæformis*, 805; *Pseudococcus Bromeliæ*, 1841, p. 131; *Dorthesia*, 1855, p. 836: *Aleyrodes*, 1856, p. 852; *A. Cocois*, 254: *proletella*, 836.

SKETCH OF THE SWISS ALPINE FLORA,

AND THE

CULTURE OF ALPINE PLANTS.

By Dr. E. Regel, Director of the Imperial Botanic Gardens at St. Petersburg.—Translated from the German by E. Ortgies.*

How powerful is the attraction of mountain scenery to the inhabitant of low and flat countries! With what impatient delight the tourist visits the Swiss mountains; to repose there for a short while from the habitual occupation of everyday life—to breathe the pure and cooling mountain air, which is so wonderfully invigorating that we bear up easily against fatigues and hardships which, at a lower level, would soon overpower us,—and to imprint the mind with that peculiar beauty and grandeur of scenery which furnish to memory a source of the most agreeable and impressive recollections!

Undoubtedly the principal charm of a mountainous country is above all to be found in the various formations and the gigantic proportions of the rock and mountains themselves; but here, as everywhere in landscape scenery, the vegetation exercises a most important influence on the character of the landscape. Lower down those fine forests, the fertile flowery meadows, and yonder abrupt towering walls of bare rock, or the swelling mountain slopes which border the valley; higher up the gradually decreasing number of species of trees and consequently a greater sameness in the character of the woodlands; those deep green Alp pastures, which in many parts of Switzerland give such a charming character to the country: take them away, would not the whole scenery have lost its chief attractions?

We ascend still higher, the larger trees dwindle down to stunted bushes, the splendid Rose of the Alp (Rhododendron hirsutum and R. ferrugineum) cover with shining red flowers whole mountain slopes; in the short Grass at our feet flower the deep blue Gentians, the pretty red Primroses, the Bluebell-shaped Soldanella, the beautiful yellow and white kinds of Anemones, the sky blue Alpine Forget-me-not, the fine and interesting species of Pedicularis, &c. On the rocks and between detached masses of stones the Saxifragas spread their swelling cushions of vivid green, and Primulas, blue Phyteumas, Globularias and many others find in the smallest fissures of the rock a comfortable abode. Yet higher up leads our path, if path there is; the vegetation becomes more and more stunted and scantier as we go on, by our side and above us large tracts are covered with extensive snowfields, never soiled by the footsteps of man; the mountain tops, their bold outlines often broken by deep indentures, stand out against a clear cloudless sky, and the broad glacier rolls his waves like a mighty river cascade suddenly frozen over rocks and mountain slopes far down to the valley. The icy breeze from the frozen ocean of the high Alpine region makes us shiver with cold even in the hottest days of summer, and yet wherever the snow has melted away, or often even piercing the icy cover, we meet the tiny inhabitants of these inhospitable regions spreading a flowery mantle over the ground, where a few short days before the winter still held its sway. The pretty Ranunculus alpestris and glacialis, Geum reptans, the Soldanellas, and different kinds of Saxifragas are here at home, and give us a kind welcome amidst dark blocks of the naked rock, dazzling white fields of snow and the deeper coloured masses of ice, with their fantastical horns and deep fissures. We venture to climb still higher, over snowfields and glaciers; we make a path with cautious steps, not afraid at the thought that a single false step might make us slip and perish, for often we are forced to find a path on the very brink of threatening precipices; over yonder on that sunny slope, a spot free from snow, a rocky island in a frozen ocean, where on blocks and amongst loose masses of shattered stones pretty Saxifragas, the Moss-like Cherleria, small but beautiful Gentianas and Phyteumas grow, where the Aretia helvetica forms small cushions, and where the Aretia glacialis with rosy and white conspicuous flowers grows in society with the azure blue Eritrichium nanum, two rare gems in the wreath with which the Alps adorn the goddess Flora.† And a beautiful spot it is, inviting to rest from our fatiguing ascent!—on all sides surrounded by frowning rocks and glittering snow, by stern Nature in her grandest aspect. All around us reigns deep winter and dead silence, only at intervals broken by the thundering noise of an avalanche, sweeping down from the mountain peaks, which tower still far above our heads.

If we feel humiliated by the impression of our own pigmy nature, so crushed by the overpowering grandeur of the surrounding scenery, the reviving sunshine and the smiling flower tell us a tale of a great but kind Providence, which seems to pervade the whole wonderful scene, and finds also an entrance to our hearts.

This is but a slightly sketched picture, adorned only with the most familiar forms of Alpine plants, which we have offered in the above as an introduction to our subject. How is it—this question has certainly been repeated by many a tourist returning from scenes such as we left just now—that we collect with great care and still greater expense plants from all quarters of the globe, and neglect and overlook the treasures of our own Alpine Flora? Or if they are indeed cultivated in a few places, that so few of them serve to decorate our gardens?—the greatest number being grown in small pots, where they seem to us as strangers from distant countries, hardly recalling the days that we met them in their mountain homes.

We have asked this question ourselves many a time, and have tried to cultivate Alpine plants in the open ground on a larger scale, profiting by our experience as we went on, so that we obtained at last a sure base, though we did not succeed in all instances. But before we enter on the discussion of special culture, we may be permitted to throw a cursory glance on the climatic and local differences which affect the natural localities of Alpine plants.

1. *Difference of Climate.*—The climate is the principal cause of the difficulties which we encounter in cultivating plants growing exclusively on high mountains, or in the Arctic regions of our globe. We can never succeed even approximately in giving them the short summer, the cool temperature, the rarified air, the full sunlight, the deep covering of snow during the long winter, to all of which they are accustomed in their native habitats. The experiments we made in the Botanic Garden at Zurich, under a climate where the Grape ripens well, and where far greater difficulties had to be encountered than gardeners would have to contend with in the central and northern parts of Germany, or under the climate of St. Petersburg, where we intend to continue our experiments. Notwithstanding we have often heard the observation from visitors admiring the luxuriant appearance of many Alpine plants in our out-of-door collection, that the climate of Zurich from its vicinity to high mountains would facilitate their culture; but in reality Zurich has only the disadvantages of such a vicinity, such as sudden changes of temperature, late frosts in spring and early frosts in fall, combined with a hotter summer than is experienced in Germany, and these are just the very things unfavourable to the cultivation of Alpine plants.

In ascending from the valley to the mountains we find a similar change of climate as if we were advancing from the equator towards the poles, which produces a marked effect on vegetation. For example, many of our Swiss mountain plants occur in the lowlands and swamps of northern Germany, such as Gentiana verna, Primula farinosa, Pinguicula vulgaris, Linnæa borealis, &c., which would lead us to suppose that the climate there must be more favourable for cultivating Alpine plants than at Zurich.

Professor Heer, well known to the scientific world by his splendid work on the Tertiary Flora of Switzerland, had long before he begun this most difficult study made himself well acquainted with the phanerogamous portion of the Swiss Flora. He wrote with Hegetschweiler the best Swiss Flora we possess. In this valuable work he divides Switzerland, according to climate, into the following five regions.‡

1. The *montane region*, comprising that part of the country which lies at an elevation of 3000 to 4400 feet above the sea level. This region has a climate analogous to Germany, and most of the plants indigenous to it, as well as many others which belong properly to higher stations but which descend and flourish at this elevation, can be grown without difficulty in our gardens. Here the winter lasts about six months, from November till May.

2. The *sub-Alpine region* reaches from 4400 to 5500 feet elevation. In sunny places and on steep slopes where the snow sooner melts away, the soil remains free from snow from the end of May till October, but in shady or flat localities only from the middle or end of June till October.

3. The *Alpine region* is considered to lie between 5500 to 7000 feet of supra-marine elevation. In sunny localities and on declivities the snow disappears from the end of June to October, but on shady places or level plains, especially towards the upper limits, the snow remains all the year round.

4. The *subnivale region* extends from 7000 to 8500 feet. The soil is covered with eternal snow, except in places exposed to the full sun and on declivities, where the soil appears from the middle or end of July till the middle of September.

5. The *nivale region* covers the highest mountain tops from 8500 feet upwards; and it is only in the month of August that a few steep and sunny places are ever free from snow.

In looking back on these divisions we have in the same proportion as we ascend a decreasing temperature, a shorter summer, a longer continuing snow cover, and lastly, a temperature of the soil comparatively higher compared with the ambient air.

This latter circumstance is the cause that the leaves and stems of plants from the highest regions remain very short and dwarf, though the flowers are perfectly developed, and generally large in proportion to the rest of the plant, the short season of vegetation contributing chiefly to their development. Shrubby plants, such as the Alpine species of Willows, Arbutus alpina, Azalea procumbens, &c., seek the terrestrial warmth and creep close along the ground. Plants of these regions which have been grown in gardens become there more luxuriant in foliage but produce fewer flowers. The Silene acaulis, for example, belongs to the Alpine plants which ascend to the highest regions; the higher the station we meet this lovely plant the dwarfer and more compact its growth, and the more abundantly and the deeper coloured its red flowers, so that in such places it is frequently quite concealed by one sheet of bloom. Cultivated in the garden the plant gets much larger, but the flowers are less numerous and of a pale reddish hue. Plants from the montane region, such as many Grasses, Phleum alpinum, Poa alpina, &c., which ascend to the Alpine and subnivale regions, get there quite dwarf; but when transplanted into the gardens, they soon regain their usual size, or even exceed it.

Those who collect Alpine plants for cultivation ought to take care therefore not only to dig them out with a good ball of the soil around the roots, but before they replant them to clean them of all the other plants taken up at the same time, especially of the Grasses and Carices, for these would soon begin to grow luxuriantly and choke the delicate and small real Alpine plants, which always remain dwarf. The low creeping Alpine shrubs, Salix retusa, reticulata, serpyllifolia, and others, get much more luxuriant in gardens, where they form long and thick woody stems, but their manner of growth remains the same, they always continue to creep along the ground or their slender branches hang gracefully down over artificial rockwork; but I never observed on such plants branches which showed a tendency to grow erect. Their vegetative character is entirely different from that of the Mountain Pine (Pinus pumilio) which in high regions also creeps along the ground, whilst lower down it grows to erect and tall trees. We make, therefore, a difference between those polymorphous plants which ascend from the flat country to considerable heights, and which assume there, under the influence of very different climatic and local conditions, quite another habit, becoming what we call Alpine forms, and those plants which seem exclusively formed for considerable altitudes, and which in consequence soon perish when subjected to the usual treatment of garden plants.

Generally speaking it is my conviction that it is less the heat of our summers than their long duration which renders the culture of Alpine plants so difficult; for these plants, destined by nature to complete their vegetation in a few weeks and to repose 9 or 10 months under a deep snow cover, die from exhaustion and want of rest. With the first genial beam of spring the Alpine plants begin to flower in gardens, and by the beginning of summer they have already ripened their seeds, and should now, as in their native homes, go to rest; but the hottest period of the year only now begins, and afterwards follow the long autumn months, which prolong their growing season two or three times longer than is beneficial to their constitution.

(To be continued.)

* The following communication is extracted from the excellent German horticultural periodical the *Gartenflora*, edited by Dr. E. Regel. The editor is well known to the continental horticultural and botanical public as one of the ablest practical gardeners, and at the same time as one of those few men who combine in a rare degree the practical experience of the profession with a remarkable amount of botanical knowledge. In his situation as Curator of the Botanic Garden at Zurich (Switzerland), which situation he filled with the utmost zeal and the greatest success for 13 years, and which he only left in 1855 to accept the Directorship of the Imperial Botanic Gardensat St. Petersburg, he had thus ample opportunities afforded to get intimately acquainted with the Alpine plants of the Swiss mountains, which he collected and transplanted himself, with the intention of surmounting by repeated experiments the difficulties which the cultivation of plants from the higher mountains generally offers—difficulties which cannot be entirely removed in all instances, but which may be avoided to a great extent by a rational treatment. If the Botanic Garden at Zurich can boast now of a very extensive collection of these interesting plants, it is entirely due to the indefatigable exertions of Dr. Regel, who after he left Switzerland wrote the following article as a *resumé* of his long experience in the treatment of Alpine plants. As his successor at Zurich, we feel desirous his great experience in this much neglected branch of plant culture should become more universally known, and we are happy to say the idea of communicating to English readers the results of Dr. Regel's studies and labours occurred to us when visiting last summer in the company of our esteemed friend, D. Moore, Curator of the Glasnevin Gardens, Dublin, those same scenes which he so vividly depicts, and which attract every year many thousands of tourists of all nations, where the Alpine Flora reigns in all her glory amidst snow-clad mountains. Mr. Moore not only applauded our idea but kindly promised his valuable assistance, and it is partly from his encouragement that we now submit the following translation to the indulgent notice of English readers.—*Note of the Translator.*

† The two last mentioned species are probably the most beautiful plants which grow on the Alps, especially the latter. The botanist who has for the first time visited the higher Scottish mountains, will readily recall to mind the delight it gave him to look on the charming flowers of Myosotis alpestris, and thus be enabled to form a good idea of the Eritrichium nanum, as it occurs on the Alps.

This gem of the Alpine flora is only found at great elevations, which in no inconsiderable degree adds a charm to its loveliness, because the upper dreary zone of vegetation, which consists chiefly of Cyperaceous and Gramineous plants, must be passed over before the Eritrichium is reached, whose large deep azure blue flowers suddenly bursting on view, in elegant little masses, on the faces of rocks bare of earth and only a few feet lower than the pure white snow, produce an irresistible effect on the weary traveller, and add a peculiar charm to the landscape. At least such were the circumstances under which we saw this plant. *D. M.*

‡ This division is founded on observations mostly made in the northern parts of Switzerland; the Southern Alps bordering on Italy have somewhat higher limits for each region which are also affected by unusually hot and dry summers, such as the last (1856) has been, when the snows melt away sooner and higher up. Last summer was therefore specially favourable for excursions to the highest mountains. The oldest men here did not remember to have seen the mountains more free from snow than they were last season.—*Note of the Translator.*

Home Correspondence.

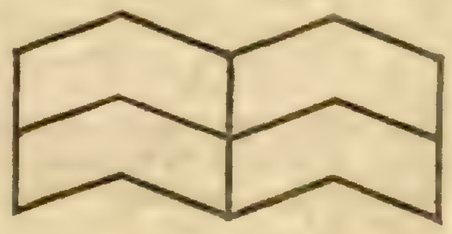
How to Grow the Black Prince Strawberry successfully.—It appears that the best method of growing this very useful Strawberry is not generally known, as I have had letters from various parts of the country, complaining that the fruit is small, hard, and worthless. The Black Prince is a very distinct sort, and requires peculiar treatment. I have grown it for several years with great success, and am therefore induced to give you my mode of culture, believing it will be useful to many of your readers, and that by adopting it they may look forward with something like certainty for heavy crops of fine well flavoured Strawberries the first season after planting. Early in July dig a piece of good ground for a nursery bed, throwing over it a few handfuls of

soot, to be raked in. Then lay a board across the bed and make a shallow trench with the spade and you are ready for the runners, which should be cut off so as to leave a spur about an inch long, which must be thrust into the cut side of the trench; this keeps them steady, and prevents the worms drawing them out. Place the plants in rows 8 inches wide, and 4 inches apart in the row; put a little leaf-mould or well decomposed manure about their roots; fill up carefully, so as to keep the crown of the plant above the surface. Tread the plants in gently; give a good watering at the time, and continue to do so whenever they require it. The young plants will be greatly benefited by being shaded for a short time from the scorching summer sun; and this may easily be effected by the following simple contrivance: thrust into the ground a few forked sticks, so as to stand about a foot above the surface; lay laths across them, and a mat over the top, to be kept on for a fortnight, nip off all runners as they make their appearance. The cultivator will by these means have a nice stock of strong, well developed plants, ready for final planting in August or September. Ridge up the soil where the rows are to be 2 or 3 inches above the surface, and 18 or 20 inches apart. Plant on the top of the ridge 12 or 14 inches apart; the space between the ridges to be covered with stable litter immediately after planting, and a little more may be added in spring. They will be all the better for a dusting with soot at the same time. The Black Prince should never be allowed to stand more than one year, or two at the most. If allowed to stand over that time the plants degenerate and become subject to mildew. This will account for the prejudice which some parties entertain against the Black Prince. But treated as here recommended, with a view to an abundant and early crop the first season after planting, it is not likely to be superseded. Do not neglect to trench and manure, or the Strawberries will not be worth growing. For owners of small gardens where it is advisable to economise the ground as much as possible, the following rotation will be found to answer well:—After a crop of early Potatoes dig or trench the plot, and plant with Black Prince Strawberries, as directed above. In the following July, as soon as the fruit has been gathered, dig up the Strawberries and plant with Cabbage, Broccoli, or Spinach, which may all be got off the ground in time to plant another crop of early Potatoes; and as soon as they are removed plant again with Black Prince Strawberries. With two plots worked thus alternately a constant succession of good and useful things may be obtained in the least possible space. *William J. Nicholson, Egglescliffe, near Yarm, Yorkshire.*

The Woodlouse a Cucumber Eater.—If any living thing breeds spontaneously surely it is the woodlouse, *alias* sow bug, slater, Pea bug, cheese bug. They may be found in almost every hole and crevice. They evidently like a hot climate, although they thrive in a cold one. They have excellent appetites, and get fat on almost anything they eat. Toads destroy them, but a toad is satisfied when he has had enough. Bantams eat them and like them much; hot or boiling water however is the best cure for them; no insect can withstand that. But how and when should it be applied? The woodlouse rests in the day time; its feeding time is at night. In Cucumber pits and frames and Mushroom houses it may generally be found lodging between the bed and wall. Boiling water therefore carefully poured down there will kill every one of them. In Cucumber frames and pits boiling water may be used with safety until the roots reach the frame walls or brickwork; long before this time I have cleared my pits of them, and that by only three applications of water. Not one woodlouse is now to be seen. The killing of these pests in Mushroom houses is easy enough. If you have any covering on the bed remove it, and in an hour afterwards the woodlice will have retired into the crevices between the wall and the bed; boiling water is then a sure remedy. My ground is full of Strawberries, and I find that woodlice are not satisfied with what they can eat of that fruit in pits; they spread all over the open ground, destroying several pounds' weight of ripe Strawberries nightly. What is worse than all they always select the finest fruit; the small they never touch. If once these vermin are allowed to escape into the open ground, there is no remedy until they return to winter quarters. Attack them then with boiling water, which is a remedy not only for them but for slugs, earwigs, and even the American blight on Apple trees. It destroys the eggs of all sorts of insects in old walls, the scale upon Vines, &c. It is, in fact, a complete cure for all destructive insects, provided it is rightly applied and at proper times. *James Cuthill, Camberwell, London.*

Hazard's Heating Apparatus.—As I was induced by Mr. Hazard's advertisement in your paper to inquire into the principle of his system, and finally to order one of his stoves for trial in a schoolroom which I have just built, I have read with deeper interest than many the discussions which Mr. Hazard's statements have provoked. So far as I am entitled to speak upon a month's trial I am satisfied with the apparatus, and I cannot think how any one who has once witnessed the immense economy of heat which is produced by it, could ever consent to banish it without trying by the exercise of a little patience and common sense to overcome the peculiar defects which are incidental to it. I conclude all systems will have their weak points, but this I think fewer, and those more easily met than any other system I know. 1. The escape of gases from the joints of the stove is complained of. I am not troubled with this in the slightest degree. The stove was put together by a common smith and a very intelligent mason. I obeyed the instructions given — using white of egg with the lime instead of blood, which was inconvenient to be got at the moment, and as I filled the first joints myself it was rather pleasanter to my fancy. "But," said my mason, "I think, sir, you need not take so much trouble, for if the smoke is inclined to come out it will come at the door." He was right—the only annoyance I have is at the time of fresh stoking, when for a few minutes there is a sulphureous smell near the stove. Now this is immaterial to me because my ventilation is perfect, and as regards plant-houses it would not happen because I suppose the stoking place would be outside. 2. Another point complained of was the liability to have too great heat. This is what is usually called '*embarras des richesses.*' It is never a very serious complaint—and in this case there is a large choice of expedients; admit more air, reduce your fire, or best of all, put a common damper in the chimney, by which you may make the combustion as slow as you please. 3. There is the chance of the reversal of the action in high winds. In my case I hoped to avoid this by admitting the cold air from an outhouse; but I have found already that a high south-west wind sweeping by in a confined passage makes a quasi-vacuum in the neighbourhood which sucks out warm air through the cold air grating. Being thus baffled and unwilling to fix it as directed near the ground in the room well warmed, I took my cue from the action I observed set up whenever a door just opposite the hot-air grating was opened for any length of time. Accordingly I stopped up the cold air passage altogether, and now the same grating (which was originally too large) serves for both purposes, the lower half admitting the in-draught of cold air, and expiring hot air from the upper half. Now, I observe this is thought a fatal objection by some of your correspondents; and justly so, if they depend on the cold-air grating of the apparatus for their supply of pure air; but I contend that this objection falls to the ground if you are provided with satisfactory ventilation independent of your warming apparatus. The most striking feature in the use of this system of heating is the great uniformity of heat throughout the whole space of the building. So that, though air heated to 150° or 170° is passing through the grating, at a distance of 2 feet you feel no more of it than at 20°. The difficulty to contend with in plant-houses I imagine is the same with the same temperature, however gained. You take air of nature's mixing and warm it 20° or 25° more; it now becomes capable of holding a much greater quantity of water, and it seeks it from the succulent parts of your plants and the soil in which they are rooted. I cannot at all see how this is affected by the mode of gaining heat or by anything but the state of the atmosphere at the given time, and the degree of heat you add to it. My objection to fixing the cold air grating near the floor of the room arose from a desire to avoid a draught to the feet just where my children sit to write. As I said, my ventilation is quite independent of "hazard." Yet its action is insensible, continuous, requiring no adjustment, impossible to be tampered with, and has stood the crucial experiment of emptying the room when filled with the densest smoke within the time assigned by calculation. It is however more adapted to rooms than plant-houses, and yet might, I think, be modified to suit these. *John Slatter, Rose Hill, Oxford.*

Draining Coppice Wood.—We have a large quantity of coppice underwood about here, growing upon a stiff clay soil, which is very wet. The plants are chiefly Ash, Hazel, and Willow. There has been great difference of opinion among experienced men as to the requisite depth of the open ditches, which are being dug to lay the ground dry. They have been put in some 2 feet deep, but surely this cannot clear the roots? Will you kindly inform me what depth you would recommend (in the clay soil), as the subject is one of great importance in this thickly wooded district? Ought the direction to be up and down the slope? There is a strong opinion here in favour of directing the ditches across the fall; but surely the water that enters the upper side of the drain has then an equal chance of oozing out at the lower side. *Newton W. Streatfield, Chiddingstone.*



[We hold it to be useless to drain such plantations less than 4 feet deep. Better than either up and down or across the slope is to put in herring-bone drains, emptying themselves into lateral mains, as shown in our engraving.]

Iron Tanks.—I shall feel much obliged to any correspondent who will kindly tell me what will be the best plan to adopt with an iron tank, to keep the rain water it contains fit for washing, and at the same time fit for making tea. If galvanised, will it give the water an unpleasant taste? *An Old Subscriber, Reigate.*

Boyd's Scythes.—I observe that a "Gardener" in your last week's impression alludes to the cost of my self-adjusting scythe, as compared with the old one; but he appears to be unaware that it is only the first cost, as when once the self-adjusting machinery is obtained any number of blades can be supplied to the same at the old price. The blades prepared under my new patent for my Vulcan scythe are adapted also for the self-adjusting scythe, and are sold ready cranked to angles suitable to the tastes or requirements of all, so that it is no longer necessary to lose either time or money in getting "the new scythe blade set to suit his own stroke," as quoted by a "Gardener;" and as this important improvement can be obtained without any additional cost over the half-finished scythe of old, the purchaser economises (by buying the Vulcan scythes) in time and blacksmith's fees at least 25 per cent. The self-adjusting scythe has these advantages over the original scythe. It can be shut up like a knife and put away in safety, and will last three times as long as one allowed to rust on the tiles or in a tree to be out of harm's way. There are no wedges to fasten every few minutes; a crooked handle or snaith is unnecessary. The beautiful sloping lawns of the Crystal Palace are cut by these self-adjusting scythes. They are patronised by the English and French agricultural schools, and are universally popular—orders arriving for them from all parts of the world, and their price brings them now within the reach of rich and poor. *James Boyd.*

Slugs.—In reply to your inquirer as to the best mode of destroying small grubs in enclosed gardens, I beg to state that I have found the following the most efficacious:—Cut a large Swedish Turnip into thin slices and lay them on the ground most infested. On taking them up in the morning after a mild night, the inside will be found covered with slugs; scrape them off into a pot, destroy with lime, and replace the Turnip slices. Box edgings, I may add, are great harbourers of slugs. Brick borders laid on edge are the best. *R. T.*

The Plover a Slug Destroyer.—Having noticed in a late number a very dolorous complaint respecting the destruction caused by slugs, and fully sympathising with the sufferer "J. R.," I beg to suggest the following remedy, which I think will exactly meet his case. The hedgehogs he tried are slow of movement and mastication; the ducks by their broad feet and internally serrated bills do as much harm as good, but that beautiful and interesting bird, the plover or pee-wit, is delicate in foot, like a little race-horse for speed, has a broad bright piercing eye to detect snail or worm however minute, a sharp-pointed bill to take advantage thereof, and the walled garden is the very place to keep him within bounds. A couple of these most interesting birds, male and female, would, I am almost certain, soon clear and keep clear his ground; and if he is a lover of animated Nature, and these birds should breed, he will be delighted with the extreme tenderness they manifest towards their young, which are produced about the month of May, and he had better get young ones, as the old, being very wild of flight, would most likely pine. The young are so like the clods or stones among which they are hatched (as the parents make no nest) that but for the glint of the bright large eye they would remain undiscovered, and as long as danger is near they lie like stones, until the anxious old ones give the safety call, when they rise and run about nimbly. They feed by night as well as by day, for on returning home at night from a visit in the country, I have heard a whole flock of them giving tongue like a pack of hounds in the marshy meadows, or rather like a troop of aldermen over a turtle feast, for the slugs and worms do not like to show their faces in the bright sunshine so well as the dewy nights of summer, and on this account no doubt the large brown eye is given to the pee-wit, as it is to the woodcock, to collect the scattered rays of light in the gloaming or grey nights of summer. I have often watched the plovers behind a hedge in the day-time—for they are exceedingly wary, and as the country people say, "smell powder a long way off"—to observe the different individuals racing along, or bounding from clod to clod, uttering pee-wit in various tones, as if in conversation, and elevating their long topknot of feathers as caprice dictated. Bewick speaks of them thus:—"The following anecdote communicated by the late Rev. J. Carlyle, Vicar of Newcastle, is worthy of notice, as it shows the domestic nature of this bird, as well as the art with which it conciliates the regard of animals differing from itself in nature, and generally considered as hostile to every species of the feathered tribe. Two of these birds, given to Mr. Carlyle, were put into a garden, where one of them soon died; the other continued to pick up such food as the place afforded, till winter deprived it of its usual supply. Necessity soon compelled it to draw nearer the house, by which it gradually became familiarised to occasional interruptions from the family. At length one of the servants, when she had occasion to go into the back kitchen with a light, observed that the lapwing always uttered his cry "pee-wit" to obtain admittance. He soon grew more familiar; as the winter advanced he approached as far as the kitchen but with much caution, as that part of the house was generally inhabited by a dog and a cat, whose friendship the lapwing at length conciliated so entirely that it was his regular custom to resort to the fireside as soon as it grew dark and spend the evening and night with his two associates, sitting close by them and partaking of the comforts of a warm fireside. As soon as spring appeared he left off coming to the house, and betook himself to the garden; but on the approach of winter, he had recourse to his old shelter and his old friends, who received him very cordially. Security was productive of insolence; what was at first obtained with caution was afterwards taken without reserve; he frequently amused himself with washing in the bowl which was set for the dog to drink out of, and while he was thus employed he showed marks of the greatest indignation if either of his companions presumed to interrupt him. He died in the

asylum he had chosen, being choked with something he had picked up from the floor. During his confinement crumbs of Wheaten bread were his principal food, which he preferred to anything else." So much says Bewick. These birds are remarkably good eating in October, when they take to the uplands and are very fat, but uncommonly difficult to get near with the gun. Their eggs often sell in London for 3*s.* a dozen, and the country people, it is said, often make up the number with jackdaws' eggs, of which the Londoner knoweth not the difference. *E. N., Ludlow.*

New Plan of Retarding Fruit Tree Blossoms.—Perceiving that wall fruit invariably receives a blight in this country from the unnatural heat contracted by the wall during the day, then comes the natural coldness by night and a blight, it may be of frost or what not, I thought that if we could keep equal pace day and night to avoid the too rapid germination and exposure of the blossom, we might accomplish a great desideratum. Could not ice be placed at the stem and covered over during three weeks of early warmth and by this means keep the warmth of the day correspondent with that of the night, which would become more equal to the day warmth by retarding the too rapid rise of the sap during the day? Should the experiment be of any use, I hope one day to eat a Peach with you which may have been saved with hundreds of others by this simple process. *William Sharpe, M.A., 34, Essex Street, Strand.*

Rhododendron javanicum.—Having lately been visiting my friend Mr. Wm. Williams at his seat Tregallon, near Truro, I was struck by a fine specimen of this plant in flower. It is about 3 feet high and 9 in circumference; there were 10 heads expanded, each, on an average, containing from 14 to 15 flowers, and 38 buds yet unopened. It was grafted five years since on Rhododendron ponticum, and is growing in a 13-inch pot, and has the appearance of vigorous health. The colour of the flowers is a bright orange. The plant in question has been grown under the care and direction of his gardener. *W. S. A.*

Rose Buds.—What is the cause of buds on forced Rose trees swelling to a certain size, turning yellow, and dropping off? *A. B.* [Want of food.]

Wearing-out of Plants.—In reading your remarks on this subject I perceive that you have named the Golden Pippin Apple, which I remember having heard some years ago was wearing out, and which has induced me to make the following statement:—A friend of mine procured some grafts of it from one of the original trees in Hertfordshire about 20 years ago; these formed a fine healthy tree, which continues up to this time, and has borne some beautiful crops of fruit. I took grafts from this tree about 10 years ago, and the tree raised from them I trained as an espalier. It soon came into bearing, and proved healthy like its parent, and it doubtless continues so to this day. I have not, however, seen it for four years. This I think tends to confirm your theory, that plants do not degenerate so much as to be termed worn out; that, at least, is my impression. Every intelligent gardener must be acquainted with instances which to the unexperienced eye looked like "wearing out;" if, however, the cause of this apparently constitutional decay is sought for in the right way it may generally be traced to a very different source. I am of opinion that in very many cases these "worn-out" trees may be recovered by grafting on good healthy stocks and keeping the roots in their right place, *i.e.*, near the surface; or as Mr. Rivers does, lift them occasionally. Your correspondent "W." (see p. 54) inquires if grafts taken from trees not yet in a bearing state will make less fruitful trees. I cannot answer for Pears, but in Apples my experience is to that effect; but more so with strong growing kinds than others. I have also found in Carnations that pipings taken from plants which had happened to stand some time without blooming, showed the same disinclination to flower, although plants of the same kinds in the same garden bloomed freely. This I cannot account for. I may add, that the Apple trees alluded to in this communication are growing in the neighbourhood of Canterbury. *W. Divers, The Gardens, Wierton House, Kent.*

Thomson's System of Heating.—At the present time when the various methods of applying artificial heat to hothouses are attracting so much attention and when system after system gets "pulled over the coals," let me send you three Vine leaves in order that they may bear testimony to the efficiency of a mode of heating by hot water which I have adopted here. The leaves are from a house where the Grapes are "stoning;" they are respectively, White Nice, 17 inches in diameter; Black Hamburgh, 13½ inches; and White Frontignan, 12½ inches; they are from old Vines that I cut down and raised the roots of in June 1855, and last year they bore a heavy crop of Grapes. I attribute the great vigour of the Vines and foliage in some measure to the beneficial effects of a circulation of hot water in an open gutter over the ordinary pipes, as described by me in "The Scottish Gardener" this month; and with all courtesy let me ask Mr. Hazard, who says that in the absence of his system of heating fine foliage cannot be had, whether he can produce finer leaves at this season of the year; larger I have seen at Midsummer but not in March. *W. Thomson, Dalkeith Park, near Edinburgh.* [These were certainly magnificent specimens of healthy leaves. No. 1 measured 39 inches round; No. 2, 42; No. 3, 50. We hear Mr. Thomson's boiler extremely well spoken of, and shall hope to see a specimen at the great "Manufacturers'" Exhibition next June in the Horticultural Society's Garden, when all the world of London will have the opportunity of examining it.]

Hybrid Dianthus.—In 1855 I raised two seedlings from a pod of seed taken from Dianthus fulgens, fertilised with pollen from a florist's variety of the common Pink. There were only five seeds in the pod, and the two which vegetated have produced flowers precisely similar, though the "Grass" is stronger in one than the other. The flowers in both are very double, of a lively pink, and in immense trusses, blooming last year till October. It is altogether an exceedingly pretty and interesting hybrid. I shall be glad to forward you some trusses of bloom in summer if you wish it. *A. R.* [Pray do.]

Planting Larch.—I see in an old volume of yours (June, 1851,) some remarks on this subject. I am only a small grower of them, and plant some 15,000 to 20,000 annually. I always plant wherever the plough cannot go, viz., the upper side of a field on side land where there is little but shingle from slate or rock, and in any openings of our Oak woods, which are cut down every 25 years or so for the sake of the bark and poles, and which in this country fetch a high price. As this is a time when many plant Larch, I wish to give them a hint. By all means abjure the process, the fatal process, of merely opening a cut with a spade and "shoving" your young tree in it; I don't see how in the long run the trees can succeed, unless the soil is very friable. I always roll my ground before planting, and if any planter will go to the small extra expense of doing so, he will find the advantage in the long run to his pocket. It is far better if a man has 20 acres to plough and has not time to hole them all, to do one-half well and postpone the remainder until next season; in the long run, as I have said, it will be far better for his pocket. I generally hole some months beforehand, to give the pit the benefit of the atmosphere, &c., and as a proof of the advantage that I reap I can only say that when holed Larches and Larches simply placed in a cut have been planted side by side, where the latter have made but 1 foot or 18 inches growth in a year, the former have made in many instances 4 feet. *Taffy.*

Societies.

Linnean, *March* 17.—Prof. Bell, President, in the chair. H. Barth, L.L.D., and J. Quekett, Esq., were elected Fellows. D. Hanbury, Esq., exhibited specimens of the resin of Liquidambar orientale, commonly called Liquid Storax, prepared in the south-west of Asia Minor; also of the bark of the same tree after the extraction of the resin. The bark is used in the East for purposes of fumigation. G. Bentham, Esq., exhibited additional specimens of Cardamine hirsuta, in a proliferous state, received from Miss Llewellyn, of Penllargare, proving that the young plants take their origin from the surface of the leaf itself. The following papers were read:—1. "Description of a new species of naked-eyed Medusa, Thaumantius achroa, with histological details," by Dr. Cobbold. 2. "Notice of a new species of Strepsipterous insect, found on a Homopterous insect, sent from Borneo by Mr. Wallace," by J. O. Westwood, Esq. 3. A "Memoir on the germination of Barringtonia and Careya," by Dr. T. Thomson. After remarking that the internal structure of the seeds of these plants has long been a matter of doubt, the author briefly adverted to the several views which have been propounded, and showed that there are three distinct modes in which the structure has been regarded:—(1) as an undivided exalbuminous embryo, which is the statement of Blume, followed by Endlicher and Meisner; (2) as an embryo in the axis of copious albumen, which view originated with Gaertner, and was adopted by Hamilton, Roxburgh, Wight, and Lindley; (3) as an exalbuminous embryo in two layers, a view first promulgated by Wight and Arnott, and doubtfully adopted by Griffith. The opportunity of examining ripe and germinating seeds of these plants had enabled the author to arrive with some certainty at the following conclusions:—That the embryo of Barringtonieæ is exalbuminous; that the cotyledons are rudimentary; that the embryo is an axial organ, consisting of pith, woody layer, and bark; and that the plumule at first almost without scales is developed into a stem, while the opposite extremity elongates into a root. Notice was given of an alteration of the bye-laws, proposed by the Council, changing the days of meeting from Tuesday to Thursday.

Caledonian Horticultural, *March* 10.—This meeting is reported to have surpassed any spring exhibition ever before held in the north. The presence of numerous specimens from London was a novel feature. Mr. Cutbush, of Highgate, furnished some very fine Hyacinths in pots, and bouquets were added by Mr. Buck, of Covent Garden. The following is the prize list:—

Eighteen Hyacinths (by nurserymen), grown and shown in pots—1st, 2*l.*—Messrs. Dickson & Sons, with Emicus s.b., Voltaire s.w., Nimrod s.b., Triomphe Blandina s.w., Orondates s.b., Miss Ainsworth s.ro., Grand Lilas s.b., Grandeur à Merveille s.w., Charles Dickens s.b., alba superbissima s.w., Laurens Koster d.b., Grand Vedette s.w., Porcelain Sceptre s.b., Norma s.ro., Prince Albert s.b., Lord Wellington s.r., Prince of Waterloo d.w., Lord Wellington d.ro.; 2d., 1*l.*—Messrs. Cutbush & Son, with Mary Stuart s.w., Baron Von Thuyll s.b., Circe s.r., Grandeur à Merveille s.w., Nimrod s.b., Solfaterre s.r., La Tour d'Auvergne d.w., Bloksberg d.b., La Joyeuse s.r., Porcelain Sceptre, s.b., Mrs. Beecher Stowe s.r., Norma s.ro., Duke of Wellington d.ro., Queen Victoria s.ro., Waterloo d.r., Gra[illegible] Lilas s.b., Cavaignac s.r., Robert Steiger s.r.; 3d, 10[illegible] Mr. Alexander. Twelve Hyacinths, by practical garde[illegible]ers or amateurs—1st, 2*l.*—Mr. Henderson, gr. to C. K. Sivewright, Esq., with Lord Wellington d.ro., Prin[illegible] Albert s.b., Lord Gray s.ro., Laurens Koster d.[illegible] Nimrod s.b., Richardson, s.w., Lord Wellington s.r[illegible] Monsieur du Fæsch s.c., Madame Hodson s.r., Norm[illegible] s.ro., Grandeur à Merveille s.w., La Tour d'Auvergn[illegible] d.w.; 2d, 1*l.*—Mr. Douglas, gr. to J. Russell, Es[illegible] with Laurens Koster d.b., Grand Vainqueur s.w., Mo[illegible] Blanc s.w., Lord Wellington d.ro., Voltaire s.w., Baro[illegible] Von Thuyll s.b, Prince Albert s.b., Monsieu[illegible] du Fæsch s.c., Charles Dickens s.b., La dam[illegible] du Lac s.ro., Orondates s.b., Grand Vedette s.w[illegible] Prize by Messrs. Lawson & Son—1*l.* 1*s.* Six Hyacinthe[illegible] in pots, open to all—Mr. Henderson, gr. to C. K. Sivewright, Esq., with Norma s.ro., Grand Lilas s.b., Princ[illegible] Albert s.b., Nimrod s.b., Miss Ainsworth s.ro., Orondates s.b. A separate prize—10*s.*—was offered for the best six Hyacinths, grown and exhibited in glasses by nurserymen's shopmen. The first was assigned to Mr. D. O. Gardiner, Messrs. Dickson & Sons, who showed Rouge Eclatante s.r., Grand Vedette s.w., Prince of Waterloo d.w., Prince Albert s.b., Lord Wellington d.ro., La Tour d'Auvergne d.w. Best Plant of Camellia—1*l.* 10*s.*—1st, Mr. Lyall, gr., Pinkie House, with a fine plant of imbricata; 2d—1*l.*—Mr. Pender, gr., Moredun, also with imbricata. Best six Camellia blooms—1st, Messrs. James Dickson & Sons, with candidissima, fimbriata, alba plena, Fæsti, decus italicum, rubescens; 2d, Mr. Foulis, gr. to J. Tytler, Esq., with alba, Fæsti rosea, Fæsti alba, Pratti, imbricata, Saccoi nova. Best three Cinerarias—1*l.*—1st, Mr. Macfarlane, gr., Barnton, with very fine plants of the following varieties—Lablache (E. G. Henderson), optima (Hopwood), Scottish Chieftain (Sivewright); 2d, Mr. Reid, Broomfield, with optima (Hopwood), Fascination (E. G. Henderson), Scottish Chieftain (Sivewright). Vegetables.—For the best 12 stalks of Rhubarb the prize was gained by Mr. Reid, Rosebank, with Victoria. A second premium was voted to Mr. Porterfield for the same variety. For Seakale, a prize was awarded to Mrs. Brydone, Murrayfield. Three heads of Broccoli, for which there were three competitors—the first prize was awarded to Mr. Lauder, for Gillespie's Broccoli. Of Plants, Mr. Thomson sent from Dalkeith Palace the following:—Aspidistra elatior variegata, Dracæna ferrea, Maranta sanguinea, Seaforthia elegans, Phlebodium aureum, Saccharum officinarum, Pteris tremula, Livistonia chinensis, Calathea zebrina, Yucca Draconis, Corypha australis; in several instances two specimens of each variety. From the garden of S. Hay, Esq., came Rhododendrons, Azaleas, Hyacinths, &c. From Moredun, Azaleas. Mr. Macfarlane, in addition to the splendid specimens of Cinerarias to which the first prize was awarded, sent in six Cinerarias, admirably managed—one (Lady Paxton) measuring 9 feet in circumference. To these an extra award was assigned. Mr. Ritchie, Parsonsgreen, contributed Azaleas, &c. To one of the Azaleas an extra premium was voted, viz., Azalea Phœnicea—a magnificent plant, but somewhat deficient in flower. Mr. Laing, so well known for his successful cultivation of the Rhododendron, sent among other cut specimens "Bianca;" this was highly commended, and received an extra premium. Mr. Blair, gr., Mavisbank, had, among other plants, a fine example of Erica hyemalis; to this an extra award was made. Mr. Patterson, gr., Millbank, sent Rhododendron ciliatum. Mr. Lockhart, gr., Arniston, had a splendid specimen of Pultenæa subumbellata; this was one of the finest plants in the exhibition, extra award. New Grapes came from Mr. Baxter, gr., Riccarton. To these an extra prize was assigned. Dr. Knapp, of Inverleith Row, sent a small but interesting lot, consisting of Scilla Siberica, Iris reticulata (a perfect gem), and White Dog's-tooth Violet; to these an extra award was made. Mr. Sivewright had 70 Hyacinths, Primula sinensis, Rhododendron, Epacris Christisoni (very well bloomed), &c.; also an extra premium. Mr. Handasyde supplied among Conifers a fine specimen of Thuja gigantea. Messrs. Ballantyne & Son had a good plant of the female variety of Cephalotaxus Fortuni. A model of a gas apparatus for heating greenhouses was forwarded by H. Craigie, Esq., Falcon Hall. It was highly commended by the judges, who considered it likely to prove a valuable invention. Mr. Miller furnished a display of ornamental vases, flower pots, bouquet holders, &c., made of terra cotta and china. The designs in many instances were quite novel. Mr. Raeburn, architect, furnished several designs for different descriptions of horticultural erections. Designs of small greenhouses for amateurs were also furnished by Mr. Robinson, Canonmills. Mr. Douglas had a model of an Auricula stage. Mr. Henderson, gr. to the Duke of Atholl, exhibited a number of his patent brooms. Highly commended; extra award. Of garden tools Messrs. Ballantyne & Son had a number of American manufacture, remarkable for lightness and beautiful finish. The exhibition of implements altogether was good, and excited a large amount of public attention.

Notices of Books.

An Introduction to Cryptogamic Botany. By the Rev. M. J. Berkeley. 8vo, pp. 604, with numerous woodcuts. Baillière.

What are called Cryptogamic plants, that is to say such as are not furnished with stamens and pistils, and there-

fore not with flowers, probably constitute a full eighth part of the vegetable world, after making due allowance for innumerable repetitions of the same thing under different names. The latter circumstance arises not merely from the eagerness of naturalists to place differences in the same rank as distinctions, but from our imperfect acquaintance with the forms which the same thing assumes at different periods of its life. Many Cryptogamic plants are among the smallest that are known, their structure being unascertainable without the aid of a powerful microscope. Their modes of propagation belong to the obscurest phenomena in nature and the language employed in describing them has been little better than an incoherent jargon. To this day we remain completely in the dark as to the use of some of the organs with which they are furnished, and to the true analogy of those organs among each other. Cryptogamic plants are moreover second to none in their relative importance in the œconomy of nature. In their absence our ditches and ponds would be putrid, and the very ocean itself one universal Dead Sea. At the same time they are among the most deadly scourges of man, destroying his crops and poisoning himself, and producing greater political changes than even war and pestilence, for they supply the famine.

A book therefore which brings the whole history of these curious and formidable objects into one point of view, explaining their history, elucidating their structure, indicating their properties, and reconciling or binding together the loose and conflicting statements of other writers, is one of no small importance; its value indeed to the naturalist can hardly be overrated. Mr. Berkeley, the author of the volume before us, stands foremost in his own country in this difficult department of botany and among the foremost everywhere. His whole life has been occupied in its investigation, and all have recognised in the works he has published a most able and learned master. It was impossible that the task now accomplished should have been committed to more skilful hands. The fault indeed of the book, if fault it has, is that it overflows with learning.

The nature of the work is not very favourable to extracts, of which, indeed, we can only find room for one or two. The first shall relate to the question of spontaneous or equivocal generation, believed in by book-learned men ever since they knew how to construe the fourth Georgic, and the wonderful tale there of bees born in a bull.

"The various theories which have been mooted from time to time respecting spontaneous or equivocal generation, have been, for the most part, grounded on the development of Cryptogams, and of those animals which are lowest in the scale of creation. Such fancies, however, have by no means been confined to them, for no less remarkable phenomena occur occasionally among Phænogams, a few of which may be mentioned. It is, for instance, a well-known fact that on our eastern coast, when land is taken in from the sea by means of embankment, and the tide finally excluded, the first vegetation which appears is a crop of white Clover. When Heath is burned in many districts the same plant makes its appearance. *Sisymbrium Irio* covered every ruin after the Great Fire of London in 1666, and in many parts of the United States the certain follower of extensive conflagrations in the forests is *Lactuca elongata*, which, in consequence, is known by the name of Fire-weed. Now it would be quite as rational to suppose spontaneous generation in these cases as in those of Fungi, the lower Algæ, or Mosses. The woods in my own neighbourhood are sometimes blue with Columbines the year after the underwood is cut, though it may be difficult to find a plant at other times; and it is notorious that certain Orchids, as *Ophrys apifera*, *Epipactis latifolia*, &c., appear only periodically in situations which are sometimes quite naked, sometimes covered with Brushwood. But in these instances the overwhelming shade is quite sufficient explanation of the dormant seeds and tubers, and the other cases would admit probably of as easy a solution, were they studied on the spot. Now as regards Fungi and the lower Algæ, it cannot be denied that their appearance is often puzzling enough, but as much of the mystery which was formerly attached to the phenomena exhibited by intestinal worms has vanished under the investigations of Steinstrupp, Siebold, Van Beneden, &c., I doubt not that those facts which still appear so perplexing will admit some day of easy explanation. Wherever proper pains have been taken to exclude every possible source of error, no moulds or animalcules have ever made their appearance, without the possibility of the access of previous spores. After prolonged boiling and exclusion of the external air, as capable of conveying spores, or its admission only after first traversing some fluid, as sulphuric acid, which is destructive of life both in the animal and vegetable world, and therefore would char any spore that the air might contain, not a living molecule has ever originated in any organic substance of fluid charged with organic matter. And the same may be said of reputed metamorphoses of Algæ into Fungi, and the contrary; both notions rest either on imperfect observations, incomplete knowledge of the objects themselves, or confusion respecting the proper limits which separate the animal and the vegetable world. They were, a few years since, almost universal in Germany, and were received with favour by a few French Botanists, but have never gained much ground amongst ourselves, except in popular belief. In France and England at the present time they are all but exploded, and I am happy to see that German botanists are beginning to follow in the same direction. Some, however, still lean to the old notion, as, for example, Dr. Cohn, in a late article on the mould which is so fatal to flies in autumn, and which he supposes to arise by a free development of vegetable cells in the diseased blood. With respect to parasitic Fungi, which have been regarded either as mere metamorphoses of the parent cells, or as spontaneously generated, it must be borne in mind that one species at least, *Tilletia Caries* (the Common Wheat Bunt), may be propagated by the spores at will. The infected plants are at once distinguishable from those which have had no contact with the parasite; and, though not the slightest trace of fungal threads can be found in them, it is quite certain that something capable of reproducing the species is present, either in the intercellular passages or protoplasm. This is applicable to hosts of Fungi of very different affinities which protrude through the tissues of decaying branches. In the case of *Botrytis infestans*, the Fungus which is, in my opinion, the proximate cause of the Potato murrain, the walls of the cavities of the carpels of Tomatoes are often covered with the fungus, though there is no communication with the outward air; and a crop of the mould has been seen to grow in a few hours from the cut surface of a diseased Potato, even though the foliage itself had exhibited no traces of the parasite. Were spontaneous generation true, and plants produced like chemical substances from inorganic matter, according to definite laws, the species would, in all probability, admit of far more accurate definition: at any rate the species of Cryptogams in general are not more certain than those of Phænogams. Some, however, maintain, on the contrary, that there can be no certain species of Cryptogams on this account. There are, however, in no part of Botany more certain species than those of the higher *Hymenomycetes* when properly understood, especially, as Fries remarks, in the genus *Cortinarius*."

A second extract concerns the curious apparatus known vulgarly by the name of spawn, and in science as *mycelium*, and which may be regarded as the equivalent of root leaves and stem fused into one common body in the order of Fungi.

"In all Fungi there is a portion, consisting either of threads, or more or less closely compacted cells, arising in the first place from the processes put forth by germinating spores, and increased by their division and further development, to which the name of mycelium has been given. This may consist of cottony threads of extreme delicacy, or of closely compacted horny membrane; but still its office is the same, and it may exist in either form without producing fruit, exactly as a tree may remain barren in a soil or climate which is not congenial. In some cases, as in the substance called *Xylostroma gigantium*, it forms sheets as thick and dense as leather, destroying wood of the firmest and most solid tissue, without attempting to produce a pileus; and parallel cases, as in the mycelium of some of the larger *Sphæriæ*, may easily be found amongst the black and ascigerous forms. There can be neither a perfectly free mycelium, nor free organs of reproduction, except in aquatic or aërial species, which are of very rare occurrence. Even if floating, there will be something in the shape of roots, and the spores will always spring directly from the threads, or be formed within the threads, at the expense of the endochrome. It is very true that the yeast plant may be indefinitely increased by constant pullulation of free floating cells, without a trace of rootlets, and for this reason it has been considered as an Alga. But as it has been proved by myself and Mr. Hoffman, by following up the development of individual yeast globules in fluid surrounded in a closed cell with a ring of air, that the proper fruit is that of a *Penicillium*, and as this *Penicillium* has, on more than one occasion, been observed to grow on fermenting matter, it is quite clear that yeast is merely an abnormal state of a Fungus, very different in habit, and forced into a peculiar mode of development by its submerged position. I believe equally that *Saprolegnia* and *Achlya* mentioned above, with their active zoospores, are mere submerged states of species of *Mucor*. There are, besides, a whole host of mycelia produced in vegetable and mineral infusions referred to Algæ, which are nothing more than submerged confervoid forms of species of *Penicillium* and *Aspergillus*, very commonly of the two most ordinary kinds. In general, however simple in structure as the lowest may be, and there are many that apparently consist only of a single cell, there is, as said above, a more or less apparent system of threads or cells (mycelium) from which they spring, traversing frequently the tissues of the matrix, and discoverable only by close microscopic investigation; and even if there be cases where no mycelium exists, a fact of which I very much doubt the reality, or even the possibility, though the mycelioid system may be reduced to an extremely low degree of development, there is usually a definite arrangement of the spores, a point very easily recognised, except in the very rare cases in which, by repeated division, they are apparently indefinite. The fact, indeed, is, that in the greater number of Fungi, the fruit bears a very high proportion, indeed, to the vegetating part or mycelium. But the enormous pileus of the Horse Mushroom does not bear a larger ratio to its mycelium than the bud of a *Rafflesia* to its thallus, if such it may be called. The two cases, in fact, are strictly analogous."

With a few words on the Fungi producing dry rot our notice must close.

"The size which is attained by some of these productions is enormous. Even in Great Britain, *P. fraxineus* is sometimes a yard across, and some of the softer species form masses large enough to fill a common cart. *Boletus edulis* is much esteemed as a delicate article of food, and some of the *Polypori* are esculent, but their close texture makes them, for the most part, very indigestible. Several species of *Polyporus* are used for tinder or moxa, while others form excellent razor strops. *Polyporus officinalis* is a well known purgative, the use of which is, however, now superseded by better remedies. Many of the species are very destructive to trunks of trees. It is true that in the first instance they grow on parts which are diseased, but their mycelium spreads with great rapidity, and the moment any growth of this kind appears the tree should be felled, or, if the tree is important as ornamental timber, the affected parts should be carefully removed, and a strong solution of sulphate of copper or corrosive sublimate be applied. A few of the species, moreover, are extremely destructive to wooden fabrics, the only remedy against which is perfect ventilation, winter felling, or, if this be out of the question, impregnation with such chemical substances as are destructive to the growth of fungi. *Merulius lacrymans* is perhaps the worst of these, as its mycelium attracts moisture. A cellar which has long been dripping from its prevalence will soon become dry when a strong wash of corrosive sublimate is applied."

The first part (price 1s.) of an *Index Filicum* by Mr. Thomas Moore has just been issued by Pamplin, and the work will appear monthly, containing the characters of the genera, and an enumeration of the species belonging to each. From what we see in this first part we anticipate a work not only of much general convenience but of great scientific importance, especially if, as we believe is the case, the author has the courage to attack the insane practice of calling every trifling instance of deviation from customary form, a species.

The subject is introduced by an analytical synopsis of the sub-orders and tribes into which Mr. Moore thinks the order itself should be divided, after which appear the genera with the technical characters by which each is known. Let us hope that these too are to be analysed, so that a student may know what the differences really are that divide one genus from another. If the differences are distinctions, this can be easily done; if it is not done, Mr. Moore will hardly do justice to himself.

The work is well and clearly printed, and in the present rage for Fern growing will, we doubt not, meet from the public with the favourable reception which it deserves.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green—Mr. M'Ewen, the new superintendent, was placed in charge of this establishment on the 2d inst. Since then he has suggested to the Council certain ground-work alterations which have met with their approval and encouragement. Among the first things to which attention has been directed has been the improvement of the walks in the arboretum. It has been considered expedient to have a re-arrangement of the material of which these walks have been made, and at the same time to reduce their convexity of surface and widen them about 3 feet. The one leading from the conservatory to the large iron tent has been selected for the experiment. A number of extra labourers are at present employed on it. The whole of the gravel has been turned up and screened; where the turf has been removed along each side for widening the walk, drains have been formed; these and the bottom of the walk are tobe filled up with rough material, such as brickbats and the very coarsest gravel; on the top of the latter a stratum of somewhat finer gravel will be laid; while, above all, are to be placed the very finest of the siftings. The latter, spread thinly, and well rolled down, are expected to bind well and form a smooth and good surface, which will not be permitted to rise higher in the middle than the height of the surrounding lawn, which along the sides of the walk is to be properly levelled so as to form a neat edging. It is intended that most of the beds on the east side of the arboretum shall be altered in shape, that there shall be a rearrangement of the Coniferous plants planted there, and that the shrubbery which bounds that part of the garden shall be so managed as to present bold points and recesses instead of the zigzag outline it has at present. It is hoped that Hollyhocks may be obtained in sufficient quantity to form a prominent feature in this shrubbery, which may thus be made to present a gay and attractive background to the plants in the beds in front of them.

The American garden is also being altered and increased in extent, and in order to induce people visiting other portions of the grounds to turn their steps in that direction, the walk between it and the conservatory is to be lined with standard Rhododendrons which when in flower will doubtless produce a brilliant display quite in keeping with the character of the grounds of which they are intended to form a part.

The kitchen garden is to be almost exclusively devoted to the proving the merits or demerits of the different varieties of esculents, the seeds of which are to be classified and sown side by side, so that persons interested in such matters may see and judge for themselves. This will be found a matter of much importance

to the public, pointing out as it will do at a glance not only what is best of its class, but also the synonyms belonging to each particular variety.

The orchard this season is to be cropped with vegetables between the lines of fruit trees; for not only here, but also other departments of the garden are to be so managed as to render it as far as possible self-supporting, and in this Mr. McEwen is very enthusiastic of success. Before the cropping commences, however, a portion of the surface soil is to be pared and burned, and the ashes strewed over the ground and dug in. The burning is effected as follows:—a heap of faggots, prunings, and other garden refuse is piled up together, so as to form a cone; this is covered with the surrounding soil to the thickness of some 18 inches, which are charred and burned by setting fire to the wood in the middle of it. One ton of wood, it is said, will burn 3 tons of soil; therefore by erecting and firing several mounds simultaneously in the way just described a large amount of burnt earth may soon be obtained, and if saturated with liquid manure it becomes an excellent fertiliser. It is also a good plan for getting rid of slugs and other vermin.

As regards the large conservatory, Mr. M'Ewen has an idea of converting it into an ornamental house for fruits as well as plants, and thus make it valuable to the Society in a pecuniary point of view. It is intended that Vines shall be trained so as to produce the best possible effect. They are to be bent so as to form arches over the two side paths already in existence; and up the middle of the house a grand central promenade is to be made, which is also to be arched over with Vines. Along the sides of these paths standard Peach and other fruit trees are to be introduced, and such flowering plants, already in the house, as are at once showy and effective, are to be permitted to remain undisturbed where they are. This arrangement, it it expected, will not only add considerably to the funds of the Society, but will prove to be a source of much interest. Some of the other houses, we understand, are also to be made useful as well as ornamental. The curvilinear stove is to be chiefly devoted to the growth of Ferns, a tribe of plants the Society is desirous of encouraging. The Royal Gardens, Kew, we believe, have already furnished this house with a great many specimens which have been got in exchange for other plants. In time, therefore, Ferns may be expected to form an interesting feature of this establishment.

Of further improvements to be effected in these gardens we must report more fully hereafter. From what we have recorded, it will be seen that they are about to be put in a state of efficiency they have not hitherto possessed. Every thing new as far as is practicable is to be tried and proved in them. Novelties in flowers, vegetables, and fruits should therefore be forwarded to Mr. M'Ewen at once, in order that their true value may as far as possible be ascertained during the forthcoming season.

It may be mentioned that fruit trees, especially those on walls, show abundance of blossom buds; on the Peach wall 9 inch coping boards have been put up, and in some instances Harrison's netting and straw coverings have been applied; but the weather has hitherto been so favourable that little protection has as yet been required.

An apparatus for determining night temperatures at different altitudes has been erected in the kitchen garden. It consists of a pole 30 feet in height with registering thermometers attached to it, one at the top, another 24 feet from the ground, a third 18 feet from ditto, a fourth 12 feet, a fifth 6 feet, and a sixth nearly at the ground. On the morning of the 13th inst. the thermometer on the ground indicated 28°, at 6 feet high 31°, and at 12 feet 32°, making a difference of 4° in that height. On the 16th the difference of warmth between the same height and the ground was 8°. The practical lesson to be learned from these facts will be obvious. They serve in some measure to explain the reason why blossoms have been killed by spring frosts on dwarf fruit trees while those on tall standards have escaped, and also the necessity of protecting the leading shoots of the more tender Conifers and other favourite plants in severe winters until they have grown at least 12 feet in height. From that to 30 feet in height the temperature has hitherto been found to be the same. As yet, however, these experiments may be said to be but in their infancy.

Miscellaneous.

Cambridge Botanic Garden.—We have before us the last report of the Syndics, dated Feb. 21, from which it appears that this establishment is progressing satisfactorily. The receipts having been 265*l.* against 725*l.* expended, the University chest has been called upon for no larger a sum than about 459*l.* The Curator states that a large number of persons visited the garden, and that their behaviour has been "highly satisfactory."

Turkish Cement.—The Turks use common red earthenware pipes, with socket joints, to convey water from springs to reservoirs and fountains. They make and use mortars and cements as under:—Mortar: Fresh slaked hydraulic lime, one part, by measure; pounded brick or tile, finely sifted, one part, by measure; chopped tow, sufficient to mix into the consistency of ordinary hair mortar;—the ingredients to be mixed dry immediately before use, and then to be well incorporated by the aid of water;—the mortar to be used fresh. Cement: Fresh slaked hydraulic lime, one part, by measure; pounded brick or tile, finely sifted, half part, by measure; chopped tow as above;—the whole mixed with oil, in place of water. The earthenware pipe-joints are made water tight with this cement. *Builder.*

Calendar of Operations.

(*For the ensuing week.*)

PLANT DEPARTMENT.

Conservatory, &c.—A thorough revision of plants in the different houses where plant growing and forcing are carried on in a mixed way is necessary some time during spring, and the present is as good a time as any for the operation, the shutting up of late Vineries or Peach houses generally offering facilities for this arrangement, and of course for relieving the other structures. Exhausted forcing stock should by all means have a pit or frame fitted up especially for it. It should by no means be allowed to mix with the general stock. The amateur may carry out this principle with a small frame. A bed of fermenting material of a mild character covered 6 or 8 inches deep with tan, and well topped up with linings and mattings at night, is the thing required. A bottom-heat of 80° with frequent syringing and the plants plunged, of course, will restore them to perfect health and prepare them for another campaign. Orchids should now be allowed a slight advance in temperature, especially by shutting up early. Fuchsias will be benefited by the application of clear liquid manure. Very liberal shifts will be necessary at this period, more especially with those intended for very large specimens. Cinerarias for late blooming should, if pot bound, be shifted; likewise let plants in need of water have immediate attention—nothing conduces more to the encouragement of insects than suffering plants to become checked through drought. By starting Camellias into growth about this time, and getting their wood ripened early, they will be in full blossom in November, at which season their flowers retain their beauty much longer than after the sun becomes powerful in spring. Proceed as diligently as possible with the repotting of such of the hard-wooded greenhouse plants as require it, so as to afford them every chance of making a vigorous growth. Be careful, however, before potting, to have the ball in a nice moist state, and avoid giving large shifts to weakly growers.

FORCING DEPARTMENT.

Pineries.—Attend carefully to the bottom-heat, particularly where this is produced by fermenting materials, as tan, &c., and see that it is not allowed to rise too high, which it is exceedingly apt to do after fresh materials have been added, either during bright weather, or where there are pipes under the bed. Where much fire heat is used it requires some practice and attention to be able to keep the soil in a proper state as regards moisture, but this must be effected at any expense of attention if success is to be insured. Maintain a thoroughly moist atmosphere, but do not push young stock too fast until we may be favoured with more sunshine, when if all is right at the roots there will be no danger of drawing the plants, as would be the case in the present state of the weather. Avoid allowing water to lodge in the hearts of plants showing fruit, and spare the flowers of those in bloom with the syringe. Pot off or plant out suckers as they can be obtained sufficiently strong, and attend to keeping up a regular succession of plants, which is the surest way of providing for a succession of fruit. Vineries.—See that the houses in which the Vines are not yet started are properly cleansed, the Vines painted with the usual composition of soft soap, sulphur, &c., and everything put into proper working order; also get the rods bent in time to induce the buds to push regularly. Attend to disbudding and stopping, &c., as may be necessary in the succession houses, and see that the inside borders are kept properly moist, giving tepid manure-water as may be necessary to effect this, and do not be afraid of giving too much of this to Vines in pots.

FLOWER GARDEN AND SHRUBBERY.

This is an excellent time to sow a good collection of Annuals, whether hardy or tender. For the latter a slight hotbed is requisite. The more choice hardy Annuals should be sown in patches and covered with a garden pot, taking care to remove it when they are coming up in the day time, covering them at night. If any rough or unimportant shrubbery borders require a little gaiety and business presses, a mixture of some of the hardier sorts might be made such as Collinsias, Clarkias, Escholtzias, Mallows, Larkspurs, and Candytufts, &c., strewed at random over the open parts of the border after a thorough cleaning. Dahlias should be increased without delay, and an early batch of Chrysanthemum cuttings or suckers put out. Lobelias should be potted and put into a dung bed. German and ten week Stocks should be sown in fresh soil in a cold frame or one that will soon cool down, and a few early German Asters on a slight heat. Let walks out of order be turned forthwith, and fresh coated with gravel. Follow up matters of propagation, and see that cuttings of young stock are carefully shaded when necessary.

HARDY FRUIT AND KITCHEN GARDEN.

See that recently transplanted trees are not suffering for want of water; this, however, will hardly be the case, except on dry porous soils, and in such cases the ground should be mulched with decayed leaves to preserve it in a uniformly moist state. Attend carefully to the protection of the blossoms of all fruit trees; where nothing better or more convenient can be obtained, Yew or Spruce branches will be of service, provided they are so fixed as not to be liable to be blown against the blossoms. Remove the covering as frequently as may be convenient on fine days, so as to fully expose the trees to sun and air. Get a supply of tobacco water in readiness to attack aphides immediately they make their appearance on Peach trees. Sow Broccoli on beds of light rich soil in an open situation for the main crop, and Cabbages, Cauliflowers, Lettuces, &c., in succession. Also attend to sowing small breadths of Turnips about once a fortnight, so as to secure having a regular supply in a fit state for use. Put in a small breadth of some early variety of French Bean on a warm dry sheltered border, and plant a quantity in small pots to be raised in a cold frame and planted out as soon as all danger of frost is over. Use the hoe liberally among growing crops to destroy weeds, and keep the surface soil loose and friable.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending March 19, 1857, as observed at the Horticultural Garden.

March.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain in inches
Friday 13	16	29.806	29.519	45	33	39.0	42	41	S.	[illegible]
Satur. 14	17	30.096	29.051	57	40	48.5	42½	41	S.W.	[illegible]
Sunday 15	18	29.805	29.311	58	27	42.5	44½	41½	S.W.	[illegible]
Mon. 16	19	29.995	29.949	54	25	39.5	43½	42	S.W.	[illegible]
Tues. 17	20	29.860	29.759	58	31	44.5	44	43	S.	[illegible]
Wed. 18	21	29.751	29.717	65	44	54.5	44½	42½	S.E.	[illegible]
Thurs. 19	22	29.830	29.880	56	47	51.5	46	43	S.E.	[illegible]
Average..		29.877	29.598	56.1	35.3	45.7	43.8	42.0		[illegible]

March 13—Fine; slightly overcast; fine.
— 14—Boisterous with rain; hot sun at intervals; cloudy and boisterous; rain.
— 15—Clear; cloudy; fine; boisterous at night.
— 16—Clear and fine; low dusky clouds; fine; frosty.
— 17—Frosty; foggy; very fine throughout.
— 18—Slight fog; very fine; cloudy.
— 19—Rain; drizzly throughout.

Mean temperature of the week 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending March 28, 1857.

March.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	50.6	35.5	43.0	15	0.44 in.	6	3	3	2	5	6	4	1
Mon. 23	50.0	34.1	42.1	14	0.60	6	6	2	1	4	7	3	2
Tues. 24	49.4	31.0	40.2	10	0.11	4	5	4	—	4	2	3	7
Wed. 25	49.9	32.6	41.2	11	0.50	3	9	4	—	3	2	3	4
Thurs. 26	51.3	32.4	41.8	12	0.17	—	6	5	3	4	4	3	6
Friday 27	53.5	33.5	43.5	10	0.37	1	8	4	3	2	5	10	—
Satur. 28	52.8	33.3	43.0	11	0.68	2	7	6	2	3	3	6	2

The highest temperature during the above period occurred on the 4th 1830—therm. 75 deg.; and the lowest on the 25th, 1860—therm. 14 deg.

Notices to Correspondents.

Araucaria (*not* Auracaria): *J H.* We should think this might be moved at any time in a place so damp as Kendal. The autumn (September) is the best time. A very large specimen must be treated with great care and skill, and must be well secured afterwards by poles arranged in a triangle. It ought thus to be safe.

Books: *E. S.* Loudon's Arboretum Britannicum is the most complete work we have on the trees and shrubs in cultivation. Nothing has since appeared except Carrière's French work on Coniferæ generally. For Kitchen Gardening consult G. Lindley's Orchard and Kitchen Garden, or Macintosh's Book of the Garden.

Cucumbers: *Cucumis.* Cuthill's Treatise on the Cucumber will best answer your purpose. His Black Spine is a capital variety for general purposes; if you want a long sort take Ayres' Perpetual.‡

Erwood: We have received a letter from this person denying that he is a Haggler, and asserting that he is a "Commission Salesman." Having stated this at his desire we decline inserting anything further about him.

Evergreens: *J F.* You may as well ask us why animals cast their hair, or reptiles their skin, or birds moult their feathers. We are quite unable to give you any information upon the subject. We do not see how Oaks are to cast their leaves in winter, in countries which have no winter.

Hibiscus esculentus or Ochro: *Sub.* In England this is a tender Stove plant very apt to be attacked by red spider, and not cultivable at any expense proportioned to its value.‡

Larch Seed: *Larix.* Sow it now. It will come up as soon as the weather is warm enough.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W.* Some kind of Eria quite destroyed in the letter bag of the Post Office.

Rock Plants: *R.* Aubrietia, Arabis alpina, Alyssums, Musk, Saxifrages, Soldanella alpina, Sedums, Erinus hispanicus, Saponaria ocymoides, Aquilegia Skinneri and perhaps glandulosa, Primulas, Verbenas, Petunias, the small blue Lobelias, Violets, and hardy Ferns will be found suitable plants for the decoration of rockwork.‡

Roses: *An Old Sub.* Rosa Devoniensis prefers a south-west wall to any other. No Roses flower well on north walls; you may try the Common China or the Ayrshire, Manettii, De Lisle, or any other having much European blood in them. To these you may add Forsythia, Jasminum nudiflorum, Rhododendrons, Azaleas, Glycine sinensis, Pyracantha, Fuchsia Riccartoni; any of the small-leaved Cotoneasters, Pæonia Moutan or other Pæonies, Clematis Flammula.

Rustic Work: *V O W.* We are unacquainted with makers. Our object in publishing the cuts is to enable country carpenters or cottagers to make such things themselves. Any handy man would soon put No. 14 together in a place where rough branches are to be had.

Vine Leaves: *C W A.* They are evidently suffering from want of ventilation and too damp an atmosphere. More air and sunlight will be found to improve their condition.‡

Misc.: *A B* will feel obliged by some of our correspondents recommending him a machine for lifting early Potatoes. He is anxious to expedite the lifting of Early Shaws, and the fork he finds to be rather slow for that business. He also wishes to be informed as to their experience in making the yeast cakes recommended by Cobbett. These cakes, he adds, are made of Wheat, Indian Corn, and Rye flour, and dried slowly in the sun.

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EDWARD PURSER, Secretary.

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"J. THOMAS WAY,
"To Mr. Chisholm. 11th February, 1857."

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SULPHATE OF AMMONIA AND SULPHATE OF SODA, powerful fertilisers, as used by Manure Makers and Farmers, on SALE, by READ HOLLIDAY, at the Turn-Bridge Alkali and Naptha Works, Huddersfield, and 128, Holborn Hill, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*: Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

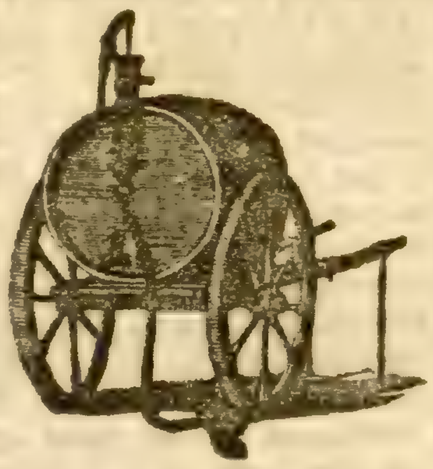
SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with Ball Valve, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 *ft.* high.

1¼ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

BY ROYAL LETTERS PATENT.

GREEN'S PATENT LAWN-MOWING MACHINES.

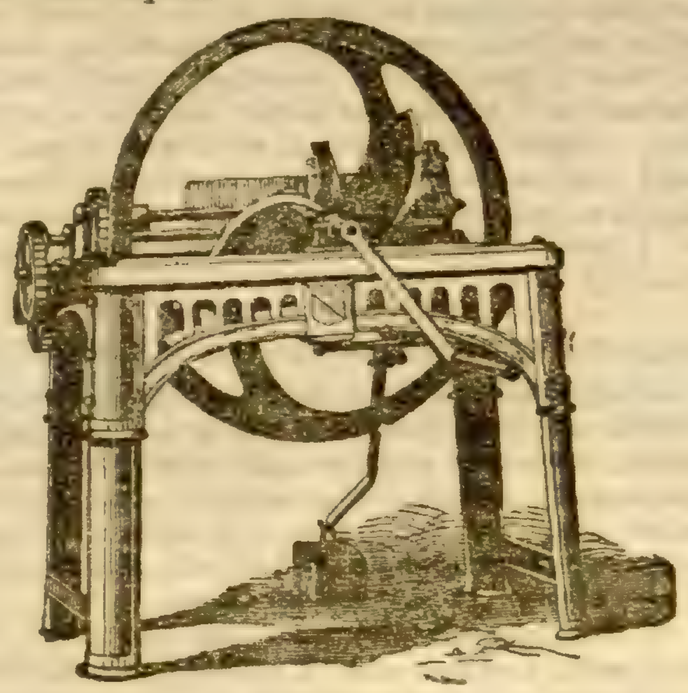
THOMAS GREEN respectfully invites comparison and trial with any other pony or hand machine now in use; they produce superior work with much less labour; they are the most perfect Machine extant. Illustrated Price Lists and Testimonials may be had on application to the Manufactory, Leeds, Yorkshire; also Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."—*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.
PRESTON MEETING, 1856.
AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—
The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—
The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street, Liverpool.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness Prince ALBERT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
Professors, &c.
Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, & Mathematics—J. A. Jarman, C.E.
Manager of Farm—J. Coleman.
Assistant to Chemical Professor—A. Sibson.

Students are admitted after the Summer and Winter Vacations—also in April and October. Fees for boarders:—under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for out-students is 40*l.* per annum. The College Course of Lectures and Practical Instruction is complete in one twelvemonth, though a longer course is recommended. There is a department for general as well as for agricultural purposes. Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

The Agricultural Gazette.
SATURDAY, MARCH 21, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, March 25 { Agricultural Soc. of England .. Noon. / Society of Arts ..... 8 P.M.

IN reference to the Poissy show next month, and the programmes respecting it, one of which states that the ages of animals are to be calculated to the 15th March, the other that they are to be calculated to the 1st of January last, we learn from Mr. BRANDRETH GIBBS that he has received, through the Consul-general of France, a copy of a communication from the French Government, which is to the following effect:—1st. That the age of the animals must be calculated to the 1st January, 1857; 2d. That a Prize of honour will be awarded to the best fat ox among all the foreign prize animals in the show without distinction as to breed, age, or weight, and either belonging to a foreigner or French exhibitor, provided it be really foreign bred (*à l'étranger*). If the animal to which this prize of honour is awarded is *bred by the exhibitor*, that prize will consist of a Silver Cup, value 2500 francs (100*l.*), but if the animal has only been fed by him, then a large Gold Medal will be awarded.

A Prize of honour will also be awarded to the best lot of prize foreign sheep. If bred by the exhibitor it will consist of a Silver Cup, value 1200 francs (40*l.*); but if they have only been fed by him, then a large Gold Medal will be awarded.

ONE of the most curious evidences and results of an entire ignorance as regards the meaning of a chemical analysis was given by Dr. VOELCKER in his lecture on ARTIFICIAL MANURES at Taunton the other day. It appears that in the West of England manures have been sold by men who have safely traded on the ignorance referred to. They have presented a true statement of the composition of the material which they offered, signed by Dr. VOELCKER or by Mr. WAY, and the name alone of the chemist was taken by their dupes as a guarantee of its quality. Irrespectively altogether of what it was to which they certified, the signatures on the certificate were held to be sufficient safeguard.

The certificate in question was a testimony to the worthlessness of the material offered, to all who understood it; but the agent used it pretty much as elsewhere a "charm" is used: "Dr. VOELCKER's name never could be used to cloak dishonesty," and so the unfortunate purchasers were duped. Silica and "organic matter" and sulphate of lime, especially if it be "hydrated" *or* "anhydrous" are high sounding terms to unaccustomed ears—quite as scientific in their way as ammonia or superphosphate—and an analysis certifying their existence might well be used to justify a charge of at least 10*l.* a ton!

Some explanation given for the hundredth time seems therefore needed to make the analyses, which we wish to see much cheapened, of any value to the trade.

The lecture by Professor THOMAS ANDERSON before

the Highland Society the other day, and reported in our columns, is in itself sufficient explanation. A manure is effective because it adds certain substances to the soil, of which the supply there is deficient in relation to the demand for them by the crop. The substances of which the supply under ordinary circumstances is least as compared with the demand by our ordinary crops are not silica or organic matter or sulphate of lime—they are nitrogen in a form in which plants can use it, and phosphorus in a form in which plants can use it; hence the soluble salts of ammonia for the one purpose and the soluble superphosphate of lime for the other are specially valuable in manures; and these are the substances which must be looked for in analyses of manures.

A gentleman who undertook at Taunton to give Dr. Voelcker a lecture on the responsibility of his office as a lecturer seemed to forget the double responsibility resting on himself in the same capacity as well as in that of a manure dealer—if one might judge from the confidence with which he urged his opinions upon the audience in contradistinction to those which the Professor had just been advocating. And the prominence given by him to the gradual decomposition of organic matter in the soil, and to the presence of gypsum there—the comparative unimportance attached to the "some portion of ammonia which the *Turnip crop* required," and the insignificant position too given to the phosphate of lime "for the *Wheat* crop" which is to be had from the gradual decomposition of "the woody fibre"! of the fresh dung—all these statements and assertions are just the very food on which mistaken opinions as to the nature and the office of purchased manures extend and flourish. The organic matter and gypsum, and the "woody fibre" of fresh dung with its products on decomposition, have to be supplemented in those particulars in which as the food and building material of a heavy crop they are deficient, and these are just that ammonia and that phosphoric acid to which Dr. Voelcker had been directing, and from which his reviewer attempted to divert, the attention of his hearers.

Let its analysis state what it may, if a manure do not contain these ingredients it will not be generally useful—and it is just in proportion to the quantity of these two ingredients present in it that it will be generally useful.

An analysis published along with the trade circular will mislead if it be not understood, and the word "guarantee" which is now being generally used, having a still more satisfactory sound, has a double responsibility resting on it; but the utility of either depends wholly on the value of the analysis and of the thing guaranteed being understood. Ammonia is worth 56*l.* to 60*l.* a ton in the market just now. Phosphate of lime can be purchased for 7*l.* a ton in some of its forms; the superphosphate of lime can be had from 26*l.* to 30*l.* Let us take the higher price in every case and estimate the actual value so far as regards these, the essential ingredients of some of our manures. Mr. Lawes intimates that he has had his bulk of superphosphate analysed by Mr. Way and Dr. Voelcker, and it contains 24 per cent. of the soluble phosphate, and 8 per cent. of insoluble phosphate; 100 tons of it according to those figures should be worth 720*l.* in respect to the former and 56*l.* in respect of the latter ingredient, or 7*l.* 14*s.* per ton; he sells it at 7*l.*

Now, we have before us the guaranteed composition of the National Guarantee Manure Company's manures. Their so-called "concentrated manure" contains 17 per cent. of soluble phosphate, 5.8 per cent. of insoluble phosphate, and nitrogen equal to 4 per cent. of ammonia. In respect of these ingredients 100 tons contain 510*l.* worth of the first, 40*l.* of the second, and 240*l.* of the third: the manure therefore in respect of these three ingredients is worth 7*l.* 18*s.* a ton, they sell it for 9*l.* a ton. Are the other ingredients, the so-called "organic matter," "hydrated sulphate of lime," "alkaline salts," &c. &c., worth the difference? We do not think that they are; but that is the question which must decide the cheapness or dearness of the so-called "concentrated" manure. Their superphosphate for Cereals is guaranteed to contain 15 per cent. of soluble phosphate, 4.3 per cent. of insoluble phosphate, and nitrogen equal to 2 per cent. of ammonia. Calculating in like manner, its worth comes out as 6 guineas a ton; it is sold at 7*l.* 10*s.* a ton. Their superphosphate for Turnips contains 19 per cent. of soluble phosphate, 6.2 per cent of insoluble phosphate, and rather more than 1 per cent. of ammonia. Its value, according to that of the ingredients in the market, comes out as "rather more" than 6*l.* 14*s.* a ton—they sell it at 7*l.* 10*s.* Now, it is very possible that the market value of the "guarantee," combined though it be with conditions which must render it of comparatively little use,* may exceed the difference between the calculated and the advertised cost of these manures—that is to say, it is very possible that on the average of manure purchases the actual value may fall below the real by a greater difference than that here specified.

But it is only fair that those who put forth guarantees, and warrant the composition of their manures in order to secure custom for them, should be subjected to as close a criticism as their rivals in the trade. The very sound of 'guarantee,' and the very sight of the figures attested by such names as Way and Voelcker, is of itself calculated to inspire confidence, and we must look jealously that it be not misplaced.

THE CATTLE DISEASE.

I am very anxious to solicit your continued exertions towards keeping away from us the fearful cattle disease now raging in several of the German states. It is a common failing among agriculturists to exhibit almost a total indifference to matters deeply affecting their prosperity, and hence the little stir which has been made by them on this most important subject. A few questions have been asked in Parliament; some notice has been taken of this dreadful scourge in the discussions at the Royal Agricultural Meetings, and with a few passing remarks from the press the subject seems to have exhausted itself. But surely a matter so closely affecting the whole community deserves more serious consideration, and ought to command greater energy in the means adopted for preventing the introduction of an illness so fatal in its character, and hitherto unknown among our stock. As I am persuaded that part of the indifference shown on this subject arises from a very imperfect knowledge of the fatal character of this disease, I would beg a little space for a few words on that point. From information now before me, and obtained from a reliable source, it seems this disease is most rapid in its progress, and its fatal character may be best understood by its being stated that in its effects it approaches more nearly to Asiatic cholera in the human subject than anything which has yet been observed among animals. The parts diseased are the stomach, bowels, &c., the excretions are described to be most offensive in smell, and the contagion spreads with rapid and great virulence. More than one in every five of a large herd died, and the injurious effects on those which ultimately recover will need no description to a practical farmer. Now if what I have stated be a plain and not an overdrawn statement, surely prompt and vigorous measures ought at once to be adopted to keep, if possible, this scourge from our herds.

It is probable that from our insular situation this great advantage might be gained if prohibition against the importation of all cattle from the continent was at once enforced. It will not do to except certain districts, because the disease is certain to find its way into all the adjoining countries, and will exist to a considerable extent long before its presence there is known to us.

Surely every Farmers' Club, every Agricultural Society in the kingdom should consider this subject sufficiently important to justify special meetings where resolutions should be passed, and should immediately be presented by the most influential landowners, &c., to Lord Palmerston to urge the immediate adoption of stringent measures for the prevention of the introduction of this much dreaded disease. I know it may be said that present prices of butchers' meat justify us in getting beef from every country where we can obtain it, and that to prohibit its importation would certainly advance beef beyond what is now felt to be a very high price. To this I reply that if the disease is ever introduced into our herds, we may in one week lose more animals and of much greater value than all we import for a year. *H. J. Turner, Richmond, Yorkshire, March* 11.

RELATIONS OF BIOLOGY† TO AGRICULTURE.

Biology yields to none of the sciences in industrial importance. Translated into practice, it gives us agriculture, an art so peculiar and extensive, that, like medicine, it demands all the energies of an entire profession. It is not my province to discuss agriculture, but there are certain industrial aspects of the biology on which it reposes, requiring notice here.

Animal force is of immense importance to all the useful arts; first as a motive, secondly as a transformative power. In these days of railways and steam-engines we are apt to think too lightly of our horses and other beasts of burden, forgetting that without them we could not construct the engines which to some extent are supplanting them, and that they themselves are the best of engines for many purposes. James Watt and George Stephenson, I am sure, respected even a donkey; and were the last of its race to die, we might all join Sterne in weeping over the dead ass. We do not sufficiently remember that all other machines are the offspring of living machines. A steam-engine is the literal as well as the metaphorical embodiment of so much horse-power. A railway viaduct is the petrifaction of so much animal force. A power-loom, after its last improvement, remains still a hand-loom. Archæologists tell us, that in far separate regions of the world, you find stamped on the monuments of forgotten races the impression in red of a human hand. But we need not go to distant lands and the works of extinct races for this mysterious signature. The mark of the red hand, red with the blood which toil has wrung from it, will be found on every industrial instrument and product, and the print of a horse's hoof is generally near it. A horse's shoe, indeed, might be nailed up on many a door besides the blacksmith's, to keep away the evil spirit of idleness, if we are afraid of no other demon.

It is only the sentient organism, the animal, that has motive and transformative powers of the kind we have been considering; and it is only the paragon of animals that is able to direct them at will. But a transmuting and metamorphosing power of another kind, and not less important to industrial art, is common to plants and animals, and in some respects characterises the former even more than the latter. The plants and animals which as agriculturists we care for, may be regarded as skilled labourers, who in return for food, wages (which must be paid in kind), and a certain liberty of action, agree to collect or manufacture for us a multitude of useful substances. We employ them, and many wild plants and animals also, as collectors or amassers of certain bodies, because although we could collect these ourselves, we could not do it half so well. We employ them as manufacturers, because they keep their processes secret and have a monopoly of the manufacture.

Look first at their skill as collectors. As soon as the seed we sow has germinated, it begins to extract from the soil, or water and air around it, various matters, among others the mineral alkali, potash. Now this alkali is of great industrial value, and it is in our power to procure it from the sources which yield it to plants. To procure this, however, is a tedious, costly, and laborious process, for all the free alkali to be found at any moment in a moderate weight of soil is exceedingly small, and could not profitably be extracted by any artificial method. But a growing plant day by day appropriates to itself an almost infinitesimal amount of potash through its roots, and like a miser hoards it all, or nearly all, so that if at the close of a season we burn it entire, we find in the ashes all the gathered potash of the year harvested to our hands.

The sea, in like manner, is the great fountain of a rare and prized substance, iodine, but were we compelled to take it directly from the ocean we should require to evaporate tons of water to keep a single photographer supplied with it, and it would be more costly than gold. But the seaweeds employ it as well as the photographers, and have long anticipated the physicians in taking it internally. Day by day they sip a homœopathic dose of iodine and retain it, and by and by we burn them into kelp, and extract iodine and much else that is valuable from the ashes.

To take another example, phosphate of lime, a minute constituent of all fertile soils and of most waters, is of great value to the ivory turner, the manure maker, the potter, the silver assayer, the drug manufacturer, the dyer, and the lucifer-match maker. It reaches all of them in the shape of the bones of dead animals; dead cattle from our farms, dead horses from the Pampas of South America, dead walruses from the arctic icebergs, dead whales from the Pacific Ocean, dead men even from fields of battle. Land and sea plants have, as it were, milked this essential constituent of their frames, drop by drop, from the breast of nature. Animals of all classes, from the lowest to the highest, have robbed plants of their hard-gotten gains, and made their bones strong with the precious substance. Finally, the chartered robber man has robbed them all, claiming even the relics of his brethren, and obtaining in a handful of bone-dust the phosphate of tons of rock and water.

The industrial importance, however, of plants and animals, as collectors and harvesters of valuable mineral matters, is insignificant compared with their value as manufacturers of bodies whose worth depends much more on their construction or composition than on their raw material. In their former capacity, living organisms resemble simply filters with apertures of different fineness, and fitted to arrest and detain certain substances in themselves valuable. In the latter, these organisms resemble highly complex machines, able to convert the most familiar things into substances precious almost solely from the workmanship bestowed upon them.

Take for example that important substance, wood. Its chief ingredients, charcoal and water, are uncostly and abundant; but in themselves they are useless to the carpenter, and he cannot change them into timber. So he calls to remembrance that his great grandfather planted an acorn, which has turned its first small capital to so excellent account that now it is a timber merchant on a large scale, and will contract with you to build a ship of war out of Oak of its own making. It is with other trees as with this ancestral Oak. Each, with its republic of industrious roots and leaves, is a joint-stock company with limited liability, engaging to furnish you with Pine-stems for masts, Fir-wood for planking, Logwood for dyeing, Cork bark for bottling, Oak bark for tanning, Walnut for tables, Rosewood for picture-

* The Company guarantees the above manures to be equal to the above analyses respectively. Ten days from delivery will be allowed to purchasers for testing the qualities of the manures, and if within that period they be found inferior to the analyses furnished when sold, and notice thereupon be given at the head office in London, the Company will take back such manures, return the money paid, and defray all the expenses incidental upon their transit and analyses; but after that period the Company will not recognise the right of the purchaser to object to the quality of the manures.

† Including botany, the science of plants and plant life—and zoology, the science of animals and animal life.

rames, Satin wood for looking-glasses, Willow for cradles, Mahogany for wardrobes, Ebony for will-chests, Elm-tree for coffins.

Those trees form the Worshipful Company of Wood-makers, an ancient guild. But there are others as old. A peaceful army of Flax plants protects the monopoly of linen-weaving. Whole battalions of Cotton shrubs watch over calico. No one may infringe the patent of the Indigo plants for blue dye; none may borrow the multitudinous crimsons and purples of the Madder root; none may rival the elastic Fig in manufacturing caoutchouc; or learn from the trees of Siam how to produce gutta percha. The Roses of Damascus keep the secret of their otto to themselves; and the Acacias of Arabia alone deal in gum.

Each of those plants has a monopoly of its manufacture, and sells, at a price settled by itself, all that it produces. The charge is entirely for work, not for materials. You may buy these, indeed, yourself, and have them made up for you; and nearly the same materials will suit all the manufacturers. The Cane will return them as sugar, and the Vine as Grape-juice, the Olive as oil, and the Poppy as opium; keeping only to themselves such a percentage as is needed to maintain their workshops, and multiply their buildings. The day *may* come when the patents of these monopolists will expire, and their secrets be published, recipes open to all; but that day is far distant, and chemistry as yet has discovered only so many of their devices as serve to whet to a keener edge her unsatisfied envy of their unapproachable powers. Plants are thus, in virtue of their amazing ability to convert the simplest and commonest ingredients of air, earth, and water into the most complex and precious compounds, of as much value to the industrialist, considered simply as pieces of apparatus, as the most elaborate engines he has constructed. Nor is it otherwise with animals. They do not work with so simple a raw material as plants do: they use plants, indeed, directly or indirectly, as their raw material; but they convert them into products raised in industrial value by the additional workmanship bestowed upon them. We have thus the silkworm, whose calling it is to turn Mulberry leaves into silk; the bee, who turns sugar into wax; the coccus, who turns Cactus juice into carmine; the oyster, who turns sea chalk into pearls; the turtle, who turns seaweeds into tortoiseshell; and the whale, who turns sea jellies into oil and whalebone. The birds are the only makers of quills and feathers; the hogs of bristles; the elephant, the walrus, and hippotamus of ivory; the sheep of wool, not to speak of fat and mutton; the ox and his congeners of undressed leather; the beaver and his brethren of hat-felt; and myriads of wild creatures of land and sea of furs and skins. I have barely alluded to one animal, as supplying us with food; although, as I need not remind you, the most important industrial relation of many others is their power, as machines, to convert weeds of various kinds into beef, mutton, venison, milk, butter, eggs, the flesh of birds, and beasts, and fishes.

Two points call for special notice in connection with living plants and animals, as industrial apparatus and machines. Firstly: It is impossible ever to say too much regarding their amazing transforming, transmuting, and metamorphosing powers. Into the question, how far their functions, as modifiers of matter, depend upon their vital, as distinguished from their mechanical and chemical endowments, it is unnecessary to enter here. It is sufficient to notice that the power which every blade of Grass and green leaf possesses to resolve carbonic acid into charcoal and free oxygen, and thereby to build up the most solid vegetable tissues, chiefly out of air, is beyond the rivalry of all our engines; and this is but one feat among the thousands which plants unconsciously perform, and in vain bid us repeat. Within the more complex region of animal life, we are equally compelled to be mere spectators of changes of matter which we very imperfectly understand, and cannot effect by our machines. We can scarcely, accordingly, rate too highly the importance of living organisms, as working for us and with us. Secondly: Although we cannot construct machines to rival Sugar-canes and silk-worms, or any other plants and animals, we have a singular power of modifying these, so as to alter their actions as machines.

At every agricultural show, prizes are given to the exhibitors of vegetables and animals, which differ as much from their protoplasts as Watt's steam-engine does from Savary's or Newcomen's. So much has cultivation changed our most highly-prized cereals, that it is matter of dispute from what forgotten weeds Wheat and Barley, as we now see them, have been elaborated. Our Apples and Pears were once sour Crabs; our Plums austere Sloes; our Turnips, acrid Radishes. We have as truly created such fruits and vegetables as the chemist has created ether or chloroform. The physiologist, no doubt, is much more limited than the chemist as a creator, but he is as truly one. Both work under that aphorism of the *Novum Organon*, which teaches us to conquer nature by obeying her.

The creating power of the physiologist is still more striking as exerted upon animals. Our dogs, and horses, and cattle, we have made, as truly as we have made glass, or bronze, or porcelain. Nature yields no pointers among dogs, or racehorses among steeds, or short-horns among cattle. Food and climate, regimen and temperature, domestication and training; above all, pairing in special ways, have given us endless and important varieties of every creature we have cared to subdue; and whenever the whim prompts us to make pets of pigs, or rabbits, or pigeons, we show through how many phases we can induce our playthings or victims to pass.

We do not generally call this creation, because we quickly realise that we are but evolving certain germinal tendencies latent in the plants or animals whose offspring our interference renders so unlike themselves; but we do no more when we call into existence glass or ultramarine; for unless the elements of these compounds had inevitably tended to produce them under the conditions which we secure, the securing of these conditions would no more have produced them than the mating, under certain restrictions, of particular vegetable or animal pairs would have given us the Grapes of Portugal or the race-horses of England.

But whether we choose to call it creation or not, it is transformation of a kind as important, industrially, as that which mechanics has effected on many a machine. Ask a baker if he sets the same value on samples of Wheat differently derived and grown, and he will offer you twice the sum for one that he will give for another. Ask a brewer the same question regarding Barley, and you will receive the same answer. The sugar merchant carefully classifies his Beet-roots or Sugar-canes, the perfumer his Lavender and Orange flowers, the wine maker his Grapes, the tea merchant his teas, the dye broker his Indigos and Madders, the pharmacologist his Poppies and Cinchonas. The plants in which those industrialists have an interest may, by variation in stock, in soil, latitude, climate, mode of cultivation, degree of manuring and the like, be made abundant or deficient in starch, sugar, azotised nutritive principles, mineral salts, odorous essences, colouring principles, and medicinal or poisonous alkaloids.

It is the same with animals. A cattle dealer will give you one calf which shall certainly in course of time prove a bountiful yielder of milk and cream; another which shall as certainly be a fatted ox when three years old; a third which shall by and by be a match for a horse at the plough.

A jockey may at first stun you with what seems his uninteligible slang about blood, and bone, and wind, and bottom; but by and by you discover that these are his technical phrases for certain structural and physiological peculiarities, which he can exalt or diminish in a particular animal by due selection of sire and dam, and fit treatment, and training of foal; so that if you are not very difficult to please, and, moreover, are not in a very great hurry, he will contract to make you a horse according to the pattern you select, as an engineer will to make you a steam engine.

So also: The Yorkshire broad cloth makers choose by preference the long stapled wool of sheep fed plentifully upon artificial Grasses, Turnips, and the like. The Welsh blanket makers, on the other hand, prefer the shorter wool of sheep cropping the natural Grass of the hills; whilst the Scotch tartan shawl weavers work only with Australian or Saxon wools.

In like manner the comb makers will tell you that the farmers are injuring them, by multiplying breeds of cattle which quickly fatten, and are, in consequence, killed before their horns are well grown; and those same industrialists will curiously distinguish between the tortoiseshell from one region of the sea and that from another.

I should never end, were I to pursue this matter. Let those illustrations suffice to show that living organisms are not only industrialists like ourselves, and in many cases more skilful artists, but are also machines and apparatus which, within certain wide limits, we can wield at will. *Professor George Wilson on the Physical Sciences which form the basis of Technology, in Edinburgh Philosophical Journal.*

COMPOSITION OF VARIOUS CROPS PER ACRE.

FROM HEMMING'S TABLES IN THE "JOURNAL OF THE ENGLISH AGRICULTURAL SOCIETY."

Species.	Parts.	Crops per acre.	Authority.	Water.	Organic matter.	Ash	Authority.	Silica.	Potash.	Soda.	Lime.	Magnesia.	Alumina.	Oxide of Iron.	Oxide of Manganese.	Chloride of Potassium.	Chloride of Sodium.	Phosphoric acid.	Sulphuric acid.	Carbonic acid.
		lbs.		lbs.	lbs.	lbs														
Wheat, 32 bush. per acre	Grain ..	1984	Way	238	1726	33	Way	1.2	10.5	1.0	1.2	4.1	...	0.2	...	...	...	15.3	0.1	...
	Straw ..	3360	Way	404	2805	151	Way	96.8	27.2	3.7	11.1	3.0	...	0.6	...	...	...	4.0	4.6	...
	Chaff ..	450	Way	49	304	49	Way	40.3	4.5	0.8	0.0	0.6	...	0.2	...	...	...	2.1	...	...
Barley, 48 bushels	Grain ..	2544	Way	279	2205	56	Way	17.5	11.7	0.8	1.0	4.1	...	1.3	...	2.3	0.5	16.0	1.0	...
	Straw ...	3360	Fownes	504	2658	198	Fresenius ..	86.7	41.7	1.6	14.4	6.7	...	0.3	...	17.8		6.0	23.2	...
	Grain ..	2352	Way	223	2073	54	Way	20.9	9.6	2.1	1.8	4.0	...	0.2	...	...	0.5	14.3	0.7	...
Oats, 56 bushels	Straw ..	4256	Norton	443	3514	302	Norton	107.3	87.7		20.3	7.7	...	2.6	...	...	27.7	...	50.0	...
	Chaff ..	410	Norton	44	296	60	Way	35.8	7.9	2.5	5.2	1.6	...	0.8	...	...	0.7	3.8	1.5	0.1
Rye, 28 bushels	Grain ...	1680	Way	252	1404	23	Way	2.2	8.1	0.1	0.7	3.0	...	0.2	...	...	...	9.6	0.05	...
	Straw ...	3360	Boussingault ..	628	2634	98	Liebig ...	62.8	16.8	...	9.1	2.3	...	1.3	...	0.3	0.7	3.7	0.7	...
Beans, 32 bushels	Grain ...	2080	Way	304	1720	56	Way	0.4	23.1	0.4	4.8	3.7	...	0.2	...	0.2	1.0	17.9	2.5	1.0
	Straw, &c.	2700	Way	267	2282	151	Way	5.9	32.1	7.0	32.1	7.4	...	1.3	...	1.3	13.8	11.1	4.9	34.5
Peas, 32 bushels	Grain ..	2080	Way	310	1722	48	Way	0.6	19.3	0.4	2.9	3.1	...	0.2	...	0.6	0.4	16.8	2.7	0.8
	Straw, &c.	2700	Way	259	2263	178	Way	9.7	30.7	4.6	67.5	11.8	...	3.2	...	...	6.4	8.1	10.2	26.1
Tares, 24 bushels	Grain ...	1536	Liebig	223	1286	31	Liebig ..	0.6	9.4	2.9	1.5	2.6	...	0.3	...	...	0.6	11.1	0.8	...
	Straw ..	2700	Sprengel ...	270	2271	159	Sprengel ..	27.8	29.4	1.6	68.3	4.9	...	1.3	...	...	3.2	19.4	1.6	...
		tons.																		
Turnips	Bulb ..	20	Way	40320	4160	320	Way	4	112	26	32	8	...	4	...	...	26	32	40	40
	Top ...	3	Way	5745	852	123	Way	5	18	4	35	3	...	2	...	6	18	8	10	13
Mangel	Bulb ..	25	Way	50800	4700	500	Way	10	123	68	10	10	...	5	...	...	145	18	18	90
	Top ..	5	Way	10080	930	190	Way	3	40	13	17	17	...	2	...	...	65	10	11	12
Carrots	Root ..	15	Way	28890	4410	300	Way	3	97	40	27	13	...	8	...	...	10	27	19	54
	Top ..	4	Way	6988	1604	368	Way	17	26	40	120	11	...	9	...	...	50	6	22	66
Potatoes	Tuber ..	10	Fromberg ...	16870	5330	200	Fromberg ..	2	87	7	2	7	...	1	...	9		18	29	36
	Top ..	2	Berthier... ..	3404	914	162	Fresenius ..	60	4	2	53	9	...	2	...	4		12	9	?
Meadow Grass	Soiling ..	6.5	Liebig	10920	3276	364	Liebig ..	92	73	28	29	7	...	7	...	18	48	53	12	?
	Hay ..	2.0	Liebig	628	3466	386	Liebig ...	97	77	30	32	7	...	7	...	18	51	56	13	?
Rye-grass	Soiling ...	6.5	Way	10920	3286	254	Way	147	31	10	25	6	...	2	...	...	6	16	7	...
	Hay ..	2.	Way	588	3642	250	Way	152	27	0.2	31	7	...	1	...	...	14	16	3	...
Red Clover	Soiling ..	6.5	Way	10920	3348	292	Way	10	44	5	109	92	...	8	...	9	7	18	12	49
	Hay ..	2.	Way	586	3584	310	Way	10	46	4	110	84	...	6	...	9	7	19	13	52
Sainfoin	Soiling ..	6.5	Way	10920	3406	234	Way	7	74	...	57	12	...	2	...	14	2	22	7	35
	Hay ...	2.	Way	550	3574	256	Way	9	80	3	80	12	...	2	...	...	8	21	6	44
Lucerne	Soiling ..	6.5	Sprengel ..	10920	3263	377	Sprengel ..	13	53	25	189	18	1	1	...	13 Chl.		51	16	?
Buckwheat	Hay ..	2.	Sprengel ...	672	3414	394	Sprengel ...	14	55	26	198	14	2	2	...	14		53	17	?
	Grain ..	0.7	Sprengel ..	220	1326	22	Liebig ..	0.1	1.9	4.6	1.4	2.4	...	0.3	...	...	...	11.0	0.5	...
Flax	Stem ..	1.5	Kane	471	2745	144	Kane	30.9	14.1	14.1	17.8	11.4	5.7	...	...	Chl. 3.3		15.4	4.0	24.6
	Fibre ...	0.25	Hodges	56	501	3	Hodges ...	0.3	...	...	1.2	0.02	...	0.1	...	...	trace.	0.2	0.1	0.8
	Seed ...	0.5	Liebig	157	918	45	Liebig ...	0.3	11.6	0.3	11.7	0.1	...	1.7	...	...	0.7	18.1	0.5	...

MEMORANDA FOR THE AGRICULTURAL STUDENT.

VI.—TILLAGE OPERATIONS.

Read Dr. Madden's account of Tilth in Stephens's "Book of the Farm." Well stirred soil holds more air than it did; it is also more capable of absorbing and retaining moisture. Common air contains 4 of carbonic acid in 10,000 parts—there are 200 times as much carbonic acid in the air within a recently manured soil. Tillage promotes fertility by increasing the quantity of surface, *i. e.* the quantity of feeding ground for plants, within the soil.

Rolling as well as other tillage operations tends to reduce the size of masses and of particles within the soil, and so to multiply the aggregate surface a given quantity of earth presents to the action of rain-water or any other solvent.—Tillage operations must be guided by the character of the plant to be cultivated as well as by the general consideration of the chemistry of soils.—Their practical object is to cut the roots and bury the leaves of weeds, to cut off a layer or mass of earth for that subsequent treatment which they give it. Their result is the removal of weeds, the burial of manure, the preparation of a seed-bed, the softening of the soil so as to admit of the rapid growth of a plant within it.

Tillage operations are a cumbrous process at the best. In a six-year rotation arable land receives under ordinary management 12 ploughings, at least two dozen harrowings, besides rollings and horsehoeings and carting of manure to the land and produce from it. When badly managed, as in an inventory before me of the operations on an Hampshire farm, a crop of Turnips has been badly put in by dint of "three ploughings, and being four times dragged, six times harrowed, three times rolled, and twice harrowed after the plants came up!"

In the best circumstances a man and pair of horses walk 50 or 60 miles in order to effect the annual tillage of every acre on the farm. The operations of ploughing, harrowing, &c., are dependent for their efficacy on the weather, and on the condition in which, owing to it, the soil at the time may be. In addition to the proper timing of each operation, according to season of the year and state of the land, there is the proper manner of performing each to be considered.

The operation of ploughing must be dependent on whether the land is drained. When not drained—the surface configuration of the land is of more importance, and the methods of laying it up in ridges become important. If dry, the arrangement of land in ridges is useful only as a guide to subsequent hoeing and harvesting operations. The furrow slice should be cut rectangularly with a horizontal floor. The width and breadth should be as 7 to 10 or thereabouts, so that they may lie at 45° on one another, so as to expose a maximum of surface to the light, and so as to lift a maximum of earth in ribs above the general level to be pulled down as a seed bed by the harrows. This question of external surface exposed however is not of very great importance.

The practice of ribbing or "raftering" land previous to winter is a mere expedient for overtaking hastily or imperfectly work which ought to be done efficiently.

Harrowing is a mere surface operation. The drag harrow for stirring the furrow slice throughout its depth is a most laborious and inefficient implement. The work it aims at doing is properly the work of the cultivator or grubber. The use of this implement follows the harrow and perhaps the roller, because travelling on wheels it needs a true and level surface over which to be drawn in order to its working the soil to a uniform depth.

Rolling is done to level the soil for scythe or reaping machine, to harden a loose soil, to close its surface against the drought, to break the clods. Different forms of the implement are proper for the different uses of it. A light roller may be fit for use in dry weather, and heavy clodcrushers may be neede at other times.

The cost of the several operations may be put as follows:—

Cost of Tillage Operations (Haxton).

	Acres.	Cost per acre. £	s.	d.
PLOUGHING.				
Ploughing lea ground	1	0	8	4
Ploughing stubble ground	1¼	0	6	8
Cross ploughing in spring	1½	0	5	6¼
Half-ploughing (ribbing or raftering)... ...	2	0	4	2
Trench ploughing, on level land, with 1 man and 3 horses	1	0	11	7
Trench ploughing, down hill, with 1 man and 2 horses	¾	0	11	1
Subsoil ploughing, on stiff soils, with 2 men and 4 horses	¾	1	2	2
Subsoil ploughing, on medium soils, with 2 men and 4 horses	1	0	16	8
Subsoil ploughing, on light soils, with 2 men and 3 horses	1	0	13	6
HARROWING.				
Harrowing once, with 1 man and 3 horses ...	24	0	0	6
Harrowing once, with 1 man and 4 horses ...	32	0	0	5½
Harrowing once, with 1 man and 2 horses ...	16	0	0	6¼
GRUBBING.				
Grubbing deeply strong land, 1 man and 4 horses	4	0	3	8½
Grubbing light soil, 1 man and 3 horses ...	6	0	1	11⅓
Grubbing light soils, 1 man and 2 horses ...	6	0	1	4⅔
ROLLING.				
Rolling light land with a 6-foot roller, drawn by 2 horses	12	0	0	8½
Rolling rough cloddy land	10	0	0	10
Rolling with Crosskill's clod-crusher, drawn by 3 horses	8	0	1	5¼
Rolling on light land	10	0	1	2
Rolling young corn or grass, with a 1-horse smooth roller, 5 feet long	10	0	0	6
Furrow-pressing (machine with two wheels drawn by 1 horse)	2	0	2	6½
DRILLING.				
Making and splitting drills on heavy land with a double mould-board plough for root drops (drills 27 inches)	1½	0	5	6¼
Do. on light land	2	0	4	2
Horse-hoeing green crops, 1 horse	4	0	1	3¼

Read the chapters on tillage operations in Stephens's "Book of the Farm," "The Yester Deep-Land Culture," by the same author, Rev. S. Smith "On Lois-Weedon Culture" (Ridgway). The experience both of Lois-Weedon and of Yester Mains indicates what may well be carried away as the lesson of the day, that the mere tillage operations of the farmer on a well drained soil do to a great extent supply all the elements of fertility.

CATTLE FEEDING ON POLSUE FARM.

SOME attention having been excited during the past two months relative to Mr. Davey's new system of feeding cattle on Polsue farm, we give a brief account of a visit to the farm. We found the cattle, North Devons, 32 in number, kept in separate boxes in two houses recently built. They were fed in wooden troughs 18 inches wide by 12 inches deep, with a mixture of grated Turnips and chaff straw, in the proportion of 90 lbs. of the former to 7 lbs. of the latter, mixed in the following manner:—The grated Turnips (Swedes) are intimately mixed with the chaff in a bin sufficiently large to supply the cattle with one day's food. These ingredients are allowed to remain in the bin three days, during which time considerable fermentation and heat are produced in the mass, sufficient to cook the whole, as if it had been submitted to the power of steam. We observed that an odour is emitted during the fermentation similar to fresh brewers' grains, evidently the consequence of the saccharine matter evolved from the roots and chaff. There were three bins constantly at work in this manner, so as to afford a regular daily supply. 97 lbs. of this mixture is given to each animal, and 4lbs. of Linseed cake per day, in the following manner:—

1st feed,	6 o'clock	A.M.,	mixture of chaff and Turnips.	
2d	„ 9	„	A.M.,	ditto
3d	„ 12	„	noon, 4lbs. cake.	
4th	„ 1	„	P.M., mixture.	
5th	„ 4	„	P.M., ditto.	

In addition to this, about 3 lbs. of dry chaff is given during the evening. The cattle are exceedingly fond of the mixture, so much so, that there has been some difficulty experienced in getting them to eat the Linseed cake. In ordinary feeding with Turnips, it is always observed that cattle will consume the cake in preference to roots, but not so in this case, as the mixture is preferred to the cake. We estimated the cost of feeding cattle in this manner at about 6*s.* per week. It very evidently agreed with them in a remarkable manner, as the whole number were in an exceedingly thriving condition. They were purchased about 10 weeks since, and placed in the boxes on this new system of feeding eight weeks, and many of them were fat enough for the butcher. We paid particular attention to the boxes and their construction. They were 8½ feet square. The dung was allowed to accumulate until it rose to about 2 feet, when it was removed—about two months' accumulation—each box averaging six loads of very rich manure. Our attention was also directed to the method adopted in keeping the store pigs. The piggery consisted of a covered building about 33 feet square, 3 feet below, and adjoining the farm stable at one end, containing eight powerful grey labour horses; and 3 feet below the oxen-house, containing eight oxen, but with room enough for 12 head of cattle at the other end. The piggery was separated from the oxen-house and stable by two doors. The litter from these departments is duly mixed and distributed over the piggery, so that in fact we here found a complete manure manufactory carried on by the pigs, 40 in number; and notwithstanding this daily accumulation of horses, cattle, and pigs' dung, the piggery was clean, dry, and without any disagreeable odour. The manure there manufactured was exceedingly rich, averaging 200 loads removed every three months during the six winter months of the year. The pigs were usually fed with the fermented Turnips three days old, which was prepared in three tubs constantly at work, according to the method adopted for the feeding cattle. Within the last fortnight some damaged Barley had been given in addition to the fermented Turnips, and we certainly never witnessed 40 pigs together in such a thriving condition. The buildings were admirably arranged for the greatest economy of labour. There was a powerful corn-crusher, a chaff-cutter, and root-grater in an upper store-room, worked by one horse, and the chaff and grated Turnips were dropped through shoots into the bins below in the lower store-room, where the mixing and fermenting took place. The store-rooms were about 40 feet by 25 feet each. We must not omit mentioning the mode by which the food was conveyed to the different feeding departments. This was managed by a tram waggon worked on rails and a turn-table, by which it was directed either to the stable, oxen house, or feeding houses as required. Here the economy of labour appeared complete, as the whole of the feeding department was easily conducted by a man and a boy, who manufactured the food and fed all the cattle and pigs, and had the charge of 200 sheep in addition. We should add that this system of feeding is both simple and inexpensive, and could easily be adopted on any sized farm; and we would particularly recommend our neighbours to take the opportunity of making themselves acquainted with the whole of the details by personal observation. The construction of the feeding house is well worthy of their attention; also the dairy cows' house and yards attached, which were sufficiently large to accommodate 16 cows. There is one circumstance connected with these buildings, which will be certain to attract the observation of any visitor, viz., the absence of disagreeable smells and the perfect cleanliness in every department. Regularity in feeding and cleanliness is highly important in successful feeding of cattle, and this *desideratum* is particularly attended to on Polsue estate. We have made some inquiries respecting the cost of the root pulpers and graters, and we find that Phillips's patent pulper cost from 6*l.* 10*s.* to 12*l.* 12*s.*; Bentall's patent root pulper from 5*l.* 5*s.* to 9*l.* 9*s.*; and Bushe and Barter's grater, manufactured by Ransomes and Sims, a machine very similar in construction to Mr. Davey's, may be purchased for 4*l.* 10*s.* This appears to be a simple, strong, and lasting implement. The roots are delivered from the machine in a grated state, and it is easily worked by one man. *Mr. Karkeek, at a meeting of the Probus Farmers' Club.*

THE CONSTITUTION OF THE SOIL.

[From a lecture by Professor Voelcker at Plymouth.]

We owe a debt of gratitude to Professor Liebig for showing that those mineral constituents which we find on burning the grain of Wheat, Oats, Barley, or Grass, and on burning root crops, are not merely accidental, but that they are essential ingredients; that unless the plants you intend to grow find those materials in the soil, you cannot grow them with success. Indeed, if they are altogether deficient, or if one of them is so—if phosphoric acid, for instance, is deficient altogether, its deficiency prevents Wheat setting its seed. Experiments have been tried repeatedly in artificial soils composed of all the constituents that we find in the ashes of plants, with the exception of one which, like phosphoric acid, is of great importance to the formation of the grain of Wheat; the result was that the plant would grow to a certain point, and even flower, but it formed no grains, or only one or two imperfect ones. We must lay it down then as an established principle in agricultural chemistry that, unless those mineral constituents that we find in the ashes of plants are present in the soil, or are supplied to it, the plants cannot be grown. It is also to be remembered that soils remarkable for a high state of fertility contain some necessary constituents in inexhaustible supplies. The soils that we find here are in many instances clays, and contain a considerable quantity of the mineral matters that we find in the ashes of plants, and we may draw on the resources of those mineral riches without fear of exhausting them—whilst in other instances, where the more important articles of mineral food are deficient in soils, the constituents withdrawn must be restored, if we do not wish permanently to detract from the character of the land. In clay and loamy soils it must be an object to the farmer to inquire how he can best get out of the land the substances needed in plants. He need not scruple in working his land well, or in taking from it without always giving back the same constituent that he has taken. Truly, theoretically considered, nothing is clearer than that what you take out of the land must be restored; and you may lay down rules for making a restoration of this kind, and in leases it is common to require the tenant to return to the land a certain quantity of a certain manure periodically; but these rules are not always wise. If I had to deal with my own land, I would let it to an intelligent farmer, and tell him to farm in the best way he could, for I am convinced that what would be for his profit would also be for mine. It is a shortsighted policy on the part of landlords that leads them to think the tenants would get too much out of the land, for they bind men down to established rules which prevent agricultural improvement. The theory no doubt is—give back to the land what you take from it; but in cultivating rich loamy soils, or such clays as are found in the neighbourhood of Torquay, where soil is formed from the decomposition of trap rock—what is the use of putting back a little lime or phosphoric acid when you have in the soil itself inexhaustible stores? If you have a good balance in the agricultural bank, never mind using it abundantly—employ capital in making it useful by working the soil and by the judicious purchase of artificial manures containing those constituents that are not abundant in the soil. Clay soils, admitting of this treatment, are therefore very fertile, because they contain most of the chemical substances that enter into the composition of plants, and the question is how can they best be got at.

With respect to many soils it becomes a delicate question to decide whether their elements are best rendered educible by means of improved agricultural implements and machinery, or by the introduction of some artificial manure, such as ammonia, nitrate of soda; for I would not trouble to put any mineral back in a rich clay soil. Theoretically, by this means, the land would grow poor in necessary constituents; but practically having an immense store of mineral food, and every year taking out but very little, you will never exhaust it—not at least for centuries; and your sole question is how can you get at it. Is the best means the use of improved agricultural implements, admitting air to every part of the soil, and facilitating chemical decomposition of the rock substance, or the introduction of ammoniacal matters which render certain constituents soluble and available for the use of the plant? It is a delicate question to decide, and it can only be decided by the accumulated experience of the farmer and the chemist. Here, let me say, we could decide on many important points if we only had the cordial co-operation of practical farmers. We have a heap of matters to work upon, and we cannot arrive at results in them, because they have to be brought to the test of experience. There are many things and conditions quite true theoretically, which are affected by considerations of £ *s. d.* They may or may not be profitable. "Will they pay?" is the question the farmer puts to the chemist; but if the latter is a sensible man he will not give an answer to that question.

"It is the business of my life," says the chemist, "to instruct you in the right principles of science as applied to agriculture; I can assist you to understand those principles; but your making of money is your business, not mine, and I give you hints which you may apply if you please; on their proper use success depends; if you do not choose to apply them, you may be left behind, and others, sharper or more determined, will use them in the right way, and make them profitable." It is, in fact, altogether necessary that the farmer should use his own discretion, as to the application of manures, &c. I will make this plain by reference to the composition of sandy soils. These soils are sterile, or are capable of producing very little—they are called hungry soils, because they swallow up manure; observe the difference between these soils and clay. Phosphoric acid is only just traceable in them; lime is greatly deficient; indeed, they are made up almost

entirely of silica, and remembering that plants do not live alone by silica, but by lime and phosphoric acid and other things, we see why sandy soils require much good manure. Farm yard manure would do; it is a perfect manure, containing all the constituents of the fertile soil; whilst in artificial manures we have only two or three of the most fertilising constituents present; hence there is danger in using, on bad land, special manures; I do not think that special manures can be used extensively on very barren soils constituted chiefly of silica, because in artificial manures we have special constituents—some of them, doubtless, the most important to fertility, and I would guard against being supposed to speak disparagingly of those manures, only they must be used with great judgment, when they will answer well;—but in sandy soils it is extremely hazardous to use artificial manures alone. Soils of that kind require a different process of cultivation, because they are deficient in requisite mineral substances.

But there is another point has to be taken into consideration in speaking of the composition of soils. I refer to the atmospheric food which soils absorb, some in small and others in large quantities. Clay, which is of the class of fertile soils, has in a very high degree the power of absorbing ammonia, and other fertilising gases from the atmosphere, while barren sandy soils do not possess the power. Moreover all soils characterised by great fertility retain manurial substances for a much longer time than others which are what are called "hungry" soils. It is important to bear this in mind, because it will influence our practice of applying manure to the land. We frequently hear a discussion about the use of long and short dung, or winter and spring manuring, and I find in agricultural discussions each man closes his opinion with the words, "I know I am right," and thinks his opponent is wrong; the discussion concludes, and each goes away exactly in the same mind as when it began—simply through not understanding that the advocates of long dung are right in one case, and the advocates of short dung in another particular case; but the reason why they are right is unknown to one or the other, because each doggedly adheres to his opinion, and will not give the other credit for being a good farmer. It has often struck me, in attending agricultural meetings, that if you ask one farmer about another—is so and so a good farmer? the reply is, "he may be, but he knows nothing about stock," and so on. Now this does not come out of a disparaging or jealous spirit, but it is the result of a conviction that the person spoken of must be quite wrong. Yet inquiry may show that one is as right as the other, but that they have to deal with two different cases. On one of the farms at Cirencester some of the fields differ from others in composition—some only contain 2 per cent of lime, while others come under the denomination calcareous soils, and contain as much as 54 per cent. Suppose the farm were divided into several small farms—one of the occupiers might say, "I find lime of the greatest benefit," and another might try it and say, "I find lime of no use at all," and both be right, though wrong in condemning each other's practice. I could point out soils where guano would be useful, and others where it would be useless. Therefore, criticisms on farming must not be based on particular cases.

Then we must take into account the crops we intend to cultivate. What is good for Turnips is not always for Wheat, and this is not dependent on a chemical difference between the ashes of the Wheat and the Turnip, but on the mode of growth of plants. We have to calculate how long we keep a plant in the soil before we reap it. It is not a question of the composition of plants, but of the time they may have for assimilating food from the soil. If, like Wheat, it is long in growth, often the food present in the soil is sufficient to supply what it wants; perhaps a little top-dressing might be desirable to give it a start at first, but after that the root has time to penetrate the soil in search of food; but we cannot reason so with regard to Turnips, which have a short period—from three to four months—of vegetation. One might say the soil contains as much as is sufficient for its growth; very possibly it contains six or twenty times the quantity required; but the practical question is—Can you get it into the plant in the time? You will find the food may be abundant in the soil, yet it may not be present in that digested form to meet the peculiar wants of the special crop you want to grow. You may imagine it strange that the soil should retain sufficient phosphoric acid to meet the wants of twenty crops of Wheat, and yet not supply a sufficient quantity for one crop of Turnips, and the analysis shows that the crop of Turnips contains less phosphoric acid than the crop of Wheat. When these statements are made they seem contradictory of theory, and they require much explanation to the uninitiated. It must be remembered that the period during which plants assimilate food from the soil should be taken into account in considering the manure we should give to a plant. There may be sufficient phosphate in a soil to grow Wheat because it is sufficient time in the soil to collect it, but the Turnip which requires less phosphoric acid, has only half the time for assimilating the food, moreover it cannot throw its roots so far in search of food as the Wheat plant which throws out its rootlets through a great mass of soil; therefore we must give it food in a more prepared state than it is in the soil, and hence the great use which superphosphates or soluble phosphates of lime are to the growth of Turnips and all root crops. Those facts show that is not merely by analysing soils that the chemist can be of much advantage in agriculture. It requires, indeed, peculiar insight into peculiar manures, and considerable acquaintance with physiology as well as chemistry in order to enable a man to give correct opinions on any particular subject in agricultural chemistry that may be referred to him; and inasmuch as in many matters and with respect to many practices, we are totally ignorant of the true cause in operation, it is unwise to speak too positively on any particular subject, if we have not the extended experience of farmers with relation to it, not only in one district but throughout the country at large. In the cases I have cited, theoretically considered, the addition of superphosphate would be of no service to the Turnip, but practical experience has shown that it is of great use to the grower of Turnips, and it remains for the chemist to find out the cause, and not to say there is something wrong on the part of the farmer in using superphosphate, when he finds it answers his purpose. There must be some cause for this divergence from theory, and I believe it to lie in the shorter period of vegetation, which makes superphosphates valuable to roots.

MANUAL TILLAGE IMPLEMENTS.

So many machines having been contrived for mimicking the operations of manual tillage, perhaps I may be allowed to digress awhile from the narration of my "steam culture reverie" in order to state what these operations are. The parent implement, in all probability—as Mr. Hoskyns tells us in his "History of Agriculture"—was the Egyptian sarcle; a kind of pick or hoe with a long blade. Modified for the purpose of traction by animal power, this took the form of a plough; having either a share that could throw aside a furrow slice, or a sharp-pointed wedge that simply scratched and tore up the ground. The latter class of plough is still used in the East, passing over the land several times before the work attains its full depth; and may be said to be represented in this country in the tines of our grubbers, drags, and subsoilers: the former class has been adapted to our wet climate and strong soil in the shape of our present solid-furrow-turning ploughs. But as the traction tools have been improved and adapted to different countries, so also have those that are worked by hand. The pointed pick became altered into the broad-bladed hoe and mattock; and at this day, in the southern countries of Europe, as in Italy, Spain, and Portugal, and in the offshoots of the latter—Madeira and Brazil—the hoe is the almost exclusive implement of manual tillage. In a dry climate its action is most effective; for while it cleaves into fragments and thoroughly inverts the soil to a depth of not only a few inches, but 20 or 30 if you please, the treading of the workman's feet upon the dug land crushes the loose clods into powder. But in more northerly climates, the moisture of the soil forbids the trampling of the operator upon the worked land, and increases the labour of cultivation by obliging him to stand on the "land side" of the trench; and the hoe or mattock has been adapted, therefore, in the shape of two varieties of tool which the workman can thrust from instead of pull towards him. These are the spade (or digging-fork) and a peculiar modification of the original implement allowing the operator to stand in advance of it, as the "laya" in very general use throughout the Basque provinces of France, and the "caschrom," still existing in the Hebrides. The laya may be described as a ponderous two-pronged fork, with a very long wooden handle affixed to the iron bar that connects the two long prongs. In using this tool the peasant drives it into the ground, raises and reverses the clod of earth, and then, previously to repeating the operation, takes a step backwards. By this mode of digging, the bad effect of the *bigot*—namely, the pressing down again of the newly-raised soil by the man's feet—is avoided. The Highland caschrom or crooked spade consists of a large wooden tool, in shape like the letter L; the shorter leg being shod with a cutting share. The workman thrusts the blade obliquely into the ground by means of his foot pressing upon a side projection at the heel of the implement; he then pulls down the long handle so as to lift up the spit (or short furrow-slice) of earth, which by a twisting movement he turns completely over sideways, laying it upon the back of the last piece; and he then steps backward for another stroke. The operation is something like ploughing and turning a furrow in separate pieces; only as the subsoil end of each spit is lifted and laid upon the stubble or sward end of the preceding one the ground is perfectly inverted, and at the same time more intimately divided than by the plough. And in stony land inaccessible to the plough, its superiority to the common trenching spade, or to any tool which penetrates the ground perpendicularly, is very great; resulting both from the ease with which the operator wields it, and the length of the horizontal clod which its powerful lever enables him to turn over. The tool, however, in most general use is the spade (or digging-fork) with which the workman cuts the "spits" of soil in an almost perpendicular direction, breaks from the subsoil and raises them by a lever-like motion, turns them over sideways by a twist of the handle, and when the inversion has been completed by their falling into the trench subsoil-end uppermost, chops and cuts them by an after action of the tool, instead of crushing them by his weight, as in the case of the mattock. The spade is to be found in all forms, according to the nature of the work required; whether for draining, excavating, paring, &c.; but even for simple digging it has been varied to suit all kinds of loose or adhesive soil, and every method of field or garden husbandry—being found with a flat or a concave blade, with holes to prevent the sticking of wet clay, various proportions of wood and iron in its structure, with or without "shoulders," or as a fork of all patterns, and able to dig, double-dig, trench, bastard-trench, or "point-in" manure. And just as various improvements have been added to the plough, for special purposes, such as the skim-coulter for burying every particle of the sward, or the knives which some persons fix horizontally behind the mould-board to cut and pulverise the furrow-slice, so additions have been suggested to the spade or fork. As for instance, lever-prongs so attached by a hinge to a digging-fork, that upon the handle being lowered backward, the spit of earth raised is crushed by a clipping movement between the fork-tines and the prongs above them; and I have noticed in a previous paper the hand digging-machine invented by Van Thornhoff in 1785, which consisted of two spades fixed side by side, having a hinged foot-block between the handles, which served both for thrusting them into the ground, and as a fulcrum for their lever-action in breaking-off and casting forward the spits. However, such contrivances have generally proved more cumbrous or less efficient than the genuine tool itself.

I have not included the rake among manual tillage-implements, because, like the harrow after the plough, it simply pulverises the surface when the principal operation is already accomplished: nor need I mention the mallet sometimes employed as a clodcrusher. All the mere skimming processes of reducing the top-mould to fineness, shaking out weeds, sowing and covering in seed, &c., are easy when we have performed the deep, solid, laborious work of breaking-up, subdividing and inverting.

My last paper contained a description of Barrat's steam-cultivator, which is intended to work a number of mattocks; but, as I showed, with an unsatisfactory result. There was also a reference to Usher's steam-plough which (though it may be undesignedly of the inventor), partly imitates the action of the caschrom—a tool that seems to be the ideal for a digging-machine to copy in shallow soil, while the spade sets the example in deep work. This engine (I have understood), is unable to turn its short segments of soil with the neatness of the hand-implement; failing to raise and expose the lower ends of the pieces, and bury their upper ends perfectly; and so acting rather as a stirring than as an effective ploughing or digging implement. Still it deserves great praise and commands the attention of inventors as being an exemplification of the principle that a tilling machine ought to copy manual digging as nearly as it can be done with a simple rotary motion.

Hereafter I will notice some mechanical imitations of the spade. *I. A. C.*

Home Correspondence.

Stoppage in Drains.—Can you or any of your readers give me any information on the subject of drains being stopped by the roots of the crops growing over them? In the lower part of a field where I was prevented by the outfall from draining deeper than 3 feet, I have just taken up the 3-inch pipes with which it was laid in the winter of 1853-4. In many of them I found a complete network of fibres completely filling the pipe. The subsoil is partly sand and gravel, and partly the same mixed with clay; it was in the sandy portions I chiefly found the roots, so after relaying the pipes I had some inches of clay put on the top and well stamped down. Last year I had a mixed green crop on this land, consisting of alternate rows of Mangel and Carrots, with the blank spaces filled up with Drumhead and Kohl Rabi. What I most wish to know is, which of these plants would be most likely to send their roots so deep? I presume the Cabbage! If so, whether it may not be considered imprudent to grow this plant on loose land drained 3 to 3½ feet deep? In the first volume of the Royal Agricultural Society's Journal, there is an article on the stoppage of drains by the roots of plants and trees. *R. H., Cheshire.* [We have known Mangel Wurzels send their roots into 4-feet drains. We don't know how to help you. You cannot adopt any remedy that will not spoil the channel as a drain—unless soaking the pipes in tar should keep the roots off.]

On Breeding Flocks.—Can the experience either of yourself or of any of your numerous readers afford any explanation of the following circumstances. A flock of 150 long-woolled ewes are pastured up to the middle or end of December. They are then put on Swedes for 8 or 10 weeks, and afterwards turned out again on the Grass land for two or three weeks previous to lambing, and there fed with Beans or Turnips. Up to the present year they have been remarkably healthy and done very well, and I have regarded anything beyond the loss of one or two ewes and a few casualties among the lambs as a serious matter. This year, however, under very nearly the same treatment, I lose one ewe out of five, and lambs in proportion. In some are found lambs, chiefly couples, that have been dead two or three weeks; others have been lost from difficult or impossible births; and many lambs have been premature. In fact everything, under apparently the most favourable circumstances, has gone on as badly as before it was prosperous. Last year but one ewe was lost, while this year 30 will probably be the number, and this on the same farm and with the same shepherd. The health of the animals is apparently perfect, but the glossy-coated matron-like ewe of to-day will probably be hanging up to-morrow in the slaughter-house. The only difference

in the treatment of the flock was, that the Swedes were cut up instead of the ewes helping themselves; and I may add that the Swedes were manured with 1½ cwt. of guano and 2 cwt. of superphosphate in the place of 3 cwt. of superphosphate. Can either of these incidents have been the cause of such unfavourable results? *G. R. S.*

Zizania aquatica.—Having recently received a circular note from Messrs. Lawson, of Edinburgh, containing a small packet of seeds of the *Zizania aquatica* for experiment, I am desirous of calling attention to it, as I believe it has not hitherto been successfully grown in this country. Although from its habits it is not likely with us to be of any value as a food plant, still it is likely to form a very ornamental and at the same time valuable addition to our useful aquatic plants. In the vast regions of Upper Canada and the Western States of the Union, it is met with covering enormous areas of shallow water, river banks, and swamps, furnishing food alike to the native tribes and to those vast flocks of pigeons and wild fowl which are known to exist there. The native Indian name for it is "Manomin," while the mixed race, the hardy Canadian "voyageurs," know it by the name of "folle avoine." About 10 years since I had some given me, which was duly planted; but, so far as I recollect, it never germinated—in this case the seed was very old and bad. However in 1854 I again tried the experiment with new seed, which I had the previous year obtained myself in the West States, but had no satisfactory results. In Messrs. Lawson's circular there are some useful hints as to the time and mode of sowing, and as the specimens have been placed in the hands of gentlemen in various parts of England we may probably hear a better account of them in the coming autumn. From what I have seen and know of the plant, I would strongly recommend those having ornamental waters or preserves with wild fowl to obtain from Messrs. Lawson an experimental packet of the seed, and to attend to their instructions as to the time and mode of giving it a trial. *W.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council: March 18, Colonel Challoner, Trustee, in the Chair.

Communications were received from the Secretaries of the Highland and Agricultural Society of Scotland and the Royal Agricultural Improvement Society of Ireland, on the subject of the foreign cattle-murrain; from Mr. Bortier, Vice-President of the Central Agricultural Society of Belgium, on the mode adopted in England for destroying Thistles, and for burning clay for agricultural purposes; and from Mr. Warren, on suggested experiments for ascertaining the conditions under which water finds its level, or remains at rest.

Professor Simonds reported that the mortality among the cows at Paddington, which at one time had amounted to 19 per cent., had again become reduced to its ordinary rate. The cause of death in this case he attributed to the affection now so long known in this country as pleuro-pneumonia. With regard to the foreign murrain, that was a typhoid fever of a very contagious nature indeed; and he could not too strongly impress upon the Society the essential importance of information being obtained on the particular point, whether the disease showed itself at once, or remained *incubated* for a certain period in the system before fully developing itself. No steps, he thought, could be taken with advantage before the nature and pathology of the disease had been thoroughly investigated.—Mr. Vines drew a parallel between the murrain and the glanders in the horse, and thought there was no ground for alarm in reference to the importation of the disease into this country.—Mr. Raymond Barker made remarks on the extent, more or less, to which contagion might arise from the shipping employed to convey foreign cattle to our ports.—Mr. Sidney strongly impressed on the Council the necessity of despatching Professor Symonds, as the Veterinary-Inspector of the Society, without further loss of time to those districts abroad where the foreign cattle-murrain was at present raging, in order that direct and satisfactory investigation might be made by him on the spot, and the details be at once reported to the Council for their guidance on this important subject.

The Council adjourned to the 25th of March.

Farm Memoranda.

Dam-head Farm, Blackley, near Manchester.—Mr. Edmund Whitehead, as tenant and occupier, principally dependant upon farming, received the prize of the Liverpool and Manchester Agricultural Society for the best cultivated farm of not less than 60 acres, nor more than 100 acres.

Inspectors' Report.—This farm contains 70 acres, of which there is this season 27 acres in old pasture; 34 acres in old meadow, 21 acres of which is manured with dung water; 1½ acres of Wheat after Oats; 2½ acres after leas; 2 acres after Potatoes; total 6 acres Wheat; Potatoes and Turnips, 2 acres; garden, orchard, homestead, and road, 1 acre. Rotation, generally 1st, Oats; 2nd, roots; 3rd, Wheat; 4th, Clover. Stock kept, 4 horses, 1 colt, 37 dairy cows, 3 sheep, and 2 calves—total 47 heads. Horses kept on hay, Beans, and bran in winter, and in summer on Grass and Clover. Cows, on hay, grains, and bran in winter, and in summer on grains and pasture. Make annually about 360 tons of manure on the farm, and mix sand with it for meadow and pasture. Purchase annually about 60 tons of night soil, which is applied to root crops; 25 loads of gas lime to mix with soil for Grass land; also six loads of gas lime to mix with dung water to be applied to Grass land.

Since entering on the farm, has drained 32,775 yards (5800 yards since 1850) all with tiles on slate soles, the landlord finding materials; has flagged 47 yards in front of the watering pool near the shippons; eradicated 560 yards of old fences, reducing 21 fields to 10; made a road to a sand bank for the purpose of getting sand to mix with the dung; the cinders carted 4 miles. These improvements costing 103*l.*, the landlord allowing 23*l.*

This farm lies in a wet climate, and perhaps 300 feet above the sea. The surface of about one-third of the farm is very hilly, and the remainder gently undulated. The homestead is tolerably central. The farm lies near an excellent road, and 4 miles from one of the best markets in Lancashire. The soil of the greatest part is a stiff clay loam, rather shallow, the remainder a little peaty. The subsoil, various, from a stiff tenacious clay, to sand and gravel. This farm is more a Grass one than an arable one. Both the meadows and pastures are in a very productive state, producing good herbage free from weeds. The produce is principally converted into milk and butter, and sent to Manchester.

The Wheat, after Oats and leas, was unkindly, and some portions thin of plants, but exceedingly vigorous, and very clean. That after roots a very healthy, thick, standing crop. The Potatoes and Turnips healthy and clean. The fences in as good repair as their nature would admit of, being of the old Lancashire stamp, of high copse, with a mixture of Thorn and smooth wood at top. The gates, posts, and occupation roads, were in proper order. The house and outbuildings are of the old sort, low, and not well arranged for convenience, but the whole, including the yard, &c., clean and tidy. The watering pool is well constructed, the water being held up 18 inches above the level of the flagged yard, in front, and of such a length that six or eight cows can drink at the same time. There is an open reservoir for urine, 16 yards by 8, and 4 feet deep. To this liquid manure the claimant adds gas lime. The manure heaps have layers of sand put upon them, as the manure is brought from the shippons and the stable. This makes an excellent compost for the Grass land. Inspected July 16th, 1856.

Review.

Agrostographia: a Treatise on the Cultivated Grasses and other Herbage and Forage Plants. By Peter Lawson & Son. Fifth edition. Edinburgh: printed at the private press of Peter Lawson & Son.

It is worth while to repeat our notice of a book for which there has now been experienced for several years a demand exceeding 1000 copies annually. No better test of its practical utility could be desired than that. And any reader of it who may purchase it on our recommendation will find that it contains matter of an historical, practical, and descriptive kind, more perfectly exhausting all that under these heads there is to say than any single treatise on the subject that exists.

We may mention here that the figures given in Morton's *New Farmers' Almanack* as Lawson's statement of the number of seeds per lb. in our different Grasses, wherever it may have been taken from, are not Lawson's figures. How the mistake may have arisen we do not know; but the figures for which Messrs. Lawson are responsible, and which were obtained by laborious counting, occupying a man for many months, are given in the treatise before us, and differ very materially from those given in the almanack.

Calendar of Operations.

MARCH.

Berwickshire Merse Farm: *March* 9.—The past month commenced in the middle of a storm of 12 days, during which period the snow lay of a uniform depth of about 1 foot. If there had been much wind, with the temperature between 20° and 30°, the results could not have been other than disastrous. The departure of the snow on the 7th, though unaccompanied by rain, was so decided as to swell out streams to overflowing, and since that day but one slight shower has fallen to mollify the new turned soil. The weather, however, has been unusually favourable for cancelling the arrears of a singularly variable winter and seasonably advancing the work of seed time. To secure a proper tilth after Turnips the ploughs are closely followed by the harrows, and in this way much seed is safely deposited and growing. A large portion of this is Wheat, owing to the very restricted breadth of winter-sown; still we do not think that the aggregate extent under that cereal exceeds our average growth. Many, even the previous year, had reason to doubt the profit of late Wheat, but the experiences of the late harvest have settled the matter in favour of Barley, especially when sown early this month. Lea ploughing was vigorously pushed with a view to Oat sowing, but the drought has got hold of the furrow, and where tried it harrows roughly, always excepting what was ploughed during winter. Besides, our Potatoes and Oats were very much destroyed by grub last cold spring, and we think those fortunate who have sown none yet, when we see the wind due north and the ground white with hail. Those who grow Beans have lately been employed to good purpose; for, in our late climate, early sowing with them is the only way to early ripening. In general labour has the appearance of being better advanced than could have been expected; but ere the season be over, the want of frost after ploughing will make itself evident in the stubbornness of the fallow, if not on the crop. Cattle are doing better now on the later sown Swedes, which are much superior in quality to those of larger growth. Mangels are grown to a small extent as food for milch cows, and certainly do come out very fresh now as compared with most Swedes. But the uncertainty of a full crop, through defective germination, the additional labour caused by deficiency of foliage, and the danger of frost before storing—which operation is in this climate generally left till November—all these facts lead to the conclusion that it is not desirable to extend the cultivation of that root here, except in lands lia[illegible] and toe. Sheep with a dry lair thrive amazingly, and [illegible] extreme, owing partly to the prospects of the wool trade. The new Grasses are badly planted, and there are no signs of vegetation, though the regular lambing season is just begun. The quantity of grain in stack is very small; but, being all of the damaged class, it is very difficult of disposal. *P. T.*

Notices to Correspondents.

Books: *J J.* As to ordinary farm management of manure, read Mr. Lawrence's plan in the article Manure, Blackie's Cyclopædia of Agriculture, and Hannam's plan in his book on waste manure (Longman), and Mr. Finnie's plan described in a recent discussion before the Highland Society.

Crop Rotations: *F R S.* The subject of crop rotation hinges on that of farm manure, through the provision of food for stock which varies greatly under different methods of cropping the land. The need of rotations arises out of our relations to our labourers, who want constant employment; to our live stock which need constant food; to the soil, which will not continue to yield the same crop perpetually; to the plants we cultivate, which grow more luxuriantly in rotation than in succession: the explanation of the last fact has been founded on the idea (1) that crops poison the land for themselves; (2) that they exhaust the ground for themselves; (3) that they improve the ground for their successors. Turnips consumed on the land bring on it more nitrogenous matter than was given them in their manure, and so the land is enriched by this practice, and rendered fit for grain, which, on the other hand, uses more nitrogenous matter than it can in general naturally obtain. The following are our common rotations:—

1.	2.	3.	4.	5.
1. Wheat	1. Wheat	1. Wheat	1. Wheat	1. Wheat
2. Turnip	2. Turnip	2. Turnip	2. Turnip	2. Turnip
3. Barley	3. Barley	3. Wheat	3. Barley	3. Barley
4. Clover	4. Grass	4. Barley	4. Clover / Beans	4. Clover
	5. Grass	5. Clover		5. Oats
				6. Potatoes / Beans

6.	7.	8.	9.
1. Wheat	1. Wheat	1. Wheat	1. Wheat
2. Turnip	2. Oats	2. Beans	2. Rye, followed by Turnip
3. Potatoes	3. Turnip	3. Wheat	3. Barley
4. Wheat	4. Barley	4. Clover	4. Clover
5. Clover	5. Clover	5. Wheat	2. Oats or Wheat
6. Oats		6. Swedes	6. Beans and Turnip
7. Beans		7. Wheat	
		8. Mangel Wurzel	

10.	11.	12.	13.
1. Wheat	1. Bare fallow	1. Fallow	1. Fallow
2. Rape	2. Wheat	2. Wheat	2. Wheat
3. Oats	3. Clover	3. Barley	3. Beans
4. Wheat	4. Oats	4. Clover	4. Wheat
5. Clover	5. Beans	5. Oats	5. Mangel Wurzel
6. Wheat	6. Barley or Wheat	6. Beans	6. Barley
7. Beans		7. Wheat	7. Clover
			8. Wheat

1 is the Norfolk rotation; 2, the North of England modification of it; 3, Mr. Thomas's (of Woburn) modification of it; 4, a common modification of it in Norfolk; 5, the East Lothian 6-field rotation; 6, a common modification of it; 7, Cotswold district, Gloucestershire; 8, Whitfield 8-field course; 9, Hewitt Davis's light land rotation; 10, Fens of Lincolnshire; 11, clay lands in East Lothian; 12, Carse lands of Scotland; 13, clay lands of Essex. These rotations vary greatly in their manure-producing power. By some, 1 cwt. of meat may be made per acre, on others not ¼ cwt. By some therefore there is food per annum for an ox, making 20 tons dung for every 4 acres, and on others hardly one for every 16 acres.

Guanoes: *L.* Peruvian guano contains 16 per cent of ammonia.
Ichaboe guano contained... 5 to 8 „ „
Patagonian „ „ ... 1½ to 2 „ „
The New Arabian guano contains ... ... 5 to 8 „ „
Peruvian guano averages 70 lbs. a bushel, and if much more is either damaged or adulterated.

London Sewage: *J S.* It contains 10,000 tons per annum of ammonia, but it also contains 200,000,000 tons of water.

Methods of Feeding: *X.* 1. Box feeding cattle is a great preservative of the manure from them. 2. By feeding cattle in open floors, thus saving their excrement without litter, and afterwards pumping it on the land, the manure is all preserved, though the application of it is costly. 3. Covered manure yards are economical.

Poultry: *G R.* In judging Cochin China Fowls, the outer colour is the point with which the judges have to do. If a case arose where every other point was equal, which of late never happens, we hardly think, even then, the judges would be justified in making the under colour a point of decision, as they have to judge the birds on their present merits, and not looking into the future for their probable produce. If we wished to breed light birds, we would prefer those without dark under-feathers; but it is undeniable that all have more or less of dark blood in them, and also that the old-fashioned dark birds were heavier and more symmetrical than the light ones. The ridiculous stickling for uniform colour, and clear hackle, has robbed birds of the qualities formerly found in them, as regards weight and shape.—*P W J.* If you keep your fowls confined and feed "high," that is the cause of your trouble. Cooling food and a good Grass run is the remedy. Sometimes also, when closely confined, the other fowls pick off the feathers. *P.*

Rabbits: *Comy* wants to know the breed of a pair of "white rabbits with pink eyes and black ears," which he saw at the Crystal Palace show.

Sawdust: *M G Y.* You must not use enough acid to char it thoroughly; a less quantity only will be absorbed. Add of the acid about 1-6th or 1-8th in weight of the sawdust.

Sheep Nets: *R.* Consult our advertising columns.

Solubility of Manures: *R.* Manures are more immediately efficient in proportion to their solubility: hence the greater efficiency of superphosphate of lime over bones—hence the comparative inefficiency of wool waste as manure—hence the greater efficacy of bones which have crumbled down by fermentation in sand. Blood manure is a superphosphate in which blood takes the place of the water commonly used. Clay and lime both absorb matter which is agriculturally useful from gas, the former especially becomes in this way so charged that 1 or 1½ ton are a sufficient dressing per acre.

Superphosphate: *M G Y.* The longer the bones and acid lie together the better. Make it at least a fortnight before use.

Swedish Turnip: *E Josling.* The seed was tried on a light sandy soil in Surrey, and yielded about 20 tons per acre of a very well formed bulb—several other kinds were tried along with it—and we thought that the bulk of the field sown with your seed was superior to many of the kinds in the experimental plots.

Thick Wheat: *E L S.* To thin it you may herd sheep on it and then give it a good harrowing.

LAURELS, &c., FOR THE MILLION.

DAVID FERGUSON, Landscape Gardener and Contracting Planter,

BEING overloaded with LAURELS, will be glad to part with them, 2 to 4 feet in height, for ONE FARTHING EACH, if taken by the 10, 20, 50, or 100,000. They are well rooted, and excellent for laying down as under cover. Also splendid CEDRUS DEODARA, 2 to 7 feet, with fine leaders, not cropped, but allowed to assume their own natural graceful habits. CEDRUS LIBANI, 2 to 6 feet do.; ARAUCARIA IMBRICATA, 1 to 3 feet; TREE BOX, 2 to 4 feet; PORTUGAL LAURELS, 1 to 4 feet; AUCUBAS, 1 to 3 feet; COMMON YEWS, 1 to 5 ft.; IRISH do., 1 to 8 ft.; ARBOR VITÆ, 1 to 8 ft.; with lots of HOLLIES, COTONEASTERS, BERBERIS AQUIFOLIUM DULCE, PHILLYREA, SPRUCE and SCOTCH FIRS, &c.

New Double Pink and Scarlet THORNS, 4 to 10 feet; fine Standard CYTISUS, LABURNUMS; splendid WEEPING ASH, 10 to 12 feet; LIMES for Avenues, 12 to 15 feet, with LARCH, OAK, ELMS, BEECH, ASH, HAZEL, PRIVET, &c.

Very fine Standard and Dwarf PEACH and NECTARINE TREES that were lifted early in October, with balls of earth, and judging by the matured samples supplied me this season of Trees grown in pots, THEY ARE THE FINEST LOT POSSIBLE FOR THIS PURPOSE; besides, they are worked from Trees of 50 years standing under glass, which is no bad character in these times of trickery. Good Standard ROSES, such as MADAME LAFFAY, GEANT DES BATAILLES, MRS. ELLIOTT, &c.; Dwarf Crimson and Common CHINA ROSES, and very strong CAMELLIAS, STOCKS, &c.

HOLLYHOCK SEED, in packets at 1s., 2s. 6d., and 5s. each, gathered from a collection that everybody who saw them admired.

D. F. when employed as Landscape Gardener where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for his own time and plans, his object being to dispose of his Plants, which he has in large quantities, both for present and future effect.—**Stowe, Buckingham, March 21.**

IMPROVEMENT OF GRASS LANDS BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

CONSIST of the finest GRASSES and PERENNIAL CLOVERS, producing great improvement in the Pasture, and at a small expense. *Quantity of Seed required, 8 to 12 lbs, per acre.* Price reduced to **9d. per lb., or 80s. per cwt.** Sow in February, March, and April.

The great improvement effected by sowing Messrs. SUTTON's Renovating Mixture is most satisfactory, and to those who have not studied the various properties and habits of Grasses, the results are quite surprising. The following extracts from letters are similar to many others received unsolicited:—

From Mr. THOMAS BOWICK, *Farm Bailiff to Lord Leigh, Stoneleigh Abbey Farm, Feb.* 3, 1857.

"The RENOVATING MIXTURE with which you supplied Lord Leigh last season, for 40 acres of old turf, has more than equalled our expectations. I would add that the other Seeds supplied have each proved clean, true to name, and active in vegetative powers."

From SHAFTESBURY WALMSLEY, Esq., *Mottistone, Isle of Wight, Oct.* 1, 1856.

"The Grass Seeds were extremely good and answered my purpose uncommonly well; they gave me a famous crop of hay last summer, 2¼ tons per acre, where I never saw anything but bents and rubbish grow before. I strongly recommend your Renovating Seeds; they are clean, and I believe safely to be depended upon."

☞ *Having greatly reduced the price of our* RENOVATING MIXTURE, *we doubt not that our liberal terms will encourage the more extensive use of the same. Our Grass Seeds have for many years been allowed to be best, and now we may add that they are the cheapest.* **Grass Seeds, for laying down Permanent Pasture, 24s. to 32s. per acre.** *Parks, Meadows, and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds. Seeds carriage free to all parts, except small parcels. Catalogues post free.*

JOHN SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

PERMANENT PASTURE GRASSES.—Gentlemen intending to lay down Land to Permanent Pasture are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable. Price 24s. to 32s. per acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

SUTTON'S FINE LAWN GRASS SEEDS, FOR MAKING NEW, OR IMPROVING OLD GARDEN LAWNS. Price 1s. per lb., 2s. 6d. per gallon, or 20s. per bushel.

The following is an extract of a letter received from Prof. LINDLEY.

"MESSRS. SUTTON:—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. (Signed) JOHN LINDLEY."

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853."

QUANTITY OF SEED REQUIRED.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming new lawns 3 bushels or 60 lbs. is the quantity required per acre; or 1 gallon to 6 rods (or perches) of land.

FOR CEMETERIES, BOWLING-GREENS, PARK LAWNS, &c., where the *very finest* kinds are *not* required, another mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16s. per bushel.

EXTRACTS FROM LETTERS RECENTLY RECEIVED:—

From Mrs. EDWARDS, *Rhyd y Gwis, Caermarthen, March* 26, 1856.

"The Lawn Grass Seed you sent last year turned out beautifully."

From WM. SYMONDS, Esq., 6, *Belfield Terrace, Weymouth, Aug.* 26, 1856.

"The Lawn Grass Seed I received from you answered admirably."

From Sir GLYNNE WELBY, *Denton Hall, Grantham, Oct.* 1, 1856.

"The Lawn seed with which you supplied me last year answered perfectly."

From the Rev. F. KITSON, *Hemyock Rectory, Wellington, June* 17, 1856.

"The fine Grass Seed for lawns which Messrs. SUTTON sent in the spring has given great satisfaction."

From Capt. GAPE, *Portardulais, Llanelly, July* 5, 1856.

"Capt. G. will be obliged by Messrs. SUTTON sending him more of the same Lawn Grass Seed as they sent him before, which was very good indeed."

SUTTON & SONS *also supply Grass Seeds for Permanent Pasture, mixed expressly to suit the Soil, which are never known to fail.* Price 24s. to 32s. per acre.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

RED APRIL SPRING WHEAT.—The Subscribers have to offer a considerable quantity of this fine variety of SPRING WHEAT for Seed, price 65s. per quarter, in lots of 5 quarters. Freight paid to Leith or London.

For late districts, and on land previously unaccustomed to grow Wheat, this variety is invaluable, being equally early and prolific as Oats. It should not be sown before April, and may be sown during May.—J. MORRISON & SON, Banff, N.B., March 21.

PRIZE MANGEL WURZEL, SWEDE TURNIPS, ETC.

JAMES GROVE, Great Baddow, Essex, who obtained Prizes at the Chelmsford and Essex Agricultural Show for nine years in succession, begs to state that his SEEDS are grown from selected Roots, not Plants, and to call attention to the following:—

OPINIONS OF THE PRESS.

"The Roots shown by Mr. James Grove stand unrivalled."—Smithfield Club Show, 1848.—*Mark Lane Express.*

"The Roots shown by Mr. James Grove were pronounced by many practical judges to be the most perfect specimens they had ever seen."—Smithfield Club Show, 1849.—*Bell's Weekly Messenger.*

"The Mangel Wurzel and Swedes exhibited by Mr. J. Grove drew forth the warm encomiums of all who saw them. Mr. Grove has devoted a great deal of time to the cultivation of the Mangel, and judging from the specimens at this show, his efforts have been eminently successful."—Smithfield Club Show, 1851.—*Ibid.*

Similar remarks were made in the Agricultural Journals on the Roots exhibited by Mr. Grove in 1852, 1853, and 1854.

Birmingham Cattle Show, 1855 and 1856—the First Prize and Silver Cup were awarded to Mr. A. H. Johnson, of Gunnersbury, Middlesex, for the best Stand of Agricultural Roots, grown from Seed supplied by Mr. Grove; also, Two Prizes for Mangel Wurzel.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 20s. per acre

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming lawns, ... 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9d. lb.; Swedes, 1s. lb.; Turnips, 1s. lb.; Hybrids, 1s. 3d. lb.; Improved Italian Rye-grass, 7s. 6d. per bushel.—GEO. GIBBS & Co., 26, Down Street, Piccadilly, W.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

CHIVAS' MIXTURES OF PERMANENT GRASS SEEDS. Price 19s. 6d. per statute acre.

GEORGE CHIVAS invites purchasers of the above to make trial of his MIXTURES of GRASSES, which will bear comparison with those currently charged at a much higher (and in many instances about double) the price.

TESTIMONIALS as to the excellence of the Mixtures have been received from Landed Proprietors and Agriculturists of eminence to whom G. C. has supplied Seeds for many hundreds of acres—a copy of which will be forwarded post free on application.

North-west of England Seed Establishment, Chester, March 21.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for a sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1s. per lb.

GLOBE RED, very fine and equally prolific. 1s. 3d.

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1s.

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1s. 3d.

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter; to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre, 4s. per lb.—A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety, 36s. per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36s. per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr W MILES Mar Lane, London.

SEEDS FOR THE FARM.—A PRICED CATALOGUE of all the leading AGRICULTURAL SEEDS, sold by the SUBSCRIBERS, is now ready, and may be had, Post Free, on application.—W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.—*** All Parcels of Seed are delivered Carriage Free to the principal Railway Stations and Shipping Ports throughout the kingdom.

SEED CORN FROM THE CHALK.

TALAVERA, RED NURSERY, and APRIL, the best Wheats for Spring Sowing. Carefully screened samples of Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had at market prices on application to Mr. H. RAYNBIRD, Basingstoke. Samples sent free on application. A reference or remittance required from unknown correspondents.

ROYAL BRITISH BANK,

ISLINGTON BRANCH, CITY ROAD, NEAR THE "ANGEL."

HORSNAILL AND CATCHPOOL, of Bullford Mill, near Witham, Essex, and of Caledonian Road, Islington, beg to announce that they have taken the above premises, with a view to being more central.

For prices of Genuine Country FLOUR, &c., delivered to London families, and for other particulars, see *Times* daily.

REIGATE SILVER SAND, 16s. per Ton. Less quantities, 1s. 6d. per bushel. Delivered to any London wharf or railway, or within five miles. Peat and Loam for all kinds of Plants. Samples if required. Sacks, 2s. each, or on hire.

JOHN KENNARD, Swan Place, Old Kent Road, S.E.

THE CELEBRATED REIGATE SILVER SAND, 15s. per ton, a less quantity 1s. 6d. per bushel; delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to John G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

"SIGMA'S" CORN, BEAN, AND MANGEL PLANTERS, depositing the Seed in rows, at uniform depths and distance, and in stated quantities per acre.—Apply through Mr. RIDGEWAY, 169, Piccadilly, London.

SIGMA'S SEED DEPOSITORS AND HOES.—No further orders can be executed under a fortnight.—Application through Mr. RIDGWAY, 169, Piccadilly, London.

WANTED, the ADDRESS of any Gardener or his Employer, wishing to have samples, with particulars and prices, free by post, of HAYTHORN'S HEXAGON GARDEN NET, used in most Gardens, and recommended by all the principal Gardeners.—Copy Address, Mr. HAYTHORN, Nottingham.

TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1d. per square yard; 200 yds, 14s.; 500 yds, 30s.; 1000 yds, 50s. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpauling Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5d.; No. 2, 6d.; and No. 3, 8d. per yard. Garden Shade Netting, 2½d. per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, Esq., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

HORTICULTURE IN ALL ITS BRANCHES.

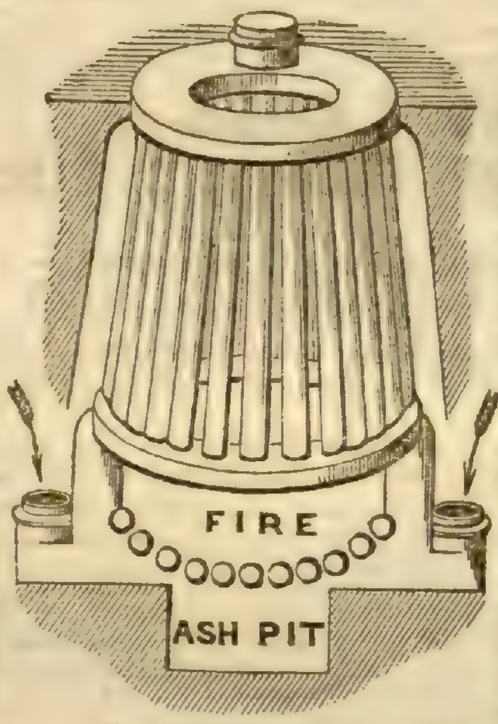
BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

Garden Engines, Syringes, &c., upon the most approved principle.

CAUTION.—THE WELL-KNOWN REPUTATION OF

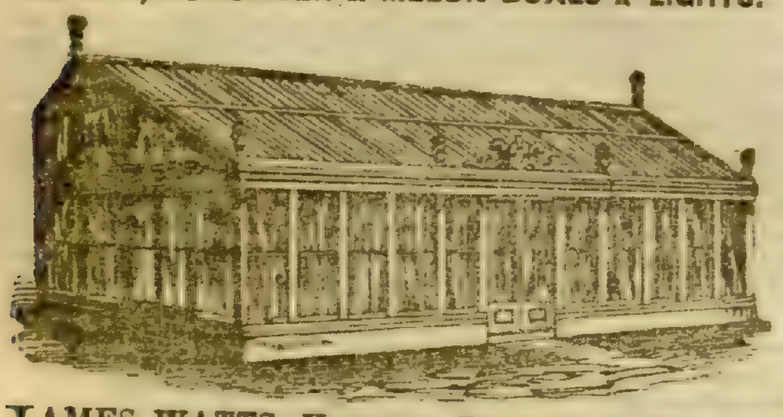
READ'S ENGINES, MACHINES, AND SYRINGES

Has led to the nefarious practice of placing cards in shop windows with the words "Read's Patent" upon Syringes of the very commonest description. R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal Arms and Address, "35, Regent Circus, London."

Descriptions sent post free.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



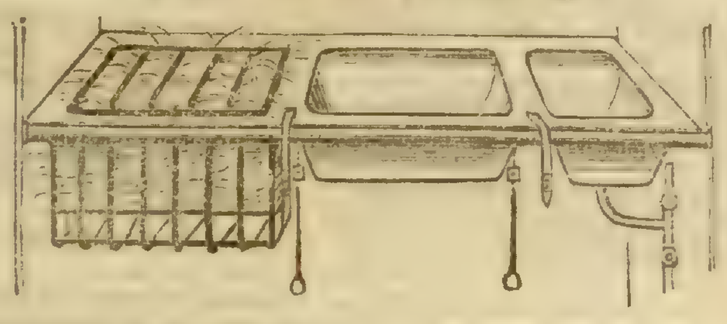
JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these Fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

TODD'S PATENT IMPROVED PROTOXIDE PAINT AND OXIDE OF ZINC PAINT.—The Paint, being INDESTRUCTIBLE by HEAT, is recommended for hot climates, Painting Boilers, Steam Pipes, Hothouses, &c. It preserves iron from oxidation, wood from decay, and masonry from dampness. In stuccoed buildings it prevents the discolouration formed by vegetation. Being free from deleterious qualities, houses may be painted with it while occupied. It is cheaper, lasts longer, and covers a larger surface than white lead. It is of the lightest stone colour, but may be tinted with any other required.

TODD'S PATENT PAINT COMPANY (Limited), 58, King William Street, London Bridge (E.C.), where Testimonials from Railways, Engineers, Shipowners, and others may be seen.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d* per lb.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10	gallons,	throws 30	feet high		...	£ 19
No. 2	" 15	"	" 45	"		...	5 10
No. 3	" 28	"	" 45	"		...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8	gallons,	throws 25	feet high		...	£2 15
No. 13	" 12	"	" 30	"		...	3 5
No. 11	" 16	"	" 40	"		...	4 0
No. 12	" 24	"	" 45	"		...	5 0
No. 14	" 30	"	" 45	"		...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

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TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

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" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
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Mr. R. Parker, Paradise Nursery, Holloway.
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Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
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Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
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Mr. W J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
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Messrs. Bass and Brown, Nurserymen, Sudbury.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
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Messrs. Bass & Brown, Sudbury
Messrs. F. & A. Dickson & Sons, 106, Eastgate Street, Chester, and 14, Corporation Street, Manchester
Messrs. Sutton & Sons, Reading
Mr. A. Pontey, Plymouth
Mr. J. Veitch, Exotic Nursery, Chelsea
Messrs. Wheeler & Son, Gloucester
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Messrs. Masters & Son, Canterbury
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Mr. E. Taylor, Malton, Yorkshire
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The Triple-Retort to heat	3000	feet of 4-inch pipe		...	£8 10
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These prices include free delivery to rail or ship and a peculiar boiler plate.

The Retort Boilers are now so extensively used in all parts of Britain and Ireland that little need be said of them beyond the fact that two of them have been fixed to supersede seven of the modern tubular boilers in one of the most extensive early forcing establishments near London, where they heat, the one 750 gallons, the other 580 gallons of water, in 28 divisions of forcing-houses and pits mostly span-roofed.

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WARRANTED GOOD BY THE MAKERS.

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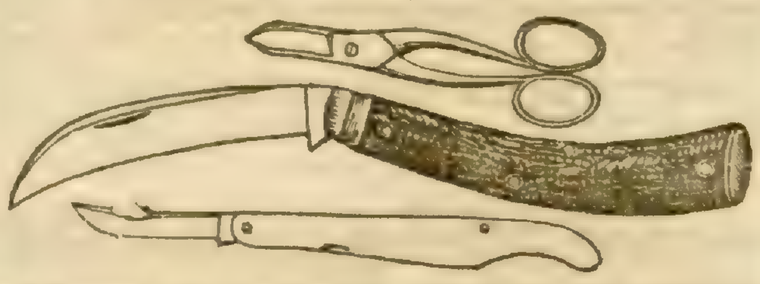

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11 by 9,	12 by 9,	13 by 9,	14 by 9	...	... 15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10	...	... } 16 0
	16 " 10,	17 " 10,	18 " 10	...	... }
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11	... 16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12	...	... 17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12	...	... }
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	22 " 13,	24 " 13	...	...	... } 18 0
20 " 14,	22 " 14,	24 " 14	...	...	... }
10 " 15,	22 " 15,	24 " 15	...	...	... }
	20 " 18	...	...	...	... £1 2 0

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39, Oxford Street, W.; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 437 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10s. 6d. by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

THE BELMONT GLYCERINE SOAP contains PRICE'S Pure Glycerine, distilled by their patent process from Palm Oil. It is recommended for washing infants and shaving, it softens the skin, and is a most agreeable toilet soap for general use.

PRICE'S CANDLES, which will not drop grease when carried. These used as Chamber Candles prevent damage to dresses and carpets. They should be burnt in the candlesticks made specially for them in imitation bronze, with cotton branch stems, and palm leaf feet, having stamped round the edge—"PRICE'S Patent Candle Company Limited." All the above may now be had retail through any druggist, perfumer, or grocer. The Soap in English ornamental boxes, price 6d., 1s., and 1s. 6d. each; the Candles in boxes, 1s. and 8s. Candlesticks, 2s. 6d. each. And wholesale at Belmont, Vauxhall, London.

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, curly, and glossy. In the growth of the Beard, Whiskers, Eyebrows, and Mustachios, it is an unfailing stimulant. For Children it is especially recommended as forming the basis of a beautiful head of hair. Price 3s. 6d. and 7s.; family bottles (equal to four small) 10s. 6d.; and double that size, 21s. CAUTION.—To prevent imposition, a New Label from Steel, by Messrs. Perkins, Bacon, & Co., is now used, bearing the words "ROWLANDS' Macassar Oil," &c., in white letters, and their signature in red ink, "A. ROWLAND & SONS." The whole, with the exception of the profile of Her Majesty the Queen, is covered with a lacework pattern, in colourless ink.—Sold at 20, Hatton Garden, London, and by Chemists & Perfumers.

FOR SALE, SEVEN NEW HOT and GREEN-HOUSES and CONSERVATORIES, from 8 feet to 32 feet in length, and which will be sold at Second-hand Prices, as the ground must be cleared at once. Standing at E. DENCH'S Patent Hot-House Works, King's Road, Chelsea, and at Granby Nursery Grounds, Mornington Place, Hampstead Road.

TO BE SOLD OR LET, and entered upon immediately, a well ESTABLISHED VINERY extending over upwards of 4000 feet of glass. The situation is unexceptionable, and within easy reach of the London markets by railway. The Vines are three years old, are in various stages of succession, promising an abundant crop, and are principally of the Black Hamburgh variety. The houses are fitted up on the most approved principle, with hot-water apparatus, extra flues, &c. Nearly an acre of ground (planted with choice fruit trees) surrounds the forcing houses, and there is a comfortable dwelling house on the spot. To an enterprising man this is a rare opportunity, as the premises have been fitted up by the present proprietor regardless of expense, who is compelled to relinquish business on account of ill health.—For particulars, apply to Mr. CHRISTIAN, Belgrave, Leicester.

GOLDEN PHEASANTS, in splendid Plumage, 2l. 10s. a brace; Young Cocks, 18s. each; Common Pheasants, tame bred and pinioned, 34s. a brace; Baskets extra; Eggs from Gold and Common Pheasants in April for hatching. Fancy Poultry, Pigeons, &c.—Apply, Mr. TIMOTHY MASON, 7, Upper Jubilee Street, Mile-end Road, London. The Birds forwarded on receipt of Post-office order.

CAPTAIN HORNBY can supply EGGS during the Season from the Spanish, Dorking, and Game Birds with which he has taken prizes at Wellington, Windsor, Bristol, Prescot, Chelmsford, Anerley, Wigan, Runcorn, Birmingham, Preston, Liverpool, and Kendal. The Dorking Eggs from the parents of chickens which won both Silver Cups at Preston, and the Ten Guinea Cup at Liverpool, beating the adult birds.—Knowsley Cottage, Prescot.

Sales by Auction.

A CONSIGNMENT OF PLANTS FROM GHENT.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, March 27, at 1 o'Clock precisely, a collection of Greenhouse and Hardy Plants, from Mr. Jean Verschaffelt, of Ghent, including Camellias and Azaleas, many of which are new varieties, Rhododendrons, Kalmias, Standard Laurustinus and Bays, Magnolias, Pæonies, Standard and Dwarf Roses, Lilium lancifolium, Amaryllis, the sorts recently exhibited at Ghent, to which the Gold Medal was awarded.—May be viewed on the morning of Sale; and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.—March 21.

ORCHIDS, SEEDS AND PLANTS FROM JAVA, CALCUTTA, ETC.

CONSIGNED FOR ABSOLUTE SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, March 24, at 1 o'Clock precisely, a consignment of ORCHIDS from Java, including 60 Plants of Cypripedium javanicum in fine health, and other choice sorts; five boxes from India, with a new Cypripedium and various Begonias, Ferns, &c.; a large collection of INDIAN SEEDS, comprising Cedrus Deodara, Pinus excelsa and Gerardiana, Picea Pindrow, Cupressus torulosa, Juniperus excelsa, Arbutus, &c., and a few Pine Cones and Seeds from California. Also 30 lots of Climbing Roses of good sorts.—May be viewed on the morning of Sale, and Catalogues had.

STANDARD ROSES, AZALEAS, HERBACEOUS PLANTS, &c.

MR. HASLAM will Sell as above, at the Mart, on THURSDAY till April 2 inclusive. N.B. All goods to the amount of 10s. and upwards packed and delivered free of charge to the Parcels Delivery Company. Baskets and Mats allowed for when returned.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, March 26, at 12 o'Clock, a first-class collection of Carnations, Picotees, and Pinks; also fine Standard and Dwarf Roses, a fine assortment of American Plants and Ornamental Shrubs; together with choice Verbenas, Fuchsias, Pæonias, Dahlias in dry roots, fine Camellias, Azalea Indica, Geraniums, Epacris, and a variety of other plants in bloom.—On view the morning of Sale: Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

HOMERTON.—TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Shaw to Sell by Auction, on the premises, Brooksby's Nursery, Brooksby's Walk, Homerton, on FRIDAY, March 27, at 11 o'Clock, in consequence of the lease having expired, the whole of the NURSERY STOCK, consisting of Evergreen and Deciduous Shrubs, Forest and Fruit Trees, including 100 Dwarf-trained Peaches and Nectarines; also a quantity of Ivies, Pyrus japonica, Wistaria, Roses, White Jasmines, Brooms, Clematis, Cotoneaster, and Double Furze in pots; with a collection of Herbaceous Plants, Pæonias, &c.—May be viewed two days prior to the Sale. Catalogues may be had on the premises; of the principal Seedmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

4, Great Russell Street, Covent Garden, 1857.

JOHN KERNAN,

IN OFFERING TO HIS FRIENDS AND THE PUBLIC THE ANNEXED

LIST OF VEGETABLE AND FLOWER SEEDS,

WHICH INCLUDES EVERY NOVELTY INTRODUCED UP TO THE PRESENT SEASON,

BEGS TO ASSURE HIS CUSTOMERS THAT HE HAS SPARED NO TROUBLE IN SECURING EVERY ARTICLE AS GOOD AS IT COULD POSSIBLY BE PROCURED.

PEAS. Per qt.—*s. d.*

Harrison's Perfection, white 5 0
„ Glory, blue... ... 5 0
Eugene 5 0
Early Emperor 1 0
Shilling's Early Grotto ... 1 0
(Early and large, and a fine late Pea.)
Bishop's new long-podded 1 0
Fairbeard's Champion of England 1 0
Fairbeard's Surprise ... 1 0
British Queen 1 0
Knight's Dwarf, green and tall 1 0
Scimetar 0 9
Woodford or Nonsuch ... 1 0
Victoria Marrow 1 0
Napoleon 5 0
Dwarf green Mammoth ... 1 6
With all other varieties worth cultivating.

BEANS. Per qt.

Early Mazagan 0 6
Sword Longpod 0 8
Hangdown... ... ... 0 6
Taylor's Windsor ... 0 8
Johnson's Wonderful ... 0 8
Green Genoa 0 8
Dwarf French, of sorts ... 1 0
Scarlet Runners 1 0
Painted Lady do.... ... 1 0

Per oz.

Beet, fine London Red ... 0 6
„ Silver, or Seakale ... 0 6
„ Whyte's black ... 0 6
Borecole, new heading, per paper 0 6
„ red and white variegated, for garnishing 0 6
„ dwarf curled, per oz... 0 6
Brussels Sprouts (foreign seed, fine) per oz.... 0 9
„ English do. ... 0 6
Kohl Rabi, per paper ... 0 6
Savoy, green curled, per oz. 0 6

BROCCOLI. Per oz.

Myatt's Early Purple Cape 1 0
Miller's Dwarf 1 0
Chappell's Cream ... 1 0
Dancer's Early White ... 1 0
Somner's Late White ... 1 0
Willcove White, late ... 1 0
Grange's Early White—from the original raiser 1 0
Invisible White 1 0
Purple Sprouting 1 0
Walcheren... ... ... 1 0
mperial Winter 1 0
Dwarf Siberian 1 0
Purple Syrian 1 0

CABBAGE. Per oz.

Nonpareil 0 6
Shilling's Queen 0 6
Atkin's Matchless ... 0 6
Enfield Market 0 6
Knight's Early Dwarf ... 0 6
Early York 0 6
Large York 0 6
Early Battersea 0 6
Couve Tronchuda, p. paper 0 6
Red Dutch... ... ... 0 6
And all other kinds in cultivation.

CARROT. Per oz.

Early forcing Horn ... 0 6
Early Scarlet Horn ... 0 4
Long Orange 0 3
Fine Surrey 0 3
Altringham, per lb. ... 1 0
White, for Agriculture, p. lb. 1 0
Parsnip, Hollow-crown, per oz. 0 3

CAULIFLOWER. Per oz.

Mercer's fine Pearly ... 1 0
London Particular ... 1 0
Large Asiatic 1 0
Walcheren 1 6

PARSLEY. Per bush.

Plain, for sheep-walks and early lambs 14 0
Extra curled, per oz. ... 0 3

CRESS.

Plain, per pint 0 6
Curled 1 0
American, per oz. ... 0 3

CRESS. *s. d.*

Water, per paper... ... 0 6
Mustard, per pint ... 0 6

CELERY. Per oz.

Coles's Superb Red ... 0 6
„ White 0 6
Seymour's Superb White 0 6
„ Superb Red ... 0 6
New Rose, solid 0 6
New Giant 0 6

CUCUMBER. Per paper.

Crawshay's Ne Plus Ultra 1 0
Victory of Bath 0 6
Acme of Perfection ... 0 6
Syon House 0 6
Weedon's Free Bearer ... 0 6
Early Frame 0 3
Kerrison's 0 6
Walker's Rambler ... 0 6
Windsor Prize 0 6
Early Handglass 0 3
Early Ridge 0 3

MELONS.

Seymour's Golden Perfection 0 6
True Syon House 0 6
Snow's Hybrid Green-flesh 0 6
Beechwood... ... ... 0 6
And all the better sorts grown for this market.

ENDIVE.

New Imperial, per packet 0 6
Batavian, per oz. 0 6
Green curled 0 6
White curled 0 6

Herbs, all the kinds, p. pkt. 0 6

LETTUCE. Per oz.

Bath Cos, black seeded ... 1 0
Brighton Cos 1 0
Imperial Cos 1 0
Victoria Cabbage... ... 1 0
Green Paris Cos 1 0
White Summer Cabbage 1 0
Fine London White Cos... 1 0
Paris Cos 1 0
Drumhead 1 0
Bath Cos and others ... 1 0

ONION. Per oz.

James's Long Keeping ... 0 6
Fine White Spanish ... 0 6
Globe 0 6
Strasburgh... ... ... 0 6
Deptford 0 6
Silver-skin.. ... ... 0 9
Tripoli 0 6
Blood red 0 6
Two-bladed, for pickling 0 6

RADISH. Per oz

New Scarlet Olive-shaped, a delicious new variety 0 3
New Rose 0 3
Early frame, per pint ... 1 0
Long Scarlet 1 0
Red and White Turnip ... 1 6
Black Spanish, per oz. ... 0 3

SPINACH.

New Flanders, per pint ... 0 6
Round, or Summer ... 0 6
Lettuce-leaved (new) ... 0 6
New Zealand, per oz. ... 0 3

TURNIPS. Per oz.

Early Snowball 0 3
Red American Stone ... 0 3
Teltow, for stewing ... 0 3
Early Dutch 0 3
Yellow Maltese 0 3
„ Stone 0 3
Early Snowball, per lb. ... 2 0
Early Dutch (earliest), true imported 2 0

Vegetable Marrow, p. pkt. 0 3
Gourds, ornamental ... 0 6
„ cw't 0 6

AGRICULTURAL TURNIPS

Yellow Bullock per lb.—1 0
Skirving's Swede... ... 1 0
Laing's ditto 1 0
Ashcroft ditto 1 0
Dale's Hybrid 1 0
Red Round 1 0
White Round 1 0
White Globe 1 0
Oxheart 1 0

Per lb.

Drumhead Cabbage ... 2 6
Thousand Headed ... 1 6

Furze, per lb., 1*s.* Broom, 1*s.*
Coarse Grasses for Game Covers, 8*s.* per bushel.
Yellow Globe and Long Red Mangel Wurzel, per lb., 1*s.*
White Silesian or Sugar Beet, per lb., 1*s.*
Chevalier Barley; Hopetoun, Tartarian, Sandy, and other Oats.
Flax, from Riga seed, one year grown in this country.
A fine collection of all the best Permanent Grasses (hand picked), separate or mixed. If mixed, per bushel, 8*s.*
Sweet Vernal, the earliest and most suitable Grass for early Lambs, 2*s.* per lb.
White, 1*s.*, and Red Clover, 9*d.*; Lucerne, 1*s.*; and Trefoil, 6*d.*
Kohl Rabi, for Agriculture, per lb., 2*s.*
Italian Rye-grass. Spring and Winter Tares.
A few of the very finest Grasses for Lawns, per lb., 1*s.* 6*d.*
30 papers of Hardy Annuals, 5*s.*
15 „ „ 2*s.* 6*d.*

Myatt's fine new Strawberries.
Asparagus plants, according to age, per 100, 2*s.* 6*d.* to 5*s.*
Seakale plants, according to age, per 100, 5*s.*; do. for forcing, 10*s.*
Dulley's Early Scarlet Admirable Rhubarb, per root, 1*s.*
Myatt's Victoria do. (the largest in cultivation), 1*s.*
Mushroom Spawn, per bushel, 5*s.*
Cornwall's Victoria Raspberry, per dozen, 2*s.* 6*d.*
All the fine new Raspberries, 2*s.* 6*d.* to 3*s.* per dozen.
Seeds of all the new Strawberries, Raspberries, Gooseberries, and Currants, per paper, 6*d.*; with Tree Seeds recommended to Emigrants.

POTATOES.

Per bushel.—*s. d.*		Per bushel.—*s. d.*	
Soden's Early Oxford ...	8 0	Ash-leaved Kidney ...	8 0
Barnard's Early Frame ...	8 0	Fluke Kidneys	5 0
Shilling's Early Prolific	8 0	Forty-fold	5 0
Kirke's True Ash-leaved Kidney	8 0	Early Hen's Nest... ...	5 0
Walnut-leaved Kidney ...	8 0	Early Shaw	5 0
		Prince Regent's	5 0

And many other most productive late kinds; also seed saved from the best varieties, 6*d.* per packet.
Garlic, per lb., 6*d.* Shallots, per lb., 6*d.*
Budding and Pruning Knives.
Russia Mats, 1*s.* 6*d.* each. Cuba Bass, per lb., 2*s.*
Buckwheat, Indian Corn, Rape, Hemp, &c., for Aviaries.
The trade supplied on moderate terms with every article true to its kind. Catalogues may be had on application.

FLOWER SEEDS.

Superb German and Prussian Stocks, 24 distinct varieties, for exhibition, the collection, 8*s.*
12 varieties of do., distinct in colours, 4*s.*
12 autumn flowering do., in distinct colours, 4*s.*
A mixture of all the finest varieties of Ten-week, per paper, 6*d.*
12 varieties of Brompton Stocks, 4*s.*
A mixture of Brompton do., per packet, 6*d.*
12 named varieties of Hollyhocks, 3*s.*
8 named varieties of Marvel of Peru, 2*s.* 6*d.*, fine, for the front of [Shrubberies.

Per packet.—*s. d.*		Per packet.—*s. d.*	
Abronia umbellata ...	0 6	Convolvulus minor, striped	0 3
Achimenes, seeds and bulbs		Clary, white topped ...	0 6
Ageratum albiflorum ...	0 6	CLIMBERS.	
Alstrœmeria, of sorts ...	0 6	Cobœa scandens	0 6
Anagallis, of sorts ...	0 6	Calampelis scaber ...	0 6
Amethystea cærulea ...	0 3	Lophospermum erubescens	0 6
Anemone, fine mixed ...	0 6	„ Hendersoni	0 6
Antirrhinum (all the new kinds)	0 3	Loasa aurantiaca	0 6
Argemone grandiflora ...	0 3	Maurandya Barclayana ...	0 6
„ Barclayana ...	0 3	„ new scarlet ...	0 6
„ speciosa ...	0 3	Tropæolum peregrinum ...	0 6
Aquilegia glandulosa, fine	0 6	„ pentaphyllum	0 6
„ fragrans ...	1 0	„ tricolorum	0 6
„ fine mixed German varieties	0 6	„ grandiflorum	1 0
Asters, 12 distinct German vars., in sealed packets	4 0	„ trimaculatum	0 6
A mixture, including all the colours of above ...	0 6	„ minor coccineum	0 6
Asters, 12 distinct French varieties	4 0	Ipomœa rubra cærulea ...	0 6
A mixture, including all colours of above ...	0 6	„ punctata... ...	0 6
Auricula, from fine named flowers ...	1 0	„ rosea	0 6
„ alpine	0 6	Thunbergia alata... ...	0 6
Brachycome iberidifolia...	0 6	„ „ alba ...	0 6
„ alba, new ...	0 6	„ aurantiaca ...	0 6
Balsams, 12 very fine distinct colours, all double	5 0	„ new yellow...	0 6
„ mixture of above	0 6	Collinsia grandiflora ...	0 3
Bartonia aurea	0 3	„ bicolor	0 3
Blumenbachia insignis ...	0 6	„ Bartsiæfolia ...	0 6
Browallia, of sorts ...	0 6	„ multicolor ...	0 6
Calceolaria, new sp. (annual)	1 0	Cowslip, fine mixed ...	0 6
Calceolarias, from a collection of named shrubby kinds	1 0	Dahlia scabigera, dwf. lilac	0 6
Calceolarias, from Herbaceous do....	1 0	„ fine mixed... ...	0 6
Calendrinia discolor ...	0 3	Datura fastuosa, purple ...	0 6
„ grandiflora ...	0 3	„ „ white ...	0 6
„ umbellata ...	0 6	„ ceraticaule ...	0 6
Campanula pulcherrima...	0 3	Delphinium or Larkspurs	0 3
„ Lorei, blue ...	0 3	Ditto, biennial and perennial varieties	0 3
„ „ white...	0 3	Digitalis or Foxglove ...	0 3
„ stricta ...	0 3	Dianthus, double white Indian pink ...	0 6
„ sylvatica ...	0 3	„ double Indian ...	0 3
„ grandis ...	0 6	„ Cheri	0 3
Catananche bicolor ...	0 3	„ Garnierianus ...	0 6
Chœnostoma fastigiata ...	0 6	„ superbus nanus .	0 6
Cistus guttatus, very dwf.	0 6	„ imperialis, very double	0 6
Clintonia pulchella ...	0 6	And others.	
„ elegans ...	0 3	Didiscus cæruleus ...	0 6
Cockscomb, dwarf scarlet	0 6	Eucharidium grandiflorum	0 3
Cuphea, all the kinds ...	0 6	Eutoca viscida	0 3
Cineraria, selected from the latest new kinds ...	1 0	Egg plant, white	0 3
Commelina alba	0 3	„ purple ...	0 3
„ cœlestis ...	0 3	Eschscholtzia, 3 sorts ...	0 3
Carnation, from named flowers	1 0	„ new white	0 6
Clarkias, all the varieties	0 3	Erysimum Perofskianum	0 3
Coreopsis, new marbled ...	0 6	Fuchsia, from named sorts	0 6
„ tinctoria ...	0 3	Gaillardia picta	0 6
„ Drummondi ...	0 3	„ Josephus, new	0 6
„ nigra (new) ...	0 3	„ Richardsoni ...	0 3
Candytuft, new crimson...	0 3	„ aristata ...	0 3
„ purple... ...	0 3	Gaura Lindemani ...	0 6
„ white	0 3	Globe Amaranthus, of sorts	0 3
„ sweet-scented .	0 3	Geum splendens	0 6
Convolvulus major ...	0 3	Geranium, from fine sorts	1 0
„ minor ...	0 3	Gilia, of sorts	0 3
„ do. new dark	0 3	Grahamia aromatica ...	0 6
		Gramnathes gentianoides	0 6
		Godetia, all the new sorts	0 3
		Heartsease, from first-rate prize flowers	0 6
		Humea elegans	0 6
		Helichrysum macranthum	0 6
		„ bracteatum album	0 3
		Heliotropium peruvianum	0 6
		„ Voltaireanum	0 6
		Hibiscus, of sorts... ...	0 3

FLOWER SEEDS.

Per packet.—*s. d.*		Per packet.—*s. d.*	
Heliophila araboides ...	0 3	Papaver marcelli	[illegible]
Helianthemum, Rock Cistus	0 3	„ nudicaulis ...	[illegible]
Hollyhock, Chinese ...	0 6	Poppy, carnation, mixed	[illegible]
„ fine mixed ...	0 3	Peas, sweet, all the colours, separate or mixed ...	[illegible]
Ipomœa coccinea	0 6	Pentstemon, of sorts ...	[illegible]
„ Burridgi	0 6	Perilla nankinensis ...	[illegible]
„ quamoclit... ...	0 6	Phlox Drummondi ...	[illegible]
Ipomopsis elegans ...	0 6	„ „ white ...	[illegible]
Isotoma axillaris	0 6	„ Leopoldi (new) ...	[illegible]
Jacobæa, double crimson	0 3	„ new, scarlet	[illegible]
„ „ purple ...	0 3	„ oculata	[illegible]
„ new lilac ...	0 3	„ perennial mixed ...	[illegible]
„ yellow	0 6	Picotee, from named flowers	[illegible]
Kaulfussia ameloides ...	0 3	Platystemon californicus	[illegible]
HANDSOME ORNAMENTAL GRASSES ..... per paper, 6*d.*		Potentilla	[illegible]
Larkspurs, 12 distinct Per pkt.		Polyanthus, fine mixed ...	[illegible]
German vars.	2 6	Portulacca splendens ...	[illegible]
„ mixed dwarf		„ Thellusoni ...	[illegible]
„ Rocket ...	0 3	„ grandiflora ...	[illegible]
Leptosiphon densiflores ...	0 3	„ striata alba ...	[illegible]
„ androsaceus	0 3	„ Gilliesi ...	[illegible]
„ luteum ...	0 6	„ yellow	[illegible]
Loasa aurantiaca	0 6	Primula sinensis (white fringed) ...	[illegible]
Limnanthes grandiflora...	0 6	„ lilac	[illegible]
„ Douglasi ...	0 3	„ large crimson ...	[illegible]
„ rosea	0 6	„ cortusoides ...	[illegible]
„ sulphurea odorata	0 6	„ rubra striata ...	[illegible]
Linum grandiflorum album	0 6	Rhodanthe Manglesi ...	[illegible]
„ „ rubrum	0 6	Salpiglossis, new scarlet	[illegible]
Lobelia heterophylla major	0 6	„ fine mixed...	[illegible]
„ ramosus alba ...	0 6	„ new yellow	[illegible]
„ „ rosea ...	0 6	SalviaRæmeria	[illegible]
„ gracilis alba ...	0 6	Salvia, of sorts	[illegible]
And others ...	0 3	Sanvitalia procumbens ...	[illegible]
Lotus Jacobæus	0 3	Saponaria calabrica ...	[illegible]
„ nova sp.	0 6	„ ocymoides ...	[illegible]
Lupinus Hartwegi ...	0 3	„ multiflora ...	[illegible]
„ „ roseus	0 6	Schizanthus Hookeri ...	[illegible]
„ nanus	0 3	„ Grahami ...	[illegible]
„ Cruikshanki ...	0 3	„ retusus alba...	[illegible]
„ affinis	0 3	„ humilis ...	[illegible]
„ monogynia ...	0 6	„ Priesti ...	[illegible]
Lychnis, of sorts	0 3	„ venustus ...	[illegible]
Malope grandiflora ...	0 3	Schizopetalon Walkeri, very sweet	[illegible]
Mallow, new zebra ...	0 3	Sphænogyne speciosa ...	[illegible]
Malva miniata	0 3	Streptocarpus Rexi ...	[illegible]
Madaria corymbosa ...	0 6	Silene pendula alba ...	[illegible]
Marvel of Peru	0 3	„ Schafta	[illegible]
Marigold, dwarf pigmy French	0 6	„ compacta	[illegible]
Other varieties	0 3	Stock, white pyramidal ...	[illegible]
Maurandya, new white ...	1 0	„ Buck's Intermediate, 16 out of 20 will come double ...	[illegible]
Mesembryanthemum tricolor	0 6	„ Chapman's Scarlet Ten-week ...	[illegible]
Mignonette, new large, per oz.	0 6	„ Shepherd's White...	[illegible]
Mignonette, per oz. ...	0 6	„ „ Purple ...	[illegible]
Mimosa sensitiva... ...	0 6	Sedum cæruleum, for rockwork	[illegible]
Mimulus, from 12 distinct named varieties ...	0 6	Sultan, yellow	[illegible]
„ moschatus ...	0 3	„ white and purple .	[illegible]
Martynia fragrans ...	0 6	Tagetes signata	[illegible]
Myosotis palustris (Forget-me-not)	0 6	„ lucida	[illegible]
Nasturtiums, of all sorts...	0 3	Thunbergia (*see* Climbers).	
Nemesia floribunda ...	0 6	Tropæolum (*see* Climbers).	
„ versicolor, new	0 6	Tropæolum speciosum ...	[illegible]
„ compacta, new	1 0	Viscaria oculata	[illegible]
Nemophila insignis major	0 3	„ new dwarf ...	[illegible]
„ insignis alba ...	0 3	„ white	[illegible]
„ discoidalis ...	0 3	Violet, Russian (ever-flowering)	[illegible]
„ maculata ...	0 3	Verbena, a mixture of best sorts	[illegible]
„ aurita alba ...	0 6	Wallflower, blood red ...	[illegible]
„ striata	0 6	„ double German	[illegible]
Nierembergia splendens...	0 6	„ changeable ...	[illegible]
„ violacea ...	0 3	„ 8 vars. of imported German	[illegible]
„ fine mixed	0 6	Zinnia elegans coccinea ...	[illegible]
Nolana atriplicifolia ...	0 3	„ purpurea	[illegible]
„ paradoxa	0 3	„ aurea	[illegible]
„ grandiflora alba ...	0 6	„ mixed from 20 separate varieties ...	[illegible]
Nycterinia selaginoides ...	0 6		
„ capensis ...	0 6		
Œnothera Drummondi ...	0 6		
„ macrocarpa ...	0 6		
And others...	0 3		

Ornamental Trees and Shrubs of all descriptions.
Cedrus Deodara, Cryptomeria japonica, Taxodium sempervirens, 2*s.* 6*d.* to 10*s.* 6*d.* each; all the new Pinus.
Named Double Anemones and Ranunculuses; Gladiolus Brenchleyensis and gandavensis; Tigridia pavonia and conchiflora, with many other flowering Bulbs and Herbaceous Plants, which may be planted out till the middle of May.
Carnations, Picotees, and Pinks, per pair, from 1*s.* to 3*s.* 6*d.*
All the better named Heartsease from 6*s.* to 30*s.* per dozen.
Fine named Dahlias, per dozen, 6*s.* to 12*s.*
„ Chrysanthemums, new kinds, 6*s.* to 12*s.*
Standard Dwarf and Climbing Roses, 1*s.* to 2*s.* 6*d.* each.
Rivers' Miniature Fruit Garden, with directions for culture and root pruning, 2*s.*—Rivers' Orchard House, 2*s.*
Rivers' new edition of the "Rose Amateur's Guide," 3*s.* 6*d.*
Rivers' new Fruit Catalogue, 6*d.* [should distribute to cottagers.
Paxton's "Cottage Calendar," 3*d.*, which ladies and gentlemen
Collections of 24 Annuals, mixed, recommended by Dr. Lindley as suitable for Shrubberies, 5*s.* [on the most liberal terms
Seeds for distribution by gentlemen to their tenants and cottagers
Seeds selected and carefully packed for Australia, North and South America, India, and New Zealand, in the most secure way to arrive safe at any of the above places.

Ladies and gentlemen relying upon the judgment and experience of JOHN KERNAN, instead of being supplied (as is often the case) with what is neither useful nor ornamental, may depend upon having a selection of the most useful and indispensable Vegetables to any amount named, by the parties forwarding him their orders. The same economy will be observed in the choice of Flower Seeds. J. K. feels it almost needless to observe that the liberality of discount will be with the amount.

Old Meadow Turf, which will take a considerable time to decompose and char by the regular or natural means, may be produced by the following simple and short process:—Place four bricks raised two on two above 3 feet distance from four others similarly arranged, upon which place a sheet of iron large enough to rest fully on the bricks. By making a fire under this simple machine and allowing your Turf to remain until charred it will, when bruised, make an excellent stimulant for Annuals, Herbaceous and Pot Plants of all sorts. If the vermin of the season do not disturb them, you will not require more than one plant in a hundred of those that come up. Be careful to begin thinning when the plants are quite young. Do not sow delicate Annuals in the open borders until the end of April, or (what is better) make two sowings, one in the middle of April, and the other the beginning of May. These will succeed each other *until October.*

SEEDS SELECTED AND CAREFULLY PACKED FOR ALL CLIMATES.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex. Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, March 21, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 13.—1857.] SATURDAY, MARCH 28. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—The next Meeting for the Exhibition of ORCHIDS, AZALEAS, ROSES, FRUIT, &c. &c., and the ELECTION of FELLOWS, will be held on TUESDAY, April 7th, at 3 P.M. Admission only by Fellow's personal introduction, ivory tickets, or written order.—21, Regent Street, S.W.

ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will be held on WEDNESDAY, May 20th; THURSDAY, June 18th: and WEDNESDAY, July 1st. Tickets of Admission are now being issued, and may be obtained at the Gardens, only by orders from Fellows or Members of the Society. Price, on or before Saturday, May 9th, 4s.; after that day, 5s.; and on the days of Exhibition, 7s. 6d. each. A new arrangement of the Fruit will be adopted.

NATIONAL FLORICULTURAL SOCIETY, St. Martin's Hall, March 26, 1857.
AWARDS:—
First Class Certificate to Cineraria regalia, from Mr. C. Turner, Slough.
Certificate of Merit to Cineraria Lady Palmerston, from Mr. Sharman, Dulwich.
Do. do. Cineraria Mary Queen of Scots, from Mr. Sharman, [Dulwich.
Do. do. Cineraria Prince Albert, from Mr. Turner, Slough.
Do. do. Prince of Wales, from Mr. C. Turner, Slough.
Do. do. Pelargonium (forcing) Blanchfleur, from Messrs. G. & A. Braid, Hendon.
Do. do. Azalea Queen Victoria, from Mr. W. Ivery, Peckham.
Do. do. Queen of Whites, Messrs. Ivery & Son, Dorking.
John Edwards, Secretary.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W.C.—The next Meeting of the Society will be held on THURSDAY, April 2, to which Members and Fruit Growers generally are invited to send Specimens for Examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.
Gentlemen desiring to be Elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10s.; Annual Subscription, 10s. Copies of the Rules and further information can be obtained from
William Davidson, Assistant Secretary.

CHEPSTOW HORTICULTURAL SOCIETY.—Notice is hereby given that the first Show of the Society for the ensuing season will be held on TUESDAY the 9th day of June next; Schedules of Prizes will be furnished to subscribers and may be obtained by non-subscribers on application (accompanied by a remittance of 2 penny postage stamps) to Mr. Thomas Griffiths, Stationer, 4, High Street, Chepstow, the Clerk to the Society. Trevor Morris, M.D., Hon. Sec.
Chepstow, March 28.

TO FERN FANCIERS AND THE TRADE.
W. BARRON, Nurseryman, Architectural and Landscape Gardener, has a fine stock of Hardy FERNS which he can sell in quantities very cheap:—Osmunda regalis, the king of the British Ferns, from 3l. 10s. to 5l per 100 or from 1s. to 2s. 6d. each plant.—Sketty, near Swansea, March 28.

THOMAS WILD, Ipswich, respectfully announces to the Horticultural world that his celebrated SEEDS are nearly sold out. Order without delay or disappointment will follow.

AZALEA "PETUNIFLORA."
W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5s. each: all the new Azaleas of last year, from 30s. to 60s. per dozen.—Maidstone, March 28.

AZALEAS SET WITH FLOWER.
W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24s. per dozen and upwards.
Maidstone, March 28.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12s. to 21s. per dozen.
Epps's Nurseries, Maidstone.

STRONG Plants of all the New FUCHSIAS of last year, 12s. to 18s. per dozen; ditto VERBENAS of 1856, 6s. to 9s. per dozen.—Epps's Nurseries, Maidstone.

TO THE TRADE.—All the leading Fancy and other kinds of PELARGONIUMS, 50s. per 100, good plants.
W. J. Epps, Nurseries, Maidstone.

HIGHGATE NURSERIES, LONDON, N.
WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7s. 6d. each. Usual discount to the Trade.
They have also a fine stock of Show and Fancy GERANIUMS in 48-pots, at very moderate prices.

HOLLYHOCK SEED.
BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1s. 6d., 2s. 6d., and 5s. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.
Hedenham Rosary, Bungay, Suffolk, March 28.

SUTTON'S FARM SEED LIST, with PRICES for MARCH and APRIL, is now ready, and will be sent gratis and post free.—Royal Berkshire Seed Establishment, March 28.

GOOD CLOVER SEED.
GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
John Sutton & Sons, Seed Growers, Reading, Berks.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—March 28.

FERN CATALOGUE.
ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

AMERICAN PLANTS.
WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

VAN HOUTTE'S SPRING CATALOGUE will be ready at the end of this month, and then to be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

THOMAS BARNES' CATALOGUE of New Dahlias, Fuchsias, Verbenas, Petunias, Chrysanthemums, Roses, Phloxes, and Miscellaneous Plants is now ready and may be had on application.—Dane Croft Nurseries, Stowmarket.

SEEDS.—Butler & M'Culloch's DESCRIPTIVE CATALOGUE of VEGETABLE and FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.
Butler & M'Culloch, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

NEW SCARLET GERANIUM FOR BEDDING.
ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5s.—To be had of Thos. Perry, Nurseryman, &c., Banbury.

SEED ESTABLISHMENT, SLEAFORD.
CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

CAMELLIAS.
CHANDLER AND SONS, Nurserymen and Seedsmen, beg to inform their friends and the public that their extensive collection of CAMELLIAS is now in flower. They have also a great variety of Azaleas, Ferns, and Flowering Plants.—Wandsworth Road, London, S.

CALCEOLARIAS! CALCEOLARIAS!
JOHN COLE begs respectfully to inform the lovers of CALCEOLARIAS he is now prepared to offer strong unbloomed Seedlings from his select stock. Without pots, 4s. per dozen; 25s. per 100.
J. C. begs further to say his collection of Calceolarias the last few summers have been the admiration of all who have seen them. The Trade liberally supplied.—Keyfield Nursery, St. Albans.

STEWART AND NEILSON will send out in the first week in April their new distinct SEEDLING FUCHSIAS, pronounced by good judges to be excellent.
BRITISH QUEEN ... 5s. 0d. | LORD PALMERSTON 5s. 0d.
Post-office Orders payable at New Brighton. Orders will now be received.—Nursery, Liscard, Cheshire.

THE BEST FORCING GERANIUM—"CRIMSON KING."
WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24s. per dozen. Smaller plants, 18s. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, March 28.

ASH-LEAVED KIDNEY POTATOES (Warranted True).
WOOD AND INGRAM beg to offer a very pure stock of the above at 6s. per bushel. Price to the Trade on application.—Huntingdon Nurseries, March 28.

SEED POTATOES.—The Advertisers beg to offer the following kinds for present planting:—

Early Shaw, per bushel	5s. 0d.	Red Regent, per bushel	4s. 0d.
White Regent „	5 0	Fluke Kidneys „	6 0

Catalogue of Vegetable, Flower, and Agricultural Seeds forwarded on application.—Joseph May & Co., 1, Wellington Street, Strand, near Waterloo Bridge.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney per bushel	8s.	Early Shaws per bushel	6s.
New Boston do.	6s.	York Regent	6s.
Forty-fold	6s.	Bags included.	

A remittance accompanying Orders is respectfully requested from unknown correspondents.
Hooper & Co., Seedsmen, Covent Garden Market, London, W.C.

THE ALLIANCE POTATO, patronised by his Imperial Majesty the Emperor of the French, and the Nobility of England and Paris.—One peck of these celebrated White Kidneys can be obtained of the Grower only, Mr. James Copeland, Thames Street, Windsor, on receipt of a Post-office Order for 10s. 6d., including package. This being the first season of their being offered to the public, a limited quantity only will be sold.

INDIAN AZALEAS.
H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer most of the popular sorts of Indian Azaleas, in large quantities, at 12s., 15s. or 18s. per dozen.

NEW AND CHOICE PANSIES.
HART AND NICKLIN, Florists, &c., Guildford, beg to offer first-class PANSIES at 10s. per dozen, or three dozen for a guinea, free by post, or package included.

TO THE LOVERS OF PANSIES.
JOSEPH NORRIS offers strong Unbloomed Seedlings, saved only from the newest and best named varieties, at 3s. per dozen, 20s. per hundred; named varieties, 6s. per dozen. Extra fine Pansy Seeds, 3s. per packet. Post-office Orders to be made payable at Hounslow.—Osterley Park Gardens, Hounslow.

PRIMULA SINENSIS.
WOOD AND INGRAM beg to offer fine plants of the above beautifully in bloom at 6s. per dozen.
Huntingdon Nurseries, March 28.

SHOW CARNATIONS AND PICOTEES.
WOOD AND INGRAM beg to offer well established Plants in pots of the above, very fine varieties named, at from 12s. to 18s. per dozen pairs.
Huntingdon Nurseries, March 28.

SPECIMEN PLANTS OF TEA GLOIRE DE DIJON.
WM. WOOD AND SON beg to offer Specimen Plants of the above superb TEA-SCENTED ROSE in 9 to 15-inch pots. The plants are strong and bushy and are peculiarly adapted for exhibition. From 3s. to 5s. each. Hybrid Perpetual Roses in 6-inch pots on 4-inch stems, 24s. per doz.—Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WELLINGTONIA GIGANTEA.
JOHN WATERER has now to offer many hundreds of plants of the above noble hardy tree, varying in height from 6 inches to 2½ feet, handsome formed seedling plants. Price forwarded on application.
The American Nursery, Bagshot, Surrey.

TRADESCANTIA DISCOLOR VITTATA.
LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20s. and 35s. In London free.—Ghent, Belgium, March 21.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 3s. 6d. each, or 30s. per dozen. In London free until the 15th of April. The trade supplied.—Louis van Houtte, Ghent, Belgium, March 21.

VAN HOUTTE'S NEW ACHIMENES.—Subscribers in England:—Messrs. Hugh Low & Co.; R. Glendinning; James Veitch, Jun.; Wm. Rollisson & Sons; Thomas Jackson & Son; A. Henderson & Co.; Osborn & Sons.

TO NURSERYMEN, IMPORTERS OF PLANTS, ETC.
WILDING AND KENT, Custom House Agents, 73, Mark Lane, E. C., London, undertake to receive from and forward to the Continent, all kinds of Seeds, &c., with utmost despatch and at low charges.

WANTED, a few Standard-trained MORELLO CHERRY TREES.—Apply to J. C. Wheeler & Son, Nurserymen, Gloucester.

NOTICE TO GARDENERS.
WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to George Taylor, Jun., Fruit Salesman, St. John's Market, Liverpool.

TO THE TRADE.
WANTED, a quantity of Seedling and Transplanted TREES, SHRUBS, PINES, &c. Offer at lowest price for cash payment to W. H. T. H., *Gardeners' Chronicle* Office, not later than April 1st.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

SCOTCH FIR SEED.
HOWDEN BROTHERS offer SCOTCH FIR SEED of fine quality, the produce of the Northern districts of Scotland. Price on application.—Inverness, N. B.

PONTEFRACT NURSERY.
ONE HUNDRED THOUSAND two and three year transplanted BERBERIS AQUIFOLIUM; also two year Seedlings, fine healthy Plants, with all other kinds of Nursery Stock. Samples and price on application.
John Scholey, Pontefract.

GREY STONE TURNIP SEED.—A few Bushels of the above Seed, the growth of 1856 (warranted true), can be had of Thomas Cridland, Seed Grower, &c., Williton, near Taunton.

TO THE SEED TRADE.
GEORGE TABER, of Rose Cottage, Rivenhall, near Witham, Essex, begs to inform the Trade that he has still on hand a small stock of excellent TURNIP, SWEDE, and MANGEL WURZEL SEEDS of the best sorts.

SEED CORN FROM THE CHALK.
TALAVERA and APRIL WHEAT; Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

RED APRIL SPRING WHEAT.—The Subscribers have to offer a considerable quantity of this fine variety of SPRING WHEAT for Seed, price 65s. per quarter, in lots of 5 quarters. Freight paid to Leith or London.
For late districts, and on land previously unaccustomed to grow Wheat, this variety is invaluable, being equally early and prolific as Oats. It should not be sown before April, and may be sown during May.—J. Morrison & Son, Banff, N.B., March 28.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesneria zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30*s.* the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

☞ Agent in London, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, March 28.

MR. J. LINDEN'S CATALOGUE OF NEW PLANTS, containing the most remarkable novelties in Stove and Greenhouse, Ornamental and Variegated Foliaged Plants, Orchids, Herbaceous and Tree Ferns, Palms, Bromeliads, and Marantas, &c., is now ready, and will be sent post free on application.—Agent in London, Mr. R. SILBERRAD; and at Brussels, Zoological Gardens.—March 28.

N.B. Orders for the splendid novelties Gesneria cinnabarina, Tapina splendens, and Monochætum ensiferum have to be directed to Messrs. E. G. HENDERSON & SON, Wellington Nursery, who are in possession of the stocks of these three fine plants.

GRASS SEEDS FOR PERMANENT PASTURE.

ITALIAN AND PERENNIAL RYE-GRASS.
CLOVERS AND COW GRASS.
TURNIPS, SWEDE, AND MANGEL WURZEL,
AND ALL SEEDS FOR THE FARM.

Carriage free, and of excellent quality.

J. C. WHEELER & SON, Seed Growers, Gloucester.
Established more than 130 years.

GRASS SEEDS FOR PERMANENT PASTURE.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, beg to say that for many years they have paid particular attention to the proper selection of Grass Seeds for Permanent Pasture, and they can offer a very excellent assortment at 30*s.* per acre, all properly mixed, and delivered Carriage Free.

"Charlton Kings, Cheltenham, December 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "WILLIAM JORDAN."

"Blythe Court, Newnham, December 8, 1856.

"I think it due to you to say that all the seeds you have supplied me with for the last four years have been exceedingly good. With respect to your mixture for permanent pasture, it is my belief that it cannot be surpassed. "WM. BROWN."

J. C. WHEELER & SON, Seed Growers, Gloucester. Established more than 130 years.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2*s.* 6*d.*; trade packets, 5*s.*, 10*s.*, and 20*s.*

The following New Plants will be sent out in May and June. For descriptions see Catalogue.

FUCHSIAS.

Cœur de Lion.	The Little Treasure.	The Fair Oriana.	Fairest of the Fair.
Souvenir de Chiswick.	Etoile du Nord.	Star of the Night.	Albert Smith.
The Silver Swan.	Little Bo Peep.	Catherine Hayes.	

Price 10*s.* 6*d.* each, or the set for 5*l.*

TRISTRAM SHANDY.—This variety will be presented with the set, or with any half-dozen varieties selected from the collection.

GLOXINIAS.

Donna Colonna.	Eloisa.	Sir Hugo.	Waterwitch }
Tarragona.	Dionysius.	Beatrice d'Este.	Corinne. }

The above six, with Waterwitch and Corinne gratis, 2*l.* 2*s.*

VERBENAS.

Lady Palmerston.	Lady Turner.	Mrs. A. Mildmay.	Prince of Prussia.
Marmion.	Dazzle.	Lady Albinia Foster.	Angelica Kaufmann.
Queen of Oude.	Lady Frederick Fitzroy.		

The set 2*l.* 2*s.*

NEW GERANIUMS WITH ORNAMENTAL FOLIAGE.

Culford Beauty.	Fontaineblean.	Hotel de Cluny.	Lady of Loretto.

New Hybrid Bedding Geranium CARDINAL DE RICHELIEU.

TAXODIUM SEMPERVIRENS.—Messrs. E. G. H. & SON have still Seed to offer of the above at 10*s.* 6*d.* per 1000.

BROWN FLORAL SHADING is the lightest and best adapted fabric of any in use for protecting Fruit and other Trees, and can be had at 4*s.* and 4*s.* 3*d.* per piece of 20 yards long.

Wellington Nursery, St. John's Wood, N.W.

CHOICE FLOWER SEEDS, TRUE TO NAME.

W. THOMPSON, Tavern Street, Ipswich,

RESPECTFULLY invites the attention of Amateur Floriculturists and others to his DESCRIPTIVE CATALOGUE of FLOWER SEEDS, arranged on the Natural System, and acknowledged by many Botanical Amateurs to be the best published in this country. It includes, in addition to all the novelties possessing any value, many rare Seeds not to be found in other Catalogues; and for germinative qualities and correct nomenclature the entire Collection may challenge comparison with any other whatever. The following brief selection of novelties, rarities, and established favourites will serve to show the character of the Collection, and the moderation of the prices at which they are offered. With one or two exceptions, the whole of the novelties named have either been grown by W. T., or have been seen in flower by him; they can therefore be recommended as well deserving of cultivation. The stock remaining of some being very limited, early application is indispensable.

NEW SEEDS.

	s.	d.
Acroclinium roseum, very fine everlasting	0	6
Browallia viscosa, with large blue flowers...	0	6
Clintonia pulchella atroviolacea	0	6
Collinsia bicolor alba, warranted true	0	6
" multicolor marmorata	0	6
Cosmidium Burridgeanum, a splendid new annual ...	1	0
Delphinium formosum (Moore's)	1	0
Eupatorium cordatum, pretty white sp., sold as Ageratum conspicuum	0	3
Kaulfussia amelloides rosea, fine	0	6
Lepachys pulcherrima, rich brown and yellow, syn. Obeliscaria pulcherrima	0	6
Linum grandiflorum, warranted to grow	0	6
Lupinus Menziesi, an entirely new annual species, with fine yellow flowers.	0	6
Lupinus subcarnosus, a first-rate annual, blue and white	0	6
Nicotiana glutinosa, deep rose, very fine and distinct ...	0	6
Polycolymnæ Stuarti, new everlasting, white	0	6
Sabbatia campestris, beautiful tender annual	1	0
Salpiglossis grandiflora, very strong	0	3
" atrococcinea	0	6
Salvia porphyrantha, pretty dwarf crimson	0	6
Selæa aurea, new yellow Gentianwort	0	3
Tropæolum minus coccineum	0	6
Whitlavia grandiflora	0	3

MISCELLANEOUS SEEDS.

	s.	d.
Adlumia cirrhosa, an interesting climber	0	3
Æthionema coridifolium, very pretty rock plant... ...	0	3
Calliopsis coronata, a fine species	0	3
Convolvulus Althæoides, elegant perennial	0	3
Coreopsis lanceolata grandiflora	0	3
" auriculata, true	0	3
Corydalis capnoides alba	0	3
Geranium Endresi, bright rose, new and very desirable hardy perennial	0	6
Gypsophila muralis, neat and dwarf	0	4
Leptosiphon aureus	0	4
Linaria alpina, beautiful rock plant	0	6
Lobelia erinus ramosoides, fine blue bedder	0	4
Nycterinia capensis, fine pot annual	0	3
Ononis matrix, fine border plant	0	6
Oxalis rosea, very pretty dwarf species	0	3
Phlox Drummondi, a very fine mixture	0	3
Primula farinosa, pretty indigenous species	0	6
Pyrethrum carneum, } two good border plants ...	0	3
" roseum, } two good border plants ...	0	3
Scabiosa caucasica, blue	0	4
" ochroleuca, yellow	0	4
Silene acaulis, } two beautiful little alpines ...	0	6
Soldanella alpina, } two beautiful little alpines ...	0	6
Tithonia tagetiflora, a showy stove annual	0	3

GERMAN SEEDS.

	s.	d.
Ten-week Stocks, in 12 best colours	2	0
New large flowered do., eight colours	2	0
Emperor Stocks, eight splendid vars.	2	0
Brompton do., six splendid vars.	1	6
Quilled Aster, 12 finest colours	1	6
Pæony-flowered do., 6 to 12 colours. ... 1*s.* 6*d.* to	2	0
Zinnias, six best colours	1	0

The above are from the most noted Erfurt grower, and are of the finest quality.

THE CATALOGUE WILL BE SENT FREE TO ANY ADDRESS.

A Select List of Bedding Plants will be shortly published.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, March 28.

FOR PRESENT PLANTING.

BASS AND BROWN beg to offer as under, of strong and well-established Plants:—

	s.	d.
Hardy Herbaceous Plants, 100 showy vars.	30	0
" " 100 do., including new	50	0
" " selections, per dozen ... 6*s.* to	9	0
Rock Plants, 25 fine vars. 12*s.*, or 12 for	7	6
Antirrhinums, 12 fine vars., 6*s.*; 12 vars., very fine ...	9	0
Delphinium Barlowi, per doz., 9*s.*; bicolor, white centre, per dozen	7	6
Do. elegans, per dozen, 6*s.*; elegans alba, per dozen ...	7	6
Dielytra spectabilis, per doz., 6*s.*; per 100	40	0
Iris Germanica, a very superb collection, p. doz., 9*s.*, 12*s.*, &	20	0
" " fine mixed, per doz., 3*s.*; per 100	18	0
Pentstemon, 12 superb and distinct vars.	9	0
Phlox, 25 fine vars., 10*s.* 6*d.*; 25 superior newer vars. ...	15	0
" collection of 26 superb new vars. of 1856, for ...	40	0
" 12 vars. of the same	24	0
Potentilla King of Crimson, the finest crimson grown flower, 2½ inches across, each	1	6
Do., a splendid collection, per dozen, 6*s.*, 9*s.*, and ...	15	0
Hollyhocks, a choice collection, per doz., 9*s.*, 18*s.*, and ...	36	0
Dwarf Rock Cistus, 24 beautiful vars., very attractive for rockery or beds, 15*s.*; 12 vars.	7	6
Chrysanthemums, Pompones, and large flowered, fine, p. doz.	7	6
Carnations, fine varieties, per dozen pairs	18	0
Picotees " "	18	0
Pinks " "	18	0
Ribes, 6 fine distinct varieties	5	0
Flowering Shrubs, 20 vars., fine and distinct	10	0
Hardy Climbing Plants, per doz. ... ... 9*s.* and	12	0
Roses, of choice sorts, 100 dwarfs, in 50 vars.	45	0
" " per doz., 6*s.*, 12*s.*, and	18	0
" Climbing, finest sorts, per doz.... ... ... 6*s.* to	18	0
Strawberries, of the finest new and others (see Catalogue).		
Gooseberries, finest prize sorts, 25 vars.	10	6
" good named sorts, 4*s.* per doz.; mixed, p. doz.	2	6
Currants, of the finest sorts, per dozen ... 3*s.* and	4	0
Rhubarb, Bailey's Early Monarch, earliest grown, each ...	2	6
" Royal Albert, Linnæus, and Victoria, per doz....	7	6
Grayson's Giant Asparagus, per 100	3	6

BULBS and ROOTS for SPRING PLANTING, comprising Ranunculus, Anemones, Gladioli, &c. See Catalogue.

CATALOGUES for this Season to the present time. Nos. I., II., and III. supplied on application.

GOODS CARRIAGE FREE (not under 20*s.*) to all the London Termini, and all Stations between London and Norwich, Colchester Line.—BASS & BROWN, Sudbury, Suffolk.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

ASSORTED COLLECTIONS OF VEGETABLE SEEDS.

These collections comprise only the best in cultivation, and for quality are not to be surpassed.

	£	s.	d.
Collection No. 1 (20 quarts Peas, and all other Vegetables in proportion), for one year's supply	3	0	0
Collection No. 2, in reduced proportions	2	0	0
Collection No. 3, "	1	5	0
Collections for Small Gardens, Nos. 4 and 5, 15*s.* 6*d.* &	0	10	6

For any sorts of Vegetable Seeds not wished for, enlarged quantities of others sent to make up the amount. For Lists of the Collections Nos. 1, 2, and 3, see Catalogue.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

	s.	d.
Smith's New Balsams, 6 varieties, separate ...	2	6
" " in larger packets, mixed	2	

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7*s* 6*d.*; 12 vars.	5	0

FLORIST FLOWERS, &c., SAVED FROM CHOICE COLLECTIONS.

	Per packet.—s.	d.
Hollyhock, ex., saved from 20 finest vars. of our collection	2	6
Pentstemon, ex., from grandis, magniflora, Themisteri, and other choice vars.	1	6
Phlox, hardy vars., choice	0	6
Potentilla, ex., from our finest new	2	6
Calceolaria, ex., from choice new vars.	2	6
Geranium, ex., from choice new vars.	1	6
" from finest fancy	2	6
Gloxinia, ex., from superb vars.	1	0
Petunia, new and choice	1	0
Primula sinensis fimbriata, from extra fine vars.	2	6
Verbena, from choice new		

CHOICE IMPORTED GERMAN SEEDS.—IN SEPARATE COLOURS, VERY FINE AND DOUBLE.

	s.	d.
30 superb vars. dwarf German Stocks, 5*s.*; 15 vars. ...	3*s.*	0*d.*
Choice mixed do., packets, 6*d.* and 1*s.*; new pale sulphur	1	0
Fine dwarf carmine, 6*d.*; new White Hybrid	1	0
8 superb vars. new large flowering Stocks	2	0
New large Chamois, 6*d.*; new White Dwarf Wall-leaved, 6*d.* and	1	0
12 superb vars. Wall-leaved or Prussian	2	6
15 superb vars. Autumn Brompton...	3	6
Fine scarlet do., 6*d.* and 1*s.*; mixed, fine, 6*d.* and ...	1	0
6 superb vars. Perpetual Emperor, blooming three times a year	2	0
4 superb vars. new large flowering do.	2	0
24 superb vars. quilled and striped Asters, 5*s.*; 12 vars.	3	0
12 superb vars. Globe flowering do....	2	6
16 superb vars. Pyramidal do.	3	0
10 superb vars. Bouquet double dwarf do.	3	0
10 superb vars. Pæony-flowered French do. (Truffaut's) .	4	6

Also superb imported Wallflower, Larkspur, Balsam, Senecio or Jacobæa, Cockscomb, Zinnia, and many others. See Catalogue, page 46.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 3*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20*s.*) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. 2*s.* per lb. To be had of all respectable Seedsmen in the United Kingdom.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

NEW GERANIUM "MRS. SCOTT."

JOHN SCOTT, FLORIST, Bathford, near Bath, can still supply strong plants of GERANIUM MRS. SCOTT, sent out last autumn. J. S. can with confidence recommend it as a first-rate early flowering Geranium, of very compact habit and free flowering: colour rosy pink, with a distinct spot on all five petals. Very strong plants finely set for bloom, 10*s.* 6*d.* each. The new Geraniums sent out in the autumn of 1855. Strong plants well set with bloom, sent in a matted basket, 42*s.* per dozen. A remittance or reference requested from unknown correspondents. Post-office Orders payable at Bath.

MESSRS. J. AND H. BROWN offer the following choice PLANTS, which they will forward to any part:—

Andromeda floribunda, bloom well set, per doz., 20*s.*
25 Azaleas, new hardy Belgian varieties on their own roots, with flower buds, one of a sort by name, 20*s.*
25 American Azaleas, do., do., do., 16*s.*
Hardy Heaths, Ledums, and Kalmias, per doz., 6*s.*
12 „ Rhododendrons, including scarlet, white, and rose, 12*s.*
Fine hardy Scarlet Rhododendrons, 1 to 2 feet, per doz., 15*s.*
Greenhouse Azaleas, best new vars., per doz., 12*s.* to 18*s.*
Camellias, fine sorts, well set with buds, per doz., 30*s.*
50 choice hard Greenhouse Plants, one of a sort by name, 45*s.*
12 Orchidea Plants, one of a sort, fine species, 40*s.*
24 choice Ericas, one of a sort, small pots, by name, 16*s.*
Calceolarias and Cinerarias in bloom, fine, per doz., 12*s.*
Best Climbing Roses of sorts, per doz., 6*s.*
Verbenas and Petunias, best new sorts, per doz., 6*s.*
12 Phlox, new Belgian Perennial varieties, 10*s.*
12 Pæonies, Herbaceous, new white, blush, and pink, 8*s.*
Coniferæ, choice selection for present planting. For prices, &c., see Catalogue.
Various choice Hardy Climber, for walls, trellis, &c., p.doz., 10*s*

CHOICE FRUIT TREES.

Fine Standard and Dwarf-trained Apricots, Peaches, Nectarines, Pears, Plums, and Cherries, 2*s.* 6*d.* each, or 26*s.* per dozen.
Fine Apples, Figs, Medlars, Quinces, and Walnuts, each, 2*s.*
Fine Gooseberries, Currants, and Raspberries, per dozen, 3*s.*
Filberts, new, thin-shelled and red-skinned, per dozen, 4*s.*
Strong Vines, in pots and out, best sorts, per dozen, 18*s.*
Peaches, Nectarines, Apricots, Cherries, Plums, Pears, and Vines, grown expressly for pot culture, per dozen, 18*s.*
Ornamental Forest Trees and Evergreen Shrubs in any quantity.
Albion Nursery, Stoke Newington, London.—March 28.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, respectfully announces that he is now selling out his two first-class PANSIES—PRINCE ALBERT AND DUKE OF CAMBRIDGE, at 5*s.* per plant. The usual allowance to the trade.

PRINCE ALBERT (HOLLAND'S), which has been pronounced first class by all competent judges who have seen it, and has been exhibited throughout the season in all his winning stands. The conductors of "Gossip for the Garden" thus express their opinion of it in the number for May:—"John HOLLAND, Middleton, Manchester. Prince Albert. A first-class variety. Chrome yellow ground, belted with rich deep brown, or bronzy purple: good eye, fine form and substance. A seedling apparently from 'Father Gavazzi,' but a decided improvement. The petals are well proportioned, and the junction complete above the eye." The Editor of the "Florist" also says of it, in the number for June:—"J. H., Middleton. A flower with the rich colours of the 'Duke of Norfolk,' without its roughness. It resembles a good bloom of Hale's 'Monarch,' and will, no doubt, prove a good useful flower."—5*s.* per plant.

DUKE OF CAMBRIDGE (HOLLANDS'.)—A flower of large size and good substance: yellow ground, heavily belted with rich maroon purple. The Conductors of the "Gossip," in the August number, say of this variety:—"Duke of Cambridge (J. HOLLAND, Middleton)—Yellow ground, broadly margined with dark purple maroon. Eye fine, of good substance, and fairly smooth. A fine variety." 5*s.* per plant.

THE FINEST GLOBE ASTER SEED IN THE WORLD.

EDWARD TILEY begs to inform the lovers of this beautiful and unequalled flower that he has a fine stock of seed saved from 24 of the choicest varieties ever exhibited, producing every flower perfect, the shape being two-thirds of a ball, well filled up to that form in the centre, and all the petals beautifully quilled. E. T. has received numerous testimonials from those who have purchased it years past, speaking in the highest praise of the fine varieties produced from the seed they obtained of him.—Sold in packets at 1*s.* 6*d.* each.

Cineraria Seed from best named varieties, 1*s.* per packet.

Sweet William Seed, saved from all the choicest and most selected sorts as to size of flowers and distinction of colours, there being about 36 varieties, 1*s.* per packet.

Antirrhinum Seed, from one of the most superb collections in cultivation, 1*s.* per packet.

Hollyhock Seed, from 24 of the best named flowers. 1*s.* per pkt.

Digitalis or Foxglove Seed, saved from flowers of the most beautiful kinds, there being about 20 distinct varieties of spotted crimson, striped white, &c., 1*s.* per packet. Plants of the same, that will bloom well this season, 2*s.* 6*d.* per dozen, or 1*l.* per 100.

Fine dark Clove Carnation, 1*s.* per pair.

Seedling Hollyhocks, grown from seed selected from 36 of the best named varieties, 2*s.* 6*d.* per dozen, or 1*l.* per 100. They will bloom well this season, and generally produce fine double flowers. Good named varieties of Hollyhocks, 12*s.* per dozen. Any portion of the seed will be sent postage free, and the plants, hamper and package free.

A Post-office Order, or penny postage stamps, must accompany every order, when any portion, or the whole, as the case may be, will be immediately forwarded.

N.B.—E. T. can still supply seed of his unequalled new Cucumber Perfection, at 3*s.* 6*d.* per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist,
14, Abbey Church Yard, Bath.

PRIZE MANGEL WURZEL, SWEDE TURNIPS, ETC.

JAMES GROVE, Great Baddow, Essex, who obtained Prizes at the Chelmsford and Essex Agricultural Show for nine years in succession, begs to state that his SEEDS are grown from selected Roots, not Plants, and to call attention to the following:—

OPINIONS OF THE PRESS.

"The Roots shown by Mr. James Grove stand unrivalled."—Smithfield Club Show, 1848.—*Mark Lane Express.*

"The Roots shown by Mr. James Grove were pronounced by many practical judges to be the most perfect specimens they had ever seen."—Smithfield Club Show, 1849.—*Bell's Weekly Messenger.*

"The Mangel Wurzel and Swedes exhibited by Mr. J. Grove drew forth the warm encomiums of all who saw them. Mr. Grove has devoted a great deal of time to the cultivation of the Mangel, and judging from the specimens at this show, his efforts have been eminently successful."—Smithfield Club Show, 1851.—*Ibid.*

Similar remarks were made in the Agricultural Journals on the Roots exhibited by Mr. Grove in 1852, 1853, and 1854.

Birmingham Cattle Show, 1855 and 1856—the First Prize and Silver Cup were awarded to Mr. A. H. Johnson, of Gunnersbury, Middlesex, for the best Stand of Agricultural Roots, grown from Seed supplied by Mr. Grove; also, Two Prizes for Mangel Wurzel.

AZALEA PETUNIÆFLORA (VERVAENE).

LOUIS VAN HOUTTE begs to advertise that, before he bought the stock of this plant Mr. W. EPPS had expressed to the grower of it his desire to buy the whole stock, asking some samples and the price for the stock. In answer to this inquiry the grower was candid enough to send him THREE plants of middle size for inspection, telling him his price "per plant." Mr. W. EPPS finding that these three plants were a sufficient number for his wants kept them, paid for them at the fixed rate, and wrote to the grower that *his price for the lot was too high.* It is under these circumstances that Mr. EPPS is advertising grafts and plants OF ALL SIZES, with his stock of three and three others that he bought lately.

LOUIS VAN HOUTTE, Ghent, March 28.

MESSRS. VEITCH AND SON have much pleasure in offering the two following plants, which they can with confidence recommend, and respectfully solicit early orders to insure good plants:—

FUCHSIA PRINCESS ROYAL (VEITCH), rich scarlet tube and sepals, beautifully reflexed, white corolla, free bloomer, and undoubtedly the best habit of all the white corolla varieties.

GERANIUM QUERCIFOLIUM FLORIBUNDUM (VEITCH), an excellent bedding variety; also admirably adapted for the window, being of very dwarf habit, blooming most profusely in small pots, and having the valuable property of retaining its flowers a long time. The flowers are large and round, colour a beautiful rose, with dark spots in upper petals. It was exhibited at the Crystal Palace Horticultural Show on the 25th of June last, and was awarded the First Class Prize as a seedling for bedding purposes.

Strong plants of each of the above will be ready for delivery the first week in April, at 7*s.* 6*d.* each. Prices to the Trade on application.—Exotic Nurseries, Exeter and Chelsea, March 28.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS, NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

MESSRS. SUTTON'S *Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.* The prices are moderate, particulars of which may be had post free.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE BIRMINGHAM ROOT SHOW.

SUTTON'S PRIZE MANGEL WURZEL.—These superior kinds of Mangel Wurzel took the First Prize in each class at the Birmingham Great Root Show, open to all England, and the same kinds exhibited on Messrs SUTTON'S Stand at the Baker Street Show would doubtless have been equally distinguished if prizes for roots had been given on that occasion.

J. SUTTON & SONS, Seed Growers, Reading, Berks, have at present a good Stock of Seed of the above, which they are selling at moderate prices, according to quantity required. Early orders are requested, to prevent disappointment.

SUTTON'S New Seed List, with Prices, may now obtained, post free.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for a sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1*s.* per lb.

GLOBE RED, very fine and equally prolific. 1*s.* 3*d.*

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1*s.*

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1*s.* 3*d.*

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter: to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre, 4*s.* per lb.—A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety, 36*s.* per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36*s.* per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr. W. MILES, Mark Lane, London.

HOLLYHOCKS.

A. PAUL AND SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants IN PERFECT HEALTH as follows:—

Very superior show varieties ...	42*s.* to 60*s.* per doz.
Superior do. do.	24*s.* „ 36*s.* „
Good named sorts	12*s.* „ 18*s.* „

Bloomed Seedlings in separate colours, 30*s.*, 45*s.*, and 63*s.* per 100. These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers: they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21*s.* per 100.

For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet according to quality.—Nurseries, Cheshunt, Herts.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND Co., SEEDSMEN, 238, High Holborn, London, W.C., beg to announce the publication of the *twenty-second annual series* of their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS, in which is given a complete description of nearly *two thousand species and varieties of Flower Seeds, and a comprehensive List of Vegetable Seeds, &c., forwarded free of charge and post paid to* ALL PARTS OF THE WORLD upon application.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

FLOWER SEEDS.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers:—

German Asters, 24 splendid varieties	5*s.*	0*d.*
„ „ 12 „ „	2	6
The above varieties mixed	1	0
French Asters (Truffauts), 12 varieties	3	6
German Stocks, 36 splendid varieties, brilliant and distinct colours	7	6
„ „ 24 varieties	5	0
„ „ 12 „	2	6
The above brilliant colours mixed	1	0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2	0
The above 8 colours mixed	1	0
Wallflowers, 10 splendid varieties	3	6
Packet of the above mixed	1	0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, ESQ., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show. Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Buile Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Homme House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

NOTICE.

MESSRS. JAMES VEITCH AND SON, SEED WAREHOUSE, 54, HIGH STREET, EXETER (OPPOSITE THE GUILDHALL).

MR. THOMAS VEITCH, who lately carried on the business of SEEDSMAN, &c., at 195, High Street, Exeter, opposite Broadgate, under the firm of THOMAS VEITCH & Co., having retired from business, MESSRS. JAMES VEITCH AND SON beg to state, for the information of their friends and the public generally, that they are the only persons of the name of VEITCH now carrying on the Seed Trade in Exeter, and that they have no connection whatever with any other Seed House in Exeter.

MESSRS. JAMES VEITCH AND SON still continue their old-established Seed Business, 54, High Street, Exeter, opposite the Guildhall, where it has been carried on the last 19 years, and request that all orders and communications may be addressed JAMES VEITCH & SON, 54, High Street, Exeter.

Their Collection of CAMELLIAS now in full bloom, at the Nursery, on the Topsham Road.—March 28.

The Gardeners' Chronicle.
SATURDAY, MARCH 28, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 1—Society of Arts ..... 8 P.M.

THE argument concerning the supposed WEARING OUT OF THE RACES of cultivated plants is so nearly exhausted that we have little to add to what was said at p. 100. The statement respecting the Golden Pippin tree by Mr. DIVERS in our last number, adds another fact to those previously quoted. This writer shows distinctly that his plants, under good treatment, were as healthy and fruitful as they ever can have been. We may also quote in further confirmation of the permanency of the varieties of trees a few cases mentioned by M. DECAISNE in his Jardin Fruitier noticed in

another column. Of the sorts figured by him the Amadotte was described by Merlet in 1675; the Bellissime d'hiver, one of the finest and most healthy varieties known in France at the present day, the glory indeed of the fruiterers' windows, is mentioned by the same author; the Poire d'Angleterre was well known in 1665, and is still commonly sold by the hawkers in the streets of Paris; the Poire de Madame has the same date; but none of these are in a state of decay, and yet they must each be fully two centuries old. M. Decaisne assures us indeed (*Comptes Rendus, Dec.* 22, 1856) that he has been unable to find any satisfactory evidence to show whether the races of Fruit Trees do or do not in course of time degenerate. To us it seems clear that such evidence as can be called tangible, altogether bears against the theory of Degeneration.

The only cases which, we think, can be really said to offer some kind of support to the theory of degeneration are those of the Potato, the Dahlia, and the Hyacinth, each appealed to by our able contemporary. "We should like to know," says the "Scottish Gardener," "how many of the beautiful varieties (of the Hyacinth) described by Sir James Justice more than a century ago, are now in existence in the Dutch nurseries." Again he asks how many of the Dahlias cultivated 30 years ago are now to be found? But since he in the same breath admits that fashion and finer varieties *may* have driven them off the field, it seems hardly necessary to introduce them into the discussion. Remains the Potato, concerning which we must give our antagonist the benefit of his own words:—

"Here, Mr. Knight, as usual, leads the way. In a paper read before the Horticultural Society in 1833, he remarks:—'The fact that every variety of Potato, when it has been long propagated from parts of its tuberous roots, becomes less productive, is, I believe, unquestionable. I have often witnessed the progressive decay of vigour, and the different effects of the influence of age, upon many different varieties. The quality of some has remained perfectly good after the produce in quantity has become highly defective, whilst in others that has disappeared with the vigour of the plant. I brought to this place a single tuber of Lankman's Potato soon after it was imported; the produce of that variety was then, and continued during some successive years, very great, but its vigour has gradually diminished, and in the last year it produce was at least one-third (more than 7 tons per acre) less than I obtained from the same soil, and under in every respect the same management, from other varieties of nearly similar habits, but which had recently sprung from seed.'—'Phys. and Hort. Papers,' p. 334. Our own observation supplies us with many analogous facts. We could mention numerous varieties of Potato, known to us only by provincial names, once highly valued, which have disappeared. We recently asked an extensive farmer if he could tell anything about the Buffs, a favourite variety, not long ago in the vicinity of Edinburgh, and he answered 'the Buffs are extinct'—unconsciously using the words so offensive to the opponents of Mr. Knight. We can even assign a variety of Potato in the act of vanishing, viz., that which in the South of Scotland was called the Don, Calicoe, or Drapper. Five-and-forty years ago, and for at least 30 years afterwards, it yielded most exuberant crops. It was the best Potato ever known in Scotland, and for its remunerative qualities was called the Golden Don. Now, it is to be found only on a few farms, where elderly tenants, for the sake of 'auld lang syne,' are loath to part with it, but it is cultivated with loss, and will soon be extinct. And let it not be said that it has been superseded by superior varieties. The Regents and Flukes and other multiform earlies now grown in the fields never were, and never will be equal to the grand old Don in his pride of place."

To this we reply that the Potato plant and fruit trees are not analogous. The first is a species highly manured, overfed, constantly forced into a state of fecundity foreign to its nature. From the time that it is gained till it disappears it is the victim of man's unkindness. The Strasburgh geese which are fattened for the sake of their monstrous livers, perish long before the end of the time allotted to a goose's life. But we do not say they degenerate, nor is it pretended that the race of such geese is wearing out. They die of too much and unnatural feeding. That we conceive to be the history of the disappearance of races of Potatoes. From the first they are forced into unnatural productiveness; their system from an early period is loaded with unwholesome matter; this becomes more concentrated in each succeeding generation, till at last the powers of nature give way, and the breed dies of debility—of the reaction resulting from long-continued excessive stimulus. It is in vain to say that this is a forced analogy which the difference in the specific nature of plants and animals forbids our admitting. On the contrary, believing as we do that the vital principle of plants and animals is the same in essence, although distinct in its manifestation, we regard it as a truth of the highest importance. We have not yet forgotten that the Potatoes which longest resisted the advance of the too celebrated "disease," were crops from which the usual stimulus was withheld, namely those in the famous breeding ground in the Calf of Man, and such as were grown in the most barren situations. There is no reason to suppose that the Golden Potato of Peru, kept apart from the debilitating influences of European cultivation, is less healthy than it was in the days of Pizarro. Now fruit trees are not thus extravagantly stimulated. We do not manure our Apple trees, or our Pear trees, or our stone fruit; or if we do, we soon witness the evil effects on their constitution in the shape of gum and canker. Even the Vine, the natural exuberance of whose growth enables it to consume large quantities of stimulating materials, is carefully preserved from their influence in the best wine countries, and soon shows unmistakeable evidence of suffering when exposed to them, as we see in the Vineries whose borders are made with carrion and other animal garbage.

Such being, as we think, a reasonable interpretation of those cases which the advocates of degeneration rely upon, we submit that their doctrines must be regarded as untenable, even although some other facts, which indeed we regard as too trifling to be worth touching upon, are here passed over.

In conclusion, let us ask whether it is considered to what the doctrine of vegetable degeneracy tends? If true, it would offer the strongest possible support to the advocates of progressive development. The ingenious author of the Vestiges of the Creation could not have a more able, though doubtless unintentional advocate than our friend the Scottish Gardener. For it is in vain to say, I limit my theory to cultivated plants. Apples, Pears, Plums, &c., are no more cultivated than Oaks and Ash trees. An orchard is but a wood under another name. If it is contended that the first consists of grafted trees and the latter of seedlings, we reply that that is by no means certain. Elms are more frequently layers than seedlings, Thorns are largely grafted, Willows and Poplars are struck from cuttings. Besides it is not contended that degeneracy is brought about by grafting, or budding, or similar operations; it is held to be constitutional in cultivated trees raised from seed. But are not almost all our forest trees now-a-days raised from the seeds of cultivated plants? Oaks in a plantation or a park are cultivated Oaks. It is mainly from their seeds that other Oaks are raised. According to the doctrine of degeneracy the present race of Oaks has only a narrow span of life allotted to it. Planters must look to this; if indeed they do not perceive that the theory in question is a great mistake. Its advocates really say this:—the seedling of a wild plant possesses in complete integrity all the perennial qualities of its parent; but if you cultivate it, the seedlings that spring from the cultivated plant lose its perennial qualities and gain another sort of quality which is limited. This strikes us as being the same as saying that the children of a race in the savage state are long lived; but if you put the savage into a house, feed him regularly, and clothe him, his children will be short-lived; the diminished force of vitality being caused by shelter, food, and raiment. Surely it is not necessary to push this argument further.

The adjustment or setting of his scythe is one of a gardener's troubles. He must take it to the smith, and have the heel or tang heated and hammered till he gets it right, and if he hands it to another workman it must be heated and hammered and altered again, unless the workman's arms and legs are the same length as his master's, and his stoop identical. This is a serious inconvenience in little places, and it would be better if it could be removed altogether.

A few years since Mr. Boyd introduced an improvement in this respect by adapting to the scythe blade a mechanical contrivance by which it could be more readily set to any required angle. We noticed it favourably at the time of its appearance, and have had no reason to alter our opinion since. Large numbers have, we understand, been sold. At a later period what was called a Vulcan scythe was produced by the same patentee, the merit of which we have failed to discover.

But good as Mr. Boyd's first invention certainly was, it was by no means perfect. The mechanical adjustment was not capable of setting the blade true within 4 inches, which, for fine work, such as mowing lawns, is insufficient. We are therefore glad to announce the appearance, with the assistance of Messrs. Burgess and Key, of quite a new plan infinitely preferable. It is the invention of Mr. Otway, an ingenious mechanic, who we hope will derive some advantage from his discovery. A small bar of iron is bolted to the snead or scythe-handle; upon this a shorter bar, moving on a pivot and carrying the heel, is made to work freely backwards and forwards, and when properly adjusted is firmly secured by a nut, so that it cannot stir. If upon trial the setting is unsatisfactory, or if it requires to be altered for any purpose whatever, the nut is loosened, the blade is readjusted, and the nut is again firmly secured. By this means the scythe may be literally set to a hair's breadth. The little contrivance is moveable, can be fixed to any handle, and will last for years with reasonable care.

We therefore advise the public to give it a trial. To amateurs who amuse themselves with mowing their own lawn, it will be as valuable as is Saunders' American quadrangular strop to those who use a razor.

JOTTINGS MADE DURING A JOURNEY TO PARIS.—IV.

There is one point of gardening in which the French have the reputation of great excellence, I mean the cultivation of Orange trees, particularly of small plants, which they contrive to have in flower almost at all seasons of the year. Those gentlemen and ladies who are in the habit of resorting frequently to Paris are generally much captivated by these little gems of trees, which are very pretty objects in a drawing-room, give a delicious fragrance, and are wonderfully cheap. It has therefore become a common remark amongst such persons that we English gardeners do not understand their culture. Upon this (were I counsel for the defendants) I would submit: 1st. That it is the sole business of one person, and that the French make a decided specialty of their culture, and that they have pits which they use either to rest or grow the plants at the various seasons in which they are required; by this means affording them those alternations of rest and excitement so essential in producing these results. 2dly. I would urge the advantages which they have of climate, and remark that the soil in the tubs or pots must be much warmer in the latitude of Paris, than it is in that of dull, drizzly England—thereby stimulating the plants to rapid growth, and then thoroughly ripening the wood.

Having secured the well ripening of the wood, the next point is to rest their plants, for the vegetable like the wearied animal requires rest to recruit its exhausted energies; this is easily done in some of the many special pits which the grower has at his command; coolness and dryness are great essentials to this end, but I am sure I am right in saying that with the Orange tree they must be limited to that point which does not inflict injury on the foliage.

I have heard of Parisian Orange tree growers who have recommended their purchasers to expose their trees to the influence of frost until the leaves showed signs of injury, to make them flower; but surely this could only be for the sake of getting a fresh order.

How very differently are many of our English gardeners circumstanced with regard to the cultivation of the Orange to those of France; they have not only the disadvantage with regard to climate, but they have not unfrequently to grow Oranges with many other plants, and to make them accommodate themselves to the requirements of the Cineraria, the Geranium, &c. But I maintain that in those places in England where the cultivation of the tree is made, as it is in France, a specialty, the result is equal to anything one meets with in France. Let those who doubt this go and see the glorious Orange trees which Lord Holland has at Holland House, Kensington, or those of the Baron de Rothschild at Gunnersbury Park.

With regard to the general cultivation of plants, the French are much behind us; they grow Oranges and Camellias well, and I have seen at M. Truffaut's nursery at Versailles some pretty small specimen Azaleas which were planted in a prepared bed of soil in a small house close to the glass. M. Le Michez's Camellias at Neuilly were very healthy. But I saw no good Heaths or new Holland plants, none save the usual nursery stock of small plants.

Another point of excellence in French gardening is the clever way in which they manage their propagation by grafting. They manipulate very cleverly, and are really most obligingly kind in their communications respecting the *arcana* of their art. It is curious to see the contrivances in that *sanctum sanctorum*—a French propagating house. I know that many of our first nurserymen have employed young Frenchmen in this department of their business, and their obliging manners and ingenuity amply explain their motive for so doing. The attention of the propagators is chiefly directed to the increase of Rhododendrons, Indian Azaleas, Camellias, the Citrus family, and Coniferæ in this way.

Mats made of little bundles of Rye straw tied together are much used for covering handglasses, pits, &c. They are doubtless a very good protection, and better than Russia mats, as not conducting the heat so rapidly, each straw being hollow and containing some air. I find that Rye straw is not easily got in this part of the country, and that if it were so the labour of making them is considerable, and that when they are much worn they become very littery. They must be

awkward things too when there is much snow; thus they have good and bad points.

I did not notice anything worthy of mention as an improvement on any of their garden implements. Judging from their cumbrous and antiquated tools, they can have made little advance since the days of Charlemagne.

Visit to the Nursery of M. Jamin at Bourg la Reine.—This establishment is situated a short distance from Paris, and is reached quickly by railway. I was fortunate in finding M. Jamin fils at home, and having a very interesting walk with him over his father's grounds.

M. Jamin rents a wall upon the top of the railway embankment for training his fruit trees upon. He has fine quarters of Almonds, which are raised in baskets in houses and planted out the end of April, making fine stocks, which are budded the following year with Peaches. Two buds are inserted into each stock, the one of an early and the other of a late kind of Peach. By this means if one bud fails the other generally succeeds, and he has a crop of Peach trees. His nursery is very extensive, comprising among other things a splendid collection of Roses, which presented a beautiful show of blossoms for October, many of them vieing with "the Rose in June" for size, perfumes, and vivid colouring. I saw here many young fruit trees educating for training on the Palmate simple and Palmate double plans.

M. Jamin fils speaks English very well, and most kindly showed and explained all that was going on to me. To him I owe much obligation, as indeed I do to every French gardener to whom I was introduced; all vied with each other in courtesy to me. To M. Jamin I am indebted for several letters of introduction to different establishments.

Returning I called at the celebrated seed establishment of M. Vilmorin, and purchased a few seeds. During the time they were packing I had the opportunity of turning over a portfolio of beautiful drawings of the best and newest esculent vegetables, including a large variety of Beet-roots, Carrots, Turnips, &c.

In the evening I sauntered out to look at the shops, and was much struck with the beauty of arrangement in those of the Palais Royale. Many of the goods were mere tinsel, but the display of contrast and colour was very pleasing and artistic, and the *tout ensemble* was quite enchanting.

VERSAILLES.—It was a beautiful morning when I started by railway to Versailles, passing the station to the picturesque village of Bellevue. We soon reached the quiet town of Versailles, when turning down a back street I found myself within the precincts of this far-famed establishment. Having been introduced to M. Charpentier, the head gardener, I went with him to explore the garden. I found him a very agreeable and intelligent man, and I shall not soon forget his kindness and attention.

It is a magnificent kitchen garden, comprising 30 acres, and on the north side there is a raised terrace walk commanding the whole of the area. There are many pyramidal Pear trees trained with much less precision than those of M. Cappe; the whole is roughly kept, and gives one the idea of a large market garden, rather than an imperial one. It will not bear comparison with our regal establishment at Frogmore, which is, I think, unsurpassed both for practical results and minute nicety of detail.

The Pines were very good fruit, and produced from marvellously small plants, which are planted in the open bed during their early growth, and afterwards taken up and potted; being also plunged in a tan bed over a chamber filled with fermenting dung, which seems much to assist the swelling of the fruit.

Vines are forced in the same kind of temporary structures which I have previously described.

Of Figs, Peaches, Nectarines, and Cherries, I saw a large number in pots for forcing; and there were the most extensive ranges of frames with dung linings and flat copper pipes for growing French Beans, Potatoes, Carrots, and Strawberries. There seemed to be no limit to the supply of manure.

Escarolle (Batavian Endive) and Cardoons were here also in great abundance, and very fine; and I noticed some Strawberry plants which were grown *à l'Anglais*, and were fine single plants. The case is so exceptional to what I saw generally that I cannot forbear to notice it. There does not seem to be so much Celery grown here as in England. Here, too, were many Cloches with Lettuces. I was certainly astonished to see the Asparagus beds, full 6 inches high with weeds forming an impenetrable mass, while their respective alleys were each of them hoed and raked as neatly as a flower-garden bed could possibly be. The Asparagus was really fine, and if it had been kept free from weeds would doubtless have been much finer.

Having seen the forcing and kitchen gardens I next went to the grand Orangery, which contains a great quantity of very fine and some remarkably old trees, all in the rudest health. It (the Orangery) is placed partly under the uppermost terrace, and is therefore a dark structure. All the large trees were in the house, but there were some small ones outside with the same expression of health upon them: indeed they were all surpassingly beautiful.

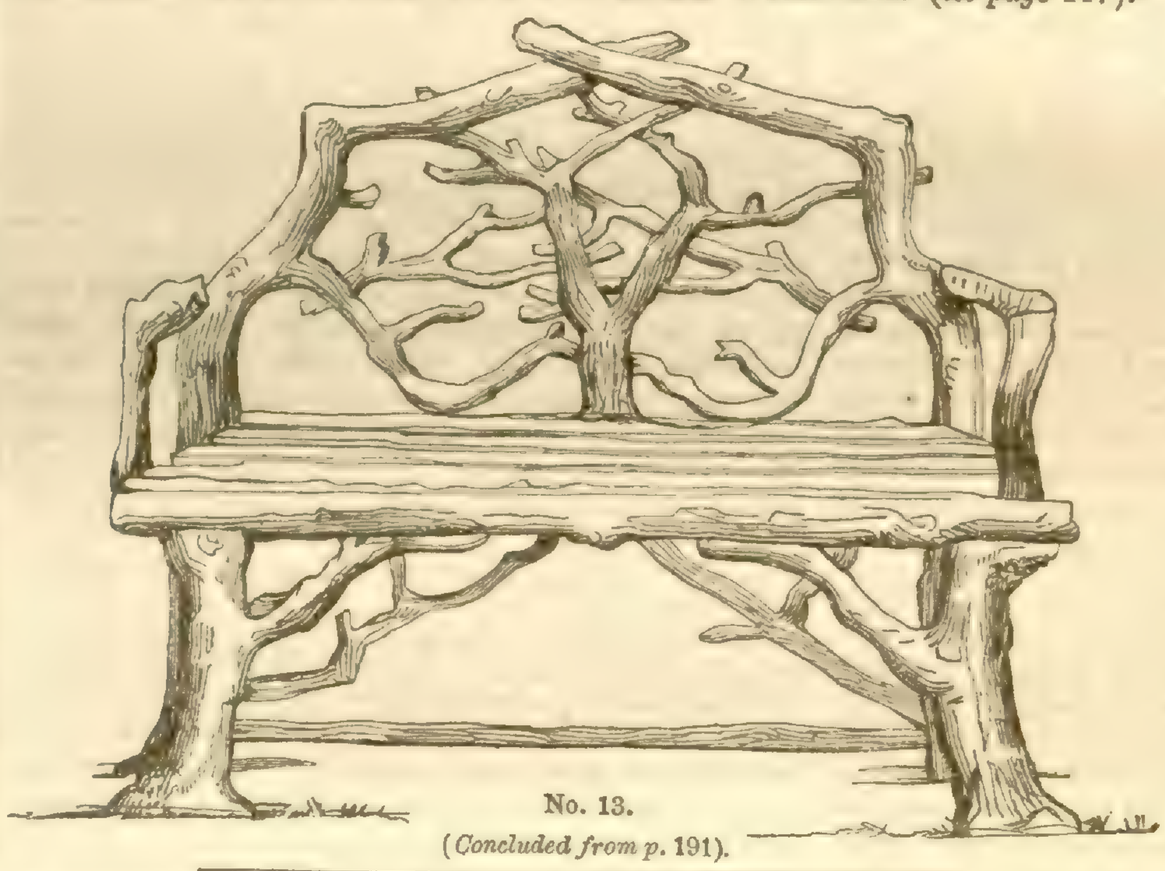
Leaving the Orangery I passed to some of the numerous vistas, arcades, berceaux, and fountains for which this remarkable place is famous. Many of them are very grand and imposing, and when the fountains play it must indeed be magnificent; but, alas for me! they had played for the last time in the year the Sunday before my visit. I therefore after a long walk through these splendid grounds reached the palace of the Petit Trianon, from thence to the Grand Trianon, and back to Versailles and Paris.

The Cloches.—I think that in a former paper I mentioned having gone to a market gardener's place just in the nick of time to see them planting out their Lettuces for the ensuing spring. I did not however then detail their practice in this respect, but thinking that many of your readers may feel an interest in having this explained, if you will accord me a little more space in your valuable columns I will do so.

The ground which I saw was that of a gardener in the Rue de Reuilly, Faubourg St. Antoine. It was laid out into beds of about 6 feet in width, with alleys between each bed, and was made to slope sharply to the south, and no soil could by possibility be richer or lighter. It was composed of old Melon beds, the soil and rotten dung (not leaves) of which were most intimately blended. The slopes having been formed, a row of these glasses is put in close together, and under each cloche 32 plants from the seed-bed were planted; these having grown some time would be re-thinned to eight in a glass, and again to one only, which would make one of those splendid Lettuces which they send to Covent Garden market in the early spring. My employer at my request bought some of these cloches, which I am trying, but I fear that in our humid climate they may answer less well than they do in the drier climate of Paris.

I must add that the French pay great attention to giving air when necessary, and that they are careful in covering their glasses with straw mats. *Henry Bailey, Nuneham.*

RUSTIC FURNITURE FOR COTTAGE GARDENS (*see page* 117).



No. 13.

(*Concluded from p.* 191).

CULTIVATION OF FERNS IN OPEN BORDERS.

THE attention of persons of taste has in recent years been particularly directed towards the cultivation of Ferns, both hardy and exotic; but whilst the system of culture in the case of the latter has been, and still continues to be, gradually improving, that of the former has not made any advance for the last 10 years, but has, perhaps, rather retrograded. Many collections of hardy Ferns are grown in pots, but that plan is attended with so much trouble and expense, that it is not likely ever to become a method generally adopted. Many have also been planted in open borders, and in some instances they have fully answered the expectation of the cultivator; but in the majority they have failed to do so, owing to the circumstances under which they grow in their wild state not having been sufficiently attended to under cultivation.

Now the conditions under which most of our hardy Ferns grow naturally, and under which they flourish with the greatest luxuriance, are four: a porous soil, a damp atmosphere, a subdued light, and a protection from sharp cutting winds; and if an approximation towards these natural conditions be observed under cultivation, I can say from long experience that success is certain. First, as to soil; the majority of our hardy Ferns are not so particular as to what kind of soil they grow in as they are generally supposed to be, and they will not refuse any through which the water percolates freely except chalk. As to a damp atmosphere, that they require most at the time when they are throwing up their fronds; and when, if there are neither genial showers nor strong dews, they can very easily be assisted with a sprinkle from the fine rose of a watering pot. As to light, we must plant them in a situation where they are protected from the direct rays of the sun between the hours of nine in the morning and three in the afternoon in the month of June. In the matter of shelter from cutting winds, the cultivator must be entirely guided by circumstances, but if the place chosen is exposed to the east or to the west, a strong evergreen or two will be generally found quite sufficient to break the force of any such wind as we may expect in the months of May and June, and it is at this season of the year, when the fronds are in a young and tender state, that they require the greatest rotection. Two more things are necessary to be observed to insure a successful cultivation—to be careful that they are not planted close to trees or shrubs that produce a large quantity of fibrous roots near the surface of the soil, nor to choose a situation subject to the drip of large trees; in the one case the roots will rob the border of all the moisture and thereby starve the Ferns, and in the other the umbrageous foliage will prevent dews and gentle showers from reaching the border, although it will cause heavy rains to descend in larger drops, and thereby batter the soil and plants beneath. Within the last 10 or 12 years I have planted many borders of Ferns with good success, and have been consulted upon the planting of others, and I have come to the conclusion that every large or small garden that has a north aspect belonging to it may be enriched with a border of Ferns.

I wish it to be understood that what I have just stated is only applicable to such hardy Ferns as grow naturally upon the banks of shady lanes, in woods, or near to swamps; and that the smaller and more delicate kinds, which grow upon rocks, ruins, or old walls, will not succeed in any such situation, having never been successfully cultivated except in pots; and even there they require a great deal of troublesome attention, and are to be considered more as botanical rarities than as ornamental plants. *John Lloyd*, 11, *Gloucester Street, Vauxhall.*

VEGETABLE PATHOLOGY.—No. CLVII.

651. PARASITÆ (*Thrips*).—There is a numerous group of insects, consisting of several genera and species, allied to *Aphides*, which is known by gardeners under the general name of *Thrips*, the plague not only of the frame and hothouse, but destructive also to many plants in the open air. Some of the species are indigenous; others, which are capable of enduring considerable heat, are of exotic origin. These animals are easily recognised by their narrow almost rudimentary wings, four in number, nearly destitute of nerves, horizontal when at rest, but fringed with silky hairs, by their incomplete metamorphosis, and by their mouth being composed of a number of free lanceolate pieces. From the flattened form resembling that of bugs they were at one time considered as Hemipterous, but they are now placed in a distinct order under the name of Thysanoptera, in consequence of their fringed wings. They are extremely small in size, of very active habits when full grown, and capable of motion in earlier stages of development, and frequently of an ochraceous tint, though sometimes varying considerably in colour, and like the Aphides they exhaust the plants which they affect by extracting the nutritive matter, insomuch that their leaves wear a partially bleached or marbled appearance, from the exhaustion of the chlorophyll. It is to the under side of the leaves that they adhere chiefly, where they are at once protected from wind and rain, and where in some cases they are not easily removed by the syringe. It is difficult to say what plants suffer most from their ravages. Melons, perhaps, are amongst those which are most injuriously affected, and we have seen whole collections of Ferns withered and defaced under their prevalence. They abound in flowers, running and skipping about amongst the petals and anthers, and on Plums and other stone fruit they are sometimes so abundant as to be extremely disagreeable, besides which it is believed that they produce sterility by attacking the young fruit stalks. An extremely minute species, *Thrips minutissima*, is sometimes so abundant on Potatoes as to injure the crop materially, and it was surmised even by good entomologists that it might have some effect in producing the diseased tubers characteristic of the Potato murrain, though this notion was found ultimately to be no better founded than that of the evil influence of the Potato Aphis.

652. A secondary evil produced by Thrips, though in a less degree than in the case of *Aphides* and *Cocci*, is the exusion of a blackish fluid from the insect which defaces the leaves and ultimately blocks up the stomates. This is peculiarly the case in *Thrips Adonidum*, an exotic species which is extremely troublesome in hothouses, and as it is capable of enduring a hot damp atmosphere, very difficult to destroy.

653. As these pests are very common and at the same time very injurious, multitudes of plans have been suggested for their destruction, as powdering the leaves with sublimed sulphur; fumigating in a hot damp atmosphere with tobacco; lumps of quicklime on which hartshorn has been dipped placed in pans of water; bruised Laurel leaves; and syringing with a mixture of turpentine, soft soap, and tobacco. All these plans have their advocates, and most of them occasionally fail. The great point in all is not to allow the temperature to get too high, or the plants will be killed at the same time with the insects. The least expensive plan is the use of bruised Laurel leaves, where they can be easily obtained in sufficient quantities. The leaves should be well powdered,

and should on no account be allowed to come in contact with the leaves, which otherwise would be liable to perish. Fumigating with tobacco either in a dry or moist atmosphere, according to circumstances, is perhaps most to be depended upon, and has the advantage of never injuring the plants where due precautions are taken not to allow the temperature to become excessive. Such ingredients as arsenic should never be admitted into the garden, for they are seldom efficacious except in the case of the larger animals, and fatal accidents easily arise, even where considerable care is exercised. Figures of different species of Thrips will be found in this Journal, in 1841, p. 228, and 1846, p. 564, and numerous notices are scattered through our volumes of more or less successful attempts at their destruction. See also the Article Thysanopteres in D'Orbigny's Dictionnaire d'Histoire Naturelle. *M. J. B.*

Home Correspondence.

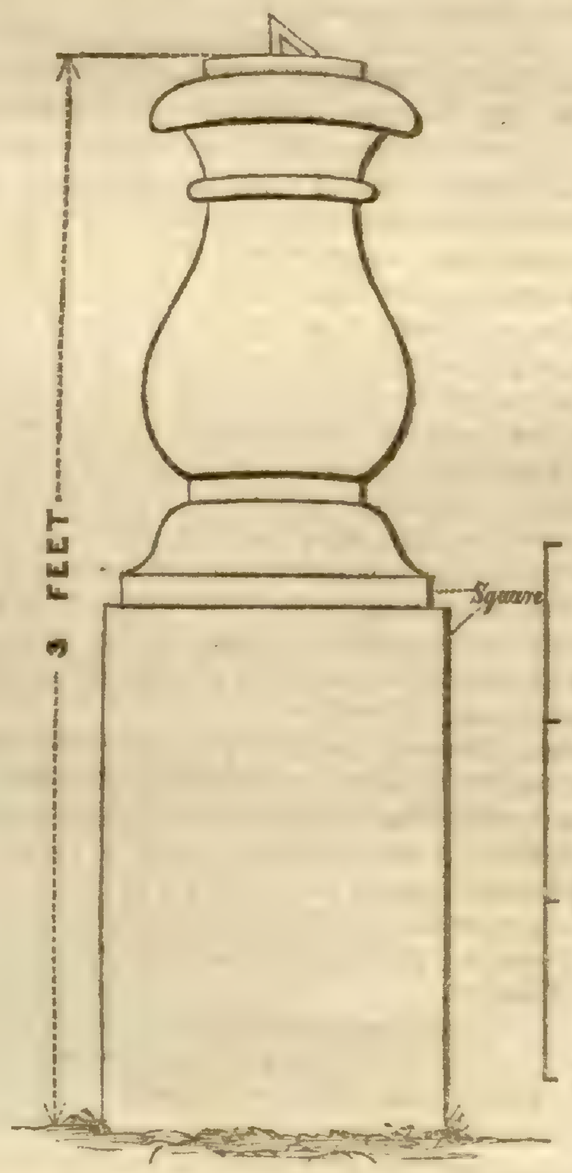
Melon Culture.—Permit me to add a practical remark or two to my communication in your number of the 7th inst. on the Melon in India, bearing on its culture at home. There are no doubt gardeners who by superior skill and management produce Melons of the highest excellence; but at the same time it is also true that most of the frame Melons one ordinarily meets with are characterised by great firmness, approaching often to a disagreeable hardness in the quality of the flesh or eatable part. To what is this owing? Is it a property peculiar to certain kinds or varieties usually cultivated; or is it the effect of certain circumstances and conditions in the mode of culture pursued from year to year? I have observed in the communication referred to that Melons, produced in India during the monsoon or rainy season, are characterised by being either mealy or very firm—in the latter quality resembling so many of our frame Melons—but that they never possess the juicy melting quality found in Melons grown in the dry and hot season, and which, when combined with a rich saccharine flavour, fulfils the idea of a really good Melon. The distinction is so marked, that one can scarcely hesitate to ascribe it to difference of climatic conditions in their respective seasons of growth. The effects may be partly due to difference of temperature, which is certainly higher, with an unclouded sun, in the months of April and May than in the subsequent months after the rains have set in; but I believe even more may be attributed to difference in the humidity of the atmosphere during the two periods. The conditions which are there found to be favourable to the excellence of the Melon are not only high temperature and bright sunshine, but a very dry atmosphere with ample but not excessive moisture at the roots; and the conditions, which are associated with hardness in the quality of the fruit, are humidity of the atmosphere with a more or less clouded sky, even though the temperature may generally be high enough. The existence of the same quality of hardness in frame Melons may probably indicate too moist a state of the atmosphere in which they are grown. In this climate bright unclouded sunshine cannot always be obtained; but the due regulation of temperature and moisture may be placed perfectly under control in glass structures. It appears to me that Mr. Wilkins's method of subterranean irrigation with liquid manure is well adapted for the culture of the Melon, when heat is obtained from other sources than fermenting material; as the moisture being supplied from below, the surface may be kept dry, and the frame kept free from humidity. *J. H. H.*

Large Oaks.—In a number of the *Illustrated London News* about a month ago there was an engraving and account of the "Cowthorpe Oak," generally supposed the largest now remaining in England:—Circumference at the ground, 50 feet; at a yard from the ground, 45 feet; girth of the largest limb, 10 feet. Now in a farm-yard lying about 300 yards from the high road, at the little village of Manton, 3 miles from Congleton, in Cheshire, there stands the magnificent wreck of a larger Oak than the Cowthorpe, and far larger than any of the great Nottinghamshire Oaks, with which I am well acquainted. The father of the present tenant used it sometimes as a "pigcote"—sometimes kept a bull tied up in it. Its present dimensions are as follows:—Circumference at the roots, 58 feet; at a yard from the ground, 47 feet; at 5 feet from the ground, 45 feet; girth of the largest limb, 11 feet 6 inches; diameter of the hollow inside, 10 feet. I can if you wish send you drawings of the tree from several points of view. I have often ridden into it on a large horse and turned round with the greatest ease. *E. E. Wilmot, Hulme, Walfield, Congleton.* [We should be much obliged.]

Branching Pine Apples.—Seeing in your Paper a notice of a branching Pine Apple, as a great curiosity, I may say I purchased one at a small shop here the other day, with four small ones attached at the base, and marks of where three more had been broken off. The centre Pine was 5 inches long and 10¼ in circumference, the crown was small, the small ones sprung from the lowest buds all round, and were quite round, about 1 inch in diameter, and had strong crowns. It was brought into Plymouth with several others by one of the African mail steamers, which start from the Cape and touch at Sierra Leone and the African islands on the road home. Should you wish to know the exact spot it came from I will try and find out, but it shows they must grow elsewhere than in the East Indian archipelago. *A. C. F., Plymouth.*

High treason against the Queen of Flowers.—There is an advertisement in your last Number in which the Sleaford Horticultural Society offers a prize of 2*l.* for 24 Roses "free from leaves and buds." Florists in general, and Rose growers in particular, will be amused or angry (both, perhaps, as in my case), when they are informed that this does actually mean that the men of Sleaford, dissatisfied with the Rose as the Creator made it, do command all England, or such part thereof as shall compete for the prize aforesaid, to exhibit their Roses stripped of every leaf and bud—in two words, which I blush to write, stark naked! Some weeks ago, when this unique proclamation was first issued, I wrote to the secretary to protest against it, and he expressed in reply his acquiescence in my views, and his intention to appeal to the committee. That appeal, it appears, has been tendered in vain; and now, as a loyal and loving subject, I call upon all true Rose growers to resent this strange indignity thus publicly offered to the queen of flowers, to denounce with me one of the most cruel cases of cutting and maiming ever contemplated by man. Although the winner of this same prize last year, I certainly will not mutilate my flowers to meet these new and barbarous conditions, but shall send my Roses in the garb in which Nature decks them—as courtiers, and not as convicts. Will the judges "disqualify" them? If they do, will the public endorse their treachery? At all events, I trust that the committee will be consistent, and then the exhibition will be a treat indeed; for, of course, no gentleman will be admitted with whiskers, nor attempt to introduce wife or daughter adorned with curl or braid. As for mammas, with their sweet little rosebuds around them, they will be at once consigned to the police, and all babies will be immediately destroyed. Carriages cannot approach if drawn by horses having manes. Birds with tails will be requested to abstain from singing, or they will be shot without further notice; but to atone for this silence bands of music will play, with other appropriate airs, "The blighted flower," "The last Rose of summer left blooming alone, all its lovely companions being hacked off and gone;" "Croppies, lie down;" "Woodman, spare that tree," &c. Flags and banners, scrupulously denuded of their fringe and bereft of their poles, will notify that mangling is done here, and hair cut on the shortest notice, &c. An extraordinary ordinary will comprise fine boiled legs of mutton without any trimmings, noble pieces of ham with the fat cut off, plumless puddings, pasteless pies, tobaccoless pipes, &c. The evening will be spent in singing songs without any tune, telling tales without any incidents, and exchanging jokes without any wit. Oh, comic committee, is this to be your programme, or will you (to speak seriously) give heed to this my second appeal to you, and permit the queen of flowers to appear at Sleaford, not *en dishabille*, but in her royal robes? *S. R. H.*

Sundials.—I send you a design for a cheap sundial, not suited for the centre of a round Grass plot, which is not the place to put one in, but in the angle of two walks, or anywhere that a statue or vase may be put. It is better suited to the small sundials sold now-a-days than



a larger one, and less likely to shake to pieces, as most freestone beds are thicker than 12 inches, its diameter; moreover, all the crooked part can be turned in a lathe. *Somerset.*

Black Prince Strawberry.—Like Mr. Nicholson (see p. 192) I have been very successful in growing this useful variety this season. I have a Peach house 40 feet long and 8 feet wide, with the flue in the back wall. I suspended from the rafters of the house three shelves, in order to test the Black Prince along with Keens' Seedling and Sir Harry, which were side by side. I gathered excellent ripe fruit from the Black Prince on the 17th ult. weighing ⅛ oz., and some more, and of excellent flavour. The Sir Harrys are just colouring, and very fine. The Keens' are much the same with a very heavy crop, and not more than 5 per cent. blind. Sir Harry was one-third blind, but not one was in that condition among the Black Princes. Than the latter I am induced to think there is not a more profitable variety for very early work in or out of doors. Allow me to add that I force from 700 to 800 plants annually, and grow more than half an acre out of doors, consisting of Black Prince, Keens' Seedling, Sir Harry, Victoria, British Queen, Elton Pine, Eleanor, Carolina superba, &c., and I think the Black Prince should be in every collection. I do not perceive that it requires to be treated differently from the above varieties; it should not, however, remain more than two years in one place. *W. Brown, Gardener, Elmdon Hall, near Birmingham.*

Garden Tools.—I was glad to see in your paper of the 14th inst. an article on this subject, as I feel confident that the generality of tools are very bad indeed. We may go into many gentlemen's gardens, and also nurseries, without meeting with what I call a good rake; but I am far from agreeing with your correspondent, "A Gardener," in his remarks on the make and shape of that implement for general purposes. He wishes to have one with teeth the shape of a pruning knife; such rakes may do very well if you always pull them in a straight line, but if you wish to turn them a little on one side when drawing towards you, they make bad work. The other kind of rake he mentioned has teeth the shape of sixpenny nails; those I do not like, for being sharp pointed they sink too deeply into the soil. The kind of rake I use I will endeavour to describe:—My largest kitchen garden rake is 15 inches long, having nine teeth 2½ inches deep; the teeth are ¼-inch diameter all the length, consequently they are all one thickness, with what are commonly called in this neighbourhood blunt points—they will soon work themselves into order with use. The head of the rake is ¾-inch across and nearly ⅝-inch thick; all the teeth are well shouldered underneath, and riveted on the top of the head, with the exception of the two end teeth, which are made from each end of the head and turned down. The next size is 12 inches long, having nine teeth, 2¼ inches long, and the third size 9½ inches long and has eight teeth 2 inches deep; those are the sizes I find most useful. This kind of rake I have used 14 years, and have found it equal to its work upon both heavy and stony land. The teeth never come loose if properly shouldered and riveted, and a good workman can throw them about in every direction, making them answer the purpose of a finer toothed rake (if required) by drawing them in an oblique direction. I must also say a word or two about pruning knives. Having had a great deal of use for them, I prefer a knife with a perfectly straight cutting side for wall trees, the blade moderately long and narrow; when the edge is worn back at the point, I grind away the back part of the blade till I come to the straight edge again, and when the blade gets too short for my purpose I think it time to have a new one. The knives recommended by "A Gardener" are the best for pruning fruit bushes or standard fruit trees. I hope that any of your correspondents having superior tools of any description, useful to a gardener, will give us some account of them. *R. Kirshaw, Denton Park.*

Vine Leaves.—If I had thought large Vine leaves would have been interesting, I could have sent you in February leaves of a much larger size than those furnished by Mr. Thomson, and that from Black Hamburgh Vines in pots, which are bearing from six to eight bunches to each plant—the bunches from 9 to 12 inches in length. I can now measure leaves 16½ by 14 inches and 51 inches round. As Mr. Thomson attributes the size of his foliage "to the effects of a circulation of water in open gutters," I may without presumption attribute the extraordinary size of mine to the superiority of the house in which they are grown. The latter was erected (for C. Turner, Esq.) entirely under my directions and superintendence; it is heated by hot water by Mr. Hurd, of Chelsea, without any open troughs or cisterns for the circulation of hot water, also without any provision for bottom-heat; but has stood upon wooden stages since the time the plants were first introduced into the house, and by the system of ventilation I have adopted, they have enjoyed a regular circulation of pure air day and night without intermission. *James Pringle, Stoke Rochford.*—Seeing Mr. Thomson's description of his Vine leaves where his boiler is used, has induced me to apply the rule to my leaves, and I have found one to measure 44 inches round. This I have sent for your inspection. It is from a house filled with Black Hamburghs, and heated by common brick flues. *Geo. Lambert, Oakwood, Chichester, Sussex.* [Yours is certainly a fine leaf, as far as size is concerned; but it wants the substance and unmistakable appearance of luxuriant health which Mr. Thomson's specimens possessed.]

Locusts in South West Australia.—The account of the destruction caused by locusts in south-west Australia by "C" is very distressing, and the remedy proposed by "J. O. W." will partially mitigate the scourge, but in "Maunder's Treasury of Natural History," under the head Locust (towards the latter part of a most interesting description of the insect), instead of burying the produce of the general battue of the settlers, it is converted to a very useful purpose. The account runs thus—"A somewhat similar plan has been successfully tried in this country (United States of America), in July, 1826, by Mr. Arnold Thompson, of Epsom, New Hampshire, who caught in one evening, between the hours of 8 and 12, in his own and neighbours' grain fields, 5 bushels and 3 pecks of grasshoppers, or more properly locusts. His mode was by attaching

two sheets together and fastening them to a pole, which was used as the front part of the drag. The pole extended beyond the width of the sheets, so as to admit persons on both sides to draw it forward. At the sides of the drag, braces extended from the pole to raise the back part considerably from the ground, so that the grasshoppers could not escape. After running the drag about a dozen rods with rapidity, the braces were taken out and the sheets doubled over; the insects were then swept from each end towards the centre of the sheet, where there was left an opening to the mouth of a bag which held about half a bushel; when deposited and tied up the drag was again opened and ready to proceed. When this bag was filled so as to become burthensome (their weight is about the same as of the same measure of corn) the bag was opened into a larger one, and the grasshoppers received into a new deposit. The drag can be used only in the evening, when the grasshoppers are perched on the top of the grain. His manner of destroying them was by dipping the large bags into boiling water. When boiled they have a reddish appearance, and make a fine feast for the farmers' hogs." So you see brother Jonathan, as usual, turns everything to the best use. This is converting a dangerous dead enemy into a very useful friend, and in the inevitable flight of the destroyer, visions of fat flitches of bacon rise before the mental vision. I have likewise read somewhere (but cannot lay my hand upon it just at present) that poultry of all kinds are very remarkably fond of the locusts and get quite fat on them; now, as such is the case, should not this lead to the introduction of all the varieties the colonists have not yet got. In "Maunder's Treasury of Geography," it states they have most kinds, but have they the pintad or guinea fowl, that most restless and voracious bird? equally so the peacock, and above all, that long-legged abomination the Cochin China fowl, whose back seems made for a saddle and his legs to jump five-barred gates? I saw a cock of this species swallow three dead mice which had been thrown out in the street, and seemed to think no more of them than so many sugar-plums, for he looked out sharply for more. If some of all these varieties should get wild in the bush, would they not destroy unlimited quantities of locusts in the larvæ state before their wings grew, and the colonists should be prohibited shooting these birds on account of the good they would do. The ostrich might also be introduced with advantage; and if some of the porcine species were turned in the bush (being omnivorous) they would destroy the young locusts in great abundance, besides affording capital runs for the sportsmen of the colonies (as in India) and provision for the hardy explorer when his own might be exhausted. I really wonder that as many of the antelope tribe as can be got are not imported by the Government in Australia, and turned loose (that country being so bare of wild animals); how they would breed, and what a resource of pleasure and profit they would be to the future colonists! How often their tracks may lead the perishing explorer to the only spring perhaps for miles; their only enemy of the animal species would be the dingo, on whose head a stated and liberal reward should be fixed by Government, and this may save the remnant of the Aborigines from the swift destruction that awaits them in the rapid disappearance of the larger game before the deadly rifle of the white man. The black man will not labour, but he will hunt; it is natural to him, and he enjoys it, whatever the toil he may have to go through; and the head money paid for the dingo would bring him many comforts, and its body serve him for food, beside ridding the colonists (whose time is too valuable to go in pursuit of such animals) from a most terrible scourge to their flocks. I have even heard the dingo is so fierce that he will occasionally make an attempt on the tails of the cattle, the loss of which in a hot climate is next akin to death, on account of the plague of flies. This plan would be converting the natives, who are at present little better than downright nuisances, into very useful allies. *F. N., Ludlow.*

Chiswick Exhibition.—As an occasional spectator of the Chiswick Flower Shows for more than 20 years, I cannot but feel interested in their continuance, particularly as the high and palmy state of horticulture and floriculture in the present day is mainly owing to the impulse given in every branch by the Horticultural Society. I therefore venture to offer a few remarks, and to observe that unless some variety is offered to the public they will scarcely be at the trouble of going five or six miles to look at the same plants which they can see at the Botanic Garden Show, where the disposition of the ground and the use made of it affords one of the most splendid *coup d'œils* possible. In fact the monotony of one long series of plants after another is wearisome to the eye, and it should be recollected that the public are admitted to judge not of the comparative, but of the positive beauty of the plants exhibited. The remarks in the *Gardeners' Chronicle* show a sense of inferiority at home in general effect to the Exposition at Ghent, chiefly indeed to be attributed to the shape of the room. Some useful hints may have been gathered, and will perhaps be acted upon in time. Yet I will suggest that at least the masses should be broken up and separated by plants of dissimilar growth, though not of entirely dissimilar climates. Thus to a group of from 18 to 36 Geraniums (according to size) might succeed one of Heaths, whose light foliage and modest colours would afford repose to the sight. Ferns and their congeners would soften the brilliance of Azaleas, and Fuchsias would contrast well with Roses or Rhododendrons, whilst Orchids might have hothouse Lycopods, &c., near them. The dividing groupe should be fewer in number of plants, and taller than the others. The universal prevalence of red in all shades is the great defect of all flower shows. Without green even Nature is gaudy, and the disposition of colour is one of the first requisites of art. I am not aware that there are any greenhouse plants to afford masses of blue (yellow might perhaps be found), yet they would afford variety, and the first might be produced from the Society's Garden if prepared in time from the different kinds of Delphinium. The elegant Berberis Darwini, though orange, would look well with its drooping flowers and glossy foliage, and others of this valuable tribe might be selected for the purpose. A *cour d'honneur* might be formed in the centre of the table for prizes in class A, and I think that the Cacti would look well amongst plants with variegated foliage, for the former certainly are not fitted for a group by themselves. At all events the plan should be well digested and accurately laid down, and committed to the care of intelligent men. At the Crystal Palace Show last year the effort to make a diversity, by training bunches of Grapes over arches, was much admired, though the flowers were as a whole much inferior to the London shows, and could not enter into competition with them. I hope that Class E will exhibit some improvement in the common flower-pot, which probably possesses every requisite except that of being sightly, and will not easily be superseded. There is a general, and perhaps not unfounded prejudice, in favour of porous materials. Yet if one half or one-third of the common kind were glazed from the top with a dark brown glaze, finished with a couple of lines impressed and kept clear, it would not interfere with drainage, and yet would be a relief from the coarse red of the rest of the pot. Could not a hint be given to the persons who provide flower-pots for the Horticultural Society? I was at the Exposition of Manufactures at Brussels last autumn, and saw some "cachepots" of yellow metal, very ornamental; the pattern was merely interlaced network to be lined with moss. I hope some of these may be shown in Class G, *O. Q.*

Societies.

ENTOMOLOGICAL, *March* 2.—W. W. Saunders, Esq., F.R.S., President, in the chair. Mr. Wallace exhibited specimens of the rare moth Laphygma exigua reared from eggs laid by a female taken in July last in the Isle of Wight, and of which the caterpillars (previously unknown and of which a description was also read) were fed upon Plantain. Mr. Douglas exhibited several small larvæ found at the roots of a species of Grass, Dactylis glomerata. He had found that cutting the Grass off close at the surface of the ground and then shaking it over a sheet was an excellent mode of collecting, as many different kinds of larvæ were found to take up their winter residence in such a situation. Mr. Stevens exhibited a number of drawings of the transformations of different Lepidopterous insects (including those of the genus Acræa) made in Natal by Mr. Plant, who had also sent the perfect insects reared from the larvæ figured. Mr. Wire exhibited a nearly black variety of the common garden tiger moth, and read a description of it by Mr. Newman. Mr. Westwood exhibited a large Lepidopterous larva, communicated by Sir W. Hooker, from the banks of the Parema river in Brazil, where it does great damage to the crops of Maize. He also exhibited a species of Nonagria collected by Mr. Wollaston in Madeira, where it is very destructive to the Sugar Canes, the larvæ boring into the stems. Mr. Westwood also made some observations on the modifications in the number of the tarsal joints in Coleopterous insects, and exhibited a minute species of Orthopera, collected in Madeira by Mr. Wallace, which presented a remarkable structure in these organs. He also read an extract from a letter of a correspondent in India on the effects and native mode of cure for the sting of a scorpion. Mr. Stainton read a paper by Mr. Bashford on the result of experiments made in India for improving the native races of Silkworms, by crossing them with specimens reared from eggs of the European races. Mr. Douglas read a translation of a notice by Dr. Hagen on the British species of Cicada; Mr. Baly read a paper containing descriptions of new species of the Coleopterous genus Doryphora, and its allies; and Mr. Pascoe exhibited a beautiful new species of Longicorn beetle from Borneo.

Notices of Books.

Le Jardin Fruitier du Muséum, &c.

The Fruit Garden of the Museum, or figures of all the species and varieties of Fruit Trees cultivated in that establishment, with their description, history, and synonyms; by J. Decaisne. 4to, Parts 1 & 2. Paris, Didot.

In the work before us we have the commencement of an operation of great magnitude, conducted by one of the most able of living botanists, under the auspices of the Minister of Agriculture and Commerce. The object is to describe and illustrate by coloured figures all the varieties of eatable fruits cultivated in France, and to reduce their nomenclature into order. In other words, it is to do for France, in great detail, what has already been done in England by the Horticultural Society in the form of a catalogue. From such an undertaking most men would shrink, regarding it as impossible of execution, notwithstanding the great assistance afforded by the Horticultural Society's catalogue M. Decaisne is however of a more resolute temper; and announces his intention to face the great difficulties of his task. For this he deserves the gratitude of all gardeners, for it must be confessed that no one subject is a greater source of annoyance, disappointment, and loss, than the still inextricable chaos of Pomology.

Only a fortnight ago one of his own countrymen publicly declared that the Pomological Society of the Rhone had reduced 2000 varieties (Qu. names?) of the Pear to 90. If so the French must be in a far more melancholy condition than the English. We are assured indeed that it is a common practice on the continent for a fruit grower to puff off the most trifling change as a novelty, decorating it with a grand name, and bolstering it up with a tempting description, such as "Tree vigorous and a great bearer. Fruit large, exquisite. Ripens in November and December. All the qualities of the highest order." The public is taken in; the *new* sort is propagated, sold at a great price, and a few years afterwards the buyer finds that he is the possessor of an old sort not worth the ground it stands in. The writer to whom we allude gives the following as an instance:—"I received," he says, "a catalogue from M. Papeleu de Wéterenn, the great propagator of new fruits, and among other errors I find the following. 'PEARS; latest novelties. *Abbé Mongein*, a delicious fruit, acquiring according to M. T.——the extraordinary weight of 42 ounces.' Two years ago I saw this Abbé Mongein Pear on a healthy tree; and it proved to be so like the Catillac that nobody could see the difference; and the ordinary weight of the Catillac is only from 12 to 24 ounces. M. Willermoz, a celebrated pomologist of Lyons, in like manner found this Abbé Mongein to be no bigger or better than the Catillac. It seems that there is an old tree of the Catillac near Bordeaux, which nobody thought anything of," and from this specimen the novel Abbé Mongein was, we presume, produced. Is this, asks the French critic, anything the better for M. T.'s having assigned it the fabulous weight of 42 ounces and the epithet delicious?

Such is the kind of horticultural mud through which M. Decaisne has volunteered to wade, in the hope of at last placing the fruit department in an honest and solid position. In addition to any other resources at his disposal, he relies upon the fruit department of the Museum, which dates from the year 1792, when the celebrated fruit garden of the Chartreux was abolished by the Convention, on which occasion two specimens of each variety contained in it were removed to the Museum, where also may still be found most of the typical fruits described by Du Hamel.

The learned author has wisely commenced with the Pear, above 800 figures of which have been prepared since 1849; he proposes to describe nothing but what he has had ample leisure to study, and he trusts that these descriptions, aided by figures drawn by Riocreux, will enable his kinds to be identified with certainty.

The drawings in the two parts of the work before us are beautiful specimens of art, and the descriptions leave nothing to be desired. It is not indeed merely as a horticultural treatise that M. Decaisne's Jardin Fruitier must be regarded; it is also a charming ornament to the library table, as well as a study for the young artist who wishes to know how branches, leaves, and fruit are represented on paper by the greatest master of his art among living French draughtsmen.

The parts appear monthly. Each costs 5 fr., and contains four plates. The work itself will form a series of monographs, of which the Pear comes first. Each monograph will be closed by a general arrangement of the varieties, and a synonymy extending from the 16th century to the present day. In Pears alone the number of names amounts to 3000. Among other classes of fruit M. Decaisne in part relies on the assistance of friends, among whom we are glad to see the distinguished names of M. and Mme. Louis Vilmorin, who have undertaken the article Strawberry.

Garden Memoranda.

MR. GLENDINNING'S NURSERY, TURNHAM GREEN.—On visiting this establishment the other day we found at one end of a span-roofed greenhouse filled chiefly with well grown specimens of Cape Heaths three noble examples of the valuable new hardy plant Farfugium grande. To our former description of this fine species, which must be acknowledged by all to be one of singular beauty, we have little to add. It has round angular heart-shaped evergreen leaves, sometimes more than 2 feet in circumference, of a peculiarly bright lively green, copiously blotched with patches of clear yellow. These leaves stand well upon woolly stalks 12 or 15 inches long, and form a magnificent round bush-like tuft of surpassing beauty. We are now speaking of pot-plants. It is out of doors however that the Farfugium is expected to be most useful. Its beautiful leaves spread over rockwork or intermixed with winter and spring flowering plants in beds and borders must have a grand effect; even indoors however it will be found to be extremely valuable; its richly spotted leaves, being wholly unlike those of our ordinary greenhouse plants, form a fine contrast with the latter, and serve to set them off to unusual advantage, producing by means of their lovely variegation a variety of colours at once striking and effective. This plant must therefore be looked upon as a decided

acquisition. It was found, we are informed by Mr. Fortune, in a mandarin's garden in the North of China. This Farfugium is however only one of the many fine things which may now be seen in this nursery; for Mr. Glendining has others of equal or even greater value, though of a very different kind. When Mr. Fortune was in China for the Horticultural Society, he obtained those beautiful spring shrubs the double white and crimson Peaches, both of which have been much prized in this country for decorative purposes; it turns out however that these are not the only varieties of double flowered Peaches which the Chinese possess, for examples of other kinds even much more beautiful than those now alluded to have just flowered with Mr. Glendinning. Of these one has rosy pink flowers, quite 2 inches in diameter, and very double; another in the buds at least—for none of the blossoms had expanded when we saw it—appeared to be striped like a Carnation; while a third had blossoms more than 2¼ inches in diameter, of an intense deep crimson colour, and very double. This we understand has been named the Camellia-flowered Peach. In addition to these a double blossomed Prunus has just flowered in this nursery. The blooms, which are thickly set on long slender twiggy branches, are very round and double, of a delicate pink colour, and upwards of an inch in diameter. It is a new species, and will be soon described in our columns under the name of Prunus triloba. As forcing plants for the early decoration of conservatories and show houses these shrubs must prove invaluable, introducing as they will do bold and striking colours into that class of plants, and even on conservative walls (or wherever there is warmth enough for them to perfectly ripen their wood) their effect in spring must be grand in the extreme. For the possession of these rarities Mr. Glendinning is indebted to Mr. Fortune, who has also been successful in introducing some good new Chinese Camellias. Of the latter a beautiful creamy one touched with pink, called the "Cup of Beauty," is now in flower. It resembles the Countess of Orkney; nevertheless it is very different from that or any other variety at present in cultivation, and when it shall have become better known it cannot fail to be a favourite. A Rhododendron, said to be the only one Mr. Fortune met with in the east of China, and many other new and rare plants, are now growing in this nursery; but what their value may be is yet unknown.

Among Conifers, that to which the greatest interest is attached is, we need not say, the new Chinese Larch (Abies Kæmpferi), of which Mr. Glendinning has a large stock; but in other sections of this favourite class of plants we also noticed some fine things. Of Junipers, especially Juniperus Deppei, and also of Libocedrus chilensis there is a large stock; as also of Pinus Bungeana, from China, having bark like an Arbutus; P. Fremontiana, Cupressus grandis and Macnabiana, and other rare sorts. In the open border were beautiful plants of Picea nobilis and Nordmanniana, from 4 to 5 feet in height; and we observed quantities of Abies (Cedrus) atlantica, which is found to be especially well suited to the north of England and Scotland. Small plants of the Huon Pine (Dacrydium Franklini) have stood this winter unhurt in open borders. [As they have in worse situations. Ed.]

Among other plants were Jasminum Reevesi, a new small-leaved Chinese Privet, sent by Mr. Fortune from the north of China, and quantities of the Chusan Palm. Of the last several plants have withstood this winter here in open borders.

A lean-to house 70 feet in length is wholly devoted to the growth of young Vines, for his excellent management of which Mr. Glendinning is celebrated. The young stock is placed on a tan bed, which is also heated with hot water and dung; thus placed they make rapid growth early in the season, and have time to ripen it well by the autumn. On the back wall and trained partly down the roof are old plants of all the principal varieties, from which young ones are obtained true to their kinds. It was from these old plants that the fine bunches were obtained for which a first prize was awarded last year at the Regent's Park, and they promise to be equally good this season.

Standard Portugal Laurels are cultivated here in quantities, as are also standard Gueldres Roses and red flowering Currants (Ribes sanguineum). Common Currants are likewise grown here as standards; they are pruned up so as to cause them to have straight stems about 2 feet in height; thus elevated, the fruit is kept cleaner than on low bushes.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Those who wish to have Camellias in blossom from October till May must take care to force their plants into wood successively. If a given stock were divided into three portions, one portion to be subjected to this process in February, a second in March, and a third in April, this object would be effectually accomplished, provided the subsequent treatment was what it ought to be. Some have their Camellias in a house by themselves, where under good management they should be now growing satisfactorily. They should be slightly shaded in bright weather, and syringed three or four times a day—in fact, kept constantly moist. A temperature of about 60°, with a circulation of air day and night, will suit them perfectly. Abundance of weak and tepid liquid manure should be given them all the spring, but the moment they cease to make wood they should be subjected to a considerable amount of drought at the root, still however syringing and shading. Let the liquid manure be resumed as soon as the blossom buds are fairly formed. Under this treatment they will be found to succeed remarkably well. In stoves both heat and moisture may now be increased, and have shading in readiness to ward off bright sunshine for an hour or two in the day. Use liquid manure constantly to stove plants in general. In greenhouses a shelf or two should be devoted to some of the free-blooming hybrid Roses. Cuttings of these struck last summer, and kept through the winter in store pots will, if potted now and put under high cultivation, make nice bushes for next autumn and the ensuing spring. They should be got forward indoors for a month, and when established in 5-inch pots receive their final shift at once. All blossom buds should be kept pinched off through the summer if intended for winter or early spring bloom. Cuttings of young wood struck now will flower nicely late in the autumn, provided they are duly attended to. Encourage afternoon or evening warmth, but give air freely all the early part of the day. Take care to fumigate "little and often" in all plant houses or pits whenever green fly makes its appearance.

FORCING DEPARTMENT.

Pineries.—Look over young growing stock, occasionally examining and repotting such as is found to be in want of more pot room. The temperature may be slightly advanced as the amount of light increases, but this is a matter in which the state of the plants will be the best guide. Aim at securing strong dwarf plants, with a free habit of growth; and if this is obtained, it is immaterial whether the night temperature is 60° or 70°, and very much will depend upon circumstances as to which will be proper. Plants that may be unhealthy and in an unkind state, if kept near the glass, will be benefited by a considerably higher temperature than would be suitable for others in a free state of growth. These are circumstances, however, which can be properly judged of only by those in care of the plants, but they are easily understood by a little careful observation. Use every means to induce a vigorous root action, and if this is obtained free strong growth will result with otherwise ordinary care only. Vineries.—See that Vines starting into growth are tied up in their places before the shoots get so long as to be liable to be broken off in the operation. Syringe frequently until the leaves begin to unfold; but use the syringe sparingly after that is the case, and only on the afternoons of bright days. Where the buds do not promise to break regularly bend the Vines so as to place those that are backward in the most likely position to catch the sap, and this should be done directly any indications of their breaking irregularly are observed. If any of the bunches in houses where the berries are stoned look as if they would be improved by a few more berries being cut out, let this be done at once.

FLOWER GARDEN AND SHRUBBERY.

Those who force Neapolitan Violets should for the next three weeks or a month propagate a stock either by means of cuttings or runners. Young stock of choice Pansies of last autumn's striking should now be got out in the flower garden beds or on borders. If the soil is in any way exhausted a little fresh should be put in every hole, viz., such as old rotten loamy turf mixed with old leaf soil, a little soot, and a little coarse sand Too much manure may enlarge the bloom for a while but it soon renders the plant unruly. Sow Sweet Peas and Mignonette. If the former are required early soak them in warm water for six hours previous to sowing them.

HARDY FRUIT AND KITCHEN GARDEN.

Make sowings of Peas, Beans, Radishes, Horn Carrots, Salading, &c., also sow a little Parsley, some early Beet, &c., and look well after some good and forward seed beds of Celery. That sown early in boxes will soon want pricking out. The old plan is very good, viz., some very rotten and mellow dung on a sound bottom. On this the plants pricked 3 inches apart will produce many fibres, and will remove with the trowel in balls with the most trifling amount of check. The chief reason why Celery "runs" is when sudden luxuriance is succeded by sudden checks. The buttoning of the Cauliflower is also perhaps traceable to the same cause. Fruit trees must be kept clean and healthy. If not already done, now is a good time to use sulphur mixed with soft soap and clay as a paint, daubing it with a brush between the Peach, Nectarine, or Pear shoots, to prevent the breeding of red spider.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending March 26, 1857, as observed at the Horticultural Gardens.

March.	Moon's Age.	Barometer.		Temperature					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 20	23	29.975	29.919	51	33	42.0	47½	43½	E.	.00
Satur. 21	24	29.998	29.980	41	26	33.5	46	44	E.	.00
Sunday 22	25	29.856	29.732	45	27	36.0	44½	43½	E.	.01
Mon. 23	26	29.682	29.554	48	27	37.5	44	43½	S.W.	.60
Tues. 24	27	29.619	29.518	50	38	44.0	44	42½	S.E	.00
Wed. 25	28	29.556	29.405	55	21	38.0	44	42½	S.W.	.02
Thurs. 26	1	29.870	29.636	56	31	43.5	44	42½	S.W.	.00
Average..		29.794	29.677	49.4	29.0	39.2	44.8	43.1		.03

March 20—Drizzly; hazy; fine at night.
— 21—Boisterous; cold easterly wind; frosty.
— 22—Clear; a few snow-flakes; cloudy; frosty.
— 23—Overcast; snow-flakes falling occasionally; masses of dusky clouds: frosty.
— 24—Fine: bright sun at intervals; cloudy: frosty.
— 25—Uniformly overcast; densely clouded; rain; sharp frost at night.
— 26—Clear; very fine; cloudy.

Mean temperature of the week 3¼ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending April 4, 1857.

March and April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.						
						N.	N.E.	E.	S.E.	S.	S.W.	W.
Sunday 29	53.2	32.9	43.1	8	0.33 in.	1	4	8	3	1	5	5
Mon. 30	53.7	33.9	43.8	11	0.50	3	5	4	1	4	4	4
Tues. 31	54.9	34.8	44.8	12	0.30	2	8	2	3	6	2	4
Wed. 1	55.2	34.5	44.9	15	0.76	3	6	3	3	4	2	4
Thurs. 2	55.5	36.1	45.8	14	1..9	4	3	4	3	4	2	4
Friday 3	56.1	34.9	45.0	9	0.22	5	3	3	1	3	4	4
Satur. 4	56.7	36.0	46.4	13	0.46	4	6	2	2	6	5	3

The highest temperature during the above period occurred on the 4th, 1848—therm. 78 deg.; and the lowest on the 30th, 1856—therm. 15 deg.

Notices to Correspondents.

Asphalte Work: *W B.* We cannot recommend one person in preference to another. You must consult advertisements.

Cherimoyer: *W T.* Different things are thus called by Madeira people. If you will send us one seed we shall be happy to tell you what to do with the others.

Cupressus macrocarpa: *A 12 years' Subscriber.* We cannot say whether or not it will stand the winter at York. Inquire at Backhouse's Nursery at Fulford. The plant is so hardy here that it would be expected to bear Yorkshire; but we know that it sometimes dies in a Cheshire winter.

Daubentonia Tripetiana.—As this is from the Argentine provinces it must be a greenhouse plant, and so it is considered in France and Belgium. We are not personally acquainted with it. In all probability your house was too damp. Tecoma jasminoides will grow in it: but Lapageria is doubtful. It is probable that the former has its roots in too cold a soil.

Filters: *Old Sub.* One of the best and cheapest filters for ordinary purposes is that described and figured at pp. 646 and 678 of our last year's volume.‡

French Seeds and Plants: *Erpingham.* You can obtain lists of these upon application to the great firm of Vilmorin and Co., Quai de la Mégisserie, Paris.

Gas Heating: *H W.* The latest proposal seems the most likely to succeed. See our p. 21 for a plan and description. But we must add that we are not ourselves acquainted with any instance in which success has been obtained.

Gourds: *Eileanach.* The Great Egg Gourd is Cucurbita ovifera. It may be had of the Horticultural Society, and we suppose of London seedsmen. Another nearly as good, and keeping well, is the Potiron gris.

Horticultural Society: *Cisvicensis.* The use of the ivory ticket issued by the Society to its Fellows paying four guineas a year is that it doubles the personal privileges of such Fellows, as thus:—They can introduce personally any number of visitors to the meetings in Regent Street, or to the garden on ordinary days; the bearer of an ivory ticket can do the same. They pass free into the special exhibitions in the garden, &c., while others have to purchase tickets; the bearer of the ivory ticket also passes in free. They can introduce at an early hour to the Garden Exhibitions any two friends having ordinary tickets of admission; the bearer of an ivory ticket has the same privilege. The ivory tickets may therefore be said to double the individuality of a Fellow. This, to Fellows living in the country, is a great convenience, because by lending their ticket to a friend they to a certain extent transfer their privileges for the moment, resuming them again when the ticket is returned to them. This explains the reason why such tickets are eagerly sought after.

Manures: *W F.* Liquid manure may be usefully applied to exhausted old roots, by loosening the ground near the extremities of the roots and pouring it in. But this must not be done to Conifers. It may not be so permanent in its action, but it takes effect more quickly. To healthy trees it may be applied in like manner; but if trees and shrubs are thus forced into excessive growth they may not ripen their wood, and in that case mischief is done. When the ends of old Hollies die, prune them back now, and give their roots at once something to feed upon.

Mowing Machines: *S B* would be much obliged by any of our correspondents telling him whose mowing machines answer best, and of what size. He has a flat dry lawn of four acres, broken by beds and shrubs. He has tried Ferrabee's machine for two men, but they found the work so hard and tiresome that they preferred the scythe. Would a pony machine answer in saving labour?

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Farnham.* Gurltia and Gireondia are names recently given to some fragments wantonly chipped off the genus Begonia, which is sorely disfigured by the operation.—*J S.* Arnica montana.—*T D.* Lavandula dentata.—*Alyssum.* Glyce maritima; there is scarcely any difference between maritima and canariensis.—*Bernensis.* Epipogum Gmelini; it has certainly been found wild in Herefordshire.

Netting: *Lady J W.* Netting of the size and kind you inquire for is, we understand, not "kept in stock." Any respectable dealer in such things will, however, doubtless be glad to make it for you; or, having procured the tar twine, some handy labourer might perhaps be found capable of converting it into a net sufficiently good for your purpose.‡

Peaches: *Beginner.* Next week.

Pruning: *Const. Reader.* For ripe wood a knife is best; scissors do very well for removing soft twigs.‡

Tasmannia: *J N.* It is probable that all the hard-wooded plants will live in warm sheltered places, even in winter. Soft-wooded plants are doubtful. Tree Ferns will certainly not live at all. In every case plant over a hole which is so drained that no water can possibly lodge in it in the winter. The Blue Gum tree, it must however be observed, is one of the tenderest of the Tasmanian plants.

Vine Leaves: *C A W.* They are evidently suffering from want of ventilation and too damp an atmosphere. More air and sunlight will be found to improve their condition.‡

Violets: *J S* will be obliged by some of our correspondents informing him how to grow Violets, so that he may have them at the same time as Covent Garden. He can get plenty, he states, in the latter end of March and April, but at no other time. He grows Double Russian and Neapolitan. He adds that he has tried them in frames planted out in August in a gentle heat without success. He takes off all runners, and would be glad to know if that plan is to be recommended.

Wages: *A B.* The proper notice depends upon the manner in which wages are paid; if weekly a week's notice is enough, if monthly a month's—and so on.

Misc.: *A C.* The coldness of your climate is the cause of your tall White Lilies not succeeding. Your Stocks have also perished from the same cause. Your winters are too severe for them, and unless you can protect them in some way during the most trying weather it is useless attempting their cultivation in a situation so unfavourable for their growth.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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EDWARD PURSER, Secretary.

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Manfactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
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Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

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N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

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"15, Welbeck Street.

"Sir,—On reference to my books, I find that the Manure which I analysed for you in April last year contained 66½ organic matters, 8 ammoniacal salts (yielding 7 per cent. of ammonia on the Manure) and phosphoric acids, soluble in water, equal to 27¾ per cent. soluble Phosphate of Lime. Such Manure would, in my opinion, be very valuable, either for Corn or Root Crops, but for the former purpose, I would advise you to reduce the proportion of soluble phosphates which appears unnecessarily large.—I am, Sir, your obedient servant,

"J. THOMAS WAY,

"To Mr. Chisholm. 11th February, 1857."

Price delivered at any Railway Station in London:—
For Root Crops and Grass Land ... 7*l.* 10*s.* per ton.
For Corn and Hops ... ... 8*l.* 8*s.* "

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IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

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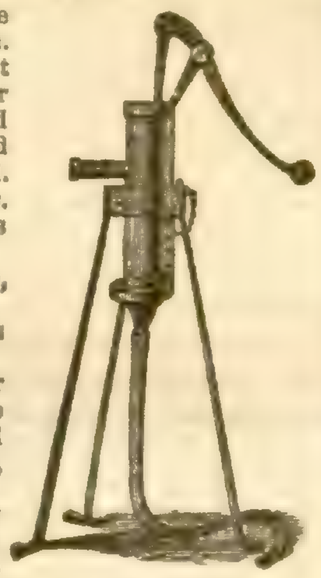

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Price of 4½ in. Pump, with legs, 8*l.* 8*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

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Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

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PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead,	1	10	0
2½ " long	3 " 3 "	gutta percha,	1	14	0
3 " ditto	3 " 6 "	or cast iron	2	8	0
3½ " ditto	3 " 6 "	flanged pipe,	2	12	0
4 " ditto	3 " 6 "	as required.	3	3	0
2½ " short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

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MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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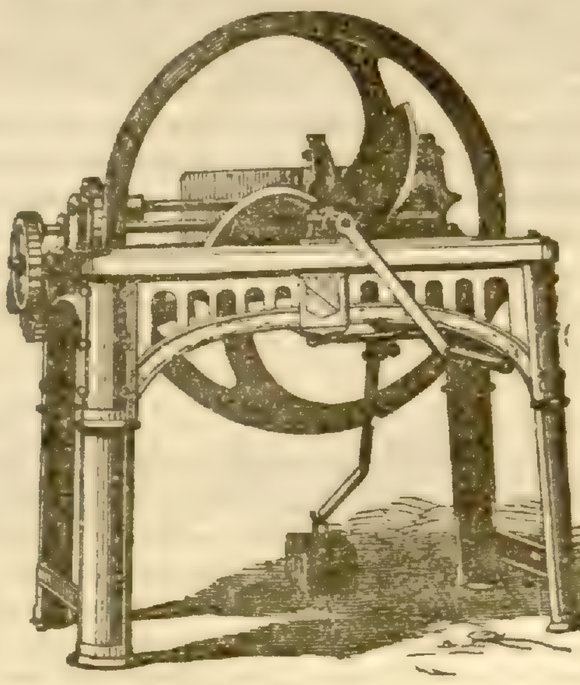
"We were much struck with the admirable workmanship of Messrs. Richmond & Chandler's Chaff Cutters, and their cheapness too. The work they do is very great, and this work is effected with less expenditure of power than other cutters require."—*Mark Lane Express.*



ROYAL NORTH LANCASHIRE AGRICULTURAL SOCIETY.
PRESTON MEETING, 1856.
AWARD OF *first* AND *only* PRIZE TO

RICHMOND AND CHANDLER, for best CORN CRUSHER; also *first* and *only prize* for best TURNIP CUTTER.

At the recent Highland and Agricultural Society's Show, held at Inverness, the Judges awarded to RICHMOND & CHANDLER—
The Special and only Prize for best Chaff-Cutter.
The first and only prize for best Chaff-Cutter for power.
The special and only prize for best Corn-Crusher.
The first and only prize for best Corn-Crusher for power.
The first prize for Turnip-Cutter, constructed for beasts and sheep.

Prizes awarded at the Manchester and Liverpool Agricultural Society's Show lately held at Wigan:—
The special Prize for best Chaff Cutter.
The do. do. for Winnowing Machine.
Also, the first Prize for Patent Harrows, Churn, &c.

At the last trial of the Royal Agricultural Society of England, the first prize for best Chaff Cutter.

Agriculturists and others may be immediately supplied with every class of implements in the Trade on application to RICHMOND & CHANDLER, Salford, Manchester; Branch Establishment, South John Street Liverpool.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming lawns, ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9*d.* lb.; Swedes, 1*s.* lb.; Turnips, 1*s.* lb.; Hybrids, 1*s.* 3*d.* lb.; Improved Italian Rye-grass, 7*s.* 6*d.* per bushel.—GEO. GIBBS & Co., 26, Down Street, Piccadilly, W.

GRASS SEEDS FOR PERMANENT PASTURE.

THOMAS KENNEDY AND CO., Dumfries, N.B., beg to call special attention to their MIXTURES for laying down land to Permanent Pasture, which have hitherto given such universal satisfaction.

Mixtures for Permanent Pasture, 25*s.* to 30*s.* per acre.
Mixtures for Permanent Lawn Pasture, 26*s.* to 31*s.* do.
Mixtures for Lawns, Terraces, Bowling Greens, &c., 31*s.* to 36*s.* do.

Their PRICED LIST of AGRICULTURAL SEEDS is now ready, and may be had Postage Free on application.

FREE DELIVERY.—Seeds to the value of 2*l.* delivered Free of Carriage to the principal Railway Stations and Steam Ports in the kingdom.

THE KEYTHORPE SYSTEM.

MR. TRIMMER begs to inform Landowners that he has arranged with a Draining Engineer in extensive practice for the Draining of Land on this economical and effective system, suggested by himself and successfully reduced to practice by Lord Berners at Keythorpe.—Egham, Chertsey, March 28.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

LECTURES by Professors SIMONDS and WAY will be delivered before the Members in the Council Room of the Society, on the first WEDNESDAYS of the ensuing months of April, May, June, and July, at 8 o'Clock in the evening. The subject of the first of these Lectures, on the 1st of April, will be that of GUANO DEPOSITS, by Professor WAY.

By order of the Council,
JAMES HUDSON, Secretary.

*** Each Member of the Society will have the privilege of attending these Lectures.

The Agricultural Gazette.
SATURDAY, MARCH 28, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 1 { Agricultural Soc. of England .. Noon. / Society of Arts ..... 8 P.M.

THE Highland Society, as our readers are aware, are about to grant diplomas to properly qualified agriculturists, certificates of competency or efficiency, which will no doubt be sought more especially by those whose livelihood is to be made by farm management for others. A committee are engaged in considering the best way of ensuring and of ascertaining the qualifications of candidates for this diploma. They have, we believe, resolved that as in addition to the passing of an examination of their knowledge a certain curriculum of study is required—so in addition to the passing of an examination of their skill a certificate of residence on a farm shall be required.

In this they are undoubtedly right; it is an unquestionable truth that whatever may be learned in class rooms or from books a practical acquaintance with agriculture can be acquired only in the field. No business—no art—can be taught by word of mouth. When a candidate for naval rank passes an examination before a board of officers, they test by questions his knowledge of the sciences on which seamanship depends, and they test his knowledge of seamanship itself by questions as to how in certain emergencies he would act. And whatever can be tested by word of mouth can be acquired from word of mouth, but they cannot test by question his ability to *act* in the way which he himself describes. They cannot test by questions his practical skill

however accurately in answer to them he may describe the processes in the superintendence and direction of which practical skill consists—and so, in order to be sure that he has by custom and experience had at any rate the opportunity of acquiring this skill, they require a period of actual practice to have elapsed before he can offer himself before them for examination. And just so the committee of the Highland Society, who have been deputed to report upon the conditions which ought to be attached to the agricultural diploma which that Society are about to grant to properly qualified persons, have most properly resolved that in addition to the passing of a good examination before proper qualified examiners, a certificate shall be required not only of attendance on a certain curriculum of study, but also of residence for a certain period on a farm.

But it is not merely a combination of theoretical and practical knowledge that constitutes agricultural efficiency; of which, indeed, we believe that no examination can be a sufficient guarantee. There are in fact three aspects in which every art, followed as a maintenance, presents itself. There is first the theory of the art—the explanation of it in accordance with the general laws of science—its relationships to the chemistry of matter—to the truths of mechanics, and of natural philosophy generally—a knowledge of which certainly enables us to correct and improve practice, to know what in it is binding everywhere, and what in it is the result of local circumstances. Then there is the practice of the art itself—a knowledge of the processes in which it consists; and lastly there is the business of the art, in which its relations to the people employed in it are concerned.

Take the science, art, and profession of agriculture for instance. The chemistry of agriculture—the botany of agriculture—the mechanics of agriculture—the relations to it of animal and vegetable physiology, and of the laws of matter generally—in all these we have its theory—the aspect which it presents, not to the professional agriculturist interested in its profits, nor yet to the amateur agriculturist interested merely in the most artistic and skilful mode of attaining its results—but to the scientific man interested in it merely as being one more series of illustrations of that unity and consistency which pervades all Nature, and which it is his business and his enjoyment to discover and illustrate.

Then, secondly, there is the art of agriculture, which consists of a number of processes succeeding one another pretty regularly in the order of time—beginning with one October and ending with the next October, only to begin again the annual round—processes which shall by a skilful use of local and of personal means, directed by an acquaintance with the sciences of matter, and by an acquaintance with the experience of agriculturists elsewhere, result in the largest possible quantity of human food. And lastly, there is the business of farming, whose proper object is, not the attainment of any ideal consistency with scientific truth—whose object is not even the production of food—whose object simply is the largest annual return from the capital invested in the farm. Of course even *this* object cannot be attained without acting in accordance with the laws of God in nature. These laws do themselves correct any infraction of them by inevitable penalties—and so farm practice, like the practice of every other art does in the long run acquire a general accordance with the chemistry of matter. Nevertheless it is undoubtedly of advantage, even in a £ *s. d.* point of view, to be acquainted with the laws of Nature as deduced from the other instances of their operation by the scientific man. Of course, too, farm profit is not to be derived without acting in accordance with the rules of the art of agriculture: the business does pay essentially by the production of food, and the rules which guide those who best succeed in producing food ought to be generally known in the interests of the business as well as in the interests of those whom it feeds. Nevertheless farm profits depend practically on the business ability of the farmer — the energy which seizes on every opportunity of supplying a demand—on every opportunity of improving the means of that supply—the decision, and judgment, and shrewdness which are needed in the market-place—the temper and the resolution needed in the superintendence and direction of labourers. These are the qualities which in farming as in every other *business* extract profit from the use of capital; and these qualities are not to be acquired in the class-room or from books. The germs of them exist in every one in greater or less intensity, and they are educated and brought out into confident exercise and development by practice and experience in the market-place and field.

Examinations, oral or by writing, can only ascertain that which instruction literal or oral can communicate. The field and market-place are the true testing places of that which there, and there alone, can be acquired. The board of naval officers can test the knowledge of a candidate for their diploma; but they cannot ascertain his ability to apply that knowledge—that is to be tested by experience alone, as by experience alone it can be acquired.

An officer in command of a ship, however, is not exactly the parallel to the tenant of the farm—the success of the latter is even *more* deeply involved in the possession of business qualifications. He is the merchant who has hired *his* vessel and who has freighted it—he is the supercargo in charge of its stores—he is the agent who has engaged its crew—the officer who commands them—the trader who disposes of its produce. He does not merely need the scientific ability to shape his course—nor the practical ability merely to direct his men in doing so—but the trade experience and skill as well, by which to accommodate his supplies to the demands of the ports to which he steers, and the shrewdness and intelligence which must save him from being overreached by those with whom he deals. Well, then, for all these he must be indebted to his powers of observation and imitation by which in actual experience he will acquire the qualities which he needs: and his relation to the owner of the land—the vessel he has hired and freighted—to the labourer—the crew whom he directs—and to the traders with whom he deals, are of essential importance.

On all these grounds it is plain that too much care cannot be taken to hedge an agricultural diploma about with such conditions as shall require an experience of actual farm practice, as well as a curriculum of industrious study, to have been prosecuted by all those who desire it.

It is now some weeks since the spread of the cattle murrain from Russia and Poland into Germany was announced: and a good deal of excitement—not more than the occasion justified—has been produced among agriculturists by the announcement that an animal infected with the disease had been condemned after importation here. Our correspondent Mr. Turner, of Wakefield, in last week's Paper called attention to this excitement, which, however, he looks upon as apathy itself in the face of the great danger which it contemplates. The contrast between Prussian and English administration under similar circumstances certainly is remarkable, if, as we are told, the strictest quarantine on all the frontiers is imposed; while in any instance where, in spite of all precaution, a herd may be attacked, the whole are at once condemned and slaughtered.

Our own experience of imported diseases has been severe enough of late years to call for the most anxious vigilance on the part of those who keep imported live stock—but we are persuaded that no mere inspection will be a sufficient safeguard, in the face of the numerous importations from infected districts as well as other quarters which are reported weekly.

The English Agricultural Society through its veterinary officer, Professor Simonds, has done good service heretofore by making known the character and proper treatment of continental cattle diseases, with which we are likely ere long to be well acquainted; and we are glad to see that our present position in this respect occupies their attention every week. We quite agree with those who think that Professor Simonds ought to be commissioned to examine and report immediately upon the murrain whose approach is threatened.

How anxiously it is looked upon by stock-keepers in its immediate neighbourhood is seen in a letter from Lubeck, which is given in the columns of a contemporary. The writer says:

"The most stringent regulations to prevent its spreading or introduction should be instantly adopted, and duly enforced by the competent authorities. The most effectual way of checking the disease would be at once to slaughter the cattle attacked by it. But whether they be slaughtered or die of the disease, their carcases, as well as their excrements, should be burned or otherwise destroyed; or at least thrown into deep pits dug for the purpose, and carefully covered up with earth. The hides, if preserved, should be tanned as soon as possible. The clothes of the attendants, the stalls, the cowhouses, &c., should be purified with chlorine, and the cowhouses well ventilated before other cattle are stalled in them.

What reason there is to look with anxiety on its threatened importation here may be learned from an experience now a century old, recorded in Youatt's work on Cattle, where it is stated that, in 1745 and two following years, an epidemic imported from Holland resulted in an enormous mortality among the herds of some of the central counties of England.

In another column a correspondent calls attention to the probable effect of this new risk upon the relative values of cattle and sheep stock. It must not however be forgotten that only a few years ago our sheep actually suffered from an imported disease which was regarded with equal terror at the time, and that similar risks attend them as other stock from both indigenous and imported diseases. Let us hope that this murrain will be looked back upon a few years hence as the small-pox affecting sheep is looked back upon at present. That our prospects are brighter in reference to it than was generally thought a week or two ago, appears from the copy of a despatch in another column from Her Majesty's Minister at Brussels, published in the report of the Agricultural Society's meeting last Wednesday.

GUANO AND OTHER MANURES.

The agricultural mind at the present time is greatly disturbed and agitated by the rise in the price of Peruvian guano, and agriculturists, like men earnest in their business, are endeavouring to accommodate themselves to circumstances which they cannot control, by seeking to find other sources of this kind of matter which has enabled their fields to yield food for our increasing millions. The question is one of deep importance to us, because we are ever on the increase while our acres increase not; in fact, as the population increases, so must our towns and inhabited places encroach upon the food-producing space.

The agriculturists of our country are well applying their skill and study to the obtaining good and large results from the land, and are now well aware that they must use every means that will facilitate its cultivation, and that they must supply (or rather return to the soil) such constituent parts as have been abstracted by the crops grown.

To enable the food grower to obtain good crops manures of various kinds have been used; generally they may be divided into two classes—such as nourish and bring to the earth matters of a like nature to those carried off by the growing plant—and such as supply the active chemical principle. Manures generally seem valuable in proportion to the number, variety, and feeble affinities by which their parts are held together; it seems necessary that they should be such as are in, or that will shortly be in, a state of decomposition, or else that they cause decomposition (chemical action) in the earth—that they either be that which causes chemical action, or be the matter acted on. During the changes which manures undergo in the earth considerable heat is generated, fertilising compounds are formed and set free, and appropriated by the growing plant to its own use. Rotations of crops must act (negatively) like a manure in severing the constituents of the soil. Root crops require that the land should be in a certain condition; the land will produce grain when the root growing principles appear exhausted; how can this be accounted for except that various crops have different powers of breaking down the affinities by which the soil is held together? The beneficial action of manures depends upon the same law—the disturbance or awakening into activity the elements of which the earth is formed, placing them in a nascent and free state, which is the condition most favourable for new chemical combinations.

Foreign guanos must rank with manures which have the power of setting up chemical change, for from the small amount placed on the land the substantial nourishment afforded must almost entirely be gathered from the earth and air.

A manure having the essential properties of causing the earth to give up its treasures, and at the same time furnishing the material of life from its own substance, must take the first rank amongst manures which are considered valuable.

Every farmer knows the value of green crops when ploughed in as a manure, and he also knows that its value is greatly increased if the same is eaten off by his cattle, and then returned to the land by them; it is by following this direction to its natural limits that the farmer will find his true interest. If green crops when eaten by cattle acquire an increased value as a manuring agent, with how much greater force must this fact apply to the operations of human beings! Cattle are placed upon the land, they build up their bodies therefrom, returning to the soil a portion of what they have eaten. The food of man does not consist of matter so immediately extracted from the land; he consumes the Grass eater; the excrement of the carnivorous animal may be said to be doubly animalised; it is universally found to be richer in all the elements of fertility than that prepared by Nature from Grass feeding alone. With this view of the case how important does the preservation of town sewage appear! Sewage guano is the manure that will supply the farmer's increasing wants for future years, and it will do this effectually because we find it may be had at a cost so low as to enable the agriculturist to place on his land something substantial to support the plants and preserve the earth from sterility. *Agricola.*

[Our correspondent will hardly succeed in establishing for any manure a value greater than that derived simply from the quantity of its several component parts. Excrement is none the better for being "doubly animalised." Let us know its composition, and its origin can add nothing to our information.]

RECORDS OF HINXWORTH DRAINAGE.

JANUARY.

SIR,—Will you favour me by printing in your columns the inclosed tabular statement of facts illustrating the effects of Deep Draining in mixed soils and clays. They relate only to the months of January and February in the present year, but they form portions of a series which commence in September last and will extend to June next, and which will be published in a complete form when perfected. I am desirous of publishing the inclosed statements in their partial condition, because they afford sufficient evidence to confirm in the most convincing way the principles of Deep Draining, and because their publication gives me an opportunity before the season is over to invite all those who desire to be guided by facts, and who are prepared to discard their prejudices, if opposed to truth, to favour me by a personal examination of the works and records on the spot. With the consent of the owner of the Hinxworth Estate (Robt. Clutterbuck, Esq.), I beg to say I shall be happy to see any gentlemen at Hinxworth (which is four miles from Baldock, and eight miles from Hitchin on the Great Northern Railway), on Saturday, the 18th April, or the following Saturday, the 25th April, upon their favouring me with an intimation of their intention to be there. *J. Bailey Denton*, 52, *Parliament Street, Westminster.*

Date of the Month—January.	Rain-fall. Ins. dec.	Rain-fall. In Gallons.	Rain-fall. Per Diem. Per Acre. (Per diem)	Barometer. Height at the Time of recording the Discharge from the Outlets. 8 o'clock, A.M.	Occasional Drainage.—Fields Nos. 18, 19, 20. 46 Acres.—Soil, lower Chalk mixed with Clay, Gravel, and Sand. Green Sand is found mixed with Gault Clay. Also Coprolites. Very wet before Draining. Observations on Test Holes being the depth of free soil from surface of Land to surface of Water in the Holes which are sunk midway between the occasional Drains. Higher Side. Distance from Drain to Drain 59 yards; Depth of Drains 4 ft. 11 ins.	Occasional Drainage. Lower Side. Distance from Drain to Drain 57 yards; Depth of Drains 4 ft. 4 ins.	Occasional Drainage. Quantity of Water from Outlet No. 7, which discharges the Drain Water from 18, 19, and 20. Size of Pipe, 8 ins. Commenced running Oct. 1. Per Minute. In Gallons.	Occasional Drainage. Per Acre. In Gallons (per diem.)	Part Occasional and part Wide Parallel Drainage. 18 Acres.—Soil, same as last in part of field, remainder Gault and Gravel mixed. Field No. 22. Quantity of Water from Outlet No. 9, which discharges the Drain Water from No. 22. Size of Pipe, 5 inches. Commenced running Oct. 12. Per Minute. In Gallons.	Part Occasional. Per Acre. In Gallons (per diem).	Parallel Drainage. Fields 13 and part 14. 24 Acres.—Soil, Gault Clay with Lime infiltrated. Patches and veins of Sand found giving vent to under water which has run through the Summer of 1856. Quantity of Water from Outlet No. 13, which discharges the Drain Water from Nos. 13 and part 14. Size of Pipe, 5 inches. Has run throughout the year. Per Minute. In Gallons.	Parallel. Per Acre. In Gallons (per diem).	Close Parallel Drainage.—Fields Nos. 31, 32, and 33. Nos. 31 and 32 only drained.—29 Acres. No. 33 undrained. Soil, Gault Clay with Lime infiltrated. Considered very stiff and impenetrable. Drains 25 feet apart, and 4 feet deep. Observations on Test Holes—being the depth of free soil from surface of Land to surface of Water in the Holes, which are sunk midway between the Drains. (See also Temperature.) Drained Land. Higher Side. 25 feet apart & 4 feet deep. No. 31.	Close Parallel. Drained Land. Lower Side. 25 feet apart & 4 feet deep. No. 31.	Close Parallel. Undrained Land. No. 33.	Close Parallel. Quantity of Water from Outlet No. 15, which discharges the Drain Water from Nos. 31 and 32. Size of Pipe, 7 ins. Commenced running Nov. 27. Per Minute. In Gallons.	Close Parallel. Per Acre. In Gallons (per diem).	Temperature. At Half-past Seven A.M. Degrees of Fahrenheit. Undrained Land. Of Air 9 inches above Surface. No. 33.	Undrained Land. Of Soil 18 inches below Ground. No. 33.	Undrained Land. Of Soil 42 inches below Ground. No. 33.	Drained Land. Of Air 9 inches above Surface. No. 31.	Drained Land. Of Soil 18 inches below Ground. No. 31.	Drained Land. Of Soil 42 inches below Ground. No. 31.	Date of the Month—January.
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23	.062	1402		29.28	4 0½	3 9	53¾	1680	18	1440	24	1440	3 9	3 9	0 9	19¾	985	32	31		34	35		23
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25	.145	3280		29.27	4 0	3 8	61	1900	37½	3000	56¼	3400	3 8	3 9	0 10	54	2700	34	32		35	36		25
26	.130	2940		29.59	3 7	3 7	62½	1960	45	3600	57½	3450	3 5	3 9	0 10	55	2750	31	32		32	34		26
27	.112	2534		29.70	3 7	3 3	57¼	1800	21	1680	41¼	2460	3 2½	3 2½	1 0	35	1750	28	33		29	35		27
28	...	...		29.79	3 9	3 5	56¼	1770	11	880	20¼	1200	3 3	3 3	1 0	15	750	17	33		18	35		28
29	...	...		29.70	3 10½	3 6½	51¾	1595	10½	840	16⅜	995	3 3½	3 3½	1 0	11¼	560	16	32		17	34		29
30	...	...		29.73	4 0	3 9	45	1395	9	720	13¼	795	3 4	3 4	1 0	6¾	340	21	31		22	33		30
31	0	2262		29.58	4 0½	3 8	47½	1480	9¾	780	15	900	3 3	3 3	0 11	7½	375	30	33		31	34		31
	2.333	52,775		Total quant. of water per acre discharged				43.855	...	39.090		49.250					31.805							
				Remainder unaccounted for ...				8.920		13.685		3.525					20.970							
				Total fallen on surface				52.775		52.775		52.775					52.775							

FEBRUARY.

Date of the Month—February.	Rain-fall. Ins. dec.	Rain-fall. In Gallons.	Rain-fall. Per Diem. Per Acre. (Per diem)	Barometer. Height at the Time of recording the Discharge from the Outlets. 8 o'clock, A.M.	Occasional Drainage. Higher Side. Distance from Drain to Drain 59 yards; Depth of Drains 4 ft. 11 ins.	Occasional Drainage. Lower Side. Distance from Drain to Drain 57 yards; Depth of Drains 4 ft. 4 ins.	Occasional Drainage. Quantity of Water from Outlet No. 7, which discharges the Drain Water from 18, 19, and 20. Size of Pipe, 8 ins. Commenced running Oct. 1. Per Minute. In Gallons.	Occasional Drainage. Per Acre. In Gallons (per diem.)	Part Occasional. Quantity of Water from Outlet No. 9, which discharges the Drain Water from No. 22. Size of Pipe, 5 inches. Commenced running Oct. 12. Per Minute. In Gallons.	Part Occasional. Per Acre. In Gallons (per diem).	Parallel. Quantity of Water from Outlet No. 13, which discharges the Drain Water from Nos. 13 and part 14. Size of Pipe, 5 inches. Has run throughout the year. Per Minute. In Gallons.	Parallel. Per Acre. In Gallons (per diem).	Close Parallel. Drained Land. Higher Side. 25 feet apart & 4 feet deep. No. 31.	Close Parallel. Drained Land. Lower Side. 25 feet apart & 4 feet deep. No. 31.	Close Parallel. Undrained Land. No. 33.	Close Parallel. Quantity of Water from Outlet No. 15, which discharges the Drain Water from Nos. 31 and 32. Size of Pipe, 7 ins. Commenced running Nov. 27. Per Minute. In Gallons.	Close Parallel. Per Acre. In Gallons (per diem).	Undrained Land. Of Air 9 inches above Surface. No. 33.	Undrained Land. Of Soil 18 inches below Ground. No. 33.	Undrained Land. Of Soil 42 inches below Ground. No. 33.	Drained Land. Of Air 9 inches above Surface. No. 31.	Drained Land. Of Soil 18 inches below Ground. No. 31.	Drained Land. Of Soil 42 inches below Ground. No. 31.	Date of the Month—February.
1	000	...		29.79	4 1	3 8	40	1245	7	560	12	720	...	...	1 0	7	350	27	32	No observations recorded prior to the 21st of this month.	28	33	39	1
2	000	...		29.59	4 2	3 8½	33¾	1055	6¾	540	8¼	495	3 1½	3 3½	1 0	6	300	25	32		26	33	39	2
3	000	...		29.60	4 3½	3 9	32¼	1015	6	480	6¾	405	3 2	3 4	1 1	5½	260	21	32		22	33	38	3
4	000	...		30.07	4 5	3 10	32½	1015	4½	360	5¼	315	3 3	3 5	1 2	3¾	185	24	31		25	32	38	4
5	000	...		30.08	4 6	3 11½	35	1095	6	480	6¾	405	3 4	3 6	1 2	5¼	265	26	32		27	33	38	5
6	100	2262		29.77	4 5	3 11	38¾	1210	12¾	1020	9½	570	3 2	3 4	1 2	9	450	27	32		28	33	38	6
7	025	565½		29.67	4 4	3 10	50	1560	16½	1320	31½	1890	2 10	3 0	1 0	25	1250	40	31		41	33	38	7
8	000	...		29.59			45	1395	12	960	18	1080	2 10	2 11	1 0	17	850	38	32		39	34	38	8
9	000	...		29.58	4 4	4 1	41½	1285	9	720	10½	630	2 10	2 11	1 0	12	600	44	32		45	33	38	9
10	022	497½		29.57	4 5	4 2	40	1245	9	720	9¾	585	2 10	2 11	1 1	9	450	35	33		36	34	37	10
11	020	452½		29.69	4 6	4 3	37½	1175	8¼	680	10½	630	3 0	2 11	1 2	7½	375	35	34		36	35	37	11
12	010	226¼		30.20	4 7	4 4	36½	1150	6¾	540	9¾	585	3 1	3 0	1 2	7½	375	31	35		32	36	38	12
13	000	...		30.20	4 7½	4 4	37¼	1175	6¾	540	9¾	585	3 2	3 1	1 2	7½	375	32	35		33	36	38	13
14	000	...		30.20	4 8	4 4	35	1090	6¾	540	9	540	3 3	3 2	1 2½	7¼	375	40	34		40	35	38	14
15	000	...		30.16			32	1000	6	480	8¾	525	3 3	3 2	1 3	6½	325	32	34		33	35	38	15
16	000	...		30.05	4 9	4 4	30	935	6	480	8¾	525	3 4	3 3	1 3	6	300	25	35		25	36	39	16
17	000	...		30.00	4 9½	4 4	27½	860	4½	360	7½	450	3 4½	3 4	1 3	5¼	260	42	35		41	35	40	17
18	000	...		29.90	4 10	4 4	27½	860	4½	360	6¼	375	3 5	3 5	1 3½	4½	225	40	35		40	36	40	18
19	000	...		30.09	4 10½	4 4	26¼	820	4½	360	6¼	375	3 5½	3 6	1 3½	3¾	185	42	35		41	37	40	19
20	015	339¼		30.14	4 10½	4 4	25	780	4½	360	5	300	3 6	3 6½	1 3½	3¾	185	40	36		39	38	40	20
21	000	...		30.18	4 11	4 4	23¾	745	4	320	5	300	3 6½	3 7	1 4	3	150	42	37		40	39	41	21
22	000	...		30.19			22	690	4	320	4	240	3 7	3 8	1 5	3	150	42	37	39	42	39	41	22
23	000	...		30.19	4 11	4 4	21	660	4	320	3¾	225	3 7	3 8	1 5½	3	150	34	37	39	34	39	41	23
24	000	...		30.20	4 11	4 4	21	660	3¾	300	3	180	3 7½	3 8	1 6	3	150	40	37	39	40	39	41	24
25	000	...		30.10	4 11	4 4	21	660	3¾	300	3	180	3 8	3 8½	1 6	3	150	30	37	39	31	39	41	25
26	000	...		30.38	4 11	4 4	21	660	3¾	300	3	180	3 8	3 9½	1 6	3	150	23	37	39	23	39	41	26
27	000	...		30.37	4 11	4 4	21	660	3¾	300	3	180	3 8	3 10½	1 6	2¼	110	36	37	39	36	39	41	27
28	000	...		30.39	4 11	4 4	21	660	3¾	300	3	180	3 8½	3 11	1 6	2¼	110	43	37	39	43	39	41	28
	.192	4343 Total Rainfall						27360		14320		13650					9.060							
							Rainfall...	4343		4343		4343					4.343							
							Excess discharged	23.017		9.977		9.307					4.717							

J. Bailey Denton, Drainage Engineer, 52, *Parliament Street, Westminister, S. W.*

Home Correspondence.

Names of Manures.——If any additional reasons than those already offered were required in support of the objections urged by me against calling manures for clap trap purposes by the wrong name, they are to be found in the observations of your three correspondents on the subject of the so-called Nitrophosphate or Blood Manure. The first writer mentions the particular blood manure that he recommended, which undoubtedly is superphosphate, in which the nitrogen is supplied by blood. The second writer complains most woefully of having been taken in by some blood manure sold by a company having very respectable men as directors and office-bearers. Now whether the failure was owing to a deficiency in the phosphates or a deficiency in the quantity or quality of the blood, deponent sayeth not, but the inconvenience of such a designation is well shown by the fact that as the particular blood manure is not pointed out the various manufacturers are placed in the same position by the allegations as that which induces members of Parliament to cry out "Name! Name!" With regard to the third writer, "Chemicus," I beg to refer to my remarks, in which I stated that many years since I used blood with sulphuric acid and bones and other matters containing phosphate of lime for manure. This was the fact so long ago as 1847, but the supply being so very limited the matter was not considered of any importance. Blood was merely had recourse to for the sake of the nitrogen, and it also rendered it unnecessary to use so much water in making the superphosphate as was otherwise required. Flesh was also used for the same purpose. It might perhaps be interesting to your readers to give the composition of blood in its natural state. It contains, then, from 79 to 82 parts of water, so that avoiding minute decimals we have:—

Water	80.5
Ash	.8
Carbon	10.
Hydrogen	1.4
Nitrogen	3.1
Oxygen	4.2
	100.0

Thus as its value almost entirely depends on its nitrogen, it would take between 5 and 6 tons of blood to supply the same quantity of nitrogen as a ton of Peruvian guano, and it would take perhaps between 200 to 300 tons to supply the same quantity of phosphoric acid as 1 ton of Peruvian contains. In a late number of the Highland Journal Dr. Anderson gives the analysis of a blood manure, and objecting to its name states it to be an inferior superphosphate. I have not met with other analyses of manures so denominated, but as it is now a well known fact, indeed an admitted axiom, that in a good Turnip manure the phosphates soluble or insoluble, or both, must predominate over other matters, and as blood is decidedly deficient in this constituent it must be manifestly wrong to call a Turnip manure by such a name as blood manure; and for this and the other reasons adduced by myself and your other correspondents, I shall continue as before to call *A Spade a Spade.*

Sheep-stock versus Cattle.—Now that the murrain seems to have been imported into this country to destroy our herds from the face of the earth, would it not be the wisest course for us to increase our flocks at the expense of our herds. By increasing the number of sheep and diminishing that of cattle, we should diminish to an immense extent the national loss. Not a sheep, most especially ewes or ewe lambs, should fall under the butcher's knife, as long as any cattle remain that can be converted into beef. By following this plan, at the end of three or four years the desolation in our herds caused by the disease would be to a certain extent replaced by the increase in the number of sheep, so that butcher's meat might still be procured, though at a high price, and there might still be some animals left to pasture our fields. I think no pains should be spared to avert the terrible national loss that will ensue should farmers, tempted by the present high price of mutton, reduce their stock of sheep to the lowest ebb, leaving their cattle to perish by the pestilence, and an article in your columns would greatly assist the improvident class, (always a large one) in looking forward to and preparing to meet this calamity. Such means, joined to a most unsparing severity in infected places, to prevent the too rapid spread of the disease, might save the agricultural interest, and through them the nation, the ruin that is impending, and now, before the ewe lambs of this year are culled and killed off, is the only time steps can be taken to prevent it. *A Canadian Farmer, Plymouth.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council.—*March* 25: The Rev. Leveson Vernon Harcourt in the Chair. Forty-three candidates were announced as standing for election at the next meeting.

Cattle Murrain. The Earl of Shelborne transmitted from the Foreign Office, by direction of the Earl of Clarendon, the following copy of an extract from the despatch of her Majesty's Minister at Brussels:—

"On the receipt of your Lordship's despatch, No. 33, of the 14th instant, respecting epidemic disease among horned cattle, I immediately made inquiries as to the existence in Belgium of the disease referred to. I am assured by one of the principal veterinary authorities in the country that at this moment the only complaint which is at all prevalent is an affection of the hoof, which is easily cured by cleanliness and the use of astringents; that the disease called *Peripneumonie*, which at times has caused such ravages among the cattle in Belgium, though occasionally appearing, has not at present anything of the character of an epidemic."

The Council having expressed their thanks for the favour of this communication, remarks were offered to the meeting on the following points by the Chairman, Prof. Simonds, Prof. Way, Dr. Camps, Mr. Scott, and Mr. Vines:

1. On the importance of the information just received, that the Russian murrain had not passed over from Mecklenburg, whence comparatively few importations of cattle were derived for this country, into Belgium, whence our largest supplies were derived.
2. On the fact that, while cows going off their milk were most liable to the attack of pleuro-pneumonia, disease in the London dairies is at the present time not only at its lowest amount, but its results less fatal than ordinary.
3. On the probability that there is no specific remedy for pleuro-pneumonia, and that but few cases occur in which it is profitable to attempt a cure of the malady.
4. On the peculiar condition of the lungs in the animals dying of pleuro-pneumonia, and the advantage of an early application of the stethoscope for the purpose of ascertaining the first indications of disease.
5. On the probably sound (though less nutritious) condition of the flesh of animals slaughtered while suffering from pleuro-pneumonia, especially after its having been thoroughly cooked.
6. On the absence of any apprehension that the flesh of animals slaughtered while suffering from the Russian murrain *could* be brought into the markets, as rapid decomposition would ensue not only after death, but in many cases before death ha taken place.
7. On the mischievous tendency of attempts made at the present time to confound *typhoid* forms of disease generally amongst cattle in this country with the *contagious typhus* now raging among the cattle of the north of Europe.

The Council were also favoured with a communication from Mr. Horsfall, referring to papers he had published in reference to the theory of pleuro-pneumonia and its cure. Mr. Vines took that opportunity of presenting to the Society copies of his work on the most important Diseases of the Horse, and of his Veterinary and Physiological Essays: which were received with the thanks of the Council.

Potato Disease.—Mr. Blanchard transmitted from Guernsey, as the result of his experiments, a statement that a stock of healthy Potatoes could be derived from planting whole and perfectly sound tubers: while cuttings only gave an inferior stock. Prof. Way referred to some experiments he had made on sound and unsound Potatoes. He found that if fresh slices of Potatoes, in each of these conditions, were placed in separate portions (about half a pint) of new milk, and kept warm for three or four hours, the milk in which the sound slice had been put would remain perfectly fresh and sweet; while that in which the unsound slice had been put would have become curdled. In many cases it was difficult to detect by the eye a sound Potato from an unsound one; whereas this test at once decided the inherent qualities of each. Malt, he remarked, had the same effect on milk; and he attributed the effect of diseased Potato on that fluid to the same cause, namely, to the presence of a peculiar fermentative principle. The Chairman referred to the effect of diluted sulphuric acid in hardening the substance of the Potato; and to the presence of a central cavity in diseased tubers so steeped, containing a liquor of most offensive character.

Adjourned to April 1.

Farmers' Clubs.

Haddington: *The Best Substitutes for Guano.*—At a late meeting of this club a paper on this subject was read by Mr. Sherriff, of Saltcoats, from which as reported in the *North British Agriculturist* we make the following extracts. He said:—All interested in the guano question now look to the Kooria Mooria Islands, a grant to the British Crown, and where immense guano deposits are said to lie. The quality of this guano, though much inferior to that of Peruvian, is very valuable, as well adapted for the Turnip crop. A good Turnip crop is the basis of good crops throughout a rotation. Could this be insured by having cheap guano from the Kooria Mooria Islands, we would soon reduce the demand for Peruvian; we would even be comparatively independent of it altogether. But we now come to the cause of all the present agitation. The guano of Kooria Mooria was also to have been a monopoly. However, we were happy to learn yesterday that through the exertions of Mr. Caird and others, this has to a certain extent been prevented, and the licensed holders of these islands prevailed upon to accept (only) a lordship of one pound per ton. What a nice snug little property, supposing the exportation of guano from these islands to reach 30,000 tons annually! The days of Government grants have not gone by. Eminent services are not allowed to pass without reward. The discoverer of these islands was entitled to a great reward, but why should his recompense be made entirely at the expense of the agricultural community. But to the subject before us, viz.—the best substitutes for guano. I have made experiments with nearly all the artificial manures in use, and the conclusion I arrived at was, give me Peruvian guano at a price not exceeding 11*l.* per ton, and I would use nothing else except a few tons of Rape dust and dissolved bones. You never can go wrong in the application of guano at all times, and on all soils. You may err sometimes in giving too much. In making Turnips, without giving any farmyard manure, I prefer a mixture of superphosphate and guano. On clay land, 4 cwt. of each I have found to succeed very well; on light land, 5 cwt. of superphosphate and 3 cwt. of guano is the usual mixture I apply. With farmyard manure, I never give more than 4 cwt. of the mixture. I feel certain on many soils 8 cwt. of superphosphate would grow excellent Turnips, without any farmyard manure; but I would recommend those who have no Peruvian guano to use a mixture of 6 cwt. of superphosphate and 3 cwt. of Rape per Scots acre. Should our supplies of Peruvian guano cease, we will feel the loss more for the cereals. Top-dressing is most extensively and successfully practised. Some experiments I conducted last year proved guano to be the best top-dressing; but at the same time I proved 2 cwt. of nitrate of soda could grow 10 stones more straw per Scots acre than 3 cwt. of guano. This is a fact worth knowing. In many cases bulk is synonymous with bolls, though in some seasons (and crop 1855 was one) this was not the case, owing entirely to the wet season. I have found 2 cwt. of sulphate of ammonia and 1 cwt. of common salt a very excellent top-dressing for Wheat. But it is most difficult to arrive at correct conclusions unless experiments are often repeated; and I would conclude by recommending the club to form a committee of members to conduct experiments and report upon them for the club.

Mr. Hope, of Fenton Barns, agreed with the practical remarks of Mr. Sherriff, and especially with his high estimate of guano as a fertiliser. Had the price remained about 12*l.*, or even 13*l.* a ton, he would have continued to use it as he had done hitherto, but as it had got above that price, he would diminish his quantity this year by 20 or 30 tons, and next year to a greater extent. He did not blame the Messrs. Gibbs; they were right in getting the largest sum they could for their constituents the Peruvian Government, but with a lower price for grain, and a higher price for guano, he did not think it would pay the farmer to top-dress grain crops; at least other substances could be got cheaper. He referred in particular to nitrate of soda, sulphate of ammonia, and common salt—a cwt. of each of the two former, added to 2 cwts. of the latter, was better for top-dressing grain than 3 cwt. of guano, or even 4 cwt. It was always a difficult matter to know when to top-dress grain and when not, so much depended on the weather that followed. A crop that looked a little feeble in spring sometimes turned out too luxuriant, and the money spent in top-dressing was worse than thrown away. Perhaps the safest plan was to manure highly all root and green crops, and leave the white corn to take care of itself. In regard to Turnips and Potatoes, much of the guano could be dispensed with on most soils if dissolved bones and Rape dust were substituted. Dissolved bones had a most beneficial effect on his own farm. He bought the dust and put it into a large heap, and saturated it well with urine from the cattle tanks, covered it up closely with sand, and in a few weeks the mass was quite soft. In this way he knew what he was applying, and it was the cheapest way that bones could be dissolved. He would take this opportunity of saying that no one should buy the mixtures of manures that were offered for sale without an intelligible analysis, showing they were getting value for their money, or they might depend on it they would lose both their money and the crop they expected to grow. He was much pleased with the suggestion of the chairman, that the club should institute a series of experiments, and would willingly assist in carrying them out. It was the best and most practical thing that could be done. It was fortunate that in another year they might anticipate large supplies of guano from the Kooria Mooria islands. He wished Captain Ord to be handsomely rewarded, but the Government had made a most unfortunate mistake in granting him a monopoly. He did not object to the compromise that had been made of a royalty of 20*s.* per ton. The deputation from the Highland Society had, he believed, urged upon the Government in the strongest manner the duty of sending out vessels with surgeons on board capable of making an analysis of manures to look for other islands containing similar deposits. The officers and men should be rewarded in proportion to their success. If the Government did not soon show themselves in earnest in this matter, he had no hesitation in recommending that a deputation of their own members should be sent to London to show the Premier (whoever he may be) the propriety of their request, not only for the interest of the farmers and landlords, but for the whole community.

Mr. James Cunningham, West Bow, Edinburgh, said—I think it would be somewhat difficult to find an effective substitute for Peruvian guano, as from its applicability to every kind of crop and quality and condition of land, it was deservedly held in the highest estimation by the whole agricultural community. I have had large experience as a dealer in it, and almost never heard of the failure of any crop to which it was applied (except this year which has been such a very rainy one), while it was admitted by all that the action of every other portable manure was uncertain, and the result often contradictory. I also thought that guano, even at 12*l.*, was cheaper than any other known manure, and as long as I could sell it at that price I advocated its use, almost to the exclusion of every other, except in special cases. But as soon as the price of guano was raised above 12*l.*, my attention was directed to the subject of substitutes, and after careful study of the whole question, I came to the conclusion that, while no other effective substitute is known, still much might be done to render agriculture less dependent on it than it at present is. I remember the time when Rapedust was largely

used as a manure, and that it was displaced by guano, chiefly because the latter was cheaper. This is also true of other manures; I therefore thought that, since guano is so high in price, we ought to go back in some measure to our former practice. My plan is a simple one: it is to avail ourselves of all the well-known and tried manures, including guano, and mixing them together in certain proportions, making a compound of them. To illustrate what I mean, if you take 6 cwt. Peruvian guano, 5 cwt. rapedust, 5 cwt. dissolved bones, 2 cwt. nitrate of sodo, and 2 cwt. sulphate of ammonia, you will get a manure almost as powerful as guano, suitable for nearly every kind of crop, and costing only 11*l.* 15*s.* or 12*l.* per ton. By adopting some such plan there is also this advantage, that you can purchase all the materials separately, and mix them in such proportions as you may think best for each particular crop, making it richer either in ammonia or phosphates as the condition of each field may require. You will also, I think, run much less chance of disappointment than when you purchase some new compound manure of which you know little or nothing. I may also state that this plan has an advantage over the mixture of 10 cwt. dissolved bones with 5 cwt. sulphate of ammonia advocated by Dr. Anderson, as it is clear if you cause a very large demand for these two substances alone their price will at once go much higher in proportion than even guano. But by the plan I now propose you will avail yourselves of all the established sources of ammonia and phosphates, and cause no great extra demand for any one in particular. It is also quite clear that this mixture, if generally used, and found to be successful, would soon have the effect of reducing the consumption of guano to such an extent that a reduction to the old rates would soon follow.

Calendar of Operations.

MARCH.

BORDER OF THE FENS: *March* 16.—Although we made the best use as we thought of the extremely fine weather in February just passed, by knocking the land about, carting manure, threshing, and repairs, yet do we now seem to have no time to spare, and we can scarcely get on fast enough to complete spring seeding before all hands will be wanted to prepare for fallows. We had a narrow escape of sowing the wrong sort of Oats on Fen land, having bought a good clean sample of White Tartarian, weight 11 stone net, when not one or two but on discussing the subject eight or nine friends told us of their failures in attempting to grow them, as although they come up thick enough, yet in Fen land they almost invariably produce a light weighing article, about 6 or 7 stone the sack of 4 bushels; so we gave the Oats to our horses, and bought black ones for the land, weighing 10½ stone, at 24*s.* per quarter. Good 12 stone White Friesland fetch 30*s.* for seed. Beans, Barley, and Turnips are now frequently grown in the Fens, and where good cultivation exists they are grown successfully. The lambing season is progressing satisfactorily; we have a good fall of lambs, and they appear strong and healthy, more so than usual, which we attribute to not having used any sheep ointment in the autumn. Of course those farmers who unfortunately have a scabbed flock, must use remedies to cure them, for which "sheep or mercurial ointment" is the standard application; but it is also the practice generally here to use the ointment among clean flocks to kill lice and "improve the fleece." This is done about November. This season we deferred the matter until the ewes were so forward that we feared it might do mischief, and they are now in capital condition, and have a stronger lot of lambs than usual, so that in future we shall use only a light dressing in October, or defer it until the lamb-hoggs receive it in the spring, after the first flush of Grass has been eaten off. The price of wool keeps on the advance, so that not only does fat sheep sell well, but lamb-hoggs, also, are quite 10*s.* a head dearer than last year. Fat cattle also sell well, the supply being not so liberal as usual at this time of year, the best beasts making from 8*s.* to 8*s.* 6*d.* per stone of 14 lbs. Roots of all kinds are plentiful, and corn rather declining in value, so that although meat is dear for the labouring classes, bread and flour are to be obtained at quite a moderate rate. Wages upon the whole maintain a fair rate, 12*s.* and 13*s.* per week being given for ordinary day labour. The growing crops of Wheat, though buffeted by stormy winds and cut by severe frosts, yet keep their colour well, and do not at present exhibit any deficiency of plant. Beans are just peeping, and a few mild days would show a considerable breadth of Barley, which has been got in under very favourable circumstances. *J. W., Peterborough.*

WESTER ROSS, *March* 23.—This month, so far as it has gone, has been more ungenial than the month of February. The weather has been particularly cold and wet; vegetation has been very much at a stand-still, and, not to speak of March dust, the ground has been in a very raw and unfit state for the reception of the seed. Towards the end of last week, however, we had a few days dry and windy, when we managed to get all our Oats sown and harrowed in pretty satisfactorily. A great proportion still remains to be sown in this neighbourhood, and to-day is anything but propitious, as heavy showers of snow are repeatedly falling. Our autumn sown Wheat looks close, and although unable to make much progress exposed to such biting blasts, it bides its time. Spring sowing of White Wheat has been proceeded with notwithstanding the dampness of the soil; and a good deal of April Wheat will yet be sown in fields where Turnips were eaten off. Potato planting has been begun earlier than usual, and we think wisely, for it must be well to have the Potatoes in the drills previous to their rank vegetation in the pit, to which they are particularly liable in this their day of weakness and decay.

Notices to Correspondents.

GUANO: *J H D.* We should not like to turn sheep on Clover which had just had guano scattered over it. Wait till after the first rains.

PREPARATIONS FOR FEEDING CATTLE: *T B.* We do not know either of them. Anonymous "preparations" are not desirable things either as food or manure. The principles both of feeding and manuring are sufficiently well known, and experience on both is sufficiently explicit and trustworthy. There is no need of any affected mystery in the matter.

MOSS ON POOR GRASS LANDS: *Old Subscriber.* Harrow it well out and apply 80 bushels of lime in compost with vegetable earth in autumn, and fold sheep over it during the winter, feeding them well there. Do not mow for a year or two.

SOUTHDOWNS: *T M C.* You are not like to get them at fairs around Liverpool. You will get Shropshire Downs at any of the Shrewsbury fairs. But for Southdowns you had better employ an agent in Sussex. If you will send your address we will communicate privately with you.

STOCKING A FARM: *A B C.* Next week.

WEIGHTS AND MEASURES: *Wolverhampton.* We are informed that in our paragraph last week there is an error in stating that the farmers around Wolverhampton want to sell by the bag of 9 score and 10, or 72 lbs. per bushel; it should be 62 lbs per bushel; 72 lbs. is what has been sold, or 11 score per bag.

GREENHOUSE SYRINGES, &c.

PATENT WATERING ENGINES, MACHINES, AND SYRINGES of every description, with the latest improvements. Manufactured only by RICHARD READ,

35, Regent Circus, Piccadilly, London.

Descriptions sent Post Free.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

GARDEN LABEL.—Neat, durable, and well-executed Label for Plants and Trees. Parties not acquainted with this Label can have a specimen sent by forwarding three postage stamps to F. H., Lydbury North, Salop.

LINGHAM, BROTHERS, Birmingham, MANUFACTURERS of the Improved MONOGRAPH or PERMANENT WOOD LABELS for GARDEN BORDERS, FLOWER POTS, &c., in boxes of 100 each. The above Labels have been manufactured by LINGHAM BROTHERS for the last 10 years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the public. For neatness, durability, and cheapness they have superseded all other kinds of Labels for Horticultural purposes.

Sole Agents in London, DEANE, DRAY, & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½	12*s.*	8 by 6, and 8½ by 6½	13*s.* 6*d.*
7 by 5, and 7½ by 5½	13*s.*	9 by 7, and 10 by 8	13*s.* 6*d.*

11 by 9,	12 by 9,	13 by 9,	14 by 9	...	...	15 0
12 „ 10,	13 by 10,	14 „ 10,	15 „ 10	...	...	16 0
	16 „ 10,	17 „ 10,	18 „ 10	...	...	
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11	...	16 6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12	...	...	17 0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12	...	...	18 0
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13	...	...	
	22 „ 13,	24 „ 13	...	...	...	
20 „ 14,	22 „ 14,	24 „ 14	...	...	...	
10 „ 15,	22 „ 15,	24 „ 15	...	...	...	

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares. 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼*d.* per foot. Twenty-one Ounce, 3¼*d.*

Foreign Sheet Glass, in cases of 200 feet, 40*s.* and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

Extract from "Cottage Gardener," No. 432:—

"SHEET GLASS.—The good properties of really good sheet glass are various; the foreign kind especially is so indifferent, that I may here caution the inexperienced who may be on the point of building a hothouse to stipulate for good British sheet to be used, as much injury has been caused by substituting a low-priced Belgian article for it, and I believe most of the evils complained of in sheet glass arise from the bad quality of the kind used."

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz., 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d.* to 3*d.* per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best Manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10*s.* per 100 feet	8 by 6 9 by 7 9½ by 7½ 10 by 8	12*s.*
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s.*	12 by 10 13 by 10 14 by 10 15 by 10	14*s.*

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 ft. extra.

19 by 12 20 by 12	16*s.*	20 by 13 20 by 14

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee „	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

THE VERY BEST MATERIAL

FOR THE PROTECTION OF BLOOMS OF PEACHES, NECTARINES, AND OTHER WALL TREES IS

SHAW'S TIFFANY.—A light, cheap, and durable fabric. Sold in pieces, 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece.—Sold by WM. WOOD & SON, appointed agents. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
„ Hurst & M'Mullen, Seed Merchants, London.
„ A. Henderson & Co., Pine Apple Place, London.
„ Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
„ Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
„ John Edmondson & Co., Seed Merchants, Dublin.
„ B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
„ James Dickson, Sons, & Co., Nurserymen, Manchester.
„ Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
„ Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
„ Osborn & Sons, Fulham, Middlesex.
„ Rollisson & Son, Tooting.
„ A. Paul & Son, Cheshunt, Herts.
„ Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping, wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22 1856.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a Gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

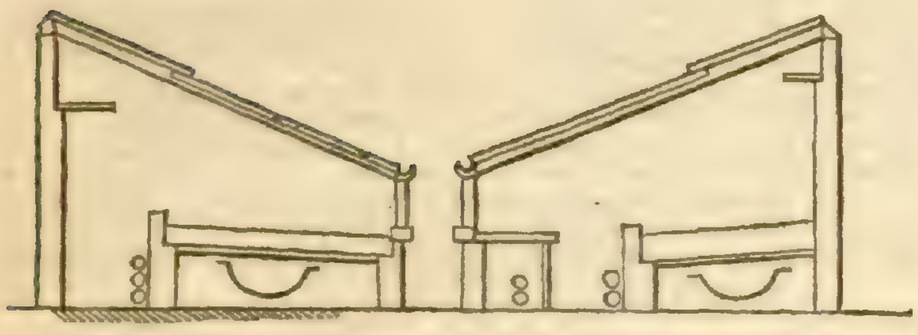
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c. &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

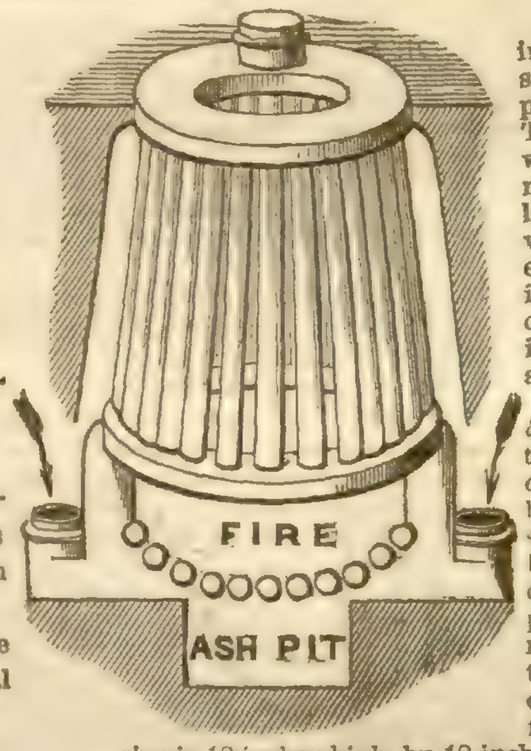
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 inches high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

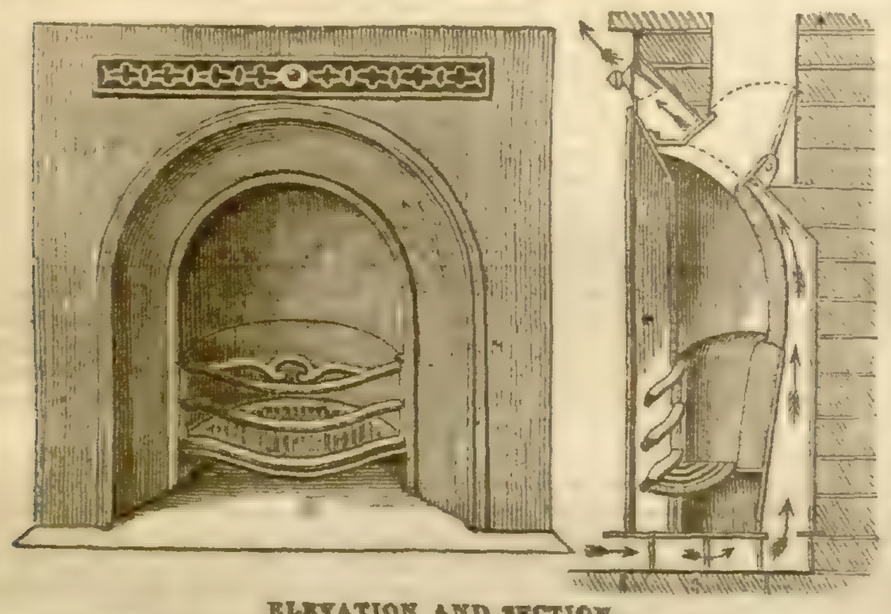
J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

VENTILATION IS ESSENTIAL TO **HEALTH,** AND NO SYSTEM OF **WARMING** SHOULD BE TOLERATED WHICH FAILS TO AFFORD A FREE SUPPLY OF FRESH AIR TO, AND THE WITHDRAWAL OF VITIATED AIR FROM, **EACH** AND **EVERY** INHABITED APARTMENT.

IT is proposed to carry out this principle, in the most simple manner, in all ordinary rooms, by the agency of the



ELEVATION AND SECTION.

HYGIASTIC FIRE-GRATE, which PROMOTES VENTILATION by a continuous supply of fresh air, moderately warmed, in contact with fire-brick surfaces, and is at once the most economic and effective Grate known.

THE

SMOKE-FLUE VENTILATOR effectually withdraws the vitiated air of a room, without risk of return-smoke, as with ordinary chimney-valves.

*** Both to be seen in daily use, and Prospectus of their advantages to be obtained, at

BOYD & CHAPMAN'S,

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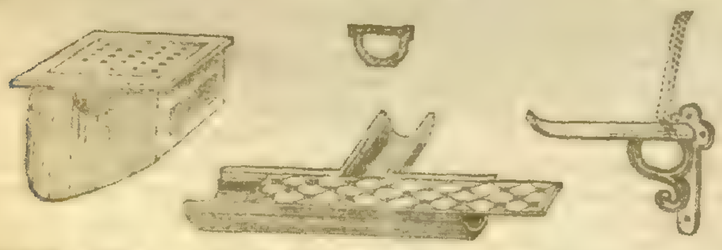
Established 1776.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a prize at the Paris Exhibition, and patronised by the English and French Governments.

COTTAM and HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought-iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having Cottam's patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

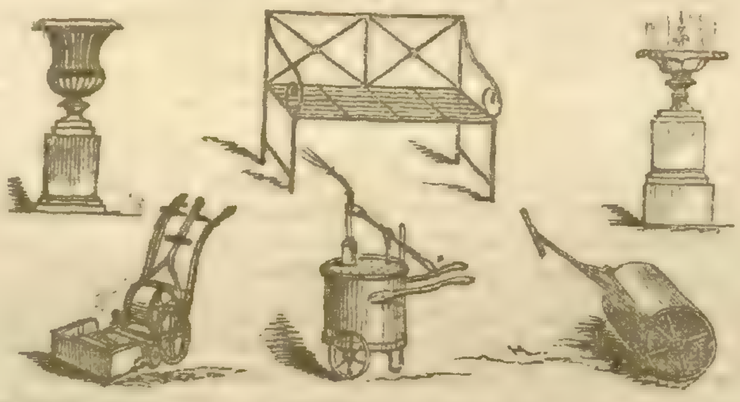
COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

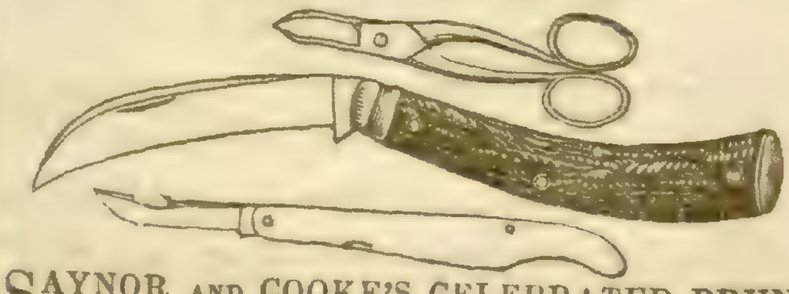
The new illustrated catalogue, and estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

GARDEN REQUISITES, &c.



COTTAM AND HALLEN have on show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of horticultural and agricultural implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

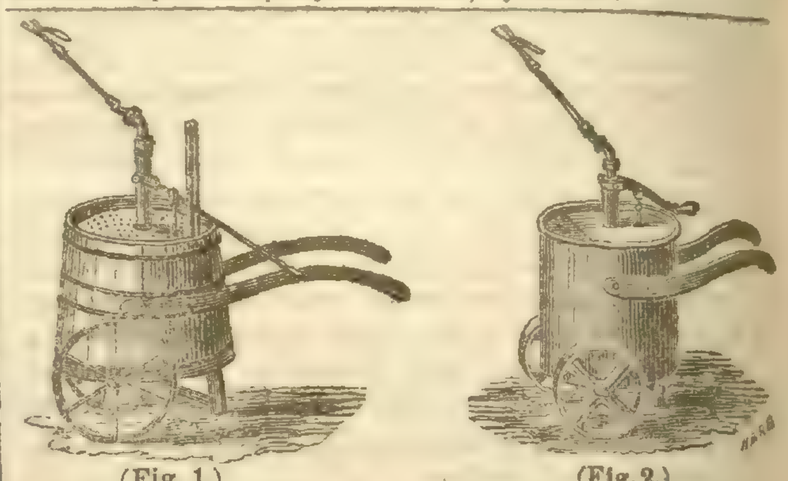
BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds, 30*s.*; 1000 yds, 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

BY ROYAL LETTERS PATENT.

GREEN'S PATENT LAWN-MOWING MACHINES.

THOMAS GREEN respectfully invites comparison and trial with any other pony or hand machine now in use; they produce superior work with much less labour; they are the most perfect Machine extant. Illustrated Price Lists and Testimonials may be had on application to the Manufactory, Leeds, Yorkshire; also Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high	...	£4	10
No. 2 „	15	„	„ 45	„ ...	5	10
No. 3 „	28	„	„ 45	„ ...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high	...	£2	15
No. 13 „	12	„	„ 30	„ ...	3	5
No. 11 „	16	„	„ 40	„ ...	4	0
No. 12 „	24	„	„ 45	„ ...	5	0
No. 14 „	30	„	„ 45	„ ...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

TOBACCO PAPER! TOBACCO PAPER!

TO NURSERYMEN, &c.—The cheapest and best TOBACCO PAPER to be had of G. DARLINGTON, Tobacco Cutter, 16, Wellington Place, Warner Place, Hackney Road, London. One Shilling per Pound. Carriage free within 10 miles.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s.* 6*d.* per lb. by JOSEPH B KER, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials, for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

THOMSON'S RETORT BOILERS.—The Advertiser, by Mr. THOMSON's sanction, continues to manufacture the above most powerful and economical Boilers at the following moderate rates for cash:—

The Triple Retort to heat	3000	feet of 4-inch pipe	...	£8 10
The Single "	1000	" "	...	4 0
The Amateur's "	500	" "	...	2 10

These prices include free delivery to rail or ship and a peculiar boiler plate.

The Retort Boilers are now so extensively used in all parts of Britain and Ireland that little need be said of them beyond the fact that two of them have been fixed to supersede seven of the modern tubular boilers in one of the most extensive early forcing establishments near London, where they heat, the one 750 gallons, the other 580 gallons of water, in 28 divisions of forcing-houses and pits mostly span-roofed.

JOHN MEIKLEJON, Westfield Foundry, Dalkeith, N. B.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in Mahogany Case, with Three Powers, Condenser, Pincers, and Two Slides, will show the Animalculæ in Water. Price 18*s.* 6*d.*—Address, JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1857 may be had on application.

OXLEY AND CO.'S ASBESTOS FILTER, enlarged, price 35*s.* each; small size, 17*s.* 6*d.* Twenty gallons of pure water per diem. All mineral and noxious matters entirely separated by this process.—TAYLOR & PEARS, 8, George Yard, Lombard Street, London.

PRIZE HORSES AND NEAT CATTLE.—No Animal can be highly fed for a continuance without producing disease of some kind, unless the ill effect is counteracted by Medicine, and the safest and best for this purpose is

CUPISS'S CONSTITUTION BALLS.

The excellent condition of the Cart Horse which obtained the First Prize at the Royal Agricultural Society's Exhibition at Norwich, in 1849, the proprietor informed Mr. Cupiss, was mainly attributable to the frequent use of the Constitution Balls. Mr. Nunn, Secretary to the Diss Farmers' Club, obtained the first prize at this local Show, for the best fat bullock, and he writes, "the Constitution Balls were a most valuable assistance in getting my bullock in high condition;" and he further adds, "I found with continued high feeding the animal frequently became glutted, when upon giving him a dose of your Balls his appetite was restored, his spirits enlivened, while his appearance rapidly improved, and I am satisfied without the use of the Balls I could not have got my bullock into such prime condition, in so short a time."

The Constitution Balls are prepared only by FRANCIS CUPISS, M.R.C.V.S. Author of the "Prize Essay on the Diseases of the Liver of the Horse," Diss, Norfolk; and sold by all respectable Medicine Vendors in Town and Country, in packets, six Balls each, 3*s.* 6*d.* per packet, with a wrapper giving full directions for the use of the Balls, and treatment of the horse whilst taking them. Also a Pamphlet of Testimonials from many Gentlemen who have used the Balls in various complaints. Any Gentleman using the Balls may consult the Proprietor gratuitously, either personally, or by letter, post-paid.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

WARNERS' SWING WATER-BARROW (TO HOLD THIRTY GALLONS) Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 8*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

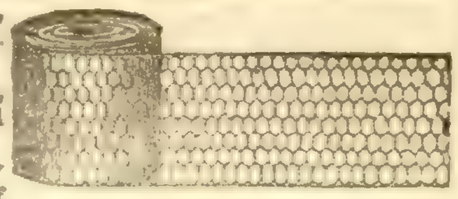
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.—Galvanised 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



Galvanised, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

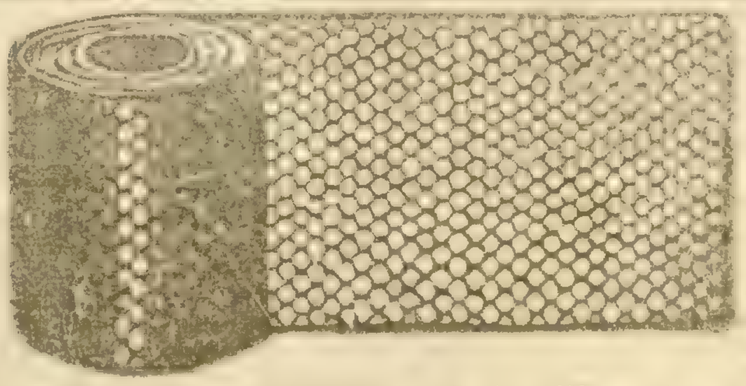
GALVANISED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.



BARNARD AND BISHOP, Market Place, Nor in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

			Galvanised.	Japanne iron.
2-inch mesh,	24 inches wide	... ...	5*d.* per yd.	4*d.* per yd.
2-inch "	strong, do.	... ...	6 "	4¾ "
2 inch "	intermediate, do.	... ...	7 "	5½ "
2-inch "	extra strong, do.	... ...	9½ "	7½ "
1⅝-inch "	24 inches wide	... ...	5½ "	4½ "
1⅝-inch "	strong, do.	... ...	6½ "	5½ "
1⅝-inch "	intermediate, do.	... ...	7½ "	6 "
1⅝-inch "	extra strong, do.	... ...	10 "	8 "

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary. 26, Great George Street, Westminster.

ROYAL BRITISH BANK,

ISLINGTON BRANCH, CITY ROAD, NEAR THE "ANGEL."

HORSNAILL AND CATCHPOOL, of Bullford Mill, near Witham, Essex, and of Caledonian Road, Islington, beg to announce that they have taken the above premises, with a view to being more central.

For prices of Genuine Country FLOUR, &c., delivered to London families, and for other particulars, see *Times* daily.

THE CELEBRATED REIGATE SILVER SAND, 15*s.* per ton, a less quantity 1*s.* 6*d.* per bushel; delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s.* 6*d.* each. The above Sand is warranted. Orders immediately executed.—Address to John G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

BEEHIVES.

MARRIOTT'S HUMANE AND COTTAGERS' HIVES, with all other articles required by an apiarian, are only to be obtained of RIGBY & Co., 80, Gracechurch Street. Catalogues sent upon application.

HOLLOWAY'S PILLS.—INCREDIBLE CURE OF ERYSIPELAS.—Extract of a letter from Mrs. Mary Ridgell, of Wath-upon-Deane, to Professor HOLLOWAY:—"Sir, allow me to offer you my sincere thanks for the miraculous cure effected by your wonderful remedy. I was suffering with an attack of Erysipelas, in its most dangerous form; my head and face fearfully swollen, the pain most intense; in vain I sought relief, my nights were sleepless, when I was induced to obtain your Pills, and in three weeks a perfect cure was effected."—Sold by all Medicine vendors throughout the world; at Professor HOLLOWAY's Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

TO AGRICULTURISTS, WHERE A SUPPLY OF WATER EXISTS WITH A GOOD FALL.

TURBINE WHEEL FOR SALE, suitable for turning Farm Machinery, and capable of working from 2 to 4-horse power, according to the fall of water. Warranted new.—For further particulars apply to Messrs. WIGHTMAN & Co., Chard.

FOR SALE, PURE BRED SHORT-HORN BULL CALF (CRAGGSMAN).—Red and white, calved Feb. 17, 1857. Got by General Canrobert (12,926), dam Biddy, by 5th Duke of York (10,168), gr. dam Bonkie, by 4th Duke of York (10,167), gr. g. dam Cicely, by Duke of Northumberland (1940), — Craggs, by son of 2d Hubback (2682), — Craggs descended from the stock of Mr. Maynard.—For price and further particulars apply to WILLOUGHBY WOOD, Esq., Holly Bank, Burton-on-Trent, where the Calf may be seen on application to Robert James, the cowman.

CAPTAIN HORNBY can supply EGGS during the Season from the Spanish, Dorking, and Game Birds with which he has taken prizes at Wellington, Windsor, Bristol, Prescot, Chelmsford, Anerley, Wigan, Runcorn, Birmingham, Preston, Liverpool, and Kendal. The Dorking Eggs from the parents of chickens which won both Silver Cups at Preston, and the Ten Guinea Cup at Liverpool, beating the adult birds.—Knowsley Cottage, Prescot.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, April 7, at 12 o'Clock precisely, First-class POULTRY from the Yards of R. W. Fryer, Esq. (Hereford), Rev. G. Gilbert, J. Allison, Esq., J. K. Bartrum, Esq. (Bath), G. Johnson, Esq. (Farnham), and others, including Brahmas, Cochins of all colours, Spanish, Andalusians, Dorkings, Gold and Silver Hamburghs and Polands, Game, Bantams, and a few Pigeons. Also six copies of Wingfield and Johnson's Poultry Book.—Catalogues by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

STANDARD ROSES, AZALEAS, HERBACEOUS PLANTS, &c.

MR. HASLAM will Sell as above, at the Mart, on THURSDAY till April 2 inclusive. N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to the Parcels Delivery Company. Baskets and Mats allowed for when returned.

LOWER ROAD, BETWEEN GREENWICH & CHARLTON.

TO MARKET GARDENERS, NURSERYMEN, &c.

MR. W. T. ATWOOD is instructed to Dispose of all the Crops on the Land purchased by the Honourable Commissioners of Greenwich Hospital for making a cemetery; comprising a quantity of healthy young Black and Red Currant and Gooseberry Bushes, young and aged bearing Fruit Trees, Asparagus Beds, Crops of Radishes, Broccoli, Cabbage and Spinach, and other ordinary crops of a Market Gardener.—Any persons desirous of purchasing are requested to make application to Mr. MILES on the premises, and Mr. W. T. ATWOOD, Auctioneer and Land Agent, Mortlake, Surrey.

SKETTY NURSERY, NEAR SWANSEA (Two miles distant from the Town).

Important Sale of Valuable FLORAL and NURSERY STOCK, Hot-water Apparatus, Pineries, Greenhouses, Forcing Pits, &c.

MR. THOMAS THOMAS begs to announce tha the has been instructed by Mr. P. J. Beer (who retires from the business), to submit to Public Competition, on MONDAY, March 30th, and following days, the whole of his Extensive STOCK of Choice Exotics, Shrubs, Plants, &c.; comprising 600 Camelias in bloom, a large number of Azaleas, Ericas, Epacris, and other Greenhouse Plants, in great variety, including many remarkable specimen plants; a choice selection of Stove Plants, Standard and other Roses; the whole of the Bedding Plants, Nursery Stock, Evergreens, &c.; about 200 FRUITING and SUCCESSION PINES; together with the Hot Water Apparatus, Span-roofed Greenhouse, 35 feet by 22 feet, with the other erections, including altogether about 4000 feet of glass: the whole fitted up scientifically in accordance with the most recent improvements; numerous lots of Mats, Silver Sand, London Peat, &c.—Catalogues may be obtained three days prior to the Sale, on the Premises, and of the Auctioneer, James Street, Neath. Sale to commence each day at 11 o'clock precisely. The Stock may be viewed at any time prior to the Sale. N.B. The Business at the St. Helen's Nursery will still be carried on by Mr. Shaw.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

AZALEA INDICA.

J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & SON beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21*s.* each.—Nurseries, Dorking, Surrey.

J. HENCHMAN, JUNR, Edmonton, near London, is now sending out choice-named INDIAN AZALEAS, bushy heads full of flower buds showing colour, at 36*s.* per dozen; a few extra plants at 3*l.* per dozen. Smaller plants and more backward, at 30*s.* per dozen. Mixed unnamed varieties, showing colour, from 15*s.* to 30*s.* per dozen.

CYTISUS or GENISTA FRAGRANS, bushy plants full of flower showing colour, in 48-pots, 9*s.*; in 40-pots, very fine, 12*s.* per dozen. Choice-named GHENT AZALEAS, full of flower buds, 18*s.* per dozen.

AZALEA INDICA PETUNIÆFLORA.—Nice bushy plants at 15*s.* each offered, to London free, by LOUIS VAN HOUTTE, buyer of the stock (four for three). Messrs. HUGH LOW & CO., R. GLENDINNING, and JAMES VEITCH, Jun., are able to give their opinion about the A. petuniæflora, having seen its flowers and bought plants of it.—Ghent, Belgium, March 28.

AZALEA INDICA ROI LEOPOLD.

LOUIS VAN HOUTTE, NURSERYMAN, Ghent (Belgium), begs to advertise that he has bought the stock of the AZALEA INDICA ROI LEOPOLD of Mr. Ed. Vandercruysse, and that he is now sending out nice plants of it at 15*s.* each (four for three) free to London. This Azalea, with very large thick petals of a dark fine rosy shade, is known at Ghent AS THE FINEST FORMED AZALEA IN EXISTENCE.

Orders directly given, or through his Agent Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

TO COLLECTORS OF FERNS.

TODEA PELLUCIDA (NEW ZEALAND).—Plants of this most charming species may be obtained at 21*s.* each; or six for 5*l.* Amateurs and Nurserymen desirous of securing the above variety are respectfully requested to signify their intention on or before the 1st of May (when the Plants will be sent out) inclosing Post-office Order on Hackney, payable to CONRAD LODDIGES.

NEW AND RARE HERBACEOUS PLANTS.

W. HOLCROFT, Upholland, Wigan, begs to call attention to his new and rare Plants, among which are Astragalus Missouriense, Asclepias (three new species), Bambusa metake, Calystegia auriculata, Eupatorium cœlestinum, Fritillaria californica, Gerardia (a fine species), Phalangium pomeridianum, Pyrola maculata, Rudbeckia columnaris, Scutellaria californica, and a host of other rare plants.—Price, &c., may be obtained on application, when lists will be sent.

AUTUMN BEDDED CABBAGE PLANTS.

JOHN CATTELL can now supply good Plants of his superior early sorts, BARNES, RELIANCE, &c.; and also of the DRUMHEAD or CATTLE CABBAGE, at 6*s.* per 1000, package included. Orders for 5000 and upwards will be delivered carriage free to London and to the Edenbridge Station of the South-Eastern Railway. A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

SPLENDID SEEDLING CALCEOLARIA.

WILLIAM BARNES has much pleasure in informing his friends and patrons that he has still a few dozens of his unrivalled CALCEOLARIAS in extra strong plants now ready for shifting into their blooming pots.

The Seed has been carefully hybridised with the finest shaped flowers and the most beautiful markings, and cannot fail to produce bloom of the first quality. Price 5*s.* per dozen.

Camden Nursery, Camberwell.

NEW SCARLET GERANIUM, "RICHMOND GEM."

FRANCIS R. KINGHORN intends sending out this fine variety in April next. The flowers are light orange scarlet, very large trusses, wood and stalks nearly white, fine foliage in the way of General Pelissier, rather stronger grower, will make the best bedder of all the coral-stalked kinds. See "Cottage Gardener," page 381. Was much admired and received a prize at the Crystal Palace Show in June. Price 7*s.* 6*d.* each; when three are ordered four will be sent. The usual discount to the trade.

In answer to many inquiries F. R. K. regrets to state that he will not be prepared to send out "Prim" at the same time.

Nursery, Richmond, Surrey.—March 28.

MOORE'S DELPHINIUM FORMOSUM.—Seed in packets at 2*s.* 6*d.* and 1*s.* 6*d.* to be had of NUTTING & SONS, Seedsmen, 26, Upper Thames Street, E.C. The habit of this plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2*s.* 6*d.*

PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS, until July next. All orders (not less than 20) to be accompanied with a Post-Office order on Birmingham.

Twenty, 12*s.* | Forty, 1*l.* 2*s.* | Sixty, 1*l.* 12*s.*
Eighty, 2*l.* 1*s.* 6*d.* | Hundred, 2*l.* 8*s.*
Plants in pots, not less than 10, 1*s.* 3*d.* each.

MR. UNDERHILL'S TREATISE ON THE CULTIVATION OF THE STRAWBERRY, price 1*s.*—Address, Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants each, with a ball of earth, will prove a good crop this season; price 40*s.* per 100, and 6*s.* per dozen. Price to the trade per thousand can be had on application. All other Strawberries prove worth cultivation. Strong plants, with a ball of earth, and will fruit this summer, at 10*s.* per 100. Plants sent over of all kinds to compensate for distant carriage.—Apply to RICHARD S. YATES, St. Ann's Square, Manchester.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's) The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.), Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

WILLIAM J. NICHOLSON, Egglescliffe, Yarm, Yorkshire.

KITCHEN GARDEN SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., continue to supply Collections of VEGETABLE SEEDS of *first-rate quality* from 1*l.* to 5*l.* and upwards. For Specified List of VEGETABLE SEEDS, J. C. & Co. beg to refer to their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, the *twenty-second annual issue*, forwarded *free of charge* and *post paid* to ALL PARTS OF THE WORLD upon application.—JAMES CARTER & CO., Seedsmen, 238, High Holborn, London, W.C.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

THE DAHLIA CATALOGUE FOR 1857.

C. E. ALLEN'S CATALOGUE is now ready, and can be had gratis, containing all the leading varieties of Dahlias in cultivation, to which C. E. A. has paid particular attention. Also all the leading varieties of Fuchsias, Verbenas, Geraniums, Phloxes, Bedding Plants, Carnations, Picotees, &c.—Shacklewell Green, near London, N.E.

FILBERT AND BOW NUT TREES.—Five Hundred of the above four-year old Plants for sale.—Apply to Mr. T. P. BOYCE, Chertsey, Surrey.

AMATEURS AND GENTLEMEN'S GARDENERS may have a List of the few Seeds that are really useful on sending a directed envelope to G. GLENNY, Dungannon House, Fulham, S.W. "GLENNY'S COMPANION" (with Portrait), and "GARDEN ALMANACK" 13 stamps each.

FIRST CLASS SEEDS.—Whatever has been sold as GLENNY'S Balsam Seed, except in his own sealed packets, is a fraud upon the buyers. Six classes, 37 stamps, mixed 13. Dahlia, Pansy, Hollyhock, Auricula, Polyanthus, Calceolaria, Cineraria, Heliotrope, Verbena, Chrysanthemum, Double Daisy, 13 each. All the best Annuals.—Fulham, S. W.

THE GARDENERS' GAZETTE, New Series, No. 1, price 2*d.*, May 2d; No. 2, 30th June. Orders to Newsmen Letters and Advertisements to G. GLENNY, Fulham, S.W. All classes now admit there is room for us.

EXTENSIVE STOCK OF DAHLIAS.

JOHN HARRISON begs to announce to the public generally that he now has an extensive assortment of very fine strong DAHLIAS ready for Sale, and to make room parties desirous of being furnished will find themselves suited at a moderate cost, that is to say, from 4*s.* to 6*s.* per dozen; new varieties of last year's (own) selection, from 9*s.* to 18*s.* per dozen.

Catalogues of which will be ready in a few days, containing also an assortment of choice

HOLLYHOCKS	FUCHSIAS
GERANIUMS	VERBENAS, &c.

And BEDDING PLANTS in general.

Experienced Head and Under Gardeners at present in the Nursery, recommended.—Darlington Nursery, March 28.

MAY'S VICTORIA LARGE RED CURRANT.—The above most desirable fruit should be in every garden. Its berries grow to an immense size; it has obtained the highest awards in England and in America; it carried off the Massachusetts Horticultural Society's Gold Medal three years in succession. Fine strong three year old plants, 2*s.* per doz. or 12*s.* per 100; also Black Bang up Currants, 1*s.* 6*d* per dozen, 10*s.* per 100. The trade supplied on liberal terms.—Address, HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

MAY'S NEW PETUNIA ROSE OF ENGLAND.—The above magnificent new Petunia is a seedling saved from 20,000, and is, without exception, one of the finest, and will become one of the most noted bedding Plants. It is of a hardy robust habit, growing quite shrubby, and very different to other Petunias in that respect. It is one complete mass of bloom all summer and autumn, of close compact habit. The colour is bright rose, shaded and mottled with crimson, and the form circular, the petals thick, and of great substance; 5*s.* each, or three for two Plants ordered. To be sent after the 1st of April.

Address HENRY MAY, Hope Nurseries, near Bedale, Yorkshire.

NEW VERBENAS OF 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, Dandy, La Stella, Loveliness, Mrs. A. Clive, Eugenie, Victory, Viscountess Evelyn, Impératrice Elizabeth, Imperialis, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Pre-eminent, Crimson Perfection, Lady Kerrison, Nosegay, Standard Bearer, Cedo Nulli, Criterion, King of Sardinia, Tranby, Sir C. Campbell, Dr. McLean, Lord Raglan.

Fine plants of the above, free by post, 4*s.* per dozen.

Address HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

BRITISH FLAG GERANIUM.

GEO. PARSONS, FLORIST and SEEDSMAN to the QUEEN, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plant 7*s.* 6*d.* each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

SEEDS FOR THE FARM.—A PRICED CATALOGUE of all the leading AGRICULTURAL SEEDS, sold by the SUBSCRIBERS, is now ready, and may be had, Post Free, on application.—W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.——*** All Parcels of Seed are delivered Carriage Free to the principal Railway Stations and Shipping Ports throughout the kingdom.

NEW PEAS.

EUGENIE.—The earliest white-wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods.

NAPOLEON.—The earliest blue wrinkled Marrow Pea in cultivation, podding from the bottom of the haulm to the top, with fine large pods. The above two Peas were originally saved from one pod.

Mr. Harrison, the raiser of the above Peas, describes them as follows:—"Relative to my new Peas, the Wrinkled Blue and Wrinkled White, I beg to say that they are *very superior* to those I sold last year (meaning Climax and Alliance); *they are stronger* in habit, *much truer*, and better filled in the pod, on an average *two more* Peas; also better croppers. My average growth this year was nearly 10 quarters per acre."

To be had only of J. G. WAITE, High Holborn;
W. J. NUTTING & SONS, Cheapside; and
CHARLWOOD & CUMMINS, Covent Garden, London.
Price 5*s.* per quart. Usual allowance to the trade.

FIRST-RATE NAMED HOLLYHOCKS.

JOHN HOADE AND SON beg to say they have for Sale a fine healthy and well-rooted stock from 12*s.* to 18*s.* per dozen. Seedlings of the above 3*s.* per dozen, or 16*s.* per 100, package free.—Addlestone Nursery, Chertsey, Surrey.

HOLLYHOCK AND PRIMULA SEED.

JOHN HOADE AND SON beg to offer 12 kinds of best named HOLLYHOCKS in separate packets, 6*d.* each, or the 12 for 5*s.*, post free. J. H. and SON have a few packets of their first-rate PRIMULA, which can be had free by post for 13 stamps.—Addlestone Nursery, Chertsey, Surrey.

CARNATIONS.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l.* packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PICOTEES.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l.*, packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PINKS.—Twenty-five pairs, fine named kinds, in strong healthy plants, 10*s.*, packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s.*, packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s.*, packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s.*, packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders payable at Middleton, near Manchester.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE to NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, March 28.

CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his new set of twelve beautiful seedling half shrubby Calceolarias is now ready to send out. Price 2*l.* 10*s.* the set, hamper included. The following is Mr. Glenny's opinion:—

"Calceolarias, nine blooms, beautiful in colour; all above average in properties; a very fine set to go together. We doubt if any nine known varieties could compete with them without losing."—*Lloyd's Newspaper*, August 10, 1856.

Also a second set of 15, including his best sorts of last year; price 21*s.*, hamper included. Very choice Calceolaria Seed, 2*s.* 6*d.* per packet, or three packets, 5*s.*, post free. Orders accompanied by a Post-office Order promptly attended to.

Plants given to compensate for carriage of such as are not sent through the post. A descriptive list of the new Calceolarias may be had on application. Postage stamps will be taken in payment of the seeds.

SEEDLING SHRUBBY CALCEOLARIA.—The best Yellow Bedding Calceolaria, AUREA FLORIBUNDA (NORTH), was awarded a Label of Commendation at the National Floricultural Society's Meeting on Thursday, July 24, 1856. Censors, Messrs. Lockner, Cook, Baker, and Moore.

LABEL OF COMMENDATION TO SHRUBBY CALCEOLARIA, AUREA FLORIBUNDA.—An abundant bloomer, with dwarf habit. From Mr. W. NORTH, Hyde, Manchester.

ADDITIONAL MEMORANDA.—CALCEOLARIA. The following was exhibited by Mr. W. NORTH, of Hyde, Manchester:—AUREA FLORIBUNDA.—A dwarf shrubby variety; useful for bedding purposes, on account of its compact growth and dense masses of flowers: these are clear yellow, moderate sized, oval, with the upper lip closing the mouth. The plants were much damaged by transit.

Plants now ready. Price—100 for 60*s.*; 50 for 40*s.*; 12 for 12*s.* The usual discount allowed to the trade. A Post-office Order is respectfully requested from unknown correspondents, payable at Hyde, to JOSHUA OLDHAM, Seedsman, Hyde, near Manchester.

*** This Advertisement will not be repeated.

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether erect or trailing, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have been careful to exclude all which are shy bloomers, or have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

Twenty extra fine varieties, all distinct and beautiful	5*s.*	0*d.*
Fifty " "	10*s.*	6*d.*
One hundred " "	20*s.*	0*d.*

Flower Seeds sent Free by Post.—Postage Stamps taken in payment.

J. C. WHEELER & SON, Seed Growers, Gloucester.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex. Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—SATURDAY, March 28, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 14.—1857.] SATURDAY, APRIL 4. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The next Meeting for the Exhibition of ORCHIDS, AZALEAS, ROSES, FRUIT, &c. &c., and the ELECTION of FELLOWS, will be held on TUESDAY, April 7th, at 3 P.M. Admission only by Fellow's personal introduction, ivory tickets, or written order.—21, Regent Street, S.W.

ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will be held on WEDNESDAY, May 20th; THURSDAY, June 18th; and WEDNESDAY, July 1st. Tickets of Admission are now being issued, and may be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, on or before Saturday, May 9th, 4*s*.; after that day, 5*s*.; and on the days of Exhibition, 7*s*. 6*d*. each. A new arrangement of the Fruit will be adopted.

LEAMINGTON AND KENILWORTH FLOWER SHOWS, 1857.—The days fixed for the above Exhibition of FLOWERS, FRUITS, &c., are JUNE 30, at the Jephson Gardens, Leamington, and AUGUST 26, among the ruins of Kenilworth Castle, Kenilworth. Prizes on the usual liberal scale are offered for general competition. Schedules and every information may be had on application to J. Cheyne, Sec.
Priory Gardens, Warwick. April 4.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 ... Exhibition of Plants, Flowers, Fruits, &c.
„ 29, 30 ... „ Tulips (adjourned from the Crystal Palace)
May and June „ American Plants
June 24, 25 ... „ Plants, Flowers, Fruits, &c.
Aug. 19, 20 ... „ Carnations and Picotees
„ 26, 27 ... „ Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order.) John Shaw, Secretary.

DISSOLUTION OF THE FIRM OF STANDISH AND NOBLE.—Every Department of the Nursery Business so long and favourably patronised under the late Firm is now conducted by Charles Noble, to whom all communications should be addressed.—The Nursery, Bagshot, April 4.

TO NURSERYMEN, IMPORTERS OF PLANTS, ETC.
WILDING AND KENT, Custom House Agents, 73, Mark Lane, E. C., London, undertake to receive from and forward to the Continent, all kinds of Seeds, &c., with utmost despatch and at low charges.

AMATEURS AND GENTLEMEN'S GARDENERS may have a List of the few Seeds that are really useful on sending a directed envelope to G. Glenny, Dungannon House, Fulham, S.W. "GLENNY'S COMPANION" (with Portrait), and "GARDEN ALMANACK" 13 stamps each.

JAMES WOODS, Harwich, respectfully informs the Horticultural world that he will continue to send out his Fine POLYANTHUS SEED till the first week in May.

NEW SCARLET GERANIUM FOR BEDDING.
ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—To be had of Thos. Perry, Nurseryman, &c., Banbury.

SEED ESTABLISHMENT, SLEAFORD.
CHARLES SHARPE AND CO. beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

TRADESCANTIA DISCOLOR VITTATA.
LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. and 35*s*. In London free.—Ghent, Belgium, April 4.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 3*s*. 6*d*. each, or 30*s*. per dozen. In London free until the 15th inst. The trade supplied.—Louis Van Houtte, Ghent, Belgium, April 4.

VAN HOUTTE'S NEW ACHIMENES.—Subscribers in England:—Messrs. Hugh Low & Co.; R. Glendinning; James Veitch, Jun.; Wm. Rollisson & Sons; Thomas Jackson & Son; A. Henderson & Co.; Osborn & Sons.

DAHLIAS.
CLARKE AND COMPANY beg to say they have published their catalogue of Dahlias for the season, which will be forwarded post-free on application.—86, High Street, Borough, London.

CAMELLIAS.
CHANDLER AND SONS, Nurserymen and Seedsmen, beg to inform their friends and the public that their extensive collection of CAMELLIAS is now in flower. They have also a great variety of Azaleas, Ferns, and Flowering Plants.—Wandsworth Road, London, S.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1857. Edited by J. C. Morton, Esq., can now be had through any Bookseller, or from Messrs. William E. Rendle & Co., Foreign and Export Seed Merchants, Plymouth.

SUTTON'S FARM SEED LIST, with PRICES for MARCH and APRIL, is now ready, and will be sent gratis and post free.—Royal Berkshire Seed Establishment.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.
BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
Bass & Brown, Seed Growers, Sudbury, Suffolk.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—April 4.

VAN HOUTTE'S SPRING CATALOGUE is now ready, and may be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

FERN CATALOGUE.
ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

AMERICAN PLANTS.
WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

INDIAN AZALEAS.
H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer most of the popular sorts of Indian Azaleas, in large quantities, at 12*s*., 15*s*. or 18*s*. per dozen.

AZALEA INDICA PETUNIÆFLORA.—Nice bushy plants at 15*s*. each offered, to London free, by Louis van Houtte, buyer of the stock (four for three). Messrs. Hugh Low & Co., R. Glendinning, and James Veitch, Jun., are able to give their opinion about the A. petuniæflora, having seen its flowers and bought plants of it.—Ghent, Belgium, April 4.

AZALEA "PETUNIÆFLORA."
W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5*s*. each; all the new Azaleas of last year, from 30*s*. to 60*s*. per dozen.—Maidstone, April 4.

AZALEAS SET WITH FLOWER.
W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.
Maidstone, April 4.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.
Epps's Nurseries, Maidstone.

STRONG Plants of all the New FUCHSIAS of last year, 12*s*. to 18*s*. per dozen; ditto VERBENAS of 1856, 6*s*. to 9*s*. per dozen.—Epps's Nurseries, Maidstone.

TO THE TRADE.—All the leading Fancy and other kinds of PELARGONIUMS, 50*s*. per 100, good plants.
W. J. Epps, Nurseries, Maidstone.

THE BEST FORCING GERANIUM—"CRIMSON KING."
WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, April 4.

ASH-LEAVED KIDNEY POTATOES (Warranted True).
WOOD AND INGRAM beg to offer a very pure stock of the above at 6*s*. per bushel. Price to the Trade on application.—Huntingdon Nurseries, April 4.

PRIMULA SINENSIS.
WOOD AND INGRAM beg to offer fine plants of the above beautifully in bloom at 6*s*. per dozen.
Huntingdon Nurseries, April 4.

BHOOTAN RHODODENDRONS.—Seven fine species raised from Seed imported by us 3 years since. Sturdy plants in 60's pots, each 3*s*. 6*d*., the set for 21*s*.
H. Low & Co., Upper Clapton Nursery, London.

TO COLLECTORS OF FERNS.
TODEA PELLUCIDA (New Zealand).—Plants of this most charming species may be obtained at 21*s*. each; or six for 5*l*. Amateurs and Nurserymen desirous of securing the above variety are respectfully requested to signify their intention on or before the 1st of May (when the Plants will be sent out) inclosing Post-office Order on Hackney, payable to Conrad Loddiges.

NEW VARIEGATED PETUNIA.
WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s*. 6*d*. each. Usual discount to the Trade.
They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.

HIGHGATE NURSERIES, LONDON, N.
WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s*. 6*d*. each. Usual discount to the Trade.
They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.

GOOD CLOVER SEED.
GENUINE NEW CLOVER SEED may be obtained of the undersigned. Prices (according to market and quantity required) will be forwarded on application.
John Sutton & Sons, Seed Growers, Reading, Berks.

THE ALSIKE CLOVER.
SUTTON AND SONS have one of the finest parcels of Seed in Europe of this valuable CLOVER, and they can strongly recommend it from experience both for permanent pasture and alternate husbandry. Prices reduced to 1*s*. 6*d*. per lb. in quantities of 14 lbs. and upwards.
Royal Berkshire Seed Establishment, Reading.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9*d*. lb.; Swedes, 1*s*. lb.; Turnips, 1*s*. lb.; Hybrids, 1*s*. 3*d*. lb.; Improved Italian Rye-grass, 7*s*. 6*d*. per bushel.—Geo. Gibbs & Co., 26, Down Street, Piccadilly, W.

SEEDS FOR THE FARM.—A PRICED CATALOGUE of all the leading AGRICULTURAL SEEDS, sold by the SUBSCRIBERS, is now ready, and may be had, Post Free, on application.—W. Drummond & Sons, Seed and Implement Warehouse, Stirling, N.B.——*** All Parcels of Seed are delivered Carriage Free to the principal Railway Stations and Shipping Ports throughout the Kingdom.

TO THE SEED TRADE.
GEORGE TABER, of Rose Cottage, Rivenhall, near Witham, Essex, begs to inform the Trade that he has still on hand a small stock of excellent TURNIP, SWEDE, and MANGEL WURZEL SEEDS of the best sorts.

TO THE TRADE.—For Sale, a quantity of YELLOW GLOBE MANGEL WURZEL SEED, grown by Chittenden of Burwash; also a few bushels of FRENCH BEANS in variety.—Applications to be addressed to William Masters & Son, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone.

TO THE LOVERS OF A GOOD RED BEET.
CHARLES DALTON, Seed Grower, Speenhamland, Newbury, will forward ½ oz. packets of the above by post on receipt of 6 postage stamps. Established 1800.
P.S. The above Beet has been admitted by all that have had it direct from me to be the best in cultivation.

SEED CORN FROM THE CHALK.
TALAVERA and APRIL WHEAT; Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

TO BE SOLD, a few thousand strong ASPARAGUS PLANTS, 2 years old.—Apply, W. Nutting, 2, Curle's Cottages, New Road, Hammersmith, W.

FLATPOLE OR DRUMHEAD CABBAGE PLANTS FOR SALE, 15*l*. per 100,000, package included. To be taken within 14 days for cash.—Apply to Thomas Moore, Kingsbridge Nursery, Devon.

TO NURSERYMEN, FLORISTS, & GARDENERS.
TO BE SOLD, a large quantity of TURF MOULD, in first-rate condition and fit for immediate use, its quality having been attested by Mr. Neville and Mr. Ivery, Florists of Peckham, where samples may be seen.—For further particulars apply to Mr. J. Booker, Peckham Rye, Surrey.

TO BE SOLD, 12 FRUITING PINE PLANTS.—For particulars, apply to W. G., Esher Station, Esher, Surrey.

ROSES FOR SALE.—A large quantity of Cramoisie superior and Fabvia, strong flowering plants, in 48 pots, at 6*s*. per dozen. Fairy Roses, 4*s*., 6*s*. and 9*s*. per dozen, carriage free to London.—Messrs. Cuthbert, Southgate, Middlesex, N.

NOTICE TO GARDENERS.
WANTED IMMEDIATELY,

PINE APPLES.	ASPARAGUS.
MUSHROOMS.	CUCUMBERS.

Forward to George Taylor, Jun., Fruit Salesman, St. John's Market, Liverpool.

WANTED, 12 bushels of true LAPSTONE KIDNEY POTATOES.—B. S., 25, Bishopsgate Within.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to Waterer & Godfrey, Knap Hill Nursery, Woking, Surrey.

SCOTCH FIR SEED.
HOWDEN BROTHERS offer SCOTCH FIR SEED of fine quality, the produce of the Northern districts of Scotland. Price on application.—Inverness, N. B.

CARNATIONS.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*. packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PICOTEES.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PINKS.—Twenty-five pairs, fine named kinds, in strong healthy plants, 10*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties in good plants, 8*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester. Post-office Orders payable at Middleton, near Manchester.

SPLENDID SEEDLING CALCEOLARIA.

WILLIAM BARNES has much pleasure in informing his friends and patrons that he has still a few dozens of his unrivalled CALCEOLARIAS in extra strong plants now ready for shifting into their blooming pots.

The Seed has been carefully hybridised with the finest shaped flowers and the most beautiful markings, and cannot fail to produce bloom of the first quality. Price 5*s.* per dozen.

Camden Nursery, Camberwell.

FIRST CLASS SEEDS.—Whatever has been sold as Glenny's Balsam Seed, except in his own sealed packets, is a fraud upon the buyers. Six classes, 37 stamps, mixed 13. Dahlia, Pansy, Hollyhock, Auricula, Polyanthus, Calceolaria, Cineraria, Heliotrope, Verbena, Chrysanthemum, Double Daisy, 13 each. All the best Annuals.—Fulham, S. W.

MR. J. LINDEN'S CATALOGUE OF NEW PLANTS, containing the most remarkable novelties in Stove and Greenhouse, Ornamental and Variegated Foliaged Plants, Orchids, Herbaceous and Tree Ferns, Palms, Bromeliads, and Marantas, &c., is now ready, and will be sent post free on application.—Agent in London, Mr. R. Silberrad; and at Brussels, Zoological Gardens.— April 4.

N.B. Orders for the splendid novelties Gesneria cinnabarina, Tapina splendens, and Monochætum ensiferum have to be directed to Messrs. E. G. Henderson & Son, Wellington Nursery, who are in possession of the stocks of these three fine plants.

MAY'S NEW PETUNIA ROSE OF ENGLAND.—The above magnificent new Petunia is a seedling saved from 20,000, and is, without exception, one of the finest, and will become one of the most noted bedding Plants. It is of a hardy robust habit, growing quite shrubby, and very different to other Petunias in that respect. It is one complete mass of bloom all summer and autumn, of close compact habit. The colour is bright rose, shaded and mottled with crimson, and the form circular, the petals thick, and of great substance; 5*s.* each, or three for two Plants ordered. Now ready.

Address Henry May, Hope Nurseries, near Bedale, Yorkshire

MAY'S VICTORIA LARGE RED CURRANT.—The above most desirable fruit should be in every garden. Its berries grow to an immense size; it has obtained the highest awards in England and in America; it carried off the Massachusetts Horticultural Society's Gold Medal three years in succession. Fine strong three year old plants, 2*s.* per doz. or 12*s.* per 100; also Black Bang up Currants, 1*s.* 6*d.* per dozen, 10*s.* per 100. The trade supplied on liberal terms.—Address, Henry May, The Hope Nurseries, Bedale, Yorkshire.

NEW VERBENAS OF 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, Dandy, La Stella, Loveliness, Mrs. A. Clive, Eugenie, Victory, Viscountess Evelyn, Impératrice Elizabeth, Imperialis, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Pre-eminent, Crimson Perfection, Lady Kerrison, Nosegay, Standard Bearer, Cedo Nulli, Criterion, King of Sardinia, Tranby, Sir C. Campbell, Dr. McLean, Lord Raglan.

Fine plants of the above, free by post, 4*s.* per dozen.

Address Henry May, The Hope Nurseries, Bedale, Yorkshire.

NEW SCARLET GERANIUM, "RICHMOND GEM."

FRANCIS R. KINGHORN will send out this fine variety this month. The flowers are light orange scarlet, very large trusses, wood and stalks nearly white, fine foliage in the way of General Pelissier, rather stronger grower, will make the best bedder of all the coral-stalked kinds. See "Cottage Gardener," page 381. Was much admired and received a prize at the Crystal Palace Show in June. Price 7*s.* 6*d.* each; when three are ordered four will be sent. The usual discount to the trade.

In answer to many inquiries F. R. K. regrets to state that he will not be prepared to send out "Prim" at the same time.

Nursery, Richmond, Surrey.—April 4.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted new and true to name. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

MOORE'S DELPHINIUM FORMOSUM.—Seed in packets at 2*s.* 6*d.* and 1*s.* 6*d.* to be had of Nutting & Sons, Seedsmen, 26½, Upper Thames Street, E.C. The habit of this plant is truly beautiful, producing its flowers when not more than a foot high, in spikes of the same length; each flower larger than a crown piece, of a lovely blue with a prominent white eye. For a bouquet it is a gem.

NEW MELON.—CRANMER HALL HYBRID. Orange fleshed, good bearer, excellent keeper and exquisite flavour—Packets 2*s.* 6*d.*

A VERY SWEET HARDY VIOLET, VIOLA SUAVIS.

J. CATTELL has seeds of this very hardy and sweet early Violet, colour a pleasing bluish white. It requires no other culture than sowing in the open ground, and if planted in shrubbery borders, wood walks, &c., would in a few years cover the surface of the ground. Packets containing 3 doz. seeds, 6*d.* each, post free.

The following very choice seeds may also be had at the annexed prices:—

Acroclinium roseum; Cosmidium Burridgianum; Geranium, finest florist varieties, mixed; Geranium, new French varieties, mixed; Gloxinia, mixed, extra fine; Heartsease, from fine show varieties, mixed: Heartsease, from new French spotted and striped varieties, mixed; Linum grandiflorum or rubrum, Van Houtte's, true; Polyanthus, mixed, extra fine; Primula sinensis, red, white, and intermediate colours, mixed, finely fringed; Veronica syriaca, &c. 1*s.* per packet.

Anemone, single Poppy, scarlet, and mixed, extra fine; Aquilegia Skinneri, and glandulosa; Coreopsis nigra speciosa and coronata; Escholtzia tenuifolia; Mimulus, mixed, extra fine and ditto quinquevulnerus; Nemophila marginata; Petunia, mixed, fine; Phlox Drummondi, mixed, extra fine, and ditto mixed from extra fine dark varieties; Sweet William, mixed, very fine, and ditto extra fine dark; Wahlenbergia grandiflora, 6*d.* per packet.

Calceolaria, from finest varieties, carefully hybridized, 2*s.* 6*d.* per packet.

Cineraria, from very fine varieties, 1*s.* 6*d.*

Cineraria, from very superior new varieties, 2*s.* 6*d.*

German Stocks, Asters, Balsams, Larkspurs, Wallflowers, &c. &c., of the very finest quality, in assortments from 1*s.* 6*d.* to 6*s.*, each according to the numbers in each assortment; or the same may be had mixed at 1*s.* and 1*s.* 6*d.* per packet each.

Descriptive Catalogues of Flower and Vegetable Seeds may be had post free upon application.

SCILLA SIBERICA.—This truly beautiful and very hardy sky-blue Squill is now in great beauty, many thousand bulbs of which are now in full flower, and should be seen to be fully appreciated.—Nursery and Seed Establishment, Westerham, Kent.

STRAWBERRIES.—Extra strong plants of the following fine varieties, at 12*s.* per 100, viz., Admiral Dundas (Myatt's), Sir Charles Napier (Smith's), Scarlet Nonpareil (Patterson's), Omar Pacha (Ward's), Comtesse de Marnes (fine early French), Prince of Wales (Ingram's). The following do. do., at 5*s.* per 100, viz., Ajax, Ruby, Captain Cook, Eliza (Rivers'), Surprise (Myatt's), British Queen (do.), Eleanor (do.), Old Pine, Keens' Seedling, Goliath (Kitley's), Elton Pine, Trollop's Victoria, and several other sorts.

Post-office orders payable at Yarm, Yorkshire, are expected with all orders.

William J. Nicholson, Egglescliffe, Yarm, Yorkshire.

AZALEA IND. PETUNIÆFLORA (D. Vervaene).—"* * * Between the most striking novelties were petuniæflora, a fine rosy purple, very brilliant, and of excellent form. * * * "R. Glendinning."

(*Gardeners' Chronicle*, March 14, p. 173, in his report of the Ghent Exhibition, 1857).

Louis Van Houtte begs to offer nice bushy plants of the above variety at 15*s.* to London free. (Four for three.)

CHOICE FLOWER SEEDS.

E. P. DIXON begs to offer his unequalled GERMAN STOCKS, so much admired last season in collections of—

	s.	d.
18 most distinct varieties	5	0
12 do. do. do.	3	0
Finest mixed, saved from pot-grown plants, per pkt. 1*s.* and	1	6
Extra choice mixed Emperor Stocks, per packet	1	6
Truffaut's splendid Asters mixed, per packet ... 1*s.* to	2	6
Calceolaria, a new dwarf variety, grows very compact, and only 6 or 8 inches high, per packet	2	6
A little extra fine African Marigold, per packet	0	6

Sent free per post.—Nursery and Seed Warehouse, 57, Queen Street, Hull.

DAHLIAS.

JOHN KEYNES, Florist, Salisbury, obtained ELEVEN Certificates at the National Exhibition of Seedlings. Only FOUR other Certificates were awarded for Dahlias the whole season. These truly splendid flowers will be ready for distribution the first week of May. First-rate plants may this year be depended on. Catalogues of the leading show Dahlias will be sent on application.—Castle Street, Salisbury.

Royal Scarlet ...	10*s.* 6*d.*	Carnation	10*s.* 6*d.*
Fanny Dodds ...	10 6	Charles Perry ...	10 6
Mrs. Edwards ...	10 6	Conqueror	10 6
Lady Franklin ...	10 6	Lady Paxton	10 6
Duke of Devonshire	10 6	Tam o'Shanter ...	10 6
Lord Cardigan ...	10 6	Margaret	10 6

The whole of these obtained Certificates at the National, with the exception of Fanny Dodds and Lord Cardigan.

NOTICE OF REMOVAL.

NUTTING AND SONS, Seedsmen, have removed from Cheapside to their Warehouse at Paul's Wharf, 26½, Upper Thames Street, until Michaelmas, where they request the favour of all communications to be made.

Perennial Rye Grasses, and English and Foreign Italian do. Samples to the trade.

Long Red, Red Globe, Fine Long Yellow, and Yellow Globe Mangel Wurzel; Altringham, White Belgian, and Early Red Middle Carrot; with other Farm Seeds, and every variety for the Kitchen and Flower Garden worthy of cultivation.

NOTICE.

TO THE CULTIVATORS OF THE GERANIUM.—Upwards of 10,000 strong healthy plants now ready.

	Per dozen.—s.	d.
GERANIUMS.—Show varieties of 1855, purchaser's selection	30	0
Do., do., H. W.'s selection	25	0
Do., do., of 1854, 15*s.* and	18	0
Do., do., older varieties, 6*s.* and 9*s.* per doz., or 20 for ...	15	0
Do., fancy varieties, choice, 9*s.*, 12*s.*, and	18	0
Do., French and English spotted varieties, 12*s.* and ...	18	0
Do., 100 strong plants for 3*l.*, including package.		
FUCHSIAS of last season, 9*s.* per dozen; extra strong...	12	0
CINERARIAS Duchess of Wellington, Magnum Bonum, and Purple Standard, 2*s.* each, or the 3 for	5	0
Do., choice varieties of previous years, 6*s.*, 9*s.*, and ...	12	0
CALCEOLARIAS, Herbaceous, 1*s.* 6*d.* to 2*s.* 6*d.* each, or 12*s.* to	18	0
Do., shrubby, bedding varieties of last season, including Cole's spotted varieties, 1*s.* 6*d.* each, or, after 20th April	10	0
Do., older varieties, 4*s.* 6*d.* to	6	0
VERBENAS, new varieties of last season at	6	0
Do., older varieties, 3*s.* 6*d.* and	4	6
PETUNIAS, new, of last season, including the continental striped varieties, 1*s.* each, or	9	0
CHRYSANTHEMUMS, large and Pompone flowered varieties, 4*s.* 6*d.* to 6*s.* and	9	0
PHLOXES, choice new varieties of last season	18	0
Do., Countess of Morton and Addisoni, strong plants, 3*s.* 6*d.* each.		
Do., do., older varieties, 6*s.* and 9*s.* and	12	0
PANSIES, 12 strong superior new varieties for 15*s.*		
Do., 25 strong choice show varieties for 15*s.*		
PINKS, 25 pairs, fine named sorts, 10*s.*		
GLOXINIAS.—The following 6 new erect varieties for 1*l.*, or 5*s.* each, viz.:— Comte de Neipperg, Duchesse de Brabant, Madame Picouline, Roi de s Belges, rosea mutabilis, and Wagneri.		
Do., choice erect varieties, extra strong plants, 6 for 10*s.*, or	15	0
Do., not erect flowering, 9*s.*, 12*s.*, and	15	0
ACHIMENES.—Locheria magnifica, 2*s.* 6*d.*; Do., Tydea amabilis, 3*s.* 6*d.*; Estella, 2*s.* 6*d.*; Aurora, 2*s.* 6*d.*		
Do., other varieties, 5*s.* and	7	6
AZALEA INDICA, strong plants, 12*s.* and	18	0
ROSES, choice new Hybrid Perpetual varieties, such as Triomphe de l'Exposition, Prince Noir, Souvenir de la Reine d'Angleterre, &c., &c., strong healthy plants, 3*s.* 6*d.* each, or	30	0

For descriptions, &c., of the above Collections, see Catalogues, may be had on application enclosing 1 stamp. The Catalogue contains a great assortment of Bedding Plants which will be ready the end of April, including Dahlias, Scarlet and other Geraniums, Cupheas, Heliotropes, &c.; also a collection of 84 Bedding Plants for 1*l.*, and a collection of 132 Bedding Plants for 30*s.*

MISCELLANEOUS PLANTS at Reduced Prices.
(The 12 Plants for 1*l.*)

Escallonia pterocladon, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Myrtus apiculata, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Do. myrsinoides, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Cassia floribunda, 2*s.* 6*d.*
Jasminum poltiana, 1*s.* 6*d.*
Epacris Eclipse (Story's), 2*s.* 6*d.* to 3*s.* 6*d.*
Vaccinium erythrinum, 2*s.* 6*d.* to 3*s.* 6*d.*
Begonia opulæfolia miniata (splendid scarlet), 2*s.* 6*d.* to 3*s.* 6*d.*
Gonocalyx pulcher, 3*s.* 6*d.*
Francisea confertifolia, 2*s.* 6*d.*
Dipladenia magnifica, 2*s.* 6*d.* to 3*s.* 6*d.*
Passiflora Decaisneana, 2*s.* 6*d.*

Orders executed in strict rotation as received. Post-office Orders payable at Marsden, Lancashire.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

NEW AND SUPERB BEDDING CALCEOLARIAS FOR 1857.—We have much pleasure in offering the four following Calceolarias, feeling assured they will give the highest satisfaction. They were selected with the greatest care from upwards of 2000 Hybridized Seedlings, bedded out expressly for the purpose of proving their intrinsic merits. We have no hesitation in stating they are very far superior to any yet offered.

EXCELSIOR.—Brilliant crimson, shaded with plum, habit excellent, flowers large, well formed and very smooth, decidedly the best of its class, 5*s.* each.

FANDANGO.—Rich golden yellow and crimson, with yellow crown, habit good, and first-rate bedder; a great improvement upon MAGNIFICENT, 5*s.* each.

ARGUS.—Rich crimson, with a perfect broad belting of rich golden-yellow, quite distinct, and one of the handsomest Calceolarias yet offered, 7*s.* 6*d.* each.

BACCHUS.—Deep crimson, fine and large flowers well-formed, habit dwarf and robust; a great improvement on CRIMSON KING or SULTAN, 5*s.* each.

The set 20*s.*, package included. The usual discount allowed to the Trade when three sets are taken.

Youell & Co., Royal Nursery, Great Yarmouth.

CONIFERÆ.

PODOCARPUS NUBIGENA, a fine hardy evergreen tree from the Andes, where it grows in close proximity to the Araucaria imbricata, which noble tree it somewhat resembles; the branches are produced in whorls; the foliage is of a dark glossy green. Single plants, two years from Seed, each, 15*s.*; 12 ditto, 120*s.*

PODOCARPUS ANDINA, another hardy, ornamental species from Patagonia; with foliage longer and narrower. Single plants, each, 15*s.*; 12 ditto, 120*s.*

ABIES ORIENTALIS, a singularly graceful species, of close compact habit, from the Caucasus; quite hardy. A single Plant, 4 inches, from Seed, each, 2*s.* 6*d.*; 12 ditto, 24*s.*; 100 ditto, 150*s.*

WELLINGTONIA GIGANTEA, fine sturdy Plants of this giant of the forest from Seed, 9 to 12 inches, each, 21*s.*

ARAUCARIA IMBRICATA, 3 to 4 inches from Seed, per 100, 75*s.*

PINUS PALUSTRIS; or Swamp Pine of N. America, per dozen, 12*s.*

PINUS FILIFOLIA, a species with very elegant foliage. An ornamental Plant for Conservatories in this country, per dozen, 42*s.*; each, 3*s.* 6*d.*

H. Low & Co., Upper Clapton Nurseries, London, N. E.

HUGH LOW AND Co. offer the under-mentioned:—

Camellias, choice varieties, such as Archduchess Augusta, Leda, Mathottiana, Verschaffelti, Ilee Margo, Lowi, Alexina, Innocenza, caryophylloides, Princess Baccioehi, Guthriana, Albertus, &c., in good plants, from 1 to 1½ foot in height, without flower-buds, each, 3*s.* 6*d.*; per doz., 42*s.*

Do., old varieties, such as fimbriata, imbricata, ochroleuca, Marchioness of Exeter, Teutonia, candidissima, Double White Francofurtensis, nobilissima, Chandler's elegans, &c., in good plants, without bud, from 1 to 2 feet, per doz., 30*s.*

Azalea indica crispiflora, a fine species, beautifully fringed, nice plants, each, 3*s.* 6*d.*

Do., choice varieties, well set with flower-buds, such as magnificens, Prince Albert, Perryana, &c., from 30*s.* to 42*s.* per doz., according to size.

Ericas, in fine collection, tricolors, ampulaceas, vestitas, vendicosas, favoides elegans, &c., in 48-sized pots, per doz., 30*s.*

Do., half specimens, from 1 to 1½ foot high and as much through, in 8-inch pots, from 5*s.* to 7*s.* 6*d.* each.

Half specimen plants, various, such as Aphelexis, Epacris, &c., at moderate prices.

Lisianthus Russellianus, nice plants, in 60-sized pots, each, 2*s.* 6*d.*

Ferns, a fine collection, both of hardy and exotic, at prices varying from 12*s.* per doz. upwards. Amongst the former are fine plants of Osmunda interrupta, each, 7*s.* 6*d.*; O. spectabilis, e., 5*s.*; O. cinnamomea, e., 5*s.*; Struthiopteris germanica, e., 3*s.* 6*d.*; Lastræa Filix-Mas. cristata, e., 3*s.* 6*d.*; Asplenium fontanum, e., 3*s.* 6*d.*; Polystichum lonchitis, e., 2*s.* 6*d.*, &c. Amongst the Exotic are good plants of Pteris aspericaulis, e., 10*s.* 6*d.*; Nothoclæna nivea, e., 5*s.*; Gymnogramma hirta, e., 10*s.* 6*d.*; G. chrysophylla, e., 5*s.*; Polystichum falcinellum, e., 5*s.*, &c.

Plants with elegant and variegated foliage:—Begonia splendida, e., 5*s.*; Sonerila margaritacea, e., 3*s.* 6*d.*; Dracæna terminalis, e., 5*s.*; Jacaranda nova sp., with elegant foliage, e., 7*s.* 6*d.*; Asphelandra Leopoldi, e., 2*s.* 6*d.*; Charlwoodia congesta, e., 3*s.* 6*d.*; Cordyline rubra, e., 3*s.* 6*d.*; Aralia papyrifera (Rice-paper plant), e., 10*s.* 6*d.*; A. quinquefolia, e., 5*s.*; Maranta albo lineata, e., 7*s.* 6*d.*; M. micans, e., 5*s.*, &c.; Croton variegatum, e., 2*s.* 6*d.* to 3*s.* 6*d.*; C. longifolium variegatum, e., 5*s.*; C. discolor, e., 5*s.*, &c.

Climbers for Conservatories and Hothouses:—Good plants of the following for Conservatories, Zichya inophylla, e., 3*s.* 6*d.*; Z. coccinea, e., 3*s.* 6*d.*; Sollya Drummondi, e., 1*s.* 6*d.*; S. linearis, e., 1*s.* 6*d.*; S. heterophylla, e., 1*s.* 6*d.*; Chorozema spectabilis, fine, e., 2*s.* 6*d.*; Wistaria sinensis alba, e., 3*s.* 6*d.*; W. frutescens magnifica, strong, e., 7*s.* 6*d.*; W. Brachybotrya, e., 3*s.* 6*d.* strong; Akebia quinata, e., 3*s.* 6*d.*; Stauntonia latifolia, e., 3*s.* 6*d.*; Physolobium gracile, e., 2*s.* 6*d.*; Brachysema Drummondi, e., 2*s.* 6*d.*; B. undulata, e., 1*s.* 6*d.*; Lardizabala biternata, e., 3*s.* 6*d.*; Tacsonia pinnatistipulæ, e., 2*s.* 6*d.*; Clematis indivisa lobata, e., 3*s.* 6*d.*; C. Amelia, 3*s.* 6*d.*; C. Louisa, e., 3*s.* 6*d.*; C. Helena, e., 3*s.* 6*d.*; C. monstrosa, e., 3*s.* 6*d.*; C. Sophia, e., 3*s.* 6*d.*; Passiflora mauritiana, 3*s.* 6*d.*; P. Bellotti, 2*s.* 6*d.*; P. malifera, 2*s.* 6*d.*; P. Cinnabarina, P. Hartwessiana, 1*s.* 6*d.*; P. Doroschiediana, 1*s.* 6*d.*; Rhynchospermum jasminoides, e., 3*s.* 6*d.*; Bignonia chirire, 2*s.* 6*d.*; B. Venusta, 2*s.* 6*d.*; B. picta, 2*s.* 6*d.*; B. capreolata, 2*s.* 6*d.*; B. australis, 2*s.* 6*d.*; Lyonsia straminea, 2*s.* 6*d.*; Tecoma jasminoides, 1*s.* 6*d.*; T. fulva, new, 3*s.* 6*d.*; Jasminum Poiteau, e., 2*s.* 6*d.*; J. grandiflorum, e., 2*s.* 6*d.*; J. stellare, e., 2*s.* 6*d.*; J. gracile, e., 2*s.* 6*d.*; Tazelia bituminosa, e., 2*s.* 6*d.*

For Stoves or Hothouses:—Ipomœa Horsfalli, 3*s.* 6*d.*; I. mexicana, 2*s.* 6*d.*; Stephanotis floribunda, e., 1*s.* 6*d.*; Passiflora princeps, e., 3*s.* 6*d.*; P. Gontieri, e., 2*s.* 6*d.*; P. quadrangularis, e., 2*s.* 6*d.*; P. Decaisneana, e., 2*s.* 6*d.*; P. alata, 2*s.* 6*d.*; P. amabilis, 2*s.* 6*d.*; P. medusæ, 2*s.* 6*d.*; Allamanda Schotti, e., 2*s.* 6*d.*; A. nerifolia, e., 1*s.* 6*d.*; A. aubletia, 2*s.* 6*d.*; A. cathartica, e., 2*s.* 6*d.*; Hexacentris mysorensis, 2*s.* 6*d.*; H. m. lutea, e., 2*s.* 6*d.*; Cissus velutina, e., 3*s.* 6*d.*; C. discolor, e., 3*s.* 6*d.*; Stigmaphyllon ciliare, e., 2*s.* 6*d.*; Manettia bicolor, e., 2*s.* 6*d.*; Dipladenia Crassinoda, e., 3*s.* 6*d.*; D. urophylla, e., 2*s.* 6*d.*; Hoya imperialis, e., 3*s.* 6*d.*

In Stove Plants, the following:—Ixora Javanica, I. Jav. Rellisoni, I. Lobbi, I. coccinea, I. coccinea superba, I. Bandues, I. aurantiaca, I. crocata, nice healthy plants, at 2*s.* 6*d.* each; Medinella magnifica, e., 7*s.* 6*d.*; Meyenia erecta, e., 2*s.* 6*d.* to 3*s.* 6*d.*; Calyptraria hæmantha (a splendid new Melastomad), e., 10*s.* 6*d.*; Gesneria Donkelaari, e., 10*s.* 6*d.*; G. Blassi, producing flowers in scarlet pendant racemes, small plants, each, 7*s.* 6*d.*; Franciscea, Gardenias, &c., at moderate prices.

Sarracenia purpurea, per doz., 10*s.*; single plants, 2*s.* 6*d.*

Choice Herbaceous and Alpine Plants, per 100, 42*s.*

Cypripedium spectabilis, strong flowering roots, e., 2*s.* 6*d.*; C. acaule, do., 2*s.* 6*d.*; Erythronium americanum (bright yellow Dog's-tooth Violet), three flowering bulbs in each pot, 2*s.*; Trillium atropurpureum, e., 1*s.* 6*d.*; T. grandiflorum, e., 1*s.*; Phlox, a splendid collection of 18 French varieties, at 1*s.* each; Chrysanthemums in really good varieties, new and old, per doz., 12*s.*; Double Blue Hepatica (now in flower), each, 4*s.* 6*d.*

Bellis aucubæfolia, foliage most beautifully variegated with yellow, and nearly as handsome as the finest variety of Anacyclus, each, 2*s.* 6*d.*—Upper Clapton Nursery, London, N.E.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, April 4.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8s. 6d.; 30 vars., 5s. 6d.; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7s. 6d.; 12 vars.	5	0

Choice Hollyhock, Geranium, Calceolaria, Pentstemon, Gloxinia, Primula sinensis, and other Florist Flowers, carefully saved from first-rate varieties.

CHOICE IMPORTED GERMAN SEEDS, in separate colours, very fine and double.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1s. 3d. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20s.) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

CHOICE PLANTS, &c.

YOUELL AND CO., Royal Nursery, Great Yarmouth, beg respectfully to call attention to the following, which they are now sending out in fine strong plants:—

CAMELLIAS, in choice new kinds, without bud, 21s. per dozen.
EPACRIS, of finest varieties, bushy plants in 48's, 12s. per doz.; smaller do., 9s.
ERICAS, of finest kinds, bushy plants in 48's, 12s. per dozen.
GREENHOUSE PLANTS, in 50 select kinds, for 50s. [dozen.
CINERARIAS.—A choice collection of all the best kinds, 9s. per
FUCHSIAS, comprising all the new varieties, 12s. to 21s. p. doz.
PERPETUAL FLOWERING OR TREE CARNATIONS BLOOMING SUMMER AND WINTER.—A very choice and select collection of the above beautiful class in good healthy plants at 12s. and 18s. per dozen.

CARNATIONS AND PICOTEES.	s.	d.
12 pairs of fine kinds by name, per dozen pairs ...	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

PINKS.—The finest first-class show Pinks, by name, 9s. to 12s. per dozen pairs.
" Fine mixed border ditto, 6s. per dozen pairs.
ROSES.—A fine collection of the choice varieties of Hybrid Perpetuals, well established in pots, 18s. per dozen.
DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, 18s. per dozen. This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue.
DELPHINIUM BARLOWI AND MOOREANUM.—6s. per doz.
Do. HENDERSONI and MAGNIFICENT, 1s. 6d. each.
PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, 9s. per dozen, including that fine new Phlox Countess of Home.
PHLOXES, fine do. of 1854 and 1855, 6s. per dozen.
PANSIES.—A fine collection of all the new and first-rate flowers, 9s. per dozen.
DIELYTRA SPECTABILIS.—Strong, 6s. per doz.; ex. do., 9s.
HOLLYHOCKS.—A fine collection of the best named varieties, 12s. per dozen.
OXALIS ROSEA AND FLORIBUNDA.—Two beautiful hardy herbaceous plants of dwarf habit, producing throughout the season a profusion of rose-coloured flowers, 6s. per dozen.
POTENTILLAS.—10 handsome varieties, by name, for 6s.
PENTSTEMONS,—A fine collection of all the best kinds, 9s. per dozen.
MIMULUS.—10 beautiful new varieties, 6s. per dozen.
CHRYSANTHEMUMS.—A first-rate collection of the newest and best kinds of Pompone and large flowering, 9s. per dozen.
PRIMROSES.—Double white and yellow, 4s. per dozen.
GEUM ATROSANGUINEUM.—Strong plants, 3s. per dozen.
STATICE MARITIMA ROSEA, AND PSEUDO ARMERIA.—Strong plants of these two beautiful hardy herbaceous species, producing throughout the year a profusion of deep lake coloured flowers, 3s. per dozen.
MYOSOTIS AZONICA.—Strong plants of this beautiful hardy herbaceous plant, producing numerous heads of bright blue flowers of dwarf habit, 6s. per dozen.
ŒNOTHERA MACROCARPA.—Large yellow, 9s. per dozen.
SALVIA PATENS.—Strong roots of last season's growth, 9s. per dozen.
LOBELIA ROI LEOPOLD.—Fine blue, 6s. per dozen.
LYCHNIS DIOICA ALBA FLORE PLENO.—Fine double white, 1s. each.
LYSIMACHIA LESCHENAULTIA.—Fine rose colour, 1s. each.
DAISIES, NEW BELGIAN.—30 best varieties of this favourite plant, 4s. per dozen.
A fine COLLECTION OF HARDY CLIMBERS, 12s. per doz.
AUBRIETIA PURPUREA, 4s. per dozen.
ROCKETS.—Double yellow, 4s. per doz.; double crimson, 9s. do.
MIGACEA RUBRA, 6s. per dozen.
PHYTEUMA ORBICULARIS, 6s. per dozen.
GAZANIA RIGENS, 6s. per dozen.
PRUNELLA GRANDIFLORA, 6s. per dozen.
AQUILEGIA SKINNERI 6s. per dozen.
CAMPANULA PULLA ALBA, 4s. per dozen.
DEUTZIA GRACILIS.—Fine strong plants, 9s. per dozen.
LILY OF THE VALLEY.—Strong, 5s. per 100.
PÆONIES.—A choice collection of 12 new varieties for 12s.
HERBACEOUS PLANTS.—A very extensive and select collection of the handsomest kinds, including those adapted for rock work, 6s. per dozen; 30s. per 100.

All Orders of 2l. and upwards are delivered Carriage Free to London, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

It is respectfully solicited that all Post-office Orders be made payable to YOUELL & Co., Yarmouth, Norfolk.

Royal Nursery, Great Yarmouth.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

FLOWER SEEDS.—We have selected out of our large collection of Flower Seeds the most beautiful and showy varieties, each sort distinct in colour, and calculated to produce a fine effect when planted out in beds or groups in the flower border. We have had each variety distinctly marked with the Botanical and English name, height, time of flowering, colour of the flower, manner of growing, whether erect or trailing, &c., the time it should be sown, and other valuable hints as to its cultivation. In selecting these varieties we have been careful to exclude all which are shy bloomers, or have an insignificant appearance, so that the collections will comprise only those which are really showy and handsome, and which we believe would prove to the entire satisfaction of any lady or gentleman who might be disposed to order them. The German Stocks and Asters especially are most superb. The Collections will be sent free by post to any part of the kingdom at the following prices:—

Twenty extra fine varieties, all distinct and beautiful	5s.	0d.
Fifty " "	10s.	6d.
One hundred " "	20s.	0d.

Flower Seeds sent Free by Post.—Postage Stamps taken in payment.

J. C. WHEELER & SON, Seed Growers, Gloucester.

FLOWER SEEDS.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers:—

	s.	d.
German Asters, 24 splendid varieties	5	0
" " 12 " "	2	6
The above varieties mixed	1	0
French Asters (Truffaut's), 12 varieties	3	6
German Stocks, 36 splendid varieties, brilliant and distinct colours	7	6
" " 24 varieties	5	0
" " 12 "	2	6
The above brilliant colours mixed	1	0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2	0
The above 8 colours mixed	1	0
Wallflowers, 10 splendid varieties	3	6
Packet of the above mixed	1	0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, ESQ., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Bulle Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Homme House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

THE FINEST GLOBE ASTER SEED IN THE WORLD.

EDWARD TILEY begs to inform the lovers of this beautiful and unequalled flower that he has a fine stock of seed saved from 24 of the choicest varieties ever exhibited, producing every flower perfect, the shape being two-thirds of a ball, well filled up to that form in the centre, and all the petals beautifully quilled. E. T. has received numerous testimonials from those who have purchased it years past, speaking in the highest praise of the fine varieties produced from the seed they obtained of him.—Sold in packets at 1s. 6d. each.

Cineraria Seed from best named varieties, 1s. per packet.

Sweet William Seed, saved from all the choicest and most selected sorts as to size of flowers and distinction of colours, there being about 36 varieties, 1s. per packet.

Antirrhinum Seed, from one of the most superb collections in cultivation, 1s. per packet.

Hollyhock Seed, from 24 of the best named flowers, 1s. per pkt.

Digitalis or Foxglove Seed, saved from flowers of the most beautiful kinds, there being about 20 distinct varieties of spotted crimson, striped white, &c., 1s. per packet. Plants of the same, that will bloom well this season, 2s. 6d. per dozen, or 1l. per 100.

Fine dark Clove Carnation, 1s. per pair.

Seedling Hollyhocks, grown from seed selected from 36 of the best named varieties, 2s. 6d. per dozen, or 1l. per 100. They will bloom well this season, and generally produce fine double flowers. Good named varieties of Hollyhocks, 12s. per dozen. Any portion of the seed will be sent postage free, and the plants, hamper and package free.

A Post-office Order, or penny postage stamps, must accompany every order, when any portion, or the whole, as the case may be, will be immediately forwarded.

N.B.—E. T. can still supply seed of his unequalled new Cucumber Perfection, at 3s. 6d. per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

THE SUBSCRIBERS are prepared to supply well-grown healthy plants of the following kinds, at the prices affixed:—

12 NEW GERANIUMS of 1856 for 42s.:—Leopard, Floretta, Bruenda, Iris, Admirable, Countess, Sparkler, Eugène Duval, Elise Miellez, Van Houtte, Eminée, Edouard Miellez.

12 NEW VERBENAS of 1856 for 5s.:—Field-Marshal, Victory, Loveliness, Charles Dickens, Blue Bonnet, King of Sardinia, Impératrice Elizabeth, Dr. McLean, Mrs. Holford, Silistria, Auguste, Macquet;

12 NEW FUCHSIAS of 1856 for 15s.:—Venus de Medici, Favourite, Admiral Boxer, Conqueror, Prince of Wales, Impératrice Eugenie, Donna Jacquina, Figaro, revoluta, General Williams, Charlemagne, Wonderful.

12 TEA ROSES of the best kinds for 18s.
12 AZALEA INDICA do. do. 12s.
12 do. newer do. do. 18s.
12 CAMELLIA JAPONICA, best kinds, 30s.
12 do. larger do. 42s.
12 do. do. do. 60s.
12 SHRUBBY CALCEOLARIAS of new and best kinds, 18s.
12 HERBACEOUS do do. from 12s. to 18s.
12 Best NEW HOLLAND Plants do. do. 12s. to 18s.

A large collection of the most showy Bedding Plants will be ready by the 1st of May, from 20s. per 100, and for which early orders are requested.

WILLIAM MASTERS & SON, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone. A remittance or reference required from unknown correspondents.

ASPARAGUS AND SEAKALE.—Having a very large stock of Asparagus and Seakale, we can supply almost any quantity at the following prices:—

	Per 100.—s.	d.
FINE SEAKALE ROOTS	8	0
STRONG...	12	0
LARGE CROWNS	20	0
JUDD'S GIANT ASPARAGUS, 2 years ...	3	0
Do. Do. 3 years ...	4	0

Much lower by the thousand.

We have at least 500,000 strong Roots of Seakale and Asparagus, so that we can supply all orders with fine strong Roots.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot Surrey. April 4.

CALCEOLARIAS.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his new set of twelve beautiful seedling half shrubby Calceolarias is now ready to send out. Price 2l. 10s. the set, hamper included. The following is Mr. Glenny's opinion:—

"Calceolarias, nine blooms, beautiful in colour; all above average in properties; a very fine set to go together. We doubt if any nine known varieties could compete with them without losing."—*Lloyd's Newspaper*, August 10, 1856.

Also a second set of 15, including his best sorts of last year; price 21s., hamper included. Very choice Calceolaria Seed, 2s. 6d. per packet, or three packets, 5s., post free. Orders accompanied by a Post-office Order promptly attended to.

Plants given to compensate for carriage of such as are not sent through the post. A descriptive list of the new Calceolarias may be had on application. Postage stamps will be taken in payment of the seeds.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable plants:—

Araucaria imbricata, small for planting out in nurseries by the 1000
" " 1 and 2 feet by the 100
" " 3, 4, 5, 6, 7, and 8 feet high. Nothing can exceed the beauty of these plants and all growing in the open ground.
Abies Douglasi, a splendid lot of plants, 3, 4, 6, 8 to 12 feet high
Pinus Cembra, in large quantities, 2, 3, 4, 5, and 8 feet
" insignis, ditto ditto
" Montezumæ, fine plants, 3 and 4 feet high
" Benthamiana, in large quantities from seed
" macrocarpa ditto ditto
" Sabiniana ditto ditto
Picea Pinsapo, 4, 5, 6, and 8 feet high, and as much through. Most beautiful plants.
" Nordmanniana, 2, 3, and 4 feet high and wide, all from seed
" nobilis, in quantities from seed [grafted
" ditto, 1, 2, and 3 feet, with perfect leads, and none of them
" grandis, 1 year's, from seed
Cedrus Deodara, by the thousand, 1, 2, 3, and 4 feet high
" " several hundred fine specimens, 5, 6, 7, 8, & 10 ft. high
" Lebanon, 2, 3, 4, and 6 feet
" " some larger, up to 8 and 10 feet
Cryptomeria japonica, 3 to 10 feet
Cupressus macrocarpa, 2, 3, 4, 6, and 8 feet
" Goveniana, 2, 3, and 4 feet
" Lawsoniana, from seed
" MacNabiana, ditto
Hemlock Spruce, Pinus canadensis, 3 to 8 feet
Juniperus, Irish, hundreds of plants, 4, 5, 6, and 8 feet high, perfect columns
" Chinese, 2, 3, and 4 feet
" " a fine lot, 7, 8, and 10 feet
" Virginiana (Red Cedar), 2, 3, 4, up to 8 feet
Libocedrus chilensis, 2, 3, and 4 feet (very handsome)
Taxus, Yew.—Common English, a vast quantity of all sizes, up to 3, 4, 5, 6, and 7 feet high
" Irish Yew, 3, 4, 5, 6, and 8 feet. Some very fine specimens 10 and 12 feet high
" Golden Yews by the thousand, 1½, 2, and 3 feet high
" " worked, 4, 5, 6, and 8 feet
" " worked on Irish, and very ornamental, 5 to 8 ft.
" elegantissima (or new striped), in large quantities, 1½ to 3 ft.
" Dovaston, or Weeping Yew, fine plants, worked on stems with good heads, 6 to 8 feet high
" adpressa, fine bushes, 2 and 3 feet
" adpressa, worked as standards
Thuja aurea, several hundred specimens, 2, 3, and 4 feet high and as much through, perfect globes
" occidentalis, American Arbor Vitæ, the best plant for hedges. A large quantity just adapted for the purpose, 4, 5, and 6 feet high
" Wareana, the best variety of Siberian Arbor Vitæ, 4, 5, 6, and 8 feet high
Wellingtonia gigantea, a few very fine plants
" " smaller
Chamæcyparis sphæroidea variegata, the variegated White Cedar, a large quantity 2, 3, 4, and 5 feet high
Abies excelsa, var. pumila, all dwarf varieties of the Common Spruce, and very remarkable
" Clanbraziliana, ditto ditto
" elegans, ditto ditto
" Gregori, ditto ditto
" compacta, ditto ditto
" pygmæa, ditto ditto
" pyramidalis, ditto ditto
" diffusa, ditto ditto
Pinus sylvestris pumila, dwarf Scotch

☞ With reference to the large plants alluded to in this Advertisement, we beg to say all of them have been continually removed, and are in a condition to transplant and send any distance with perfect safety.

Variegated Hollies, in large quantities and great variety, 2, 3 and 4 feet high
" " a fine stock of the best Gold-striped Hollies 2 and 3 feet high
Some very fine Striped Hollies 6 and 8 feet high.

As well as the above, we are large holders of the ordinary Nursery Stock, such as Arbutus, Aucubas, Phillyreas, Laurels, Bays, Box, Holly, Lilacs, Purple Beech, Scarlet Thorns, Roses Fruit Trees, &c.

Priced Catalogues will be forwarded, free, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ The Nursery is about 40 minutes' ride from London by train to Woking Station.

LAING'S MAMMOTH CELERY, the largest yet grown, weighing 10 to 12 lbs. per head, perfectly solid and flavour unsurpassed, and will not run to seed the first season and rarely the second. Sealed packets 1s. and 2s. each, post free.

This fine variety was highly spoken of in the *Gardeners' Chronicle* of February 14, page 104.

Youell & Co., Royal Nursery, Great Yarmouth, Norfolk.

GRIMSTONE'S EGYPTIAN PEAS are the produce of the one Pea resuscitated by Wm. Grimstone, the inventor of the Eye Snuff, and his Aromatic Hair Regenerator, at his Herbary, Highgate, after a sleep of 2844 years. They are sold in bags signed and sealed with Vignette on outside, which contains the history and the only mode of cultivating. They require no sticks, bloom bell like, delicious tasted, and are part of the only Pea resuscitated. Presented to him by Dr. Pettigrew, F.R.S., who found them in a vase presented to the British Museum by Sir Gardner Wilkinson, whose letters are in the history. A 2s. 6d. bag is enough for a small family, postage 8d.; 5s. bag, postage 1s. 8d.; 10s. bag, 2s. 6d. postage.—All letters to Wm. Grimstone, Depôt, 52, High Street, Bloomsbury, London.

FLOWER SEEDS.

JOSEPH MAY and CO. beg to offer the following which may be relied on.

12 varieties imported	FRENCH ASTERS	...	3s.
12 " "	GERMAN STOCKS	...	4s.
10 " "	MARVEL PERU ...	...	2s.
12 " "	PRUSSIAN POPPIES	...	2s.
12 "	DWARF ROCKET LARKSPURS...		2s.

Seeds of the above can be had in packets mixed, 6d.

12 packets of the newest and best ANNUALS, 6s. Sent free on receipt of Post-Office Order.

1, Wellington Street, Strand, near Waterloo Bridge.

MANGEL WURZEL SEED.—The undersigned beg to offer very choice stocks of Mangel Wurzel seeds, as follows:—

Long Red, 32s. per cwt.	Globe Yellow, 32s. per cwt.
Globe Red, 40s. "	Long do. 40s. "

Terms, Net Cash.

Clarke & Company, Seed Merchants, 86, High Street, Borough, London.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON & SON'S

PRICED CATALOGUE

Of the above, containing all the varieties of the season, will be forwarded post free on application; and at the same time will be published a Coloured Plate of the New Bedding Annual (price Sixpence),

VERONICA SYRIACA.

Colour beautiful gentian blue, lower petals white, habit dwarf, 6 to 8 inches in height, compact, and covered with bunches of flower, foliage ample and bright green. The entire stock was purchased of Messrs. Ernst and Von Spreckelsen, of Hamburgh. In packets, 2s. 6d.; trade packets, 5s., 10s., and 20s.

The following New Plants will be sent out in May and June. For descriptions see Catalogue.

FUCHSIAS.

Cœur de Lion	10s. 6d.	The Little Treasure	10s. 6d.	The Fair Oriana	10s. 6d.	Fairest of the Fair	10s. 6d.
Souvenir de Chiswick	10 6	Etoile du Nord...	10 6	Star of the Night	10 6	Albert Smith ...	10 6
The Silver Swan	10 6	Little Bo Peep...	10 6	Catherine Hayes	10 6		

Price 10s. 6d. each, or the set for 5l.

TRISTRAM SHANDY, 10s. 6d.—This variety will be presented with the set, or with any half-dozen vars. selected from the collection.

GLOXINIAS.

Donna Colonna	7s. 6d.	Eloisa ...	10s. 6d.	Sir Hugo ...	7s. 6d.	Waterwitch ...	7s. 6d.
Tarragona ...	7 6	Dionysius ...	7 6	Beatrice d'Este	7 6	Corinne ...	7 6

The above six, with Waterwitch and Corinne gratis, 2l. 2s.

VERBENAS.

Lady Palmerston	5s. 0d.	Lady Turner ...	5s. 0d.	Mrs. A. Mildmay	5s. 0d.	Prince of Prussia	5s. 0d.
Marmion ...	5 0	Dazzle ...	5 0	Lady Albinia Foster...	5 0	Angelica Kaufmann...	5 0
Queen of Oude	5 0	Lady Frederick Fitzroy	5 0				

The set 2l. 2s.

NEW GERANIUMS WITH ORNAMENTAL FOLIAGE.

Culford Beauty	10s. 6d.	Fontainebleau ...	15s. 0d.	Hotel de Cluny	15s. 0d.	Lady of Loretto	10s. 6d.

New Hybrid Bedding Geranium CARDINAL DE RICHELIEU, 10s. 6d.

TAXODIUM SEMPERVIRENS.—Messrs. E. G. H. & Son have still Seed to offer of the above at 10s. 6d. per 1000.

BROWN'S FLORAL SHADING is the lightest and best adapted fabric of any in use for protecting Fruit and other Trees, and can be had at 4s. and 4s. 3d. per piece of 20 yards long.

Wellington Nursery, St. John's Wood, N.W.

IMPROVEMENT OF GRASS LANDS

BY SOWING GOOD SEEDS OF THE MOST SUITABLE KINDS.

SUTTON'S RENOVATING GRASS SEEDS

CONSIST of the finest GRASSES and PERENNIAL CLOVERS, producing great improvement in the Pasture, and at a small expense. *Quantity of Seed required, 8 to 12 lbs, per acre.* Price reduced to **9d. per lb., or 80s. per cwt.** Sow in February, March, and April.

The great improvement effected by sowing Messrs. Sutton's Renovating Mixture is most satisfactory, and to those who have not studied the various properties and habits of Grasses, the results are quite surprising. The following extracts from letters are similar to many others received unsolicited:—

From Mr. Thomas Bowick, *Farm Bailiff to Lord Leigh, Stoneleigh Abbey Farm, Feb.* 3, 1857.

"The Renovating Mixture with which you supplied Lord Leigh last season, for 40 acres of old turf, has more than equalled our expectations. I would add that the other Seeds supplied have each proved clean, true to name, and active in vegetative powers."

From Shaftesbury Walmsley, Esq., *Mottistone, Isle of Wight, Oct.* 1, 1856.

"The Grass Seeds were extremely good and answered my purpose uncommonly well; they gave me a famous crop of hay last summer, 2½ tons per acre, where I never saw anything but bents and rubbish grow before. I strongly recommend your Renovating Seeds; they are clean, and I believe safely to be depended upon."

☞ *Having greatly reduced the price of our* RENOVATING MIXTURE, *we doubt not that our liberal terms will encourage the more extensive use of the same. Our Grass Seeds have for many years been allowed to be best, and now we may add that they are the cheapest.* **Grass Seeds, for laying down Permanent Pasture, 24s. to 32s. per acre.** *Parks, Meadows, and Upland Pastures may be increased in value 50 per cent. by sowing these Seeds. Seeds carriage free to all parts, except small parcels. Catalogues post free.*

JOHN SUTTON & SONS Royal Berkshire Seed Establishment, Reading.

WHEELER'S

GRASS SEEDS FOR PERMANENT PASTURE,

DELIVERED CARRIAGE FREE.

WE beg to call particular attention to our GRASS SEEDS for PERMANENT PASTURE, and to our SEEDS for RENOVATING OLD PASTURES. We have made this branch of our business our particular study, and we have much pleasure in saying that the Grass Seeds we have supplied have given very great satisfaction.

We can supply GRASS SEEDS and CLOVER for laying down Land for Permanent Pasture at 30s. per Acre.

"Charlton Kings, Cheltenham, Dec. 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "Wm. Jordan."

"Blythe Court, Newnham, Dec., 1856.

"I think it due to you to say that the Seeds you have supplied me with for the last four years have been exceedingly good; with respect to your mixture for Permanent Pasture, it is my belief that it cannot be surpassed. "Wm. Brown."

From Robert Sharpe, Esq., *Hewelsfield Court, near Chepstow.*

"January 29th, 1857.

"It is with much pleasure that I give the result of my laying down nearly fifty acres for Permanent Pasture with Grass Seeds supplied by you. Of these I laid down twenty acres in 1851, in 1852 thirteen acres, and in 1855 fourteen acres, and I am happy to say that a better selection of Seeds could not have been made.

"That which I laid down in 1851 succeeded so well that I had great difficulty in convincing some friends of mine who saw it the following year that it had not been laid down at least seven or eight years.

"I have carefully watched it every season, and it has never shown any symptons of decay, but is now, together with that which I laid down in 1852, the admiration of the neighbourhood; and I have pleasure in saying that the fourteen acres which I had laid down in 1855 is equally promising.

"P.S. It would be well to add that in each case I described to you the nature of the soil; this I consider essential."

From Caleb Morgan, Esq., *Churcham, Gloucestershire.*

"I have much pleasure in informing you that the Grass Seeds I had from you last year succeeded particularly well; the produce from it *this* year has been estimated at two tons per acre."

From the Rev. G. Butterworth, *Deerhurst Rectory, Tewkesbury.*

"18th February, 1857.

"I have pleasure in speaking of the excellence of your Grass Seeds; I certainly had a very good crop of Grass last year, from the extent of ground laid down two years before by my predecessor. I shall be glad of some more Grass Seeds shortly, to sow with it a field adjoining."

J. C. WHEELER & SON, Seed Growers, Gloucester.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. 2s. per lb. To be had of all respectable Seedsmen in the United Kingdom.—J. G. Waite, Seed Merchant, 181, High Holborn, London, W.C.

AZALEA INDICA.

J. IVERY and SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & Son beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21s. each.—Nurseries, Dorking, Surrey.

TO THE LOVERS OF PANSIES.

JOSEPH NORRIS offers strong Unbloomed Seedlings, saved only from the newest and best named varieties, at 3s. per dozen, 20s. per hundred; named varieties, 6s. per dozen. Extra fine Pansy Seeds, 3s. per packet. Post-office Orders to be made payable at Hounslow. Osterley Park Gardens, Hounslow.

SUTTON'S MANGEL SEEDS SAVED FROM LARGE ROOTS.—The Mangel Wurzel Roots grown from Messrs. Sutton's Seed gained the FIRST PRIZES at the Birmingham and many other Root Shows last season. They were also much admired on Messrs. Sutton's Stand at the Smithfield Club Show in Baker Street Bazaar, as see reports in *Mark Lane Express, Bell's Messenger, Agricultural Gazette,* and other papers of December last. At present Messrs. Sutton can supply any quantity of seed. Price of their select Yellow Globe, 9d. per lb.; the prices of other kinds, and of large quantities, had on application, Royal Berkshire Seed Establishment, Reading.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS FOR IMPROVING OLD PASTURES.—Many old Upland Pastures, Parks, and Meadows are nearly destitute of Clovers, and the finer and more nutritious sorts of Grasses; in which case these Seeds should be sown early in the season, when the improvement in the Pasture will be very great, and at a small expense.

The following are similar to many other letters received from former purchasers, showing the benefit derived from sowing these Seeds.

From the Rev. John Guthrie, *Vicarage, Calne.*

"I have no hesitation in expressing my great satisfaction at the manifest improvement both to lawn and pasture from the seeds which I received from you, though I was somewhat late in the sowing."

From Mr. W. Meekins, *Gardener to the Dowager Lady Truro, Bowes Manor, Southgate.*

"I am much pleased with the Renovating Seeds I got last season from you, as in every meadow where I sowed it I found great improvement both in quantity and quality, also the lawn was very much improved by the mixture you sent me, and my employer was much gratified with the results."

These Seeds should be sown in April. Quantity of Seed required, 8 to 12 lbs. per acre. Price 9d. per lb., or 80s. per cwt., carriage free.—Address, John Sutton & Sons, Reading.

SUTTON'S FINE LAWN GRASS SEEDS, FOR MAKING NEW, OR IMPROVING OLD GARDEN LAWNS. Price 1s. per lb., 2s. 6d. per gallon, or 20s. per bushel. *The following is an extract of a letter received from* Prof. Lindley.

"Messrs. Sutton:—We have already made trial of your Lawn Grass Seeds, and it is but justice to say they have proved the best we have sown for many years. (Signed) John Lindley."

"Horticultural Society, 21, Regent Street, London, Nov. 9, 1853.

Quantity of Seed Required.—These Grasses being of small neat growth, not spreading so much as other kinds, it is necessary they should be sown thickly. For forming new lawns 3 bushels or 60 lbs. is the quantity required per acre; or 1 gallon to 6 rods (or perches) of land.

For Cemeteries, Bowling-Greens, Park Lawns, &c., where the *very finest* kinds are *not* required, another mixture is prepared, of which 2½ bushels per acre will be found sufficient, and the price will be 16s. per bushel.

Extracts from Letters recently received:—

From Mrs. Edwards, *Rhyd y Gois, Caermarthen, March* 26, 1856.

"The Lawn Grass Seed you sent last year turned out beautifully."

From Wm. Symonds, Esq., 6, *Belfield Terrace, Weymouth, Aug.* 26, 1856.

"The Lawn Grass Seed I received from you answered admirably."

From Sir Glynne Welby, *Denton Hall, Grantham, Oct.* 1, 1856.

"The Lawn seed with which you supplied me last year answered perfectly."

From the Rev. F. Kitson, *Hemyock Rectory, Wellington, June* 17, 1856.

"The fine Grass Seed for lawns which Messrs. Sutton sent in the spring has given great satisfaction."

From Capt. Gape, *Portardulais, Llanelly, July* 5, 1856.

"Capt G. will be obliged by Messrs. Sutton sending him more of the same Lawn Grass Seed as they sent him before, which was very good indeed."

Sutton & Sons *also supply Grass Seeds for Permanent Pasture, mixed expressly to suit the Soil, which are never known to fail.* Price 24s. to 32s. per acre.

Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for a sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1s. per lb.

GLOBE RED, very fine and equally prolific. 1s. 3d.

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1s.

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1s. 3d.

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter; to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre, 4s. per lb.—A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety, 36s. per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36s. per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr. W. Miles, Mark Lane, London.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

SULPHURIC ACID on Sale, purchasers finding their own bottles.—Apply to JOHN & THOMAS JOHNSON, Walmer Buildings, 6, Water Street, Liverpool.

RATS, MICE, AND DESTRUCTIVE ANIMALS how to paralyse, and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½d. Materials can be bought in every town and village. The above astounding remedy sent post free for eight post stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1s. 6d. per lb. by JOSEPH BAKER, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

TOBACCO PAPER OF SUPERIOR QUALITY, FOR FUMIGATING.—The article now offered differs materially from what is usually sold under this name, it being saturated with the juices exuding from the NEGRO-HEAD Tobacco in the process of manufacture, and can testify that it produces a saving of 60 per cent. in the use of the article. Price 1s. 6d. per lb., and will be forwarded in any quantity on receipt of Post-office Order.

YOUELL & Co., Sole Agents for the sale of the above, Royal Nursery, Great Yarmouth.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials, for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

LINGHAM, BROTHERS, Birmingham, MANUFACTURERS of the Improved MONOGRAPH or PERMANENT WOOD LABELS for GARDEN BORDERS, FLOWER POTS, &c., in boxes of 100 each. The above Labels have been manufactured by LINGHAM BROTHERS for the last 10 years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the public. For neatness, durability, and cheapness they have superseded all other kinds of Labels for Horticultural purposes.

Sole Agents in London, DEANE, DRAY, & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in Mahogany Case, with Three Powers, Condenser, Pincers, and Two Slides, will show the Animalculæ in Water. Price 18s. 6d.—Address, JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855), sent by post on receipt of six postage stamps.

A General Catalogue for March 1857 may be had on application.

OXLEY AND CO.'S ASBESTOS FILTER, enlarged, price 35s. each; small size, 17s. 6d. Twenty gallons of pure water per diem. All mineral and noxious matters entirely separated by this process.—TAYLOR & PEARS, 8, George Yard, Lombard Street, London.

TODD'S PATENT IMPROVED PROTOXIDE PAINT AND OXIDE OF ZINC PAINT.—The Paint, being INDESTUCTIBLE by HEAT, is recommended for hot climates, Painting Boilers, Steam Pipes, Hothouses, &c. It preserves iron from oxidation, wood from decay, and masonry from dampness. In stuccoed buildings it prevents the discolouration formed by vegetation. Being free from deleterious qualities, houses may be painted with it while occupied. It is cheaper, lasts longer, and covers a larger surface than white lead. It is of the lightest stone colour, but may be tinted with any other required.

TODD'S PATENT PAINT COMPANY (Limited), 58, King William Street, London Bridge (E.C.), where Testimonials from Railways Engineers, Shipowners, and others may be seen.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains designs and prices of 150 different articles of BEDROOM FURNITURE, as well as of 100 Bedsteads, and prices of every description of Bedding. Sent free by post.—HEAL & SON, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.	Per 10 feet.
	Under	6 by 4	at	1½d.	is £0 12 6
From 6 by 4	"	7 " 5	"	2d.	" 0 16 8
7 " 5	"	8 " 6	"	2¼d.	" 0 18 9
8 " 6	"	10 " 8	"	2½d.	" 1 0 10
10 " 8	"	12 " 9	"	2¾d.	" 1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3d. to 3½d. per square foot, according to size.
21 oz. " 3½d. to 5d. " " "
26 oz. " 3½d. to 7½d. " " "

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best Manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz., 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10s. per 100 feet	8 by 6 9 by 7 9½ by 7½ 10 by 8	12s.
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14s.	12 by 10 13 by 10 14 by 10 15 by 10	14s.

Above 15 by 10, and not exceeding 18 by 12, 15s. 6d. per 100 feet. Some of the above in 21 oz. Glass at 1s. and 2s. per 100 ft. extra.

19 by 12 20 by 12	16s.	20 by 13 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32s. and 40s. per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee "	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ...	12s.	8 by 6, and 8½ by 6½ ...	13s. 6d.
7 by 5, and 7½ by 5½ ...	13s.	9 by 7, and 10 by 8 ...	13s. 6d.

11 by 9,	12 by 9,	13 by 9,	14 by 9 ...	...	15 0
12 " 10,	13 by 10,	14 " 10,	15 " 10 ...	...	16 0
	16 " 10,	17 " 10,	18 " 10 ...	...	
12 " 11,	13 " 11,	14 " 11,	15 " 11,	16 " 11 ...	16 6
13 " 12,	14 " 12,	15 " 12,	16 " 12 ...	...	17 0
17 " 12,	18 " 12,	19 " 12,	20 " 12 ...	...	18 0
16 " 13,	17 " 13,	18 " 13,	20 " 13 ...	...	
	22 " 13,	24 " 13	... ...	...	
20 " 14,	22 " 14,	24 " 14	... ...	...	
10 " 15,	22 " 15,	24 " 15	... ...	...	

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2s. each, but returnable at full prices. Sizes differing from above cut to order in squares. 16 oz. from 2d. to 3d., 21 oz. from 2½d. to 5d. per foot.

HORTICULTURAL GLASS, Sixteen-ounce, packed in Crates of 300 feet, 2¼d. per foot. Twenty-one Ounce, 3¼d.

Foreign Sheet Glass, in cases of 200 feet, 40s. and 42s. per case.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

Extract from "Cottage Gardener," No. 432:—

"SHEET GLASS.—The good properties of really good sheet glass are various; the foreign kind especially is so indifferent, that I may here caution the inexperienced who may be on the point of building a hothouse to stipulate for good British sheet to be used, as much injury has been caused by substituting a low-priced Belgian article for it, and I believe most of the evils complained of in sheet glass arise from the bad quality of the kind used."

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5d.; No. 2, 6d.; and No. 3, 8d. per yard. Garden Shade Netting, 2½d. per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1d. per square yard; 200 yds, 14s.; 500 yds, 30s.; 1000 yds, 50s. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

THE VERY BEST MATERIAL

FOR THE PROTECTION OF BLOOMS OF PEACHES, NECTARINES, AND OTHER WALL TREES IS

SHAW'S TIFFANY.—A light, cheap, and durable fabric. Sold in pieces, 20 yards long by 38 inches wide, at 3d. per yard, or 5s. per piece.—Sold by WM. WOOD & SON, appointed agents. Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3d. per yard or 5s. per piece. A liberal allowance to the Trade when 10 or more pieces are taken

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Minier, Nash, & Co., Strand, London.
" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

H. J. MORTON AND Co., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANISED SPOUTING, at from 10½d. per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.—Galvanised 24 inch wide. 2 inch mesh, 6d., 8d. and 11 per yard.

Galvanised, 24 inch wide, 3-inch mesh, 4d., 5½d., and 7½d. per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS (These are made to close up and are very neat, 6s. 6d. to 13s. 6d each.)

GALVANISED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½d. per yard.

For illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, Esq., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London and sold by their Wholesale Dealers in town and country.

HORTICULTURAL SOCIETY OF LONDON,

21, REGENT STREET, AND CHISWICK GARDENS.

REGULATIONS TO BE OBSERVED AT THE EXHIBITIONS—1857.

SPECIAL GENERAL MEETINGS.

WEDNESDAY and THURSDAY, June 3 and 4; at the Garden. Open Free to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 a.m. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s.* Admission Tickets. Open to the public, with 5*s.* Tickets, at 2 p.m., June 3, or with 2*s.* 6*d.* Tickets, 2 p.m June 4.

On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends.

SATURDAY, October 24, at Willis's Rooms. Open to Fellows or their Ivory Tickets, accompanied by any two friends bearing 2*s.* 6*d.* Tickets, at noon; to other Visitors, with 2*s.* 6*d.* Tickets, after 1 p.m.

TICKETS are to be procured at the Society's Rooms, 21, Regent Street, upon the following terms:—

Five Shilling Tickets will be charged 3*s.* 6*d.* each to Fellows, if paid for on or before May 23. After that day the full price must be paid by all. These Tickets admit the bearer early, as above stated, or after 2 p.m. on June 3; or they will each introduce two persons after 2 p.m. on June 4, at the Gardens, or at Willis's Rooms, October 24, after 1 p.m.

Half-Crown Tickets will be charged 2*s.* each to Fellows, if paid for on or before May 23, for the June Meeting, on or before October 17, for the October Meeting. These Tickets admit the bearer to the Garden after 1 p.m., June 4, or at Willis's Rooms after 2 p.m., October 24.

N.B. On the days of Exhibition, Five Shilling Tickets will be charged 7*s.* 6*d.*, and Half-Crown Tickets, 3*s.* 6*d.* each.

SCHEDULE

OF OBJECTS THE EXHIBITION OF WHICH IS INVITED at the SOCIETY'S MEETINGS DURING THE YEAR 1857, in the SOCIETY'S ROOMS.

Judges, appointed for the purpose, will award Money Prizes and Certificates of three classes, for new or valuable articles according to their respective merit. Everything must be staged by 11 o'Clock, a.m.

Tuesday, April 7, 3 p.m. Orchids, Azaleas, Roses, Fruit, Vegetables, and other objects of Horticultural interest.
Tuesday, May 5, at 3 p.m. Orchids, Azaleas, Sikkim and Bootan Rhododendrons, Pelargoniums, Strawberries, other Fruit, Vegetables, and objects of Horticultural interest.
Tuesday, July 7, at 3 p.m. Ferns, good foliaged Plants, and Fruit.

EXHIBITION AT CHISWICK GARDEN.—Wednesday, June 3; Thursday, June 4.

Section I.—ORNAMENTAL PLANTS.

Classes.	Prizes offered.		
I. *a.* Fifteen Mixed Stove and Greenhouse plants in flower	£20	£15	£10
b. Ten do. do. ...	10	7	5
c. Six do. do. ...	5	3	2
II. *a.* Fifteen Orchids; ... (*Amateurs*)	20	15	10
b. Ten do. ... ... (*do.*)	10	7	5
c. Six do. ... ... (*do.*)	5	3	2
d. Fifteen do. ... ...(*Nurserymen*)	15	10	
III. *a.* Ten Chinese Azaleas...	10	7	5
b. Six do. ... (*Amateurs*)	7	5	3
IV. *a.* Eight Roses in pots; in 13-inch pots ... ... (*Amateurs*)	5	3	2
b. Twelve do. do. (*Nurserymen*)	7	5	3
c. Twenty-five do. cut specimens .. (*Amateurs*)	2	1	15*s.*
d. Fifty do. do. (*Nurserymen*)	2	1	15*s.*
Under *c.* and *d.* three trusses of each are to be exhibited as they are gathered. Any non-compliance with this rule will disqualify.			
V. Six Cape Heaths	4	3	2
VI. *a.* Eight Pelargoniums; in 8-inch pots (*Amateurs*)	7	5	3
b. Twelve do. do. ... (*Nurserymen*)	7	5	3
c. Six Fancy Pelargoniums; (*Amateurs*)	5	4	2
d. Eight do. do. (*Nurserymen*)	5	4	2
VII. *a.* Rhododendrons; in sixes	5	4	3
b. Do. Sikkim and Bootan kinds, whether in or out of flower—number unlimited—but one specimen only of a kind	5	4	3
VIII. Twenty Variegated plants	7	5	3
IX. Twelve Plants with fine foliage not in flower	5	4	3
X. Six Tall Cacti	3	2	1
XI. *a.* Ferns; Twelve Stove and Greenhouse	4	3	2
b. Do. Twelve Hardy	3	2	1
XII. Ten Lycopods; of not fewer than five kinds	2	1	15*s.*
XIII. Newly introduced or extremely rare species of ornamental plants in flower, not introduced by the Society			
XIV. The same: not in flower ... ... These must be handsome well-grown specimens showing the habit of the plants, or will not be entitled to a prize.			
N.B. The Medals in XIII. and XIV. will be awarded by the Society's officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare species can be exhibited under this number. *Nothing will be regarded as new which has been exhibited in a previous season.*			
XV. Single Specimens. (*No person can take more than one prize in this class.*)	2	30*s.*	£1 & 15*s.*

Classes.	Prizes offered.
XVI. New Garden Hybrids ... ... From this class all Florists' flowers are excluded.	Certificates only.
XVII. Miscellaneous ... ... Any Plants, of whatever kind, except Florists' flowers, may be shown under this class.	
XVIII. Florists' Flowers ... ... A tent will be set apart for these, and Judges appointed for the purpose, will grant Certificates of Merit of three degrees.	

Section II.—FRUIT.

XIX. *a.* Pine Apples, Providence and other large sorts	£2	£1	15*s.*
b. Do. Jamaicas, Queens, &c...	2	1	15*s.*
XX. Grapes; single dishes, each containing three bunches:			
a. Black Hamburgh	3	2	1
b. Other black kinds	3	2	1
c. Muscats	3	2	1
d. Other white kinds	3	2	1
XXI. Vines in pots; in threes	3	2	1
XXII. *a.* Eight Fruit Trees in pots (*Nurserymen*)	3	2	1
b. Six do. do. (*Amateurs*)	3	2	1
XXIII. *a.* Peaches; in single dishes	2	1	15*s.*
b. Nectarines; do.	2	1	15*s.*
XXIV. *a.* Melons, green or white-fleshed ...	1	15*s.*	10*s.*
b. Do. scarlet-fleshed	1	15*s.*	10*s.*
XXV. Figs; in sixes	15*s.*		
XXVI. *a.* White Cherries; in single dishes ...	£1	15*s.*	10*s.*
b. Black do.	£1	15*s.*	10*s.*
XXVII. Strawberries; in single dishes	£2., 30*s.*, 20*s.*, 15*s.*, 10*s.*		
XXVIII. Seedling fruits never shown before the present year	Certificates only.		

Exhibitors of Fruits will observe that Fruiterers are excluded from competition at this meeting.

Section III.—VEGETABLES.

I.	Collection (*Market Gardeners*) ...	£2	30*s.*	£1
II.	Collection (*Private Growers*) ...	£2	30*s.*	£1
III.	Cabbages; in threes	10*s.*	7*s.*	5*s.*
IV.	Cauliflowers; in threes	15*s.*	10*s.*	7*s.*
V. *a.*	White Cos Lettuces; in sizes ...	10*s.*	7*s.*	5*s.*
b.	Cabbage Lettuces; in sixes... ...	10*s.*	7*s.*	5*s.*
VI.	Kidney Beans; hundred	10*s.*	7*s.*	5*s.*
VII.	Early Peas; in pods	15*s.*	10*s.*	7*s.*
VIII.	Asparagus; fifty heads not exceeding eight inches in length... ...	10*s.*	7*s.*	5*s.*
IX.	Rhubarb	10*s.*	7*s.*	5*s.*
X.	Potatoes; forced, not less than 3 lbs.:			
a.	Kidneys	10*s.*	7*s.*	5*s.*
b.	Rounds	10*s.*	7*s.*	5*s.*
XI.	Carrots	10*s.*	7*s.*	5*s.*
XII.	Turnips	10*s.*	7*s.*	5*s.*
XIII.	Braces of Cucumbers	15*s.*	10*s.*	7*s.*
XIV.	Mushrooms	10*s.*	7*s.*	5*s.*
XV.	Salad; the best and most varied ...	£1	15*s.*	10*s.*

Section IV.—HORTICULTURAL MANUFACTURES.

Under this head the manufacturers of Horticultural goods of all kinds are invited to exhibit; it being the wish of the Society to offer to those engaged in providing for the wants of gardeners the same great advantages as the Royal Agricultural Society has so long offered to the farming interest.

Shelter, if required for the protecting of such articles, will be provided at the expense of the Society, and measures will be taken to cause such a report to be prepared as will do justice to all.

The expense of fittings or fixing to be borne by the Exhibitor.

It is not intended to award Prizes or Certificates of any kind in this part of the Exhibition; the Council of the Society feeling that the exhibition of such productions before a large assemblage of the most influential and intelligent members of the Horticultural community, will be productive of all the advantages that could be expected.

As some guide to Exhibitors, the following arrangement of subjects has been determined on:—

Class A.—Heating Apparatus: Boilers, Hot-water pipes, Furnaces, Flue Tiles fixed, &c.
Class B.—Machines: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps, and their Fittings, Hose, &c.
Class C.—Garden Tools: Spades, Forks, Hoes, Rakes, &c.
Class D.—Cutlery: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.
Class E.—Pottery: Garden Pots, Bricks for Horticultural purposes, Pipes, Flue Tiles unfixed, Paving Tiles, Border Edgings, &c.
Class F.—Labels: whether in Wood, Metal, or Glass; Plain, Enamelled, or otherwise lettered, &c.
Class G.—Objects of Decoration: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra Cotta, Fountain Designs, Ornamental Flower Pots, Encaustic Tiles, Flower Baskets, Brackets and Chandeliers for Conservatories, &c.
Class H.—Materials for Construction: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate Work, &c.
Class I.—Protecting Materials: Nets, Wire Work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.
Class K.—Bee Hives, with or without Honey, including all Apiarian Apparatus.
Class L.—Philosophical Instruments: such as Thermometers, Hygrometers, Actinometers, &c.
Class M.—Miscellaneous: for any articles used in Gardens which are not included in the other Classes.

In this division of the Exhibition, the Council will be glad to receive Foreign as well as Domestic manufactures.

All applications for space must be made on or before May 16, in the absence of which, articles will be liable to exclusion, and cannot be included in the Catalogue.

All articles exhibited in this Section must be delivered at the Garden not later than Saturday, May 30; and if they require they fixing, must be fixed by that time, unless where special permission to the contrary shall have been granted by the Council.

Every article to be labelled by the owners, subject to general rules to be settled hereafter.

FRUIT EXHIBITION AT WILLIS'S ROOMS.—Saturday, October 24.

Classes.	Prizes offered.		
I. Collections of fruit (*Fruiterers only*)	£4	£3	£2
II. Grapes:			
a. Three bunches of Muscats	2	1	15*s.*
b. Do. of other White kinds..	2	1	15*s.*
c. Do. of Black Hamburgh ..	2	1	15*s.*
d. Do. of other Black kinds .	2	1	15*s.*
e. Collections ... (*Foreigners only*)	4	3	2
f. Boxes of 15 lbs. weight (*Market Gardeners only*)	3	2	1
III. Pine Apples:			
a. Threes	3	2	1
b. Single specimens	2	1	15*s.*
IV. Pears, *of Home Growth:*			
a. Twelve sorts, six of each	3	2	1
b. Six sorts; six of each	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered.		
IV.—*Continued*—*d.* Single dishes of kitchen kinds, of one sort, containing six fruit ..	15*s.*	10*s.*	10*s.*
V. Pears; *of Foreign growth:*			
a. Twelve sorts; six of each	£3	£2	£1
b. Six do. do.	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
d. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VI. Apples; *of Home growth:*			
a. Twelve sorts: six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VII. Apples; *of Foreign growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*

Classes.	Prizes offered.		
VIII. Oranges, Lemons, and Citrons:			
a. Collections of Foreign growth	3	2	1
b. Do. Home do.	2	1	15*s.*
IX. Peaches: single dish, containing six specimens	15*s.*	10*s.*	10*s.*
X. Nectarines do. do.	15*s.*	10*s.*	10*s.*
XI. Melons: single fruit	15*s.*	10*s.*	10*s.*
XII. Figs and Prunes; of either English or Foreign growth:			
a. A collection of three sorts, twelve fruit of each	1	15*s.*	10*s.*
b. Single dishes of one sort, containing twelve fruit	15*s.*	10*s.*	10*s.*
XIII. Figs	1	15*s.*	10*s.*
XIV. Alpine Strawberries	1	15*s.*	10*s.*
XV. Currants	15*s.*	10*s.*	10*s.*
XVI. Raspberries	15*s.*	10*s.*	10*s.*
XVII. Eugenia Ugni (See Note below)			

Note.—For Single Dishes of this valuable new Fruit Two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the 1st of £2, the 2nd of £1.

Fruit is expected to be as nearly ripe as circumstances will admit. Winter fruit will of course be unripe. Exhibitors are invited to decorate their stands with suitable Plants or other ornaments.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

AUTUMN BEDDED CABBAGE PLANTS.

JOHN CATTELL can now supply good Plants of his superior early sorts, BARNES, RELIANCE, &c.; and also of the DRUMHEAD or CATTLE CABBAGE, at 6*s.* per 1000, package included. Orders for 5000 and upwards will be delivered carriage free to London and to the Edenbridge Station of the South-Eastern Railway. A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

J. HENCHMAN, JUNR., Edmonton, near London, is now sending out choice-named INDIAN AZALEAS, bushy heads full of flower buds showing colour, at 36*s.* per dozen; a few extra plants at 3*l.* per dozen. Smaller plants and more backward, at 30*s.* per dozen. Mixed unnamed varieties, showing colour, from 15*s.* to 30*s.* per dozen.

CYTISUS or GENISTA FRAGRANS, bushy plants full of flower showing colour, in 48-pots, 9*s.*; in 40-pots, very fine, 12*s.* per dozen. Choice-named GHENT AZALEAS, full of flower buds, 18*s.* per dozen.

CHARLES NOBLE, of the late firm of STANDISH & NOBLE, has still to offer fine selections of STANDARD ROSES, including Jules Margottin, Gloire de Dijon, &c. Rhododendrons in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignis, Benthamiana, Sabiniana, &c.; Wellingtonia gigantia, as well as most of the leading kinds of Conifers, Hardy Evergreens, &c., for which the late firm has been so long celebrated.—Bagshot, April 4.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1*s.* 6*d.*, 2*s.* 6*d.*, and 5*s.* each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosary, Bungay, Suffolk, April 4.

SEED POTATOES.—The Undersigned have now in Stock the following varieties, true and healthy, which they undertake to deliver free at any London Railway Station:—

Ash-leaf Kidney	per bushel 8*s.*	Early Shaws	per bushel 6*s.*
New Boston do.	... ... 6*s.*	York Regent	... ... 6*s.*
Forty-fold	... ... 6*s.*	Bags included.	

A remittance accompanying Orders is respectfully requested from unknown correspondents.

HOOPER & Co., Seedsmen, Covent Garden Market, London, W.C.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants each, with a ball of earth, will prove a good crop this season; price 40*s.* per 100, and 6*s.* per dozen. Price to the trade per thousand can be had on application. All other Strawberries prove worth cultivation. Strong plants, with a ball of earth, and will fruit this summer, at 10*s.* per 100. Plants sent over of all kinds to compensate for distant carriage.—Apply to RICHARD S. YATES, St. Ann's Square, Manchester.

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting when immediate effect is wanted. Prices moderate.

CLOUGH NURSERY, MOTTRAM, CHESHIRE.

BENJAMIN WHITHAM begs leave to inform his patrons and the public that he has a few more hundreds of his Unrivalled Seedling CALCEOLARIAS, in strong healthy plants, to be disposed of. Terms on application as above.

Also his DESCRIPTIVE CATALOGUE for 1857, containing Dahlias, Fancy Dahlias, Geraniums, French and Scarlet Geraniums, Fuchsias, Verbenas, Petunias, Pansies, Calceolaries, Miscellaneous Bedding Plants, &c., may be had on prepaid application in exchange for one postage stamp.

FLOWER SEEDS OF FIRST-RATE QUALITY.

BASS AND BROWN'S best assorted COLLECTIONS OF FLOWER SEEDS are very select, and as reasonable in charge as any which can be procured, containing a large number of the most attractive novelties of the season.

The IMPORTED STOCKS, ASTERS, &c., which they continue annually to receive direct from the same continental growers, are distinguished for their excellent quality, and have elicited the warmest commendation from those who have been supplied. Catalogues on application.

BASS & BROWN, Sudbury, Suffolk.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesnera zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30*s.* the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, April 4.

AZALEA PETUNIÆFLORA (VERVAENE).

LOUIS VAN HOUTTE begs to advertise that, before he bought the stock of this plant Mr. W. EPPS had expressed to the grower of it his desire to buy the whole stock, asking some samples and the price for the stock. In answer to this inquiry the grower was candid enough to send him THREE plants of middle size for inspection, telling him his price "per plant." Mr. W. EPPS finding that these three plants were a sufficient number for his wants kept them, paid for them at the fixed rate, and wrote to the grower that *his price for the lot was too high.* It is under these circumstances that Mr. EPPS is advertising grafts and plants OF ALL SIZES, with his stock of three and three others that he bought lately.

LOUIS VAN HOUTTE, Ghent, April 4.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming lawns, ... 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

GRASS SEEDS FOR PERMANENT PASTURE.

THOMAS KENNEDY AND CO., Dumfries, N.B., beg to call special attention to their MIXTURES for laying down land to Permanent Pasture, which have hitherto given such universal satisfaction.

Mixtures for Permanent Pasture, 25*s.* to 30*s.* per acre.
Mixtures for Permanent Lawn Pasture, 26*s.* to 31*s.* do.
Mixtures for Lawns, Terraces, Bowling Greens, &c., 31*s.* to 36*s.* do.

Their PRICED LIST of AGRICULTURAL SEEDS is now ready, and may be had Postage Free on application.

FREE DELIVERY.—Seeds to the value of 2*l.* delivered Free of Carriage to the principal Railway Stations and Steam Ports in the kingdom.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS, NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

MESSRS. SUTTON'S *Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail.* Cost of Seeds, 24*s.* to 32*s.* per acre, according to the requirements of the land to be laid down.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

GRASS SEEDS FOR PERMANENT PASTURE.
ITALIAN AND PERENNIAL RYE-GRASS.
CLOVERS AND COW GRASS.
TURNIPS, SWEDE, AND MANGEL WURZEL,
AND ALL SEEDS FOR THE FARM.

Carriage free, and of excellent quality.

J. C. WHEELER & SON, Seed Growers, Gloucester.
Established more than 130 years.

GRASS SEEDS FOR PERMANENT PASTURE.

J. C. WHEELER AND SON, SEED GROWERS, Gloucester, beg to say that for many years they have paid particular attention to the proper selection of Grass Seeds for Permanent Pasture, and they can offer a very excellent assortment at 30*s.* per acre, all properly mixed, and delivered Carriage Free.

"Charlton Kings, Cheltenham, December 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "WILLIAM JORDAN."

"Blythe Court, Newnham, December 8, 1856.

"I think it due to you to say that all the seeds you have supplied me with for the last four years have been exceedingly good. With respect to your mixture for permanent pasture, it is my belief that it cannot be surpassed. "WM. BROWN."

J. C. WHEELER & SON, Seed Growers, Gloucester. Established more than 130 years.

JOHN WEEKS AND CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

FUCHSIAS.—ROYAL VICTORIA (POND'S), one of the finest light varieties ever offered, 10*s.* 6*d.*

CEDO NULLI (POND'S), one of the finest dark varieties ever offered, 10*s.* 6*d.*

JOHN KEYNES, Florist, Castle Street, Salisbury.
Plants ready by the 1st of May, 1857.

H. LOW AND CO. offer the CONIFERÆ undernamed:—

PINUS BENTHAMIANA, undoubtedly the handsomest of all the long-leaved species. The few large specimens now growing in English arboretums afford incontestable proof of its being hardy as the Scotch Fir. Good Plants from Seed, 1 foot, per dozen, 54*s.*; each, 5*s.*

THUJA GIGANTEA, a magnificent tree from California, where it attains the height of 140 feet, with a trunk 7 feet in diameter; the habit of the plant is graceful and foliage elegantly imbricated. It is quite hardy, and we confidently recommend it. Strong Plants from Seed, 18 to 24 inches high, each, 31*s.* 6*d.*

PINUS CONTORTA, or CALIFORNIAN MOUNTAIN PINE, a very rare species, belonging to the two-leaved section. Plants from Seed, 9 inches high, per dozen, 42*s.*

Upper Clapton Nursery, London, N. E.—April 4.

GEORGE SMITH begs to offer to the cultivators of the GERANIUM fine bushy and healthy plants, from one of the finest stocks in the vicinity of London, of both show and fancy varieties, at from 12*s.* to 18*s.* and 30*s.* per dozen.

VERBENAS, the finest varieties, from 4*s.* to 8*s.* per dozen.

PETUNIAS, at from 4*s.* to 8*s.* per dozen.

G. S. offers, with equal pleasure and confidence, the most splendid New VERBENAS and FUCHSIAS that can be distributed in 1857. Most of them have been exhibited at the National Floricultural Society, 21, Regent Street. The judgment in their favour passed by so high a tribunal, and their own intrinsic merits, cannot fail to commend them to the estimation of all who love and appreciate flowers of the very highest order of beauty.

A Descriptive and Priced List of the above, &c., will be forwarded in exchange for one postage stamp.

Tollington Nursery, Hornsey Road, Islington, near London, N.

LUCOMBE, PINCE, AND CO. very respectfully beg leave to announce that the superb specimens of
CAMELLIAS
in their celebrated Camellia House are now in flower; they are particularly fine this season, and great additions have been made to their collection. Their new Show House is also filled with an extensive assortment of various choice Plants, which cannot fail to gratify those who pay their nursery a visit, as it is now, and will continue for a long time to be exceedingly brilliant and attractive with all the gayest spring and other flowers.

N.B. Flowers for balls, weddings, &c., carefully packed and sent to all parts of the kingdom. Recherché Bouquets made to order and duly forwarded.—Exeter Nursery, Exeter, April 4.

PERMANENT PASTURE GRASSES.—Gentlemen intending to lay down Land to Permanent Pasture are recommended to communicate with us, stating the nature of the soil and situation, that we may advise as to sorts of Grass most suitable. Price 24*s.* to 32*s.* per acre.

Further particulars will be sent post free on application, addressed JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, APRIL 4, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	April	6—Entomological	8 P.M.
TUESDAY,	—	7 { Horticultural	3 P.M.
		7 { Linnean	8 P.M.

WHEN the subject of PRUNING FOREST TREES was some weeks ago introduced into our columns (see p. 36), we promised to return to the inquiry at a future opportunity. The momentary absence of more pressing questions now allows us to redeem our pledge.

It will be in the recollection of our readers that the Commissioners of Woods and Forests caused certain questions to be put to a number of practical men, as to whether Oak trees should ever be pruned; and to this an answer in the negative was received. Two other questions were also put, the answers to which have now to engage our attention. The first was this:—"*Is it expedient that dead boughs should be pruned from growing Oak trees, or is the sound growth of a tree best promoted by allowing Nature to prune off such boughs as in due course become unnecessary for the support of the tree?*"

As on the former occasion we give the answers under numbers rather than names.

1. It is very injurious to trim the dead boughs; let Nature carry out its own work. 2. I consider it best to leave Nature to do its work in the removal of the dead boughs, and that (instead of the growth of sound timber being promoted) the tree is often injured by pruning them. 3. No. Consider the soundness of an Oak tree best promoted by allowing Nature to prune off the branches. 4. I think it best to leave it to Nature. 5. I consider that the sound growth of a tree is best promoted by allowing Nature to prune off such boughs as become unnecessary. 6. I much prefer Nature to prune off such boughs as in due course become unnecessary for the support of the tree. 7. *I think it quite necessary to cut off dead boughs within 6 inches from the trunk very smooth; if allowed to remain on, the wind or storms will break*

them off in a ragged state, and allow the wet to get into the body of the tree, and in time kill the tree. 8. It is quite unnecessary to cut off or remove any branches. 9. It is highly inexpedient that dead boughs should be pruned from growing Oak trees, as the sound growth of a tree is best promoted by allowing Nature to prune off such boughs as in due course become unnecessary for the support of the tree. 10. *It is expedient to cut off dead boughs from trees; but in woods where they are reared thickly, and properly thinned, all such trees can be cut away, leaving only those with evenly balanced heads.* 11. The boughs that are unnecessary will drop off of themselves (and generally without injuring the tree if left to Nature); but if they are cut off they are sure to cause defect. 12. Allow Nature to take its course. 13. I consider that the sound growth of a tree is best promoted by allowing Nature to prune off such boughs as become unnecessary. 14. It is not expedient to prune sound-growing Oak trees; Nature will prune such boughs as are not necessary. 15. No; boughs that die should be left to Nature to prune off; but boughs that have been accidentally or wilfully broken or cut off nigh to the trunk, should be close cut as soon as practicable, and pared smooth with an edge tool even with the rind of the trunk, that it may throw off the wet and preserve a hard surface until overgrown with new sap. 16. When dead boughs waste away by Nature, it is much better for the timber than if they are cut off. 17. It is best to let dead boughs drop off themselves, and if they are cut off it is sure to cause the timber to be faulty. 18. I think that dead boughs ought not to be pruned from growing Oak trees; but I think the sound growth of a tree is best by allowing Nature to take its due course. 19. Decidedly not; the sound growth of a tree is best promoted by allowing Nature to prune off such boughs as in due course become unnecessary for the support of the tree. 20. *If not large take off, but cut as much under as the tree will allow, to prevent the wet lodging in the tree, or seat of the bough.* 21. I should think it is best to let Nature prune them. 22. It is inexpedient that dead boughs should be pruned from young Oak trees; and, in my opinion, the sound growth of a tree is best promoted by allowing Nature to prune off such boughs as in due course become unnecessary for the support of the tree. 23. The timber is best promoted in its growth by allowing Nature to prune off any dead boughs. 24. Better not cut off. 25. Let Nature take its course. 26. I should think it best to let the boughs drop off without cutting them. 27. In my opinion it is not expedient to prune dead boughs, but that it proves injurious. 28. It is not expedient that growing Oak trees should be pruned; the growth is best promoted by leaving the trunk untouched. 29. It is not necessary to cut off dead boughs.

Here it will be observed is a difference as to practice, some still saying that no pruning is to be allowed, others (printed in italics) expressing an opposite opinion. We presume that the question was understood to point to boughs that have accidentally died, and in which there was no broken or ragged stump produced by violence. No. 7 did not however so consider it, and his answer refers to the removal of such stumps; the same may be said of No. 20. If such was the case, we submit that the replies of 7 and 20 are right; for if the branch of an Oak tree is wrenched off, as by a storm, for instance, the ragged wound will undoubtedly allow water to lodge, the result of which is the rapid decay of the sap wood, and the formation of a rotten hole in the main trunk. This is prevented by adopting the plan of No. 20. It cannot be denied that in either case the timber sustains injury; the real question is which is the least mischievous, a smooth wound, by degrees overgrown by new wood without rottenness occurring, or a wound which can never be covered over until a considerable space within it has become decayed, the end of which, even if the wound heals, is in most if not all cases the appearance of dry rot. For these reasons, as regards the first question we vote with the minority.

The other question is the following.—*Is it expedient for the sound growth of Oak timber that any boughs should be snag-pruned; and if, in your opinion, snag-pruning is injurious to the sound growth of the timber, should the boughs, so having been snag-pruned, at any subsequent period be cut close to the trunk, so that the sap wood may grow over and cover the dead stump?*

To us it is perfectly clear that several of the persons whose replies are to be found in the Commissioners' report did not know what the technical expression "snagging" signifies. Such replies we omit, and this accounts for the number of answers being fewer than in the former instance. We also believe that some of the replies we reproduce are rendered worthless by the same circumstance, such for instance as Nos. 5, 6, 9, 13, 24, in the following paragraph.

2. I do not consider it necessary for the sound growth of Oak timber that any pruning whatever should be done, and if any snag-pruning has been done, I should decidedly object to the boughs so pruned being cut close to the trunk. 3. *Decidedly of opinion that it is not necessary to prune, and have found in converting of timber that it invariably proves more defective when the boughs have been cut close to the trunk, and the sap-wood or bark has grown over.* 4. *I think all pruning to timber injurious; but where it is necessary to cut off any bough, I think it better to do so 4 or 5 feet from the tree than to cut it close.* 5. I consider it is not expedient to "snag-prune," and if it has been done I think the boughs should not be cut close to the trunk, as I consider decay will commence at the soft wood of the trunk after the removal of the bough, and I think such decay will be delayed and lessened by allowing the branch to be pruned by Nature. More time is thus given for the increase of the trunk, and the hardening of the centre wood, as its diameter increases, and the base of the bough, assisted by the pressure of the "sap-wood" of the trunk, will retard the progress of decay, which, on its arrival there, will find the trunk better prepared to receive it. 6. I am no advocate for snag-pruning at any time; if pruning is done at all I consider the boughs ought to be cut as close to the trunk of the tree as possible. 7. *As I have said before, snag-pruning is good if done right, that is, cut upwards with a very sharp tool, 6 inches at least from the stem. If the bough has been snag-pruned before and the stump is very much decayed, by all means cut it again until sound, but not close to the trunk if it can be avoided, as it becomes a bad cupped knot (as we call it.)* 8. *I know no reason to recommend pruning Oak timber in any way; but if boughs are obliged to be cut off at all, the further away from the trunk of the tree that they are cut the better, as it will be some years before the stump becomes rotten, so as to admit the water, as explained in the previous question.* 9. It is very inexpedient for the sound growth of Oak timber that any snag-pruning at all should take place, and, in my opinion, snag-pruning is most injurious to the sound growth of the timber. If an Oak tree has been snag-pruned, the boughs should not be cut off close to the trunk. This practice I think would be much more injurious than letting the snag-pruned boughs die back. 10. It is not expedient to snag-prune any of the boughs of timber trees, and all pruning should be complete before the trees become timber. *If the snags are alive let them grow on.* 11. Snag-pruning is only something better than close pruning, as the injury is longer taking place; but for the good of the timber, no boughs should be cut off. 12. It is at all times injurious to prune timber in any manner, either to snag-prune it, or to allow those trees that have been so lopped to be cut close afterwards. 13. I consider it is not expedient to snag-prune, and if it has been done I think the boughs should *not* be cut close to the trunk, as I consider decay will commence at the soft wood of the trunk after the removal of the bough, and I think such decay will be delayed and lessened by allowing the branch to be pruned by Nature; more time is thus given for the increase of the trunk and the hardening of the centre wood, as its diameter increases, and the base of the bough, assisted by the pressure of the "sap-wood" of the trunk will retard the progress of decay, which, on its arrival there will find the trunk better prepared to receive it. 15. Snag-pruning generally leads to decay of the stump and causes a defect of the worst description (white knot), and the progress of such decay would be much retarded and in many cases stopped by close pruning and paring the stump when the new sap would grow over and exclude the air and water. 16. Snag-pruning often causes unsoundness in timber after it has been done a few years. 17. Snag-pruning is sure to injure the timber in course of time. 18. I think if it has been snag-pruned that it will be injurious to the tree, and by cutting close to the tree that I think it will be equally injurious to the trunk of the tree. 19. Certainly not; snag-pruning is in my opinion injurious to the sound growth of timber. If Oak trees have been snag-pruned, the boughs should not be cut close to the trunk at any subsequent period. 20. *Snag-pruning might do if room is wanted for some other tree: if it has been so pruned, and the stump dead, if small, cut it close; if large let it remain, otherwise the wet gets in and affects the tree.* 21. *From all I have experienced in sawing and superintending in timber, I think if the tree must be boughed I think the further from the tree the better.* 22. *It is highly inexpedient for the sound growth of Oak timber that any bough should be snag-pruned; but if a tree has been snag-pruned the boughs ought to remain, as I consider cutting them off close to the trunk would be ruinous to the tree.* 24. Always found where boughs have been cut off and grown over more defective than when died off naturally. 26. *From all I have seen as a hewer and sawyer, I do not think any boughs ought to be cut; if they must be, the farther they are cut from the stem the better.*

What, let us ask, is snag-pruning? It consists in leaving on a tree so much of the lower part of a limb as is necessary to secure the production by it of spray in all directions. Its length will vary from 3 to 6 feet, according to circumstances. The object of the operation is to keep alive all that is left of the limb, which effect must follow the production of abundant spray. It is true indeed that the end of the stump will rot away, but since the snag is not left for any value it may ever have, but for the mere preservation of the soundness of the main trunk, such partial rotting is wholly insignificant. Suppose it should extend a foot downwards, and it could not well go further, there would still be a long arm of sound living timber between the trunk and the seat of decay. No one we think will dispute the exactness of this statement, and if so the propriety of snagging after violent accidental mutilations must be conceded. If indeed a wound is inflicted within a foot or so of the main trunk, it is then doubtful whether snagging can produce benefit. We should object to it, because it is hardly likely that on so small an area spray enough would form to maintain the vitality of the stump. In such a case there is no help for close amputation. For as to young wood closing over such stumps, and by forcible compression preventing decay, that is a doctrine to which we shall only assent when we see examples of such a mode of healing having actually taken place.

Surely it would be desirable to form in some of our museums, that of Kew for instance, a large series of mutilations, wounds, and timber diseases in order to show what shall have happened to them after the lapse of several years. The Royal forests would be able, we suppose, to supply evidence which would tend to set at rest such questions as those to which the preceding remarks apply.

The Exhibition of Horticultural Manufactures in the Garden of the Horticultural Society next June seems likely to assume great importance, if we can judge from the applications already made for space. Implement makers, Machine makers, Wire-workers, Net makers, Cutlers, Tool makers, Philosophical Instrument makers, Glass makers, Workers in Terra Cotta and artificial stone, Potters, Basket makers, Constructers of Boilers heating apparatus and ventilators, Pump makers, and Hothouse builders have at this early period signified their intention of taking part in the display. And those who exhibit will find their account in doing so; for of all kinds of advertisement this promises to be the best, speaking as it will to the eyes of crowds of visitors each interested in gardens. Nor is it to be forgotten that whatever merit the different subjects may possess will be displayed *in a garden* far better than in a shop or warehouse.

For the further information of those interested in this part of the Exhibition, we repeat the classification of manufactured objects as it has been published by the Society:—

Class A.—Heating Apparatus: Boilers, Hot-water-pipes, Furnaces, Flue-tiles fixed, &c.

Class B.—Machines: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps and their Fittings, Hose, &c.

Class C.—Garden Tools: Spades, Forks, Hoes, Rakes, &c.

Class D.—Cutlery: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.

Class E.—Pottery: Garden-pots, Bricks for Horticultural purposes, Pipes, Flue-tiles unfixed, Paving-tiles, Border edgings, &c.

Class F.—Labels: whether in Wood, Metal, or Glass; Plain, Enamelled, or otherwise lettered, &c.

Class G.—Objects of Decoration: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra-cotta, Fountain designs, Ornamental Flower-pots, Encaustic Tiles, Flower-baskets, Brackets and Chandeliers for Conservatories, &c.

Class H.—Materials for Construction: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate-work, &c.

Class I.—Protecting Materials: Nets, Wire-work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.

Class K.—Bee Hives, with or without Honey, including all Apiarian Apparatus.

Class L.—Philosophical Instruments: such as Thermometers, Hygrometers, Actinometers, &c.

Class M.—Miscellaneous: for any articles used in Gardens which are not included in the other Classes.

The Council have moreover announced their readiness to receive foreign as well as domestic manufactures. But they require that all applications for space should be made on or before May 16; otherwise articles will be liable to exclusion, and certainly cannot be included in the catalogue, which we understand is to be prepared in considerable detail by the best judges that can be selected in the several classes, and will be ready for distribution to visitors on the days of exhibition.

We may as well add that application for space should be made to Mr. M'Ewen, Superintendent of the Society's Garden, Turnham Green, London, W., who is intrusted with the whole of the details of the exhibition.

A new gate of admission is expected to be opened at the angle of the Garden next the Railway Station at Chiswick, by which arrangement the railway will be brought within a short quarter of an hour's walk of the Exhibition; and a new line from the N. of London to Turnham Green, which will open in May, will also add to the facilities of access.

JOTTINGS MADE DURING A JOURNEY TO PARIS.—No. V.

THE cultivation of the Peach tree being an object of special interest to me I determined to pay a visit to Montreuil, the village celebrated for producing fine fruit for the supply of the Paris market. It is said that the finest flavoured Peaches are produced on standard trees in Italy, and that the next best are those which are grown at Montreuil. Thither I therefore went, having an introduction to Monsieur Alexis Lepère, the chief cultivator. The morning was ushered in by a sharp frost, to which a day of brilliant sunshine succeeded. Montreuil is about five miles from Paris, in an easterly direction, and it was therefore soon reached. We alighted in the town, and walked up a steep hill, on arriving at the top of which we saw interminable ranges of white plastered walls, without a single tree or house to break the monotony of the scene. This extends over an area of 1400 or 1500 acres, over which the sun pours down the full force of his rays. The village of Montreuil lies almost hidden in the valley below, and one here appeared to have entered a new world.

M. Lepère occupies 45 acres of ground, which is divided into sections about 30 feet wide, at which distance white walls (coated with plaster) are built to the height of 8 or 10 feet, and all these walls are mostly covered with Peach trees, including some Cherries. The soil is a brown, calcareous loam, resting (as I saw in an open pit) upon a limestone rock at no great distance from the surface. This ensures perfect drainage, one of the most important principles in the art of growing Peaches; or, indeed, any other fruit trees. Large heaps of the sweepings of the streets of Paris were lying in the lanes to be used as surface dressings, or to be trenched in and commixed with this somewhat poor soil. The walls on which the trees are trained have a broad projecting eave of thatch, which is made still wider during the prevalence of spring frosts, thereby showing the importance and value of such protections. I could not learn that they use other means of averting these sad and fatal visitations. There is no question with me but that all our various modes of protection (this excepted) do often inflict more injury than they do good, and this not that they are bad in themselves, but the gardener has but too generally no discretionary power to roll them up or down. Our climate is so vicissitudinous, that supposing an Apricot tree to be covered from a frost of 10° at night and the following day to be a bright sunny one, and that the canvas is not removed, the chances would be that every blossom would drop.

At Frogmore they have for several years protected their fruit walls with canvas screens, which they have every possible facility for moving. And it is a well known fact that no garden yields such results as that, or with greater regularity.

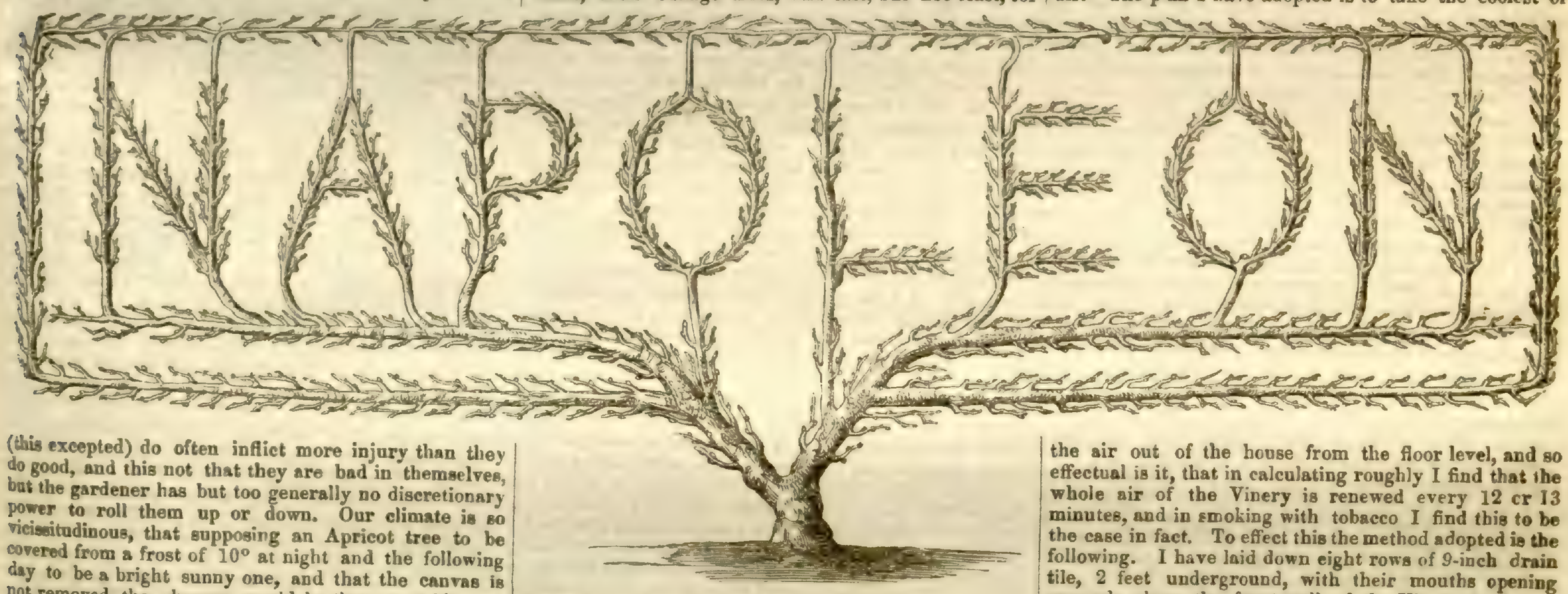
I was glad to find the French gardeners generally agreeing in the advantage of projecting copings, of which I have long entertained a high opinion. With these (temporary) copings and canvas to move *ad libitum* we may defy stern winter if the wood of our trees is well ripened.

The walls are built from 8 to 10 feet in height, and coated with a thick layer of plaster and whitewash. The trees are not fastened to a wooden trellis as is customary in French gardens, but are nailed close to the wall in the usual manner. The surface of these walls is uniformly covered with the trees, which are in the highest state of health and vigour, and do not present any appearance of being the worse for age. Between the walls there are nurseries in which young fruit trees are in training and Vines are grown, the Palmate simple and double plans being very favourite modes in French gardens. The Almond seems to be the stock to which preference is given; they are here mostly of that kind.

I was much struck with the perfection to which every tree had attained; they seemed all to have been made in one mould; they were all perfectly balanced, they had no naked parts, and were indeed the acme of excellence.

Monsieur Lepère has much improved upon the original plan of Montreuil training. I have no doubt that most of your readers are familiar with what that was, but for the information of those who may not understand it I will, however, with your kind indulgence just say that the object of their peculiar training was to divert the sap so that it might be equally distributed all over the tree. They therefore laid off two main branches of an angle of about 45 degrees like a V, and from these other branches were trained diverging from the upper and under sides of these principals. But it was found that the branches which grew above the main branch robbed those of the under side, becoming themselves too gross and rampant, and leaving the under ones much too weak, their diminished energy often ending in death. This was the case with the trees which were trained *à la Montreuil* in the garden of the Horticultural Society at Chiswick some years ago, although the method was at that time considered to be the most perfect then extant; but M. Lepère has now much improved upon it by allowing the under branches to form several years antecedent to the upper ones. I say several, for the most vertical are not allowed to form till five and six years after the lowest ones. Those who are curious for more precise information may refer to the Journal of the Horticultural Society, where the whole subject is fully explained by my friend Mr. Thompson, in his usually accurate manner.

There can be no doubt that where a person's attention is concentrated upon the perfection of an individual object, that object must be accomplished with more completeness than where (as is the case with the generality of gardeners) the attention has to be divided amongst so many, and such various things. This is fully borne out in French gardening by the Peach trees, their Grapes, and their Orange trees, of which they make each a *specialité*. We see this also exemplified in this country by the superior manner in which our Myatts grow Rhubarb and Strawberries, and in the various subdivisions of the cultivation of flowers, fruits, and vegetables for the market. It is therefore a great advantage to a gardener to visit such places, and be enabled to select the salient points of their practice for adoption; and it must be remembered that although all may not be excellence, still a vast deal is learnt from the contemplation of failures. French gardening is worth seeing for the *cloche* management, their out-door Vines, their Orange trees, and last, but not least, for their admirable culture of Asparagus and management of the Peach tree.



I cannot forbear from introducing before I finish these papers a specimen of the very ingenious training of M. Lepère, called the Napoleon Peach. I am not aware that this tree has been noticed or figured before, but it is certainly a piece of great ingenuity.

The branches it will be seen by the figure are trained to form the word Napoleon, and I was assured that on each letter of the word not less than 40 Peaches were produced last year, so that it is very prolific as well as ornamental. It was in the most perfect state of health, and the branches which formed the letters were covered with short moderately green fruitful wood, as hard and ripe as possible. Great care is taken to shorten these shoots at the winter's pruning. Many of his trees produce him 46 dozen of Peaches in a season, and from so large a number of them as he has, the returns must be considerable in amount.

Monsieur Lepère has published a treatise on the cultivation of the Peach, which Mr. Thompson considers to be the best extant. It is called "Pratique Raisonée de la Taille du Pêcher;" I purchased this, as I think most persons would be induced to do, after seeing his trees.

The sun must have vast power in this place upon the trees, as there is not a single object to impede its rays. From this cause we often see trees injured in this country; but the Montreuillois manage to clothe the main branches of their trees with short fruitful studs, the foliage of which shelters them from the sun's rays, and prevents this injury to them, while it enables them to have their walls perfectly covered with fruit and foliage.

The borders in which the Peach trees grew are merely trenched over with some street sweepings, about 2 feet in depth, below which there is a natural platform of limestone rock. No situation can therefore be more eligible for the culture of the Peach, as nothing can be attended with more perfect success.

The plastered walls have the advantage of being mor easily kept free from insects by washing them over.

I think I have omitted to mention the nursery of M. de Gentier in the Barrière d'Enfer Route d'Orleans. This I visited, and found an extensive assortment of Pine Apples, Musa Cavendishi, some Camellias, and other plants.

I have in a former paper alluded to the shop of M. Joret. I will here state that he is the Lewis Solomons of Paris. He is the purveyor of all that is super-excellent in the fruit and vegetable departments. I saw nothing at all equal to his display in any other place. *Henry Bailey.*

THE PROBLEM OF VENTILATION SOLVED.

IN assuming so pretentious a title for this paper I do not mean to say that ventilation hitherto has not been effected in an efficient manner, for we can always give a sufficiency of fresh air to any structure, garden or domestic, but we have not hitherto done so in a simple, effectual, and economic manner, constantly renewing the air, at the same time not wasting heat.

In unfolding the plan of ventilation I propose, I shall simply describe what I have in use, as a principle correct in theory sometimes does not suit in practice, and the experimenter often in consequence is a loser for his pains—at least in money if not in wit. The building to which this plan is applied is a Vinery 38 feet by 14 feet, a lean-to facing the south. This is mainly heated by a large flue, if I may so call it, 18 feet by 3½ feet, the top of which is covered with fire-clay pipes 4 inches diameter, 3½ feet long, through which the external air enters the house, and is thus heated as it comes in. A flap over the mouth of these pipes of thin cloth prevents back draught in stormy weather Having thus furnished a constant supply of fresh warm air to the house, the next thing is to remove it when used. This, no doubt, can readily be done in the ordinary way by ventilators at the highest part of the back wall, and there can be as little doubt that a great part of the heat goes off thus, and is wasted on the external air. The plan I have adopted is to take the coolest of the air out of the house from the floor level, and so effectual is it, that in calculating roughly I find that the whole air of the Vinery is renewed every 12 or 13 minutes, and in smoking with tobacco I find this to be the case in fact. To effect this the method adopted is the following. I have laid down eight rows of 9-inch drain tile, 2 feet underground, with their mouths opening upwards along the front wall of the Vinery, and converging towards the smoke chimney at the back of the house. Around the smoke chimney another is built of a single tier of brick about 4 inches apart therefrom, and inclosing it, as it were, in a case 4 inches wide; into this case the drain tiles open; and by the heat of the smoke chimney a draught is created which pumps the air out of the bottom of the house, giving thus a constant renewal of air with the least possible waste of heat.

The advantages of this mode of ventilation are—the constant renewal of fresh air without loss of heat or rather with the minimum loss of heat; the prevention of back draught and entrance of cold air; the adaptability to the circumstance of forcing, *i. e.* the greater the forcing the more frequent renewal of the air, &c.

The house thus ventilated, I may here state, never, in the highest temperature, has that stifling and oppressive feeling which stove temperatures generally have. This I presume is owing to the constant renewal of the air.

Moisture in this Vinery is supplied by a boiler hung over the fire, which converts upwards of 20 gallons of water into steam daily, which can be partly or wholly used in vapour.

It is quite evident that this mode of ventilation can be applied to any system of heating, only taking due care that the entering air pass over the heating pipes or flue ere it gain the body of the house, so as to cause it to rise into the house ere it is withdrawn through the exit air drains.

Some cultivators I am aware, and men too of no mean eminence in horticulture, deny the necessity of ventilation, except for the purpose of letting off redundant heat; but where I have found plants thriving under such management, I have generally found that the structures leaked sufficiently for the renewal of the air; or had a body of fermenting material furnishing a constant supply of carbonic acid gas, independent of the atmospheric source of 3 per cent.

When I first adopted the mode of ventilation here

detailed I imagined that I had hit on something entirely new, but on reading up I find that Major Jebb has anticipated me in principle at Pentonville Prison. I believe, however, that I have carried out the plan of low ventilation for hothouses in a simple, effectual, and novel manner, particularly suitable for winter forcing, and highly economical as regards fuel. Indeed any one thinking for a moment must perceive that in withdrawing the coldest of the air instead of the warmest from a house, there must be a great saving in heat. And Major Jebb states, that each cell in Pentonville Prison may be kept at summer temperature, during the severest weather, at less than ¾*d.* a day for fuel. I may here remark that however suitable for plant houses, I do not consider this mode of ventilation so suitable for animal dwellings, as the used air of their lungs being of a high temperature (98°) tends to keep at the upper part of the apartment, and refuse removal by the lower outlet. *J. Lyell, M.D., Newburgh, Fife.*

Home Correspondence.

Wearing out of the Golden Pippin.—You say the subject of degeneracy of varieties in fruit trees has become threadbare. I presume, therefore, that as far as the *Gardeners' Chronicle* is concerned, the matter is to be speedily dropped. As the greater number of writers appear to differ from my experience of the matter, you will perhaps permit me very briefly to recapitulate the facts upon which I have grounded my opinion. And before doing so, I must say that very much of irrelevant matter has crept into, and indeed made up too much of the staple stuff of the argument. For instance, what has the Garlic of Askalon to do with the falling off of vigour of a cultivated race of Apple-trees? The one an herbaceous plant ages agone growing *wild* in a certain locality, and at the present time is to be found growing in the same place; the other a garden variety of a *tree* continued by grafting; there surely is nothing at all analogous—nothing but by which in admitting the one the other may be consistently denied. [We submit that the analogy to which Mr. Masters objects is perfectly just.] In the same way I will pass over all the remarks upon Potatoes, Dahlias, and the like, nor does the case of Oaks reared from acorns in plantations, of Elms from suckers, or Poplars and Willows from cuttings, tempt me to diverge from the question at issue. We come, therefore, back to the starting-point, namely, that certain cultivated varieties of fruit trees formerly grew vigorously and made large orchard trees, that now refuse to do so—this is fairly met by the showing that other sorts, well known a century since, are still healthy and fruit bearing. Admitting this latter fact, for I have no wish to travel out of my record, what has that fact to do with the one I name, the condition of which is totally the reverse! In this place I will only speak of one variety, the old Golden Pippin. The answer is given, that in a warmer climate they still produce good fruit; and more recently that some grafts taken from Kent have grown well and fruited within the last 20 years. Admitting both of these cases as facts, are they answers to the following:—Do they place the question as settled against the weakening and degeneracy of the variety? When a boy some half a century since, there were many old Golden Pippins in this neighbourhood, whose stems at the base were of 2 feet diameter. I was employed to mend up the old orchards with the same kind, and did so with grafts, sometimes from the old trees, "to ensure the good old kind." There are no trees in any of the orchards now alive that were so planted—they invariably dwindled away—bearing a few apples, but refusing to make vigorous wood, and consequently never forming trees of any stature, and indeed it was a rare thing to find one that acquired the thickness of a man's arm. Here the climate, soil, and locality were identical; but some will contend that the trees growing two centuries before had deprived the soil of the proper food, and consequently those I had planted were starved. This is answered by my having tried to rear the same kind in land contiguous, that as far as was known had never been applied to this purpose—the result was precisely the same. This conclusively shows that in the same climate, locality, and soil where Golden Pippins formerly grew to a diameter of 2 feet, they now scarcely ever attain 6 inches before they die. Another case that I may call intermediate may be quoted:—Thirty years since there existed, and still exists, a goodly tree of this kind, its girth being 3 feet, or 1 foot diameter; now this one tree induced the then proprietor to plant the orchard with them; this I superintended—the result as before. They all died a lingering death, and not one young one is left to cheer the veteran who has outlived them, and does not appear to have gained an inch during the period. I will now recount what may be seen in our nursery—a fact of more recent date:—For the purpose of having grafts of any particular kind that could be depended upon, I planted out by the sides of a walk two rows containing upwards of 150 varieties; they were all planted in the same year, the girth of some of the varieties is 34 to 36 inches, 6 inches from the ground; that of the old Golden Pippin 13 inches at the present time. We have now ceased to graft the kind altogether; but before we did we placed it on the strongest stocks of the year; and it never passed the second year from the graft without showing signs of decay, although the limbs of other sorts in immediate contact grew as fine and as vigorously as could be wished. These are facts I will answer for, and they point to no other conclusion than the wearing out of that excellent variety. But Kentish orchards have been famed for ages, and their cultivators as perfect in their work as the people of Normandy, as I have witnessed; moreover, they have as keen a sense of their own interest as other people. Would they be content to receive a few shillings per bushel at Covent Garden for their produce if they could grow Golden Pippins and sell them at a guinea for the like quantity? In the fruit growing district the Golden Pippin has disappeared—"*Stat nominis umbra*"—and if the observations of a life may be deemed prophetic, it will never be renewed except by fresh seedlings. *William Masters, F.H.S., Canterbury.* [We remain unconvinced; and believe that the true history of all cases of what is called wearing out have been satisfactorily explained in the arguments that we have either recently or formerly presumed to employ.]

Boyd's Self-adjusting Scythes.—With reference to your observations in last week's Number regarding Mr. Otway's invention you state that the mechanical adjustment of my scythe was not capable of setting the blade to such a nicety as Mr. Otway's. Permit me to remark that my scythes when first introduced were capable of the same nicety, and of being literally set to a hair's breadth, but in working they "proved a slip," as doubtless Mr. Otway's will when put to the test, as it is utterly impossible for any mechanical contrivance to resist the pressure on the movement, unless it is provided with some resistance, or rack work, such as is used in my improved self-adjusting scythe. I know Mr. Otway's movement referred to by you, as he called upon me some time since, and offered it for sale on very easy terms, but I could not discover that it possessed any advantage over my own; in fact that in my opinion it was very inferior, possessing two great disadvantages, the first the liability to slip at the joint; and secondly, the inability to shut up when out of use. My self-adjusting scythes are now known and used by almost every gentleman's gardener in the kingdom; they are extensively employed at the Crystal Palace, the English and French and other Government agricultural schools. They have a universal reputation, and I have not for years heard of a single complaint. I told Mr. Otway that I had taken out a new patent for a scythe (the Vulcan scythe), the object of which would supersede the necessity for his invention, as it would do away with one of the gardener's troubles in the adjustment or setting of his scythe. This Vulcan scythe is prepared at different angles, and is numbered 1, 2, 3, &c. It is sold at the common price of the common scythes, and is within the reach of all. There is no necessity to take it to the smithy to have the heel or tang heated, hammered, and the temper of the blade (and perhaps your own temper) spoiled. I cannot better illustrate the importance of this patent Vulcan scythe over the scythe of old than by referring your readers to my advertisement in another portion of your columns. I have pictured the labourer as waiting in the smithy for his scythe to be cranked, but it is more often the case that they wait in the alehouses and waste hours, perhaps lose a day's work, a day's wages, and fine weather, because the smith was not available; and when at last the thing is done, perhaps a thunder shower and further delay. What would be thought were we to buy a knife, a kettle, or a saucepan with loose handles, and be referred to a neighbouring cutler or smith to fix them on? The analogy is nearly the same with the scythe of old; but the Vulcan scythe remedies these evils, is sold ready fixed to handles for 6*s.* 6*d.*, and separate blades can be had for 4*s.* 6*d.* each, set at different angles, which are numbered and regulated with precision to suit all tastes and requirements, with as much facility as you can rely upon procuring a Mordan's lead for an ever-pointed pencil. Mr. Glenny pronounces my scythe "one of the most effective improvements that can be imagined;" and the "Cottage Gardener" reports, "We can give unqualified praise to this implement." *James Boyd, Swan Lane, London Bridge.* [This is a matter for mowers to decide. We can only say that the statement we made was that of a very experienced mower, who has used both plans, and much prefers Otway's.]

Scale on Pear Trees.—Some of my best Pear Trees are covered with the coccus ostræoformis, I believe, so thickly as to hide the bark in many places for 2 or 3 square inches. I feel much inclined to paint them over with common sweet oil, being rather afraid of spirits of turpentine. I have never yet found any insect that could resist it and live; but I am not quite sure of the effect of oil liberally applied to the bark of a tree. Might I beg your advice on the subject? *A Subscriber, Newbury.* [You may do more harm with turpentine or oil than the scale insect itself produces. An account of that which you say infests your trees will be found in our volume for 1843, p. 805, under its proper name of Aspidiotus ostreæformis. Another kind is described at p. 735 of the same volume. The only way to deal with these pests is to paint the branches with a mixture of clay, lime, sulphur, and tobacco-water just before the leaves expand; unless indeed you can scrub the branches with water at the temperature of 160° or thereabouts.]

Coppice Wood.—In a recent article by me on coppice wood as generally managed in the South of England, I proved by what had been done under my own experience on the woodlands of which I have the management that coppice wood of this description was a very unprofitable crop compared with the land under the plough or a crop of timber trees, and advised proprietors who were in possession of such a crop to give it their mature consideration. This has elicited a reply from Mr. James Whyte, of Chopwell Woods (but before doing so I think he ought to have made himself more fully acquainted with our local peculiarities as to soil, &c.), stating what had come under his immediate experience relative to a crop of Oak coppice cut down at 30 years' standing which brought about 3*l.* per acre per annum, being double the sum that was realised here for the land after being at the expense of 9*l.* per acre for trenching. As this is quite a different crop from the one which I have been alluding to, as also in a very different locality, it would be diverging from the subject altogether to enter into the merit or demerit of Mr. J. Whyte's crop of Oak. It may not be out of place, and for further information, to give a more minute description of our coppice woods, both with reference to locality, means of manufacture, and demand. 1st. As to locality, they are generally speaking situated on very hilly ground, and the soil close upon the chalk in many instances and far inland, and a long way from any thriving market town. 2d. As to manufacture, the coppice wood in this part of the country is grown chiefly for the making of hurdles for the folding of sheep, the larger and straighter stems being employed for the making of feeding cribs for the same, and the refuse made up into faggots and used as fuel. 3d. As to demand, of late this crop has decreased considerably in value, owing to its use in many instances being superseded by more modern, and I should say (in the long run) cheaper appliances. Considering this, it is my opinion that coppice wood, consisting principally of Ash and Hazel (no Whins or Gorse or Broom, however) cut at 12 years' standing, as is practised on this property and many others in the south of England, will never or can be anything like a profitable crop. *Wm. Brown, Milton Abbey.*

Hazard's System of Heating.—Absence from England has prevented my replying earlier to Mr. Cramb's second letter concerning my system of heating. I have however but little to say, and will say that little as briefly as I can. Mr. Cramb has with a very apparent motive sought out with such zeal as only some men can be found exercising, one or two instances wherein he says my system has failed. As to the one erected at Heywood House and which was under Mr. Cramb's own direction, I have said all I have to say. I repeat fearlessly that Mr. Cramb abused the system as much in its use as he has now by word, and I am quite sure that every gentleman possessed of common candour and seeking information upon the subject with pure motives will admit that Mr. Cramb has said too much for his purpose. He challenges me to tell him when I discovered that he ever heated my apparatus to 200°. I will tell him. In his first letter he says that the "destructive effects first showed themselves about the end of February, from the combined influence of the noxious gases and sunshine;" and further on he states that the heated air in severe weather "passed off from the stove at a temperature of from 180 to 200°." So much for Mr. Cramb's candour. Mr. Cramb forgets his expressions occasionally, but as I have no wish to teaze him, I will not trouble him about a certain similarity of expression upon which I could say much, viz., the fact that "H. M." informs you that he felt a "perpetual terror" in using my apparatus, and Mr. Cramb experienced an "incessant terror" while heating my stove to 200°. Let this pass too. I am quite sure such devices cannot be pleasing to your intelligent readers. As Mr. Cramb has, however, sought out my early errors, and paraded them before your readers (for I am free to confess that some of my very early efforts are not equal to my present arrangements, as is but natural), I must beg permission to state that I have myself lately seen one of my early efforts, which was under Mr. Cramb's superintendence, at the church of Mr. Ludlow, Mr. Cramb's former employer, and I found the apparatus bearing every mark of Mr. C.'s great care and knowledge. I found that one of the cold-air drains had been used as a dust-bin, in which were collected the sweepings of the church for some time past; the other (there were two) was closed, and that the apparatus had been literally burnt up—the iron itself melted! I will not take up your time unnecessarily, but will content myself with referring your readers to the letters you published from Mr. Lane of Clifton, and Messrs. Reynolds of Bristol, who have used my apparatus carefully and successfully for ten years, as also to the letter of the Rev. J. Slatter of Oxford in your Number for March 21st, and if more should be wanting to prove the efficiency of my system, as I at present use it, I would respectfully invite the most sceptical to call at Messrs. Hopkinson and Co., Pianoforte Manufacturers, Regent Street; Messrs. Nutting and Addison, Pianoforte Makers to her Majesty, Osnaburg Street, New Road; Messrs. Oetzmann and Plumb, Great Russell Street, Bloomsbury; Mr. Cadby, Gray's Inn, Pianoforte establishment, and many others, who are using my apparatus, and have given me such testimonials as prove that they are not only satisfied with it, but that their men know how to use it. *Robert Hazard, St. Martin's Chambers.* [Both sides having now been heard, this discussion must here terminate so far as the *Gardeners' Chronicle* is concerned.]

Training Gourds.—In your pages have been several notices of ornamental Gourds, but I have looked in vain both in present numbers and in volumes of past years for directions for ornamental growing of them, *i. e.*, how best to train them so as to display their various peculiarities. Mackintosh says, Train them to a pole; but will the Mammoths be able to support their

heavy fruit? will they not either drop off or bring all down together; and do not some of the tribe require training along the ground that they may take root at the joints? Some of your correspondents will perhaps have the goodness to give me a hint on the subject. *A Subscriber, Totnes.*

Araucaria imbricata.—I have a seedling tree of this 5 feet high, whose branches are in proportion to its height; but about 9 inches from the surface of the ground there is a slight bend in the tree, and at this part the sap has been oozing out slowly for some time; and the bark at the base of the trunk is cracking—it appears to me to be bark bound. I thought of making two incisions at the base, where the stem is bleeding, thinking that might cause the sap to flow more freely. Would this hurt the tree, which is in excellent health, with the exception of the lower branches, which lately have turned a little brown? I may also state that I have examined the roots, and they are in perfect health. I have put fresh earth all round the tree to the depth of 2½ feet. *E. S.* [On no account wound it; if you do you will kill it. Let it alone.]

Wearing out of Races.—I beg permission to deny that the Dahlia, the Potato, or the Hyacinth have degenerated except where people disregarding all advice to the contrary continued to grow from the same stock and on the same ground. The assumption of the writer in the "Scottish Gardener" that the sorts that have been thrown away have been worn out is unpardonable, because they have been beaten fairly by new ones before they were thrown aside; and with regard to Hyacinths, whatever was good and not beaten may be found now with new names. Let the writer instance a single variety of anything thrown by and neglected that has not been abandoned for better things. In Dahlias, the best of all the old ones was the Springfield Rival, then a star of the first magnitude; but which at its very best would be nothing against flowers of the present day. What Potato is there a hundred years old half so good as those we use now? In our time many a variety has been thrown aside for better croppers with better flavour, and the Yorkshire Red, which is still grown, always had a great fault—deep sunk eyes; and as soon as we can get a Potato with its good properties without the deep sunk eyes, the Yorkshire Red will be thrown aside, and according to the writer in the "Scottish Gardener" be worn out. *G.*

Violets.—In reply to the request of "J. S." for information how to have Violets the same time as Covent Garden, permit me to state that I think he will find no difficulty if his plants are prepared in the following manner. The first week in May take the earliest runners that can be procured, give them a dusting of sulphur to kill and prevent red spider, plant them 1 foot or 15 inches apart on a well prepared piece of soil. When they make runners, pinch off all but three to each plant; as these extend, pinch them back to the first joint, and peg them at equal distances round the parent. These will make fine stock for planting the following year. They may either be taken off when the plants are taken up in August or September, or remain on, as they sometimes produce very fine blooms; but the better way is to prick them out in a spare frame. Should the season prove dry, a liberal soaking with weak manure-water may be applied advantageously. Care should be taken when taken up that good balls of earth are secured. Some may be potted under a frame in 6-inch pots, and plunged in coal ashes on a gentle bottom heat, while others may be planted out; they should be placed as near the glass as possible, and have plenty of air given them on fine days. Should the weather be severe, they will require a slight covering to keep out frost, but 5 or 6 degrees won't hurt them with a bottom heat. *J. Gadd, The Gardens, Bignor Park, Petworth.*——To have Violets in winter your correspondent must plant the kinds I name, and manage them very skilfully; taking situation particularly into account, he will be sure to succeed. I often wonder how it is that more is not said about Violets. With the exception of the Neapolitan, for the last two years there has not been a remark made in your pages about them, and yet there is not a lady in existence at all fond of flowers who would not look on the Violet as her chief pet through the dreary winter months. They should be grown with sufficient length of stem to enable them to be formed into bouquets; but if of no other use, the perfume they give off would amply repay their cultivation. "J. S." grows the single blue spring blooming variety; what he calls the Double Russian is no doubt the old double spring blooming kind, a beautifully perfumed sort while in season, which is however so short that this Violet is now almost extinct. The Double Perpetual, or Tree Violet, has superseded it; the latter is a most beautiful kind. Where it does well it will bloom freely eight months out of the twelve. Some imagine that because it is called a Tree Violet it naturally produces a trunk-like stem, but it has not the least inclination to do so unless "trained to it." It is the work of years to get a good specimen Tree Violet, requiring a deal of skilful care and management, as it is so liable to be attacked by red spider. The varieties which "J. S." must grow so as to have them through the winter are the old Russian, which blooms freely from September to the end of March. They may be bought cheaply of almost any nurseryman, but care should be taken to get the true variety; for there is scarcely any one that has not got them, mixed with the spring blooming kind, from which, unless pretty well acquainted with their foliage, it cannot be distinguished. It is my belief that where Violets have been once grown, they will come up for ages afterwards. Hedge Violets, for instance, in a garden, soon become a complete nuisance. One remark I wish to make concerning the Neapolitan; it will grow without the help of glass, under a S. S. E., or S. W. aspect, at the foot of a wall, almost covering the ground with bloom for the next month, and perfuming the air for a great distance. My Russian Superb, a seedling from the old Russian, is perhaps the best sort in cultivation, but it requires good management, and when "well done," is quite an attraction. It blooms from September to March, but it is liable to lose its foliage shortly after Christmas, unless it is protected from the wet under glass. Be careful to give plenty of air. My White Russian is a beautiful clear white, and blooms all through the winter; but it gets splashed with the rains unless covered. It won't bear confinement, and for that reason I would not recommend it. The Double White is a beautiful double clear white; its principal time of blooming is in May—a good compact variety. The White Tree Violet is a semi-double kind, which no doubt would form a tree if "trained to it;" but it is of no other use, having a bad habit for borders. The Double Perpetual Tree Violet is a beautiful variety either for pot or borders. The old Russian, the most useful of all, is the kind with which Covent Garden is supplied through the winter. It will grow in almost any climate or situation, and blooms most profusely all through the winter if kept thin and clean of weeds during the summer previous. Now, and for the next three weeks, is the proper time for planting all kinds of Violets, either runners or divisions of old plants. They should at least be 9 inches apart in the rows; should there be more than single rows they should be 15 inches at least from row to row. They are not particular as to soil, provided it is rich with manure; if poor they are apt to get attacked with red spider, which causes the foliage to die down in winter, and makes the plants so short in the stem. Violets should be fresh planted every year; the runners should not be cut off, as they bloom on the top of them. *Robert Shackell, 5, Broad Street, Bath.* [We have other letters on this subject which shall be published next week.]

Notices of Books.

The British Botanist's Field Book: A Synopsis of the British Flowering Plants. By A. P. Childs. Small 12mo., pp. 160. Longmans.

This is a very small book, to be very much recommended. It is just what students want. The remarks of the author in his preface are well considered, describe truly what the volume contains, and shall have such endorsement as we can give them by laying the principa part before the reader:—

"The title of this book correctly defines its purpose. It is intended to be essentially a 'Field-Book,'—the field botanist's pocket companion.

"It is obvious, that in preparing this book, a chief object has necessarily been the reduction of its bulk, by selecting, as nearly as possible, the essential marks, and those alone by which each order, genus, and species may be distinguished.

"To accomplish this task fully and successfully would demand a far larger experience than I can lay claim to, combined with a happy and rare faculty of observation, which would disregard characters, however striking, that are not permanent, and in the midst of all fix only upon those that are essential and determinate. I beg the reader to believe that, in offering this little book, I do not for one moment indulge the presumption that I have succeeded in accomplishing this. I offer it as a humble and necessarily very imperfect attempt to supply an undoubted deficiency.

"I have ventured, however, to hope that it might possibly be of further use. There has of late years been an increasing tendency in the direction of minute and needless subdivision, and it may not be amiss that even thus attention should be drawn in an opposite direction to codification and condensation.

"Of the species of two genera (Hieracium and Salix) I have attempted no classification. The materials necessary for the formation of such an arrangement as would come within the scope of this book do not exist, at least they have not yet been collected; and I must either have dogmatised in a manner that would have been simply ridiculous, or have transferred to these pages mere descriptions of the plants, which would have been to lose sight of the chief purpose of the book; and I have therefore preferred to leave them untouched.

"I have endeavoured to abstain as much as possible from the use of technical terms. It is not always easy to do without them, and I hope that in attempting it I have not added obscurity. These phrases are intended to convey a meaning with only a limited amount of precision. The practised botanist may know how much meaning to attach to the term *subulate*, for instance; but in translating it to "awl-shaped," I have felt that confusion might arise, for that too much precision was thus given to the character, the resemblance to an awl being not absolute, but only conventional; and the same in other cases. These terms and their translations must not therefore be applied too rigorously. A glossary is appended, and here and there in the text I have added explanations which I hope will be found to simplify difficulties for the beginner.

"It is hoped that a very slight examination will suffice to show how the book is to be used, and that no explanation on that head is necessary here. The young botanist will do well to make himself acquainted, in the first place, with the general characters and outward appearance of the chief natural orders: he will find this of great assistance in discovering the relation of an unknown specimen; for often the order to which it belongs may be at once known, or he may be able to mark off a number of orders to which it certainly does not belong, and so the field is gradually cleared of difficulties.

"It must not be forgotten that the points upon which natural distinctions depend are often too minute to be made out readily by the unassisted eye, and that a sharp knife and a good lens are indispensable companions; without them a distaste to the study is almost sure to arise, and they should be always at hand.

"Finally, in taking my leave, I would bespeak for the little book the indulgent criticism of those who will do me the honour to use it. To know the mere name of a plant is nothing, I admit—to observe the beauty and harmony of its structure and relations is much; however,

"Wheresoe'er thou turn thine eye,
On earth, air, ocean, or the starry sky,
Converse with Nature in pure sympathy."

"Such is the spirit in which this elegant study should be pursued; and forming and strengthening, as it does, the habit of correct observation, it may fairly claim to be ranked with those studies that truly serve for 'generation, fruit, and comfort.'"

When we add that Mr. Childs has done exactly what he thus describes, it is needless to do more than recommend his book to public favour, and this we do most conscientiously, notwithstanding some singular oversights which will doubtless be corrected in another edition.

Captain Cooper of the 58th Regiment has published a *New Zealand Settler's Guide* (Stanford), with which emigrants will do well to provide themselves. The gallant author considers "New Zealand better calculated than any colony for an Englishman's home," and he gives full reasons for his opinion. A very good map shows that at all events there is plenty of room for settlers.

Grandmother Katie (Longmans) is a tale by Mrs Percy Sinnett, intended, as we are informed, as a book of amusement for the uneducated. The intention is excellent, but the commencement is singularly at variance with the intention. "In the *canton* of *Berne*" are the first five words, and we wonder how many *un*educated persons know what a canton is or where Berne is, or Switzerland. We should talk to our poor about a parish and a county if they are to understand our meaning. Such books as this should be are very difficult to write, and in spite of its unlucky commencement we must in fairness add that the beginning is the worst part.

Garden Memoranda.

Mr. Barnes' Nursery, Southampton Street, Camberwell.—Since we last visited this nursery a marked improvement is observable in all its departments. The out-door stock comprises nearly everything that may be expected to be found in more extensive establishments, and, although by no means out of the smoke of London, under Mr. Barnes' skill and care few or no failures are experienced. Roses even succeed here admirably, and the collection which is comparatively extensive consists of all the finer varieties, such as could scarcely be expected to be found good nearer town than Hertfordshire. They however bloom here abundantly, and annually produce a brilliant display. To secure this however considerable pains are taken; at planting time the ground is all thoroughly trenched three feet deep, and the wants of the plants are afterwards well attended to. The quarters in which "stools" are growing are top dressed with half rotten dung, which serves as a protection and at the same time contributes something towards the nourishment of the plants. Fruit trees in 12-inch pots are also plunged and mulched in a similar manner, and nothing could possibly be finer than their appearance is at the present time. They have well formed heads loaded with bloom buds which in some cases are just about to open. With fruit trees cultivated in the ordinary way this Nursery is also well stocked, as it likewise is with Aucubas and certain other sorts of Evergreens; which, disregarding their suburban situation, look as healthy as if they were miles in the country. Of the more popular kinds of herbaceous plants Mr. Barnes has a good stock. Larkspurs he grows largely, and they meet with a ready sale. Of these Hendersoni is still one of the best. Tritoma Uvaria is also here as elsewhere a great favourite; Mr. Barnes states that he has seen a row of this consisting of 16 plants, each of which has had from 45 to 55 heads of bloom on them. The display which such specimens made must have been striking indeed. It is reported, however, that there are in existence two varieties of this plant, one much inferior to the other in beauty. The spurious kind is said to be more robust in the foliage than the true sort; it also blooms less profusely, and the flowers are by no means so vivid either in the scarlet or orange tints which they possess. Purchasers should therefore take care to secure the best variety. Japan Lilies are grown here extensively; many of them have been raised from seed, and are truly beautiful in their spottings and markings. Though perfectly hardy, they like a little protection about this season, not so much in the way of warding off frosts as to keep them from being injured by heavy

rains and wind. To avoid the former a raised roof of frame lights has been placed over the best specimens, and round the sides, which are left open to keep the plants from "drawing," are hung mats when the weather is at all cold and windy. Under this treatment, and with plenty of pot room and proper care, it is expected such specimens will be produced as are rarely to be met with. Among out-door plants we should have mentioned Phloxes, of which Mr. Barnes has some fine kinds; of these one of the best is Madame Fontaine, a light sort, with a bright crimson eye; Countess of Home, though better known, is also a fine variety, and the same may be said of Dr. Leroy, a deep rose coloured kind.

In doors Camellias have bloomed this season most profusely, and even from the old double White few buds have dropped. This may be owing to the atmosphere of the house in which they are growing being kept steady in temperature and otherwise favourable to promoting a healthy vegetation. Azaleas also succeed here uncommonly well. Of these Ivery's Gem, Admiration, Iveryana, and Criterion are four of the best. Of crimson scarlets Juliana with a dark eye is good, and of whites faintly streaked with pink few will be found to beat the continental kind called magnificans. It has large well shaped flowers of great substance. Geraniums are cultivated here in tolerable quantities. Among variegated sorts Silver King and Queen, Attraction, and Golden Chain are striking kinds; of ordinary scarlets Attraction is well worth attention. It has large trusses of scarlet flowers with a white eye, and a good dwarf habit. Of its class few varieties will be found better than this. Of new Fuchsias Mr. Barnes speaks favourably of Wonderful, Emperor Napoleon, and Venus de Medici, and among white corolla'd sorts Countess of Burlington is considered the best. With the value of Bouvardias for flower garden decoration Mr. Barnes is well acquainted. B. leiantha wintered under a greenhouse stage and treated like a Fuchsia he has seen produce bunches of flowers as large and showy as those of an Ixora. To do this however the wood must be firm and well ripened. This may serve as a hint to growers of the new hybrids, which are now deservedly attracting attention. Layers of Glycine sinensis are now being "put down;" those layered about this time last year and taken off in November are now fine plants covered with bloom buds; many of them are 18 feet in length. These make plants fit for covering a verandah or conservative wall at once, and for such purposes, we need not say, nothing could be more suitable. In one of the cooler houses Double Chinese Primulas, both white and pink, have been flowering most profusely, so much so that the blooms had to be cut off to keep them from "flowering themselves to death." This is not an uncommon occurrence with young plants, and must therefore be prevented in the way just described. Among seedling Heaths we noticed some fine things in the way of aristata, and also a good collection of ordinary greenhouse plants, together with Ferns and Lycopods. The latter occupied a corner of a warm damp stove, and appeared to be growing luxuriantly. Almond trees in open gardens are now in full blossom. What Mr. Barnes calls the Cherry Plum, however, comes into bloom fully a fortnight earlier than these, and where it escapes spring frosts it is said to be truly handsome. Its snowy blossoms contrast well with the pink flowers of the Almond. Of hardy plants of more humble growth may be mentioned a Picotee which Mr. Barnes calls Life Guardsman. It is a vivid scarlet, and keeps in bloom from June till November.

Forced Hyacinths, Dielytra spectabilis, the pretty little Chinese Azalea amœna, and other plants in flower now decorate a tastefully arranged little seed-shop which stands between the dwelling-house and the street.

Miscellaneous.

A Substitute for Silkworms.—Happily there would seem now to be little need of the *eria*, or the Chinese silkworm, or of the cocoon of commerce, for the production of silk will erelong in all probability be derived, not from the worm, but the leaf on which it has hitherto existed. It is now not the breeding of the insect, but of the Mulberry tree—that species which was its only food, and which from that circumstance gave the *savant* the cue that led to his making the intimated discovery. His name has not yet been announced, although we should imagine it was none other than Signor Lotteri, who in the course of last year fully ascertained that a silky substance could be procured from the bark of the Mulberry tree, and that by maceration good silk, and paper also, could be easily prepared therefrom. The *savant* in question, ruminating, it is said, on the circumstance of the silkworm living on one description of food, came to the conclusion that "the silky substance must lie not in the animal, but the vegetable matter" which supported it. He therefore "analysed the composition of the Mulberry leaf, and, by boiling it to a thick paste, produced every description of silk in immense quantities." Such a substance being obtained from that species of leaf, it is not at all unlikely that from the Chinese Oak and the Castor-oil plant a somewhat similar result might be obtained. Be that as it may, and the truth of the other being shortly corroborated, neither Moreton Bay need sigh for the introduction of the Cotton plant, nor the northern and southern States of America shed their blood for the suppression or in the defence of slavery, nor England much longer play the hypocrite by condemning that accursed "institution" with one breath and with another admitting the expediency of, at all hazards, strenuously upholding it. This is the land—every land within the temperate zone is, more or less—favourable to the rearing of the Vine, the Mulberry, and the Olive. Every one, therefore, the possessor or occupier of a small spot of ground therein, may rear the great substitute for Cotton, and in so doing, weaken more and more this lamentable and apparently indispensable adhesion to slavery. He may "put money in his purse;" and, clothing his family and himself in "silk attire"—such as Imperial Cæsar had not dared to wear—drawn from the branches that give him shade and refreshing sustenance by day, and by night afford him the sleep of contentment, he may well thank Heaven that he is permitted to reap the fruits, though he have not shared the labours, of the thoughtful and perhaps ill-recompensed analyser of the enigmatical phases of nature. He may cheerfully and confidingly believe thenceforth that in the varied productions that she surrounds him with lie hid the main causes of the world's progress and the renewing sources of peace and goodwill to men.—*Sydney Empire.*

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Trimming and dressing as well as constantly exchanging will be the order of the day here. Observe great moderation in the heat, and dispense with fires as much as possible. Some of the stove plants will now require liberal shifts and liberal supplies of water. Where size and rapid growth is the objec, be sure to use liquid manure moderately strong. Imported Orchids should have a mild yet constantly moist atmosphere for a few weeks, until they begin to grow; no water should be applied to them until that period, and then with moderation. They will fill their pseudo-bulbs by atmospheric moisture alone, and all excitement otherwise will be at the expense of the energies of the plant. Get other Orchids into rapid growth as soon as possible, in order to get a long autumn to ripen them well—a most essential point with most of them. The leading shoots of Epacrises, Chorozemas, Correas, Heaths, together with many other choice plants which produce the best effect in a bushy condition, should be frequently pinched or stopped in order to form good specimens, also those of Calceolarias, Verbenas, and other young stock intended either for decorating the flower beds or for succession in pots. Give liberal shifts when necessary to specimen plants, and above all things secure efficient drainage, and the constant use of turfy soils; weak and clear liquid manure should be used constantly at this period. The portions of cold pits not filled with young stock may soon be filled with some of the hard-wooded tribes of the conservatory, or mixed greenhouse, in order to make way for a free and healthy growth in the rising generation, and to afford choice specimens abundance of room.

FORCING DEPARTMENT.

Vineries.—Give air as freely as the state of the weather will permit, using a little extra fire heat, and leaving a little air on at night so as to prevent the bloom being injured by damp settling on the berries, as is apt to be the case where the house is shut up. Figs.—Where the early crop is approaching maturity the borders should be well watered, so as to avoid the necessity of having to water the soil after the fruit begins to ripen, which is injurious to the flavour, and is also apt to cause the fruit to burst prematurely, particularly if the trees have been rather dry at the root previously. So far as the present crop is concerned the trees can, perhaps, hardly be too dry at the root while the fruit is ripening, but where a second crop is expected care must be exercised to keep the trees in health, and to prevent the foliage becoming a prey to red spider, otherwise the second crop can hardly be expected to be good for much. Use the syringe vigorously and maintain a moist atmosphere as long as this can be done without risk of injuring the fruit. Also keep the young wood thin and regularly tied in, stopping before the fourth or fifth leaf, according to the strength of the shoots, &c. Melons.—Encourage those newly planted-out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood. Keep the shoots thin and regular, pinching out any not wanted, but avoid stopping the main shoots until they reach the sides of the pit, when by pinching out the points the laterals will start into growth and show fruit abundantly; and by this time the plants will have gained sufficient strength to set and carry a fair crop. Do not exceed 65° at night, and admit air when the glass rises to 75°, but do this very carefully on cold days. Endeavour to maintain a steady bottom heat of about 80° or 85°, and keep the soil in a healthy state as to moisture. See to providing plenty of young plants for succession crops.

FLOWER GARDEN AND SHRUBBERY.

If no scheme has been formed for the arrangement of gay mass flowers it should be done forthwith, in order that sufficient stock may be got together without delay. Not a moment's time should be lost in propagating extra things for this purpose. Choice Carnations, if at hand, may soon be turned out in beds or borders; three in a group, in rich soil, produce a bold and striking effect. The Mimulus family may soon be transplanted in fresh patches in moist soil, not forgetting that popular flower the Musk; the latter should be removed in dense patches.

HARDY FRUIT AND KITCHEN GARDEN.

Scarlet Runners and an early crop of French Beans may soon be sown. The ground for the Runners should be well manured and deeply dug, and the shoots when about 5 feet high should be constantly stopped. This will save the necessity of using unwieldy sticks, and will secure a succession. The first Kidney Beans will be best raised in a hothouse or frame, and transplanted. They however must be gradually hardened before transplanting. Nasturtiums may now be sown, as also an early sowing of Gherkins. These may be raised as recommended for the Kidney Beans. Sow also a little early red Beet, Scorzonera and Salsify. The Globe Artichokes should now be dressed; remove a little soil, and pull away all the plants but about four or five, and fill up with a dressing of rich manure instead of the soil. A row transplanted now on very rich soil will succeed the main crops if well watered and attended to. Box edgings should be clipped immediately, if not already done.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 2, 1857, as observed at the Horticultural Gardens.

March and April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain
Friday 27	2	29.986	29.973	55	36	45.5	45	43	N.W.	[illegible]
Satur. 28	3	29.974	29.915	55	41	48.0	46	43	E.	[illegible]
Sunday 29	4	29.816	29.537	54	43	48.5	46	43½	S.	[illegible]
Mon. 30	5	29.239	29.144	55	42	48.5	46½	43½	S.W.	[illegible]
Tues. 31	6	29.447	29.187	57	35	46.0	48	44	S.W.	[illegible]
Wed. 1	7	29.460	29.279	56	44	50.0	47	44	S.W.	[illegible]
Thurs. 2	8	29.379	29.113	58	42	50.0	48½	45	S.W.	[illegible]
Average..		29.614	29.449	55.7	40.4	48.0	46.7	43.7		[illegible]

March 27—Uniformly overcast; fine; cloudy.
— 28—Foggy; fine; cloudy.
— 29—Rain; showery throughout.
— 30—Heavy rain; showery; densely clouded.
— 31—Rain; overcast; rain.
April 1—Fine; very fine; cloudy at night.
— 2—Rain, and boisterous; cloudy; fine; rain.

Mean temperature of the week 4 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending April 11, 1857.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 5	56.7	35.9	46.3	14	0.65 in.	—	5	3	1	3	6	11	[illegible]
Mon. 6	56.8	36.2	46.5	11	0.30	3	8	2	2	4	9	2	[illegible]
Tues. 7	57.1	36.8	46.9	14	0.35	2	7	2	2	1	10	6	[illegible]
Wed. 8	56.0	35.4	45.7	15	0.40	2	6	5	1	5	5	5	[illegible]
Thurs. 9	54.9	35.4	45.2	15	0.30	4	5	5	1	3	6	6	[illegible]
Friday 10	55.2	34.0	44.6	13	0.27	2	6	6	2	4	5	5	[illegible]
Satur. 11	55.6	36.3	45.9	16	0.51	2	7	3	1	5	8	3	[illegible]

The highest temperature during the above period occurred on the 5th, 1832—therm. 74 deg.; and the lowest on the 6th, 1851—therm. 21 deg.

Notices to Correspondents.

Asparagus: *T A.* Salt it now and again in July. Apply it when the weather is wet, at the rate of about 4 lbs. to a rod.‡

Books: *J A* will feel obliged by some of our correspondents informing him where a copy of the second part of the Transactions of the Scottish Arboricultural Society can be obtained.—*R D* would be grateful for information as to some book on Practical Gardening in North America and its price.

Cherimoyer: *W J.* The seed with which you have favoured us is that of Anona squamosa, one of the true Cherimoyers. It must be raised in a hotbed, and treated as a stove plant. We are sorry to add that there is little probability of its ever rewarding you with fruit.

Frauds: *Manchester.* We can do nothing further at present, not having been victimised. Our public duty is in fact performed; it now remains for others to do theirs.

Heating: *G R.* Your boiler being so far off must have the pipes carefully cased over till they enter the house. A brick trough filled with small cinders will do very well, if covered in and banked over. 3-inch pipes are large enough; but 4-inch are preferable, because they retain heat so much longer. Your tank will be large enough if it contains 4 gallons. It is chiefly wanted to allow for the expansion of the water when heated.

Mowing Machines: *H G.* Much obliged, but we cannot insert the opinions of makers as to the merits of their own machines.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R H.* It seems to be Irish Ivy; the length to which that grows in a year depends upon the soil in which it is planted.

Seakale: *J H.* Too low a temperature is doubtless the cause of your Seakale not pushing satisfactorily. It may be that the roots are too deep in your rich loam to be reached by the warmth from above, or it may be that the covering material itself is too cold; there, however, can be no doubt that in one way or other your failure arises from a want of sufficient heat.‡

Shaving: *Paterfamilias.* The only place that we know of where Saunders' American quadrangular strop is sold is Wilson's, 277, Strand.

Ventilation: *J H.* We should use the method of ventilating described in the Theory and Practice of Horticulture, page 236. You can cover the flue with stone, if slate is not to be had: or with rough slabs coated with turf, and round stones on the upper side, provided you can keep them damp enough not to catch fire; and that may be done by placing a chimney-pot or two upon them, heaping the earth round the pot and pouring water as often as is needed into the pot. Of course the water will flow among the round stones and keep the slabs wet.

Wages: *A B.* Your question was answered last week; see p. 216, col c. The proper notice depends upon the manner in which wages are paid; if weekly a week's notice is enough, if monthly a month's—and so on.

Wistaria: *Pershore.* We never before heard of Wistaria (Glycine) frutescens magnifica, and certainly should not grow it without some sufficient guarantee of its distinctness.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

LONDON MANURE COMPANY
(Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

PATENT WOOL MANURE COMPANY.—
(LIMITED.)
Office, 81, Gracechurch Street, London.
Manfactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

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Offices, 109, Fenchurch Street (E.C.).
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BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
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CUERO GUANO.—From a given weight of Cuero Guano may be obtained the same immediate results as from a similar weight of Peruvian Guano, while its beneficial effects upon future crops will be felt long after Peruvian Guano has ceased to have any influence. The following is from Professor Way:— "15, Welbeck Street.

"Sir,—On reference to my books, I find that the Manure which I analysed for you in April last year contained 66½ organic matters, 8 ammoniacal salts (yielding 7 per cent. of ammonia on the Manure) and phosphoric acids, soluble in water, equal to 27¾ per cent. soluble Phosphate of Lime. Such Manure would, in my opinion, be very valuable, either for Corn or Root Crops, but for the former purpose, I would advise you to reduce the proportion of soluble phosphates which appears unnecessarily large.—I am, Sir, your obedient servant, "J. THOMAS WAY,
"To Mr. Chisholm. 11th February, 1857."

Price delivered at any Railway Station in London:—
For Root Crops and Grass Land ... 7*l.* 10*s.* per ton.
For Corn and Hops ... ... 8*l.* 8*s.* "

JOHN CHISHOLM, SON, & Co., Cuero Guano Works, 68, Willow Walk, Bermondsey, London, S.E.

REIGATE SILVER SAND, 16*s.* per Ton. Less quantities, 1*s.* 6*d.* per bushel. Delivered to any London wharf or railway, or within five miles. Peat and Loam for all kinds of Plants. Samples if required. Sacks, 2*s.* each, or on hire.
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THE CELEBRATED REIGATE SILVER SAND, 15*s.* per ton, a less quantity 1*s.* 6*d.* per bushel; delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s.* 6*d.* each. The above Sand is warranted. Orders immediately executed.—Address to John G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

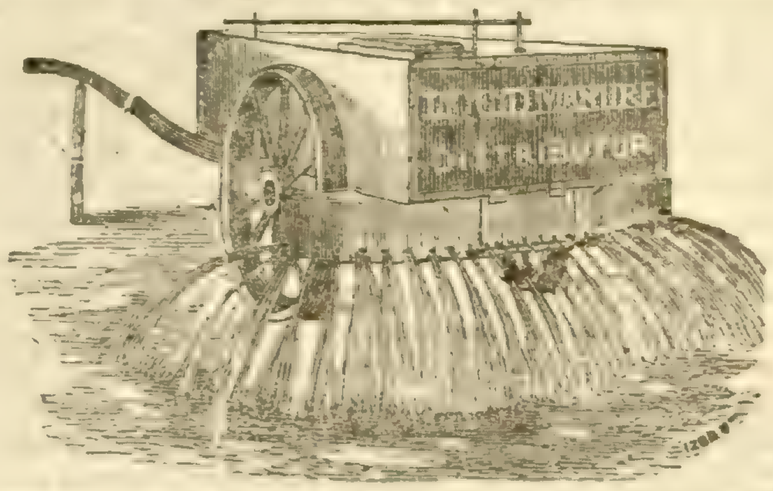
N.B. Goods landed, shipped, housed, and carted.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

LIQUID MANURE.

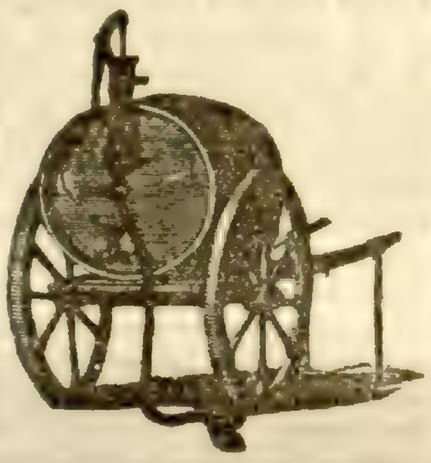


PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c. warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its Liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

PRIZES:—
A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1¼ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

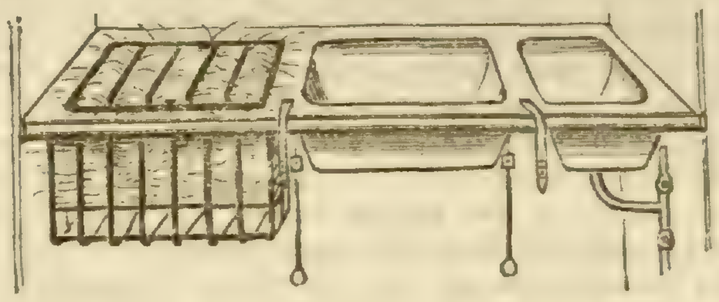
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ "	long 3 " 3 "		1 14 0
3 "	ditto 3 " 6 "		2 8 0
3½ "	ditto 3 " 6 "		2 12 0
4 "	ditto 3 " 6 "		3 8 0
2½ "	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these Fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.

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WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS Milbank Street, Westminster.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

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"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

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Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, APRIL 4, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	April	6	Chemical Soc. (Sewage of Towns) 8 P.M. Central Farmers' Club ..... 6 P.M.
MONDAY,	—	6	Cattle Show at Poissy.
TUESDAY,	—	7	
WEDNESDAY,	—	8	
WEDNESDAY,	—	8	Society of Arts ..... 8 P.M.

THE attention of every one is directed at present to the fatal disease, virulently contagious in its character, which is now raging over a large portion of the North of the Continent of Europe. It is supposed to be of a typhoid character, and every one in the country has now heard of the cattle murrain. A vivid recollection of the alarm produced by the importation of the small-pox with foreign sheep, and a knowledge of the vast amount of property in the shape of horned cattle that has succumbed to that destructive disease—the pleuro-pneumonia, induces great alarm on the part of farmers and graziers lest another still more formidable disease may be imported; and that this alarm is well grounded we must acknowledge, if we bear in mind the fact that the loss experienced by the introduction of such a disease amongst our valuable cattle would very soon immeasurably exceed the value of the animals derived altogether from foreign supply, and thus the nation, as well as individuals, would reap a great loss.

The opinions of veterinarians are not so divided and opposed to each other as to the contagious or infectious character of many dis-

eases as those of the medical profession, yet much difference of opinions still really exists, as may be seen from the conversations which have taken place of late at the meetings of the Royal Agricultural Society. There can, however, be little or no doubt as to the very infectious character of the disease in sheep known as small-pox, and certainly, although by no means so easily proved, the weight of evidence favours the theory that the pleuro-pneumonia is also infectious.

There is nothing more mysterious than the causes of diseases of an epidemic character. The immediate cause is no doubt the existence of some peculiar poison, which, however it may have been first induced, afterwards acquires fresh food and fresh activity from the emanations of those animals that have suffered under its influence.

It is sufficient to know that the Cattle Murrain is regarded on the Continent as an exceedingly infectious as well as fatal disease, so that the most rigorous measures are adopted in every neighbouring locality to guard against its approach, or to destroy the poison in the germ should it have made its appearance. It is recommended, as being the most effectual means, to destroy every affected animal, and to bury or otherwise destroy the carcases—the hides being immediately tanned, and the houses purified with chlorine. There appear to be two varieties of the disease,' one called the Pulmonary Murrain, the other and more fatal, the Steppe Murrain. The former appears to resemble in a great degree the disease known in this country as the Pleuro-pneumonia. The first stage of this disease is attended with a dry short cough, which may exist for several weeks. In the early stage the animals may be cured, but other stages follow, the symptoms of which resemble those of the Steppe Murrain, and it ends in a similar manner, the lungs exhibiting an indurated appearance and an entire change of structure.

The symptoms of the Steppe Murrain, as it exists in the neighbourhood of Mecklinburg, have been thus described, and we give the account in the language of the correspondent by whom it has been transmitted. He says:—

"From the taking or first attack of the disease till its breaking out *seven days* generally elapse, during which the cattle attacked are at times more dull, at times more lively than usual. They hold down their heads, butt with their horns frequently low, and when driven to water often jump about and become quite unruly. Sometimes they take their food and chew the cud with unusual quickness, sometimes not at all. Towards the fifth day respiration becomes somewhat affected, they are attacked by an unfrequent but short dry cough, the back is somewhat bent, and when stroked is unusually sensitive. On the eighth day the disease breaks out: the hair stands on end, the eyes are fixed and dull, nostrils and muzzle hot and dry, inside of mouth hot and of a deep red, gums spongy and swollen and marked with red spots, front teeth loose; hide hard like parchment, and adhering to bones; ears and horns febrile, with intermittence of great heat and cold; respiration accelerated but deep with visible motions of nostrils; cough more frequent, violent and ringing; pulse hard, from 70 to 75 pulsations per minute; appetite entirely gone. Though some cattle in this stage of the disease take their food as usual, most of them are unquiet, toss up their heads, shiver and gnash their teeth. If stroked on the back they bend down and low moantully, seldom lie down, and when they do so instantly get up again; they void excrements frequently and urine seldom. In voiding excrements the back is much bent, the animal turning its head towards the rump and striving to lick it. Excrements are dark coloured, hard dry ustulations pellets, urine red and clear. The fever is more intense in the evening than in the morning; and as it increases, the animal shakes its head, shivers, gnashes its teeth, and refuses to take food. Cows give but little milk, which is however more creamy than usual. Ninth and tenth day fever becomes putrescent; small white pustules break out in the mouth which when they burst leave dark red spots that easily bleed. Similar pustules appear in the nostrils and between the clefts of the hoofs, the hide is in some places intumescent, the eyes are dim, the eyelids hanging down. From the eyes flows a watery humour which dries up at the edge of the nostrils; nostrils exude a dingy white viscous humour; the tongue is shrivelled, and often hanging loose out of the mouth, covered with an impure saliva; the teeth are loose; the mucous membrane of the mouth sabaceous, and falling off in large places; breath putrid and nauseous; muzzle hard and cracked like the bark of a tree; hair rough, and without the least gloss; parchment-like hide, now covered in some places with nodules, on which appear small pustules containing a yellowish humour; pustules burst, humour dries up and a mangy eruption ensues, commonly on the back, anus, and udder; rumination ceases; animal reduced to a skeleton; pulsation 80 to 100 per minute; respiration quick, wailing, and painful; intermittence of heat and cold; on the sides of the more diseased lung heat greater, and of longer duration; excrement previously hard, now soft, loose, and watery. This state is followed by choleraic diarrhœa, with acrid purulent brownish or blackish green fæces, smelling like carrion. If constipation now ensues animal swells up and soon dies; if, instead of diarrhœa, a more natural evacuation of the bowels takes place; if the animal warmth becomes more normal, respiration more free, pulse slower and fuller; if the hide scales off, and regularly running sores (abscesses) are formed, recovery may be expected. This is, however, very seldom the case; the above-mentioned symptoms generally increase after a short illusory amelioration. The animal then staggers, falls, rolls on the ground, gasps for breath, swells up, is seized with convulsions, and dies."

It would be at the present time a fruitless task to specnlate on the best curative treatment adapted for such a disease. Our grand endeavours ought to be directed to warding it off—in the first place to take advantage of our insular position, and to guard against its approach; and in the second, to destroy the poison in the germ should it unhappily make its appearance. It is well known that for some years past veterinary inspectors have been appointed at the various outports, whose duty it is to examine cattle and sheep coming from abroad, and it is no doubt in great measure owing to the general knowledge of the existence of this precautionary measure that diseased animals have not been imported. It is fortunate that this has been the case, for up to the present time no power has been vested in the inspector to order the destruction or even the detention of apparently healthy animals belonging to the same herd or cargo in which an animal with an infectious disease may be found. Neither has any power been given to detain an animal that may be in simply a doubtful or suspicious state. The principle acted on has been "sufficient for the day is the evil thereof," and thus the inspector has been extremely unwilling to act unless the case has been beyond suspicion. It is however satisfactory to observe that since the alarm that has been excited with regard to the introduction of the murrain, more stringent regulations have been issued by the Commissioners of the Board of Trade, and the following are the directions now given.

On the arrival of a vessel with cattle, sheep, &c., they are to be kept in charge until each animal has undergone a careful examination, and if found free from disease the whole are to be passed immediately; but in the event of any disease being found to exist they may be immediately killed if the veterinary surgeon considers it necessary. If the meat is on examination found fit for consumption, it is to be delivered to the owners; but if unfit, and the disease be of an epidemic or contagious character, the bodies are to be buried or effectually destroyed in the presence of an officer, and the remainder of the importation detained for further examination so long as the veterinary surgeon may deem necessary, and dealt with as before directed. The expenses incurred in detaining the whole or any part of the importation, or in killing or destroying those unfit for human food, to be defrayed by the owner.

Now the important question for consideration is, Are the precautionary measures we have mentioned sufficient? Presuming that the disease can only be brought into this country by means of imported animals, and reflecting on the vast amount of individual and national loss a visitation of such a disease would occasion in this country, we are disposed to ask, Would it not be the lesser evil of the two to *prohibit the importation of horned stock altogether from the northern ports during the prevalence of this disease?* If this measure should appear too stringent for present adoption we would strongly urge that at least the system of *quarantine* should be adopted. We have seen in the account of the symptoms that the disease may exist in a comparatively dormant state for the space of *seven or eight days.* Now, as the voyage may by means of steam be performed in two or three days, what is there to prevent animals in the first stage of the disease becoming introduced into the country? Cattle coming off a long voyage are sometimes affected with sea-sickness although they do not vomit, and sometimes they are in a state of irritation or of depression from the confinement and insufficient rest they have experienced. It would be very difficult indeed for the veterinary inspector to distinguish between the first symptoms of murrain and the effects of the voyage. We would therefore urge that in default of prohibited importation *all cattle coming from a northern port should either be slaughtered on the dock premises within a few days of their arrival, or otherwise should und rgo a quarantine of not less than* 14 *days* from the commencement of the voyage before they are allowed to be removed from the dock premises or beyond the surveillance of the veterinary inspector. It should be borne in mind that foreign cattle are not required in this country for breeding purposes, nor for any other purpose than for food, and therefore the slaughtering them on the dock premises would be no great injury. We would, therefore, in conclusion urge it as a point of the utmost importance, that if a single animal should exhibit decided symptoms of the disease, the whole of the importation should be speedily slaughtered.

[To this we merely add a reference to the voluminous correspondence in another page, indicating that our national agricultural societies are fully alive to the importance of the emergency. It will be seen that Professor Simonds has been commissioned to report on the character of the disease as it exists on the Continent. We understand he leaves for Germany early next week.]

The return of Mr. James Caird for the borough of Dartmouth is a gratifying piece of agricultural intelligence, and as such we have great pleasure in announcing it. There is many an agricultural subject brought every year under the attention of the House of Commons, and Mr. Caird's presence there will be the guarantee of a more practical discussion of them than they have hitherto received.

SUBURBAN FARM.—No. 1.

I understand you have taken some 40 acres of land around your house as an occupation for yourself and an assistance to the housekeeping; and an occasional calendar of the operations needing performance may therefore be of service to you.

The land is laid out in four Grass fields, of about 4 acres each, and 6 arable fields, varying from 2½ to 6 acres, besides the garden, back garden, and another ¼ acre slip, of which, as they are all already fully stocked and planted, I shall say nothing.

Let me in the first place just estimate the capital needed in the management of such a farm. The rent (such a portion of your annual payment as properly falls upon the land) may be put at 92*l.* a-year, and of your rates the portion falling on the land may amount to 18*l.* We therefore have (1) *Rent and Taxes*, 110*l.*

As to the other items it is plain that ordinary agricultural experience will not apply. A small farm always costs more than a large one in horse labour and implements, and also, if it is to pay, in live stock too; because the closer attention that can be given will ensure green crops requiring a larger stock of cattle or sheep to consume them. Ordinary experience puts the capital on arable land at 10*l.* or 12*l.* an acre, and on pasture land at 6*l.* to 8*l.* per acre; so that taking one with the other you would need to invest about 400*l.* But let us see how this applies here.

(2). As to *Implements*, you would need—

	£	s.	d.
1 plough and draught-bars	4	10	0
2 carts	24	0	0
1 light roller	3	0	0
and as it is light land—			
1 heavy roller	8	0	0
1 pair of harrows	4	0	0
1 horse-hoe	2	0	0
1 chaff-cutter	3	0	0
1 Turnip-cutter	3	0	0
Liquid manure cart and pump	12	0	0
2 wheelbarrows	1	5	0
4 sheep-troughs	2	0	0
Ladder	1	0	0
3 hay-forks	0	12	0
Spade and shovel	0	7	0
2 digging-forks	0	9	0
2 buckets	0	7	0
3 pig-troughs	1	4	0
3 pig-vessels	1	10	0
6 cattle chains	0	15	0
Winnower	7	0	0
Barn shovel	0	4	6
3 measures	0	13	6
4 riddles	0	10	0
40 sacks	4	0	0
3 baskets and chaff-basket	0	11	0
Dairy utensils—			
Churn	3	0	0
6 pans	0	12	0
2 milking pails	0	10	0
Stable utensils—			
Corn-bin and stable utensils	1	0	0
Harness for 2 horses	8	0	0
	£99	2	0

I do not go into the cost of brewing or washing utensils, nor into that of garden tools, as these may be considered more properly household expenses—but it is plain from the above that the cost of implements on a small farm is equal to that on a farm needing a pair of horses—and more than one fourth of that needed on a farm of four pair of horses. Here are 100*l.* gone for implements already—sufficient on a large farm for providing all the tools needed on 90 or 100 acres of land. If however you enter to the second-hand implements of your predecessor, very probably the amount will not exceed one-half or two-thirds of the above.

3. *Live Stock.* In calculating the amount under this head I would propose to you under the circumstances of your Grass land, which is not very good, to convert your green food into money by rearing heifer calves. You may very well keep two cows and sundry calves on one-half or two-thirds of the Grass land, together with mown Trifolium or Italian Rye-grass or Clover. On these two cows you can, in two or three successive lots, very well wean 14 calves which you must purchase. They must all be good of their sort—the cows in order to give milk enough to wean a number of calves—the calves because on their being two or three weeks old when you get them depends your ability to keep two or three going on the milk of one cow, and because on their being of a good sort depends the price you will get for them when they are 18 or 20 months old, when I propose that you should part with them.

The two cows then I will put at 40*l.*; the 12 bought calves (two being reared from the cows) at 24*l.* You will be able to keep a couple of breeding sows, and their produce, 6*l.*; I say nothing of sheep, because although as you are situated at present you would be better with some to consume your Trifolium in May and June, yet as a general rule you need not buy any except a few to run in your pastures during winter. If you have 30 and a ram for that purpose, you can sell the latter before Christmas and keep on the ewes and their lambs on Rye and Trifolium, taken from the land that you will have your Swede crops from; and so, selling them all after fattening the earlier lambs and consuming all the Rye and Trifolium, you would get a profit of 20*s.* a head. This, if you put it down here, would cost you 50*l.*, so that the whole capital under this head would be 120*l.*

(4.) *Seed.*—Supposing that of the 6 fields of arable land 10 acres are in Wheat, 2 acres in Beans, 2 acres in

Oats, 4 acres in Clover and Italian Rye-grass, 1 acre in Trifolium, to be followed by Swedes, 1 acre to be Carrots, 4 acres to be Mangel Wurzel, 1 acre in Potatoes; then your seed bill for the year will have amounted to—

	£	s.	d.
16 bushels of Wheat, at 10s.	8	0	0
4 " Beans, at 6s.	1	4	0
4 acres of Clover and Rye-grass, at 20s. ...	4	0	0
7 lbs. of Carrot seed	0	14	0
28 lbs. of Mangel seed, at 1s.	1	8	0
7 sacks of Potatoes, at 15s.	5	5	0
4 lbs. of Swede seed	0	4	0
	£20	15	0

(5.) *Manures.*—As I shall go in my next letter into the question of manure, I will only put down here as an annual sum spent on guano, and desirable under your circumstances at least, 30*l.*

(6.) The cost of labour must be considered in my next letter. I will at present only put it now at about 100*l.* to 120*l.* This I shall go through in detail in my next. To recapitulate, then, we have—

	£	s.	d.
1 Rent and taxes	110	0	0
2 Implements	99	0	0
3 Live stock	120	0	0
4 Seed	20	15	0
5 Manure...	30	0	0
6 Labour	120	0	0
7 And to this must be added for 2 horses	40	0	0
Making the farm capital needed about ...	539	15	0

Of these items the annual payments will be—

	£	s.	d.
Rent and taxes	110	0	0
12 calves	24	0	0
Seed	20	15	0
Manure...	30	0	0
Labour	120	0	0
Besides 5 per cent. on all the live stock to keep it good against disease, &c.	6	0	0
And 10 per cent. on the horses for the same purpose...	4	0	0
And 10 per cent. on the implements to keep them good against depreciation	10	0	0
So that the whole annual sum to be provided by the farm to make it balance its account will be	320	15	0

The question is whether or not you can get 320*l.* a year from your farm. You will have 20*s.* a head on the sheep, 30*l.*; 14 yearlings 18 to 20 months old, 140*l.*; the produce of 2 acres of Beans, 60 bushels at 5*s.*, 15*l.*; 10 acres of Wheat, 36 bushels at 7*s.*, 126*l.*; some of the hay which your carriage-horse stable will require from the farm, say 6 loads, 30*l.*; 1 acre of Potatoes, 40 sacks, 20*l.*

And as I have so arranged your stock that only the cows and the 16 calves and the ewes in the pastures will be wintered every year, there will be a large quantity of Mangel, Carrots, and Swedes to sell every year. For these you can get 25*s.*, 50*s.*, and 30*s.* per ton respectively delivered in London.

In addition then to this source of income, which I shall not estimate in figures, you may expect an annual income from the farm of 361*l.*

I will not go into detail further on this point just now, but as the time for planting Mangel Wurzel and Carrots is getting on, and Clover seeds must be sown, I will just remind you that for 4 acres of your 5-acre Wheat field you will need 56 lbs. of Red Clover seed and 24 lbs. of White Clover seed; for 1 acre of Carrots you will need 6 or 7 lbs. of White Belgian Carrot seed; for 4 acres of Mangel Wurzel you will need 28 lbs. of the Elvetham Long Red Mangel seed, all of which should be got at once. The Wheats should be all rolled when dry and hand-hoed, and the Clover seed may be mixed, and sown on 4 acres of the 5-acre field, leaving 1 acre next the pasture field unsown for Italian Rye-grass, to be sown in autumn.

The land for the Carrots should be rolled over as hard as possible, and the seed sown by hand in rows 15 inches apart, covered as lightly as possible, and having a few Oats mixed with it to mark the rows, in order that you may be able to hoe them though the seeds should not have come up. The Carrot sowing, Wheat hoeing, and Clover seed are the most pressing things at present.

My next must be on the labour and manure accounts, and the care needed of your live stock. This fine rain is the very thing for your light land. *M. S.*

MANURE FOR MANGEL WURZEL.

THERE is probably no root crop grown by the English farmer which is more under the influence of manure than Mangel. To no other green crop can a heavy dose be so safely applied, and the only question with the grower is to ascertain the kind of manure which at the least cost will produce the greatest effect. Not knowing exactly what might be the most suitable dressing for this crop, I last spring adopted the safe method of applying a mixture of all the best manures in the following liberal proportions, viz.:

15 cubic yards of good dung,	2 cwt. of superphosphate,
2 cwt. of Peruvian guano,	2 cwt. of nitrophosphate,

4 cwt. of common salt,

to each acre of my general crop on a good loam in Kent, within 10 miles of London, and the result has been very satisfactory. The produce of one measured acre, probably the best in the field, weighed upwards of 40 tons of roots (the Yellow Globe variety), and the whole field has averaged over 30 tons. In order to ascertain which one of these manures had the best effect, I directed a series of experiments to be made in another field, where the soil was more gravelly and not quite so favourable to the Mangel crop. There were twelve experiments altogether, each occupying the tenth part of an acre, each comprising three rows of roots, the middle one of which was weighed in testing the results. The whole plot was of uniform soil, the previous crop on which had been Wheat after Italian Rye-grass. The experimental crop of Mangel varied from 11 tons 18 cwt. up to 30 tons 12 cwt. an acre—the best acre being thus nearly three times as productive as the worst. The best and the worst are here brought together:—

The Best received

20 cubic yards of dung
4 cwt. of Peruvian guano } and produced 30 tons 12 cwt.
5 cwt. of common salt

The Worst,

8 cwt. of superphosphate alone, and produced 11 tons 18 cwt.

It is thus clear enough that superphosphate by itself is not a good manure for Mangel. Taking the best again as the point of comparison, I compare it with

The Second Worst,

8 cwt. of nitrophosphate alone, and produced 12 tons 11 cwt.

and with

The Third Worst,

5 cwt. of Peruvian guano alone, which produced 12 tons 15 cwt.;

experiments which show equally clearly that neither of these manures singly will ensure a good crop of Mangel. But in case these applications had been made in too small quantities, I tried a second series with larger quantities applied singly, and embracing a comparison with dung alone, with the following results:—

	tons.	cwt.
40 cubic yards of dung produced	21	3
7½ cwt. of Peruvian guano	17	17
12 cwt. of superphosphate	14	19
12 cwt. of nitrophosphate	15	6

The best of these is nearly a third short of the best experiment, and the worst is more than one-half deficient. The next series is a mixture of all the manures in various proportions, salt however being an additional constituent of each:—

		tons.	cwt.
1. 20 cubic yards of dung, 1 cwt. of Peruvian guano, 1 cwt. of superphosphate, 1 cwt. of nitrophosphate, 2 cwt. of common salt	produced	25	10
2. 2 cwt. of Peruvian guano, 2 cwt. of superphosphate, 2 cwt. of nitrophosphate, 2 cwt. of common salt	"	20	6
3. 1½ cwt. of Peruvian guano, 1½ cwt. of superphosphate, 1½ cwt. of nitrophosphate, 1½ cwt. of salt	"	19	11

In each of these cases the proportion of salt seems to have been too low, as, by running the eye down the annexed general table of the experiments, it will clearly be seen that in every instance where salt forms an ingredient of the manure the produce is increased.

This brings me to the last of the series, though the first in the table, which, taken with the effect of salt in all the other cases where it was applied, clearly shows that for my soil and locality salt should form a main ingredient in any mixed manure for the Mangel Wurzel crop. Thus—

20 cubic yards of dung, and 4 cwt. of Peruvian guano, gave 23 tons 16 cwt.

While the same manures, with the addition of 5 cwt. of salt, gave 30 tons 12 cwt.

The additional 6 tons 16 cwt. were thus obtained at the moderate cost of 7*s.* 6*d.*, the price of 5 cwt. of salt.

The annexed table shows the details of the whole series of experiments, with the cost of the manure and the produce of the crop. I hope it may be found to contain some useful hints to Mangel growers as to the best mixtures of manure for that crop.

"Sir,—The enclosed experiments were carefully conducted; the dung was drawn and spread under my eye; the artificials sown with my own hand; the roots were pulled and weighed in my presence; in short they have received my best attention. WM. HORN, Farm Bailiff."

Experiments with different manures on Mangel Wurzel. Crop of 1856. Sown May 21; raised Nov. 12.

No. of Lots.	Kind and quantity of manure per acre.	Cost per cubic yard or cwt.	Total cost of manure per acre.	Produce per acre.
			£ s. d.	tons. cwt.
1	20 cubic yards of dung ...	per yard, 3s. 6d.	5 18 0	23 16
	4 cwt. guano	per cwt., 12s.		
2	20 cubic yards of dung ..	per yard, 3s. 6d.	6 5 6	30 12
	4 cwt. guano	per cwt., 12s. 0d.		
	5 " salt...	1 6		
3	20 cubic yards of dung ...	per yard, 3s. 6d.	4 18 6	25 10
	1 cwt. guano	per cwt., 12s. 0d.		
	1 " superphosphate ...	7 0		
	1 " nitrophosphate ..	6 6		
	2 " salt...	1 6		
4	40 cubic yards of dung ...	per yard, 3s. 6d.	7 0 0	21 3
5	2 cwt. guano	per cwt., 12s. 0d.	2 14 0	20 6
	2 " superphosphate ..	7 0		
	2 " nitrophosphate ..	6 6		
	2 " salt	1 6		
6	7½ cwt. guano	12 0	4 10 0	17 17
7	12 " superphosphate ...	7 0	4 4 0	14 19
8	12 " nitrophosphate ...	6 6	3 18 0	15 6
9	1½ " guano	12 0	1 16 0	19 11
	1½ " superphosphate ..	7 0		
	1½ " nitrophosphate ...	6 6		
	1½ " salt...	1 6		
10	5 " guano	12 0	3 0 0	12 15
11	8 " superphosphate ...	7 0	2 16 0	11 18
12	8 " nitrophosphate ..	6 6	2 12 0	12 11

—*Mr. Caird, Langley Park, in the English Agric. Jour.*

APPLICATION OF LIQUID MANURE.

First. The period for which the urine should be kept depends much on the after use to which it is to be applied. If it is to be mixed in composts of vegetable mould, Moss or black earth, which are excellent absorbents, and well adapted for fixing the gaseous and volatile parts of urine, I should then apply the liquid in its fresh state; but when it is intended to be spread over the young plants, either of Grass or Corn, I should by no means do so. It is evident that urine, in its fresh state, is apt to scorch the tender plants, unless it were applied in rainy weather; and on land abounding in vegetable matters, this fact may be clearly elucidated, by observing the urine of the cattle as dropped in the fields. In wet weather, and on rich pasture lands, no injurious effects from the urine can be traced; but in scorching sunny weather, and on dry gravelly soils, with a scanty herbage, the brown scorched spots where the urine has been dropped are at once perceptible. Urine in its fresh state can never be taken up by plants till it undergo a certain chemical change, known by the name of decomposition; and when applied to poor gravelly soil, void of organic or vegetable matter, it is not retained long enough for its putrefaction taking place. It is put on in the name of liquid manure, and runs off nearly in the same state; hence the cause of so many failures in its application. When the manure is to be applied to the crops in a liquid state, it should be left in the tanks for a month or five weeks, when the necessary change will have taken place, which may be promoted, and the ammonia completely fixed, by sulphuric acid or gypsum (sulphate of lime). As sulphuric acid is seldom of one strength, no precise quantity can be stated exactly for fixing the ammonia in urine; but on trial I find the average quantity necessary for that purpose to be a half cwt. of acid to 1000 gallons of urine. The only sure rule, however, is to pour acid into the urine until the effervescence stops; or to get a piece of grey litmus-paper (which almost any druggist can prepare); dip it in the urine, and if the liquid redden the paper, there is a superabundance of acid, but if the paper turn blue the ammonia predominates. When there is no excess of either substance, the ammonia may be said to be fairly fixed, and the paper will retain its original colour. When the ammonia in the urine is thoroughly neutralised by the acid, it may immediately be applied as a top-dressing to almost any crop; but I have always found its effects to be most immediate and useful when applied to the crops in soft, damp, and rainy weather.

Second. The liquid manure of the farm may be advantageously put upon the land in various different forms according to the season of the year, the state of the weather at the time, and the crops to which it is to be applied. At one time I used it, chiefly in the liquid form, as top-dressing to Grain and green crops, particularly to new Grass; sometimes with good results and sometimes not. The state of the weather affects it so much, that when drought set in immediately after it was spread, I have often seen a dressing of from 2000 to 3000 gallons per acre do little or no good, even when the ammonia was properly fixed with the sulphuric acid. The only way I ever succeeded in making a direct payment from top dressing with urine alone, was by applying it to new Grass in spring, and that only in damp rainy weather. I found it to withstand drought better when diluted with two or three times its bulk of water; but that cannot be carried out profitably, to any extent, without the aid of steam power.

In the dry months of spring and summer much of the liquid may be used with advantage in pumping it over the dunghill. I have adopted the plan for a long time back, and am convinced of its excellent efficiency. Dung treated in this manner never fails to produce good crops, and the urine contained in it must be ready food for plants, in the first stages of their growth; besides, it can be carried to the fields in a portable and easy form, with little or any extra labour. Some may be ready to conclude that the urine should all be sent to the fields along with the dung; to such I would say, this would undoubtedly be the easiest way if the dung would carry it. But with the quantities of Turnips now consumed, the dunghill would scarcely retain the half of the liquid manure of a farm, even although regularly spread over it in the most careful way.

In disposing of the liquid in winter, or at any other time when it can be spared, I have always found it best to mix it in vegetable matters, mould or Moss, which should always be prepared a year before, in order that it may be thoroughly decomposed. In forming a compost-hill, the only thing worthy of consideration is, to render the carting of the materials as easy as possible. Well prepared compost, properly saturated with liquid manure, is adapted for all descriptions of crops, and seldom fails to produce a remunerative return on all soils and in all seasons. I am therefore strongly of opinion that the liquid manure of a farm cannot be applied to the soil in a better form than by mixing it with the dung and other fertilising matters. In fixing the ammonia in dunghills gypsum is perhaps the preferable thing, for a slight sprinkling of this, particularly in dry weather, has a wonderful effect in retaining it; and moreover the low price at which it can be got is a strong recommendation in its favour. I have often used it for this purpose, and fully believe that it paid me well. I object to sulphuric acid as a fixer of ammonia, solely on account of its exorbitant price.

Third. The next and most important point to elucidate is the profit of the process herein described.

I shall, therefore, give in detail the whole cost of the works already alluded to, compared with the returns actually obtained, viz. :—

	£	s.	d.	£	s.	d.
To cutting the foundation of 2 cemented tanks	1	5	0			
„ cost of materials, carriages, and building do.	18	0	0			
„ metal agitator and 2 pumps ..	3	1	0			
				22	6	0
„ cutting the foundation of 1 circular tank	1	1	0			
„ cost of masonry, and cost and carriage of materials	4	0	0			
„ metal agitator, 1 pump, and planks for covering tank	2	15	0			
				7	16	0
„ cutting 198 yards of drains 2 feet deep at 1d. per lineal yard, including making of cesspools	0	16	6			
„ 198 yards of 4-inch clay pipe, glazed inside, at 1s. per running yard ...	9	18	0			
„ carriage of do.	1	8	0			
„ laying of the pipes, carriage of clay, and filling in of the drains, including fixing in of cesspools	1	18	6			
„ cast-metal boxes for cesspools, including perforated metal-gratings for covering them	4	4	0			
„ cost of a leather nozzle for conveying the liquid from the pumps to the cart	1	5	0			
„ cost of an iron scoop for cleaning cesspools	0	1	6			
„ cost of a cart for driving the liquid	6	10	0			
„ cost of a small pump for pumping the liquid from the cart on a compost-hill	0	10	6			
„ cost of wooden spouts for tracing the liquid over the dung and compost-hills	0	6	0			
				26	18	0
Total original outlay for work				£57	0	0

As most of these works are of a permanent character, calculated to last for a long space of time, it may be reckoned a fair return for the capital expended to charge on it an annual interest of 5 per cent. To meet the annual expenditure in maintaining the works, a sum of 1*l.* 10*s.* will be amply sufficient, for, excepting the cart, the pumps, and the spouts, the other appendages can need little repair.

About one-half of the urine annually saved here (12,000 gallons) is applied to the land along with compost, in various quantities, according to the quality of the land, and the crops to be raised. I shall now give in detail the cost of applying the above 12,000 gallons, compared with the increased value of the crop thereby obtained; and in order to approximate as near the truth as possible, I have averaged the increase of five successive years.

Cost of the Application to an Oat Crop after Lea on 12 Acres of Land.

	£	s.	d.
By cost of collecting, making, and laying on 240 yards of compost, at 1s. per cubic yard	12	0	0
„ a man and horse carting urine 60 hours	1	10	0
„ a man occasionally working agitator in tank ...	0	5	0
„ half the interest on original outlay for works (57*l.*) at 5 per cent per annum	1	8	6
„ half the estimated annual cost of keeping the works in repair	0	15	0
Total cost of applying the liquid	15	18	6
To an average increase of crop obtained by such an application. 2 quarters 1 bushel per acre, or 25 quarters 4 bushels on the 12 acres, at 1*l.* 5*s.* per quarter for Oats and straw	31	17	6
„ Less cost of harvesting, at 1*s.* 6*d.* per quarter ...	1	18	3
„ Value of increase of crop from the 12 acres ...	29	19	3
„ From which deduct cost of the application ...	15	8	6
Showing a clear profit on the 12 acres of	14	0	9

Although I have only charged the compost at 1*s.* per yard, it will generally cost about 3*d.* more; but I consider that sum will be more than compensated by the after benefit conferred on the land.

The expense of distributing urine in compost must vary according to circumstances—the distance the compost has to be collected, and the quantity of it applied to the land. In this experiment, the soil was poor and gravelly, and much in want of a mixture of vegetable mould. But on soils of a rich alluvial nature, one-third of this compost would be quite enough. In fact, I should never give it more than sufficient to carry the necessary quantity of urine to the land, which, of course, would lessen the cost of distributing the liquid to a very considerable extent.

The other half of the liquid (12,000 gallons), I have generally disposed of in watering the dung; and, after repeated trials with dung made in this way, compared with that unwatered with urine, I have found the following average results on the Turnip crop—

The quantity of dung to which the liquid was applied was about 400 cubic yards, spread over 24 acres of Turnips.

Cost of Distributing the Liquid.

	£	s.	d.
By carting 6000 gallons of urine to dunghills in the fields	0	15	0
„ a man occasionally working agitator in the tank	0	2	6
„ pumping 6000 gallons of urine over the dung in the pit	0	3	0
„ a man working agitator in the tank	0	2	6
„ half the interest on original outlay for works (57*l.*), at 5 per cent per annum	1	8	6
" half the annual cost of keeping the works in working repair	0	15	0
Total cost of distributing the liquid	£3	6	6
To increase of produce on 24 acres of Turnips, arising from the application of the liquid to the dung at the rate of three tons of bulbs per acre, equal 72 tons of Turnips, at 7*s.* per ton	25	4	0
From which deduct cost of applying the urine ...	3	6	6
Leaving a clear profit on the 24 acres of Turnips of	£21	17	6
To which add profit on the other half of the urine applied with the compost	14	0	9
Total profit on the year's urine	£35	18	3

Or an item of nearly 4*s.* per acre over the whole farm.

From these statements it may readily be seen that the urine-manure of the farm is easiest managed and pays best when mixed with the dung; but as there will generally be plenty to do to carry the half of the dung to the fields, we must therefore dispose of the remainder some other way. The next best mode I have found is to mix it with composts, as before described; and this is doubtless the preferable plan for all soils of an inferior description. When compost, however, is difficult to get, and the land of a fair average nature, the urine may then be applied in the liquid form to new Grass or corn early in spring, and always in damp rainy weather. By giving a dressing of 2000 to 3000 gallons of the liquid, I have sometimes succeeded in increasing the hay crop to nearly double the average quantity; but the nature of the weather affects it so much, and it is so difficult to regulate its application, that I think it better to dispense with the system as far as possible, and to mix the urine with the dung and the compost heaps.

The saving and application of liquid manure has of late been a subject of much public discussion, and some enthusiastic agriculturists would have all farm manures liquified, and applied to the land by steam. The principle of itself may be all very good, although of this I confess I am somewhat sceptical. Liquid manure tends to make soft crops, and plants do not require all their food ready prepared at once, but prefer it by degrees in the different stages of their growth, which well prepared dung seldom fails to supply. The out-and-out liquid manurers never tell us where all the capital is to come from, necessary for such an undertaking. Something like 4*l.* 10*s.* per acre is, I believe, their estimated cost for setting the whole machinery agoing, which would incur an expenditure on the arable acres of Scotland, at present under rotation, of fully fifteen millions of money!—possibly rather more than the present state of our agricultural finances would be able to bear. This looks something like putting the cart before the horse. Just as well tell a man at once that we can do nothing for him, as to tell him of a great profitable undertaking he is never likely to realise. The form of liquid manuring which I have now detailed is within the reach of the great majority of farmers, and if practised by them will doubtless pay them for their trouble. At all events, it may serve as a stepping-stone to a more complete and profitable system of the management of the liquid manure of a farm. As I have already shown, the system is perfectly workable, has paid me well, and shall now be left to practical farmers, who may judge of its usefulness, and the propriety of its general adoption. *Mr. J. Porter in the Highland Society's Transactions.*

Home Correspondence.

Report of the Agricultural Committee at Newton-Abbot Union for the Year ended Christmas, 1856.—The Committee, in presenting to the Board their annual report of the Labour Scheme for the past year, congratulate them that the many advantages anticipated when it was first introduced continue to be fully realised. The total quantity of land under cultivation is about 6 acres, and the following is a list of the principal crops grown thereon during the past year :—

132 bags of Potatoes	7½ tons of Mangel Wurzel
32 bags of Wheat	850 lbs. of Onions
57 cwt. of Cabbages	1840 lbs. of Leeks
25 cwt. of Parsnips	64 cwt. of Carrots.

The number of hours of labour, &c., performed during the past year, by the different classes of inmates employed on the land, has been as follows :—

The aggregate number of hours of field labour done by adult paupers (mostly aged and infirm)	10,860
The number of adult paupers at work on an average of 8½ hours daily	5
The total number of hours of field labour done by boys	13,239
The number of boys at work, five days each week, and from 3 to 6 hours daily	22
The number of boys in the house fit for service at Christmas was	10
Seventeen boys were provided with situations in the course of the year.	

Dr.	£	s.	d.	*Cr.*	£	s.	d.
To rent	£40	10	0	By vegetables, &c., consumed in the house	£30	5	3¼
„ rates and tithe...	5	16	8	„ Wheat sold ...	27	4	0
„ seed Potatoes ...	12	2	8	„ Carrots sold ...	0	3	6
„ „ Wheat ...	0	15	9	„ Potatoes for seed	2	8	0
„ seeds, plants, &c.	1	12	2	„ vegetables, &c., in store at Christmas ...	48	2	7
„ 20 hogsheads of lime	4	10	0	„ produce of 2 pigs slaughtered ...	15	12	6
„ harvesting, thatching, and threshing Wheat... ...	1	19	11	„ value of 4 ditto in store at Christmas ...	22	0	0
„ purchase of 6 pigs	16	18	6				
„ Indian Corn purchased	3	16	9				
„ bran, grains, &c., ditto	1	16	4				
	89	18	9				
Profit	55	17	1¼				
	£145	15	10¼		£145	15	10¼

—*E. S. Bearne, Chairman.*

On Breaking up Clay Pastures and Downs.—The rotation recommended for the former is—1, roots; 2, Beans; 3, Clover; 4, Wheat. Of the roots to be grown, I should recommend that exactly the same proportion of Swede Turnips, Carrots, and Mangel Wurzel be raised of the whole crop, to be drawn from the land and consumed in yards or stalls. I am fully persuaded that Carrots can be grown on clay land as well as other roots; I have seen 26 tons per acre weighed from land of the stiffest quality. With regard to the Clover crop, I strongly recommend that one-half only of the 25 acres be sown with broad Clover and the other half to Italian Rye-grass; by these means the land will only be cropped with either of the Grasses once in eight years. There are some clay soils that will not under any circumstances produce a good plant of Clover; on such land Vetches can be grown to advantage, as it does not interfere with the course, and it also produces a large quantity of valuable manure. In a neighbourhood where labourers are numerous spade husbandry can be applied to very great advantage on stiff clay land. Where more than a pair of horses are required to plough 6 inches deep, land can be dug as cheaply as ploughed for several years. I have carefully watched the improvement of clay land cultivated entirely by the spade, and I now see where 15 or 20 bushels of Wheat formerly grew, 30 and even 35 is the usual crop. This increase of produce is gained solely by the use of manual instead of horse labour. During the last year I have seen, on a farm in which I am immediately interested, between 80 and 90 acres of land dug from 8 to 10 inches deep, the cost of which did not exceed 2*d.* per perch or 1*l.* 6*s.* 8*d.* per acre, at which price good workmen earned 12*s.* a week. I am well aware that the expense of cultivating this farm will be rather more than of the meadow or grazing land broken up, and I will also allow that the produce will not be so great, still the Bean crop will be quite equal to the Barley crop. The Wheat crop I will allow to be one quarter deficient, and the deficiency of two green crops, if any, will be amply made up for by the deficiency in the original value of the cold pasture as compared with the meadow. And we here come to the conclusion that on cold pasture land great benefit is derived by all members of the community by cultivation. The farmer does not obtain quite so great a profit as he did on the other description of land, but the labourer is benefited still more, because more labour is required for its cultivation. The landlord is benefited in equal proportion to the farmer, and the public are benefited because the produce of the earth is very greatly increased.—The mode of cultivating and the system of cropping Down land is not so familiar to me as the system pursued on other descriptions of land. The cultivation of Down land is becoming daily more general; but still at the present time immense tracts of land remain untouched, which from the levelness of surface and great facility of tillage would amply repay the farmer for cultivation, enable the landlord to increase his rent, and afford great advantage to the public. In every instance Down land should be brought into tillage by breast ploughing and burning, and (when practicable) within two or three years a liberal dressing of chalk should be applied, at least 200 cubic yards per acre. This can generally be done at a small expense, as chalk dug on the spot is by far the most valuable. The expense of cultivating this land is no doubt far less than the cost of managing land of any other description. I have ascertained that from 2*s.* 6*d.* to 5*s.* per acre is the usual rent of Down land, and I have also ascertained that under cultivation the rent would average nearly 20*s.* Surely no more proof than this simple fact can be required to show the advantages of cultivation. The system of cropping most approved on the south Downs for 100 acres is 25 Rape or Swede, 25 Oats, 25 Rye-grass, and 25 Oats, consequently half the land is Oats and half a green crop; doubtless there are spots where a good crop of Wheat can be obtained. It is allowed by the best farmers in the county of Sussex that Oats are the most sure and on an average of years the most profitable crop of corn grown, but in consequence of the height of Downs above the level of the sea, blight generally attacks it and very greatly injures the quality of the grain. Seven and even eight quarters are the usual crop, and the fine crops of roots I have seen on land only a few inches deep in soil are a sufficient proof that a much larger flock of sheep can be maintained than on the scanty pasture of original Down. I presume then that no description of land is more increased in value by cultivation than Down. The landlord increases his rent four or even six-fold, and as I have already endeavoured to prove that in the prosperity of the landlord the tenant partakes, in the prosperity of the tenant the labourer partakes, and in the prosperity of landlord, tenant, and labourer partake the public at large. *E. H.*

On Improvement of a Small Property.—In submitting what appear to me the most convenient steps to be taken for the agricultural improvement of your lately acquired little estate of ——, it may be as well at first to observe on the present course of its tillage, which is indeed that generally pursued in all those parts of the country, constituting a very large proportion of Ireland, in which neither talent, wealth, nor proprietary presence has been brought to bear. The only crops grown, with but trivial exceptions, are Potatoes and Oats, the Oats in continued successions till exhaustion of the soil or rather perhaps its foulness renders the crop no longer in any small amount remunerative; it is then either again put under Potatoes, or left in weeds to recover by natural causes a sham fertility, being for at least the first two or three years in unprofitable pasture. The meadows are most generally such wet bottoms as are not fitted for tillage, and they are very rarely manured or drained. If a few Turnips (Swedes usually) are grown they are very generally sent to market, the high price there obtained—from 12*s.* to 1*l.* a ton—affording a great inducement, and in very few instances, and then in very small quantities, are they given to their cattle. The cattle are only housed at night in the winter, and not at all in the summer; in the winter they get straw at night for the first four months, that is from 1st November, and coarse bottom hay, mostly of inferior quality, for the last two months, March and April; consequently little manure is made,

and that barely suffices for the Potato crop. If the manure can be made to cover a greater breadth of Potato land than is required for the farmer's own use, or than he find convenient to dispose of in any manner, or than he grudges to employ the labour on or expend in seed, his cupidity leads him to set out such portions as conacre, usually at a rent of 5*l.* an acre, and so greedily is this conacre coveted that sometimes this rent is paid in advance, before even the ground is planted. From want of green feeding, other than that they labour for in bare fields (not kept Grass be it remarked) the cows generally dry off very early in winter, and milk, even where many cows are kept, then becomes very scarce; a very palpable loss is thereby sustained, but perhaps this is necessary to maintain on such feeding the condition of the cows. Clover and Vetches are very rare, and Rape for feeding is almost unknown. Italian Rye-grass has excited astonishment and inquiry. This faulty course of culture, for so I must be permitted to consider it, appears mainly to arise from the absence of green crops for summer and winter feeding but more especially the latter; thus arises a deficiency of manure, and a repetition of grain crops obtains from not knowing what to substitute in relief of them that shall be to some extent profitable as well as from the want of manure for those that require it. A superior system of culture might possibly be compelled by stringent clauses in your leases, but where so much latitude has hitherto been allowed it would be too violent an innovation, and, if not opposed with open violence, would by every available means be evaded and you would most likely become involved in a series of petty law-suits most injurious to that good feeling which ought to subsist between landlord and tenant. You have a national school in the village; an acre or two of land attached to this school and laboured as a vegetable garden by the scholars; a moiety of the profits being allowed to the schoolmaster for his superintendance, and the other moiety as a reward to the children would give a neat habit of working, besides imparting useful horticultural knowledge. A few acres allocated as a farm, in which a better system of tillage might be followed out, not diverging too violently from the practice of the neighbourhood, might bring about that knowledge of its profitableness and of its modes which I think is the chief requisite with an inquiring people who are, I am assured, open to conviction, and will be led by what they see. More surely, however, to effect this end the capital employed should not exceed that of the general experience; it must not be said that money does it. It must be seen that it is ability with labour that effects a more profitable course, A competent person to conduct it, with a capital only barely sufficient to progressively improve, will have a weight which a command of money sufficient to immediate improvement would not have. You might assist such a person, but I do not think it should be undertaken at your own expense, and, perhaps, the better way of such assistance would be by compensating him for the time he would be employed in affording information to those around him. The only farming implements used in the country, with the exception of here and there an indifferent roller, are ploughs and harrows all of one description, one sort of general light plough, either of iron or wood, and a light seed harrow drawn by one poney, no brake, no strong harrow, no effectual means for drawing root weeds. If at this, may I so say, model farm, a set of the most useful farm implements were kept and let out at such small hire as would renew them and keep them in repair, it would, I think, be of very great advantage, and would eventually induce the general use of them in the better tillage of the land. *J. M. Goodiff.*

Slugs.—As I have not seen a satisfactory answer in reply to your correspondent at page 153, for destroying slugs, I would advise him to scatter a little salt over the land and repeat it a few times; it should not be thrown over plants. Asparagus beds are great harbours for slugs; if a liberal supply of salt be given it will benefit the Asparagus and slugs cannot live in it. Your correspondent at page 194 must have fallen into an error when he says that jackdaw's eggs are sold in London for the plover's—the latter measure nearly 2 inches in length, and sometimes more, while the former is hardly 1 inch. The rook's eggs are much smaller than the plover's. The water-hen's eggs are frequently sold; but they are almost identical, except being a little lighter in colour than those of the plover. *Thorpe Perrow.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL; *April* 1.—Mr. EVELYN DENISON President, in the chair. Forty-three new members were elected.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented to the Council the monthly report on the accounts; from which it appeared that the current cash-balance in the hands of the bankers on the previous day was 1025*l.* Mr. Barker also presented reports from the House and General Salisbury Committees, which were adopted. Mr. Brandreth Gibbs reported the completion of the Andover and Salisbury Railway.

MEMBERS OF COUNCIL.—In the unavoidable absence of Mr. Thompson, High Sheriff for the county of York, Mr. Milward moved, and Mr. Raymond Barker seconded, Mr. Thompson's nomination of Mr. Paget, M.P., of Baddington Grange, near Nottingham, for the vacancy in the general list of Council occasioned by the transfer of Mr. Bramston, M.P., to the class of trustees. Mr. Paget was duly elected.

CATTLE MURRAIN.—The Earl of Clarendon favoured the Council with the following communications:—

"Foreign Office, February 28, 1857.

"Sir,—With reference to Mr. Hammond's letter of the 12th of June last, I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Council of the Royal Agricultural Society, the accompanying copy of a despatch from the British Vice-Consul at Lübeck, stating that the murrain having again broken out in Mecklenburgh, the Lübeck authorities had prohibited the introduction of horned cattle from that state, unless provided with a certificate declaring them to be free from the disease. I am, Sir, your most obedient humble servant, "SHELBURNE.

"James Hudson, Esq."

"Lubeck, Feb. 20, 1857.

"Sir,—I have to report that in consequence of the murrain described in my despatch of May 30, 1856, having again broken out in Mecklenburg, the Lübeck Government by a senatorial decree published this day have renewed the decree of May 14, 1856, prohibiting the entry of horned cattle into the Lübeck territory from the Duchies of Mecklenburg-Schwerin, and Mecklenburg-Strelitz, unless they are certified by the competent authorities to be entirely free from the disease. I have, &c.

"Colonel Hodges." (Signed) "J. A. BLACKWELL.

"Foreign Office, March 10, 1857.

"Sir.—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Trustees of the Agricultural Society, a copy of a despatch from her Majesty's Minister at Berlin relative to the disease in cattle. I am, Sir, your most obedient servant, "SHELBURNE.

"J. Hudson, Esq., Agricultural Society."

"Berlin, March 6, 1857.

"My Lord,—Having observed that mention has been made in the House of Commons of the rapid spreading of the cattle disease, I have the honour to report to your lordship that according to the latest accounts received here, it does not appear to have crossed the Russian frontier; but alarm has been caused by its ravages in the neighbourhood of Tauroggen. Precautionary measures have been taken by the Prussian authorities to endeavour to arrest its advance into this kingdom. I have, &c.

"The Earl of Clarendon." (Signed) "BLOOMFIELD.

"Foreign Office, March 23, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, for the information of the President and Trustees of the Royal Agricultural Society, an extract of a despatch from her Majesty's Minister at Brussels, relative to epidemic diseases among horned cattle in Belgium. I am, Sir, your most obedient humble servant, "SHELBURNE.

"The Secretary of the Royal Agricultural Society."

"Extract from Lord Howard de Walden's despatch, No. 44.

"On the receipt of your lordship's despatch, No. 33, of the 14th inst., respecting epidemic disease among horned cattle, I immediately made inquiries as to the existence in Belgium of the disease referred to. I am assured by one of the principal veterinary authorities in the country that at this moment the only complaint which is at all prevalent is an affection of the hoof, which is easily cured by cleanliness and the use of astringents: that the disease called Peripneumonie, which at times has caused such ravages amongst the cattle in Belgium, though occasionally appearing has not at present anything of the character of an epidemic."

"Brussels, March 27, 1857.

"My Lord,—With reference to my despatch, No. 44, of the 20th inst., in which I transmitted to your lordship a copy of the Arrêtée of May 22, 1854, I have now the honour to add one of the first copies of a work which has just been printed under the authority of the Department of the Interior, which contains a full recapitulation of all the laws and regulations which bear upon the general veterinary service in regard to sanitary questions connected with the diseases of animals. In respect to the statement I made in my despatch, that no special disease, presenting anything of the character of an epidemic, is now prevalent in Belgium, I have since received full confirmation of the correctness of that information from the department of the Interior. No law exists under which diseased cattle can be excluded at the frontier; a project of law with a view to such sanitary precaution was presented to the Chambers two years ago, but was rejected; and therefore the only resource lies in the activity of the Burgomasters in the frontier localities, by enforcing the general regulations in regard to animals while within the range of their jurisdiction. I am, &c.

"(Signed) HOWARD DE WALDEN, & SEAFORD.

"Lord Clarendon."

"Foreign Office, March 28, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit herewith, for the information of the President and Trustees of the Royal Agricultural Society, a copy of a despatch from her Majesty's Minister at Berlin, reporting the appearance of the cattle disease in the Prussian dominions. I am to add that this information was communicated to the Board of Trade immediately upon its receipt. I am, Sir, your most obedient humble servant, E. HAMMOND.

"The Secretary to the Royal Agricultural Society."

"Berlin, March 25, 1857.

My Lord.—I regret to have to inform your lordship that the cattle disease has appeared in the neighbourhood of Berlin. Every precaution was supposed to have been taken to prevent its arrival in the Prussian States, and measures have now been adopted to endeavour to arrest its progress. Having alluded to the subject this morning in the course of conversation with Baron Mauteuffel, his Excellency read to me a communication which he had just received from Monsieur de Raumer stating that the disease had been traced to some cattle lately arrived from Galicia, and that those which had not died had been killed by order of the magistrates, and that further, all the cattle known to have been in contact with them had been destroyed. Baron Manteuffel appeared to be under considerable alarm that the disease would reappear, notwithstanding these presautionary measures and the utmost vigilance of the authorities. I have, &c.

"Earl of Clarendon, K.G." (Signed) "BLOOMFIELD.

"Foreign Office, March 30, 1857.

SIR,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President of the Royal Agricultural Society copy of a despatch from Her Majesty's Chargé d'Affaires at Hamburgh, forwarding a copy and translation of the decree issued by the Lübeck Government on May 14, 1856, relative to diseased cattle. I am, Sir, your most obedient humble servant, E. HAMMOND.

"Jas. Hudson, Esq."

[TRANSLATION.] No. 14.

"May 14, 1856.

"Notification relative to the pulmonary disease that has broken out among the horned cattle within the Grand Duchy of Mecklenburg-Schwerin, published on May 15, 1856.

"The Senate, being officially informed that several cases of pulmonary disease have occurred among the horned cattle within the Grand Duchy of Mecklenburg-Schwerin, think it proper to republish the regulations directed to be observed by the notification of the 7th of August, 1852, in order to prevent the spreading of this dangerous and contagious disease. 1. Every owner of cattle is required, in case any disease should break out among the same, to separate the diseased from the other cattle. The symptoms of the disease are a hoarse coughing that increases particularly after the cattle have drunk or moved about; less inclination for food, indifference as to chewing the cud, dullness of the hair, and its rough appearance in particular places, and fever after these symptoms have continued for some time. 2. On the appearance of this disease, or even in cases when it is suspected to exist, the owners of cattle are required under penalty of a fine of 20 dollars (about 3*l.* 10*s.*), to give immediate notice to the chief of the police (or to the bailiff at Travemünde), who will take further steps. 3. The bringing in of cattle into the Lübeck territory from the Grand-Duchies of Mecklenburg-Schwerin, and Mecklenburg-Strelitz, shall only be permitted when the cattle are accompanied by satisfactory certificates of their being free from disease. 4. All veterinary surgeons are directed, in case this disease should break out within the Lübeck territory, to adopt the necessary sanitary precautions according to the instructions of the police. The directions of the veterinary surgeons are implicitly to be obeyed under penalty of heavy fines and imprisonment. 5. Finally, all police officers, bailiffs, and gens d'armes are hereby directed to give notice to the respective police offices in case any horned cattle should be attacked with the pulmonary disease, or even in cases where it is suspected to exist. Given at Lübeck in the Assembly of the Senate, this 14th day of May, 1856.

(Signed) "C. TH. OVERBECK, Dr., Secretary.

"Hamburgh, March 20, 1857.

"My Lord,—In compliance with the instructions contained in your lordship's despatch, Consular No. 7, of the 14th instant, I have the honour to transmit three copies of original, and translation of the degree of the Lübeck Government, dated the 14th of May, 1856, relative to diseased cattle. I have, &c.,

"Earl of Clarendon." "G. LLOYD HODGES.

"Foreign Office, April 1, 1857.

"Sir,—With reference to my letter of the 23d ult., I am directed by the Earl of Clarendon to transmit to you, for the information of the Council of the Royal Agricultural Society, a copy of a further despatch from her Majesty's Minister at Brussels containing particulars as to the disease amongst horned cattle. I am, Sir, your most obedient humble servant, "SHELBURNE."

"The Secretary to the Royal Agricultural Society."

"Foreign Office, April 1, 1857.

"Sir,—I am directed by the Earl of Clarendon to state to you, for the information of the President and Trustees of the Royal Agricultural Society, that her Majesty's Minister at Dresden reports, in a despatch received this day, that 'at this moment the only existing cattle disease in Saxony is of the horns; that of the lungs called in French 'Epizootic' does not now exist. I am, Sir, your most obedient humble servant, SHELBURNE.

"J. Hudson, Esq."

"Foreign Office, March 30, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Committee of the Royal Agricultural Society, copies of telegraphic despatches from her Majesty's Consuls at Dantzig and Stettin, stating that the murrain does not exist amongst the cattle in the neighbourhood of those cities. I am, Sir, your most obedient humble servant,

"Jas. Hudson, Esq." "E. HAMMOND.

"From Consul St. Plaw to the Earl of Clarendon, dated Danzig, March 29, 1857.

"No information to give as to cattle disease has at all appeared in this neighbourhood, it having been confined to East Prussia and Lithuania. The authorities here have in no case been called upon to give any directions or instructions."

"From Consul Blackwell to the Earl of Clarendon, dated Stettin, March 29, 1857.

"Murrain does not prevail here. Regulations against it rescinded. Full account of disease given in my despatch of May 30, 1856. (Signed) "BLACKWELL."

"Foreign Office, March 30, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Committee of the Royal Agricultural Society, copies of despatches from her Majesty's consuls at Warsaw and Königsberg, reporting on the cattle disease. I am, Sir, your most obedient humble servant,

"Jas. Hudson, Esq." "E. HAMMOND.

"Warsaw, March 9, 1857.

"My Lord,—I have the honour to report to your lordship that the cattle disease, which has caused such ravages in the farms of the landholders in this kingdom, is still prevalent, though not, as far as I can understand, so much so as it was during the autumn. Within the last fortnight a gentleman of my acquaintance lost nearly every beast he possessed in the neighbourhood of Warsaw. The infection is so virulent that it is said a farm servant, who has been in attendance on sick cattle, may carry it in his clothes, and impregnate other beasts with the fatal distemper. The measures adopted to stop the spread of the disease are very summary, the most indiscriminate slaughter of the beasts affected being ordered and carried out. In Prussian Poland, where a more stringent execution of these measures has been enforced than has been the case in this country till a late date, it is said that the evil has been nearly, if not wholly overcome. I am not aware whether an exportation of cattle takes place from Dantzic for the British Ports. If there should be such a trade, it might be advisable to subject all beasts imported, either from that town or Königsberg, to a lengthened quarantine, as there seems to be no doubt that the disease occasionally breaks out in herds some time after they have been domiciled in their new quarters. The disease originally comes from the Steppes of the Ukraine, whence vast numbers of cattle are yearly driven westward. It would appear to commence with violent fever, which rapidly degenerates into acute dysentery, the animal dying in a few days after the first appearance of the disorder, of intestinal ulceration. I have, &c.

(Signed) "W. W. MANSFIELD.

"The Earl of Clarendon."

"British Consulate, Königsberg, March 11, 1857.

"My Lord,—I have the honour to acknowledge the receipt of Lord Shelburne's despatch, No. 2, of 7th March, and to report that since 1854 rumours of a murrain or cattle plague in Vothynia and Podolia were current, and that since that time the disease has been advancing in a northerly and westerly direction, and that most distressing accounts have been received of the ravage amongst the cattle, and of the disease spreading till close upon the Prussian frontiers. The Prussian Government during the years 1855 and 1856 took great precautions to prevent the disease from entering Prussia by detaching parties of military at all the points of egress from Poland below Thorn. In the autumn of 1856 until now the disease has continued its march, and at last reached Kowno and Tauroggen. The Prussian Government has now enforced most stringent measures all along the borders, and no hides, calf skins, wool, rags, or any article which is likely to have been in any way connected with cattle, and all Jews and other persons who are in any way suspected of having transactions with cattle or any of those articles are permitted to cross the borders, and when any such attempt is made the articles are immediately burned. By these means the disease has up to the present been kept out of Prussia, and the greatest vigilance is observed to destroy and bury any animal when a suspicion of infection exists. The dealers have for some time

past avoided the Prussian route, and take their goods to Russian ports, particularly to Libau for shipment, and Russian hides and calfskins which formerly went through the Prussian ports all go that way now. I may add that the hide and calf skin export which was formerly of great magnitude to Great Britain has now taken a different channel. The skins go now almost all to Lübeck, and from thence to Frankfort-on-the Maine, or to Stettin, and from thence to Berlin, &c.; and it is not impossible that the infection may be carried to the heart of Germany by these means, although the precautions of the Prussian Government may have warded it off from the eastern frontiers. I have never heard that live cattle have been shipped from the Baltic ports. The disease is reported to be a violent purging and sudden death. I have, &c. (Signed) "W. J. Hertslet.

"The Earl of Clarendon."

"Foreign Office, March 31, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Committee of the Royal Agricultural Society, copy of a telegraphic despatch from her Majesty's Consul at Memel, reporting the symptoms of the murrain amongst the cattle. I am, Sir, your most obedient humble servant, "E. Hammond.

"Jas. Hudson, Esq."

"From Consul Campbell to the Earl of Clarendon, dated Memel, March 30, 1857.

"Animal loses appetite. Body trembles. Gums inflame. Eye dull with discharge. Food becomes powder in stomach. Severe diarrhœa. No cure discovered. Eight days dead."

Communications were then read from Mr. Hall Maxwell, C.B., Secretary of the Highland and Agricultural Society of Scotland, and from Captain Croker, Secretary of the Royal Agricultural Improvement Society of Ireland, expressing their willingness to concur with the Royal Agricultural Society in arrangements for despatching a Veterinary Inspector to districts abroad where the cattle murrain is at present raging. The Council agreed to the following resolution :—

"That it is expedient to send a competent Veterinary Professor to examine into the nature of the cattle murrain on the Continent. That the Society gladly accepts the co-operation of the Highland and Agricultural Society of Scotland and the Royal Agricultural Improvement Society of Ireland in this step. The Society ventures to recommend that Professor Simonds, of the Royal Veterinary College, be commissioned to this task. That he be empowered to take with him a German Veterinary Professor, established in London, quite competent for the business, and who would smooth the difficulties of the German language. It is supposed that about three weeks would be required for a satisfactory examination. That the Highland and Agricultural Society of Scotland be informed that the Royal Agricultural Improvement Society of Ireland propose to share the expense of this mission with the Royal Agricultural Society of England; and that they be asked to join in the same manner."

Polled Bull.—The Council accepted M. Dutrône's offer of a gold medal, to be awarded under the regulations of the Society, as a premium to the best polled bull exhibited at the Salisbury Meeting.

Country Meeting of 1858.—Mr. Raymond Barker, Mr. Brandreth, Mr. Cavendish, Mr. Brandreth Gibbs, and Mr. Milward, are requested to form an Inspection Committee, for the purpose of visiting the localities proposed for the Society's Country Meeting of 1858 in the North-Wales district, and of reporting to the next Monthly Council on their suitableness, or otherwise, for that purpose.

The Council then adjourned over the Easter recess to the 15th April.

Guano Deposits.—In the evening Professor Way, the consulting chemist of the Society, delivered an interesting lecture on the localities where deposits of guano had been discovered, and on the conditions under which they were found to occur. The lecture was illustrated by numerous physical charts, showing the direction of the winds, the currents of the ocean, and the limits of the rainless regions : on which he pointed out the various districts referred to in the series of important despatches forwarded to the Society from the Foreign Office, through the instructions of the Earl of Clarendon. He exhibited curious specimens of guano in the progress of conversion from an organic into a mineral substance. On the motion of Lord Walsingham, seconded by Mr. Fisher Hobbs, the best thanks of the meeting were voted to Professor Way for his useful lecture, with a hope that it would call public attention more strongly to its important subject, and produce a full effect in that direction. On the motion of Mr. Druce, seconded by Mr. Ramsay, the best thanks were also offered to Mr. Lawrence, for his kindness in presiding on that occasion. Mr. Hudson (of Castleacre) called attention to the obscure but important subject of *nitrification*. He found in his own practice, that manure exposed on the land for a few months acquired either from the atmosphere, or from some chemical change going on among its own elements, or from some other source or cause to him unknown, a remarkable addition to its manuring properties, as evidenced by the resulting crop to which it was applied, in comparison with the same manure at once ploughed in without such previous exposure. Mr. Fisher Hobbs hoped the day was fast arriving when farmers would be more alive to the value of their home-manure, particularly to the importance of fish, especially that from the Irish coasts, applied to the land as manure in a prepared dry state. Professor Way remarked that guano was only the digested carcases of fish.

Discovery of Guano.—The Earl of Shelburne has, by direction of the Earl of Clarendon, transmitted to the Society the following communication :—

"Foreign Office, March 31, 1857.

"Sir,—I am directed by the Earl of Clarendon to transmit to you, to be laid before the President and Committee of the Royal Agricultural Society, copy of a despatch from her Majesty's Consul at Porto Rico, reporting the discovery of 25,000 tons of guano in the Island of Mona.

"I am, Sir, your most obedient humble servant,

"Jas. Hudson, Esq." "Shelburne.

"Puerto Rico, Feb. 16, 1857.

"My Lord,—In the Island of Mona, situated about fifty miles nearly due west of the town of Mayaguez, at the western extremity of the Island of Puerto Rico, some deposits of guano have been discovered, and according to the report of the surveyors appointed by this government to inspect the deposits, a copy of which I have obtained, the guano is situated in three caves, and the quantity is said to amount to 23,525 tons. I regret that I am unable to state the proportion per cent. of ammonia contained in this guano, as I have not yet succeeded in procuring a sample, nor have any steps been taken by the government to ascertain this fact, upon which the value of the discovery depends, the samples brought by the surveyors having been forwarded to Madrid. A tolerably correct estimate of its properties, however, may be formed from the circumstance that a cargo taken by the master of a merchant vessel under the flag of the United States, who was the discoverer of these deposits, realised at New York the sum of 20 dollars, or 4*l.* 2*s.* sterling, per ton. The governor of Puerto Rico is awaiting instructions from the authorities at Madrid as to the manner in which he is to dispose of the guano, which in the meanwhile has been protected against further depredations. I have, &c.

(Signed) "Lennox Hunt."

Highland and Agricultural, *March* 25.—*Uniformity of Weights and Measures.*—Mr. M'Lagan, yr. of Pumpherston, said : The probable cause for the great diversity of weights and measures which prevails at present is to be found in the numerous petty sovereignties into which the country was divided. The rulers of these small principalities ordered the measures used among their subjects to be made exactly the length of a particular part of their bodies, and such standards must necessarily have varied with the size of the bodies of the different chiefs. The ordinary barters in trade compelled the adoption of certain weights and measures at a very early period. And the different parts of the human body were selected as standards, as the cubit (the length of a man's arm from the elbow to the extremity of the middle finger), the ulna, the span, the hand, the digit, the foot, the fathom, the pace. The origin of our modern yard was the ell, which was ordered by Henry I. to be made of the exact length of his own arm, the other measures of length being raised upon it. Confining our attention to Scotland in the meantime, we find that though the Scotch ell or 37.059 inches was considered the standard for the kingdom, Aberdeen, Banff, and other counties used an ell which measured $38\frac{5}{12}$ inches, Roxburgh one measuring 36.085 inches, and several of the remaining counties measures varying from 36 to $38\frac{1}{2}$ inches. So in superficial measure, though the standard Scotch acre contained 6104 square yards, in several of the counties acres varying from 6084 to 6150 square yards were made the basis of calculation. There was even a greater variety of weights in use in this country before the act authorising imperial weights was passed. The English troy, the avoirdupois or English weight, the Scottish troy or Dutch weights, and the tron weight, were all current in Scotland. The Dutch stone was generally $17\frac{1}{2}$ lbs. avoirdupois, while the tron stone varied in different counties from 21 to 28 lbs. avoirdupois. We give the following as examples of this variety :—In Aberdeen the stone weight for butter, cheese, and wool was 28 lbs., for butcher meat $17\frac{1}{2}$ lbs., for hay 20 lbs. In Argyll the stone weight was 24 lbs., in Berwick $17\frac{1}{2}$ lbs. and 22 lbs., in Bute $17\frac{1}{2}$ lbs. and 24 lbs., in Dumbarton 23 lbs., in Forfar for hay 20 lbs., and in three of the burghs in that county the tron stone was 22 lbs., 24 lbs., and 27 lbs. respectively. In one district of Kirkcudbright it was 24 lbs., in a second 26 lbs., and in a third 28 lbs.; in the middle ward of Lanarkshire it was $22\frac{1}{2}$ lbs.; in Glasgow butcher meat was sold by a stone of 22 lbs., and in the upper ward it was $21\frac{3}{4}$ lbs.; in Nairn cheese and salt butter were sold by a stone of 21 Dutch lbs., and fresh butter by a stone of 24 lbs. avoirdupois; in Renfrew it was 22 4-10th lbs., in Selkirk $23\frac{1}{2}$ and 24 lbs., and in Wigton the wool and hay stone was $26\frac{1}{4}$ lbs. A much greater variety of measures prevailed even than of weights. Thus in Argyllshire there were three kinds of bolls in use—the Inverary, the Ashnabreck, and the Kintyre; and in Dumbartonshire there were nine dry measures of capacity in use, viz., 1, the Dumbartonshire water salt firlot, for measuring imported salt; 2, the Dumbartonshire bere firlot, for Oats, Barley, and malt; 3, the Dumbartonshire meal firlot, for all sorts of meal; 4, the Dumbartonshire sand firlot, for salt and Linseed; 5, the Dumbartonshire Peas and Beans firlot; 6, the Linlithgow Barley firlot; 7, the Dumbartonshire Wheat and lime firlot; 8, the Dumbartonshire measure for Grass seeds, or Winchester bushel; and 9, the Dumbartonshire Potato peck, all of which were of different capacities excepting the firlots for meal, and for Peas and Beans. The confusion created by such a diversity of weights and measures has been increased tenfold by almost every town in the kingdom adopting a different method of disposing of farm produce. We find, for instance, that Wheat is sold in London and Edinburgh by the quarter according to the natural weight of the grain per bushel; in Dublin by the barrel of 282 lbs.; in Belfast, Armagh, and Lurgan by the 112 lbs.; in Glasgow, Wakefield, Leeds, Chester, and Bristol by the 60 lbs.; in Liverpool, per 70 lbs.; in Aberystwith per 65 lbs.; in Carmarthen per 64 lbs.; in Bolton per 63 lbs.; in Cork, Dundalk, and Londonderry per 20 st.; in Limerick per 14 st.; in Preston per windle of 220 lbs.; in Monmouthshire per 80 lbs.; in Manchester per 60 lbs. for English and 70 lbs. for American; in Aylesbury and several other towns per load of 5 qrs.; in Hitchen per load of 4 or 5 bush.; in Pontefract per load of 3 bush.; in Bedford per load of 5 bush.; in Rayston per 448 lbs.; in Ulverstone per 144 qrts.; in Whitehaven per 14 st; in Nottingham and Grantham per 36 st.; in Morpeth per bowl; in some towns by the coomb of $\frac{1}{2}$ qr., in others by the hobbit of 168 lbs., and in a third class by the windle of 290 lbs.; in Leith, Dantzic and Danish Wheat per 62 lbs, and Rostock and others per 63 lbs. So also we find that Barley is sold in different places by 112 lbs., 16 st., 14 st., per qr. of 480 lbs., per bush. of 60 lbs., per 224 lbs. for grinding, and 240 lbs. for malting, per 54 lbs., per 80 lbs., per 75 lbs., per 40 lbs., per 38 lbs., per $52\frac{1}{2}$ lbs., per 416 lbs., per 12 st., per 30 st., and per 32 st. Beef is sold by the score, and the stone of 8 lbs., 14 lbs., and $17\frac{1}{2}$ lbs., and by the cwt. Hay and straw are sold generally in Ireland by the cwt., in England by the load of 36 trusses of 56 lbs. for old, and of 60 lbs. for new, and in Scotland by the stone varying in different districts from 14 lbs. to 28 lbs., by the winlan of 8 or 9 lbs., and by the kemple of 40 winlans. The system besides becomes dreadfully complicated by the practice of allowing certain deductions in many markets for the cast of the beam and for tare. The same name applied to weights and measures is also a source of great confusion; a boll of Potatoes in Scotland for instance varies from 3 to 6 cwt., and of grain from 4 to 6 bushels. Wool, butter, cheese, are also sold by different weights in different parts of the country, which are distinguished by a separate nomenclature, thus adding to the Babel which prevailed among the weights and measures in use among the other commodities. The report of a market in one district is little better than a sealed book to the inhabitants in the adjoining one. The use of local weights and measures encourages habits of calculation by them in those accustomed to them, which often lead to much inconvenience and annoyance to the individuals themselves. Mr. Biddell relates,

"I remember once an instance of this inconvenience which occurred in Essex. Conversation and different opinions led to a considerable wager about the weight of a remarkable beast. There was no means of weighing it, and the disputants agreed that their wager should be determined by the majority of three opinions of good judges, selected in the fair. These were an Essex grazier, a London stock salesman, and a Suffolk butcher. They were not to converse, but each to write his estimation of the weights. The first could only estimate by 'scores,' (meaning scores of pounds); the second by stones of 8 lb. each; the third by stones of 14 lb. each; and the wager was made as to the beast weighing so many cwt. When the opinions were announced, none of the interested parties could tell, nor could either of the three judges tell who had won the wager, nor could they tell for a long time which of the three had estimated the beast of the greatest weight; and they each declared that they could not form the least idea of the weight, only in their own way. Such is the force of habit."

A similar case once came under my own observation, when three good judges of the weights of cattle were appealed to for the weight of an ox. The one was accustomed to estimate the weights by the stone of 14 lbs., the second by the stone of $17\frac{1}{2}$ lbs., and the third by the cwt. When their opinions were announced in the weights they were accustomed to use, they stood looking at one another in blank astonishment as if each spoke an unknown tongue, or his thoughts were wandering on some other subject. But besides the inconvenience experienced in the use of such a variety of weights and measures, it is often a source of frauds. An unprincipled man taking advantage of the state of the law, and also of the laxity which prevails in making contracts by the old or local weights and measures, has often been known to defraud the unwary by insisting on having payment by the imperial measure when it answered his purpose, though the bargain had been made by the local standards. There is no complaint more frequent among the farmers who sell their straw in the Edinburgh market, than that they are cheated. The straw is sold by the kemple; but what is a kemple? It is said to be 40 bottles or bunches of straw weighing 8 lbs. each; but to obtain a sale in the market they must give good weight, or 9 lbs. each, so that a kemple is generally reckoned 360 lbs. But with such an indefinite measure as a kemple, the temptation is held out to the men who are anxious to have a name for getting a high price for the straw, very often to give an excess of weight to the seller—an excess which, we are credibly informed, sometimes makes the kemple equal to considerably more than 500 lbs. But this is not all; sometimes the money obtained for the excess is appropriated to their own use. Here then is a fraud committed on the master, simply from his continuing to use an indefinite illegal measure in the sale of his produce. But he is to blame for it himself, not merely for the loss which he sustains, but for exposing his servant to temptation. The remedy for this is simple. Let the imperial weights be used. Let the straw be sold by the imperial stone or cwt. One farmer cannot introduce this change himself; it must be done by the combined movement of all who sell straw in the Edinburgh market. And are the magistrates entirely free of responsibility in the matter? It is their duty to enforce the use of the imperial weights and measures within their jurisdiction. But before introducing any change, we would be obliged to them to give due warning, so that the evils which took place about eight months ago, in changing the Dutch to the imperial stones in the report of the cattle market, may be prevented. Not the least intimation was given in any way but the substitution of the word imperial for Dutch, in the middle of the report. People accustomed to read the report of the market read the price only, never dreaming of a change in the stone, and as might be supposed, were astonished at the fall; a panic in the cattle market for some days was the consequence, and not a few suffered loss by selling their cattle at a reduced price, in the belief that there was really a fall. Such then is a general view of the confusion which prevails in weights and measures, and such are some of the evils which result from it.

(To be concluded next week.)

Reviews.

On the Drainage and Sewage of London and of Large Towns. By J. Copland, M.D., &c.

This is a pamphlet in which the writer treats (1) of the sources of disease furnished by imperfect drainage; (2) of the sources from which the Thames and other navigable rivers are contaminated; (3) of the plans of the Board of Works for the drainage of London; (4) of the means for disinfecting the putrifying substances in drains and sewers; and (5) of the general principles of drainage recommended for all large towns. We shall only refer to his fourth chapter on the utilisation of sewage matter. He says:—"The object to be desired in dealing with the sewage of London, and of all large towns, is not only to deodorise but also to disinfect it, and to employ those means which are most calculated to utilise it, or to render the sewage most serviceable for agricultural and horticultural purposes. It has been generally inferred that the removal of the unpleasant smells, or the deodorisation of the sewage, is the chief object to be entertained; but an infecting or poisonous influence may exist without any smell by which its presence may be betrayed. Therefore, the means employed to deodorise should also be calculated to disinfect the materials with which they are mixed. Certain of the means which suggest themselves for disinfection, especially the cream or hydrate of lime, have been viewed as having the effect of setting free ammonia, upon the existence of which the virtues of sewage as a manure partly depends. This objection has been pushed much too far; and it may be obviated by combining with the lime one or other of the several kinds of carbon or charcoal, which will retain the ammonia, and at the same time both deodorise and disinfect putrescent animal substances. It has also been objected to the employment of lime that the quantity of it which will exist in the solid sewage will render the manure, which it assists in forming, too cheap for any attempts to utilise the sewage becoming remunerative; and that the manure, thus formed, will not be suitable to all soils; but when duly managed, it will be appropriate to many soils; and when used as a compost, or combined with other manures, and immediately tilled into the earth, it will be suitable to most. These objections are urged chiefly for the sake of argument, for a parade of scepticism is viewed by many as a sign of superior knowledge."

The fact is, the Leicester sewage bricks, which are the result of the treatment recommended by Dr. Copland, are valueless as a manure, except in the immediate neighbourhood of their manufacture; that is to say, they are not worth the cost of carriage to any distance. And it is not the case that "the admixture of a due proportion of wood charcoal, or of peat charcoal, or of soot, or even of coarsely powdered coke, will obviate most of these objections, which have been too captiously urged;" neither will the sewage manure, thus prepared, be found most "serviceable for agricultural purposes, as furnishing, in the very slow manner required, the carbon which is so essential to the growth of plants."

This new theory of the source of carbon in plants is no better sign of "superior knowledge" than is the scepticism to which Dr. Copland alludes above.

On the Measle of the Pig: and on the Wholesomeness, as Food for Man, of Measly Pork. By Alexander Fleming, M.D., Professor of Materia Medica, Queen's University, Ireland. M'Glashan and Gill, 50, Upper Sackville Street, Dublin.

This is a reprint from the Dublin Quarterly Journal of Medical Science, and contains a report upon its subject furnished to a committee of the provision merchants of Cork by the Professor of Materia Medica, of Natural History, and of Agriculture in Queen's College, Cork.

The disease of which it speaks is the result of an animal parasite, which infects all parts of the body, and which is believed to be an imperfect condition of the tape-worm.

Those interested in the relation between the two will find it fully discussed in the pages of this pamphlet. It is sufficient for us to say, that the disease is to be prevented rather than cured, and that it will not occur except in the case of "inattention to the cleanliness of the pig's food and drink."

Canada: a Brief Outline of her Geographical Position, Productions, Climate, Capabilities, Educational and Municipal Institutions, &c. Published by Authority. Toronto, Canada West, 1857.

Our correspondent, "A Canadian Farmer," has kindly given in our columns a good deal of information at various times in reply to inquirers on the subjects treated of in this pamphlet, where all the information they can desire on the natural, social, and economical advantages of the Canadas is given in an accessible and authoritative form.

In a pamphlet of 24 pages, the geography and natural resources of the country, its form of government, the character of its population, its laws and municipal and educational institutions, its agricultural capabilities, the value of its land, its climate, its means of intercommunication, its trade and revenue, its value as a field for well remunerated labour, are all succinctly, yet satisfactorily treated of.

The following are passages containing agricultural information:—

"*Agricultural Capabilities of the Soil.*—A reference to the display of cereals and other agricultural productions made by Canada at the Exhibitions of London and Paris, might be considered sufficient to illustrate the remarkable adaptation of the soil to their growth and cultivation; but so limited a notice would leave the question of permanent fertility still unanswered. When, however, it is known that the area in which the astonishing crops of Wheat are raised, for which Upper Canada is so justly distinguished, extends over three-fourths of the present inhabited parts of the country, and that the prevailing soils consist of rich clays of great depths, the question of permanent fertility resolves itself into that of husbandry.

"In the valleys of some of the larger rivers of Upper Canada Wheat has been grown after Wheat for 30 years; the first crops yielded an average of 40 bushels to the acre, but under the thoughtless system of husbandry then pursued, the yield diminished to 12 bushels to the acre, and compelled a change of crop, which soon had the effect of restoring the land to its original fertility. But this system of husbandry has effected its own cure, and led to the introduction of a more rational method of cultivating the soil. Years ago, when roads were bad and facilities for communicating with markets few and far between, Wheat was the only saleable produce of the farm, so that no effort was spared to cultivate that cereal to the utmost extent. Now, since railroads, macadamised roads and plank roads have opened up the country, and agricultural societies have succeeded in disseminating much useful instruction and information, husbandry has improved in all directions, and the natural fertility of the soil of the old settlements is in great part restored.

"The average yield of Wheat in some townships exceeds 22 bushels to the acre, and where the least approach to good farming prevails, the yield rises to 30 and often 40 bushels to the acre. On new land 50 bushels is not at all uncommon; and it must not be forgotten that Canadian Wheat grown near the city of Toronto won a first prize at the Paris Exhibition. It may truly be said that the soil of what may be termed the agricultural portion of Canada, which comprises four-fifths of the inhabited portion, and a vast area still in the hands of the Government and now open to settlement, is unexceptionable; and when deterioration takes place, it is the fault of the farmer and not of the soil. In Upper Canada the yield of Wheat last year considerably exceeded 20,000,000 bushels; and the quality of Canadian Wheat is so superior that the American millers buy it for the purpose of mixing with grain grown in the United States, in order to improve the quality of their flour, and in some instances to render it fit for exportation.

"*Value of Land.—Free Grants.*—Australia excepted, no country can furnish such singular instances of the rise in the value of surveyed lands, as the last three years have witnessed in Canada. The cause, too, is so obvious, now that it is understood, that men wonder why the event had not been foreseen years before its occurrence. The reason is fully conveyed in the assertion that the country was not prepared for it. 1852 saw Canada without a railway. 1857 sees her with 1500 miles completed, and 500 more in process of construction. The rise in the value of land is thus easily explained. Means of communication of the highest order have opened up the country, made available a vast amount of inert wealth, stimulated industry, and effected a complete revolution in farming economy within 20 miles on either side of the course they pursue.

"The lines of railways are nothing more than a series of accessible markets for the country they serve. The natural consequence is that every portable product of the farm has acquired a certain money value, although before the construction of the railway it may have been absolutely valueless, and perhaps even an incumbrance. This suddenly increased rate of interest obtained for the same outlay of labour has necessarily enhanced the value of the capital. Hence, land in old settlements, remote from lake ports, has doubled itself in value in five years; while wild lands in new settlements, near to which a railway passes, have been trebled and in some instances quadrupled in value during the same period.

"Land adapted for farming purposes can seldom be obtained from land companies, speculators, or private individuals, under 30s. an acre. The Canadian Government being desirous of preventing the acquisition of large tracts of lands by private companies, or private individuals, for the purpose of speculation, have coupled the sale of the Government lands with such conditions as to prevent undue or improper advantage being taken of their liberality in offering farming land at a low rate. Every purchaser must become an actual settler. This simple condition drives out of the field a host of speculators who hitherto enriched themselves at the expense of the country, retarding its progress, and leaving its resources undeveloped.

"The provincial government have recently opened three great lines of road, and laid out for settlement the lands through which these roads pass. The roads are styled, 1st, 'The Ottawa and Opeongo Road.' This road runs east and west, will eventually be 171 miles in length, and connect the Ottawa River with Lake Huron. 2nd, 'The Addington Road,' running north and south, 60 miles long, and starting from the settlements in the county of Addington until it intersects the Opeongo road. 3rd, 'The Hastings Road,' running nearly parallel to the Addington Road, 74 miles long, and connecting the county of Hastings with the Ottawa and Opeongo Road.

"In order to facilitate the settlement of this part of Canada, the Government has authorised free grants of land along these roads,—not exceeding in each case 100 acres, and obtainable upon the following conditions:—

"1st. That the settler be 18 years of age.

"2nd. That he take possession of the land allotted to him within one month.

"3rd. That he put into a state of cultivation 12 acres of land in the course of four years.

"4th. That he build a log-house 20 by 18 feet, and reside on the lot until the foregoing conditions are fulfilled.

"Families may reside on a single lot, and the several members having land allotted to them will be exempt from building and residence upon each individual lot. The non-fulfilment of these conditions will cause the immediate loss of the land, which will be sold or given to another. The lands thus opened up, and gratuitously offered by the Government for settlement, are chiefly of excellent quality, and well adapted, in respect of soil and climate, to all the purposes of husbandry."

Calendar of Operations.

MARCH.

WEST SUSSEX, *March* 31.—Throughout this month we have had the weather such as March has always been said to be, very rough and stormy, but upon the whole not so much rain; and as the past month was unusually favourable for field operations, work is well advanced, and now all are sowing close up to the sheep and some will be sown late, as we have all more Swedes than we can clear off in time, though at one time we feared scarcity. But the winter having been comparatively mild, and having abundance of good hay, we have now more than usual; and lean stock is not to be had at a price that leaves any prospect of paying; perhaps this is one cause why mutton is so dear, as rather than buy lean sheep we keep what we have longer. The same may be said of beasts, as our market has not been very freely supplied with either lately. Beef sells freely at 5*s.*, mutton at 5*s.* 6*d.* to 6*s.*, and pork, 4*s.* 7*d.* to 4*s.* 8*d.* It is a common practice here to throw out, as it is termed, part of the land at present in Turnips, and instead of sowing Barley, which would be late, keeping the Swedes as long as possible, and then taking a crop of Rape, which is fed off in time to put in Wheat. But if we may expect the prices of wheat and barley to hold the same proportion that they now do, there is little inducement for practising this plan, but as little as possible. For there is no doubt but that our substituting Wheat for Barley in our rotations to such an extent has tended to raise the price of the latter so far above its usual proportion. For though the bad quality of much of it will account for the very high price of good malting, yet that which was damaged and fit only for grinding is high, and while malting is worth 50*s.*, grinding is worth 40*s.*, while good Peas and Beans may be bought at 40*s.* to 42*s.*, and Oats at 21*s.* The Wheat crop looks well and has now begun to make a vigorous spring start, and will require to be rolled and weeded as the weather permits. Clovers are better than usual; we have heard of very little failure, much less than is common, as it is considered here to be a very uncertain crop where the four-course system is practised, but is considered more sure where it comes only once in six years, and we may look forward for a good crop of Clover hay, which, added to more than the average left over, will no doubt have the effect of keeping up the price of stock. Our work now will be to prepare for the next root crop; we find the land works well, and we shall sow Mangel as soon after the middle of April as we can, as we have always found that the sooner it is put in after that time the better it does. *G. S.*

Notices to Correspondents.

AGRICULTURAL EFFICIENCY: *J Long.* It just amounts to this—that he is the best agriculturist who under any given agricultural circumstances can best anticipate the future, most efficiently act in the present, most accurately explain the past. Now a man must be able to anticipate and explain trustworthily in order that he may act with propriety, but it is plain that it is in present conduct that his real merit or demerit lies—and while experience and skill are needed as well as intelligence and science in order that he may possess the first and the last of these qualifications, they are especially needed in order that he may at all times *act* with efficiency and success.

BATH CHEESE: *J X.* The following recipe has, we think, been given before:—To 1 gallon of new milk add 2 quarts of cold spring water, rennet sufficient to turn it (not hard); take it gently out with the skimming dish and lay it in the vat until full; put a weight upon it, and apply dry cloths for a day or two when turned out on a plate with another over it, and turned occasionally. They are ready in about a fortnight. Sometimes they are kept between Vine leaves after they are turned out of the vats, and if so these should be changed twice a day.

COMPANIES FOR AGRICULTURAL DIRECTION: *F R S.* The possibility of acting on unvarying rule is in direct proportion to the unvarying character of the subject on which you are to operate. If the soil were of uniform depth, consistency, and dryness, if meteorology were one of the exact sciences, and vitality were everywhere alike, the art of agriculture itself might be expressed in a few rules of universal application, and the result of every operation might be certainly predicted. But into every one of these agricultural conditions irregularity and uncertainty enter, and just in proportion as they prevail do rules become impossible, and even principles and general laws become veiled under the influence of more immediate circumstances. A man may become a good cultivator by the observance of certain rules, for soil and vegetable life, and even weather, in any one locality are tolerably uniform and known; he cannot become a good stock farmer, or at least he cannot be a good herdsman in this way, for no one rule will apply to the varying animal temperaments and characters with which he has to deal. We should be inclined to predict the success of a market gardening company rather than the prosperity of a dairying company on these grounds. The success of cow keeping depends on an interest in the animals individually which neither companies nor agents can be expected to exhibit.

COW-CABBAGE: *Hello.* Apply to any of our seedsmen; but you will obtain nothing corresponding to the extravagant account copied into "Chambers's Edinburgh Journal" for July 23, 1836, where it is stated that "this singular and extraordinary species of Cabbage grows from 9 to 12 feet high, and from 15 to 20 feet in circumference," and that "five of these stupendous Cabbages have been repeatedly found an ample allowance of food for 100 sheep or 10 cows per day."

CREAM CHEESE: *J. L.*—The following are two recipes:—Take a quart of cream, or, if not desired very rich, add thereto one pint of new milk; warm it in hot water till it is about the heat of milk from the cow, add a small quantity of rennet (a table spoonful is sufficient). Let it stand till thick, then break it slightly with a spoon, and place it in the frame in which you have previously put a fine canvas cloth; press it slightly with a weight; let it stand a few hours, then put a finer cloth in the frame; a little powdered salt may be put over the cloth. It will be fit for use in a day or two.—*Another Method.* If cream is scarce, so that a sufficient quantity cannot be had at once, take a fine canvas bag, and pour as much cream as you may

happen to have into it, adding additional small quantities ice a day, and from its becoming naturally sour, the thin part will drain through the canvas, and the remainder will prove an excellent cheese. If one quart of cream can be had at once, and poured into a fine canvas bag, it will make a nice sized cheese, and of course equally good as those made by several small quantities added at convenient intervals. The cheeses made in this way are not fit for use so soon as those made with rennet.

Dairy Utensils in the Cheese Manufacture for 25 Cows *L F.* Three milking pails, to hold 5 gallons; cheese tub, 55 gallons; sieve ladder; straining cloth placed over this and sieve in the ladder over centre of tub; a triple knife, or wire sieve, or beater to break the curd when first coagulated; bowl and shallow wooden dish for lading whey out of cheese tub; sieve to strain whey through; vats to receive the whey to stand in till it is skimmed and goes out to the pigs. These vats are best made of lead or tin, as when scoured they are more easily kept sweet from the sourness of the whey. Cheese vats, turned, of Elm timber; board to place on top of vats when in the cheese press. The first press to be about 3 cwt. for eight cheeses to make 1 cwt. It is not well to press too heavily at first, as the fat is thereby pressed from the cheese when the whey is warm and runs freely. After the first 24 hours leverage presses are very good. Cheese cloths placed in the vats before the curd is put in them; these cloths of a coarse canvas material made for the purpose—they should be changed twice in the first 24 hours, once a day afterwards, when the cheese must be rubbed with salt, and kept in the presses five or six days, or longer if it is thick cheese. A bench for salting cheese on, and sharp knife to pare off any uneven edges, though they ought not to appear in well filled vats on well made cheese. Pans to hold the milk to stand in before skimming the cream for butter may be either of tin, glass, or brown ware lined with white ware; these last seem the best as least expensive, as from their thickness the milk cools more gradually in these than in glass or tin, those to hold 2 gallons and 6 quarts being put to stand in each, to be skimmed once in 12 or 24 hours, according to various plans. As to churns, the American for a small dairy is as good as any, the barrel churn for a large one.

Influence of Soil on Manure: *J G.* We cannot better answer your question than by giving the following extract from Dr. Voelcker's lecture on Artificial Manures at Barnstaple:—"The efficacy of a manure or the practical effect of which it is capable is greatly influenced by the mechanical condition of the land. Land varies very much in this respect, and, as a matter of course, the same manures act differently on land of different descriptions. I may illustrate this by referring to experiments I have made on land attached to Cirencester College, where I used superphosphate on a piece of ground which did not yield so much as another piece where none had been used; but I took the precaution to try the manure in a third piece, and here the yield was three times as much as on that which had not been manured. The fact is that on clay land superphosphates are of no use unless the land be properly pulverised. Some farmers imagine that by using in the land the best artificial manures they do not require so much labour, or any additional labour. There can be no greater mistake; for the best artificial manures often fail, more or less, entirely for want of proper pulverisation of the soil. It is of the greatest consequence that the land on which artificial manures are used should be in a high state of subdivision. Artificials can only be used with advantage by farmers who have improved agricultural implements and methods of tillage, and paid a great deal more of attention to the mechanical condition of the land than many farmers of the old school. If a farmer has not sufficient skill to manage a farm on an improved system throughout, the mere use of artificials will help him comparatively little, and he will perhaps do better to stick to farm-yard manure under such circumstances."

Liquid Manure Drill: *P.* Apply to Mr. Chandler, of Aldbourne, Hungerford, Berks, or to Mr. Spooner, Eling, Southampton. They both manufacture liquid manure drills.

Soluble Phosphates of Lime: *M J L.* The whole subject was discussed last year between Mr. Summer, Mr. Grady, and others. There can be no doubt that the more soluble the manure is the better, as Mr. Lawes, a manufacturer of it, states:—"It has lately been stated that superphosphate of lime should contain a considerable portion of phosphate of lime in an insoluble form, as well as a portion in a soluble state. The soluble portion is to supply phosphate of lime to the Turnip in the earlier stages of its growth, and the insoluble portion is to supply the phosphate in the latter portion of the season. This theory may be a very convenient one for manufacturers of superphosphate, as it saves them the great cost and trouble of converting the insoluble into soluble phosphate; but it is a very injurious one for farmers to accept; and it is founded upon a total misconception of the chemical and agricultural properties of phosphate of lime. Soluble superphosphate of lime is phosphate of lime dissolved in phosphoric acid; if this phosphoric acid is neutralised, the phosphate of lime is immediately thrown down and becomes insoluble, or very sparingly soluble, in water. As phosphoric acid cannot exist in a free state in the soil, the soluble phosphate is converted into this insoluble phosphate almost immediately after the superphosphate is drilled with the seed. Any farmer can satisfy himself of the truth of this by a very simple experiment. Let him take a table-spoonful of superphosphate of lime and rub it up with half a pint of water; as soon as the liquid becomes clear pour it into another glass, and he will find that it tastes acid; and the addition of a little solution of ammonia, potash, or soda, or even a little powdered chalk, throws down from the liquid a gelatinous substance; this is phosphate of lime, which has been rendered insoluble. If he now repeat this experiment, and instead of adding ammonia to the liquid, he pours the solution of soluble phosphate on to a flower-pot of soil taken from one of his fields, and adds water to the soil until he collects from the hole at the bottom of the pot half a pint of liquid, he will find that it is no longer acid, nor does the addition of ammonia throw down any of the gelatinous substance which it did to the former solution. The soluble phosphate has in fact been converted into insoluble phosphate by contact with the soil. It is evident, therefore, that so far from the Turnip crop requiring a supply of insoluble phosphate to feed upon during the latter stages of its growth, it would be more probable to suppose that the soluble phosphate drilled with the seed has become too insoluble, and that a second supply of soluble phosphate would be of advantage. The value of superphosphate of lime depends, therefore, principally upon the amount of soluble phosphate which it contains; and although it has been customary for chemists to place some value upon the insoluble portion, I think they are wrong in doing so, unless they have previously ascertained that this insoluble portion is in the form of bone. Many superphosphates in the market contain little or no bone, and the insoluble phosphate consists of hard badly ground pieces of coprolite."

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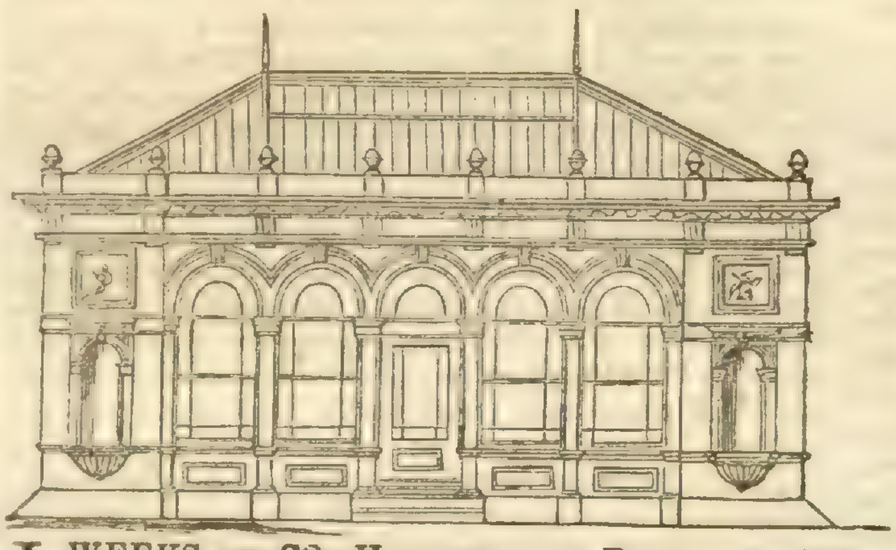

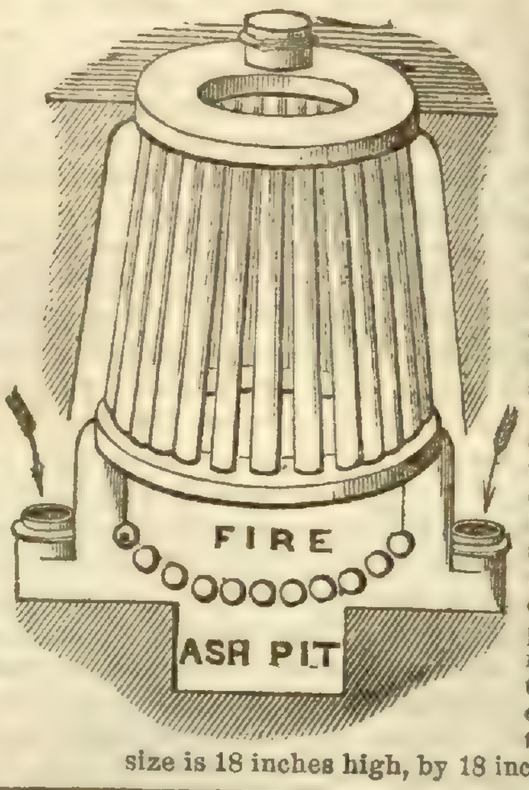

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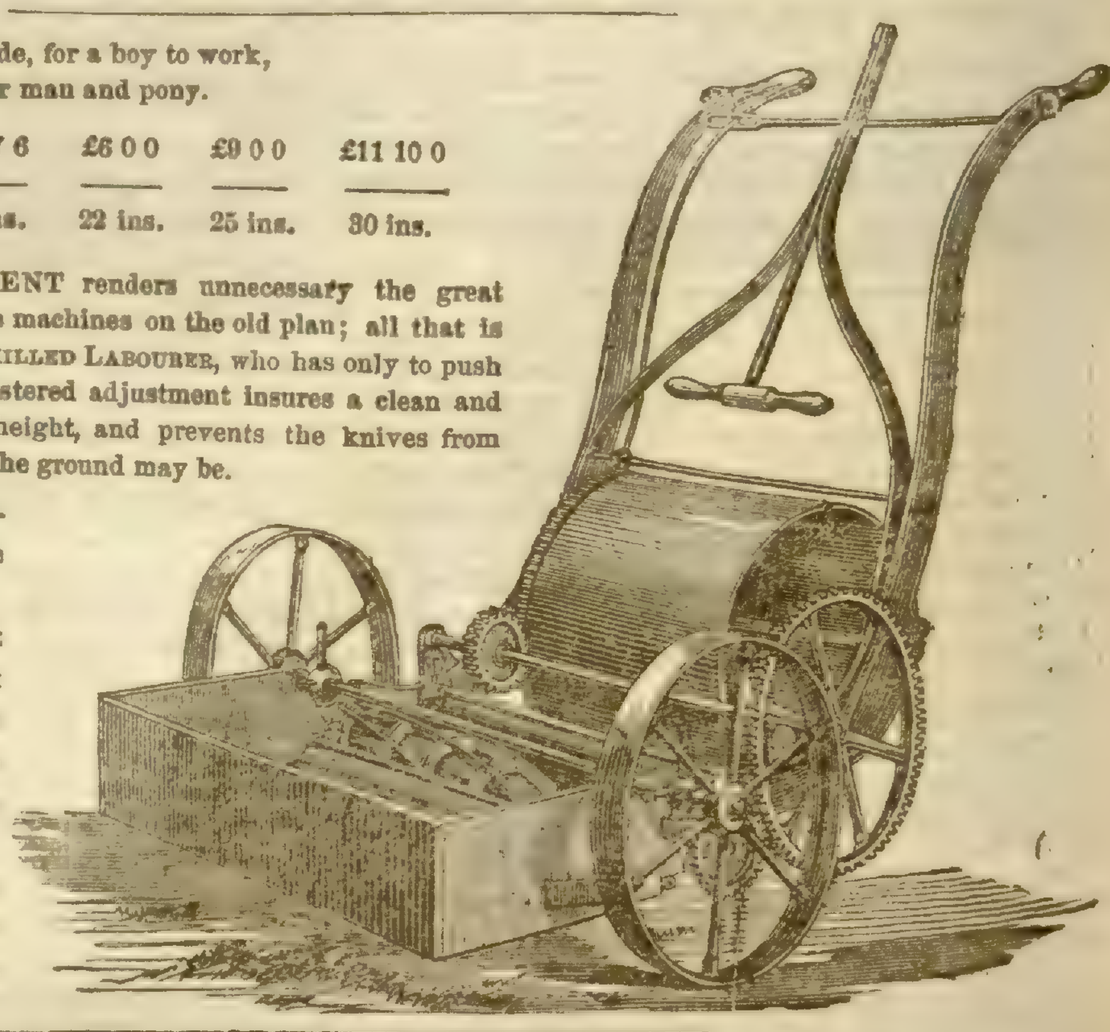

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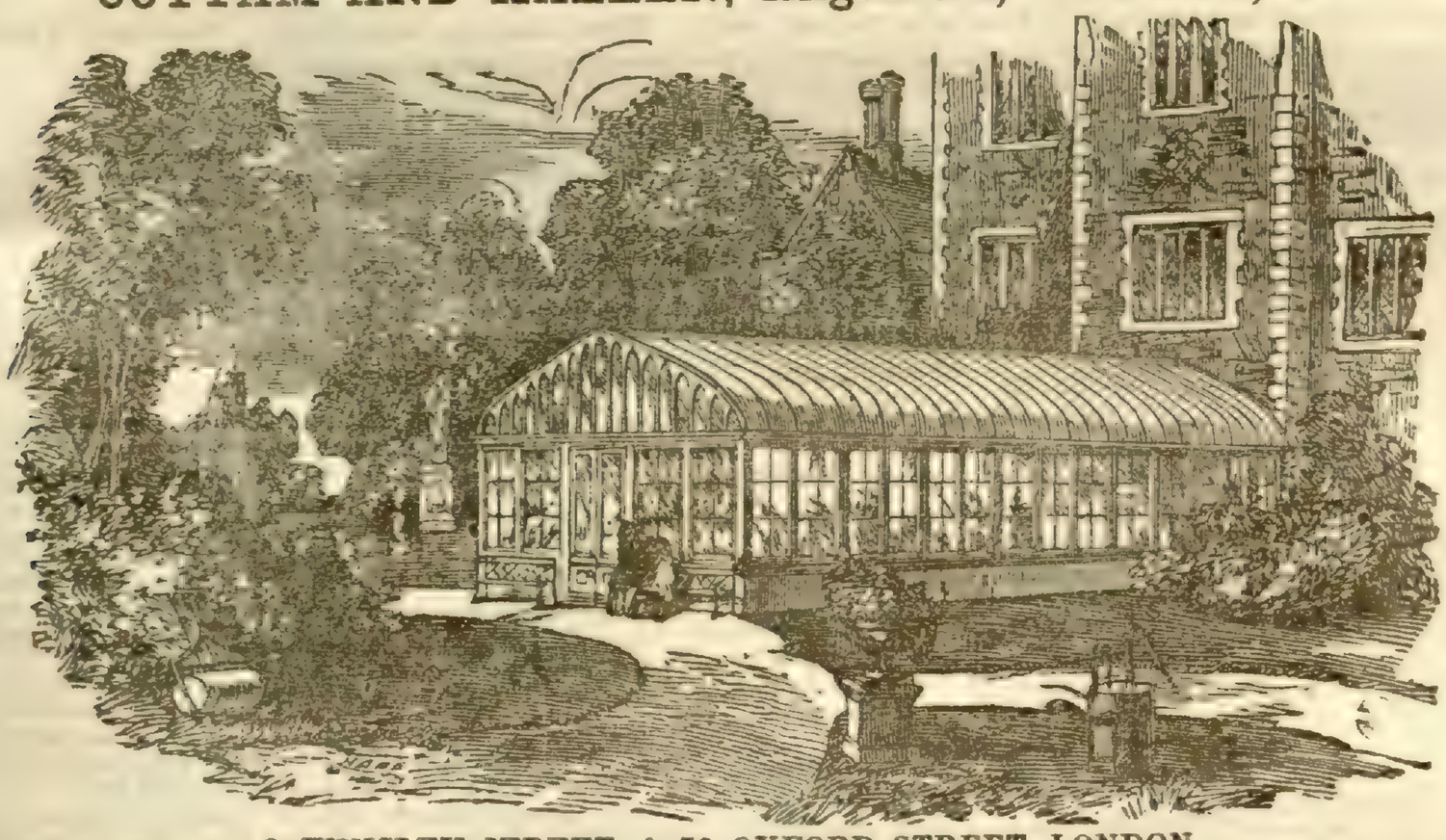

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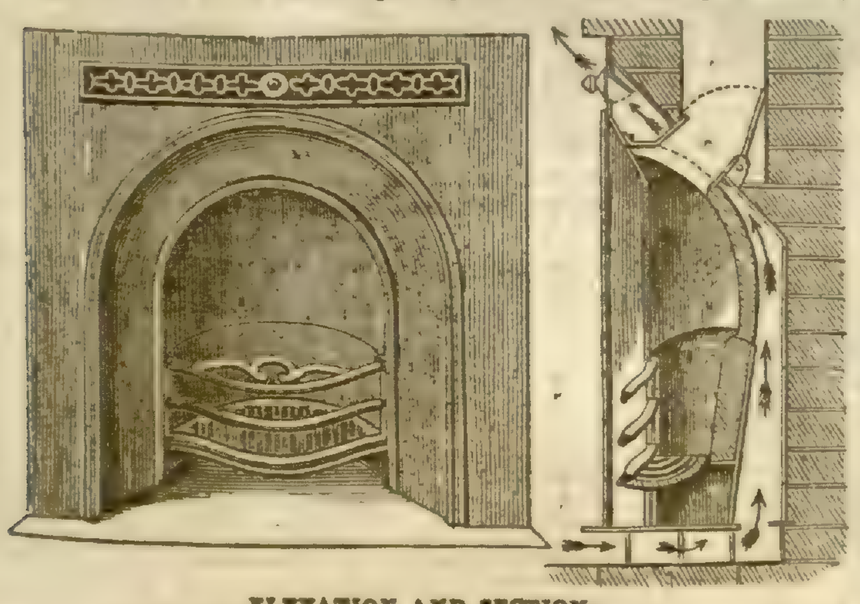

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*** Both to be seen in daily use, and Prospectus of their advantages to be obtained, at

BOYD & CHAPMAN'S,

78, WELBECK STREET, LONDON, W.

Established 1776.

TO PROPRIETORS OF VILLA RESIDENCES AND PROPERTY NEAR LONDON.

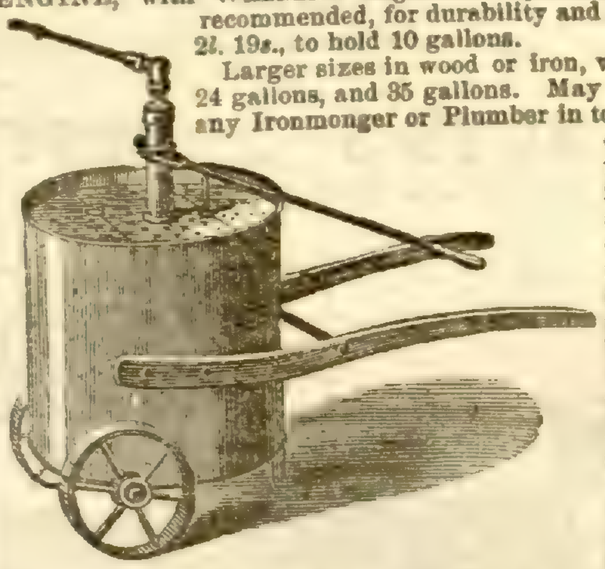
OAK POSTS and PALES, with GRAVEL, PLANK, &c., to be disposed of by a person converting his own timber in Sussex, and consequently very moderate in price, near a railway station within an easy distance south of London. The Posts, &c. morticed if required that an ordinary workman may erect. For ready money.—Address, X. Y., *Gardeners' Chronicle* Office.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS.

(See separate Catalogue.) 18 and 22, Strand.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.



Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds	10 gallons,	throws	30 feet high		...	£4	10
No. 2	„ 15	„	„ 45	„	...	5	10
No. 3	„ 28	„	„ 45	„	...	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds	8 gallons,	throws	25 feet high		...	£2	15
No. 13	„ 12	„	„ 30	„	...	3	5
No. 11	„ 16	„	„ 40	„	...	4	0
No. 12	„ 24	„	„ 45	„	...	5	0
No. 14	„ 30	„	„ 45	„	...	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

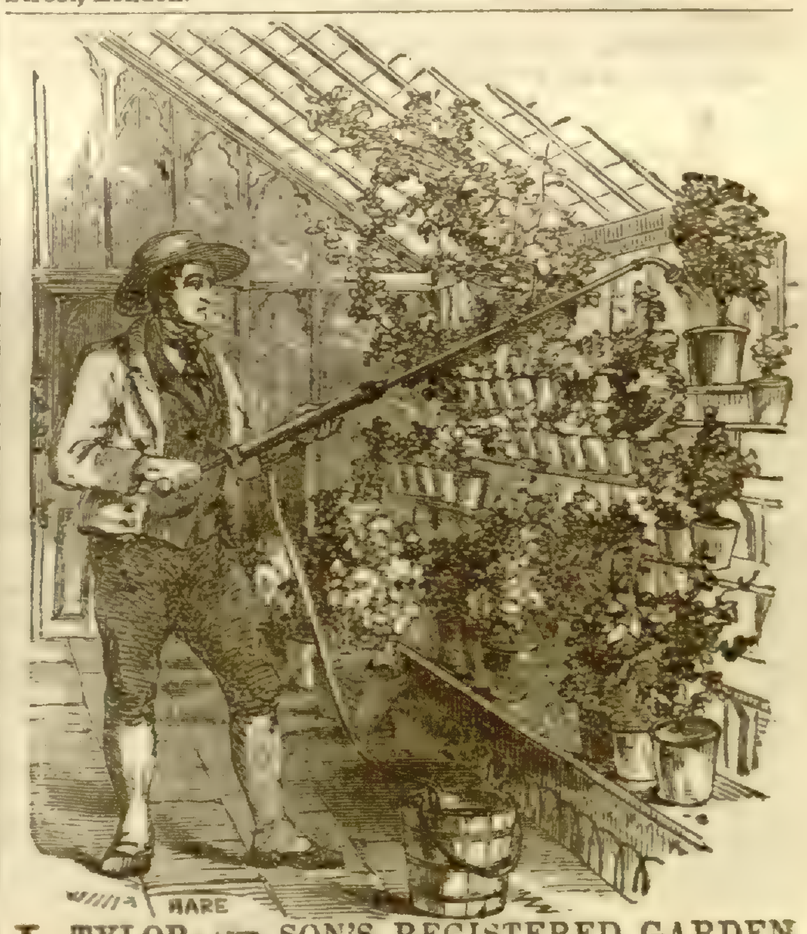
No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1¾ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅝ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not incl de carriage, package, or expense of delivery in the country.

BOYD'S PATENT VULCAN AND SELF-ADJUSTING SCYTHES

Are the cheapest and best, as being adjusted, they are ready for immediate use, thereby saving time and blacksmith's fees.

BOYD'S PATENT VULCAN OR POOR MAN'S SCYTHES,

Price 4*s.* 6*d.* each, or with Handles complete, 6*s.* 6*d.* Boyd's Patent Self-adjusting Scythes, extensively used at the Crystal Palace, and universally approved (will cut any crop without change of Scythe), 10*s.* 6*d.*

THE HARVEST LABOURERS.

OLD STYLE.

This labourer, having bought one of the old Scythes, has to go to the Smithy to get it hung, where he is detained while the smith shoes the farmer's horse.

NEW STYLE.

This labourer, having bought one of Boyd's Patent Vulcan Scythes, was enabled to set to work immediately, and succeeded in cutting nearly half an acre of Grass before he was joined by his companion from the Smithy.

The Self-adjusting Scythe is available for any person without reference to height, and suitable for any crop. When once the Self-adjusting Machinery is obtained any number of blades can be applied to the same for 4*s.* 6*d.* each. Sold by every Ironmonger, Hardwareman, and Seedsman in the Kingdom.

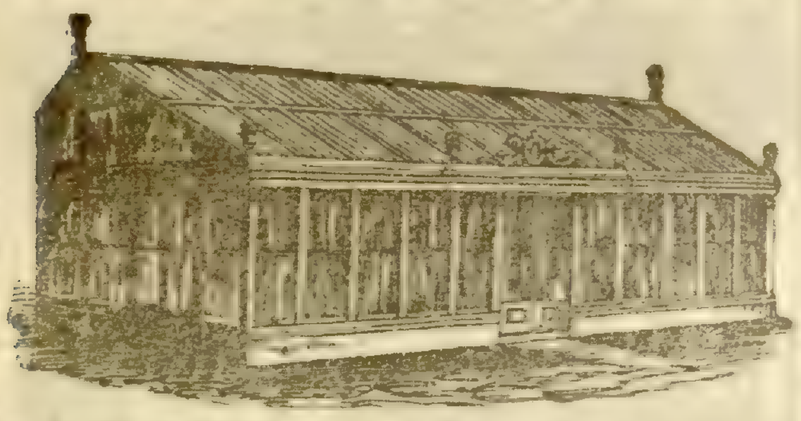
Wholesale Manufacturers, W. DRAY & CO., Swan Lane, London.

SIGMA'S" PATENT CORN AND MANGEL DEPOSITORS, inserting the seed in rows, at definite intervals in the row; any required number of grains deposited and pushed firmly into each very small hole. The steel dibs can be regulated to any depth. Five row dibblers, 3*l.* 3*s.*

The PATENT LIGHT DRAG HOE for hoeing two rows of Corn, Carrots, &c., at a time, or one row of Turnips, leaving the soil mellow behind, and not trodden on afterwards, cutting off every weed without cutting the Corn, expanding to different widths; the handle shifting according to the height of the workman, and the depth to be hoed. Knife-like chisel-headed shares for cultivating or stirring in the rows fitted separately.

The APHIS GREEN or HOP FLY POWDER for Orchard-houses, Roses, &c. A packet sent free by post on receipt of six postage stamps.—Apply through Mr. Ridgeway, 169, Piccadilly, London.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, Hothouse Builder, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

PRICE TEN SHILLINGS AND UPWARDS.

A PORTABLE INSTRUMENT for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers, in the open air without injuring the most delicate plant; delivering the smoke cool, in a dense mass, and effecting a great saving of Tobacco.—Manufactured and supplied to the Trade by Messrs. Barber & Groom, London; and may be had of all Ironmongers, Seedsmen, and Florists.

BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

BOITE À HOUPPE.

For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

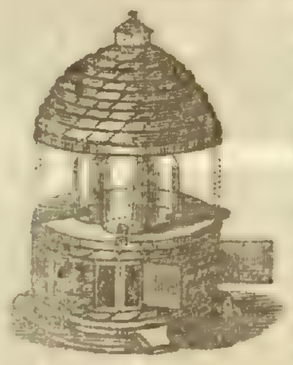
BURGESS AND KEY, 95, Newgate Street, London.—An instrument like a pepper-box has been used for the same purpose: but it was found to distribute too freely, causing much waste. The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

BEEHIVES.

MARRIOTT'S HUMANE AND COTTAGERS' HIVES, with all other articles required by an apiarian, are only to be obtained of Rigby & Co., 80, Gracechurch Street. Catalogues sent upon application.

BEE-HIVES.

Prize Medal awarded to G. N. & Sons, for Bee-Hives and Honey, at the Paris Exposition of 1855.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour and Sons, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid: its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to George Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other improved Hives with drawings and prices, sent on receipt of two stamps.

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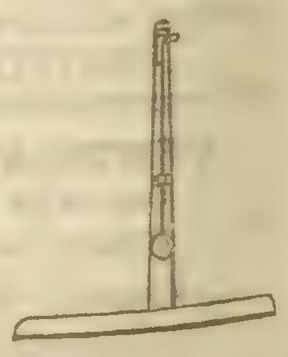
WEIR'S SPIRIT DRAINING LEVEL. Price 30*s.*; Case 1*s.*

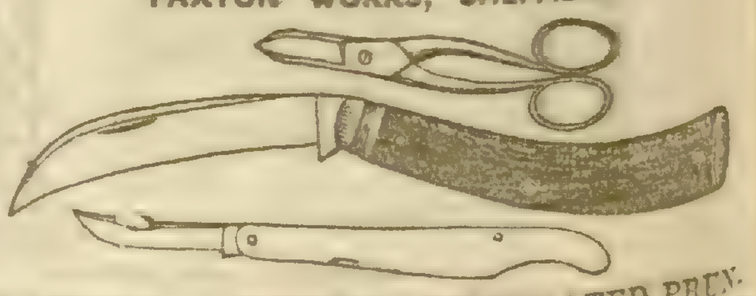
Requires no graduated staff or computation. Any labourer can use them.



WEIR'S PENDULUM WORKMAN'S LEVEL, for use in the Drain. Price 15*s.* Terms cash. Illustrated Catalogues sent post free.

Edward Weir, Agricultural Engineer, 16, Bath Place, New Road (six doors west of Hampstead Road), London.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1736.

BY ROYAL LETTERS PATENT.

GREEN'S PATENT LAWN-MOWING MACHINES.

THOMAS GREEN respectfully invites comparison and trial with any other pony or hand machine now in use; they produce superior work with much less labour; they are the most perfect Machine extant. Illustrated Price Lists and Testimonials may be had on application to the Manufactory, Leeds, Yorkshire; also Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Illustrated Price Lists forwarded on application.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public.

Full particulars with illustrations and prices forwarded on application.

BENJAMIN FOWLER AND CO., SOLE MANUFACTURERS of HOLMAN'S PATENT DOUBLE ACTION LIQUID MANURE, IRRIGATING, CESSPOOL, FARM FIRE ENGINE, and UNIVERSAL FORCE PUMP.—The simplest, cheapest, and best thing of the kind before the public; the valve ways are unusually large, and expressly suited for the passage of thick substances; the valves are also readily accessible for repairs or clearance by the removal of a single plate—a great desideratum in all places where mechanical skill is not readily procurable. Attention is particularly requested to this Pump as being a really good thing.

All kinds of Hose Pipes supplied.

B. FOWLER & Co., are Manufacturers of every description of Pump work and Hydraulic Machinery for deep or shallow Wells for Domestic, Agricultural, or Manufacturing purposes, upon the largest or smallest scale.

Experienced workmen sent to any part of the kingdom to fix Pump work, Heating, and Drying Apparatus, &c. Asylums, Institutions, Mansions, and Manufactories supplied with every class of Engineer's work.

Manufactory, Whitefriars Street, Fleet Street.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each; of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled. Prepared from Oriental Herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

HOW TO BREW SPLENDID ALE AT 7*d.* PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1*s.* 9*d.* per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny post stamps. Sent, post-free, to any address. Direct to FISHER & SON, publishers, Kingsland, London. Established 1847.

THE BELMONT GLYCERINE SOAP contains PRICE'S Pure Glycerine, distilled by their patent process from Palm Oil. It is recommended for washing infants and shaving, it softens the skin, and is a most agreeable toilet soap for general use.

PRICE'S CANDLES, which will not drop grease when carried. These used as Chamber Candles prevent damage to dresses and carpets. They should be burnt in the candlesticks made specially for them in imitation bronze, with cotton branch stems, and palm leaf feet, having stamped round the edge—"PRICE'S Patent Candle Company Limited." All the above may now be had retail through any druggist, perfumer, or grocer. The Soap in English ornamental boxes, price 6*d.*, 1*s.*, and 1*s.* 6*d.* each; the Candles in boxes, 1*s.* and 3*s.* Candlesticks, 2*s.* 6*d.* each. And wholesale at Belmont, Vauxhall, London.

FENDERS, STOVES, AND FIRE IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE IRONS, and GENERAL IRONMONGERY, as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; do. with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 2*l.* 15*s.* to 11*l.*; do. with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.*; Fire Irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s.* per dozen; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* p. pair; larger sizes, from 14*s.* 6*d.* to 26*s.* p. dozen; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per dozen; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per dozen; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per dozen; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38*s.*	48*s.*	60*s.*
Dessert ditto and ditto "	30*s.*	35*s.*	42*s.*
Tea ditto ... ... "	18*s.*	24*s.*	30*s.*

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto	10*s.*	21*s.*	25*s.*
Tea ditto	5*s.*	11*s.*	12*s.*

DISH COVERS AND HOT-WATER DISHES in every material, in great variety, and of the newest and most recherché patterns. Tin Dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 3*d.* to 28*s.* 9*d*, the set of six; elegant modern patterns, 34*s.* to 58*s.* 6*d.* the set; Britannia metal, with or without silver-plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield plated, 10*l.* to 16*l.* 10*s.* the set; Block Tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia metal, 22*s.* to 77*s.*; electro-plated on nickel, full sized, 11*l.* 11*s.*

The additions to these extensive premises (already by far the largest in Europe), are of such a character that the entire of EIGHT HOUSES is devoted to the display of the most magnificent stock of GENERAL HOUSE IRONMONGERY (including Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings), so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere.

Illustrated catalogues sent (per post) free.

39, Oxford Street, W.; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

HEALTH AND ECONOMY.

To realise this, we know of no auxiliary so potent, so serviceable, and so economical, as the world-wide remedy

PARR'S LIFE PILLS.

The great celebrity, the immense sale of PARR'S LIFE PILLS, show that the English public are determined to patronise an article of such established repute, and of such decided usefulness, which has stood the test of time and experience.

Those who use PARR'S PILLS judiciously have seldom occasion to resort to doctors, or to take any other medicine.

It will be true economy always to have in the house a box of PARR'S LIFE PILLS.

Sold by all respectable Chemists and Medicine Vendors in Town and Country.

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KING'S COLLEGE, LONDON.—A COURSE of SIXTEEN LECTURES on AGRICULTURE and the MANAGEMENT of LANDED PROPERTY, by J. LOCKHART MORTON, Esq., will be commenced on MONDAY, April 27, at 3 o'clock. Subject—"How to make the most of Landed Property." For prospectus apply to J. W. CUNNINGHAM, Esq., Secretary, King's College, London, W.C.

R. W. JELF, D.D., Principal.

TO ARCHITECTS, LANDSCAPE GARDENERS, AND OTHERS.

MAIDSTONE BURIAL BOARD.—The Burial Board for the Parish of Maidstone, in the County of Kent, are desirous of receiving Plans, Designs, Specifications, and Estimates (comprising Ground Plans, Sections, and Elevations) for the ERECTION OF TWO CHAPELS, detached—one on the portion to be consecrated, the other on the portion to remain unconsecrated, and to be similar in exterior design—a Receiving House, Entrance Gates and Lodge, and a Boundary Fence, on a site selected for a Burial Ground, situate at Mangravit Wood, in the Parish of Maidstone, about three-quarters of a mile from the Town, and for Laying-out the Land as and for a Burial Ground, with a sufficiency of Roads and of Pathways to afford access to the Graves, and with every Grace-space marked.

The Land is to be divided into two equal parts as nearly as may be—the one for consecration and the other to remain unconsecrated, to be separated by a Carriage-road.

The cost of the Chapels not to exceed the sum of 750*l.* each.

The Six Acres of the Ground lying next the South, and so much as is within 100 yards of all Dwelling-houses as marked upon the Plan, is not to be appropriated for Chapels, or in any way for the purpose of the Burial Ground, but the Boundary Wall is to enclose the whole.

The Board will not bind themselves to employ or engage the person whose Plans, Designs, Specifications, and Estimates, or any or either of them, may be approved; but in case he should not be employed or engaged, the Board will pay him a premium of 30 guineas for the same when such Plans, Designs, Specifications, and Estimates shall become and be the absolute property of the Board. Should he be employed, a Commission of 5 per cent. upon the Buildings (except the Boundary Fence) will be given without travelling expenses. The Board will not pay any charge or expense for preparing, and will not pledge themselves to accept or approve any Plan, Design, Specification, or Estimate.

A Lithographed Plan of the Land may be obtained gratuitously on application, either personally or by letter, to Mr. RICHARD HOLMES, the Clerk to the Board, 14, High Street, Maidstone.

Designs, Plans, Specifications, and Estimates are to be sent (free of expense) in a sealed envelope, with a motto or distinguishing mark attached, but without the name of the Designer, which is to be sent in another sealed envelope having a similar motto or mark, addressed to the Clerk to the Board as above, on or before the TWENTY-NINTH DAY of APRIL next; and those not approved will be returned in such way as the respective owners may request.

Maidstone, April 4, 1857.

COVENT GARDEN MARKET.

A BEDROOM TO LET on the First Floor in the immediate vicinity of Covent Garden.—A. Z., *Gardeners' Chronicle* Office.

WANTED TO RENT, at Michaelmas next, by a working-man, a Member of the Church of England, from 40 to 60 Acres of GOOD LAND, either in Suffolk, Essex, or Norfolk.—Address, W. G., Post Office, Woodbridge.

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TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, City, on THURSDAY, April 9, at 12 o'Clock, a first-class collection of Carnations, Picotees, and Pinks; also an assortment of American Plants and Ornamental Shrubs, Standard and Dwarf Roses, choice Verbenas, Fuchsias, Paeonies, Dahlias in dry roots, together with fine Azalea indica, Geraniums, Epacris, and a variety of other Plants in bloom.—May be viewed the morning of Sale; Catalogues had at the Mart: and of the Auctioneers, American Nursery, Leytonstone.

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NOTICE.

WHEELER'S LITTLE BOOK.—The demand has been so unusually large, that our edition for the Spring 1857 is now exhausted; but our List of "SEEDS FOR THE FARM" may still be had gratis on application.

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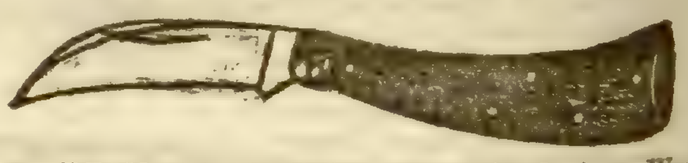

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Mr. Ingram, Reading, for Keens' Seedling Strawberries
" James Forbes, Woburn, for Black Hamburgh Grapes
" Lawrence, for Dendrobium densiflorum.

SECOND PRIZES.

Mr. Clement, of Oak Hill, for Pine Apples
" Tillyard, F.H.S., for Beurré Rance Pears
" Clark, of Cobham Park, for Strawberries
" L. Solomon, for Foreign Vegetables.

THIRD PRIZES.

Mr. Ingram, of Reading, for a Collection of Vegetables
" Tillyard, F.H.S., for Keens' Seedling Strawberries
" Bray, for a Cayenne Pine Apple
" Snow, West Park, for Cut Flowers.

FIRST CLASS CERTIFICATES.

The Lady D. Neville, F.H.S., for Anatomized Leaves
Messrs. Veitch & Son, for 6 Plants of Camellia Storyi
John Allnutt, Esq., F.H.S., for Azaleas
Mr. H. Low, F.H.S., for a new Rose, Isabella Gray
Messrs. A. Paul & Son, for a Box of Cut Roses
Messrs. Veitch & Son, for Orchids
Mr. R. Parker, F.H.S., for Cypripedium species
Messrs. Henderson & Co., Pine-apple Place, for 30 Hyacinths
Mr. Turner, Slough, for two Seedling Cinerarias
Messrs. Lee, Hammersmith, for Greenhouse Plants.

SECOND CLASS CERTIFICATES.

Messrs. Henderson & Son, Wellington Rd., Rudgea leucocephala
Messrs. Henderson & Co., Pine-apple Place, for Greenhouse Plants
To the same, for Tulips
Messrs. Veitch & Son, for Griffinia Liboniana
To the same, for Acacia Drummondi
Messrs. Cutbush, Highgate, for Greenhouse Plants.

HONOURABLE MENTION.

Mr. Cockburn, Kenwood, for Preserved Cranberries.

DISS HORTICULTURAL SOCIETY. — At the Second Meeting of the above Society, to be held on THURSDAY, July 9 (subject to alteration of which due notice will be given) there will be distributed (in addition to the Subscribers' Prizes for Bouquets, Roses, and other Flowers, Fruits, Vegetables, &c.), Two Silver Cups, and smaller prizes in money, for Collections of ROSES, open to all England, further particulars of which will appear in a subsequent advertisement.

H. TEMPLE FRERE, Burston, Diss, Honorary Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 ... Exhibition of Plants, Flowers, Fruits, &c.
" 29, 30 ... " Tulips (adjourned from the Crystal Palace)
May and June " American Plants
June 24, 25 ... " Plants, Flowers, Fruits, &c.
Aug. 19, 20 ... " Carnations and Picotees
" 26, 27 ... " Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order.) JOHN SHAW, Secretary.

TO NURSERYMEN, IMPORTERS OF PLANTS, ETC.

WILDING AND KENT, CUSTOM HOUSE AGENTS, 73, Mark Lane, E. C., London, undertake to receive from and forward to the Continent, all kinds of Seeds, &c., with utmost despatch and at low charges.

TO THE TRADE.

STRAWBERRIES.—Underhill's "SIR HARRY," warranted true. Price per 100 or 1000, may be had on application to R. S. YATES, St. Ann's Square, Manchester.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5s.—To be had of THOS. PERRY, Nurseryman, &c., Banbury.

THE BEST FORCING GERANIUM—"CRIMSON KING."

WOOD AND INGRAM beg to offer fine plants of the above beautiful variety (which obtained a Certificate at the "National" in March last), knotted for bloom, at 24*s*. per dozen. Smaller plants, 18*s*. per dozen. The usual allowance to the trade.—Huntingdon Nurseries, April 11.

ASH-LEAVED KIDNEY POTATOES (WARRANTED TRUE).

WOOD AND INGRAM beg to offer a very pure stock of the above at 6*s*. per bushel. Price to the Trade on application.—Huntingdon Nurseries, April 11.

R. ANDERSON begs leave to call the attention of the cultivators of the PANSY to his unrivalled collection, which he now offers at extremely low prices. Catalogues now ready.—Nursery, Teddington, April 11.

FIRST CLASS SEEDS.—Whatever has been sold as GLENNY'S Balsam Seed, except in his own sealed packets, is a fraud upon the buyers. Six classes, 37 stamps, mixed 13. Dahlia, Pansy, Hollyhock, Auricula, Polyanthus, Calceolaria, Cineraria, Heliotrope, Verbena, Chrysanthemum, Double Daisy, 13 each. All the best Annuals.—Fulham, S. W.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1857. Edited by J. C. MORTON, Esq., can now be had through any Bookseller, or from Messrs. WILLIAM E. RENDLE & Co., Foreign and Export Seed Merchants, Plymouth.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.

BASS & BROWN, Seed Growers, Sudbury, Suffolk.

MESSRS. J. AND H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.

Conservatories and Gardens furnished by Contract.

Albion Nursery, Stoke Newington, London.—April 11.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

F. GILL'S DESCRIPTIVE AND PRICED LIST OF FUCHSIAS, PLANTS AND CUTTINGS (now ready), and will be sent, post free, on application.—FRANCIS GILL, Florist, Tattenhall, near Chester.

AMERICAN PLANTS.

WATERER AND GODFREY beg to intimate that their Priced and Descriptive CATALOGUE OF HARDY RHODODENDRONS, AZALEAS, and other American Plants is now ready, and may be had free on application to Messrs. WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

SEEDS.—BUTLER & M'CULLOCH'S DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.

BUTLER & M'CULLOCH, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

AZALEA INDICA.

J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & SON beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21*s*. each.—Nurseries, Dorking, Surrey.

AZALEA "PETUNIÆFLORA."

W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5*s*. each; all the new Azaleas of last year, from 30*s*. to 60*s*. per dozen.—Maidstone, April 11.

AZALEAS SET WITH FLOWER.

W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.

Maidstone, April 11.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.

EPPS'S Nurseries, Maidstone.

STRONG Plants of all the New FUCHSIAS of last year, 12*s*. to 18*s*. per dozen; ditto VERBENAS of 1856, 6*s*. to 9*s*. per dozen.—EPPS'S Nurseries, Maidstone.

TO THE TRADE.—All the leading Fancy and other kinds of PELARGONIUMS, 50*s*. per 100, good plants.

W. J. EPPS, Nurseries, Maidstone.

CARNATIONS. — Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*. packing and hamper included. — JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PICOTEES.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*., packing and hamper included. — JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PINKS.—Twenty-five pairs, fine named kinds, in strong healthy plants, 10*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included. — JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

Post-office Orders payable at Middleton near Manchester.

VERBENAS.

C. E. ALLEN has a large stock of the best new and older varieties now ready, at 4*s*. per dozen, or 30*s*. per hundred, which may be had by post or otherwise.

Shacklewell, near London, N.E.

DAHLIAS.

C. E. ALLEN will be able to supply fine strong plants the first week in May, at moderate prices.—Catalogues forwarded on application.

Shacklewell, near London, N.E.

FUCHSIAS.—ROYAL VICTORIA (POND'S), one of the finest light varieties ever offered, 10*s*. 6*d*.

CEDO NULLI (POND'S), one of the finest dark varieties ever offered, 10*s*. 6*d*. Plants ready by the 1st of May, 1857.

JOHN KEYNES, Florist, Castle Street, Salisbury.

CHOICE PLANTS, &c.

YOUELL AND CO. beg to refer the Subscribers to the *Gardeners' Chronicle* to their Advertisement of last week.

Royal Nursery, Great Yarmouth, Norfolk.

INDIAN AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer most of the popular sorts of Indian Azaleas, in large quantities, at 12*s*., 15*s* or 18*s*. per dozen.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosary, Bungay, Suffolk, April 11.

HART AND NICKLIN, FLORISTS, Guildford, offer the undernamed set of Pansies for 12*s*., hamper included:—Duke of Newcastle, Nonpareil, Monarch, Pandora, Yellow Climax, Great Western, Memnon, Lord J. Russell, Emperor, Royal White, Sovereign, Aphin, Blanche, Lady Carrington, Satisfaction, C. Cowan, Sultan, Ringlet, C. Turner, inventa, &c.

THOMAS WILD, Ipswich, has only a few packets of the following SEEDS left; immediate application is necessary. Orion Melon, 1*s*. 6*d*; Standard Cucumber, 2*s*. 6*d*.; Pet, 1*s*. 6*d*.; Winter Prolific, 1*s*. 6*d*.; Hollyhock, 1*s*. per 100. Pansy, Dahlia, Gloxinia, Cineraria, Calceolaria, Polyanthus, Sweet William, Balsam, 1*s*. Free by Post. Catalogue out of print; Second Edition, with additions, will shortly be published.

DOUBLE WHITE PRIMULA SINENSIS.—The Advertiser has an extra fine Stock of this beautiful plant, in 32 and 48-sized pots, which he can offer at very low prices.

T. SURMAN, Lavender Hill, Wandsworth Road.

ERICA SINDRYANA.—Fine specimen plants of the above now coming freely into flower, 2½ to 3 feet high and 18 to 20 inches through; in—inch pots, each, 15*s*.

HUGH LOW & Co., Upper Clapton Nursery, N.E., London.

DEUTZIA GRACILIS.— Extra fine plants of the above in pots, with 8 to 12 shoots on each, well covered with flower-buds at per dozen, 15*s*.— H. LOW & Co., Upper Clapton Nursery, N.E., London.

TRADESCANTIA DISCOLOR VITTATA.

LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. and 35*s*. In London free.—Ghent, Belgium, April 11.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in VAN HOUTTE'S FLORA. Strong plants, perfectly hardy, at 1*s*. 6*d*. each, or 15*s*. per dozen. In London free until the 30th inst. The trade supplied.—LOUIS VAN HOUTTE, Ghent, Belgium, April 11.

TO COLLECTORS OF FERNS.

TODEA PELLUCIDA (NEW ZEALAND).—Plants of this most charming species may be obtained at 21*s*. each; or six for 5*l*. Amateurs and Nurserymen desirous of securing the above variety are respectfully requested to signify their intention on or before the 1st of May (when the Plants will be sent out) inclosing Post-office Order on Hackney, payable to CONRAD LODDIGES.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. 2*s*. per lb. To be had of all respectable Seedsmen in the United Kingdom.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

WANTED, AT TAYLOR'S GRAND STAND,

PINE, from 2 lbs. to 3 lbs. each, 6*s*. per lb.
CUCUMBERS, 24*s*., 18*s*., and 12*s*. per dozen.
ASPARAGUS, 10*s*., 7*s*. 6*d*., and 5*s*. per hundred.
MUSHROOMS (BUTTON'S), 2*s*. per lb.

CHOICE FLOWERS, &c.

Forward immediately to GEORGE TAYLOR, Choice Fruit and Vegetable Salesman, St. John's Market, Liverpool.

TO NURSERYMEN AND OTHERS.

HOLLY AND IVY.—Wanted, a large quantity of common Holly and Ivy, at per thousand, from 3 to 3½ feet high.—Address A. B., Paragon Nursery, Brixton Hill, Surrey.

ALOE FOR SALE.—A very fine specimen of an American ALOE, nearly 100 years old, to be seen at Bexley in Kent, on application to Mr. THOMAS DANN, Auctioneer, &c., Bexley.

HARDY HEATHS.—A first-rate Collection, and well grown PLANTS, by the Hundred or Thousand.—Catalogues with Prices will be sent free on application to WATERER & GODFREY, Knap Hill Nursery, Woking, Surrey.

TRANSPLANTED HOLLIES.—This month being a good time to plant HOLLIES, the Subscribers offer them at 40*s* per 1000 6 to 9 inches high. Evergreen Privet, 1½ to 2 feet, 30*s*. per 1000; Cedar of Lebanon, strong plants, 1½ to 2 feet, 5*l*.; 2 to 3 feet, 7*l*. per 100. Common Laurels, strong, 1½ to 2 feet, 60*s*. per 1000.—WM. JACKSON & Co., Bedale, Yorkshire.

SEED CORN FROM THE CHALK.

TALAVERA and APRIL WHEAT; Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. RAYNBIRD, Basingstoke. A reference or remittance required from unknown correspondents.

TO THE SEED TRADE.

GEORGE TABER, of Rose Cottage, Rivenhall, near Witham, Essex, begs to inform the Trade that he has still on hand a small stock of excellent TURNIP, SWEDE, and MANGEL WURZEL SEEDS of the best sorts.

TO THE LOVERS OF A GOOD RED BEET.

CHARLES DOLTON, SEED GROWER, Speenhamland, Newbury, will forward ¼ oz packets of the above by post on receipt of 6 postage stamps. Established 1830.

P.S. The above Beet has been admitted by all that have had it direct from me to be the best in cultivation.

BHOOTAN RHODODENDRONS.—Seven fine species raised from Seed imported by us 3 years since. Sturdy plants in 60's pots, each 3*s.* 6*d.*, the set for 21*s.*
H. Low & Co., Upper Clapton Nursery, London.

H. LOW AND CO. offer the CONIFERÆ undernamed:—

PINUS BENTHAMIANA, undoubtedly the handsomest of all the long-leaved species. The few large specimens now growing in English arboretums afford incontestable proof of its being hardy as the Scotch Fir. Good Plants from Seed, 1 foot, per dozen, 54*s.*; each, 5*s.*

THUJA GIGANTEA, a magnificent tree from California, where it attains the height of 140 feet, with a trunk 7 feet in diameter; the habit of the plant is graceful and foliage elegantly imbricated. It is quite hardy, and we confidently recommend it. Strong Plants from Seed, 18 to 24 inches high, each, 31*s.* 6*d.*

PINUS CONTORTA, or CALIFORNIAN MOUNTAIN PINE, a very rare species, belonging to the two-leaved section. Plants from Seed, 9 inches high, per dozen, 42*s.*
Upper Clapton Nursery, London, N. E.—April 11.

CONIFERÆ.

PODOCARPUS NUBIGENA, a fine hardy evergreen tree from the Andes, where it grows in close proximity to the Araucaria imbricata, which noble tree it somewhat resembles; the branches are produced in whorls; the foliage is of a dark glossy green. Single plants, two years from Seed, each, 15*s.*; 12 ditto, 120*s.*

PODOCARPUS ANDINA, another hardy, ornamental species from Patagonia; with foliage longer and narrower. Single plants, each, 15*s.*; 12 ditto, 120*s.*

ABIES ORIENTALIS, a singularly graceful species, of close compact habit, from the Caucasus; quite hardy. A single Plant, 4 inches, from Seed, each, 2*s.* 6*d.*; 12 ditto, 24*s.*; 100 ditto, 150*s.*

WELLINGTONIA GIGANTEA, fine sturdy Plants of this giant of the forest from Seed, 9 to 12 inches, each, 21*s.*

ARAUCARIA IMBRICATA, 3 to 4 inches from Seed, per 100, 75*s.*

PINUS PALUSTRIS; or Swamp Pine of N. America, per dozen, 12*s.*

PINUS FILIFOLIA, a species with very elegant foliage. An ornamental Plant for Conservatories in this country, per dozen, 42*s.*; each, 3*s.* 6*d.*
H. Low & Co., Upper Clapton Nurseries, London, N. E.

AUTUMN-BEDDED CABBAGE PLANTS.

JOHN CATTELL can now supply good plants of his superior early sorts—BARNES, RELIANCE, &c., and of the DRUMHEAD or CATTLE CABBAGE, at 6*s.* per 1000; also plants from the Autumn Sown Seed-beds of the latter, at 4*s.* 6*d.* per 1000, package included.

Orders for 5000 and upwards will be delivered carriage free to the Borough, London; or to the Edenbridge Station, South-Eastern Railway.

‖ A remittance must accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

IMPORTED GERMAN AND OTHER FLOWER SEEDS, VEGETABLE SEEDS, ETC.

ROBERT PARKER begs to invite attention to his large and select stock of the above, all of which are warranted NEW and TRUE TO NAME. Also to his large and choice collections of Stove and Greenhouse Plants, Exotic and British Ferns, Bedding Plants, &c., the whole of which are offered at the lowest possible prices consistent with superior quality.

Priced and Descriptive Catalogues are published, and will be forwarded free upon application.

Paradise Nursery, Seven Sisters' and Hornsey Roads, Holloway, London, N.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & CO., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) ... ... 32*s.* per acre

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming lawns. ... 1*s.* 3*d.* per b.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & CO., Seedsmen, 26, Down Street, Piccadilly, London.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9*d.* lb.; Swedes, 1*s.* lb.; Turnips, 1*s.* lb.; Hybrids, 1*s.* 3*d.* lb.; Improved Italian Rye-grass, 7*s.* 6*d.* per bushel.—GEO. GIBBS & CO., 26, Down Street, Piccadilly, W.

AGRICULTURAL SEEDS.

MR. ROBERT BAKER, of Writtle, Essex, having for many years bestowed great attention upon the improvement of Agricultural Seeds, by selecting and planting the best sorts in upland situations, remote from villages and gardens, so as to insure freedom from inoculation, begs to submit the following, which are open to competition with any other growers for a sweepstakes of such amount as may be agreed upon.

LONG RED MANGEL WURZEL, of very superior quality, produces upwards of 2 tons per acre more this season than any of the Orange varieties. 1*s.* per lb.

GLOBE RED, very fine and equally prolific. 1*s.* 3*d.*

GLOBE ORANGE, a very superior dark orange-coloured variety, and more prolific than the pale orange kinds. 1*s.*

LONG ORANGE, a delicate and handsome root, but not so hardy or valuable for keeping as the preceding varieties. 1*s.* 3*d.*

CATTLE CABBAGE, a well known and celebrated variety, exceedingly hard, and adapted for spring use and during severe frosts in winter; to be sown in March for a winter crop, and in August for an autumn crop. Will produce from 40 to 60 tons per acre, 4*s.* per lb. A Treatise upon the Cultivation may be had.

PURPLE TOP SWEDE, a new and very superior variety, 36*s.* per bushel.

IMPROVED SKIRVING'S SWEDE, having the crowns with smaller neck and the roots of greater symmetry, and remarkably true to stock, 36*s.* per bushel.

The above varieties have recently obtained prizes at agricultural shows. Remittances or Post-office Orders drawn upon Chelmsford Post Office.

Also may be had of Mr. W. MILES, Mark Lane, London.

WHEELER'S
GRASS SEEDS FOR PERMANENT PASTURE
DELIVERED CARRIAGE FREE.

WE beg to call particular attention to our GRASS SEEDS FOR PERMANENT PASTURE, and to our SEEDS FOR RENOVATING OLD PASTURES. We have made this branch of our business our particular study, and we have much pleasure in saying that the Grass Seeds we have supplied have given very great satisfaction.

We can supply GRASS SEEDS and CLOVER for laying down Land for Permanent Pasture at 30*s.* per Acre.

"Charlton Kings, Cheltenham, Dec. 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "WM. JORDAN."

"Blythe Court, Newnham, Dec., 1856.

"I think it due to you to say that the Seeds you have supplied me with for the last four years have been exceedingly good; with respect to your mixture for Permanent Pasture, it is my belief that it cannot be surpassed. "WM BROWN."

From ROBERT SHARPE, Esq., *Hewelsfield Court, near Chepstow.*
"January 29th, 1857.

"It is with much pleasure that I give the result of my laying down nearly fifty acres for Permanent Pasture with Grass Seeds supplied by you. Of these I laid down twenty acres in 1851, in 1852 thirteen acres, and in 1855 fourteen acres, and I am happy to say that a better selection of Seeds could not have been made.

"That which I laid down in 1851 succeeded so well that I had great difficulty in convincing some friends of mine who saw it the following year that it had not been laid down at least seven or eight years.

"I have carefully watched it every season, and it has never shown any symptons of decay, but is now, together with that which I laid down in 1852, the admiration of the neighbourhood; and I have pleasure in saying that the fourteen acres which I had laid down in 1855 is equally promising.

"P.S. It would be well to add that in each case I described to you the nature of the soil; this I consider essential."

From CALEB MORGAN, Esq., *Churcham, Gloucestershire.*

"I have much pleasure in informing you that the Grass Seeds I had from you last year succeeded particularly well; the produce from it *this* year has been estimated at two tons per acre."

From the Rev. G. BUTTERWORTH, *Deerhurst Rectory, Tewkesbury.*
"18th February, 1857.

"I have pleasure in speaking of the excellence of your Grass Seeds; I certainly had a very good crop of Grass last year, from the extent of ground laid down two years before by my predecessor. I shall be glad of some more Grass Seeds shortly, to sow with it a field adjoining."

J. C. WHEELER & SON, Seed Growers, Gloucester.

50,000 DWARF ROSES IN POTS.

WM. WOOD AND SON have much pleasure in soliciting especial attention to their enormous stock of ROSES in pots, a portion of which are offered on their own roots and the remainder are neatly grafted plants on the Manetti stocks, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock off-red may be formed from the following select list of a few of the leading kinds:—

HYBRID PERPETUAL.

Quantity.	Per Doz.—*s.*
4000 Géant des Batailles	15
3000 General Jacqueminot	20
2000 Duchess of Norfolk	20
2000 Jules Margottin	15
1000 Alexandrine Bachmeteff	15
1000 William Griffiths	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland	15
1000 Pius the Ninth	15
500 Auguste Mie	15
500 Queen Victoria	15
500 Mrs. Rivers	15
500 La Ville de St. Denis	15
500 Jacques Lafitte	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12*s.* to 18

BOURBON.

500 Sir Joseph Paxton	15
500 Bouquet de Flore	15
And other leading kinds (own selection)	12*s.* to 18
2000 Paul Ricaut hardy Bourbon	15

TEA ROSES.

1000 Gloire de Dijon	20*s.* to 36
500 La Sylphide	15
Other fine kinds	15

CHINA ROSES
ADAPTED FOR BEDDING IN LARGE QUANTITIES.

Fabvier	10
Cramoisie superieure	15
Henri Cinq	10
Mrs. Bosanquet (cream)	15
Prince Charles	15
Marjolin	10
L'Eblouissante	15
Louis Philippe D'Angers	10
And other fine kinds	9*s.* to 12
Fine Noisette Roses	9*s.* to 12
Banksian Roses	15

N.B. Extra plants presented to compensate for distant carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. and S. can supply all the new Roses of this season if required, but will NOT recommend them until they have themselves tested their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex. April 11.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	*d.*
100 varieties select showy Annuals, including newest	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

Choice Hollyhock, Geranium, Calceolaria, Pentstemon, Gloxinia, Primula sinensis, and other Florist Flowers, carefully saved from first-rate varieties.

CHOICE IMPORTED GERMAN SEEDS, in separate colours, very fine and double.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 0*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20*s.*) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey. April 11.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the newest varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.

	s.	*d.*
12 pairs of fine kinds by name	18	0
12 " extra fine "	24	0
Fine old Clove Carnations, per dozen pairs	12	0
Finest mixed Border Carnations and Picotees, per dozen pairs	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 12*s.* and 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.
" Fine mixed border ditto, 6*s.* per dozen pairs.

All orders of 2*l.* and upwards are delivered carriage free to London, Manchester, Newcastle and Hull, as well as to any railway station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

NOTICE.

TO THE CULTIVATORS OF THE GERANIUM.—Upwards of 10,000 strong healthy plants now ready.

Per dozen.—	*s.*	*d.*
GERANIUMS.—Show varieties of 1855, purchaser's selection	30	0
Do., do., H. W.'s selection	25	0
Do., do., of 1854, 15*s.* and	18	0
Do., do., older varieties, 6*s.* and 9*s.* per doz., or 20 for	15	0
Do., fancy varieties, choice, 9*s.*, 12*s.*, and	18	0
Do., French and English spotted varieties, 12*s.* and	18	0
Do., 100 strong plants for 3*l.*, including package.		
FUCHSIAS of last season, 9*s.* per dozen; extra strong	12	0
CINERARIAS Duchess of Wellington, Magnum Bonum, and Purple Standard, 2*s.* each, or the 3 for	5	0
Do., choice varieties of previous years, 6*s.*, 9*s.*, and	12	0
CALCEOLARIAS, Herbaceous, 1*s.* 6*d.* to 2*s.* 6*d.* each, or 12*s.* to	18	0
Do., shrubby, bedding varieties of last season, including Cole's spotted varieties, 1*s.* 6*d.* each, or, after 20th April	10	0
Do., older varieties, 4*s.* 6*d.* to	6	0
VERBENAS, new varieties of last season at	6	0
Do., older varieties, 3*s.* 6*d.* and	4	6
PETUNIAS, new, of last season, including the continental striped varieties, 1*s.* each, or	9	0
CHRYSANTHEMUMS, large and Pompone flowered varieties, 4*s.* 6*d.* to 6*s.* and	9	0
PHLOXES, choice new varieties of last season	18	0
Do., Countess of Morton and Addisoni, strong plants, 3*s.* 6*d.* each.		
Do., do., older varieties, 6*s.* and 9*s.* and	12	0
PANSIES, 12 strong superior new varieties for 15*s.*		
Do., 25 strong choice show varieties for 15*s.*		
PINKS, 25 pairs, fine named sorts, 10*s.*		
GLOXINIAS.—The following 6 new erect varieties for 1*l.*, or 5*s.* each, viz.:— Comte de Neipperg, Duchesse de Brabant, Madame Picouline, Roi des Belges, rosea mutabilis, and Wagneri.		
Do., choice erect varieties, extra strong plants, 6 for 10*s.*, or	15	0
Do., not erect flowering, 9*s.*, 12*s.*, and	15	0
ACHIMENES.—Locheria magnifica, 2*s.* 6*d.*; Do., Tydea amabilis, 3*s.* 6*d.*; Estella, 2*s.* 6*d.*; Aurora, 2*s.* 6*d.*	7	6
Do., other varieties, 5*s.* and	18	0
AZALEA INDICA, strong plants, 12*s.* and		
ROSES, choice new Hybrid Perpetual varieties, such as Triomphe de l'Exposition, Prince Noir, Souvenir de la Reine d'Angleterre, &c., &c., strong healthy plants, 3*s.* 6*d.* each, or	30	0

For descriptions, &c., of the above Collections, see Catalogues, may be had on application enclosing 1 stamp. The Catalogue contains a great assortment of Bedding Plants which will be ready the end of April, including Dahlias, Scarlet and other Geraniums, Cuphens, Heliotropes, &c.; also a collection of 84 Bedding Plants for 1*l.*, and a collection of 132 Bedding Plants for 30*s.*

MISCELLANEOUS PLANTS at Reduced Prices.
(The 12 Plants for 1*l.*)

Escallonia pterocladon, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Myrtus apiculata, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Do. myrsinoides, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Cassia floribunda, 2*s.* 6*d.*
Jasminum poitiana, 1*s.* 6*d.*
Epacris Eclipse (Story's), 2*s.* 6*d.* to 3*s.* 6*d.*
Vaccinium erythrinum, 2*s.* 6*d.* to 3*s.* 6*d.*
Begonia opulæfolia miniata (splendid scarlet), 2*s.* 6*d.* to 3*s.* 6*d.*
Gonocalyx pulcher, 3*s.* 6*d.*
Francisea confertifolia, 2*s.* 6*d.*
Dipladenia magnifica, 2*s.* 6*d.* to 3*s.* 6*d.*
Passiflora Decaisneana, 2*s.* 6*d.*

Orders executed in strict rotation as received. Post-office Orders payable at Marsden, Lancashire.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

NEW PHLOXES.—An extensive and select collection of the above beautiful showy tribe of Herbaceous Plants, comprising the fine and newly introduced varieties from the Continent. May be obtained at 10*s.* per dozen, package included.

NEW PANSIES.—A fine collection of all the New and First-class Show Varieties by name. Strong Plants, well established in small pots, 10*s.* per dozen, package included.

YOUELL & Co., Royal Nursery, Great Yarmouth, Norfolk.

NEW AND SUPERB BEDDING CALCEOLARIAS FOR 1857.—We have much pleasure in offering the four following Calceolarias, feeling assured they will give the highest satisfaction. They were selected with the greatest care from upwards of 2000 Hybridized Seedlings, bedded out expressly for the purpose of proving their intrinsic merits. We have no hesitation in stating they are very far superior to any yet offered.

EXCELSIOR.—Brilliant crimson, shaded with plum, habit excellent, flowers large, well formed and very smooth, decidedly the best of its class, 5*s.* each.

FANDANGO.—Rich golden yellow and crimson, with yellow crown, habit good, and first-rate bedder; a great improvement upon MAGNIFICENT, 5*s.* each.

ARGUS.—Rich crimson, with a perfect broad belting of rich golden-yellow, quite distinct, and one of the handsomest Calceolarias yet offered, 7*s.* 6*d.* each.

BACCHUS.—Deep crimson, fine and large flowers well-formed, habit dwarf and robust; a great improvement on CRIMSON KING or SULTAN, 5*s.* each.

The set 20*s.*, package included. The usual discount allowed to the Trade when three sets are taken.

YOUELL & Co., Royal Nursery, Great Yarmouth.

THE SUBSCRIBERS are prepared to supply well-grown healthy plants of the following kinds, at the prices affixed:—

12 NEW GERANIUMS of 1856 for 42*s.*:—Leopard, Floretta, Brunda, Iris, Admirable, Countess, Sparkler, Eugène Duval, Elise Miellez, Van Houtte, Eminée, Edouard Miellez.

12 NEW VERBENAS of 1856 for 5*s.*:—Field-Marshal, Victory, Loveliness, Charles Dickens, Blue Bonnet, King of Sardinia, Impératrice Elizabeth, Dr. McLean, Mrs. Holford, Silistria, Auguste, Macquet;

12 NEW FUCHSIAS of 1856 for 15*s.*:—Venus de Medici, Favourite, Admiral Boxer, Conqueror, Prince of Wales, Impératrice Eugenie, Donna Jacquina, Figaro, revoluta, General Williams, Charlemagne, Wonderful.

12 TEA ROSES of the best kinds for 18*s.*
12 AZALEA INDICA do. do. 12*s.*
12 do. newer do. do. 18*s.*
12 CAMELLIA JAPONICA, best kinds, 30*s.*
12 do. larger do. 42*s.*
12 do. do. do. 60*s.*
12 SHRUBBY CALCEOLARIAS of new and best kinds, 18*s.*
12 HERBACEOUS do do. from 12*s.* to 18*s.*
12 Best NEW HOLLAND Plants do. do. 12*s.* to 18*s.*

A large collection of the most showy Bedding Plants will be ready by the 1st of May, from 20*s.* per 100, and for which early orders are requested.

WILLIAM MASTERS & SON, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone. A remittance or reference required from unknown correspondents

THE FINEST GLOBE ASTER SEED IN THE WORLD.

EDWARD TILEY begs to inform the lovers of this beautiful and unequalled flower that he has a fine stock of seed saved from 24 of the choicest varieties ever exhibited, producing every flower perfect, the shape being two-thirds of a ball, well filled up to that form in the centre, and all the petals beautifully quilled. E. T. has received numerous testimonials from those who have purchased it years past, speaking in the highest praise of the fine varieties produced from the seed they obtained of him.—Sold in packets at 1*s.* 6*d.* each.

Cineraria Seed from best named varieties, 1*s.* per packet.

Sweet William Seed, saved from all the choicest and most selected sorts as to size of flowers and distinction of colours, there being about 36 varieties, 1*s.* per packet.

Antirrhinum Seed, from one of the most superb collections in cultivation, 1*s.* per packet.

Hollyhock Seed, from 24 of the best named flowers, 1*s.* per pkt.

Digitalis or Foxglove Seed, saved from flowers of the most beautiful kinds, there being about 20 distinct varieties of spotted crimson, striped white, &c., 1*s.* per packet. Plants of the same, that will bloom well this season, 2*s.* 6*d.* per dozen, or 1*l.* per 100.

Fine dark Clove Carnation, 1*s.* per pair.

Seedling Hollyhocks, grown from seed selected from 36 of the best named varieties, 2*s.* 6*d.* per dozen, or 1*l.* per 100. They will bloom well this season, and generally produce fine double flowers. Good named varieties of Hollyhocks, 12*s.* per dozen. Any portion of the seed will be sent postage free, and the plants, hamper and package free.

A Post-office Order, or penny postage stamps, must accompany every order, when any portion, or the whole, as the case may be, will be immediately forwarded.

N.B.—E. T. can still supply seed of his unequalled new Cucumber Perfection, at 3*s.* 6*d.* per packet.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

A VERY SWEET HARDY VIOLET, VIOLA SUAVIS.

J. CATTELL has seeds of this very hardy and sweet early Violet, colour a pleasing bluish white. It requires no other culture than sowing in the open ground, and if planted in shrubbery borders, wood walks, &c., would in a few years cover the surface of the ground. Packets containing 3 doz. seeds, 6*d.* each, post free.

The following very choice seeds may also be had at the annexed prices:—

Acroclinium roseum; Cosmidium Burridgianum; Geranium, finest florist varieties, mixed; Geranium, new French varieties, mixed; Gloxinia, mixed, extra fine; Heartsease, from fine show varieties, mixed: Heartsease, from new French spotted and striped varieties, mixed; Linum grandiflorum or rubrum, Van Houtte's, true; Polyanthus, mixed, extra fine; Primula sinensis, red, white, and intermediate colours, mixed, finely fringed; Veronica syriaca, &c. 1*s.* per packet.

Anemone, single Poppy, scarlet, and mixed, extra fine; Aquilegia Skinneri, and glandulosa; Coreopsis nigra speciosa and coronata; Escholtzia tenuifolia; Mimulus, mixed, extra fine and ditto quinquevulnerus; Nemophila marginata; Petunia, mixed, fine; Phlox Drummondi, mixed, extra fine, and ditto mixed from extra fine dark varieties; Sweet William, mixed, very fine, and ditto extra fine dark; Wahlenbergia grandiflora, 6*d.* per packet.

Calceolaria, from finest varieties, carefully hybridized, 2*s.* 6*d.* per packet.

Cineraria, from very fine varieties, 1*s.* 6*d.*

Cineraria, from very superior new varieties, 2*s.* 6*d.*

German Stocks, Asters, Balsams, Larkspurs, Wallflowers, &c. &c., of the very finest quality, in assortments from 1*s.* 6*d.* to 6*s.*, each according to the numbers in each assortment; or the same may be had mixed at 1*s.* and 1*s.* 6*d.* per packet each.

Descriptive Catalogues of Flower and Vegetable Seeds may had post free upon application.

SCILLA SIBERICA.—This truly beautiful and very hardy sky-blue Squill is now in great beauty, many thousand bulbs of which are now in full flower, and should be seen to be fully appreciated.—Nursery and Seed Establishment, Westerham, Kent.

DAHLIAS.

JOHN KEYNES, FLORIST, Salisbury, obtained ELEVEN Certificates at the National Exhibition of Seedlings. Only FOUR other Certificates were awarded for Dahlias the whole season. These truly splendid flowers will be ready for distribution the first week of May. First-rate plants may this year be depended on. Catalogues of the leading show Dahlias will be sent on application.—Castle Street, Salisbury.

Royal Scarlet	10*s.* 6*d.*	Carnation	10*s.* 6*d.*
Fanny Dodds	10 6	Charles Perry	10 6
Mrs. Edwards	10 6	Conqueror	10 6
Lady Franklin	10 6	Lady Paxton	10 6
Duke of Devonshire	10 6	Tam o'Shanter	10 6
Lord Cardigan	10 6	Margaret	10 6

The whole of these obtained Certificates at the National, with the exception of Fanny Dodds and Lord Cardigan.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

ROYAL BERKSHIRE SEED ESTABLISHMENT

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

The Gardeners' Chronicle.

SATURDAY, APRIL 11, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 15—Society of Arts ..... 8 P.M.

LET us hope that POTATO GROWERS will take the advice given them by our able friend the Rev. M. J. BERKELEY (see p. 190), and set in earnest about trying the experiment he recommends.

It is now certain that the application of sulphur to the leaves of the Vine and Hop will, as he was the first to prove, completely destroy the mildew plants that infest them. About that no doubt whatever exists; and it is also certain that no evil consequences follow the use of the remedy. Its expense is the only objection to it. For the alarm felt some time since by the Hop factors, who found that sulphured Hops spoiled beer, was owing to their having used impure sulphur in the osthouse, for the sake of cheapness, and not to the flowers of sulphur scattered over the foliage.

Although the mildew that aggravates the Potato disease and renders it so formidable is also a fungus, yet its mode of life is quite different from that of the Vine and Hop mildews. In them the fungus grows UPON THE SURFACE, and is therefore brought into contact with sulphur the moment that substance is dusted over them. It acts immediately, attacks the mildew and destroys it. But in the Potato the fungus is INTERNAL, and sulphur scattered over the outside of the Potato plant can exercise no action. Many trials have been made with sulphur, but without effect; the sulphur cannot get at the fungus. Mr. BERKELEY's opinion is that the germs of the fungus may be in the sets, and if so it is to the sets that sulphur should be applied, and not to the stem and foliage. But sulphur cannot attack the germs of the fungus even in the tuber if applied to the *outside;* it must be brought into contact with the *inside*, about which there is no difficulty.

To us it seems desirable that sets should be prepared in different ways, the object always being to make each as thin as possible, so as to present the greatest surface to the action of sulphur. This may be effected by cutting them into thin slices having an eye on them, or by using mere parings, or by scooping out the eyes. Thus prepared sets might be thrown among flowers of sulphur for a few hours, so that when removed a coating of it may stick to them. It might even be advisable to dust the sets with sulphur after having been put into the drills. Everybody ought to set about experiments of this kind without a week's delay, and should vary them in every possible manner consistent with the fundamental principle that the sulphur must be brought into contact with the *inside* of the Potato. Should they fail the loss will be too insignificant to mention. Should they succeed we shall have a most important compensation for the terrible cattle murrain which seems to be hanging over our heads.

Mrs. HYACINTHA CARSWELL says she cannot make her seeds of ANNUAL PLANTS grow; she has bought them of CARTER, and of WRENCH, and of NASH, and MINIER, and is equally unsuccessful in every case. Even Mignonette refuses to come at her bidding. And yet she spares no pains, actually employs the gardener of a neighbouring Viscount to sow the seeds for her, and herself takes care that no vile slug or other molluscous forager sucks them up. Being a great admirer of Mrs. LOUDON's Book of Annuals, she is eager to watch and nurse all the pretty things that adorn the pages of that charming picture book. And then comes a postscript correcting the first statement by announcing that Clarkias and Collinsias and Godetias do come up—a circumstance she had forgotten to mention.

We are not surprised at the horticultural misfortunes that have overtaken Mrs. HYACINTHA; especially when we look at the advice given to amateurs by some of our gardening friends, who take infinite pains to explain what needs no explanation, and to omit exactly that which is the essential thing to know. Before roasting a hare it is necessary to catch it; before thinning, and manuring at the very moment of projection, and tying plants neatly to sticks or bits of bushes it is necessary to make seeds grow. How to do it is a question which great gardeners can answer, but sorely puzzles little ones.

Shall we be believed when we say that it is a mere affair of temperature? Or rather can any one doubt it? The seeds that will not grow come from countries in which the earth is far warmer than here; Mignonette, for instance, from the N. of Africa, Cenias and Arctotids from the Cape of Good Hope, Rhodanthes and Helichrysums from New Holland, in all which countries the earth is more heated than with us. Seeds cannot grow unless they are submitted to a certain amount of warmth, below which they die after a few weeks' exposure. In this respect they are like eggs, which are addled if kept in an unnaturally low temperature. Now, the month of April, or even the end of March, are seized upon by eager amateurs as the time at which to sow their annual seeds. But the mean temperature of the surface soil near London in March may be taken, in round numbers, to be as low as 41°, and in all April as 46½°; the temperature of the corresponding months in N. Africa, the Cape, or Australia is, however, at least 10° higher, an enormous difference in its effect upon plants; and such an amount of warmth is not gained in this country before the end of May at the soonest. It is no wonder then that the tender seeds of the warm parts of the world should perish when thrown too early upon the chilly soil of this northern region. If our fair complainant will moderate her zeal, and wait with patience till May before she begins seed sowing she will find her Mignonette, as well as her other delicate flower seeds, springing up willingly enough, and she will no longer complain of her seedsmen, who are in no way to be blamed. The mere fact of her Clarkias, and Collinsias, and Godetias coming up where other seeds perish, as we say, won't grow as Mrs. HYACINTHA thinks, is a proof of the truth of the explanation we have given. They grow because they come from a climate like our own, and the cold that kills other seeds is congenial to them.

It excites no surprise in us that a Cocoa-nut will not grow if planted in a flower border; astonishment is reserved for more familiar plants. And yet there is no reason whatsoever why the Cocoa-nut should not shoot as well as the Acorn, except that greatest of all reasons, namely that the earth is never warm enough to excite its vital forces into activity.

CULTURE OF ROSES IN POTS.

IT is not very many years since it was considered impossible to produce good specimens of Roses in pots; now however, thanks to the prevailing spirit of improvement, things are altered, and it is not unusual in well managed collections to see specimen Roses in bloom even at Christmas which would not disgrace our public exhibition tables in May and June. The varieties

best adapted for winter flowering, as well as for purposes of exhibition, are Bourbons, Teas, and Hybrid Perpetuals, which are better on their own roots than budded, and they root very readily, especially when good strong cuttings of them can be obtained early in spring from plants growing under glass. When struck and well rooted they should be potted singly in 4-inch pots in good fresh loam and decayed leaf-mould in about equal proportions, adding at the same time sufficient sharp clean sand to render the mixture light and porous. After potting they should be placed in a close moist atmosphere until they have become thoroughly established in their pots. They may then be removed to a light, airy, and rather cool situation with a view to induce close stocky growth; there will be nothing gained after they are well established in 4-inch pots by keeping them in a higher average temperature than 55°. In order to secure a bushy habit of growth, it will be necessary to pinch off the top of the first shoot, but this should not be done until the plants are removed to a cool situation, nor while the eyes at the base are sunk and imperfectly developed, otherwise the probability is that the top bud only will start. As soon as the plants are well rooted in their first pots shift them into others one or two sizes larger, as circumstances may point out, and when moderately well rooted after the second shift remove them to a cool frame and gradually inure them to full exposure, merely protecting them from heavy rains and cold drying winds. During the summer months a liberal supply of water must be given, using weak manure-water twice a week, and the plants should be syringed morning and evening during bright weather, and shifted into larger pots as may be necessary. Stop any gross over-luxuriant shoots, and have a constant eye to the formation of good-looking specimens. Also keep down green-fly by means of frequent fumigations with tobacco smoke.

During summer plants that are established after the first shift had better be moved to a sheltered corner out of doors, placing the pots on a bed of coal ashes to keep out worms. With good management many of them will be nice compact specimens in 7 or 8-inch pots at the end of the season's growth, and the Teas and Bourbons if removed to a close pit or frame early in autumn will continue growing throughout the winter and spring months. Where handsome specimens are desired they must not be allowed to bloom, which would retard their progress the following season. Hybrid Perpetuals may be wintered in coal ashes, in which they should be plunged about an inch deeper than the pot. Those placed under glass should be kept cool, merely guarding them from severe frost; but fully exposing them when the weather is mild. The Hybrid Perpetuals may be cut back any time after Christmas; but the tender varieties should not be pruned until all danger from frost is over, and these will only require to have the weak shoots removed so as to properly thin the heads, and the strong shoots should be slightly shortened. When growth commences in spring give a moderate shift to all plants that require more pot room, replunging those that have been wintered out of doors. The tender sorts under glass should be kept cool, merely protecting them from frosts and heavy rains. During the summer the same care as to watering, stopping, and keeping clear of green-fly will be necessary as was recommended for last season, and all flower-buds should be removed as soon as they appear. It will be requisite also to afford some attention to training the specimens, which may be improved in appearance by drawing the lower shoots downward towards the edge of the pot, where they may be fastened to a piece of bast or wire made to pass beneath the rim; the upper shoots may then be drawn out to sticks. Thinning should in a great measure be superseded by disbudding.

When it is desired to have a portion of the plants in bloom at Christmas they should be shifted into their flowering pots in August; the size of the pots must be regulated by that of the plants, all of which should now require at least 12-inch and the stronger growing varieties perhaps 15-inch pots. For early blooming the Teas and Bourbons are the best, as if closely stopped and thinned in August they will be ready to flower abundantly in December, and this without any forcing; for they will be well advanced by the end of October, when they should be placed in a cold frame or cool greenhouse and given plenty of light and air on mild days. A temperature of from 45° to 50° will be sufficiently high. The whole stock of plants should be shifted into their blooming pots about the end of September, and all that may be intended for flowering earlier than May had better be removed to a cold frame where they can be protected from rains and the tender sorts from frost. As to pruning, the Hybrid Perpetuals may be cut back very much as is done with plants in the open ground. The Bourbons and Teas should be treated as they were last season.

To secure a succession of blooming plants nothing more is necessary than a light pit or house where the temperature can be kept at from 45° to 55°, and to introduce portions of the plants at about monthly intervals, beginning with the most vigorous. If convenient plunge the pots in a bed of spent tan or saw dust. Sprinkle the plants over head on the mornings of fine days when air can be given to dry the foliage, and maintain a moist healthy atmosphere, but this must not be over done or mildew will set in. The best remedy for this is sulphur applied the moment the evil appears.

When the buds begin to swell give weak manure water once or twice a week. After the sun becomes powerful in spring it will be found beneficial to afford the plants in bloom a slight shade during the forenoons of bright days. At all seasons it will be necessary to keep a sharp look out for the maggot, which will probably be busy even before the shoots are well out of the bud. The plants must not be rudely exposed after the beauty of the flowers is over, and those blooming late should also be gradually inured to exposure to the sun and open air. By a liberal use of manure water, attention to keeping the drainage in order, and giving a top-dressing of well decayed sheeps' dung annually after flowering, the specimens will last good for several seasons; should they get weakly they may be cut back, disrooted, and allowed a season to recruit.

The best soil for Roses in pots is turfy loam, rather strong than otherwise, mixed with about one-third two year old cow dung and a small quantity of sharp clean sand. For delicate kinds half loam, one-fourth dung, and one-fourth leafsoil, with a liberal mixture of sand, should be used.

The following are the names of a few first-class kinds either for "early work" or for the purposes of exhibition:—

Tea-scented.
Comte de Paris
Devoniensis
Elise sauvage
Gloire de Dijon
Madame de St. Joseph
Souvenir d' un Ami
Vicomtesse Decazes
Niphetos

Noisette.
Aimée Vibert
Ophirie

Hybrid Perpetual.
Anberon
Augustine Mouchelet
Baronne Prevost
Caroline de Sansal
Docteur Marx
Duchess of Sutherland
General Jacqueminot
General Castellane
Jacques Lafitte
Jules Margottin
La Reine
Madam Laffay
Louis Bonaparte
Souvenir de Leveson Gower
William Jesse
" Griffiths

China.
Madame Bréon
Miellez
Mrs. Bosanquet

Bourbon.
Angelina Bucelle
Comice de Seine et Marne
Dupetit Thouars
Leveson Gower
Madame Angelina
Paul Joseph
Souvenir de Malmaison

Hybrid Bourbon.
Blairi, No. 2
Charles Duval
Chénédolé
Comtesse Lacepède
Coupe d'Hébe
Paul Perras
— Ricaut

Rosa.

MANAGEMENT OF PEACH TREES IN POTS.

The cultivation of Peach trees in pots has of late years increased very much, and will continue to increase as it becomes better understood, and the results are more satisfactory. Every garden, great and small, should possess Peach trees in pots; and that not in scores but in hundreds. Though it is preferable to have a house entirely for such trees, still this is not absolutely necessary, as equal success can be obtained when grown in houses with other things. The great point is to have a regular supply of fruit for as long a period as possible. A good Peach is no rarity in September. I, like most people, wish to have a melting George the Fourth in June and July, and thenceforth through the season. For this purpose artificial heat is required. The following mode of culture will, if properly carried out, insure abundant crops.

The first thing is, of course, to get a supply of plants; these can now be had in a bearing state from any respectable nursery; they should be procured as early in the autumn as possible. It is always the best plan for persons to go and choose the plants themselves whenever it is convenient to do so. When the trees arrive examine carefully the state of the roots; if all is right nothing further is needed until the plants are wanted to force, except to keep the soil in the pots from getting too wet; but if any of the plants are in a bad state, they should be shaken out and fresh potted; these should be marked and placed by themselves, as they will not do to force the next season. The best soil for Peach trees in pots is good rich turfy loam and a little rotten dung. The soil in the pots should be kept moderately dry during the autumn; the fibrous roots will then be in a healthy state when forcing is commenced. This is an important point, as it is impossible to obtain satisfactory results from trees that are badly rooted. When ripe fruit is required about the beginning of June, forcing should be commenced not later than the 25th December. And when it is required to have a succession of ripe fruit, until those on the open walls are ready, a fresh batch of trees should be started every three or four weeks to the end of March; each batch may consist of ten, twenty, or more trees, according to means for growing them and the supply of fruit required.

The general treatment of one batch of trees will apply to all. If the trees are only fresh procured from a nursery, they must not be expected to do too much the first season. It often happens that beginners, hearing of extraordinary things being done with Peach trees in pots, expect similar results from their trees the first season of their attempt at cultivation; and their failing to obtain good well-flavoured crops leads to great disappointments. This occurs to beginners, particularly among amateurs, from a want of practical knowledge. From six to twelve fruit are the most that ought to be expected the first season. When more are obtained they are inferior in size and quality, and the trees will not be in so good a condition to force the next season as those from which the less number was taken. The trees started in December should be commenced with a temperature of about 40° by night and 458 by day. They should be well watered at starting, they will not then require any heavy waterings until the foliage is developed. After the first fortnight the temperature should rise to 45° by night and 50° by day, with an increase of about 10° with sun-heat. At the end of another fortnight the temperature should rise to about 50° by night and 55° by day. The night temperature should not exceed this until after the fruit is set. This is the rock on which so many beginners suffer shipwreck. They forget that the Peach must be flowered under a comparatively low degree of temperature; they are frightened to give air, especially if the weather be cold and frosty; they keep a close warm atmosphere, and the results are, the petals all drop off without any fruit setting. Whilst Peach trees are in blossom air must be admitted abundantly by day and a little also at night; precautions must of course be taken in severe weather to place some material over the openings to break the cold draughts of air. So long as the temperature is kept above 35° the blossoms are safe, but only keep a close atmosphere and a high temperature and there is a certain end to the crop. This is a point which cannot be too much insisted on, as everything as regards the crop depends on it. By admitting plenty of air and keeping a night temperature of about from 45° to 50°, if the wood was, previous to forcing, well ripened, a much greater quantity of fruit will set than is ever needed to remain for a crop. The plants up to this stage will not require much watering, and when any water is given it should be of the same temperature as that of the atmosphere of the house.

When the fruit is all set, and about the size of large Peas, it should be carefully thinned, and the shoots will require disbudding; too many should not be removed at one time, it is best to go over the trees often and remove a few at a time, but when the disbudding is finished not one single shoot should be retained more than is absolutely needed for the next year's bearing wood. The trees should now be syringed mornings and afternoons. The temperature should be raised to from about 55° to 60° by night and 65° by day, with an increase by sun-heat of 10°. Air should be freely admitted. The night temperature should not exceed 60° until the "stoning" is over, for this is a very critical period in Peach forcing. After this the temperature should be raised to 65° by night and 70° by day. Peach trees will stand a high temperature after this. The trees should still be syringed two or three times daily. From the time the foliage is fully developed great attention should be given to watering; the trees should never suffer from want of it. I am no great advocate for liquid manure to Peach trees in pots; a little occasionally will assist the fruit and do no great harm, if it be clear, in which state it should always be given, as when thick and full of sediment it stops the porosity of the soil and destroys its mechanical condition.

When the fruit is approaching maturity, which, when the trees are started in December, and the foregoing treatment attended to, will be about the beginning of June, it should have all the exposure to light and air possible, the supply of water should be just sufficient to keep the plants from suffering, and syringing should be discontinued until after the fruit is all gathered. When all cleared off, the trees should be kept well syringed to keep the foliage healthy and clear of red spider. About the middle of July the trees should be set out-of-doors in a sunny airy situation. They should then be shifted into larger-sized pots, using the compost previously recommended. When potted they should be plunged, and they should have as little water as possible. Tiles or slates should be placed over the surface of the pots, both to keep the surface from drying and to throw off heavy rains. The trees will make abundance of fresh roots, which should be carefully guarded from injury. The wood will from full exposure be as hard as whalebone and full of blossom buds. Trees treated thus will be in the best possible condition for forcing the next season.

The above mode of treatment will apply to the trees started at any subsequent period. But, as I before remarked, to have a succession of fruit, a fresh batch should be started every three or four weeks.

All the trees should be shifted before the end of August, as it is of the greatest importance to get them to make all the young roots possible whilst the foliage is in action and before the short days. As the trees started in March will ripen their fruit in August, there will be no difficulty in getting them potted before the end of that month; but all the trees that can should be shifted as early in the month as possible. But little in the way of pruning is required for the next season's forcing, merely the shortening of such shoots as require it. Trees treated as I have described will be in a condition to bear a much better crop the second year of forcing, and by annually shifting them they will continue to bear fine fruit for many years. When the trees get into pots that are inconveniently large, they can be shaken out, partially disrooted, and fresh potted into as small pots as possible. The head should be shortened back at the same time; by these means large trees are reduced to a convenient size.

The cultivation of the Peach in pots will doubtless in time become as common as that of Fuchsias when the scientific principles on which its successful cultivation depends become more generally known, and this knowledge, thanks to the gardening literature of the present day, is hourly spreading and extending throughout all ranks of society, from the peer to the peasant. *M. Saul, Stourton.*

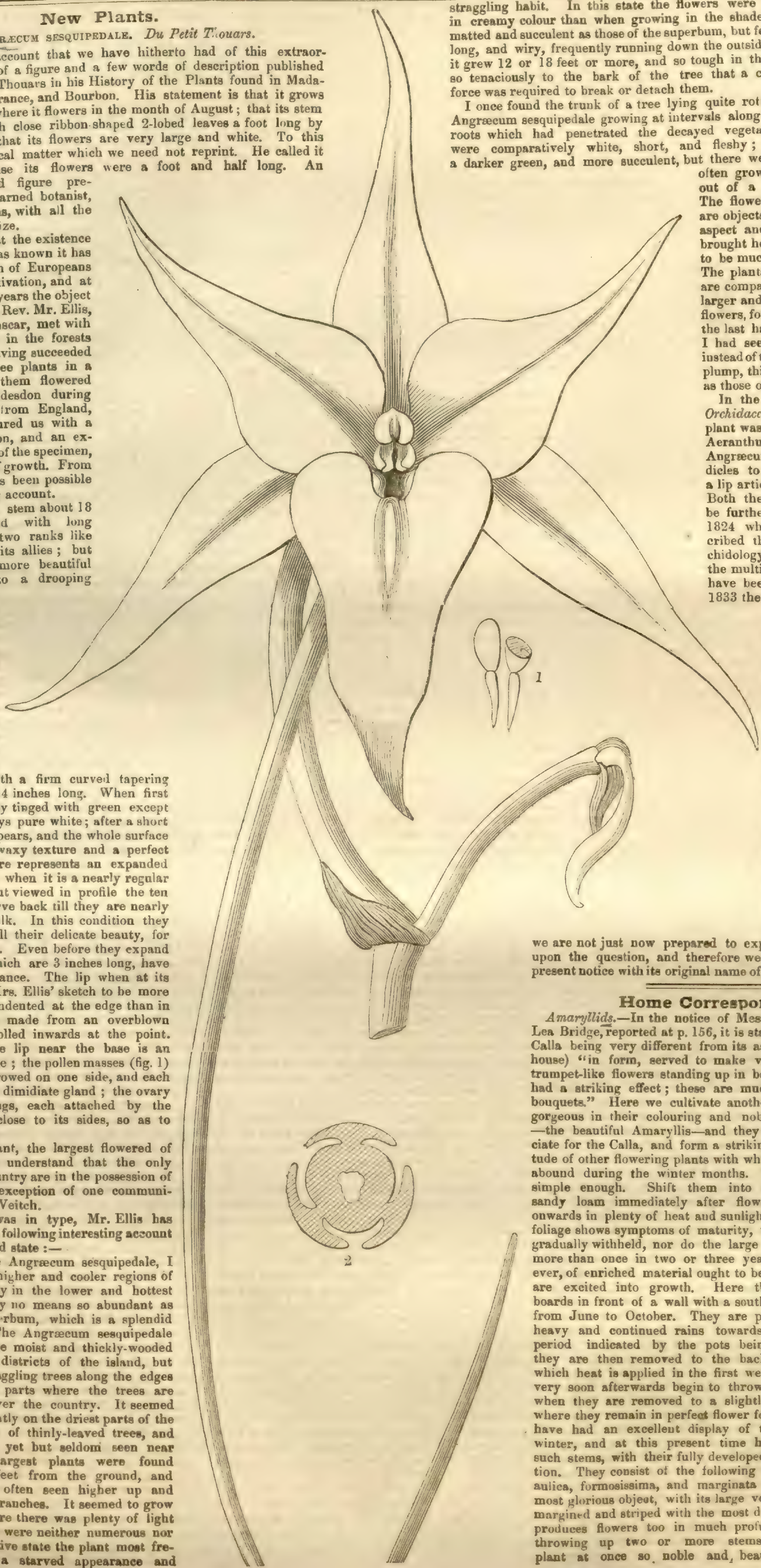
New Plants.

194. Angræcum sesquipedale. *Du Petit Thouars.*

The only original account that we have hitherto had of this extraordinary plant consists of a figure and a few words of description published in 1822 by Du Petit Thouars in his History of the Plants found in Madagascar, the Isle of France, and Bourbon. His statement is that it grows in Madagascar only, where it flowers in the month of August; that its stem is 18 inches high with close ribbon-shaped 2-lobed leaves a foot long by 1½ inch broad; and that its flowers are very large and white. To this he adds some technical matter which we need not reprint. He called it sesquipedalian, because its flowers were a foot and half long. An unpublished coloured figure prepared by the same learned botanist, is also now before us, with all the parts of the natural size.

From the time that the existence of this noble plant was known it has been the anxious wish of Europeans to procure it for cultivation, and at last at the end of 35 years the object has been gained. The Rev. Mr. Ellis, in his visit to Madagascar, met with it about 2½ years ago in the forests of that island, and having succeeded in sending home three plants in a living state one of them flowered magnificently at Hoddesdon during his renewed absence from England, when Mrs. Ellis favoured us with a flower for examination, and an extremely clever sketch of the specimen, showing its manner of growth. From these materials it has been possible to frame the following account.

The plant forms a stem about 18 inches high, covered with long leathery leaves in two ranks like Vanda tricolor and its allies; but they have a much more beautiful appearance, owing to a drooping habit, and a delicate bloom which clothes their surface. From the axils of the uppermost of these leaves appear short stiff flower-stalks, each bearing three such flowers as our figure represents of *the exact natural size;* that is to say, they are nearly 7 ins. across, and are furnished with a firm curved tapering tail-like spur about 14 inches long. When first open they are slightly tinged with green except the lip, which is always pure white; after a short time the green disappears, and the whole surface acquires the softest waxy texture and a perfect whiteness. Our figure represents an expanded flower seen in front, when it is a nearly regular star of six points; but viewed in profile the ten petals are seen to curve back till they are nearly parallel with the stalk. In this condition they remain, preserving all their delicate beauty, for more than five weeks. Even before they expand the greenish buds, which are 3 inches long, have a very noble appearance. The lip when at its best appears from Mrs. Ellis' sketch to be more distinctly wavy and indented at the edge than in our figure, which was made from an overblown flower, and to be rolled inwards at the point. In the middle of the lip near the base is an elevated rounded ridge; the pollen masses (fig. 1) are waxy, deeply furrowed on one side, and each seated on a narrow dimidiate gland; the ovary has three broad wings, each attached by the middle and pressed close to its sides, so as to conceal them (fig. 2).



Of this superb plant, the largest flowered of all the Orchids, we understand that the only specimens in the country are in the possession of Mr. Ellis, with the exception of one communicated by him to Mr. Veitch.

Since the above was in type, Mr. Ellis has favoured us with the following interesting account of the plant in its wild state:—

"In regard to the Angræcum sesquipedale, I did not see it in the higher and cooler regions of Madagascar, but only in the lower and hottest districts, and there by no means so abundant as the Angræcum superbum, which is a splendid growing Orchid. The Angræcum sesquipedale does not grow in the moist and thickly-wooded parts of the lower districts of the island, but generally on the straggling trees along the edges of the forest, or in parts where the trees are only thinly spread over the country. It seemed to grow most frequently on the driest parts of the trunks and branches of thinly-leaved trees, and though occasionally yet but seldom seen near the ground. The largest plants were found about 12 or 20 feet from the ground, and smaller ones were often seen higher up and among the smaller branches. It seemed to grow more frequently where there was plenty of light and air. The leaves were neither numerous nor large, and in its native state the plant most frequently presented a starved appearance and straggling habit. In this state the flowers were abundant and deeper in creamy colour than when growing in the shade. The roots are not matted and succulent as those of the superbum, but few in number, separate, long, and wiry, frequently running down the outside of the tree on which it grew 12 or 18 feet or more, and so tough in themselves, and adhering so tenaciously to the bark of the tree that a considerable amount of force was required to break or detach them.

I once found the trunk of a tree lying quite rotten on the ground, and Angræcum sesquipedale growing at intervals along its entire length. The roots which had penetrated the decayed vegetable fibre of the tree were comparatively white, short, and fleshy; the leaves larger, of a darker green, and more succulent, but there were no flowers. It was often growing on trees that arose out of a poor and sandy soil. The flowers last a long time and are objects of great beauty. The aspect and habit of the plants I brought home two years ago seem to be much altered for the better. The plants placed in Moss in pots are compact in habit; the leaves larger and of a better colour; the flowers, for I reached home before the last had faded, equal to those I had seen in Madagascar, and instead of the long wiry roots, short, plump, thick, green roots, as large as those of Aerides crispum."

In the *Genera and Species of Orchidaceous plants*, p. 244, this plant was referred to the genus Aeranthus, distinguished from Angræcum by having two caudicles to its pollen-masses, and a lip articulated with the column. Both these characters require to be further considered, for since 1824 when Aeranthus was described the whole aspect of Orchidology has changed, owing to the multitude of new species that have been discovered. Even in 1833 the author of the work referred to had not seen more than four species of Angræcum; but his own herbarium alone now includes at least 50 species, of which a large number have been studied in a living state. It is possible that Angræcum may be hereafter subdivided; Prof. Reichenbach indeed has already struck off a genus named Listrostachys, to which Angræcum pertusum is referred; and the great differences observable in the pollen-apparatus of the various species undoubtedly point to generic distinctions. For ourselves however we are not just now prepared to express any decided opinion upon the question, and therefore we leave the subject of the present notice with its original name of Angræcum sesquipedale.

Home Correspondence.

Amaryllids.—In the notice of Messrs. Fraser's Nursery at Lea Bridge, reported at p. 156, it is stated that "the Æthopian Calla being very different from its associates" (in the show house) "in form, served to make variety; its great white trumpet-like flowers standing up in bold relief from all others had a striking effect; these are much sought after for table bouquets." Here we cultivate another class of plants alike gorgeous in their colouring and noble in their appearance—the beautiful Amaryllis—and they make too a good associate for the Calla, and form a striking contrast to the multitude of other flowering plants with which all good gardens now abound during the winter months. Their cultivation seems simple enough. Shift them into strong enriched yellow sandy loam immediately after flowering, and grow them onwards in plenty of heat and sunlight until such time as the foliage shows symptoms of maturity, when water ought to be gradually withheld, nor do the large bulbs require repotting more than once in two or three years; a top-dressing, however, of enriched material ought to be given before the bulbs are excited into growth. Here the pots are placed on boards in front of a wall with a south aspect in the open air from June to October. They are protected, however, from heavy and continued rains towards the end of the latter period indicated by the pots being laid on their sides; they are then removed to the back shelf of a Vinery to which heat is applied in the first week of November. They very soon afterwards begin to throw up their flower stems, when they are removed to a slightly warmed conservatory, where they remain in perfect flower for several weeks, and we have had an excellent display of them during the whole winter, and at this present time have at least a score of such stems, with their fully developed flowers in great perfection. They consist of the following sorts, viz., Ackermanni, aulica, formosissima, and marginata venusta; the last is a most glorious object, with its large velvety red petals broadly margined and striped with the most delicate silvery white. It produces flowers too in much profusion, each bulb usually throwing up two or more stems; and I know of no plant at once so noble and beautiful as this, so well

adapted as a centre for a large vase or bouquet in the hall or drawing-room, the filling up being completed with Camellias, Epacris, Hyacinths, Zygopetalon, and such like, intermixed with some of the finer forms of Ferns and variegated plants; the whole being edged with Lycopods and fimbriated Primulas, of the latter of which there are now some splendid varieties of all shades, from rosy crimson to creamy white, and carpeted with Moss from an old wall, with the addition of some hoary Lichen laid on sparingly with an artistic hand. Although Amaryllids are very rarely if ever seen at any of the great exhibitions in this country, they seem to have formed a very prominent part of the "European affair" which has recently come off at Ghent, and which is so fully described by Mr. Glendinning at p. 173, and they are worthy of the most extended cultivation, more especially for the purposes I have indicated. *James Duncan, Basing Park.*

Vine Leaves.—Allow me to inform Mr. Geo. Lambert that in the few remarks I sent you with my Vine leaves, and which you headed "Thomson's system of heating," I never mentioned a boiler of any description; at the same time let me thank him for his corroborative proof that fine foliage can be produced in early spring by other systems of heating than by that of Mr. Hazard, although the latter gentleman says in the *Chronicle* of January 10, "from the severity of the weather in January, February, and March, it is impossible to air houses heated by hot-water pipes or flues running round the house, and the plants in such houses look sickly and droop for want of warm air, so essential to their growth and strength," while in houses heated by his system, he adds, "plants and fruit will be found in luxuriant foliage, healthy, and growing as in the very height of summer." Mr. Pringle, referring to my remarks, says, "If I had thought large Vine leaves would have been interesting, I could have sent you in February leaves of a much larger size than those furnished by Mr. Thomson." Now, to me, and doubtless to many of your readers, such fine foliage as Mr. Pringle did not send you is most interesting, and especially when grown on Vines in pots, though I cannot discover the rule in arithmetic by which a mean diameter of 15¼ inches can be made a circumference of 51 inches. Mr. P. will observe that I said I attributed the size and vigour of the foliage only "in some measure" to the open circulation of water over the pipes, and whether in this I am right or wrong I give the public an opportunity of testing for themselves by referring them to a description of the apparatus, while Mr. P. says, "I may, without presumption, attribute the extraordinary size of mine to the superiority of the house in which they are grown; the latter was erected entirely under my direction and superintendence." He however ungenerously withholds all information as to wherein this superiority consists; perhaps at his leisure he will enlighten us on the subject and confer an obligation on many of your readers as well as myself. *Wm. Thomson, Dalkeith Park.*

Garden Ornament.—If good taste is indispensable in designing an ornament, it is no less requisite in placing it to its legitimate purpose. An ornament may be in itself faultless, yet by being employed injudiciously may excite disgust rather than admiration. It may be deemed somewhat paradoxical, yet is it nevertheless true, that ornament is only ornament when properly applied. Ornamentation is, in fact, a branch of the fine arts; it may be an humble one, but still a fine art, and the abundant examples of failure in the application of ornament to be met with on all sides prove how much we have to learn on the subject. These remarks have a wide application, seeing that they refer to the philosophy—the science of ornament—in its broadest sense. To descend to particulars and analyse the subject fully would obviously be out of place here; but I introduce them as a fitting preface to what I now or may hereafter say on garden ornament. I am on this particular occasion desirous of protesting against the employment of those richly-coloured and often in themselves beautiful vases now so much employed in conservatories and drawing-rooms as flower-pots. To speak mildly, they are, for the uses to which they are employed, in the most barbarous taste; and it is hard to conceive how an eye that can appreciate beauty in the forms of plants and harmony in the contrasts of their flowers can for a moment tolerate them for such a purpose. Imagine a handsome conservatory as an appendage to a drawing-room where everything is faultless—colour, form, arrangement—and in that conservatory numerous beautiful plants in full bloom; and further, suppose that on entering that building the eye is at once caught by some dozens of gaudy coloured (pink, blue, and yellow,) vases or flower-pots or whatever may be the proper name for them, to the almost total extinction, as far as the eye is concerned, of the plants which they hold—the pots being the great attraction, the plants only subordinate. Now, what in the name of taste, of common sense,* would you think of that? Why you would, or at least you ought to look upon the gaudily coloured pots (of their own merits I say nothing, it is of their application I am speaking) as monstrosities, as something wholly inconsistent, incongruous, and out of place. A flower-pot undoubtedly should not be intrusive either in form or colour. The plant is the object claiming attention, and as such ought to be allowed to exercise its attractions undivided. The pot may be as graceful and as chaste in outline as you please, but by all means keep it subordinate to the plant. Recollect the plant is the principal object, that it is to claim the greater share of attention, and that the conservatory, the pot, and all the accessories are to be subordinate to it. And then the colour of these pots—imagine a group of deep blue Hyacinths in one of a rich ultra-marine ground! Yet such things are. These remarks were suggested by a scene recently witnessed by the writer, and it is only one of many of a similar character. *G. W. L.*

* Burke held that judgment and good taste were synonymous.

Snow put over the Roots of Trees a Retarder of their Blossoms.—The plan recommended by your correspondent Mr. Sharpe for retarding fruit-tree blossoms should not be lost sight of by those who have the means for putting it into practice. I was lately informed of a method which a tradesman in Stirling put in practice for many years in the cultivation of his Jargonelle Pear tree. When snow fell in winter, he collected a considerable quantity of it, and put it over the roots of the tree and around the stem. The plan did not injure the tree, for it bore fruit abundantly. The tree was a standard. The individual who nourished his tree with snow is dead many years ago, and the tree has been cut down in order that improvements might not be hindered, but the doings of those who have been in the world before us should not altogether be forgotten. *P. Mackenzie.*

Hybrid Epimedium.—Since writing to you a few days ago about my hybrid Dianthus, I have another curious hybrid come into flower, an Epimedium between E. colchicum fertilised with pollen from E. macranthum. It is exactly intermediate between the two (the flowers of which, as you are aware, are very different in appearance), but the colour is a self—a pale yellow much paler than in E. colchicum, no doubt owing to the preponderance of white in E. macranthum, and being against the generally received opinion that the pollen gives the colour. The seed was procured in 1853, one pod only ripening, and two seeds in the pod, which were sown at once, but did not vegetate till 1854. One only came to maturity, and is now flowering for the first time. I look upon it as a most interesting hybrid, showing how certain the process is, for at the time mentioned I took a single spike of the E. Colchicum and fertilised three flowers in the regular way, leaving the rest to themselves, not even cutting out the anthers. The fertilised flowers in every case produced seed, though it did not all ripen, but of the rest not a flower produced a pod. The pollen was obtained by covering a plant of E. macranthum with a bell glass. I mention these things as an inducement to hybridisers to persevere in their efforts to introduce new varieties of flowers. I shall be very glad to know what you consider the best way to keep pollen, and how long it will keep, if at all. *A. R., Bromley.* [Pollen must be kept cool and quite dry; it may be preserved for a week or two or even longer.]

Wearing out of Races.—Few can speak with personal knowledge of what took place above 80 years ago, but at my age one may venture to do so, though it be to say what is contrary to the prevailing opinion, *i. e.*, that fruits do not wear out. The Golden Pippin was formerly always to be procured, and at no higher price than other good kinds of Apples. When stewed they were a favourite supper dish. All at once there was a scarcity of this variety, which was attributed to the Empress of Russia having, as was said, ordered all Golden Pippins to be purchased for her table. About the same time there was a row of Apple trees in my father's garden, two or three of which were Golden Pippins, but they scarcely bore any fruit. There were also other varieties of Apples, which were common at that time, but now rarely to be found—such as the Codling, and the Russeting. These varieties have not been superseded by any others. Pears do not seem to have degenerated. It may interest some of your readers to know the price of fruit 80 years ago. The best Windsor Pears were sold in Covent Garden market at 4*s.* per bushel, and Jargonelles were purchased by a fruiterer at 3*s.* the dozen. *M. S. B.*

Delphinium puniceum.—Seeing inserted in a catalogue the seed of this for sale, I was induced to purchase a packet of it; but although I have sown some in the open border, and part in pots that were placed in a cold frame and on a hotbed, not one seed has vegetated. I shall, therefore, feel obliged if any of your readers will afford me some information with regard to the variety. It is described as being a hardy perennial, growing 2 feet in height, and of a crimson colour. I imagined that D. cardinale was the only red variety hitherto known; but D. puniceum has appeared in the same catalogue for years. *A Subscriber, Whitland.*

Strawberry Forcing.—Having seen the crop of Strawberries at Elmdon Hall Gardens (see page 114) I am able to say that they are unusually good; I fully agree with Mr. Brown that for very early forcing, say for ripening during February, the Black Prince is the best, as it sets its fruit under almost any circumstances; but what sort have we to supersede the old Keens' Seedling for fruiting through March and April? With proper management it is a certain cropper, and for productiveness it is unapproached by any other variety. I have tried Underhill's Sir Harry this season and last, and although undoubtedly a good Strawberry it is of little value for early forcing. I force over 1000 pots of Keens' every season. I, however, give other sorts a trial in small quantities. *John Stevens, Gardener, Malvern Hall, Solihull.*——I have been very successful with the Black Prince this season. We have three Peach houses with a flue in the centre of the house, and a shelf suspended from the rafters. I introduced to the early house 50 pots of Black Prince on Jan. 7, and 12 of Keens' Seedling. I gathered a dish of ripe Black Princes on March 11, and another dish on the 14th, and on the 30th they were excellent in flavour. Keens' Seedling are just colouring, and out of 50 pots two were blind. The Black Prince is best for very early work in or out of doors. *John Bostock, Walton Hall, Cheshire.*

Cuthill's Pamphlets.—Pray allow me as an amateur gardener of some years' standing to offer a little honest praise in behalf of Mr. Cuthill's pamphlets of "Practical Instructions" (as well as his writings in the *Gardeners' Chronicle*), for the cultivation of the various vegetables usually grown in our kitchen gardens as I can safely say I have derived more useful knowledge from the perusal of them than from the whole mass of "bookish theorie" through which I had previously waded on this subject. Let any one fairly carry out his plain, practical, and efficient instructions, and I feel assured they cannot fail to achieve what is rarely met with even in the gardens of large houses, viz., all our best vegetables grown to their greatest perfection. *Amateur, Croydon.*

The Complaint of a Sufferer.—Many with myself will agree with you in the remarks lately made, tending to expose the dishonesty of unprincipled gardeners and others connected with the art of gardening, and to this end I now send you the particulars of a circumstance of so discreditable a nature that I am of opinion that nothing but the public statement of the facts will serve to check such practices. I a year or so ago purchased (of a party who is a hybrid between a publican and a nurseryman, being engaged in both occupations) at a place situated on a station of the Great Western Railway, not many miles from London, three Vines, which in due course of time I paid for by Post-office Order, and obtained a receipt for 13*s.*, the amount due. A month or so ago I received another application for this amount, and being angry at having the demand twice made, I wrote to the proprietor of the public-house nursery a letter calling for explanation, and enclosing the receipt I had formerly received, and requesting that the same might be returned to me immediately on his finding that the demand had been paid and that an error had been committed in making a demand a second time. This letter I naturally supposed would be followed by an apology and explanation; but no, notwithstanding I have written another letter demanding an explanation, I cannot get a word in reply, or even my receipt back again, but of which, fortunately before I parted with it, I obtained an attested copy; and ascertained that the party had actually received the money at the post office. As I have now no doubt of the complexion of this transaction, I have in default of getting any explanation troubled you with this epistle, and have little doubt that its publication will throw some light on the matter. I shall be obliged by your informing me whether I can sue the party for the receipt, which clearly belongs to me, and is the usual proof of a debt being discharged, or recommending me what course you would pursue. *Harringensis, F. H. S.* [See the case of Wiseman defendant, decided the other day against his Eminence, who had lost a similar document.]

Violets.—The following is my method of cultivating Violets:—In May I shake out the old plants, select some of the most promising runners, which are free from red spider, and pot them in 3-inch pots in a mixture of loam, peat, and sand; I then place them in a frame in a shady corner until they have struck root, when I plunge them in coal ashes in a rather more exposed situation out of doors, but not where the sun's rays strike too powerfully. When the pots are filled with roots, but not so as to be matted, I shift them into 5-inch pots; the soil being rather coarser this time than last, and replunge them in the ashes. I keep them well watered and syringe them frequently to clear them of red spider, which is a great pest if allowed to get a footing. When well established I give them manure-water twice a week. About the middle of October I move them into a cold frame, where they require nothing more than careful watering and protection from frost, with an occasional look over to remove decayed leaves, &c. Under this treatment my plants in 5-inch pots produce a greater quantity and finer flowers than I have seen produced by plants in pots of much larger size. I grow the Neapolitan principally; but the Russian succeeds equally well under similar treatment. My plants furnish flowers from the end of January to the time they are shaken out. *W. J. A.*——In growing the Neapolitan, the following is a method which I have practised for some years with great success. As soon as the plants have done flowering about the end of April, I sift some light soil all over them, which causes the young suckers to root freely in about three weeks. I then select a sufficient quantity of the best rooted ones and plant them out 6 inches apart in some shady place, having first taken out the soil 6 inches deep, and filled the space with leaf-mould from an old Cucumber or Melon bed, covering it over with about 2 inches of the soil previously taken out. After planting give them a good soaking of water, and they will require to be kept thoroughly moist during the summer. I carefully pick off all runners as they appear. By so doing I get nice compact bushy plants by the end of September, when they are taken up with good balls, and planted in a frame without any bottom-heat, 8 inches apart, in a soil composed of half leaf-mould and half loam with a little coarse sand (river sand will do). Give them a good watering, and keep the frame close (and shaded if required) for a few days, after which they

may be freely exposed to sun and air upon all favourable occasions, taking care that the frame is sufficiently protected in severe weather to exclude frost. I continue to pinch off all runners as soon as they appear. By those means I always have an abundance of fine large blooms from October to the end of April. *Viola.*

Pruning Forest Trees.—The whole question relating to this subject has, I fear, been made more confused than before by the answers of the 29 practical men. Not that there is any want of confidence in the opinions of persons who must be very well qualified to give the desired information, but the general reader cannot be satisfied unless he knows more of the questions as they were put, and as they were understood by the persons who answered them. It appears to me that the pruning of trees as they understood it was what any good tree grower would equally condemn, and call it not pruning but mutilation. The question is very interesting to many, and cannot be entered into in a cursory manner; but I would suggest that you should open a list of subscribers for a prize to be given to the writer of the best essay "On the best Manner of Growing Valuable Timber," and having taken not more than two practical men to sit in judgment along with yourself, you should award the prize and publish the prize essay. *I. T.*

Rhododendron Thomsoni.—It may perhaps be interesting to those of your readers who are admirers of Rhododendrons to know that there is a plant of the Sikkim Thomsoni in this establishment, with a well developed flower bud on it. I have not heard of this species having flowered in this country before. The plant here was grafted four years ago on a healthy ponticum stock, 1 foot high. It has grown most luxuriantly, and forms now a compact handsome bush, 4½ feet high by 1½ feet through. Indeed it seems to thrive better when grafted than on its own roots. Treated in this way the leaves are larger and have a more healthy appearance, and the plant altogether strikingly illustrates the correctness of the statement I made in your columns some time ago, viz., that the practice of grafting Rhododendrons did not diminish their luxuriance and beauty provided proper stocks were selected for them. *Hugh Fraser, Foreman, Stanwell Nurseries, Edinburgh.*

Societies.

Horticultural, *April* 7.—J. J. Blandy, Esq., V.P. in the chair. The following new Fellows were elected, viz.:—

The Earl of Verulam, Gorhambury, St. Alban's.
The Hon. Payan Dawnay, Benningborough, Yorkshire.
Sir H. F. Davey, Bart., Creedy Park, Crediton, Devon.
John Parsons, Esq., Lechmere Lodge, Ham Common.
Edward Claudius Walker, Esq., Chester.
Thomas Middleton, Esq., Hill House, Dulwich.
H. E. Smith, Esq., Norris Hill, Ashby-de-la-Zouch.
Walter Watts, Esq., Streatham Park, Surrey.
Rev. N. J. Ridley, Hollington House, Newbury.
Captain James Mangles, R.N., Fairfield, Exeter.
— Inman, Esq., Upper House, Putney Hill.
Thomas Hepburn, Esq., Clapham Common, Surrey.
Hugh M. Mathison, Esq., Heathlands, Hampstead.
G. Howlett, Esq., 5, Torriano Avenue, Camden Road.
J. W. Jeakes, Esq., 22, Camden Road Villas.
Mrs. Ord, Whitfield Hall, Northumberland.
Mr. J. Fraser, Leyton, Essex.
Mr. Fleming, Gr. to the Duke of Sutherland, Cliveden.
Mr. Edmonds, Gr. to the Duke of Devonshire, Chiswick.
Mr. Barnes, Camden Nursery, Camberwell.
Mr. Roger Cutler, 14, Tavistock Row, Covent Garden.
Mr. Henry Ormson, Danvers Street, Chelsea.
Mr. Clark, Gr. to the Earl of Darnley.
Mr. J. Cox, Gr. to W. Wells, Esq., Redleaf, Kent.

The following paper from the Chairman was read:—

"The numerous articles which have lately appeared in the *Gardeners' Chronicle* and other horticultural publications show how deep an interest is felt on the subject of heating, and prove that the great desideratum at present is a method of heating by which the expense of fuel may be materially reduced, and I am sure I shall be excused if I occupy the meeting for a few minutes in giving the result of my own recent experience in this matter. I have for many years been an ardent lover of horticultural pursuits; I have several houses for various purposes, and have no fewer than seven boilers, five of which are of different constructions, but all considered to be good boilers, and certainly so far as their working powers go I have nothing to complain of, but the quantity of fuel which they consume is a very serious affair, and the consideration of the subject has often made me wonder that the science and enterprise, which abound so largely with our practical gardeners, have not led to the discovery of a cheaper if not a better mode of warming our hothouses than any which has hitherto been discovered. In the autumn of last year one of my boilers being worn out my attention was directed to a new one, then recently invented by Mr. Thomson, the intelligent and experienced gardener at Dalkeith Gardens. I carefully read the description given of it; and it appeared to me that the principle was a good one, and I determined to try it. Accordingly in December last I had one fixed. The duty it has to perform is the heating a large plant-stove and three ranges of forcing pits, altogether 225 feet of glass and nearly 1100 feet of piping—the greater part of this is 4-inch piping; six of the pits are in use for early forcing, the rest are occupied with bedding and stove plants, Strawberries, &c., so that it is requisite that the temperature should range in the different compartments from 50° to 70°; this is accomplished with the greatest ease, and I have not the slightest doubt but that the sphere of action might be much more extended with an equally successful result if required. The description of boiler is the triple retort. Coke only is burned, and in mild weather the whole of the work can be done with three bushels in 24 hours; and during the severest weather we have had this season, with snow and a cold cutting north east wind, the work was done with a little under five bushels in 24 hours, the boiler giving as much heat as could be wished for in all the compartments with very little more fuel. I am confident the boiler would do more than double the work it has to perform, as I find the more it has to do the better it works; it heats quickly, and requires but little attention in the way of stoking, as it is only necessary to work it from 2½ to 3½ hours in the 24, according to the weather. During the remaining time the fire is banked close up, with the draught shut off. Personally I know nothing of Mr. Thomson, but the conviction that his invention is a step in the right direction alone prompts me to bring it under notice, and I have only to add that if curiosity, business, or pleasure should bring any of the Fellows of the Society into the neighbourhood of Reading, I shall be happy to see them and give them a hearty welcome to Highgrove."

As regards the exhibition itself, the display of gay flowering plants contributed was unusually fine, and there was a large attendance of Fellows and their friends. Of Camellias, J. Allnutt, Esq., of Clapham, sent nice plants of Comte de Paris; a red kind, misnamed Marchioness of Exeter, and lineata superba. From Mr. Brown, gr. to W. C. Alston, Esq., came a small red seedling Camellia, striped with white; of its merits little could be said, as it was very much damaged from travelling. Messrs. Veitch & Son furnished six well bloomed plants of the handsome red Camellia called Storyi, a variety in the way of imbricata; but in some respects even superior to that excellent kind. This is a variety which sooner or later must find a place in every collection.

Azaleas, which contributed greatly to the gaiety of the room, were exhibited by Mr. Allnutt, Messrs. Veitch and Mr. Cutbush. Among the varieties were the pretty pink striped white sort called Iveryana, rosea elegans, carminata, a semi-double white kind called magnifica, and three seedlings.

Roses worthy of June came from Messrs. Paul and Son, and Mr. Ingram, gr. to J. J. Blandy, Esq. Among them were beautiful blooms or rather buds of the brilliant crimson scarlet, General Jacqueminot; also Jules Margottin, Madame Fremion, Prince Leon, and other favourite sorts. Of yellows there were Gloire de Dijon, Vicomtesse Decazes, and Mrs. Siddons. Whites and delicate pinks consisted of Devoniensis, Nephetos, Souvenir de Malmaison, and Mrs. Bosanquet. A bouquet of the pale yellow Rose called ochrolenca from Mr. Snow, gr. to Earl de Grey, was the admiration of the room. It was gathered from a plant in a pot which was stated to have 43 blooms on it. From the perfect condition of the specimens shown, the beauty of a plant so loaded with flowers may easily be conceived. Among this class of plants however the great attraction was a new deep-yellow climbing Tea Rose from South Carolina. This was furnished by Mr. Low of Clapton. The plant exhibited was unfortunately not in good condition for showing, having got greatly injured from travelling; it however indicated what a fine thing it is. It had upwards of 40 blooms on it, large and double, and nearly as fine in colour as that of the old double yellow, which nobody can flower. This new sort must therefore be regarded as a great acquisition should it continue to be a free bloomer. It is called Isabella Gray, and it was mentioned that as there are two or three Miss Grays now in cultivation in this country whose merits have not yet been proved, persons desirous of obtaining this plant ought to take care to get the sort now produced.

Among Orchids was a magnificent specimen of Dendrobium densiflorum, from Mr. Lawrence, gr. to the Bishop of Winchester. It was a round bush, nearly 3 feet in diameter, and furnished with upwards of 40 glorious bunches of golden yellow flowers. Few plants of the kind we imagine could be found more perfect than this was; and it well deserved a first prize, which, as will be seen by our advertising columns, was awarded it. Messrs. Veitch had a charming collection of Orchids, among which were Dendrobium Cambridgeanum, aggregatum, and Farmeri; Odontoglossum Pescatorei, specimens of the Sweet Vanda (V. suavis), Lycaste Skinneri, Chysis bractescens, the shaggy Lady's Slipper (Cypripedium villosum), and other sorts, all well grown and flowered. Associated with these was also a collection from Messrs. Jackson, of Kingston. It contained Oncidium bicallosum, Vanda insignis, two varieties of Lycaste and Cattleya, Lælia superbiens, and Dendrobium nobile. From Robert Warner, Esq., came Dendrobium lituiflorum, a species not often met with, and the yellow Oncidium bifolium. Mr. Parker, of Hornsey, sent a specimen of a handsome new Lady's Slipper, resembling in some respects Cypripedium Lowi, but covered with long shaggy hairs, and otherwise different from that species. When better known it cannot fail to be a favourite.

Of Cinerarias some very fine specimens were shown by Mr. Turner, of Slough. They consisted of optima, Emperor of the French, Delight, Sir C. Napier, Lord Palmerston, Lady Camoys, Ruby, and Earl of Clarendon. Among seedlings from the same nursery were some beautiful things. The best of these were Prince of Wales, Baroness de Rothschild, remarkable for fine shape; Regalia, in the way of Ruby, but more brilliant; Lady Augusta Vaughan, very large and showy; Mrs. Hoyle, a crimson-edged kind, of fine shape; and Prince Albert, a beautiful crimson purple sort, with a very compact head of bloom. Mr. Bones, of Woodford, also sent a seedling called delicata, not in very good condition for examination.

Among Miscellaneous subjects of exhibition was Rudgea (Psychotria) leucocephala, a stove plant with large leaves and white flowers closely set on a short spike. This came from Messrs. E. G. Henderson of the Wellington Nursery. A large and excellent collection of Hyacinths, Early Tulips, and other plants came from Messrs. Henderson, of Pine-apple Place. From Messrs. Veitch was Griffinia Liboniana, a bulbous plant remarkable for the ultra-marine blue with which its white flowers are deeply tipped; it is one of the rarest of the beautiful genus to which it belongs. The same firm also contributed a white Ixora, a capital specimen of Acacia Drummondi, one of the very handsomest of its class, and two varieties of Epacris; Messrs. Lee, of Hammersmith, and Mr. Cutbush, of Barnet, had collections of greenhouse plants. In that of the latter we observed Cassia floribunda, a plant rarely seen on our exhibition tables. Along with his Roses mentioned above Mr. Snow showed cut flowers of Hexacentris mysorensis and Canna iridiflora, the latter one of the gayest and most striking of all the Indian shots. Some Hyacinths and well grown Amaryllids came from Mr. Parker, of Hornsey.

Pine Apples were shown by Mr. Clement, of Oak Hill, East Barnet. Among them a Providence weighed 4 lbs. 15 oz., and a Queen 2 lbs. 6 oz. From Mr. Bray, gr. to J. B. Lousada, Esq., came a Cayenne weighing 4 lbs. 4 oz., and Mr. Gavin, gr., Hopetown House, near Edinburgh, sent a Prickly Cayenne weighing 3 lbs. These were all well formed fruit.

Of Grapes, Mr. Forbes, of Woburn, sent a dish of new Black Hamburgh, not large in bunch but well coloured and covered with a beautiful bloom. Mr. Alderson, of South Lambeth, sent a dish of Sweetwater, good of its kind but unripe.

Strawberries beautifully coloured, and large and fine, came from Mr. Ingram, gr. to J. J. Blandy, Esq., Mr. Clark, and Mr. Tillyard. The sort was Keens' Seedling in each case.

Among Miscellaneous fruits were American Cranberries from Mr. Cockburn, of Kenwood. These had been preserved by simply keeping them on the dry shelf of a fruit room. "They are a fruit," he added, "which is neither cultivated nor appreciated half so much as it ought to be, for it is useful, wholesome, and delicious. I should like to see," he said, "every workhouse in England have its half acre of Cranberries, whose proper cultivation is not only very simple but appropriate to the employment of aged people, and might be made not only a source of use but of profit, and there are few parishes in England that has not too much waste ground on which Cranberries could be made to grow well." Mr. Cockburn mentioned that he would be happy to give a few plants to any one who cannot find them at his nurseryman's in his neighbourhood. A bottled sample preserved in 1855 showed that with very little trouble this fruit may be made to keep in water for a long time.

Mr. Tillyard had three dozen Beurré Rance Pears, fine specimens, plump and fresh, and every way in first-rate condition.

Of Vegetables, Mr. Lewis Solomon, of Covent Garden, sent beautiful examples of Asparagus, new Potatoes, French Beans, Globe Artichokes, Lettuce, and Early Horn Carrots. These were all of foreign growth. Of English produce Mr. Ingram, gr. to J. J. Blandy, Esq., had Seakale, French Beans, Potatoes, Rhubarb, Cucumbers, and Mushrooms, all good specimens of skilful cultivation.

Cones of the new Chinese Larch (Abies Kæmpferi) were exhibited, and the following note from Mr. Fortune was read.

"In the spring and summer months the leaves and cones of this tree are remarkable on account of their lively green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung, or Golden Pine."

Lady Dorothy Neville exhibited specimens of anatomised leaves skilfully prepared and ingeniously decorated with coloured designs such as are usually found in illuminated books.

Among plants from the Society's Garden were the double white blossomed Chinese Peach and Forsythia viridissima, the latter covered with flowers. Though quite hardy the beauty of the blossoms of this plant is impaired by being exposed to unfavourable weather; to have them in perfection, therefore, early in the season the plant should be grown under cover. The Garden also furnished some good specimens of other

plants, and a quantity of cut flowers. Among the latter was a red Camellia, one of Mr. Fortune's former importations, in which was a more decided disposition to become hexangular than in the bloom exhibited by Mr. Nugent at the last meeting. Let us not, therefore, despair of yet having hexangular Camellias. Cut spikes of Ribes sanguineum and its pale variety were also shown. The latter is not so much cultivated as it should be; it forms a striking contrast with the red kind, and when looked at against masses of dark evergreens, or other suitable background, it has a fine effect in garden scenery.

Some alterations in the bye-laws, so as to adapt them to the present improved condition of the Society, were read for the first time.

Notices of Books.

A Natural History of British Grasses. By E. J. Lowe. Groombridge (8vo. monthly in shilling parts, each containing four coloured illustrations).

Although dedicated to Dr. Hooker we cannot find one word to say in favour of this production. From first to last the pages abound in palpable errors. As a work of science it is beneath criticism; as what is now a-days called a popular book of natural history, that is to say, a book possessing the quality of misinforming those who seek information, it adds one to a class whose inherent vices must we hope in time extinguish it. The plates indeed are neatly printed in a standard Grass green tint, with a touch of other colour here and there, but we doubt extremely whether learners will recognise the species they are intended to represent. For instance, plate one is intended for Anthoxanthum odoratum; no one however could suspect the common sweet vernal Grass to be meant by the monster (of very rare occurrence) which occupies the principal part of the figure; nor is there a word in the text to indicate that it is a monster rather than the customary form. The letterpress is so much worse as there is more of it. The introduction acquaints the reader that a gigantic Guaduas was discovered somewhere by Humboldt; meaning a Guadua; that the American Zea Mays is "the corn of India"; that Tabaschia (meaning doubtless Tabasheer) is cowmilk, much esteemed by the natives (what natives?) as a pleasant beverage, a very extraordinary story indeed seeing that Tabasheer is a flinty concretion found occasionally in the joints of a Bamboo; Bamboos themselves are East Indian Grasses found we are told "in the islands of Java and Madagascar," by which of course the learned author means that they are found nowhere else; we have only one solitary diandrous Grass, viz., Anthoxanthum odoratum, Bromus diandrus and Hierochloe being ignored; Grasses themselves are called graminæ; and finally "it is surprising how little is known among botanists regarding our Grasses," which is true perhaps if writers like Mr. Lowe are called botanists, but is certainly untrue in any other sense.

When we turn from this trash to what is intended for science we are in no better company. The general character of the order Gramineæ is borrowed from Hooker and Arnott's British Flora, with just so much verbal alteration as has sufficed to spoil it. In doing this the author has employed the term glumella instead of palea to indicate the parts which cover over the stamens and pistil; but when we turn to the succeeding pages we find that he does not employ the word glumella for these organs, but uses the term palea which he had before rejected and which now remains without explanation—rather perplexing to those who may use the book. He boldly calls the hypogynous scales or lodicules abortive stamens, which they certainly are not, and which Hooker and Arnott merely mark as having been so considered. The embryo is with Mr. Lowe an embrio; what are first called florets are afterwards called flowers, from which we infer that in his opinion they are different things; as to his description of the structure of Anthoxanthum it defies all interpretation. Such being the case our duty to the public compels us to declare that this is one of the worst books produced even in this age so prolific in thoroughly bad ones.

Dr. Davy has produced another piscatorial work called *the Angler in the Lake District* (12mo, Longmans). Like the last book of the author such information as this contains is conveyed in the form of dialogue, whose principal merit is being favourable to the gossip in which our angling friends appear to delight. Although the object of Dr. Davy seems to be a description of certain fishing excursions in Westmoreland and Cumberland, he by no means excludes other subjects, among which we find his opinion as to the cause of forests no longer clothing our lower mountains. "The cause," he believes, "is the same as in the wilder parts of Ireland, Donegal, Connemara, and Kerry,—the want of protection from cattle, and especially from sheep. The treeless fells, remember, are unenclosed. Wherever in this district enclosures are made and planted, the result is successful. Even here at Coodle Tarn you see there is one tree, a Mountain Ash of tolerable size, growing out of a steep bank and overhanging the water, so situated as to be free from depredation; and often in the higher fells, in cutting for peat, buried trees, the remains of old forests, are exposed, and these of no inconsiderable size." Of such slight materials, aided by large type and wide margin, are three hundred and fifty pages made up.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—See that no plant suffers from drought here. Planted out things will require thorough waterings. The larger specimens in tubs or pots, if any, must also have a liberal supply, provided the drainage is complete. This is the period for free use of liquid manure, but take care that it is perfectly clear and not over strong. Large Orange trees are very fond of it. Where these trees produce gross wood, disbud or remove it altogether, and let the lower shoots take its place; this will induce fruitfulness by moderating the growth. Pay due attention to watering, shifting, stopping, &c., of stove plants in general. Make cuttings, as they can be obtained in a young state, of Geisomerias, Plumbagos, Eranthemums, Justicias, Clerodendrons, Vincas, Euphorbias, Brugmansias, Begonias, and Thunbergias, &c., in order to keep up a succession of clean young stock. See that growing Orchids have abundance of atmospheric moisture, with a liberal circulation of air early in the morning, shutting up close betimes, and taking care to observe moderation in the use of fire heat in order that a pure atmosphere for the night may be ensured. Growing Dendrobiums will now require liberal supplies of water; and let plants on blocks be frequently syringed. Most stove plants will succeed in the mixed greenhouse, where a medium between the cold greenhouse and the stove is observed. See to securing cuttings of Heaths as soon as the wood is fit for that purpose. Fumigate the moment an insect appears; this is best done in a moderate way two evenings in succession. Some of the hard-wooded things of no particular importance might be removed at this period to furnish more room for growing young stock and fine specimens in flower. Some protection will, however, be necessary for them.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit should be carefully attended to with water at the root; for, if allowed to get too dry, there is great danger of checking the fruit and preventing its attaining the size which it would under proper treatment. It is, however, easy to err in the opposite extreme, and considerable care and practice are necessary to enable one to properly water plants having their pots plunged; therefore this should not be intrusted to inexperienced hands, who would probably water every plant if the surface soil indicated dryness. Use weak tepid manure water for plants that are well rooted, whether fruiters or growing stock, and keep the atmosphere thoroughly moist, giving air very sparingly on cold, drying, gleamy days. Black Jamaicas and Montserrats expected to supply ripe fruit at Christmas should soon be ready for shifting into their fruiting pots, and care should be exercised to avoid checking their growth by any means, as this might lead to their fruiting prematurely. See to having the balls in a rather moist state at the time of repotting, and keep the bottom-heat regular and the atmosphere moist and rather close until the plants appear to have taken to the fresh soil. The same attention will be necessary in regard to watering and bottom-heat, &c., in the case of those growing in the open bed, for plants that are any size are apt to show fruit at this season if at all checked in their growth.

VINERIES.—Directly the fruit in succession houses is sufficiently advanced for thinning get this done, the laterals stopped, and the shoots regulated without loss of time, for allowing the berries to get so thick that the scissors can hardly be got amongst them renders thinning tedious, and also robs the Vines. Give inside borders a liberal supply of manure water, using that from the stable-yard tank where it can be obtained, and mixing with it a sufficient quantity of warm water to render it about milk warm. In all cases, give every possible attention to the state of the roots, securing a little artificial warmth where circumstances allow of doing so, for the ground is cold and very unfavourable for the roots of Vines. Where fermenting materials have been used on the border of the early house, the heat should not be allowed to decline until the fruit is fairly ripe, for it is easier to secure a heavy crop of well swelled fruit than to perfectly colour and ripen even a moderate crop, and a healthy root action is perhaps more important while the fruit is colouring than at any other period. Therefore let the fermenting materials be turned occasionally, adding fresh as may be requisite to keep the temperature of the border at about 70°. In cases where red spider threatens to be troublesome, in succession-houses, rendering syringing necessary, rainwater should be provided for syringing with, as if water containing lime is used, the berries are sure to be disfigured by an incrustation of it.

HARDY FRUIT AND KITCHEN GARDEN.

This is an excellent time to plant a full crop of Potatoes; Kidneys with well protected sprouts or any other early kinds planted now will be little later than those planted in February. This, however, requires a little care; the sets should be placed in baskets a single layer thick on damp litter, and carefully handled; they should by no means be planted during either sunshine or wind. Those with sprouts 2 or 3 inches long, if managed thus and covered at night until the second week in May, will closely succeed those in frames. Let a sowing of all the winter and spring Broccoli be made forthwith. Cape Broccoli and Cauliflower for Michaelmas may, however, be sown a week or two later. See that plenty of Green Kale, Savoys, Brussels Sprouts, Leeks, Scorzonera, Salsify, Beet, &c., is got in without delay. Continue successions of Horn Carrots; indeed sow a bed every month from January to September. This is the best way to be independent of the grub. Ridge Cucumbers should now be got forward, also Tomatoes and Vegetable Marrows. As soon as young Asparagus is from 3 to 6 inches high, let new plantations be made. Put in successional crops of Peas, and earth up and stake those above ground. Protect seeds appearing above ground from birds and slugs. Prick out Celery for succession crops, and attend well to the early plants with water; and if they are under glass see that sufficient air is given to keep them stocky. Seed should also be sown for the late crop. Attend to keeping up a supply of all kinds of small salads by sowing frequently. Stir the surface of the ground among all growing crops with the view of preventing the growth of weeds and keeping the soil open.

FLOWER GARDEN AND SHRUBBERY.

A thorough re-arrangement of all the herbaceous tribes should take place every spring; if this has not been done no time should be lost. Some of the grosser kinds get into too large masses, and thereby destroy all proportion in the mixed beds. Sow annuals wherever required. Early struck Verbenas, Calceolarias, &c., may be planted out 2 or 3 inches apart in beds; with a slight protection they will make nice plants by the middle of May, and may be removed either to masses or borders, where they will bloom at once, and soon produce a striking effect.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending April 9, 1857, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temp. of the Air. Min.	Temp. of the Air. Mean	Temp. of the Earth 1 foot deep.	Temp. of the Earth 2 feet deep.	Wind	Rain
Friday 3	9	29.722	29.495	58	35	46.5	49	45	S.W.	.02
Satur. 4	10	29.758	29.714	54	48	51.0	49	46	S.E.	.48
Sunday 5	11	29.641	29.548	67	49	58.0	50	46	S.E.	.06
Mon. 6	12	29.785	29.558	63	38	53.0	51	47	S.W.	.00
Tues. 7	13	29.949	29.886	63	43	50.5	51	47	S.W.	.12
Wed. 8	14	29.916	29.758	60	37	48.5	51	47½	S.W.	.11
Thurs. 9	○	29.602	29.501	63	32	47.5	51	47½	S.	.04
Average..		29.767	29.637	61.1	40.3	50.7	50.3	45.7		.83

April 3—Rain; fine throughout.
— 4—Drizzly; rain; showery; heavy rain at night.
— 5—Densely clouded; fine: rain at night.
— 6—Overcast and mild; fine; cool at night.
— 7—Uniformly overcast; showery; fine.
— 8—Cloudy; very fine: heavy clouds and showers; very fine.
— 9—Rain; heavy showers; very fine; cloudy.

Mean temperature of the week 4¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending April 18, 1857.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12	56.0	37.7	46.8	21	0.56 in.	1	6	5	—	2	11	1	5
Mon. 13	56.3	34.7	45.5	13	0.45	2	5	1	4	4	7	1	7
Tues. 14	57.8	37.4	47.6	12	0.31	2	6	6	1	4	6	2	4
Wed. 15	57.9	39.1	48.5	17	0.47	6	8	5	1	2	4	3	2
Thurs. 16	56.8	36.8	46.8	12	0.63	6	7	5	1	3	3	3	3
Friday 17	57.3	36.0	46.6	14	0.28	7	6	5	2	1	6	2	2
Satur. 18	58.0	36.5	47.2	14	0.49	4	6	5	1	3	3	6	3

The highest temperature during the above period occurred on the 14th, 1852—therm. 73 deg.; and the lowest on the 16th, 1847, and 19th, 1851—therm. 20 deg.

Notices to Correspondents.

ARAUCARIAS: *C O.* The finest specimen of this tree at Dropmore, if not in England, was obtained by layering the branch of a plant raised from a cutting.

BOOKS: *Scipio.* Loudon's Self-Instruction for Young Gardeners may possibly answer your purpose.

GOOSEBERRY BUSHES: *R V.* You cannot perhaps do better than dredge them with flowers of sulphur with the view of relieving them from red spider; and manure applied for the purpose of inducing more vigorous growth can do no harm.‡

GRAVEL PITS: *E G.* You say that when once a pit is opened (and even when filled in again) the parish authorities are at liberty to dig gravel for repairing the parish roads whenever required, provided the pit is not within the bounds of pleasure grounds or orchards. We do not believe the parish authorities have any such right; but you had better inquire of some solicitor acquainted with the customs of your parish.

MOWING MACHINES: *J P.* There is little chance of your getting a satisfactory answer. Every maker thinks his own the best. We refer you to the great Exhibition of Machines and other horticultural manufactures which will take place at Chiswick in June. Everything worth seeing will be there; what is not there may be assumed to be not worth seeing.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Ashburton.* The seeds you have sent belong to some Boraginaceous plant; probably Lithospermum arvense.—*A D.*—Asarum europæum. Have you a root to spare?

WISTARIA FRUTESCENS MAGNIFICA. In reply to a correspondent we last week stated that we never before heard of this plant. Mr. Van Houtte reminds us that it is figured in the *Flore des Serres*, t. 1151, p. 157, 1856. Upon turning to that work we find the following account of the variety:—"This tint (deep violet) is replaced in the variety magnifica by a lilac colour and a sulphur coloured spot. The bunches of flowers instead of being pendulous are horizontal. The flowers instead of being distant are very closely packed. This variety has the immense advantage of being a very free flowerer, while the old sort seldom flowers at all. It is also earlier, being in blossom by the end of June. It was raised from seed by M. Delaville the elder, &c. &c." Such is the statement. The figure which accompanies it corresponds; personally we have no knowledge of the plant, which is represented to be propagated by grafts.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

LONDON MANURE COMPANY (Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

PATENT WOOL MANURE COMPANY.—(LIMITED.)
Office, 81, Gracechurch Street, London.
Manfactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

THE PATENT NITRO-PHOSPHATE BLOOD MANURE COMPANY (Limited).
Offices, 109, Fenchurch Street (E.C.).
Manufactory, Plaistow Marshes, Essex.

BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

MANURE.

THE NATIONAL GUARANTEED MANURE COMPANY (Limited).—This Company's Manures are guaranteed and sold by analysis. Ten days are allowed to the purchaser for testing the qualities of the manures, and if found interior to the analyses furnished when sold, and notice be thereupon given at the head office, the Company will take back the manure, return the money paid, and defray all expenses; but after that period the right to object will not be recognised.—For testimonials, analyses, and prices, apply at the Head Office 2, Moorgate Street, City; and Branch Offices, Bank St., Carlisle.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

CUERO GUANO.—From a given weight of Cuero Guano may be obtained the same immediate results as from a similar weight of Peruvian Guano, while its beneficial effects upon future crops will be felt long after Peruvian Guano has ceased to have any influence. The following is from Professor Way:—

"15, Welbeck Street.

"Sir,—On reference to my books, I find that the Manure which I analysed for you in April last year contained 66½ organic matters, 8 ammoniacal salts (yielding 7 per cent. of ammonia in the Manure) and phosphoric acids, soluble in water, equal to 27¾ per cent. soluble Phosphate of Lime. Such Manure would, in my opinion, be very valuable, either for Corn or Root Crops, but for the former purpose, I would advise you to reduce the proportion of soluble phosphates, which appears unnecessarily large.—I am, Sir, your obedient servant, "J. THOMAS WAY.

"To Mr. Chisholm. 11th February, 1857."

Price delivered at any Railway Station in London:—
For Root Crops and Grass Land ... 7*l.* 10*s.* per ton.
For Corn and Hops ... ... 8*l.* 8*s.* "

JOHN CHISHOLM, SON, & Co., Cuero Guano Works, 68, Willow Walk, Bermondsey, London, S.E.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2¾ „	long 3 „ 3 „		1	14	0
3 „	ditto 3 „ 6 „		2	8	0
3½ „	ditto 3 „ 6 „		2	12	0
4 „	ditto 3 „ 6 „		3	3	0
2½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto ditto		2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

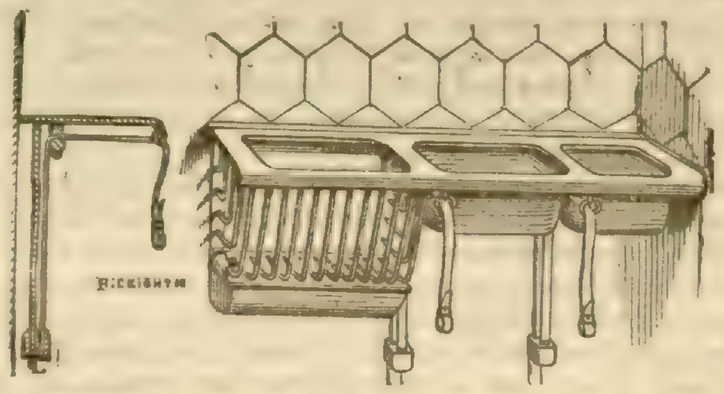
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

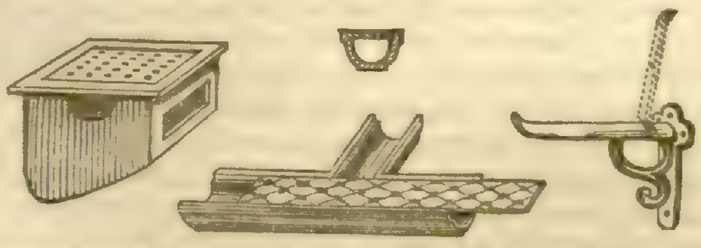
95, Newgate Street, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM and HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought-iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having Cottam's patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The new illustrated catalogue, and estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving o 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Illustrated Price Lists forwarded on application.

"SIGMA'S" PATENT CORN AND MANGEL DEPOSITORS, inserting the seed in rows, at definite intervals in the row; any required number of grains deposited and pushed firmly into each very small hole. The steel dibs can be regulated to any depth. Five row dibblers, 3*l.* 3*s.*

The PATENT LIGHT DRAG HOE for hoeing two rows of Corn, Carrots, &c., at a time, or one row of Turnips, leaving the soil mellow behind, and not trodden on afterwards, cutting off every weed in the row without cutting the Corn, expanding to different widths; the handle shifting according to the height of the workman, and the depth to be hoed. Knife-like chisel-headed shares for cultivating or stirring in the rows fitted separately.

The APHIS GREEN or HOP FLY POWDER for Orchard-houses, Roses, &c. A packet sent free by post on receipt of six postage stamps.—Apply through Mr. RIDGEWAY, 169, Piccadilly London.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE KEYTHORPE SYSTEM.

MR. TRIMMER begs to inform Landowners that he has arranged with a Draining Engineer in extensive practice for the Draining of Land on this economical and effective system, suggested by himself and successfully reduced to practice by Lord Berners at Keythorpe.—Egham, Chertsey, April 11.

MR. THOMAS SCOTT, LAND AGENT and VALUER, and DRAINAGE ENGINEER and CONTRACTOR, begs to intimate that he has removed his Offices from No. 5, Charing Cross, to No. 18, Parliament Street, where he will continue to transact his business in the Purchase, Agency, Sale, and Improvement of Farms and Estates.—18, Parliament Street, London, April 11.

BATH AND WEST OF ENGLAND POULTRY SHOW.—The next ANNUAL MEETING will be held at the town of Newton (near Torquay), on June 3, 4, and 5, at which 21 Silver Cups and 50*l.* will be awarded as prizes.

Prize Lists, Certificates, and all other information may be obtained of the Honorary Secretary, Mr. JOHN KINGSBURY, 10, Hammet Street, Taunton. Entries close, and Certificates must must be filled up and sent in on or before the 1st of May.

Taunton, April 11.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SALISBURY MEETING.

IMPLEMENTS.—All Entries of the number of Implements to be shown, and the space required for their exhibition, must be made on or before May 1.

LIVE STOCK.—All Entries of LIVE STOCK must be made on or before June 1.

Prize Sheets and Forms of Certificate to be obtained on application to the Secretary of the Society, 12, Hanover Square, London, W.

SEEDS FOR THE FARM.—A PRICED CATALOGUE of all the leading AGRICULTURAL SEEDS, sold by the SUBSCRIBERS, is now ready, and may be had, Post Free, on application.—W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.——*** All Parcels of Seed are delivered Carriage Free to the principal Railway Stations and Shipping Ports throughout the kingdom.

The Agricultural Gazette.

SATURDAY, APRIL 11, 1857.

THE following order in Council, published last Saturday in a supplement to the *London Gazette*, was announced in our Monday's edition. It forbids the importation of cattle and untanned hides from the districts at present infected by the cattle murrain.

"At the Court at Buckingham Palace, the 2d day of April, 1857. Present, the Queen's Most Excellent Majesty in Council.

"Whereas it has been represented to her Majesty that certain contagious or infectious disorders are now prevalent among cattle in certain countries or places bordering upon the Baltic Sea, and that there is danger of the said disorders being introduced into this country by means of cattle, and horns, hoofs, and raw or wet hides, or skins of cattle, from such countries or places; now, therefore, her Majesty, by and with the advice of her Privy Council, doth order, and it is hereby ordered, that from

and after the date hereof no cattle and no horns, hoofs, or raw or wet hides, or skins of cattle, shall be imported or introduced into the United Kingdom which shall come from or shall have been at any place within those territories of the Emperor of Russia, or of the King of Prussia, or of the Grand Duke of Mecklenburg-Schwerin, which respectively are in or border upon the Gulf of Finland, or any other part of the Baltic Sea between the Gulf of Finland and the territories of the Free City of Lübeck, or which shall come from or shall have been at any place within the territories of the Free City of Lübeck; and also that, from and after the date hereof, no cattle and no horns, hoofs, or raw or wet hides or skins of cattle, shall be imported or introduced into the United Kingdom which shall be, or shall have been, on board any vessels at the same time with any cattle or horns, hoofs, or raw or wet hides or skins of cattle, which shall have come from or shall have been at any such place as aforesaid.

"And her Majesty, by and with the advice of her Privy Council, doth hereby further order, that all cattle, and all horns, hoofs, and raw or wet hides, or skins of cattle, the importation or introduction whereof is so hereby prohibited as aforesaid, and also all hay, straw, fodder, litter, or manure, being or having been in or on board any vessels at the same time with any such cattle, or horns, hoofs, or raw or wet hides or skins of cattle as aforesaid, shall, upon their arrival in this country, be destroyed, or otherwise disposed of, as the Commissioners of her Majesty's Customs may direct.

"And the Right Hon. the Lords Commissioners of her Majesty's Treasury are to give the necessary directions herein accordingly. "C. C. Greville."

To this we merely add the following table, giving the number of cattle imported from different foreign countries into Great Britain during 1855, which is still the latest information given us in the Blue Books!

	Oxen.	Cows.	Calves.
Denmark	17,986	1928	...
Oldenburg	1702	...	...
Hanse Towns	78-9	633	...
Holland	28,371	6678	19,723
Belgium	..	...	3547
France	2182	656	502
Portugal	2630	...	...
Spain	2897	...	...
Other Parts	30	168	5
	63,687	10,063	23,777

From this we gather how very slightly the Order in Council will affect the supplies of meat from abroad, at the same time that it gives us the security we need. And we also gather the very serious effect of this kind which would be produced were importation forbidden, as our correspondent Mr. Turner proposes, from every country but Spain and Portugal.

If any of our readers are disposed to assist us in investigating the real value of the seeds ordinarily purchased by the farmer, they will much oblige us by sending through the post to our address* small samples taken fairly from the bulk of any description of seeds they may themselves have procured.

Of some of the meetings of the past week we hope to give fuller reports in our next; meanwhile, we must just refer to the paper on Town Sewage read before the Chemical Society, the lecture on Guano Deposits by Professor Way before the Agricultural Society, and the discussion on Harvest Operations before the London Farmers' Club, introduced by Mr. Bennett, of Cambridge.

Of these several subjects probably the most useful and interesting is that of guano deposits.—Town sewage, as discussed before the Chemical Society by Mr. Campbell and by many distinguished men, Dr. Daubeny, and others who followed him, did not present any more hopefulness or novelty of aspect than it had exhibited on the previous occasions of its discussion.—The stacking and threshing of corn, though a matter on which a great deal of difference of opinion was elicited, is yet so far from being a seasonable topic that it did not excite that interest which it would have done in June and July.

—— On the first then of these topics it is satisfactory to learn that there are many other rainless shores where sea birds congregate, beside those of Peru, and where therefore guano deposits may be confidently looked for. The certainty of other beds existing is so great that there surely could be no "prospecting" less hazardous or speculative than that of guano searchers. If Government refuse to undertake the search, whether in the general interest, or in that of science, why do not some of our energetic merchants commission exploratory expeditions which would be so sure to be remunerative?

—— On the details of harvest work, discussed before the London Farmers' Club, we can merely say that the point provoking most discussion was the policy of carrying home the crop to a fixed engine and machine as compared with that of threshing by a locomotive in the field. Both plans were strongly advocated—the latter carrying rather the greater weight of authority in its favour, under the ordinary circumstances of English agriculture.

Perhaps the most remarkable circumstance connected with the discussion was the doubt thrown by some of the speakers on the policy, under certain circumstances, of using steam power at all for the purpose of threshing. The superiority for feeding purposes of flail-threshed straw, consumed as it is produced, being asserted in reference to Oats to be so great as to recommend the use of the flail in preference to the steam engine in that particular case. But Mr. Wood, of Sussex, and others exposed most energetically the fallacy of any such opinion, so that we have not to record of the Central Farmers' Club any doubtful undecided tone, such as the discussion at one time threatened to present, upon the unquestionable advantages of steam-power in all its agricultural relations.

—— We add to the above notices of the week's agricultural proceedings in London, a reference to the report below of the agricultural show last Wednesday and Thursday at Poissy. Full details are given of the character of the exhibition, regarding which we will merely add here that excepting the very excellent contributions of British exhibitors, and excepting the music, flags, and other artistic organisation of the gathering two or three Poissys might very easily be selected out of any Monday's Metropolitan market.

We say this without in any degree wishing to depreciate the Poissy Show as interesting especially to French feeders and breeders, who are necessarily dependent on their own breeds; and to whom an exhibition of French breeds, however intrinsically inferior to our own, must be more usefully instructive than one of English stock alone, however superior it might be.

* 5, Upper Wellington Street, Strand, London, W.C.

AGRICULTURAL SHOW AT POISSY.

Poissy, a large village about 12 miles from Paris on the Havre line, being one of the great markets for the supply of the French metropolis, possesses in its market-place and lairs all the conveniences required for the accommodation and exhibition of a large number of live stock; and it has been therefore well selected for the show of the past week.

The gathering has included about three score English and Scottish cattle and two dozen lots of sheep, besides 220 French cattle, 18 lots of French sheep, and about three score pigs.

The stock were exhibited under shedding erected in the upper end of the spacious quadrangular market place of Poissy, most of the animals lying in stalls and shedding elsewhere during the night. The exhibition lasted several days, being opened to the public on Wednesday morning. The judges were 10 in number for the cattle and nine for the sheep and pigs, in each case including only two Englishmen: Messrs. Torr, of Riby, and Harvey, Secretary of the North of Scotland Agricultural Society in the former case, and Messrs. Fisher Hobbs and C. Stevenson, of Edinburgh, in the latter. The decisions were not arrived at without considerable difficulty, though we believe that they were not in the case of English stock carried, as they were at Paris last year, against the English opinions. There could be no difference of opinion as to the relative merits of the English and French stock, although the competition of each class was confined to itself. The former, whether cattle or sheep, were a more even, riper, and altogether better bred class of animals, and their superiority, undoubted as it was, appeared all the more obviously from their arrangement according to breed.

Every one who has been present at the Hereford Great Market in October knows how much the impression of the quality of the stock sold there is enhanced by its being so exclusively of one sort. The red white-faced cattle of Herefordshire and the red cattle of North Devon are, indeed, better off in their respective uniformity of appearance than the short-horns, white, roan, and red, in this particular: but when, in addition to variety of colour, there is variety of size and form, such as the motley breeds of France exhibit, it is plain that whatever the merit of individual animals the impression produced by them as a whole is greatly diminished by mixing them up together. Accordingly, the so-called fat stock of France, as exhibited at Poissy, gives one a very inferior impression of the merits of French breeds, to that produced by the very same sorts as breeding stock, arranged and classified according to breed as they were at the previous international gatherings of 1855 and '56. For here the cattle are not arranged agriculturally but geographically; all of one region, whether little Breton, huge Normandy, well-bred Charolaise, or coarse Comtoise, competing together. The evil complained of at the Midland Counties Cattle Show, where age alone guided the classification—and 2-year old, 3-year old, and 4-year old Devons, Herefords, and short-horns competed together for the prizes—that impartial judgments were impossible and differences of breed rather than differences of intrinsic merit did after all determine the awards—is here immensely aggravated. The object of such a gathering ought to be not the discouragement of any breed, but the encouragement of all; and therefore the animals of each breed ought to compete with one another exclusively. Each is probably particularly fitted to the circumstances of its own locality—and it is to its improvement there that these rewards of merit ought to be directed.

As it is, each "Region" presents us with a motley group, in which animals 5 feet 10 inches high, 6 feet 7 inches long, and 8 feet 7 inches round, weighing 25 cwt. (No. 127), stand side by side with little black and white Bretons (125 and 126) of little more than quarter their weight. We have the Charolais, a well-made animal, of medium size, like a small Hereford in shape, though of a pure or cream-white colour; the Salers and Auvernat, a large and coarseish red breed with shorter horns; the Comtoise, a coarse light brown breed with great heads and hanging dewlaps, almost Hindostan in their appearance; the little black and white, or red and white dairy breed of Brittany; the very large black and white, or red and white breed of Normandy, and many others—Limousin, Garronnais, Choletais, Parthenais, &c, less definitely marked, all competing indiscriminately with each other, so that neither resemblances nor contrasts are brought out so instructively as when the several sorts are arranged, like the English contribution to this same show, each breed standing by itself.

Three young short-horn oxen and five over 3 years old; three young Devons and four over 3 years old; six young Herefords and two over 3 years old, represented our three principal English breeds. Eight young polled Angus cattle and four over 3 years old; and three young West Highlanders and eleven over 3 years old, represented the two principal Scottish breeds. The prize list is given below.

These breeds were all *well* represented. The Duke of Beaufort's and Mr. Stratton's short-horns—Lord Leicester's and Mr. Heath's Devons—the Herefords of Lord Hatherton, Mr. Powell, and others, are as good as any English show has exhibited, and they compete with cattle which, if one or two be excepted, are very nearly as good as themselves. These breeds compete with one another for the gold medal, which marks the best ox in the yard; and the determination of the prize animal was a point of some difficulty. In both the native and the imported classes, however, it was given to the short-horns.

The short-horn shown by Mr. Stratton, that shown by the Duke of Beaufort, and the Devon shown by Mr. Heath, have competed now at Baker Street, Birmingham and Poissy—the gold medal for the best ox in the yard was given to Mr. Heath's at Baker Street, to Mr. Stratton's at Birmingham, and now to the Duke of Beaufort's at Poissy. Of course this is not to be taken as a mere instance of uncertain judgment, because the relative merits of these animals may differ now as compared with a period four months ago, when they competed in England.

The 1st prize West Highland ox, and the Angus ox, exhibited by Mr. M'Combie, had many advocates of their respective claims to the medal, but the decision, turning as it properly did on the question of age as well as value to the butcher, was given against them. Lord Hatherton's Hereford too, 34 months old, is an animal of extraordinary merit, and had a very good place in the competition for this medal. Probably the show of Angus cattle was the best of its kind in the yard; and the class of cross-bred stock, in which the Angus and shorthorn chiefly figured, was also a very good one.

Among the French cattle exhibited, the cross-bred stock showing the influence of the short-horn on the native breeds, were the most interesting, whether to natives or to foreigners. The effect was most decided and obvious. A better frame, greater thickness of flesh in the best parts, greater evenness of flesh everywhere, finer equality, less coarseness of skin and coat, and earlier maturity were all exhibited in the crosses shown. No. 99, a $3\frac{3}{4}$-years old ox, shown by Prince de Wagram, a black grey ox, the result of a cross between the short-horn and the large dairy breed of Berne, is a remarkable illustration of this—as well made, ripe, and evenly fatted an animal as one sees at the Baker Street show, of all the more obvious merit for standing beside the coarse ill-made Comtoise and other not very favourable specimens of native cattle. The Count de Torcy also shows other animals, cross breeds of short-horns and native breeds, all illustrating the wonderful influence of this cross.

It is in the means of improving the native breeds of France which our own present, as well as in those presented by the patient and persevering work of selection of the best animals of the races themselves from which to breed, that the value to France of its great annual cattle show resides. The abrupt and unexplained abandonment of the June meeting for the current year after a two years' announcement of it, which would have ensured a more perfect gathering of the best specimens of all the bovine breeds than has ever yet been seen, is greatly to be lamented. The 10,000*l.* or 15,000*l.* which may thus be saved is a very paltry consideration compared with the loss of the meeting itself, which would this year have been especially instructive and interesting; and as compared, let us add, with that loss of character, which, in the eyes of Englishmen at any rate, is necessarily involved in the departure from so distinct and widely published an engagement. The plea of the dreaded cattle murrain cannot be entertained for a moment in explanation of it—as the laws regulating the importation of stock would have been in force during the meeting as at other times, and all cattle from infected districts would then as now have been forbidden entrance into the country. It is from those countries alone where cattle murrain is as yet unknown that stock of use to France could have been expected; and it is not likely that an invitation to any future competition will be prepared for by them, and accepted with any energy and confidence after the abandonment of the meeting announced for 1857.

The stock of sheep at Poissy has been of comparatively little interest. Cotswold sheep are shown by Mrs. West, of Bletchington, Messrs. Tombs, and Mr. Druce; Southdowns are exhibited by Lord Walsingham and Mr. Hudson, of Castleacre; Cheviots are shown by Mr.

Sandbach, of Denbighshire, Mr. Scott, of Edinburgh, and Mr. Stedman, of Boghall, near Edinburgh; black-faced sheep are shown by Mr. Wemyss, of Fifeshire, and Mr. Stewart, of Aberdeen; and cross-bred sheep are shown by Mr. Druce and others. The silver cup is awarded to Mrs. West.

There is a very good show of pigs by French exhibitors, in which the influence of imported English crosses is very marked.

The following is the prize list, so far as English exhibitors are concerned:—

I. SHORT-HORN CATTLE, *under 3 years.*—1st, the Duke of Beaufort; 2d, Messrs. Beveridge & Gulland, Fifeshire; 3d, do. do.
II. SHORT-HORNS, *over 3 years.*—1st, Mr. Stratton, Swindon; 2d, Lord Leigh; 3d, Mr. T. G. Tuck, Norfolk.
III. DEVON CATTLE, *under 3 years.*—1st, Mr. Heath, of Ludham; 2d, Lord Leicester; 3d, do. do.
IV. DEVONS, *over 3 years.*—1st, Mr. J. Potter, near Birmingham; 2d, Mr. Heath; 3d, Lord Leicester.
V. HEREFORD CATTLE, *under 3 years.*—1st, Lord Hatherton; 2d, Mr. Heath; 3d, Mr. W. E. Powell, Herefordshire.
VI. HEREFORDS, *over 3 years.*—1st, Mr. Naylor, near Welchpool; 2d, Mr. W. Shaw, Northampton.
VII. POLLED BREEDS *under 3 years.*—1st, Mr. M'Combie, of Tillyfour; 2d, Mr. J. Stewart, Aberdeen; 3d, Mr. M'Combie.
VIII. POLLED BREEDS, *over 3 years.*—1st, Mr. M'Combie; 2d, Mr. M'Combie; 3d, Mr Stewart.
IX. WEST HIGHLANDERS, *under 3 years.*—1st, Mr. T. Knowles, Aberdeen; 2d, do.
X. WEST HIGHLANDERS, *over 3 years.*—1st, The Duke of Beaufort; 2d, Mr. J. H. Erskine Wemyss, Fife; 3d. Mr. R. Sneyd, near Newcastle.
XI. OTHER FOREIGN BREEDS.—No awards.
XII. CROSS BREEDS, *under 3 Years.*—1st, Mr. J. Dudgeon, Linlithgow; 2d, Mr. T. Knowles.
XIII. CROSS BREEDS, *over 3 Years.*—1st, Mr. J. Martin, Aberdeen; 2d, Mr. J. Stewart; 3d, do.
GOLD MEDAL FOR THE BEST OX.—The Duke of Beaufort.

SHEEP.

I. LEICESTER.—None exhibited.
II. LONGWOOLS.—1st, Mr. S. West, Bletchington, Oxford; 2d, Mr. J. K. Tombs, Langford, Oxford; 3d, Mr. Tombs, Gloucestershire.
III. SOUTHDOWNS.—1st, Lord Walsingham; 2d, do.; 3d, Mr. J. Stewart.
IV. CHEVIOTS.—1st, Mr. H. R. Sandbach, Denbigh; 2d, do.; 3d, Mr. D. Scott, Smithfield, Edinburgh.
V. BLACKFACED SHEEP.—1st, Mr. J. Stewart; 2d, Mr. J. H. Erskine Wemyss.
VI. CROSS-BRED SHEEP.—1st, Mr. J. Druce, Eynsham; 2d, Mr. J. K. Tombs; 3d, Mr. J. Stewart.
SILVER CUP value 48*l.* for the best sheep, to Mrs. Sarah West.

The prizes were presented in public on Wednesday by the Minister of Agriculture.

THE CATTLE MURRAIN.

I WAS much pleased to find by the leading article last Saturday that you perceive the importance of this subject to the British farmer; and it is very gratifying to me to find that Ministers have issued an order prohibiting the importation of cattle, hides, or hoofs from certain portions of the territories adjoining the Gulf of Finland. This is a wise measure, but I regret that its operation is not extended to all European countries excepting Spain and Portugal; you may rest assured that if we continue to import live cattle from Holland and Belgium, we shall ere long introduce this much dreaded scourge along with them. I at once admit that the course I advocate might tend to advance the price of beef, which is already too high, but as you very properly observe, the introduction of this murrain would very soon cause a loss among our own cattle infinitely greater than the value of the animals derived from foreign supply. For the general welfare then I say, prohibit at once the importation of live cattle from any European country, save the two I have before excepted.

I think it possible that a considerable portion of the supply of cattle sent into this country might still be kept up without danger if the animals were slaughtered not as you suggest, on the dock premises after their arrival, but before they are shipped from abroad; then if disease were in the carcase it would be certain to show itself unmistakably during the voyage, and I apprehend no stringent measures would be required to prevent its being landed in England. From Belgium the passage is no longer than from some of the Scotch ports to London, from whence carcase beef is regularly sent.

The moment the disease was known to be in Belgium, this importation of beef could be stopped, but until that time it appears to me we might safely receive it.

The resolution adopted by the Royal English Agricultural Society, the Irish Agricultural Improvement Society, and the Highland and Agricultural Society of Scotland to send out Professor Simonds to examine into the nature of this murrain is most creditable to these valuable associations, and no doubt the Professor will obtain much interesting information on the subject. But I contend that our chief object should be to try by every means in our power to prevent this disease from reaching us. Keep then, I pray you, the attention of the country to a subject that deeply concerns all classes, for although it may in the first place fall heavily upon the farmer it must ultimately affect the comfort of every member of the community.

The apathy of agriculturists should, one thinks, be a little stirred by the pithy description of the disease by the Consul at Memel—"Animal loses appetite—severe diarrhœa—no cure discovered—eight days dead;" and the words of the Consul at Warsaw surely ought to command our deepest attention.

"Within the last fortnight," he says, "a gentleman of my acquaintance lost nearly every beast he possessed. The infection is so virulent that it is said a farm servant who has been in attendance on sick cattle may carry it in his clothes and impregnate other beasts with the fatal distemper. It would appear to commence with violent fever which rapidly degenerates into acute dysentery, the animal dying in a few days of intestina ulceration after the first appearance of the disorder."

These remarks it must be borne in mind are written by men of credit to Lord Clarendon, and cannot for a moment be supposed to be penned from interested motives. Surely then we may believe them, and if so does it not become us to use the most stringent means at our disposal to prevent the threatened visit of this fearful scourge? May I request you to observe that I write from Richmond and not Wakefield, as you stated. *H. J. Turner, Richmond, Yorkshire, April 6.*

THE KEYTHORPE SYSTEM OF DRAINAGE.

IN your recent remarks on the Keythorpe system, you in common with some other of my friends admit the existence of the furrows on which it depends, but doubt whether they can be extensively used in draining. I shall beg therefore to trouble you with a few remarks on the subject of their very general distribution. In the first place then they have no relation whatever to the "geological formation," as it is called, that is to say to the group of strata represented on our maps under one colour, for the purpose of classification, because they contain a common and peculiar group of fossils. The furrows are connected with the operations which produced the superficial accumulations which constitute in most cases both soil and subsoil. In many cases where they appear in that full development they constitute the substratum also as far as any agricultural operations, whether of cultivation or drainage, are concerned.

These superficial accumulations are of two kinds, formerly confounded together under the general name of diluvium, and supposed from their peculiar characters as distinguished from the regular fossiliferous strata to have been formed by a transient irruption of the sea. From more extended observation it now appears that they are referable to two distinct epochs and two different kinds of aqueous action. Both of them, however, involve the draining of large bodies of water off the land. Both of them must have excavated furrows on the surface of the previous upper stratum, whether belonging to the regular strata or to beds of the superficial accumulations, each of which must in its turn have been the uppermost. These furrows at different depths perform different functions in the transmission of water through the soil. Some have reference to land draining, some to spring draining. It may be remarked, however, by the way that those two kinds of draining, though distinct enough at the extremity of the scale, graduate so insensibly into one another that it is difficult in many cases to say where one begins and the other ends. To discuss that question, however, is not my present object. It is to point out the nature of the operations in which these furrows originated, and to show that if they exist at all they must have, as I know from observation they actually have, a very general distribution, and must have, as I know from observation that they have, a relation to the form of the surface and to the direction of the valleys rather than to the nature of the rock below.

I have said that the superficial deposits are of two kinds, both referable to aqueous action of different kinds; but both involving the draining of large bodies of water off the land. Those statements are not, as by a singular confusion of ideas they have been called, "the eloquent imaginings of the scientific scholar," whatever that means; they are facts proved by evidence which would be received as conclusive in any court of law.

Into the details of this evidence I cannot now enter, though I may perhaps recur to the subject on some future occasion. At present my object is merely to draw attention to the extent of the aqueous operations in which these furrows originated. With respect to the former class of deposits (the erratic tertiaries) there are proofs of a surface submerged to the depth of at least 1800 feet, and that I presume is quite as much as any one would wish to carry draining or other agricultural operations in our climate. It is proved by marine shells of existing species in these deposits up to nearly 1500 feet, and by erratic blocks up to 1800. It is true that I was the first to discover marine shells in these deposits, but I do not stand alone. My observations have been confirmed and extended by so many of our most eminent geologists to so many other localities in the United Kingdom as to render it surprising they had never been discovered before. In fact the marine origin of these deposits is not questioned by any one who pretends to the slightest smattering of geological knowledge.

With respect to the second class of superficial deposits, I who was the first to point them out, for a time stood alone among geologists in considering them a distinct class of deposits from the former. In fact I at first considered them myself as the effects of the last wash of the sea which produced the erratic tertiaries, during the emergence of the land. For that reason I named them "warp of the drift," intimating that they were a deposit from muddy waters like the warp of the fens. As I found proofs of a terrestrial surface beneath this, consisting of fluviatile and marine deposits with land and fresh-water shells, containing the last traces of elephantine and other extinct mammals, I modified the name to *warp-drift.* The name is not the best in the world; but I, as the discoverer, have a right to name it, and have offered to change it when geologists, or the majority of them, shall agree upon a better. This class of deposits has since been observed and described under different names by all our geologists who have paid any attention to the superficial deposits, and though they are few they are among the most eminent. They all attribute them to aqueous action of some kind. Whoever will take the trouble to consult those papers in the Journal of the Geological Society relating to the agencies which produced the superficial accumulations without reference to questions in applied geology, and certainly without reference to the Keythorpe system, will find them representing the furrowed surface on non-calcareous as well as calcareous strata, and on beds of sand, gravel, and clay.

Then, again, since these furrows have been brought under the notice of practical men in relation to drainage, they have been observed by many who question their general distribution and their extensive applicability. To clear up their doubts on this point I refer to the extent of the aqueous agencies connected with the drainage of large bodies of water and to the land by which they must have been produced, while at the same time I contend that in practice we have nothing to do with questions as to the manner in which they were produced, but merely to their depth, direction, and distribution.

One objection to the applicability of these furrows to draining is the alleged difficulty of discovering their direction. That is an imaginary difficulty. The method of trial holes is neither difficult nor expensive, but there are other methods of discovery, which I do not think it necessary to point out for the benefit of those who deny their existence and yet are making use of them. One thing is certain, that if they do not exist there is nothing to justify departure from parallel and equi-distant draining and the line of greatest descent. Those who question their existence and their applicability to draining, and who denounce the Keythorpe system, which is the only system of draining which recognises them, ought, like Cobbett, to hoist the standard of the "gridiron." *J. Trimmer.*

MALIGNANT TYPHUS IN CATTLE.

UNDER the vague undefined name of murrain do historians from the earliest times hand us down accounts of distempers, terrible in their devastating power, and mysterious in their origin.

Science has referred them to every earthly source; the atmosphere, the water, or the food have alternately borne the responsibility, and the mystery remains as complete as ever. On one point however men do not differ in opinion—the frightful effects that follow the introduction of such diseases into a country. With all our indifference to great evils and tolerance of great abuses we are occasionally stirred into something like activity by some more than usually great mischief pending.

Dropping the term "murrain," for the more expressive "typhus," we proceed to indicate something of the nature of such diseases in general. The word, derived from one of two Greek ones, signifies either "stupor" or "to smoulder." Accept which explanation we please each will mark the especial peculiarity of the class of affections:—Low smouldering, quietly, surely, destructive; general prostration, trembling fits, violent purging, diseased secretion, offensive breath, abscess, are its prominent symptoms; death and immediate decomposition its results. Look to its history; meagre as it is, how unvarying the statement of its fatality. Read its advent in the few but awfully expressive words, "and all the cattle of Egypt died." And following it to the present what other sentence can we find more true, or so characteristic of the pestilences that have destroyed cattle at different periods, judging from the scanty accounts that have reached us?

The malady of which we are at present speaking is essentially different from any epizöotic or universally prevailing disease, belonging to the experience of English agriculturists. The vesicular disease attacking the mouths and feet, the lung disease, and small-pox in sheep, have visited us in turn lately, and with all of them we are to a certain extent familiar; but since the middle of the eighteenth century nothing possessing the character of the present disease has reached us. We have a notice of such an affection, producing serious effects in some of the Austrian States in 1845, having been, as was then alleged, brought from Russia and Bessarabia.

The malady commenced by dullness, prostration, dry cough, tenderness of the spine, harsh coat, followed by loss of milk, excessive thirst, hurried breathing, terminating in purging, profuse discharge from nostrils, moaning, death. In 1744 the typhus visited England and destroyed immense numbers of cattle; here, again, the origin of the distemper was referred to the introduction of diseased subjects from a part where it was known to be raging.

During the late war, it is well known, typhoid fever carried off hundreds of our animals; and many returned to England apparently having escaped the disease, but afterwards died from acute glanders almost immediately on landing. Whether this disease of typhus was the epizöotic or merely produced by exposure and bad living cannot be decided now.

The plague it appears has been during the last two years prevalent in some parts of Russia, and has now reached Prussia. Immediately preceding its former visitation, it was present in some part of Germany. By comparison, therefore, we have strong reason for apprehension; the more so, as we remember the uniformity of course that characterises diseases of the epizöotic

class—the tendency to travel in the same general direction. Accounts from Prussia describe the animals attacked with shivering fits, purging, and dying in a few hours, no remedies being found efficacious.

From all the facts asserted we are justified in coming to certain conclusions respecting the nature of the disease. The symptoms clearly refer to the blood as the primary seat of the morbid element, introduced by absorbtion of emanations from a diseased subject; for upon the question of contagion no one seems to entertain a reasonable doubt; every view of the matter starts by taking this for granted or alluding to it as a well established fact. The introduction of diseased matter being effected, the malady has a time of incubation. Little variation from the ordinary appearance may indicate disease until the change in the blood has advanced to a certain point, when the circulation of the diseased fluid through the brain at once is shown by dulness and nervous depression; the other symptoms of diseased secretion and putrid exhalations following in due course from the same cause—an altered and morbid condition of the circulating fluid.

The most uninitiated of our readers can we imagine understand clearly how a bad condition of blood going on to something nearly allied to decomposition, produces the effects we have described.

Remedies.—Against the successful employment of medicines in this malady we have statements of those who have experience to speak from, and indeed, reasoning from our own experience, among diseases of the same type, we should not have been at all sanguine; still in the event of a visitation there are principles to guide us, and upon them must every consistent experiment be founded. Tonic measures are obviously indicated. The use of all means calculated to support and strengthen the system, and the careful avoidance of bleeding, purgatives, or anything likely to induce weakness. These, we repeat, are the principles of action. To particularise at present would be premature. Beyond all systems of treatment, however, are means of prevention directed against the extension of the affection after it has commenced its attacks upon us. Animals that are weakly from previous disease or bad management are the most likely subjects; badly drained and ventilated districts the most probable situations for its locations. Well conditioned beasts, therefore, are most likely to resist its influence, as healthy situations to offer the fewest invitations for its presence. A word to the wise is enough. We are not speaking to tyros, but to practical men, to whom our meaning is clear, whether they attend to our suggestions or not.

In importance far above medical treatment or prevention is the averting of the distemper from our shores altogether by legislative enactments that can only be framed by the Government of our country, and in reference to which we do not feel called on to speak dictatorially. One thing we must insist on, to wit, the inefficiency of any system that merely involves examination of cattle imported on their arrival here. During the "hatching" period of the disease the keenest judgment may fail for want of evidence, and animals carrying the distemper yet undeveloped be introduced without even a suspicion. It appears that nothing short of an assurance of the sanitary condition of the cattle in the neighbourhood from whence the individuals were exported can adequately meet the difficulty. The same argument applies of course to imported hides, which at least may possibly be capable of conveying the poison. *C.*

Home Correspondence.

Draught of Ploughs.—Having read the remarks lately published in the *Gazette* respecting the merits of the wheel plough over the swing or Scotch plough as regards draught, I must say that as far as my experience goes, they are directly the reverse of truth. In the first place great judgment is needed in setting the swing plough, or, in fact, in its management altogether. When a ploughman takes his share to the blacksmith, with what nicety he requires to have it set so as to make his plough go true, not to be dipping or going on one side, and when properly set it ought to dip or draw into the ground enough to require the weight of the ploughman's hands only on the handles to balance the plough. But if from ignorance or carelessness this precaution is not taken, if the plough is not properly adjusted to its work, then it will happen as your correspondent states, "the ploughman will require to throw his whole weight on the handles to keep the implement in its proper place," thereby causing a great increase of draught to the horses. In the next place I contend that the swing plough has a great advantage over the wheel plough at the ends of the work, or in ploughing across ridges. With the one you may drive to an inch and throw it out of ground, turn and dip into the furrow the required depth in the space of an inch or two; but how is it with the wheel or the two wheel? What a slovenly affair is always to be seen even in our ploughing-match fields at the ends of the work; for should the ground be a little higher (as is often the case) in coming out the plough is of course thrown out by the wheel. And again in taking the furrow the wheel prevents the plough from being thrown up by the handles in order to dip at once. For my part, if I wanted a good ploughman I should choose one from the tail of a swing plough, and if he entertained an aversion to the wheels we should not disagree on that point, and if the horses could give their opinion in the case I think we should all be of one mind. *D. A., Devon.* [The greater the need of judgment and skill in order to the management of an implement, the less likely is that implement to be generally useful.]

The Resources of the Soil.—An increase in the produce of the soil can only be effected by a proper application of means, and these must be applied chiefly by the practical farmer. Self interest will no doubt prompt the tenant who has acquired sufficient knowledge of the theory and practice of agriculture to increase by every possible agency the produce of his land. But as agricultural improvements have a direct bearing on the prosperity of a country—while they are no doubt also the results of prosperity—and are therefore natural in their influences, the enterprising farmer should be encouraged in his improving operations. A time there was when he was allowed to go on with improving works without receiving any encouragement or recognition from the great or noble of the land. If he dared to set his neighbour farmers an example in high farming he was pointed at by them with the finger of scorn, and was attacked on all sides by spite and envy. The times have changed however, and now the spirited farmer who makes great improvements is praised on all hands as a national benefactor. In some cases he has hospitality enough to gather the public together, and in after dinner speeches he gets the credit he deserves, and all this is very right—just as it should be, as it is a means of encouraging others to go and do likewise. True, there are still to be found a few old prejudiced farmers who laugh at new systems in farm management, and prophesy the ruin sooner or later of the man who adopts them, but while he has the higher classes on his side he does not need to pay much attention to this slight discouragement. The development of the resources of the soil let it be understood must be a joint undertaking. If the tenant is left to do all himself he is not being fairly treated. It is for the interest of the landlord that an improving tenant should be well supported in his operations. Where the produce of the soil is increased, and its intrinsic value enhanced by the good management of a tenant, the landlord is a gainer. Every pound added to the yearly value of the soil puts from 27*l.* to 30*l.* into the purse of the proprietor. All the gain the tenant has from his improving works does not amount to anything like this. To draw forth the capabilities of the soil, the landlord requires a body of tenantry possessed of skill, capital, and enterprise; but if he does not encourage them properly by letting them his land on liberal terms, and giving them leases for a fixed number of years that they may be able to invest their capital with advantage, he cannot expect and does not deserve to get really good tenants. *Speak Plain.*

Societies.

Highland Society.—*Variety in Weights and Measures.*
(*Continued from p. 242.*)

The evil has been long admitted, but few countries have yet succeeded in finding a sufficient remedy for it. The benefit of uniformity of measures and of weights was acknowledged at a very early period in Scotland. It is provided by the Great Charter of England that there shall be but one measure and one weight throughout the realm. And commissions have been held, and Acts passed for the last 200 years, with the view of attaining this uniformity; but they have also failed in their object. And even the last attempt made by the Act of 1824, which established our present imperial measures, has not succeeded, as any one may judge for himself; otherwise, there would not have been such agitation throughout the country on this subject, and we would not have met to-day for the object which has called us together. There were several defects in the Act. 1. None but scientific men were examined by the commissioners previous to the framing of the Act; the advice of practical men or men engaged in trade would certainly have been of use in the composing of any measure on the uniformity of weights and measures. 2. Two pounds were retained, the troy and avoirdupois. 3. Heaped measure was also retained. 4. Existing weights and measures were allowed to be used, provided they were marked so as to show the proportion they bore to the standard weights and measures. And we may add, as a fifth defect, the laxity of the construction of the Act, in which in many clauses penalties were not annexed to prohibitions. The effect of this measure was the introduction into Scotland of new weights which were never contemplated by the Act. We are told that many adopted the imperial stone of 14 lbs., but divided it into sixteen parts as the old Scotch stone; while others adopted a stone of 16 lbs. avoirdupois, which was never in use before. The meal dealers also adopted 28 lbs. as the firlot of meal, while the established firlot, the one used by farmers and wholesale dealers, was 35 lbs.; thus they bought by the latter and sold by the former—thus cheating the consumer of his fair measure. Some of these defects have been removed by a succeeding Act in 1835, by which heaped measure is abolished, as was done 200 years ago in Scotland, and the use of existing weights and measures prohibited. But still the greater part of the evils in existence before the Act, and introduced by it, remain to be remedied; and the question for us to consider now is—How that is to be done with justice and convenience to the public? As the principle on which the Commissioners acted in framing the law of 1824 was that of "making the least possible degree of alteration," we could not expect that anything they would propose out of such incongruous materials as they had to work with would lead to much uniformity. Our tables of imperial weights and measures are most clumsy and irregular in their divisions. What, for instance, could be more arbitrary, more unconnected, than the numbers which represent the divisional parts of the tables of the long and superficial measures in which not one is an aliquot or multiple part of the other, thus—12, 3, 5½, 40, 8, 3, 60; and 144, 9, 30¼, 40, 4. Though fully admitting the imperfections of the present tables, we are by no means inclined to recommend too great a change. We should take warning from the French, who, by attempting too much, by disregarding entirely the habits and practice of the people, and introducing a new system of weights and measures, and a new nomenclature, produced such confusion and so many evils as compelled them to exercise their genius in devising a second system which would remedy these evils. There are, therefore, in use at present in France three systems of weights and measures—the old, the decimal, and what is called the usual; which reminds us more of confusion confounded than of uniformity. Many advocate a total and immediate change to the decimal system in this country. Now, while we agree with them as to the extreme simplicity of this system, of its easy adaptation to our weights and measures, and of its eligibility above all others, in written accounts, we do not think that a total change to it at present would be advisable. We should be falling into the mistake committed by the French, and doing violence to the habits of the people; we should be sure to fail in the attempt to introduce uniformity. Besides, it is always proper that there should be a certain relation between the coinage and weights and measures; such a relation exists now, which would be disturbed by the introduction of the decimal system, and would prove one of the great obstacles to its success. In legislating therefore on this subject, habit, or use and wont, that great hindrance to social legislation generally, must be considered as a most important element. Some, again, advocate the gradual introduction of the decimal system. They say, let us commence with the weights, and make the cwt. 100 lbs., the stone 10 lbs., and the ton 2000 lbs., and weights from 1 lb. to 10 lbs., and as many multiples of 10 lbs. up to 100 lbs. might be made as would be thought necessary and useful. There could be no objection to this if stringent measures were taken by Government to introduce it at once over the country, and at the same time assist in the expense of altering the weights, for this would be a more serious objection to the change than would appear at first sight. It was calculated in 1840 that the weights of 14 lbs. and its multiples then in use would not be less than 30,000 tons, and the expense of changing these for weights of the decimal scale would be between 100,000*l.* and 200,000*l.*; and of course these would be considerably increased now. Small as the sum is in comparison with the advantage of the change, we believe that if Government were required to pay the whole expense, it would be a great barrier to its ever being carried into execution in these days of economy. Whether this trifling innovation (if it can be called such, for the cwt. of Tobacco, Indigo, and many other substances is already declared by Act of Parliament to be 100 lb.), be adopted immediately or not, we believe and hope that ultimately the decimal system will be universally used both for the home trade and international commerce, and in so far as this country is concerned, the change has already commenced, in the gradual substitution of the decimal for the present system in the coinage. As there is now a strong feeling in favour of another attempt being made to establish a uniformity in weights and measures, the following suggestions are offered for your consideration with this object in view:—

1. As the use of the troy weight is very limited, being employed only by goldsmiths and dealers in the precious metals, and as the avoirdupois weight is that which is used in all the ordinary transactions of trade, in the proportion of 2000 times for once that the troy weight is used, it is suggested that the latter be entirely abolished. This will prevent the confusion and the opportunity to commit fraud which at present exists from having two different kinds of pound weight. It is a decided fault in the Act of 1824 that the imperial standard troy pound is declared to be the "unit or only standard measure of weight," while the pound avoirdupois, the one in general use and which most people know anything about, is only tolerated. 2. If any change is made at present, it should be done with the view of the decimal system being ultimately established. 3. Distinct provisions should also be made for the sale of different substances by certain standards of weights and measures. Thus beef, hay, straw, wool, butter, &c., should all be sold wholesale by the imperial stone. Grain should also be sold by weight, Wheat say per 60 lbs., Barley per 50 lbs., and Oats 40 lbs. &c., or some such numbers. I am aware that the legal standard of sale of grain generally is the measure of the imperial quarter, the quarterly averages being made up per quarter, and the duty levied also by the same measure. But there is no reason for having this altered if found inconvenient, as it really is; though I admit that there will be some difficulty in making the alteration from many existing agreements being based on the imperial quarter, being the standard measure of grain. But the fa tot grain being sold less and less every year by the quarter, although enjoined by statute, and of weight being substituted for it, and also the confusion arising from every market adopting its own standard weight for sale, is a strong reason for some change being made in this practice. Besides, sales of grain by measure are both inconvenient and annoying, in as far as they are continually causing disputes, and producing an unsettled state of matters in mercantile transactions. No two men can fill a bushel measure so as to produce the exact weight; even one man will not always produce the same weight in filling the bushel with the same grain; and a bushel filled in a room during the tremulous motion caused by machinery at work will weigh more than if filled with the same grain in a granary free from disturbing motion of any kind. Every farmer knows this from a dear-bought experience. It is of daily occurrence that a farmer is annoyed by being informed that his grain will not stand the weight per bushel for which he sold it, and he is obliged to submit to the loss of a drawback, and then to the loss of the additional grain which was required to make up the weight for which he sold it; and yet both he and his servant who

weighed the grain in his barn had not the least intention of taking advantage by over-weight, but had sold the grain in perfect good faith. This subject is daily becoming of more importance to farmers, as threshing-machines are now being constructed so as to economise labour as much as possible, by having the bags filled with the grain when threshed, at once, from the mill, without any manual labour being required from the putting in of the sheaf to the removal of the bag. All this shows that the substitution of sales of grain by weight instead of by measure, deserves the best attention of farmers. 4. All the provisions of the Act should be strictly enforced by penalties. All sales not made by the imperial standard to be null and void. 5. Clerks of markets and newspapers to report the sales by the imperial standard; failing which, a penalty will be exacted.

It is surprising that in these times, when accurate statistical information on all subjects is sought after, when a mathematical exactness in scientific investigations, and a precision in commercial transactions are insisted on, such laxity should be tolerated in some of the most important engagements with which agriculturists have to do. It is not long since a noble duke was heard to state in this room, that he would be obliged to any one to inform him which was the term day. Are farmers content to submit to the annoyance every half year of their servants having it in their choice to leave their places on one of three days—the 15th, the 26th, or 27th of May, and the 11th, the 22d, or 23d of November? Are magistrates to continue to allow the infringement of the law by every one using the weight and measures which he thinks proper? Are the fiars prices which regulate the price of grain for the year, and in the proper striking of which some of the greatest interests in the country are concerned, to be left to the haphazard methods now in use throughout the country for obtaining them? It is not to be wondered at that many proprietors and tenants having no confidence in the uncertain results thus obtained hesitate to enter into engagements having the fiars prices as their basis. In their present state they are utterly valueless as comparative statements of the prices of grain in the different counties of Scotland. It is to be hoped that these subjects will all soon be brought under the consideration of Parliament, and that that which has engaged our attention to-day—the uniformity of weights and measures, will receive a speedy settlement. Already has public attention been directed to it in different parts of the country. Public meetings have been held, and some agricultural societies have issued reports on it, of which I will mention the Wirral Agricultural Improvement Society, and the North East Agricultural Association of Ireland, from whose reports I have received some valuable hints. Notice has also been given of the introduction of a measure on the subject into Parliament. But these questions are now too often considered beneath the notice of our representatives. Intent on weighing the affairs of the celestial empire, they are unwilling to descend to the consideration of such a subject as weights and measures in this sublunary kingdom. Absorbed in the discussion of the theories of Adam Smith and Arthur Young regarding monopolies, an unfettered commerce and the importation of cheap food to the people, they allow the most glaring cases of monopoly to be perpetrated before their very eyes, by which the produce of this country was threatened with a reduction in one year of thousands of quarters of grain, which would just have been so much cheap food lost to the people. Wise and eloquent on international treaties, they will not stoop to consider the relations between master and servant at home. Such themes are too homely for them.—The following resolution was then proposed by Mr. Hope, Fenton Barns, and seconded by Mr. Wylie, Ninewar, that:—"The meeting are unanimously of opinion that uniformity of weights and measures would be of the greatest importance, and that a strict observance of legal standards should be enforced; and they hope that the directors will take into their consideration how far the existing standards may be beneficially altered with the view of bringing the subject under the notice of local agricultural societies and other bodies so as to ensure a general and simultaneous movement."

Notices to Correspondents.

COPROLITES: *A Green.* They fetch from 2*l.* to 3*l.* per ton. They are of no value unless well powdered and dissolved in acid, when they form a useful superphosphate to apply along with farm-yard dung for the Turnip crop.

EFFECT OF MANURES ON THE TASTE OF CROPS: *T C.* We cannot explain how it was that the sheep found out when the nitrophosphate and when the superphosphate were used on the Turnip crop!

LINT TUBING: *G R P.* Walthman and Co., Bentham, Lancaster.

MANURES: *G L Drummond.* We cannot undertake their analysis; and apart from that, we are unable to judge of their value.

SALES OF STOCK: *J N.* During the past week Mr. Strafford disposed of the herds of two well known breeders—Mr. Ambler, of Halifax, and the Rev. T. Cator, of Doncaster. The former, including 50 animals, realised 84*l.* a head, or 4164*l.* in all; the latter included 57 head of stock, realising 56*l.* each. Among the prices given at Mr. Ambler's sale were 300*l.* and 270 guineas for Grand Turk (bull) and Britannia (cow), bought by Mr Thorne, U.S., and Mr. Torr, of Aylesbury. Of the animals sold for Mr. Cator, the bulls D. of Cambridge, Schamyl Bey, and D. of Wellington were sold for 180, 135, and 105 guineas respectively to Mr. Holland, Mr. Wentworth, and Mr. Bell.

STOPPAGE OF DRAINS: *Aquarius* says:—"About two years ago, in the winter of 1844-5, I had occasion to drain an old pasture of some 8 acres in extent. The main drain, laid 4 feet deep with 4-inch pipes, passes through the gateway into the adjoining field, at the bottom of which it discharges itself; and near this gateway, in the corner, is a group of small stunted trees, principally Willows, growing on the edge of a stagnant pond, the nearest tree being about 5 yards off the line of the drain. In the winter of 1855-6 it was observed that apparently there was something amiss with the drain; but it passed on without further remark till the present winter, when in consequence of the recent heavy rains it became evident the drain had 'burst.' It was accordingly taken up, and upon examination proved to be filled with a net-work of roots, proceeding apparently from the Willows, and running up and down the drain for some 10 or 12 yards in a coil, as thick as a man's arm." [Your own suggestion of laying the pipes in concrete, mixed up with gas-tar, is the best possible.]

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.—THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds. 30*s.*; 1000 yds, 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpaulinn Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
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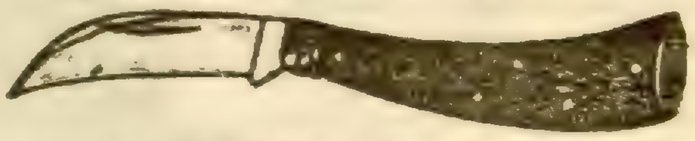

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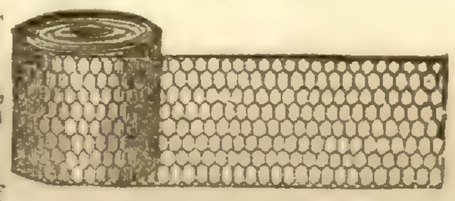
MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

H. J. MORTON AND Co., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.
GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.
GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.
PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.
GALVANISED GAME AND POULTRY NETTING.—Galvanised 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.
Galvanised, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.
The Netting made any width, and with openings of any size.



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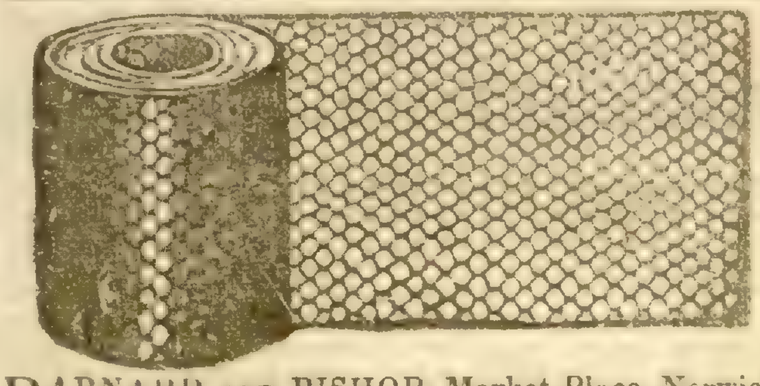

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	Galvanised.	Japanned iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong, do.	6 ,,	4¾ ,,
2 inch ,, intermediate, do.	7 ,,	5½ ,,
2-inch ,, extra strong, do.	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do.	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.
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SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.
JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—
SHEET GLASS, PACKED IN BOXES CONTAINING 100 FEET.

6 by 4, and 6½ by 4½ ... 12*s.*			8 by 6, and 8½ by 6½ ... 13*s.* 6*d.*		
7 by 5, and 7½ by 5½ ... 13*s.*			9 by 7, and 10 by 8 ... 13*s.* 6*d.*		
11 by 9,	12 by 9,	13 by 9,	14 by 9	15	0
12 ,, 10,	13 by 10,	14 ,, 10,	15 ,, 10	16	0
	16 ,, 10,	17 ,, 10,	18 ,, 10		
12 ,, 11,	13 ,, 11,	14 ,, 11,	15 ,, 11, 16 ,, 11 ...	16	6
13 ,, 12,	14 ,, 12,	15 ,, 12,	16 ,, 12	17	0
17 ,, 12,	18 ,, 12,	19 ,, 12.	20 ,, 12	18	0
16 ,, 13,	17 ,, 13,	18 ,, 13,	20 ,, 13		
	22 ,, 13,	24 ,, 13	... ...		
20 ,, 14,	22 ,, 14,	24 ,, 14	... ...		
10 ,, 15,	22 ,, 15,	24 ,, 15	... ...		

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.
Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares. 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.
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GLASS.
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6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 ft. extra.
19 by 12, 20 by 12 — 16*s.* — 20 by 13, 20 by 14
Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.
Glass for Orchard Houses as supplied to Mr. Rivers.
Hartley's Patent Rough Plate Glass, ½ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.
Propagating Glasses. | Fern Shades and Stands.
Bee ,, | Glass Milk Pans.
Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.
Rough Plate and Sheet Glass Tiles to ½-inch in thickness.
A variety of other articles as per Horticultural List, which may be had on application.
Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.
Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.
All packages charged, but allowed for when returned.
Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

BEEHIVES.
MARRIOTT'S HUMANE AND COTTAGERS' HIVES, with all other articles required by an apiarian, are only to be obtained of RIGBY & Co., 80, Gracechurch Street. Catalogues sent upon application.

BEE-HIVES.
PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.
NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR and SONS, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

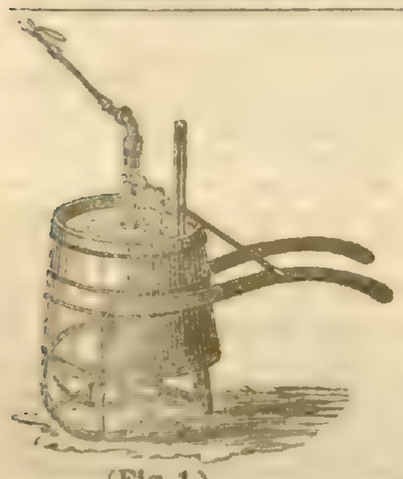
This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid: its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.
Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.
Their newly-arranged Catalogue of other improved Hives with drawings and prices, sent on receipt of two stamps.
AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co., 61, Dame Street.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.



(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds	10	gallons,	throws	30	feet high	... £4 10
No. 2	"	15	"	"	45	"	... 5 10
No. 3	"	28	"	"	45	"	... 6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds	8	gallons,	throws	25	feet high	... £2 15
No. 13	"	12	"	"	30	"	... 3 5
No. 11	"	16	"	"	40	"	... 4 0
No. 12	"	24	"	"	45	"	... 5 0
No. 14	"	30	"	"	45	"	... 5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

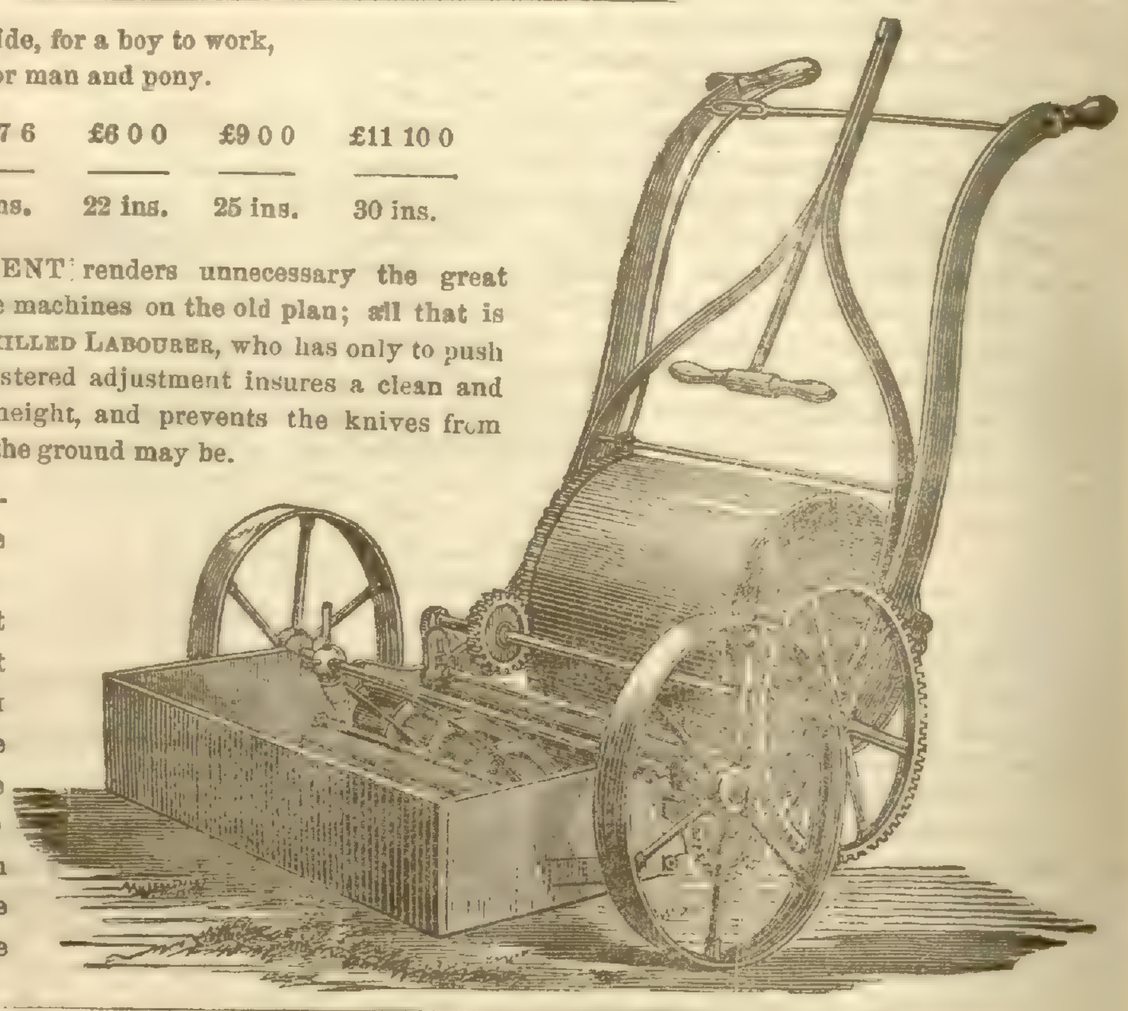
REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 10	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled Labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

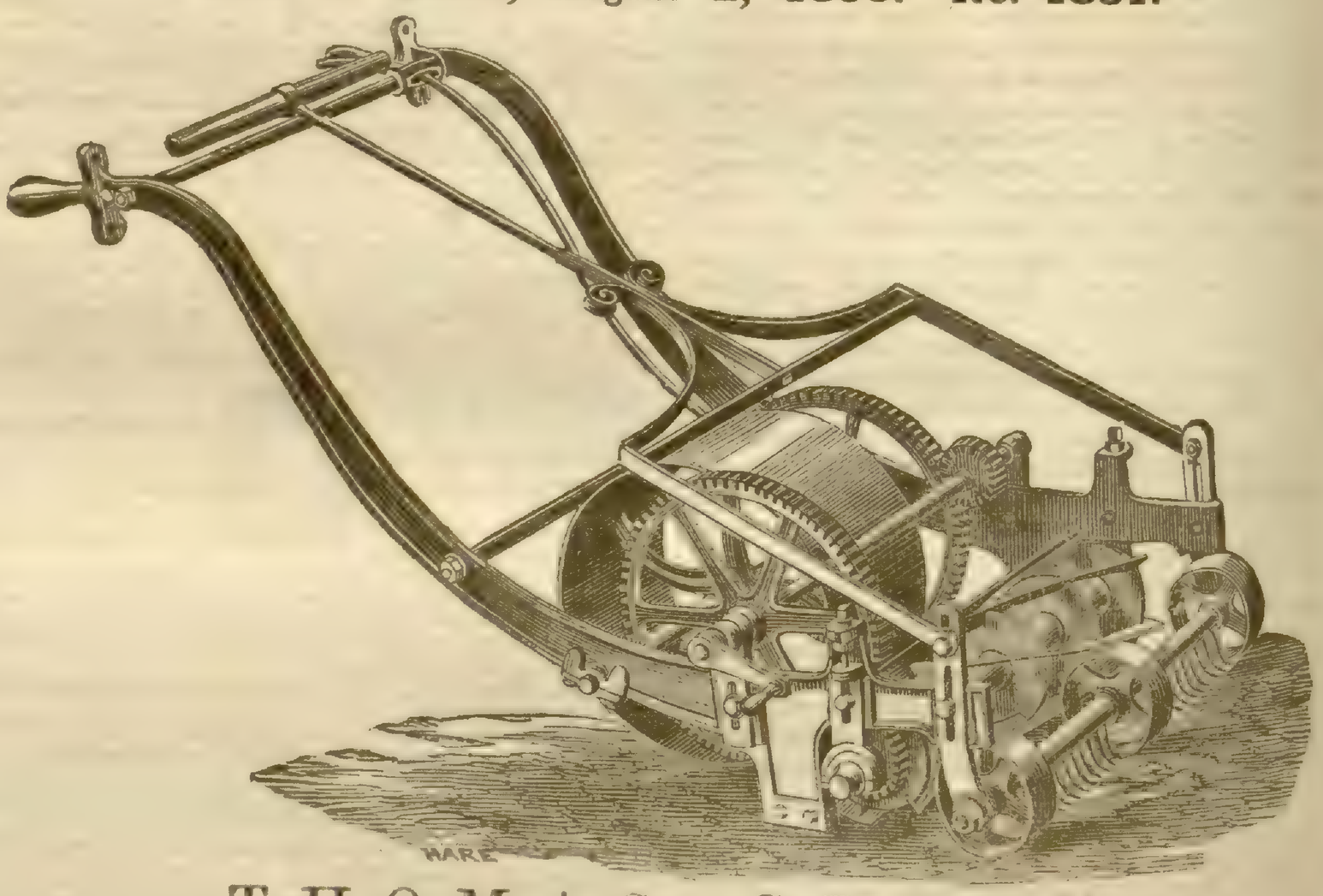
The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

BY ROYAL LETTERS PATENT.

Green's Patent Pony and Hand Grass-Cutting Machines.

Date of Patent, August 2, 1856. No. 1831.



THOMAS GREEN,

PATENTEE AND SOLE MANUFACTURER, LEEDS, YORKSHIRE.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Price Lists and Testimonials may be had on application to the Works; also Mr. Charles Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham, where the Machines may be seen, and every information obtained.

Testimonial from J. Major, Esq., *Landscape Gardener, Knostrop, Leeds.*

"Sir,—When your improved Mowing Machine was first sent for my inspection some time ago, I thought no room was left for improvement except a contrivance for all the wheels to be made to work within the frame of the Machine so as to prevent the plants near the edges of the Grass from being caught and injured in the operation of mowing. This defect I am glad to find completely remedied in the Machine now sent for trial. It seems to possess all that is requisite, and the Rake you have just added appears to have given it the finishing stroke, as it raises the Grass when too low, and frees it from all obstructions. It is a complete *multum in parvo*. It is at once neat, simple, and very efficacious in its operations, and my opinion is that your present Machine as far surpasses your former one, as the former did all previous inventions. I may further add that I think you have done an important thing in varying the sizes of the Machine according to its requirements. The smallest sizes are best adapted for town gardens, and for cutting amongst crowded flower beds and intricate places. The intermediate ones, say 16 or 18 inches, are most suitable for amateurs generally, and gardeners in single-handed places. Your adaptations of the Mower, to work either by pushing or drawing, is well adapted for intricate places; and drawing being the easiest mode of working the machine, is the most suitable for open or large expanses of lawn. It affords me great pleasure in again having to give my testimony to so important and valuable an improvement, which I have no doubt the gardening world will fully appreciate.

"I am, Sir, yours very respectfully,

"Joshua Major.

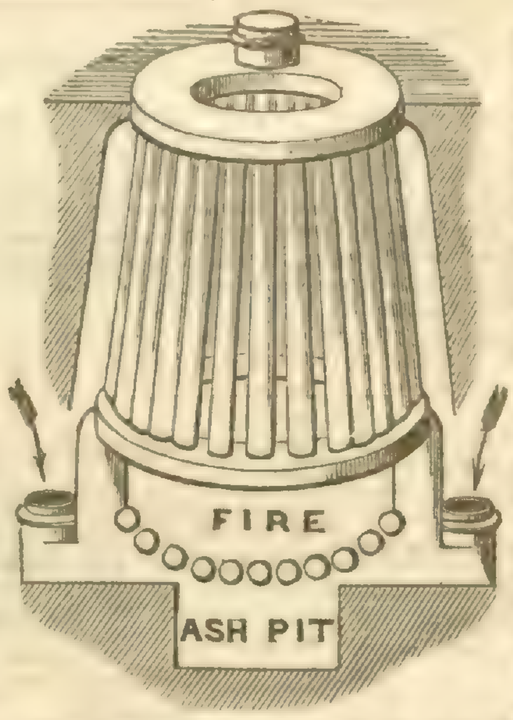
"Mr. Green."

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measure 5 ft. 6 ins. high by 3 ft. 6 ins. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

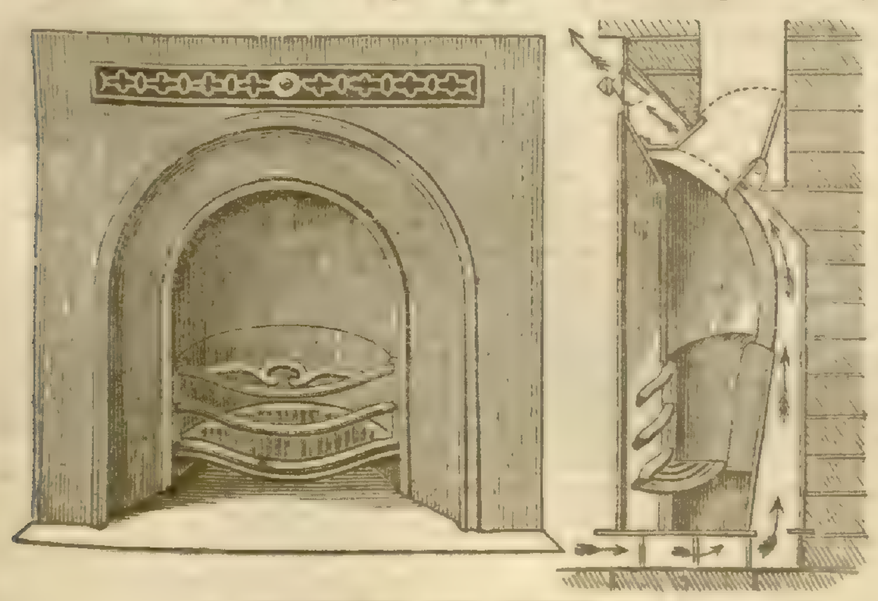
ORNAMENTAL GARDENING.

Large GROUND BASINS suitable for extensive Gardens.
VASES of every variety.
MIGNONETTE BOXES.
SUN-DIALS.
STATUES after Ancient and Modern Masters, as well as Original GROUPS of FIGURES.
Great variety of ANIMALS FOUNTAINS, and FOUNTAIN FIGURES of all sizes.
ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.

AUSTIN & SEELEY'S,
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

VENTILATION IS ESSENTIAL TO **HEALTH,** AND NO SYSTEM OF **WARMING** SHOULD BE TOLERATED WHICH FAILS TO AFFORD A FREE SUPPLY OF FRESH AIR TO, AND THE WITHDRAWAL OF VITIATED AIR FROM, **EACH** AND **EVERY** INHABITED APARTMENT.

IT is proposed to carry out this principle, in the most simple manner, in all ordinary rooms, by the agency of the



ELEVATION AND SECTION.

HYGIASTIC FIRE-GRATE, which PROMOTES VENTILATION by a continuous supply of fresh air, moderately warmed, in contact with fire-brick surfaces, and is at once the most economic and effective Grate known.

THE SMOKE-FLUE VENTILATOR effectually withdraws the vitiated air of a room, without risk of return-smoke, as with ordinary chimney-valves.

*** Both to be seen in daily use, and Prospectus of their advantages to be obtained, at

BOYD & CHAPMAN'S,
78, WELBECK STREET, LONDON, W.
Established 1776.

HURD AND VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials, for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES, IRON MERCHANT, has always a great variety of Cylindrical and Saddle Boilers in Stock, Hot-water Pipes, Elbows, Tees, Syphons, Throttle-Valves, Stop-Cocks, Coil-Pipes, and Boxes, Trough Pipes, Fire and Furnace Bars, Double Doors and Frames, and Soot Doors. Drawings and prices of the above, or estimates given for the Apparatus fixed complete, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, London, near the Southwark Iron Bridge.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public.

Full particulars with illustrations and prices forwarded on application.

OXLEY AND CO.'S ASBESTOS FILTER, enlarged, price 35s. each; small size, 17s. 6d. Twenty gallons of pure water per diem. All mineral and noxious matters entirely separated by this process.—TAYLOR & PEARS, 8, George Yard, Lombard Street, London.

SMITH'S PATENT ECONOMICAL HOT-WATER APPARATUS, with 40 feet of pipe attached from 6*l.* warranted. Sixpenny worth of fuel for 24 hours will go 12 hours without attention. To be seen in operation Greenhouses fixed complete, from 1*s.* per foot. Greenhouse Lights and Window Sashes from 6*d.* per foot.—Address to Mr. SMITH, Greenhouse and Hot-Water Apparatus Manufacturer, 8, Queen's Row, Pentonville Hill, London.

[TESTIMONIAL.] "Hounslow, Feb. 24, 1857.

"Mr. Douglas feels perfectly satisfied with the Hot-Water Apparatus and Boiler, fitted by Mr. Smith, of Pentonville. Some few weeks since there were 60 feet of pipe attached, 4-inch, and the time occupied was one day and a half in doing. There has not been any leakage or failure, and the circulation of hot water is quicker than usual. Strawberries and Roses are in blossom under its influence, and Cucumbers in a very flourishing condition. Mr. Douglas last year employed a person in Thames Street to heat a large greenhouse with hot-water pipe, and was annoyed by workmen on the premises for three months, who, after having burst two saddle boilers, and unfixed the boilers nine times, finally removed all the *débris* to London, as they could not get circulation, or raise the temperature above 50°, whereas, in the small hothouse heated by Mr. Smith, Mr. Douglas's gardener can raise the temperature above 80° at night, if required, which has, of course, only been an experiment. Mr. Smith is quite at liberty to bring any party to see Mr. Douglas's apparatus, which is more effectual than the one exhibited at Pentonville."

GLENFIELD PATENT STARCH USED IN THE ROYAL LAUNDRY, AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS to be THE FINEST STARCH SHE EVER USED. Sold by all Chandlers, Grocers, &c., &c.

MARKET GROUND, FULHAM.

TO BE LET, close to the Brompton Cemetery, 6 or 12 acres of first-rate Land, well stocked with Fruit Trees, for a term of years.—For particulars apply to Mr. HAMILTON, Fruiterer, Hammersmith Gate.

TO BE LET, with immediate possession.—To any one wishing to engage in the Fruit Trade an excellent opportunity now offers. About 6 Acres of Ground half under crop.—Apply A. B., 2, Curles Cottages, New Road, Hammersmith, W.

KINGSOMBOURNE, HANTS.

A GENTEEL RESIDENCE, of comfortable size, with a Walled-in Garden and requisite appointments. Also a Grocery and Provision, Corn and Coal Trade, and a Brewery thereto attached; Barn-yard and Piggeries, and closely attached are 15 acres of superior dry Pasture and Arable Land of excellent quality. The same is offered to be Let, either per annum or for a term, as may be agreed upon. Possession may be had so soon as arrangements can be made, upon the tenant paying for preparations, &c.—To treat and view, apply to Mr. THOS. MORGAN, the proprietor; or to Mr. GEO. JENVEY, Land, House, and Estate Agent, Romsey.

CAPTAIN HORNBY can supply EGGS during the Season from the Spanish, Dorking, and Game Birds with which he has taken prizes at Wellington, Windsor, Bristol, Prescot, Chelmsford, Anerley, Wigan, Runcorn, Birmingham, Preston, Liverpool, and Kendal. The Dorking Eggs from the parents of chickens which won both Silver Cups at Preston, and the Ten Guinea Cup at Liverpool, beating the adult birds.—Knowsley Cottage, Prescot.

TO FOWL FANCIERS.

EGGS FOR HATCHING during the season, from pure bred and first-rate White-faced Spanish and Cochins.—Apply to J. C. DOWSING, the Retreat, Gorleston, Yarmouth.

WHITE-FACED SPANISH EGGS.

MR. JOHN RODBARD, of Aldwick Court, Langford, near Bristol, having taken prizes with his Spanish Fowls in 1856, and the present year at Birmingham, Bridgenorth, Crewe, Southwell, Gloucester, Hereford, Fareham, Dorchester, Bath, and West of England at Yeovil, Bridgewater, Exeter, and Spanish Cup at Central Nottingham, has Eggs to part with from Prize Stock, at 1*l.* 1*s.* per dozen; Buff, White, and Partridge Cochin China, Black Breasted Red and Duckwing Game, at 6*s.* per dozen, all from Prize Stock; 1*s.* per box.—Post-office Orders to be made payable at Wrington.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, April 16, at 12 o'Clock, a first-class collection of Carnations, Picotees, and Pinks; also fine American Plants and Ornamental Shrubs; Standard and Dwarf Roses, choice Fuchsias, Verbenas, Dahlias in dry roots, fine Azalea indica Geraniums, Acacias, Roses and other Plants in bloom, with a choice and useful assortment for bedding.—On view the morning of Sale; Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

COVENTRY.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction on the premises, Warwick Road, Coventry, on MONDAY, April 27, and following day, at 11 o'Clock each day, by order of Mr. Ogden, about 10,000 GREENHOUSE, STOVE, BEDDING, and other PLANTS, including 2000 fine Show and Scarlet Geraniums, Azalea indica, Cactus, Ericas, Myrtles, Cinerarias, &c., Choice Verbenas, Fuchsias, Calceolarias, Heliotropes, Petunias, Mesembryanthemums; a collection of 1500 Rock Plants, with a quantity of Lilium lancifolium album, &c.—May be viewed three days prior to the sale. Catalogues may be had on the premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

ISLE OF MAN.

54 ACRES OF LAND, WITH HOUSE AND BUILDINGS.

MESSRS. THOMAS WINSTANLEY AND SONS have been instructed to Sell by Auction, if not previously Sold for 600*l.*, of which due notice will be given, on WEDNESDAY, April 22, after the Sale of Greeba Castle, at 2 o'Clock, on the premises, Monte Video, behind Greeba Mill, and about 10 minutes' walk from Greeba Castle, that capital Freehold Estate, called "MONTE VIDEO," half-way between Douglas and Peel, up Greeba Mill Road, and commanding extensive and varied views. It comprises 20 Acres of Land, nearly square, divided into six Fields, with House, Garden, and Out-offices in the centre; a Field of 12 Acres joining, called the Park, with a stream of spring water sufficient to turn a Mill in winter, and runs up to the mountain, where persons turn Sheep and Cattle to graze free; and an Intack of 22 Acres, about half-a-mile distant, but not yet enclosed. The Land is in a rich state of cultivation, and all in Grass, except 3¼ Acres, well watered, dry, and sheltered from the north winds by Greeba Mountain. Immediate possession will be given. This most desirable property is within 12 hours' journey from London, six of Liverpool, Dublin, or Scotland, and seven from Manchester, and half an hour from Douglas or Peel, from which two Coaches pass and re-pass Greeba Mill Road daily. The island is noted for its delightful Sea Bathing, Salubrity and Healthfulness, and is almost Free from Taxation. There is good Shooting and Fishing.—For further particulars apply to the Owner, W. BANNING, 33, Park Lane; or to the Auctioneers, Church Street, Liverpool.

JOHN WEEKS and CO., King's Road, Chelsea, invite inspection of their Stock of CULINARY, AGRICULTURAL and FLOWER SEEDS, the genuine produce of eminent growers, every article being true to name, and of the first quality.

Their unrivalled selections of ASTERS, STOCKS, LARKSPURS, WALLFLOWERS, and ZINNIAS are the result of the superior system of culture adopted at their establishment in Germany, and respectively comprise the cream of the various continental collections, as well as those of this country.

NEW VARIEGATED PETUNIA.

WILLIAM CUTBUSH and SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s.* 6*d.* each. Usual discount to the Trade.

They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.

Highgate Nurseries, London, N.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application

American Nursery, Windlesham, near Bagshot, Surrey. 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants, with trusses of bloom, will bear a good crop this year. Price 40*s.* per 100 or 6*s.* per dozen. They will be sent with balls of earth to each, and plants over to compensate for distant carriage. Also all other Strawberries that have been proved worth cultivation, and will produce a good crop this season. Price 10*s.* per 100.—Apply to R. S. Yates, St. Ann's Square, Manchester. April 11.

NOTICE OF REMOVAL.

NUTTING and SONS, Seedsmen, have removed from Cheapside to their Warehouse at Paul's Wharf, 26½, Upper Thames Street, until Michaelmas, where they request the favour of all communications to be made.

Perennial Rye Grasses, and English and Foreign Italian do. Samples to the trade.

Long Red, Red Globe, Fine Long Yellow, and Yellow Globe Mangel Wurzel; Altringham, White Belgian, and Early Red Middle Carrot; with other Farm Seeds, and every variety for the Kitchen and Flower Garden worthy of cultivation.

CESTRUM NOCTURNUM var. ODORATISSIMUM.—This powerfully fragrant plant was received from Mexico, and promises to be a most useful one for Conservatories. It flowers freely from August to November, but as it forces well, it may be bloomed at an earlier season. The flowers are a light straw colour, very abundant, and of powerful fragrance (combining that of the Vanilla and White Clover). Good Plants are now ready at 10*s.* 6*d.* each with the usual allowance to the trade when three are taken. N.B. The stock is limited.

Osborn & Sons, Fulham, near London, S.W., Sole Agents.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in announcing that the stock of the above new and beautiful VERBENA, which has been extensively grown as a bedding plant for the last two seasons at various places in England and Scotland, and in all cases has been proved far in advance of any variety in cultivation, has been entrusted to him for distribution by its raiser, Mr. David Thompson, gr. to Captain Trotter, Dyrham Park, Barnet, Herts. In habit it resembles old Array; its trusses of flower are larger than Robinson's Defiance; colour brilliant scarlet, and a most profuse bloomer. Full particulars as to price and time of sending out will be published next week.

Paradise Nursery, Holloway, April 11.

AZALEA PETUNIÆFLORA.

MR. EPPS was truly surprised to see Mr. L. V. Houtte's unjustifiable remarks in his advertisement of the last two weeks respecting the purchase of a portion of the Stock of Azalea "Petuniæflora." Mr. E. immediately wrote to Mr. V. H. for an explanation, and the following reply is sent through a third party, namely:—"That Mr. V. Houtte is sorry that he has been incorrectly informed as to the facts of the matter in question, and has requested the advertisement to be withdrawn." This reply or apology is not so gentlemanly or candid as the truth of the case merits; but Mr. E. hopes sufficiently so to remove any question as to the honourable and tradesmanlike manner in which he came into possession of the Stock, of which he has now upwards of 100 young worked plants to offer by the dozen or otherwise.—Maidstone, April 11.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesnera zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30*s.* the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.—Ghent, Belgium. April 11.

WELLINGTONIA GIGANTEA,
The Giant Tree of California.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

BRITISH FLAG GERANIUM.

GEORGE PARSONS, Florist and Seedsman to the Queen, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plants 7*s.* 6*d.* each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

ASPARAGUS AND SEAKALE.—Having a very large stock of Asparagus and Seakale, we can supply almost any quantity at the following prices:—

	Per 100.—*s.*	*d.*
FINE SEAKALE ROOTS ...	8	0
STRONG ...	12	0
LARGE CROWNS ...	20	0
JUDD'S GIANT ASPARAGUS, 2 years	3	0
Do. Do. 3 years	4	0

Much lower by the thousand.

We have at least 500,000 strong Roots of Seakale and Asparagus so that we can supply all orders with fine strong Roots.

William E. Rendle & Co., Seed Merchants, Plymouth.

FLOWER SEEDS AND PLANTS.

CAREY TYSO, Florist, Wallingford, Berks, begs to offer choice assortments of GERMAN FLOWER SEEDS, comprising Asters, Stocks, Balsams, Pinks, Poppies, Wallflowers, Zinnias, &c., at 1*s.* and 2*s.* 6*d.* per assortment, postage free.

ANNUALS.—25 hardy varieties, 5*s.*

A large collection of the most popular BEDDING PLANTS, at 3*s.* 6*d.* to 7*s.* per dozen.

GENERAL ROOT AND SEED CATALOGUE sent free for one label.

ROSES IN POTS FOR BEDDING.
By the Hundred or by the Thousand.

WM. WOOD and SON beg to intimate that the present season during these warm growing showers is very eligible for planting out dwarf Roses in beds, and refer with pleasure to their overwhelming stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per doz.—*s.*	*s.*		Per doz.—*s.*	*s.*
Hybrid Perpetuals ...	12 to	18	Tea-scented	15	
Bourbons	12 —	18	Noisette	9 to	12
China	9 —	12	Banksian	15	

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES.

EDWIN HOLLAMBY begs to offer the following NEW ROSES well established in 48-pots:—

Hybrid Perpetuals. Each—	*s.*	*d.*		Each.—	*s.*	*d.*
Aglae Adanson	3	6	Reveil		3	6
Belle Anglaise	5	0	Sophie Coquerel... ...		3	6
Etendard de Sebastopol	7	6	Noisette.			
Helen (Paul's)	5	0	Madame Schulz		7	6
Laura Bregeon	3	6	Bourbon.			
Madame Schmidt ...	5	0	Marquise de Balbiano ...		3	6
Madame Hieraud ...	7	6	Impératrice Eugenie ...		3	6

A Descriptive Catalogue of Roses may be had.

Strawberry Hill Nurseries, Brighton Road; Seed Shop, opposite Post Office, Parade.—Tunbridge Wells, April 11.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to offer the following set of 20 extra fine show varieties, in strong well rooted autumn-struck Plants at 12*s.* the set, hamper, package, &c., in luded:—

Argo, Paton & Small's	Mrs. Hampton, Hampton's
Beauty, Downie & Laird's	Mrs. Dodwell, Fisher's
Duke of Newcastle, Turner's	Mesmerist, Veitch's
Earl of Cardigan, Holland's	Miss Talbot, Dickson & Co.'s
Emperor, Hale's	Memnon, Turner's
Etta, Middlemas's [Laird's	Medora, Downie & Laird's
Fanny Kemble, Downie &	Nonpareil, Dickson & Co.'s
Golden Drop, Chadwick's	Ondine, Oswald's
Great Western, Hooper's	Sir John Cathcart, Turner's
Jeannie, Downie & Laird's	Yellow Climax, Paton & Small's

J. Holland can confidently recommend the above as being flowers of first-class merit. Older kinds, such as Nonsuch, Satisfaction, Fearless, Duke of Perth, Wonderful, &c., 4*s.* per dozen. A few packets of very choice Pansy Seeds, at 1*s.* and 2*s.* per packet. Priced and Descriptive Catalogues now ready, and will be forwarded on application.—Post-office Orders payable at Middleton, Lancashire.

HOLLYHOCKS.

A. PAUL and SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants in perfect health as follows:—

Very superior show varieties ...	42*s.* to 60*s.* per doz.
Superior do. do.	24*s.* „ 36*s.* „
Good named sorts	12*s.* „ 18*s.* „

Bloomed Seedlings in separate colours, 30*s.*, 45*s.*, and 63*s.* per 100. These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers: they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21*s.* per 100.

For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet according to quality.—Nurseries, Cheshunt, Herts.

SPLENDID SEEDLING CALCEOLARIA.

WILLIAM BARNES has much pleasure in informing his friends and patrons that he has still a few dozens of his unrivalled CALCEOLARIAS in extra strong plants now ready for shifting into their blooming pots.

The Seed has been carefully hybridised with the finest shaped flowers and the most beautiful markings, and cannot fail to produce bloom of the first quality. Price 5*s.* per dozen.

Camden Nursery, Camberwell.

NEW VERBENAS of 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, La Stella, Mrs. A. Clive, Eugénie, Victory, Viscountess Emlyn, imperialis, Imperatrice Elizabeth, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Purity, Crimson Perfection, Lady Kerrison, Nosegay, Criterion, delicata, King of Sardinia, Tranby, Lord Raglan, Sir C. Campbell, Dandy, Dr. Maclean, Cedo Nulli, General Pelissier. Fine Plants of the above, free by post, 4*s.* per dozen. Also Petunia Rose of England, 5*s.* each, or three plants for two ordered.

Henry May, the Hope Nurseries, Bedale, Yorkshire.

NEW SCARLET GERANIUM, "RICHMOND GEM."

FRANCIS R. KINGHORN will send out this fine variety this month. The flowers are light orange scarlet, very large trusses, wood and stalks nearly white, fine foliage in the way of General Pelissier, rather stronger grower, will make the best bedder of all the coral-stalked kinds. See "Cottage Gardener," page 381. Was much admired and received a prize at the Crystal Palace Show in June. Price 7*s.* 6*d.* each; when three are ordered four will be sent. The usual discount to the trade.

In answer to many inquiries F. R. K. regrets to state that he will not be prepared to send out "Prim" at the same time.

Nursery, Richmond, Surrey.—April 11.

MR. J. LINDEN'S CATALOGUE OF NEW PLANTS, containing the most remarkable novelties in Stove and Greenhouse, Ornamental and Variegated Foliaged Plants, Orchids, Herbaceous and Tree Ferns, Palms, Bromeliads, and Marantas, &c., is now ready, and will be sent post free on application.—Agent in London, Mr. R. Silberrad; and at Brussels, Zoological Gardens.—April 11.

N.B. Orders for the splendid novelties Gesneria cinnabarina, Tapina splendens, and Monochætum ensiferum have to be directed to Messrs. E. G. Henderson & Son, Wellington Nursery, who are in possession of the stocks of these three fine plants.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. Wheeler & Son, *Seed Growers, Gloucester.*

FLOWER SEEDS OF FIRST-RATE QUALITY.

BASS and BROWN'S best assorted COLLECTIONS OF FLOWER SEEDS are very select, and as reasonable in charge as any which can be procured, containing a large number of the most attractive novelties of the season.

The IMPORTED STOCKS, ASTERS, &c., which they continue annually to receive direct from the same continental growers, are distinguished for their excellent quality, and have elicited the warmest commendation from those who have been supplied. Catalogues on application.

Bass & Brown, Sudbury, Suffolk.

VAN HOUTTE'S NEW ACHIMENES.—Subscribers in England:—

Messrs. Hugh Low & Co.	Messrs. Osborn & Sons
„ R. Glendinning	„ W. Epps
„ James Veitch, Jun.	„ Weeks & Co.
„ Wm. Rollisson & Sons	„ J. Backhouse & Co.
„ Thomas Jackson & Son	„ Robt. Miller
„ A. Henderson & Co.	„ Walters & Daniel
	„ H. Lane & Son

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform amateurs and the Trade, that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be obtained on application at Mr. Silberrad's, 5, Harp Lane, Tower Street, London.

N.B. A few dozen of Plants may still be had of his fine Azalea Eulalie Van Geert, at 5*s.* each.

Wellingtonia gigantea, per hundred seeds	... ...	... 21*s.*
Sequoia nova sp.	ditto	... 18*s.*
Libocedrus Craigiana	ditto	... 21*s.*

CAMELLIAS.—A Collection of 100 fine distinct varieties, good healthy plants about 1 foot high, for 5*l.*

BEDDING PLANTS AND CHOICE FLOWER GARDEN NOVELTIES, at 2*s.* 6*d.* per dozen, in 3-inch pots, fine plants. A descriptive Catalogue of 18 pages, containing upwards of a thousand sorts, will be sent on application, inclosing two penny stamps, to J. Scott, Merriott Nurseries, Crewkerne, Somerset.

The following is an example of the cheapness of these plants: 12 Calceolarias, 12 Dahlias, 12 Geraniums, 12 Heliotropes, 12 Fuchsias, 12 Petunias, 12 Verbenas, and 12 Salvia and Cuphea, for 20*s.*, and plants added to help to pay for carriage. Basket and packing at the expense of purchaser.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, April 11.

CATALOGUE.

BASS and BROWN'S No. V. CATALOGUE is just published, containing their superb collection of Achimenes and Gloxinias, and Plants for summer Bedding.

Complete Catalogues for the season Nos. I., II., III., IV., and V., supplied on application.

NOTICE.

WHEELER'S LITTLE BOOK.—The demand has been so unusually large, that our edition for the Spring 1857 is now exhausted; but our List of "Seeds for the Farm" may still be had gratis on application.

J. C. Wheeler & Son, Seed Growers, Gloucester.

FARM DIRECTORY—CALENDAR OF OPERATIONS FOR EVERY MONTH IN THE YEAR. By J. C. Morton, Esq. See Rendle's Agricultural Price Current and Farm Directory for 1857.

Simpkin, Marshall, & Co., London.

SUPERPHOSPHATE OF LIME.—A valuable Paper, written by John Bennet Lawes, Esq., on Superphosphate of Lime, will be found in Rendle's Agricultural Price Current and Farm Directory for 1857.

Simpkin, Marshall, & Co., London.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1857, Edited by John C. Morton, Esq., Editor of the *Agricultural Gazette*, the Cyclopædia of Agriculture, Morton's Almanack, and several other popular Works.

Rendle's Agricultural Price Current and Farm Directory for 1857 is now published, and can be obtained from any Bookseller in town or country, through the London Publishers, Messrs. Simpkin, Marshall & Co., 4, Stationers' Court; or from Messrs. William E. Rendle & Co., the Proprietors, Seed Merchants, Plymouth, price 1*s.*

The present Edition is printed octavo size, contains 112 pages of closely printed matter, and will be found to be equal, if not superior, to former Editions. A Bound Edition can also be obtained, price 1*s.* 6*d.* For the Contents of the present Edition, see *Gardeners' Chronicle* for February 21.

William E. Rendle & Co., Seed Merchants, Plymouth.

AGRICULTURAL HISTORY OF THE YEAR 1856. By J. C. Morton, Esq., Editor of the *Agricultural Gazette* Encyclopædia of Agriculture, and other important Works.

See Rendle's Agricultural Price Current and Farm Directory for 1857.

Part I. THE RELATIONSHIP OF LANDLORD AND TENANT.
Part II. THE RELATIONSHIP OF MASTER & TENANT.
Part III. AGRICULTURAL MACHINES.
Part IV. CULTIVATION OF THE SOIL—TILLAGE—MANURES.
Part V. THE CULTIVATION OF PLANTS.
Part VI. LIVE STOCK AND THEIR PRODUCE.
Part VII., and Last.—Lectures by Mr. Wren Hoskyns on RECENT AGRICULTURAL HISTORY; and by Mr. Chadwick on the Labourer and Agricultural Progress Generally.

Copies can be obtained from any Bookseller; through Messrs. Simpkin & Marshall; or from the Proprietors, Wm. E. Rendle & Co., Foreign and Export Seed Merchants, Plymouth, price 1*s.* Bound Edition, 1*s.* 6*d.*

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 16.—1857.] SATURDAY, APRIL 18. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, Regent's Park.—The EXHIBITIONS of PLANTS, FLOWERS, and FRUIT this season will be held on WEDNESDAY, May 20; THURSDAY, June 18; and WEDNESDAY, July 1. Tickets of Admission may be obtained at the Gardens only by orders from Fellows or Members of the Society. Price, on or before Saturday, May 9, 4*s*.; after that day, 5*s*.; and on the days of Exhibition, 7*s*. 6*d*. each. A new arrangement of the Fruit will be adopted.

THE STOKE NEWINGTON FLORICULTURAL SOCIETY'S DAHLIA, ASTER, HOLLYHOCK, and MISCELLANEOUS EXHIBITION will be held at the Manor Rooms, Church Street, Stoke Newington, on WEDNESDAY, September 2. Arthur Wortley, Hon. Sec.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 ... Exhibition of Plants, Flowers, Fruits, &c.
„ 29, 30 ... „ Tulips (adjourned from the Crystal Palace)
May and June „ American Plants
June 24, 25 ... „ Plants, Flowers, Fruits, &c.
Aug. 19, 20 ... „ Carnations and Picotees
„ 26, 27 ... „ Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order.) John Shaw, Secretary.

NATIONAL FLORICULTURAL SOCIETY.

WM. CUTBUSH and SON, of the Highgate Nurseries, will EXHIBIT a COLLECTION of CUT BLOOMS of HYACINTHS on the 23d inst. at St. Martin's Hall.—Admission free on application to them.

DISSOLUTION OF THE FIRM OF STANDISH AND NOBLE.—Every department of the Nursery Business, so long and favourably patronised under the late Firm, is now conducted by Charles Noble, to whom all communications should be addressed.—The Nursery, Bagshot, April 18.

RENDLE'S AGRICULTURAL PRICE CURRENT AND FARM DIRECTORY FOR 1857. Edited by J. C. Morton, Esq., can now be had through any Bookseller, or from Messrs. William E. Rendle & Co., Foreign and Export Seed Merchants, Plymouth.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
Bass & Brown, Seed Growers, Sudbury, Suffolk.

MESSRS. J. and H. BROWN inform the Nobility, Gentry, and Gardeners that their NEW CATALOGUE of ORCHIDEA, STOVE and GREENHOUSE PLANTS, ROSES, GERANIUMS, FUCHSIAS, AMERICAN PLANTS, CONIFERÆ, FRUIT TREES, &c., can be had by post.
Conservatories and Gardens furnished by Contract.
Albion Nursery, Stoke Newington, London.—April 18.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS, can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state his Priced CATALOGUE of GENERAL NURSERY STOCK can be had free on application.—Woking Nursery, Woking, Surrey.

F. GILL'S DESCRIPTIVE AND PRICED LIST OF FUCHSIAS, PLANTS AND CUTTINGS (now ready), and will be sent, post free, on application.—Francis Gill, Florist, Tattenhall, near Chester.

SHAW AND CROSLAND'S CATALOGUE OF DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, AND MISCELLANEOUS PLANTS FOR 1857 are now ready, and may be had free on application.
Richmond Nursery, near Sheffield, April 18.

SEEDS.—Butler & M'Culloch's DESCRIPTIVE CATALOGUE OF VEGETABLE AND FLOWER SEEDS, with valuable Treatises on their Culture, intended to assist Amateurs in selecting their Seeds and Cultivating their own Gardens. To be had on application, or free by post.
Butler & M'Culloch, Seedsmen, South Row, or Strand Side, opposite Southampton Street, Covent Garden Market, London.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT & FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.
Hedenham Rosary, Bungay, Suffolk, April 18.

JOHN WEEKS AND CO. beg to announce that they can supply to any extent well established Bedding Plants of all the leading kinds of GERANIUMS, FUCHSIAS, VERBENAS, CALCEOLARIAS, DAHLIAS, HOLLYHOCKS, LOBELIAS, &c., for all of which they solicit the favour of early orders.—The Nursery, King's Road, Chelsea.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.
Wood & Ingram, Nurseries, Huntingdon.

HART AND NICKLIN, Florists, Guildford, offer the undernamed set of Pansies for 12*s*., hamper included:—Duke of Newcastle, Nonpareil, Monarch, Pandora, Yellow Climax, Great Western, Memnon, Lord J. Russell, Emperor, Royal White, Sovereign, Apheus, Blanche, Lady Carrington, Satisfaction, C. Cowan, Sultan, Ringlet, C. Turner, Juventa, &c.

COLDEN CHAIN GERANIUMS, &c.

WILLIAM HUSSEY begs to offer the above fine strong plants at 6*s*. per dozen. Also FLOWER OF THE DAY, and MOUNTAIN OF LIGHT, at 4*s*. per dozen.
Horticultural Gardens, Norwich.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—To be had of Thos. Perry, Nurseryman, &c., Banbury.

INDIAN AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer most of the popular sorts of Indian Azaleas, in large quantities, at 12*s*., 15*s*. or 18*s*. per dozen.

AZALEA "PETUNIÆFLORA."

W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5*s*. each; all the new Azaleas of last year, from 30*s*. to 60*s*. per dozen.—Maidstone, April 18.

AZALEAS SET WITH FLOWER.

W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.
Maidstone, April 18.

AZALEA INDICA.

J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & Son beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21*s*. each.—Nurseries, Dorking, Surrey.

AZALEAS, 25 new hardy Ghent varieties, one of a sort, by name ... ... 20*s*. 0*d*.
Azaleas, hardy American scarlet, fine, per dozen ... 10 0
Hardy Heaths, Kalmias, and Ledums, per dozen ... 6 0
12 Rhododendrons, including scarlet, white, and rose, hardy 12 0
Hardy Scarlet Rhododendrons, 2 feet, per dozen ... 15 0
New yellow Rhododendrons, each 7 6
Messrs. J. & H. Brown, Albion Nursery, Stoke Newington, London, N., April 18.

MEDINELLA MAGNIFICA.

JOHN AND CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.
Nursery, Hammersmith.

IMPORTED GERMAN TEN WEEK STOCKS.

E. P. DIXON has a few Collections left of the above, which cannot be surpassed:—
18 most distinct varieties ... ... 5*s*.
12 „ „ ... ... 3*s*.
Splendid mixed, 1*s*. to 1*s*. 6*d*. per packet. Sent post free.
57, Queen Street, Hull.

GRAPE VINES FROM EYES.

R. GLENDINNING has still a few good strong plants to dispose of of the following kinds:—

Black Hamburgh.	Rivas's Muscadine.
The Pope's do.	Chasselas Musqué.
Victoria do.	Welbeck Tripoli.

Raisin de Calabre.
R. Glendinning, Chiswick Nursery, London, W.

AUTUMN BEDDED CABBAGE PLANTS.

JOHN CATTELL can supply good plants of his superior early sorts, Barnes, Reliance, &c., and of the Drumhead or Cattle Cabbage and Savoys at 6*s*. per 1000. Plants from the autumn sown seed beds of the above, 4*s*. 6*d*. per 1000. Red Cabbage, 1*s*. per 100, 8*s*. per 1000, package included in the above prices. Orders for 5000 and upwards will be delivered Carriage free to the Borough, London, and to the Edenbridge Station, South Eastern Railway. A remittance must accompany orders from unknown correspondents.
Nurseries, Westerham, Kent.

TRADESCANTIA DISCOLOR VITTATA.

LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. and 35*s*. In London free.—Ghent, Belgium, April 18.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 1*s*. 6*d*. each, or 15*s*. per dozen. In London free until the 30th inst. The trade supplied.—Louis van Houtte, Ghent, Belgium, April 18.

FLOWERING PLANTS.

CHANDLER AND SONS beg to inform their friends and the public that they have now in flower a great variety of plants adapted for the Drawing Room and Conservatory, and also a good collection of Ferns suitable for cases. A large stock of Bedding plants will be ready in May.

Kitchen Garden and Flower Seeds of the best kinds. Nursery, Wandsworth Road, S.

FLOWER SEEDS OF FIRST-RATE QUALITY.

BASS AND BROWN'S best assorted COLLECTIONS OF FLOWER SEEDS are very select, and as reasonable in charge as any which can be procured, containing a large number of the most attractive novelties of the season.

The IMPORTED STOCKS, ASTERS, &c., which they continue annually to receive direct from the same continental growers, are distinguished for their excellent quality, and have elicited the warmest commendation from those who have been supplied. Catalogues on application.
Bass & Brown, Sudbury, Suffolk.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.
Epps's Nurseries, Maidstone.

STRONG Plants of all the New FUCHSIAS of last year, 12*s*. to 18*s*. per dozen; ditto VERBENAS of 1856, 6*s*. to 9*s*. per dozen.—Epps's Nurseries, Maidstone.

TO THE TRADE.—All the leading Fancy and other kinds of PELARGONIUMS, 50*s*. per 100, good plants.
W. J. Epps, Nurseries, Maidstone.

CARNATIONS.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*. packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PICOTEES.—Twenty-five pairs strong well rooted plants and extra fine show varieties, named, 1*l*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PINKS.—Twenty-five pairs, fine named kinds, in strong healthy plants, 10*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.
Post-office Orders payable at Middleton near Manchester.

TO THE TRADE.

STRAWBERRIES.—Underhill's "SIR HARRY," warranted true. Price per 100 or 1000, may be had on application to R. S. Yates, St. Ann's Square, Manchester.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants, with trusses of bloom, will bear a good crop this year. Price 40*s*. per 100 or 6*s*. per dozen. They will be sent with balls of earth to each, and plants over to compensate for distant carriage. Also all other Strawberries that have been proved worth cultivation, and will produce a good crop this season. Price 10*s*. per 100.—Apply to R. S. Yates, St. Ann's Square, Manchester, April 18.

NEW VERBENAS.
NEW SHRUBBY CALCEOLARIAS.
NEW ACHIMENES.

CHARLES TURNER begs to intimate that strong plants of his sets of the above are now ready for delivery, for particulars of which see Catalogue, which can be had on application.—Royal Nursery, Slough.

NEW VARIEGATED PETUNIA.

WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s*. 6*d*. each. Usual discount to the Trade.

They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.
Highgate Nurseries, London, N.

CHRYSANTHEMUM, Dahlia, Daisy, Pink, Geranium, Bedding Verbena, Petunia, Pansy, and all the best Perennial and Annual seeds as good as it is possible to get them. GLENNY'S improved BALSAM—6 classes—37 stamps; mixed, 13. Aster and Stock equally good. G. Glenny, Horticultural Agent, Fulham, S.W.

TRANSPLANTED HOLLIES.—This month being a good time to plant HOLLIES, the Subscribers offer them at 40*s*. per 1000 6 to 9 inches high. Evergreen Privet, 1½ to 2 feet, 30*s*. per 1000; Cedar of Lebanon, strong plants, 1½ to 2 feet, 5*l*.; 2 to 3 feet, 7*l*. per 100. Common Laurels, strong, 1½ to 2 feet, 60*s*. per 1000.—Wm Jackson & Co., Bedale, Yorkshire.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. 2*s*. per lb. To be had of all respectable Seedsmen in the United Kingdom.—J. G. Waite, Seed Merchant, 181, High Holborn, London, W.C.

TO THE LOVERS OF A GOOD RED BEET.

CHARLES DOLTON, Seed Grower, Speenhamland, Newbury, will forward ¼ oz packets of the above by post on receipt of 6 postage stamps. Established 1800.

P.S. The above Beet has been admitted by all that have had it direct from me to be the best in cultivation.

GIANT OR DOUBLE CUT SAINFOIN.

H. RAYNBIRD, of Basingstoke, can offer good and clean Giant or Double-cut SAINFOIN SEED producing two crops in one season; also COMMON SAINFOIN SEED at a reasonable price, either milled or in the husk.

SEED CORN FROM THE CHALK.

TALAVERA and APRIL WHEAT; Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

FLOWER AND GARDEN SEEDS.

MESSRS. E. G. HENDERSON AND SON'S PRICED CATALOGUE of the above, containing all the varieties of the season, will be forwarded post free on application.

New Bedding Annual VERONICA SYRIACA (Coloured Plate 6*d.*), colour blue, lower petals white, 6 to 8 inches in height, compact, and covered with bunches of flower. In packets, 2*s.* 6*d.* each.

MISS ISABELLA GRAY,
(Golden Yellow Tea Rose).

Exhibited at the Meeting of the Horticultural Society in Regent Street, April 7, 1857, by Messrs. Hugh Low & Co., of whom we purchased the entire stock. Mr. Low, jun., met with it while travelling in South Carolina, in the garden of the raiser, Mr. Gray (the raiser also of Cloth of Gold, Noisette), of whom he purchased it. At that time it was covered with flower and exposed to the burning sun without being injured in the slightest degree. The flowers are very large, foliage as fine as any of the Tea Roses in cultivation, a profuse flowerer—one plant now in our possession has more than 40 expanded and other flower-buds; the colour is a golden yellow, not straw, orange, lemon, or canary yellow, as all other Teas and Noisettes are.

From what we can hear there seems to be three Roses claiming this name with some variation, such as Miss Gray, or Miss Julia, Mary or Jane Gray, but what merit these others possess in comparison we are unable to state, but the only one that captivated Mr. Low, jun., is the Miss Isabella Gray, of whose beauty and merits he speaks in such glowing terms as surpassing all others.

A Coloured Plate of the above will be published in May.

NEW FRENCH VERBENAS of 1856.—18 varieties such as surpass most others in cultivation, 42*s.* These have been selected from upwards of 100 new kinds. Besides some fine large-eyed varieties there are striped flowers, and all possess fine habits, extra large trusses, and are well adapted for bedding. Descriptions will be given in the ensuing May Catalogue and a few will be figured.

Eight of the best and most distinct NEW FRENCH PETUNIAS of 1856 can be now had for 15*s.*

TAXODIUM SEMPERVIRENS.—Messrs. E. G. H. & Son have still Seed to offer of the above at 10*s.* 6*d.* per 1000.

BROWN'S FLORAL SHADING is the lightest and best adapted fabric of any in use for protecting fruit and other trees, and can be had at 4*s.* and 4*s.* 3*d.* per piece of 20 yards long.

Wellington Nursery, St. John's Wood, N.W.

HUGH LOW AND Co. offer the under-mentioned :—

Camellias, choice varieties, such as Archduchess Augusta, Leda, Mathottiana, Verschaffelti, Lee Margo, Lowi, Alexina, Innocenza, caryophylloides, Princess Bacciochi, Guthriana, Albertus, &c , in good plants, from 1 to 1½ foot in height, without flower-buds, each, 3*s.* 6*d.* ; per doz , 42*s.*

Do., old varieties, such as fimbriata, imbricata, ochroleuca, Marchioness of Exeter, Teutonia, candidissima, Double White, Francofurtensis, nobilissima, Chandler's elegans, &c., in good plants, without bud, from 1 to 2 feet, per doz., 30*s.*

Azalea indica crispiflora, a fine species, beautifully fringed, nice plants, each, 3*s.* 6*d.*

Do., choice varieties, well set with flower-buds, such as magnificens, Prince Albert, Perryana, &c., from 30*s.* to 42*s.* per doz., according to size.

Ericas, in fine collection, tricolors, ampulaceas, vestitas, ventricosas, favoides elegans, &c., in 48-sized pots, per doz., 30*s.*

Do., half specimens, from 1 to 1½ foot high and as much through, in 8-inch pots, from 5*s.* to 7*s.* 6*d.* each.

Half specimen plants, various, such as Aphelexis, Epacris, &c., at moderate prices.

Lisianthus Russellianus, nice plants, in 60-sized pots, each, 2*s.* 6*d.*

Ferns, a fine collection, both of hardy and exotic, at prices varying from 12*s.* per doz. upwards. Amongst the former are fine plants of Osmunda interrupta, each, 7*s.* 6*d.* ; O. spectabilis, e., 5*s.* ; O. cinnamomea, e., 5*s.* ; Struthiopteris germanica, e., 3*s.* 6*d.* ; Lastræa Filix-Mas. cristata, e., 3*s.* 6*d.* ; Asplenium fontanum, e., 3*s.* 6*d.* ; Polystichum lonchitis, e., 2*s.* 6*d.* , &c. Amongst the Exotic are good plants of Pteris aspericaulis, e., 10*s.* 6*d.* ; Nothoclæna nivea, e., 5*s.* ; Gymnogramma hirta, e., 10*s.* 6*d.* ; G. chrysophylla, e., 5*s.* ; Polystichum falcinellum, e., 5*s.*, &c.

Plants with elegant and variegated foliage:—Begonia splendida, e., 5*s.* ; Sonerilla margaretacea, e., 3*s.* 6*d.* ; Dracæna terminalis, e., 5*s.* ; Jacaranda nova sp., with elegant foliage, e., 7*s.* 6*d.* ; Aphelandra Leopoldi, e., 2*s.* 6*d.* ; Charlwoodia congesta, e., 3*s.* 6*d.* ; Cordyline rubra, e., 3*s.* 6*d.* ; Aralia papyrifera (Rice-paper plant), e., 10*s.* 6*d.* ; A. quinquefolia, e., 5*s.* ; Maranta albo lineata, e., 7*s.* 6*d.* ; M. micans, e., 5*s.*, &c. ; Croton variegatum, e., 2*s.* 6*d.* to 3*s.* 6*d.* ; C. longifolium variegatum, e., 5*s.* ; C. discolor, e., 5*s.*, &c.

Climbers for Conservatories and Hothouses :—Good plants of the following for Conservatories, Zichya inopnylla, e., 3*s.* 6*d.* ; Z. coccinea, e., 3*s.* 6*d.* ; Sollya Drummondi, e., 1*s.* 6*d.* ; S. linearis, e., 1*s.* 6*d.* ; S. heterophylla, e., 1*s.* 6*d.* ; Chorozema spectabilis, fine, e., 2*s.* 6*d.* ; Wistaria sinensis alba, e., 3*s.* 6*d.* ; W. frutescens magnifica, strong, e., 7*s.* 6*d.* ; W. Brachybotrys, e., 3*s.* 6*d.* strong ; Akebia quinata, e., 3*s.* 6*d.* ; Stauntonia latifolia, e., 3*s.* 6*d.* ; Physolobium gracile, e., 2*s.* 6*d.* ; Brachysema Drummondi, e., 2*s.* 6*d* ; B. undulata, e., 1*s.* 6*d.* ; Lardizabala biternata, e., 3*s.* 6*d.* ; Tacsonia pinnatistipulæ, e., 2*s.* 6*d.* ; Clematis indivisa lobata, e., 3*s.* 6*d.* ; C. Amelia, 3*s.* 6*d.* ; C. Louisa, e., 3*s.* 6*d.* ; C. Helena, e., 3*s.* 6*d.* ; C. monstrosa, e., 3*s.* 6*d.* ; C. Sophia, e., 3*s.* 6*d.* ; Passiflora mauritiana, 3*s.* 6*d.* ; P. Bellotti, 2*s.* 6*d.* ; P. malifera, 2*s.* 6*d.* ; P. Cinnabarina, P. Hartwessiana, 1*s.* 6*d.* ; P. Doroschiediana, 1*s.* 6*d* ; Rhyncospermum jasminoides, e., 3*s.* 6*d.* ; Bignonia cherère, 2*s.* 6*d* ; B. Venusta, 2*s.* 6*d.* ; B. picta, 2*s.* 6*d.* ; B. capreolata, 2*s.* 6*d.* ; B. australis, 2*s.* 6*d.* ; Lyonsia straminea, 2*s.* 6*d.* ; Tecoma jasminoides, 1*s.* 6*d.* ; T. fulva, new, 3*s.* 6*d.* ; Jasminum Poiteau, e., 2*s.* 6*d.* ; J. grandiflorum, e., 2*s.* 6*d.* ; J. stellare, e., 2*s.* 6*d.* ; J. gracile, e., 2*s.* 6*d.* ; Tagelia bituminosa, e., 2*s.* 6*d.*

For Stoves and Hothouses :—Ipomœa Horsfalli, 3*s.* 6*d.* ; I. mexicana, 2*s.* 6*d* ; Stephanotus floribunda, e., 1*s.* 6*d.* ; Passiflora princeps, e , 3*s.* 6*d.* ; P. Gontieri, e., 2*s.* 6*d.* ; P. quadrangularis, e., 2*s.* 6*d.* ; P. Decaisneana, e., 2*s.* 6*d.* ; P. alata, 2*s.* 6*d* ; P. amabilis, 2*s* 6*d.* ; P. medusa, 2*s.* 6*d.* ; Allamanda Schotti, e., 2*s.* 6*d.* ; A. neriifolia, e., 1*s.* 6*d.* ; A. aubletia, 2*s* 6*d.* ; A. cathartica, e., 2*s.* 6*d.* ; Hexacentris mysorensis, 2*s.* 6*d.* ; H. m. lutea, e., 2*s.* 6*d.* ; Cissus velutina, e., 3*s.* 6*d.* ; C. discolor, e., 3*s.* 6*d.* ; Stigmaphyllon ciliare, e., 2*s* 6*d.* ; Manettia bicolor, e., 2*s.* 6*d* ; Dipladenia Crassinoda, e., 3*s.* 6*d.* ; D. urophylla, e., 2*s.* 6*d.* ; Hoya imperialis, e., 3*s.* 6*d.*

In Stove Plants, the following:—Ixora Javanica, I. Jav. Rollissoni, I. Lobbi, I. coccinea, I. coccinea superba, I. Banduca, I. aurantiaca, I. crocata, nice healthy plants, at 2*s.* 6*d.* each ; Medinella magnifica, e., 7*s.* 6*d.* ; Meyenia erecta, e., 2*s* 6*d.* to 3*s.* 6*d.* ; Calyptraria hæmantha (a splendid new Melastoma), e., 10*s.* 6*d.* ; Gesneria Donkelaari, e., 10*s.* 6*d.* ; G. Blassi, producing flowers in scarlet pendant racemes, small plants, each, 7*s* 6*d.* ; Franciscea, Gardenias, &c., at moderate prices.

Sarracenia purpurea, per doz., 18*s.* ; single plants, 2*s.* e.

Choice Herbaceous and Alpine Plants, per 100, 42*s.*

Cypripedium spectabilis, strong flowering roots, e., 2*s.* 6*d.* ; C. acaule, do., 2*s.* 6*d.* ; Erythronium americanum (bright yellow Dog's-tooth Violet), three flowering bulbs in each pot, 2*s.* ; Trillium atropurpureum, e., 1*s.* 6*d.* ; T. grandiflorum, e., 1*s.* ; Phlox, a splendid collection of 18 French varieties, at 1*s.* each ; Chrysanthemums in really good varieties, new and old, per doz., 12*s* ; Double Blue Hepatica (now in flower), each, 1*s.* 6*d.*

Bellis aucubæfolia, foliage most beautifully variegated with yellow, and nearly as handsome as the finest variety of Anacectochilus, each, 2*s.* 6*d.*—Upper Clapton Nursery, London, N.E.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

WOOD AND INGRAM beg to offer the following, which are all fine bushy well established plants, none in less than 3-inch pots :—

		s.	*d.*		*s.*	*d.*
Scarlet Geraniums (autumn struck) ...	per doz.	3	0	to	4	0
Verbenas, all the colours	„				2	6
Heliotropes, several sorts	„	2	6	„	3	0
Calceolarias, shrubby, very fine plants ...	„	3	0	„	4	0
Salvia patens	„				3	0
Nierembergia gracilis	„				2	6
Cuphea platycentra	„				2	6
Lantanas, sorts	„	2	6	„	3	0
Ageratum variegatum and others	„	2	6	„	3	0
Variegated Geraniums, sorts	„	4	0	„	5	0
Ivy-leaved do.	„	3	0	„	4	0
Petunias, mixed	„	2	6	„	3	0
Dahlias, finest show and fancy varieties ...	„	4	0	„	9	0

With many other kinds at the same rates.

Huntingdon Nurseries.

50,000 DWARF ROSES IN POTS.

WM. WOOD AND SON have much pleasure in soliciting especial attention to their enormous stock of ROSES in pots, a portion of which are offered on their own roots and the remainder are neatly grafted plants on the Manetti stocks, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock offered may be formed from the following select list of a few of the leading kinds :—

HYBRID PERPETUAL.

Quantity.	Per Doz.—*s.*
4000 Géant des Batailles ...	15
3000 General Jacqueminot .	20
2000 Duchess of Norfolk ...	20
2000 Jules Margottin	15
1000 Alexandrine Bachmeteff	15
1000 William Griffiths ...	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland .	15
1000 Pius the Ninth	15
500 Auguste Mie	15
500 Queen Victoria	15
500 Mrs. Rivers	15
500 La Ville de St. Denis...	15
500 Jacques Lafitte	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12*s.* to 18

BOURBON.

500 Sir Joseph Paxton ...	15
500 Bouquet de Flore ...	15
And other leading kinds (own selection) ...	12*s.* to 18
2000 Paul Ricaut hardy Bourbon	15

TEA ROSES.

1000 Gloire de Dijon .	20*s.* to 36
500 La Sylphide...	15
Other fine kinds	15

CHINA ROSES
ADAPTED FOR BEDDING IN LARGE QUANTITIES.

Fabvier	10
Cramoisie superieure	15
Henri Cinq	10
Mrs. Bosanquet (cream) ...	15
Prince Charles	15
Marjolin	10
L'Eblouissante	15
Louis Philippe D'Angers ...	10
And other fine kinds	9*s.* to 12
Fine Noisette Roses...	9*s.* to 12
Banksian Roses	15

N.B. Extra plants presented to compensate for distant carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. and S. can supply all the new Roses of this season if required, but will NOT recommend them until they have themselves tested their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex, April 18.

NOTICE.

TO THE CULTIVATORS OF THE GERANIUM.

—Upwards of 10,000 strong healthy plants now ready.

	Per dozen.—*s.*	*d.*
GERANIUMS.—Show varieties of 1855, purchaser's selection	30	0
Do., do., H. W.'s selection	25	0
Do., do., of 1854, 15*s.* and	18	0
Do., do., older varieties, 6*s.* and 9*s.* per doz., or 20 for ...	15	0
Do., fancy varieties, choice, 9*s.*, 12*s.*, and	18	0
Do., French and English spotted varieties, 12*s.* and ...	18	0
Do., 100 strong plants for 3*l.*, including package.		
FUCHSIAS of last season, 9*s.* per dozen ; extra strong...	12	0
CINERARIAS Duchess of Wellington, Magnum Bonum, and Purple Standard, 2*s.* each, or the 3 for	5	0
Do., choice varieties of previous years, 6*s.*, 9*s.*, and ...	12	0
CALCEOLARIAS, Herbaceous, 1*s.* 6*d.* to 2*s.* 6*d.* each, or 12*s.* to	18	0
Do., shrubby, bedding varieties of last season, including Cole's spotted varieties, 1*s.* 6*d.* each, or, after 20th April	10	0
Do., older varieties, 4*s.* 6*d.* to	6	0
VERBENAS, new varieties of last season at	6	0
Do., older varieties, 3*s.* 6*d.* and	4	6
PETUNIAS, new, of last season, including the continental striped varieties, 1*s.* each, or	9	0
CHRYSANTHEMUMS, large and Pompone flowered varieties, 4*s.* 6*d.* to 6*s.* and	9	0
PHLOXES, choice new varieties of last season	18	0
Do., Countess of Morton and Addisoni, strong plants, 3*s.* 6*d.* each.		
Do., do., older varieties, 6*s.* and 9*s.* and	12	0
PANSIES, 12 strong superior new varieties for 15*s.*		
Do., 25 strong choice show varieties for 15*s.*		
PINKS, 25 pairs, fine named sorts, 10*s.*		
GLOXINIAS.—The following 6 new erect varieties for 1*l.*, or 5*s.* each, viz.:— Comte de Neipperg, Duchesse de Brabant, Madame Picouline, Roi de s Belges, rosea mutabilis, and Wagneri.		
Do., choice erect varieties, extra strong plants, 6 for 10*s.*, or	15	0
Do., not erect flowering, 9*s.*, 12*s.*, and	15	0
ACHIMENES.—Locheria magnifica, 2*s.* 6*d.* ; Do., Tydea amabilis, 3*s.* 6*d.* ; Estella, 2*s.* 6*d.* ; Aurora, 2*s.* 6*d.*		
Do., other varieties, 5*s.* and	7	6
AZALEA INDICA, strong plants, 12*s.* and	18	0
ROSES, choice new Hybrid Perpetual varieties, such as Triomphe de l'Exposition, Prince Noir, Souvenir de la Reine d'Angleterre, &c., &c., strong healthy plants, 3*s.* 6*d.* each, or	30	0

For descriptions, &c., of the above Collections, see Catalogues, may be had on application enclosing 1 stamp. The Catalogue contains a great assortment of Bedding Plants which will be ready the end of April, including Dahlias, Scarlet and other Geraniums, Cupheas, Heliotropes, &c. ; also a collection of 84 Bedding Plants for 1*l.*, and a collection of 132 Bedding Plants for 30*s.*

MISCELLANEOUS PLANTS at Reduced Prices.
(The 12 Plants for 1*l.*)

Escallonia pterocladon, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Myrtus apiculata, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Do. myrsinoides, 1*s.* 6*d.* to 2*s.* 6*d.* each.
Cassia floribunda, 2*s.* 6*d.*
Jasminum poitiana, 1*s.* 6*d.*
Epacris Eclipse (Story's), 2*s.* 6*d.* to 2*s.* 6*d.*
Vaccinium erythrinum, 2*s.* 6*d.* to 3*s.* 6*d.*
Begonia opulæfolia miniata (splendid scarlet), 2*s.* 6*d.* to 3*s.* 6*d.*
Gonocalyx pulcher, 3*s.* 6*d.*
Francisea confertifolia, 2*s.* 6*d.*
Dipladenia magnifica, 2*s.* 6*d.* to 3*s.* 6*d.*
Passiflora Decaisneana, 2*s.* 6*d.*

Orders executed in strict rotation as received. Post-office Orders payable at Marsden, Lancashire.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. Parker for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials :—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss ; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for bedding purposes, all other scarlets must disappear ; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. Parker's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

David Thomson, Dyrham Park, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants will be ready for sending out the first week in May, and all orders will be executed in strict rotation. Price 1*s.* 6*d.* each, or 12*s.* per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

NEW AND RARE PLANTS,

ABIES KÆMPFERI.—This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China :—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country ; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are, however, unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21*s.* each ; a few strong plants 12 to 15 inches high, imported from the north of China, 63*s.* The usual discount to the trade.

LIMONIA TRIFOLIATA.—This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21*s.* each. The usual trade discount.

CHUSAN PALM (The Hemp Palm of the Chinese).—In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5*s.* Discount to the trade.

AZALEA PAPYRIFERA (The Chinese Rice Paper Plant).—This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7*s.* 6*d.* Discount to the trade.

PINUS BUNGEANA (The Lace Bark Pine of China).—This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1866 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy. 31*s.* each. Allowance to the trade.

FARFUGIUM GRANDE.—Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63*s.* each, with the usual discount to the trade.

R. Glendinning, Chiswick Nursery, London,

WHEELER'S

GRASS SEEDS FOR PERMANENT PASTURE

DELIVERED CARRIAGE FREE.

WE beg to call particular attention to our GRASS SEEDS FOR PERMANENT PASTURE, and to our SEEDS FOR RENOVATING OLD PASTURES. We have made this branch of our business our particular study, and we have much pleasure in saying that the Grass Seeds we have supplied have given very great satisfaction.

We can supply GRASS SEEDS and CLOVER for laying down Land for Permanent Pasture at 30*s.* per Acre.

"Charlton Kings, Cheltenham, Dec. 27, 1856.

"I have the pleasure to inform you that the Grass Seeds furnished by you for the grounds of the Cheltenham College, extending over six acres, have answered admirably. There is now a beautiful sward. "WM. JORDAN."

"Blythe Court, Newnham, Dec., 1856.

"I think it due to you to say that the Seeds you have supplied me with for the last four years have been exceedingly good; with respect to your mixture for Permanent Pasture, it is my belief that it cannot be surpassed. "WM. BROWN."

From ROBERT SHARPE, Esq., *Hewelsfield Court, near Chepstow.*

"January 29th, 1857.

"It is with much pleasure that I give the result of my laying down nearly fifty acres for Permanent Pasture with Grass Seeds supplied by you. Of these I laid down twenty acres in 1851, in 1852 thirteen acres, and in 1855 fourteen acres, and I am happy to say that a better selection of Seeds could not have been made.

"That which I laid down in 1851 succeeded so well that I had great difficulty in convincing some friends of mine who saw it the following year that it had not been laid down at least seven or eight years.

"I have carefully watched it every season, and it has never shown any symptons of decay, but is now, together with that which I laid down in 1852, the admiration of the neighbourhood; and I have pleasure in saying that the fourteen acres which I had laid down in 1855 is equally promising.

"P.S. It would be well to add that in each case I described to you the nature of the soil; this I consider essential."

From CALEB MORGAN, Esq., *Churcham, Gloucestershire.*

"I have much pleasure in informing you that the Grass Seeds I had from you last year succeeded particularly well; the produce from it *this* year has been estimated at two tons per acre."

From the Rev. G. BUTTERWORTH, *Dearhurst Rectory, Tewkesbury.*

"18th February, 1857.

"I have pleasure in speaking of the excellence of your Grass Seeds; I certainly had a very good crop of Grass last year, from the extent of ground laid down two years before by my predecessor. I shall be glad of some more Grass Seeds shortly, to sow with it a field adjoining."

J. C. WHEELER & SON, Seed Growers, Gloucester.

THE *Climate of Gloucestershire is peculiarly favourable for the Growth and Harvesting of Garden Seeds. We have this season succeeded in getting in our stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.*

J. C. WHEELER & SON, *Seed Growers, Gloucester.*

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detail Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND Co., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) ... ... 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre). ... ... 32*s.* per acre

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming lawns, ... 1*s.* 3*d.* per b.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

FARM SEEDS.—MANGEL WURZEL, SWEDES, TURNIPS, &c.—Mangels, 9*d.* lb.; Swedes, 1*s.* lb.; Turnips, 1*s.* lb.; Hybrids, 1*s.* 3*d.* lb.; Improved Italian Rye-grass, 7*s.* 6*d.* per bushel.—GEO. GIBBS & Co., 26, Down Street, Piccadilly, W.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

FLOWER SEEDS—BEST ASSORTMENTS,

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	*d.*
100 varieties select showy Annuals, including newest ...	15	0
50 vars., 8*s.* 6*d.*; 30 vars., 5*s.* 6*d.*; 20 vars.	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Annuals, including new, 7*s.* 6*d.*; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10*s.* 6*d.*; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7*s.* 6*d.*; 12 vars.	5	0

Choice Hollyhock, Geranium, Calceolaria, Pentstemon, Gloxinia, Primula sinensis, and other Florist Flowers, carefully saved from first-rate varieties.

CHOICE IMPORTED GERMAN SEEDS, in separate colours, very fine and double.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1*s.* 0*d.* per lb. Quantities not under 1 peck, 18*s.* per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20*s.*) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

ASPARAGUS AND SEAKALE.—Having a very large stock of Asparagus and Seakale, we can supply almost any quantity at the following prices:—

	Per 100.—*s.*	*d.*
FINE SEAKALE ROOTS	8	0
STRONG...	12	0
LARGE CROWNS	20	0
JUDD'S GIANT ASPARAGUS, 2 years. ...	3	0
Do. Do. 3 years ...	4	0

Much lower by the thousand.

We have at least 500,000 strong Roots of Seakale and Asparagus, so that we can supply all orders with fine strong Roots.

WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do. from 4 to 12 ft.
YEWS, do. do., from 3 to 6 ft.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 ft., &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, April 18.

ROSES IN POTS FOR BEDDING.

BY THE HUNDRED OR BY THE THOUSAND.

WM. WOOD AND SON beg to intimate that the present season during these warm growing showers is very eligible for planting out dwarf Roses in beds, and refer with pleasure to their overwhelming stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per doz.—*s.*	*s.*		Per doz.—*s.*	*s.*
Hybrid Perpetuals ...	12 to	18	Tea-scented	15	
Bourbons	12 —	18	Noisette	9 to	12
China	9 —	12	Banksian	15	

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW PERPETUAL ROSES IN POTS.

Etendard du Sebastopol	5*s.*	0*d.*	Mathurin Regnier ...	2*s.*	6*d.*
Triomphe de l'Exposition	2	6	Prince Noir	2	6
Triomphe d'Avranches	2	6	Madame Knorr... ...	2	6
Souvenir de la Reine d'Angleterre	2	6	Duc d'Elchingen ...	2	0
			Belle Jardinière ...	2	6
Marquise de Murat ...	2	0	Marquis Balbiano, B. ...	2	6
Baron Wassenaar, M ...	2	0	General Pelissier ...	2	6
Etendard des Amateurs	2	0	General Simpson ...	2	6
Belle Lyonnaise ...	2	0	Dr. Henon	2	6
Pauline Lansezeur ...	2	6	Mrs. Standish	2	0
Captain Ingram, M. ...	2	0	Alfred Dalmas, M. ...	2	0
Madame Edouard Ory, M.	2	6	Comte de Montejo, B...	2	6
Madame Heraud ...	5	0			

Strong established plants of the above can be obtained of HENRY MAY, the Hope Nurseries, Bedale, Yorkshire.

DAHLIAS.

JOHN KEYNES, FLORIST, Salisbury, obtained ELEVEN Certificates at the National Exhibition of Seedlings. Only FOUR other Certificates were awarded for Dahlias the whole season. These truly splendid flowers will be ready for distribution the first week of May. First-rate plants may this year be depended on. Catalogues of the leading show Dahlias will be sent on application.—Castle Street, Salisbury.

Royal Scarlet ...	10*s.*	6*d.*	Carnation	10*s.*	6*d.*
Fanny Dodds ...	10	6	Charles Perry ...	10	6
Mrs. Edwards ...	10	6	Conqueror	10	6
Lady Franklin ...	10	6	Lady Paxton	10	6
Duke of Devonshire	10	6	Tam o'Shanter ...	10	6
Lord Cardigan ...	10	6	Margaret	10	6

The whole of these obtained Certificates at the National, with the exception of Fanny Dodds and Lord Cardigan.

SUPERB SHOW PANSIES.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, begs to offer the following set of 20 extra fine show varieties, in strong well rooted autumn-struck Plants at 12*s.* the set, hamper, package, &c., included:—

Argo, Paton & Small's	Mrs. Hampton, Hampton's
Beauty, Downie & Laird's	Mrs. Dodwell, Fisher's
Duke of Newcastle, Turner's	Mesmerist, Veitch's
Earl of Cardigan, Holland's	Miss Talbot, Dickson & Co.'s
Emperor, Hale's	Memnon, Turner's
Etta, Middlemas's.	Medora, Downie & Laird's
Fanny Kemble, Downie & [Laird's	Nonpareil, Dickson & Co.'s
Golden Drop, Chadwick's	Ondine, Oswald's
Great Western, Hooper's	Sir John Cathcart, Turner's
Jeannie, Downie & Laird's	Yellow Climax, Paton & Small's

J. HOLLAND can confidently recommend the above as being flowers of first-class merit. Older kinds, such as Nonsuch, Satisfaction, Fearless, Duke of Perth, Wonderful, &c., 4*s.* per dozen. A few packets of very choice Pansy Seeds, at 1*s.* and 2*s.* per packet. Priced and Descriptive Catalogues now ready, and will be forwarded on application.—Post-office Orders payable at Middleton, Lancashire.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for, the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey. April 18.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of STANDARD ROSES, including Jules Margottin, Gloire de Dijon, &c. Rhododendrons in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignus, Bonthamiaa, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, Hardy Evergreens, &c. for which the late Firm has been so long celebrated.—Bagshot, April 18.

NEW PLANTS.

JOHN AND CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (LEE).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5*s.*

VARIEGATED GERANIUM EMPEROR (LEE).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10*s.* 6*d.* The usual discount to the Trade.—Nursery, Hammersmith.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S. W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

ROYAL BERKSHIRE SEED ESTABLISHMENT

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, *can supply every kind of* FARM AND GARDEN SEEDS *of genuine and superior quality.*

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

THE GRAND WINTER GARDEN AT CHELSEA.

JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

JOHN WEEKS & Co., King's Road, Chelsea.

The Gardeners' Chronicle.

SATURDAY, APRIL 18, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY,	April	21—Linnean	8 P.M.
WEDNESDAY,	—	22—Society of Arts	8 P.M.

WHAT, says a correspondent, may that EUGENIA UGNI be, for whose fruit special prizes are offered at the Great Fruit Exhibition of the Horticultural Society to be held next October? That it is something important would seem certain, since it is placed on a level with Pine Apples, Grapes, and Oranges. It

is indeed something important—we may even say of the highest importance—among eatable fruits procurable in England. On several occasions it has been already mentioned in our columns; particularly in 1854, when Messrs. Veitch received from the Horticultural Society a Banksian Medal in testimony of its value.

The plant thus called is a native of Chili, where it was first noticed in the beginning of the last century by the celebrated traveller Father Feuillée, who published a description and figure of it under the name of Murtilla. It forms an evergreen bush with the appearance of a Myrtle, but with darker and thicker leaves. It is also somewhat hardier than a Myrtle, a plant in our own possession having lived over the two last winters without the least injury in a damp unheated pit facing the north. The flowers, which are white with a tinge of pink and a peculiarly waxy appearance, hang down singly from among the leaves. The fruit consists of black-purple round berries about the size of Black Currants, and when ripe resembles in taste nothing so much as a mixture of the Strawberry, Pine Apple, and Purple Guava. In our opinion it is one of the most agreeable fruits that have yet been introduced to cultivation; and although the smallness of the berries would seem an objection, yet their quantity compensates for their want of size.

One important quality belonging to the Ugni (pronounced Un-yee) is the easiness with which it is cultivated. No reason, indeed, seems to exist why it should not be grown wherever the common Myrtle can be kept alive. When producing its fruit, however, it requires all the heat that can be given it; so that if grown in pots it should be placed, as soon as the flowers are set, in the hottest part of a garden, fully exposed to the heat of the sun; such as the angle of a wall facing the south west, or in a conservatory in the full rays of the sun, and if out of doors it would be as well to protect it from night cold by a temporary roof, reaching completely over the front of the bush.

These, however, are mere suggestions; by another year further experience will have been gained, for we understand that large numbers of the plant have been recently purchased, it is to be presumed by those who intend to offer themselves in October as competitors for a prize. The fruit which has been tasted by ourselves, and to which the above description applies, was all ripened under glass. That indeed for which Messrs. Veitch gained a medal was exhibited at the end of June.

In another column we have given a translation of a short paper by Speerschneider, known to botanists as an investigator of Lichens, which contains an account of some experiments made with a view to ascertain the cause of the Potato murrain. The conclusion at which he has arrived is that which was maintained from the first appearance of the disease by several botanists, though it was met with more or less of doubt and ridicule both in this country and on the Continent, namely, that it is due to the attacks of the parasitic fungus well known under the name of *Botrytis*, for which without any sufficient reason the name of *Peronospora* was substituted by Corda, and is now adopted in many parts of the Continent. We do not, however, think that he has clearly established the order in which the disease occurs upon the different parts of the plant. The leaves are not always attacked first, and therefore it will not be sufficient to apply any remedy there only. The tubers are quite as liable to attack from any spores of the former year which may be contained in the soil as the young stems, and we feel little doubt that, as in the case of some other parasitic fungi, the threads which have penetrated into the cellular tissue of the tubers are capable in some mysterious way of propagating the parasite within the tissues of the stem till its germs reach the leaves, and the perfect mould at length makes its appearance through the stomates. The threads of the mycelium may not always be discoverable, nor indeed may they always be present; for there is great reason to believe, though the subject is still in great obscurity, that the grumous contents of the mycelium when poured out into the tissues, are capable of becoming organised so as to propagate the species. If it once be allowed that a granule or little pellet of this matter, retaining its vitality, can obtain an investing membrane, which appears probable from several observations which have lately been made, especially amongst Algæ, there is little difficulty in the propagation of the parasite in any part of the plant. Something of this kind must obtain in the case of many parasitic fungi where the spores are far too large to traverse the intercellular tissues, and where there is no pretence that the whole matrix is threaded with mycelium. The observations of Speerschneider, then, while they confirm our views as to the cause of the disease, do not militate against the probable mode which we have proposed of checking its progress. Unfortunately he has reserved for the present his own notions on the subject, with the intention of suggesting a remedy in a separate pamphlet; meanwhile however we repeat our own proposal, that sublimed sulphur should be tried upon the tubers when planted, and upon the leaves, as soon as the first suspicion of the presence of the parasite arises. We can scarcely hope that it will be as effectual as in the Grape and Hop mildew, where the enemy is completely exposed; but we are sanguine that some good will be effected, and therefore look with much interest to the result of the necessary experiments. *M. J. B.*

New Plants.

195. Epidendrum decipiens. *Folia Orchidacea.* No. 221.

A brilliant species, resembling *E. Schomburgkii*; flowers bright apricot colour, with two crimson eyes at the base of the lip. Mr. Loddiges, who obtained it out of one of Warczewitz's collections, informs us that it has been in flower for months. A good exhibition plant, in skilful hands, we should think; at present only two specimens are known to exist. The habit is that of Ep. crassifolium, radicans, &c.

196. Dendrobium xanthophlebium.

D. (Eudendrobium) caule elongato sulcato parcè nigro-piloso, foliis angustis oblique bilobis, floribus geminis, sepalis petalisque acutissimis, labello basi villoso trilobo: laciniis lateralibus dimidiato-cuneatis intermedio subrotundo apiculato axi sulcato elevato utrinque pectinato venis limboque asperis et denticulatis, mento labelli longitudine.

Imported from the East Indies by Messrs. Veitch. Flowers rather small, whitish, with orange-coloured veins on the lip. Near *D. longicornu* and *flexuosum*, but with a much shorter spur. Mr. T. Lobb found it in Moulmein.

197. Prunus triloba.

P. ramis levissimè pubescentibus virgatis, foliis (junioribus) cuneato-trilobis oblongisque basi acutis pilosis duplicato-serratis, stipulis subulatis glandulosis bipartitis, floribus solitariis pedunculis uncialibus glabris, calycis tubo campanulato glabro: laciniis tubo æqualibus reflexis ovatis obtusissimis margine lævissimis, ovario villoso.

This, in a semi-double state, has lately flowered in the nursery of Mr. Glendinning at Chiswick, having been sent home by Mr. Fortune. In all respects it is a highly interesting species; most beautiful as a garden plant, on account of its delicate, semi-double, light rose-coloured flowers nearly an inch and a half in diameter, and curious as adding one more to the Plums which, like P. trichocarpa, have the woolly ovary of a Peach. The frequent tendency of the leaves to be wedge-shaped and three-lobed is itself remarkable in the genus. No doubt perfectly hardy. The calyx has itself some disposition to acquire the colour and texture of the petals. The plant has been already noticed at p. 216 of the present volume.

ON LOW TEMPERATURES WHICH DO NOT AFFECT THE VITALITY OF PLANTS, AND THE MANNER OF ELIMINATING THEM FROM THE MEAN TEMPERATURES.

From M. De Candolle's "Géographie Botanique."

The necessity of rejecting those degrees of temperature, during which a plant's functions are dormant, from the sum of temperatures which the thermometer indicates as necessary to the fulfilment of all its functions, appears to be obvious, and renders it exceedingly difficult to employ thermometric observations at all in investigating the phenomena of vegetation. Instead of employing the usual means and extremes, we must ascertain for each month over which our observations are to extend the number of hours during which the thermometer remains above 32°, 34°, &c. It is further necessary to show by actual observation whether the same degree of heat produces the same effect by night as by day, which is not very likely; and whether a constant temperature produces the same effect as an intermittent one, which is also not very probable. Meteorology and vegetable physiology are at present not sufficiently advanced, the one to express the phenomena of temperature under this point of view, the other to explain sufficiently the effect of heat upon plants. The observations which I have already detailed give some results, but are insufficient.

As regards the investigation of each species, there are thus three distinct questions to be resolved experimentally: these are the epochs of flowering, fruiting, &c.; the climate of the particular year; and the phenomena of the locality in which the observations are made. Happily the facts of botanical geography do not require our observations to be extended beyond the mean state of the climate during a period extending over many years, and under this view the phenomena of temperature, &c., assume a definite form, irrespective of accidental variations.

Temperatures below the freezing point, though they have certainly no effect on vegetation, are unfortunately included in all our thermometric means taken during several months in temperate and northern climates. This gives rise to an obvious error when employing figures to express facts in vegetation. Of what importance can it be to a plant that it has been exposed to a temperature of 6°, 8°, or 10° below freezing, before it has received that accession of heat which determines the reawakening of its vital functions. If it had not been killed by such cold (and seeds never are), its effects are negative; they are of no more effect than the zero of the plant. The heat to which the plant is afterwards exposed is not diminished in power or effect by the cold to which the plant was previously subjected.

A temperature below freezing does not cause the functions of a plant to retrograde, it only suspends them. In ascertaining then the monthly and annual means, it is essential to regard all those below the freezing point as negative.

To apply this correction to published thermometric means is impossible, except we have the elements from which they have been deduced, and hence all those mean temperatures that can include negative quantities must be regarded with suspicion; that is to say, the means of every month in the case of Polar climates; of all but the summer months in northern climates; and of those of winter and parts of spring and autumn in those of temperate climates. In each latitude the more caution is necessary, the more the climate of the locality is variable, or as it is sometimes called excessive or continental.

For instance, we should commit a great mistake, if we imagined that vegetation would be in the same state at Kazan in the month of April as in the Orkneys in January, because their mean temperatures in these months are alike (38°). At Kazan this mean results from temperatures varying from 10°.4 to 59°; in the Orkneys the temperature varies but little from 37°.4, so that in the first case the effective heat is greater than at first appears. And, in fact, there is no resemblance between the two months in the two localities. At Kazan vegetation commences vigorously after the middle of April, after having been dormant through the winter. In the Orkneys, throughout the month of January vegetation remains in a state of repose, if not absolute at least very apparent, and continuously so.

The following table shows how, in the middle of Europe, in a climate which, though excessive, is less so than farther east under the same latitude, the admission into the calculation of figures below 32° as negatives influences the means of several months.

Mean temperature at Geneva of the months of 1845 in which the temperature fell below 32°; calculated from the mean daily maximum and minimum according to the ordinary method, and after eliminating the temperatures of negative value.

Month.	Mean according to ordinary method.	Mean eliminating the negative temperatures.	Difference.
January	34.5	35.2	0.7
February	27.7	34.4	6.7
March	38.7	39.7	1.0
April	48.9	49.0	0.1
May	57.8	51.8	0.0
September	61.1	61.1*	0.0
October	50.9	51.0	0.1
November	44.4	44.6	0.2
December	38.8	40.2	1.2

According to this table the plants which profit by every degree of heat above 32° (many Alpines, for instance,) enjoy at Geneva, even in January and February, a certain amount of heat, of which the means obtained by the ordinary method of observation do not give an idea. In the coldest month of another year, viz., February of 1842, the heat averaged 34°.4 daily, if we neglect the degrees below 32°; but by the ordinary calculation it averaged 27°.8. Now, 34°.4 during 31 days is equal to 1066° total amount of heat. The observations having been made in the shade, the direct rays of the sun may perhaps add a degree or so daily, which will raise the total amount of heat during the month to 1097°. The beginning of March then brings its contribution of heat, even when the mean, according to the ordinary calculation, is below 32°. We must therefore no longer be surprised if even in the most rigorous years we see at the end of winter the Snow-flake (Leucojum) and commoner plants defy the ill-grounded calculations of our meteorological works. In the tissue of these and other species the circulation is probably arrested below 32°, but the thermometer always rises sufficiently above that temperature during the winter, and especially when exposed to the sun, to revive their vegetative functions, which are stimulated by the slightest heat.

(*To be continued.*)

TOBACCO.

The way in which I manufactured the article of which I sent a piece for your opinion, does not perhaps differ much from the system detailed in an extract which was given some time ago in your columns; but I did not follow all the details there set down (which no doubt may be necessary in producing Tobacco for the market) as it was not quite in my power to do so, nor would it be in the power of gardeners generally, and I believe that they are unnecessary, inasmuch as the appearance of the article, when for gardening purposes, is a matter of little importance. The cultivation of the Tobacco plant is very simple; but for the benefit of any reader who may not have tried it, I may as well begin at the beginning:—I sow the seed thinly in boxes or pans about the beginning of March, placing them in a little heat; as soon as the young plants are ready "prick them off" into pans or boxes, placing them again in the same heat until they begin to want more room. I then put them singly into 6-inch pots, using

* There is an error in the text of M. De Candolle's work here—where 11.°48 Cent. should be 16.17 Cent.

for compost two-thirds well rotted manure, with one of good loam, adding a little leaf-mould. After being a few days longer in the heat I treat them exactly as I would bedding-out plants, avoiding the drying and starving and hardening system to which some poor unfortunate things are subjected before they are put into beds.

Tobacco is often considered a very tender plant, but it will stand two or three degrees of frost with impunity; when Cabbage, Cauliflower and other vegetables near it are frozen hard, the Tobacco leaf remains quite soft. What is it that prevents freezing; is it the oil or nitre which the plant contains, or what? A good deep soil heavily manured, well exposed to the sun and sheltered from the wind, is the place I should prefer for its growth, planting out about the second or third week in May in rows 3 feet apart and 2½ in the row, as the plants advance draw a little soil to the roots, which helps to support the stems; as slugs seem as fond of Tobacco as men are, their attacks must be guarded against, or they may in a few nights clear the young plantation. I tried stopping when the plants had made a few leaves, but I found the produce much smaller than when allowed to grow until they had branched, when the heads of flowers only are pinched off; as soon as the lower leaves cease to grow larger I begin to gather, and keep on at intervals gathering until the end of the season.

A gardener's drying house must necessarily be what is within his reach. The best place I could find this season was a cart shed; on the upper joist I laid some old rails, and on these were laid the leaves as soon as gathered. It will be difficult to specify the time required for drying, as much will depend on the place and state of the weather, but I found that when the leaves were something like half-dried hay they were in best condition for the farther process; they were then gathered up and laid somewhat regularly on the top of each other on a floor, and over them was put a board with a few pounds weight on it; they are left in this state for eight days when they are ready for heating. No doubt in a Virginian plantation where the quantity is large the process may be effected by throwing the leaves together in heaps, but in Britain the produce being small must be managed in another way. I placed the leaves in an old watering-pot and buried them in the dung-hill. The time required for this part of the business will depend somewhat on the heat in the dung; one gathering I had in only three days while another was in a fortnight, and they seemed both alike when taken out; but I think with a good brisk heat seven or eight days are sufficient, and it should be examined after the second or third day to see that the leaves have not begun to rot, and if such is the case they should be shaken up loosely to allow the steam to escape. I found the Tobacco was stronger when the leaves were put in rather green, only they required more care in the heating.

The next operation is the pressing. For that purpose I employed a very powerful lever and pinion cheese press, but such is not to be found in every establishment where it may be desirable to grow Tobacco, but a very powerful press may be made in the following manner:—Suppose the work to be done out or inside of a building, drive into the wall, 18 inches from the floor and 8 inches apart, two strong iron spikes; these will serve as a fulcrum. Then take a strong plank, about 9 feet long, and a couple or more cwt. of whatever kind of weight is at hand; a strong wooden box lined with tin made water-tight, about 14 inches square; a lid also lined, made to fit easily to the inside; and as many pieces of plank cut to the size of the lid as fills the box; the press is then complete. Perhaps some may think the box will not hold much Tobacco, but if he goes to market to buy such a quantity he had better take a 5*l.* note with him. When the first gathering has been sufficiently long in heat, take a few of the leaves, put them into a vessel and pour upon them a pint of boiling water; let them stand a few minutes to infuse; then take the leaves and squeeze them. Into this infusion, while hot, stir as much coarse sugar as will bring it to the thickness of treacle; this mixture will probably do the season's growth. Now that all things are ready, take the heated leaves and place them as evenly as possible in the box in a thin layer, then sprinkle them well with the mixture, then another layer and sprinkle, and so continue till all the leaves are in; then apply the lid and pieces of plank, and on the top place a weight. Let it stand over-night; it will then be found partly pressed. Remove the weight and as many pieces of the plank as will bring it down to about 2 inches above the top of the box; then place it under the spikes, putting one end of the plank between the two and the weights on the other end; if the weights bring down the plank till it rests on the edge of the box another short piece must be put in to keep it off. A few hours will be sufficient in the press; but if the article is not in the way it may remain till the next gathering is ready, and so on till the box is full, or the season's growth in. The Tobacco of course should be kept in the box till required for use.

At the end of the season, Nov. 20, I pulled up the plants, hung them up for a fortnight, then picked off the leaves (which were small), and all the points of the shoots, with the flower-buds; and this gathering has been pronounced by smokers here to be stronger than any of the others, and I cannot account for it in any other way than that I believe it contains more oil, as it is in the midrib and the young shoots that I have found most oil, and also the most nitre. If the midrib of a green leaf be held near the fire, the nitre will boil out, and harden on its surface, but the heating process seems to have the power of either expelling or neutralising this substance. I believe that the whole of the stems may be made available where there are such means as hot pipes or flues to dry them before they are put in to heat; they did not do with me as I would have liked, but I think it was because they were put into the heat too green and partly rotted. Any person having a quantity of dried leaves, such as I have seen in many gardens, and well moistening them with a little water and heat and pressing them, will find that it will very much alter their quality. The general opinion of smokers here is that the article is not quite so strong as the foreign; but then it should be remembered that smokers of Scotch twist look upon "fine Havanna" and "splendid shag" as worth about as much as chopped straw.

I should be much obliged, and doubtless many others, if you could inform me how many plants the law allows to be grown for private use, and if the law applies equally to England, Ireland, and Scotland. *D. Buchanan, Sea Bank, Saltcoats.*

TRADE MEMORANDA.

A person is on his travels representing himself to be head gardener to the Bishop of Carlisle and the Lord Chief Justice of Dublin, and is liberally patronising nurserymen, bakers, butchers, brewers, hotel keepers, &c. He was last heard of in the direction of Brighton.

Home Correspondence.

Orchard Houses.—I believe I am the one of your correspondents who first led the way to putting up cheap houses, when the cheap glass (thanks to Sir Robert Peel) first came in. Then came my friend Mr. Rivers's orchard houses; but still even these are not become so common as one should have expected. One of the principal reasons is the doubt about the cost. Some have begun with buying their own timber and glass, and finding labour, &c.; and in many cases this has led to disappointment and doubt as to the real expense. Paying Mr. Rivers a visit at the beginning of the year, I found him putting up two or three different houses on the cheapest plan. After consulting him, and referring to his book on orchard houses, I determined on building one with a span roof 100 feet long, 16 feet wide, the sides deal boards 4 feet high, and the top of the roof 9 feet high from the bottom; the roof and ends glazed, and a door at each end. At 2 feet from the bottom of the boarded sides one of the boards 9 inches wide is fixed with hinges, and falls down all round; this, with the door at each end, Mr. Rivers finds affords sufficient ventilation. I however have some doubt on this point, and am prepared to have some of the top panes to move, so as to afford means of allowing the heated air to escape. I determined to have the house 16 feet wide, and am sorry now that I did not determine on 18 feet. The expense would not have been much increased, and I should have had better room for four rows of trees and a path in the middle. My gardener, however, considers that a path round the sides would have been more convenient, especially as I mean to have an 8-inch shelf all round the sides for Strawberries; and not having a path at the side, it will be inconvenient to water the plants. However if this plan of side paths is adopted, it must, from the lowness of the sides, be necessary that the path should be sunk 2 feet at least, so as to get sufficient head room. In order to prevent any question as to the cost, I decided to employ some respectable builder, who should make an estimate of the whole work completed, except the two coats of anti-corrosive paint, which can be done by any common garden labourer. I found that Mr. Rivers purchased his rafters and deals of Mr. Rivett, Railway Bridge, Stratford. After the work, which was very simple, was explained to him, he made an estimate, and put up the house complete in a few days. Owing to some error in the estimate as to the amount of glass he could not furnish the work in future at the price he named; but he has sent me an estimate which I send you, from which you can see that a house such as I describe can be put up for 67*l.* 10*s.*, or 13*s.* 6*d.* a foot run. If only 14 feet wide this would diminish the cost; the glass alone weighs more than a ton. The house has been planted with four rows of small root pruned Pears, Peaches, Figs, Nectarines, and Cherries. The Pears were taken out of the ground about the middle of March, when the bloom buds were beginning to open, and probably this late moving may prevent there being any considerable crop of fruit. There are four rows, two on each side of the centre path; each tree 4 feet apart. The trees have been planted in the open ground. They would have been more manageable in pots as regards growth; but I consider that they would have required much more care and labour if they had been in pots. Mr. Rivers considers that the Peaches and Nectarines planted in the open ground, if not very carefully root pruned and moved every two years, will probably get too large for the house. Perhaps as a dwarfing stock (Mahaleb) has been discovered for Cherries, and the Quince for Pears, some such stock will be found for Peaches and Nectarines. Your correspondents have made some very sensible observations during this last year on the management of orchard houses. Some seem to have thought that it was enough to build the houses and buy the trees in pots, and have a crop of fruit, instead of which, however, they found that the principal crop was red spider. Unless the owner himself gives attention to the management, or has a reasonably intelligent gardener he cannot expect to succeed; but a gardener of ordinary intelligence who can train a Peach tree on a wall or grow a frame of Cucumbers or Melons will be quite able to manage an orchard house, especially where there is no artificial heat. Continual ventilation, syringing the plants, and removing the shoots that are not required for wood for next year, seem to be all that is necessary. In my opinion, the most important object to be gained in an orchard house is the ensuring the well ripening of the wood in the autumn. In our climate, and especially in deep heavy soils, the tree goes on growing when the wood should be ripening. The orchard house will enable us to prevent the soil being too wet as soon as it is necessary to ripen the wood, and this advantage will continue through the whole winter. Another great point will be that we shall be able to pinch off the shoots at the summer pruning, without the fear of starting the buds, which ought to be the fruit buds for the next year. On this point I should be glad if Mr. Rivers, or some one who has had experience in the management of orchard houses, will give some special instructions. The aspect of the house I have put up is nearly north and south, so that it being a span-roof, it will have the full benefit of the morning and evening sun. I conceive that the roof will fully supply a tank with rain water, sufficient for the use of the house. I shall make a small brick tank at one end, into which the gutters from the sides of the glass roof will lead. This tank and the gutters have not been included in the estimate, and will, I consider, make an addition of 5*l.* to the price stated:—

Estimate for Orchard House 100 feet long by 16 feet wide, with span roof glazed with 16 oz. glass, sides 4 feet high, of feather-edge boards and Oak posts. Door at each end, and ventilating flaps at sides, complete.

The timber and boarding,	5s. 0d.	per foot run ...	£25	0 0
Labour sundries	3 6	" " ...	17	10 0
Glazing	5 0	" " ...	25	0 0
Total	13 6	" "		
Total for each house, 100 feet by 16 feet			£67	10 0

The above price includes all expenses except the cartage from the nearest goods railway station to the place of building.

Dodman.

P.S. There is a subject connected with orchard houses which requires consideration. I lately put up a large house for forcing Peaches and Nectarines and Figs; this is heated by hot water, and more than one-half is planted with Peaches and Nectarine espaliers trained in the ordinary manner. The other portion is devoted to trees in pots, and although I have been as successful as others with respect to the crops on the trees in pots, yet I suspect that if the space occupied by the trees in pots had been planted as the other part of the house is planted, viz., with espaliers, there would have been a larger amount of fruit obtained, and in this opinion I am fortified by my gardener. If this is so, except where many varieties are required, it will be wise to use the trellis and espaliers in orchard houses instead of standard trees planted either in pots or the ground. I dare say Mr. Rivers and others of your correspondents could enlighten us on this subject. *D.*

Coppice Wood.—As there is a very considerable extent of land of the description referred to by Mr. James Whyte, of Chopwell Woods, "around me," suitable for growing coppice, if such returns can be realised as set forth by Mr. Whyte, would you allow me to ask him where one could obtain a sight of such tracts of coppice as he mentions, in order that we might be enabled to judge if like returns can be obtained of such lands in a given period. Mr. Whyte would oblige by mentioning some of the places where the like returns hold good. *Hill Country.*

More Complaints from Sufferers.—Seeing that you very liberally admit complaints (where they are well founded) to a space in your columns, and as I deem mine worthy of insertion, not only as a gentle warning to parties concerned, but as "a word to the wise" among such of the gentle-blooded amateur class as can lay claim to common sense, you will do with this as seems fit and right. Of this season's delinquencies I will give only three examples, though possessing at least half a dozen others as fair cases of complaint. No. 1. From a printed catalogue of "first-rate Amaryllids" all "strong flowering bulbs" a selection was made and forwarded to the advertisers; in reply, a written list was sent containing only three or four of those in the printed catalogue, and the majority of them of an inferior character, but all stated to be "strong bulbs to flower this season"; from these a second selection was made, aulica and some others which were in hand being peremptorily rejected, the lot averaging about 7*s.* per bulb. The basket arrived, when aulica was first brought out, the next that came, one named as in hand, and of the whole number only three were in the written list, from which the second selection had been made, and of these not more than three will flower this season. These were from——* No. 2. From a party advertising in your Paper "a splendid set of Geraniums" between 20 and 30 plants were ordered for the price given. On arrival 14 only were found, and of these two were duplicates of old Eva. Of six fine Fancies there was not a single plant. The bill followed, with the amount named for the whole lot. So much for Mr.——* No. 3. To another who announces in the *Chronicle* "Fine new Ghent Azaleas set with blooms—strong plants," an order was given, and these turned out to be poor, puny starvelings, not flowerers, and un-

worthy a place in any garden, accompanied by the bill, and an off-hand letter soliciting further orders. The parties were Messrs. ——* Now these are most annoying occurrences, and you get little else but abuse or impertinence on venturing to prefer even the slightest complaint. What is yet more provoking is the inundation of printed catalogues, from which I have occasionally been tempted in some instances to select such things as seemed good, and in the majority of cases it was found that the parties advertising did not possess any of the plants introduced, recommending in place of them something too trumpery for even the poorest collection. I remember reading in a back No. of your Journal a letter relative to a "Protective Association" for amateurs, and I think the time is at hand when something of the kind should be brought forward. I can only say I will readily join with gentle-blooded amateurs in any sound scheme which will assure to them freedom from such imposition and annoyance; and I feel confident that one might be suggested which would meet the case in all its bearings. An establishment self-supporting, exclusively for amateurs, would ensure every plant true, and at greatly reduced prices. All growers of plants for sale would be excluded of course, even if they be gardeners to private gentlemen. What trumpery Fuchsias not worth growing a second season are advertised at 10*s.* 6*d.*!—Dahlias that will not produce one bloom in 100 worth looking on, at 10*s.* 6*d.*!—Geraniums at 2 guineas, of very little, or no merit—Pansies at 7*s.* 6*d.*—Auriculas at 14*s.* and 17*s.* It is becoming a serious affair, and worthy all the attention amateurs can give how to put things on a fairer and better footing, and if in your excellent hebdomadal there should appear from quarters worthy notice a feeling favourable to the project, I would venture perhaps to beg your further indulgence hereafter, regardless of the clamour it might create. *Beatrice.* [The names indicated by asterisks are in our possession.]

Rare Orchids.—Have you ever seen the Cyrtochilum stellatum of the Sertum orchidaceum in bloom? I have a plant now coming into flower which I obtained from Mr. Bateman's collection at his sale under the name of Miltonia stellata. It is a very oddly behaved plant, and I have had it five or six years without ever getting it to flower. Its characteristic is the singular persistent bracts of the scape, which are like semi-transparent parchment before the buds escape, forming a very odd fluted transparent spatula roughly sketched on the opposite side. I have at last got half my plant to flower by keeping it very cool in winter and giving it heat when the spikes begin to come up; but why the other half of the plant on the same block does not flower I cannot guess. It is one of those which flower at the season at which Orchids are not often exhibited, and so I have never chanced to see it, if it flowers in many collections; but it is one of those Orchids requiring a low temperature which are generally mismanaged by inexperienced growers. Brassavola glauca has flowered (N.B. I have had it 17 years without flowering) well with me this year by exposure to great light with starvation on a bare block in the top of the house. *J. R.* [We never saw Cyrtochilum stellatum alive more than once; it is now referred to the genus Miltonia; see *Folia Orchidacea* under that word. Cultivators will not be slow to profit by the experience of our skilful correspondent.]

Hermaphrodite Sallow.—A common wood Sallow (Salix Capræa) growing in Ongar Park Woods always produces hermaphrodite flowers, but in some instances one-half the catkin is male, the other half female. In general, however, they are similar to those sent. When the tree is in flower it looks as yellow as the other male trees near, but instead of the catkins falling off as usual they produce seeds like the female trees. Is this a common occurrence? *Henry Doubleday, Epping.* [Quite the contrary.]

Enormous Yam.—I cannot recollect where I first saw the statement in reference to the large "Yam" or "tuber" of which I have already spoken to you; but I have just alighted on the particulars of its dimensions (in Chambers' Journal), which fully equal what I reported to you as to its size. It was sent to the Académie at Paris from Mexico, and measured 2.51 metres long, 89 centim. in circumference, and weighed 86 kilos. Perhaps some of your correspondents may be able to furnish some information respecting it. *J. W.*

Garden Tools.—There is certainly an unaccountable apathy among gardeners on the subject of improving the tools they work with. You will find whole pages of gardening periodicals occupied by a minute detail of the method of cultivating some particular plant, beginning at the putting in of the cutting and ending with the full-blown specimen; whereas all the *specialty* (as Mr. Bailey terms it) of that particular mode of culture might have been clearly explained in a dozen lines. And yet the same writer will not devote a dozen lines to make known a superior tool, or to express an opinion upon the merits of a new invention. Having broken the ice on this subject, I fully expected to see in the *Gardeners' Chronicle* a great number of suggestions and opinions, some of which might have been turned to a good account by implement makers previous to the coming exhibition in the garden of the Horticultural Society; but the only responses hitherto made have been by Mr. Boyd, who naturally recommends his own productions, and by Mr. Kershaw, who describes a rake which he considers better than the one preferred by me (which, by the bye, has nothing new about it). If I rightly understand Mr. Kershaw's description, the teeth of the rake he uses are as wide at the end as they are in the middle; if so, these rakes cannot be generally known, and therefore I trust that Mr. K. will give us all an opportunity of judging them by sending one to the Chiswick Exhibition. Possibly, too, one of your Irish readers will take the trouble to send over a watering-pot similar to those in use in the vicinity of Dundalk, and perhaps in other parts of Ireland. These have a rim of stout tin attached to the lower part and projecting an inch or so below the bottom of the pot, which rim serves as a footing for the pot to rest upon and prevents the bottom from touching the ground. Now the bottom of an English made watering-pot is only protected by three little hemispherical pieces of tin fastened on by solder, and these soon get either worn off or broken off, when the bottom of the pot must come into contact with the ground and be thereby worn into holes; the aforesaid rim is consequently an improvement. This, however, is the only Irish implement I have seen which supplies the remotest hint for the improvement of our own. Had I been born in Ireland I might without impropriety have said that their tools "are still in a state of nature," for so perfectly primitive and unimproved are their forms that an antiquarian might be led to suppose that they had once formed part of the furniture of Noah's Ark. *A Gardener.*

Japan Lilies.—The correct botanical names of the Lilies brought by M. Siebold from Japan some few years ago are not generally known. They comprised three distinct varieties, known in gardens as album, punctatum, and rubrum. I believe, too, that punctatum is sometimes called roseum, and that rubrum is often named speciosum. Are these three kinds varieties of one species, and is that species properly called Lilium lancifolium? If so, which is the type, and which the varieties? I am aware that some seedling sub-varieties have been produced in this country, but these do not affect my questions. *J. B. W.*

Pyrus japonica.—It has often struck me as singular that this elegant plant has not been elevated from a mere shrub into a very beautiful tree by being grafted or budded on the common Pear stock, to which I believe it is allied. Supposing a young Pear tree, say 12 or 15 feet high, was selected, well furnished with branches, then grafted or budded with the Pyrus, what a magnificent object it would present in spring on a lawn or against a background of Laurel in front of the shrubbery, or against the darker Holly. Both the crimson and the pink would have a very beautiful appearance trained over a circular arbour, as I have seen the Weeping Ash, the stem of the tree forming the centre support. How beautifully the slender branches would droop down on all sides. I know a Pyrus japonica (crimson) that is trained against a south wall 15 feet high, for the eldest son of the lady who resides there and myself measured it, to be certain of the fact. It is now covered with blossom from head to foot, and already presents a most beautiful appearance, although very many of the blossoms are not yet expanded. Of course if it can be trained up to that height it will much more naturally droop down to the same extent if used in the way I have mentioned, and what a magnificent appearance it would have. But the shrub has the bad quality of dropping its fruit generally speaking before it is ripe. Perhaps a remedy may be found for this. I remember once being in the Horticultural Gardens at Chiswick with my brother (who was a member), and in passing along we saw one fruit perfectly yellow lying at the foot of a crimson Pyrus that was trained against a wall. My brother took it up and smelt at it, and then handed it to me. The scent was delicious, and the appearance of the fruit altogether exceedingly pretty. I gave it back to him, and he having more curiosity than discretion just then took a bite. I was watching his countenance to see by that index what the taste of the fruit might be, and to my infinite amusement his face changed all of a sudden; he dropped it as if it had been a hot coal, put his handkerchief to his mouth, and called in a smothered voice for water, which was easier asked for than got; however, after some search we found the desired liquid, and while he was industriously engaged in rinsing his mouth I asked him in a very demure tone of voice how he relished his Pear. Straightening himself up, and looking as if he would have bitten a piece out of me too, he informed me in a remarkably sulky tone of voice that the taste was that of a teaspoonful of red hot Cayenne pepper. And yet I have read somewhere that this very fruit if properly preserved makes a most piquant marmalade, altogether superior to anything else as being less cloying, and by the mere fact of preserving losing all its fiery property. The Manioc root, it is well known, as long as the juice remains in it is a deadly poison; but if this is expressed, the pulp thoroughly dried and grated becomes the tapioca of commerce. If the one can be so converted, I do not see why the other should not be; however, it will be well to be cautious in its use before being quite certain of its harmlessness. The fruit may be served as I once did in Guernsey some years ago, when there with my brother. The women and girls of Normandy, in their tall steeple-like hats of linen, with something very like butterflies' wings by the side of the face, used to bring many species of beautiful fruit to that most convenient of covered market places at St. Peter's Port, and among the rest some monstrous Chaumontelle Pears which, being a schoolboy then, took my fancy completely, but on nearer acquaintance proved so remarkably hard that I could make nothing of them, but on coming away I bought one of the largest as a curiosity, never dreaming it would be good for anything. Well, after showing it at home I locked it up in a warm dark closet in my bed-room and forgot it for full six weeks; on opening this place by accident at the expiration of that time a most delicious fragrance issued forth, and something glimmered bright and golden in the interior, which turned out to be my hard-hearted friend just at the very pitch of ripeness. I took it down to my brother and we discussed it together, and agreed that it was perfectly delicious. Now if warmth and darkness will so act on the Chaumontelle, why may it not do so on the other?—in which case we should have the superb blossom on the tree in early spring—the graceful pendulous branches during summer—the contrast of leaf and fruit in autumn—and this most toothsome preserve for Christmas. *F. N., Ludlow.* [We must observe that we never found anything acrid in the plant in question, which is a Quince and not a Pear. The fruit is merely austere.]

Jackdaws and their Eggs.—In answer to "Thorpe Perrow," as regards jackdaws' eggs being substituted for plovers', I spoke off book, as it were, "that it is a very generally received opinion in the country that any eggs that will pass muster are substituted as plovers', on account of the great gain obtained thereby," but if he comes to particulars I am quite ready to meet him, as we have all the eggs mentioned in our very excellent Museum at Ludlow, which would be a credit to any town three times the size. What he says of the length of both plovers' and jackdaws' eggs is quite correct, but our rooks' eggs would decidedly pass muster as regards size and general appearance, barring that they are lighter in colour. "Thorpe Perrow" states that the water-hen's eggs are frequently sold, but there he stops short; does he mean sold as plovers' eggs?—if so, they are sold under a false name, just as Tea is adulterated with Sloe leaves, which would bear out what is generally believed. We have the water or moor hen's egg too in the Museum, and they are of a lightish and yellow appearance, and would pass muster for size, but decidedly not for colour, to any one who turned their attention that way. I have heard likewise that the eggs of the redshank are often substituted. I did not say positively that jackdaws' eggs were put in lieu of the plovers'—the sentence runs thus:—"Their eggs often sell in London for 3*s.* per dozen, and the country people, it is said, make up the number with jackdaws' eggs." This cannot be construed into a positive assertion, but as a very generally received opinion. Does "T. P." deny that other eggs are often substituted? A friend of mine has used salt extensively both in his garden (late at night) and over his Wheat, and reports very favourably of it. He states likewise he did not hesitate to toss it over his green crops in the garden, and found no ill effects, still the birds would be exceedingly useful, as they would find the slugs under the leaves where the salt would not penetrate. Another friend had a pair in his walled garden and they became exceedingly tame and useful, but the cats destroyed them. Waterton in his Essays on Natural History, second series, states, "that the windhover hawk is excellent for killing beetles, and also for consuming slugs and snails. Cats dare not attack him, wherefore he is very fit for a garden." Of course small birds will not come in his neighbourhood, which will materially save the crops. "J. R." can easily try all these plans, and it is to be hoped his troubles will cease. *F. N., Ludlow.*

Garden Ornament.—Your correspondent is quite right as to the curious anomaly that those who are so capable of appreciating beauty in one particular are totally insensible to it in another. Red being the complementary colour to green, which after all is the prevailing colour in plants even in flower, is the fittest for pots, the only variation from which allowable is a brownish red for very light bright flowers, and a yellowish red for darker. See Chevreuil *passim. Somerset.*

Fruit Tree Protection.—In your Number for the 4th of April (p. 233*a*), it is stated by Mr. Bailey—"Supposing an Apricot tree to be covered from a frost of 10° at night, and the following day to be bright, and the canvas not removed, every blossom would probably drop." Is this so? I thought that light was prejudicial to recovery from frost. *J., Hampstead.* [Probably Mr. Bailey will answer this inquiry.]

Ranunculus Ficaria.—What is the surest way of destroying the bulbous root of the common Celandine? It spreads quickly, and its broad leaves soon destroy Grass, and as the leaf dies when the plant has done flowering, the lawn is left bare for the rest of the year. Wood pigeons eat the root greedily, and the plant is sometimes encouraged to keep these birds out of the kitchen garden in winter, but near a town other means must be resorted to to destroy the plant. *A Lady.*

The application of Sulphur for the destruction of the Vine and Hop mildews is a question of considerable importance; it is, therefore, desirable that some effort should be made to ascertain its mode of action, which would appear to be due to one of three causes. Either (1st) to some peculiar effect of sulphur *per se*, or (2d) as was suggested in your columns some time ago, to the action of sulphurous acid formed by the oxidation of the sulphur by the nascent oxygen liberated by the leaves; or (3d) what appears to me most probable, to the action of accidental impurities almost invariably found in commercial sublimed sulphur. It is exceedingly improbable that sulphur by its mere presence as such could exert any influence either one way or the other; indeed it has been found by direct experiment in France, that powdered roll sulphur is useless, and I can see no reason why roll sulphur could not be substituted for sublimed sulphur, if its action were due to its mere presence. The second

hypothesis appears to be more probable, but it is also open to many objections. In the first place it is, I believe, purely hypothetical, being unsupported by any direct proof. On the contrary, some experiments which I made with perfectly pure sublimed sulphur totally failed to support it. Again, the very weak affinity of free sulphur for oxygen at ordinary temperatures renders it exceedingly improbable; a temperature of 220° at the lowest being required to oxidise sulphur (except in the presence of a base). But granting that such an action does take place, the sulphurous acid from its great affinity for oxygen would instantly acquire another atom of oxygen from that liberated by the plant, in preference to that of the surrounding organisms, and be converted into sulphuric acid; so that it would be to the latter rather than the former that the action is due. The presence of free sulphurous acid in sublimed sulphur has, I believe, been hitherto overlooked, and it is probably to this source rather than to the sulphur itself that the action is due. Any one may convince himself of its presence by simply washing a small quantity of commercial sublimed sulphur with hot water, and testing with blue litmus paper. Its presence is due to the combination of sulphur with the oxygen of the apparatus during the process of sublimation. It is stated by some chemists to be sulphuric acid. It is probable, however, that it differs in different samples, the sulphurous acid of freshly sublimed sulphur becoming in old samples sulphuric from the absorption of oxygen from the air. This fact of the absence of sulphurous or sulphuric acid from roll sulphur would account for its inaction much more plausibly than its state of division, for the angles of the fractured roll sulphur would be sufficiently fine to be acted on by the nascent oxygen, if any such action takes place with sublimed sulphur. The question can however be decided only by direct experiment, and the following two or three simple ones would do much to clear it up. 1st. Apply pure sublimed sulphur to the diseased plants in the usual manner. It may be prepared by washing repeatedly in hot water till the water ceases to redden litmus paper, and drying at ordinary temperature. If it is found to be effectual, its action must be due either to the sulphur *per se*, or to its oxidation by the nascent oxygen. If ineffectual, the action of sulphur is due to the impurities removed by the water. 2d. Apply finely powdered roll sulphur; it has been found inert, it is probable therefore that its action is not due to sulphur *per se*. 3d. Apply the precipitated sulphur of pharmacy. This is the milk of sulphur of the shops, and if properly prepared is free from sulphurous or sulphuric acid, and is in a finer state of division than sublimed sulphur. It should be well washed before it is used, as sulphuric acid is often fraudulently used in its preparation. If it is inert, the action of sulphur cannot be due to the sulphur *per se*, or to its oxidation by the liberated oxygen; if it is active, it is probably due to oxidation of the sulphur. Many other experiments might be tried to confirm the above, such as using a weak solution of SO_2 and SO_3 in water, or some fine powder, as charcoal, starch, &c., which have been exposed to sulphurous acid gas. It would be useless to speculate as to whether it is sulphuric or sulphurous acid which exerts a beneficial influence in destroying the mildew, until the above questions have been decided. It is probable, however, that, if the former, its action is due to its great affinity for water, if the latter, to its great affinity for oxygen. In conclusion, I need hardly observe that if my hypothesis can be established it will lead, in an economical point of view, to most important results in the application of sulphur. *C. Roberts, Raby Castle, Darlington.*

The Gardens, Green Hill, Philadelphia.—The following is a copy of a letter received from a young man who lived with me as under-gardener two years ago. He says:—"I arrived in Boston on the 26th of May after being 26 days at sea. Boston is a fine town, and has a splendid park and many fine public buildings. Gardening and nursery work go ahead here; there is a fruit and flower show weekly. Mr. Hovey's nursery will compete with most English ones, and I should think leave them in the shade for fruit trees. At the Philadelphia Horticultural Show he exhibited 148 different specimens, and this last fall sold 500 bushels of Pears. Grape growing is carried on very extensively here; they have no artificial heat; any kind of a structure will do, and they will grow as much in one season as they will with you in two under any circumstances. I have seen Black Hamburgh bunches weigh 22½ and 23 ounces. Grapes, Peaches, Pears, and Apples appear to be quite at home here. I have seen Peaches sold much cheaper than I ever saw Potatoes in England. I resided in Boston until September 18, 1855, and was employed as a bouquet maker at 35*s.* per week. I had my board for 14*s.* 6*d.*, and could have had it at 10*s.* per week. You think there is no place like old England for living, but I assure you America beats it. I spent a week in New York. It is a splendid city; in my idea it surpasses London; the houses are built with red brick and white marble corners, and they look very well; the streets are long and regular, the houses are in squares every way; and what strikes one most is the trees growing along the sides of the walks. They are planted for the sake of keeping off the hot sun. There are seats all about the city and all along Hudson River; the scenery is grand about New York—the Hudson is a noble river. There are a great many nurseries in the neighbourhood. Ellwin's and Barry's comprises 300 acres, all planted with evergreens and deciduous shrubs; the work is done principally by horses, particularly the cleaning, as they cannot get men. I knew a nurseryman to offer 15*s.* per week, with board and lodging, and could not get a man. I often thought what a pity it was that good men were losing their time in the country nurseries in England, when they would be so useful out here. We are under no obligation, nor have we any need to care for any one after we get known. From Boston I enclosed Mr. Henderson's note to Mr. Buist, and on receiving my letter he wrote for me at once. I could have obtained three situations the first day I arrived in Philadelphia; it has become one of the cleanest and handsomest towns in the country; there are 500,000 inhabitants, and twice as large as any European town of such a population, as you will see; the back streets are as wide as the Edgeware Road or Oxford Street. Gardening about Philadelphia is very fine; it will compete with Liverpool. It has a monthly meeting, and the attendance of a Professor of Pomology; the greatest citizens patronise it. I have a very comfortable situation, wages 72*l.* per annum, with board, &c. I have an orchard-house, plant-house, greenhouse, Grapery, and pits for forcing vegetables. I have to superintend the woods, no one interferes with me. This is a great country for over men, people do not support old firms here; if any one commences nursery business and raises good "stuff" you can sell it (though a new beginner in the business) equally as well as a man who has been in it his litetime. The weather is very fine here all February, the thermometer being frequently 60° in the shade. In January we had it 16° below zero, and frequently 10° below, though our winter was but part of December and January; the frost commenced in September, but the sun is too powerful for the frost to have much effect then. We have beautiful weather up to Christmas, then after that we have to see that our ears, fingers, and toes are not frozen. It is a frequent occurrence to hear of people saying, I got my ears froze, or toes and fingers, in the winter of 1855. The ground gets frozen like an iceberg from Christmas until April. Then is the time for sleighing and hunting. The lower class all look for a good time at sleighing. Plenty of greenhouse plants bloom well out of doors here. Bignonia grandiflora, Mandevilla suaveolens, and hundreds of others bloom splendidly here. Paulovnias, Catalpas, and Magnolias scent the whole forests. Please to tell Henry Thomas that this is the place for him, or any other young man who would conduct himself properly.—March 1, 1857." *W. H. Montford, the Gardens, Kinmel Park, St. Asaph, N. Wales.*

Societies.

Linnean, *April* 7.—Prof. Bell, President, in the chair. J. E. Gray, Esq, Ph.D., T. S. Cobbold, Esq., M.D., and W. Fitch, Esq., were elected Fellows. The following papers were read:—1. "Extract from a letter addressed to the President, by Dr. Guy of King's College, on a curious change in the colour of the hair produced by exposure to the effluvia of green Ebony." The case was that of a turner named Ford employed by her Majesty's Government to turn several thousands of round rulers for the use of the army in the Crimea. They were made from the wood known as green Ebony, which, it was stated, was generally used for this purpose. The man's hair and that of his children, naturally of a light chesnut colour, became changed, except towards the roots, to a curious yellow-green, whenever he was engaged in turning this wood; while his wife's hair, which was black, underwent no change. The exposed parts of the skin and the urine were similarly affected. 2 "Memoir on the Dentition of the Salmonidæ, with some Observations on the Relation of Species to Genus or Natural Family," by R. Knox, Esq., M.D. 3. "Notes on the Food of some Fresh-water Fishes, more particularly the Vendace and the Trout of the Salmonidæ," by W. Baird, Esq., M.D.

Notices of Books.

The Cause of the Potato Murrain, ascertained from a series of Experiments. By Dr. J. Speerschneider.*

In the course of some microscopical observations of diseased Potatoes in the autumn of 1855, I met accidentally with germinating spores of Fungi on their surface. These spores belonged to *Peronospora devastatrix*†, the well known fungus by which the unhealthiness and at length the destruction of Potato-leaves is induced. This single casual observation suggested the possibility of these spores being the sole cause of the Potato murrain. In confirmation of this notion I undertook a series of experiments which I shall detail under the following heads, and which as I believe show most clearly how and whence the tubers at least of the Potatoes become diseased, and what opinion we are to form of the malady.

1. Four garden pots were filled with loose soil, rich in humus, taken 2 feet below the surface of a field, where Potatoes had never been grown. In two of these pits Potato leaves were placed covered with the perfect Fungus. Young thin-skinned perfectly sound Potatoes were placed in immediate contact with these leaves, and the whole covered with some of the same soil. In the two other pits exactly similar tubers were placed, with every precaution however to prevent their contact with any diseased foliage. The soil in both sets of pots was kept tolerably moist for about 14 days, at the expiration of which the tubers were taken from the pots, when those which were in contact with the sickly leaves were all diseased, while in the two other pots from whence the leaves were excluded, all the tubers remained sound.

2. In a second series of experiments instead of soil I took pure river sand, following in other respects the same course as before. At the end of 12 days I had the same results as in No. 1. The same experiment was repeated several times with the same success.

3. A pot was filled with diseased Potato leaves between which large and small, old and young, but perfectly sound tubers were placed, and the whole kept rather moist. In a fortnight some of the tubers were diseased. These were exclusively the younger tubers with a thin cuticle. The older, which had a cuticle consisting of many layers of cells, remained sound.

4. In another experiment conducted in the same way, except that the leaves were kept quite dry, both the young and old tubers at the end of three weeks were still sound.

5. Twenty-four perfectly sound tubers were taken, 12 of which were still young with a very tender cuticle, while 12 were much older, with a thick and firm cuticle. All were carefully cleaned and washed with pure water. Pieces of Potato leaves abounding in spores were applied to them indiscriminately, and all were placed in a pot filled with moist earth. At the end of 10 days the younger thin-skinned tubers were all more or less diseased, while the 12 others were quite sound. When I examined the diseased spots with the microscope, it appeared that a quantity of the spores of the *Peronospora* had either begun germinating on them or their threads had penetrated through the tender cuticle into the subjacent parenchym. The cells in the neighbourhood of the mycelium had begun to assume a brown tint and to decompose.

6. I then took six old thick-skinned perfectly sound tubers, removing a portion of the cuticle and applying to the denuded places pieces of the leaves covered with spores. These were treated precisely in the same way as in No. 5. At the end of 10 days all the six tubers were diseased. The disease had manifestly originated from the exposed patches. Germinating spores of *Peronospora devastatrix* had sent forth threads into the parenchym of the tubers.

7. Another series of experiments was conducted in the following way:—I took 12 partly young, partly old tubers, perfectly sound, and very carefully washed. A piece of the cuticle was separated in each in such a manner as to adhere still at one point. Spores of the *Peronospora* were then placed upon the exposed surface and covered by the cuticle which had been displaced. The tubers were then wrapped in moist linen to protect them from external impurities, and placed in moist earth. At the end of a fortnight all were diseased. The disease had clearly originated at the wounds, in which, as appeared on microscopical examination, the germinating spores had sent down their threads into the subjacent parenchym. Mites also were extremely abundant, but these were mere casual attendants of the disease.

8. From the tubers in which I had induced disease by means of the spores of *Peronospora*, and which I had carefully kept and observed in a moist cool place, a white mould at length burst forth in little heaps, which proved to be *Fusisporium Solani*. The experiments which I made with its spores are yet imperfect; but I believe that I may assert that the tubers are not so easily diseased by them, if at all, as by the spores of *Peronospora*. It is however probable that they pass the winter in the earth or amongst the stored tubers, so as in the following year to come in contact through various accidents with the Potato leaves, and so to produce the well known *Peronospora devastatrix*.

From these experiments, which are easy of institution, and to the repetition and further proof of which I invite attention, the following inferences are clearly deducible.

1. That the disease of the tubers is in the closest connection with that of the leaves.

2. That the disease of the tubers is deduced from the Fungus of the stem and leaves from which the spores reach the tubers.

3. That this disease consists of the penetration of the germinating threads of the spores into the parenchym, the cells of which, partly perhaps mechanically, partly chemically, are impeded in their nutriment and destroyed. The Fungus threads are therefore the cause and not the consequence of the disease.

4. That the penetration of the mycelium can take place only in tender-skinned tubers, or in those of thicker skins when wounded.

5. That dryness impedes the disease, or even prevents it altogether, while moisture encourages it.

6. That since *Fusisporium Solani* is derived from *Peronospora devastatrix*, both are merely different forms of one and the same Fungus.

If these assertions are correct, as I believe them to be, and as any one will be convinced who takes the pains of repeating the experiments, there can be no more doubt about the actual cause of the Potato murrain, although we have no experimental proof in what way the disease extends from the tubers to the stem and leaves, or how *Peronospora devastatrix* springs from *Fusisporium Solani*. All the numerous phenomena and conditions, formerly so dark and enigmatical, when observed from this point of view seem simple and easy

* From *Botanische Zeitung*, Feb. 20, 1857.

† This is merely another name for *Botrytis infestans* of Montagne.

I might adduce a multitude of such conditions, would it not lead me too far. Any one who has learned to observe, and to estimate facts accurately, can easily give an explanation himself of the different phenomena.

The ripe spores of the Fungus on the leaf are cast off or carried by rain to the soil at a time when it is loose, and thus brought in contact with the tubers, where they germinate under favourable circumstances, and finally induce decay, which is completed by worms, mites, insects, and their larvæ. The wind and currents of air carry the spores to places where they were not originally present.

A remedy which promises a sure relief to this disease, which has undermined the welfare of whole nations, may be derived from the circumstance that the leaves of the Potatoes, though at first mediately, are the cause of the disease. It is my intention to explain and substantiate this remedy in a small pamphlet intended for public use, and to invite more comprehensive experiments in its confirmation.

Garden Memoranda.

Mr. Matthews' (late Mr. Groom's) Nursery, Clapham.—This nursery has undergone considerable alteration since it came into Mr. Matthews' possession. Instead of being almost wholly devoted to the growth of Tulips as it was when Mr. Groom had it, it is now to be occupied with general nursery stock, of which however bulbs such as Japan Lilies, &c., are to form a prominent part. These are not to be grown so much in pots as in open beds, for which they are well suited. They bloom profusely in autumn, and requiring as they do no protection in winter are beginning to be sought after as they deservedly should be for planting by the sides of drives and in shrubbery borders along with herbaceous plants. Of the hardiness of the charming bright orange-coloured Cape bulb Tritonia aurea some doubts have been entertained; in order to settle these Mr. Matthews has just planted a long bed of it, from which the plants are not intended to be moved; an opportunity will therefore thus be offered not only of proving whether it really is hardy or not, but also of ascertaining what kind of effect it will produce as a mass plant. A bed of Siberian Squills has until within the last few days been literally studded with flowers. Few early spring plants are so showy as these, and yet, strange to say, they are by no means common even in good gardens. Among other plants in bloom in the open ground were common Primroses, Pansies, which are very showy at this time of year, Polyanthuses, and red and white Daisies. The last are used chiefly for edgings. The long border by the side of the entrance walk is to be planted this season on the ribbon fashion. Rows of the more dwarf kinds of bedding plants are to be placed next the walk; behind them will be Pæonies, then a row of Dahlias, and last of all Hollyhocks. An arrangement of this kind cannot fail to produce a striking effect. The principal Tulip bed for which this nursery has long been celebrated is this year to be planted with Verbenas; as it is about 200 feet long they will not only have an extremely brilliant appearance, but as they are to consist of all the newest and best varieties, an opportunity will be afforded of judging which are the best for the purpose of massing as well as for general effect.

The show house is at present gay with flowering plants, which are arranged on side shelves; in the middle are two good specimens of the scarce Alsophila australis. These are placed on the top of some rockwork, and backing them is a bank of flowering plants. The outside walls of this house are covered with Pyrus japonica, both the pink and scarlet varieties of which are at present one mass of showy blossoms. Well known as these plants are they are not half so much grown as they should be. For spring and autumn decoration they are invaluable. A new "soft-wooded" and propagating house has just been put up, and it is intended soon to erect a Camellia house, 75 feet in length. The latter is to face the north, an aspect in which the blooms are expected to keep longer in perfection than if they were more exposed to the sun. The propagating house, which is span-roofed, has plunging beds (on each side of a centre pathway) heated with 4-inch hot-water pipes laid in a hollow chamber. In the brickwork are openings furnished with flaps or hinged shutters which when the bottom heat gets too strong can be opened and thus allowed to pass into the house. This dries up all superfluous surface moisture, and at the same time warms the atmosphere. Under this arrangement cuttings strike readily and thrive satisfactorily.

A new entrance has been made to this nursery from the Bedford Road; this is to be ornamented with flower beds on Grass. A small field on the east side of this nursery has been all trenched three feet deep and planted with young pyramidal and other fruit trees which appear to do well in their new situation. The soil being newly broken up and naturally rich, no manure was applied to it. Between the trees it is planted with Potatoes.

Calendar of Operations.

(For the ensuing week.)

PLANT DEPARTMENT.

Conservatory, &c.—Heat and moisture may now be more liberally supplied to tropical plants. As the season advances these should be gradually increased; but in all cases avoid a high night temperature—for those plants that are growing most actively 60° are sufficient at this season. The necessary night temperature must be principally obtained by closing early and so retaining the heat derived from the sun, and when fires are required they must not be so strong as to render it necessary to admit currents of cold air for the purpose of keeping the thermometer down. Cold air must, indeed, be used with greater caution now than when the plants were in a dormant state, for the admission of cold currents during the development of young growth frequently gives it a check, and so injures the tender foliage as to spoil the future appearance of the plant; a cold current of this description is very different from the moderate circulation of the air which is necessary in all plant structures. Give proper attention to Achimenes, Gloxinias, and other summer and autumn flowering plants. The latest succession of Achimenes to flower late in the autumn should now be placed in heat. Some of those in former successions may be potted for hanging vases, for which A. longiflora and cupreata are particularly well adapted. Prefer pans or broad shallow pots for their general cultivation, and as they require an abundant supply of moisture when they are in flower, let the drainage be as efficient as possible, in order that they may be freely watered without stagnating the soil. Let that useful summer and autumn flowering plant the Fuchsia have its due share of attention by repotting them as they require it in rich compost, and occasionally watering them with liquid manure. Much, however, of their beauty depends on the shape of the plant. Nearly all the varieties of Fuchsia have a natural tendency to form pyramidal bushes, and by a little attention they may be guided into this very appropriate form; only one shoot should be allowed to take the lead; this one should be trained perfectly upright, and the side shoots regulated by stopping any exuberant ones which are outstripping their neighbours.

FORCING DEPARTMENT.

Pineries.—Where the houses are glazed with large-sized squares, and the plants are close up to the glass, a thin shade will be of great service on bright days; but only a thin material should be used, for the object in shading should be to break the force of the sun's rays, not to darken the house. Give air rather freely on fine days, but shut up early in the afternoon, sprinkling the growing stock lightly with the syringe and well loading the atmosphere with moisture by sprinkling every available surface. See that plants growing in the open bed are properly moist at the root, giving a thorough soaking when the soil is found to be dry, for mere surface watering is of no use here. Fruit beginning to change colour should be afforded as dry an atmosphere as circumstances will admit. Endeavour to keep newly-potted stock as much together as possible, in order to be able to afford it rather more shade and moisture and less air, until the roots strike into the fresh soil. Queens, intended to furnish the autumn supply of fruit, should by this time be well established in their fruiting pots; and where this is not the case they should have every possible attention, for it is easier to retard these than to induce growing plants to show fruit. Vineries.—Where it is desirable to retard the breaking of the Vines in the late house as long as possible, and the glass cannot be removed nor the Vines exposed to the open air, they should be let down as far from the glass as can be done, shading the roof, and giving all the air possible. We are not quite certain, however, that there is any decided advantage in retarding Vines by artificial means after this season. We would almost invariably allow the buds to start at the bidding of the weather after this time, merely giving all the air possible, and take chance as to the fruit keeping until next March, preferring the certainty of a crop of prime fruit to being able to furnish a very late supply. Weakly or overcropped Vines ought to be very carefully examined for red spider, which may be expected to make its appearance on these, particularly if the weather becomes bright, and means should be used to thoroughly eradicate it the moment it is perceived. Probably the best method is to well wash every affected leaf with a sponge, for it is useless trying to overcome it in such cases by syringing, which only serves to keep it in check, and when the fruit begins to colour, and syringing must be laid aside, it will increase with fearful rapidity. Keep the atmosphere moist, sprinkling the floors, &c., frequently on bright days, and take care that inside borders are well supplied with water.

FLOWER GARDEN AND SHRUBBERY.

Lose no time in potting off bedding plants or pricking out into frames or boxes young cuttings as soon as they are sufficiently rooted, and seedlings, as they will bear handling. As the potted-off plants become established they should be hardened off by gradually inuring them to the open air. The hardier kinds may be set upon a bed of coal ashes or plunged in old tan in the open air, and protected at night by hoops and mats. If the plants in small pots are plunged in old tan, ashes, or some other light material, much of the labour of watering will be saved, many deaths avoided, and the plants will altogether be in a better state when planting-out season arrives. Patches of some of the more showy of the hardy annuals should now be sown in vacant places, which usually exist in the herbaceous beds and in the edges of clumps and borders in the shrubbery. Among the many kinds excellently adapted for this purpose we may mention the following:—Double Poppies of various colours, Lupins, Sunflowers, African and French Marigolds, Godetias, Erysimum, Clarkia, Gilia, Collinsia, Silene, Escholtzia, Nemophila, Nolana, &c., not forgetting the old-fashioned favourite Mignonette. A sufficient quantity of cuttings and seedlings of half-hardy climbers should now be potted for planting out in May, with such plants as Cobæas, Maurandyas, Lophospermums, Calampelis, Loasa, Tropæolum canariense, &c.; many bare places on the walls and trellises may be covered and made ornamental which would otherwise be unsightly blemishes on the general appearance of the place.

HARDY FRUIT AND KITCHEN GARDEN.

Commence the disbudding of Peaches and Nectarines by removing a portion of the superfluous shoots now, and in a week or 10 days go over them, and regulate them finally. After the blossoms are fairly set, advantage should be taken of a fine morning to wash the trees with the engine, for the purpose of removing decayed blossoms and destroying the greenfly. The superfluous shoots of Apricots should also be removed, and the remaining shoots carefully examined in search of the green caterpillar, which not only injures them, but also eats holes in the young fruit, and thereby causes them to gum and grow deformed, or fall off before they are stoned. Wherever these pests are observed, let them be destroyed by gently pressing the leaves in which they are lodged between the thumb and finger, after which the trees should be washed with clear water from the engine. After the fruit is set more is to be feared from the ravages of the caterpillar than from either frosts or storms. As regards vegetables continue to make periodical sowings of Spinach once a fortnight, and Peas, Beans, and Turnips once in three weeks. Successional sowings of all Salads should be made with strict regularity and proper attention paid to preserving them from the ravages of birds and insects, as a deficient supply of these little necessaries is inexcusable after this month. If the crops of Onions, Leeks, Parsnips, Beets, Salsify, Scorzonera, and Skirret are not yet sown, no time should be lost, and the latest period for sowing the main crop of Carrots is near at hand. A sowing of tall Kidney Beans may now be made in early localities; the early sowing of this useful vegetable not unfrequently gets cut off by late spring frosts, but when this happens the ground should be left undisturbed, as shoots will be produced from beneath the surface which will furnish a crop nearly as soon as the leaders would if they had remained uninjured. The sooner stakes are put to rows of Peas after they are sown the better, as at this season of the year they afford a slight protection to the young plants as soon as they appear above ground.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 16, 1857, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 10	15	29.465	29.370	65	39	52.0	51	48	S.E.	.00
Satur. 11	16	29.523	29.417	50	30	40.0	52	48	N.W.	.09
Sunday 12	17	29.463	29.038	54	32	43.0	50	48	S.W.	.06
Mon. 13	18	29.444	28.976	47	32	39.5	49	47½	W.	.16
Tues. 14	19	29.465	29.273	52	24	38.0	48½	47	N.W.	.00
Wed. 15	20	29.680	29.563	55	25	40.0	48	47½	S.W.	.09
Thurs. 16	21	29.886	29.763	51	27	39.0	47	46	S.E.	.13
Average..		29.561	29.343	53.4	29.8	41.6	49.3	47.4		.53

April 10—Foggy; low white clouds; cloudy at night.
— 11—Overcast; cold rain; fine; rain.
— 12—Fine; masses of white clouds; cold showers; lightning at night.
— 13—Cloudy and cold; showery; rain; snow-showers.
— 14—Clear; very fine throughout; frosty at night.
— 15—Frosty; clear; exceedingly fine in forenoon; heavy rain; frosty.
— 16—Slight fog; cloudy; hail shower; showery; fine.
Mean temperature of the week 5 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 31 years, for the ensuing week, ending April 25, 1857.

April.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19	58.4	35.5	46.9	7	0.45 in.	6	9	2	2	1	6	5	—
Mon. 20	59.7	36.0	47.8	14	0.25	3	7	4	1	—	8	5	3
Tues. 21	58.3	38.5	48.4	13	0.28	2	6	5	3	2	4	8	1
Wed. 22	58.2	38.2	48.2	16	0.32	4	8	5	2	1	4	5	2
Thurs. 23	58.4	37.8	48.1	15	0.52	1	6	4	1	4	4	5	6
Friday 24	58.4	35.5	46.9	11	0.60	5	4	5	4	1	7	3	2
Satur. 25	58.7	37.9	48.3	13	1.40	4	8	4	1	—	7	5	2

The highest temperature during the above period occurred on the 25th 1840—therm. 80 deg.; and the lowest on the 24th. 1854—therm. 18 deg.

Notices to Correspondents.

Horticultural Society's Garden: *G F.* Apply to Mr. M'Ewen, the new Superintendent.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Col H.* Oncidium maculatum.

Nitro-muriate of Platinum: *M G.* Apothecaries and Pharmaceutical chemists do not keep it, but they can procure it from their London correspondents.

Peach Trees: *H A.* In our opinion your gardener is right in employing a back of slates to raise the temperature of your Peach trees under glass. Only he must take care that there is ventilation enough.

Shading Material: *Julia.* We are not acquainted with Brown's Floral Shading, but we know that Shaw's Tiffany is excellent. Mr. Brown should show his manufacture at the great Manufacturers Exhibition in the Chiswick Garden next June.

Vines: *S H N.* Undoubtedly Vines should not produce roots from their branches. When they do so it is a sign that the roots are torpid and incapable of feeding: as an equivalent for which the Vines throw out roots in the air, by means of which roots they obtain the food that the border denies them. Though wrong this is not very important, and sometimes cannot be avoided where Vines are forced hard and early and no sufficient means are provided for warming the border. If your border is constantly too cold your Vines will never acquire great vigour. Perhaps it wants drainage, for you are possibly on the cold retentive clay of your county.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals, are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek:—Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

MANURE.

THE NATIONAL GUARANTEED MANURE COMPANY (Limited).—This Company's Manures are guaranteed and sold by analysis. Ten days are allowed to the purchaser for testing the qualities of the manures, and if found inferior to the analyses furnished when sold, and notice be thereupon given at the head office, the Company will take back the manure, return the money paid, and defray all expenses; but after that period the right to object will not be recognised.—For testimonials, analyses, and prices, apply at the Head Office, 2, Moorgate Street, City; and Branch Offices, Bank St., Carlisle.

LONDON MANURE COMPANY (Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops, for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of Guaranteed Quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

PATENT WOOL MANURE COMPANY.—(LIMITED.)

Office, 81, Gracechurch Street, London.
Manfactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

THE PATENT NITRO-PHOSPHATE BLOOD MANURE COMPANY (Limited).

Offices, 109, Fenchurch Street (E.C.).
Manufactory, Plaistow Marshes, Essex.

BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

SOLUBLE PHOSPHATE.

BURNARD, LACK AND CO., Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

CUERO GUANO.—From a given weight of Cuero Guano may be obtained the same immediate results as from a similar weight of Peruvian Guano, while its beneficial effects upon future crops will be felt long after Peruvian Guano has ceased to have any influence. The following is from Professor Way:—

"15, Welbeck Street.

"Sir,—On reference to my books, I find that the Manure which I analysed for you in April last year contained 66½ organic matters, 8 ammoniacal salts (yielding 7 per cent. of ammonia on the Manure) and phosphoric acids, soluble in water, equal to 27¾ per cent. soluble Phosphate of Lime. Such Manure would, in my opinion, be very valuable, either for Corn or Root Crops, but for the former purpose, I would advise you to reduce the proportion of soluble phosphates, which appears unnecessarily large.—I am, Sir, your obedient servant, "J. THOMAS WAY.

"To Mr. Chisholm. 11th February, 1857."

Price delivered at any Railway Station in London:—
For Root Crops and Grass Land ... 7*l.* 10*s.* per ton.
For Corn and Hops ... ... 8*l.* 8*s.* "

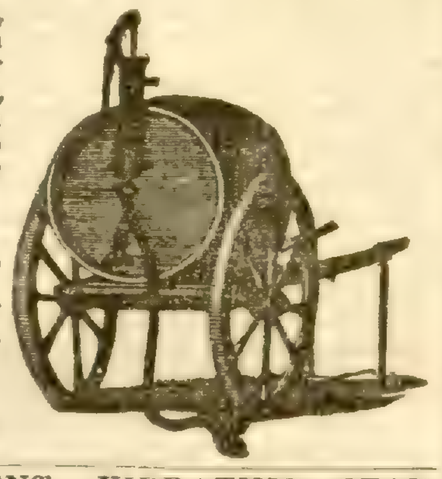
JOHN CHISHOLM, SON, & Co., Cuero Guano Works, 68, Willow Walk, Bermondsey, London, S.E.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with Ball Valve, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in. short	1 ft. 7 in.	Fitted for lead,	1	10	0
2½ „ long	3 „ 3 „	gutta percha,	1	14	0
3 „ ditto	3 „ 6 „	or cast iron	2	8	0
3½ „ ditto	3 „ 6 „	flanged pipe,	2	12	0
4 „ ditto	3 „ 6 „	as required.	3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
2½ in. long	ditto	ditto ditto	2	18	0

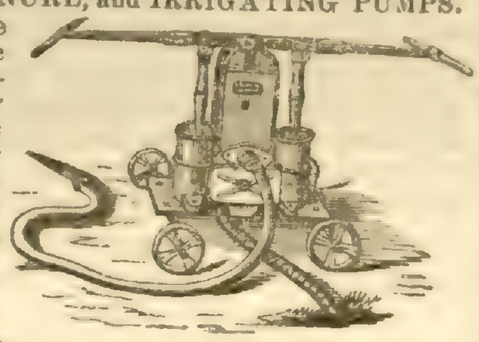
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired under the stage.

May be obtained of any Ironmonger or Plumber in Town or Country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shall w wells, for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams, Apparatus for Warming, Boiling, and Drying, and every class of Engineers' work.

BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices. WILLIAM HOWDEN, Secretary.

26, Great George Street Westminster.

THE CONSERVATIVE LAND SOCIETY.—SIX PER CENT BONUS.—Warrants for the guaranteed interest at five per cent. per annum, and an additional one per cent. for bonus for the fourth year will be forwarded to every member entitled to the same on and after the 25th inst. Prospectuses sent free to any part of the world.

CHARLES LEWIS GRUNEISEN, Secretary.
Offices, 33, Norfolk Street, Strand, W.C.

DRAINAGE ADVANCES UNDER 12TH AND 13TH VICT., c. 91.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the Plans and execution of the Works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

SALISBURY MEETING.

IMPLEMENTS.—All Entries of the number of Implements to be shown, and the space required for their exhibition, must be made on or before May 1.

LIVE STOCK.—All Entries of LIVE STOCK must be made on or before June 1.

Prize Sheets and Forms of Certificate to be obtained on application to the Secretary of the Society, 12, Hanover Square, London, W.

BATH AND WEST OF ENGLAND POULTRY SHOW.—The next ANNUAL MEETING will be held at the town of Newton (near Torquay), on June 3, 4, and 5, at which 21 Silver Cups and 50*l.* will be awarded as prizes.

Prize Lists, Certificates, and all other information may be obtained of the Honorary Secretary, Mr. JOHN KINGSBURY, 10, Hammet Street, Taunton. Entries close, and Certificates must must be filled up and sent in on or before the 1st of May.

Taunton, April 18.

SEEDS FOR THE FARM.—A PRICED CATALOGUE of all the leading AGRICULTURAL SEEDS, sold by the SUBSCRIBERS, is now ready, and may be had, Post Free, on application.—W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.——*** All Parcels of Seed are delivered Carriage Free to the principal Railway Stations and Shipping Ports throughout the Kingdom.

The Agricultural Gazette.

SATURDAY, APRIL 18, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	April 22	Agricultural Soc. of England ..	Noon.
TUESDAY,	— 21	Royal Dublin Soc. Spring Cattle Show.	
WEDNESDAY,	— 22		
THURSDAY,	— 23		
WEDNESDAY,	— 22	Society of Arts	8 P.M.

SINCE our previous observations on the subject of the murrain, an Order in Council has been issued prohibiting the importation of cattle from the shores of the Baltic, or rather from such of them, including the Gulf of Finland, as lie between it and the territories of the free city of Lübeck; so that importation is still permitted from the Baltic shores of Denmark and also from the western shores of Sweden bordering on the Baltic. It is also still allowed from Holland and Belgium, as well as from

Hanover, and also we believe from the port of Hamburgh, which latter city is but a short distance from Lübeck. Herein therefore lies the greatest danger, to guard against which still further precautions should be required from Government. Considering that the price of meat is now high, and that we have had a rather large supply from Holland, it may perhaps be rather too stringent to prohibit all importation from this country at the present time, even if dead meat were brought over as suggested by our correspondent Mr. Turner. We repeat, however, our decided conviction (which the limitation of the Order in Council has rendered stronger) that a quarantine of 14 days on the dock premises should be undergone by every head of cattle imported (Spain and Portugal excepted), before such cattle should be allowed to be removed from the dock premises in a live state.

There would be no hardship in this as of course any of the animals might be slaughtered for sale during this period, and the option of sending carcase meat would be also at the disposal of the importers. If there are not at present sufficient conveniences for the housing of the cattle, sheds should be erected with all possible speed. They will be required even when all danger of the murrain has passed away, for no cattle can be properly examined unless they are housed and rendered comfortable. The system of examination that has been adopted by the custom-house authorities for some years past has been little better than a farce, but fortunately the very fact of this ordeal, and the pecuniary injury to the importers that would have attended the importation of diseased cattle, has operated in preventing the introduction of disease. When Prof. Simonds has reported on the true character of the disease we shall be better able to estimate the amount of danger to which we are exposed and the probability of our escaping it altogether by availing ourselves of those precautions which our insular position enables us to adopt.

It has been remarked that epidemic diseases usually travel in particular directions, but it will be found whenever they are of a contagious or infectious character that they travel in the direction of commerce, and so likewise the line of march of *epizoötics* leads to and from the great marts in which cattle are sold. However we may dread *contagious* diseases, it is fortunate that when this is their true character, they are less likely to be propagated by other causes, and thus we are more likely to be preserved from the murrain by the very fact of its being contagious than if we could ascribe its visitation to atmospheric causes.

The owners of cattle would no doubt receive with much satisfaction any reliable advice that could be offered on *prophylactic* measures—any system of management by which they could preserve their own cattle from the visitation of the murrain, should it unfortunately visit our shores. We fear, however, that little can be suggested under this head. It is not a complaint of a highly inflammatory character, but low and debilitating in its nature, like typhus in the human subjects. The constitution of the animal succumbs to a poison not the less deadly because unseen. It is therefore, we imagine, much more likely to fasten itself on a weak impoverished subject and to harbour round a filthy and impure atmosphere. It is, we suggest, incumbent on all owners of cattle to guard against these evils by promoting cleanliness, deodorising the dung and litter by means of vegetable mould, to which a *little* gypsum may be added, and by preserving the full condition of the animal by the addition of Rape or other oil-cake with the food, whether the animals are intended for store fatting or dairy purposes. By giving generous food, and maintaining a vigorous state of health, the constitution of the animal is more likely to resist the influence of any subtle poison, and the owners will also see their account in this matter in more ways than one. With regard to curative treatment, we are not in a position to offer anything more than vague suggestion. The use of hydrochloric or muriatic acid has been recommended, but on what authority we scarcely know. We trust that now the attention of Professor Simonds is exclusively devoted to this subject, he will not be satisfied until he has subjected the blood of diseased animals to the most rigid examination, and called in professors of chemistry to aid him in the task.

We have only to add to the correspondence on the above subject in another page that additional letters have been forwarded to the English Agricultural Society by the Foreign Office, from which we make the following extracts :—

From Vienna we learn that—

"The disease comes invariably from Bessarabia, where it appears to have its permanent seat. It is in the nature of consumption, is very dangerous, and is in the highest imaginable degree contagious. A man passing from a diseased to a healthy stable would carry the disease with him, though himself in no way affected by it. The same observation applies to any animal, as a dog or cat. They equally would transport an infection which has no influence upon them. Such, indeed, is the disposition of the disease to communicate itself, that it has been ascertained that cattle have become infected from treading, on the high road, upon the dung of infected beasts which had passed some time previously. The malady is found in a considerable degree amenable to medical treatment; but, in the first instance, the best course appears to be in the free use of the knife and hatchet as soon as the disease is perceived at any point. The infected animals should be instantly burnt, as well as despatched, the skin and hair being certain to carry infection with them. If, in despite of precautions, the disease should spread, then of course treatment must be substituted for the axe; but, equally, the stables in which the sick animals are placed must be at a distance from all others, and the persons charged with their care not permitted to visit any other. With vigilance, and the adoption of prompt measures in the first instance, Baron de Bach is of opinion that no great anxiety need be felt, even if the disease should be introduced into England."

From Berlin :—

The Baron Manteuffel states that the disease has shown itself in the district of Breslau and of Appoln, but that up to the present moment no case of disease of any sort among horned cattle has occurred in any other Prussian province. His Excellency further states that, as regards the two localities above named, the most effective measures have been taken to arrest the disease, and that, judging from the experience of last year, there is every reason to hope that its propagation will be prevented, and its extinction finally secured.

From Copenhagen the Minister writes :—

"The disease, which is called *lunge segge* (pulmonary fever) has only appeared once, and that not to a great extent, in this part of Denmark, in 1849, and has baffled all attempts to cure it; few if any remedies have been applied, and the most efficacious and the only means of checking the complaint, which is highly contagious, has been immediately to destroy the cattle—not only those attacked, but all those suspected of being under its influence. Dr. Fenger, an eminent medical man of this town, and at the head of the veterinary school, tells me that these preventive measures were considered successful at the period above referred to, when the disease broke out in two large farms on this island; but of course when it becomes wide-spread and general these measures can scarcely be persevered in. In Holstein, where the disease rages to a greater extent at the present moment, there exists the same ignorance as to any medical remedy to combat it; and so much is this felt to be the case throughout the country, that a law was proposed in the Rigzraad, last year, to make the immediate destruction of cattle attacked compulsory, with an indemnity to be granted to the owners. Dr. Fenger tells me that inoculation has been tried, but with no particularly satisfactory results as yet."

It is on this point that the *Times* correspondent, who writes from Hamburgh errs, confounding this pleuro-pneumonia or lung disease with the steppe murrain, of which we are now in dread. The difference between the two is pointed out by Dr. Green How, in a report by him, lately published, to the Board of Health. He says :—

"The 'lung disease' is the only epidemic at present prevailing disease among the cattle in countries from which horned cattle are imported into Great Britain. There is, however, another much more contagious and fatal disease, called in Germany the 'Rinder-pest' or Steppe murrain, which appears to have been confounded with the lung disease, but which, with one or two trivial exceptions, does not at present exist in any part of Germany or the west of continental Europe. This 'Steppe murrain' is a totally different disease from the Pulmonary murrain, and is spontaneously developed only in Bessarabia, Podolia, and other countries of Southern Russia, from which it is never absent, and from whence it frequently spreads by contagion into Poland, and sometimes into Prussia and Austria. The most stringent measures are employed by the Russo-Polish authorities, and by the Governments of Austria and Prussia, to exclude this form of murrain from their respective territories. A regulation was published in Poland on the 9th of May, 1856, ordering the indiscriminate slaughter of all beasts that should exhibit any symptoms of the disease, under which, according to a recent return, 20,000 animals have already been slaughtered. Independent of these measures in the interior of the country, quarantine stations have been established on the Russo-Polish frontier, where beasts coming from the East are detained for three weeks. Similar measures for the exclusion and extirpation of the disease, should it show itself within those countries, have long been in force on the frontiers of Austria and Prussia. In Austria the infected cattle are immediately killed as soon as they show any appearance of the murrain, their companions being kept in quarantine; and regulations still more stringent are enforced in Prussia, for both diseased animals and all other beasts that have been in contact with them are there killed and buried 8 feet under ground, quicklime being thrown into the pits. These regulations have been most sternly enforced, and not only has the importation of cattle from Poland, where the murrain is at present believed to exist, been prohibited, but rags, hides, hoofs, hay, wool, and similar articles likely to have been in any way connected with cattle, and all persons suspected of having transactions with cattle, have been forbidden to cross the frontier. To enforce these regulations, detachments of troops have been stationed along the frontier at all the points of egress from Poland below Thorn. Notwithstanding these precautions the murrain occasionally passes into Austria and Prussia, and intelligence has been received by our Government that it has recently been imported into both these monarchies. It has been conveyed into Silesia, in the neighbourhood of Breslau and Oppeln, by means of diseased cattle, said to have been purchased in Galicia, but has not spread into any other Prussian province, and has, in fact, thus far been confined to the oxen of the infected herd. Most effective measures have been taken to arrest the disease, 'and, judging from the experiments of last year, there is every reason to hope that its propagation will be prevented, and its extinction secured.' As soon as the murrain was known by her Majesty's Government to have reached Kowno, Tauroggen, and other places in the vicinity of the Prussian frontier, an order in Council was issued forbidding the importation of cattle, and of hides, horns, hoofs, fodder, or other articles likely to be vehicles for conveying the contagion into this country, from any port in the Baltic east of Denmark, thus preventing all possible danger of the importation of this disease, so long as it shall be confined to the eastern frontier districts of Prussia. In addition, however, to this precaution, the greatest watchfulness over the importation of cattle is maintained by the veterinary inspectors of the Board of Customs, both at London and the other ports of importation."

There is, perhaps, no part of the farm that receives so little aid from true cultivation as the meadow and pasture lands. Much of the green land of this country yields its annual supply of Grass or hay or both of a fixed and settled quantity and quality, sometimes very superior, at others very inferior, with of course all intermediate stages of quality, and hence our pastures are described as good, middling, or bad, and take a wonderfully settled place accordingly. For the most part all that is done by different cultivative methods is the maintenance of a pasture in the condition in which we find it. Of course there are great exceptions to this rule; but who can have gone over the extensive pastures of the alluvial flats of Cheshire from which has been produced its celebrated county cheese, without being struck with the fact, that if anything these pastures are scarcely maintained in their former good condition, much less have they been improved by modern science and appliances to the extent that is prevailing in arable land over the greater part of England. Again, in the Vale of Gloucester, the district of the far-famed "*double Gloucester*," we nowhere meet with improvement in the management of pasture at all corresponding to the advance which has been made in the arable land of that county.

If we look at arable culture we find that great attention is paid to the weeding of our fields, so that to apply a definition of weeds in "Morton's Cyclopædia of Agriculture" "every *plant different from the crop and growing with the crop to its hindrance*" is considered as a weed, and if—by reason of defective husbandry—not eradicated, is at least injured or much discouraged in its growth. Now if we start as a subject of inquiry, the eradication of weeds in pasture land, by some we shall perhaps be met with the assertion which has so often greeted us—"Weeds in pasture, forsooth; why, pasture is made up of weeds!" Here, then, at the very outset of the inquiry we find it necessary to define what we call pasture land and to distinguish the nature of those plants which we would denominate the pasture *crop* from others which grow amongst this crop to its hindrance; and the consideration of the questions involved will be a necessary preliminary step to the important inquiry: How is pasture to be improved and cultivated?

Pasture lands, then, for our present purpose, may be described as fields of herbage consisting of nutritious Grasses, which may or may not be intermixed with species of other orders of plants possessing nutritive properties; but essentially the good pasture is the field for the growth of good Grasses; and though other plants, as for instance Clovers, may by reason of possessing the same feeding attributes as the true Grasses be admissible into pastures of first-rate quality; yet all other plants not having these principles can only be considered as weeds.

Now be it understood we have said "good Grasses," which supposes others of an opposite description; and these, then, in a pasture, are as much weeds as are Wild Oats in Barley, or Couch in Wheat. Our own examination of British Grasses has led to the following census :—Of British native Grasses, 43 genera* include about 125 species; while those of agricultural interest number about 20 genera, and about 40 species; or of *good* agricultural value, 20 species. So that from these figures we arrive at the conclusion that little more than one-seventh of our British Grasses are admissible as good pasture Grasses, such as for the most part occupy our rich loams or irrigated meadows; the remainder are inhabitants of the arable field, the wood, the hedge-row, the worthless upland, or the ill-drained or otherwise out of condition meadow—facts which in themselves would point out so many of the Grasses as being no better than weeds when occurring in good pastures.

But besides bad Grasses meadows are infested with a number of plants which, from the injury they do to the desired crop can only be considered as weeds, and those, too, of a most pernicious description. These we have attempted to classify under the following heads, and the mere list of names will convey a great amount of information as to the particular kinds of mischief created by useless plants :—

1. Weeds by reason of mechanical obstructions.
   - Grasses which have rough leaves or long stiff beards (awns).
   - Thistles of all kinds.
   - Arctium lappa, Burdock.
   - Urtica dioica, Great Stinging Nettle.
   - " urens, Lesser "
2. Weeds by reason of diluting the crop with useless herbage, and by their size preventing growth.
   - All the species of Docks which grow in the meadow.
   - Ranunculus bulbosus, Bulbous Crowfoot.
   - Heracleum sphondylium, Cow Parsley.
   - Ægopodium podagraria, Gout Weed.
   - Conium maculatum, Hemlock.
   - Pastinaca sativa, Parsnip.
   - Anthriscus sylvestris, Hedge Parsley.
   - Chrysanthemum leucanthemum, White Ox-eye.
   - Polygonum Bistorta, Bistort Snakeweed.

* All these numbers admit of a trifling variation from the difference of opinion as to both generic and specific characters.

3. Weeds by reason of taking up space, and thus preventing growth without augmenting the bulk of the crop.
   Plantago media, Broad-leaved Plantain.
   „ major, Large „
   Bellis perennis, Daisy.
   Primula veris, Common Cowslip.
   „ vulgaris, Primrose.
   Petasites vulgaris, Butterbur.
   Orchids of all kinds.
   Mosses of all kinds.
4. Weeds by reason of diluting the herbage with plants of very inferior quality.
   Coarse and innutritious (sour) Grasses of all kinds.
   Sedges of every species.
   Rushes of all species.
   Many of the smaller herbaceous plants.
5. Weeds by reason of imparting a bad flavour to products, such as milk and butter.
   Allium vineale, or Crow Garlick.
   „ ursinum, Hog's Garlick.
6. Weeds by reason of possessing poisonous or strong medicinal qualities.
   Colchicum autumnale, Meadow Saffron.
   Galanthus nivalis, Snowdrop.
   Narcissus pseudo-narcissus, Wild Daffodil.
   Ranunculus acris, Upright Crowfoot.
   Linum catharticum, Purging Flax.
   Diseased Grasses.

Now, if we shortly review these groups of plants, the species of which might be greatly added to, we shall soon be put in the possession of the fact that pasture land is as liable to weeds as arable land, and in the successful cultivation of both their destruction is equally demanded. On this however we must delay our remarks for a week.

VALUATION OF MANURES.

THE questions for a farmer to determine are—What answers my purpose? what gives me a fair return? and what should I pay for it? The mechanical and chemical condition of the land influences the practical value of manures in a very considerable degree. The mode and time of the application of artificial manures also influences their efficacy very materially. Many artificial manures produce an injurious effect, when applied injudiciously. I have seen substances when applied to the land by themselves produce not half so good an effect as when mixed with apparently indifferent substances. If you use guano with all the hard lumps in it, you will not realise half the good effects that would follow if it were sifted or pulverised with salt or sand. When thus mixed and pulverised, the manure is more equally spread over the land. Some persons talk of using salt, to fix the ammonia, but there is little free ammonia in guano requiring fixing. If it has not evaporated in the hot climate of Peru, fears on that head in a climate like ours are foolish. Guano contains but ¾ lb. per cent. of free ammonia; try it by pouring vitriol on it, and it will smell just the same as before, and yet, according to the first principles of chemistry, an acid should fix ammonia. If I am asked, Why does salt benefit in admixture with guano? my answer is, because the lumps are broken in the process, and all manure benefits the more for being equally distributed. I would say it mattered little whether guano were mixed with sand, burnt clay, or ashes; and I can only account for the preference given to salt, and the erroneous idea respecting the fixing of the ammonia, by the fact that some persons do not like to have things too plain and are more ready to act upon recommendations when they were involved in a little mystery. If you apply superphosphate on most soils to Wheat, you will, comparatively speaking, obtain but trifling results. When applied to root crops it produces a decided effect; but an ammoniated manure gives striking and satisfactory results when applied to Wheat. You find that nitrogenised manures benefit chiefly cereals, and phosphatic manures principally root or green crops. But there are exceptions. As a general rule however you should take nitrogenised manures for cereals, and phosphatic manures for root crops. If you want a manure for Turnips, and have a sufficient supply of farm-yard manure to meet the wants of your Turnip crops in organic matters and ammonia, you would do wisely in such a case to buy a manure containing phosphate in proper condition, and no organic matter or ammonia. If you have not a sufficient quantity of home-made manure or cannot give the roots a sufficient dressing of organic matter by other means, you will do well to purchase a superphosphate containing organic matter and ammonia, as well as phosphates.

If you have ascertained what is most likely to produce a crop, how are you to decide as to its value? Nobody will pay for lime what he pays for guano, yet many do this in effect, when they purchase manures in the market that are not worth half the amount paid for them. The manure manufacturer may tell the farmer that he must not estimate the value of the manure except by the benefit resulting from its use. But do you so act in other matters? A labouring man would derive as much benefit from bread and cheese as lobster sauce, but is that a reason why he should pay the same price for it? The first thing the farmer has to do is to ascertain whether or not a manure produces a marked effect on his land; and if it does, the next thing is to ask—What is a reasonable price for such a manure? and pay for it accordingly. But, if he says, "I don't want to know the commercial value of a manure; I want Turnips," that is a different question. How do you ascertain the value of everything in common life? Certainly not merely by the benefits derived from its possession, but by asking at what price it could be obtained in the market. If you buy a horse you do not say, "What good is it to me?—I will pay accordingly." A plough-horse is better and more valuable to a farmer that a fleet racehorse; but if a farmer is asked a price which was paid for a racehorse for a Suffolk Punch, would he be justified in giving it? Would he, in fact, be justified in giving a higher price for a plough-horse than for a race-horse? But what does he do with manures? He does not care what the market value is; all he wants to know is how it will answer his purposes. The terms market and agricultural values should not be confounded. Some men put up prepared chalk in elegant boxes and sell it at 500 per cent. profit for tooth powder. All men of common sense put such characters down as humbugs who lived upon the credulity of the public. Still, as the mischief done in such cases only affects the pockets of the more wealthy, whose superior education ought to be sufficient to guard them against such impositions, one feels little sympathy for them. But when I find that in the fraudulent dealings of the manure manufacturers common tenant farmers are taken in—when I find a class of honest but too-confiding men deceived to maintain unprincipled people—men whom it would be irrational to expect should be unacquainted with agricultural science—then it would be wrong to let those things go quietly on. Perhaps you will allow me to offer a hint as to how the money value of artificial manures can be ascertained. It is not anything mysterious on which their efficacy depends. It is on real substances; and their presence determines in a great measure the commercial value of manures, although not entirely. And it would be well to bear in mind that it is not the mere presence of certain constituents on which the commercial value of manures depended. The preparation those constituents have undergone likewise determines the value of the article. For illustration, Wheat whilst in the grain is not worth so much as when it is converted into flour and baked; but if you analyse the flour or bread, you find but very little difference in its composition; still there is a marked difference in the market value That applies in the same way to artificial manures, as well as to any other kind of articles. You have to bear in mind, however, in the first place, that the price of the manure ought to have some relation to the price at which its constituents can be bought in the market separately. If, for instance, the raw material cost 30*s.* or 2*l.*, no amount of preparation could change it into a manure worth 6*l.* The difference in the price of raw materials and value of prepared manure ought to be a fair one, and not an exorbitant difference. I can well imagine a superphosphate having the same composition as another sample, and yet possessing a very different market value. In one case there was, perhaps, no care, trouble, or expense incurred in preparing the bone material before solution, or after, in acid, or in the judicious selection of raw materials; whilst, in another case, every precaution was taken to secure a finely-prepared, uniform mixture, and considerable expense was incurred to effect that purpose. The analysing of manures, though very important, should not be the sole guide in estimating their commercial values. Analyses might give useful hints of what they were constituted, which ought to regulate their prices. If a farmer found that an inferior description of manure answered his purpose, then let him buy it by all means; but let him pay for it a price according to the raw material, and the manufacture, skill, and trouble incurred. It is very desirable that the manufacture of artificial manures should be confided to men of intelligence and men of capital. *Dr. Voelcker at Barnstaple.*

Home Correspondence.

Salting in Grass for Winter Food.—Salt has of late years been used in Germany and East Prussia for preserving cut Grass for a considerable time in a succulent state, so preventing the loss of nutritious matter which is occasioned by its transmutation into hay. Pits are dug into the earth from 10 to 12 feet square, and as many deep; these are lined with wood, and puddled below and at the sides with clay. They may obviously be made of any other suitable dimensions, and lined with brick. Into this pit the green crop of Grass, Clover, or Vetches is put just as it is cut. Four or 5 cwts. are introduced at a time, sprinkled with salt at the rate of 1 lb. to each cwt.; and if the weather, and consequently the crop, be dry, 2 or 3 quarts of water to each cwt. should be sprinkled over each successive layer. It is only when rain or a heavy dew has fallen before morning that this watering is considered unnecessary in East Prussia. Much, however, must depend upon the succulency of the crop. Each layer of 4 or 5 cwt. is spread evenly over the bottom, is well trodden down by five or six men, and especially is rammed as close as possible at the sides with the aid of wooden hammers. Each layer is thus salted, watered (if necessary), and trodden down in succession till the pit is perfectly full. Much depends upon the perfect treading of the Grass for the exclusion of air; and, therefore, for a pit of 10 feet square 4 cwt. is as much as should be put in at a time. Between each layer must be spread a handful of straw, in order that when emptying the pit afterwards for the daily consumption of the stock, the quantity taken out may be known without the necessity of a second weighing. When the pit is full, the topmost layer is well salted, the whole then covered with boards or a well-fitting lid, and upon these a foot and a half of earth for the more perfect exclusion of the air. A pit 10 feet square, and as many deep, will hold about 5 tons of fresh Grass; and each pit should if possible not be filled in less than two days. When covered up the Grass speedily heats and ferments; and after the lapse of six days, when the fermentation has ceased, the whole has sunk to about half its original bulk. The lid must be examined during its fermentation at least once a day, and the earth, as it sinks, carefully replaced whenever crevices appear; for if the air be allowed to gain admission, a putrefactive fermentation will come on, which will impart a disagreeable odour to the fodder, though it will not prevent it being readily eaten by the cattle. When the first fermentation has ceased, the lid may again be removed, the pit again filled with fresh Grass—trodden in, salted, and covered, as before. A pit 10 feet square, when perfectly full of this fermented Grass, will contain nearly 10 tons, equal to 2 or 3 tons of dry hay. The Grass when thus fermented has the appearance of being boiled, has a sharp acid taste, and is greedily eaten by cattle, The pits should be kept covered for at least six weeks, after which they may be opened successively as required, and may be kept open till their contents are consumed by the cattle, without any injury from the contact of the atmospheric air. Of the feeding qualities of this salted fodder one experimenter says, that by giving only 20 lbs. a day of it, along with chopped straw, he kept his cows in condition during the whole winter. His green crop was Vetches; and the 2 lbs. of salted fodder were equal to, or would have made less than 4 lbs. of hay. Another experimenter says, that on a daily allowance of 28 lbs. of his salted fodder his cows gave a rich and well-tasting milk. How far this may answer for our farmers, as a general practice, time may best show; but in wet seasons, when the hay would spoil, it offers an effective means of saving it; and trying its effect as compared with an equal crop when dried as hay. *I. Prideaux.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

The following letters have been published since the last portion of the correspondence of this Society on the cattle murrain appeared in our columns:—

—— (1) Copy of a despatch from her Majesty's Chargé d'Affaires at Hamburgh.

"Hamburg, March 21, 1857.

"My Lord.—In the *Hamburger Nachrichten* of this morning, there is a paragraph relating to the pulmonary disease that prevails among the horned cattle in these parts, which may be deserving of your lordship's notice. This paragraph states that the Minister for the Duchy of Schleswig has issued, under date of the 14th inst., a notification that—'As several cases of a dangerous pulmonary disease among the horned cattle still occur at various places within the Duchy of Holstein, and as the measures, directed to be taken in the notification of the 28th of July last, have proved insufficient, the importation of horned cattle from the Duchy of Holstein into the Duchy of Schleswig is prohibited till further notice.'—I have, &c.

(Signed) "G. LLOYD HODGES.

"The Earl of Clarendon."

—— (2) Copy of a despatch from her Majesty's Consul-General at Warsaw, reporting on the cattle disease in Poland.

"Warsaw, March 29, 1857.

"My Lord,—In reply to your lordship's telegraphic message received this morning, I have the honour to forward the information of which I am in possession regarding the cattle disease or murrain now prevailing in Poland and the conterminous counties. The Inspector General of Hospitals and Health in this country published an official report on the subject in the course of last year. I find from this authority that the cause of the disease is contagion. It is carried by farm servants who have been employed in tending diseased cattle, by dogs which may have had access to their stalls, or have been used in driving them; in short, by any means which would be suggested by a practical farmer. There is a special dread of old hides and hair. The disease was never known to originate in Poland. It has invariably been brought by the herds coming westward from the Steppes of Russia. It has been known to break out among cattle which were apparently in good health at the end of their journey. The symptoms may be stated as follows, although much variation has been remarked in them. Cough, gnashing of the teeth irritation of the skin, staring coat, great irritability of the back. As the disease advances a thin matter issues from the nostrils and eyes; the irritability of the back increases to excessive pain when the latter is touched. About eight days after the appearance of the disorder, the animal is affected by violent fever paroxysms, which recur frequently during the 24 hours. Dysentery then sets in, the discharge from the eyes and nose becomes thicker, but just before death constipation follows. This last symptom does not always present itself. Sometimes the disease lasts for as long a period as three weeks, but an animal rarely dies before the eighth day from the first appearance of the disorder. It sometimes happens, but the instances are very rare, that an animal may recover, but such cases do not exceed 1 per cent. After death the second and third stomachs are found in a most inflamed condition, ulceration is apparent, and the foreign matter discovered is quite dried up. I learn from the official almanac for 1857, published at Warsaw, that large rewards have been offered by the Governments of Austria, Prussia, and Holland for the discovery of a specific to meet this fatal disorder. But hitherto no success has attended this movement; nearly every remedy has been tried, including salts of different kinds, antimony, mercury, soda, saltpetre, cold water, nux vomica, but all have failed alike. The consequence has been the institution of the most stringent Government measures, as I have already brought to the notice of your lordships (No. 19, Consular, dated March 9, 1857), for the indiscriminate slaughter of all beasts exhibiting a symptom of murrain. I am not acquainted with what has been done in this respect in the provinces of Austria, but in Prussia the regulations have been severe and most sternly executed. By a report this day brought to my notice, I am informed that 20,000 beasts have been sacrificed in Poland since the regulation was published on the 9th of May, 1856. Under certain rules a compensation is allowed by Government for each beast so slaughtered. Independent of these measures in the interior of the country, quarantine stations have been established on the Prusso-Polish frontier, where beasts coming from the east are detained for three weeks. Fat beasts ready for the market may, however, be

passed, as I am told, under certain licenses and supervision along the road. But with regard to this exceptional rule my information is open to doubt. Both in Poland and in the Prussian provinces there is a great disposition to exaggerate the reports showing a decrease of the evil. I observe in the German newspapers articles thrown out from time to time, with the view to influence both imports and exports. It is impossible to be too careful when considering this matter, the more particularly as regards all the ports of the Baltic as well as those of the Black Sea, including Odessa. It is probable that hides should be viewed with almost as much suspicion as live beasts coming from the countries infected. So strongly is this point regarded by the Russian and Prussian Governments, that the regulations prescribe the burial of the slaughtered animals, quick lime being thrown into the pits. I have, &c. (Signed) "W. R. MANSFIELD.

"P.S. I observe that I have accidentally omitted that one of the symptoms of the disease is the loss of the faculty of rumination."

CHEMICAL, *April 6*: *Application of Sewage for Agricultural purposes.*—At a meeting of the Fellows of this Society, Dr. Lyon Playfair, President, in the chair, Mr. Campbell read a very interesting paper on the Application of Sewage for the purposes of Manure.

The excrements, liquid and solid, of the population had long been of use, but without any attempt being made to put them into a more portable form until 1802, when it was proposed to convert human excrement into a powder divested of all smell, preserving at the same time all its fertilising properties by gathering it into tanks capable of allowing the liquid matter to be drawn off. The solid matter was then dried in the sun, either mixed or unmixed with lime, and stowed in heaps in sheds, where it reached 212° Fahrenheit, and afterwards it was crushed into powder. The patents of M. Pottevin and of Count de Hompesch were then referred to. The latter was for improvements in obtaining oils and other products from bitumenous matters. The carbonaceous residue after distilling minerals containing bitumen, to obtain the oil, is ground into a powder, and if it contains iron pyrites, which would be the case in clay schist, it is treated with acid first; it has a great affinity for ammoniacal matter and the gases from putrid matter, and when mixed with animal or putrid matter forms a powerful manure without any smell. Mr. Campbell then referred to deodorising processes that had been proposed by Mr. Young and others, and to a plan which in one place had been adopted where previously one factory threw away 30 tons of soil daily. He then mentioned the patent of Mr. J. W. Rogers, which proposed to mix the granulated charcoal of peat with animal excrement which became deodorised, producing a diluted inodorous manure. M. Louis Napoleon Legras in 1849 proposed in a patent to construct water-closets, with connected apparatus, in such a manner as to keep separate and in different vessels the solid portions of the fœcal matters from the liquids, and he found that Mr. Tarling had stated in his patent that the manufacture of manure consisted of combining highly carbonised refuse tan with night soil. The lecturer then made some general observations on the importance of producing manure from sewage, and said that it would take 30 tons to supply half a cwt. of ammonia to an acre. The expense of producing the 30 tons must be considered, and the carriage (20 miles) would be about 2*l.*, whereas half a cwt. of ammonia might be obtained at a much less cost. Mr. Adams's patent proposed to separate the liquids from the solid in cisterns, and he suggested that the apparatus should be so contrived as to prevent the rising of any gaseous vapours. The chemical character of human excretions were of importance in connection with this subject. After going into some statistical calculations, he said that a place with 10,000 inhabitants would produce in one day about 208 tons of dry solids at a cost of 3*l.* and a fraction after it had undergone the process. With regard to the value of manure from excremental material there was in every case a very large proportion of liquids to solids, which prevented its use in agriculture. The large cost of removing the water from the sewage would prevent its applicability. The chief element in the value of town sewage as a manure consists in the excremental matters, of which, on a calculation, London would produce 53,393 tons of dry solid annually, which would be of the value of 15*l.* per ton at least. Skin, hair, and other animal substances were not taken in this estimate. Alluding to the water supply as an important feature in the case, he must remark that the difference in the supply would cause a difference in the concentration of the sewage. The supply varied from 12 to 50 gallons daily to each individual in places which were supplied by companies, the difference being caused by some places being without water-closets. He instanced amongst others that at Ashton-under-Lyne the supply averaged 14 gallons daily to each individual; in Brighton, 20; Liverpool, 22; Manchester, 25; and Glasgow, 50. In some towns in America as much as 100 gallons per head was supplied daily. There were 81,000,000 gallons supplied daily from companies to London, besides 30,000,000 gallons per day from deep wells for the purposes of brewing, &c. The rainfall averaged about 25 gallons per head daily, which in all would make a total supply of water daily of 167,000,000. Every ton of dry excrement, which he had valued at 15*l.*, would have to be diluted with 4682 tons of water. That was one of the great difficulties that presented itself to the application of sewage for agricultural purposes. Amongst other articles which assisted in the accumulation of sewage there was soap, with regard to the consumption of which he found that in England it averaged 7 lbs. per head annually, while in Jersey it was 13 lbs.; in the Isle of Man, where the population was much less, it was 8¾ lbs; in Jamaica it was 5 lbs.; and in the workhouses and prisons of this country it was about 10 lbs. per head. On a calculation he found it would give to London the consumption of 8705 tons annually. This would materially assist in the accumulation, as would also soda, fat, and other articles; but in the light of agricultural value these ingredients would not be of any use. There were three modes out of the many proposed that were the most worthy of consideration. They were simple filtration, precipitation, and irrigation of the land. In respect to the question of filtration, he referred to the figures he had already given, viz., that it would take 4682 tons of sewage to produce 1 ton of dry solids, and said that that was not so good a method as the use of lime. He then referred to the analysis that had been made of the Croydon sewage, and also to the filtering of the Uxbridge sewage through peat charcoal. In this process two troughs were alternately used, in which the sewage ran through on leaving the sewer. By this means the process was successful, and it was made almost to pay itself, as the charcoal lasted some time, and then it could be sold at a profit. Still, however, he was more in favour of the lime process. He next came to the precipitation methods, which consisted of adding lime, which carried the solids through and left the water clear. He referred to the analysis of Mr. Herapath at Cardiff gaol, where in 100 parts, ammonia was found 1.366, and phosphates 2.5. Mr. Higgs in carrying on the lime process at Tottenham found the sewage rich in nitrogen and phosphates. The earliest liming processes were those of Dr. Clarke, who carried on the works for sweetening and purifying the water of the river Medlock, which received all the sewage of Manchester, and with the use of 1 ton of lime per day he was most successful. That gentleman also carried out the process with success in the waters of the Bridgewater Canal. The lecturer then described at some length the result of the operations at Croydon, illustrating the works with diagrams, and also showed the water before the lime was used, when it was very thick and muddy, and after the process, when it was perfectly clear and bright. There was one other process which was deserving of notice, and that was Mr. Manning's, who first proposed sulphate of aluminum, but finding that was expensive, and that alum would answer the purpose, he made several experiments with the greatest success at Glasgow and Stirling. On one occasion he was making some experiments with his process in the presence of the Lord Provost and other authorities of Stirling, when some dead cats and dogs and other such substances were thrown in. Mr. Manning applied his process, and the result was so successful that the whole of the authorities he had mentioned drank a tumbler of the water. (Loud laughter.) He then referred to the third process he had mentioned, viz., the irrigation of the land, and said the question was whether by this plan the sewage might be made use of for manure. In some places it had been the means of raising the land to an enormous extent, and in Ayrshire and other parts of Scotland it had been applied judiciously and with success on Grass lands, in some instances producing seven or eight crops of Grass in the year.

Dr. DAUBENY said, the inference he had drawn was that they were still in their infancy on the question.

"They had to effect two objects—the first was an economical one and the other was the prevention of those deleterious consequences that might be expected to arise from large quantities of sewage being collected together in densely populated towns. He would indeed ask, was it settled that by the peculiar management of the soil by itself they could not obtain all those beneficial effects they effected from the use of the manure?

MR. FOTHERGILL COOKE made a few observations on Mr. Bazalgette's plan for draining the metropolis, remarked that Mr. Wicksteed's plan had been tried, and he thought the whole process might be carried on under cover.

Mr. HAYWARD (engineer) said that sewage at present was of no value, and before they did anything to render it applicable for manure they should have the best evidence of the most eminent of the chemical body to guide them. He did not think that by any of the proposed processes it would pay to make the sewage into solid matter and take it to the ground where it was to be used. The cost of carriage would not allow of it paying. His opinion was that a cartload of guano would be much cheaper than one of nightsoil. As regarded the success which had been spoken of on the Edinburgh lands they must bear in mind that there was a vast difference between those and the lands nearer the metropolis; and besides although the experiments were successful it was not in an economical point of view. All the engineers had to do was to ascertain how to get rid of an entirely useless and valueless article at the least possible expense, or in other words, whether it would be cheaper to prepare it as manure or to take it to a place where it could be discharged and got rid of. In France artificial manures were beating the natural ones out of the field, and yet there was a vast quantity of sewage in the Seine. In conclusion, he observed, that if they were to make sewage applicable for agricultural purposes, they must restrict the use of water or give up any idea of getting any value out of the manure.

PROFESSOR WAY said that the question must be approached not as one of money but as one of necessity.

Dr. HOFMANN gave an instance which occurred at Clifton Union, where the sewage which was first a nuisance was proposed to be turned into a subject of profit. After some consideration and experiments it was deemed advisable to use lime as the best agent. The lime was added, as it always should be, the very moment that putrefaction set in. The excrement should always be very much diluted with water. Of an analysis of 100 parts of the lime deposit at Clifton it was found to contain 8 per cent. phosphate of lime, not more than 7-10ths per cent. of ammonia, 20 per cent. organic matter, and 75 per cent. lime. The value of this manure was from 26*s.* to 28*s.* per ton.

Mr. HIGGS was at the present time carrying on works under the lime process at Tottenham and elsewhere. They scarcely knew what the smell of ammonia was at the works, but still they found they had ammonia afterwards if they allowed the matter to run into decomposition—otherwise they had none. The matter was dried with the nitrogen in it and so it passed into the hands of the agriculturists.

Farmers' Clubs.

LONDON: *The Stacking and Threshing of Corn.*—Mr. W. Bennett said: Within the last 10 or 15 years a great revolution has taken place as to the manner of dealing with the crops after they are severed from the land, which has resulted mainly from the use of the portable steam threshing machine. Like all other great innovators, it has brought with it its good and its evil results. That steam power is 19 times out of 20 the most economical that can be employed in threshing there can be no doubt, but to its judicious application in the field I am by no means a convert. Corn was to be threshed, including every expense, at 8*d.*, and even 6*d.* per quarter. But one-half of the expenses which ought to have been charged were left out of the calculation. I admit most freely if the simple consideration of beating out the corn at the stack in the field, irrespective of what becomes of the straw, chaff, and offal, is only to be taken into the calculation, it may be done with a first-rate engine at a very low price. But let me suppose I had to meet one of you as watching the interest of the coming-on tenant, and I, on behalf of the going-off man, show you a number of these beastly straw heaps blowing over the hedges and surrounding lands, and your employer had to fetch up every load of straw he wanted for his cattle as best he might, and sometimes over bad field roads. I appeal to you, if I were to demand the customary price for the brouze and use of the straw, would you not demur and rather demand some compensation for a breach of covenants? If then such would be the state of things as relates to the going-off or coming-on tenant, must it not be self-evident that the man farming who adopts such a system must be a very imperfect calculator of profit and loss? If the stack with all it contains must sooner or later be taken to the farm premises, I hold that you can move the sheaves at an infinitely less cost and trouble than after they are broken into endless fragments. I am irresistibly brought to the conclusion that to thresh principally where the manure is to be made is far the most cleanly, convenient, and economical system. In first raising the corn from the land, reference should be paid to its destination, that it may be moved as far as practicable in that direction, and I think to stack in three or four groups of stacks, within a short distance of the premises where the litter is to be used, is the most judicious plan. I think a small number of stacks should be brought together in contiguity in different groups at the time of harvest, as near the farm premises as it is at all convenient, and then stack by stack taken to the machine-barn as wanted for the purpose of threshing; when all that is sweet and useful of the offal, for the purpose of feed, may be preserved, the coarser thrown into the yard, and the straw either stacked up or put into the straw-barn for constant use, as the case may be. I presume steam in 99 instances out of 100 is the most economical; but, whether this power shall be portable or fixed, must depend somewhat upon the local circumstances of the farm, and whether there is more than one farm homestall. My own predilections are in favour of a fixture, unless the party wishes, in addition to his farming business, to become an itinerant thresher. In either case farm premises must be very incomplete without a threshing loft in which a shaft runs through it to which may be attached a mill, chaff cutter, or any other machine. I hold it to be far less important how you thresh your corn so that you do it well, than the place where the operation is performed. I must contend however the most opportune place is where the pigs and poultry are at hand to pick up the scatter, where the feeding stalls and stables are adjacent, where the litter is daily available, and most of all where you are safe from the obtrusion of bad weather.

Mr. R. Baker held that all lent corn, such as Oats and Barley, was far better threshed by the flail. The difference in the feeding value of the straw was taken at as much as one-third in Essex. The straw belonging to the landlord, and the foddering value to the tenant, whenever corn was threshed by steam one-third was deducted; and if that one-third were not regarded as an equivalent for the injury done to the incoming tenant by the threshing machine, the practice would not be allowed. Irrespective, then of any other consideration, but merely in consideration of the value alone, he held that that practice sufficiently demonstrated that the feeding value of the straw was depreciated at least 33 per cent. Granting that steam-power used for the purposes of threshing would to a certain extent diminish the cost of threshing, still he held that in proportion as they diminished the cost of threshing they would lose in the feeding value of the straw and chaff consumed.—Mr. Wood differed from both Mr. Bennett and Mr. Baker. In his opinion a fixed engine involved a great waste of capital; and if they considered what would be the cost of threshing Wheat, which was that species of corn that required the most labour, and was threshed more particularly by steam-power, he believed they would find that it could not be threshed so cheaply by steam as some gentlemen had stated in their published works. The premises necessary for a fixed steam-engine could not be erected under an outlay of 1000*l.*, even on the most moderate calculation; and if the cost of threshing was about 2*s.* 6*d.* a quarter for Wheat—a low rate—the produce of a considerable farm might be threshed out for the interest of the money expended in the erection of buildings alone. The system he adopted was to employ four men in tying up the straw, and he found that no more men were required to stack the straw with one band than to stack it loose. The only difference in the expense was that of making the bands; but this was not more than 6*d.* or 9*d.* per 100, and the work could be done on wet days, or at periods of comparative leisure. Having bound and stacked the straw, he next proceeded to thatch it, which it always answered his purpose to perform. With regard to the cavings and chaff, it was no part of his system to consume much of that for his stock. Generally he threw it into the yard and allowed the pigs to grub about in it, for he could not find that it fattened: and his practice was to fatten, not to starve his cattle. He knew not but it might be of advantage to those who kept store stock which they sold to others to fatten. All he could say was that he himself had derived no benefit from it; and he fancied that if he stacked his Oaten straw loosely, and then thatched it, it would be as well to cut up with the hay of which he made his chaff as if it had come fresh from the flail in the barn. In fact, it came out in better condition when stacked from the threshing machine at once than when it had been knocked about first from the barn to the rick-yard. Considering the cost of erecting premises for a fixed steam-engine, then, and the inconvenience of removing the straw at harvest time, he was decidedly of opinion that the cost of threshing was less, and the labour wasted less, when the stacking was done in the field where the corn was grown, provided it was adjacent to a hard road, than when it had to be carted and threshed out in the homestall. In conclusion, he was strongly of opinion that it would be wrong to recommend the agricultural body to throw aside the portable steam-engine, and by erecting large and expensive premises, substitute those inconvenient fixed engines which were to be seen upon some grand establishments, with which they were all acquainted. (Hear, and a laugh).—Mr. Thomas (Bletsoe), said: As to the fixed steam-engine, it should be borne in mind that it was not employed principally in threshing, but was applied to other purposes as well; indeed, he employed his own more for other purposes than for threshing, though he was neither miller nor cake-maker. He used it to grind the produce of his farm for the feeding of his stock, to steam chaff, and to cut cavings, straw, and hay into chaff, and also Turnips and Rapecake. Taking all things into consideration, it was a question with him whether, in the long run, upon a large and compact farm, a fixed engine was not the better of the two. His plan was to draw a portion of his corn to the homestead, and stack the remainder in the field as convenient to a road as possible, and at such times as suited his purpose to do so. But he never thought of threshing there. He always carried the corn to one of his barns to be threshed.—Mr. J. Williams (Blaydon) differed essentially from Mr. Baker with regard to stacking of corn. That gentleman appeared to think that the existence of good farm premises, conveniently situated for the tenant to work up his stock, was the rule instead of the exception, the fact being that there was not one homestead out of a hundred that was worthy of the name. Upon his brother's farm, though the homestall lay at one corner, nearly the whole of the corn was brought home to be threshed at a fixed engine, and when the straw had been manufactured into manure it had to be carried back again. Thus a double expense was incurred. The distance from one end of the farm to the other was from 2 to 2½ miles, and he suggested that another system might be adopted which would be attended with a saving of expense. In all probability there would be, close to where the corn was produced, a piece of Swedes or other Turnips, off which it was necessary the stock should feed where it grew. And keeping this in view, he suggested that the straw should be stacked in the most convenient place. And where was that? On the spot where they could stack the largest number of loads of corn in the shortest possible time; that was, in the field where it grew. There, too, it would not require binding in the first place, and little or no risk would be run of the waggons being upset on the way. But then he insisted that the work of stacking should be neatly and properly executed. Generally, the men were too apt to keep their ricks level. He (Mr. Williams) maintained, on the contrary, that the rick should be always convex throughout from bottom to top, and, as the roof was approached, more and more so; but all through the stem of the rick it should be so convex that, if there was no covering for it, a week's rain should not penetrate below 2 or 3 inches. He had stated that they would get in the corn faster by stacking it in the fields where it grew than by drawing it home. And not only was the work itself expedited by this means, but there was also a saving of the time of their workpeople, when that time was most precious. Even supposing that they afterwards drew it home, there was still economy in that system. With regard to field threshing, he concurred with Mr. Wood, that they had no right to condemn the system on the ground of its being sometimes abused. Upon light lands it must be extremely beneficial in every respect. Usually the light land was farthest from home, and the question was, whether when its produce was brought away

a just proportion of it ever found its way back again. He held, therefore, that the portable engine should be sent to the light land to thresh out the produce, which once there should be kept there. By the plan he had suggested, he thought that upon a farm of 500 or 600 acres a saving of 100*l.* a year might be effected on the carting in autumn alone.—Mr. Bradshaw (Guildford) referred to his own practice on the subject. His buildings were in the centre of a given quantity of land; he had a fixed steam-engine, and he brought the larger portion of the straw home to the buildings, and exercised his judgment in the best manner he could as to the placing of the stacks. He would bring every stack home if he could. Those which he could not bring home he always put in what appeared to him to be the most convenient places, being guided partly by the weather and partly by his available horse-power at the moment. His grand object was to stack the crop with as much promptitude as possible. It was an important point to get the straw near the machine, and, after it had been passed through the drum, to convey it as economically as possible to the place where it was to be used. His straw was landed where it had to be cut with the chaff machine. On being cut it fell down into bins, and from these a man could throw it where it was mixed up with the grated food; and there it remained till it was taken in skips and conveyed to the bullocks. What could be more economical than that?—Colonel Roland apprehended that unless the corn was stacked upon stone or iron pillars in the neighbourhood of the barns, loss would be likely to ensue from the rats and mice. If gentlemen would turn their attention to the Scotch farms, there they would see everything in perfection. The corn stacks were conveyed by railway right into the barn, tilted at once on the threshing machine, and came out at the bottom into a room below.—Mr Ramsay (Newcastle) said, in the north the climate was so variable that they were always glad, by the employment of extra labour, to get the corn into the stackyards and barns as speedily as possible. With regard to threshing, not being satisfied with his two homesteads, he purchased a locomotive engine of Barrett, Exall, & Andrews, which cost him 100*l.* The result was, that whereas previously it took 100 days with four horses, and men in proportion, to thresh out his produce, he now accomplished the work almost as soon as it seemed to have begun. His farm was about 500 acres in extent, but if it were larger, and the buildings were well situated, he thought he should prefer a fixed engine. As it was, however, this little portable engine had been so useful that he would not be without it on any account. Besides, having lent it out, he believed it had made as much as 200*l.*, in addition to all the work it had done on his own farm. Mr. Sidney said there was one important part of the comparative expense of a fixed and a portable steam-engine that had not yet been referred to. The expense did not begin and end with the purchase of the engine; but a fixed engine generally cost less money, was worked at considerably less expense as regarded the consumption of coal, and lasted four times as long as the portable engine. In Scotland, and in Beds and Norfolk, in fact, wherever leases or fixity of tenure prevailed, there they found the fixed engine, especially on the estates of those noblemen who had assisted their tenants by arranging the farm buildings in the best position for returning the produce. The duty of this club was to lay down the principles of good farming. They need not now argue whether the use of steam power was good or not. That question had been settled long ago.—The Chairman said some persons condemned the stacking of straw on the ground that the cattle did not like it so well afterwards. Now, his opinion was the very reverse of that. He had seen beasts foddered at the same time with straw which had been long stacked and straw which had just come fresh from the flail, and they had eaten the old stacked straw in preference to the other. Colonel Roland had spoken of the necessity of carting corn into the stackyard to avoid the ravages of vermin. But if any one would give him (Mr. Wallis) a set of straddles for nothing, on condition that he placed his corn upon them, he would not accept them. In fact they were of no earthly good, and took up space that might be more profitably occupied. As to vermin there were men who came about regularly after harvest and dressed the stacks at 1*s.* each; and thanks to them, he hardly knew what ravages of vermin meant. The following resolution was then agreed to unanimously:—"That it is desirable, both as respects convenience and economy, to place the corn stacks of the farm at the time of harvest in groups in different directions, as contiguous to the homestead as may be, removing them to the threshing barn as wanted. That field threshing, as recently practised, is not to be recommended, except under peculiar circumstances."

Reviews.

How to Farm Profitably, particularly on Stiff Heavy Clays. By Mr. Sheriff Mechi. Longmans.

This pamphlet is we presume the representative of that annual report from Tiptree, which for several years took the form of a Paper read before the Society of Arts. It is a somewhat incoherent statement of Mr. Mechi's views on a number of agricultural topics—concluding with a series of estimates of expense and return under a variety of heads, illustrating the cost, and by inference, the profits of Tiptree management.

We shall refer to the contents of the pamphlet in detail next week.

Notices to Correspondents.

GORSE: *Fox Hunter.* About 10 lbs. of seed may be sown per acre, in shallow drills of any light soil, in the month of March or April. The rows may be 10 inches apart, and the best plan is to sow it just as Wheat is sown in some districts, the men opening a shallow drill with a broad light hoe, sowing the seed along it, and then covering it with the earth taken in opening the next drill: it can thus be sown for about 6*s.* an acre, and if 8 or 10 lbs. of seed at 1*s.* a lb. be used the first cost of the crop is not very great. Some people, however, recommend a larger quantity, and sow it broadcast. This is not a good plan, for the only difficulty which the crop has to withstand arises from the obstruction of its early growth by means of weeds, and these can of course be much more easily extirpated under a drill husbandry of the crop. This is the ordinary management of the crop cultivated for food. If for a fox cover, the rows might be better double the distance apart.

ITALIAN RYE-GRASS: *R S T.* The late number of the Journal of the Albert Institution at Glasnevin contains information on this subject. Five cuttings were obtained, amounting in all to 38½ tons per acre, and 50,000 gallons of liquid manure in five successive waterings after each cutting were applied.

RAPESTALKS: *Constant Reader.* Never mind the stalks. Let them lie. The slovenly appearance is the only evil.

SAMPLES OF SEED: *Hill Farm, Painswick, &c.* Thanks. They shall be carefully examined and reported on along with others.

SIGMA'S DIBBLE: *H W.* We have not seen any of those which are advertised; but those exhibited at Baker Street appeared to us very efficient and useful.

STOCKING A FARM: *A B C.* At present we can only say that, judging from the rent, though that is a very fallible test, you appear to have about half the stock needed for your Grass land. Whether you should purchase sheep or cattle depends on the character of your land.

** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents, the insertion of whose contributions is still delayed.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving o 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Illustrated Price Lists forwarded on application.

BEEHIVES.

MARRIOTT'S HUMANE AND COTTAGERS' HIVES, with all other articles required by an apiarian, are only to be obtained of RIGBY & Co., 80, Gracechurch Street. Catalogues sent upon application.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR and SONS, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid: its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co., 61, Dame Street.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No. 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

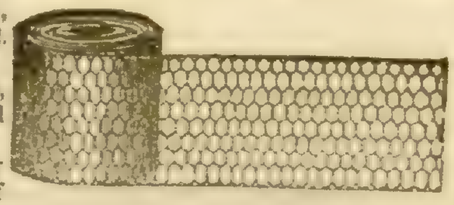
H. J. MORTON AND Co., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other roofs. The cheapest, most durable, and neatest roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm buildings, houses, &c.—Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest Cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.—Galvanised 24 inch wide, 2-inch mesh, 6*d.*, 8*d.* and 11*d.* per yard.



Galvanised, 24 inch wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS and FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and Rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

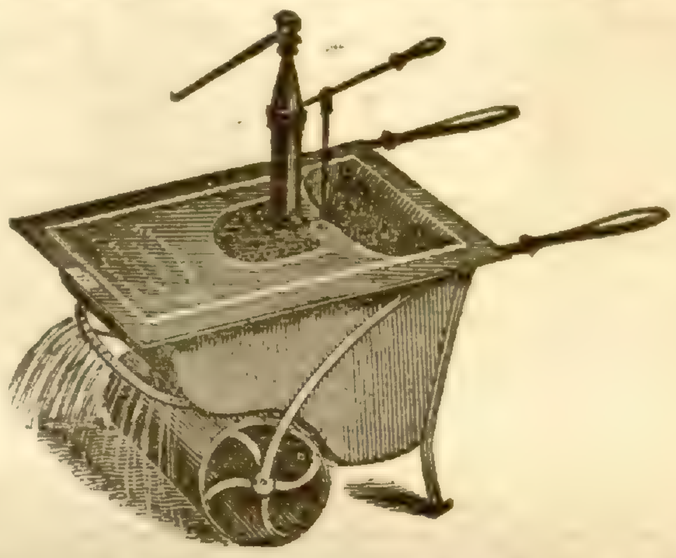
CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

MICROSCOPES.

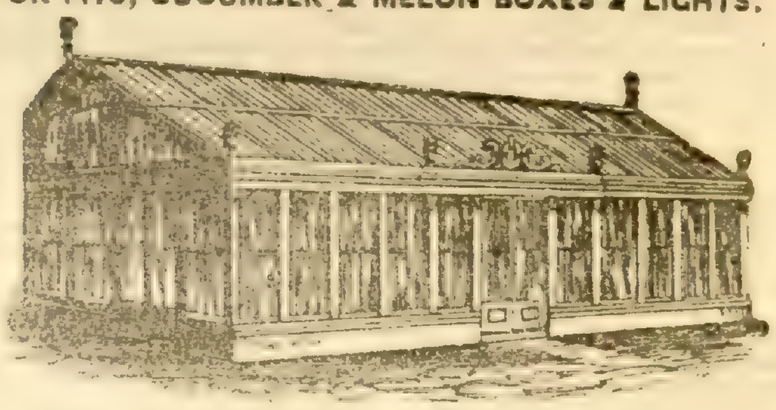
J. AMADIO'S BOTANICAL MICROSCOPES, packed in mahogany case, with three powers, condenser, pincers, and two slides, will show the animalculæ in water. Price 18*s.* 6*d.*—Address JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of achromatic microscopes.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.



The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet, and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l* 10*s.*

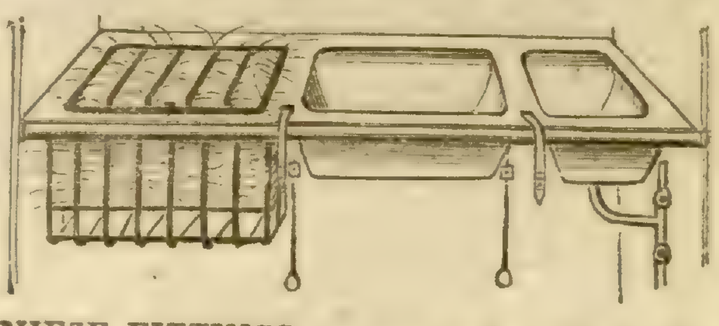
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft, 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these Fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.

JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied, a fixed temperature. It is adapted for all horticultural and floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high				...	£4 10
No. 2 „ 15 „ „	45	„		...	5 10
No. 3 „ 28 „ „	45	„		...	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high				...	£2 15
No. 13 „ 12 „ „	30	„		...	3 5
No. 11 „ 16 „ „	40	„		...	4 0
No. 12 „ 24 „ „	45	„		...	5 0
No. 14 „ 30 „ „	45	„		...	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1, Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

TANNED NETTING for the protection of Fruit Trees from Frost, Blight, and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds. 30*s.*; 1000 yds, 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag, and Tarpaulinn Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.

THOMAS BRITTAIN & Co., Manchester; J. ELLISON, Bread Street, Cheapside, London.

COTTAM AND HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, & 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	Do. Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	Do. Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

IRON HURDLES, STRAINED WIRE FENCING, GAME NETTING, &c.

AGRICULTURAL LIST UPON APPLICATION.

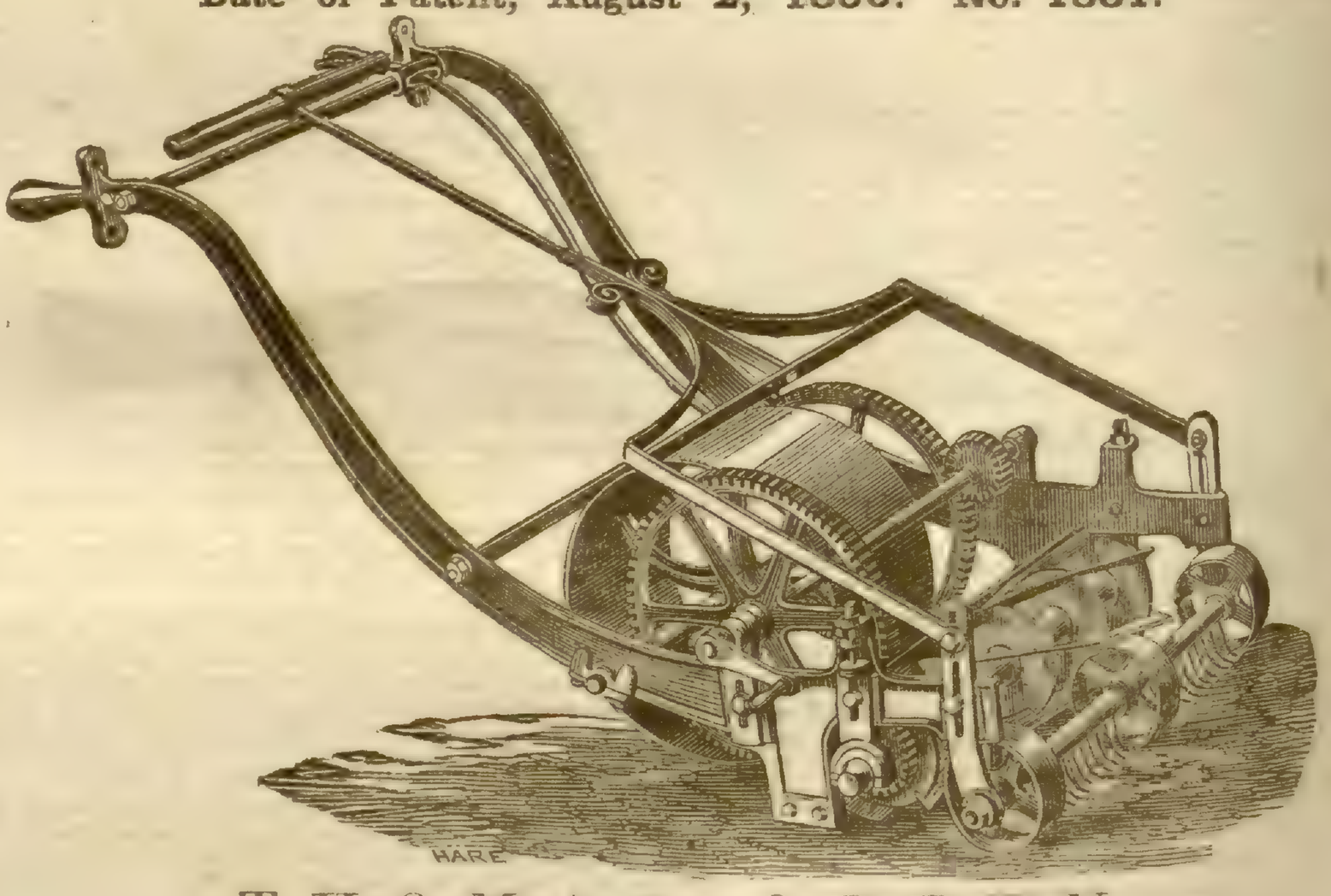
EVERY DESCRIPTION OF PLAIN, ORNAMENTAL, CAST AND WROUGHT IRON, AND WIRE WORK.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BY ROYAL LETTERS PATENT.

Green's Patent Pony and Hand Grass-Cutting Machines.

Date of Patent, August 2, 1856. No. 1831.



THOMAS GREEN,

PATENTEE AND SOLE MANUFACTURER, LEEDS, YORKSHIRE.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Price Lists and Testimonials may be had on application to the Works; also Mr. Charles Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham, where the Machines may be seen, and every information obtained.

Testimonial from J. MAJOR, Esq., *Landscape Gardener, Knostrop, Leeds.*

"Sir,—When your improved Mowing Machine was first sent for my inspection some time ago, I thought no room was left for improvement except a contrivance for all the wheels to be made to work within the frame of the Machine so as to prevent the plants near the edges of the Grass from being caught and injured in the operation of mowing. This defect I am glad to find completely remedied in the Machine now sent for trial. It seems to possess all that is requisite, and the Rake you have just added appears to have given it the finishing stroke, as it raises the Grass when too low, and frees it from all obstructions. It is a complete *multum in parvo*. It is at once neat, simple, and very efficacious in its operations, and my opinion is that your present Machine as far surpasses your former one, as the former did all previous inventions. I may further add that I think you have done an important thing in varying the sizes of the Machine according to its requirements. The smallest sizes are best adapted for town gardens, and for cutting amongst crowded flower beds and intricate places. The intermediate ones, say 16 or 18 inches, are most suitable for amateurs generally, and gardeners in single-handed places. Your adaptations of the Mower, to work either by pushing or drawing, is well adapted for intricate places; and drawing being the easiest mode of working the machine, is the most suitable for open or large expanses of lawn. It affords me great pleasure in again having to give my testimony to so important and valuable an improvement, which I have no doubt the gardening world will fully appreciate.

"I am, Sir, yours very respectfully,

"JOSHUA MAJOR.

"Mr. Green."

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*"	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten fires I had on the old system.*"	12	6000	2300
The dwelling-house and hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c.	12	...	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total	...	4050	
Mr. Paget says:—"*Your apparatus is working very satisfactorily.* *** *The boiler is quite master of its work.*			
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	...	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

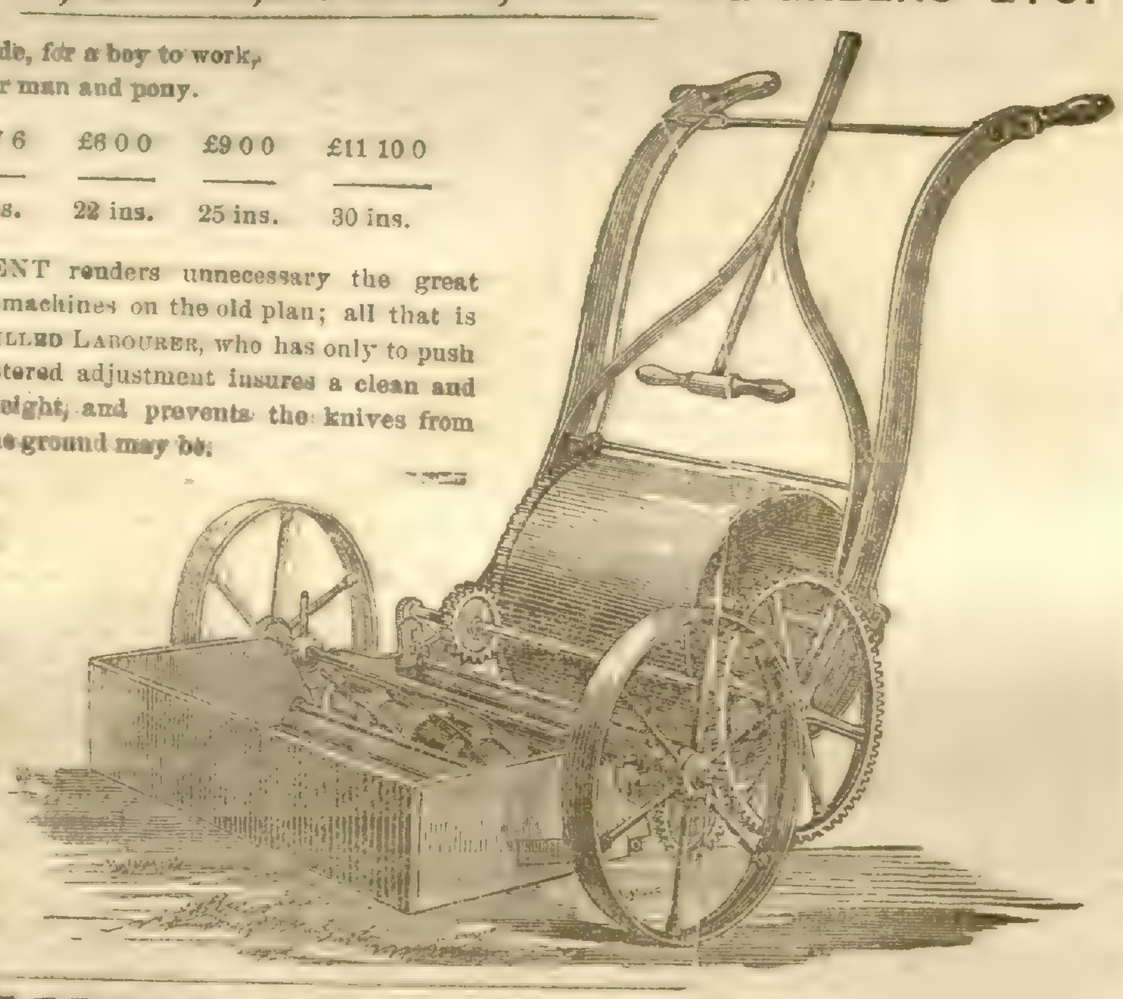
JOHN WEEKS & COMPANY,
Horticultural Builders and Hothouse Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for man and pony.

Prices ...	£2 10	£5 10 0	£5 17 6	£6 0 0	£9 0 0	£11 10 0
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

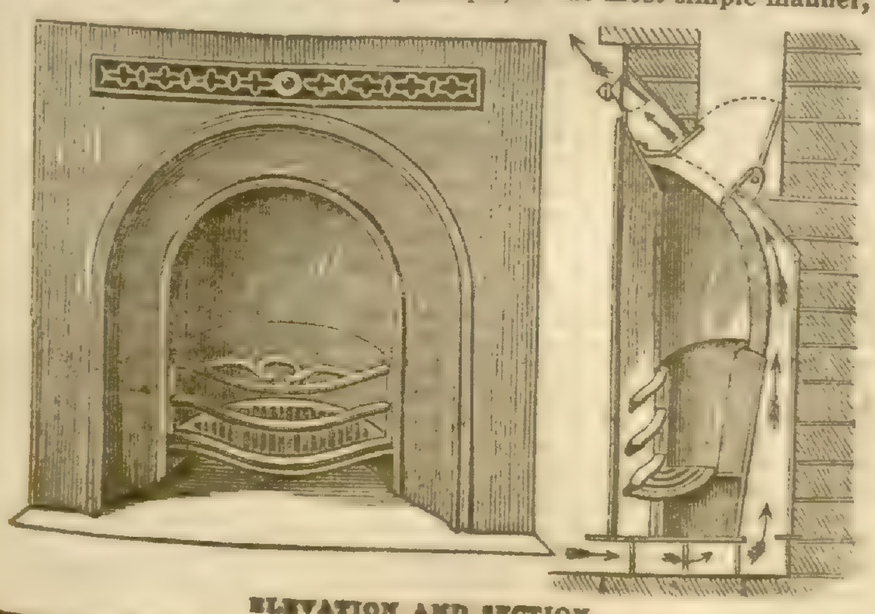
Copies of Testimonials will be forwarded, post free, on application to the manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

VENTILATION IS ESSENTIAL TO **HEALTH,** AND NO SYSTEM OF **WARMING** SHOULD BE TOLERATED WHICH FAILS TO AFFORD A FREE SUPPLY OF FRESH AIR TO, AND THE WITHDRAWAL OF VITIATED AIR FROM, **EACH** AND **EVERY** INHABITED APARTMENT.

It is proposed to carry out this principle, in the most simple manner, in all ordinary rooms, by the agency of the



ELEVATION AND SECTION.

HYGIASTIC FIRE-GRATE, which PROMOTES VENTILATION by a continuous supply of fresh air, moderately warmed, in contact with fire-brick surfaces, and is at once the most economic and effective Grate known.

THE

SMOKE-FLUE VENTILATOR effectually withdraws the vitiated air of a room, without risk of return-smoke, as with ordinary chimney-valves.

*** Both to be seen in daily use, and Prospectus of their advantages to be obtained, at

BOYD & CHAPMAN'S,
78, WELBECK STREET, LONDON, W.
Established 1776.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other articles for travelling. By post for two stamps.
J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue.) 18 and 22, Strand.

CAPTAIN HORNBY can supply EGGS during the Season from the Spanish, Dorking, and Game Birds with which he has taken prizes at Wellington, Windsor, Bristol, Prescot, Chelmsford, Anerley, Wigan, Runcorn, Birmingham, Preston, Liverpool, and Kendal. The Dorking Eggs from the parents of chickens which won both Silver Cups at Preston, and the Ten Guinea Cup at Liverpool, beating the adult birds.—Knowsley Cottage, Prescot.

NURSERIES AT BLACKNESS, DUNDEE.

TO BE LET, for such term of years as may be agreed on, with Entry at Martinmas 1858, these extensive and favourite NURSERY GROUNDS adjoining Blackness Crescent, now occupied by Mr. Laird, with the Buildings. The Lands to be Let will extend to about 14 Acres, all excellent soil, and well laid out for convenience and ornament, and protected by walls and hedges. They have a southern exposure, and are admirably suited for the rearing of plants of all kinds, and for all branches of the Nurseryman's trade. The character of the Nursery is well established, and commands a large trade both in the district and for export. There is a good dwelling House, Bothy, and Byre, large Greenhouse, Pots, Frames, Spring Water, and all other wants for a Nursery. The current Lease contains conditions favourable for the entry of a new Tenant. The present Tenant is not to be an offerer. This is a favourable opportunity for any one desirous of engaging in an extensive business. There is great facility for a profitable trade in the higher departments, and additional Land may be got if it be desired, for enabling the Tenant to reap also the profits of the best sorts of Market Gardening in addition to the Nursery.—Apply to C. KERR & Co., Castle Street, Dundee, who are ready to close a bargain whenever a respectable offer is made.

CARNATIONS, PICOTEES, ORANGE TREES, AZALEAS, KALMIAS, AND HERBACEOUS PLANTS.

MR. WILLMER will Sell as above at Auction Mart, on WEDNESDAY, April 22, and 29 next.

VALUABLE EXOTIC SPECIMEN AND OTHER PLANTS.
TO NOBLEMEN, GENTLEMEN, FLORISTS, NURSERYMEN, & OTHERS.

MR. JAMES M. RICHARDSON respectfully intimates that the Fourth and concluding day's sale, at Chancellor House, Mount Ephraim, Tunbridge Wells, will take place on FRIDAY, April 24, commencing at 11 for 12 o'Clock precisely, and will embrace about 3000 choice Exotic and other rare Plants, which may be inspected the day prior to the Sale, and Catalogues obtained (price 6d.) of the Auctioneer, 1, Wilton Place, Tunbridge Wells.

Sales by Auction.

ORCHIDS.—ESTABLISHED PLANTS.

MR. J. C. STEVENS will sell by Auction at his Great Room, 38, King Street, Covent Garden, on FRIDAY, May 8, at 1 o'Clock precisely, a further portion of Mr. Loddiges' ORCHIDS, which includes many fine plants of the choicest East Indian and other varieties in excellent health. Catalogues are preparing, and will be ready one week before the Sale.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, April 23, at 12 o'Clock, a first class collection of Carnations, Picotees, and Pinks; also fine American Plants, Standard and Dwarf Roses, choice Fuchsias, Verbenas, Dahlias in dry roots, fine Azalea indica, Geraniums, Acacias, Roses, and other plants in bloom, with a choice and useful assortment for bedding. On view the morning of Sale.—Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

COVENTRY.—TO GENTLEMEN, NURSERYMEN AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Ogden to Sell by Auction, on the premises, Warwick Road, Coventry, on MONDAY, April 27, and following day, at 11 o'clock each day, the choice collection of about 10,000 Stove, Greenhouse, and Bedding Plants, including 2000 fine Show and Scarlet Geraniums, Azalea indica, Cactus, Ericas, Myrtles, Cinerarias, &c.; choice Verbenas, Fuchsias, Calceolarias; Heliotropes, Petunias, Mesembryanthemums; a collection of 1500 Rock Plants, also a quantity of Lilium lancifolium, album, Vines, Figs, &c., with several Frame and Pit Lights, &c. &c.—May be viewed three days prior to the Sale; Catalogues may be had on the premises, of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

WYCHWOOD FOREST, OXON.
BY ORDER OF THE COMMISSIONERS IN CHARGE.

MR. LONG will Sell by Auction, on TUESDAY, April 28, at the Churchill Arms, Ascott-under-Wychwood, at 1 o'Clock, about 800 Tons of Superior OAK TIMBER BARK. Wychwood Forest is near the Charlbury, Ascott, and Shipton Stations on the Oxford, Worcester, and Wolverhampton Railway. Particulars and Conditions of Sale may be obtained at the Office of Woods, 1, Whitehall Place; at the Office of Mr. JOHN CLUTTON, 9, Whitehall Place; at the place of Sale of the Auctioneer, Witney; and of Mr. GEORGE MOODIE, Potters Hill Lodge, Ascott, near Charlbury, who will show the Bark. The down-train leaving Euston Square at 9.30 A.M. and 12.30 P.M., and Paddington 9.40 A.M.; and the up-train leaving Worcester at 5.10 P.M. will stop at Ascott Station on the day of Sale.

A WELL SELECTED LIBRARY OF ELEGANTLY BOUND BOOKS.

MR. SPENCER will sell at Mr. Robinson's Auction Rooms, 21, Old Bond Street, on THURSDAY, April 23, at 12 for 1 o'Clock, a well-selected Library of Books, of about 800 volumes (the property of a gentleman removing into the country), including the Pictorial History of England, Paxton's Magazine of Botany, the Penny Cyclopædia, the Waverley Novels, Lockhart's Life of Scott, Lodge's Portraits, Partington's Cyclopædia, the National ditto, the Dublin University Magazine, the Edinburgh Review, Chambers' Journal, old and new series, Beauties of England and Wales, Alison's Europe, Gibbon's Rome, Wordsworth's Greece, Burnet's History, the Pictorial Bible, Art Union, Illustrated News, Family Friend; the Works of Burns, Byron, Cowper, Crabbe, Campbell, Dickens, Lever, Edgeworth, Milton, Scott, Shakspeare, Boswell's Johnson, Lives of Celebrated Characters, and a great variety of works upon Poetry, Painting, Botany, Flowers, Birds, History, Geography, &c. &c.—May be viewed and Catalogues had at the Rooms, and at Mr. SPENCER's Office, 2, Hand Court, Holborn

ISLE OF MAN.
54 ACRES OF LAND, WITH HOUSE AND BUILDINGS.

MESSRS. THOMAS WINSTANLEY AND SONS have been instructed to Sell by Auction, if not previously Sold for 600*l*, of which due notice will be given, on WEDNESDAY, April 22, after the Sale of Greeba Castle, at 2 o'Clock, on the premises, Monte Video, behind Greeba Mill, and about 10 minutes' walk from Greeba Castle, that capital Freehold Estate, called "MONTE VIDEO," half-way between Douglas and Peel, up Greeba Mill Road, and commanding extensive and varied views. It comprises 20 Acres of Land, nearly square, divided into six Fields, with House, Garden, and Out-offices in the centre; a Field of 12 Acres joining, called the Park, with a stream of spring water sufficient to turn a Mill in winter, and runs up to the mountain, where persons turn Sheep and Cattle to graze free; and an Intack of 22 Acres, about half-a-mile distant, but not yet enclosed. The Land is in a rich state of cultivation, and all in Grass, except 3¼ Acres, well watered, dry, and sheltered from the north winds by Greeba Mountain. Immediate possession will be given. This most desirable property is within 12 hours' journey from London, six of Liverpool, Dublin, or Scotland, and seven from Manchester, and half an hour from Douglas or Peel, from which two Coaches pass and re-pass Greeba Mill Road daily. The island is noted for its delightful Sea Bathing, Salubrity and Healthfulness, and is almost Free from Taxation. There is good Shooting and Fishing.—For further particulars apply to the Owner, W. BANNING, 33, Park Lane; or to the Auctioneers, Church Street, Liverpool.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection of fine healthy plants for 21*s*., package included: viz., Jessica, Empress, Virginia, exactum, Carlos, Lucy, Rosa, Majestic, Magnet, Enchantress, Virgin Queen, Serena, Attraction, Mochanna, Beatrice, Lord Mayor, Old Story, Chloe, Zeno, Seraskier, Ganymede, Phaeton, Magnificent, Gulielma, Cordelia, Rosamond, optimum, Rowena, Floretta, Queen of May.

Horticultural Gardens, Norwich.

CHOICE SHOW PINKS.

WILLIAM HUSSEY begs to offer the undernamed Collection—one pair of each for 15*s*., package included: viz., Alfred Morrison, Arthur Brilliant, Beatrice, Conrad, Constance, Criterion, Henry Steers, Duke of Wellington, Esther, Earl of Carlisle, Harry, Harriet, Juno, Jenny Lind, King of Purples, Koh-i-noor, Lord Charles Wellesley, Lord Hardinge, Lord John Russell, Laura, Lord Valentia, Melona, Mars, Mrs. Judd, Othello, Perfection, Princess Royal, Prima Donna, Prince Albert, Queen Victoria, Sappho, Sarah, Teddington, Titus, Winchester Rival.—Horticultural Gardens, Norwich.

SPLENDID SEEDLING CALCEOLARIA.

WILLIAM BARNES has much pleasure in informing his friends and patrons that he has still a few dozens of his unrivalled CALCEOLARIAS in extra strong plants now ready for shifting into their blooming pots.

The Seed has been carefully hybridised with the finest shaped flowers and the most beautiful markings, and cannot fail to produce bloom of the first quality. Price 5*s*. per dozen.

Camden Nursery, Camberwell.

FUCHSIAS.—ROYAL VICTORIA (Pond's), one of the finest light varieties ever offered, 10*s*. 6*d*.

CEDO NULLI (Pond's), one of the finest dark varieties ever offered, 10*s*. 6*d*. Plants ready by the 1st of May, 1857.

John Keynes, Florist, Castle Street, Salisbury.

CESTRUM NOCTURNUM var. ODORATISSIMUM.—This powerfully fragrant plant was received from Mexico, and promises to be a most useful one for Conservatories. It flowers freely from August to November, but as it forces well, it may be bloomed at an earlier season. The flowers are a light straw colour, very abundant, and of powerful fragrance (combining that of the Vanilla and White Clover). Good Plants are now ready at 10*s*. 6*d*. each with the usual allowance to the trade when three are taken. N.B. The stock is limited.

Osborn & Sons, Fulham, near London, S.W., Sole Agents.

NEW VERBENAS of 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, La Stella, Mrs. A. Clive, Eugénie, Victory, Viscountess Emlyn, imperialis, Imperatrice Elizabeth, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Purity, Crimson Perfection, Lady Kerrison, Nosegay, Criterion, delicata, King of Sardinia, Tranby, Lord Raglan, Sir C. Campbell, Dandy, Dr. Maclean, Cedo Nulli, General Pelissier. Fine Plants of the above, free by post, 4*s*. per dozen. Also Petunia Rose of England, 5*s*. each, or three plants for two ordered.—Henry May, Hope Nurseries, Bedale, Yorkshire.

BEDDING PLANTS AND CHOICE FLOWER GARDEN NOVELTIES, at 2*s*. 6*d*. per dozen, in 3-inch pots, fine plants. A descriptive Catalogue of 18 pages, containing upwards of a thousand sorts, will be sent on application, inclosing two penny stamps, to J. Scott, Merriott Nurseries, Crewkerne, Somerset.

The following is an example of the cheapness of these plants: 12 Calceolarias, 12 Dahlias, 12 Geraniums, 12 Heliotropes, 12 Fuchsias, 12 Petunias, 12 Verbenas, and 12 Salvia and Cuphea, for 20*s*., and plants added to help to pay for carriage. Basket and packing at the expense of purchaser.

WELLINGTONIA GIGANTEA,
The Giant Tree of California.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

NEW FUCHSIAS.

JOHN and CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (Lee).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. To be sent out May 1st; price 10*s*. 6*d*.

DANIEL LAMBERT (Lee) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. To be sent out May 1st; price 7*s*. 6*d*.—Nursery, Hammersmith, near London.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesnera zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30*s*. the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, April 18.

REIGATE SILVER SAND, 16*s*. per Ton. Less quantities, 1*s*. 6*d*. per bushel. Delivered to any London wharf or railway, or within five miles. Peat and Loam for all kinds of Plants. Samples if required. Sacks, 2*s*. each, or on hire.

John Kennard, Swan Place, Old Kent Road, S.E.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1*s*. 6*d*. per lb. by Joseph Baker, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

TOBACCO PAPER OF SUPERIOR QUALITY, FOR FUMIGATING.—The article now offered differs materially from what is usually sold under this name, it being saturated with the juices exuding from the NEGRO-HEAD Tobacco in the process of manufacture, and can testify that it produces a saving of 60 per cent. in the use of the article. Price 1*s*. 6*d*. per lb., and will be forwarded in any quantity on receipt of Post-office Order.

Youell & Co., Sole Agents for the sale of the above, Royal Nursery, Great Yarmouth.

AQUARIA.

JAMES PHILLIPS and CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, With Ebony Stands.		COMMON SHAPE AQUARIA With Ebony Stands.	
12 inches diameter, each	5*s*. 0*d*.	12 inches diameter, each	4*s*. 6*d*.
13 " "	6 0	13 " "	5 0
14 " "	8 0	14 " "	5 6
15 " "	9 0	15 " "	6 6
16 " "	10 0	16 " "	7 0
17 " "	12 0	17 " "	8 0
18 " "	13 0	18 " "	10 0
19 " "	14 0	19 " "	11 6
20 " "	15 0	20 " "	12 6

Syphons, each ... ... 2*s*. 0*d*.

TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

	£	*s*.	*d*.
30 inches long, 17 wide, 15 deep	3	10	0
26 inches long, 16 wide, 15 deep	3	0	0
20 inches long, 13 wide, 9½ deep	1	18	0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.

GLASS FERN SHADES AND STANDS.

6 inch diameter, each...	2*s*. 6*d*.	12 inch diameter, each...	8*s*. 6*d*
7 " " " ...	3 0	13 " " " ...	11 0
8 " " " ...	3 6	14 " " " ...	14 0
9 " " " ...	4 6	15 " " " ...	18 6
10 " " " ...	5 6	16 " " " ...	23 6
11 " " " ...	6 6		

CUCUMBER GLASSES.

24 inches long	2*s*. 0*d*.	16 inches long	1*s*. 4*d*.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1*s*. 6*d*. per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21*s*. per dozen; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every Article in the Trade.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. and W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best Manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

GLASS FOR CONSERVATORIES, ETC.

HETLEY and CO. supply 16-oz. SHEET GLASS of British Manufacture, at prices varying from 2*d*. to 3*d*. per square foot, for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s*. 6*d*. per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s*. 6*d*. per box, in 21 oz. 1*s*. per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s*.; and 21 oz., 25*s*. per 100 feet. Boxes charged 2*s*. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. Farmiloe & Son, 118, St. John Street, West Smithfield, London.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10*s*. per 100 feet	8 by 6 9 by 7 9½ by 7½ 10 by 8	12*s*.
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s*.	12 by 10 13 by 10 14 by 10 15 by 10	14*s*.

Above 15 by 10, and not exceeding 18 by 12, 15*s*. 6*d*. per 100 feet. Some of the above in 21 oz. Glass at 1*s*. and 2*s*. per 100 ft. extra.

19 by 12 20 by 12	16*s*.	20 by 13 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s*. and 40*s*. per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, $\frac{1}{8}$ to $\frac{3}{16}$ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee "	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

OXLEY and CO.'S ASBESTOS FILTER, enlarged, price 35*s*. each; small size, 17*s*. 6*d*. Twenty gallons of pure water per diem. All mineral and noxious matters entirely separated by this process.—Taylor & Pears, 8, George Yard, Lombard Street, London.

WATERPROOF PATHS.
BARN AND CATTLE SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean, hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

ASPHALTE WALKS.—Any practical person that will forward a small sketch showing different colours, in a Gothic style, and price per yard to W. B., Bilton Grange, Rugby, Warwickshire, will hear further particulars.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms, with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

C. STEPHENSON, late STEPHENSON and SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HURD and VOKINS, 1, Little Smith Street and Radnor Street, King's Road, Chelsea, HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Plans and Estimates to all parts upon application.

THOMSON'S RETORT BOILER,

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS and SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public.

Full particulars with illustrations and prices forwarded on application.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON, and CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from Crescens, Robinson, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

LINGHAM, BROTHERS, Birmingham, Manufacturers of the Improved MONOGRAPH or PERMANENT WOOD LABELS for GARDEN BORDERS, FLOWER POTS, &c., in boxes of 100 each. The above Labels have been manufactured by Lingham Brothers for the last 10 years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the public. For neatness, durability, and cheapness they have superseded all other kinds of Labels for Horticultural purposes.

Sole Agents in London, Deane, Dray, & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

ACHROMATIC MICROSCOPES.

SMITH and BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l*. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six postage stamps.

A General Catalogue for March 1857 may be had on application.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by John Shaw & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light: also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d*. per yard or 5*s*. per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

John Shaw & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Minier, Nash, & Co., Seed Merchants, London.
" Peter Lawson & Son, Seed Merchants, London and [Edinburgh
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

" Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 17.—1857.] SATURDAY, APRIL 25. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY, 21, Regent Street, April 25, 1857.—NOTICE IS HEREBY GIVEN, that the ANNIVERSARY MEETING of this Society will be held on FRIDAY, May 1, for the Election of Council, Officers, and Auditors for the ensuing year, and for receiving the Report of the Council for the past year. The Chair will be taken at 1 o'clock, P.M.

HORTICULTURAL SOCIETY OF LONDON.—The next Meeting of this Corporation for the Exhibition of Orchids, Azaleas, Indian Rhododendrons, Strawberries, &c., and the Election of Fellows, will be held on TUESDAY, May 5, at 3 o'Clock p.m. Admission only by Fellow's personal introduction, Ivory Tickets, or Written Order.—21, Regent Street, S. W.

*** This is the last day on which Fellows can be elected prior to the Great Garden Exhibition.

HORTICULTURAL SOCIETY OF LONDON.—EXHIBITION AT THE GARDEN. June 3 and 4. Tickets at privileged prices can now be had by presenting Fellow's Orders or their Ivory Tickets at 21, Regent Street, S.W., where Schedules and full particulars can be obtained gratis.

HORTICULTURAL SOCIETY OF LONDON. MANUFACTURERS' DIVISION.

No applications for space can be received after May 16. Intending Exhibitors should apply immediately to Mr. George McEwen, Horticultural Garden, Turnham Green, W.

NATIONAL FLORICUTURAL SOCIETY.—ST. MARTIN'S HALL, APRIL 23.

Award of Censors:—Messrs. J. Keynes, W. Hall, J. Ivery. E. Sanderson and T. Moore

FIRST-CLASS CERTIFICATE.—Cineraria Baroness de Rothschild (Turner)

CERTIFICATE OF MERIT.—Cineraria Mrs. Hoyle (Turner).
" " " " President (Sharman).
" " " " Mrs. Colman (Turner).

LABEL OF COMMENDATION.—Cineraria Miss Harriett (Whiting).

John Edwards, Secretary.

Next Meeting THURSDAY, May 7.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S EXHIBITION will be held at the Manor Rooms, Church Street, Stoke Newington, on TUESDAY and WEDNESDAY, November 17 and 18.

Arthur Wortley, Hon. Sec.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—The Summer Exhibition of the above Society will be holden in Oxford, on WEDNESDAY, June 23; when in addition to the Prizes to be competed for by Members, the following are offered, open to all England (entrance free):—

STOVE OR GREENHOUSE PLANTS (not Fuchsias or Geraniums) Nine varieties.—1st Prize, 10*l*.; 2d ditto, 8*l*.; 3d do. 7*l*.

GERANIUMS (not Fancies) in 8-inch pots, 12 varieties.—1st Prize, 5*l*.; 2d ditto, 3*l*.; 3d ditto, 2*l*.

No person will be allowed to receive more than one Prize in either Class.

Further particulars may be had of Mr. Hobbs, Acting Secretary, 23, St. Giles's Street, Oxford.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:

May 26, 27 .. Exhibition of Plants, Flowers, Fruits, &c.
" 29, 30 .. " Tulips (adjourned from the Crystal Palace)
May and June " American Plants
June 24, 25 .. " Plants, Flowers, Fruit, &c.
Aug. 19, 20 .. " Carnations and Picotees
" 26, 27 .. " Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order) John Shaw, Secretary.

DISSOLUTION OF THE FIRM OF STANDISH AND NOBLE.—Every department of the Nursery Business, so long and favourably patronised under the late Firm, is now conducted by Charles Noble, to whom all communications should be addressed.—The Nursery, Bagshot, April 25.

PHLOXES.

F. GODWIN offers 12 Phloxes as under for 6*s*.:—Alice Allain, Colonel Dundas, Countess of Home, D. Leroy, Elisa, Hebe, Lambert Jervis, Lychniflora, Madame Courcelles, Madame Guillot, Roi Leopold, Spenceri.

Good older kinds 25*s*. per 100, or 4*s*. per dozen.—Broadfield Nurseries.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above Plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and can be obtained in exchange for two postage stamps. The colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey.

SUPERIOR WHITE BELGIAN CARROT SEED.

SUTTON AND SONS have some remarkably fine Seed of this useful root. Price according to quantity required. Address Sutton & Sons, Seed Growers, Reading, Berks.

AGRICULTURAL SEEDS OF THE FINEST STOCKS

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.

Bass & Brown, Seed Growers, Sudbury, Suffolk.

SHAW AND CROSLAND'S CATALOGUE OF DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, AND MISCELLANEOUS PLANTS FOR 1857 are now ready, and may be had free on application.

Richmond Nursery, near Sheffield, April 25.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

VAN HOUTTE'S SPRING CATALOGUE is now ready, and may be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

AGRICULTURAL SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W. C., forward *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, their priced CATALOGUE OF AGRICULTURAL SEEDS.

James Carter & Co., Seedsmen, 238, High Holborn, London, W.C.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

CATALOGUE OF PLANTS.

F. GODWIN'S CATALOGUE of the above, which contains, in addition to its usual selection of Stove, Greenhouse, and Bedding Plants, Azaleas, Camellias, and Ferns, Geraniums, Fuchsias, Verbenas, Calceolarias, Chrysanthemums, Dahlias, Hollyhocks, Phloxes, &c., a Plate of more than 60 useful Garden Tools, is now ready, and may be had post free on application.

Broadfield Nurseries, Sheffield, April 25.

MEDINELLA MAGNIFICA.

JOHN AND CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.

Nursery, Hammersmith.

IMPORTED GERMAN TEN WEEK STOCKS.

E. P. DIXON has a few Collections left of the above, which cannot be surpassed:—18 most distinct varieties, 5*s*.; 12 ditto, 3*s*.; splendid mixed, 1*s*. to 1*s*. 6*d*. per packet. Sent post free.

57, Queen Street, Hull.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—Thos. Perry, Nurseryman, &c., Banbury.

FUCHSIAS.—ROYAL VICTORIA (Pond's), one of the finest light varieties ever offered, 10*s*. 6*d*.

CEDO NULLI (Pond's), one of the finest dark varieties ever offered, 10*s*. 6*d*. Plants ready by the 1st of May, 1857.

John Keynes, Florist, Castle Street, Salisbury.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.

Wood & Ingram, Nurseries, Huntingdon.

STRONG Plants of all the New FUCHSIAS of last year, 12*s*. to 18*s*. per dozen, ditto VERBENAS of 1856, 6*s*. to 9*s*. per dozen.—Epps's Nurseries, Maidstone.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.

Epps's Nurseries, Maidstone.

THE NEW PHLOXES OF LIERVAL, FONTAINE, AND OF THE IMPERIAL GARDEN OF SEVRES.—L. Van Houtte, of Ghent. See his Catalogue, No. 66, sent free by post, through his agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London.

CRYPTOMERIA JAPONICA.—Seedling Plants of this fine JAPAN CEDAR are now offered at 20*s*. per 100; or 8*l*. per 1000.—R. Glendinning, Chiswick Nursery, London, W.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 1*s*. 6*d*. each, or 15*s*. per dozen. In London free until the 30th inst. The trade supplied.—Louis Van Houtte, Ghent, Belgium, April 25.

NEW VARIEGATED PETUNIA.

WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s*. 6*d*. each. Usual discount to the Trade.

They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.

Highgate Nurseries, London, N.

HOLLYHOCK SEED.

BIRCHAM AND WARD beg to offer their HOLLYHOCK SEED in packets at 1*s*. 6*d*., 2*s*. 6*d*., and 5*s*. each. This Seed is selected from the best varieties in cultivation, and B. & W. will warrant it to produce Seedlings of superior quality that will give satisfaction to all purchasers.

Hedenham Rosary, Bungay, Suffolk, April 25.

TO PLANT EXHIBITORS.

MR. EPPS has to offer upwards of 1000 Specimens of ERICAS, AZALEAS, and GREENHOUSE and STOVE PLANTS, in the finest health and of various sizes. They may be seen at his Nurseries, Maidstone, which is within two hours of London Bridge, *viâ* North Kent line.

TWENTY FINE SPECIMEN CAMELLIAS, from 5 to 7 feet high, very bushy well formed plants, in excellent health, comprising the leading kinds, and well suited to produce an immediate effect in a large Conservatory.—For terms, apply to Mr. Epps, Maidstone.

AZALEA "PETUNIÆFLORA."

W. EPPS begs to say he can supply plants of all sizes of the above splendid AZALEA. Small grafted plants, 5*s*. each; all the new Azaleas of last year, from 30*s*. to 60*s*. per dozen.—Maidstone, April 25.

AZALEAS SET WITH FLOWER.

W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.

Maidstone, April 25.

INDIAN AZALEAS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, have to offer most of the popular sorts of Indian Azaleas, in large quantities, at 12*s*, 15*s*., or 18*s*. per dozen.

AZALEA INDICA.

J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & Son beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21*s*. each.—Nurseries, Dorking, Surrey.

FLOWER SEEDS OF FIRST-RATE QUALITY.

BASS AND BROWN'S best assorted COLLECTIONS OF FLOWER SEEDS are very select, and as reasonable in charge as any which can be procured, containing a large number of the most attractive novelties of the season.

The IMPORTED STOCKS, ASTERS, &c., which they continue annually to receive direct from the same continental growers, are distinguished for their excellent quality, and have elicited the warmest commendation from those who have been supplied. Catalogues on application.

Bass & Brown, Sudbury, Suffolk.

TO THE TRADE.

STRAWBERRIES.—Underhill's "SIR HARRY," warranted true. Price per 100 or per 1000, may be had on application to R. S. Yates, St. Ann's Square, Manchester.

STRAWBERRIES.

UNDERHILL'S excellent STRAWBERRY "SIR HARRY," warranted true, strong plants, with trusses of bloom, will bear a good crop this year. Price 40*s*. per 100 or 6*s*. per dozen. They will be sent with balls of earth to each, and plants over to compensate for distant carriage. Also all other Strawberries that have been proved worth cultivation, and will produce a good crop this season, Price 10*s*. per 100.—Apply to R. S. Yates, St. Ann's Square, Manchester, April 25.

TRADESCANTIA DISCOLOR VITTATA.

LOUIS VAN HOUTTE, possessing nearly the whole stock of this magnificent striped Tradescantia, can now supply strong plants of it at 20*s*. to 35*s*. In London free.—Ghent, Belgium, April 25.

AZALEA PETUNIÆFLORA.—"* * * * * Between the most striking novelties were PETUNIÆFLORA, a fine rosy purple, very brilliant, and of excellent form. * * * *—R. Glendinning" (*Gard. Chron.*, March 14, p. 173, in his report of the Ghent Exhibition, 1857).

Louis Van Houtte begs to offer nice and finely worked bushy plants, with about 20 to 25 shoots, at 15*s*., four for three, all well beset with flower-buds next autumn.—Ghent, April 25.

CESTRUM NOCTURNUM var. ODORATISSIMUM.—This powerfully fragrant plant was received from Mexico, and promises to be a most useful one for Conservatories. It flowers freely from August to November, but as it forces well, it may be bloomed at an earlier season. The flowers are a light straw colour, very abundant, and of powerful fragrance (combining that of the Vanilla and White Clover). Good Plants are now ready at 10*s*. 6*d*. each with the usual allowance to the trade when three are taken. N.B. The stock is limited.

Osborn & Sons, Fulham, near London, S.W., Sole Agents.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. 2*s*. per lb. To be had of all respectable Seedsmen in the United Kingdom.—J. G. Waite, Seed Merchant, 151, High Holborn, London, W.C.

GREENHOUSE PLANTS WANTED.—A gentleman who has a large conservatory is desirous of purchasing some superior plants at a moderate price.—Apply by letter, post paid, stating particulars as to name, size, quality, price, &c., of plants to A. A., Mr. Brooks' Library, Torrington Place, Torrington Square, W.C.

IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do. do., from 4 to 12 feet.
YEWS, do. do., from 3 to 6 feet.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 feet, &c.

Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.

Banbury Nursery, April 25.

GIANT OR DOUBLE CUT SAINFOIN.

H. RAYNBIRD, of Basingstoke, can offer good and clean Giant or Double-cut SAINFOIN SEED producing two crops in one season; also COMMON SAINFOIN SEED at a reasonable price, either milled or in the husk.

NEW ROSES.

EDWIN HOLLAMBY begs to offer the following NEW ROSES well established in 48-pots:—

Hybrid Perpetuals.	Each—s.	d.		Each.—s.	d.
			Reveil	3	6
Aglae Adanson	3	6	Sophie Coquerel.. ..	3	6
Belle Anglaise	5	0	Noisette.		
Etendard de Sebastopol	7	6	Madame Schulz	7	6
Helen (Paul's)	5	0	Bourbon.		
Laura Bregeon	3	6	Marquise de Balbiano ..	3	6
Madame Schmidt ..	5	0	Impératrice Eugenie ..	3	6
Madame Hieraud ..	7	6			

A Descriptive Catalogue of Roses may be had.

Strawberry Hill Nurseries, Brighton Road; Seed Shop, opposite Post Office, Parade.—Tunbridge Wells, April 25.

NEW PERPETUAL ROSES IN POTS.

Etendard de Sebastopol	5s.	0d.	Madame Heraud ..	5s.	0d.
Triomphe de l'Exposition	2	6	Mathurin Regnier ..	2	6
Triomphe d'Avranches	2	6	Prince Noir	2	6
Souvenir de la Reine d'Angleterre	2	6	Madame Knorr	2	6
Marquise de Murat ..	2	0	Duc d'Elchingen ..	2	0
Baron Wassenaar, M...	2	0	Belle Jardinière ..	2	6
Etendard des Amateurs	2	0	Marquis Balbiano, B. ..	2	6
Belle Lyonnaise ..	2	0	General Pelissier ..	2	6
Pauline Lansezeur ..	2	6	General Simpson ..	2	6
Captain Ingram, M. ..	2	0	Dr. Henon	2	6
Madame Edouard Ory, M.	2	6	Mrs. Standish	2	0
			Alfred Dalmas, M. ..	2	0
			Comte de Montejo, B...	2	6

Strong established plants of the above can be obtained of Henry May, the Hope Nurseries, Bedale, Yorkshire.

THE TWO MOST BRILLIANT AND ATTRACTIVE HYBRID PERPETUAL ROSES FOR BEDDING.

	Per doz.
Général Jacqueminot, brilliant crimson..	20s.
Géant des Batailles	15s.

Dwarf Plants in Pots.

The above will produce a fine display of bloom throughout the season, and may be had by the thousand if required. We had the above sorts in bloom out of doors last year until nearly Christmas. Plants presented for distant carriage.

Address William Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES IN POTS FOR BEDDING.

By the Hundred or by the Thousand.

WM. WOOD and SON beg to intimate that the present season is very eligible for planting out Dwarf Roses in beds, and refer with pleasure to their overwhelming stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per dozen.		Per dozen.
Hybrid Perpetuals	12s. to 18s.	Tea-scented ..	15s.
Bourbons	12s. „ 18s.	Noisette	9s. to 12s.
China	9s. „ 12s.	Banksian (for walls)	15s.

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

50,000 DWARF ROSES IN POTS.

WM. WOOD and SONS have much pleasure in soliciting especial attention to their enormous stock of ROSES in pots, a portion of which are offered on their own roots, and the remainder are neatly grafted plants on the Manetti stock, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock offered may be formed from the following select list of a few of the leading kinds:—

HYBRID PERPETUAL.

Quantity	Per doz.—s.
4000 Géant des Batailles ..	15
2000 Général Jacqueminot	20
2000 Duchess of Norfolk ..	20
2000 Jules Margottin ..	15
1000 Alexandrine Bachmeteff	15
1000 William Griffiths ..	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland	15
1000 Pius the Ninth ..	15
500 Auguste Mie	15
500 Queen Victoria.. ..	15
500 Mrs. Rivers	15
500 La Ville de St. Denis..	15
500 Jacques Lafitte ..	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12s. to 18

BOURBON.

500 Sir Joseph Paxton ..	15
500 Bouquet de Flore ..	15

BOURBON.

Quantity.	Per doz.—s.
And other leading kinds (own selection) ..	12s. to 18
2000 Paul Ricaut, Hybrid Bourbon	15

TEA ROSES.

1000 Gloire de Dijon.	20s. to 36
500 La Sylphide	15
Other fine kinds	15

CHINA ROSES

ADAPTED FOR BEDDING IN LARGE QUANTITIES.

Fabvier	10
Cramoisie supérieure ..	15
Henri Cinq	10
Mrs. Bosanquet (cream) ..	15
Prince Charles	15
Marjolin	10
L'Eblouissante	15
Louis Philippe D'Angers ..	10
And other fine kinds	9s. to 12
Fine Noisette Roses	9s. to 12
Banksian Roses (for walls)	15

N.B. Extra plants presented to compensate for distant carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. & S. can supply all the new Roses of this season if required, but will not recommend them until they have themselves tasted their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.—April 25.

THE NEW CALIFORNIAN STRAWBERRY.

(Fragaria lucida, *Madame Vilmorin*). Growing in the poorest Soil—Seaside Plant—Requiring full exposure to the Sun.

SHINING-LEAVED STRAWBERRY.

FRAGARIA LUCIDA, *Madame Elisa Vilmorin.*—Louis Van Houtte has received the Seed of this novelty from M. Boursier de la Rivière, French Consul in Oregon, the same gentleman who sent him the Wellingtonia seed.

The leaves of this new species are thick, quite different from those before known; they are shining as if varnished, woolly underneath, and the petioles are of a coral colour.

Having offered in the autumn of 1855 six plants of this sort to the examination of Madame Elisa Vilmorin, well known for her knowledge of this tribe of Plants, that Lady having grown them last year writes thus in one of her letters:—

"* * * Your Californian Strawberry is the most important and interesting species in my collection. I give it provisionally the name of 'Fragaria lucida.' * * * It is impossible to say what importance I attach to it, not only as a species but also as a fruit. It is productive, exquisite, and very late, ripening its fruit at a season in which we have only the last fruits of the Fraisier du Chili, to which it has been found at Verrières far superior."

I sell the "Fragaria lucida" at the following prices (*free to London*):—

Each plant .. 2s. | Six plants .. 6s. | Twelve plants .. 10s.
Twenty-five plants .. 15s. | Fifty plants .. 25s.

Louis Van Houtte, Nurseryman, Ghent, or through his Agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London.

NEW VERBENAS of 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, La Stella, Mrs. A. Clive, Eugénie, Victory, Viscountess Emlyn, imperialis, Impératrice Elizabeth, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Purity, Crimson Perfection, Lady Kerrison, Nosegay, Criterion, delicata, King of Sardinia, Tranby, Lord Raglan, Sir C. Campbell, Dandy, Dr. Maclean, Cedo Nulli, General Pelissier. Fine Plants of the above, free by post, 4s. per dozen. Also Petunia Rose of England, 5s. each, or three plants for two ordered.

Henry May, the Hope Nurseries, Bedale, Yorkshire.

BEDDING PLANTS AND CHOICE FLOWER GARDEN NOVELTIES, at 2s. 6d. per dozen, [illegible] pots, fine plants. A descriptive Catalogue of 18 pages, containing upwards of a thousand sorts, will be sent on application, inclosing two penny stamps, to J. Scott, Merriott Nursery, Crewkerne, Somerset.

The following is an example of the cheapness of these plants: 12 Calceolarias, 12 Dahlias, 12 Geraniums, 12 Heliotropes, 12 Fuchsias, 12 Petunias, 12 Verbenas, and 12 Salvia and Cupheas for 20s., and plants added to help to pay for carriage. Boxes and packing at the expense of purchaser.

CHOICE BEDDING PLANTS.

YOUELL & CO.

BEG respectfully to submit the following, and to invite particular attention to their List of SHRUBBY CALCEOLARIAS, which they confidently recommend; it comprises all the most beautiful and brilliant varieties in cultivation, viz.;—

	Each s.	d.	Pr doz. s.	d.
Albira (Cole), orange with brown spots			18	0
Beauty of Montreal, bright crimson, an effective and very excellent bedding variety			6	0
Brunettia, bright rich crimson, with extra large fine formed flowers			9	0
Camden Hero (Barnes), brilliant crimson, extra fine	1	6		
Correggio, orange buff, shaded, free, large, and very showy, a first rate bedding variety			9	0
Golden Chain, fine golden yellow, extra			9	0
Goldfinder (Cole), deep yellow	1	6		
Gold-Cap, rich dark maroon, deep yellow cap ..			9	0
Harlequin (Cole), dull orange, densely spotted with dark brown	1	6		
Kentish Hero, orange buff			6	0
Lemonade (Cole), lemon..			12	0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety			9	0
Magnificent, rich crimson, with yellow crown ..			9	0
Minnie, rich bright dark crimson flowers, a beautiful neat bedding variety, and remarkably free blooming, extra			9	0
Mr. White, rich shining bronze red			6	0
Norma, crimson orange, very conspicuous, large flowers, free			9	0
Orange Perfection (Cole), bright pale orange ..	2	0		
Orange Boven (Cole), bright orange brown, dwarf habit	1	6		
Pallida (Cole), pale canary yellow			9	0
Pilot (Cole), crimson brown, dense bloomer ..	1	6		
Red Rover, bright crimson, shaded with orange, large and free flowerer, fine habit			9	0
Sultan, fine large crimson			6	0
Superba (Turner), fine dwarf, dark crimson, extra fine			6	0
Vezzosa, flowers large and fine formed, of a bright orange and crimson shaded			12	0
Viscosissima, deep yellow			6	0
Wellington Hero (Henderson), fine yellow			9	0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra			9	0

Fine Selections, left to Youell & Co., 6s. *per dozen.*

MISCELLANEOUS BEDDING PLANTS, ETC.

	s.	d.
Aubrietia purpurea, per dozen..	4	0
Ageratum cœlestinum, per dozen	6	0
Aloysia citriodora (Lemon-scented Verbena), per dozen..	9	0
Anagallis of sorts, per dozen	6	0
Antirrhinums of finest kinds, by name, per dozen ..	6	0
Belgian Daisies, 30 new varieties by name, per dozen ..	4	0
Berberis Darwini, fine golden yellow, per dozen	9	0
Calystegia pubescens, rose-coloured double flowering Convolvulus, a good hardy climber, per dozen	6	0
Cheiranthus Marshalli, golden yellow, very fragrant, per dozen	6	0
Carnations, finest sorts by name, per dozen pairs.. ..	18	0
„ „ mixed border	9	0
„ Tree in perpetual flowering, per dozen ..	18	0
„ true old Clove, per dozen pairs..	12	0
Campanula corallina, blue, per dozen	6	0
„ pulla alba „	4	0
Chrysanthemum regalium flore pleno, fine golden yellow, beautiful for clumping in mixed beds, per doz.	6	0
Chrysanthemums, the handsomest of the new large flowering and Pompone kinds, per dozen	6	0
Cobæa scandens, per dozen	9	0
Cuphea platycentra, per dozen	6	0
„ strigulosa sanguinea, per dozen	6	0
DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, per dozen	18	0
This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue.		
DELPHINIUM BARLOWI and MOOREANUM, per doz.	6	0
Do. HENDERSONI and MAGNIFICENT, each	1	6
Dahlias, fine show and fancy varieties, per dozen 6s. and	9	0
Fuchsias, finest bedding varieties, per dozen	6	0
Gazania rigens, large orange, dark centre, per dozen ..	6	0
Genista tinctoria (double) deep orange	6	0
Geraniums, scarlets, such as Trentham, Tom Thumb, &c., per 100, 30s.; or per dozen	4	0
GERANIUMS, "Variegated," viz.:—		
Alma, 2s. 6d. each; Attraction (Lee's), 1s. 6d. each; Brilliant, per dozen, 9s.; Mangles' Silver Edge, 6s. per doz.; Mrs. Lennox, 2s. 6d. each; Prince of Orange (variegated), 18s. per doz.; Golden Chain, 12s. per doz.; Mountain of Light, 12s. per doz.; Silver Ivy Leaf, 12s. per doz.; Flower of the Day, 6s. per dozen; Silver King, 18s. per doz.; Silver Queen, 18s. per doz.; Crimson Ivy Leaf, 6s. per doz.; White ditto, 6s. per doz.		
Geum atrosanguineum, per dozen	3	0
Hollyhocks, a collection of best named varieties, per doz.	12	0
Heliotropes of choice kinds, per dozen	6	0
Konigs, variegated, very pretty for edging and mixing with Verbenas, per dozen	6	0
Lantanas, of sorts, per dozen	6	0
Lithospermum purpureum ceruleum, per dozen	9	0
Lobelia compacta alba, dwarf white, per dozen	4	0
„ Lindleyana, lilac .. .. „	4	0
„ lucida, light blue .. .. „	4	0
„ lutea, fine yellow (new) .. „	6	0
„ ramosoides, dark blue .. „	4	0
„ speciosa, large blue, each flower nearly 1 inch across, the finest of its class, and remains in bloom until late in the season, per dozen ..	6	0
LOBELIAS (tall growing varieties) viz.:— fulgens, 6s. per dozen; f. multiflora, 12s. per doz.; Roi Leopold, 6s.; splendens major, 9s.; Feu du Roi (extra fine), 12s.; St. Clair, 12s. per dozen.		
Lychnis coronata, 9s. per dozen; dioica alba fl. pl., each	1	0
Lophospermums of sorts, per dozen	9	0
MYOSOTIS AZONICA.—Strong plants of this beautiful hardy herbaceous plant, producing numerous heads of bright blue flowers of dwarf habit, per dozen	6	0
Malva Creeana, per dozen	6	0
Mesembryanthemums of showy kinds, per doz.	9	0
Migaeea rubra, per dozen	6	0
Mimulus, 10 beautiful new varieties for	10	0
Nasturtium Triomphe de Gand, per dozen	6	0
„ Lille Schmidt	6	0
„ Double Dark and Double Yellow, per dozen	6	0
Nierembergia filicaulis, white; lavender eye, very pretty for bedding, per dozen	6	0
Do. intermedia, rich puce, per dozen	9	0
Oxalis floribunda and rosea, quite hardy, producing a fine bed of rich rose colour, per dozen	6	0
Œnothera macrocarpa (large yellow), per dozen	9	0
„ riparia, bright canary, of dwarf trailing habit, per dozen	6	0
Petunia, a collection of all the handsomest varieties, including the beautiful new striped kinds introduced last season, per dozen	6	0
PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, including that fine new Phlox, Countess of Home, per dozen	9	0
PHLOXES.—fine do., of 1854 and 1855 „	6	0
PANSIES.—A fine collection of all the new and first-rate flowers, per dozen	9	0
PANSIES.—Finest mixed, per dozen	4	0
POTENTILLAS.—10 handsome varieties, by name, for ..	6	0
PENTSTEMONS.—A fine collection of all the best kinds, per dozen	9	0
PICOTEES, finest sorts by name, per dozen pairs ..	18	0
„ fine mixed border „ ..	9	0
„ „ yellow, by name „ 20s. to	30	0
PINKS.—A fine collection of first-class kinds, by name, per dozen pairs .. .. 9s. to	12	0
PINKS.—Fine mixed border, per dozen pairs	6	0
ROCKETS.—Double Crimson, per dozen	9	0
„ „ Yellow „	4	0
ROSES.—Tea-scented and others in pots, strong, per doz.	18	0
Salvia porphyrantha, an extremely pretty species of dwarf habit, bearing a profusion of scarlet flowers, per dozen	9	0
Salvia patens, strong roots of last season's growth „	9	0
Salvias, of sorts, per dozen	6	0
Sedum Sieboldi „	6	0
Statice latifolia „	8	0
„ maritima rosea and pseudo-armeria. Strong plants of these two beautiful and hardy species, producing throughout the year a profusion of lake-coloured flowers	3	0
Senecio, double purple and double white, per dozen ..	6	0
Silene maritima alba pleno, per dozen	6	0
Trachelium album, per dozen	6	0
"VERBENAS," scarlet, red, crimson, claret, rose, pink, blush, white, lavender, blue, purple, plum, striped and variegated, of the newest and handsomest vars. in cultivation, per 100	25	0
Verbena Imperatrice Josephine or Maonetti; this very pretty variety of dwarf habit (not exceeding 4 inches in height), and bearing a profusion of bright lavender flowers striped with white (well adapted for edging or small beds), per dozen	6	0
Wallflower, double yellow	6	0
„ „ dark	6	0

N.B.—Less quantities than per dozen will be charged at same rate.

Herbaceous Plants, of which we possess an extensive collection of the most showy kinds, 6s. per dozen, 30s. per 100.

"FUCHSIAS."

The following choice beautiful varieties at 12s. per dozen, viz.: Admiral Boxer, Wonderful, Conqueror, Countess of Burlington, Fairy Queen, Empress Eugenie, Mrs. Story, Emperor Napoleon, Raffaelle, Venus de Medici, Queen Victoria, Charlemagne, Prince of Wales, Favourite, Miellezi, Volcano di Aqua, Maid of Kent, Omar Pasha, Thalia, Grand Sultan.

All Orders of £2 and upwards are delivered Carriage Free to London, Manchester, Hull, and Newcastle, as well as to any Railway Station within 150 miles of the Nursery.

COMMUNICATIONS, BY STEAMER AND RAILWAY.

To all parts of England, Ireland, and Scotland, as well as to the Continent.

It is respectfully solicited that all Post-office Orders be made payable to Youell & Co., Yarmouth, Norfolk.

ROYAL NURSERY, GREAT YARMOUTH, NORFOLK.

AGRICULTURAL AND HORTICULTURAL SEED ESTABLISHMENT.

195, HIGH STREET, EXETER, OPPOSITE BROADGATE,
LATE THOMAS VEITCH AND CO.

THOMAS CHARMES (23 years with Messrs. VEITCH & SON), announces that he has purchased from the Assignees of THOMAS VEITCH & Co. the above Business, which will be conducted by a competent person till the 12th of May next, when it will be under his entire personal superintendence.

The Stock of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now complete for the present season. The Stock contains the newest and most valuable varieties, as well as those in general demand, and will be found well worthy of attention. Every variety has been proved, and all are warranted genuine, and without adulteration.

The Stock of TURNIPS, MANGEL, CARROT, and GRASS SEEDS contains the finest samples in excellent conditio.

SEED POTATOES, and all articles connected with the Seed Business, supplied equally good and reasonable. Lists forwarded on application.

N.B. 12 packets pretty Flower Seeds .. .. 1s. 0d.
12 ditto, select 2 0
12 ditto, new and choice ... . 3s. to 6 0

M. VAN HOUTTE begs to offer the following:—
PARMENTIER'S NEW HERBACEOUS PÆONIES.
26 sorts (in pots), 6l. | 12 sorts (in pots), 3l.
See LOUIS VAN HOUTTE'S Catalogue, No. 66, p. 43.

THE NEW FRENCH AND GERMAN NEW PETUNIAS.
See LOUIS VAN HOUTTE'S Catalogue, No. 66, p. 52.

NEW FRENCH HERBACEOUS TROPÆOLUMS. 30 fine distinct sorts.—See VAN HOUTTE'S Catalogue, No. 66, p. 56.

THE NEW VERBENAS of the season.—See LOUIS VAN HOUTTE'S Catalogue, No. 66, p. 57.

AQUILEGIA EXIMIA (FLORE).—Fine large scarlet species from California, introduced through LOUIS VAN HOUTTE, 10s. (See VAN HOUTTE'S "Flora," ready in a fortnight.)

STATICE BONDUELLI.—Golden yellow, large trusses (corymbs). Novelty from Algiers.
See LOUIS VAN HOUTTE'S Catalogue, No. 66, p. 61.

THE NEW FRENCH PELARGONIUMS.—See L. VAN HOUTTE'S Catalogue, No. 66.—Ghent, April 25.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.
J. C. WHEELER & SON, Seed Growers, Gloucester.

ASPARAGUS AND SEAKALE.—Having a very large stock of Asparagus and Seakale, we can supply almost any quantity at the following prices:—

	Per 100—s.	d.
FINE SEAKALE ROOTS	8	0
STRONG..	12	0
LARGE CROWNS	20	0
JUDD'S GIANT ASPARAGUS, 2 years	3	0
Do. Do. 3 years	4	0

Much lower by the thousand.
We have at least 500,000 strong Roots of Seakale and Asparagus, so that we can supply all orders with fine strong Roots.
WILLIAM E. RENDLE & Co., Seed Merchants, Plymouth.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of STANDARD ROSES, including Jules Margottin, Gloire de Dijon, &c. Rhododendrons in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignis, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, April 25.

CHRYSANTHEMUM, Dahlia, Daisy, Pink, Geranium, Bedding Verbena, Petunia, Pansy, and all the best Perennial and Annual seeds as good as it is possible to get them. GLENNY'S Improved BALSAM—6 classes—37 stamps; mixed, 1s. Aster and Stock equally good.—G. GLENNY, Horticultural Agent, Fulham, S.W.

NEW FUCHSIAS—NEW VERBENAS.

WILLIAM CUTBUSH AND SON beg to offer the following in fine plants:—

NEW FUCHSIAS of 1856 at 12s. per set.—Conqueror, Admiral Boxer, General Williams, Venus de Medici, Charlemagne, Countess of Burlington, L'Esperance, Donna Joaquina, Volcano d'Aqua, Emperor Napoleon, Ranunculaeflora, Surprise.

NEW VERBENAS of 1856 at 6s. per set.—King of Scarlets, Lord Nelson, General Simpson, Dandy, John Edwards, Admiral Lyons, Cedo Nulli, Eugenie, Sultan, King of Roses, Criterion, Sir Colin Campbell.—Highgate Nurseries, London, N.

DOWNIE AND LAIRD can still supply strong plants of the under-mentioned, viz.—

PHLOX ADDISONI, white, with a distinct carmine centre, 5s. each.

Do. COUNTESS OF MORTON, pure white, thick fleshy petal, highly scented, 3s. 6d. each.

PANSY DUCHESS OF WELLINGTON, gold and yellow, deep velvet purple belting, eye well defined. Had two certificates. 5s. each.

The usual allowance to the trade on the above, or when six each are taken half price.

Also a full collection of Antirrhinums, Pansies, Phloxes, &c. which they offer at moderate prices, lists of which may be ad on application.—17, South Frederick Street, Edinburgh.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

WOOD AND INGRAM beg to offer the following, which are all fine bushy well estabished plants, none in ess than 3-inch pots:—

per doz.—	s.	d.		s.	d.
Scarlet Geraniums (autumn struck) ..	3	0	to	4	0
Verbenas, all the colours				2	6
Heliotropes, several sorts	2	6	„	3	0
Calceolarias, shrubby, very fine plants ..	3	0	„	4	0
Salvia patens				3	0
Nierembergia gracilis				2	6
Cuphea platycentra				2	6
Lantanas, sorts	2	6	„	3	0
Ageratum variegatum and others	2	6	„	3	0
Variegated Geraniums, sorts	4	0	„	5	0
Ivy-leaved do.	3	0	„	4	0
Petunias, mixed	2	6	„	3	0
Dahlias, finest show and fancy varieties ..	4	0	„	9	0

With many other kinds at the same rates.
Huntingdon Nurseries.

VAN HOUTTE'S NEW ACHIMENES.
SUBSCRIBERS IN ENGLAND:—

Messrs. Hugh Low & Co.	Messrs. Osborn & Sons
„ R. Glendinning	„ Weeks & Co.
„ James Veitch, jun.	„ J. Backhouse & Co.
„ Wm. Rollisson & Sons	„ Robt. Miller
„ Thomas Jackson & Son	„ Walters & Daniel
„ A. Henderson & Co.	„ H. Lane & Son
„ John Cattell	„ J. & J. Fraser.

AZALEA INDICA ROI LEOPOLD.

LOUIS VAN HOUTTE, NURSERYMAN, Ghent, Belgium, begs to advertise that he has bought the STOCK of the AZALEA INDICA ROI LEOPOLD of Mr. Ed. Vandercruysse, and that he is now sending out nice plants of it at 15s. each (four for three) free to London. This Azalea, with very large thick petals of a dark fine rosy shade, is known at Ghent AS THE FINEST FORMED AZALEA IN EXISTENCE.

Orders directly given, or through his agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

CHOICE SEEDS.

BASS AND BROWN'S NEW SEED CATALOGUE contains everything which can be desired of the choicest new and other Vegetable and Flower Seeds. Copies supplied on application.

NEW AND SELECT FLOWER SEEDS.

For an abridged List of about 100 varieties of these, see Advertisements in the *Gardeners' Chronicle* of Feb. 21, page 125.

FLOWER SEEDS—BEST ASSORTMENTS.

Free by post, with instructions for culture, &c. The Catalogue gives colours, heights, months of flowering, hardiness, duration, with prices per packet of each, &c.:—

	s.	d.
100 varieties, select showy Annuals, including newest ..	15	0
50 vars. 8s. 6d.; 30 vars., 5s. 6d.; 20 vars..	4	0
20 vars. best dwarf Annuals, large packets, for filling beds on lawns, &c., 7s. 6d.; 12 vars	5	0
20 vars. choice Greenhouse Annuals, including new, 7s. 6d.; 12 vars.	5	0
20 vars. choice Greenhouse Perennials, including new, 10s. 6d.; 12 vars.	7	6
20 vars. hardy Biennials and Perennials, including new, 7s. 6d.; 12 vars.	5	0

Choice Hollyhock, Geranium, Calceolaria, Pentstemon, Gloxinia, Primula sinensis, and other Florist Flowers carefully saved from first rate varieties.

CHOICE IMPORTED GERMAN SEEDS, in separate colours, very fine and double.

FINEST LAWN GRASS SEEDS.—These include the finest dwarf and compact species best adapted for the purpose, 1s. per lb. Quantities not under 1 peck, 18s. per bushel. The quantity required for new Lawns is 2½ bushels.

Goods Carriage Free (not under 20s.) to all the London Termini and all Stations on the Colchester Line between London and Norwich. Post-office Orders payable to BASS & BROWN, or to STEPHEN BROWN.

BASS AND BROWN,
Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW CATALOGUE OF PLANTS FOR 1857.

MESSRS. E. G. HENDERSON & SON

WILL have their SPRING LIST ready for distribution early in May. In it will be published full descriptions of many novelties from Continental and English establishments, with special recommendations attached to such Plants as have already been examined and approved by them.

The New Plants will be sent out at the same time as Catalogue, but in consequence of many parties wishing for the NEW FUCHSIAS earlier than usual (and the Plants being much stronger than last season), Messrs. E. G. H. & SON have decided on sending them out at once. Parties having orders already booked and wishing their Fuchsias in advance of the other Plants, will please communicate at once with Messrs. E. G. H. & SON.

BANKS' NEW FUCHSIAS for 1857 consist of the following white sepalled varieties, with different coloured corollas:—
The SILVER SWAN, rosy lilac | The FAIR ORIANA, pure scarlet | FAIREST OF THE FAIR, crimson, or rich velvet rose.
Scarlet-sepalled varieties, with new form and half globular corollas, surpassing in beauty the old style of flower:—
CŒUR DE LION | CATHERINE HAYES | LITTLE BO'-PEEP | THE LITTLE TREASURE.
Scarlet-sepalled varieties, with quite new coloured corollas:—
ETOILE DU NORD, violet black | TRISTRAM SHANDY, pale bluish lilac.
Scarlet-sepalled varieties, of immense size and excellent quality:—
SOUVENIR DE CHISWICK | STAR OF THE NIGHT | ALBERT SMITH.

NEW VERBENAS raised by Messrs. Banks, Breeze, and Evans:—
LADY PALMERSTON | LADY ALBINIA FOSTER | LADY FREDERICK FITZROY | QUEEN OF OUDE
LADY TURNER | MRS. A. MILDMAY | ANGELICA KAUFMANN | PRINCE OF PRUSSIA | MARMION | DAZZLE.
(The above are fine bedders, and of rich decided colours. V. Dazzle will be found one of the best orange scarlets, with a clear yellow eye and compact habit; it surpasses all in its way.)

Sulphur Variegated GERANIUM CULFORD BEAUTY.—The finest variegated variety in cultivation, and equally adapted for pot or garden culture. Colour bright dazzling orange scarlet, beautiful marked foliage, habit first-rate, truss large, and a good grower.

HOTEL DE CLUNY, variegated foliage, with bright scarlet zone | LADY OF LORETTO, marked, var. foliage, with distinct zone
FONTAINEBLEAU „ cerise pink flower (quite novel) | CARDINAL DE RICHELIEU, new hybrid bedding Geranium, very brilliant.

New Erect-flowering GLOXINIAS, raised by M. Jæger, Gardener to the Grand Duke of Saxe Weimar:—
DONNA COLONNA, BEATRICE D'ESTE, CORINNE, ELOISA, TARRAGONA, DIONYSIUS, SIR HUGO, WATERWITCH.
(The above varieties form a very distinct, beautiful, and perfect collection.)

New VERONICA DECUSSATA DEVONIANA.—This is different in habit and colour from any other hybrid Veronica; it forms a pretty little plant, and when in bloom is covered with bunches of pure white flowers.

DAHLIA FOL. VARIEGATA, ornamental Bedding Plant | ARDESIA CRISPA LUTEA, ornamental Stove Plant.
Bedding CALCEOLARIA MONTECUCULLI | RHODODENDRON GEORGE CUNNINGHAM
„ DELPHINIUM MONTMORENCY | PETUNIA LITTLE NELL.
Mrs. Story's Set of New EPACRIS.

MISS ISABELLLA GRAY (Golden Yellow Tea Rose).

Exhibited at the Meeting of the Horticultural Society in Regent Street, April 7, 1857, by Messrs. Hugh Low & Co., of whom their entire stock was purchased. Mr. Low, Jun., met with it whilst travelling in South Carolina in the garden of the raiser, Mrs. Gray, of whom he purchased it. At that time it was covered with flowers and exposed to a burning sun, without being injured in the slightest degree. The flowers are very large, foliage and growth as fine as any of the Tea Roses in cultivation; one plant now in our possession when we purchased the stock had more than 40 expanded, and other flower buds. The colour is a golden yellow, not straw, orange, lemon, or canary yellow, as all other Teas and Noisettes are.

From what we can hear there appear to be three Roses claiming this name with some variations, as Miss Gray, Miss Julia, Mary, or Jane Gray—what merit these others possess in comparison we are unable to state, but the one that surpassed all others in Mr. Low's estimation is the Miss Isabella Gray.

TAXODIUM SEMPERVIRENS.—Messrs. E. G. H. & SON have still Seed to offer of the above at 10s. 6d. per 100.

BROWN'S FLORAL SHADING is the lightest and best adapted fabric of any in use for Protecting Fruit and other Trees. It is particularly recommended for a fixed and light Shading for Conservatories, Greenhouses, &c. Price 4s., and 4s. 3d. per piece of 20 yards long.

Wellington Nursery, St. John's Wood, N.W.

NEW AND RARE PLANTS.

ABIES KÆMPFERI.

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China.—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 7s. 6d. Discount to the trade.

ARALIA PAPYRIFERA
(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1856 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emareld green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

HORTICULTURAL SOCIETY OF LONDON.

The Regulations to be observed at the Exhibitions (1857) can be had on application, or by letter, at 21, Regent Street; or at the Gardens, from Mr. M'Ewen, the Superintendent.

SPECIAL GENERAL MEETINGS.

WEDNESDAY and THURSDAY, June 3 and 4; at the Garden. Open Free to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 a.m. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s.* Admission Tickets. Open to the public, with 5*s.* Tickets, at 2 p.m., June 3, or with 2*s.* 6*d.* Tickets, 2 p.m June 4.

On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends.

SATURDAY, October 24, at Willis's Rooms. Open to Fellows or their Ivory Tickets, accompanied by any two friends bearing 2*s.* 6*d.* Tickets, at noon; to other Visitors, with 2*s.* 6*d.* Tickets, after 1 p.m.

TICKETS are now to be procured at the Society's Rooms, 21, Regent Street (S.W.)

Five Shilling Tickets will be charged 3*s.* 6*d.* each to Fellows, if paid for on or before May 23. After that day the full price must be paid by all. These Tickets admit the bearer early, as above stated, or after 2 p.m. on June 3; or they will each introduce two persons after 2 p.m. on June 4, at the Gardens, or at Willis's Rooms, October 24, after 1 p.m.

Half-Crown Tickets will be charged 2*s.* each to Fellows, if paid for on or before May 23, for the June Meeting, on or before October 17, for the October Meeting. These Tickets admit the bearer to the Garden after 1 p.m., June 4, or at Willis's Rooms after 2 p.m., October 24.

N.B. On the days of Exhibition, Five Shilling Tickets will be charged 7*s.* 6*d.*, and Half-Crown Tickets, 3*s.* 6*d.* each.

SCHEDULE

OF OBJECTS THE EXHIBITION OF WHICH IS INVITED AT THE SOCIETY'S MEETINGS DURING THE REMAINDER OF THE YEAR 1857, IN THE SOCIETY'S ROOMS.

Tuesday, May 5, at 3 p.m. Orchids, Azaleas, Sikkim and Bootan Rhododendrons, Pelargoniums, Strawberries, other Fruit, Vegetables, and objects of Horticultural interest.
Tuesday, July 7, at 3 p.m. Ferns, good foliaged Plants, and Fruit.

Judges, appointed for the purpose, will award Money Prizes and Certificates of three classes, for new or valuable articles according to their respective merit. Everything must be staged by 11 o'Clock, a.m.

SCHEDULE OF THE EXHIBITION AT CHISWICK GARDEN.—Wednesday, June 3; Thursday, June 4.

Section I.—ORNAMENTAL PLANTS.

Classes.	Prizes offered.		
I. *a.* Fifteen Mixed Stove and Greenhouse plants in flower	£20	£15	£10
b. Ten do. do. ...	10	7	5
c. Six do. do. ...	5	3	2
II. *a.* Fifteen Orchids; ... (*Amateurs*)	20	15	10
b. Ten do. ... ... (*do.*)	10	7	5
c. Six do. ... ... (*do.*)	5	3	2
d. Fifteen do. ... ...(*Nurserymen*)	15	10	
III. *a.* Ten Chinese Azaleas...	10	7	5
b. Six do. ... (*Amateurs*)	7	5	3
IV. *a.* Eight Roses in pots; in 13-inch pots ... ... (*Amateurs*)	5	3	2
b. Twelve do. do. (*Nurserymen*)	7	5	3
c. Twenty-five do. cut specimens ... (*Amateurs*)	2	1	15*s.*
d. Fifty do. do. (*Nurserymen*)	2	1	15*s.*
Under *c.* and *d.* three trusses of each are to be exhibited as they are gathered. Any non-compliance will disqualify.			
V. Six Cape Heaths	4	3	2
VI. *a.* Eight Pelargoniums; in 8-inch pots (*Amateurs*)	7	5	3
b. Twelve do. do. ... (*Nurserymen*)	7	5	3
c. Six Fancy Pelargoniums; (*Amateurs*)	5	4	2
d. Eight do. do. (*Nurserymen*)	5	4	2
VII. *a.* Rhododendrons; in sixes	5	4	3
b. Do. Sikkim and Bootan kinds, whether in or out of flower—number unlimited—but one specimen only of a kind	5	4	3
VIII. Twenty Variegated plants	7	5	3
IX. Twelve Plants with fine foliage not in flower	5	4	3
X. Six Tall Cacti	3	2	1
XI. *a.* Ferns; Twelve Stove and Greenhouse	4	3	2
b. Do. Twelve Hardy...	3	2	1
XII. Ten Lycopods; of not fewer than five kinds	2	1	15*s.*
XIII. Newly introduced or extremely rare species of ornamental plants in flower, not introduced by the Society			
XIV. The same; not in flower			
These must be handsome well-grown specimens showing the habit of the plants, or will not be entitled to a prize.			
N.B. The Medals in XIII. and XIV. will be awarded by the Society's officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare species can be exhibited under this number. *Nothing will be regarded as new which has been exhibited in a previous season.*			
XV. Single Specimens. (*No person can take more than one prize in this class.*)	2	30*s.*	£1 & 15*s.*
XVI. New Garden Hybrids ... ... From this class all Florists' flowers are excluded.	Certificates only.		
XVII. Miscellaneous ... ... Any Plants, of whatever kind, except Florists' flowers, may be shown under this class.			
XVIII. Florists' Flowers ... ... A tent will be set apart for these, and Judges appointed for the purpose, will grant Certificates of Merit of three degrees.			

Section II.—FRUIT.

Classes.	Prizes offered.		
XIX. *a.* Pine Apples, Providence and other large sorts	£2	£1	15*s.*
b. Do. Jamaicas, Queens, &c...	2	1	15*s.*
XX. Grapes; single dishes, each containing three bunches:			
a. Black Hamburgh	3	2	1
b. Other black kinds	3	2	1
c. Muscats	3	2	1
d. Other white kinds	3	2	1
XXI. Vines in pots; in threes	3	2	1
XXII. *a.* Eight Fruit Trees in pots (*Nurserymen*)	3	2	1
b. Six do. do. (*Amateurs*)	3	2	1
XXIII. *a.* Peaches; in single dishes	2	1	15*s.*
b. Nectarines; do.	2	1	15*s*
XXIV. *a.* Melons, green or white-fleshed ..	1	15*s.*	10*s.*
b. Do. scarlet-fleshed	1	15*s*	10*s.*
XXV. Figs; in sixes	15*s.*		
XXVI. *a.* White Cherries; in single dishes ...	£1	15*s.*	10*s.*
b. Black do.	£1	15*s.*	10*s.*
XXVII. Strawberries; in single dishes	£2., 30*s.*, 20*s.* 15*s.*, 10*s.*		
XXVIII. Seedling fruits never shown before the present year	Certificates only.		

Fruiterers are excluded from competition at this meeting.

Section III.—VEGETABLES.

I. Collection (*Market Gardeners*) ...	£2	30*s.*	£1
II. Collection (*Private Growers*) ..	£2	30*s.*	£1
III. Cabbages; in threes	10*s.*	7*s.*	5*s.*
IV. Cauliflowers; in threes	15*s.*	10*s.*	7*s.*
V. *a.* White Cos Lettuces; in sizes ...	10*s.*	7*s.*	5*s.*
b. Cabbage Lettuces; in sixes... ..	10*s.*	7*s.*	5*s.*
VI. Kidney Beans; hundred	10*s.*	7*s.*	5*s.*
VII. Early Peas; in pods	15*s.*	10*s.*	7*s.*
VIII. Asparagus; fifty heads not exceeding eight inches in length... ...	10*s.*	7*s.*	5*s.*
IX. Rhubarb	10*s.*	7*s.*	5*s.*
X. Potatoes; forced, not less than 3 lbs.:			
a. Kidneys	10*s.*	7*s.*	5*s.*
b. Rounds	10*s.*	7*s.*	5*s.*
XI. Carrots	10*s.*	7*s.*	5*s.*
XII. Turnips	10*s.*	7*s.*	5*s.*
XIII. Braces of Cucumbers	15*s.*	10*s.*	7*s.*
XIV. Mushrooms	10*s.*	7*s.*	5*s.*
XV. Salad; the best and most varied ...	£1	15*s.*	10*s.*

Section IV.—HORTICULTURAL MANUFACTURES.

General Rules to be observed in the Department of Manufactured Articles.

I. The objects exhibited will be arranged under the following Classes:—

Class A.—Heating Apparatus: Boilers, Hot-water pipes, Furnaces, Flue Tiles fixed, &c.

Class B.—Machines: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps and their Fittings, Hose, &c.

Class C.—Garden Tools: Spades, Forks, Hoes, Rakes, &c.

Class D.—Cutlery: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.

Class E.—Pottery: Garden Pots, Bricks for Horticultural purposes, Pipes, Flue Tiles unfixed, Paving Tiles, Border Edgings, &c.

Class F.—Labels: whether in Wood, Metal, or Glass; Plain, Enamelled, or otherwise lettered, &c.

Class G.—Objects of Decoration: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra Cotta, Fountain Designs, Ornamental Flower Pots, Encaustic Tiles, Flower Baskets, Brackets and Chandeliers for Conservatories, &c.

Class H.—Materials for Construction: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate Work, &c.

Class I.—Protecting Materials: Nets, Wire-work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.

Class K.—Bee Hives, with or without Honey, including all Apiarian Apparatus.

Class L.—Philosophical Instruments: such as Thermometers, Hygrometers, Actinometers, &c.

Class M.—Miscellaneous: for any articles used in Gardens which are not included in the other Classes.

II. The productions of all nations will be admitted.

III. No charge whatever will be made to Exhibitors for the space they occupy.

IV. Shelter for the more delicate articles will, if required, be provided at the expense of the Society.

V. Applications for space must be made on or before May 16, in the absence of which, articles will be liable to exclusion, and cannot be included in the Catalogue.

VI. All articles exhibited in this section must be delivered at the Garden not later than Saturday, May 30, unless where special permission to the contrary shall have been granted by the Committee. If they require fixing, they must be fixed by that time.

VII. Every article must be legibly labelled by the owners, subject to the approval of the Committee.

VIII. The expense of fittings and fixing to be borne by each Exhibitor.

IX. Exhibitors will be required to deliver and remove their objects at their own charge and risk, to and from the Society's Garden, Chiswick.

X. The Society is prepared to take the greatest care, in its power, of all objects sent; but is not prepared to incur a degree of responsibility unusual with regard to public Exhibitions. For this reason the Society cannot be responsible for damage which may be occasioned by accident or loss by robbery. The Committee will, however, spare no pains in making such Police and other arrangements as may appear adequate for the protection of the Exhibition, and the security of the articles exhibited.

XI. Machines to be worked by horse or steam power cannot be shown in operation. Machines worked by hand may be shown in operation if practicable, after obtaining permission from the Committee, provided the Exhibitor provides a person to work them.

XII. When Tents, Greenhouses, or other Structures are exhibited, the Committee reserve to themselves the right of occupying the interior with any objects that may be suitable.

XIII. Exhibitors will be allowed to distribute Circulars, or Printed Papers, explanatory of the objects exhibited, provided such Papers shall be approved of by the Committee. But under no circumstances can they be permitted to make such distribution elsewhere than at their own stand.

XIV. Prices it is hoped will be affixed to the articles exhibited.

XV. Should any Exhibitor desire to employ an assistant or agent of his own to preserve or keep in order the articles he exhibits, or to explain them to visitors, he may do so after obtaining permission from the Committee, which will be granted if the Exhibition seems of sufficient importance to justify it. Such persons, however, will be forbidden to invite visitors to purchase the goods of their employers. The pass issued will be admissible on June 3 from 12 o'clock to 6, and on June 4 from 10 o'clock to 6.

XVI. In the Catalogue, which will be published before the Exhibition takes place, all the articles belonging to each Exhibitor will be kept together, but a Classified Index will be prepared. In the Exhibition itself, they will be separated into their different Classes.

XVII. Each Exhibitor is requested to forward as early as possible (not later than May 23), and in duplicate, the list of the objects he proposes to exhibit, with such description of them as he would wish to appear in the Catalogue. Woodcuts, provided by Exhibitors, will be admitted if approved of by the Committee. The Committee reserve to themselves the right of using such portion only of the description sent as they may think proper. All self laudation will be omitted.

XVIII. Exhibitors who may be desirous of leaving their goods in the Garden for the inspection of visitors, will be allowed to do so for the space of one fortnight.

XIX. No goods whatever can be removed until after 6 p.m., June 4.

XX. Attendants disregarding the rules laid down, for the benefit of all, will be liable to removal from the Gardens.

CRYSTAL PALACE.

SEASON 1857-8.

PROGRAMME.

THE DIRECTORS beg to announce that they have made the following arrangement for the ensuing season :—

ROYAL ITALIAN OPERA CONCERTS.

The SEASON will COMMENCE on FRIDAY, the 1st of May, 1857, with a GRAND MORNING CONCERT in the centre Transept, by the principal Artistes of the Royal Italian Opera. These concerts having been honoured last year by such general approbation the Directors have entered into arrangements with Mr. Gye to give a similar series of Twelve Concerts during the present season.

The grand orchestra of the Royal Italian Opera, with additional performers, and also the celebrated chorus, are engaged for the whole series.

The musical direction of the whole is in the hands of Mr. Costa, who will himself conduct a portion of the concerts.

The concerts will take place on the following Fridays, viz :—May 1st, 8th, 15th, 22d, 29th, June 5th, 26th, July 3d, 10th, 17th, 24th, 31st.

The two guinea season tickets will be available for these concerts. Transferable tickets will also be issued for each concert, at 7*s.* 6*d.* each; which tickets can be obtained at the Company's Offices, or of any of the agents.

In compliance with a desire which was universally expressed last season, a limited number of reserved stalls will be set apart, which may be taken for the Series of Twelve Concerts at one guinea each stall, or at half-a-crown each for a single concert.

II. CONCERT OF THE COLOGNE CHORAL UNION.

The Directors have made arrangements with Mr. Mitchell for the services of the Cologne Choral Union (Cölner Männer Gesangverein), whose performances on their former visit have attracted enthusiastic admiration, for a Concert in the Centre Transept of the Palace on Saturday, the 6th of June.

N.B. Both classes of season tickets will be available for this concert.

III. GRAND WATERWORKS.

The displays of the vast system of fountains, cascades, and jets d'eaux will be resumed, and continued during the whole season. The upper system will play daily as heretofore; and the entire display, embracing the fountains of the grand basins, the water-temples, the cascades, and the whole of the upper fountains, on occasions to be from time to time announced.

IV. FLOWER SHOWS.

There will be two grand horticultural and floricultural fêtes during the present season:

The first on Saturday, the 30th of May; and

The second on Wednesday, Thursday, and Friday, the 9th, 10th, and 11th of September.

V. POULTRY SHOWS.

There will be Two Shows in the course of the coming season. The Summer Show will take place on the 7th, 8th, 10th, 11th, and 12th of August. The Winter Show on the 9th, 11th, 12th, and 13th of January, 1858.

VI. GENERAL ARRANGEMENTS OF THE BUILDINGS.

EXHIBITIONS OF PICTURES.—The picture gallery, formed during the past year in the north wing of the Palace, has proved so successful in its capabilities for the effective display of paintings, that it is the intention of the Directors to hold therein during the present season Two Exhibitions of the works of living painters of all schools.

The first of these exhibitions will open in May, and continue open during the summer.

The second will be a winter exhibition.

Exhibitions of photographs will also be held in the upper portion of the picture gallery from time to time during the season.

CERAMIC COURT.—The Directors are desirous to take the present opportunity of expressing their acknowledgments for the kind and ready manner in which their requests for loans for the Ceramic Court were responded to by the owners of collections of porcelain and pottery of the most rare, fragile, and valuable descriptions.

It is very gratifying to the Directors to be able to say that the further aid offered them is such as will enable them to continue the Ceramic Court, for the present season, with a number of additional specimens, exemplifying the capabilities of the art in its most elaborate branches.

The collection will be, as before, under the superintendence of Mr. Thomas Battam, F.S.A.

INDIAN COURT AND GALLERY OF ENGINEERING MODELS.—In each of these departments the Directors have to acknowledge assistance of the same gratifying nature as that in the Ceramic Court. By public companies and institutions, as well as by private individuals, the Directors have been entrusted with the most valuable and beautiful models, with costly carvings and works in ivory and bronze, fabrics, and works of art, granted with a liberality and readiness for which they cannot sufficiently express their obligations. They have thus been enabled materially to improve the Indian Court, and also to form a collection of Models of Engineering Works, illustrating in a very complete manner that great branch of British skill and enterprise, surpassing any other now accessible to the public. It will give the Directors great pleasure to receive any further contributions with which they may be favoured.

THE NAVAL MUSEUM.—The exhibition under this denomination in the first and second galleries of the north transept, fronting the garden, now contains about three hundred models of Ships, Boats, and Vessels, of all descriptions, affording an illustration of the progressive improvement in British Naval Architecture and Navigation during a period of 340 years. It also contains specimens of new inventions connected with the improvement of navigation.

The Directors beg here also to acknowledge the ready and extensive assistance which they have received from shipowners, ship-builders, engineers, and shipping companies in forming this very interesting and national collection, and at the same time solicit the further aid of all parties who may have the means of extending it.

WATER TOWERS.—The Great Towers are now completed, and arrangements have been made by which, for a small charge, visitors to the Palace can ascend them and enjoy the extensive view from the balconies, where powerful telescopes are about to be placed.

MAMMOTH TREE.—An object of great interest has lately been added to the contents of the Palace, which will remain on exhibition during the whole of the coming season. The object alluded to is a portion of the trunk of the Wellingtonia gigantea, or Mammoth Tree, being the largest of the group of those trees discovered in California. The portion erected in the Tropical Transept, opposite the Abû Simbel figures, is no less than 103 feet in height, and 32 feet in diameter at the base.

EXHIBITING DEPARTMENT.—Amongst the branches of industry which now find important illustration in this department, may be mentioned the manufacture of Gold and Silver work and Electroplate, both domestic and artistic; Vulcanite and India Rubber generally; Colour Printing and Typography; Papier Mâché, Ornamental Iron, Fancy Goods, and other productions of Birmingham; Domestic Furniture, Church Furniture, in stone, wood, metal and fabric; Hardware generally, and especially the productions of Sheffield, in the court filled by the manufacturers of that important centre of industry.

CANADIAN COURT.—The arrangements announced on a former occasion with the Government of Canada are now, the Directors are happy to report, complete. The Government of Canada have undertaken to form and maintain in the Palace a collection which shall completely set forth the condition of the manufactures and other industry and resources of that important colony.

The collection will be placed in the large court lying between the News Room and the Stationery Court immediately adjoining both the Nave and Centre Transept, and at present occupied by the sculpture of the German school.

RAW PRODUCE COLLECTION, AND TRADE MUSEUM.—The Technological portion of this department is rapidly approaching completion. It will comprise illustrations of all the chief manufactures of the United Kingdom; and specimens of the products, animal, vegetable, and mineral, of Great Britain and the colonies, as well as of other countries. It is believed that it will be open to the public in the course of the present summer.

The Department is situated in the second gallery on the garden side of the Great Transept.

MACHINERY IN MOTION.—The Machinery will be in action during the season at such times as will be announced in the detailed advertisements. The Machinery now in the Department comprises a complete set of machinery for Spinning, Carding, Warping, Sizing, Weaving, and all the other processes for the manufacture of Cotton goods from the bale to the thread, and from the thread to the finished piece, and a great variety of other machines.

AGRICULTURAL MACHINERY.—The Department of Agricultural Machinery and Implements has been considerably improved during the past year. Specimens will be found there of the Portable Steam Engines and all the other new machines of the chief manufacturers, and purchases can be made at the same prices as at the warehouses of the makers.

READING ROOM.—The Company's Reading and News Room is situated close to the Centre Transept, between it and the German Sculpture Court. It contains all the Morning Journals; the Weekly Papers, Metropolitan and Provincial; and all the Periodicals and Magazines.

In addition to this, advertisements and copies of new works, both British and foreign, are displayed immediately after publication.

FANCY FAIRS.—The Directors are prepared to afford accommodation to benevolent and other societies, for holding fancy fairs in the Palace during the season.

CRICKET, ARCHERY, AND THE GROUNDS GENERALLY.—It gives the Directors great pleasure to announce that the Cricket-ground is now complete, and that it will be thoroughly in order for the approaching summer. Great care has been taken in the formation of the ground, and they believe that it will be found fully equal in extent and excellence to any other in the neighbourhood of London.

The Archery-ground will be continued, as before, in the northern portion of the grounds, behind the Picture Gallery Wing.

VII. SEASON TICKETS.—(NOT TRANSFERABLE.)

The Directors have determined upon continuing the price of Season Tickets of admission at the following rates, viz. :—

I. SEASON TICKETS, AVAILABLE FROM 1ST MAY, 1857, TO 30TH APRIL, 1858, TWO GUINEAS EACH.

These tickets will admit the holder on every occasion between May 1, 1857, and April 30, 1858, on which the Palace is open; the four days of the Handel Festival, viz., the 13th, 15th, 17th, and 19th June, only excepted.

II. SEASON TICKETS, AVAILABLE FROM 1ST MAY, 1857, TO 30TH APRIL, 1858, ONE GUINEA EACH.

These tickets admit the holder on all occasions, excepting the Opera Concerts, and the other Fridays throughout the year, and the 13th, 15th, 17th and 19th June, being the four days of the Handel Festival.

The tickets will be issued on and after the 20th instant; and may be obtained at the Crystal Palace; at the offices of the Company, 79, Lombard-street; at the offices of the London and Brighton Railway Company, London Bridge, and Regent Circus, Piccadilly; Central Handel Festival Ticket Office, Exeter Hall; and of the Company's Agents.

Remittances for Season Tickets to be by post-office orders payable to George Grove.

VIII. GREAT HANDEL FESTIVAL.

It gives the Directors great satisfaction to be able to announce that they have entered into arrangements with the Sacred Harmonic Society for a Grand Series of Three Performances of Handel's Oratorios, to take place in the Centre Transept of the Palace in the third week of June. For further particulars see special advertisement.

IX.—RATES OF ADMISSION, RAILWAY ARRANGEMENTS, &c.

ORDINARY RATES OF ADMISSION.—These remain as before, viz.:

On Mondays, Tuesdays, Wednesdays, Thursdays, and Fridays	1*s.* 0*d.*
On Saturdays	2*s.* 6*d.*

Children under 12 years of age half-price.

The Palace will be opened on Mondays at 9 a.m.; on Tuesdays, Wednesdays, Thursdays, and Fridays, at 10; excepting on the days of the Concerts by the Opera Company, on which days it will be opened at 1 o'clock; and on Saturdays at 12; closing daily about sunset.

BRIGHTON RAILWAY.—During the season the trains of the London and Brighton Railway Company will leave London Bridge Station every half hour, and during busy days every quarter of an hour, from 9 o'clock a.m. till dusk, returning from the Palace at the same intervals throughout the day. (For exact times of starting, see the Railway Company's time-tables.)

Return fares, including admission to the Palace—

	1st Class.	2nd Class.	3rd Class.
On Shilling Days.....	2*s.* 6*d.*	2*s.* 0*d.*	1*s.* 6*d.*
On Half-Crown Days....	4*s.* 0*d.*	3*s.* 6*d.*	3*s.* 3*d.*

Children under 12 years of age, half-price.

WEST-END RAILWAY.—The opening of this line to the Wandsworth Station has already been attended with great convenience to visitors to the Palace, and it is with much pleasure that the Directors anticipate the completion of the whole line to the Sloane Street Station, as well as the junction with the main line of the South-Western Railway at the Clapham Common Station, in the course of the coming season, by which great economy of time will be effected, and still further convenience afforded to the public.

MID-KENT RAILWAY.—The portion of this line from the station of the South-Eastern Railway at London Bridge to Beckenham has been opened, and the extension to the Crystal Palace Station will be shortly completed, whereby an easy access will be afforded to the residents in the Lewisham and Blackheath districts.

EXCURSIONS.—Arrangements have been made by which benevolent societies, schools, and other large bodies may visit the Palace at the following reduced rates :—applying only to shilling days and third-class carriages.

	s.	d.		s.	d.
For a number of excursionists over 250 and under 500	1	3	per head instead of	1	6
Exceeding 500 and under 750 .	1	2	,, ,,	1	6
Exceeding 750 and under 1,000	1	1	,, ,,	1	6
Exceeding 1,000	1	0	,, ,,	1	6

Children, half-price.

(Signed) ARTHUR ANDERSON, Chairman,
JAMES FERGUSSON, General Manager.

THE

EXHIBITION

OF THE

ART TREASURES OF THE UNITED KINGDOM,

WILL OPEN ON TUESDAY, 5TH MAY,

AT

MANCHESTER,

UNDER THE IMMEDIATE PATRONAGE OF
HER MOST GRACIOUS MAJESTY THE QUEEN,
AND
HIS ROYAL HIGHNESS PRINCE ALBERT,
Who has graciously consented to preside at the GRAND INAUGURAL CEREMONY.

THIS PALACE, covering a space of 18,000 square yards, will contain the LARGEST and most VALUABLE COLLECTION OF WORKS OF ART, Ancient and Modern, ever collected, and which, there are many reasons for supposing, can never be brought together again. The Exhibition will also include

A NATIONAL GALLERY OF PORTRAITS OF BRITISH CELEBRITIES;

Also,

A HISTORY OF MINIATURE ART.

A separate Gallery of the choicest

WATER-COLOUR DRAWINGS,

From the time of Sandby.

THE CELEBRATED MEYRICK COLLECTION OF ARMOUR, FROM GOODRICH COURT.

ENGRAVINGS,

From Wood, Copper, and Steel, showing the History of the Engravers' Art, from Maso Finiguerra to the present time;

SCULPTURE IN MARBLE AND BRONZE, ANCIENT AND MODERN;

FINE SPECIMENS OF PHOTOGRAPHY.

CURIOUS

ANTIQUE FURNITURE,

RICH DISPLAYS OF

GOLD AND SILVER PLATE,

MEDIÆVAL WORKS,

RARE SPECIMENS OF CHINA AND BRONZES.

Along with the far-famed and hitherto comparatively unknown Continental

COLLECTION OF M. SOULAGES.

These gems of art have all been most graciously lent for the purpose by her Majesty the Queen, Prince Albert, and the leading nobility and gentry of the United Kingdom.

MUSICAL ARRANGEMENTS.—A Large ORGAN has been built purposely for the occasion, and kindly lent by Messrs. Kirtland and Jardine, and throughout the season there will be DAILY MUSICAL PERFORMANCES, by a large Orchestra, under the superintendence of Mr. CHARLES HALLÉ, who will conduct in person each Thursday.

BOTANICAL GARDENS.—A communication will be opened from the Palace to the Gardens, thus adding to the interest and variety of the Promenade. The charge for admission will be entirely under the control of the Council of the Botanical Society.

REFRESHMENTS will be provided on an extensive scale, at moderate charges. A tariff of prices for dinners and lighter refreshments, approved by the committee, will be affixed in conspicuous parts of the Palace. The refreshment rooms communicate with the Palace, and adjoin the Botanical Gardens and the railway station. No refreshments will be allowed to be carried into the Palace, as the arrangements are adapted for the suitable supply of the wants of all classes.

GENERAL ARRANGEMENTS.

The Executive Committee give notice of the following GENERAL ARRANGEMENTS for the information of Visitors:

The EXHIBITION will be OPENED on TUESDAY, May 5, on which day none but the proprietors of 2*l.* 2*s.* season tickets will be admitted.

PRICES OF ADMISSION :—From May 6 to 16 (both days inclusive), 2*s.* 6*d.* for each person. On and after Monday, May 18, 1*s.* for each person, except on Thursday in each week, when the charge will be 2*s.* 6*d.* for each person.

N.B. There will be also certain days (not exceeding eight in all) *specially reserved* for proprietors of 2*l.* 2*s.* season tickets, of which due notice will be given by public advertisement at least seven days beforehand.

SEASON TICKETS, at 2*l.* 2*s.*, entitle the proprietors to admission on all occasions when the Exhibition is open to the public; tickets at 1*l.* 1*s.* entitle to admission on all but the "reserved days." These Tickets may be procured at the Exhibition Building; or at the Office, 100, Mosley Street.

Season Tickets are *not transferable*, and must be *signed by the proprietor* before being presented at the entrance of the Palace, where a book will be kept in which the proprietor will be required to write his or her name whenever requested to do so by the officers of the committee.

HOURS OF EXHIBITION.—The doors will be open daily at 10 o'clock, and will be closed at sunset. A bell will be rung half an hour before closing.

CATALOGUES.—A General Catalogue, price 1*s.*, will be sold in the Palace. A more full and explanatory Catalogue will be subsequently published at an advanced price.

BATH CHAIRS will be provided at a moderate charge for the use of ladies and invalids.

OPERA GLASSES will be on sale or hire in the Palace.

SMOKING in any part of the Palace is strictly prohibited.

No PARCELS, STICKS, or UMBRELLAS will be allowed to pass beyond the entrance, where they may be left in charge of a proper officer, at a charge of one penny.

NO CHANGE will be given at the doors.

NO RETURN TICKETS will be given to any one leaving the Palace, and passing out beyond the barriers where the turnstiles are fixed. N.B. These limits include the Refreshment Rooms, but not the Botanical Gardens.

CARRIAGES.—All drivers will be required to obey the directions given to them by the police on duty at the approaches.

VISITORS ON FOOT are requested to keep the path to the north side of the carriage drive.

Arrangements are being made with the various Railway Companies for EXCURSION TRAINS, and also to enable all visitors to purchase both the Railway Ticket and the Ticket for admission to the Palace by a single payment.

THOMAS HAMILTON, Secretary.

Offices, 100, Mosley Street.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

LINGHAM, BROTHERS, Birmingham, MANUFACTURERS of the Improved MONOGRAPH or PERMANENT WOOD LABELS or GARDEN BORDERS, FLOWER POTS, &c., in boxes of 100 each. The above Labels have been manufactured by LINGHAM BROTHERS for the last 10 years with increasing demand, and acknowledged by those parties who have used them as superior to anything of the kind before offered to the public. For neatness, durability, and cheapness they have superseded all other kinds of Labels for Horticultural purposes.

Sole Agents in London, DEANE, DRAY, & Co., Horticultural Implement Warehouse, 46, King William Street, London Bridge.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

THE VERY BEST MATERIAL

FOR SHADING GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, &c., ALSO AS A PROTECTOR TO THE BLOOMS OF FRUIT TREES ON WALLS FROM FROST IS

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Minier, Nash, & Co., Seed Merchants, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

BRITISH FLAG GERANIUM.

GEORGE PARSONS, FLORIST and SEEDSMAN to the QUEEN, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plants 7*s.* 6*d.* each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

AGRICULTURAL SEEDS (Carriage Free).

B. PAGE AND CO. have had the honour to supply for some years the MANGEL WURZEL, TURNIPS, &c., grown on the ROYAL FARMS at OSBORNE, and their Trade is considerable with Practical Farmers throughout the Kingdom, indicating first quality and strict market prices.

B. PAGE & Co. have great pleasure in stating that their STOCKS of SWEDES, TURNIPS, MANGEL WURZEL, &c., are, as usual, from select Transplanted Roots, grown by them in different districts, to avoid hybridisation, experience having proved that Turnips grown in close proximity, or repeated on the same land, causes general deterioration.

Present Prices, Carriage Free, to all Parts of England:—

SWEDE—Matson's Purple-top	per lb.	0*s.*	8*d.*
" Lothian do.		0	8
" Skirving's Imperial		0	8
" Bullock's Heart		1	0
" Green-top do.		0	9
TURNIP—Aberdeen, Bullock, or Scotch Yellow		1	0
" White Norfolk		0	7
" " Globe		0	8
" " Tankard		0	10
" Red "		0	10
" Green "		0	10
" Yellow "		1	0
" Green Round		0	8
TURNIP—Lincoln Tom, large Early	per lb.	0*s.*	9*d.*
" Red Round		0	9
" Early Six Weeks		0	9
MANGEL WURZEL—Elvetham, Long Red		0	9
" Fine Long Red		0	6
" Orange Globe		0	6
" Red Globe		0	7
" Long Yellow		0	7
CARROT—White Belgian		1	0
CABBAGE—Drumhead		2	6
CLOVER, in sorts.			
RAPE, per bushel		14	0
RYE-GRASS, ITALIAN, &c.			

Special Contracts for large quantities.

AGENTS FOR "ODAM'S" BLOOD MANURE.

Joseph Blundell, Esq., of Bursledon, one of the most eminent Agriculturists in England, expresses his opinion of H. PAGE & Co.'s Stock of Orange Globe Mangel Wurzel in particular, "as the finest he has ever seen or grown."

Markets attended—Basingstoke, Botley, Bishop's Stoke, Chichester, Fareham, Romsey, Winchester, Ringwood, Southampton, Newport, I.W.

B. PAGE & Co.'s Stocks are so well known and appreciated that comment on their part is unnecessary, and their prices compete with any house in the Kingdom.

PERMANENT PASTURE AND LAWN GRASSES.

B. P. & Co. have laid down some thousands of acres most successfully, and very recently the PUBLIC GROUNDS, SOUTHAMPTON, of which the Surveyor to the Corporation has expressed his great satisfaction in a testimonial inserted in their Catalogue.

B. PAGE & CO., Seed Merchants and Growers, Oxford Street (adjoining Radley's Hotel, above Bar), Southampton.

NEW DESCRIPTIVE PLANT CATALOGUE.

WM. RUMLEY AND SON'S GENERAL DESCRIPTIVE SPRING CATALOGUE for 1857, of all the best new Fuchsias, Verbenas, Geraniums, Cinerarias, Petunias, Dahlias, Pansies, Hollyhocks, Chrysanthemums, Stove, Greenhouse, Bedding, and Hardy Plants, at very reduced prices, is now ready, and may be had on application.

Also, their LIST OF TRADE PRICES will be ready in a few days, and should be in the hands of every purchaser, as their Stock is unsurpassed for cheapness and quality by any in the Kingdom.—Gilling, near Richmond, Yorkshire.

HARDY HERBACEOUS ROCK PLANTS, ETC.

BASS AND BROWN beg to offer as under:—

	s.	*d.*
HERBACEOUS PLANTS, 100 fine and strong vars.	30	0
" 100 superior, including newer vars.	50	0
" 25 fine vars. best adapted for rock	12	0
PHLOX, 26 beautiful new continental vars. of 1856 of many rich colours and finely marked, for	50	0
" 12 do. from the above, our selection	24	0
" 25 fine vars., best of previous introduction, as Countess of Home, Madame Randatler, Roi Leopold, Spencerii, &c., for	15	0
" 25 vars., very fine, older vars.	10	0
" Madame Mehl, a fine formed rosy lilac with white edge, height 1 foot and excellent bedder, per doz.	6	0
" omniflora compacta, a fine dwarf white "	9	0
" adpressa, striped and fine bedder "	9	0
ANTIRRHINUMS, a fine collection of good formed flowers and rich colours per doz., 6*s.* to	9	0
PENTSTEMON BACHARIDIFOLIUM, rich bright scarlet of dwarf habit per doz.	12	0
" magniflorum, fine blood red "	9	0
" ovatum, light blue, abundant bloomer "	6	0
" 10 fine and distinct vars. for	7	6
DELPHINIUM ELEGANS, a showy free flowering dwarf per doz.	6	0
" formosum, fine dwarf blue, white centre "	15	0
" other best sorts, see Catalogue.		
POTENTILLA King of Crimsons, the finest crimson grown, very large flower and dwarf habit, each	3	6
" Sudbury Gem, rich orange yellow, deeply shaded and spotted, bright red, each	3	6
" fine vars., per doz., 6*s.* and 9*s.*; newest selection, per dozen	15	0
HOLLYHOCKS, a superb collection, per doz., 9*s.* 12*s.* and	25	0
DWARF ROCK CISTUS, 24 splendid varieties for	15	0
HARDY CLIMBING PLANTS, 20 fine sorts for	20	0

CHOICE CARNATIONS, PICOTEES, PINKS; also a great variety of hardy and half hardy bedding plants, of which we have this season a large stock of strong plants.

COMPLETE CATALOGUES for the present season, Nos. I., II., III., IV. and V., may be had on application.

Goods Carriage Free (not under 20*s.*) to all the stations in London; also free to all stations on the London and Norwich, Colchester line.

BASS & BROWN, Sudbury, Suffolk.

FLOWER SEED.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers:—

	s.	*d.*
German Asters, 24 splendid varieties	3	6
The above varieties mixed	1	0
French Asters (Truffaut's), 12 varieties	3	6
German Stocks, 24 splendid varieties, brilliant and distinct colours	5	0
The above brilliant colours mixed	1	0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2	0
The above 8 colours mixed	1	0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, ESQ., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show. Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Bulle Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Hampton House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

NEW VERBENAS.

HUGH LOW AND CO. can now supply Plants of the undernamed VERBENAS, raised by Rougier & Chauviere of Paris. They are probably the best of the new varieties that will be offered for sale this season. Price 1*s.* 6*d.* each:—

Thomas Barnes, scarlet with white centre
Madlle. Casille, bright rose, white eye
Stephen, lively carmine, with rosy edge
Andromaque, flesh colour, with a very dark eye
Julia de Courcelles, rosy purple, large white border
Duchesse de Palmella, bright crimson, white centre
Calypso, scarlet crimson, lilac and white eye
Phœbus, fiery scarlet, white eye surrounded with black
Mrs. Turner, very dark velvet, white centre
Evelina, bright rose, blueish velvet centre
Madame Castellan, violet, white centre
Gaspard Dozin, scarlet, yellow eye
Henriette Huet, bright violet rose, white centre
Surprise, bright fiery scarlet, brown centre
Cudjo, very deep crimson, white centre, surrounded with black, shading to blue
Madame Moret, pale rose, carmine centre

NEW DOUBLE FRENCH PETUNIAS.

Gloire de Lyon, La Perfection, La Mésange. Price 2*s.* 6*d.* each.

FRENCH FUCHSIAS.

Bellidiflora flore pleno (Dubus), very double corolla—a large and finely shaped flower. 3*s.* 6*d.*

Chameleon (Demouveaux), finest striped Fuchsia in existence—flower very large, corolla orange colour striped with white; sepals white, spotted with rose, and tipped with green. 3*s.* 6*d.*

Surprise (Dubus), very large and perfect flower; corolla rose, striped with blue. 3*s.* 6*d.*

L'Esperance (Demouveaux), sepals pure white, corolla deep blue; very fine habit. 3*s.* 6*d.*

Clapton Nursery, London, N.E., April 25.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. PARKER for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. PARKER'S advertisement of this day, to whom it is respectfully requested all orders may be addressed.

DAVID THOMSON, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants will be ready for sending out the first week in May, and all orders will be executed in strict rotation. Price 1*s.* 6*d.* each, or 12*s.* per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 208, High Holborn, London, W.C., Seedsmen to Eleven of the Principal Botanical Societies of the British and Continental Empires, beg the attention of the Floricultural World to their ENCYCLOPEDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS (the twenty-second annual issue), forwarded free of charge and post paid to all parts of the world upon application.

JAMES CARTER & CO., Seedsmen, 238, High Holborn, W.C.

WILLIAM KNIGHT, FLORIST, &c., begs to offer the following Superb FLOWER SEEDS saved from the finest varieties, post free:—

	Per packet—s.	d.
ANTIRRHINUM, from 100 striped and spotted varieties	0	6
CALCEOLARIA, from 50 best spotted varieties	1	0
CINERARIA, from 50 best new varieties	1	0
POLYANTHUS, from 50 fine show varieties	0	6
PANSY, from 100 best show flowers	1	0
12 varieties imported German 10-week STOCKS	1	6
12 do. do. do. DWARF LARKSPUR	1	0
12 do. do. do. DOUBLE WALLFLOWERS	1	6
12 do. do. do. SALPIGLOSSIS, fine	1	6

67, High Street Battle, Sussex.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesnera zebrina; TYDÆA BARON DE PRET, COUNT THEOD DE MURAT, DR. PICOULINE, EICHAUTEI and ORTGIESI, will be sent out on the 1st of May next, at 30s. the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, Jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, April 25.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, April 25.

NEW FUCHSIAS.

JOHN AND CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (LEE).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. To be sent out May 1st; price 10s. 6d.

DANIEL LAMBERT (LEE) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. To be sent out May 1st; price 7s. 6d.—Nursery, Hammersmith, near London.

NEW PLANTS.

JOHN AND CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (LEE).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5s.

VARIEGATED GERANIUM EMPEROR (LEE).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10s. 6d. The usual discount to the Trade.—Nursery, Hammersmith.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming Lawns .. 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detailed Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

JAMES VEITCH, JUN., ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, deeply grateful for the very kind and extended patronage bestowed upon this establishment since his succession to MESSRS. KNIGHT AND PERRY, begs to intimate that he has now completed the *necessary improvements and alterations* to enable him satisfactorily to carry on the

NURSERY AND SEED BUSINESS

on the most extensive scale, in a manner suitable to the requirements of the increased connection and the progress of the day; but instead of adopting the now common practice of recommending his goods by *puffing advertisements*, he most *respectfully invites an inspection of his premises and stock, that* PURCHASERS MAY SEE AND JUDGE FOR THEMSELVES.

JAMES VEITCH, JUN., PLEDGES HIMSELF TO THE FOLLOWING PRINCIPLES OF BUSINESS:—TO SUPPLY FIRST-RATE ARTICLES TRUE TO NAME; MODERATE CHARGES; PUNCTUALITY IN THE EXECUTION OF ORDERS; WITH ATTENTION AND CIVILITY TO VISITORS.

N.B. J. V., JUN., devotes his personal attention to the recommendation of Gardeners and Bailiffs. He has at this time several highly respectable men in his employ, whom he can with perfect confidence recommend to any nobleman or gentleman requiring them.—Chelsea, April 25.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, can supply every kind of FARM and GARDEN SEEDS of genuine and superior quality.

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JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

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FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S.W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

BEDDING PLANTS.—The Subscriber offers strong healthy Bedding Plants early in May, as under, for 20s.:—

2 dozen TOM THUMB GERANIUMS
2 ,, VERBENAS, in sorts or of one variety
1 ,, CALCEOLARIAS
1 ,, CHRYSANTHEMUM REGALIUM PLENO
½ ,, PENTSTEMONS in sorts, or of one variety
½ ,, PETUNIAS
½ ,, LOBELIA RACEMOIDES, or SPECIOSA
½ ,, AGERATUMS

When larger quantities are taken a reduction will be made in price.—F. GODWIN, Broadfield Nurseries, Sheffield.

WELLINGTONIA GIGANTEA,

THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform amateurs and the Trade, that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be obtained on application at Mr. SILBERRAD'S, 5, Harp Lane, Tower Street, London.

N.B. A few dozen of Plants may still be had of his fine Azalea Eulalie Van Geert, at 5s. each.

Wellingtonia gigantea, per hundred seeds	.. .. ..	21s.
Sequoia nova sp.	ditto	18s.
Libocedrus Craigiana	ditto	21s.

CAMELLIAS.—A Collection of 100 fine distinct varieties, good healthy plants about 1 foot high, for 5l.

NEW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the New Dahlias of last season, at 10s. per dozen strong plants, and the best varieties of other years, at 4s. and 6s. per dozen.

Fine SHOW PANSIES ..	4s. and 6s.	per dozen.
BELGIAN DAISIES ..	4s.	,,
Fine PHLOXES	8s.	,,

Descriptive Catalogues now ready. Selected Pansy Seed, 1s. and 2s. per packet. Post Office Orders to be made payable at Middleton, near Manchester.

DAHLIAS.

JOHN KEYNES, FLORIST, Salisbury, obtained ELEVEN Certificates at the National Exhibition of Seedlings. Only FOUR other Certificates were awarded for Dahlias the whole season. These truly splendid flowers will be ready for distribution the first week of May. First rate plants may this year be depended on. Catalogues of the leading show Dahlias will be sent on application.—Castle Street, Salisbury.

Royal Scarlet ..	10s. 6d.	Carnation	10s. 6d.
Fanny Dodds ..	10 6	Charles Perry ..	10 6
Mrs. Edwards ..	10 6	Conqueror	10 6
Lady Franklin ..	10 6	Lady Paxton ..	10 6
Duke of Devonshire	10 6	Tam o'Shanter ..	10 6
Lord Cardigan ..	10 6	Margaret	10 6

The whole of these obtained Certificates at the National, with the exception of Fanny Dodds and Lord Cardigan.

JOHN KERNAN, GENERAL SEEDSMAN, 4, Great Russell Street, Covent Garden, is now able to offer to Gentlemen, Farmers, and Agriculturists in general, for immediate sowing, the finest descriptions of Swede Turnips, including

Skirving's Purple-topp'd Swede	9d. per lb.	Green-topp'd Scotch Turnip	9d. per lb.
Laing's do	9d. ,,	Chester Purple-topp'd Swede	9d. ,,
Ashcroft do.	9d. ,,	White Globe Turnip	9d. ,,
Purple topp'd Scotch Turnip	9d. ,,	Green do.	9d. ,,
Long Red and Yellow Mangel	9d. ,,	Italian and Pacy Rye-Grass	7s. per bsl.
Yellow, and Red Globe	9d. ,,	Red and White Clover	9d. per lb.
Trefoil	6d. ,,	Cow Grass	1s. ,,
Mixed Permanent Grasses	8s. per bsl.	Cattle Cabbage	2s. 6d. ,,
		Furze or Gorse	1s. 6d. ,,
		Belgian White Carrot	1s. ,,

With all kinds of Vegetable and Flower Seeds for this and the following months. Lists with Prices may be had on application to

JOHN KERNAN, 4, Great Russell Street, Covent Garden.

"NOVELTIES FOR THE SPRING."

SEWELL AND CO. have just received their New MANTLES for the Season, which include all the newest and most becoming shapes.

The poile de chèvre and muslin de Chine.

Robes à quille in great variety.

French Muslins with two and three flounces, and also the new Redingote.

A Thousand Pieces of French Ribbons a great bargain, at 12½d. per yard.

Compton House, Old Compton Street and Frith Street, W.

CYMNOGRAMMA RUTÆFOLIA.

JOHN YOUNG, NURSERYMAN, Taunton, begs to say he is now prepared to send out plants of this Fern, which was raised by himself from Australian Seeds (see *Gardeners' Chronicle*, Dec. 13, 1856). He believes it to be in the hands of only one other house in the trade. Plants in thum pots, 7s. 6d. each; 1s. 3d. off to the trade.

N.B. A good collection of Hardy and Greenhouse Ferns. Prices on application.

30,000 BEDDING PLANTS IN POTS.

J. AND W. GILL beg respectfully to inform their customers and others resident in the western suburbs of London, that they are prepared to supply Strong Hardy Plants from their extensive stock of all the old established favourites, and also every other variety of Bedding Plants found to succeed in this district. Purchasers are invited to inspect the Stock, ascertain the prices, and select for themselves. All orders will be carefully delivered free of charge in our own van.

Denbigh Road, Westbourne Grove, Bayswater.

HART AND NICKLIN, FLORISTS, Guildford, offer the undernamed set of Pansies for 12s., hamper included:—Duke of Newcastle, Nonpareil, Monarch, Pandora, Yellow Climax, Great Western, Memnon, Lord J. Russell, Emperor, Royal White, Sovereign, Apheus, Blanche, Lacy Carrington, Satisfaction, C. Cowan, Sultan, Ringlet, C. Turner, Juventa, &c.

RHODODENDRON WALLICHI; CYPRIPEDIUM, sp. new; GARDENIA GLOBOSA, &c., may be seen in flower at THOMAS JACKSON & SON'S, Nurserymen, Kingston, Surrey, S.W.

The Gardeners' Chronicle.

SATURDAY, APRIL 25, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 29—Society of Arts ..... 8 P.M.
FRIDAY, May 1—Horticultural (Anniversary).... 1 P.M.

WE were indebted the other day to Sir E. WILMOT for some particulars relating to the noble ruin presented by an ANCIENT OAK now standing in the little village of Marton, near Congleton (see p. 214). This was described as being finer than the Cowthorpe Oak, of which the present dimensions are said to be:—circumference at the ground 50 feet; at a yard from the ground 45 feet; girth of the largest limb 10 feet.

The Marton Oak was described by our correspondent as having a circumference at the root of 58 feet; at a yard from the ground of 47 feet; and at 5 feet from ditto of 45 feet; the girth of the largest limb was stated to be 11 feet 6 inches; and the diameter of the hollow inside 5 feet.

More recently Sir EARDLEY has favoured us with some very clever sketches of this interesting tree, a woodcut from one of which is here given. The drawings were accompanied by the following additional remarks:—

"I hope that the Yorkshire and Nottinghamshire people, and all who wish to claim precedence, will at once do so, and have the question of

superior size decided; for the farmer at Marton told me the other day that he thinks the tree is *opening* owing to its entire hollowness and the immense weight of the branches on one side. Its measurement is, however, the same with one I made of it seven years ago. One mistake I have made (I am sorry to see) in my letter to you; the girth at 5 feet from the ground is 42, and not 45 feet. Why this tree is not generally known is a marvel to me! Perhaps because no one expects to find great trees in Cheshire; at any rate a traveller through the county would see none. There should be accurate measurements and *photographs* taken of the largest Oaks in England. How many are now standing of 40 feet girth at a man's height from the ground? How long *will* they stand? 'Mr. Blackshaw, of the Big Oak,' as he is called in the neighbourhood, told me that pieces had often fallen out of the tree within a few years as large as a man could carry. This Oak, for which I claim the title at present of the largest in England, is within an easy walk of Congleton, on the North Stafford Railway, and I hope that all who doubt will go and judge for themselves."

The suggestion that photographers should at once lend the assistance of their marvellous art to the preservation of a faithful record of such noble ruins as still remain in Great Britain is one that will we trust be powerfully seconded. To nothing could photography be better applied, for it alone is capable of representing with unerring accuracy the features of those mighty relics of former ages which are now rapidly passing into annihilation. We can scarcely doubt that an ample subscription would be made for the purpose the moment a competent artist announced his intention of undertaking the operation.

In the meanwhile we have picked out of Loudon's very interesting account of extremely ancient Oaks the following abridged notices of the more remarkable cases known to him, in the hope that attention may be aroused to the subject before us, and that our correspondents will report the condition at the present day of such of the specimens as still remain alive.

An Oak was felled at Morley, in Cheshire, which produced upwards of 1000 feet of measureable timber. It girthed 45 feet. Its existence could be traced back for 800 years, and it was supposed to be one of the largest trees in England. The hollow trunk had for some years before it was cut down been used for housing cattle.

The Flitton Oak stands singly on a spot where three roads meet, on an estate belonging to the Earl of Morley in the Parish of North Molton, in Devonshire. It is supposed to be 1000 years old. It is 33 feet in circumference at about 1 foot from the ground; at about 7 feet it divides into eight enormous limbs. The species is Q. sessiliflora.

The Staple Hill Oak in Devonshire, the property of the Duke of Somerset is of great age, and has a trunk 37 feet 6 inches in circumference.

Not far from Blandford there stood in Leyr's time a tree known by the name of Damor's Oak. About five or six centuries ago it was probably in

a state of maturity. It measured 68 feet in circumference at the ground, and 17 feet above it was 16 feet in girth. As this immense trunk decayed it became hollow, forming a cavity 15 feet wide and 17 feet high, capable of holding 20 men.

At Melbury Park in Dorsetshire there is an old Oak called Billy Wilkins, which is 50 feet high, spreads 60 feet, and has a trunk 8 feet high before it breaks into branches; it is 30 feet in circumference at the smallest part, and 37 feet at the collar. It is a remarkably gnarled knotty tree.

The Fairlop Oak stood in an open space of Hainault Forest in Essex. The circumference of its trunk near the ground was 48 feet; at 3 feet high it measured 36 feet round. Several of its boughs were from 10 to 12 feet in girth, overspread an area of 300 feet in circuit, and for many years a fair was held beneath their shade, no booth of which was allowed to extend beyond it.

In Hatfield Broad Oak, or Takely Forest, near the village of Hatfield, stand the remains of an old Oak, from which the village and forest derive their name of Hatfield Broad Oak. This tree measures 42 feet in circumference at the base; but in 1813, before a large portion of the bark fell in, it was upwards of 60 feet. The exact age of this tree is not known, but it cannot be less than seven or eight centuries.

The Hempstead Oak, near Saffron Walden, is a Pollard of great age, and has a trunk from 50 feet to 53 feet in circumference.

The Shordley Oak in Flintshire is a magnificent ruin. It is evidently of very great age, and appears to have been at some time struck with lightning. It is quite hollow; its circumference at 3 feet from the ground is 40 feet, and at 5 feet 33 feet 9 inches. It is 51 feet high.

The most celebrated Oak in Gloucestershire was the Boddington Oak. This tree grew in a piece of rich Grass land called the Old Orchard Ground, belonging to Boddington Manor Farm, lying near the turnpike road between Cheltenham and Tewkesbury. At the surface of the ground this tree measured 54 feet in circumference. In 1783 its trunk was formed into a room which was wainscoted. This Oak was burned down either by accident or design in 1790; in 1807 there was only a small part of its trunk remaining which had escaped the fire.

An Oak called the Queen, at Razies Bottom near Ashwick, girthed 34 feet at the base, had a clear cylindrical stem of 30 feet high and 16 feet in circumference all the way; bearing two tree-like branches, each extending 40 feet beyond the bole and girthing at the base 8 feet.

In the New Forest was a tree which was felled in 1768 called the Langley Oak, the trunk of which after it was cut down and barked measured 36 feet in circumference at the base, and 18 feet in circumference at the height of 20 feet. The branches extended about 40 feet from the tree on every side.

The Moccas Park Oak on the banks of the Wye in Herefordshire is 36 feet in girth at 3 feet from the ground.

The large Oak near Theobald's in Hertfordshire, commonly called Goff's Oak, is 32 feet in circumference close to the ground. This tree is reported

to have been planted A.D. 1066 by Sir THEODORE GODFREY or GOFFRY who came over with WILLIAM the CONQUEROR.

Sir Philip Sydney's Oak, at Penshurst, in Kent, at 3 feet from the ground is 30 feet in circumference. Lord DE L'ISLE states that he has no doubt that the date of this tree is anterior to the birth of Sir PHILIP SYDNEY.

The Merton Oak, in Norfolk, stands on the estate of Lord WALSINGHAM. At the surface of the ground the circumference of the trunk is 63 feet 2 inches.

The Winfarthing Oak, in Norfolk, is 70 feet in circumference, the trunk quite hollow, and the cavity large enough to hold at least 30 persons. This remarkable tree is said to have been called the "Old Oak" at the time of WILLIAM the CONQUEROR. Mr. SOUTH, in one of his letters to the Bath Society (vol. x.), calculates that an Oak tree 47 feet in circumference cannot be less than 1500 years old; and Mr. MARSHAM calculates the Bentley Oak, from its girthing 34 feet, to be the same age. Now, an inscription on a brass plate affixed to the Winfarthing Oak gives the following as its dimensions: "This Oak in circumference at the extremities of the roots is 70 feet, in the middle 40 feet; 1820." Now there can be no reason, if the size of the rind is to be any criterion of age, why the Winfarthing should not at least equal the Bentley Oak, and if so it would be upwards of 700 years old at the Conquest. It is now a mere shell—a mighty ruin bleached to a snowy white.

The noble Oaks Gog and Magog, belonging to the Marquis of NORTHAMPTON, were measured in 1836. Gog is a straight handsome tree measuring at 1 foot from the ground 33 feet 1 inch; and at 6 feet, 28 feet 5 inches in circumference. The height is 72 feet, and the diameter of the head 83 feet 1 inch. Magog is 46 feet 6 inches in circumference at 1 foot from the ground and 30 feet 7 inches at 6 feet. Both are of the same species, Q. pedunculata.

The Salcey Forest Oak in Northamptonshire is supposed to be above 1500 years old; its trunk is so decayed as to form a complete arch, which is 14 feet 8 inches high and 29 feet in circumference inside. The tree is 33 feet 3 inches high, and about 47 feet in circumference on the outside near the ground.

The Greendale Oak, at Welbeck in Nottinghamshire, has long been a celebrated tree. In 1724 a roadway was cut through its venerable trunk, higher than the entrance to Westminster Abbey, and sufficiently spacious to permit a carriage and four horses to pass through it. The circumference of the trunk of this tree above the arch was 35 feet 3 inches, height of the arch 10 feet 3 inches, width of ditto about the middle 6 feet 3 inches, height to the top branch 54 feet. According to HUNTER's Evelyn, about 1646 this Oak was 88 feet high, with a trunk girthing 33 feet 1 inch; the diameter of the head 81 feet.

The Lord's Oak in Worksop Park in 1646 girthed 38 feet 4 inches. The Shire Oak, which is still standing, had then a head 90 feet in diameter which extended into three counties (York, Nottingham, and Derby) and dripped over 777 square yards.

Of the Magdalen or Great Oak of Oxford, it is said that through a space of 16 yards on every side from its trunk it once flung its boughs, and under its magnificent pavilion could have sheltered with ease 3000 men. In the summer of 1788, this magnificent ruin fell to the ground. It then appeared how precariously it had stood for many years. The grand taproot was decayed, and it had a hold upon the earth only by two or three rootlets, of which none exceeded a couple of inches in diameter. GILPIN states that this tree was perhaps a sapling when ALFRED the GREAT founded the University.

The Swilcar Lawn Oak in Needwood Forest in Staffordshire measures 34 feet in circumference near the ground; though it is supposed to be 1000 years old it is still in a growing state. STRUTT states that about 1830 it measured at 6 feet from the ground 21 feet 4½ inches in circumference, and that 54 years before, when measured at the same height from the ground, it girthed only 19 feet.

The Huntingfield or Queen Elizabeth Oak in Suffolk, at the height of nearly 7 feet from the ground, measured more than 11 yards in circumference, and could not be less than 500 or 600 years old. Mr. BARKER, Heveningham Hall, states that "it is decidedly Q. pedunculata, and, according to an historical account in my possession, it is now between 1000 and 1100 years old. In 1836 the boughs covered a space of 78 yards; but the trunk had long ago gone to decay, and was quite hollow. Its circumference was 42 feet at 5 feet from the ground, and the height 75 feet."

The Grindstone Oak, near Farnham in Surrey, was once an enormous tree. Its circumference near the ground is still 48 feet, and at 3 feet high 33 feet.

The Bull Oak, in Wedgenock Park in Warwickshire, is a remarkable specimen. It measures at 1 foot above the ground 40 feet, and 6 feet from the ground 37 feet in circumference. The inside is quite decayed, and being open on one side, cattle are generally found sheltering in it.

The Cowthorpe Oak in Yorkshire measured close to the ground 78 feet in circumference, and at 3 feet from the ground 48 feet. The diameter of the hollow part at the bottom is 9 feet 10 inches. This, it will be observed, does not agree with the statement made at the beginning of this article.

The Wellbred Oak on Kingston Hill, near Pontefract, is supposed to be 800 years old. Its height is 70 feet, and its trunk 33 feet in circumference. It is Q. pedunculata. The trunk is quite hollow and open on one side; cattle often take shelter in it.

The Chapel Oak, of Allonville, near Yvetot, in France, measures just above the roots 35 feet in circumference, and at 5 feet or 6 feet, 26 feet; a little higher up it extends to a greater size. The trunk is low and quite hollow. Its lower part has been many years since transformed into a chapel, carefully paved and wainscotted, and closed with an iron gate.

The Goulande Oak, near Dourfront, is about 30 feet in circumference. The two Oaks of Mayior, in the Canton of Calvados, are of a very great size. The largest is above 42 feet in circumference at the surface of the ground, and above 30 feet in circumference at the height of 6 feet. These Oaks have lost their leading shoots, and have their trunks hollow.

A large Oak in the Forest of Cerisy, known under the name of the Quênesse, at a little distance to the right of the great road to St. Lo, is supposed by comparing various data to be 800 or 900 years old. In 1824 it measured 36 feet in circumference just above the soil, and was about 55 feet high. The trunk is now hollow, and will hold 14 to 15 persons.

The ancient Germans, history informs us, had Oak castles. In the hollow of one we read that a hermit built his cell and chapel; and of some Oaks of almost incredible bulk, which EVELYN says in his time were "lately standing in Westphalia," one was 130 feet high, and reported to be 30 feet in diameter; another yielded 100 loads of timber, and a third "served both for a castle and a fort." The following extract is from GOOGE's Four Bookes of Husbandrie (1856):—"We have at this day an Oke in Westphalia, not far from the Castle of Alsenau, which is from the foote to the neerest bowe one hundred and thirtie foote and three elles in thickness; and another in another place that being cutte out, made a hundred waine load. Not farre from this place there grew another Oke of tenne yards in thicknesse; but not very hie."

None of these patriarchal trees were however so remarkable as the Golynos (not Golonos) Oak, for the following authentic account of which we are indebted to a correspondent:—

"This wonderful tree grew on the estate from which it takes its name, about four miles from Newport, in the parish of Bassalleg, in Monmouthshire. It was purchased by the late THOMAS HARRISON, Esq. (many years his Majesty's Purveyor of Plymouth Dockyard and Dean Forest), in the year 1810, for 100 guineas, and was felled and converted by him the same year. Five men were each 20 days stripping and cutting it down; and a pair of sawyers were constantly employed 138 days in its conversion. The expense of stripping, felling, and sawing, (exclusive of superintending the conversion or hallage of any part of it), was 82*l*. It was felled in separate parts, and stages were erected for the workmen to stand on to cut down the valuable limbs. Previous to being felled it was divested of its brushwood, which was placed as a bed, to prevent the timber from bursting in falling. The main trunk of the tree was 9½ feet in diameter, and consequently no saw could be found long enough to cut it down; two saws were therefore brazed together. In cutting the main trunk through a stone was discovered 6 inches in diameter, 6 feet from the butt, and 3 feet in a diametrical direction from the rind, round which the timber was perfectly sound. The rings in its butt being reckoned, it was discovered that this tree had been improving upwards of 400 years! and, as many of its lateral branches were dead, and some broken off, it is presumed it must have stood little short of a century after it had attained maturity. When standing it overspread four hundred and fifty-two square yards of ground. Its produce was as follows:—

	Feet.
Main trunk, at 10 feet long	450
One Limb	472
One Ditto	355
One Ditto	235
One Ditto	156
One Ditto	113
One Ditto	106
Six smaller Ditto	413
Dead Limbs of the size of Timber ..	126
Total Quantity of Timber ..	2426

Its conversion was—the main trunk cut into quarter boards and coopers' stuff; the limbs, one upper piece stem for a 100 gun ship, one ditto 50 guns, one rother piece 74 guns, three lower futtocks each 100 guns, one fourth futtock 100 guns, one ditto 74 guns, one ditto 44 guns, one floor timber 74 guns, one second futtock 100 guns, and about 20 knees, all of which were large enough for the Navy. The heavy body bark was 3 inches thick. When all its parts were brought to market they produced nearly 600*l*."

Surely such prodigious monuments of the power of Nature are as much worth illustration as ancient instances of mere human handywork.

THE American Association for the Advancement of Science has announced its intention of holding its Eleventh Annual Meeting at Montreal, Canada, during the week commencing the 12th of August next. This Association embraces in its plan every branch of Natural, Mathematical, and Physical Science, and counts among its members all the most distinguished scientific men of the North American Continent.

The Local Committee of Montreal wishing to give to this, the first meeting of the Association ever held in Canada, a special interest, have issued invitations to a large number of the scientific men of the United Kingdom and of Continental Europe. No part of North America offers to strangers more points of interest than Canada, particularly in its Geography, Ethnology, Geology, and Botany, and to these inducements we know that the Canadians will add a most cordial welcome.

There is a line of first-class steamers between Liverpool and Montreal, by way of Quebec, which will make semi-monthly and probably weekly voyages during the coming summer. The voyage occupies from 11 to 12 days, and the fares are about 17*l*. and 19*l*. sterling. Steamers of the Cunard Line leave Liverpool for Boston *viâ* Halifax on Saturday the 4th and 18th July—fare 25*l*. sterling; average time of passage 12 days. Also for New York direct on Saturday the 11th and 25th of July—fare 30*l*. sterling; average time 12 days. The Collins steamers will also leave Liverpool for New York on Wednesday the 8th and 22d of July—fare 21*l*. to 31*l*. sterling. There are also steamers from Glasgow to Montreal, Boston, and New York.

Montreal is 400 miles from New York, and the time of going by railway is 15 hours; there are two trains daily—fare 8 dollars. From Boston to Montreal the distance is 334 miles, time 11 hours, fare 7 dollars. Quebec is 168 miles from Montreal by railway, time 5 hours; and 180 by steamer, time 12 hours—fare 2 dollars. From Montreal to Niagara Falls the distance is 415 miles by railway *viâ* Toronto and Hamilton, time 16 hours—fare 12 dollars; or by Lake Ontario, 375 miles, time 18 hours.

THE Great Exhibition in the Garden of the Horticultural Society being now at hand, it is as well to state that those who desire to join the Society should do so at once, if the privileges are sought of obtaining cheap tickets, of free personal admission to the Garden, and of introducing visitors early — which are strictly confined to Fellows; for no elections can take place after Tuesday, May 5, until the Garden Exhibition shall have passed over.

VEGETABLE PATHOLOGY.—No. CLVIII.

654. PARASITÆ (*Vibrio. Ear Cockle, Purples, Peppercorn*).—If there is any doubt of the proper application of the term parasite to some of the insects included under that name, there is none in the present case, for the little animals in question pass the whole of their life within the matrix, and cannot live elsewhere, except so far as the mere duration of existence goes without additional nutriment.

655. The disease in Wheat locally known under the names above given is by no means universal. It seems to be more prevalent in the east and south of England than in other districts. I have never met with a single specimen in the midland counties. In Suffolk it is sometimes abundant and forms a considerable portion

of the tail Wheat, or that which is separated in dressing from that of the best quality, which is in general the only sample which reaches the market, the tail Wheat being consumed by the farmer's household. In those ears which are affected the glumes are separated from each other and are spread out, the awn is twisted, and the grain, which has acquired a globular form and has assumed first a dark green, then a deep olive or black tint, becomes exposed, so that the affected ears are readily distinguished. When divided, the grain is found to contain no meal; but in its stead a white powder, which, under the microscope, consists of an enormous number of minute eel-like worms, a few of which attain a far larger size than the rest, and produce eggs from which new individuals are hatched in a few days. Before the young worm quits the egg it may be seen curled up within its walls. The Wheat when ground is troublesome to the miller, as the little worms block up the apertures of the bolting cloth. If clean grain and ear cockle are sown together, the young plant remains healthy for a time; but the vibrios soon penetrate into the healthy seedling, through the tissues of which they work their way into the germens, and eventually destroy all the meal, or at least take its place. Wheat is in general the only cereal affected, but Oats, Barley, and Rye may be inoculated by sowing them with ear cockle, though with much greater difficulty than Wheat. One of the most curious points about the Wheat vibrio is the great tenacity of life with which these little worms are endowed. Ear cockle which has been six years or more in the herbarium, when moistened, yields a multitude of living worms, though at first they seemed under the microscope perfectly devoid of life, and the same specimen may be revived several times in succession on the reapplication of moisture. As the ear cockle when steeped with other Wheat soon sinks to the bottom, mere skimming is not sufficient to get rid of it entirely. It was suggested by Prof. Henslow that heat might be employed, but as it appears that Wheat ceases to germinate at precisely the same temperature, 148° F., which is fatal to the vibrio, there is little hope from kiln drying or from the application of quicklime in boiling water, a method which is practised in many districts against bunt. Dilute sulphuric acid in the proportion of 1 to 200 destroys the vibrio effectually, and it may therefore afford a hopeful remedy. This however must be made the subject of direct experiment, and possibly rewinnowing the seed corn may be a sufficient safeguard without further and more troublesome and expensive processes.

656. Vibrio has, I believe, never been found in this country except on Cereals. Dr. Hooker however has communicated a vibrio on an Arctic Grass, in which the grains are shaped like a Florence flask, with a long neck. The proportion of the worms are not exactly the same as in the Wheat vibrio, but I do not conceive the species to be really distinct. This species must be subjected at times to a very severe degree of cold, a circumstance which is well worth notice when taken in connection with the wonderful endurance of long continued desiccation of the Wheat vibrio (*Gard. Chron.*, 1856, p. 172). This power of enduring extreme cold has been also recognised by M. Davaine in the Wheat vibrios. He has exposed them to a temperature of —4° F. for several hours without killing them, which is, however, far above the temperature to which the Arctic vibrio must be exposed. It appears also from Davaine's observations that vibrios are able to resist many poisons, such as opium, morphine, strychnine, which do not act upon their tissues. They lived in a paste highly impregnated with these substances for a fortnight. Nicotine, though it destroys their motion, does not kill them, and organic matters in a state of decomposition, though highly diluted with water, have a similar action; but though the vibrios become straight and stiff, and apparently dead, when washed with pure water they begin to move again. The mother worms are not tenacious of life like the smaller ones. Substances which act chemically on the tissues of course effectually destroy vitality.

657. A very curious vibrio is described in this Journal (1855, p. 220), producing large tuberiform bodies on the roots of Cucumbers. The vibrios are not collected within these bodies in powdery masses as in the Wheat, but are contained, a few together, in transparent cysts in the midst of the cellular tissue, which is more or less modified by their presence. The plants which are attacked by this parasite soon perish; but the further history of the excrescences and their contents is at present unknown. The cysts which I have examined contained only eggs and young worms, differing from those of the Wheat in their obtuse extremities, but where the small worms are perfected, as appears from the size of the eggs, attaining dimensions as large in proportion as those of the Wheat vibrio. A more complete knowledge of this little animal must be obtained by fresh observations. It is always difficult to contend against an enemy whose habits are unknown. The soil may be changed, as also the mode of cultivation, and yet the vibrio may be introduced from some unlooked for quarter. The best hope of the cultivator resides in the probability that the affection, like that of Cereals, is local, but where it appears the affected plants should at once be burnt, and the soil in which they appeared be carefully removed from the garden.* *M. J. B.*

* Consult Henslow on the Diseases of Wheat in Journal of Royal Agricultural Society of England, 1841, Vol. ii., Part 1. Comptes Rendus, July 21, 1856, and Ann. of Nat. Hist. Vol. xvii., p. 268.

ON LOW TEMPERATURES WHICH DO NOT AFFECT THE VITALITY OF PLANTS, AND THE MODE OF ELIMINATING THEM FROM MEAN TEMPERATURES.

From M. De Candolle's "Géographie Botanique."

(*Continued from p. 268.*)

At the St. Bernard the snow prevents plants from profiting by the sun and by temperatures above 32° between the months of October and April inclusive; but in May and June, when the snow disappears, beginning with certain exposed parts, the degrees of heat above 32° are of importance, and aided by the action of the light they account for the rapid flowering of Alpine plants. By calculating the temperatures in the shade according to the preceding method, I find at the St. Bernard—

Mean Temperature calculated according to the two Methods at the St. Bernard.

Months.	Ordinary method.	Approved method.	Differences.
May, 1844	33.4	40.6	7.2
June	43.1	43.6	0.5
May, 1845	30.9	36.9	6.0
June	42.1	42.5	0.4
May, 1848	38.1	40.1	2.0
June	41.3	41.8	0.5

Add to these the direct effect of the sun's rays, which the observations in shade do not indicate, and we have the explanation of the extraordinary vegetation of spring on high mountains in places which are early denuded of snow.

As it is impossible to make similar calculations for all the places of which the means are known, some more simple method must be devised to avoid the error induced by the negative degrees. Our aim will, I think, be attained, if we take the first and last days on which the mean temperature falls below 32°, and in considering the phenomena of vegetation make use of those temperatures only which are taken between these two epochs. A large amount of error is thus avoided, for if the average of a sufficient number of years be taken, the temperature will be found regularly to increase and decrease day by day, except in anomalous and unimportant localities which may be neglected. There will still, however, always remain two sources of error; the first depending on the daily range of the thermometer at about the periods when the mean temperature is 32°, and the second resulting from the positive heat acquired before and after the period of the mean of 32°. These errors will be the more considerable the more excessive the climate. Let us try to form an idea of their extent.

At Geneva during the winters of 1844—45 and 1845—46, it appears that 19.3 must be added to the means of 13 months to correct the error arising from the negative quantities, *i. e.*, 1.5 monthly. [If we multiply 1.5 by 30 we obtain 45°; this product multiplied 6½ times for the year gives 292°. If to this we add the effect of the direct rays of the sun, which are very feeble from October to April, I imagine that we ought to add 2° to 3° to the monthly means during six months and a half, to obtain the true amount of heat above 32°, including the effect of the direct sun. Happily this addition must be made in the months of least importance to vegetation.

Let us examine from this point of view countries in which the thermometer more frequently falls below 32° than it does at Geneva; for example, St. Petersburg and Barnaoul. The latter locality possesses a climate in the highest degree excessive or continental.

Mean Temperature of St. Petersburg and Barnaoul in 1842 *according to both Methods.*

	Ordinary method.	Approved method.	Difference.
St. Petersburg ..	38.2	41.2	3.0
Barnaoul	33.9	41.9	8.0

What I have said of temperatures below 32° holds good also of temperatures of 32° to 40°, &c., for it is evident that certain plants only germinate, grow, or flower at a temperature above 33°, others at a temperature above 36°, &c.; and hence, by including these low temperatures amongst those from which the means are calculated, useless ones are often admitted.

In considering species which require more than 32° to 40°, &c., to vegetate, it would be interesting to calculate, according to the formula given above, the sums of the temperatures above each degree. Unfortunately the thing is too complicated for generalisation, but an example will show the advantage to be derived from such a method of constructing meteorological tables.

M. Ritter has kindly calculated the sum of the degrees of heat noted at Geneva, in 1847, above 32°, and up to 48.2°, applying the formula to the observations given in the "Bibliothèque Universelle." The following is the result:—

Sums of the Temperatures above certain Degrees which occurred at Geneva in 1847, *calculated according to both Methods.*

At 32° sums	= 5564°	according to the ordinary method.	
At do. ..	= 6006	after elimination.	
33.8 ..	= 5541	ditto	
35.6 ..	= 5037	ditto	
37.4 ..	= 4560	ditto	
39.2 ..	= 4105	ditto	
41.0 ..	= 3673	ditto	
42.8 ..	= 3446	ditto	
44.6 ..	= 2878	ditto	
46.4 ..	= 2520	ditto	
48.2 ..	= 2189	ditto	

According to this table if a plant, to fulfil all its functions, needed more than 4560° above 37°, it could not have ripened its seeds in 1847, unless by growing in the sun, it received an increased amount of heat and light, not indicated by the observations taken in the shade; if another species required only 3673° above 41°, it would have flourished that year; if one required 3000° above 44.6° it could not have received them; and so forth.

In that year the heat of the month of February almost equalled that of November, if we include only the degrees above 46.4°; but the difference was far greater if we calculate from any of the degrees above 32°, and up to 44·6°. We might easily multiply these comparisons, of which the ordinary monthly means give no idea.

In the summer months, when we have no negative temperatures, the results obtained by the ordinary process agree with those calculated from the degrees above zero; but the means give us no information respecting the amount of heat above such or such a degree, which may be important for the operations of vegetation.

The utility of such calculations would be evident if they were deduced from the observations of many years and at different places. The present state of our meteorological tables, however, prevents our making use of them, for even in the fullest we do not find the elements needed for the purpose, besides which the calculations in each separate case are very laborious.

At the beginning of this article I compared vegetables to thermometers. The comparison is good if we start from the lowest degree of heat required by each species. This point may be looked upon as a sort of thermometric zero of the plant. But in its after progress, and as a whole, a plant, it cannot be too often repeated, must be compared to a machine set in motion by certain degrees of heat and by light, and which never loses a step once gained. The mercury of the thermometer rises and falls, but the plant never retrogrades. If a stem has lengthened under a certain temperature it remains stationary when the cold sets in, and sprouts afresh when the necessary heat returns. We may compare this to a wheel which raises water. A horse may set it in motion, and the strength of the horse may be perceived by the effect produced. A child could not move it; its efforts falling short of a certain amount of strength will prove futile, even if it try many times, and if the strength thus applied amount to a considerable sum total. As to the motion produced by the horse, it continues even when the force is no longer applied.

This comparison shows that to appreciate the effect of heat upon the vegetable kingdom we must take into consideration: 1st, the temperatures necessary to produce any effect at all; 2dly, the intensity of this temperature; 3dly, its duration.

Home Correspondence.

Coppice Wood.—Permit me to inform your correspondent, a "Hill Countryman," who inquires "where he can obtain a sight of such coppice as is referred to in your Paper of the 7th of March, that on the estate of Bywell, near Newcastle-on-Tyne, there is a coppice wood, 18 years of age, the contents of which, after a very superior thinning last season, are as they stand in the following Table:—

Number of stems per acre, 2151, at 6*d.* per stem ..	£83 13 [illegible]
Each stem producing 7 lbs. of bark, such bark will have a ready market at 5*l.* 10*s.* per ton	36 19 [illegible]
	90 14 [illegible]
Deduct expense of cutting the stems, stripping, and curing the bark	17 0 [illegible]
	£73 14 [illegible]

Or an annual rental of 4*l.* 1*s.* 11*d.* at its present semi-matured state; there are also similar coppice woods in most wooded districts. Your correspondent will likewise find the subject treated of in detail in "Brown's Forester." *J. Whyte, Chopwell Woods.*

Appropriateness in Ornament should demand especial attention, yet that most essential quality is very generally overlooked. I have now before me an iron garden chair in which, as I think, it is especially absent, and which ought to be sufficient to exclude it from every garden where the exercise of good taste is at all cared for. This chair is supposed to be formed of the interlaced stem and branches of a Vine with foliage and fruit, the several parts of the natural size, and painted in rude imitation of life. Now the evident desire to represent nature and the use to which the representation is to be applied, are so entirely antagonistic that a moment's reflection only is sufficient to convince one that, as a work of taste, the chair is a failure—the idea of utility being sacrificed to a false style of ornament. The supports of the chair are so small that if natural the weight of a person using it would crush the whole fabric, consequently no attempt to render them natural in appearance should have been made. The uses of the chair ought to be the leading impression conveyed to a person examining it, and the ornamentation should be entirely subordinate to the form, the ornaments themselves not direct attempts to copy nature, but pleasing conventional forms founded upon natural ones. Then the legs of this chair are connected for strength by coils of snakes very well imitated, but most assuredly out of place, and equally in bad taste with the remainder. We may reasonably presume that the forthcoming garden exhibition at Chiswick will give us among many other good things some tasteful and appropriate garden ornaments. Let the judge give the matter prominent attention. I see that "Somerset" thinks that only flower pots only are appropriate; I am sorry to differ

from him. On a future day I hope to discuss the matter more fully. *G. W. L.*

Sulphuring Potatoes.—I have read with interest the advice given on this subject, and fully concur in what Mr. Berkeley states. It strikes me, however, that sulphu*rous* acid (not sulphu*ric*) diluted to a certain extent would produce the same, or even a better effect; and whole tubers might thus be as thoroughly impregnated with sulphur as peelings when flowers of sulphur are employed. This idea is not new to me, for I had some intention of subjecting sets to that process several years ago, but have never carried out the experiment. I mean, however, to do it now, and as others of your readers may probably be inclined to try it, you will oblige me by mentioning your opinion as to the proportion of water that ought to be added to the said acid, so as not to injure the vitality of the sets immersed in the dilution. The plan I propose adopting is to take a thin slice off the bottom of each set, or to bore a hole through the centre, and then to let them soak therein in a tub for say 12 or even 24 hours previous to planting. From the circumstance of the Potato containing so large a per centage of sulphuric acid in its composition, as represented by analysis, it strikes me that a double advantage may be derived from steeping the sets in the sulphurous acid, but having no pretension to chemical knowledge further than has been obtained from superficial research, perhaps I may be mistaken in this conjecture, and, therefore, leave it wholly to more enlightened parties to determine that point, as well as whether or not the acidulous portion may in any degree help to arrest the disease. *A Subscriber.* [Having had no experience with sulphurous acid, we are quite unable to advise our correspondent. We presume the proportion should be determined by a series of experiments.]

Victoria Strawberry.—Permit me to say a word in favour of this Strawberry, which is a great favourite of mine for forcing, being quite as early as Keens' Seedling, and a sure setter. The stamens and pistil of this variety appear to mature themselves more quickly than most others, as I find them flower and set very freely in Pine stove heat. I have seen many send up a strong truss of bloom while ripening the first crop, which have again swelled up but little inferior. I once measured one of these (having no scales at hand), and found it 5 inches in circumference. This, like many others, was raised at Bath, the cradle of Strawberry growing, where I have seen some splendid fruit of it in pots. *J. Sheppard, Woolverstone Park.*

Absorption by Plants. It has often puzzled me to know how it is that a plant inserted in a pot does not displace and raise up the soil as its roots increase in bulk; and also, when these have entirely filled the pot, what becomes of the earth—how it then happens that scarcely any of it is left. Plants, surely, cannot feed upon earth, for I have always understood that it had been a point determined that they could imbibe substances only in a gaseous or liquid state. I shall, therefore, feel much obliged by your affording me a little information relative to this circumstance, which may not prove uninteresting to your readers in general. *A Subscriber.* [Does it not occur to you that the quantity of earth washed out of the pots, and the consolidation of the earth, may together equal the bulk of roots introduced into a garden pot?]

Hare's Foot Fern.—In the autumn of last year, whilst travelling in the south of Spain, I procured some pieces of the rhizome of Davallia canariensis, which I have kept buried in garden mould through the winter. On uncovering them now I find them considerably swelled and looking fresh and green, but showing no appearance of throwing out fronds. I should feel much obliged if any of your correspondents could tell me the method most likely to succeed in making them grow. In their wild state I always found them creeping over the trunks of the Cork tree. *L. N. R.*

How to destroy Ants.—Should any of your readers be annoyed by ants in houses and other places where boiling water cannot be used, let them try a little arsenic mixed with honey. Lay it on a piece of slate or glass, then place it in their runs, or close to their nest; the whole will soon disappear. I am now trying various experiments with the view of exterminating slugs, and shall report upon them presently. The article used is an artificial manure composed of salt, soot, lime, and other ingredients most destructive to insects, but highly beneficial to vegetation. *James Cuthill, Camberwell.* [As we stated last year, nothing so effectually drives away ants as guano.]

Pyrus japonica.—Like your correspondent of last week I many years ago had pictured to my mind the beauty of a standard Pyrus japonica with its drooping head of brilliant blossoms, and as detached grafts did not take, I planted Pear stocks around a bush of Pyrus japonica and inarched them; they appeared to unite, and were gradually detached and planted out, but the grafts all failed. I happened to mention the circumstance to a gentleman on his way to visit the late T. A. Knight, Esq., to whom it was named, and who recommended me to try the Quince, being nearer allied; I did so, and the grafts likewise failed. I have also trained up a single shoot of Cydonia japonica and Aucuba japonica, but (which is rather unusual) they prefer their humble state and die rather than aspire. *W. Godsall, Nurseryman, Hereford.* [Why not graft on the Chinese Quince?]

Rustic Management.—How am I to wean my people from sensuality? Let me answer, through your paper, my friend whose query is that of very many of your readers, clergymen like himself. I am going to turn my school-room into a *free* reading-room in the evening, free to all who have not been before the magistrates. In it I have a case wired or glazed, which I intend to fill with objects of interest, such as pictures, models, foreign fruits, and drawings of other foreign fruits, flowers, and trees, with sections of woods, and any objects in natural history: these I shall change continually. I also encourage children in their natural love for flowers by giving a small (a penny will do) premium for a weekly nosegay to remain in the room: they began this last themselves. I hope by these and similar means to give every one an opportunity of avoiding the necessity of going to the beer-shop for intellectual excitement. *Somerset.*

Bougainvillea spectabilis.—This very showy plant has been in blossom in the garden of S. C. Whitbread, Esq., of Cardington, for these last three weeks. Although the plant is five years old, this is the first time of its blooming. It is grown in a house intermediate between a stove and a greenhouse; it is trained to a rafter 14 feet high. The first three years it grew rapidly, throwing out strong side shoots, and was frequently repotted, but did not show any signs of flowering. The last two years it has been grown in the same pot, so that the roots have got "cramped," which I believe is the cause of its flowering. The blossoms are produced on last year's shoots from 2 inches to 1 foot in length. This plant was brought here when very young from Lisbon by Lady Seymour. *John M'Laren, Cardington, near Bedford.* [This is one of the handsomest climbers in the world, when it condescends to blossom.]

Ranunculus Ficaria (see p. 270.)—Your correspondent "A Lady" may destroy Celandine (if thickly set), by having the soil turned up 3 inches deep and burned, adding a portion of fresh earth, and relaying with turf at once; but if the plants are at a distance apart they must be weeded out. The holes should then be filled and surfaced with pieces of turf. *J. Divers, Maidstone.*

Brown's Floral Shading.—You say, "We are not acquainted with this material, but we know that Shaw's Tiffany is excellent." Allow me to inform you that Brown's Floral Shading and Shaw's Tiffany are identical, so far as material is concerned, but in price Brown's is by far the cheapest. One thing necessary to know is that Brown, if I understand his letter rightly, neither gives "discount nor credit." *An Old Showman.*

Picciola.—I shall be much obliged if any one can tell me the botanical name of the plant rendered notorious in the interesting little story "Picciola." I had a plant given me by that name, but I cannot find out its true one. I have heard it called the Italian Wallflower. *A. R.* [We always understood it to be a Pink of some kind.]

Notices of Books.

The Press and the Public Service, by a Distinguished Writer. Routledge & Co., fcap. 8vo, pp. 272.

We know not for what the writer of this book is already distinguished, but judging from its contents we cannot suppose him to be remarkable for either clearness of head or high sense of honour. He evidently has a grievance, but what in particular is by no means apparent. The burden of his complaint is the power possessed by Ministers and Government officials to worry and finally dismiss all those who, being under them, may happen to displease them by anonymous publications. The author does not point to any particular instances in which this power has lately been exercised to the disadvantage of the public service, and his pages are filled with the names of those who in spite of anonymous writing have risen to high posts under Government. As a telling work, therefore, this production of the "distinguished writer" can only be regarded as a failure; but at the same time the subject of anonymous writing and the right of inferior Government officers to expose to public view the manner in which the public service is performed, are of such vast social importance that we are not disinclined to notice the author's remarks upon them.

Anonymous writing is thought by the author to be absolutely essential to the liberty of the press, and in this he is perhaps right, for liberty of the press cannot exist unless every one can attempt to enforce by reason any opinions however disagreeable to others, and to do so not only without fear of punishment by the tribunals of the country, but also without being made to suffer indirectly from the vengeance of those whom he may have happened to displease. It is unfortunately only too notorious that he who is known to expose any abuse is sure to draw down upon himself the wrath of all who have hitherto profited by it, and if a person is not rich enough to afford to snap his fingers at them he must either be silent or write anonymously, unless indeed he can rely on overwhelming support from the public.

Speaking generally, the author is right in maintaining that an anonymous publication cannot be justly complained of on the ground of cowardice; for though it may be true that fear of some sort induces a writer to conceal his name, it by no means follows that such fear is of that despicable kind which alone merits the denomination of cowardice. Nor can it be maintained that no one should write at all unless he is prepared to take the consequences which might ensue if his name were disclosed, for it is certainly better that corruption and jobbing should be exposed anonymously than not at all. But we must protest altogether against the doctrine attempted to be made out by the author that an anonymous writer is morally justified in denying the authorship of a production truly imputed to him. A person has no business voluntarily to place himself in such a position as to be constrained to tell a lie in order to escape unpleasant consequences, and if a man will do that which, if found out, will lead to such consequences, he is not morally justified in avoiding them by a lie, and the fact that Swift, Scott, and Sydney Smith denied the authorship of their own works is no evidence that they were right in so doing. Our "distinguished writer" does not venture to say in so many words that it is justifiable to conceal authorship by a falsehood, but unless we have utterly mistaken the drift of his third chapter, that appears to be the doctrine he wishes to inculcate, and one more fatal to the dignity of the press (to say nothing of morality) can hardly be conceived.

As to the public service, we are informed by the author that Lord Clarendon has recently asserted the right to call upon gentlemen in the Foreign Office to satisfy him that they are not the writers of any particular anonymous publication, and to dismiss them if they are either unwilling or unable so to do. The "distinguished writer," though anonymous and having a conscience which would not prevent a denial of authorship, does not refer to any actual instance in which this right has been put in force, nor does he publish any copy of any notification in which its existence is asserted, or its exercise threatened. Under these circumstances we must be allowed to express a doubt as to the accuracy of the author's statement. If any such general power is asserted the fact ought undoubtedly to be made as public as possible, for although a subordinate officer ought not to be free from the control of his superior, Englishmen will never allow public servants to be summarily dismissed from an appointment filled by them to public satisfaction, simply because they have offended their immediate superior by an anonymous publication, the only fault of which may perhaps be that it exposes a nefarious system of plunder, waste, or nepotism.

The "distinguished writer's" notions on what ought and what ought not to be made public by Ministers of State and their subordinate officers, are not very definite, and so far as they are clearly stated they are not likely to command assent. He seems utterly to overlook the fact, that if Government secrets are proclaimed to Englishmen they are also unavoidably communicated to those from whom Englishmen would fain keep them; and that although publicity is the only check on the misconduct of Ministers and Government officers, untimely publicity may, and in many cases would, inevitably embarrass them when doing right.

We have been induced to make these observations on the work before us, because, notwithstanding its faults, it is one of a class to be encouraged, vindicating as it does, and sometimes skilfully, the right of *all* to criticise the public conduct of public men, and to expose abuses, however old and by whatever influence maintained. This right is scarcely yet fully understood by Englishmen, and is still wholly denied in the most powerful countries on the Continent; but it is a right to be upheld at any cost, and one without which liberty is but a name, and a free press a delusive sham.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green. It is now only five weeks since we reported on this establishment, at which time Mr. M'Ewen had just taken charge, and already a remarkable improvement has taken place in every department. The effect of vigorous and intelligent superintendence is visible in all directions, from the kitchen garden up to the most decorated places. The re-arrangement of the material of the walks in the arboretum, and the reducing of their convexity has in the case of one of them been completed, and the result is so far satisfactory in point of appearance and comfort to walk on, that the others will be treated in a similar manner as soon as circumstances will admit of it. The large iron tent which has been found unsuited for showing off to advantage either plants or fruits placed in it is being removed from its present station to the angle where the two walks meet near the middle gate in the Duke of Devonshire's Road. Here it will form a kind of corridor or shelter to visitors entering by that gate, and being now in a direct line with the great conservatory it may be considered quite in keeping with that building, and a permanent feature of no mean importance to this portion of the Garden. Its removal has been entrusted to the Messrs. Cubitt, who are performing their task most successfully, the roof, by means of mechanical power such as only large firms like that in question could furnish, being raised up entire from the iron columns which supported it, and placed on them again unbroken in its new situation. The entrance at this part of the grounds is also to be altered so as to allow carriages to come off the Duke's road in a semi-circular sweep and "set down" close to the gate, an improvement on the old arrangement which cannot fail to be duly appreciated.

The great conservatory is being altered so as to suit the exhibition of plants, which in part is to take place in it on the 3d and 4th June next. A gravel walk, 11 feet wide, is to be carried up the middle of the centre bed; on either side of this are to be Grass verges, and behind them a stage is to be erected three shelves deep; on this at the east end of the house are to be arranged stove and greenhouse plants; in the centre

Orchids, and at the west end variegated and other plants remarkable for fine foliage. Baskets of flowers in the way of those at the Crystal Palace are to be suspended from the roof, Orchids are to be hung on the branches of the large Brugmansias, which, after being hard cut in, are just now breaking into leaf, and altogether it is expected that with ordinary appliances and ingenuity an extremely effective and grand display will be produced.

In the American Garden the alterations mentioned in our last report have begun to assume a somewhat definite shape. Although far from being finished, the increased breadth and variety given to this part of the grounds have even already added considerably to the beauty of this department. Prominent features in the shape of young specimen trees where well placed have been retained and turfed round; the principal portion of the shrubs has been moved close to the boundary fence, where they have been planted on mounds, and the latter have been scooped out into recesses which are about to be turfed. When the whole, therefore, shall have been remodelled and completed, such a variety of hill and dale, though even in miniature, cannot fail to produce a good effect. A new entrance has been made at this corner of the garden from Little Sutton Lane. This will be a great accommodation to visitors coming from Waterloo station by railway to Chiswick, from which this gate is distant only about 10 minutes' walk. The new branch of the North London Railway from Fenchurch Street will also bring visitors from all the north of London directly into Turnham Green.

In the orchard-house the trees intended for permanent specimens have been planted out; it will, therefore, be seen that in this operation the advice given by our correspondent "Dodman" in our last Number has been anticipated by Mr. McEwen. Between those planted out however are trees in pots, as this last mode of culture is not to be altogether overlooked. Peaches, Nectarines, Cherries, and Plums have also been planted in the low span-roofed pits put up for the accommodation of Mr. Fortune's Moutans, and from these Mr. McEwen, judging from previous experience, is confident of obtaining abundant crops. Standard Peach trees have also been planted in Mr. Ewing's glass wall, preparatory to their being removed to the great conservatory where it will be recollected they are to be planted in borders. Their main shoots are tied down parasol fashion, a position which after a time they retain even after the trainers are removed. By this mode of management a larger amount of foliage is exposed to light and air, and an increased degree of fruitfulness may be expected to be the result. Young Vines have also been planted in different houses to bring them on for the conservatory. A house in what used to be called the "private square" has likewise just been planted with new varieties of Vines for trial, a point to which Mr. M'Ewen is anxious to pay particular attention.

The ground to be devoted to the exhibition of implements is that in the neighbourhood of the glass wall, and the little garden in front of the curvilinear and other glass houses. This last has been increased in extent by the removal of the high Beech hedge, which cut it off from the "private square" above alluded to. The Privet hedges behind the Orchid house and in front of the back sheds have also been destroyed, and thus a clear space is obtained for the exhibition of pumps, garden engines, and syringes. This yard having water in it is the only place in the garden where such things could conveniently b · tried. Specimen glass houses, for the erection of which several makers have applied for space, are to be put up near the orchard house, and contiguous to them is to be the display of boilers and other heating apparatuses, of which a great many are expected to be shown. Mr. Hood himself is to occupy between 300 and 400 feet of space. In order, therefore, to facilitate ingress and egress to this department, four new entrances 14 and 10 feet wide have been made in the walls which surround it. These will also have the effect of more intimately connecting the different portions of this great Manufacturers' Exhibition, which we learn is to be kept open for a fortnight. Ample opportunity of minute inspection will, therefore, be afforded, which cannot fail to be productive of the best results. Every post brings new applications for space in this department. Among other objects will be a considerable number of tents upon improved patterns, space for which has been obtained by Messrs. B. Edgington & Co.

In the orchard, both on walls and on standards, there is every prospect of abundant crops. The long walk in front of the Peach wall has been widened and deepened, and filled with the scrapings of other walks, which are to be surfaced with fresh gravel. An edging of Strawberries has also been planted on each side of it. It may be mentioned that several new Strawberries, mostly Nicholson's, have been planted for trial. New and old fruit trees have also been planted for the same purpose, and it is but right to state that Mr. M'Ewen's appeal to the public for such things has been most liberally responded to, Messrs. Osborn, Low, Fraser, Veitch, Ferguson, and Adams being among the principal donors, and we understand that a large collection of grafts of Apples, Pears, Plums, and Cherries has been received from M. Oberdieck, of Feinzen, Hanover.

As regards vegetables various reported new sorts have been put in for trial. Potatoes sulphured according to the plan recommended in our columns of last week have also been planted in order to ascertain what effect it may have in arresting the disease.

In our last report we gave some examples of altitudinal observations as regards temperature. The following are a few more at the respective heights indicated by the top line of figures:—

	0	6	12	18	24	30 feet above the ground.
1857.—April 4	35°	39°	38½°	39°	40½°	40½°
7	38	41	41	41½	42	42
10	32	35	35	35	35½	35
12	30	33½	33½	34½	35	35
15	24	27	27	27	28	28
17	27	30	30	30	32	32

These will serve in some measure to explain the reason why blossoms on dwarf fruit trees are often killed by spring frosts, while those on tall standards escape.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—See that climbers and all plants of rambling habits have due attention in regard to stopping, water, &c. Camellias forced into wood should have a trifling check as soon as the young leaves have attained their full size; this is best accomplished by diminishing the supply of water at the root. Continue, however, to shade and syringe morning and evening. See that growing Orchids have due attention in regard to shading and atmospheric moisture. Do not use the syringe too freely among those starting into growth, but keep the atmosphere thoroughly moist. See that specimens on blocks and in baskets are not allowed to suffer for the want of water, for when the soil in baskets is once allowed to get thoroughly dry water is apt to run off. When this is found to be the case the baskets should be immersed in tepid water until the soil gets thoroughly soaked. Attend to training the shoots of stove twiners as they advance, and do not allow these to get entangled before giving them attention. Also attend to the stopping and training of other plants, and afford free growing subjects plenty of pot room. Achimenes and Gloxinias, filling their pots with roots, will enjoy an occasional watering with weak manure water. Repot and propagate Begonias. This is one of the most useful families of plants that can be grown. Keep up a cleanly system of cultivation by means of sweet and healthful soils and improved modes of potting, together with the most complete drainage and the constant use of weak and clear liquid manure during the growing season. Persevere in keeping down insects, which if allowed will now progress with great rapidity.

FORCING DEPARTMENT.

Pineries.—Where there is not sufficient means of maintaining a thoroughly moist night temperature the growing stock may be dewed with the syringe in the morning, but where plenty of evaporation can be obtained from tanks or evaporating pans the syringe should be used over the foliage only in the afternoon, and then but lightly. Heavy syringing tends to render the soil about the collar of the plant too wet, and makes it difficult to judge of the state of the ball as to moisture, and keeping the axils of the leaves constantly full of water is not favourable to compact sturdy growth. See that none of the young stock is allowed to suffer for want of pot room or to get too dry at the root, for a short time's neglect at this season may end in a great many of the plants fruiting prematurely. Maintain a brisk bottom-heat, as near 90° as can be managed, but on no account exceed this, and keep the atmosphere as warm as the plants will bear without growing weakly. Successions, if all right at the root and near the glass, may safely be kept at from 65° to 70° at night and 75° to 85° with sun-heat, and plants swelling their fruit, if afforded a thoroughly moist atmosphere, will enjoy a night temperature of 70°. Give these plenty of manure water at the root. Vineries.—As soon as the fruit is ripe in the early house discontinue the use of fire-heat as far as the state of the weather will admit, and keep the atmosphere cool in order to prevent the increase of spider and preserve the foliage in a healthy state as long as possible. Where the borders have been covered with fermenting materials this should not be removed in the present state of the weather where the fruit is colouring, but where the fruit is ripe the border should be uncovered so as to expose it to the sun and air and prevent the growth of laterals, &c. See that Vines in pots and boxes are well supplied with manure-water at the root. Give timely attention to the work of disbudding, stopping, and tying in the shoots in succession houses, and endeavour to get the fruit thinned directly the berries are sufficiently large.

FLOWER GARDEN AND SHRUBBERIES.

Thorough dress all beds and borders; prepare stations on lawns for extraordinary specimens of ornamental plants, as large Fuchsias, &c. It is still dangerous to risk even the hardier kinds of bedding plants from under the protection of glass. All that can be safely done until the nights have become warmer, in the way of hardening the stock preparatory to its being planted out, is to give as much air as circumstances will admit without injuring the plants, and to place Calceolarias and the stronger Verbenas in turf pits where they can be protected at nights and sheltered from drying winds Such things when removed to cold pits should be planted out in fine very sandy soil, which will save trouble in watering, and be much better for the plants than keeping them confined in small pots. Tender annuals that have been raised in heat should be pricked out in light soil under hand-glasses, in order to get them strong before planting-out time.

HARDY FRUIT AND KITCHEN GARDEN.

A sloping bank should now be prepared and planted with runners of Alpine Strawberry for fruiting in September and October; plant three in a patch, at intervals of 15 inches; the ground between should be covered with slates when the plants have become established. Sow successions of round Spinach in a cool aspect, and let all Beet, Scorzonera, Salsafy, &c., be put in if not done. Secure plenty of good Parsley in highly manured beds at the nearest end of the kitchen garden. Sow a bed or two of herbs for next year's planting; this should be done every second year, as old plants are liable to wear out. Thin suckers from Raspberries, leaving four or five to each stool. Take care to thoroughly clean all Strawberry plantations before the runners come out. Disbud Peach trees, &c., as soon as the young shoots will admit of it; but do this carefully at first, going over them two or three times, so as to prevent a too sudden check to the flow of sap, and afford the fruit the protection of the leaves, &c., as long as it can be done without injury. Look sharply after green fly, and apply tobacco-water the moment it is perceived; on light sandy soils, however, it may be kept in check by frequent washings with the engine. But whatever method is preferred, see that it is applied before the pests get established.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 23, 1857, as observed at the Horticultural Garden.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain
Friday 17	(	29.925	29.911	60	45	52.5	47	46	S.W.	[illegible]
Satur. 18	23	29.944	29.844	69	39	54.0	49	46½	S.	[illegible]
Sunday 19	24	30.131	29.878	68	32	50.0	51	47	S.E.	[illegible]
Mon. 20	25	30.229	30.215	67	31	49.0	52	48	S.W.	[illegible]
Tues. 21	26	30.239	30.196	62	42	52.0	52	49	N.W.	[illegible]
Wed. 22	27	30.065	29.952	52	38	45.0	52	50	W.	[illegible]
Thurs. 23	28	30.022	29.927	48	24	36.0	52	51	N.E.	[illegible]
Average..		30.079	29.960	60.8	35.8	48.3	50.7	48.2		[illegible]

April 17—Partially overcast; cloudy; fine.
— 18—Fine; very fine throughout.
— 19—Clear; very fine; masses of white clouds; cool.
— 20—Clear; very fine; slight frost at night.
— 21—Clear; very fine; cloudy.
— 22—Slight rain; drizzly; heavy rain occasionally.
— 23—Rain; drizzly in forenoon; fine, but cold; frosty at night.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending May 2, 1857.

April and May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 26	59.3	36.1	47.7	14	0.53 in.	3	7	4	1	1	4	9	2
Mon. 27	59.0	35.8	47.4	15	0.14	10	1	5	2	5	5	[illegible]	[illegible]
Tues. 28	60.[illegible]	36.8	48.6	12	0.32	3	5	6	4	4	5	[illegible]	[illegible]
Wed. 29	60.7	38.6	49.7	11	0.75	4	3	6	2	4	5	[illegible]	[illegible]
Thurs. 30	62.0	40.8	51.4	12	0.31	4	3	6	1	3	6	[illegible]	[illegible]
Friday 1	61.4	40.3	50.8	11	0.51	2	5	6	3	5	6	4	—
Satur. 2	63.0	40.1	51.5	11	0.72	2	7	7	—	5	6	[illegible]	[illegible]

The highest temperature during the above period occurred on the 28th, 1840—therm. 81 deg.; and the lowest on the 2d, 1855—therm. 20 deg.

Notices to Correspondents.

Books: *Verdant Green.* There are no directions that we know of for the cultivation of Lichens; if such a thing were desired nothing more would be required than to transplant them from their wild places to others equally damp or dry, shaded or the contrary, as the case may be. The same may be said of Mosses. Berkeley's Cryptogamic Botany and Lindsay's British Lichens are full of information.

Chærophyllum bulbosum: *Devonian.* Probably this may be obtained of Messrs. Vilmorin & Co., Paris.

Insects: *J G.* Your insect reared from a green larva found in dead Rose snags and other dead snags is that of the Sawfly, Tenthredo (Emphytus) cinctus, of which an account is given in our Paper last June. It is distinct from the small Lepidopterous larva found in the same situations, which is far more mischievous. *W.*

Manure Water: *C J.* By no means add lime to it. Let the fluid stand as it is till it is clear, then decant and add to the same quantity of soft water. The residue may be employed where solid manure is wanted.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R J E.* It is the seed of Calosanthes (or Bignonia) indica; requires a stove.—*Z Z.* It is Alyssum alpestre escaped from some garden. —*Mary.* Cochlearia anglica, one of our rarer wild plants.—*E G H.* Some sort of Cassia.—*G B.* A decayed specimen of Aucuba japonica.

Potting Peach Trees: *A Learner.* In potting Peach trees it is not good practice to cut off about half an inch from the bottom of the roots. They ought to be most healthy and active. In potting loosen them gently with the fingers, and remove as much of the old soil from the balls as possible without injuring any fibres; by this means a greater quantity of fresh compost can be put round the roots. When very large plants are to be reduced into convenient size, the roots and branches should be shortened in as equal a manner as possible. Such trees will not, of course, bear any fruit the first season after this operation. But when properly managed the first season, they will afterwards do good work. *S.*

Vine Leaves: *Roundhay.* The small green excrescences on the back of your Vine leaves will do no harm. They are merely the effect of too damp an atmosphere and want of proper ventilation.‡

Misc: *Old Sub.* Lapageria rosea will succeed perfectly well in a common greenhouse. It likes plenty of drainage, a good loose porous soil composed chiefly of peat with a little turfy loam and sand in it, and abundance of water while in an active growing state. The Teltow Turnip is an excellent small sort either for soups or garnishing. The trade can supply both it and the Lapageria.‡

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.

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THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Offices, 109, Fenchurch Street (E.C.).
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BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

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In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the Importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of guaranteed quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

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Head Offices.—2, Moorgate Street, City, London, E.C.
Branch Offices.—Bank Street, Carlisle.
Works at Millwall, London; Carlisle, and Port Carlisle, Cumberland.

Concentrated Manure .. .. £9 0 0 per ton.
Superphosphate for Turnips .. 7 10 0 ,,

The Company manufactures a superior Manure for Hops at 9*l.* per ton, also special Manures for every description of crop.

This Company's Manures are guaranteed and by analyses. For testimonials and analyses apply at the Head Offices, No. 2, Moorgate Street, City, E. C.; or at the Branch Office, Bank Street, Carlisle.

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Office, 81, Gracechurch Street, London.
Manufactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
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Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

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THE NATIONAL GUARANTEED MANURE COMPANY (Limited).—This Company's Manures are guaranteed and sold by analysis. Ten days are allowed to the purchaser for testing the qualities of the manures, and if found inferior to the analyses furnished when sold, and notice be thereupon given at the head office, the Company will take back the manure, return the money paid, and defray all expenses; but after that period the right to object will not be recognised.—For testimonials, analyses, and prices, apply at the Head Office, 2, Moorgate Street, City; and Branch Offices, Bank Street, Carlisle.

F. C HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

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BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

CUERO GUANO.—From a given weight of Cuero Guano may be obtained the same immediate results as from a similar weight of Peruvian Guano, while its beneficial effects upon future crops will be felt long after Peruvian Guano has ceased to have any influence. The following is from Professor Way:— "15, Welbeck Street.

"Sir,—On reference to my books, I find that the Manure which I analysed for you in April last year contained 66½ organic matters, 8 ammoniacal salts (yielding 7 per cent. of ammonia on the Manure) and phosphoric acids, soluble in water, equal to 27¾ per cent. soluble Phosphate of Lime. Such Manure would, in my opinion, be very valuable, either for Corn or Root Crops, but for the former purpose, I would advise you to reduce the proportion of soluble phosphates, which appears unnecessarily large.—I am, Sir, your obedient servant, "J. THOMAS WAY.
"To Mr. Chisholm. 11th February, 1857."

Price delivered at any Railway Station in London:—
For Root Crops and Grass Land .. 7*l.* 10*s.* per ton.
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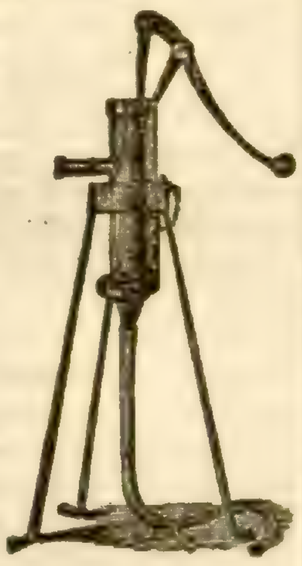
REIGATE SILVER SAND (good Grit and free from Iron) 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



The valve is a ball of imperishable material, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.—Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, for the use of Farms, Cottages, Manure Tanks, and Wells of a depth not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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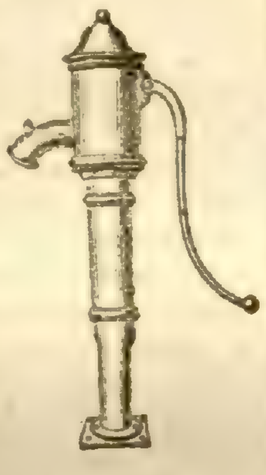
PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*



Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineer Work may be had at the Manufactory,

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PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

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Illustrated Price Lists forwarded on application.

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WILLIAM HOWDEN, Secretary.

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WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

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The PATENT LIGHT DRAG HOE for hoeing two rows of Corn, Carrots, &c., at a time, or one row of Turnips, leaving the soil mellow behind, and not trodden on afterwards, cutting off every weed in the row without cutting the Corn, expanding to different widths; the handle shifting according to the height of the workman, and the depth to be hoed. Knife-like chisel-headed shares for cultivating or stirring in the rows fitted separately.

The APHIS GREEN or HOP FLY POWDER for Orchard-houses, Roses, &c. A packet sent free by post on receipt of six postage stamps.—Apply through Mr. RIDGWAY, 169, Piccadilly, London.

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW AT YORK, August 5 and 6.—For Prize Lists apply to the Secretary, JOHN HANNAM, Land Agent, Wetherby.

SEED CORN FROM THE CHALK.

TALAVERA and APRIL WHEAT; Chevalier, Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. RAYNBIRD, Basingstoke. A reference or remittance required from unknown correspondents.

The Agricultural Gazette.
SATURDAY, APRIL 25, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, April 29	Agricultural Soc. of England ..	Noon.
	Lecture by Mr. Lockhart Morton at King's College, on the Management of Landed Property.....	3 P.M.
	Society of Arts.....	8 P.M.

HINXWORTH, near Baldock, the property of ROBERT CLUTTERBUCK, Esq., of Watford, is today the scene of a gathering of agriculturists to witness the drainage operations which have been lately brought to a successful conclusion by Mr. BAILEY DENTON. A similar gathering is invited next Saturday, and both the locality and the operations which have been and are proceeding there are exceedingly interesting, and will no doubt prove exceedingly attractive. The record of Mr. DENTON's drainage observations during January and February, given some weeks ago in our columns, furnishes a useful illustration of the permeability of stiff clays and of their amenability to the influence of deep drainage. We hope next week to refer to these tables in some detail, and may then allude to the proceedings which have signalised the days on which Mr. DENTON has received his friends at Hinxworth. Meanwhile we may remind those who have not yet been able to visit the spot that it will again be open to them on Saturday, May the 2d.

OUR previous remarks upon the want of care too often exhibited in respect to pastures would lead to the supposition that we do not consider meadow land in this country to be so well cultivated as it ought to be. In evidence of this we have referred to the many prejudicial plants which ought pro-

perly to be discountenanced as *weeds*, which are allowed a local habitation in pastures without question, owing partly to ignorance of what should be considered as properly belonging to pasture, and partly to the carelessness of those in whose hands the meadow land of England is placed. These were referred to and enumerated under six different classes, on each of which we have a few additional words to say :—

1. Those who have ever seen the inflammation and soreness of the gums induced in cattle by reason of the adherence and penetration of the awns of rough Grasses, or have watched how assiduously animals refuse such plants as Thistles, must be aware of the great loss sustained by the admixture of weeds of this kind in the hay, by which, if they are not picked out as the animals are fed, the hay becomes distasteful, and is frequently rejected altogether. As far as the pasture is concerned, such plants are altogether refused, and a score of huge useless Thistles occupy nearly enough ground to furnish a day's feed for a sheep.

2. But there are numerous plants in meadows which, though not formidable from spines or spikes, are yet objectionable as preventing the growth of better plants, and yet they are suffered to grow year after year as though they were a good or necessary part of the crop itself. By some these are little cared about, as they are conceived to add to the weight of an acre of hay, but to such we would say that no meadows yield so large a crop of hay or bulk of aftermath, both of good quality, as those which possess the most scanty list of plants other than Grasses; and the appearance in quantity of these extraneous plants argues a want of cultivation which would lead us to infer that the Grasses present are not all of the best kind.

3. The third class are mostly flat-leaved plants which the scythe cannot cut off, such as the Plantains; plants which usually die before mowing-time, as the Primulas and Orchids; or Mosses, which latter sometimes take possession of a pasture. These in their several ways show poor or stiff and uncultivated soils; they take up much room, they are not depastured by cattle, and afford nothing to the rick. What weeds therefore must such plants be in a meadow when they occupy so much of its space and return nothing, or if a small return be given it is always of an objectionable kind! In a previous article in our Journal we showed the injury done to pastures by the Plantain, and it is not too much to say that in some meadows at least a tithe of the hay—or what should be the crop—is lost by this interloper.

4. Farmers for the most part recognise the existence of "sour Grass" under some circumstances, but do not always understand that there are *peculiar species* to which the term is applied, and are too apt to think that it is some peculiarity of soil which acts upon otherwise good species. This, however, is not the case; no change of management could render such Grasses as the *Aira cæspitosa*, Tussac Grass; *Avena pratensis*; meadow Oat; or *Brachypodium pennatum*, False Brome, good for cattle food; they must be destroyed as weeds, and cultivation must be directed to the attainment of this end.

5. It is fortunate that the fifth list is but a small one, though we are inclined to the belief that it would be greatly argumented by correct observation, and yet with meadows containing much of these two Garlicks, it is curious to observe how little has been done to destroy the pest. It is true its character is known, but then a positive weed is suffered to grow and inconvenience submitted to in consequence, merely it would appear because these pests were considered not in their true light, but as a necessary part of the pasture.

6. A like inconvenience as to the time at which a pasture can be used is felt where the Meadow Saffron abounds; but this in an aggravated degree, as the flowers and leaves appear at different seasons, the one in autumn, the other in spring, and their effects are that of a most powerful poison. Seldom a year passes but cattle are destroyed by the plant in some of the midland counties, and more especially in Gloucestershire and Worcestershire, and yet the landlord will often submit to a reduction of rent and the tenant to loss, because this, like so many other of meadow plants, has been considered a necessary evil. If however we start with the position that pastures have their weeds, and these too neither few in number nor small in bulk, and that such are to be eradicated by proper cultivation, we shall find in meadows matter for as much thought and good management, and the capabilities of paying well for both, as in our arable fields. Having therefore pointed out the nature of the evil as applied to pastures, we hope now to offer suggestions tending to a remedy.

Pastures are generally referred to as *natural* meadow, and somehow we appear to have got the notion that it is *naturally* good or bad, and we hardly recognise it as a fact that the bad pasture may become good by *good cultivation*, whilst the good may become bad by neglect.

In reality, we have comparatively little truly natural pasture—aboriginal meadow—as much that passes under this name has been more or less remotely in tillage, so that the position in which we now find them is due to a long series of operations which we may term cultivative processes, for nowhere in wild nature should we have the even green field. And though they have not assumed such consistency as, like arable culture, to be resolvable into a system, yet it is well to be occasionally reminded of the "operations" for the meadow. The object of cultivation in meadow is to encourage the growth of the pasture crop, which properly consists of nutritious Grasses accompanied by Clovers and other wholesome herbage; and whatever tends to prevent this growth, whether they be plants of a bad kind, acting prejudicially, or of a merely useless kind, causing only dilution, are alike to be discouraged.

Now, the means to this important end are of two kinds:—1st, those which act in a direct manner, in that they directly encourage what is beneficial; and 2d, those of an indirect action, as they discourage the advance of useless herbage, and thus give scope for the growth of that which is better. Among the former may be reckoned manuring, rolling, harrowing, sowing of seeds with a thin crop, proper selection of times for cutting hay, and depasturing. Of the latter, draining, irrigation, and weeding may be considered as the most important. To these we shall direct attention next week.

THE Vienna correspondent of the *Times* newspaper gives a detailed account of three different cattle murrains existing in Austria. The first, a catarrhal affection of the lungs—the second, a pulmonary complaint with typhoid symptoms—the third, a highly contagious typhus. It is the last only of which we fear the introduction here, and its symptoms have already been fully given in our columns (p. 238).

The first is rarely fatal—the second in which three periods are observed more frequently results in death—the last, as we have all heard, is rarely survived.

In the lung disease combined with typhus, the first period during which there is no fever lasts a fortnight or three weeks, and is characterised by prostration of strength, low temperature of the body, and latterly difficulty of breathing; it is succeeded by three or four days of feverish paroxysms; during the third period, which commonly ends in death, the emaciation of the animal is rapid—its uneasiness is extreme—the eyes become glazed—the horns, ears, and nose are cold—the nostrils filled with offensive phlegm and slaver, and an ill-coloured secretion flows from the nostrils—the pulse is often above 100 a minute.

On the real cattle plague we have to direct the attention of our readers to a letter from a correspondent in Holland, which is interesting both as describing the present condition of the stock whence our largest importations come, and as giving the history of an instance in which the fatal disease was checked at the outset.

A STEAM CULTURE REVERIE.

As we sallied into the trial-field on one of the many mornings I spent with my friend Digland, "You shall see," said he, "the results of misdirected ingenuity in what we may call, copying 'Nature' too closely. A vessel with the exact sails and paddles of a nautilus, with propellers precisely like the fins of a fish, or the web-feet of a duck, our shipwrights would laugh at; a locomotive in the form of an automaton horse; a spinning-machine with fingers to gather from a distaff; a sewing machine with a common-needle and thimble; a threshing-machine thumping the corn on a floor; a drill flinging about the seed from a 'hopper;' and a steam-digger working a hand-tool of any kind, are all alike ridiculous in the judgment of a mechanist." And with this exordium he directed my attention to a strange-looking implement, temporarily affixed behind the locomotive which he employed in testing such contrivances. "This invention," continued my friend, "patented (November 25th, 1847) by Pierre Philippe Celestin Barrat, of Paris, is the first essay upon the fallacious principle that in devising steam-driven machinery for tillage we ought to imitate hand labour to as great an extent as possible. And this attempt has been made with the hoe or mattock, not with the spade, of which I will show you examples by and bye."

Suppose a rectangular frame projecting horizontally from the rear of the engine, at about 3 feet from the ground, but capable of being raised or depressed, according to the depth of work desired. Near the extreme end is placed a transverse shaft, on which are a number of sockets receiving the handles or stems of a series of mattocks, ranged from one side of the frame to the other and pointing forwards, or in the direction in which the engine moves. Each mattock resembles in side view a carpenter's adze, but instead of being a broad flat piece of steel consists of two stout prongs, and the curve is determined by the length of the handle. By making half the lever-handles 6 or 8 inches longer than the others, and alternating them along the shaft, the mattocks are arranged in two rows; those of greatest radii being set nearly close to each other, while those of lesser radii pass between their handles. The transverse shaft has a reciprocating motion, that is, its bearings are slided backward and forward in guides upon the sides of the frame, by means of a connecting rod from a crank shaft driven by the engine, the extent of this movement being about 2 feet. On either end of the mattock shaft are radial arms, which by its sliding action are brought in contact with rollers or fixed studs, so that the mattocks may be raised out of the ground while making their retrograde movement (just as when worked by hand), and dropped when they have reached their full limit forwards. The blades or prongs are strong and heavy, and the stems also made of iron; and to increase the force of their fall, a couple of strong springs act upon radial arms on the shaft—being alternately compressed by a connecting rod for the purpose, and released during the downward stroke of the tools. The two rows of mattocks being attached to one shaft are brought down simultaneously: but one row, by reason of its longer stems, enters the ground in advance of the other row, penetrating to the depth of about 5 inches. Now, the progress of the engine is so timed (and is continuous while the tools have an intermittent movement), as to advance only about 6 inches, or less, at pleasure—for every stroke, so that the second row of mattocks falls in about the same spot as the first row fell during the previous stroke. The retrograde movement after the blades have entered the ground having the effect of removing the detached pieces of soil (forming a trench, and drawing the spits across it as in the manual operation), the second row digs 6 or 7 inches into the subsoil bared by the first row at the previous stroke. Then by the sliding movement it removes the pieces: while the first row turns its spits of surface-soil into the hole or trench thus left by the second. Theoretically, nothing can be more desirable than such a complete digging 12 or 14 inches deep, burying the upper stratum and packing the under soil upon it, and practically, his machine is about the simplest and best of all that I inspected, having for their object the exact imitation of hand-labour. Indeed, M. Barrat deserves to be remembered as the inventor of the first steam cultivator for thoroughly inverting or trenching the land. But following the machine in its ineffectual attempts up and down the field, I soon saw that to perform the work efficiently was impossible. It is true there is not so much tendency to breakage from stones, as in those machines which force spades into the ground by the direct action of cranks or levers: but when once in the soil these mattocks, like so many anchors, resist the sliding movement of their shaft, endangering the machinery by such a sudden shock: and owing to the cohesion, weight, and inertia of the earth, great power is required to break off and remove even thin splits or slices. Excellent as the idea may be in several respects, it cannot be carried out except so slowly and with such an extravagant expenditure of power as to preclude its economical adoption; and my old opinion is again confirmed that a digging-machine should have a smooth rotary action, and sever the spits with a clean cut instead of breaking or tearing them from the solid ground.

The next invention (chronologically) proceeds on this principle: I mean the steam-plough patented by James Usher, brewer, of Edinburgh, July 18, 1849, and which is undoubtedly the best rotary cultivator yet brought before the public. Since the model of this engine first attracted attention at the Great Exhibition, there have been lectures and public discussions about it: it has been manufactured in two different forms, and tested in the field under the patronage of eminent agriculturists: so that my friend regarded any further trial of it upon his part as both presumptuous and unnecessary.

As is well known, the tilling part consists of a number of "curved ploughs," or other cutting implements attached about a horizontal transverse axis driven by the engine, and revolving in the same direction as the paddle-wheel of a steam-boat, in order that the passing of the implements through the soil may tend to propel the engine forward. This principle economises the motive-power employed: but why does not Mr. Usher make the work easier still by exchanging the roller-wheels which support his engine for Boydell's "endless railway"? The chief novelty seems to be in attaching the plough-like tools with a vertical motion behind a locomotive engine; for though the patentee claims the invention of tilling instruments revolving in one particular direction, Bonser & Pettitt, in 1846, patented tines, teeth, and screw blades which turned precisely the same way; and Pratt, in 1810, propelled his machine by means of revolving curved ploughs. That the land may be sliced and stirred up to a considerable depth by this implement I have no doubt; but I believe that "inversion" is very partially accomplished by it. My friend repudiates the travelling steam-engine; recommending either to drive the ploughing part with his peculiar rope tackle, or else to employ a pneumatic locomotive. *I. A. C.*

VALUATION OF TENANT-RIGHTS.

In 1852 I sent you the particulars of a valuation of tenant-rights on a farm in Hampshire, according to the custom of that country, giving the amount of all the claims which the out-going tenant has on his landlord, or his in-coming tenant at the end of his term. This is determined by two valuers in the common way, and the custom is that all the expense of the cultivation of the Turnip or fallow crop is to be estimated and paid for, whether this be a crop of roots or not, and even although there be an abundant crop of weeds instead of a crop of roots.

On this Hampshire farm there were scarcely any Turnips, but an abundant crop of Couch and Thistles, not only in the fallow fields but also in all the other parts of the farm. The valuation is done in this way by two valuers, who enumerate all the particular acts which have been done, but do not enter the cost of each act. They only enter the gross sum at the end of their report which the out-going tenant is to receive for all his claims on his landlord or in-coming tenant.

Upon the covenants of this Hampshire lease the tenant was bound not to take more than two crops of grain in succession from the same field. Nothing was said about the claims he might make at the end of his lease. All this was left to custom.

I now send you the particulars of tenant-rights under better covenants and a better system of cultivation. The tenant is bound to cultivate the land so as to have half of the arable land yearly and every year under a root or a fodder crop to be consumed by stock in the field or in the buildings; but as the farm is near some large towns the tenant has it in his power to dispose of any part of his hay, straw, or roots, provided he expends one-half of their price in the purchase of manures to be applied the same year to the land, or in the purchase of cake or corn to be consumed by his stock in the fields, yards, or stalls. And at the end of his term the landlord is bound to pay him for all the unexhausted cultivation, acts of husbandry, manure, hay, straw, of the last year's crop, according to the principle particularly specified in the lease, —that one-half of expense of all the labour, manure, and seed, which has been applied in the cultivation of the root or fodder crop, shall be considered as unexhausted cultivation—and also to pay for all acts of husbandry, manure, hay, and straw, which he may leave for the benefit of the in-coming tenant.

The whole of this farm is in the best condition; the Wheat and Clover fields have a better appearance than any I have seen this year; and the field which produced Swedes and Mangels has been ploughed, and is being planted with Wheat, so that the in-coming tenant will have as good a prospect of a crop as if he had farmed it for years. The contrast between the state of the Hampshire farm and this Shropshire farm at the end of the lease is most striking. It is entirely owing to the system of cultivation and the principle laid down in the lease, whereby the out-going tenant receives the value of all the produce and labour he leaves on the farm for the benefit of his successor.

Valuation of unexhausted cultivation, manure, hay, straw, and roots on —— farm, belonging to Mr. ——, the out-going tenant, to be taken to by Mr. ——, the in-coming tenant, on his entering upon the occupation of the farm at Lady-day, 1857, and he, by the covenants in his lease, is to have the same things valued on the same principle hereafter, and paid to him on his leaving the farm by his landlord or his succeeding tenant.

	Horses employed.	Acres cultivated.	Price per acre.		
Cultivation of last year's Fallow Green Crop (35 acres).					
To 10 acres twice cultivated (the cultivator is 3 feet wide) ..	4	20	£0 3 0	£3 0 0	
,, 5 times with the drags (the drags are 8 feet wide)	4	50	0 1 6	3 15 0	
,, 9 times with heavy harrows (8 feet wide)	3	90	0 1 2	5 5 0	
,, 6 times with light harrows (8 feet wide)..	2	60	0 0 10	2 10 0	
,, 3 times ploughed	2	30	0 8 0	12 0 0	
,, twice rolling	2	20	0 1 0	1 0 0	
					£27 10 0
,, 25 acres 2 times ploughed	2	40	0 8 0	16 0 0	
,, dragging or scuffling 6 times	4	152	0 1 6	11 1 0	
,, 5 times heavy harrowing	3	125	0 1 2	7 3 10	
,, 7 times light harrowing	2	125	0 0 10	7 1 8	
,, 2 times chain harrowing	2	50	0 0 6	1 5 0	
,, rolling	2	25	0 1 0	1 5 0	
					£43 16 6
Extra work on 16 acres of the above:—					
,, 16 acres once ploughed	2	16	0 8 0	6 8 0	
,, 3 times dragged	4	48	0 1 6	3 12 0	
,, 3 times heavy harrowed	3	48	0 1 2	2 16 0	
,, 4 times with light harrows	2	64	0 0 10	2 13 4	
,, 3 times rolled	2	48	0 1 0	2 8 0	
,, 35 acres ridging for the dung	2	35	0 3 0	5 5 0	
,, 35 acres ridging to cover the dung	2	35	0 2 0	3 10 0	
,, 630 cubic yards of dung	..	..	0 2 6	78 15 0	
,, hauling and spreading 630 yards of manure	..	..	0 1 0	31 10 0	
,, 4 tons of Turnip manure (as per bill)	..	..	8 0 0	32 0 0	
,, hauling manure mixed with ashes, 48 loads, and spreading out of the carts	..	..	0 2 0	4 16 0	
,, Turnip seed bill	..	..	..	4 11 6	
,, drilling the seed	1	35	1 0 0	1 15 0	
,, twice horse hoeing	1	70	1 0 0	3 10 0	
,, twice hand hoeing	..	35	0 7 0	12 5 0	
					£195 14 10
Divide by 2	..	..	..		2) £267 1 4
The unexhausted cultivation on 35 acres of Turnips comes to	..	..	..		£133 10 8
The field sown to Clover Seed 37 acres.					
,, sowing 37 acres	..	37	..	0 7 6	
,, rolling after sowing	..	37	0 1 0	1 17 0	
,, seed bill	..	..	..	22 3 0	
					£24 7 6
The 40 acre field sown to Wheat.					
,, manure dropped on the Clover at the rate of 8 sheets per acre, from May 1 to October 1	..	40	1 0 0	40 0 0	
,, ploughing	2	40	0 8 0	16 0 0	
,, twice heavy harrowing	3	80	0 1 2	4 13 4	
,, twice light harrowing	2	80	0 0 10	3 1 8	
,, drilling the seed	3	40	0 1 6	3 0 0	
,, 88 bushels of Wheat	..	..	0 8 0	35 4 0	
,, hauling and spreading 26 loads of dung	..	..	0 2 6	3 5 0	
					£105 4 0
Cultivation on the field for Fallow from Michaelmas last to March 1.					
To 9 acres cultivated	4	9	0 3 0	1 7 0	
,, 3 times with the grubber	4	27	0 1 6	2 0 6	
,, 4 times with light harrows	2	36	0 0 10	1 10 0	
,, 35 acres ploughed	2	35	0 8 0	14 0 0	
,, 3¼ acres drilled with Rye and Vetches	..	3¼	0 1 6	0 4 6	
do. harrowing	2	3¼	0 0 10	0 2 5	
,, 44 cubic yards of dung for the Rye and Vetches	..	..	0 2 2	4 15 0	
,, hauling and spreading 1 ton same..	..	..	0 0 6	1 2 0	
,, 7 bushels of Rye, per bushel	..	..	0 5 2	1 16 2	
,, 7 bushels of Vetches, per bushel	..	..	0 3 3	3 0 0	
,, ploughing 13 acres across	2	17	0 8 6	5 10 6	
,, ploughing 16 acres	..	..	0 8 6	6 16 0	£42 4 1
					£305 6 3
,, 577 cubic yards of dung carted out to the 35 acre field, and squared up, at 3s. 4½d. per cubic yard	..	..	..	97 7 0	
,, 22 yards of compost, at 1s. 6d.	..	..	..	2 8 0	
					£99 15 0
,, 34 tons of Wheat straw, at 30s. per ton	..	..	..	..	51 0 0
,, 16 tons of hay straw, at 3l. per ton	..	..	..	..	48 0 0
,, 26 tons of Mangel Wurzel, and 9 tons of Swedes; 35 tons at 11s.	..	..	..	..	19 5 0
,, digging 21 perches of the garden trenched, at 5s. 6d... ..	..	..	..	..	0 10 6
					£523 16 9

March 2, 1857.—I, J. M., being appointed by ———, the landlord, and Mr. ———, the tenant, to value for them the unexhausted cultivation, acts of husbandry, manure, hay, straw, and roots, according to the covenants in the lease, and to examine into the state of the premises and fences, do give the above as the particulars of my valuation. The gross amount is 523*l.* 16*s.* 9*d.*, which the landlord or in-coming tenant has to pay Mr. ———, the out-going tenant. The premises are in good and substantial repair, but some of the fences require to be prepared; a few days of a man and some Thorns will be required. I reckon 30*s.* worth of labour and Thorns will pay for all that is required; the out-going tenant will pay this to his successor.

The out-going tenant has this 2d day of March, 1857, been paid the above valuation, and has given up the possession of the lands and premises to the in-coming tenant. *J. M.*

EPIZÖOTIC DISEASES IN GREAT BRITAIN.

SINCE 1837 epizöotic diseases have prevailed to a most formidable extent in almost every part of Great Britain and Ireland, and they have affected more or less almost all classes of animals. The following grave facts, taken from the analysis of epizöotics contained in the "Census of Ireland" for 1851 (vol. v., pages 358-9)—although the analysis does not extend beyond 1851—will show more clearly than any general statement that an "epizöotic constitution" has hung over Great Britain and Ireland for a protracted period favouring, if not determining, the devolopment of several deadly epizöotics:—

"(A.D. 1837. Disease prevailed among cattle and sheep in England—p. 218.) 1838. The epidemic among pigs continues both here and in England. 1839. The epizöotic of pleuro-pneumonia, which had spread over England and Europe, now raged in Ireland; an epizöotic among poultry in Drogheda; a very prevalent and most fatal disease among pigs in the north of Ireland; an epidemic among cattle and pigs in England. 1841. An epidemic among cattle, characterised by stiffness of the legs and blisters upon the tongue; it spread among sheep in the county of Clare, and it prevailed among horned cattle, pigs, goats, and sheep everywhere in Ireland; it also extended in many parts of Europe; an epizöotic among horses, styled the 'distemper,' also prevailed in Ireland. (A highly contagious epidemic among swine, cattle, horses, and sheep prevailed throughout the greater part of England—p. 227). 1842. The distemper in cattle again set in; pigs also were affected by a disease called cholera; an epizöotic in Wales and Liverpool. (Prevalent in October—p. 229.) 1843. The disease spread among cattle and pigs throughout Ireland; malignant influenza among cattle in England. 1844. The epidemic among horned cattle, horses, and swine continued, and was characterised by abscess of the throat and inflammation of the lungs; an epizöotic of pleuro-pneumonia continued to prevail extensively. 1845. The cattle distemper in the north of Ireland; these complaints were general, viz., of the lungs, of the hoofs. The 'typhoid epidemic' was then raging extensively on the continent; disease was also very fatal among pigs and sheep; horses and cattle were affected in England and in several parts of Europe; pleuro-pneumonia among cattle in Scotland, and murrain among sheep. (A fatal epizöotic, producing gangrene of the lungs, prevailed extensively among cattle in England; epizöotics also among horses and pigeons—p. 263.) 1846. Various epizöotic affections prevailed among cattle, chiefly pleuro-pneumonia. In the neighbourhood of Bantry cowpock extensively attacked black cattle. A fatal epizöotic among pigs in some parts; domestic fowl were also affected. Pleuro-pneumonia prevailed in England and Scotland; (also a fatal disease among horses in England—p. 275.) 1847. Great numbers of dogs went mad this season. Pleuro-pneumonia still prevailed among cattle. An epizöotic among pigs in Queen's County. A great mortality of turkeys from epidemic disease. Great mortality among cattle (and sheep) in England. An epizöotic destroyed much cattle in Europe. 1848. The disease among cattle continues in Westmeath and Cork, and prevails extensively among pigs in Limerick. A disease resembling smallpox appeared among sheep in England. (Pleuro-pneumonia prevailed to an alarming extent in England—p. 311.) 1849. The disease among pigs was very fatal in some parts of the west. Twenty per cent. of horned cattle were lost in some districts from pleuro-pneumonia this year. (In England influenza prevailed extensively among horses, pleuro-pneumonia among cattle, and smallpox among pigs in some districts—p. 320.) 1850. The epizöotic of pleuro-pneumonia was very rife in Dublin and its vicinity. It also commenced in the north of Kerry. Strangles prevailed to a great extent among horses, and a disease among pigs also spread generally. (In England influenza raged fearfully among animals in July, and an epizöotic prevailed in Yorkshire—p. 328.) 1851. Horses, sheep, pigs, and poultry were all affected by an epidemic this year."

That the epizöotic constitution, that wide-spread predisposition to outbreaks of epizöotic diseases, indicated by the above array of facts, has not ceased in England at the present time, whatever lulls may have taken place, I believe will be generally admitted by those cognisant of diseases among cattle; and upon this ground alone I think that there would be a sufficient warrant for directing increased and urgent attention to measures of internal hygiéne. But when, in addition, there is evidence of increased virulency of a certain febrile disorder among the cattle of this district, and of this disorder seizing upon and devasting crowded cattle sheds, I think that I am fully justified in the opinion which I expressed, that (as was the tendency of the conversation in the House of Commons,) the direction of the public to an undue faith in measures of sea-board quarantine, to the neglect of measures of internal hygiéne, is a serious error. *John N. Radcliffe, Member of the Epidemiological Society, Bramley, near Leeds, in the Times.*

SUBURBAN FARM—No. II.

YOU will have noticed that in my rough estimate of the probable returns from your little farm given at p. 238, I omitted all mention of the two sows which you will keep, and which will furnish a very material addition to the income of the farm. You may easily have two litters a year from them; and 30 pigs sold from them

whether to the house, or in the autumn after stubbling to a dealer, one set just ready for porking, and the other set (the earlier litters) just ready to put up for feeding as bacon, will be worth at least 40*l.*, a very material addition, as I said, to the income of your farm.

From my knowledge of your land I would advise your use of the Grass land for rearing young stock: you will find it neither good for a dairy stock nor for grazing, but I found it answer exceedingly well for calves and yearlings. Two cows will enable you to rear 12 to 14 calves in two or three sets (choose heifer calves) commencing as early as possible (as in February) and continuing till June. You may buy your calves two or three weeks old if possible, and they will then do very well on skimmed milk and meal strewed over cut Mangels or Swedes—which they will soon learn to suck and eat. They should have 3 quarts twice a day apiece of the milk made the warmth of new milk to begin with until they will readily feed on the meal and roots, when the supply of milk may be gradually lessened. Let me, however, just mention here, that all your success will depend on their being carefully tended, regularly fed, kept warm, and watched. If you have a careful attendant this plan will answer, indeed no plan will answer without this, whatever stock you keep for the consumption of your green food. Your cows, which would not yield milk enough for the calves if fed on the Grass alone, will do very well if they get a full meal of Italian Rye-grass brought to them at night either in the Grass fields or in the yards.

Now as to the work of the arable land; the fine dry weather which we at length enjoy will enable you to roll all the Wheat land; the heavier the roller you employ the better—and if the Wheat plant is coming abundantly forward you may harrow it also. The Clover seed should be sown at once on the 5-acre field of Wheat, leaving about an acre on the pasture side for Rye-grass to be sown in the autumn, and ¾ cwt. of mixed Clover seed will be an abundant seeding for the rest. The acre set apart for Carrots may be sown now, the sooner the better. The seed may be mixed with damp sand at once, 7 or 8 lbs. of seed to 3 bushels of sand, and turned over frequently till it is about to sprout. In the mean time the land must be heavily rolled; and as there is only an acre of it you may as well sow the seed by hand, using a line which you set out at intervals of about 15 inches, getting a man to tread the line down and shift it. The trod lines, 15 inches apart, will be a guide to a boy with a hoe who makes a shallow furrow, and a man then sows the seed by hand, mixing it with a few Oats to ensure his knowing where the row is if the seed should be long of coming, and so the plants be liable to be buried in weeds. Care must be taken to sow the whole 3 bushels on the acre; a woman rakes the rows in, and a light roller over the ground finishes the work. The 4 acres left for Mangel Wurzel should be ploughed and harrowed and picked, and then drilled up in ribs about 28 ins. wide, and the manure should then be carted on and spread in the drills, 20 to 30 cart loads per acre, according to what you can spare. Some 2 cwt. of guano per acre and 2 bushels of salt may be sown broadcast over the land when in that state with the dung exposed, and the whole then covered by splitting the drills. A light roller is then passed over the land, and the Mangel Wurzel seed, about 6 or 7 lbs. per acre, either drilled or dibbled. I have been accustomed to the latter plan; you must take care if you adopt it that the seed is not buried too deep; half an inch of covering of damp earth is enough, and it is well to soak the seed for a few days before sowing it, as the plants will come the sooner for it. If you dibble, 15 inches apart is near enough for the plants to come. The work of hoeing the Wheat has, I suppose, been done.

I hope you will not be afraid to lay out at least 20*l.* in artificial manures. The Wheat in the 5-acre piece and in the 2½-acre piece should have 2 cwt. of Peruvian guano over it; the 4-acre piece of Mangel Wurzel will want 2 cwt. per acre of guano, so that 12*l.* or 14*l.* will go in guano. The 2 acres of Oats and 2 acres of Wheat might have over the whole about 3 cwt. of nitrate of soda, and you will want about 7 or 8 cwt. of superphosphate, to give with a dressing of dung to Swedish Turnips after Trifolium and after Italian Rye-grass.

The weather for the last few weeks has just suited for Grass and Clover and your land generally, and I have no doubt that there will be leaf and Grass and straw enough this year on your farm. Take care that the manures which should be sown broadcast be properly ground or reduced to powder, and it is well to dilute them by sowing them along with an equal weight of common salt. *M. S.*

MEMORANDA FOR THE AGRICULTURAL STUDENT.—No. VII.

Cultivated Plants: (1). *Wheat.*—Chiddam Wheat is an old English variety of White Wheat, very generally cultivated in the finer Wheat districts—a free grower, tall-strawed, fine square ear, singularly free from awns—remarkably well adapted for soft, easy soils in good condition as it ripens early, is not liable to lodge or to become mildewed, Weight per bushel, seldom under 61 lbs. even in wet years, and as high as 66 lbs. and 67 lbs in dry summers.

—— Fenton Wheat observed in 1835 by the late Mr. Hope, of Fenton Barns, East Lothian—remarkably short and stiff in the straw, and from its unequal length a sheaf is generally a mass of ears from the band upwards. Although to appearance there is little straw, yet, when weighed, there is less difference betwixt it and large-strawed varieties than might be supposed in consequence of its extreme density.

—— Hopetoun Wheat, long, stiff, bright-coloured straw, more than average length of ear, which runs a little to a point; smooth chaff, free from awns, grain bright, plump, and transparent, producing a beautiful sample, weighing well in the bushel.

—— Hunter's Wheat, one of the oldest and most esteemed varieties in Scotland, discovered about half a century ago by the late Mr. Hunter, Tynefield, near Dunbar, East Lothian—largely cultivated in most of the eastern counties of Scotland, and has stood its ground against many newer varieties—remarkably well suited to medium and inferior soils, being hardy, tillering very freely in spring, and continuing its growth steadily till autumn. It has a medium length of straw and ear, the latter a little awned, and slightly running to a point; grain of a brownish colour, of a fine hard, close, flinty texture, and weighing well in the bushel, sometimes as high as 66 lbs.—later in coming to maturity than most of the White Wheat.

—— Talavera Wheat, selected by Col. Le Couteur, Bellevue Villa, Jersey, from a field of the common Talavera, and first offered to the public in the autumn of 1838. It has a characteristic ear, which is long and very thinly furnished with florets and tapering to a point; grain large, thin skinned—best adapted for sowing in spring, but not a safe variety to sow on clay soils. It is probably the best spring Wheat in cultivation for the lighter class of soils.

—— Velvet or Woolly-eared Wheat, much cultivated in Sussex and Kent; short straw, rather small, close, compact ears; chaff white and downy; grain of a semi-transparent whitish colour, flour abundant and of very fine quality. It is not prolific when sown on light land, but on rich loamy soil it yields remarkably well.

—— Lammas Red has abundance of straw, long ear, free from awns, tapering slightly to both extremities, closely set grain across, but a good deal apart vertically. Well adapted for secondary and somewhat inferior soils. Not so hardy as the common Red Wheat, and requires a climate where the winter is rather mild, such as prevails along the shores of the south and west of England.

—— Spalding's.—One of the best of all the Red Wheats; is originally from Lincolnshire, upon the fenny lands of which immense crops of it are grown. Remarkably tall, strong, and stiff, and not easily laid; ear long, square, and free from awn; grain round, plump, and of a yellowish colour; well adapted for clay soils, and for soft damp soils, situated in a Wheat climate.

—— Hickling's Prolific was in great favour for two or three years, so also were the Blood Red and Golden Drop varieties; but now the cultivation of these has been all but discontinued.

—— Piper's Thickset.—The shortest and stiffest strawed Wheat in England; thin-skinned, more particularly adapted for good land when the crop is likely to be lodged or laid. The ears are apt to break off at harvest time, if it is not cut early.

—— April Wheat, which is a bearded reddish variety, is characterised by tall, Rye-like straw, ripening well even though it lodges; ear awned and spreading, running much to a point at the upper extremity; grain longish and of a reddish brown colour, weighing remarkably well in the bushel. A very early Wheat, and can be sown any time in April, and will ripen sooner than any other variety of spring or winter Wheat.

Fingered or Egyptian Wheat is notable for its large produce, and often cultivated on small farms, where quantity rather than quality is desired.

—— Cone Wheats are cultivated to a considerable extent in the strong soils of the southern and central districts of England, where the yield is so much greater than that of any other variety as more than compensates for want of quality.

Choice of a sort is guided by consideration of climate and of soil. We should prefer among whites Fenton and Red-straw White and Talavera (the two former for autumn, and the last for March sowing). We should prefer the Spalding Red or the Bristol Red, or Browick Red for prolific sorts of red Wheat.

Fenton is especially adapted for rich lands owing to its short straw. Piper's Thick-set Red is equally suited, owing to its extremely short straw. Latterly a French experiment has been published on the policy of mixing sorts which ripen pretty nearly together. A much greater yield was obtained from the mixed seeding than from any of the individual sorts.

THE WATER DRILL.

To the farmer, March is a month of activity and bustle. He breaks away from the monotony and tedium of the winter's pursuits and engagements into active life, and finds clustering around him the many demands upon his energies and exertions which the spring invariably presents. His fields for spring cropping stretch out before him inviting the hand of the sower; and his fallow lands, designed for green crops, require no less his active efforts. It will not therefore be thought ill-timed if we offer a few observations upon the culture of green crops. Every farmer evidently seeks to realise as large a crop of roots or Coleseed for the fattening of his cattle and sheep as his land is capable of producing, and strives too to achieve all this at the smallest cost. With a variable climate like ours, and with the great variety of soils we have to till, and with the numerous diseases which peril the growth of the young plant, it becomes a question of vast moment and of daily increasing importance. Now can these evils be overcome and obviated? To solve this problem, the energies and efforts of many of our most eminent and practical agriculturists have been directed. And every farmer, in his own way, has been contending with these difficulties, and striving by every means within his reach to surmount them. The use of artificial manures has been extensively adopted, and with considerable success. So much so, that scarcely a farmer of any eminence now thinks of sowing his Mangels, Turnip, or Coleseed crops, without the application of some one or more of these many fertilisers. Chemistry, too, has here stepped in, and favoured us with her aid in discovering what are the best chemical salts to be applied for the respective crops the farmer seeks to cultivate. And we think the agricultural public owe a deep debt of gratitude to Mr. Lawes for the immense service he has rendered them by the many valuable chemical and practical experiments carried out by him and Dr. Gilbert at Rothamstead, the results of which are continually made public. Two great leading facts have been established by these repeated experiments, viz., that grain crops require chiefly ammoniacal manures, and green crops soluble phosphates to secure their largest and most successful growth. Hence the intelligent farmer learns at once what should be the chemical properties of the artificial manures he requires for the production of his different crops, and is consequently enabled to put the right manure in the right place; and this, of necessity, is economical. One further difficulty, however, still presents itself, and that is, how most successfully to apply these different fertilisers. Suppose for his root crops he uses superphosphate of lime as containing the largest per centage of soluble phosphates. How does he apply it? If he mix it with ashes or other dry material he will still experience considerable difficulty, if not an absolute impossibility, in making the drill distribute the compost equally, and we regard it as highly important that there should be an equal and uniform distribution of the manure; else, you have crops presenting an unequal and irregular aspect, one part growing with greater vigour and luxuriance than another. Here then is the practical difficulty. And the question naturally arises, how can it be obviated? We are prepared, to a large extent, to answer this question. For we have laboured under the difficulty, and have now in our own case successfully overcome it. The use of the water-drill has proved an effectual remedy. The manure after being sifted is placed in the cistern of the drill with the water. The motion of the drill is quite sufficient to thoroughly mix it; the consequence is, we realise an equal and perfectly regular distribution. But to test this more thoroughly, we have on two occasions, in sowing Coleseed, placed the seed in the cistern with the manure and the water instead of in the seed-box; each time sowing 24 rows in this way, and the result in both cases was a perfectly even plant of Coleseed, thereby clearly showing that the deposit made by the drill was regular and equal. But important an acquisition as the equal distribution of the manure may be, it is nevertheless not the only, nor even the chief advantage we have derived from the use of the water-drill. Farming as we do upon a soil which is fickle and unkind, and which is very apt, after a liberal application of manures and general good culture, to disappoint all our cherished hopes and frustrate all our designs by failing to yield us a full and regular plant, we have consequently found the water-drill of incalculable advantage. It has completely reversed the order of things. What was the rule is now the exception, and *vice versâ*. A failing plant which was of frequent is now of rare occurrence; whilst a full and vigorous plant, which was only very occasional, is now quite common. We are not, however, of opinion that the water-drill will, upon all soils and in every climate, prove equally beneficial. Upon lands naturally very fertile, and highly farmed likewise, and with a moist and genial climate, where there is but little difficulty, and scarcely ever a failure, in raising a strong and healthy plant of either Mangel, Turnip, or Coleseed, we think the benefits accruing from the use of the water-drill must be restricted and limited. But upon the other hand where the soil is fickle and unkind, and the climate dry and uncongenial, and the difficulties to raise and retain a plant at all times great and very hazardous, we think there is no remedy so simple and so certain of successful results as the water-drill. The action of the water upon the soluble phosphate of lime contained in the superphosphate occasions an immediate action upon the plant. The plant is enabled to take up and appropriate to its nourishment and growth this food so well adapted and fitly prepared for it. The result is a rapid early growth, which enables the plant quickly and successfully to pass through those stages of its existence when it is more liable to be assailed and destroyed by some one or more of its many enemies. But we have not only found an impulse given to the plant in its early growth, but have ever found it manifest an equal vigour throughout its every stage, until it has become matured. Our own experiments have shown an average of about one-third more weight of crop where the manure has been applied in the liquid form with the water drill than when sown dry in the ordinary manner, all other things being equal. Such being the results obtained during three successive seasons, we are prepared to contend strongly for the principle, and would urge its adoption upon all farmers who cultivate unkind and fickle soils. *A. S. R.*

CULTURE OF MANGEL WURZEL.

No one can have cultivated Turnips for many years in the Midland and Eastern Counties without discovering that notwithstanding our improved appliances the crop has become more precarious and less abundant. Hence it is desirable to find a substitute for the Swede in feeding our cattle and sheep which will not deprive the soil of the constituents which are necessary for the healthy growth of that root. This substitute is found in the Mangel Wurzel or Beet. The statistical returns of agriculture show how small a space this valuable root holds in our rotations; and as I think its culture must be greatly extended when its value is properly appreciated, I will proceed to state some of its advantages, and the mode of culture which has secured for me a very satisfactory degree of success.

First then, as to the amount of produce. I can reckon upon 30 tons of Beet per acre quite as surely as upon 20 of Swedes upon good Turnip land; where there is a large proportion of clay in the soil, the comparison is still more favourable to the Beet. Then, the nutritive quality of the Beet is, after Christmas, fully equal to that of the Swede; after March it is superior. Store cattle will thrive better upon 50 lbs. of Beet in addition to their Wheat straw than upon 4 lbs of oil-cake. Suckling ewes and feeding sheep will consume 14 lbs. daily very profitably. It is, however, for the milking and feeding beasts that I find its chief value, and after January I give these animals 80 lbs. daily, in addition to their hay, chaff, and 4 or 6 lbs. of corn or

cake. In the later months of the winter I give each horse in my cart stable 8 lbs. of Beet daily.

A great advantage which the Beet possesses over the Turnip is its early maturity. On those clayey soils in which it produces the heaviest crops, carting, in wet weather, is a very expensive and a very injurious operation; but the Beet being ready for harvesting in the second week of October, it may generally be got home without injury to the land. I have, this 27th of October, secured upwards of 800 loads from 22 acres, and left the land, with the tops scattered over it, in good order to be ploughed for Wheat: and it is very seldom that we have experienced a wetter October. Notwithstanding the large produce derived from this crop, the succeeding Wheat or Barley will generally be very good, if the tops are equally distributed over the land and ploughed in. For many years I have had an average of 6 quarters of Wheat to the acre in this part of my rotation, without any other dressing than 3 cwt. of salt. The Beet sends down its feeders deep into the marly subsoil. I am now engaged in carrying a drain, 4 feet deep, through part of the field on which it grew this year, in order to drain another part. I find the marl, 4 feet from the surface, full of small roots, and I have never seen a full crop where the subsoil was unpropitious as, for instance, on a poor sandy or gravelly subsoil; but Beet will derive sustenance from many tenanious clays if they are well drained.

This property of sending its roots to a great depth in the subsoil has its inconveniences. I have seen many drains 4 and even 5 feet deep choked by the roots. This will happen where there is a summer run of water, and in these situations I recommend the substitution of Cabbages or Potatoes near the drain—say for 6 feet on each side of it. The greater part of my arable land only requires drains to carry off the excess of rain-water in very wet weather, and was effectually drained, more than 30 years ago, with tiles from 24 to 30 inches deep. On this land I never see any mischief from the roots of the Beet, which penetrate far below the drains into the subsoil.

On the few acres on which this system of draining has not been effectual, I find that the plants become stunted and the leaves turn prematurely yellow, if a continued rain raises the water table too near to the surface and drowns the rootlets. Such an appearance is an imperative hint to take up the tile and put it in at greater depth. The best soil for Beet being somewhat tenacious, its cultivation requires peculiar care to secure a proper seed-bed. My rotation is as follows:—1st year, Swedes or Beet; 2nd, Wheat or Oats; 3rd, Clover; 4th, Wheat; 5th, Beet; 6th, Wheat; 7th, Beans; 8th, Wheat. If there is any Couch Grass in the land, it will be easily seen after the first mowing of Clover. If a man can dig it out of half an acre a day, let him do it with a strong fork. If there is much Couch Grass, as soon as possible after the first crop of Clover is mown break up the Clover brush with a strong grubber, such as the Ducie drag, to the depth of at least 5 inches, and there will be plenty of time to clean it thoroughly before the Wheat is sown. Keep the Wheat well horse-hoed, and in the autumn dig out any Couch Grass which may remain. Then skim the ground not more than 2 inches deep, and harrow it in the driest weather. It is now ready for the manure, of which I give 21 horse loads to the acre direct from the fold yard at the earliest opportunity after Wheat sowing is concluded.

I spread at the same time 10 cwt. of woollen waste to the acre. This mixture is covered in, when it will do well, by a 6-inch furrow—followed by a subsoil plough stirring the subsoil another 6 inches; this operation ought to be completed before the end of February. If any of those circumstances which will sometimes derange the operations of the farmer have prevented his spreading his manure, so as to get it ploughed in before the end of February, and if the surface soil is in a good state, let him sow 2 cwt. of guano broadcast, when he harrows the land to prepare for the drill, and 2 cwt. more at each of the two first hoeings; and he will, if his fortune equals mine, find a very satisfactory crop of Beet, followed by a very good Wheat crop and excellent seeds. The seed-bed ought to be in such a state that the capillary attraction will supply the seed with sufficient moisture. This condition cannot be secured on tenacious soils, unless they are reduced by frost, so that the earth is finely divided, and consequently its parts are in contact with each other.

About March 20th harrow the land, and, if sufficient reduction of the soil has not been effected by frost, roll it and harrow again till it is fine. The best seed-time in this locality is, in my opinion, from April 7th to April 10th. It is useless in general to sow it earlier, because the temperature is, I think, too low for the germination of the seed.

My experiments do not lead me to believe that this comparatively early sowing produces many more runners, and our summers are too short to admit any unnecessary delay in sowing. The seed should not be buried more than three-quarters of an inch. If the weight of the drill-coulter would put it in at a greater depth I employ counteracting weights, working over pullies fixed on a wooden rail, with great advantage. If the soil will not bed well to the seed and keep it moist, do not hesitate to roll and harrow after sowing. I have seen the earliest and best plant in the field on the track of a cart-wheel which had passed over it in leading off a ton of gathered pebbles. At the time of sowing give 1 cwt. of guano to the acre, and a second and third cwt. at the first and second horse-hoeing. My rows are drilled on the flat 21 inches apart; I endeavour to set the plants 16 inches in the row. After the second horse-hoeing I put two light horses into a grubber with five tines, and stir the soil to the depth of 6 inches. This should be done as soon as the plant is well established, lest it should break the surface roots too much; but done at the proper time it is very beneficial in promoting the rapid growth of the Beet. I give 7*s.* per acre for singling the plants and giving them an effectual second hoeing. When, towards the end of June, the leaves are too large to admit the horse-hoe, I generally give a third hoeing at 3*s.* per acre, which leaves the field sufficiently clean. If there are any material vacancies in the rows I fill them up late in May with Turnips, which are sufficiently forward to be got up early in October at the same time as the Beet. Let nothing induce the grower to strip the leaves from the plant before taking up the root; a series of careful experiments has convinced me that by so doing we borrow food at a most usurious interest. As soon as may be after October the 4th, I get the Beet up, cutting off the leaves, but leaving the neck so that it may put out young leaves. If the neck is entirely cut off the root is apt to decay. The strong roots are cut off and the dirt removed without cutting the outer skin much. A pit is prepared by removing the soil 18 inches deep and 9 feet wide; the roots are piled about 6 feet high in the centre, and covered down with stubble and mould about 10 inches thick, leaving apertures every 20 feet at the top of the pit for the escape of the heat, which, to a slight degree, is always generated in the pits. These apertures should be covered with mould when the severe frosts set in. The only insect whose attacks upon the young plant are to be dreaded is the slug. It feeds upon the seed-leaves at an early age, and, if permitted to go on unmolested, will make serious inroads, but it is easily detected by the appearance of the plant, one seed-leaf being frequently taken and the other left. The slug is at once destroyed and the crop benefited by sowing at early dawn, after a still dewy night, a mixture of 1 cwt. of guano and 2 cwt. of salt to the acre.

As to the kind of Beet to be sown, my experience leads to the conclusion that, upon very good land in a fine warm summer, a larger crop may be obtained from the Long Red than from the Orange Globe, but the latter is the hardier plant; in cold springs it germinates more freely, and I have now adopted it exclusively for my main crop. My experience of the value of this root has been so long and so uniform that I have no hesitation in calling upon my brother farmers, who are similarly situated as to their climate and their soil, to participate in its advantages. *Mr. Paget, in the English Agricultural Journal.*

INVESTMENTS IN LAND.

The last number of the Journal of the Royal Agricultural Society of England contains a paper on the "Cultivation and Tenure of Land in Scotland and the Channel Islands," by C. B. Adderley, Esq., M.P. He says, with reference to Scotland, "The sums invested by farmers in permanent improvements on certain though limited tenures, guaranteed by lease, are almost incredible. A very intelligent Tweedside farmer told me a neighbour of his, a tenant of Sir Thomas Brisbane's, had invested 40,000*l.* (including stock) on a farm of 1000 acres, for which he paid 2*l.* 2*s.* per acre. This is probably an extreme case, but 20*l.* per acre is by no means uncommon."

On referring to a few authorities in my little library, I learn that in the south of Scotland the usual period of entry to a farm is at 15th or 26th of May: there is no tenant right to pay, the whole or one-half of the dung of the preceding crop is paid for by valuation: the straw of the way-going crop which is reaped in the following autumn belongs to the in-coming tenant. The necessary buildings and drainage being provided by the landlord, a capital of 8*l.* to 10*l.* per acre is thought amply sufficient. The capital required for a farm of 400 acres in the midland and southern counties cropped in the four course shift is 10*l.* or 12*l.* per acre, but then there is a tenant right bill of 40*s.* or 60*s.* per acre. A small farm of 20 acres under spade husbandry requires 17*l.* or 18*l.* per acre. A first class London market gardener allows 20*l.* per acre for labour, 20*l.* for manure, 10*l.* for rent and rates, and 10*l.* for other expenses, interest on capital, &c., total 60*l.* per acre; with these facts before me I may be pardoned for expressing a wish shared in common with my brother farmers, to learn the names of these representative farmers on the other side of the Tweed, one of whom invests 40*l.*, and many of them 20*l.* per acre. Mr. Adderley farther remarks, "It is the necessities of the Scotch landlords" which have led to "the purely commercial system of land-letting" by public tender; without defending that system, or advocating its adoption in the south, I would merely remark that "people who live in glass houses should not throw stones." It is a notorious fact that the nominal owners of two-thirds of the land in England do not enjoy more than one-half, many of them not one-third, of the rents of their respective properties, the remainder being absorbed in paying annuitants, life rent charges, mortgages, repairs, and other rent-charges incidental to such property. Thousands of proprietors can neither improve the lands themselves nor grant improving leases to substantial farmers. The land is groaning for an Encumbered Estates Act; there was a talk that Government was about to bring in a bill to simplify the transfer of landed property; the best proof of the necessity of such a measure is to be found in a recent number of the "Law Magazine," in which the writer declares that if such a measure was to be carried one-half of the country lawyers might shut up their offices. *B. M. F.*

Home Correspondence.

Soluble Phosphates.—These phosphates seem not easy to understand, less so I think than the ammoniacal part of manures. Would you favour me by solving my doubts on the following points connected with them:—1. Does making a soluble phosphate ever mean anything more or less than treating neutral phosphates such as coprolite or bone with sulphuric acid? And if sufficient maceration be effected with a sufficient quantity of acid does not the process become necessarily as complete as it can be? From which would it not follow as a corollary that any sample which contained free sulphuric acid must, *ipso facto*, have the greatest possible proportion of its phosphates in a soluble form? If this be true, what is meant by the temptation under which makers labour to avoid the "great cost and trouble of converting the insoluble into a soluble phosphate?" 2. Is the acid in a soluble or *super*phosphate free so as to redden litmus? 3. Are we really to understand that insoluble phosphates are valueless?—that their decomposition is one of the few pieces of chemistry that the spongiole is unable to effect? 4. On treating a filtered infusion of superphosphate with ammonia how am I to know that half the gelatinous precipitate is not alumina? Would not it be very easy for a manufacturer to dissolve out the iron from a quantity of clay dry and use the same to simulate phosphates, the fraud being thus not detectible by redness of ash? On the contrary, if I find a red ash, evidently from a ferruiginous earth, on burning, is it not certain that the ammoniacal precipitate from such a sample would be increased by alumina? 5. What is the best book to purchase as a guide and interpreter in analyses of this sort?—and what the best place to procure additional apparatus? A calling I cannot quit prevents my giving six months to an agricultural or chemical college. Apologising for these troublesome questions. *Lector Canticus.* [The subject shall be discussed at length very soon.]

Thick and Thin Seeding.—So much has been said on the subject of thick and thin seeding that one hardly likes to begin to stir it in again; but still much more must be discussed before so important a question can be settled. Each year we have felt more than ever convinced of the necessity of a more rational and scientific system of seeding—for why should 12 times as many grains be seeded as there remains plants for harvest? And why should our crops be so much blighted and laid by rains and winds? The writer of the above asserts that he never seeds with more than 2 pecks to the acre, and calls himself a very thick seeder, for the land he seeds becomes so thickly covered with plants that the soil in a few months after seeding cannot be seen between the rows, still his plants never become too "winter proud," never "blighted," and never "laid or lodged." A plant of Wheat, if it is allowed sufficient room, and it be early sown, will grow as large as a cheese plate, and it will retain this shape till all danger of frost is over; then when the warm weather appears, the stems, by means of their joints, will all be lifted up to allow the sun to warm the soil, and in conjunction with the air to dry and stiffen the stem. No fear of lodging here. For further particulars of the practical experience of the author of the above, we refer our reader to a pamphlet just published by "Sigma," and sold by James Ridgway, Piccadilly, London, price 6*d.* "Sigma" is the inventor of a new hand-dibbler of no mean description, which plants the corn at defined intervals and uniform depths. The drilled Wheat in all our southern neighbourhoods in the month of February appears too thick, and sufficiently flourishing even where only 1 bushel of seeding per acre has been used; so much so, that nobody can, or does, expect one ordinary ear to be produced from each plant. In this case, what is to be done to prove more that there are an over abundance of plants? Let some of our readers mark out a piece, or stetch, in a field of Wheat, planted with the drill in the full and common way, and before April is out (though November would have been much better) let every other row be dug or forked up, and buried at full depth, with a small sized tool; choosing the two rows next the furrows to be first operated upon, thus relieving nature by removing half of the plants. The remaining half being released from their antagonists will assuredly produce a better crop than the remainder of the entire crop in the field. If it answers (which is quite certain) it will be evident that not only much seed has been wasted, but that the crop must have suffered from this excess of seed, and progress ought to be reported on for the public good. The saving of seed alone by sowing no more than is necessary is more than equal to the rent; and it cannot be very consolatory to old men, who have on an average seeded 30 acres of Wheat annually during the last forty years, to reflect that they might have saved in seed alone upwards of 1200*l.*, to say nothing of compound interest. For the future this may be saved.—*Hardy and Son, Seedgrowers, Maldon, Essex.*

Small-sized whole Potatoes for Sets.—In many cases of late years small-sized whole Potatoes have been resorted to for sets, and although this is not at all recommendable, except in cases of emergency, on account of the dearness of large ones, yet by the following practice even the smallest whole sets may be made to produce

finer Potatoes than larger ones under ordinary cultivation. From larger whole ones, however, where it can be afforded to plant them, the same practice will insure extra large sized tubers, which will astonish any one who may be inclined to adopt the plan. It is this. When the plants are about 3 inches high, or the length of one's finger, say at the end of May, let each shoot or offset be slipped off to within one, two, or three of the strongest that can be chosen, and the result will be as we have described. In short if this practice was generally adopted, nearly the whole crop would prove full sized and more in measure, though less in number, both early and late varieties; and that it would soon be generally admitted that the largest Potatoes for sets are not absolutely necessary, except they are intended to be cut into sets, which are not so certain to keep from rotting when planted early as whole ones. *Hardy & Son.*

Milk for Fattening Pigs.—Will some of your readers, whose attention has been drawn to the subject, be good enough to supply particulars of the value of milk as an article of food in fattening pigs? It is desired to ascertain its relative value—say a gallon of milk is equal to a certain number of lbs. of Barley or Bean-meal of the ordinary quality—and the best mode of making use of it. Milk as taken from the cow is referred to, and not skim milk. Local circumstances or other considerations would influence the decision with regard to its use for the purpose indicated; the real point in question being whether a better use could be made in a given case of Grass land than that of producing milk to be so disposed of. Of course other kinds of food would be employed. *W.* [It can never be your interest to give to pigs milk "as taken from the cow."]

The Classification of Fat Stock at Exhibitions.—The following sentences, which form part of the report on the Agricultural Show at Poissy in the *Gazette* of last Saturday, may probably, although I am sure unintentionally, lead to some misapprehension. "The evil complained of at the Midland Counties Cattle Show, where age alone guided the classification—and 2-year old, 3-year old, and 4-year old Devons, Herefords, and short-horns competed together for the prizes—that impartial judgments were impossible, and differences of breed rather than differences of intrinsic merit did after all determine the awards, is here immensely aggravated. The object of such a gathering ought to be not the discouragement of any breed, but the encouragement of all, and therefore the animals of each breed ought to compete with each other exclusively." At the annual shows in Birmingham the classification of stock by breeds has always been carried out for the general prizes, although there has been a competition between the winners of all breeds—oxen and steers and cows and heifers—for extra prizes and gold cups. The Midland Counties Society, in fact, set the example of this improved classification for the purpose of establishing the principle so clearly enunciated in the above extract, which the Smithfield Club were not slow to follow, and the change was considered so important as to be pronounced in the leading columns of the *Gazette* "an invaluable reformation." At the same time, in the classes for our principal pure breeds—Herefords, short-horns, and Devons—animals of all ages do not compete against each other in Bingley Hall, there being separate classes for steers not exceeding three years and three months old, and for steers or oxen above that age, as well as classes for cows and heifers. *W.*

Foreign Correspondence.

CATTLE MURRAIN: *Wilhelminadorp, Goes, Holland, April* 18.—You are very right greatly to fear the importation of the cattle murrain in your country. Notwithstanding the strictest precautions, this disease seems to have been imported from Poland to East Prussia. In Holland and Belgium the disease is, fortunately, entirely unknown until now; and it would, indeed, be rather mysterious how it could reach our country without traversing the enormous distance that separates us from East Prussia. From the East Prussian ports no cattle are ever transported to Holland. We have exportation, and no importation. The only way would be if any cattle were to be introduced across our frontiers, especially from Hanover; but our cattle are in general so much superior that we can never wish for any from there. It is my opinion, therefore, that at this moment you need not entertain the slightest fear of contagion from this country. The disease is so entirely unknown that, as yet, it is not dreaded here. Our cattle, however, constitute such a considerable part of the national wealth, that no doubt the greatest attention would be paid to the question if the danger was not considered at such a vast distance as not to be threatening until now. It is a very good and necessary plan for a country of importation, as yours, to take salutary precautions respecting the cattle from the ports that are situated nearer the infected country. The cattle murrain is a fearful disease. During this century it has but once been observed in this country, and that was by the cattle of the Allies, when they entered Utrecht in November, 1813. The severest measures were then immediately taken; at the slightest suspicion the animals were killed; around the city of Utrecht a separating line was drawn and watched for several months, over which no cattle were allowed to pass; and by these means the evil was suffocated at its very birth, and our cattle herd has thus been preserved. *T. G. J. v. d. Bosch.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND, *April* 22.—In the absence of the official report of this meeting, we can only intimate that among other topics which came under discussion, a note was read "On the Deposits of Guano on the Curya Murya and some other Islands," by J. C. Nesbit, F.G.S., and Principal of the Agricultural and Chemical College, Kennington. It gave the analyses of three samples, indicating the presence of 2·48, 4·18, and 4 per cent. respectively of moisture—39·95, 14·42, and 10·85 per cent. of silica—15·29, 4·70, and 3·05 per cent. of the phosphates of iron and alumina—13·95, 43·40, and 63·85 per cent. of phosphate of lime—4·17 and 4·5, in the first and third samples respectively, of alkaline salts—19·26 and 6·2 of hydrated sulphate of lime in these two samples respectively—and nitrogen equal to 0·86, 1·8, and 0·86 per cent. of ammonia in the three samples. Mr. Nesbit calculates the value per ton of these guanos to be 3*l.* 6*s.* 10*d.*, 6*l.* 5*s.* 1*d.*, and 6*l.* 3*s.* 5*d.* respectively. He says these samples were taken from the Curya Murya Islands in 1855, and forwarded *viâ* Bombay, which may account in some measure for the small amount of moisture which they contain. It is apparent that these guanos have suffered much from rain, as the amount of ammonia is small, and they have also received an admixture of earthy matter, probably owing to the sandy nature of the coast. No. 1 is particularly bad in this respect. No. 2 differs from No. 3 in containing more sandy matter; but both these, if the expense of importing be not too great, might do very fairly for root crops. It is said that some samples have been found which have not been much exposed to atmospheric influence, and which contain therefore a large amount of organic matter and ammonia. The organic matter present in the samples subjected to analysis by Mr. Nesbit amounted to 4·44, 14·42, and 10·85 respectively.

These analyses do not give so encouraging an idea of the Arabian guano as has been hitherto entertained.

TAUNTON.—At a late meeting here Dr. Voelcker gave a lecture *On the Composition of Farm-yard Manure.* He said:—

There was first, as a large constituent, water—from two-thirds to three-fourths; and the dung on which he made the experiment was rather drier than usual. The solid matter contained a great variety of substances—soluble organic matter, consisting of carbonaceous substances, and those containing nitrogen; and mineral matter—soluble silica, phosphate of lime, potash soda, chloride of soda, and so on. The same contents existed in the insoluble portions; and this was the reason why the manure remained efficacious for a considerable time, and that its fertilising properties were not spent at once; there was a great deal of organic and inorganic matter which gradually became soluble and valuable to the growing plants. One constituent, he had observed, was phosphate of lime, of which the rotten dung contained a much larger proportion than the fresh, the insoluble phosphate of the fresh manure becoming soluble when it entered into the state of fermentation. He would next direct attention to the changes undergone in the dung pit. When thrown into a heap, the manure soon heated, and an active fermentation commenced, the peculiar character of which was that it was caused by the nitrogenous substances. It affected the litter as well as the excrements; and ammonia was produced in considerable quantities. The straw and other substances, consisting chiefly of carbonaceous matters, were also changed, but the basis of the carbonaceous substances was of a totally different character from ammonia; they had a peculiar acid base—the ulmic and humic acids, which had a brown colour when in combination with ammonia, potash, soda, and the alkalies; it was in consequence of the formation of these brown acids, which were found in peat and all decomposing vegetable substances, that the drainings were of a brown colour. Moreover portions of organic matter became changed into vapour; and carbonic acid and other gaseous products were formed: that was to say, a large proportion was volatilised and lost. Of the ammonia, under careful management, very little need be lost. The peculiar smell that was given out by manure heaps arose not so much from the escape of ammonia as from other volatile and extremely fine animal secretions. A very small quantity of these exhalations produced a most powerful smell, and the whole amount of them might be so little as to defy the most delicate test. It was a common mistake of many theoretical farmers, that farm-yard manure must necessarily give off a large quantity of ammonia. It was by no means the case. They would observe that one of the changes which took place in the manure was that in the fermentation the soluble organic matter became doubled, and the nitrogen or stimulating matter increased very rapidly, becoming in the experiment he tried instead of ½ per cent. nearly 1½. Hence it was that the rotten manure was so much better for forcing and bringing on crops, and this was the reason for almost every agricultural practice that was based upon true and well established experience—an experience that was followed by the body of farmers. The fresh manure did not contain sufficient nitrogenised substance to force on the plant rapidly; and in the cultivation of roots, which had only a few months to bring them to perfection, it was necessary to prepare the manure, so that it might immediately exercise its fertilising effect. Hence it was desirable to keep a portion of the manure for root crops and to ferment it well. To show the change that took place in the manure in a year, he had 28 cwt. put up in the usual way, and weighed every three months. The first three months, from November to February, the soluble organic matter increased from 7 to 12; by this time it had reached its maximum state of ferment: it was no longer in an active state; but subsequently the soluble matter decreased, and from August to November it lost very considerably. The soluble mineral matter also increased the first six months, and then fell off again, showing the effect of the fermentation in rendering the mineral and organic matters soluble; but that when they became so there was a danger of rain washing them out. The same appeared also by reference to the insoluble mineral and organic matters, which decreased steadily; but perhaps it would appear more clearly by stating the change produced in the entire heap, and which showed how rapidly it would decrease and waste even when it was kept in a tolerably good way. The quantity of dry manure used in the experiment was 961 lbs., and it was better to take the dry manure, as the quantity of moisture was very variable. In the course of six months 961 lbs. became reduced to 689 lbs. and only 507 lbs. were left at the end of the year. The soluble organic matter at first was 70 lbs., in the course of six months it became 86, but exposure to rain reduced it in three months to 50 lbs. If they inquired into the nitrogen, they arrived at the important result, that as long as rain could be kept away, it was not sensibly diminished, even in the most active stage of fermentation. The fresh dung when put up contained about 18 lbs. of nitrogen. After fermentation it was nearly the same, but when it became exposed to the rain a large proportion was washed away, and the manure became much poorer. Instead of 18 lbs., at the close of the experiment there was less than 13. Hence the fermentation of dung ought not to be carried on beyond a certain period, and when fermented great care ought to be taken to preserve all that was valuable in it. It should be kept in waterproof pits, supplied with tanks. It was important that the tanks should be water-tight, and he had examined manure which, for the want of this, had become little better than rain water. In reference to ammonia, the best fixers of it were produced in fermentation, and the use of gypsum, green vitriol, or of any chemical means to preserve it was unnecessary. It was another thing if the manure was turned continually, for then the ammonia would escape; but let it alone, and it would take care of itself. It was only in the interior of the heap that it was formed. Where the temperature rose to such a pitch that they could not comfortably put their hand in, they would have free ammonia; but in escaping from that portion of the heap in which it was formed, and passing through the outer layers, it became fixed again. The turning of manure certainly did hasten decomposition, but it occasioned a considerable loss of a valuable constituent, and he would offer them the practical suggestion to avoid turning it more frequently than they could help.

NEWCASTLE: *The Utilisation of Newcastle Sewage.*—Mr. J. D. Ferguson read a paper on this subject, from which we make the following extracts.

In the neighbourhood of Stirling, the late Mr. Smith, of Deanston, tried an experiment with the sewage water of the town. He laid out portions of land of a light loamy soil in equal divisions. The first portion he manured with ashes and farm-yard dung, at the rate of 12 tons per acre, which cost 48*s.* The second portion was done with compost at 16 tons per acre, which cost 64*s.* The third division was manured with two cwt. of guano, which cost 16*s.*; a fourth division with four cwt. of guano, which cost 32*s.*; and a fifth division was manured with the sewage water alone at the rate of 16 tons per acre, of which, if calculated at 4*d.* per ton, the expense would be 5*s.* 4*d.* The average produce of the first four divisions manured with farm-yard dung, compost, and guano was at the rate of 46 bushels per acre of marketable Barley. The division dressed with the sewage water alone produced nearly 43 bushels per acre, and although this division was manured twice with the same quantity, (*i. e.* 16 tons per acre) which cost little more than 10*s.*, yet the produce was nearly as much as the others at three and four times the cost. At Clitheroe, in Lancashire, Mr. Thomson was induced to try the effect of the sewage water of the village, mixed with the soap suds of a bleach work in the neighbourhood, on some of his pasture land. He also tried 3 cwt. of guano, and the divisions being of equal extent, he found on the portion dressed with the sewage very nearly double the quantity of Grass than that done by guano. It has been proved that the night urine of two adult persons, mixed with ashes to make it applicable, is sufficient for an acre of land, for an experiment having been tried it was found on making the calculation for one year, that one acre would produce 27 tons of Turnips, while 4 cwt. of guano applied to the same quantity of land would produce only one ton more, or 28 tons. At the town of Mansfield, the population of which is about 10,000 or 12,000 inhabitants, very extensive experiments were made some years ago by the late Duke of Portland, and the results were wonderful, as land in the neighbourhood of that town which, at one time, would not let for more than 5*s.* or 6*s.* per acre per annum now lets at from 12*l.* to 14*l.* per acre, in consequence of the sewage water being diverted by gravitation over the Grass lands. Professor Anderson, the able chemist of the Agricultural Society of Scotland, says, after a most careful analysis of some of the Edinburgh sewers, "that little more than one-sixth of the whole value is contained in the insoluble parts of the sewage, the other five-sixths existing in solution, and it is therefore obvious that, unless the plans by which the sewerage water is to be rendered available make use of that part which exists in solution, they must be of little value, and a very little consideration will enable us to see that it is exactly in this respect that all the plans for converting it into a dry and portable manure are defective." He also says that "ammonia, the most valuable constituent of a manure, cannot be precipitated by any process whatever, except such as are altogether precluded by their expense, still new patents are constantly being taken for doing what is impossible." The same gentleman alludes to the subject again in another paper, in these words, "I have seen no reason to alter the opinion expressed in a previous number, that if sewage is to be employed at all, it must be used *in toto* as liquid manure." Professor Way, the distinguished chemist of the Royal English Agricultural Society, confirms the above in every particular, proving without the shadow of a doubt that the insoluble or solid parts of the sewage of towns is of little value when compared with the supernatant water, or what is held in solution; and says, in an essay recently published by him, "in neglecting the liquid, we lose by far the largest proportion of manuring matter, and I think it possible to show that the collection of the solid matter will not, at the price which the product is agriculturally worth, be a paying speculation." A Mr. Oliver, a noted farmer near Edinburgh, who tried the solid manure of the sewage as an experiment, after being precipitated, wrote to Dr. Granville in London some years ago these words, "I care nothing for the solid, I would not give a fig for all they could give me in Edinburgh, but the water containing the soluble parts is of great value." In respect to Newcastle, the town, which is exceedingly well situated for effectual house drainage, is built on a steep sloping bank on the N.W. of the Tyne, and at present, it is understood, contains a population of about

90,000 inhabitants; the houses and streets occupying an area, exclusive of the suburbs, of about 880 acres. I compute the quantity of yearly sewage discharged into the Tyne at only 2,600,000 tons, irrespective of the water used for public works, &c., and which (if this scheme was carried out), ought to be conveyed direct to the Tyne in drains made for the purpose. This quantity of sewage will suffice for thoroughly manuring 13,000 acres of land. I am of opinion that this immense quantity of sewage ought to be conveyed to one place, by intercepting the sewers near their outlet, making a large main sewer parallel with and at 10 or 20 yards from the river as may be practicable, into which all the others would flow down the quay to a point about 250 yards below the confluence of the Ouseburn with the Tyne. There three large tanks ought to be made, into which this main sewer, which would be 3500 yards in length, would discharge itself, and at this place a powerful steam engine would require to be erected for the purpose of lifting or pumping the sewage up the bank along an iron pipe which would be laid under the surface, and which would lead up to Byker Hill. The sewage would be forced up one pipe into a small tank at the top of a tower on the hill, and then by its own gravitation flow down the other, so that sufficient head pressure would be obtained to deliver it by jet 6 miles to the north of Newcastle, and by small pipes diverging right and left upwards of 2 miles on each side of the Newcastle and Berwick Railway, along one side of which the main pipe might be laid. The distance of 6 miles into the country by upwards of 4 broad, would comprehend an extent of 25 square miles, which would be fully more than sufficient to consume all the sewage of Newcastle, according to the present population, allowing annually 200 tons (in which there would be about 8 cwt. of rich manuring matter) to each acre of arable land. For such a scheme as this, the assent and co-operation of the proprietors and farmers of the district proposed to be irrigated would be necessary before anything was done; but there is scarcely a doubt that all would be willing to take a liberal supply at, say at least 2*d.* or 2½*d.* per ton. The following however, which I have taken every pains to obtain, may not be far from an exact estimate of the cost.

Main sewer, parallel with the Tyne, 3500 yards in length, including slight alteration of the present sewers, which would flow into it at 4*l.* per yard at an average	£14,000
Three large tanks, each 45 feet in diameter, and 40 feet deep, at 1300*l.* each	3900
Houses, sheds, and works	2300
Steam-engines, boilers, and pumps	3100
Windmill tower on Byker Hill for stand pipes, with alterations	1000
Main and distributing pipes, &c., say	37,000
Land and house property to be bought, act of Parliament, &c., say	5000
Contingent charges, at 5 per cent.	3315
	£69,615

I assume 13,000 acres for the sewage manure, and suppose each occupier takes, at an average, 200 tons per acre annually for his land, and to throw over his dung heaps, and calculating that quantity at only 2*d.* per ton, there would arise the yearly revenue of upwards of 21,600*l.*, and that without taking into account the value of the silt or solid manure, which, I assume, may be equivalent in price to the yearly waste of the sewage. The yearly working expenses, however, must be deducted from the above sum, as well as 4 per cent. on the capital. These I estimate as follows, viz.:—

Amount of yearly revenue as above		£21,600
Steam engine, fuel, &c.	£2120	
General repairs, &c.	1700	
Attendance and management	3300	
Depreciation of works, pipes, and hoses, &c.	2200	
Rates and taxes, &c.	1200	
4 per cent. interest on 69,615*l.*	2784	
		13,304
		£8296

It appears, therefore, that the sum of 8296*l.* would be the clear yearly revenue which would arise from this scheme, which is upwards of 11½ per cent. on the capital, and which by good management I have no doubt after a time might be realised.

Reviews.

How to Farm profitably, particularly on Stiff Heavy Clays. By Mr. Sheriff Mechi. Longmans.

It is not till the reader reaches the conclusion of this pamphlet that he understands it to be Mr. Mechi's farewell to publicity as an agriculturist:—

"In conclusion, having proved my case, and exposed my farm for many years to public inspection, it is now my intention to sit down quietly and enjoy the privacy of agricultural peace and plenty."

The pamphlet itself is a characteristic specimen of its author's style. Abrupt assertions on unconnected subjects follow one another—most of them amusing because they relate so innocently to points with which every one has been long ago familiar; a few of them striking as being exceptional if not unique in agricultural history;* all of them illustrative of the unbroken confidence with which the writer teaches the lessons of 14 years at Tiptree to agriculturists everywhere.

These 14 years have, we believe, been spent usefully by Mr. Mechi amongst agriculturists. Whether the influence of his farm has been felt directly on the farms, for instance, page 11, where he says, "Practically, I do not lose one sheep per year on the average of the last 15 years, although I fat 300 to 400 annually."

undoubted agricultural progress of the period in any instance capable of being pointed out or not whether his advice, given always with amusing resolution and unhesitating confidence, has been acted out upon his own farm with that profit to himself which is the only test of its trustworthiness or not—there can be no doubt that the general tendency of the influence he has exerted has been good. His continual exposure of what is faulty, even though everybody had long before admitted it, was not without effect; the discussions which he led so energetically and maintained with such exuberant good nature at farmers' clubs and agricultural meetings brought many a subject prominently into notice which needed ventilation; and though we by no means admit that Tiptree practice has in its results taught us "how to farm profitably, particularly on stiff heavy clays," yet the principles on which Mr. Mechi's practice has been based are in the main no doubt trustworthy, and have been profitable in other hands as well as his for many a year. What these are appears from the following list of what are called

"*Essential Preliminaries to Profitable Farming.*—(1) a thorough knowledge of your business, practical and theoretical. (2) ability to buy in the cheapest, and sell in the dearest market. (3) to select the most able workmen of industrious and honest habits. (4) to choose as your bailiff a man of forethought, integrity, and firmness, combined with great industry and keen perceptive powers. (5) to apportion rightly your land and capital. (6) to maintain in economical efficiency the motive power, whether horse or steam. (7) deep, frequent, and clean cultivation. (8) drainage of land not naturally filtrative. (9) shelter for stock. (10) efficient machinery and farm implements. (11) ample use of purchased food and manures. (12) rigidly correct farm accounts, posted daily from the cash book and journal. (13) estimates of the cost and return of each crop in detail."

This list might well be quoted as an illustration of Mr. Mechi's teaching, both as regards its vigorous assertion of rules and lessons long taught before, and as regards its inexact and even illogical use of the terms which he employs. If there were any need for it, we could give many instances to prove that, however desirable any or every one of these preliminaries may be, hardly one of them is absolutely "essential" to profitable farming. As regards (1) for instance, there is many a money-making farmer who has not a "theoretical" knowledge of his business; (2) is very loosely expressed, if only meant, as it ought, to signify the possession of good market ability; and so with others. (11), (12), and (13), *as expressed*, are not "essential preliminaries to profitable farming," though most of them, in so far as they indicate particular qualifications in the farmer, are useful, and will help to make his farming profitable.

But leaving this general statement of Mr. Mechi's views, let us take, as illustrative of his present work, its treatment of a single topic on which he speaks:—

"*The Quantity of Meat made on a Farm per acre.*—By asking a few questions of a farmer I can almost immediately arrive at a conclusion as to his position, without visiting his farm. The first question would be, 'How much meat do you make per acre, over the whole acreage of your farm?' This question has been solved by Mr. Thomas Dyke Acland, in the Royal Agricultural Society's Journal, vol. xi., page 666. There it will be seen that the largest corn-growing farmer in Norfolk, a most successful man, produces 4½ score of meat on every acre of his land; compare this with the general average of the farms of this kingdom, which certainly do not produce 1 score lbs. of meat per acre. The more meat you make the more manure you produce, and the more corn you grow. The common labourer is the best evidence on this point; with his one-eighth of an acre of ground he knows that unless he keeps a pig to make manure, he cannot expect a crop. Therefore he fats one pig, which consumes 3 sacks or 12 bushels of Barley-meal, which, at 7 lbs. of meal to 1 lb. of meat, would be 84 lbs. of meat, or four score on the one-eighth of an acre, or over 32 score per acre.

"It has often been remarked that, amidst miserable land and wretched farming, the labourer's cottage-garden is like an oasis in the desert; but when I show that independent of deeper cultivation, it receives in manure 32 times the farmer's quantity, the contrast need no longer be a matter of surprise. Of course the farmer who makes the largest quantity of meat obtains a proportionate amount of manure, and of produce.

"Some years ago, when good Danish Barley could be had for 19*s.* a quarter, I fattened an immense quantity of pork and other meat, equal to at least 20 score per acre. The farm has never forgotten it, and as I made so much manure when corn was cheap, I have been enabled to grow large crops during the late high prices; thus justifying the calculations I made in my celebrated balance-sheet. I seldom make less than 10 to 13 score lbs. of meat per acre over the whole farm; it is the key to good crops.

"Assuming that 7 lbs. of Beans or oilcake will make 1 lb. of mutton, it would pay a farmer well to sell his Beans to his sheep at 40*s.* per quarter, because that price is about 1*d.* per lb., and mutton at 7*d.* per lb. would pay for 7 lbs. of Beans. The Beans thus remain on the farm; but even supposing that you give to your sheep 4 quarters of Beans per acre, and that you lose 10 per cent. by them, or 16*s.* per acre, I am prepared to prove that in the corn crop that follows the increase will be at least 3*l.* per acre beyond the sum that would otherwise be realised.

"I know a farmer, within a few miles of me, who always allows his 1500 fattening sheep 1 lb. of Beans per diem when feeding in the field; the consequence is a general and progressive enrichment of the soil, which almost compels him to take an extra corn crop to tame the land. In my own case I generally on one field, annually, which has become saucy, take 5 or 6 quarters of Rivett Wheat per acre after a similar crop of ordinary Wheat. The farmer to whom I allude takes green Rye after Oats; Rye fed off with sheep eating Beans; then Turnips, put into little mounds, and fed off in February and March with sheep eating Beans; then Barley with seed; then Clover once mowed, and then fed off with sheep eating Beans; then Wheat followed by Oats, which completes the rotation—thus growing three corn crops, one root crop, and two green crops in a course of five years, with an increasing fertility. The fact is, the poverty-stricken principle of a lot of hungry, half-starved sheep *growing* into money, and exhausting the land, is a miserable and ruinous plan, and the time will come when our Welsh and Irish friends will fat more at home, rather than supply us with the heart of their land in the shape of lean stock."

"*Pigs.*—Few people have fattened more pigs than myself, or more successfully. Cooking meal for pigs in cold weather is desirable, but I have always depended on summer fattening as the most profitable, the carbon of the food going to make fat instead of heat. In winter pigs having no wool are not so profitable to fatten; sheep do better then. Of course the price of corn and pork must be considered—when a lb. of pork is worth 7 lbs. weight of Barley, or Peas, you may safely go largely into fattening.

"I have had 300 to 400 pigs at one time for several years, and never had disease, but if you litter them on straw, and have many, they will get heaves, or lung disease.

"Mine have been on open sparred floors, so that air always circulated under and around them, and the atmosphere did not become putrescent, which is almost sure to take place on straw, especially if soft or Barley straw.

"Good strong reedy Wheat straw, frequently changed, is a good thing, because the air circulates under the animals amongst the straw, but there is nothing like boards. Beans alone, and Lentils alone, will give pigs cramp when confined. If soaked 24 hours before giving them, I am told they will not do so.

"I knew a farmer who manured his Grass land by sowing every day so much land with Beans broadcast.

"The pigs were turned in, and regularly picked up every Bean, and manured the land so sown. By repeating this daily he regularly manured all his field. This is cheaper than the dung cart. It is the filling, carting, turning over, re-filling, carting, and spreading, and wasting, that run away with the farmer's profit.

"Nothing like the sheep-fold or pig-fold; washing the manure away by buildings' water is absolute ruin."

As to the profitableness of meat-making, though there is no doubt of it *now*, it is a question entirely of the state of the markets. The quantity of meat made per acre may be a pretty safe indication of the fertility of the land, and of the fertilising character of its management; but of the profitableness of its management it is no necessary indication whatever. We know stiff clay land which has been rendered profitable solely by the introduction of the Teazel crop, which yields food neither for man nor beast. Fourteen years do not seem time enough to teach the undoubted truth, that however generally applicable certain principles are in agriculture, success in the business of farming depends more than anything else on the adoption of local expedients, and the adaptation of them to the circumstances of the time and of the place.

Notices to Correspondents.

AGRICULTURAL SOCIETY, 1858: *L M.* The city and county of Chester have subscribed £4500 to secure the meeting there; £1500 form a direct contribution to the funds of the Society for the year, £1500 will be devoted to premiums offered by the local committee, and £1500 remain unappropriated to meet unforeseen expenditure.

BATH AND WEST OF ENGLAND SOCIETY: *F R S.* The following is the list of the Essays for the ensuing year:—(1) on cider, in its moral, social, and economical effects. (2) 20*l.*—For a report on the best and most suitable buildings for a farm of not less than 150, or more than 300 acres. (3) 20*l.*—For a report on a West of England farm. (4) 10*l.*—On irrigation. (5) 10*l.*—On orchards. (6) 15*l.*—On sheep. (7) 10*l.*—On the respective advantages of carts and waggons. (8) 10*l.*—On any other agricultural subject. (9) 10*l.*—On any chemical subject connected with agriculture.

CATTLE MURRRAIN: *J N.* The fatal character of the disease is illustrated by an instance quoted by Mr. Gamgee in the *North British Agriculturist*, in which of 2197 animals infected in Bohemia in 1845, 1122 died, 945 were destroyed, and only 115 recovered.

CHANGE OF METROPOLITAN MARKET FROM FRIDAY TO THURSDAY: *J F.* A petition was presented to the Court of Common Council, last week, urging the alteration of the day.

FRENCH BEANS: *S P* The meal of French Beans is wholesome. We do not, however, know of any cases in which it has been used. Perhaps some of our correspondents may advise you from the result of their own experience.

GRASSES: *Constant Sub.* For a stiff loam about 45 lbs. an acre of the following seeds:—8 to 10 lbs. of the Italian and common Rye-grasses, 2 or 3 lbs. each of three of the best Fescues, 2 lbs. of Timothy Grass, 2 lbs. of the Foxtail Grass, 3 lbs. each of the rough and smooth-stalked Poas, 4 lbs. of the Cock's-foot Grass, and 5 or 6 lbs. each of Red and White Clover.

MANURE: *X Z.* The "quality" of a manure depends simply on that of its constituent parts. Dung does lose its valuable "qualities" by exposure to the air, but that way of expressing it is liable to mislead or at least to mystify. Dung never loses quality except by losing quantity. They are actual material particles possessing weight which fly from it, or which flow from it under mismanagement; and the distinct and definite idea that so much matter has gone which, if built up in the plants, would have added to their produce, is one which it is well to have firmly fixed in the mind.

PIG-FEEDING: *S* asks for information in the columns of our paper as to the pork that may be expected from the use of a

bushel of Wheat in pig-feeding. Many farmers in the north of Scotland prefer turning their Wheat to that use. Mr. Huxtable gives in his pamphlet, "The Present Prices"—10,152 lbs. pork—as the produce of 54,000 lbs. meal, bran, and pollard. We can find no other record of such experience.

Pigsties: *A E.* There is no great difficulty or room for ingenuity. It is well to have a gangway under shelter, from which to fill the troughs in the sheds. And a series of sties may be formed under one shed, the feeding troughs being reached from a gangway to which access is had from the end where the food is stored and prepared.

Prices at Paris: *J L Z.* The following are among the prices obtained for the cattle shown at Paris. The Duke of Beaufort's shorthorn, which gained the first prize, 80*l.*; the second and third prizes by Messrs. Beveridge and Gulland, 48*l.* and 46*l.*; Mr. R. Stratton's white ox, 70*l.*; Lord Leigh's ox, 56*l*; and Mr. Tuck's ox, 56*l.* In the Devon classes, the Earl of Leicester's ox, 28*l.* Of the polled breeds, Mr. J. Stewart's ox, 34*l.*; Mr. W. M'Combie's ox, 35 months, 39*l.*; ditto, 4 yrs 4 months, 64*l.*; ditto, 48 months, 56*l.*; Mr. J. Stewart's ox, 4 yrs 1 month, 52*l.* Highland Breed: Mr. T. Knowles's ox, 48 months, 32*l.*; Duke of Beaufort's ox, 4 yrs 7 months, 45*l.* Crosses: Mr. J. Dudgeon's ox, 36 months, 50*l.*; Mr. J. Martin's ox, 4 yrs 11 months, 60*l.*; Mr. J. Stewart's ox, 39 months, 45*l.*; ditto, 38½ months, 48*l.*; Mr. Wemyss' ox, 48 months, 52*l.* Mrs. Sarah West's Cotswolds were sold for 4*l.* 12*s.* a head; and Mr. J. K. Tombs' for 3*l.* 12*s.* Mr. J. Stewart's Southdowns brought 3*l.* 12*s.* 6*d.* each; Mr. Robertson's Cheviots, 4*l.*; and Mr. Scott's 2*l.* 12*s.* each. Mr. J. Stewart's Blackfaced sheep were sold for 3*l.* 12*s.* 6*d.*, and Mr. J. H. E. Wemyss' for 3*l.* each. Mr. J. Druce's Down Cotswolds sold at 4*l.* 8*s.*, Mr. Tombs' Southdown Cotswolds at 3*l.* 8*s.*, and Mr. J. Stewart's Southdown Leicesters at 3*l.* 9*s.* 2*d.* each.

Produce of Butter: *X.* The relation of the food given to the quantity and quality of the milk produced is brought out very well in the following table, extracted from a paper in a recent number of the Journal of the Albert Institution.

No. of experiment.	No. of cows.	Date of commencing with experiment.	Date of finishing experiment.	Kind of feedings which cattle received.	Produce. Gallons of milk	Quarts of cream	Pounds of butter	No. of quarts of milk to produce a quart of cream.	No. of quarts of milk to produce a lb. of butter.	No. of quarts of cream to produce a lb. of butter	Observations.
1	5	21 May	27 May	Clover and Rye-grass, with a few hours' grazing	89¾	30½	30	11.7	11.9	1.1	It took an average of 10¼ quarts of milk to produce a quart of cream, an average of 12 quarts of milk to produce 1 lb. of butter, and an average of 1½ qts. of cream to produce 1 lb. of butter. The average yield of butter from each cow was 154 lbs., the average price per lb. 9¾*d.* The milk vessels used were earthenware (glazed); the milk was left setting for 36 hours in summer, and 48 hours in winter; the cream was churned once a week.
2	7	22 June	28 June	Winter Vetches, and grazing as above ..	122¼	41	39¾	11.95	12.32	1.2	
3	6	21 July	27 July	Clover and Rye-grass, second cuttings ..	96¼	27	26¼	14.29	14.7	1.2	
4	6	19 Aug.	25 Aug.	Cabbages and grazing	87	31	26	11.22	13.38	1.19	
5	6	23 Sept.	29 Sept.	Clover, third cuttings	74	28	28	10.57	12.86	1.21	
6	6	19 Oct.	25 Oct.	Mangel Wurzel leaves and dry hay	50¼	23	15¼	8.78	13.3	1.48	
7	6	22 Nov.	28 Nov.	Mangel Wurzel leaves and dry hay	40¾	20	15	8.15	10.86	1.33	
8	6	13 Dec.	19 Dec.	White Turnips and Barley straw ..	33¾	19¼	14¼	6.92	9.47	1.36	

Rates: *C Wn.* We believe that they must be always prospective of the payment of expenses hereafter to be incurred.

Steam Ploughing: *L B F.* Mr. Smith of Woolston lately received a large company at his place to witness his method of cultivating land by steam power. His implement is a cultivator, and the operation of it costs about 5*s.* 2*d.* an acre.

Superphosphate: *An Old Subscriber.* You shall have full information in another week.—*Tyro and Lector Canticus.* Pray wait for a week.

Superphosphate of Lime: *Machynlleth.* Superphosphate of lime becomes ordinary phosphate when mixed with lime, but so it does when mixed with ordinary soil. The advantage derived from its having been superphosphate being that a very great fineness of division is thereby attained for it in the soil. You may lime your land first and spread superphosphate for the Turnip crop afterwards, without fear of its being any more injured than it would be had there been no lime in the soil.

The Turnip Beetle: *X Y Z.* The following account of them was given by Mr. Morris, of Burney Grange, at a late meeting of the Loughborough Agricultural Society:—"The female, which is larger than the male beetle, lays but few eggs, compared with other insects; it requires a period of about 30 days to carry the animal through its various stages up to the time when it becomes a perfect beetle again—viz.: It remains an egg 10 days, a maggot six, and a chrysalis 13 days. The eggs are deposited on the under-side of the Turnip leaf; and when they become maggots, they immediately begin to eat through the lower skin of the leaf, and form winding burrows by feeding on the pulp. They are full fed in about 16 days, when they desert these burrows, and bury themselves not quite 2 inches below the surface of the earth, where they become immovable chrysalides, which are brought to maturity in about a fortnight, when the beetle—or fly, as it is called—emerges from its tomb again, to fulfil the laws of Nature. One pair of these insects produces five or six broods in a season. They are rather long-lived, and are found, during the inclement months of winter, under the bark of trees, and similar sheltered places, in a torpid state.

Veterinary College: *J C H, Sussex.* If you chose to send live or dead animals, *free of cost*, to the Royal Veterinary College, Great College Street, Camden Town, they will, *free of cost*, report on the same to you.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

SHEET GLASS FOR ORCHARD HOUSES, ON MR. RIVERS' PLAN.

JAMES PHILLIPS AND Co. have the pleasure to hand their present reduced prices of Glass for Cash:—

SHEET GLASS, Packed in Boxes containing 100 Feet.

6 by 4, and 6½ by 4½ .. 12*s.*				8 by 6, and 8½ by 6½ .. 13*s.* 6*d.*	
7 by 5, and 7½ by 5½ .. 13*s.*				9 by 7, and 10 by 8 .. 13*s.* 6*d.*	
11 by 9,	12 by 9,	13 by 9,	14 by 9 ..	..	15 0
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ..	..	16 0
	16 „ 10,	17 „ 10,	18 „ 10 ..	..	
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11	16 „ 11 ..	16 6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12	.. ..	17 0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12 ..	..	
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13 ..	..	
	22 „ 13,	24 „ 13	.. ..	..	18 0
20 „ 14,	22 „ 14,	24 „ 14	.. ..	..	
10 „ 15,	22 „ 15,	24 „ 15	.. ..	..	

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 40*s.* and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS, for Conservatories, Public Buildings, Manufactories, Skylights, &c.

Extract from "Cottage Gardener," No. 432:—

"Sheet Glass.—The good properties of really good sheet glass are various; the foreign kind especially is so indifferent, that I may here caution the inexperienced who may be on the point of building a hothouse to stipulate for good British sheet to be used, as much injury has been caused by substituting a low-priced Belgian article for it, and I believe most of the evils complained of in sheet glass arises from the bad quality of the kind used."

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. Farmiloe & Son, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10*s.* per 100 feet.	8 by 6 9 by 7 9½ by 7½ 10 by 8	12*s.*
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s.*	12 by 10 13 by 10 14 by 10 15 by 10	14*s.*

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 ft. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 ft. extra.

19 by 12 20 by 12	16*s.*	20 by 13 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee „	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds. 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At Edgington & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.

Thomas Brittain & Co., Manchester; J. Ellison, Bread Street, Cheapside, London.

BOITE À HOUPPE.

For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—An instrument like a pepper-box has been used for the same purpose; but it was found to distribute too freely, causing much waste. The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Improved Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S RETORT BOILERS.—The Advertiser, by Mr. Thomson's sanction, continues to manufacture the above most powerful and economical Boilers at the following moderate rates for cash:—

The Triple Retort, to heat 3800 feet of 4-inch pipe			.. £8 10
The Single „	1000	„	.. 4 0
The Amateur's „	500	„	.. 2 10

These prices include free delivery to rail or ship, and a peculiar boiler plate.

The Retort Boilers are now so extensively used in all parts of Britain and Ireland that little need be said of them beyond the fact that two of them have been fixed to supersede seven of the modern tubular boilers in one of the most extensive early forcing establishments near London, where they heat, the one 750 gallons, the other 580 gallons of water, in 28 divisions of forcing-houses and pits mostly span-roofed.

John Meiklejon, Westfield Foundry, Dalkeith, N.B.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public.

Full particulars with illustrations and prices forwarded on application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & Son have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

BENTALL'S BOTANICAL DRYING PAPER.—The above PAPER is prepared expressly for drying specimens for the Herbarium, for which purpose it has been extensively used for several years past by the most eminent botanists of the day. It possesses all the requisite qualities, preserving form and colour in the best possible manner, and having the peculiar advantage of seldom, if ever, requiring a change of sheets whilst the plants are being dried, thereby saving much time and trouble. Its stoutness and durability also combine to render it economical, making it practically quite as cheap as ordinary papers sold at a lower price. The proprietor has received the most flattering testimonials from Sir W. J. Hooker, Professor Lindley, and many other eminent botanists.

For the convenience of collectors of Foreign as well as British plants the paper is prepared in four sizes, viz., 16 by 10 inches (folded); 18 by 11 inches (ditto); 20 by 12 inches (ditto); and 16 by 20 inches (ditto). Price 15*s.*, 18*s.*, 21*s.* and 28*s.* per ream.

Sole Manufacturer, T. Bentall, Paper Mills, Halstead, Essex. Agent for London: Mr. E. Newman, 9, Devonshire Street, Bishopsgate.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyle's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Garden Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument), London Bridge, E.C. Established, A.D. 1700.

MICROSCOPES.

JOSEPH AMADIO'S Improved Compound MICROSCOPE, 2*l.* 2*s.*; Students', 3*l.* 13*s.* 6*d.*

"Both these are from Amadio, of Throgmorton Street, and are excellent of their kind, the more expensive one especially."—*Household Words*, No. 345.

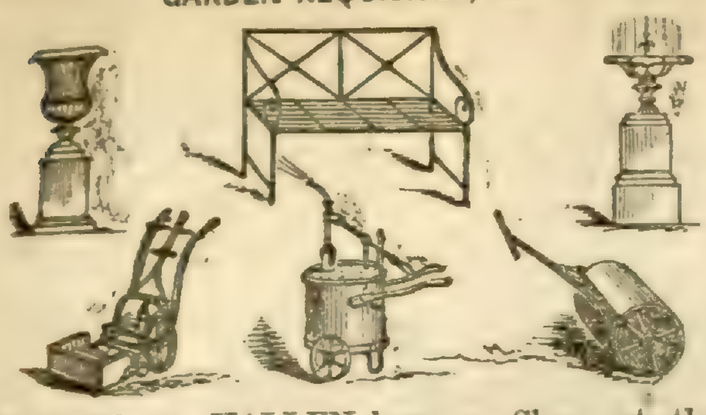
A large Assortment of ACHROMATIC MICROSCOPES.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six postage stamps.

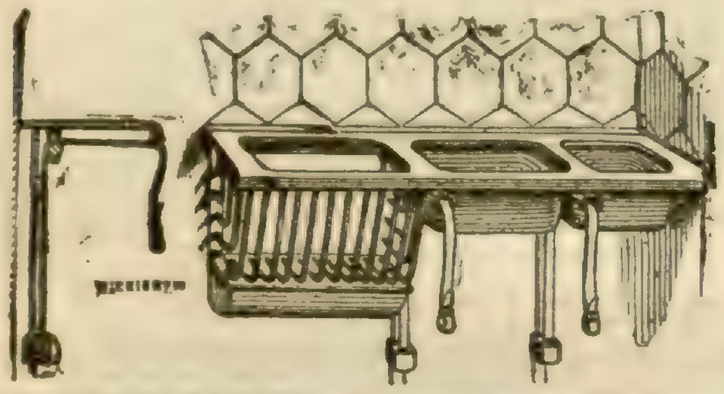
A General Catalogue for March 1857 may be had on application.

GARDEN REQUISITES, &c.



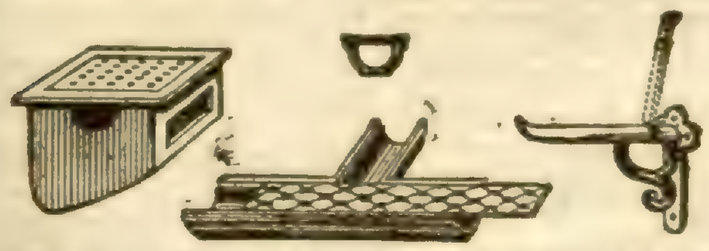
COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

THE BELMONT GLYCERINE SOAP contains PRICE'S Pure Glycerine, distilled by their patent process from Palm Oil. It is recommended for washing infants and shaving, it softens the skin, and is a most agreeable toilet soap for general use.

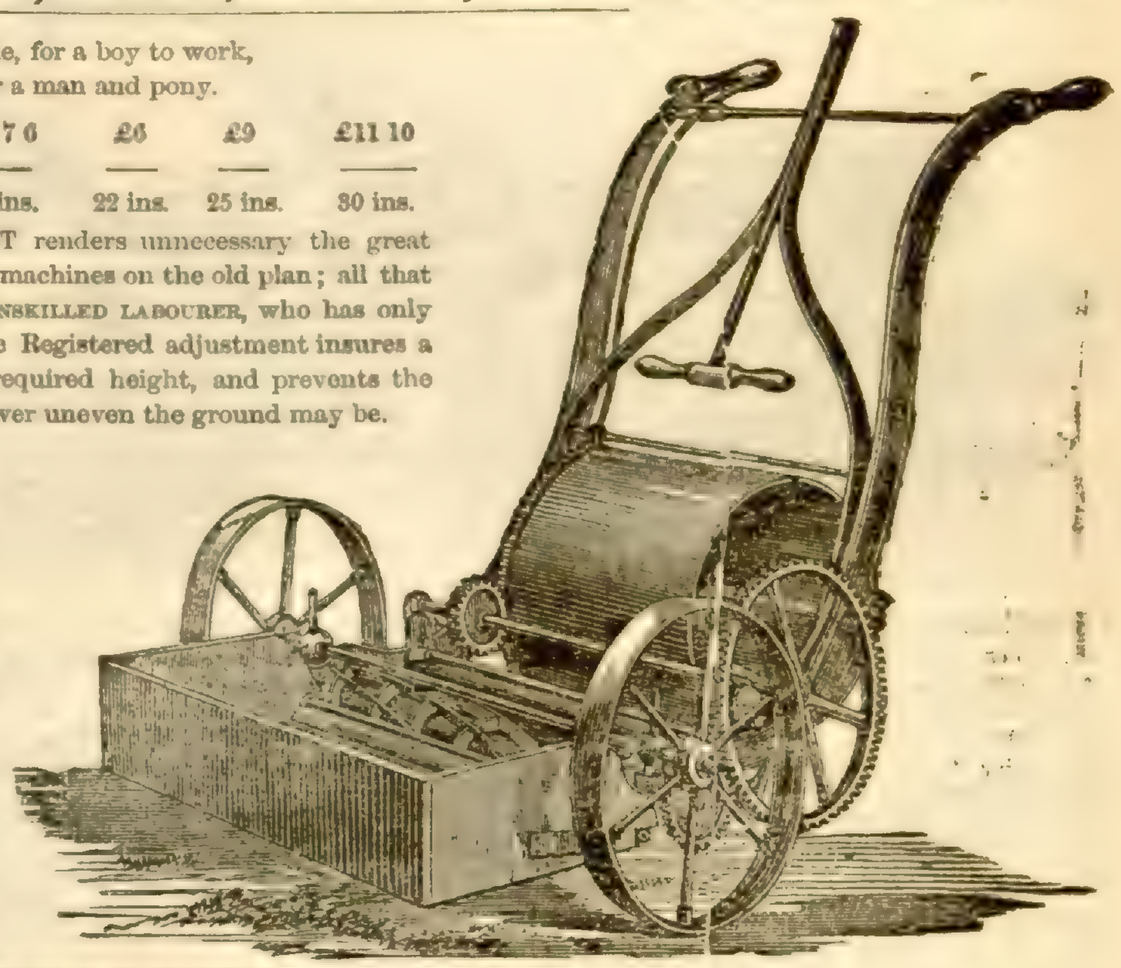
PRICE'S CANDLES, which will not drop grease when carried. These used as Chamber Candles prevent damage to dresses and carpets. They should be burnt in the candlesticks made specially for them in imitation bronze, with cotton branch stems, and palm leaf feet, having stamped round the edge—"PRICE'S Patent Candle Company, Limited." All the above may now be had retail through any druggist, perfumer, or grocer. The Soap in English ornamental boxes, price 6*d.*, 1*s.*, and 1*s.* 6*d.* each; the Candles in boxes, 1*s.* and 3*s.* Candlesticks, 2*s.* 6*d.* each, and wholesale at Belmont, Vauxhall, London.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.



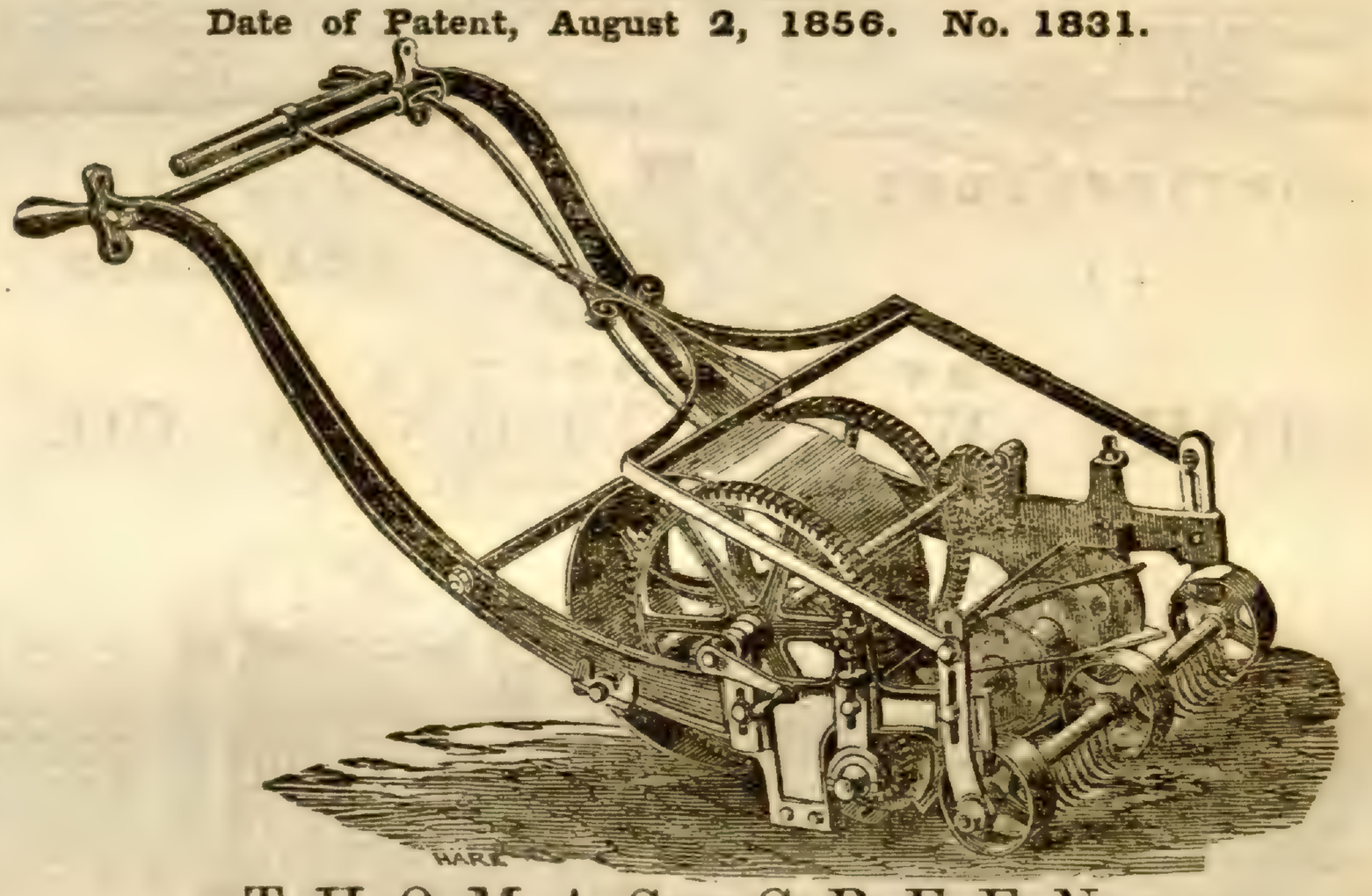
The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; in the Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

B. SAMUELSON, Britannia Works, Banbury.

BY ROYAL LETTERS PATENT.
Green's Patent Pony and Hand Grass-Cutting Machines.
Date of Patent, August 2, 1856. No. 1831.



THOMAS GREEN,
PATENTEE AND SOLE MANUFACTURER, LEEDS, YORKSHIRE.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Price Lists and Testimonials may be had on application to the works; also Mr. Charles Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham, where the Machines may be seen, and every information obtained.

Testimonial from STEPHEN WHITHAM, Esq., *late Engineer and Proprietor of the Monk Bridge Iron Works.*

"Croft House, Burley, Leeds, April 17, 1857.

"To Mr. T. GREEN, Sir,—I have tried your 18 inch Patent Mowing Machine, it has given me entire satisfaction; having had some experience with Rotary Cutters, I can with confidence recommend the Machine to any parties that may have a lawn to mow. I think the facility for grinding and setting the cutters a great improvement, as any man may keep his machine sharp and in cutting order with very little trouble.

"STEPHEN WHITHAM."

Testimonial from WILLIAM BARRATT, Esq., *Landscape Gardener St. John's, Wakefield, Sept.* 8, 1856.

"Mr. THOMAS GREEN, Sir,—I have long been opposed to Mowing Machines, but your last registered one in a great measure overcame my prejudices, as it was a decided improvement on all that had preceded it, but your new patent one now offered is a *ne plus ultra* in mowing machines. Its simplicity is admirable, its adaptation complete; as I see it will mow a narrow verge, round intricate beds, in corners, on hill sides, and even on hilly ground. Amongst other advantages I name its lightness, its superior mechanism, its being much easier to use, with the option of drawing or being pushed, or both, and last though not least, the prices are about the same as the old clumsy machines. It reflects great credit on your ingenuity, and amateurs and gardeners will pay a high tribute of thanks to you for lessening their labour and improving their lawns. The rake which you have ingeniously affixed will be found very useful in many respects. Your pony machines are surprisingly light and very effective.—I am, Sir, your obedient servant,

"St. John's Nursery, Wakefield." "WILLIAM BARRATT."

THE FOLLOWING ARE THE PRICES.

			If with improved Rake.				If with improved Rake.				If with improved Rake.
To cut	8 in.	£4 4 0	2*s.* 6*d.*	To cut	16 in. ..	£6 6 0	3*s.* 0*d.*	For Pony	To cut	24 in.	£8 8 0 5*s.* 0*d.*
,,	10 in. ..	4 14 6	2 6	,,	18 in. ..	6 16 6	3 6		,,	30 in. .	15 15 0 10 0
,,	12 in. ..	5 5 0	2 6	,,	20 in. ..	7 7 0	4 0		,,	36 in. .	18 18 0 12 0
,,	14 in. ..	5 15 6	2 6	,,	22 in. ..	7 17 6	4 6		,,	42 in. .	22 0 0 14 0

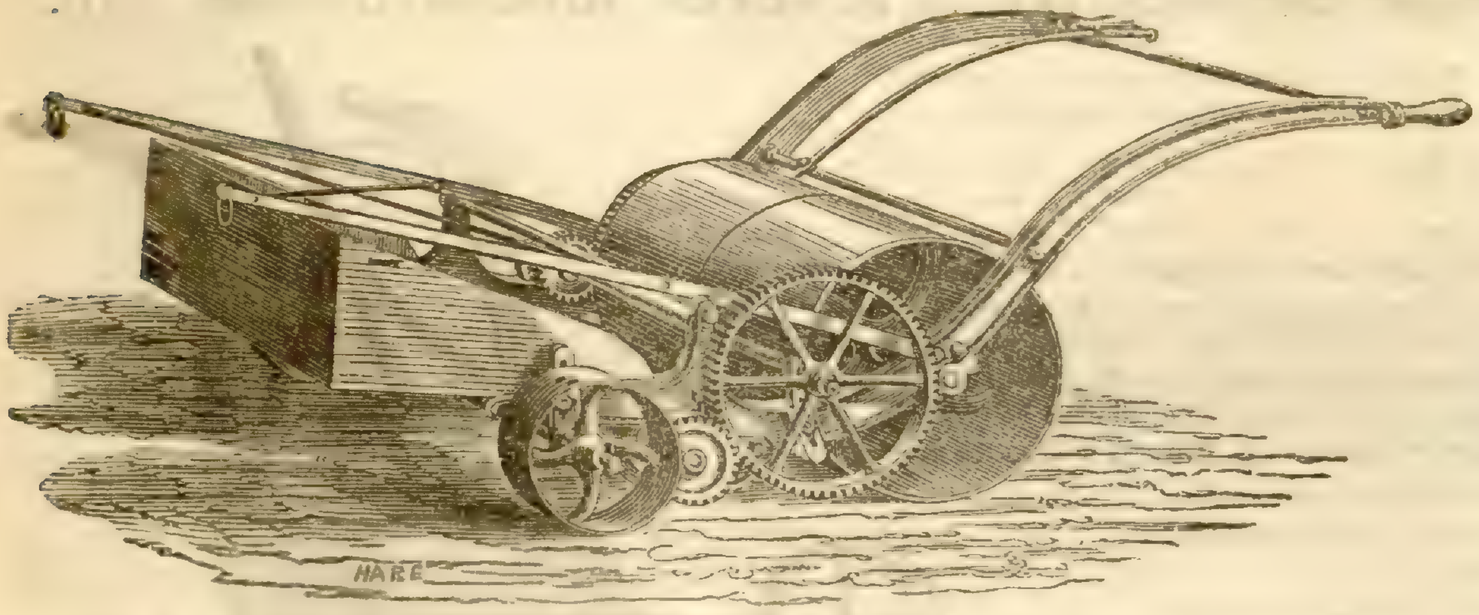
If with Box of Requisites for Cleaning, Sharpening, &c., 5*s.* extra.—Please examine the Machine before the Carrier leaves it.

IMPROVED MOWING MACHINES

MANUFACTURED BY

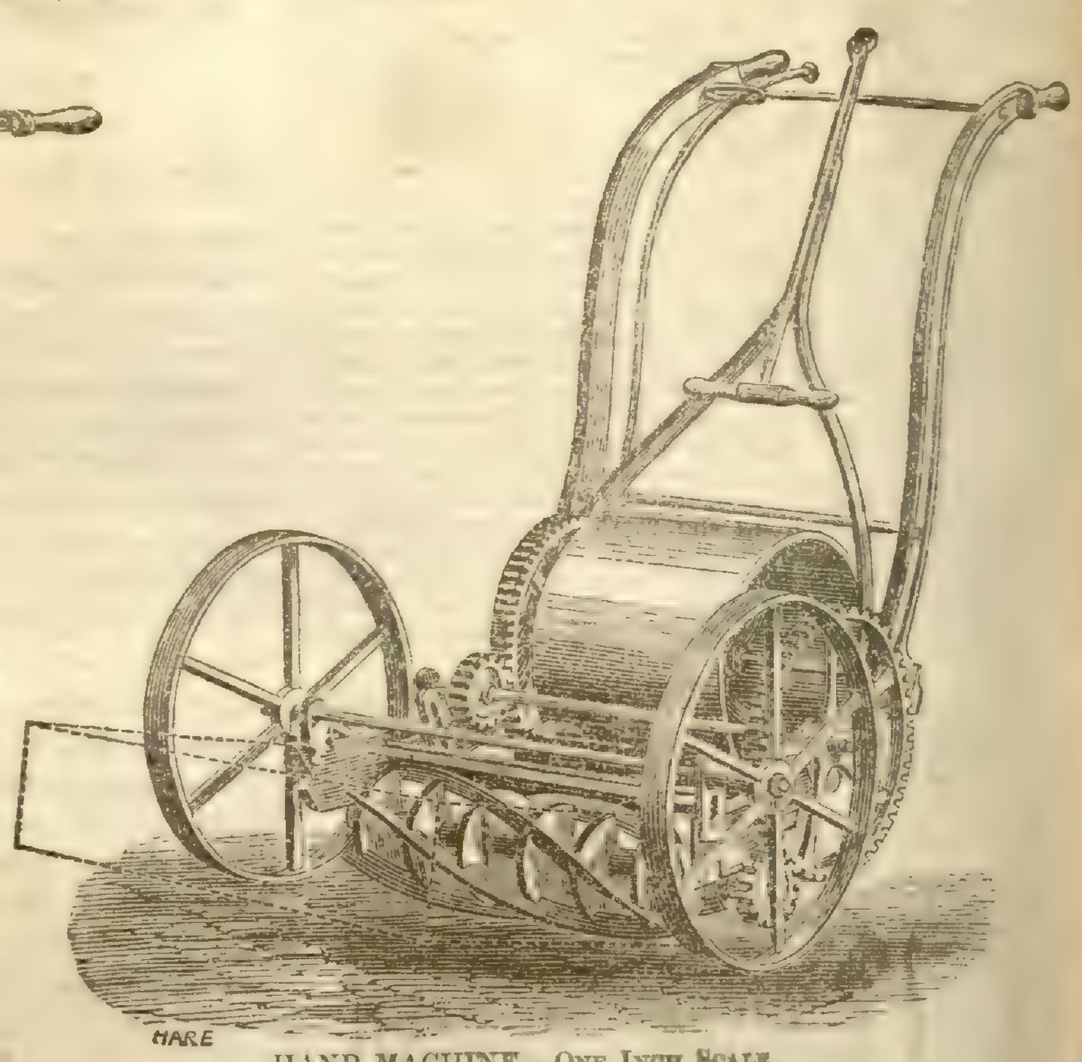
JAMES FERRABEE & CO., PHŒNIX IRON WORKS,

NEAR STROUD, GLOUCESTERSHIRE.



HORSE MACHINE.—Half-inch Scale.

THESE MACHINES can be used by unskilful labourers with equal facility on Lawns, Verges, between Flower-beds, on Bowling-greens, Cricket and Pleasure-grounds. They execute their work in an expeditious and superior manner, producing a more even and uniform surface than the most skilful mower, and are readily adjusted to cut various lengths. The Grass is cut best when dry, so that a machine can be employed at the most convenient time to the workman, and more than double the work may be done with the same manual labour that is required with a scythe. The Machines are fitted with every attention to strength and durability, and are not liable to get out of order. The 28 inch and 36 inch machines are made very strong, and will cut the longest and coarsest Grass usually met with on Lawns and Pleasure grounds. Mowing Machines were first introduced by the Proprietors of the Phœnix Iron Works, who have manufactured and sold upwards of 6000. They have from time to time effected many improvements in the Machines, and this year have perfected a very useful Machine 12 inches wide for small lawns, or to be used in conjunction with one of the larger machines. It will cut and collect the Grass on a lawn, containing 200 square yards, in 25 minutes, and is free from the objection of having *rollers in front of the cutters.*



HAND MACHINE.—One Inch Scale.

"FERRABEE'S" IMPROVED HAND MACHINES

Are so constructed that they may be either drawn or pushed, and they are much easier to manage and more generally applicable to the various conditions of Lawns than Machines worked only by a drawing handle.

PRICE LIST—Including Carriage to any Railway Station South of York:—

HAND MACHINE, for One Man, cutting 12 inch	.. ..	£4 5s. 0d.	
Ditto ditto 16 inch	.. ..	5 10 0	
Ditto for Man and Boy 22 inch	.. ..	9 0 0	
PONEY MACHINE or DONKEY, cutting 26 inch	.. ..	£8 0s. 0d.	
HORSE ditto ditto 28 inch	.. ..	11 0 0	
Ditto ditto ditto 36 inch	.. ..	15 0 0	

HORTICULTURE IN ALL ITS BRANCHES.

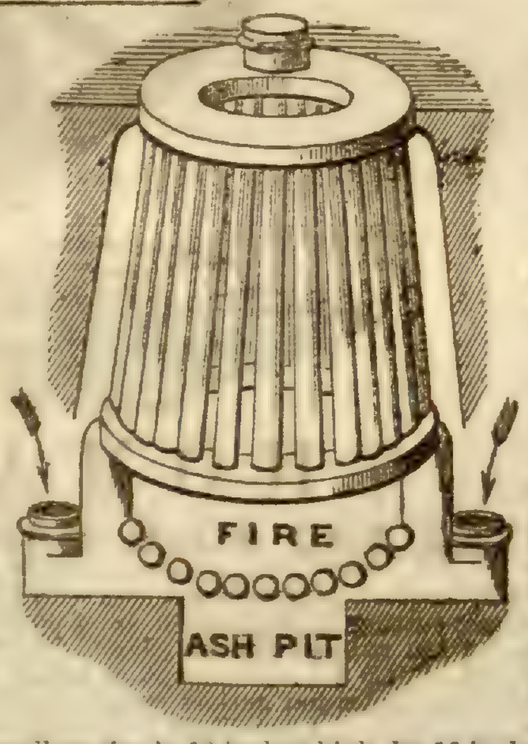
BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.

J. WEEKS and Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., of every shape and size, both Plain and Ornamental.

Also our Improved Patent Tubular Boilers of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



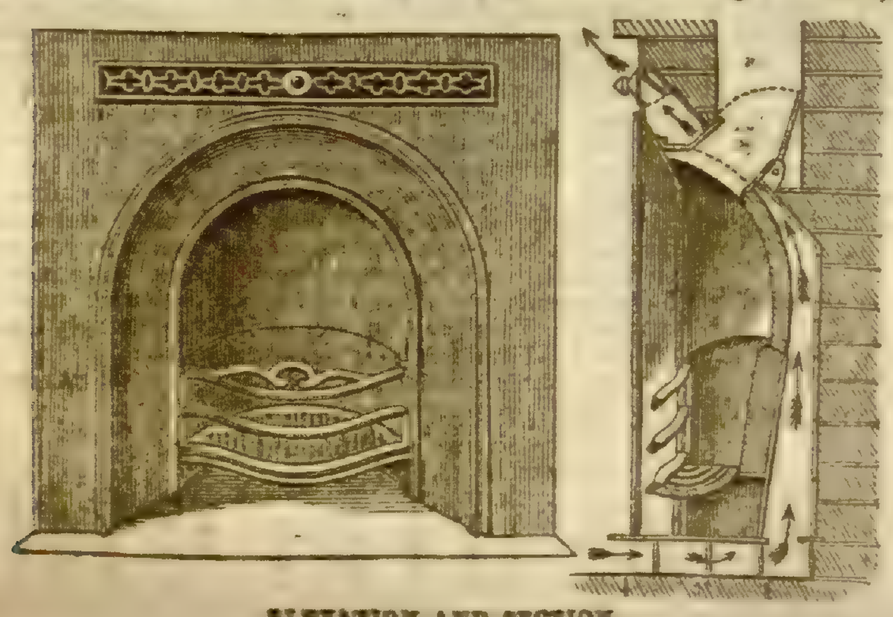
The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

John Weeks & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

VENTILATION IS ESSENTIAL TO HEALTH, AND NO SYSTEM OF WARMING SHOULD BE TOLERATED WHICH FAILS TO AFFORD A FREE SUPPLY OF FRESH AIR TO, AND THE WITHDRAWAL OF VITIATED AIR FROM, EACH AND EVERY INHABITED APARTMENT.

It is proposed to carry out this principle, in the most simple manner, in all ordinary rooms, by the agency of the



ELEVATION AND SECTION.

HYGIASTIC FIRE-GRATE, which PROMOTES VENTILATION by a continuous supply of fresh air, moderately warmed, in contact with fire-brick surfaces, and is at once the most economic and effective Grate known.

THE

SMOKE-FLUE VENTILATOR effectually withdraws the vitiated air of a room, without risk of return-smoke, as with ordinary chimney-valves.

*** Both to be seen in daily use, and Prospectus of their advantages to be obtained, at

BOYD & CHAPMAN'S,
78, Welbeck Street, London, W.
Established 1776.

WIRE ROPE FENCING.—A quantity of old WIRE ROPE for Sale, suitable for Fencing at from 5s. per cwt.—For particulars apply to Mr. William Hewison, Wingate Grange Colliery, Ferry Hill.

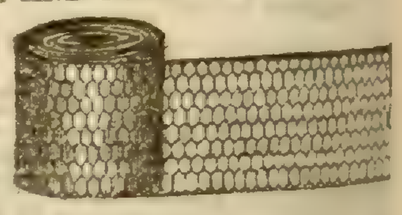
H. J. MORTON and CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

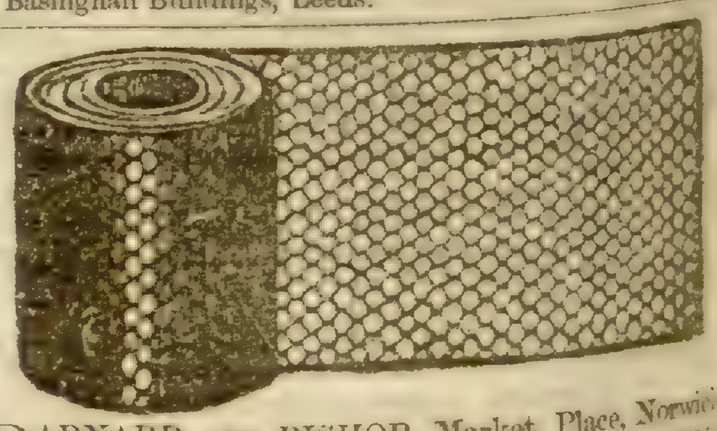
GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.



BARNARD and BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „ strong do.	6 „	4½ „
2-inch „ intermediate, do. ..	7 „	5½ „
2-inch „ extra strong, do. ..	9½ „	4½ „
1⅝-inch „ 24 inches wide	5½ „	5½ „
1⅝-inch „ strong, do.	6½ „	6 „
1⅝-inch „ intermediate, do. ..	7½ „	8 „
1⅝-inch „ extra strong, do. ..	10 „	

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	15

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

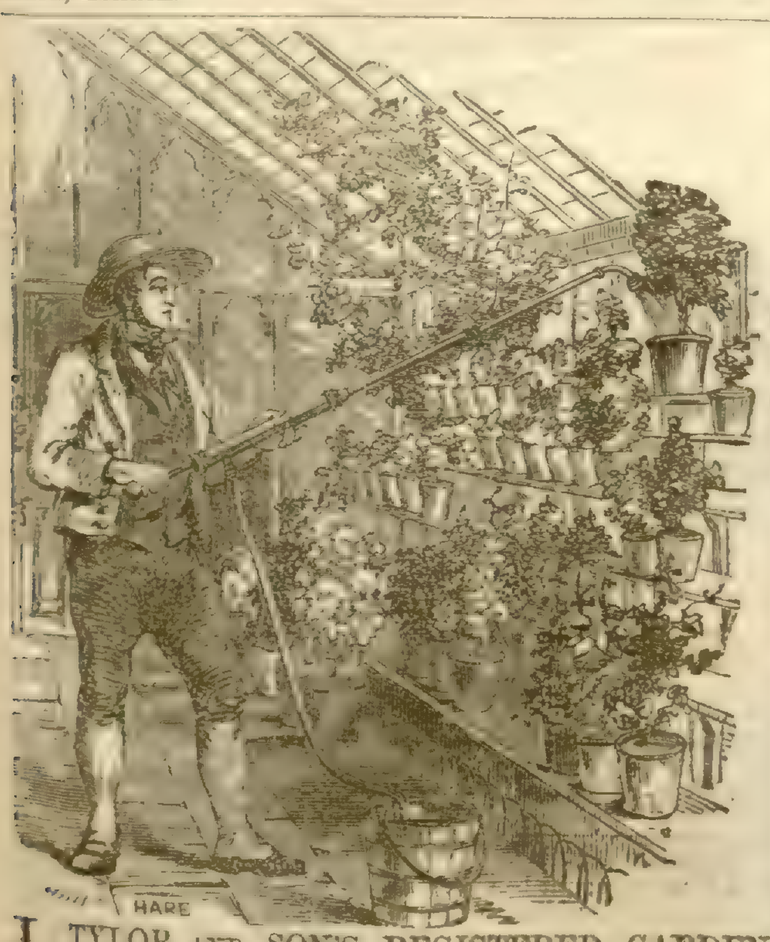
No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅛ inch, 10s. 6d.

READ'S SYRINGE, with two roses and one jet, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

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TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, April 30, at 12 o'Clock, a first-class collection of Carnations, Picotees, and Pinks; also fine American Plants, choice Fuchsias, Verbenas, Dahlias in dry roots, fine Azalea indica, Geraniums, Acacias, Roses, and other plants in bloom, with a choice and useful assortment for bedding.—On view the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

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TO NURSERYMEN, FLORISTS, AND OTHERS.

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MR. T. DAUN will Sell by Auction on TUESDAY, May 25, at 12 for 1 o'Clock, on the premises, by order of Mr. Stanley, quitting, 2600 GREENHOUSE PLANTS, Scarlet Tom Thumbs for vases, named Pelargoniums, Calceolarias (various), Scarlet Unique, Globe compacta, Lucia rosea compacta, Large Bishop of Exeter (new), Sultan Calceolarias, Kalosanthes (various), Fuchsias (various), Nutmeg Scarlet Geranium, Mesembryanthemums (various), Bulbs of Valsta, Lemon-scented Citridorea, Lachenalia tricolor, Veronica Hendersoni, and Miscellaneous Plants, &c.; 6 two-light Frames and Lights, 7 small do., Wheelbarrow, 28-round Ladder (nearly new).—May be viewed the day previous to the Sale, and Catalogues had of Mr. STANLEY, on the premises; of Mr. C. BEADLE, House Agent, Erith; the principal Inn in the neighbourhood; and of the Auctioneer and Surveyor, Bexley, Kent, S.E.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 18.—1857.] SATURDAY, MAY 2. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—EXHIBITION AT THE GARDEN, June 3 and 4. Tickets at privileged prices can now be had by presenting Fellows' Orders or their Ivory Tickets at 21, Regent Street, S.W., where Schedules and full particulars can be obtained gratis.

HORTICULTURAL SOCIETY OF LONDON. MANUFACTURERS' DIVISION.

No applications for space can be received after May 16. Intending Exhibitors should apply immediately to Mr. George McEwen, Horticultural Garden, Turnham Green, W.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—THE EXHIBITIONS OF PLANTS, FLOWERS, AND FRUIT this season will be held on WEDNESDAY, MAY 20; THURSDAY, JUNE 18; and WEDNESDAY, JULY 1. Tickets of Admission may be obtained at the Gardens by orders from Fellows or Members of the Society. Price on or before Saturday, May 9, 4*s*.; after that day, 5*s*.; and on the days of Exhibition, 7*s*. 6*d*. each. A new arrangement of the Fruit will be adopted.

CAMBRIDGESHIRE HORTICULTURAL SOCIETY.—The next Show of this Society will be open to all Exhibitors; and is to take place on WEDNESDAY, May 27, by the kind permission of the Master and Seniors, in the grounds of Trinity College. The prize list has been very considerably enlarged for the occasion, particulars of which may be obtained of the Honorary Secretary, Mr. C. E. Brown. The band of the Coldstream Guards will attend. Exhibitors not being subscribers to pay an entrance fee of 5*s*., which will also entitle them to an admission ticket throughout the day.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 .. Exhibition of Plants, Flowers, Fruits, &c.
,, 29, 30 .. ,, Tulips (adjourned from the Crystal Palace)
May and June ,, American Plants
June 24, 25 .. ,, Plants, Flowers, Fruits, &c.
Aug. 19, 20 . ,, Carnations and Picotees
,, 26, 27 .. ,, Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princes Street. (By order) John Shaw, Secretary.

NEW AND DELICIOUS FRUIT.

EUGENIA UGNI.—C. Wentworth Dilke, Esq., having offered Special Prizes for the above Fruit at the Grand Autumn Fruit Show of the London Horticultural Society in October next, Messrs. Veitch & Son beg to intimate that they have a fine stock of healthy young plants of various sizes at the following prices:—

Strong well-established plants	3*s*. 6*d*.
2d size do. do.	2 6
A few extra sized plants, in 8-inch pots ..	7 6
Also a few nice STANDARD plants on 2 ft. stems	10 6

Royal Exotic Nurseries, Exeter and Chelsea, May 2.

FINE SHOW AND FANCY DAHLIAS.

THOMAS BARNES has now ready several Thousand of the above, embracing all the leading kinds of last and former years, from 4*s*. to 15*s*. per dozen. Good old varieties, 3*s*. per 100. Catalogues may be had on application.—Dane Croft Nurseries, Stowmarket

TO PLANT EXHIBITORS.

MR. EPPS has to offer upwards of 1000 Specimens of ERICAS, AZALEAS, and GREENHOUSE and STOVE PLANTS, in the finest health and of various sizes. They may be seen at his Nurseries, Maidstone, which is within two hours of London Bridge, *viâ* North Kent line.

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GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.
Epps's Nurseries, Maidstone.

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W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.
Maidstone, May 2.

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J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & Son beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21*s*. each.—Nurseries, Dorking, Surrey.

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EPPS' CATALOGUE of all the New and Select PLANTS is now ready, and will be sent on application. His Wholesale List is also ready, and offers most of the new and leading Plants much to the advantage of the Trade.
The Bower Nurseries, Maidstone.

DILLISTONE AND CO.'S ABRIDGED LIST OF BEDDING PLANTS, &c., is now ready, and can be had at the Nurseries, Sturmer, Halstead, Essex.—May 2.

SHAW AND CROSLAND'S CATALOGUE OF DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, AND MISCELLANEOUS PLANTS FOR 1857 are now ready, and may be had free on application.
Richmond Nursery, near Sheffield, May 2.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.
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GEORGE SMITH, Florist, &c., Lorrimore Road, Walworth, begs to say that he is able to supply, the first week in May, fine strong plants, warranted true to name, at the following low prices:—

NEW DAHLIAS of 1856, per doz. 8*s*.; older vars., 3*s*. 6*d*. per doz.
,, FUCHSIAS ,, ,, 8*s*.; ,, 3*s*. 6*d*. ,,
,, VERBENAS ,, ,, 6*s*.; ,, 3*s*. 6*d*. ,,

Plants given to compensate for carriage. Descriptive Catalogue can be had by enclosing a postage stamp.

DAHLIAS.

JOHN KEYNES, Florist, Salisbury, obtained ELEVEN Certificates at the National Exhibition of Seedlings. Only FOUR other Certificates were awarded for Dahlias the whole season. These truly splendid flowers will be ready for distribution the first week of May. First-rate plants may this year be depended on. Catalogues of the leading show Dahlias will be sent on application.—Castle Street, Salisbury.

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Fanny Dodds ..	10 6	Charles Perry ..	10 6
Mrs. Edwards ..	10 6	Conqueror	10 6
Lady Franklin ..	10 6	Lady Paxton ..	10 6
Duke of Devonshire	10 6	Tam o'Shanter ..	10 6
Lord Cardigan ..	10 6	Margaret	10 6

The whole of these obtained Certificates at the National, with the exception of Fanny Dodds and Lord Cardigan.

NEW DAHLIAS, ETC.

THOMAS BARNES begs most respectfully to offer his three Seedling Dahlias, plants of which are now ready, viz.:—OPHIR, best yellow; MINNIE, white and lavender; SYMMETRY, shaded purple and mulberry. The above are offered 7*s*. 6*d*. each, or the three for 20*s*.

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The following is an example of the cheapness of these plants: 12 Calceolarias, 12 Dahlias, 12 Geraniums, 12 Heliotropes, 12 Fuchsias, 12 Petunias, 12 Verbenas, and 12 Salvia and Cuphea, for 20*s*., and plants added to help to pay for carriage. Basket and packing at the expense of purchaser.

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SUTTON AND SONS have some remarkably fine Seed of this useful root. Price according to quantity required. Address Sutton & Sons, Seed Growers, Reading, Berks.

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Royal Berkshire Seed Establishment, May 2.

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JAMES GILBERT, Florist, Ipswich, has a fine stock of healthy plants, well established in pots, which he offers at 8*s*. per dozen. Also Flower of the Day Geraniums, 4*s*. per dozen; and Unique (Rollison's), 6*s*. per dozen.—May 2.

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WILLIAM CUTBUSH AND SON will send out their New Variegated-foliaged Petunia "MRS. CUTBUSH," the first week in May at 7*s*. 6*d*. each. Usual discount to the Trade.

They have also a fine stock of Show and Fancy GERANIUMS (in 48-pots) at very moderate prices.
Highgate Nurseries, London, N.

MEDINELLA MAGNIFICA.

JOHN AND CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.
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IMPORTANT TO PLANTERS.

THOMAS PERRY has to offer 200,000 BERBERIS or MAHONIA AQUIFOLIUM, of various ages and sizes.
SPRUCE FIRS, do do., from 1 to 12 feet.
YEWS, do do., from 3 to 6 feet.
ENGLISH ELMS and ENGLISH OAK for Avenues, fine.
SCARLET OAKS, fine for single trees.
BLACK ITALIAN POPLAR, 10 to 12 feet, &c.
Also a large Stock of Fine EVERGREENS and ORNAMENTAL TREES, such as are rarely to be met with.
Banbury Nurseries, May 2.

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The Giant Tree of California.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

BRITISH FLAG GERANIUM.

GEORGE PARSONS, Florist and Seedsman to the Queen, begs to offer this Geranium to the public for the first time. It is decidedly the most beautiful of all the Horse-shoe Leaf varieties. The foliage is very ornamental, green, yellow, and red with dark shading, the colours being beautifully blended. The flowers are a beautiful orange scarlet, the foot stalks of which are silvery white, trusses large, and the habit robust and compact. It was awarded a First Class Certificate at the Brighton Exhibition. The stock is limited, not exceeding 200 Plants. Plants 7s. 6d. each. A liberal allowance to the trade. Plants in April.

Western Road and Montpellier Road, Brighton.

CHOICE BEDDING PLANTS.

YOUELL & CO.

Beg respectfully to refer to their Advertisement of the above, which appeared in last week's Paper.

ROYAL NURSERY, GREAT YARMOUTH, NORFOLK.

NEW CATALOGUE OF PLANTS FOR 1857.

MESSRS. E. G. HENDERSON & SON

WILL have their SPRING LIST ready for distribution early in May. In it will be published full descriptions of many novelties from Continental and English establishments, with special recommendations attached to such Plants as have already been examined and approved by them.

The New Plants will be sent out at the same time as Catalogue, but in consequence of many parties wishing for the NEW FUCHSIAS earlier than usual (and the Plants being much stronger than last season), Messrs. E. G. H. & Son have decided on sending them out at once. Parties having orders already booked and wishing their Fuchsias in advance of the other Plants, will please communicate at once with Messrs. E. G. H. & Son.

BANKS' NEW FUCHSIAS for 1857 consist of the following.

White-sepalled varieties, with different coloured corollas:—

The SILVER SWAN, rosy lilac | The FAIR ORIANA, pure scarlet | FAIREST OF THE FAIR, crimson, or rich velvet rose.

Scarlet-sepalled varieties, with new form and half globular corollas, surpassing in beauty the old style of flower:—

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LADY TURNER | MRS. A. MILDMAY | ANGELICA KAUFMANN | PRINCE OF PRUSSIA | MARMION | DAZZLE.

(The above are fine bedders, and of rich decided colours. V. Dazzle will be found one of the best orange scarlets, with a clear yellow eye and compact habit; it surpasses all in its way.)

Sulphur Variegated GERANIUM CULFORD BEAUTY.—The finest variegated variety in cultivation, and equally adapted for pot or garden culture. Colour bright dazzling orange scarlet, beautifully marked folinge, habit first-rate, truss large, and a good grower.

HOTEL DE CLUNY, variegated foliage, with bright scarlet zone | LADY OF LORETTO, marked, var. foliage, with distinct zone

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(The above varieties form a very distinct, beautiful, and perfect collection.)

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DAHLIA FOL. VARIEGATA, ornamental Bedding Plant | ARDESIA CRISPA LUTEA, ornamental Stove Plant.

Bedding CALCEOLARIA MONTECUCULLI | RHODODENDRON GEORGE CUNNINGHAM

,, DELPHINIUM MONTMORENCY | PETUNIA LITTLE NELL.

Mrs. Story's Set of New EPACRIS.

ISABELLLA GREY (Golden Yellow Tea Rose).

Exhibited at the Meeting of the Horticultural Society in Regent Street, April 7, 1857, by Messrs. Hugh Low & Co., of whom their entire stock was purchased. Mr. Low, Jun., met with it whilst travelling in South Carolina in the garden of the raiser, Mr. Grey, of whom he obtained it. At that time it was covered with flowers and exposed to a burning sun, without being injured in the slightest degree. The flowers are very large, foliage and growth as fine as any of the Tea Roses in cultivation; one plant in our possession when we purchased the stock had more than 40 expanded, and other flower buds. The colour is a golden yellow, not straw, orange, lemon, or canary yellow, as all other Teas and Noisettes are.

We are informed there appear to be three Roses claiming this name with some variations, as Miss Grey, Miss Julia, Mary, or Jane Grey—what merit these others possess in comparison we are unable to state, but the one that surpassed all others in Mr. Low's estimation was the Isabella Grey.

TAXODIUM SEMPERVIRENS.—Messrs. E. G. H. & Son have still Seed to offer of the above at 10s. 6d. per 100.

BROWN'S FLORAL SHADING is the lightest and best adapted fabric of any in use for Protecting Fruit and other Trees. It is particularly recommended for a fixed and light Shading for Conservatories, Greenhouses, &c. Price 4s., and 4s. 3d. per piece of 20 yards long.

Wellington Nursery, St. John's Wood, N.W.

NEW AND RARE PLANTS.

ABIES KÆMPFERI.

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA

(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emareld green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

BEDDING PLANTS.

JOSEPH FRYER can supply strong established Plants of most of the varieties used for bedding, such as Verbena, Petunia, Calceolaria, Cuphea, Pentstemon, Salvia, Ageratum, Double Groundsel, Double White Pyrethum, Heliotrope, Lobelia, Alonsoa, &c., 3s. 6d. per doz.; Tom Thumb, and other varieties of Scarlet Geraniums, at 4s. per doz.; a great variety of Herbaceous and Alpine Plants, &c.

Clarendon Nurseries, Camberwell.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. Parker for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. Parker's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

David Thomson, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants will be ready for sending out the first week in May, and all orders will be executed in strict rotation. Price 1s. 6d. each, or 12s. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

A BARGAIN.

PARTIES desirous of obtaining a good collection of GERANIUMS cheap, could not do better than send their orders immediately to Henry Walton, Edge End, Marsden, near Burnley, Lancashire, who, being desirous of clearing them off, offers them at the following unprecedented low prices; the plants are strong and vigorous, in 4 and 5-inch pots:—

The following Show Geraniums of 1855, purchaser's selection, 25s. per dozen, viz., Admirable, Amazon, Corsair, Clotilde, delicatum, Eva, Eminée, Edith, Floretta, Gaiety, Juliet, Meteora, Mr. White, Prince of Wales, Purple Prince, Rosaline, Sparkler, and Triumphant.

Geraniums of 1854, purchaser's selection, 14s. per dozen, package included; H. W.'s selection, 12s. per dozen, viz., Dido, Fidelia, Gem of the West, Grand Sultan, Jessica, Lydia, Laura, Lord Raglan, Pandora, Petruchio, Phaeton, Seraskier, Topsy, Una, Vesper, and Yerda.

Geraniums, choice older varieties, purchaser's selection, 9s. per dozen; H. W.'s selection, 6s. per dozen, viz., Attraction, Ambassador, Butterfly, Carlos, Commissioner, Commander, Duchess of Wellington, Eugenie, Empress, Eliza, Eurydice, Enchantress, Elise, Flying Dutchman, Governor General, Helen, Heroine, Herald, Indian Chief, Incomparable, Jupiter, Lord of the Isles, Leah, Lucy, Lagoma, Lavinia, Lord Mayor, Little Nell, Monteith, May Queen, Mochanna, Neatness, National, optimum, pictum, Purple Perfection, Pasha, purpureum, Rebecca, Regalia, Rosa, Rhoda, Rubens, Silver Queen, Spot, Tamberlik, Virgin Queen, and Zeno. Spotted varieties among the above at 9s. per dozen, Auguste Miellez, Colonel Foissy, Etoile de Jardin, Gloire de Belle Vue, Gustave Odier, Jacques Duval, Kulla, Madame Lamoricière, Triomphe de la Tour.

Geraniums, Fancy varieties, purchaser's selection, 9s. per dozen; H. W.'s selection, 6s. per dozen, Advancer, Alboni, Barbette, Bride, Beauty of Winchester, Captivation, Caliban, Defiance, Gipsy Queen, Jenny Lind, Lady Hume Campbell, Lady Downes, Madame Sontag, Mazeppa, Superb, Othello, Painted Pet, Parodi, Richard Cobden, Ramona, and Triumphant.

FUCHSIAS—Extra strong plants of the 12 following varieties of last season, 12s. per dozen, package included; smaller plants, 9s. per dozen, viz., Admiral Boxer, Charlemagne, Conqueror, Countess of Burlington, Donna Joaquina, Emperor Napoleon, General Williams, Favourite, Venus de Medici, Volcano di Aqua, Wonderful, and Prince of Wales.

VERBENAS—New varieties of last season, 4s. to 6s. per doz., tree by post.

PETUNIAS—New of last season, 1s. each, or 7s. 6d. per doz.

CHRYSANTHEMUMS—Large and Pompone-flowered, 4s. 6d. per doz.

PHLOXES—New of last season, 18s. per doz.; ditto, Countess of Morton and Addisoni, strong plants, 3s. 6d. each.

PANSIES—25 choice show varieties for 15s.

PINKS—25 pairs fine named sorts, 10s.

GLOXINIAS—The following 6 new erect varieties for 1l., or 5s. each, viz., Comte de Niepperg, Duchess de Brabant, Madame Picouline, Roi des Belges, rosea mutabilis, and Wagneri; ditto, choice erect varieties, strong, 6 for 10s.; not erect, 9s., 12s., and 15s. per doz.

ACHIMENES—Locheria magnifica, 2s. 6d.; ditto, Tyden amabilis, 3s. 6d.; Estella, 2s. 6d.; Aurora, 2s. 6d.; older varieties, 5s. and 7s. 6d. per doz.

ROSES—Choice new Hybrid perpetuals, vars., in pots, 3s. 6d. each, or 30s. per doz.

For descriptions of the above collections see Catalogues, which may be had on receipt of postage stamp. The Catalogue contains a large assortment of Bedding Plants, which are now ready, including DAHLIAS of last season, 9s. and 12s. per doz.; older ditto, 4s. 6d. and 6s. per doz.; SCARLET and other GERANIUMS, CUPHEAS, HELIOTROPES, &c.

Also a collection of 84 Bedding Plants for 1l., and a collection of 132 Bedding Plants for 30s.

Orders executed in rotation as received.

Post-office Orders payable at Marsden, Lancashire.

HOLLYHOCKS.

A. PAUL AND SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants IN PERFECT HEALTH as follows :—

Very superior show varieties	..	42s. to 60s. per doz.
Superior do. do.	.. ..	24s. ,, 36s. ,,
Good named sorts .. do.	..	12s. ,, 18s. ,,

Bloomed Seedlings in separate colours, 30s., 45s., & 63s. per 100.

These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers: they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21s. per 100. For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1s., 2s. 6d., and 5s. per packet according to quality.—Nurseries, Cheshunt, Herts.

DOWNIE AND LAIRD can still supply strong plants of the under-mentioned, viz.—

PHLOX ADDISONI, white, with a distinct carmine centre, 5s. each.

Do. COUNTESS OF MORTON, pure white, thick fleshy petal, highly scented, 3s. 6d. each.

PANSY DUCHESS OF WELLINGTON, gold and yellow, deep velvet purple belting, eye well defined. Had two certificates. 5s. each.

The usual allowance to the trade on the above, or when six each are taken half price.

Also a full collection of Antirrhinums, Pansies, Phloxes, &c. which they offer at moderate prices, lists of which may be ad on application.—17, South Frederick Street, Edinburgh.

FLOWER SEED.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers :—

	s.	d.
German Asters, 24 splendid varieties	3	6
The above varieties mixed	1	0
French Asters (Truffaut's), 12 varieties	3	6
German Stocks, 24 splendid varieties, brilliant and distinct colours	5	0
The above brilliant colours mixed	1	0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2	0
The above 8 colours mixed	1	0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, ESQ., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show. Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Buile Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Homme House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

NEW VERBENAS.

HUGH LOW AND CO. can now supply Plants of the undernamed VERBENAS, raised by Rougier & Chauviere of Paris. They are probably the best of the new varieties that will be offered for sale this season. Price 1s. 6d. each :—

Thomas Barnes, scarlet with white centre
Madlle. Casille, bright rose, white eye
Stephen, lively carmine, with rosy edge
Andromaque, flesh colour, with a very dark eye
Julia de Courcelles, rosy purple, large white border
Duchesse de Palmella, bright crimson, white centre
Calypso, scarlet crimson, lilac and white eye
Phœbus, fiery scarlet, white eye surrounded with black
Mrs. Turner, very dark velvet, white centre
Evelina, bright rose, bluish velvet centre
Madame Castellan, violet, white centre
Gaspard Dozin, scarlet, yellow eye
Henriette Huet, bright violet rose, white centre
Surprise, bright fiery scarlet, brown centre
Cudjo, very deep crimson, white centre, surrounded with black, shading to blue
Madame Moret, pale rose, carmine centre

NEW DOUBLE FRENCH PETUNIAS.

Gloire de Lyon, La Perfection, La Mésange. Price 2s. 6d. each.

FRENCH FUCHSIAS.

Bellidiflora flore pleno (Dubus), very double corolla—a large and finely shaped flower. 3s. 6d.

Chameleon (Demouveaux), finest striped Fuchsia in existence—flower very large, corolla orange colour striped with white; sepals white, spotted with rose, and tipped with green. 3s. 6d.

Surprise (Dubus), very large and perfect flower; corolla rose, striped with blue. 3s. 6d.

L'Esperance (Demouveaux), sepals pure white, corolla deep blue; very fine habit. 3s. 6d.

Clapton Nursery, London, N.E., May 2.

BASS AND BROWN have the pleasure to offer as under :—

GERANIUMS.—A fine stock of strong, bushy, and healthy plants of first-rate varieties. See BASS & BROWN'S Catalogue No. II., including collections of show, fancy, and the new French spotted varieties.

ACHIMENES.—A very superior collection of upwards of 40 varieties, very beautiful and striking. Ten superb new varieties for 35s., including Parsons' fine varieties figured in the "Florist" for November, carminata, splendens, and Parsonsi.

GLOXINIAS.—A collection of upwards of 60 of the most striking and brilliant varieties. 12 fine vars., 12s.; 12 newer vars., 20s.; 12 superb erect-flowering vars., 20s.; 12 erect-flowering, newest selection, 30s.

GREENHOUSE PLANTS.—50 superb and select, 45s.; 50 do. extra, 65s.; or per doz., 12s., 18s., and 25s.

STOVE PLANTS.—50 superb and select, 30s.; or per doz., 24s., 36s., and 42s.

BEDDING PLANTS.—A large and vigorous stock of the finest Verbenas, Petunias, Fuchsias, shrubby Calceolarias, bedding Geraniums, &c., &c., for which early orders are solicited. See Catalogue No. V.

HARDY HERBACEOUS PLANTS.—A very superior collection of these in pots for present sale. See Catalogue No I. and Supplement to No. I. Also a few of the best for bedding in masses. See Catalogue No. V.

BULBOUS PLANTS IN POTS, including beautiful varieties of Ixias, Sparaxis, Gladioli, Tritonias, and a great variety of other striking and handsome sorts. See Catalogue No V.

Goods carriage free, not under 20s., to all the London termini, and all stations on the London and Norwich, Colchester line. Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.—BASS & BROWN, Sudbury, Suffolk.

JAMES VEITCH, JUN., ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, deeply grateful for the very kind and extended patronage bestowed upon this establishment since his succession to MESSRS. KNIGHT AND PERRY, begs to intimate that he has now completed the *necessary improvements and alterations* to enable him satisfactorily to carry on the

NURSERY AND SEED BUSINESS

on the most extensive scale, in a manner suitable to the requirements of the increased connection and the progress of the day; but instead of adopting the now common practice of recommending his goods by *puffing advertisements*, he most *respectfully invites an inspection of his premises and stock, that* PURCHASERS MAY SEE AND JUDGE FOR THEMSELVES.

JAMES VEITCH, JUN., PLEDGES HIMSELF TO THE FOLLOWING PRINCIPLES OF BUSINESS:—TO SUPPLY FIRST-RATE ARTICLES TRUE TO NAME; MODERATE CHARGES; PUNCTUALITY IN THE EXECUTION OF ORDERS; WITH ATTENTION AND CIVILITY TO VISITORS.

N.B. J. V., JUN., devotes his personal attention to the recommendation of Gardeners and Bailiffs. He has at this time several highly respectable men in his employ, whom he can with perfect confidence recommend to any nobleman or gentleman requiring them.—Chelsea, May 2.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS, NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

Messrs. SUTTON'S Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail. Cost of Seeds, 24s. to 32s. per acre, according to the requirements of the land to be laid down.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S.W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

THE GRAND WINTER GARDEN AT CHELSEA.

JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

JOHN WEEKS & Co., King's Road, Chelsea.

NEW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the New Dahlias of last season, at 10s. per dozen strong plants, and the best varieties of other years, at 4s. and 6s. per dozen.

Fine SHOW PANSIES	..	4s. and 6s. per dozen.
BELGIAN DAISIES	..	4s. ,,
Fine PHLOXES ..	..	8s. ,,

Descriptive Catalogues now ready. Selected Pansy Seed, 1s. and 2s. per packet. Post Office Orders to be made payable at Middleton, near Manchester.

NEW VERBENAS OF 1857.

J. AND J. FRASER beg to announce that they can supply good plants of the following new VERBENAS at 1s. 6d. each, which for brilliancy of colour and other good properties are strongly recommended :—

Duchesse de Palmela	Julia de Courcelle
Adriani	Madame Castellan
Madame Turner	Gaspard Dozin
Thomas Barnes	Stephen
Mademoiselle Casille	Surprise
Andromaque	Calypso
Phœbus	Evelina
	Henriette Huet

Also the following new FUCHSIAS of 1856 (strong plants in 48-pots), at 2s. 6d. each :—

Venus de Medici	Surprise
Chameleon	L'Esperance
Charlemagne	Countess of Burlington
Volcano di Aqua	Donna Joaquina
Emperor Napoleon	Pendulina
Bellidiflora flore pleno	Ranunculæflora
	Malakoff

J. & J. F. can also offer good plants of the following :—Pentstemon Arthur, 5s; Pentstemon purpureum magnificum, 5s.; Pentstemon Premices de Pantin, 2s.; Gaillardia grandiflora, 3s. 6d.; Lobelia erinus grandiflora superba, 3s. 6d.

The Nurseries, Lea Bridge Road, N.E., May 2

ROSES IN POTS FOR BEDDING.

BY THE HUNDRED OR BY THE THOUSAND.

WM. WOOD AND SON beg to intimate that the present season is very eligible for planting out Dwarf Roses in beds, and refer with pleasure to their overwhelming stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per dozen.		Per dozen.
Hybrid Perpetuals	12s. to 18s.	Tea-scented ..	15s.
Bourbons	12s. ,, 18s.	Noisette	9s. to 12s.
China	9s. ,, 12s.	Banksian (for walls)	15s.

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

50,000 DWARF ROSES IN POTS.

WM. WOOD AND SONS have much pleasure in soliciting especial attention to their enormous stock of ROSES in pots, a portion of which are offered on their own roots, and the remainder are neatly grafted plants on the Manetti stock, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock offered may be formed from the following select list of a few of the leading kinds :—

HYBRID PERPETUAL.

Quantity.	Per doz.—s.
4000 Géant des Batailles	15
2000 Général Jacqueminot	20
2000 Duchess of Norfolk	20
2000 Jules Margottin	15
1000 Alexandrine Bachmetoff	15
1000 William Griffiths	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland	15
1000 Pius the Ninth	15
500 Auguste Mie	15
500 Queen Victoria	15
500 Mrs. Rivers	15
500 La Ville de St. Denis	15
500 Jacques Lafitte	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12s. to 18

BOURBON.

500 Sir Joseph Paxton	15
500 Bouquet de Flore	15

BOURBON.

Quantity.	Per doz.—s.
And other leading kinds (own selection)	12s. to 18
2000 Paul Ricaut, Hybrid Bourbon	15

TEA ROSES.

1000 Gloire de Dijon.	20s. to 36
500 La Sylphide	15
Other fine kinds	15

CHINA ROSES

ADAPTED FOR BEDDING IN LARGE QUANTITIES.

Fabvier	10
Cramoisie supérieure	15
Henri Cinq	10
Mrs. Bosanquet (cream)	15
Prince Charles	15
Marjolin	10
L'Eblouissante	15
Louis Philippe D'Angers	10
And other fine kinds	9s. to 12
Fine Noisette Roses	9s. to 12
Banksian Roses (for walls)	15

N.B. Extra plants presented to compensate for distant carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. & S. can supply all the new Roses of this season if required, but will NOT recommend them until they have themselves tested their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.—May 2.

NEW ROSES.

A. PAUL AND SON respectfully offer the following NEW ROSES :—

HYBRID PERPETUAL.	s.	d.
* Adelaide Fontaine	7	6
Bacchus	7	6
* Belle Angevine	5	0
* Etendard de Sebastopol	5	0
* Felix Perettii	7	6
Helen	5	0
Lord Raglan	3	6
* Madame Ardens	5	0
* ,, Heraud	5	0
,, Knorr	3	6
,, Masson	2	6
* Marechal de la Bruneire	5	0
Ornement des Jardins	5	0
Pæonia	3	6
Prince Noir	3	6
* Ravel	3	6

BOURBON.	s.	d.
* Etoile de la Gironde	5	0
* Georges Dupont	5	0
Omar Pacha	2	6
NOISETTE.		
* Madame Massot	5	0
* ,, Schultz	5	0
* Miss Gray	7	6
* Triomphe de Rennes	7	6
TEA-SCENTED.		
* Amabilis	5	0
* Madame Lactay	5	0
PERPETUAL MOSS.		
* Abel Carriere	5	0

Healthy and well established plants of these and some few other novelties can be furnished immediately. The kinds marked thus *have not yet bloomed in the open air in England; it is therefore impossible to speak as to individual merit; they are offered on the faith of the respective raisers. A large stock of all the usual kinds, good plants in pots, suitable either for pot culture or bedding, 9s. to 24s. per dozen.—N.B. This advertisement will not be repeated.—Nurseries, Cheshunt, Herts.

NEW AZALEAS.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, N.E., can now supply good plants of the following NEW AZALEAS at 5s. each :—

Louise Margottin	Souvenir de l'Exposition
Eulalie Van Geert	Madame Miellez
Perfecta elegans (true)	Empress Eugenie
Magnifica alba plena (beautiful double white)	Leeana.

The Gardeners' Chronicle.

SATURDAY, MAY 2, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May	4—Entomological	8 P.M.
TUESDAY,	—	5 Horticultural	3 P.M.
		5 Linnean	8 P.M.
WEDNESDAY,	—	6—Society of Arts	8 P.M.

OF the anniversary meeting of the HORTICULTURAL SOCIETY, which took place yesterday, a full report appears in another column. The announcements made by the Council indicate a determination to carry out with the utmost possible energy the revival of the Garden and its reorganisation, aided as the funds have been by above 3000*l.* subscribed for the purpose. Our readers already know that great changes have been taking place in the Garden ever since the arrival of the new General Superintendent, and it is evident from the proceedings of yesterday that much more considerable operations are in contemplation.

Upon one point the Council might well congratulate the Society, and that is the rapid accession of new members, of whom no fewer than 35 stand for ballot on Tuesday next, in addition to 24 elected on the 7th April. On the whole it appears that as many as 150 new Fellows will have joined in six meetings, by far the most rapid accession of strength that has been gained since the

foundation of the Society. The Council are certainly entitled to regard this as the most favourable possible symptom of returning prosperity, consequent upon an approval by the public of the course on which it has been resolved to enter.

The most remarkable change that was announced related to the distribution of plants from the Garden. This has always been a subject of immense difficulty, especially when numerous applicants desired to have the same plant, as when it has happened that 50 demands have been made for some half dozen specimens of a rare and valuable species. It has been suggested to the Council that this difficulty might be overcome by having recourse to the method of decision by lot; and the experiment is to be speedily tried. The applications now making for the very rare Mexican Coniferous plant called Chamæcyparis thurifera will evidently very much exceed the whole number of plants in the possession of the Society. And we are authorised to announce that all applications for this plant will be registered up to July 4th, at which time the list closes. At the meeting of July 7th, in Regent Street, the names of the applicants will be thrown into a box, whence some one will publicly draw one after the other as many names as there are plants to distribute. The names not drawn will of course represent the applicants to whom chance has been unfavourable. Should this prove to be unattended by difficulties at present unforeseen the system will be continued, and we think it likely to give much satisfaction, provided public notice of the plants to be drawn for is given early enough to enable all persons entitled to draw to send in their names.

A quantity of seed of the rare and valuable Abies Pinsapo having now been received from Spain, we understand that all classes of Fellows, whether paying 2 guineas or 4 guineas, will be able to participate in the general distribution that is about to be made of it.

There lately appeared in the Journal of the Imperial Horticultural Society of Paris an account by M. Duchartre of some experiments which he has made with a view to determine the exact cause of the well-known phenomenon called "flagging" in plants. It is a universal belief that the state of flaccidity to which this name is given, arises from nothing else than the absence of water enough in the system of a plant to supply the leaves with fluid as fast as it is lost by perspiration. M. Duchartre thinks himself justified in saying that flagging arises from two different causes, which require to be distinguished by practical men.

A common Sunflower was the subject of one set of experiments. Having watered this plant in the morning and then exposed it to a hot sun, its leaves were by noontime brought to such a state of flaccidity that they all hung down. Having then transferred it to an ill-lighted room its leaves began to rise and it soon recovered its freshness, which it preserved all the evening although it was again placed out of doors.

This same plant, three days afterwards, having been well watered as before, was again placed in a hot sun; it flagged by one o'clock, as before; and when placed once more in an ill-lighted room it became fresh in a couple of hours although the air of the room was purposely kept very hot and dry. Being then turned out of doors in the shade, it remained without change. Next day it was watered in the morning and then for the third time exposed to the hot sun; by noon it was completely flagged, and then having expended all the water in the soil, it was no longer able to recover its freshness when placed in a darkened room; nor did exposing it to night dews restore it. In the morning it was as flaccid as in the evening, nor did it recover till it was again well watered.

"Thus," says M. Duchartre, "two entirely different things happened. When the leaves flagged in consequence of a momentary excess of perspiration, the earth at the same time retaining a sufficiency of moisture, the freshness of the plant was restored by merely moderating the perspiration. But, on the contrary, whenever flagging arose from the dryness of the earth, neither darkness nor the coolness of night, nor dew itself, had any effect upon the flagging organs, and watering was the only remedy."

"It is easy," adds the author, "to perceive the importance of recognising these two sorts of flagging, if on the one hand we would understand the various facts that surround us, and on the other we would guide the cultivator in circumstances apparently analogous, but in reality very different."

We confess to a want of skill in discovering the novelty of the learned author's inferences, nor can we think that any practical man requires to be guided in the cases described. Still less does it appear to us that M. Duchartre's experiments invalidate in the slightest degree the axiom given above, that "flagging is caused by the absence of water enough in the system of a plant to supply the leaves with fluid as fast as it is lost by perspiration." For to what do his experiments amount? "*A plant recently watered if placed in hot sunshine flags.*" Of course it does if the leaves perspire faster than water can be pumped up from the stem; the plant is like a pump which will not draw because it has emptied the well till the water is below the level of its sucker. Leave the well alone and it gradually fills, after which the pump acts as before. In like manner the plant if left alone (that is to say removed from the hot sun, the great cause of perspiration), gradually fills again with water, and recovers its former freshness. Do not all gardeners guard against this flagging by screens and shades? If not in France they certainly do in this country. It may indeed happen that inexperienced persons endeavour to prevent flagging under the sun by giving more water, which is useless, but good gardeners know better, and rely on nothing but shade, and enough of it.

"*A plant whose roots are dry if placed in the hot sun flags.*" Of course it does. The first act of perspiration exhausts the water in its system, and nothing replaces it. The plant is now a dried up well, upon which no pump can act. Before it was only half-empty and soon filled again by infiltration.

It is clear that of M. Duchartre's two cases the first is one of partial absence of water, the other is one of its entire absence. The first is counteracted by shade, which permits a mere void to be supplied; the second is not remedied by shade, but demands a fresh supply of the indispensable fluid. Any garden on clay will exemplify the last without the aid of experiment. In September the ground is dried up, and the leaves of the Lime tree flag; night comes and with it shade; still they flag; the sun is veiled by heavy clouds, the precursors of a storm; but no change comes over the foliage; perhaps it flags the more. At last the storm bursts, the ground is saturated, water rushes up the conduits in the thirsty trunk, is sucked or driven into all the veins, and in an hour or two the leaves are stiff and erect as ever, even though the storm be succeeded by a burning sun.

With much respect for the well known talents of M. Duchartre we must think that his experiments and the inferences he draws from them are calculated to mystify a very plain matter. In our minds the great object of science should be to simplify. Whenever complications are introduced they merely repel the unscientific; and are probably never necessary. As sound knowledge advances this becomes more and more evident; and horticulture offers no exception.

SPRING FLOWERING PLANTS.

The following is a register of the flowering of certain spring plants in the Royal Botanic Garden, Edinburgh, from 12th March to 15th April, 1857, as compared with the five previous years:—

Tussilago Farfara, March 12, 1857; March 12, 1856; April 11, 1855; March 14, 1854; April 4, 1853; February 21, 1852.

Anemone pulsatilla, March 14, 1857; March 10, 1856; April 11, 1855; March 14, 1854; April 13, 1853; February 21, 1852.

Asarum europæum, March 14, 1857; March 18, 1856; April 18, 1855; March 16, 1854; March 28, 1853; March 29, 1852.

Dondia Epipactis, March 14, 1857; March 10, 1856; April 9, 1855; March 11, 1854; March 25, 1853; March 8, 1852.

Narcissus pumilus, March 15, 1857; March 16, 1856; April 2, 1855; March 10, 1854; March 21, 1853; March 11, 1852.

Knappia agrostidea, March 16, 1857; March 20, 1856; April 2, 1855; February 28, 1854; February 1, 1853; January 31, 1852.

Primula nivalis, March 17, 1857; March 18, 1856; April 10, 1855; March 4, 1854; March 15, 1853; February 20, 1852.

Vinca minor, March 18, 1857; March 25, 1856; April 16, 1855; March 7, 1854; April 4, 1853.

Erythronium Dens-canis, March 20, 1857; March 24, 1856; April 11, 1855; March 10, 1854; March 19, 1853; March 12, 1852.

Gagea lutea, March 20, 1857; March 19, 1856; April 14, 1855; March 23, 1854; April 12, 1853; April 6, 1852.

Orobus vernus, March 20, 1857; April 4, 1856; April 16, 1855; March 16, 1854; April 8, 1853; March 31, 1852.

Scilla bifolia alba, March 20, 1857; March 15, 1856; April 5, 1855; March 13, 1854; March 27, 1853; March 21, 1852.

Draba aizoides, March 22, 1857 March 20, 1856; April 11, 1855; March 20, 1854; April 1, 1853; March 26, 1852.

Ranunculus Ficaria, March 24, 1857; March 26, 1856; April 24, 1855; March 29, 1854; April 7, 1853; March 15, 1852.

Scilla bifolia cærulea, March 24, 1857; March 20, 1856; April 10, 1855; March 15, 1854; March 27, 1853; March 20, 1852.

Corydalis solida, March 25, 1857; March 24, 1856; April 16, 1855; March 14, 1854; April 8, 1853; March 28, 1852.

Ribes sanguineum, first flower seen open on standard plants, March 26, 1857; March 26, 1856; April 19, 1855; March 14, 1854; April 4, 1853; March 21, 1852.

Potentilla alba, March 27, 1857; March 24, 1856; April 16, 1855; March 16, 1854; April 12, 1853.

Tussilago hybrida, March 27, 1857; April 3, 1856; April 15, 1855; March 14, 1854; April 4, 1853.

Scilla bifolia rubra, March 28, 1857; March 16, 1856; April 6, 1855; March 14, 1854; March 30, 1853; March 28, 1852.

Hyoscyamus scopolia, April 1, 1857; March 26, 1856; April 15, 1855; March 14, 1854; April 4, 1853; March 25, 1852.

Anemone apennina, April 2, 1857; April 8, 1856; April 30, 1855; April 3, 1854; April 12, 1853; April 7, 1852.

Cochlearia officinalis, April 2, 1857; April 4, 1856; April 20, 1855; March 28, 1854; April 9, 1853.

Orobus cyaneus, April 2, 1857; April 9, 1856; April 29, 1855; March 17, 1854; March 28, 1853.

Corydalis cava, April 3, 1857; April 1, 1856; April 14, 1855; March 14, 1854; April 5, 1853.

Anchusa sempervirens, April 4, 1857; April 1, 1856; April 13, 1855; March 25, 1854; April 12, 1853; February 21, 1852.

Holosteum umbellatum, April 6, 1857; April 2, 1856; April 15, 1855; March 20, 1854; March 30, 1853.

Puschkinia scilloides, April 6, 1857; March 25, 1856; April 16, 1855; March 27, 1854; April 2, 1853; March 28, 1852.

Muscari botryoides, April 7, 1857; March 30, 1856; April 14, 1855; March 24, 1854; March 22, 1853; March 20, 1852.

Carex montana, April 8, 1857; April 2, 1856; April 20, 1855; March 30, 1854; March 22, 1853.

Hyoscyamus physaloides, April 9, 1857; March 27, 1856; April 14, 1855; March 15, 1854; April 12, 1853; April 2, 1852.

Narcissus moschatus, April 9, 1857; April 6, 1856; April 13, 1855; March 28, 1854; April 8, 1853; April 1, 1852.

Dalibarda geoides, April 10, 1857; April 6, 1856; April 19, 1855; April 25, 1854; April 12, 1853; April 2, 1852.

Arabis flaccida, April 11, 1857; April 7, 1856; April 19, 1855; March 18, 1854; April 1, 1853; April 3, 1852.

Doronicum pardalianches, April 13, 1857; April 2, 1856; April 20, 1855; March 26, 1854; April 12, 1853.

Narcissus Pseudo-Narcissus, April 13, 1857; April 2, 1856; April 20, 1855; March 25, 1854; April 6, 1853; March 28, 1852.

Alyssum saxatile, April 13, 1857; April 8, 1856; May 1, 1855; April 11, 1854; April 7, 1853; March 28, 1852.

Saxifraga crassifolia, April 13, 1857; April 8, 1856; April 21, 1855; March 20, 1854; March 27, 1853; March 27, 1852.

Scilla sibirica, April 14, 1857; April 7, 1856; April 21, 1855; March 30, 1854; April 10, 1853; April 1, 1852.

Adonis vernalis, April 15, 1857; April 2, 1856; April 19, 1855; March 28, 1854; April 6, 1853; March 6, 1852.

Fritillaria imperialis, April 15, 1857; April 9, 1856; April 14, 1855; March 26, 1854; April 12, 1853; April 3, 1852.—*James M'Nab, in Proceedings of Botanical Society of Edinburgh.*

VEGETABLE PATHOLOGY.—No. CLIX.

658. Parasitæ (*Red Spider*).—The little insect known too well to gardeners under the name of red spider has obtained its popular name from the delicate web which it spins on the leaves which it affects, either presenting mere scattered threads or a distinct sac, though it is in reality a mite and not a spider. It is just visible to the naked eye, being distinguished by its reddish hue, which however varies with age and other circumstances, unless more than one species is included under the name, and its active habits. The leaves which it attacks have a peculiar mottled appearance from the exhaustion of the chlorophyll, which at once betrays its presence. It is not confined to stoves, but is often quite as prevalent upon walls, or even in the open ground, occasionally destroying whole branches of the trees which it affects. It is especially abundant in dry weather and in stoves in which the air does not contain a proper degree of moisture, and is far more easily prevented than cured. There are indeed remedies which are at once fatal, as the fumes of burning sulphur; but these unfortunately if strong enough to destroy the insect often destroy the plant at the same time, or even if the plant does not suffer, the eggs are not affected, and in a few days the plague is as bad as ever. If the fumes of sulphur are used, it is quite astonishing to see the myriads which sometimes collect at the tips of

decayed eatstalks, or on the leaves themselves, apparently not at all the worse for the discipline, if the fumes are not extremely strong. The proper course however is not to *burn* the sulphur, as is practised by many gardeners with certain destruction to their plants, but simply to volatilize it, and if this is done in a damp atmosphere the red spider cannot stand against it. It is difficult however to regulate matters nicely, the best remedy therefore is prevention rather than cure. Unfortunately however Melons, which are peculiarly liable to be affected, require in certain stages of growth a dry atmosphere which favours the development of the red spider, while it prevents or checks canker and mould. Constant syringing appears to be the most effectual means to this end, but as in other cases of disease, the very first symptom should be carefully regarded, and the remedy at once employed. When the leaves have once become mottled they are not in a fit condition to perform their especial functions properly, and even though the syringing should be effectual in preventing any further mischief, it cannot replace the unhealthy with healthy tissue. Other remedies have been proposed, as strong Tobacco smoke, turpentine, bruised Laurel leaves, sublimed sulphur, a solution of soft soap; and favourable reports have from time to time been given of all, but on the contrary there have been as many records of failure, so that implicit confidence cannot be placed in any one of them.

659. Other mites abound occasionally in gardens, but in general without doing much harm. Mushrooms are subject to them, and these when dried as well as many other vegetable productions, unless kept in a very dry atmosphere, are liable to complete destruction. There is moreover a species of mite which deserves notice from its effects upon one of the most important articles of cultivation in many hot countries, namely, the Cotton plant. This appears to be the same species with that which is destructive to meal and other vegetable matters, and is known by entomologists under the name of *Tyroglyphus farinæ*. That a mite so destructive to anything abounding in feculaceous matter should attack the cotyledons of the Cotton seed is not surprising, especially if the seed has been kept beyond the first year, but the curious matter is that though the seeds vegetate readily and the young plants which spring from them appear vigorous they are soon entirely destroyed. The matter has perhaps at present been examined with scarcely sufficient accuracy to assert that the mite which attacks the cotyledons before germination is the same animal which destroys them after they have germinated, but it is at any rate worthy of attention and important inferences may hereafter be deduced applicable to other cases.* *M. J. B.*

Home Correspondence.

Hot-Water Boilers.—At the June Exhibition of the Horticultural Society in all probability there will be a great variety of these, and perhaps some new designs; would it not be well to give the exhibitors an opportunity of testing their power of heating and economy of fuel? The following suggestions perhaps would aid in bringing this about. Let the Society select a piece of ground where the boilers could be set with inch pipes laid on, raised on temporary supports, to prevent deep setting of the boilers. Let the joints clear of the boilers and flues be slightly caulked and finished with Portland cement. Exhibitors living at a distance might find it more convenient to hire bricks and mortar. The Society, with its accustomed liberality, would doubtless provide fuel. The most suitable for all parties would be dry coke from the gas works, with wood for lighting. Exhibitors to compete in classes according to size of boiler, with length of pipe in proportion laid on, and each class should have its required weight of fuel. First day—water boils in the shortest time, or the nearest they can approach to it, each with thermometer placed midway between the flow and return, the bulb within the pipe or in close contact. All start fires at the same time, and as each attains its highest point note the time and withdraw the fire. No water should be used in quenching, and the remaining fuel should be weighed. Second day—greatest heat continued with the least consumption of fuel. All start fires at the same time. Thermometers registered hourly or oftener. All withdraw fires at the same time, and the remaining fuel weighed. The trial would be attended with additional expense to the exhibitors, but should they decide to make it, all difficulties would soon be overcome, and it would place on record the results of one trial of boilers under similar circumstances, each boiler having its designer's peculiar set, so often misunderstood when performed for the first time by local hands. The trial should be made before the days of exhibition, and the particulars should be stated on a card attached to each boiler. *J. T.*

Large Oaks.—In consequence of the recently published measurements of the Cowthorpe Oak not agreeing with the account given of it by Dr. Hunter in Evelyn's "Sylvia," A.D. 1776, I went last evening on purpose to take an accurate measurement of it, including the "buttress-like" projections of the roots (several of which having decayed have been broken away of late years). I found the extreme girth close to the ground to be 65 feet, at 3 feet high the girth is 45 feet, the girth of the remaining main limb close to the trunk is 10 feet 7 inches; at 16 feet distance from the stem, where this limb first branches, the girth is 7 feet. The diameter of the hollow part of the trunk at the ground is 14 feet 3 inches, and at 4 feet from ground 11 feet 11 inches. Thus showing that 4 feet 5 inches have decayed since Dr. Hunter took his measurement. *Thomas W. Abbott, Ribston Park, Wetherby, April* 28.——The account and drawings of the Marton Oak were not sent you by Sir Eardley Wilmot, but by Mr. E. W. Wilmot, the Duke of Devonshire's agent at Buxton, and brother of Sir H. E. W. The inside diameter of the Marton Oak is fully 10 feet, not 5, as I think you will find in my account of it. The dimensions of the Cowthorpe Oak I took from the *Illustrated News* of about two months ago. They are of the tree as it now stands; the other dimensions are, I think, Evelyn's, when the tree was much larger; so also has the Marton Oak evidently been. Still more desirable now do photographic portraits and exact measurements of the great Oaks appear, as of those names in your last week's article more than one third are spoken of in the past tense. One of the great Oaks in Welbeck Park, called "The Seven Sisters," is much charred and blackened, having very narrowly escaped being burnt down some years ago by some men taking a wasp's nest in the hollow trunk. *Ed. Woollett Wilmot, Buxton.* ——I send you a rough sketch of an Oak recently fallen on my property, the apparent cause being the softening of the soil from the recent rains and the great weight of the excrescence or tumour of curled and knotted wood, which appears to be of most unusual size. The tree was perfectly healthy, and no decay visible, except a little near the root on one side. The centre is sound, as

I had it cross-cut near the root to examine it. I cannot give a correct estimate of the cubical contents, the shape is so unusual. Would it be a fair measurement to take the girth at the three places, which would leave an average girth of 3 feet 6 inches, and in the total length of 24 feet would give almost 300 feet of timber? Can you inform me the correct way to measure it? *A Welsh Sub.* [No. But we hope some one else will.]

Berberis dulcis.—You will much oblige me if you will inform me whether the inclosed is Berberis dulcis, [certainly it is]; and whether its berries are thoroughly wholesome for human food. I believe it is not a certain indication of the wholesomeness of a fruit for man that birds eat it, but they eat the berries of this shrub most greedily. All sorts of birds attack them the moment they are ripe, and clear them off so greedily as not to give anybody much chance of testing their wholesomeness. They grow very fine here at an elevation of 600 or 700 ft. above the sea, and are deliciously sweet, though the climate is ungenial and the Oaks seldom if ever bear acorns, or the Wheat crop come to perfection. I should also be very much obliged if you would say whether the berries of B. aquifolium and Leycesteria formosa are wholesome? *Walter T. Bullock, West Devon.* [Personally we are unacquainted with the fruit of this plant, which seems unwillingly to bear near London. There is however no reason to fear it. Sweet who first published the name states upon the authority of Anderson, the plant collector in the late Captain King's Voyage, that "the species was found in the Straits of Magellan, where the fruit is used as we use Gooseberries, both green and ripe, for making pies and tarts and other sweetmeats or preserves for which it is most excellent, the berries being black, the size of a Black Currant, and produced in abundance." The berries of Berberis aquifolium are wholesome; but we should suspect those of Leycesteria to be emetic.]

Pruning Peach Trees in cold situations.—Mr. Knight recommended a mode of pruning and treating the Peach tree adapted to cold and late situations as better calculated to ensure the production of fruit buds than the ordinary method of laying in long shoots for the ensuing year. I apprehend the climate of Scotland is much of the character he had in view; the springs are cold and late, the summers without much heat, and the autumns mild and damp, keeping up a slow growth, and preventing the wood ripening and the roots being seasonably put to rest. I observed the Peach tree last year persistently retaining some of its leaves as late as December. The treatment recommended by Mr. Knight consists in retaining a larger number than usual of the current season's shoots, but allowing only a very few of them to extend to their natural length, and pinching off the points of all the rest, so as to check their growth, and keep them in the state of spurs, on which he considered fruit-buds would be more readily formed, and the wood become better ripened. I have been induced lately to try a modification of this plan on a Peach tree—a Royal George—which shows no disposition to put forth blossoms, though by this year it ought to have done so; and I would like to know the opinion of any of your correspondents who are conversant with the management of the Peach tree on the probability of its succeeding. It may be understood by supposing any number of last year's shoots laid in at competent length; and as the same treatment is followed in the case of each, the description in regard to one will answer for the rest. The shoot is ringed above the first or second bud from the bottom, from which one shoot is intended to be trained at full length for next year, to be then operated upon in the same way. The shoots from the buds above the ringed part are to be kept short, in the shape of spurs, an inch or two long, by pinching the points of the shoots and preventing their extension. At the end of the season then, each of last year's shoots will have one shoot of this season below the ringed part trained at full length, and a number of spurs or short shoots above it, on which, according to Mr. K.'s views, fruit-buds are more likely to be formed than on the long shoots. Next year, should the part with spurs produce fruit, it will be retained till the fruit is ripened and then cut out at the ringed place; otherwise it may be done sooner, being of no further use. The shoot produced this season below the ringed part, and laid in at full length, will early next year be ringed and treated in the same way with reference to the succeeding year, and so on. The object of ringing the shoots is two-fold—to throw more sap and vigour into the shoot produced below the ringed part, and proportionally to diminish the supply to the spurs above it, and check luxuriant growth, so as to render them more manageable, and induce the formation of fruit-buds. It will be observed that by this plan of treatment the growth of wood over the whole tree is kept down to the lowest possible quantity, the permanent addition each year being only the small portion contained between the old wood and the lowest bud of the shoot proceeding from it, which is not more than an inch or two. *J. H. H.*

Early Leafing in Beech-trees.—Riding on an omnibus from Tunbridge to Sevenoaks on Tuesday last, the driver pointed out a Beech tree in full leaf by the road side, which he stated had been so for upwards of a fortnight, while the other Beech trees growing by its side had only just begun to swell their buds. The driver stated that the tree was notorious to all frequenters of that road as a great curiosity from being in full leaf at least a month before the others. *J. K., Maidstone.*——Can you explain how it is that a Beech tree growing near my house should put forth its foliage in the following manner? This tree grows in a solitary coppice which is almost entirely composed of Beeches; it is of great height, and forks off about 3 feet from the ground. One of these forks I have noticed for the last 6 years comes into full leaf 3 weeks before the other half of the tree, and before any other tree in the copse. It is now in great perfection. *F. S., Devizes.* [We suppose it is a case of "sporting" locally.]

A Pair of Blackbirds having hatched some young ones in a tree on Ham Common, a cat was observed to ascend the tree near to the nest, when she was heroically attacked by both the parent birds in a most ferocious manner, and was compelled to beat a retreat. She was, however, followed several yards distance by the male bird, who then returned to the nest. This was witnessed by the head-gardener and another person in the garden of Lady Byron, the relict of the poet of that name, and may be relied on as a fact. The circumstance occurred on Friday morning last the 24th inst. *C. Deacon.*

Orchard Houses.—I am cultivating some Peach, Nectarine, Plum, and Cherry trees in an orchard-house, according to the plan recommended by Mr. Rivers, and am much concerned to find the bloom dropping off without setting any fruit. This is especially the case with the Peaches and Nectarines, moderately so with

* See *Gard. Chron.* 1854, p. 319. A figure of *Acarus telarius*, L. (red-spider) will be found in this Journal, 1841, p. 164.

the Plums, and scarcely at all with the Cherries. To all appearance the trees are in luxuriant health, having abundance of bloom, and a considerable amount of foliage. I should be much obliged if Mr. Rivers or any of your correspondents can assist me as to the cause of failure. *G. H., Camden Town.* [Either your pots are too dry or your trees have been growing too fast.]

Brown's Floral Shading.—Noticing in your last number an article on this subject, I beg your insertion of this in order to contradict the conclusion of your correspondent's statement. He says—"Brown, if I understand rightly, neither gives discount nor credit." Please to correct this error, for such it is, my terms to the trade being the usual discount, and a further reduction for cash. *Charles Brown, Greenheys, Manchester.*

Coppice Wood.—I have paid considerable attention to the controversy now going on in your columns as to the value of an acre of Coppice wood, and, knowing something of the plantations on the Bywell estate, and having been extensively employed in the valuation and management of such description of wood, I am prepared to state, and to substantiate the assertion, that there is not an acre of Coppice wood either at Bywell or in the neighbourhood worth one-fifth of the value assigned to it by Mr. James Whyte. Mr. W. is an inexperienced young man, and ought therefore to be charitably excused for the inaccuracies into which he has fallen, and for setting himself up as a teacher of a subject which he cannot possibly understand. His observations are eminently calculated to mislead, and instead of rushing into print with merely vague ideas, he would do well to endeavour to acquire some practical experience of the matter of which he intends publicly to treat. *J. B.*

Age of the Yew.—Mr. Loudon, in his "Arboretum Britannicum," gives several instances of the supposed age of this tree; but none that I know of can be supported by such strong evidence as that to which I am about to allude. In the churchyard, at Kintbury, near Hungerford, in Berkshire, is a Yew of considerable dimensions, measuring about 12 feet 4 inches in girth, and in full vigour. On its east side is the headstone of a grave, forced into a very slanting direction, but recently, and with much difficulty on account of the roots of the tree by which it was grasped, raised under the directions of the incumbent, the Rev. James Dundas, into a more upright position, so that the inscription on it has become legible. On its west side the footstone remains as heretofore, half buried, and in a slanting position. There can, therefore, be no doubt that this Yew was planted on the burial of the deceased person, and in the centre of his grave, and that the stones were forced into this position by the gradual growth of the roots of the tree. The inscription on the headstone is as follows:—

HOS INFRA
JACET CORPUS RICHARDI BLANDY,
QUI OBIIT DUODECIMO DIE
JUNII ANNO DOMINI 1662.

The burial took place, as appears by the register, on June 16. We have then, allowing for the age of the tree when planted, perhaps two or three years old, its exact age at the present time. *C. E. Long.*

Slugs.—I am much obliged by the suggestions of your various correspondents for destroying slugs, but I must, I fear, agree with one of the latest, that no very satisfactory remedy has yet been named. The simultaneous and opportune account of the habits of the slow-worm did not fail to attract my notice, and as the slow-worm abounds with me, it probably explains the comparative paucity of slugs outside my garden, where rocky banks afford shelter to that reptile. But it would be almost impossible to preserve slowworms in a cultivated garden. Their habit is to live under large stones and stumps and in the crevices of rock; and the Strawberry beds are the only place in a garden where they would have any chance of shelter, or of escaping the spade and hoe. The lapwing, though perhaps the next best substitute, would soon come to an untimely end; at least all that I have ever known in gardens have done so. The space of a garden is too small, and in dry weather food becomes so scarce that the moisture-loving biped would starve; nor would it, I imagine, be easy to supply it with wholesome food, not to say that cats would probably make free with so tempting a prey. The windhorn hawk I have had, but derived no perceptible benefit from it as regards slugs. I have known a seagull kept with better success, and if I tried any resource of that kind it would probably be that bird; because, being a very gross feeder, it would be more easy to supply him with food. Lime I have employed and continue to do so, but though used in quantities to be absolutely unsightly, I do not find it effective. Salt in anything like the same abundance would destroy the vegetables before it destroyed the slugs. I have used it copiously on Asparagus beds to the destruction of every weed, but with little effect on the slugs, which ruin the Asparagus by attacking the heads just as they come out of the ground. The magnificent suggestion of your correspondent "Miller" is founded on the assumption that the garden is an old one, which he would wheel away bodily, but my garden happens to be a new one, made not 10 years ago, and formed not by excavating 2½ feet deep, but by levelling and terracing more than 7; and it was, moreover, provided with surface soil from the very richest bit of pasture on the whole estate, which was being converted into a shrubbery, and whence loam such as gladdened the eyes of my gardener was carted *ad libitum*. Now it happens to be in this identical part of the garden, where every advantage which your correspondent suggests has been given, that the slugs are most troublesome, whilst in an adjoining part of the garden some 80 years old we are less molested. I mention these things because some of your readers suffering from the like plague might be beguiled into what they conceived the most effectual though the most expensive remedy. Whilst on the subject of gardens artificially formed, I may remark that my experience leads me to believe that it is better to change the site and soil together than to make an artificial soil in a garden. I have seen the experiment tried both on a large and small scale, but with very little success, and the removal of the walls would generally be less expensive than the double carting involved in removing the soil. I however should in most cases prefer an old to a new kitchen garden, and a crop of some Cereal would correct the rare case of a garden glutted by manure, and weary of leguminous or siliquaceous crops. It is an ungracious task thus to disparage the counsels of all my kind advisers, but I have been really anxious if I could to elicit through your columns some remedy for an evil under which many of my brother gardeners suffer as well as myself. Hitherto I do not think anything really effectual has been devised. I am inclined to think that I suffer from the continuous hatching of eggs long since buried in the soil, and that a persevering destruction by hand-picking will at last effect my object, but of this I do not feel sure. *J. R.*

Mushrooms in Orchard Houses.—It seems to me that these houses will make admirable places for growing Mushrooms in, for this week I have gathered some very nice ones from among my Strawberry pots, the spawn I suppose having been carried there in the manure used in making the borders. I have now planted a large quantity of spawn all over the house, and should I be fortunate enough to raise a crop you shall hear again. *X. Y. Z.*

Rain in 1856; 1 *mile eastward of Shrewsbury.*—

January	8	.39
,,	15	.00
,,	22	1.17
,,	29	.89
February	5	.02
,,	12	.66
,,	19	.60
,,	26	.00
March	4	.02
,,	11	.00
,,	18	.52
,,	25	.23
April	1	.00
,,	8	.37
,,	15	.51
,,	22	.00
,,	29	.60
May	6	.10
,,	13	.47
,,	20	.41
,,	27	.69
June	3	.76
,,	10	.01
,,	17	1.01
,,	24	.62
July	1	.00
Carried forward		10.05

Brought forward		10.05
July	8	1.04
,,	15	.25
,,	22	.17
,,	29	.41
August	5	.00
,,	12	.85
,,	19	1.02
,,	26	1.00
September	2	.27
,,	9	.13
,,	16	.04
,,	23	.76
,,	30	1.61
October	7	2.01
,,	14	.20
,,	21	.30
,,	28	.01
November	4	.60
,,	11	.42
,,	18	.14
,,	25	.16
December	2	.63
,,	9	.81
,,	16	.36
,,	23	.19
,,	31	.51
Total		23.94

—*March* 25.

Societies.

HORTICULTURAL, *May* 1: ANNIVERSARY MEETING.—The chair having been taken by J. J. Blandy, Esq., V.P., the Council presented their annual report, the purport of which will be seen from the following extracts:—

After adverting to the proceedings that took place at the Special General Meeting of the 24th June last, the Council proceeded to state how far they had been able to carry out the views explained in that Report, and what progress they have made in other respects.

In their expectation of obtaining from Government apartments rent free, the Council have been disappointed. His Grace the President himself memorialised Prince Albert upon the subject, and his Royal Highness, who has always taken a lively interest in our welfare, most graciously condescended not only to convey the memorial to Government, but to recommend its prayer to favourable consideration. The Chancellor of the Exchequer, however, caused the Council to be informed that no rooms were vacant, and that consequently the application of the Society could not be entertained.

The reduction of the rate of annual subscription has been effected as follows:—Payment of an admission fee is no longer required, but the subscriptions of new Fellows are made payable in advance, and two rates of subscription are fixed—the one 4*l.* 4*s.* a year, the other 2*l.* 2*s.* a year—the privileges of the Fellows elected under this arrangement differing in this only, that the former will be entitled to a transferable Ivory Ticket, which gives the bearer the same privileges as the owner has to ordinary admission to the Society's Meetings and Gardens, and has also a claim for whatever plants and seeds it may be possible to provide for distribution; while the privilege of the latter consists in receiving such seeds or cuttings as may exist in sufficient quantity to be made the subject of general distribution from the Society's London Office, besides enjoying the other privileges of Fellows. Necessarily consequent upon these changes was some alteration of the By-laws, so as to bring them into correspondence with the new organisation of the Society.

After much deliberation, the Council have arrived at the conclusion that it is their duty to revive the Exhibitions at the Garden immediately in a modified form. They believe that these meetings are indispensable to the success of the Society, they hope they may be again made productive, and they know that a very large proportion of the subscribers to the fund for the maintenance of the Garden expect that the experiment should be fairly tried. Moreover they see that the difficulty of access to the Garden, which has of late years operated so disadvantageously, is to a considerable degree removed, in consequence of the North London Railway having formed a station at Turnham Green; and they contemplate the possibility of the South-Western Line being also made available through its station at Chiswick, with a view to which they have caused a new gate to be opened at the corner of the Garden nearest the Chiswick station. In the renewed attempt that is to be made to promote Horticulture by Garden Meetings, the Council have decided upon limiting the experiment for this year to one meeting only early in June; and then, in order to diminish the risks attendant upon unfavourable weather, to extend the Exhibition over two days, so that if the first day should be wet the second may still be available. And they have the gratification to state that on both days His Grace the President opens the grounds of Chiswick House to the visitors to the Society's Garden. It has always been a serious inconvenience that if the weather during the Garden Meetings is so bad that the tickets purchased for the purpose cannot be used, they are absolutely lost to their owners. This contingency is now guarded against, by making the Garden tickets available not only for two days but also for a great Exhibition of Fruit to be held in London in the month of October. In order to render the Garden Exhibition as useful as possible in all directions, Kitchen garden produce is now admissible; and in addition the manufacturers of goods of every kind used in gardening have been invited to co-operate in a grand display of their productions. This, it is hoped, will prove not only useful, but beneficial to both manufacturers and their customers, in the same manner as the displays of agricultural goods at the annual meetings of the Royal Agricultural Society have to the farming interest.

Changes such as have been now described will, it is hoped, very materially increase the utility of the Society, but the Council feel that all changes shrink into insignificance when compared with the efficient organisation of the Garden. Exhibitions there are doubtless most important, but far more important is the complete efficiency of the place itself as an institution for carrying out the purposes for which it was originally instituted. In 25 years our pecuniary necessities have forced successive Councils to fix their attention more upon reducing the heavy debt of the Society, than upon carrying out the Garden with that energy and activity which such an establishment, if it is to be of national value, imperatively demands. The Council entirely agree with those who thought that the Garden could not be maintained as it was. They go further; they are of opinion that its preservation would not have been desirable even had it been possible. Nothing can be more certain than that the magnificent garden at Kew has rendered the Society's Garden unimportant as a mere collection of plants, or as a place of attraction to crowds from London merely anxious to enjoy a day's agreeable amusement. But it is one thing to attempt a rivalry with purely scientific establishments like Kew, or with places supported by Government for the mere purpose of public recreation, and another thing to maintain a Garden exclusively intended as a great example of the best kind of such management as country gentlemen and the possessors of gardens of their own would be desirous of securing; where the possibility of carrying out high cultivation with economy may be daily demonstrated, and where all that is most important in fruits, esculent plants, and objects of decoration may be concentrated. And it is to this kind of Garden that the Council think the whole energies of the Society should be now directed. Happily our financial position is very much improved, even in the course of a single year; and the Council confidently anticipate the gradual restoration of the Society to the healthy and vigorous condition in which it once existed, provided the Garden can be maintained in a state worthy of so great a country as Great Britain. Its entire reorganisation has, therefore, been their first consideration; and to effect this object, they have come to the following resolutions:—1. That while mere ornamental gardening of a costly kind should be discontinued, nevertheless the decoration of the place should continue to be attended to, and that perfect neatness and good arrangement should be found in every department. 2. That all spare ground be occupied profitably by crops which can be sold in aid of the expenses of the Establishment, in anticipation of which, the Council have already ordered the removal of a considerable number of useless, unproductive, or duplicate fruit-trees, the ground hitherto occupied by them forming part of what is to be turned to account. 3. That experiments of all kinds in practical Horticulture be henceforward the essential objects of the Establishment; such experiments to consist, among other things, in demonstrating the best modes of cultivation, of training, forcing, protecting, propagating, heating, ventilating; the true value of all kinds of new esculents, fruits, and economical produce connected with gardening; the merits of the various tools employed by workmen, and of the substances, from time to time, recommended as remedies for the diseases of crops, or for the enemies that attack them. 4. That some one be always present in the Garden, from whom visitors may obtain information upon all questions in practical Horticulture, and concerning such operations in progress, from time to time, as a Guide Book, which is

about to be published, may not sufficiently explain. 5. That the work of preparing new plants and seeds for distribution among the Fellows of the Society be maintained in the greatest possible activity. 6. That by these and similar means the Garden be rendered a great place of Horticultural instruction; whither not only the Fellows and their friends may resort, but where young gardeners employed by the Society may be able to gain valuable Horticultural knowledge. 7. That there should be in future only one head of the Garden, to whom all other persons should be subordinate, and that his whole time be devoted to the service of the Society. At the same time it was settled, that a Fruit Inspector be appointed, and Mr. Robert Thompson has been charged with his duties. It must be obvious that a person possessing all the qualifications required for properly fulfilling the duties to be intrusted to the GENERAL GARDEN SUPERINTENDENT under the foregoing resolutions, and whose standing in the Horticultural world would secure the confidence of the public, must be of rare occurrence. Such a person has been at last found in Mr. George M'Ewen, formerly Gardener to the late Duke of Norfolk, at Arundel, where his Horticultural skill placed him in the front rank of his profession. With this accession of practical talent the Council believe that the public importance of the Garden at Chiswick will be second to no other in all that relates to the true business of practical and experimental Horticulture. In connection with this part of their Report, there is one point to which the Council think it peculiarly necessary to advert; namely, the maintenance of the Garden in some considerable degree by the sale of its produce. However large the funds may become with which the friends of Horticulture may furnish us, the Council are of opinion that this point should always be insisted upon; for the real value of Horticulture is in some respects best shown by pecuniary results. Their instructions to Mr. M'Ewen have therefore been most explicit on this point, and they find with much satisfaction that his great practical knowledge enables him to say that in this their expectation the Council will not be eventually disappointed. It however requires time, and some considerable outlay of money, to bring into action the productive capabilities of the land.

The best mode of effecting the distribution of plants from the Garden has been a subject of consideration. Both the present and former Councils have received representations upon this subject, from Fellows who have thought that they had cause of complaint. The present Council is not prepared to admit the justice of such complaints; on the contrary they are satisfied that the most perfect fairness has been shown in the management of this part of the Garden business, as, indeed, the Garden registers, always open to inspection, sufficiently prove. The dissatisfaction that has been expressed has undoubtedly arisen out of the inherent difficulties attendant upon the division of a small number of plants among a large number of applicants, the resolution of the Society not to interfere with the trade of nurserymen, and the very extravagant expectations which applicants sometimes form. In order that this question might be fully considered, the Council referred it to a Committee, with a request that, after carefully examining the subject in all its bearings, they would report whether any, and what, alterations could be practically carried out. The Committee recommend that among minor arrangements there should be from time to time a decision by way of lottery for the purpose of determining who should be the recipients of valuable plants too few in number to be made a subject of general distribution, and the Council intend to ascertain experimentally whether this suggestion will work. In the meanwhile, in addition to other means of satisfying the wishes of Fellows, communications have been opened with Peru, Cuba, and Southern Australia, whence it is to be expected that supplies of seeds will be received. Arrangements of this nature with distant countries cannot however be completed without considerable delay.

The Fellows are aware that before the last Anniversary a Subscription had been opened for the maintenance of the Garden. This has now (April 30) reached the amount of 3096*l.* 14*s.*, as is shown in a detailed list of Contributors given in the Appendix, in addition to which the Council have reason to believe that some further sums may be expected from gentlemen whose names are to be found in the original list. The whole number of Fellows who have thus liberally come forward to maintain the Garden being only 173, the Council venture to entertain a hope that when the present Report shall have been circulated among the Society, a considerable addition will be made to the resources at their disposal.

The balance sheet and a statement by the accountant show that 1000*l.* of bonded debt has been paid off during the year, and that the assets of the Society beyond its liabilities now amount to 700*l.* exclusive of the value of the property at the Garden, whatever that may be. This has been brought about by the voluntary subscriptions already alluded to, and notwithstanding a deficiency of income upon the year to the amount of 1619*l.* A prosperous Meeting at the Garden, and a continued influx of new Fellows, will cause the accounts to wear a very different face at the next anniversary. The state of the Society during the past year has indeed been so entirely exceptional, that the Council do not further advert to the subject of finance.

In conclusion, the Council drew attention to the following points among others. For more than half a century the Society has endeavoured to pursue the path traced out by its Charter. It has minutely examined the qualities, and reduced to order the names, of fruit trees and of esculent plants; it has directed the attention of scientific as well as of practical men to the improvement of the arts of cultivation; it has introduced at much cost great numbers of exotic plants to decorate our gardens; it has published many volumes filled with important treatises upon almost every subject in which the gardener is interested; it has formed a very extensive garden and orchard, in which have been collected from time to time numerous plants, valuable for their utility or beauty; it has given a great impetus to cultivation by its public exhibitions of garden produce; it has been a school from which have sprung some of the most distinguished gardeners of the present century; and it has given away to its Fellows, and to public establishments, above a million and a half of plants, packets of seeds, and cuttings. In effecting all this about 250,000*l.* have been expended, of which 40,000*l.* have been consumed in the creation of the Garden, more than 2000*l.* in forming collections of drawings, models of fruit, &c., 13,000*l.* in the mere cost of procuring new plants and seeds, while above 20,000*l.* have been directly applied in the form of medals and money prizes for the encouragement of Horticulture. The Council have now resolved to fall back upon those fundamental principles which the great founder of the Society, Mr. Thomas Andrew Knight, whose nearest immediate descendant they are proud to announce has just joined us, always regarded as the first object of the Society, namely, the improvement of cultivation in all its branches, as distinguished from the formation of mere collections of rare plants. In carrying on the Society thus far the Council have maintained the Garden and the usual Monthly Meetings and Exhibitions in London, and they have taken measures to renew experiments on the cultivation and quality of fruits and esculents, to revive the Exhibitions in the Garden itself, and to put the introduction of exotic plants and seeds upon a new and more convenient base. That the changes proposed by the Council have produced a beneficial effect not to be mistaken seems to be sufficiently apparent upon consideration of the following facts. Between April 1 and June 24, the day on which the future course of the Society was finally determined, as has been already stated, we lost 47 Fellows by resignation. During the remainder of the year now reported upon, 17 only left the Society in that manner. The number of new Fellows elected since June 24 amounts to 114, and 35 candidates have been since proposed, to which has to be added one Fellow readmitted; in all, an addition of 150 Fellows in six meetings, or on an average 25 at each meeting. Now in the years intervening between April, 1820, and May, 1824, the period of the greatest prosperity of the Society, the number of elections averaged only about 11 at each meeting. On the other hand, between April, 1846, and May, 1850, the elections amounted to only 3½ per meeting. The Council, therefore, think they may fairly assume that the popularity of the Society is rapidly increasing, consequent they presume upon the public having concurred in the future course of action which is now determined on. The annual election of Council and officers was then proceeded with, when the Lord Bishop of Winchester, Mr. Wentworth Dilke, and Mr. J. R. Scott were announced as having been elected into the Council in the room of Sir Morton Peto, Sir Joseph Paxton, and the Rev. Mr. Hawkins. His Grace the Duke of Devonshire, Mr. Wilson Saunders, and Dr. Royle were reappointed President, Treasurer, and Secretary for the ensuing year, and Mr. Leach and Mr. R. Glendinning were elected Auditors.

Notices of Books.

Journal of the Proceedings of the Linnean Society. Part 4. This completes the first volume of the very useful scientific publication of which notices will be found in our former columns. The present number contains papers on the Homopterous insects of Borneo, by Mr. Francis Walker; various Cryptogamic subjects by the Rev. M. J. Berkeley and Mr. Frederick Currey; on the Kobo Tree, a new Leguminous genus, by Mr. Bennett; on the Orchidology of India, by Prof. Lindley, &c. The volume is closed by an excellent Index.

The British Expedition to the Crimea. By W. H. Russell, the *Times* Correspondent. Parts 1 & 2. Routledge.

Notwithstanding its mistakes, and the questionable propriety of many of its criticisms, there can be no doubt that the letters from Mr. Russell, as published in the *Times*, will form an important part of the evidence upon which any future historian of the Crimean campaign must much rely. He described admirably what he saw, and criticised boldly all mismanagement; no praise was withheld from those who deserved it, no censure from those whom the Correspondent regarded as unequal to their trust. Not a currier of favour, relying upon no high personages for information, employing before Sebastopol the same free pen that was his own in London, and combining with all else a facility of composition that few men possess, Mr. Russell produced daily on the spur of the moment and in the centre of fearful scenes, his series of reports, unrivalled for their resolute temper and graphic power. It is more especially when we place them by the side of the conceited *niaiseries* of such writers as De Bazancourt that we feel with full force how much we owe to the liberty of the press of England. Part of the letters, we are told, which appeared in the *Times* after the Battle of the Alma was actually written on the field of battle—amid the dead and dying, in an atmosphere heavy with the smell of blood and corruption, amid sights and sounds too terrible to recollect—by one who was racked by the incipient pains of Crimean fever, which the hot sun was rapidly developing in his unprotected frame.

Under such circumstances exact correctness was impracticable; the marvel is how so much was attained. The leisure consequent upon the cessation of hostilities would of course bring numerous emendations from many present in the great scenes described; the inquiries officially instituted in Europe, together with the criminations and recriminations of some of the principal actors, have thrown new light upon many of the most important transactions. To use the author's own powerful language:—"For the first time in modern days the commanders of armies have been compelled to give to the world an exposition of the considerations by which they were actuated during the war, in which so much of the sufferings and losses and inaction of our troops was imputed to their ignorance, mismanagement, and apathy. They were not obliged to adopt that course by the orders of their superiors, but by the pressure of public opinion; and that pressure became so great that each, as he felt himself subjected to its influence, endeavoured to escape from it by throwing the blame on the shoulders of his colleagues, his chiefs, or on a military scapegoat of very doubtful character, known as 'the system.' As each in self-defence flourished his pen or his tongue against his brother, he made sad rents in the mantle of official responsibility and secrecy, and let the truth be seen in its modest nakedness. Even in Russia the press, to its own astonishment, was called on to expound the merits of great captains and grand strategical operations; and the public, such as it is, could read in the official organs of their Government very much the same kind of matter as our British public have read in evidence before the Chelsea Commissioners, in speeches, in books, in pamphlets, and in newspapers, for many long months. In obtaining the result which the press produced by its action on the opinion of this country—a result which is almost a moral revolution—much of what was hidden has been revealed. We know more than we did; but we never shall know all."

No one however can doubt the extreme value of that "more," and the importance of its being brought to bear upon Mr. Russell's description of events. We read therefore with great satisfaction his assurance that in condensing and rearranging this edition of his correspondence and in rewriting an account of some of the greater events of the war—such as the Battle of the Alma and the Assault of the 18th of June—as well as in the additions he has found it necessary to make to ensure the greater completeness of the work, he has availed himself, as far as possible, of these revelations, and has "endeavoured to draw up the truth out of the very deep well filled with the waters of bitterness, jealousy, and recrimination in which she has been brought to life."

As far as we can at present judge that promise has been fully kept; in many important matters, up to the landing at Old Fort, beyond which the present issue has not gone, we remark so much new writing that we regard the present edition as highly interesting, not only because of its intrinsic merits, but still more so because by comparing it with the original the searcher of truth will readily see in what respects Mr. Russell himself thinks that his first impressions on the field of action were absolutely just, or more or less in need of reconsideration.

We should add that each shilling number contains two plates; the first, including a portrait of the author and an extremely clever sketch of the Guards in camp at Scutari; the second having views of Varna and Constantinople.

Prof. Henslow's Dictionary of Botanic Terms, commenced several years since in Maund's Botanist and Botanic Garden, but we believe not completed there, has now appeared in a separate volume, published by Groombridge for 4*s.*

The Egyptians in the Times of the Pharoahs. By Sir Gardner Wilkinson, 12mo., Bradbury and Co., is a richly illustrated volume, prepared as a companion to the Egyptian collections in the Crystal Palace. It by no means supersedes, but rather illustrates and explains the *Manners and Customs of the ancient Egyptians*, by the same learned author, and it contains an extremely interesting introduction to the study of the Egyptian Hieroglyphs by Mr. Birch of the British Museum.

Garden Memoranda.

MESSRS. WEEKS AND CO.'S NURSERY, KING'S ROAD, CHELSEA.—In our volume for 1854, p. 807, we stated that Messrs. Weeks & Co. had heated the whole of the houses in their establishment from one boiler, a tubular one 5 feet in height and 3 feet 6 inches in diameter, exposing to the immediate action of the fire a surface of 340 superficial feet. This boiler has now been in operation more than three years, and during that time has given the most perfect satisfaction. It is reported not only to effect a saving in the shape of fuel; but to maintain an unusually steady heat in the different houses, and to warm the water in the pipes even in

those most distant from the boiler in a very short time after the fire has been lighted.

To the structures this boiler has hitherto had to heat has lately been added what is called a "New Winter Garden." This is a square span-roofed building immediately behind the show house, measuring 70 efet in the side, and 28 feet in height. Its interior is divided by means of gravel walks sunk about 1 foot deep and margined with turf edges into four large beds, having a circular clump in the centre at the intersection of the walks. These beds are filled chiefly with Camellias and large Orange trees, intermixed with and around which are placed flowering plants in pots, so as to keep up as much floral gaiety as possible, and to render this house a pleasing promenade at all seasons of the year. The main central walk leading from the entrance of the show house to the north extremity of this building is 105 feet in length. The system of ventilation adopted in the new house is most complete. The roof consists of two spans as it were, one above the other; the lights of the uppermost one are made to slide up and down by means of counter weights, and the small sashes in the upright sides move backwards and forwards in a horizontal direction, all at one time, by the aid of mechanical means. Thus abundance of fresh air can be admitted with the greatest facility whenever it is considered expedient to do so. The hot-water pipes lie in an open drain close to the beds all round the house, and at each of the four corners they rise up in a round pillar-like stack about 5 feet in height, and have by no means a bad appearance, while they serve to furnish the atmosphere of the house with a large amount of warmth. Against the inside walls have been planted ornamental climbers, and into the narrow borders which have been made for them have been turned out different sorts of New Holland plants, with a view to prove what will be the result of growing them in the open soil without pots. In the centre is a thriving Araucaria excelsa, surrounded in the four quarters by specimens of New Holland plants, and others remarkable for fine foliage, all grouped with good effect.

It is intended next season to increase the area already covered with glass in this nursery by placing under this kind of protection the pond where the Royal Water Lily was formerly grown and its surrounding ground and rock-work. When this shall have been done, the variety introduced cannot fail to be an improvement in point of appearance.

In the show house, which was extremely gay with flowering plants, were several very handsome standard Bay trees, with particularly straight clean stems. To admirers of such things these must prove a real acquisition. Laurustinus are also grown here in the shape of standards, as are likewise other old and favourite plants. Ivy is grown with good effect under glass here as an edging, and so is the common toothed Lycopod.

Vines of the old and new varieties are grown here extensively, and Mr, Grüneberg, one of the partners, to whose energy and skill the condition of the nursery bears abundant testimony, has introduced a plan by which the new varieties are increased with great rapidity as follows:—As soon as they have pushed a shoot a foot or 15 inches long it is cut back to near the base, and the top is made into cuttings, every one of which strikes, and thus a great many plants of any particular kind are obtained in one season. The chief point is to take care to start them sufficiently early to get the young wood strong and well ripened by the autumn.

In one of the stoves the Cavendish Musa had a very fine cluster of fruit on it in a green state. This we hope to see again when ripe.

In low glazed pits were great quantities of Cape Heaths, which are cultivated here on an extensive scale, and though so near the smoke of London their appearance was all that could possibly be desired.

Camellias are reared in this nursery by hundreds. A large bed is now being prepared for them out of doors. In this they will be planted, and although perfectly hardy, while young a temporary shelter will be placed over them in winter and taken away in summer. When thoroughly established and well set with bloom buds they will be lifted, potted, and employed for the decoration of the different glass houses. This is the mode of culture practised on the Continent, where Camellias are grown for market in large numbers.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—No tribe of plants is better adapted to keep up a constant display in this structure than Azaleas. Many of the Indian varieties are remarkable for brillancy of colour, whilst the hardy American kinds are favourites on account of their agreeable fragrance. The treatment recommended for the Camellia to cause it to produce flowers in winter is in the main applicable to the Indian Azalea. Forcing into wood betimes in the spring, a trifling amount of check to induce it to form its flower buds, and a partial rest for a considerable time before excitement are the main features requiring attention. The Azalea however will stand more heat than the Camellia and less shading. Those intended for flowering next January and February should be forced into growth without delay. Follow up frequent syringings to stove plants in general, morning and evening. Do not allow things to become crowded or weakness will be the certain result. If any room can be spared in the other plant structures a few of the hardier kinds should be removed. With respect to Orchids continue to increase the temperature gradually, more especially when it can be done by solar heat, and accompanied by a very considerable amount of atmospheric moisture. This will be best accomplished from 3 in the afternoon until 6, when the thermometer may sink to 65° for the night. The early flowering Chinese Primulas now exhausted should be removed to a cool pit or frame; likewise early bloomed Cinerarias, or other fading stock. It is of the utmost importance to have a pit or frame for this purpose, as it enables the cultivator to thin out the remaining stock now in active growth. Chrysanthemums should be increased for next year's flowering without delay. Cuttings of the tops, 3 in a small pot, may be struck and grown together, and the suckers with roots potted singly. They should have bottom-heat if possible, about 80°, for a few weeks, and of course a slight shading.

FORCING DEPARTMENT.

Pineries.—In cases where a regular supply of fruit is required at all seasons of the year, it will be necessary to examine the stock of plants, frequently marking those considered the most likely for fruiting, so as to be able to keep them rather dry at the root for a month or so, which will, in most instances, have the desired effect of checking growth and throwing the plants into fruit. The only effectual method, however, of securing a supply of fruit at any particular time is foresight in the management of the stock, taking care to get the growth well matured in sufficient time to allow of affording the plants a short period of comparative rest, which is the only certain means of inducing them to fruit at any desired season. With plenty of convenience this is easily enough managed, but where the accommodation is limited, it is by far the most difficult part of the culture of the Pine. And in cases where a regular supply of fruit has to be furnished from limited accommodation, it is safer to grow the plants in pots, so as to secure perfect command over the roots, and also be able to move the plants to a cooler pit or otherwise, as may be necessary. Black Jamaicas and Cayennes are the best varieties for winter fruiting, and the stock of these should receive every attention at this season so as to induce them to make free growth, and a portion of them should be shifted into their fruiting pots as soon as possible. Use every means to afford growing stock a moist atmosphere, which in the present state of the weather is a work that requires much attention, but must be done if the plants are to be kept in first-rate condition. Give air freely, but avoid draughts of cold drying air, and use shading to assist in keeping down the temperature without being under the necessity of admitting cold drying air too freely.

Vineries.—In cases where Muscats are grown in the same house with Hamburghs and other free setting varieties the temperature must be kept sufficiently high during bloom, and until the berries are fairly set to suit the Muscats; for a crop of these cannot be depended upon from the most healthy Vines, unless they can be afforded a brisk temperature while in bloom and setting their fruit. It will be better, however, to risk having the Muscat bunches somewhat thin than to injure other varieties by maintaining a night temperature of 75°, which is the practice of some good growers; 68° or 70° will be found quite sufficient. Get the borders prepared for planting out young Vines, and if these are started into growth before planting do not keep them too warm, or it will be difficult to prevent their sustaining a check after planting out. Melons.—Encourage those newly planted-out with a moist warm atmosphere, so as to get them into full growth as quickly as possible; but plants that are fairly established should be kept cooler, admitting air on every favourable opportunity, in order to secure short-jointed fruitful wood.

FLOWER GARDEN AND SHRUBBERIES.

Let manuring and dressing proceed in an orderly way. High dress ground should be mown at least once a week at this period, for a well kept lawn is always a most pleasing object. Let all herbaceous or mixed beds or borders be finished dressing without delay, and prepare stations where blanks exist to receive Verbenas, Fuchsias, Heliotropes, Calceolarias, &c., now in the course of hardening, for this purpose, and for forming masses. Self sown annuals, Forget-me-nots, and other useful little things, together with Pansies, may be transplanted with balls to fill up blanks. See that runners of the Neapolitan Violets are provided for next winter.

HARDY FRUIT AND KITCHEN GARDEN.

This is an excellent time to make a principal sowing of all the late or spring Broccolies, such as Portsmouth, Sulphur, Dwarf Late White, Knight's Protecting, and Somers's Particularly Late White. The latter is one of our very latest Broccolies; it succeeds all others, and forms a link between the late spring Broccolies and the hand-glass Cauliflowers. Sow Rampion, Chervil, Chicory, and a bed of Sweet Marjoram on a warm slope. This plant is much hardier than Basil, and will do very well in this way. Take care to disbud Peaches and Nectarines betimes. Do not suffer green fly to establish a footing for a day if possible. Thin out the suckers of double bearing Raspberries to about three of the strongest; these should be staked thinly, and well manured.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending April 30, 1857, as observed at the Horticultural Gardens.

April.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 24	●	29.974	29.810	49	35	42.0	50	48	E.	[illegible]
Satur. 25	1	29.726	29.632	48	33	40.5	49	47½	S.E.	[illegible]
Sunday 26	2	30.011	29.838	46	35	40.5	48½	47	E.	[illegible]
Mon. 27	3	30.061	30.011	50	32	41.0	48	46½	N.	[illegible]
Tues. 28	4	30.051	30.021	47	23	35.0	47	46	N.	[illegible]
Wed. 29	5	30.049	30.010	60	27	43.5	48	46	N.W.	[illegible]
Thurs. 30	6	30.098	30.040	55	33	44.0	48	46	N.	[illegible]
Average..		29.995	29.9[illegible]9	50.7	31.1	40.9	48.3	46.7		.63

April 24—Clear; hazy; cloudy at night.
— 25—Fine; overcast; fine; slight rain.
— 26—Clear early A.M.; cloudy and cold; overcast; cloudy.
— 27—Cloudy and cold throughout.
— 28—Overcast; cloudy; sharp frost at night.
— 29—Frosty; dusky white clouds with clear intervals; very dry air; frosty.
— 30—Clear and frosty; masses of low white clouds; overcast.
Mean temperature of the week 7¾ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending May 9, 1857.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 3	61.8	41.2	51.5	16	0.58 in.	2	5	7	1	4	6	1	5
Mon. 4	62.2	39.4	50.8	11	0.70	4	7	8	—	5	4	2	1
Tues. 5	62.2	40.1	51.1	18	1.26	5	7	3	3	7	4	1	1
Wed. 6	60.5	40.2	50.4	13	0.68	—	9	3	3	4	6	4	2
Thurs. 7	61.7	40.8	51.3	12	0.39	4	6	3	2	5	6	3	2
Friday 8	61.5	40.3	50.9	13	0.62	1	5	5	—	5	5	6	4
Satur. 9	61.5	40.5	51.0	13	0.60	3	8	4	1	4	9	2	—

The highest temperature during the above period occurred on the 4th, 1833, and 6th, 1830——therm. 81 deg.; and the lowest on the 4th, 1856, and 5th, 1855—therm. 21 deg.

Notices to Correspondents.

Begging Letters: *J H.* We know nothing of the writer or the books mentioned. The application has a very suspicious appearance. The letter you have should be sent to the Mendicity Society.

Belt of Oaks: *A D B.* We fear that you will hardly get profitable underwood beneath Oaks in the state you describe, unless they are very far apart. If you are in a country where hurdle wood pays, it might answer to plant Ash, Mountain Ash, and Hazel; but we fear your cheapest course will be either to leave the ground bare, or to fell all the Oaks and replant. If you are near powder mills it might pay to grow Rhamnus Frangula, for manufacturing into charcoal for the finer purposes of the Ordnance.

Books: *Scrutator.* We have said that some singular oversights occur in Mr. Child's book; and they are no doubt a great blemish. But the plan is so good that we forgive the inaccuracies that we have remarked, great as they are.

Brugmansia: We have to thank Mr. R. Dowling, of Crone Castle Gardens, for a fruit of Brugmansia sanguinea, which has reached us safely. We had not seen it before. The seeds are said to be very poisonous.

Cutting Pots: *Rusticus.* The filiform bodies found on the cuttings in your propagation house are azotized jointed threads of extreme tenuity. They appear to radiate in tufts from the body attacked. What they are it is hard to say except that they are the first growth of some Cryptogamic plant. We suspect them to be the mycelium of some fungus, and if so they ought not to appear.

Fleas: *Eileanach.* All flea powders are prepared from Composite plants. The Dalmatians and Italians use the heads of Chrysanthemum leucanthemum; the Caucasians, Armenians, and Turks prefer the heads of Pyrethrum roseum. We are assured by Turkish friends that the "Piré oti" prepared from Pyrethrum, when unadulterated, is a complete safeguard.

Fruit Trees: *J H H.* By no means lift them now. Wait till September or October. If they are rank you may cut through their roots now without doing them harm, and probably the check will force them to form fruit spurs at once.

Grapes: *L C.* The cause of your Grapes shanking is the coldness of your border, a fact clearly exhibited by the yellow spotted appearance of the leaves. Vines when colouring their fruit require a large amount of food, and if the border is not in a proper condition to supply the roots with it, shanking is almost sure to be the result. The temperature of the border should have been raised by means of a good coating of fermenting material. All that can now be done is, when the weather gets warmer, to lightly fork up the surface of the border without injuring the roots, and to keep it as open and porous through the summer as possible. ‡

Insects: *J B M.* Your Rose-buds are attacked by the small grubs of the pretty little Rose-moth Tortrix Bergmanniana. Give each infested bud a sharp pinch as soon as it appears affected. *W.*

Kew Gardens: *Juan.* We believe that no plants are given away from this national establishment except by way of exchange for something of equal value. You may buy Eugenia Ugni of the trade for 3*s.* 6*d.*

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*R B.* A mule Cereus between the "Creeping" kind and C. speciosissimus. Many are now in cultivation.—*Alford.* Epimedium pinnatum.

Peas: *Amateur.* If you cannot cover your Peas with a net there is no other effectual way that we know of of keeping sparrows off them except trapping or shooting them.‡

Pits: *T S.* It does not matter whether your span-roofed pits run N. and S. or E. and W. The last suffer least from scorching and have sun enough. In the hands of a good gardener one is as good as the other; in the hands of a bad one both will fail.

Roses: *S C O.* Sulphur will free your Roses from mildew, provided it is applied the moment the mildew appears. It must however be flowers of sulphur; ground sulphur will not answer. The leaves of the plants should be wet in order that the sulphur may adhere to them.‡

Walls: *J F S.* Undoubtedly a south wall is better than either east or west: but in a fair climate we should prefer a wall having both an east and west face to one having a south and north face. We do not advise the wall to be hollow if brick on edge; it will be too weak for nailing, &c. But we do advise it to be a hollow 14-inch wall.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

Just published,

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METCHIM, Parliament Street, London.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Offices, 109, Fenchurch Street (E.C.).

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BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

LONDON MANURE COMPANY (Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the Importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of guaranteed quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

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THE NATIONAL GUARANTEED MANURE COMPANY (LIMITED).—Head Offices: 2, Moorgate Street, City, London, E.C. Branch Offices: Bank St., Carlisle. Works at Millwall, London; Carlisle, and Port Carlisle, Cumberland.

Concentrated Manure	£9 0 0	per ton.
Superphosphate for Turnips ..	7 10 0	,,

The Company manufactures a superior Manure for Hops at 9*l.* per ton, also special Manures for every description of crop.

This Company's Manures are guaranteed and sold by analyses. For testimonials and analyses apply at the Head Offices, No. 2, Moorgate Street, City, E. C.; or at the Branch Office, Bank Street, Carlisle.

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Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATES.

BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

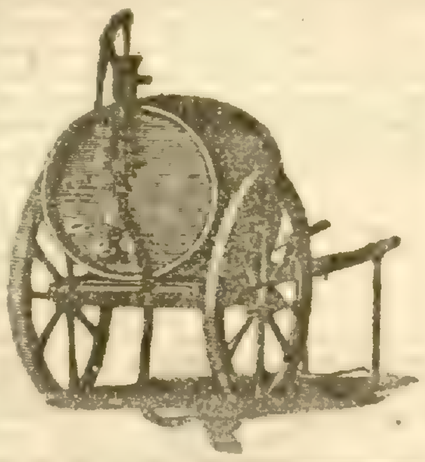
The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2 in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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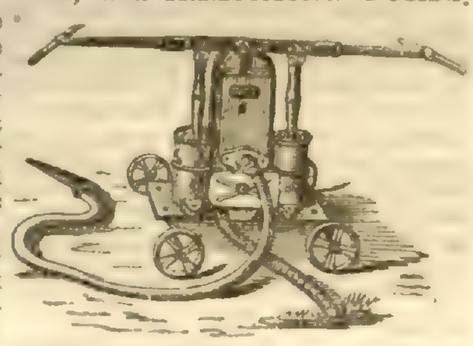
HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.

These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co., make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams, Apparatus for Warming, Boiling, and Drying, and every class of Engineers' work.



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THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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WIRE ROPE FENCING.—A quantity of old WIRE ROPE for Sale, suitable for Fencing at from 5*s.* per cwt.—For particulars apply to Mr. WILLIAM HEWITSON, Wingate Grange Colliery, Ferry Hill.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

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THE TRACTION ENGINE AND ENDLESS RAILWAY (BOYDELL'S PATENT), for ploughing by direct traction, and also for drawing on common roads, will be Exhibited in both these operations on THURSDAY, May 7, and FRIDAY, May 8, on the property of C. Roper, Esq., Croxton Park, near Thetford, Norfolk.—For further information apply to FREDERICK H. HEMMING, Secretary to the Traction Engine and Endless Railway Apparatus Company "Limited," No. 47, Mark Lane, London, E.C.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW AT YORK, August 5 and 6.—For Prize Lists apply to the Secretary, JOHN HANNAM, Land Agent, Wetherby.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth GREAT ANNUAL EXHIBITION of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, TUESDAY, WEDNESDAY, and THURSDAY, December 1, 2, and 3; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.* will be awarded.

Prize Lists, and any other information, may be obtained from the Secretary. THE ENTRIES CLOSE November 2.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham, May 2.

The Agricultural Gazette.

SATURDAY, MAY 2, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May 4	Central Farmers' Club	6 P.M.
WEDNESDAY,	— 6	Agricultural Soc. of England ..	Noon.
		Society of Arts	8 P.M.

WE have not room to-day for a detailed report of the gathering at Hinxworth to examine Mr. BAILEY DENTON's drainage operations there. A similar meeting takes place to-day; and we hope next week to refer at some length to the record of observations on the drainage and temperature of the soil, and the rainfall of the locality kept there by Mr. DENTON since the commencement of his operations.

Meanwhile, we will only allude to one subsidiary department of his improvements. The new roads over the clay lands there excited a

good deal of interest among the visitors at Hinxworth last Saturday. A layer of clay ballast 9 inches deep, covered with a thin layer of broken flint, forms the roadway. It is 10 feet wide, slightly convex, furnished with side gutters for surface water, and costs 3*l.* to 3*l.* 10*s.* per chain. The real groundwork of its success, however, lies in the thorough drainage of the foundation—two 4 feet drains under it, one on either side, form part of the above-named cost of the work—and to these is attributed its permanence and substantial character.

The scheme seems particularly well adapted to the circumstances of stiff clay districts, and will we doubt not be extensively copied and adopted under similar conditions.

On Monday last the introductory lecture of a course on agriculture and the management of landed property was delivered by Mr. J. Lockhart Morton, in the theatre of King's College, before a very distinguished audience, including the Marquess of Clanricarde, the Earls of Airlie and of Wicklow, Viscount Ranelagh, Sir J. Graham, Baronet, John Wilson, Esq., Professor of Agriculture in the University of Edinburgh, and many other gentlemen. The lecture answered the question:—How to make the most of landed property? by passing under review in succession the professional education of the landowner—the relations of science and practice in determining the selection and the qualifications of a land agent—the liberty permitted to the tenant cultivator—the establishment of home example farms—the influence of leases as compared with tenancy at will—the mischievous influence of a "great head of game"—the erection of good farm buildings—the execution of efficient land drainage wherever necessary—the adaptation of the farms to the capital of the tenantry—the adaptation of estates to the means of their owners—the laying out of plantations and of fences—the choice of a sub-agent and bailiff, and of efficient workmen under him.

These several subjects, which appear very fairly to exhaust the question under discussion, were treated in a simple, plain, instructive manner, indicating both the intelligence and good taste of the lecturer.

The duties of the landlord and tenant were impartially enumerated and defined; and the opening lecture gave promise of a useful and substantial course, the second of which, on Agricultural Education, was given by Mr. Lockhart Morton on Thursday.

Among several subjects referred to at the meeting of the English Agricultural Society last week, that of Kurya Murya Guano occupied a prominent place. Mr. Nesbit's analyses indicate the inferior quality of the deposit on those islands; and Mr. Paget might well express his fear that, on the less valuable qualities imported thence, 1*l.* per ton royalty would be found too high a rate, so that cargoes of such quality on their arrival in England would not realise remunerative prices in our manure market.

Captain Lory, R.N., of St. Keverne, Helstone, communicated at the same meeting some suggestions on West India guano deposits. He believes that the islands on the Great Bahama Bank contain guano beds to a very large amount.

The importance of these subsidiary supplies is becoming every year greater, as the rising price of Peruvian guano indicates the gradual diminution of the stock upon the Chincha Islands. On this subject a correspondent of the *Times* writes as follows:—

"The following tabular statement shows the discrepancies in the various surveys and estimates of the deposits on the Chincha or centre group, which have always been known to be much larger than all the other deposits in Peru united:—

	M'Intosh in 1853.	Peruvian Commission in 1853.	Rivero in 1846.
	Tons.	Tons.	Tons.
Northern Island	5,500,000	4,189,477	7,600,000
Centre Island	1,500,000	2,505,948	6,450,000
Southern Island	1,600,000	5,680,675	4,200,000
	8,600,000	12,376,100	18,250,000

"But although there is so much doubt as to the quantity of guano existing on the Chincha islands in 1853 there can be none whatever that the ratio of extraction has been very much greater since. It is known that about 300,000 tons were sold in Great Britain alone last year, and that since 1852 there has been a large export to the United States, reaching in one year to about 200,000 tons. Considerable shipments have also been kept up to France, Spain, and, in fact, to wherever it could be sold to advantage.

"If, for the sake of arriving at the probable quantity yet remaining at the Chincha Islands, we assume Mr. M'Intosh's survey (confirmed as it is by Senor Elias' estimate) to have been substantially correct in 1853, and even increase it by the excess of exports since that year over the previous years, we shall find it difficult to avoid the belief that there is not more than enough guano remaining in those islands to last longer than from four to five years, and that the gradual advance in the price of the article by the Peruvian Government is induced by their knowledge of the comparatively small quantity left.

"In the correspondence respecting the Guano Islands it is stated at page 71, with regard to the northern group (the Lobos and other islands) that 'the quantity of manure they contain is in general of little thickness, and is frequently mixed with sand,' and that, 'in the present state of these deposits they are barely sufficient to answer the demands of foreign consumption for one year.' This was at the period of the official survey made by Cater in 1846, who reports the group to contain 853,086 tons. Captain Peacock estimates the quantity at 'some 5,000,000 tons.' Let the quantity, however, be what it may of these deposits, the quality of that on the Lobos Islands at least is comparatively worthless, for according to Senor Elias some cargoes sent to the United States were found to be greatly mixed with stones and seal dung, had barely 3 per cent. of ammonia, and only sold for 25 dollars the ton, scarcely leaving 4 dollars net to the Peruvian Government.

"The southern group were surveyed by Senor Rivero in 1846, and estimated by him to contain 7,921,000 tons. The guano is said to be good, but is far from being as accessible as that in the centre group."

The attention of the meeting in Hanover Square last week was divided between the two subjects of guano and the Cattle Murrain. On the latter topic a good deal of additional correspondence was read. From *Lübeck* the report declares—

"Absence of preparations either prophylactic or therapeutic to resist the invasion of the murrain, the only precaution resorted to at present being the establishment of a strict cordon on the frontier of the infected country, for the purpose of intercepting all cattle importation from those parts. No laws to prohibit the importation of animal matters, such as hides, horns, claws, or tallow, from contaminated countries, as Russia and Poland. Absence of all sanitary regulations. One farmer had preserved his cattle free from disease by separation of the healthy from the sick, with a distinct class of attendants for each; by applying tar every alternate day to the muzzle, dewlap, legs, and claws of the healthy as well as of the diseased animals; and by giving to the sick animals, at more or less distant intervals, according to the degree of illness, a salt herring dipped in tar."

From *Leipsic* the correspondence refers exclusively to the lung disease. The cattle murrain of Poland, which is quite distinct from the lung disease, and which attacks the animals in their intestines and spleen, bringing on death in a few hours, is happily unknown in Saxony or that part of Germany, otherwise than by the reports of it which come from the Polish frontier.

From *Berlin* we have the following report:—

"Disease scarcely made any progress from the Silesian frontiers, owing to the stringent measures taken by the authorities against the importation of cattle. It is, however, more or less prevalent in the Austrian provinces bordering on the Russian frontier. The disease has not increased in the neighbourhood of Barynitztehmers and Meldiglaughen. The strictest measures of precaution enforced by the Russian authorities in the district of Gumbinnen and the circle of Tilsit. The disease had wholly ceased in the circle of Breslau and Oppeln, but cases had occurred at other districts on the Austrian frontier."

Mr. Wood, of Hanger Hill, Middlesex, called the attention of the Society to the treatment of the murrain during the period of its last occurrence here during the last century, in which tar-water was the curative agent employed with considerable success according to the newspaper reports of the period. To this we shall refer on another occasion.

THE CATTLE MURRAIN.

I retain this name because I desire to keep the attention of agriculturists to the fact that this murrain is not, as many suppose, identical with the lung disease we have known for several years. The accounts we have had of this murrain do not exactly agree as to the precise symptoms, but all concur in describing it as the most virulent cattle disease known in modern times.

Dr. Greenhow, who lately addressed a letter to the *Times* with a view to allay the fears entertained respecting this murrain, ends his communication by stating that in Prussia so great is the dread of this fearful scourge that not only are the infected animals killed, but "all other beasts that have been in contact with them are slaughtered and buried 8 feet underground, quicklime being thrown into the pits." This conveys to us a significant notion of the idea the Prussian Government entertains of the necessity for vigorous measures being adopted to keep the pestilence out of that country. But Dr. Greenhow's next paragraph is still more alarming, for he there tells us that although detachments of troops have been stationed along the Polish frontier to carry the Government regulations into effect, and that with stern exactness, yet in spite of all these cautionary measures and the rigour in carrying them into execution, "the murrain occasionally passes into Austria and Prussia."

Now, surely here, and in the letters you have published from the Consuls at Warsaw and other towns, we have sufficient evidence to satisfy any reasonable person on two points, viz., 1, There is existing in Russia Proper, Poland, and the bordering countries a fearfully dangerous cattle disease which we call "murrain;" 2, The rigorous measures adopted by the Prussian Government prove how much the propagation of this murrain is dreaded; and Dr. Greenhow shows that in spite of these regulations the disease does pass the frontier.

If the above is admitted to be a plain statement of the case, can any one doubt what course our Government ought to take? A glance at the map of Europe will satisfy the most casual observer that while cattle can be sent from Denmark, from Belgium, or Holland, it is perfectly useless to prohibit importation from the ports on the shores of the upper part of the Baltic Sea. It is quite true that cattle are shipped from large seaports, but we all know that they are not produced there; hence the exporters in knowing that you prohibit importation from certain ports have merely to direct the parties who collect the cattle in the interior to forward them—it may be a very few miles further—to towns not included in the Order in Council.

I repeat, then, what I have before stated, that in my opinion there is no safety but in a general prohibition against the importation of cattle from all European States save Spain and Portugal; though I still think carcases of beef might be allowed under strict regulations to be imported, and should this murrain never reach Holland or Denmark our real receipts of beef would be very little affected by the prohibition against live cattle. I am persuaded that the order of prohibition should include live cattle, hides, hair, hoofs, and bones. The latter are imported in large quantities into this country from the continent, and are as likely, I think, to convey the murrain infection, as anything we bring. *H. J. Turner, Richmond, Yorkshire.*

TOWN SEWAGE.

At the late meeting of the Chemical Society Dr. Gilbert made some remarks on some of the points which seemed to him vitally to affect the settlement of the great question of the removal from the towns, and the utilisation in the country, of sewage material. He considered that the practical settlement of the difficulty had been much retarded by certain necessary peculiarities of the subject, involving as it did on the one hand two distinct branches of science, engineering and chemistry, and on the other supposed conflicting pecuniary interests, those of town and country:—

"In the first place, whilst the chemist might play his part in the inquiry without much knowledge of the engineering appliances requisite to carry out that which chemistry showed to be desirable, yet, if the question of the utilisation, as well as the removal of the sewage matters were to be dealt with, it was absolutely essential that the engineer should be acquainted with the chemical character and real agricultural value of the materials in the condition in which they were actually presented to us under ordinary or current circumstances. An entirely false method of estimating the value of the constituents of sewer water had, however, led to the proposal of plans which assumed to the material such an exaggerated agricultural value that the towns had very naturally been reluctant to adopt any measures to remove the noxious matter, which did not either afford them a handsome profit, or at any rate cover their expenses by its sale for agricultural purposes. It was true that chemistry had shown how enormous would be the value of town sewage if the important constituents could be separated from the water and employed in the form of a concentrated portable manure. But such was not the condition of the excrementitious matters in sewer water. Assuming as an illustration, a city in which the supply of water, either by artificial means or by rain, amounted to 50 gallons per head per day, there would only be about 9 ounces of the dry substance of the liquid and solid human excrements distributed in each ton of water. And, as one of the most important constituents, nitrogen (or ammonia), existed in by far the greater part in a very soluble form, it was hopeless in the present state of chemical knowledge economically to extract it from the sewer water in the form of a concentrated portable manure. From much attention to the matter it was the conclusion of Mr. Lawes and himself that somewhere about nine-tenths of the nitrogen or ammonia would remain in the water, on any possible plan which had been proposed for making a sedimentary sewage manure. Perhaps the most practicable plan which had yet been put forward for the double purpose of making a sedimentary manure, and disinfecting the water, was that known as the lime-process. This process, however, certainly entirely failed so far as the production of a sedimentary manure worth more than its carriage unless within a very limited area was concerned. All the analyses which had yet been given of these products confirmed the opinion which every chemist on examining the subject must come to, namely, that a very small proportion indeed of the nitrogen of the excrementitious matters of sewage water could thus be accumulated in the solid form. In fact the substance produced was little better than a good garden soil, and could only be ranked with those manures which are used in tens of tons to the acre. It had therefore nothing in common with guano and other concentrated portable manures with which it was so often compared. Until, therefore, chemistry had accomplished that which she had certainly not yet done, there was little hope of economically reclaiming in a solid and easily portable form the nevertheless valuable constituents of sewer water. He considered it very important that this should be thoroughly understood, both by town authorities and their engineers; as then one great obstacle would be removed to the adoption of plans useful in a sanitary point of view, though perhaps not so as a remunerative manure-making scheme. Looking at the question simply in a sanitary point of view, he (Dr. Gilbert) was disposed to think that the lime process was upon the whole the best which had yet been proposed. There was no doubt that the sewer-water was clarified to a remarkable degree by that process; but it was still a matter requiring further investigation, whether it was really practically disinfected and rendered non-putrescible. The only scientific inquiry on this point with which he was acquainted, namely that by Dr. R. A. Smith and Mr. M'Dougall, led to the conclusion that sewer-water once purified by the lime process was returned to a more or less putrescent condition. This was a question which ought to be thoroughly examined into; varying as the result might do according to the necessarily varying state of concentration of the sewage at different places and periods. Although however it was certainly impossible, in the present state of chemistry, to get the larger part of the most valuable constituents of sewer water into the form of a concentrated portable, solid manure, it still remained a question whether the sewage could or could not profitably be applied for the irrigation of Grass land? And, even supposing the purification by lime and separation thereby of most of the solid matter were first adopted as a valuable sanitary measure, it was still a question whether the clarified water, retaining as it undoubtedly did by far the larger proportion of some of its most valuable contents, should still be turned to some useful account by irrigation, or whether it should be discharged into the nearest river? If the excrementitious matters now finding their way into sewer water were to be economically applied as manure in the solid form, it rested with the engineer to prepare sent them to the chemist undiluted, or very little diluted with water, and even then he had no easy task before him. But if the matters were once diluted to anything like the extent considered essential for sanitary purposes, the problem of actually economically separating them was beyond the present resources of chemistry. He (Dr. Gilbert) would only further add, that those who were interested in the agricultural utilisation as well as the removal of sewage matter, must constantly bear in mind the source of their paramount difficulty upon which he had insisted, and to which Mr Campbell had also called attention, namely the great solubility of some of the most important constituents of sewer water, and the state of extreme dilution in which they existed in that fluid."

FARM NEAR CHELMSFORD, ESSEX.

THE flattering state of the weather at the commencement of the month led us to imagine that summer was come. Vegetation seemed to rush into existence, and such was its rapid progress that in one short week we passed from miserable forebodings as to supplies of food for sheep to happy realisation of abundance of Rye-grass and Clover. As early as the 7th Broad-leaf Rye was fit for the scythe, and upon the 17th it was scarcely if any forwarder. Upon that day we commenced the general use of it by cutting it up with Oat straw and hay, decreasing the former as the season advances. But the beautiful weather of the early portion of the month has passed away, and we have now a succession of bleak, winterly, sunless days, with severe frosts at night, and the effects are becoming visible throughout this county, especially upon the strong clay lands. Upon this farm, however, but little change in appearance up to the present moment has taken place. The Wheat generally appears healthy and vigorous, and of deep green colour, the plants with one exception good; and that upon a field last year in Italian Rye-glass and Clover, which was fed off by sheep and lambs folded in hurdles at five successive periods of time, so that at the time of ploughing for and drilling the Wheat, there was not the slightest coating of Grass, the whole being eaten down so closely that it resembled a fallow. The Wheat plant on this piece has entirely failed, the wireworm having eaten nearly the whole of the plants. Early in February it was heavily folded over with sheep and lambs supplied with Turnips, and 1 bushel of Talavera Wheat upon each acre drilled in this came up well, but has now nearly all disappeared from the continued attacks of the grub. As no other Wheat has failed in plant upon this farm for several years past, we attribute this loss entirely to the having sown Rye-grass previously, and which we had declined doing for several years before, from having experienced similar ill success; but as the folding was carefully and heavily carried out we hoped to have experienced a more successful result; a portion of the same field was in Wheat the preceding year, and a similar portion adjoining the Rye-grass was manured and cropped with Wheat again this year. Upon this portion no deficiency of plant occurred, and it is now looking very promising and full in plant. We have been told that the cause of failure of a Wheat crop after Rye-grass is because both plants are in the same class, but in this experiment Wheat succeeding Wheat remains a good plant, but Wheat succeeding Rye-grass is a total failure.

In another field now in Rye-grass a portion of the Italian Rye-grass seed was English seed, obtained of Mr. Dickenson, the remainder foreign seed; both parcels sown at the same time and fed down with sheep which refuse to eat the first described portion, and eat the second closely and uniformly. There is evidently a considerable difference betwixt the two varieties, Mr. Dickenson's having a broader leaf, and apparently being of much coarser herbage. We have now resolved never to feed Italian Rye-grass after the middle of May in future, then plough up and resow with spring Vetches, or Swede and White Turnips.

The past week has been occupied in putting in the Mangel Wurzel seed, and which has been got in remarkably well, with sufficient moisture in the soil to bring it quickly into vegetation—almost the only objection to the late sowing of this valuable variety of cattle food. Ridges are formed 2½ feet wide; the bottom of the furrows are then subsoiled with a Scotch grub-hoe; 10 tons of manure per acre carted on and spread; 2 cwt. of Rape-cake, 4 cwt. of salt, and 2 cwt. of Peruvian guano are then sown by hand, having been first well incorporated together; the ridges are again ploughed, rolled down, and drilled with 4 lbs. of seed per acre and about 1 cwt. of superphosphate or urate to produce a quick vegetation of the plant so essential in its early growth; and the furrows are again subsoiled as before from 4 to 6 inches in depth.

If Mangel is not drilled the next best mode is remove the soil about an inch in depth with a light hoe, a boy opposite drops four or five seeds with or without a little artificial manure, and the workman walking sideways immediately pushes back the mould so as to cover the seed, at the same time slightly pressing it down with the backward action of the hoe. This mode is very superior to dibbling, which by contracting the seeds into a narrow space causes the plants to come up in bunches which are difficult to separate properly.

The plants of Oats, Barley, and Pulse crops are as good as can be desired. The Barley sown early in February is very promising, and is even more vigorous than the Wheat, and as regards appearance and better in colour at the present moment; the former, however, is very promising in appearance, not only upon this farm but throughout this district.

The Clovers are very forward; those in course of feeding off with sheep, however, are injured by the frosts, and which will doubtless produce a check upon those pieces designed for mowing that will not be overcome speedily.

The meadow Grass is universally forward; more feed can now be made available than was the case a month later in the spring of 1856. Trees are fully three weeks more early in leaf than in the preceding year, but the effect of the frost during the last two nights is very apparent — the leaves of the Horse Chesnut having changed black, and the coming blossom destroyed. This tree is at all times tardy in pushing entirely into leaf, and appears almost to have a prescience of coming bleak weather.

Garrett's horse-hoe has been constantly at work whenever the weather has permitted, and nearly the whole of the Wheat plants upon this farm have been hoed once and some portion twice over, although drilled only 6 inches apart. But the successful result of the horse-hoe depends upon the accuracy with which the drilling has been previously effected, and the dry state of the surface; when these are combined it is superior to the common hand hoeing, as it leaves the surface free and untrodden by the feet of the hoer. We have also commenced hoeing Peas and Beans with like successful result.

Mangel Wurzel is still especially serviceable, but we are sorry to state that it is fast drawing to a close, and not more than two or three weeks' consumption remains. All the Clover and other seeds are drilled upon this farm with most successful results as regards plant; indeed, we feel that no other mode is so certain, and feel assured that two-thirds of the quantity of seed will more certainly secure a plant by drilling than one-third more would effect if sown by hand, 10lbs. of Red Clover being ample per acre when drilled properly.

The fall of lambs has not been great, but little loss has however been experienced either of ewes or lambs this year; Rape combined with Turnips formed the late description of food. Rape is decidedly better than Turnips, inasmuch as it daily grows more valuable in the spring, whilst Turnips invariably become of less value as the spring advances. Upon the whole, we congratulate ourselves upon having had one of the finest seed-times within our recollection; and with the exception of the piece of Wheat before quoted have not any other misplant whatever.

Potatoes are of limited growth in this district, but have been got in exceedingly well.

The price of labour has declined 1*s.* per week, varying now from 10*s.* to 12*s.* per week from the previous advances; although flour has declined considerably in price, the other articles of consumption, such as butter, cheese, and meat are still very high in price; the poor man is, therefore, still dependent to a certain extent upon the liberality of his employer for fair wages. The quantity of labour upon the market being plentiful in some districts it is not taken up, and some degree of privation exists among the labouring classes.

AUSTRIAN TREATMENT OF THE MURRAIN.

[We referred last week to the three forms of cattle disease prevalent in Austria—1, lung disease; 2, malignant and catarrhal fevers; 3, true cattle murrain. The following is the treatment of these several affections as given by the Vienna correspondent of the *Times*.]

(1). On the outbreak of "catarrhal affection of the lungs" those medicines which tend to reduce inflammation or the activity of the vital power are always employed. The ailing animals must be kept at home, in a warm, airy, clean stall, and an electuary with small doses of salt and Gentian or Wormwood administered three or four times a day. The backs of the animals must be washed with warm water and rubbed quite dry with wisps of straw. The food must be some greenmeat easy of digestion or good hay; the drink some mucilaginous fluid which has been allowed to stand in a warm place. As soon as the alvine discharge has become more plentiful and the respiration freer the quantity of salt must be diminished, and elecampane-powder, Fennel, sulphur, and a few drops of oil of turpentine added to the electuary. The turpentine acts on the kidneys, and increases the secretion of urine. Good hay, with oatmeal, and now and then a dose of the above mentioned medicine, must be given for a few days after the catarrhal affection of the lungs has ceased. If there is any tendency to putrid catarrhal fever, care must be taken to prevent too great an accumulation of food in the stomach, the digestion must be aided, and the skin excited to action. The sick animal must be fed with scalded hay, Potatoes, Horse-chesnuts, and dosed with aromatic and balsamic medicines, combined with camphor. If the inflammation is very severe and the breathing greatly oppressed, blood may be taken in moderate quantities, and mild purgatives given. At the outbreak of malignant and catarrhal fever, particularly if there is a determination of blood to the head, bleeding in the neck is absolutely necessary. Poultices made of common salt, vinegar, and clay, may be applied to the head and neck, and the whole body washed with vinegar or strong lye. If there is obstinate constipation, injections of salt or soap must be given. The internal remedies employed are several doses of saltpetre—each consisting of half an ounce—which must be given every two or three hours. If doses, each consisting of two or three ounces of salt with half a drachm of tartar emetic, are subsequently administered, a marked improvement will in general take place in two or three days. If, however, the malady makes further progress, and the animal loses strength rapidly, tonic remedies must be employed, and particularly the sweet spirits of nitre (spirit. nitri dulc.). If there is a great looseness, Columbo root, with opium and small doses of Rhubarb, must be given. If any typhoid symptoms should be observed, camphor and balsamic medicines may be tried; "but if malignant catarrhal affection of the lungs is in its third stage hardly one animal out of ten can be saved." In the first stage of the complaint the flesh of the animal is innocuous; at the beginning of the second the sale of the meat is not prohibited, but no one is allowed to kill and sell the flesh of cattle which have reached the third stage of the malady. The medical police of this country does not consider the disease known as "malignant catarrhal affection of the lungs" contagious.

(2.) The "lung disease" combined with typhus is not only a more fatal complaint than that above mentioned, but it is sometimes contagious. "If," says a learned and skilful veterinary professor, "the lung disease combined with typhus is to be cured, it must be attacked while the animal has its full strength and vigour." If the patient, being of robust constitution, and of middle age, has at the beginning of the malady a violent and dry cough, and fiery and inflamed eyes, from 5 to 8 lbs. of blood must be taken without loss of time. If the violence of the symptoms does not abate, the venesection may be repeated, but proper attention must always be paid to the constitution and age of the animal. In all cases a mixture of turpentine, Laurel oil, and cantharides powder must be rubbed in behind and below the shoulder blades, and a seton, which has been anointed with the salve in question, must be passed through the shoulders (withers is probably meant). M. Fey recommends that the whole of the back, beginning from the neck, should be rubbed with an ointment composed of turpentine oil and Laurel oil, of each an ounce and a half, and of strong spirits of sal-ammoniac, spirits of camphor, and powdered Spanish flies, of each half an ounce. Before the salve is applied the whole body should be well brushed or rubbed for half an hour. To clear the bowels clysters composed of three or four ounces of common salt and Camomile tea should be given every two or three hours. Mashes, with saltpetre, sal-ammoniac, and flowers of sulphur in them, may also be given. Some years ago a M. Merk asserted that a decoction of Hemlock was a specific against the complaint, but the Vienna physicians and veterinary surgeons of the present day do not appear to be of the same opinion. If the complaint is in the second stage camphor, Valerian, asafœtida, sulphur, and sulphuret of potash must be used. Should an improvement take place less powerful medicines must be gradually substituted for those last mentioned. If, on the contrary, such unfavourable symptoms as difficult respiration, violent cough, increasing emaciation, &c., continue for some time, the best thing that the agriculturist or grazier can do is to go to no further expense either for medicine or food. The sanitary measures taken by the medical police in this disease are the following:—The herd or farm is strictly examined, and all those animals that cough are put on the sick list, and must be kept apart. As the "lung disease" is believed to be contagious, not only the herd in which it prevails, but also the men who tend it are kept from communication with the surrounding farms, hamlets, &c. Instead of being driven out to graze, the cattle are fed on the premises, and it has been observed that a change from green to dry food always produces a good effect on the animals which are still healthy. The sick cattle have their own attendants, who are not allowed to go near the other stalls, and a healthy animal is never allowed to drink out of a pail which has been used by one that is unwell. The carcases of the cattle which die must be buried in a very deep pit with the straw on which they had lain. If the cattle are skinned, the skins are for a time to be put into a lime-pit. If the disease assumes a very malignant form in any place, a cordon is drawn round it, which is not raised until six weeks from the time of the last death. The stalls or stables in which sick cattle have been kept are always scrupulously scoured, the various implements cleaned with strong lye, and the cribs, mangers, &c., washed with a solution of chloride of lime. Some time must elapse before the convalescent animals can safely be allowed to join their fellows.

(3). Of the treatment of the real murrain or cattle plague (*Rinder Pest*), there is nothing more to be said than that the best and most economical method is to knock every animal on the head as soon as he is attacked by it. The "*Löser Dürre*," as it is here called, has invariably been brought into the country by cattle coming from Podolia, Bessarabia, or the Danubian Principalities, and we continually read that the importation of beasts from those provinces is prohibited. As soon as it is known that the plague is raging on the other side of the frontier a cordon is drawn, which is not raised until the disease has entirely ceased. If this Government finds it necessary to have a number of beasts killed in order to put an end to a contagious disease, the proprietor receives 5*l.* a head from the State; but the sum is so ridiculously small that many sick cattle are driven away and sold to the next best butcher before the authorities are aware that the murrain has made its appearance. If a butcher on killing an animal finds it to be diseased and does not inform the police of the fact he is liable to be fined 4*l.* for each offence. If he announces his discovery he only receives 5*l.* as an indemnification for his loss. The "*löser*," or third stomach, of cattle which die of the real or steppe murrain is invariably diseased. On the outside it is generally covered with livid spots, and in the inside is found ruminated food, not in a pulpy mass, as it it ought to be, but in the form of a dry, dark-green, coarse powder, which is pressed in between the "leaves" of the "löser."* The fourth stomach is always either highly inflamed or gangrenous.

During the Russo-Turkish war in 1827 and 1828 Russian herds driven into Silesia brought the murrain with them, which carried off 30,000 head of cattle in Hungary, 12,000 in Gallicia, and 9000 in Moravia.

* The compound word "*löser-dürre*" means "dryness of the löser" or third stomach

According to a very moderate estimate made by M. Faust, the steppe murrain had at the end of the last century carried off 28,000,000 head of cattle in Germany.

Home Correspondence.

Soluble Phosphates.—I am glad that the inquiries of "Lector Canticus" (and perhaps my own) have elicited from you a promise soon to discuss this subject at length. In the meantime I hope the following observations may not be found troublesome, but that the perplexities of an ignoramus may serve to show where the explanations of an adept are required. In the first place, is it not true that the real value of a "superphosphate" depends upon the quantity contained in it of soluble phosphoric acid (soluble, that is, in water), without regard to its state of combination with the lime or other base? and if so, would not the simplest expression of its value be to say that the manure contains so much per cent. of "soluble phosphoric acid," omitting all mention of "soluble phosphate" and "biphosphate," in which terms there seems to be much confusion? [Unquestionably. A Paper on this subject has been delayed by the pressure of other matter.] Again, descending from the soluble phosphate to the insoluble, and assuming that the value still depends upon the quantity of phosphoric acid, an ambiguity will arise if we confine ourselves to the mention of so much "insoluble phosphate of lime;" inasmuch as there would appear to be several different insoluble phosphates, containing different proportions of the acid. Even in bone-earth itself, according to Professor Fownes, there are two tribasic phosphates, one whose symbol is, 2 Ca O, H O, P O_5, and another whose symbol is 3 Ca O, P O_5. Now, taking the equivalent numbers from the best tables within my reach, the former will stand thus:—

2 Ca O (lime)	= 57.04
H O (water)	= 9.
P O_5 (phosph. acid)	= 71.44
	137.48, or 51.9 per cent.

of phosphoric acid; the latter will come out—

3 Ca O	= 85.56
P O_5	= 71.44
	157.00, or only 45.5 per cent.

of the acid; so that the proportion of the acid will vary according to the greater prevalence of the one or the other of these two salts. If I am right in assuming that the real value is in the phosphoric acid, all ambiguity would be avoided by at once stating the proportions of this, distinguishing soluble from insoluble. *A Tyro in Chemistry.*

Early Green Feed.—Weather extremely cold and dry, but I am cutting Rye 2 feet high, for my cow house, by dint of liquid manure. Singular that none will copy so very profitable a system. "Too much trouble." *Eileanach, Inverness.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Weekly Council, *April* 23.—Mr. Henry Vyner, in the chair. The names of 41 candidates were announced for election at the next meeting.

Australian Locusts.—Lieut. Du Cane, R.E., informed the Council, at the previous meeting, that "a portion of the colony of Western Australia had for some years been regularly visited, at the time the crops were rising, by swarms of locusts, which eat up everything green on the face of the country; attacking and utterly destroying the Potato crops, the fruit trees, Vines, and in fact everything; that these locusts appeared to have become regular habitants of the colony, not making a sudden appearance and an equally sudden disappearance, as in some instances; and that they threatened to overspread the whole colony, for rivers did not, as might have been expected, stop their progress." The Council having referred that communication to Mr. Curtis, the highest entomological authority of this country, for the favour of his opinion, the following communication was received from him:—"I regret that I can give your correspondent no satisfactory information regarding the destruction of locusts. Even if there were any remedies, it is doubtful whether they could be successfully employed, as in all probability the species of locusts in Australia differ very essentially in their economy from those of Europe. In my forthcoming report for the Journal, which I am happy to say is now completed, I have briefly alluded to the locusts of this country; and the only remedy appears to be the employment of poultry during the autumn and winter, which search for and feed upon the eggs of the grasshoppers." The Council voted their best thanks to Mr. Curtis for the favour of this communication.

Agricultural Botany.—The Council agreed to recommend that Professor Henfrey, of King's College, should be requested to deliver a lecture before the members in the Council-Room of the Society, at 8 o'clock on the evening of Wednesday the 6th of May, on the "Nutrition of Plants," elucidating the organisation and functions by which they derive and assimilate the nourishment they obtain from various sources.

Communications were received from Mr. Bullock Webster, on the arrangements in progress at Gnoll Castle, in the vale of Neath, for the establishment of a Scientific and Practical College; and from Mr. Bailey Denton on his experiments at Hinxworth, in reference to the drainage of clay-soils.

Adjourned to May 6.

Society of Arts, *April* 24: *On Disinfectants.*—Dr. Lyon Playfair, C.B., F.R.S., in the chair. A Paper on this subject was read by R. Angus Smith, Ph.D., Manchester, from which we extract the following passages:—

—— The use of drainage as a disinfectant is from time immemorial.

—— The use of antiseptics, as applied to the dead, has been known longer than any authentic history which books have handed down, and some of the processes described by persons who saw them carried on in a manner transmitted to them from much earlier dates, show us that in the chemical arts there has been a loss of information which has only been reproduced after much search and difficulty.

—— Fire was used in various ways as a purifier. It was used directly in times of plague for purifying and renewing the air of towns, accompanied with perfumes and flowers, as well as vinegar and various aromatic substances, amongst which may be put pepper, mustard, and so on.

—— Water, as a principal agent in disinfection, was highly appreciated by the ancients, and the most violent exertions of these late years have only put us on a level with the provincial towns of the Roman empire.

—— That great disinfecting agent, the soil, was not forgotten, and indeed all nations have used it more or less for their dead. To bury is generally the most ready mode of disposing of dead bodies. When the power of the soil is complete, we look in amazement at the amount of dead which our burying grounds absorb before they themselves become pestilential.

—— Air being the initial cause of putrefaction, it seems strange to class it among disinfectants, but in some respects it is the greatest of all. Its first action is mechanical, as in natural or artificial ventilation. It is known that the worst plagues have arisen in great calms; crowded rooms and unchanged air increase almost every disease, whilst ventilation has a contrary effect. The action of the air on putrid matter is too slow for many of the wants of civilisation, and hence the need of an artificial disinfectant. But nature herself has a mode of hastening it by giving an increased power to it under the influence of porous bodies. The porous body most in use is the soil, which is a powerful disinfecting agent, so much so that putrid matter, when completely absorbed by it, unless in excessive quantities, entirely loses its smell, and water drained from soil at a sufficient depth is found to have lost all its organic matter, so thoroughly has it been disinfected. In doing this oxygen is absorbed, and it will be found that water containing decomposing organic matter has its oxygen removed, serving frequently as a useful index to the state of the decompositions going forward. Dr. Stenhouse has shown this oxidising power to be very great in charcoal, as one of the most porous of bodies, and has fully illustrated its disinfecting properties by showing that it absorbs impure gases and oxidises them, whilst it has no power of preserving organic substances, and, therefore, is an unfit substance to be mixed with manures.

—— Metallic salts have a great disinfecting power, partly from their acid properties allowing them to act like acids, and partly from the fact that some metallic oxides unite with organic matter as well as decompose certain gases accompanying putrefaction. It is above ten years ago since, in reviewing metallic salts, I was led to believe that none would be ultimately used extensively. They must generally be used as solutions. Now solutions are unpleasant to use, as it is generally desired to remove the water rather than to increase it. In cow-houses and stables, and on shipboard for example, water and general dampness have to be constantly combated. The solutions themselves are acrid, and hurtful to the person and to clothes, and the metals have no place in agriculture; disinfection and agriculture must go hand in hand. The continually increasing price of metals shows, too, that they are demanded for other purposes. For these reasons I recommended, in a short paper to the Chemical Society, the use of magnesia or its salts, by which large crystals, containing the ammonia of urine, may be rapidly obtained. Not finding its disinfecting power sufficient, I did not proceed with it far, as I saw that something else was needful to insure complete success. But some years later, when experimenting with my friend Mr. MacDougall, we came to some conclusions which I shall relate.

We agreed that of all bases magnesia was the best to use for the disinfection of manures, as the only one which gave an insoluble ammoniacal salt and preserved the ammonia at the same time, whilst it was an agent also employed regularly by nature in the economy of vegetation. That of all acids sulphurous acid was the best, and its power at least equal to chlorine, but it had not the destructive quality which chlorine possesses of decomposing ammonia, whilst when it had done its work it was either converted into a harmless solid, as sulphur, or, by combining with oxygen and an alkali in the soil, became a sulphate, another agent used by Nature. We believed that in most cases disinfection would not be employed at all if unpleasant odours were used, and that it would be better to prevent their formation than to allow them to form and then hunt them down with uncomfortable fumes. We combined the base and the acid, and found that by this means disinfection was nearly completed, by the use of only a small portion of material. My belief is that in many cases this would be sufficient for the purpose, but we were not satisfied. We had tried about the same time that we tried the magnesia in 1847 the carbolic or phenic acid from coal tar, but we had not been able to produce good results by it alone. When the sulphite acted, there was still a small remaining smell which the phenic acid removed; we therefore added to the sulphite about 5 per cent. of phenic acid, of which the powder slightly smells. We made the compound a powder, as the best of all forms, cheapest, and most convenient for carriage. To obtain abundance of sulphite of magnesia was of course a difficulty, but we found that there were certain advantages in having some caustic lime with it in some cases, so that we use the magnesian limestone; in ordinary cases not saturating it with the acid, but adapting it according to circumstances. Although our first object was to precipitate sewage, we had no good opportunities of doing so, and turned our attention to more attainable objects. After our small experiments we tried it in stables, chiefly at the Manchester Horse Barracks, when Mr. Gardiner, of the 3d Light Dragoons, was veterinary surgeon there. That gentleman made many experiments, and decided on its value, finding it beyond his most sanguine expectations. The mode of using it is simply to sweep the stable well and sprinkle the floor with the powder, using as much as would be used of sand in sanding a floor. The bedding is then put over it. It was found particularly valuable when sick or wounded animals were present, as it rendered the odour from the wounds as well as from the fæces imperceptible. Lieut.-Colonel Unett, of the regiment mentioned, gave the same opinion, and advised its use on board transport ships. Through the kind and zealous interposition of Lieut.-General Sir Harry Smith, who had experienced its benefit in his own establishment, the circumstances were represented to the Secretary of War, who ordered that every transport ship conveying troop horses to the Crimea should be furnished with it. This was done in the latter part of the war with the utmost success, so much so that many requests were made for it from other transports. Its use was begun with great success in the camp, as we find from Mr. Doyne, Engineer-in-Chief, Army Works Corps. We could never get it introduced generally into the camp, although experience has shown that it would have remedied one of the greatest discomforts with absolute certainty. In consequence of powdering the floor with it almost daily, the manure becomes thoroughly mixed with the disinfectant. The results are remarkable. The manure does not heat or ferment, as in other cases, so that there is no fear of loss by ammoniacal gas, or by putrid vapours. The liquid which flows from it is without swell. From the arrest of decay, flies do not come around it in numbers, and the horses also are preserved from flies, a state which has a very favourable effect upon them. Mr. Murray, who has always four or five dozen of the most valuable horses on hand, says that headacre has disappeared from his stables; and of lung disease, which was formerly common, he has not had an instance. The horses are healthier, and in better spirits, whilst a good deal of straw is saved. They breathe air without either ammonia, which hurts the eyes of those who enter, or of putrid matter; the whiteness of the powder makes the stable appear as if constantly newly whitewashed. A curious circumstance is said by most of those who use it to occur. The stable is cooler, not only to the feeling, as we might suppose, by removing animal matter, but to the thermometer. I have not made the observations myself, but they are to be relied on, and to the feeling the change is distinct. The removal of heat I ascribe to the fact that the animal matter has ceased to oxidise. The slow combustion or putrefaction produces heat in the manure, probably also in the atmosphere itself, where the vapours are mixed with the oxygen. The oxidation and putrefaction are simultaneously arrested. It might be said that since decomposition is arrested, the manure is made unfit for plants; besides, it is know that liquids from tar put a stop to vegetable life as they do to animal. But Mr. Murray found that after having sold his manure of one year with the powder in it, he was offered double for it next year. It is therefore established that a just medium has been attained, the preservation of the manure on one side, and the health of the plant on the other. Perhaps the best authorities as regards horses are the veterinary surgeons of Manchester, who use it and find it essential, for "sweetening the air and destroying all offensive emanations from breath, dung, or wounds." I have heard instances, too numerous to allude to, of long standing complaints of water-closets and cesspools being cured by a single application, sometimes not needing renewal for months, but I cannot go over the same ground twice, nor, although I read on this subject by request, do I wish to use the style of those who speak more from interest than conviction. I know that no amount of assertion will make you believe these facts till they are tried before your eyes, and for that reason have never till now spoken publicly on the subject; but when requested, I thought it might be a greater fault to shrink from such a public method of speaking my opinions, than it would be to appear to use such an occasion for merely selfish purposes. It is especially important, now that a lung disease among cattle threatens us, that these experiences of ours should be made known, as it appears that, quite unknown to ourselves, we have been experimenting chiefly in that direction which is most at present required, and with greater success than we had ever anticipated. As I am not in business, and did not wish to be, the powder was called "McDougall's Disinfecting Powder."

[The agricultural uses of this powder were referred to in this Journal some weeks ago. Its other uses to which Dr. Smith directs attention are discussed in the remainder of this Paper, which we shall give next week.]

Miscellaneous.

Manures for Barley.—Barley, as one of the Cereal crops, requires ammonia or nitrogen in some form for its growth. Being sown so much later than Wheat, it has less time to extend its roots in search of the minerals contained in the soil; and for this reason ammonia alone is a less effective manure for Barley than Wheat. For the same reason, Barley sown in April requires more minerals than Barley sown in February. The quantity and composition of the artificial manure should be regulated both by the condition of the land and the period of sowing the crop; and although this makes the subject a little complicated, I shall endeavour to explain it, as I feel sure that much of the success which ought to attend the application of artificial manures is lost from want of attention to these points. The substances most suitable for Barley manures are the following:—Nitrate of soda, Peruvian guano, sulphate of ammonia, superphosphate of lime. The first three are manures containing large quantities of ammonia or nitrogen, and they can be used alone; the latter can only be used in combination with one or more of the others. I have introduced superphosphate of lime as a Barley manure, on account of its effect in my experiments, where Barley is grown year after year upon the same field. In combination with ammonia it not only produces very favourable results with regard to the produce, but it brings the crop very early to maturity—a point of great importance when the Barley is sown late in the spring. As the process of mixing these ingredients can be performed by the farmer at less cost than by the seller, and requires no skill, it is far more satisfactory

that the farmer should purchase his ingredients in a pure state. In the first place, the chemical composition of all the ingredients is known, and if supplied in an unadulterated state, the seller would be subject to unpleasant consequences. On the other hand, if the farmer purchases a Barley manure, he must take whatever is sent to him; and he can have no legal ground upon which to found a complaint should the substance supplied prove worthless. It is for these reasons that I recommend the purchase of manures of known composition; and if employed as I direct, I feel but little doubt that they will be found superior to any Barley manures sold in the market.

Table of mixed manures sufficient for an acre of Barley.

	Barley after a grain crop, or when the whole of the roots are taken off the land.					Barley after a root crop, when a portion of the crop is fed off.					Barley sown very late in the spring.				
	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.	Cwt.
Peruvian guano	3	2	..	..	1	1½	..	..	½	.	..	..	.	½	1
Nitrate of soda	..	..	1½	..	½	..	1	..	½	½	..	1	½	½	..
Sulphate of ammonia ..	..	..	.	1½	½	..	..	1	½	½	1	..	½	½	..
Superphos. of lime ..	..	1	1½	1½	2	..	1	1	..	1	2	2	2	1	2
Total mixture per acre	3	3	3	3	4	1½	2	2	1½	2	3	3	3	2½	3

—Mr. Lawes in Rendle's Farm Directory.

Calendar of Operations.

APRIL.

FARM NEAR HEXHAM, *April* 28.—We are now at the close of April, and have yet no appearance of having got quit of winter. We had our April in February, and are having our February weather now. This morning we had snow, and yesterday the ice was a quarter of an inch thick. With such weather we need not say that Grass makes little progress, and as Turnips are fast drawing to a close we are looking with some anxiety for warmer weather, a few days of which would soon clothe the country in its spring colours, there being abundance of moisture in the ground. March was a very wet month, and after the first week it was scarcely possible to make any progress with sowing; this, coupled with the high price which Barley has for some time commanded, has prevented the sowing of spring Wheat being pushed to the extent it has been for a year or two. Winter Wheat and early sown spring corn keep their healthy appearance much better than we could have expected from the weather, but later sown Wheats have a very starved look. Potatoes, which from the long continuance of wet are longer in being planted than usual, are now being planted. Good seed is bringing a high price, some as high as 8*l.* per ton. Fallow cleaning has made small progress beyond what was got done in autumn, except on very dry land. Beef and mutton still command very high prices, as also lean cattle and sheep.

Notices to Correspondents.

IMPORTATION OF LIVE STOCK: *M S.* The number of different kinds of stock imported during the three months ending March 31, 1856 and 1857 respectively is as follows:—

	1856.	1857.
Oxen, bulls, and cows	6232	7348
Calves	1093	3138
Sheep and lambs	2770	8713
Swine	99	196

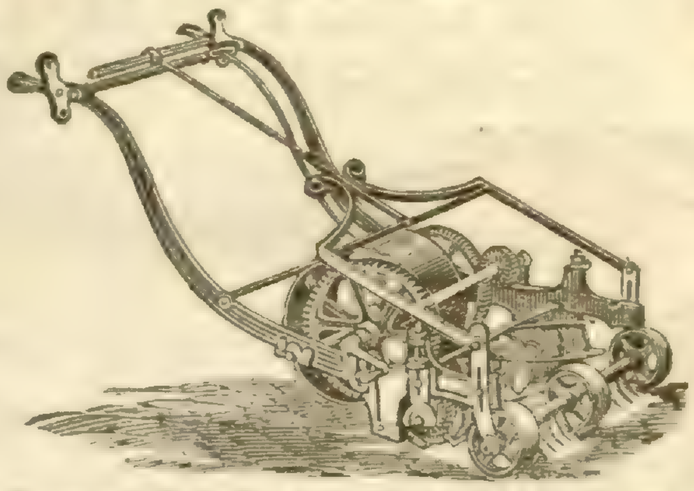
POULTRY: *Parasites.* Having had great experience in the management of poultry and pigeons, also of game of every description; having had above 2000 head under confinement under my care, I have had every opportunity to observe and try experiments for the comfort of the poultry; and I offer for the benefit of poultry keepers a very excellent remedy for the destruction of parasites that infest poultry and pigeons in confinement, especially sitting hens, if not allowed a free run when a great many eggs are destroyed through the restlessness of the hen. There are several kinds that infest the hen. By attending to the following remedy they will be entirely kept clear. First of all if in confinement in the dust corner of the poultry house mix about ½ lb. of black sulphur amongst the sand and lime that they dust in. This will both keep them free from parasites and will give the feathers a glossy appearance. If infested with the insects damp the skin under the feathers with a little water: then sprinkle a little black sulphur on the skin. Let a bird be covered with these insects they will all disappear in the course of 12 hours. Also previous to sitting a hen if the nest be slightly sprinkled with the sulphur, there is no fear of the hen being annoyed during incubation, neither will the chickens be annoyed by them. Many a fine hatched brood pines away and dies through nothing else, when no one knows the cause. Having had an ostrich under my care that was pining, when looking into his feathers I observed thousands of the parasites. I employed tobacco water, also lime water under my then master's orders to no effect. In his absence I well damped him and sprinkled him under the feathers with black sulphur, when next day they were examined by a microscope, when every one was dead. Having had some macaws, also parrots that were addicted to biting off their feathers, I employed the black sulphur by well syringing them with water, then sprinkling the sulphur over their skins. If tame, sponge the skins, then rub gently with the points of the fingers with the sulphur every other day for about a fortnight, when the parrot or macaw will cease to destroy his plumage. It is not a remedy that has not been proved, for I have used it these two years with success. *John Douglas, breeder for Mr. Baily, the Elms, Hartley Row, Hants.—A 12 years' Subscriber.* You will have no difficulty in keeping your silver pheasants with mandarin ducks, if as I imagine the latter have water to resort to. The silver cock pheasant is a spiteful bird in the breeding season, but his hostility is mainly directed towards those of his own species. We question whether he would notice ducks in any way; if he did the water would afford them a safe retreat. If you have not already done so, we would advise you to put up a Pollard stem in the middle of the water, or the rugged trunk of any other tree. It is far from being an eyesore, it affords protection to the birds, and they are fond of using it. If this be objected to, a box shaped like a dog-kennel should be fastened on a pole about 4 inches from the surface of the water with a board reaching into the water, having pieces of wood nailed across it to give the ducks a footing and to enable them to enter it. *J. B.*

SALE OF STOCK: *Bucks.* We see from the *Herald* the late Sir H. R. Hoare's stock, at Lillingstone Lovell, realised high prices. Cows sold for 40 guineas, calves for 22 guineas, bulls for 42 guineas.

BY ROYAL LETTERS PATENT.

GREEN'S PATENT PONY AND HAND GRASS-CUTTING MACHINES.—DATE OF PATENT, August 2, 1856. No. 1831.

THOMAS GREEN, PATENTEE and SOLE MANUFACTURER, Leeds, Yorkshire.



T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Price Lists and Testimonials may be had on application to the works; also Mr. Charles Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham, where the Machines may be seen, and every information obtained.

Testimonial from J. MAJOR, Esq., *Landscape Gardener, Knostrop, Leeds.*

"Sir,—When your improved Mowing Machine was first sent for my inspection some time ago, I thought no room was left for improvement except a contrivance for all the wheels to be made to work within the frame of the Machine so as to prevent the plants near the edges of the Grass from being caught and injured in the operation of mowing. This defect I am glad to find completely remedied in the Machine now sent for trial. It seems to possess all that is requisite, and the Rake you have just added appears to have given it the finishing stroke, as it raises the Grass when too low, and frees it from all obstructions. It is a complete *multum in parvo.* It is at once neat, simple, and very efficacious in its operations, and my opinion is that your present Machine as far surpasses your former one, as the former did all previous inventions. I may further add that I think you have done an important thing in varying the sizes of the Machine according to its requirements. The smallest sizes are best adapted for town gardens, and for cutting amongst crowded flower-beds and intricate places. The intermediate ones, say 16 or 18 inches, are most suitable for amateurs generally, and gardeners in single-handed places. Your adaptations of the Mower to work either by pushing or drawing are well adapted for intricate places; and drawing being the easiest mode of working the machine, is the most suitable for open or large expanses of lawn. It affords me great pleasure in again having to give my testimony to so important and valuable an improvement, which I have no doubt the gardening world will fully appreciate. "I am, Sir, yours very respectfully,

"Mr. Green." "JOSHUA MAJOR.

Testimonial from WILLIAM BARRATT, Esq., *Landscape Gardener, St. John's, Wakefield, Sept.* 8, 1856.

"Mr. THOMAS GREEN, Sir,—I have long been opposed to Mowing Machines, but your last registered one in a great measure overcame my prejudices, as it was a decided improvement on all that had preceded it, but your new patent one now offered is a *ne plus ultra* in mowing machines. Its simplicity is admirable, its adaptation complete; as I see it will mow a narrow verge, round intricate beds, in corners, on hill sides, and even on hilly ground. Amongst other advantages I name its lightness, its superior mechanism, its being much easier to use, with the option of drawing or being pushed, or both, and last though not least, the prices are about the same as the old clumsy machines. It reflects great credit on your ingenuity, and amateurs and gardeners will pay a high tribute of thanks to you for lessening their labour and improving their lawns. The rake which you have ingeniously affixed will be found very useful in many respects. Your pony machines are surprisingly light and very effective.—I am, Sir, your obedient servant,

"St. John's Nursery, Wakefield." "WILLIAM BARRATT.

Testimonial from THOMAS CLAPHAM, Esq., *Leeds Royal Gardens, September* 10, 1856.

"Sir,—Having seen one of your Patent Mowing Machines, 28 inches in width, mow one of the Grass plots in the gardens containing 3 acres, neat, and even in one-tenth the time any of my gardeners have done it, I have no hesitation in ordering two of your Machines: one for a pony to work, to cut not less than 32 inches in width, and another Hand Machine for the Grass Borders 20 inches in width. As there are about 15 acres of Grass plots in the gardens, I need not say that the knives must be very good, and if so, I have no doubt the work will be done at considerably less cost and much better than by hand labour. —I am, Sir, yours obediently, "THOMAS CLAPHAM."

THE FOLLOWING ARE THE PRICES:—

	To cut				If with improved Rake.
	,, 8 in.	£4	4	0	2*s.* 6*d.*
	,, 10 in.	4	14	6	2 6
	,, 12 in.	5	5	0	2 6
	,, 14 in.	5	15	0	2 6
	,, 16 in.	6	6	0	3 0
	,, 18 in.	6	16	6	3 6
For pony	,, 20 in.	£7	7	0	4*s.* 0*d.*
	,, 22 in.	7	17	6	4 6
	,, 24 in.	8	8	0	5 0
	,, 30 in.	15	15	0	10 0
	,, 36 in.	18	18	0	12 0
	,, 42 in.	22	0	0	14 0

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra.—Please examine the Machine before the carrier leaves it.

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

P.S. Three Hundred of these Machines have been sold this season, and references can now be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. GARROOD, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.

Illustrated Price Lists forwarded on application.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

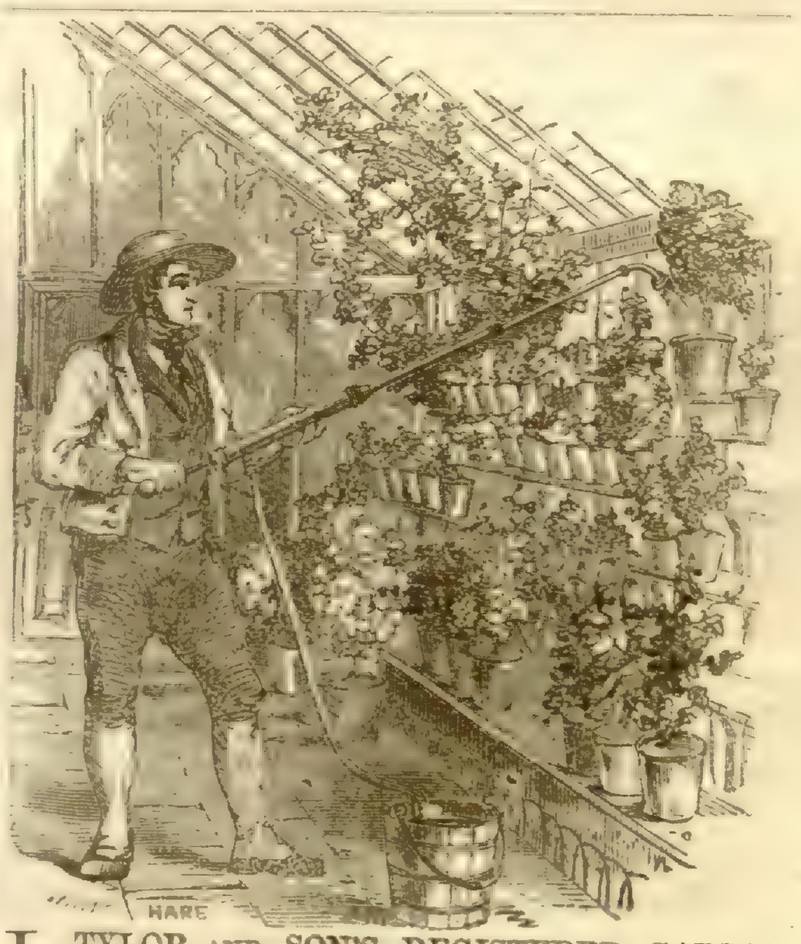
No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

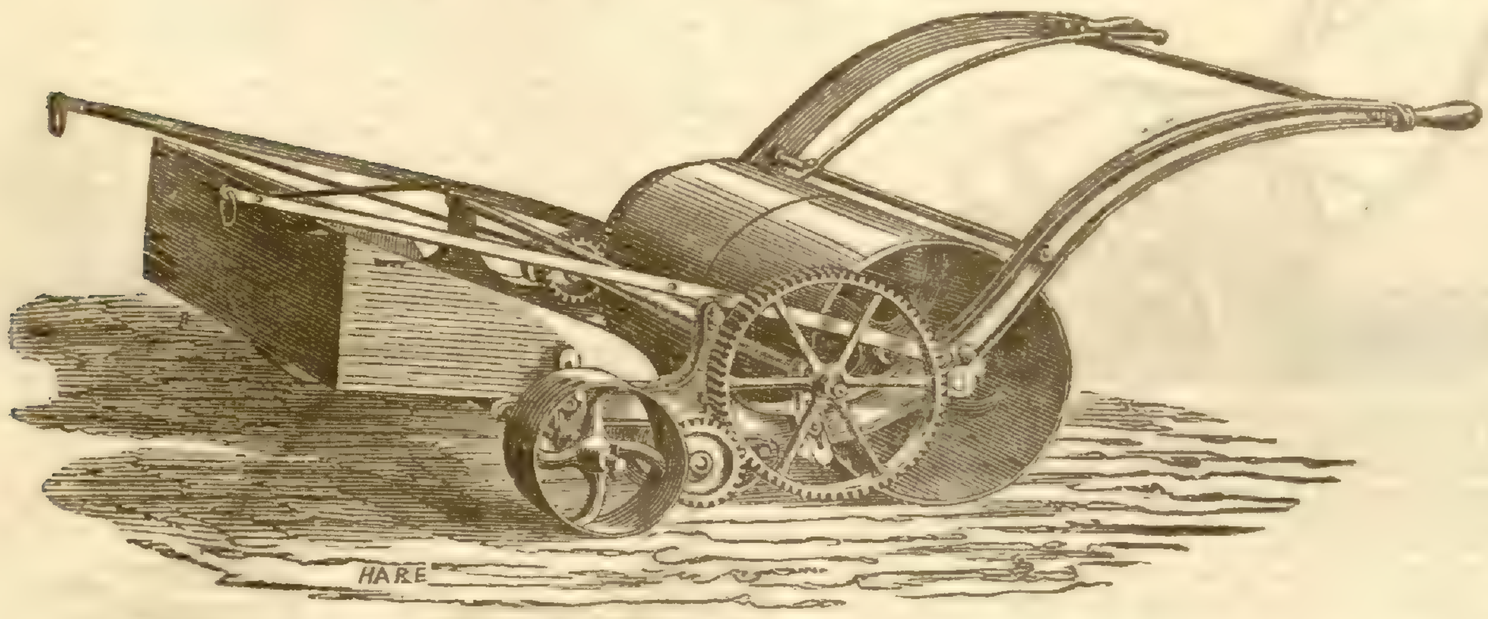
N.B. These prices do not include carriage, package, or expense of delivery in the country.

IMPROVED MOWING MACHINES

MANUFACTURED BY

JAMES FERRABEE & CO., PHŒNIX IRON WORKS,

NEAR STROUD, GLOUCESTERSHIRE.



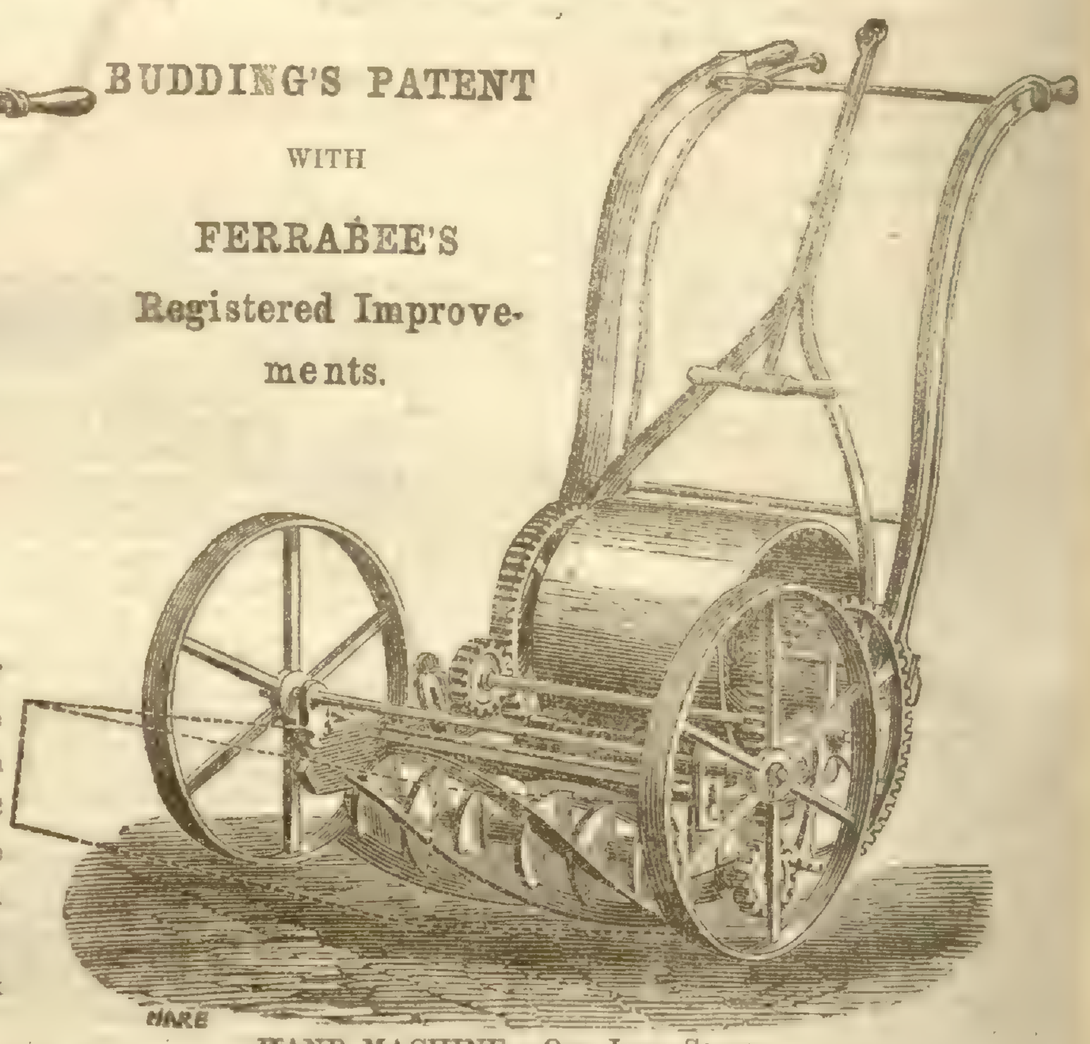
HORSE MACHINE.—Half-inch Scale.

BUDDING'S PATENT

WITH

FERRABEE'S

Registered Improvements.



HAND MACHINE.—One Inch Scale.

JAMES FERRABEE and CO. have this year effected further improvements in their Mowing Machines, and have added to their List a very useful, as well as a very cheap, Machine, to be worked by one man or a stout boy. It may be used for cutting Verges, between Flower Beds, and on uneven ground, without any alteration of the machine, and is *free from the objection of having rolls in front of the cutters.* The larger Machines possess all the improvements effected up to the present time. The 28-inch and 36-inch Machines are made extra strong, with *large cutting cylinders* for cutting the longest and coarsest Grass usually met with on lawns and pleasure grounds.

J. F. & Co. have made and sold upwards of 6000 of these Machines, many of which have been at work upwards of 20 years, and continue to give satisfaction.

"FERRABEE'S" IMPROVED HAND MACHINES

Are so constructed that they may be either drawn or pushed, and they are much easier to manage and more generally applicable to the various conditions of Lawns than Machines worked only by a drawing handle.

PRICE LIST—Including Carriage to any Railway Station South of York:—

HAND MACHINE,	for One Man,	cutting 12 inch	£4 5s. 0d.	PONY MACHINE or DONKEY,		cutting 26 inch	£8 0s. 0d.
Ditto	ditto	16 inch	5 10 0	HORSE	ditto	ditto 28 inch	11 0 0
Ditto	for Man and Boy	22 inch	6 0 0	Ditto	ditto	ditto 36 inch	15 0 0

London Agency:—The Manager of the Agricultural Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS and COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. Weeks *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. Weeks & Son's *Boiler had been recommended to me, it considerably exceeds my expectations.*"	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5860	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. Weeks & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten, as I had on the old system.*"	12	6000	2300
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c.	12	..	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total	..	4050	
Mr. Paget says:—"*Your apparatus is working very satisfactorily. The boiler is quite master of its work.*"			
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

JOHN WEEKS & COMPANY,

Horticultural Builders and Hothouse Apparatus Manufacturers,

KING'S ROAD, CHELSEA, S.W.

PAGE & CO.'S

COMPOSITION FOR THE DESTRUCTION OF BLIGHT

UPON THE

HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, AND STOVE AND GREENHOUSE PLANTS

Extra Strong, 4s. per Gallon, sufficient to make four.

Jars and Barrels charged at cost price.

Ten Gallons and upwards, Carriage Free to London.

B. PAGE and CO. beg to refer to Professor Lindley's analysis of the leading Gardeners' opinions, and also his remarks in the leading article of the *Gardeners' Chronicle* of October 25, 1856, where it will be observed that in 192 cases, 10 only were adverse; a majority sufficient to convince the most sceptical. It should be in the possession of every one who has a Rose Bush or a Wall-fruit Tree.

Their Agents (the principal Houses in the Trade) were recently published, to which should be added—

Mr. Thomas, Nurseryman, Wolverhampton.
Mr. Jennings, Nurseryman, Shipton-on-Stour.
Messrs. Dickson & Sons, Edinburgh (in place of Downie & Laird); or of

B. PAGE & CO., Seed Merchants and Growers, Southampton.

TODD'S PATENT IMPROVED METALLIC PROTOXIDE PAINT.—Indestructible by Heat, more durable than White Lead, and cheaper.—Testimonials and Specimens at the Office of the Company (Limited), 58, King William Street, E.C. The Company will not be responsible for any but their own Manufacture.

BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.

Thomas Brittain & Co., Manchester; J. Ellison, Bread Street, Cheapside, London.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At Edgington & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

JOHN WARNER and SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with Warner's Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

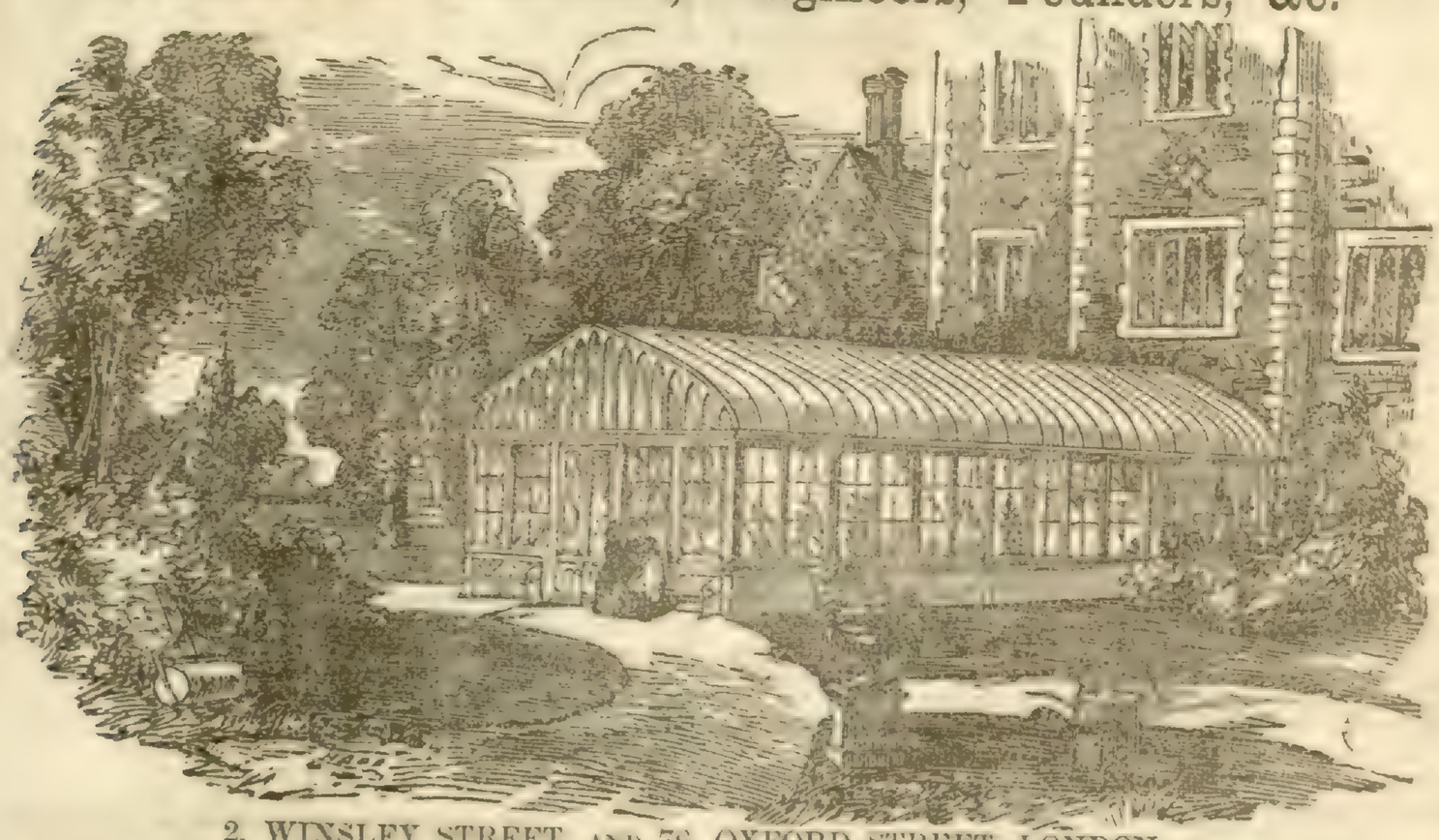
Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and of J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing: it will throw about 60 feet and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

PATENT WATERPROOF GLAZING, Ridge and Furrow Conservatories, Greenhouses, Vineries, Orchard Houses, &c., with the most improved form of construction and heating. Illustrated Prices on receipt of 4 stamps.
Address, ALFRED KENT, Horticultural Builder, Chichester.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35s., securely packed for the country.

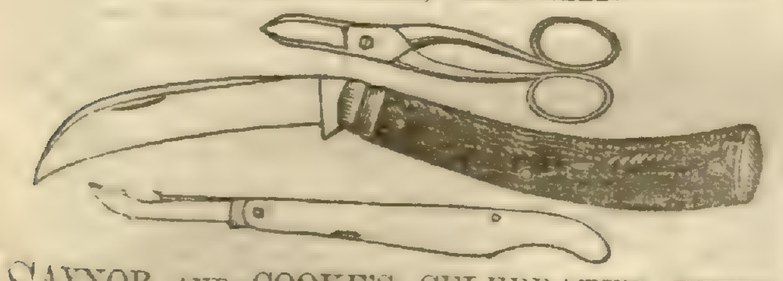
This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square. Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 7, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

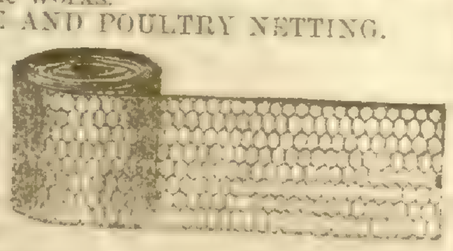
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and latest fence in use, will resist the largest cattle, and will not rust or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 2 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, each mesh, 6*d.*, 8*d.*, and 10*d.* per yard.
Galvanised, 24 ins. wide, each mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.
The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 9*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.
Manufactory, 27, Dale End, Birmingham.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

WIRE WORK of EVERY DESCRIPTION, useful and ornamental, for Conservatory, Greenhouse, Garden, Dwelling house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, manufactured by W. RICHARDS, at the Imperial Wire Works, 370, Oxford Street, London, W.; and at the Crystal Palace, Sydenham. Window Blinds and Sunshades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS

OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

STEAM ENGINES TO BE SOLD, at the East London Iron works, Cambridge Road, Mile End.—The best and most economical high pressure horizontal engines always for sale. Messrs. J. MUSTO & Co., having a large sale for these particular engines, endeavour to keep a stock, either finished, or in course of erection, which can be seen at their works. Satisfactory references can be given, and engines of their make inspected at work in several parts of London.—Workmanship and materials warranted.

GREENHOUSE (SECOND-HAND). — WANTED, a second-hand Greenhouse (Galvanised Sheet Iron), length from 20 to 30 feet; width from 15 to 20 feet; height at centre of roof, 18 to 25 feet. State full particulars and price.—ALPHA, 17, Great Canterbury Place, Lambeth Road, London.

TO NURSERYMEN AND OTHERS.

TO BE LET, with immediate possession, 1½ Acre of Walled in Garden stocked with Roots, Seeds, &c., in the vicinity of London, including two large Greenhouses, Propagating House, Pit and Frames; also a good stock of Bedding Plants. Good House and Shop attached, 13 years unexpired lease. Rent 42*l.* per annum, premium 100*l.*—inquire of Mr. F. Sungster, Seedsman, 252, Whitechapel Road, London.

TO BE SOLD by Private Contract, BREEDING PIGS, upwards of 50 very superior young Boars and Sows of various ages, of the small Yorkshire breed, from the late Earl Ducie's two celebrated Sows—Miss Watson and Miss Brown. As a proof of the excellency of these pigs, 1½ Gold, Silver, and Bronze Medals were awarded to this family at the International Exhibition at Paris in 1856. A few Wild Pigs are also for Sale.—Apply to Mr. KNOWLES, Earles Court, Old Brompton, London.

Sales by Auction.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, May 7, at 12 o'Clock, a first-rate collection of Dahlias, Fuchsias, Verbenas, Petunias, &c.; also fine Azalea indica, Geraniums, Roses, and other plants in bloom, with a choice and useful assortment for bedding.—On view the morning of sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

NOTTING HILL.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, Lansdown Road, Notting Hill, near the Castle, on WEDNESDAY, May 6, at 11 o'Clock (by order of Mr. John Cook, in consequence of the ground being let for building), about 3000 Greenhouse and Bedding Plants, including Pelargoniums of the finest show varieties by name, Scarlet Geraniums, choice Fuchsias, Verbenas, Calceolarias, Heliotropes, Salvias, Ageratums, Petunias, Intermediate Stocks, Double Nasturtiums, Eccremocarpus, Tropæolum canariensis, Maurandya, Lophospermums, &c., Dahlias, consisting of all the bedding kinds; also two Greenhouses; several 1, 2, and 3-light Boxes, nearly new; capital 4 and 9-light Pits, Water-butts, Barrow, &c.; together with a quantity of Hand-lights, Bell-glasses, Stakes, Garden Pots, Manure, Tools, and other effects.—May be viewed two days prior to the Sale. Catalogues may be had on the Premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

BEDDING PLANTS, BEDDING PLANTS, BEDDING PLANTS.

TO NOBLEMEN, GENTLEMEN, GARDENERS, AND OTHERS.

Unreserved Sale at the Westbourne Nursery, Harrow Road, adjoining the Toll Bar, and within 2 miles of Oxford Street.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises as above, on WEDNESDAY, May 13, at 11 o'Clock, upwards of 20,000 first class Bedding Plants, consisting of the newest and most approved varieties of Verbena, Calceolaria, Petunia, Anagallis, Lobelia speciosa, Cuphea, Tom Thumb, variegated and other Geraniums; a large quantity of first-rate Flowering Plants, suitable for Conservatories and Window Decorations; Mignonette, &c., for boxes; also Roses of the most suitable kinds for the neighbourhood of London, including Devoniensis, Géant des Batailles, Smith's Yellow Noisette, Cramoisie, Supérieure, &c. Messrs. P. & M. have much pleasure in offering the above to public competition, and can assure their patrons it is an opportunity seldom to be met with. Omnibuses pass the Nursery, leaving the Bank at the half hour; and the Correspondence Office, Regent Circus, every hour exactly.—May be viewed the Saturday previous to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE-END NURSERY, BOW.

TO GENTLEMEN, NURSERYMEN, FLORISTS AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the Premises, Mile-End Nursery, Bow Road, Middlesex, near the Bow Railway Station, on TUESDAY, May 19, at 12 o'Clock, about 10,000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Cactus, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias (sorts), Phloxes, Petunias, Nierembergia, Lobelias, Dahlias (comprising all the leading kinds), Chrysanthemums, Intermediate Stocks, Maurandya, Tropæolum canariensis, Cobœa, Lophospermum, Eccremocarpus, &c.—May be viewed three days prior to the sale. Catalogues had on the premises, of the principal Seedsmen in London, and at the Auctioneers, American Nursery, Leytonstone, Essex.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, May 8, at 1 o'Clock precisely, a further portion of the LODDIGES' COLLECTION OF ORCHIDS, including many fine Plants of the choicest East Indian and other varieties, amongst which may be mentioned

Ærides Schroderii	Cattleya spectabilis
,, Larpentæ	Dendrobium bigibbum
,, quinquevulnerum	Saccolabium præmorsum
Cœlogyne pandurata	Vanda violacea
&c. &c. &c.	All in excellent health.

May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

ORCHIDS, ETC.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, May 11, at 1 o'Clock precisely, 50 ORCHIDS admirably grown from the Collection of a well known Amateur. Amongst these may be mentioned—

Aerides Schroderii	Phalænopsis amabilis
,, affine	,, grandiflora
,, Larpentæ	Saccolabium guttatum
,, Fieldingi	,, retusum
Anguloa Ruckerii	Vanda suavis (Veitch)

Also an Importation from India in excellent condition, including many plants of Saccolabium retusum, a new Cypripedium, Aerides Fieldingi, Vanda Cathcarti, a collection of Begonias, Ferns, and a few Seeds.—May be viewed on the morning of Sale and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO NURSERYMEN, FLORISTS, AND OTHERS.

BOWATER NURSERY, SAMUEL STREET, WOOLWICH.

MR. T. DANN will Sell by Auction on TUESDAY, May 5, at 12 for 1 o'Clock, on the premises, by order of Mr. Stanley, quitting, 2600 GREENHOUSE PLANTS, Scarlet Tom Thumbs for vases, named Pelargoniums, Calceolarias (various), Scarlet Unique, Globe compacta, Lucia rosea compacta, Large Bishop of Exeter (new), Sultan Calceolarias, Kalosanthes (various), Fuchsias (various), Nutmeg Scarlet Geranium, Mesembryanthemums (various), Bulbs of Valsta, Lemon scented Citridora, Lacrenalia tricolor, Veronica Hendersoni, and Miscellaneous Plants, &c.; 6 two-light Frames and Lights, 7 small do., Wheelbarrow, 28 round Ladder (nearly new).—May be viewed the day previous to the sale, and Catalogues had of Mr. STANLEY, on the premises; of Mr. C. BEADLE, House Agent, Erith; the principal Inn in the neighbourhood; and of the Auctioneer and Surveyor, Bexley, Kent, S.E.

[By a Press error in last Number the Sale was announced to take place on the 25th instead of the 5th.]

BROADOAK, BRENCHLEY, NEAR TONBRIDGE, KENT.

IMPROVED SHORT-HORNED CATTLE.

MR. TOOTELL is directed to Sell by Auction, on WEDNESDAY, May 20, at 12 for 1 o'Clock, at the Crook Farm, Brenchley, 2 miles from the Paddock Wood Junction Station of the South-Eastern Railway, a very few superior SHORT HORN CATTLE, the genuine property of Captain J. H. Hay Ruxton; they will be sold without reserve, in consequence of his having received an official appointment and relinquishing farming. The stock consists of 10 handsomely framed and thoroughly well bred Cows and Heifers, 2 pure white Bull Calves, a Heiter Calf, a yearling Bull, and 5 Steers; Sires "Diamond" (5048), "Puritan" (2523), "Denmark," "Rivers" 10,716), "Nabob" (13,365), and "Fop" (12,890), bred from the stocks of Mr. Booth, of Killerby; Mr. Cartwright, of Tathwell; Harvey Coombe, Esq., of Cobham, Surrey; Earl Spencer; Sir Chas. Knightley, Bart.; Marquess of Exeter, and Earl Ducie. Also a few Pigs of the bloods of Lord Hill, of Hawkstone, Salop; Mr. Samuel Druce, Ensham, Oxford; Fisher Hobbs, Esq., of Essex; and Mr. Coate, of Hainmoon, Dorset. The stock may be seen two days previous to the sale by applying to the herdsman at Broadoak, of whom Catalogues and Pedigrees may be had. They may be also obtained at the Crown Inn, Tonbridge; Albion Hotel, Hastings; Fountain, Canterbury; New Falcon Hotel, Gravesend; Bull, Dartford; Saracen's Head, Ashford; Lion, Farningham; and of Mr. TOOTELL, Estate Agent and Valuer, Maidstone. Broadoak is at the village of Brenchley, about 7½ miles from Tonbridge, 6 from Tonbridge Wells, and 48 from London.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of Standish & Noble, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, May 2.

DISSOLUTION OF THE FIRM OF STANDISH AND NOBLE.—Every department of the Nursery Business, so long and favourably patronised under the late Firm, is now conducted by Charles Noble, to whom all communications should be addressed.—The Nursery, Bagshot, May 2.

CHARLES NOBLE, of the late Firm of Standish & Noble, has still to offer fine selections of STANDARD ROSES, including Jules Margottin, Gloire de Dijon, &c. Rhododendrons in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignus, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, May 2.

NEW PLANTS OF 1856.—The following plants were sent out, and very highly recommended, by the Messrs. Henderson, of Wellington Road Nurseries, last May, and are now offered at the following prices:—

VERBENAS—Lady Kerrison, Nosegay, Mrs. Archer Clive, Mrs. Hosier Williams, La Stella, Imperialis, Countess of Dunmore, Lady Camoys, purpurea magnifica, Géant des Batailles, picturata, and Impératrice Elizabeth, 2s. per dozen.

PETUNIA Countess of Ellesmere, 3d. each, 2s. 6d. per doz.

FUCHSIA Venus de Medici, 6d. each, 5s. per doz.

CUPHEA EMINENS, 3d. each, 2s. per doz.

The above are now ready, and may be had of T. Barnes, Dane Croft Nurseries, Stowmarket.

NEW FUCHSIAS.

JOHN and CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (Lee).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. Now ready, price 10s. 6d.

DANIEL LAMBERT (Lee) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. Now ready, price 7s. 6d.

Nursery, Hammersmith, near London.

NEW PLANTS.

JOHN and CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (Lee).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5s.

VARIEGATED GERANIUM EMPEROR (Lee).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10s. 6d. The usual discount to the Trade.—Nursery, Hammersmith.

AGRICULTURAL AND HORTICULTURAL SEED ESTABLISHMENT.

195, High Street, Exeter, opposite Broadgate,
Late THOMAS VEITCH and CO.

THOMAS CHARMES (23 years with Messrs. Veitch & Son), announces that he has purchased from the Assignees of Thomas Veitch & Co. the above Business, which will be conducted by a competent person till the 12th of May next, when it will be under his entire personal superintendence.

The Stock of GARDEN, AGRICULTURAL, and FLOWER SEEDS is now complete for the present season. The Stock contains the newest and most valuable varieties, as well as those in general demand, and will be found well worthy of attention. Every variety has been proved, and all are warranted genuine, and without adulteration.

The Stock of TURNIPS, MANGEL, CARROT, and GRASS SEEDS contains the finest samples in excellent conditio.

SEED POTATOES, and all articles connected with the Seed Business, supplied equally good and reasonable. Lists forwarded on application.

N.B. 12 packets pretty Flower Seeds	1s. 0d.
12 ditto, select	2 0
12 ditto, new and choice	3s. to 6 0

NEW FUCHSIAS, VERBENAS, &c., OF 1856.

MITCHELL and CO., Bristol Nurseries, Kemp Town, Brighton, are now prepared to send out good strong, healthy, bushy plants well established:—

FUCHSIAS of 1856.—Henderson's Charlemagne, Countess of Burlington, Conqueror, Admiral Boxer, Gloire de Neisse, General Williams, Prince of Wales, Donna Joacquina, Volcano di Aqua, Venus de Medici, Emperor Napoleon, Favourite, and Wonderful—the collection for 12s., basket included.

PETUNIA COUNTESS of ELLESMERE.—The best for bedding. Strong plants, 6s. per dozen.

PETUNIAS.—Turner's, Smith's; also the new striped French varieties, 6s. per dozen.

VERBENAS.—Turner's, Henderson's, and Smith's varieties of 1856. Good plants, 6s. per dozen; or six dozen for 25s.

DAHLIAS.—Turner's and Keynes' collection of 1856—our own selection, 12s. per dozen.

DAHLIAS.—All the leading varieties of older dates, 6s. per dozen, or six dozen for 25s.

LOBELIA SPECIOSA.—The best in cultivation, 4s. per doz.

BOUVARDIA LONGIFLORA ALBA.—The true sweet-scented variety, 12s. per dozen.

MEYENIA ERECTA.—Strong plants, 1s. 6d. each.

M. & Co. can supply their usual selection of Bedding Plants at 25s. per 100 for cash only.—Post-office Orders are requested from unknown correspondents, made payable to John Fairbrother, at the Upper Bedford Street Post Office, Brighton. All Orders of 25s. and upwards are carriage free to London; or to any Station on the London and South Coast Railway, with plants to compensate for longer distances.—May 2.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS and CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming Lawns .. 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—George Gibbs & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS and CO., the Seedsmen to the Royal Agricultural Society of England, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order.

T. G. & Co beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detailed Catalogues sent on application.—Thomas Gibbs & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

NEW VERBENAS of 1856.—Antagonist, Admiral Lyons, Blue Bonnet, General Simpson, Géant des Batailles, La Stella, Mrs. A. Clive, Eugénie, Victory, Viscountess Emlyn, imperialis, Impératrice Elizabeth, John Edwards, Lady Camoys, Countess of Oxford, Moonlight, Purity, Crimson Perfection, Lady Kerrison, Nosegay, Criterion, delicata, King of Sardinia, Tranby, Lord Raglan, Sir C. Campbell, Dandy, Dr. Maclean, Cedo Nulli, General Pelissier. Fine Plants of the above, free by post, 4s. per dozen. Also Petunia Rose of England, 5s. each, or three plants for two ordered.

Henry May, the Hope Nurseries, Bedale, Yorkshire.

NEW FUCHSIAS—NEW VERBENAS.

WILLIAM CUTBUSH and SON beg to offer the following in fine plants:—

NEW FUCHSIAS of 1856 at 12s. per set.—Conqueror, Admiral Boxer, General Williams, Venus de Medici, Charlemagne, Countess of Burlington, L'Esperance, Donna Joaquina, Volcano d'Aqua, Emperor Napoleon, Ranunculæflora, Surprise.

NEW VERBENAS of 1856 at 6s. per set.—King of Scarlets, Lord Nelson, General Simpson, Dandy, John Edwards, Admiral Lyons, Cedo Nulli, Eugenie, Sultan, King of Roses, Criterion, Sir Colin Campbell.—Highgate Nurseries, London, N.

THE TWO MOST BRILLIANT AND ATTRACTIVE HYBRID PERPETUAL ROSES FOR BEDDING are—

	Per doz.
Général Jacqueminot, brilliant crimson..	20s.
Géant des Batailles	15s.

Dwarf Plants in Pots.

The above will produce a fine display of bloom throughout the season, and may be had by the thousand if required. We had the above sorts in bloom out of doors last year until nearly Christmas. Plants presented for distant carriage.

Address William Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

A. VAN GEERT, Noseryman, Ghent, Belgium, begs to inform amateurs and the Trade, that he has just published a SUPPLEMENT to his CATALOGUE of PLANTS, which may be obtained on application at Mr. Silberrad's, 5, Harp Lane, Tower Street, London.

N.B. A few dozen of Plants may still be had of his fine Azalea Eulalie Van Geert, at 5s. each.

Wellingtonia gigantea, per hundred seeds	21s.
Sequoia nova sp. ditto	18s.
Libocedrus Craigiana ditto	21s.

CAMELLIAS.—A Collection of 100 fine distinct varieties, good healthy plants about 1 foot high, for 5l.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

WOOD and INGRAM beg to offer the following, which are all fine bushy well established plants, none less than 3 inch pots:—

per doz.—	s.	d.		s.	d.
Scarlet Geraniums (autumn struck) ..	3	0	to	4	0
Verbenas, all the colours				2	6
Heliotropes, several sorts	2	6	,,	3	0
Calceolarias, shrubby, very fine plants ..	3	0	,,	4	0
Salvia patens				3	0
Nierembergia gracilis				2	6
Cuphea platycentra				2	6
Lantanas, sorts	2	6	,,	3	0
Ageratum variegatum and others	2	6	,,	3	0
Variegated Geraniums, sorts	4	0	,,	5	0
Ivy-leaved do.	3	0	,,	4	0
Petunias, mixed	2	6	,,	3	0
Dahlias, finest show and fancy varieties ..	4	0	,,	9	0

With many other kinds at the same rates.
Huntingdon Nurseries.

NEW VARIEGATED GERANIUM.
PRINCESS ROYAL (Conway's).

MRS. CONWAY begs to recommend to Public notice the above NEW GERANIUM, and she feels very confident it will afford every satisfaction. The foliage is beautifully shaped and variegated, and the habit of the plant is dwarf and compact, rendering it well adapted for edgings, &c. Price per plant, 7s. 6d., with the usual allowance to the Trade.

Mrs. Conway has also a fine healthy stock of the following varieties:—

	s.	d.		s.	d.
Anna, each	3	6	Mountain of Light, each ..	1	0
Brilliant, each, 9d.; p. doz.	6	0	,, ,, p. doz.	9	0
Countess of Warwick, each	3	6	Golden Chain, each, 1s.; ,,	9	0
General Pelissier, each ..	2	6	Silver Queen, each ..	1	6

Also an excellent and well grown stock of Scarlet Geranium, Verbena, Petunia, and other Bedding Plants, from 4s. to 6s. per dozen.—Earl's Court Nursery, Old Brompton, May 2.

UNBLOOMED SEEDLING CALCEOLARIAS.

MR. HENRY MAJOR, Knowsthorpe, near Leeds, begs to intimate that nice healthy plants of the above are now ready. One parcel of twenty for 6s., or three for 15s., post free. As the seeds were the produce of his unrivalled collection, the seedlings may reasonably be expected to be rich, beautiful in colour, as well as distinct and novel in marking.

Choice Calceolaria Seed, 2s. 6d. per packet. A few sets of H. M.'s 12 splendid new seedling Calceolarias (strong healthy plants) are still remaining. Price 50s. the set. For description, with Mr. Glenny's opinion, see list which may be had on application. Fifteen of H. M.'s best Calceolarias sent out last year, &c., for 21s., hamper included. Plants given to compensate for carriage. From unknown correspondents a remittance is respectfully requested with the order.

SEED CORN FROM THE CHALK.

TALAVERA and APRIL WHEAT; Chevalier Thanet, Hudson's Golden Melon, and other approved varieties of Barley. Seed Oats, Winter and Spring Tares, &c., may be had of Mr. H. Raynbird, Basingstoke. A reference or remittance required from unknown correspondents.

DAHLIA, CHRYSANTHEMUM, DAISY, PINK, GERANIUM (Bedding), VERBENA, PETUNIA, PANSY, and all the best PERENNIAL and ANNUAL SEEDS as cheap as it is possible to get them. GLENNY'S Improved BALSAMS, 6 classes, 37 stamps; mixed, 13. Aster and Stock equally cheap.

G. Glenny, Horticultural Agent, Fulham, S.W.

NEW AND BEAUTIFUL PLANTS.—The Subscribers are prepared to supply well-grown healthy plants of the following kinds at the prices affixed:—

12 NEW GERANIUMS of 1856 for 42s.:—Leopard, Flower of the Day, Bruenda, Iris, Admirable, Countess, Sparkler, Eugène Desmoulins, Elise Miellez, Van Houtte, Eminée, Edouard Miellez.

12 NEW VERBENAS of 1856 for 5s.:—Field-Marshal, Victory, Loveliness, Charles Dickens, Blue Bonnet, King of Sardinia, Impératrice Elizabeth, Dr. McLean, Mrs. Holmes, Silistria, Auguste, Macquet;

12 NEW FUCHSIAS of 1856 for 15s.:—Venus de Medici, Favourite, Admiral Boxer, Conqueror, Prince of Wales, Impératrice Eugenie, Donna Joaquina, Figaro, revoluta, General Williams, Charlemagne, Wonderful.

12 TEA ROSES of the best kinds for			18s.
12 AZALEA INDICA	do.	do.	12s.
12 do.	newer do.	do.	18s.
12 CAMELLIA JAPONICA, best kinds,			30s.
12 do.	larger	do.	42s.
12 do.	do.	do.	60s.
12 SHRUBBY CALCEOLARIAS of new and best kinds,			
12 HERBACEOUS	do.	do.	from 12s. to [illegible]
12 Best NEW HOLLAND Plants		do.	do. 12s. to [illegible]

A large collection of the most showy Bedding Plants is now ready, from 20s. per 100, and for which early orders are requested.

William Masters & Son, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone. A remittance or reference required from unknown correspondents.

THE CELEBRATED REIGATE SILVER SAND 15s. per ton, a less quantity 1s. 6d. per bushel; delivered at any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to John G. Bryant, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. May & Co., Seedsmen, Wellington Street, Strand.

N.B. Goods landed, shipped, housed, and carted.

M'DOUGALL'S DISINFECTING POWDER. This valuable Powder may be obtained in large or small quantities after Monday from the London Agents, A. Herriot & Co., 2, Great Scotland Yard, Whitehall, S.W.

ROLL TOBACCO CORD.

THE CHEAPEST and most EFFECTUAL ARTICLE for SMOKING GREENHOUSES and DESTROYING the FLY on PLANTS. Nurserymen can be supplied with the above at 1s. 6d. per lb. by Joseph Baker, 5, Walcot Cottages, Kennington Road (late of Fleet Street). Country orders must be accompanied by a Post-office Order payable at Kennington Cross.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mail throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

WEEKS' ONE BOILER SYSTEM.—FACTS UNDISPUTED.—These Upright Tubular Boilers are now in numerous places producing greater effect than any other invented, and we now again challenge the whole world to make a Boiler that will produce the same effect with the same quantity of fuel.

John Weeks & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea.

C. STEPHENSON, late STEPHENSON and SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make a considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S RETORT BOILERS.—The Advertiser, by Mr. Thomson's sanction, continues to manufacture the above most powerful and economical Boilers at the following moderate rates for cash:—

The Triple Retort, to heat 3800 feet of 4-inch pipe	..	£[illegible]	[illegible]
The Single ,, 1000 ,,	..	4 [illegible]	
The Amateur's ,, 500 ,,	..	[illegible]	

These prices include free delivery to rail or ship, [illegible] peculiar boiler plate.

The Retort Boilers are now so extensively used in all parts of Britain and Ireland that little need be said of their merits, the fact that two of them have been fixed to supersede seven modern tubular boilers in one of the most extensive forcing establishments near London, where they heat, the 750 gallons, the other 580 gallons of water, in 28 divisions of forcing-houses and pits mostly span-roofed.

John Meiklejon, Westfield Foundry, Dalkeith, N.B.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water, Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS and SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and sell the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many of the kingdoms, and has given the greatest satisfaction both in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has been brought before the public. Full particulars with illustrations and prices forwarded on application.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden, in the said Co.—Saturday, May 2, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 19.—1857.] SATURDAY, MAY 9. Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—EXHIBITION AT THE GARDEN, June 3 and 4. Tickets at privileged prices can now be had by presenting Fellows' Orders or their Ivory Tickets at 21, Regent Street, S.W., where Schedules and full particulars can be obtained gratis.

HORTICULTURAL SOCIETY OF LONDON. MANUFACTURERS' DIVISION.

No applications for space can be received after May 16. Intending Exhibitors should apply immediately to Mr. George McEwen, Horticultural Garden, Turnham Green, W.

HORTICULTURAL SOCIETY OF LONDON MEETING, May 5. The following are the Awards:—

FIRST PRIZES.—Mr Geo. Fleming, F.H.S., Trentham, for Black Hamburgh Grapes; the same, for Black Circassian Cherries; Mr. Lewis Solomon, for Foreign Vegetables; Mr. R. Smith, Twickenham, for Keens' Seedling Strawberries; Mr. J. Nicholl, Gr. to Gen. Studd, for a collection of Melons; Mr. Hill, Gr., Keele Hall, for Royal George Peaches; Mr. Forsyth, Gr., Gunnersbury Park, for Stove and Greenhouse Plants.

SECOND PRIZES.—Mr. Forbes, Woburn, for Grapes; Mr. Hill, Keele Hall, for Black Prince Grapes; Mr. Davies, Gr. to Lord Bridport, F.H.S., for a Black Prince Pine Apple; Mr. Tillyard, F.H.S., Heckfield, for Strawberries; Mr. R. Cox, Gr. to R. H. Robertson, Esq., for Alice Maude Strawberries; Mr. Dunsford, Chingford, for British Queen Strawberries; Mr. Ingram, F.H.S., Frogmore, for Black Circassian Cherries; Mr. Frost, Gr., Preston Hall, for a brace of Cucumbers; Mr. Snow, Gr., Wrest Park, for a Collection of Vegetables; Mr. Allen, Gr. to J. B. Glegg, Esq., F.H.S., for Lettuces; Mrs. Johnston, Covent Garden, for two bundles of Asparagus; Mr. Pilcher, Gr. to S. Rucker, Esq., F.H.S., for three Orchids.

THIRD PRIZES.—Mr. John Fleming, F.H.S., Cliveden, for Black Hamburgh Grapes; Messrs. Spary & Campbell, Brighton, for Hamburgh Grapes; Mr. Clement, Oak Hill, for Sweetwater Grapes; Mr. Ivison, gr. to the Duke of Northumberland at Syon, for Cut Rhododendrons; Mr. C. F. Harrisson, Oatlands, for Keens' Seedling Strawberries.

FIRST-CLASS CERTIFICATES.—Messrs. Veitch & Son, Exeter and Chelsea, for Orchids; to the same for Rhododendron sp.; Mr. C. Turner, F.H.S., for Auriculas; Mr. Cutbush, F.H.S., Barnet, for Stove and Greenhouse Plants.

SECOND CLASS CERTIFICATES.—Messrs. Veitch & Son, Exeter and Chelsea, for Cut Rhododendrons; Messrs. A. & G. Braid, Nurserymen, Hendon, for Pelargonium Blanchefleur; Messrs. Henderson & Co., Pine-apple Place, for Greenhouse Plants.

HONOURABLE MENTION.—Mr. Ivison, Gr. to the Duke of Northumberland, F.H.S. at Syon, for Loquats; Messrs. Veitch & Son, Exeter and Chelsea, for Correa cardinalis; John Luscombe, Esq., F.H.S., for Cut Flowers of Cantua dependens.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—THE EXHIBITIONS OF PLANTS, FLOWERS, AND FRUIT this season will be held on WEDNESDAY, May 20; THURSDAY, June 18; and WEDNESDAY, July 1. Tickets of Admission may be obtained at the Gardens only by orders from Fellows or Members of the Society. Price on or before Saturday, May 9, 4s.; after that day, 5s.; and on the days of Exhibition, 7s. 6d. each. A new arrangement of the Fruit will be adopted.

NATIONAL FLORICULTURAL SOCIETY.—ST. MARTIN'S HALL, MAY 7.

FIRST-CLASS CERTIFICATE.—Cineraria Perfection (C. Turner)

CERTIFICATE OF MERIT.—Cineraria Giuglini (C. Turner).
" " Scarlet Pelargonium Blazer (Bragg).
" " Pelargonium Bride (E. Beck, Esq.)
" " Pelargonium Vestal (E. Beck, Esq.)

Next Meeting THURSDAY, May 28.

John Edwards, Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 .. Exhibition of Plants, Flowers, Fruits, &c.
" 29, 30 .. " Tulips (adjourned from the Crystal Palace)
May and June " American Plants
June 24, 25 .. " Plants, Flowers, Fruits, &c.
Aug. 19, 20 .. " Carnations and Picotees
" 26, 27 .. " Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order) John Shaw, Secretary.

NEW AND DELICIOUS FRUIT.

EUGENIA UGNI.—C. Wentworth Dilke, Esq., having offered Special Prizes for the above Fruit at the Grand Autumn Fruit Show of the London Horticultural Society in October next, Messrs. Veitch & Son beg to intimate that they have a fine stock of healthy young plants of various sizes at the following prices:—

Strong well-established plants	3s. 6d.
2d size do. do.	2 6
A few extra sized plants, in 8-inch pots ..	7 6
Also a few nice STANDARD plants on 2 ft. stems	10 6

Royal Exotic Nurseries, Exeter and Chelsea, May 9.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.

Bass & Brown, Seed Growers, Sudbury, Suffolk.

AGRICULTURAL SEEDS.

JAMES CARTER AND CO., Seedsmen, 238, High Holborn, London, W. C., forward *free of charge* and *post-paid* to all parts of the World, their priced Catalogue of Agricultural Seeds.

James Carter & Co., Seedsmen, 238, High Holborn, London, W.C.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

DILLISTONE AND CO.'S ABRIDGED LIST OF BEDDING PLANTS, &c., is now ready, and can be had at the Nurseries, Sturmer, Halstead, Essex.—May 9.

EPPS' CATALOGUE of all the New and Select PLANTS is now ready, and will be sent on application. His Wholesale List is also ready, and offers most of the new and leading Plants much to the advantage of the Trade.

The Bower Nurseries, Maidstone.

SHAW AND CROSLAND'S CATALOGUE OF DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, AND MISCELLANEOUS PLANTS FOR 1857 are now ready, and may be had free on application.

Richmond Nursery, near Sheffield, May 9.

BEDDING PLANTS, GOOD AND CHEAP.—Amateurs and others should send for Catalogue and Prices of VERBENAS, FUCHSIAS, PETUNIAS, DAHLIAS, CALCEOLARIAS, &c., grown by W. H. Wheeler (late Hayes), Florist, &c., Farnham, Surrey.

WILLIAM BARNES begs to announce that his SPRING CATALOGUE is now ready for delivery, containing all the choicest Indian Azaleas, Cinerarias, Verbenas, Fuchsias, Hollyhocks, Phloxes, Liliums, Roses, Geraniums, Chrysanthemums, and Tree Carnations, with an extensive collection of Bedding and other Miscellaneous Plants, and will be sent post free on application.

Address, Camden Nursery, Camberwell, S.

VAN HOUTTE'S SPRING CATALOGUE is now ready, and may be had at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT and FOREST TREES is now ready, and may be had on application.

American Nursery, Windlesham, near Bagshot, Surrey, 1½ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

NEW AZALEAS.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, N.E., can now supply good plants of the following NEW AZALEAS at 5s. each:—

Louise Margottin	Souvenir de l'Exposition
Eulalie Van Geert	Madame Miellez
Perfecta elegans (true)	Empress Eugenie
Magnifica alba plena (beautiful double white)	Leeana.

TO PLANT EXHIBITORS.

MR. EPPS has to offer upwards of 1000 Specimens of ERICAS, AZALEAS, and GREENHOUSE and STOVE PLANTS, in the finest health and of various sizes. They may be seen at his Nurseries, Maidstone, which are within two hours of London Bridge, *viâ* North Kent line.

W. H. WHEELER, Florist, &c., Farnham, Surrey, offers 12 new VERBENAS, including a strong plant of "Miss Trotter," for 6s. Any one wishing for good strong bedding plants, well hardened off, should apply to the above.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (Perry).—Compact habit and fine form producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May price 5s.—Thos. Perry, Nurseryman, &c., Banbury.

STRONG Plants of all the New FUCHSIAS of last year, 12s. to 18s. per dozen, ditto VERBENAS of 1856, 6s. to 9s. per dozen.—Epps's Nurseries, Maidstone.

GREENHOUSE AND STOVE PLANTS of the very best kinds, from 12s. to 21s. per dozen.

Epps's Nurseries, Maidstone.

AZALEAS SET WITH FLOWER.

W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24s. per dozen and upwards.

Maidstone, May 9.

WISTARIA (GLYCINE) FRUTESCENS MAGNIFICA; figured in Van Houtte's FLORA. Strong plants, perfectly hardy, at 1s. 6d. each, or 15s. per dozen. In London free until the 30th inst. The trade supplied.—Louis Van Houtte, Ghent, Belgium, May 9.

MEDINELLA MAGNIFICA.

JOHN AND CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.

Nursery, Hammersmith.

GOLDEN CHAIN GERANIUMS.

JAMES GILBERT, Florist, Ipswich, has a fine stock of healthy plants, well established in pots, which he offers at 8s. per dozen. Also Flower of the Day Geraniums, 4s. per dozen; and Unique (Rollison's), 6s. per dozen.—May 9.

VERBENAS.

FOR SALE, Twenty Thousand VERBENAS, one-half Scarlet Defiance. Also all kinds of Bedding-out plants at 2s. per dozen. Catalogues sent free to any part.

John Pyle, St. John's Nursery, John St., Upper Holloway.

MANGEL SEED FROM LARGE BULBS.

SUTTON'S YELLOW GLOBE MANGEL is saved exclusively from fully developed roots, the advantages of which have been proved for several years past. Price of seed, 9d. per lb., or cheaper by the cwt. Carriage free to all parts, except small parcels. Remittances requested with orders from unknown correspondents.

John Sutton & Sons, Seed Growers, Reading.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2s. per lb.—J. G. Waite, Seed Merchant, 181, High Holborn, London, W.C.

SUPERIOR WHITE BELGIAN CARROT SEED, from Van Houtte's Nursery, Ghent, Belgium, to be had at Mr. R. Silberrad's Warehouse, 5, Harp Lane, Great Tower Street, London. Only sold by the cwt: 55s.

STRONG DRUMHEAD CABBAGE PLANTS.—Any quantity of strong Drumhead or Scotch Cabbage Plants may be had on application to Francis & Arthur Dickson & Co., 14, Corporation Street, Manchester.

SCOTCH DRUMHEAD CABBAGE.

H. AND R. STIRZAKER have to offer 300,000 to 400,000 of fine hardy autumn sown plants, at 3s. per 1000. Prepayment or reference respectfully required.

Lancaster Nurseries.

DAHLIA, CHRYSANTHEMUM, DAISY, PINK GERANIUM (Bedding), VERBENA, PETUNIA, PANSY, and all the best PERENNIAL and ANNUAL SEEDS as good as it is possible to get them. GLENNY'S Improved BALSAM, 6 classes, 37 stamps; mixed, 13. Aster and Stock equally good.

G. Glenny, Horticultural Agent, Fulham, S.W.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6s.; 15 ditto, 4s.; best mixed, 200 seeds, 1s. 6d.; 400, 2s. 6d. Also plants of Pompone Chrysanthemums, per name, 4s. per dozen. Osborne's Brilliant and Crimson Ivy-leaved Geraniums, strong plants, 4s. per dozen.

Nursery, Haverhill, May 9.

BEDDING PLANTS.

W. H. DAVIS begs to call attention to his large stock of the above, consisting of Verbenas, Petunias, Calceolarias, Scarlet Geraniums, Heliotropes, Lobelias, Salvas, Fuchsias, &c. Strong well rooted plants, at 2s. 6d. per dozen.—Address, W. H. Davis, St. Mary's Hill, Newbury. Post-office Orders, payable to William H. Davis, Newbury.

AZALEA INDICA.

J. IVERY AND SON have just published a Descriptive List of the above, which they will be pleased to forward, post free, in answer to written application.

J. I. & Son beg to say that they have a fine healthy stock of all the newest and best kinds, and that they have still some very nice plants of GEM at 21s. each.—Nurseries, Dorking, Surrey.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6s. to 9s. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.

Wood & Ingram, Nurseries, Huntingdon.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cin[illegible] 1s.; Double Carnation, 1s.; Double Picotee, 1s.; Polyanth[illegible]s.; Calceolaria, 2s. 6d.; Primula fimbriata, 1s.; Double [illegible]yhock, 1s.; Brompton and Intermediate Double Germ[illegible] Stocks, each, 1s.; Double German Wallflower, 1s.; Bedding Plants of sorts, 4s. per dozen.

Butler & M'Culloch, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market

NEW SHRUBBY CALCEOLARIA.
BURNS'S MRS. BURNS.

JOHN PERKINS has much pleasure in offering the above beautiful CALCEOLARIA, colour orange red, with dwarf compact habit. Invaluable as a bedding Calceolaria, and extraordinary profusion and long continuation of bloom. Strong plants will be sent out on the 20th of this month, 2s. 6d. each, or 24s. per dozen.

Bedford Road Nursery, Northampton, May 9.

BOX EDGING.

MR. JAMES VEITCH, Jun., of the Royal Exotic Nursery, Chelsea, being in want of a considerable quantity of BOX EDGING, will be glad to receive offers stating quantity and price from such persons as have any to part with. It must be Dwarf and good, and warranted to plant at least 3 yards for 1. The terms to include delivery into a Railway Truck at the nearest Station. To expedite the transaction, parties replying to this advertisement may send 1 yard as sample. Carriage paid by Railway to London to be forwarded by Parcels Delivery.

FINE SHOW AND FANCY DAHLIAS.

THOMAS BARNES has now ready several Thousand of the above, embracing all the leading kinds of last and former years, from 4s. to 15s. per dozen. Good old varieties, 30s. per 100. Catalogues may be had on application.—Dane Croft Nurseries, Stowmarket.

NEW CONTINENTAL VERBENAS OF 1857.

THOMAS BARNES has now ready the following fine VERBENAS, 1s. 6d. each, or 16s. the twelve:—Andromaque, Adriani, Calypso, Evelina, Gaspard Dozin, Julia de Coussille, Mdlle. Casille, Madame Castellan, Phœbus, Surprise, Stephen, Thomas Barnes. The above are described in T. B.'s Catalogue, which may be had on application.

Dane Croft Nurseries, Stowmarket.

THE NEW CALIFORNIAN STRAWBERRY.

(Fragaria lucida, *Madame Vilmorin*). Growing in the poorest Soil—Seaside Plant—Requiring full exposure to the Sun.

SHINING-LEAVED STRAWBERRY.

FRAGARIA LUCIDA, *Madame Elisa Vilmorin*.—Louis Van Houtte has received the Seed of this novelty from M. Boursier de la Rivière, French Consul in Oregon, the same gentleman who sent him the Wellingtonia seed.

The leaves of this new species are thick, quite different from those before known; they are shining as if varnished, woolly underneath, and the petioles are of a coral colour.

Having offered in the autumn of 1855 six plants of this sort to the examination of Madame Elisa Vilmorin, well known for her knowledge of this tribe of Plants, that Lady having grown them last year writes thus in one of her letters:—

"* * * Your Californian Strawberry is the most important and interesting species in my collection. I give it provisionally the name of 'Fragaria lucida.' * * * It is impossible to say what importance I attach to it, not only as a species but also as a fruit. It is productive, exquisite, and very late, ripening its fruit at a season in which we have only the last fruits of the Fraisier du Chili, to which it has been found at Verrières far superior."

I sell the "Fragaria lucida" at the following prices *(free to London)*:—

Each plant .. 2*s*. | Six plants .. 6*s*. | Twelve plants .. 10*s*.
Twenty-five plants .. 15*s*. | Fifty plants .. 25*s*.

Louis Van Houtte, Nurseryman, Ghent, or through his Agent, Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London.

NEW DOUBLE PETUNIAS.—The Subscriber begs to offer to the public the undermentioned beautiful flowers; they will add another gem to the garland of Flora, and no doubt will be admired and appreciated by thousands. They are of the finest growth and most abundant bloomers, and have been selected from many others raised by J. Scott, of Merriott Nurseries, Crewkerne, Somerset, to whom all applications are requested to be made.

ÆGLE, a very pretty purple Anemone flowered sort.

ÆTHRA, a beautiful light lilac, full centre, which is shaded down to green.

ALCESTES, a bold large lilac flower, very handsome and showy.

ARIADNE, a splendid full rosy purple, quite a lovely flower, will make one of the most beautiful buds that can be imagined. 5*s*. each, if ordered by itself.

ASTRÆA, fine Anemone flowered white, very large and free bloomer.

ATYS, a splendid lilac flower with a fine full centre and abundant bloomer.

LEUCOSIA, a very beautiful white tinged in the centre with rose.

PARTHENOPE, a lovely pure white flower, as double as a Rose, a great improvement on Imperial.

The above are all sweet scented and of quite a different habit from Imperial, and very free bloomers, 3*s*. 6*d*. each, or the eight varieties, including basket and packing, for 25*s*. For every three ordered by the trade one will be added. Plants ready the second week in June, and all orders sent out in rotation.

CHOICE BEDDING PLANTS.

YOUELL & CO.

Beg respectfully to refer to their Advertisement of the above, which appeared in the *Gardeners' Chronicle* of April 25.

ROYAL NURSERY, GREAT YARMOUTH, NORFOLK.

NEW AND RARE PLANTS.

ABIES KÆMPFERI
(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21*s*. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63*s*. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21*s*. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5*s*. Discount to the trade.

ARALIA PAPYRIFERA
(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7*s*. 6*d*. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31*s*. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63*s*. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

AGRICULTURAL SEEDS (Carriage Free).

B. PAGE and CO. have had the honour to supply for some years the MANGEL WURZEL, TURNIPS, &c., grown on the ROYAL FARMS at OSBORNE, and their Trade is considerable with Practical Farmers throughout the Kingdom, indicating first quality and strict market prices.

B. Page & Co. have great pleasure in stating that their STOCKS of SWEDES, TURNIPS, MANGEL WURZEL, &c., are, as usual, from select Transplanted Roots, grown by them in different districts, to avoid hybridisation, experience having proved that Turnips grown in close proximity, or repeated on the same land, causes general deterioration.

Present Prices, Carriage Free, to all Parts of England:—

SWEDE—Matson's Purple-top .. .. .. per lb.	0*s*.	8*d*.	
,, Lothian do.	0	8	
,, Skirving's Imperial	0	8	
,, Bullock's Heart	1	0	
,, Green-top do.	0	9	
TURNIP—Aberdeen, Bullock, or Scotch Yellow ..	1	0	
,, White Norfolk	0	7	
,, ,, Globe	0	8	
,, ,, Tankard	0	10	
,, Red ,, ...	0	10	
,, Green ,, ...	0	10	
,, Yellow ,, ...	1	0	
,, Green Round	0	8	
TURNIP—Lincoln Tom, large Early .. .. per lb.	0*s*.	9*d*.	
,, Red Round	0	9	
,, Early Six Weeks	0	9	
MANGEL WURZEL—Elvetham, Long Red	0	9	
,, Fine Long Red	0	6	
,, Orange Globe	0	6	
,, Red Globe	0	7	
,, Long Yellow	0	7	
CARROT—White Belgian	1	0	
CABBAGE—Drumhead	2	6	
CLOVER, in sorts.			
RAPE, per bushel	14	0	
RYE-GRASS, ITALIAN, &c.			

Special Contracts for large quantities.

AGENTS FOR "ODAM'S" BLOOD MANURE.

Joseph Blundell, Esq., of Bursledon, one of the most eminent Agriculturists in England, expresses his opinion of B. Page & Co.'s Stock of Orange Globe Mangel Wurzel in particular, "as the finest he has ever seen or grown."

Markets attended—Basingstoke, Botley, Bishop's Stoke, Chichester, Fareham, Romsey, Winchester, Ringwood, Southampton, Newport, I.W.

B. Page & Co.'s Stocks are so well known and appreciated that comment on their part is unnecessary, and their prices compete with any house in the Kingdom.

PERMANENT PASTURE AND LAWN GRASSES.

B. P. & Co. have laid down some thousands of acres most successfully, and very recently the PUBLIC GROUNDS of SOUTHAMPTON, of which the Surveyor to the Corporation has expressed his great satisfaction in a testimonial inserted in their Catalogue.

B. PAGE & CO., Seed Merchants and Growers, Oxford Street (adjoining Radley's Hotel), and above Bar, Southampton.

CHARLES TURNER begs to recommend the following FLOWER SEEDS:—

HOLLYHOCK, in 12 superb varieties named, the collection .. —	4	
CALCEOLARIA, extra fine quality, per packet	5	
CINERARIA, saved from the finest sorts only, p. packet	2	
PERPETUAL TREE CARNATION, saved from a large collection, per packet	2	
TREE LUPINE from Oregon, a hardy biennial or perennial; grows about 4 feet high, forming a pyramid, and covered with yellow flowers, per packet	1	
COLLINSIA MULTICOLOR MARMORATA, new striped, per packet	1	
HERBACEOUS PHLOX, saved from a large continental collection, per packet	1	
NEMOPHILA INSIGNIS STRIATA, per packet.. ..	1	0
NEW VEGETABLE.—The COTTAGERS' KALE now proved to be one of the very best and hardiest winter vegetables known, per packet	1	

Royal Nursery, Slough.

NEW DWARF WHITE DAHLIA.—This exquisite very dwarf free flowering Dahlia will be hailed as a valuable addition to our bedding collection. It grows from 2 to 2½ feet high, throwing its snow-white flowers, which are of a large size, well above the foliage in prodigious quantities and of fine form. Those who visited the beautiful Gardens at Trentham, during the summer of last year must have been highly gratified with the effect produced by this gem. Mr. Fleming, the gardener at Trentham, thus speaks of it:—"Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens."—Strong plants can now be had on application to Messrs. Arthur Henderson & Co., Pine-apple Place, Edgware Road, London, W.

HARDY HERBACEOUS ROCK PLANTS, ETC.

BASS AND BROWN beg to offer as under:—

HERBACEOUS PLANTS, 100 fine and strong vars.	30	
,, 100 superior, including newer vars. ..	50	
,, 25 fine vars. best adapted for rock	12	
PHLOX, 26 beautiful new continental vars. of 1856 of many rich colours and finely marked, for ..	50	
,, 12 do. from the above, our selection	24	
,, 25 fine vars., best of previous introduction, as Countess of Home, Madame Randatler, Roi Leopold, Spencerii, &c., for	15	
,, 25 vars., very fine, older vars.	10	
,, Madame Mehl, a fine formed rosy lilac with white edge, height 1 foot and excellent bedder, per doz.	6	
,, omniflora compacta, a fine dwarf white ,,	9	
,, adpressa, striped and fine bedder .. ,,	9	
ANTIRRHINUMS, a fine collection of good formed flowers and rich colours .. .. per doz., 6*s*. to	9	
PENTSTEMON BACHARIDIFOLIUM, rich bright scarlet of dwarf habit .. .. .. per doz.	12	
,, magniflorum, fine blood red .. .. ,,	9	
,, ovatum, light blue, abundant bloomer .. ,,	6	
,, 10 fine and distinct vars. for	7	
DELPHINIUM ELEGANS, a showy free flowering dwarf .. .. per doz.	6	
,, formosum, fine dwarf blue, white centre ,,	15	
,, other best sorts, see Catalogue.		
POTENTILLA King of Crimsons, the finest crimson grown, very large flower and dwarf habit, each..	3	
,, Sudbury Gem, rich orange yellow, deeply shaded and spotted, bright red, each	3	
,, fine vars., per doz., 6*s*. and 9*s*.; newest selection, per dozen	15	
HOLLYHOCKS, a superb collection, per doz., 9*s*. 12*s*. and	25	
DWARF ROCK CISTUS, 24 splendid varieties for ..	15	
HARDY CLIMBING PLANTS, 20 fine sorts for	20	

CHOICE CARNATIONS, PICOTEES, PINKS; also a great variety of hardy and half hardy bedding plants, of which we have this season a large stock of strong plants.

COMPLETE CATALOGUES for the present season, Nos. I., II., III., IV. and V., may be had on application.

Goods Carriage Free (not under 20*s*.) to all the stations in London; also free to all stations on the London and Norwich, Colchester line.—Bass & Brown, Sudbury, Suffolk.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. Parker for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Where ever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. Parker's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

David Thomson, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1*s*. 6*d*. each, or 12*s*. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

*** The Nursery is about Two Miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, May 9.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of RHODODENDRONS in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignis, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, May 9.

UNBLOOMED SEEDLING CALCEOLARIAS.

MR. HENRY MAJOR, Knowsthorpe, near Leeds, begs to intimate that nice healthy plants of the above are now ready. One parcel of twenty for 6*s.*, or three for 15*s.*, post free. As the seeds were the produce of his unrivalled collection, the seedlings may reasonably be expected to be rich, beautiful in colour, as well as distinct and novel in marking.

Choice Calceolaria Seed, 2*s.* 6*d.* per packet. A few sets of H. M.'s 12 splendid new seedling Calceolarias (strong healthy plants) are still remaining. Price 50*s.* the set. For description, with Mr. Glenny's opinion, see list which may be had on application. Fifteen of H. M.'s best Calceolarias sent out last year, &c., for 21*s.*, hamper included. Plants given to compensate for carriage. From unknown correspondents a remittance is respectfully requested with the order.

HOLLYHOCKS.

A. PAUL AND SON respectfully announce that they have now ready for sale a very large stock of Hollyhocks, strong well-rooted plants IN PERFECT HEALTH as follows:—

Very superior show varieties	..	42*s.* to 60*s.* per doz.
Superior do. do.	.. ..	24*s.* ,, 36*s.* ,,
Good named sorts .. do.	..	12*s.* ,, 18*s.* ,,

Bloomed Seedlings in separate colours, 30*s.*, 45*s.*, & 63*s.* per 100.

These have been selected from some thousands of seedlings when in flower and the best quality are equal to the ordinary run of named flowers: they are well suited for ornamental planting where masses of distinct and brilliant colours are required. Seedlings from fine varieties not bloomed, 21*s.* per 100. For further particulars see Descriptive Catalogue, forwarded free by post.

Choice Hollyhock seeds always on sale, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet according to quality.—Nurseries, Cheshunt, Herts.

NEW VARIEGATED GERANIUM.

PRINCESS ROYAL (CONWAY'S).

MRS. CONWAY begs to recommend to Public notice the above NEW GERANIUM, and she feels very confident it will afford every satisfaction. The foliage is beautifully shaped and variegated, and the habit of the plant is dwarf and compact, rendering it well adapted for edgings, &c. Price per plant, 7*s.* 6*d.*, with the usual allowance to the Trade.

Mrs. Conway has also a fine healthy stock of the following varieties:—

	s. d.		*s. d.*
Anna, each	3 6	Mountain of Light, each ..	1 0
Brilliant, each, 9*d.*; p. doz.	6 0	,, ,, p. doz.	9 0
Countess of Warwick, each	3 6	GoldenChain, each, 1*s.*; ,,	9 0
General Pelissier, each ..	2 6	Silver Queen, each ..	1 6

Also an excellent and well grown stock of Scarlet Geranium, Verbena, Petunia, and other Bedding Plants, from 4*s.* to 6*s.* per dozen.—Earl's Court Nursery, Old Brompton, May 9.

ESTABLISHED 1805.

CARNATIONS, PICOTEES, AND PINKS.

YOUELL AND CO.'S Collection of the above deservedly favourites is probably the most extensive in the Trade, and having for a series of years paid especial attention to their cultivation, introducing the best of the new varieties, they are enabled to offer them at the following prices for fine strong well-rooted plants.

CARNATIONS AND PICOTEES.	*s.*	*d.*
12 pairs of fine kinds by name	18	0
12 ,, extra fine ,, ...	24	0
Fine old Clove Carnations .. .. per dozen pairs	12	0
Finest mixed Border Carnations and Picotees ,,	9	0

TREE CARNATIONS, flowering summer and winter.—We have now to offer a very choice collection of this beautiful class at 18*s.* per dozen.

PINKS.—The finest first-class show Pinks, by name, 9*s.* to 12*s.* per dozen pairs.

,, Fine mixed border ditto, 6*s.* per dozen pairs.

All orders of 2*l.* and upwards are delivered carriage free to London, Peterborough, Manchester, Newcastle, and Hull, as well as to any Railway Station within 150 miles of the Nursery.

Royal Nursery, Great Yarmouth, Norfolk.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32*s.* per acre.

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming Lawns .. 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, and they can supply Mixtures for laying down Land to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old swards, Italian and other Rye-grasses, Clovers, White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detailed Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

THE CHAMPION SWEDE.

THE FOUR PRIZE CUPS presented by his Royal Highness Prince Albert to the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Associations in December, 1855, and December, 1856, were gained by our customers, G. Norrington, Esq., Joseph Hobbs, Esq., and John Nash, Esq., for fields of SUTTON'S CHAMPION SWEDE grown from Seed supplied by us. Price of Seed, 1*s.* per lb. or 50*s.* per bushel. Every kind of seed required for Farm and Garden at moderate prices. A remittance or reference to bankers requested with orders from unknown correspondents.

Goods delivered carriage-free except small parcels.

Five per cent. discount allowed for cash payments.

JOHN SUTTON & SONS, Royal Berks Seed Establishment, Reading.

FARM AND GARDEN SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, respectfully intimate that their ANNUAL PRICE LIST of AGRICULTURAL and other SEEDS is now ready, and will be sent post free on application. The prices this year are extremely moderate, and will bear favourable comparison with those of any other house. Supplies for England sent direct from their London House, 27, Great George Street, Westminster, S.W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

JAMES VEITCH, JUN., ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, deeply grateful for the very kind and extended patronage bestowed upon this establishment since his succession to MESSRS. KNIGHT AND PERRY, begs to intimate that he has now completed the *necessary improvements and alterations* to enable him satisfactorily to carry on the

NURSERY AND SEED BUSINESS

on the most extensive scale, in a manner suitable to the requirements of the increased connection and the progress of the day; but instead of adopting the now common practice of recommending his goods by *puffing advertisements*, he most *respectfully invites an inspection of his premises and stock, that* PURCHASERS MAY SEE AND JUDGE FOR THEMSELVES.

JAMES VEITCH, JUN., PLEDGES HIMSELF TO THE FOLLOWING PRINCIPLES OF BUSINESS:—TO SUPPLY FIRST-RATE ARTICLES TRUE TO NAME; MODERATE CHARGES; PUNCTUALITY IN THE EXECUTION OF ORDERS; WITH ATTENTION AND CIVILITY TO VISITORS.

N.B. J. V., JUN., devotes his personal attention to the recommendation of Gardeners and Bailiffs. He has at this time several highly respectable men in his employ, whom he can with perfect confidence recommend to any nobleman or gentleman requiring them.—Chelsea, May 9.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH GRAPE.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, beg to intimate that he will commence sending-out Plants of the above SPLENDID NEW GRAPE on the 15th of June next, STRICTLY IN THE ROTATION IN WHICH THE ORDERS HAVE BEEN RECEIVED.

For the information of those who have not seen this Grape, J. V., jun., begs to state that it is an English Seedling, raised at Stockwood Park, near Luton, Bedfordshire (the seat of John Crawley, Esq.) by his gardener, Mr. Busby, from the Black Hamburgh crossed with the Sweetwater.

In hardiness of constitution, freeness of setting its fruit, size of bunch and berry, and fineness of flavour, it is equal to the Black Hamburgh, with the distinction of being, when fully ripe, of a beautiful amber colour, thus at once showing it to be a first-class fruit, altogether distinct from all other light-coloured Grapes, and well adapted either for a greenhouse or for forcing.

The first Maiden Bunch was exhibited at the Horticultural Society's Meeting, Regent Street, at the October Meeting, 1853, when it had a First-class Certificate of Merit awarded to it, and was highly approved by all who saw it.

It was again exhibited at Chiswick, at the July Meeting in 1855, and was awarded the Large Silver Medal. (See Report of that meeting in the *Gardeners' Chronicle.*)

It was also exhibited at the Pomological Society's Meeting, August 6, 1855, and was declared to be every way satisfactory. (See description in "Cottage Gardener" for September 1855, and report of the Meeting in the "Florist" for September 1855.)

It was exhibited also at the Caledonian Society's Exhibition in Edinburgh, on September 8, 1855, and was there again awarded a First-class Certificate.

Mr. Busby has also received most satisfactory Testimonials from the following gentlemen, who have seen and tasted the fruit:—

Sir Joseph Paxton, M.P.	Messrs. J. & C. Lee, Hammersmith.
Dr. Lindley.	Mr. Thompson, Dalkeith Gardens.
Dr. Balfour, Edinburgh.	Mr. Melvill, Dalmeney Park Gardens, &c. &c.
Mr. J. A. Henderson, Pineapple Place.	

Price 21*s.* each, one over on three to the Trade; with special terms when 25 and upwards are ordered at the same time.

A list of those Nurserymen who have ordered the above, and who will consequently be able to supply it will shortly appear.

ROSES IN POTS FOR BEDDING.

BY THE HUNDRED OR BY THE THOUSAND.

WM. WOOD AND SON beg to intimate that the present season is very eligible for planting out Dwarf Roses in beds, and refer with pleasure to their overwhelming stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per dozen.		Per dozen.
Hybrid Perpetuals	12*s.* to 18*s.*	Tea-scented ..	15*s.*
Bourbons	12*s.* ,, 18*s.*	Noisette	9*s.* to 12*s.*
China	9*s.* ,, 12*s.*	Banksian (for walls)	15*s.*

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

50,000 DWARF ROSES IN POTS.

WM. WOOD AND SONS have much pleasure in soliciting especial attention to their enormous stock of ROSES in pots, a portion of which are offered on their own roots, and the remainder are neatly grafted plants on the Manetti stock, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock offered may be formed from the following select list of a few of the leading kinds:—

HYBRID PERPETUAL.

Quantity	Per doz.—*s.*
4000 Géant des Batailles ..	15
2000 Général Jacqueminot	20
2000 Duchess of Norfolk ..	20
2000 Jules Margottin ..	15
1000 Alexandrine Bachmeteff	15
1000 William Griffiths ..	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland	15
1000 Pius the Ninth ..	15
500 Auguste Mie	15
500 Queen Victoria.. ..	15
500 Mrs. Rivers	15
500 La Ville de St. Denis..	15
500 Jacques Lafitte ..	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12*s.* to 18

BOURBON.

500 Sir Joseph Paxton ..	15
500 Bouquet de Flore ..	15

BOURBON.

Quantity.	Per doz.—*s.*
And other leading kinds (own selection) ..	12*s.* to 18
2000 Paul Ricaut, Hybrid Bourbon	15

TEA ROSES.

1000 Gloire de Dijon.	20*s.* to 36
500 La Sylphide	15
Other fine kinds	15

CHINA ROSES

ADAPTED FOR BEDDING IN LARGE QUANTITIES.

Fabvier	10
Cramoisie supérieure ..	15
Henri Cinq	10
Mrs. Bosanquet (cream) ..	15
Prince Charles	15
Marjolin	10
L'Ebloussante	15
Louis Philippe D'Angers ..	10
And other fine kinds 9*s.* to	12
Fine Noisette Roses 9*s.* to	12
Banksian Roses (for walls)	15

N.B. Extra plants presented to compensate for distant carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. & S. can supply all the new Roses of this season if required, but will NOT recommend them until they have themselves tested their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.—May 9.

NEW PLANTS.

JOHN AND CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (LEE).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5*s.*

VARIEGATED GERANIUM EMPEROR (LEE).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10*s.* 6*d.* The usual discount to the Trade.—Nursery, Hammersmith.

THE GRAND WINTER GARDEN AT CHELSEA.

JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

JOHN WEEKS & Co., King's Road, Chelsea.

The Gardeners' Chronicle.

SATURDAY, MAY 9, 1857.

AT the meeting of the Horticultural Society last Tuesday, Mr. FLEMING of Trentham produced some CUTTINGS OF VINES which in five days had formed roots as much as three inches long, and which had been prepared by a new process. The usual methods of multiplying the Vine are by layers, or cuttings, or eyes; each having so limited an application, that much time must elapse before any considerable number of plants of a new variety can be propagated. The method pursued at Trentham is to take advantage of the laterals which every Vine may be forced to produce in abundance, to separate those laterals close to the old wood as soon as they have three or four leaves, and to strike them in silver sand in the usual way. Such at least was the case with the specimens exhibited on Tuesday.

If a Vine is so closely covered with glass that the air around it is always saturated with humidity, and if it is then exposed to the sun the air being always warm, it breaks in the usual way; but in a few days each shoot will produce a lateral from the bottom of every leaf; these laterals after growing to a certain length will themselves break into fresh laterals, and so growth goes on. Thus, a

Vine in such a situation having 50 eyes will form 50 new shoots; these shoots after a time will break into at least 10 laterals, and each lateral may be expected to produce half a dozen other laterals of a second order. This being so a single Vine with 50 eyes may be compelled to produce materials for 3000 new plants, instead of its power of multiplication being limited to the original 50 eyes, as is the case under ordinary circumstances.

The process is in most respects similar to that practised in Messrs. Weeks' nursery, as mentioned in our last number (p. 312). In both cases young green wood is employed; but in the last mentioned place a shoot is itself divided into cuttings, each having at least a couple of eyes; and there the operation ends. So that while in the case above supposed there is a possibility of getting 3000 cuttings in a season by the use of laterals, we could hardly expect more than 300 by merely dividing the first strong shoots into cuttings. We know not whether these methods are absolutely new; probably not; for they are such as theory would certainly suggest if brought to bear upon the subject. But they are so far novel that they have not been generally employed by gardeners.

We say that they are such as theory would suggest. Let us explain ourselves. Nothing is more certain than that the greater and more active the vitality of a cutting the more freely will it become a new individual by the emission of roots. It is equally certain that vitality is most active in the young shoots of plants, turgid with organisable matter and abounding in nitrogenous principles. Therefore it is a general axiom in theory that a young cutting will strike more quickly than an old one; that green wood will root more readily than ripe wood. Propagation by the eyes of the Vine is indeed, in some degree, an evidence of this fact. But ripe or half ripe wood, though least active and charged in the smallest degree with organisable and nitrogenous matters, is usually preferred; and for the following reason. It is indispensable that some time should elapse between planting a cutting and its emission of roots, during which time its vitality must be maintained by artificial means. In many plants this is an operation so difficult or uncertain that vitality departs before roots can come; and thus the cutting dies. Wherefore nearly ripe or fully ripe wood is often preferred, because its vitality, although comparatively low, is more easily supported in the absence of roots than if it were younger and more active. Whether or not, therefore, it is desirable to use green, half ripe, or fully ripe wood for propagation can only be determined experimentally. In many cases it has been thus determined, and we find one year old wood used for some things, two year old wood for others (as Oaks and Beeches when grafted), while in some cases the quite green wood is universally employed; to which latter class the Vine may be now referred.

But is this a good mode of propagating the Vine as well as an easy? That is to say, will the young plants obtained from green wood be as healthy as if from ripe wood? We understand that the Vines obtained by Mr. Fleming's process are weakly the first year, but become strong and healthy in the second if allowed to break in a cool house. Probably he has never pushed the process to its extreme limits by availing himself of the third generation of laterals. Let us, however, suppose he did; would the consequences be injurious. We cannot but think that they might be; for the laterals of the 3d generation, though active enough at first, would be likely to indicate symptoms of inherent, and possibly incurable, debility, as has occurred to the Dahlia in cases of the over multiplication of that plant.

This is certain, that if Vines are multiplied by the method above described and are struck comparatively late in the season, it will be more difficult for them to ripen their wood than when coming from eyes in the usual way. This is however mere speculation on our part; and we should be glad to hear that our anticipations are unfounded.

We have lately placed before our readers some curious facts with respect to the formation of the membrane of the cells of plants, under circumstances where all vitality must have ceased, and their origin must be due simply to chemical laws. Some equally suspicious facts as to the extreme rapidity with which membranes are formed under circumstances in which vitality may be presumed to be extremely active have lately been detailed by Thuret, to whom we are indebted for the first positive proofs of sexuality amongst Algæ. It is well known that the spores of the common seaweeds (*Fucus vesiculosus, serratus, and nodosus*), when they ooze out from their receptacles are absolutely naked, without the slightest trace of a membrane. As these spores can with ease be collected in any quantity, without any fear of impregnation, they afford an admirable opportunity of examining the changes which take place from the moment that the spermatozoids are placed in contact with their naked surface. M. Thuret* with his usual skill has availed himself of this circumstance, and has shown that within six minutes of the first contact a distinct membranous envelope is formed as if by magic round the grumous mass. If a small quantity of a solution of chloride of zinc or sulphuric acid is added to a drop of water in which the naked spores are floating the first effect is a slight contraction, and then a multitude of globules of fluid ooze from the surface, studding it all over as if with dewdrops. Sugar and sulphuric acid communicate to these drops a slight rose-coloured tint, which shows them to consist partly of protein. If spores which have been placed in contact with the spermatozoids be now substituted for the naked unimpregnated spores, the treatment with the above-mentioned chemical substances produces as before a separation of drops of proteinous matter from the chlorophyll, but when six minutes only have elapsed since the admission of the spermatozoids traces of a surrounding membrane are visible, while in 10 minutes a distinct membrane is seen enveloping the spores studded with the globules, and restraining more or less their projection from the mass of chlorophyll, and as all the spores are not at once affected by the spermatozoids, in the same drop of water every stage may be traced, from the naked spore to one surrounded on all sides by a distinct membrane. At first the membrane is not strong enough to resist completely the transudation of the liquid globules into the surrounding water, but when an hour has elapsed it has acquired firmness enough to prevent any rupture, and under the action of sulphuric acid and iodine exhibits the blue colour of cellulose. M. Thuret had already shown that, as in Phœnogams, one species of Fucus often refuses to be impregnated by the spermatozoids of another. *Fucus vesiculosus* and *serratus* formed an exception, and in this case also he found that a membrane was formed on the naked spores when the spermatozoids of the latter were applied to the spores of the former. The importance of these observations is obvious, not merely as regards Cryptogams, but in questions relative to the impregnation of Phænogams. One of the great advantages indeed of the study of these lower plants consists in the light which it often throws on questions of Physiology in more highly organised plants, in which it may be impossible to obtain direct evidence of the immediate effects of impregnation, or of other vital processes. *M. J. B.*

A few plants of Chamæcyparis thurifera, a very rare evergreen Coniferous tree, obtained by the Horticultural Society from Mexico, will be distributed by lottery among the Fellows entitled to participate in special distributions, whose names shall have been received on or before July 7. The drawing will take place at the conclusion of the business of the meeting to be held on that day.

Seed of Abies Pinsapo having also been received by the Society from Spain in sufficient quantity for general distribution, every Fellow of the Society who may apply for it can have a supply of seed of that most beautiful hardy evergreen tree.

New Plants.

198. Eurybia Gunniana *De Cand. Prodr.* V. 268; *J. D. Hooker, Fl. Tasm. p.* 176, *t.* 44; the Willow-leaved variety (*salicifolia*).

A shrub with rather a graceful habit, growing 5 or 6 feet high. The stems are purplish, slightly angular, and coated with a thin meal. The leaves are narrowly lanceolate recurved, rugged, and naked on the upper side, closely mealy on the under. Flower heads in short axillary corymbose racemes, with about a dozen snow-white sharp ligules surrounding a dull yellow disk, and forming a pretty 12-pointed star.

This, which, notwithstanding its Willow-like undivided leaves, Dr. Hooker regards as a mere variety of E. Gunniana, differs from other states of the species in having leaves without any notches at the edge, and very slender flower heads. It is a common South Australian and Tasmanian plant, ascending in the latter country to 3000 feet of elevation, and therefore perhaps hardy. The only specimen we know of is in the Garden of the Horticultural Society, where it has just flowered for the first time in the conservatory. The forms figured in Dr. Hooker's beautiful Flora of Tasmania have much larger flower-heads than this.

199. Begonia Griffithii. *Bot Mag., t.* 4984.

Sir Wm. Hooker has ascertained that the plant last year exhibited by the London nurserymen as *B. picta* is in reality a very different species, to which the above name has been given. He describes it as a native of Bootan, whence so many fine new Rhododendrons have been brought. A species with more beautiful foliage does not exist; for it is large, dark green, bordered with crimson on the under side, and with an even grey band all round the upper side, upon a kind of shagreen ground. The whole plant is stemless. The flowers large, very pale pink, standing but a little above the leaves.

* Mémoires de la Société Impériale des Sciences Naturelles de Cherbourg, Tome V. April 1857.

REMARKS ON THE EFFECTS OF GEOLOGICAL POSITION ON CERTAIN CONIFERÆ.

BY THE RIGHT HON. THE EARL OF DUCIE.

The general diffusion of foreign Coniferæ in this country, and their importance, not only as regards the effect which they will eventually produce in our landscapes, but as regards their intrinsic economic value, induces me to hope that a notice of certain peculiarities, which I have had opportunities of remarking in a few species, may not be unacceptable to the Society; and may possibly elicit papers on the same subject from persons who are qualified to treat of it more fully and more accurately than myself.

In and about Tortworth Park, at the northern extremity of the Bristol Coal Basin, the underlying beds of carboniferous limestone and old red sandstone crop out at a high angle, with occasional beds of the Triassic and Liassic formations resting on their flanks; producing not only great irregularities of surface, but important differences both in the constitution and quantity of the superincumbent soil. Over the whole of this ground the more common Coniferæ are planted in great abundance, and, with a few exceptions (owing chiefly, I believe, to geological reasons), they grow rapidly and well.

As a general and sufficiently obvious rule, the Coniferæ thrive in proportion to the depth of the surface soil on which they stand. This is especially the case with the Deodar and Pinus insignis. The rule does not, however, appear to apply invariably to Abies Douglassii, as I possess specimens growing as vigorously on the cold and sterile shales of the carboniferous limestone, as others on the deep and warm soil of the old red sandstone.

The most fastidious of the Coniferæ which I have had an opportunity of observing is undoubtedly Cryptomeria japonica. On the limestone its leading shoot is always defective, and its growth generally devoted to the formation of a nest-like mass of small shoots; whilst on the old red, a formation deficient in lime, its growth is regular, upright, and graceful, and so rapid, that I have no hesitation in affirming that in this locality it would outgrow the Larch.

The Deodar, on the other hand, appears to be the least discriminating, and the most accommodating of all the Coniferæ. No position, and no variety of soil, appears to come amiss to it; on lime or sandstone, rock, or clay, it grows with equal facility—though depth of soil, as before stated, invariably contributes to rapid growth.

Pinus insignis appears to prefer the old red to the limestone; on the latter formation it maintains its health, but its annual growth is comparatively small. The most vigorous specimen of this Pine which I possess stands on a deep loam, formed by the detrital matter of the overhanging hill, at the point of contact of the old red sandstone and the clay of the lower lias. This tree, which was planted about the year 1843, is now 40 feet high, and at one foot from the ground 5 feet in circumference.

In Araucaria imbricata, though planted in considerable abundance, and in every variety of soil, I have not been able to detect any decided preference for one formation over another. It has an evident dislike to a wet locality, and it generally, though not exclusively, thrives best upon a deep soil.

Cupressus funebris, and Cupressus Goveniana, are both growing vigorously on limestone rock, with but little surface soil. The former of these trees is thriving equally upon a deep soil of the old red sandstone. Cupressus macrocarpa is growing rapidly on the clay of the carboniferous limestone.

Taxodium sempervirens appears to be extremely capricious in its taste as regards the formation on which it grows; but I have in several cases remarked that it thrives and even appears to luxuriate in a shade which proves deleterious, and often fatal, to Pinus insignis.

There are many other Coniferæ which appear to manifest habits or tastes peculiar to themselves; but which are either too young, or in numbers insufficient to justify me in attempting to generalise upon them. Indeed, all the remarks which I venture to offer in this short paper are not made with a view to dogmatise upon the subject, but in order to call the attention of persons cultivating this tribe of plants to the importance of selecting the position of such Coniferæ as show any decided tastes. With some reference to geological position, it is true that many formations are not often met with upon one estate, more especially in one park—the locality in which the more valuable Coniferæ are generally planted; but where such conditions do occur, a knowledge of the formation in which each species appears to thrive best cannot fail to prove important. Before such knowledge can be attained, more extended and more accurate observations will be necessary; and should this paper prove the means of calling the attention of more competent persons to this study, I shall feel that I have not recorded my brief experience in vain.—*From Transactions of the Scottish Arboricultural Society.*

TRADE MEMORANDA.

S. M. ROBINSON, who orders Seeds from 8, Stephen Street, Newcastle Street, Hulme, Manchester, does not seem to reside there. Who is he?

Home Correspondence.

Rhododendron Thomsoni.—Having received notice from Mr. Methven, Stanwell Nursery, in this neighbourhood, that he had Rhododendron Thomsoni, one of Dr. Hooker's Sikkim species in flower, I went this day and inspected it. Allow me to offer a few remarks on this beautiful species. There was one truss in bloom; it consists of 8 blooms, 5 being nearly, not wholly, expanded, and 3 yet to open. The bloom is quite of the same form I have seen in a drawing, and the colour a lively light blood colour. It has 10 anthers; the diameter of the bloom over the limb 1¾ inches; length of tube, which is based by a light green calyx, 1⅝ inches. The substance of the flower is good, giving it a fine chiselled-like outline. Dr. Hooker's description seems in this, as in all the other species transmitted by him from the same regions, to have been given with great fidelity. Mr. Methven assured me that it was a late formed flower-bud, and consequently the truss is weaker and each individual bloom less than what it will be when its flowering habit is fully established. Altogether it is a most interesting plant, and seems to have been pushed forward with great credit to the grower. At the hazard of trespassing on your valuable space I cannot resist offering a few particulars. It is a wrought plant. The whole height is 4½ feet. The graft is on R. ponticum, which proves to be a most excellent stock for this as well as R. Dalhousiæ, of which Mr. Methven has a noble specimen also now in bloom. The girth of the stem 3 inches above the graft is 2¼ inches, while the stock 3 inches below it is 2¾ inches. Above the graft the plant divides into six main vigorous branches, which are again subdivided and are now making young wood very rapidly. While the wrought plant is 4½ feet, that above the graft being 3½ feet, Mr. Methven showed me the original plant of R. Thomsoni from which the graft was taken, and it is only now about 1 foot high. Is not all this a strong argument in favour of working on stocks of R. ponticum? *I. Anderson, Maryfield, near Edinburgh.*

Large Oak Tree.—As regards the measurement of the tree represented at p. 309, I think a little more might be made of it in length, by measuring it on the side upon which the wart is fixed, and pressing the tape close to the wart and nearly all around it; that would be fair provided the buyer would agree to it. As to your correspondent's second question, let him cut off the worthless (as timber) excrescence and you remove every difficulty affecting its measurement; it is a pity that so fine a tree should have been allowed to nourish such a deformity so long. *Quercus.*——Your account in No. 17 Paper of the largest Oaks in England is most interesting, and I wish you would send a copy of that paper to the great photographer, Mr. Mayall, Regent Street, and if he would act on your suggestion, and make a tour, and photograph all the curious Oaks in England, and publish a work of them, I for one will subscribe willingly. I send you the account of two additional Oaks in this part of England, one of which has always been reckoned here to be the largest Oak in England, but your account proves it not to be so. They both stand in the park of Sir George Jenkinson, Bart., Eastwood, near Berkeley, Gloucestershire. The largest of them is a solid and thriving tree, and measures round at the ground 48 feet, and at 1 yard off the ground 34 feet 6 inches. It is well spread, with very large limbs, and is exactly like the picture in your Paper, No. 17. The other stands about 30 or 40 yards from it, and measures round at the ground 34 feet, and 1 yard off the ground 28 feet 6 inches. This tree has been struck by lightning at some time, and is very curiously stag's headed. They are both old Pollards, and are supposed to be at least 1000 years old. *A Subscriber.*

To Keep Sparrows off Early Peas.—Peas when about 1 or 2 inches in height are often attacked by sparrows. I have however always found that by fastening a single thread of white worsted along each row on sticks, so as to be about 2 or 3 inches above the Peas, no birds ventured near them. When sparrows attack the pods of Peas the white worsted hung along the sticks answers just as well as regards the old birds, but is not quite so effectual in the case of young ones, when the latter are plentiful. Worsted is also a safe protection for Gooseberry and Currant bushes in winter and spring. I prune early in autumn, and hang about 2 yards of worsted about each bush, after which I consider the buds are safe; no birds will venture on the bushes for some cause or other, which I am unable to explain. I suppose they are frightened at the worsted. Let me add that I have a plant of Brugmansia sanguinea with a fruit on it; it is from a flower of 1855, and is at the present time quite green; it looks as if it might hang for another year or two. I intend to allow it to hang as long as it will do so. *R. C.*

Protective Societies.—In your impression of the 18th ult. "Beatrice" pours out her dolorous lamentation over the various frauds practised by different members of the floral community generally termed dealers. "Beatrice" also hints at the establishment of a protective society. May I be allowed a few lines in your journal to recommend the establishment of societies for the protection of the members from the different frauds practised in the sale of novelties. These are more numerous every season. Take, for instance, the Verbenas of last season. A friend of mine and myself took Turner's and Smith's. At the year's end we compared notes, and the result was, two of Turner's — Dr. Maclean and Victory — were so much alike that the difference was not perceptible. Eight of them were not worth the price charged. The only ones out of the two collections really worth the price given for them, viz., 5*s.* per plant, were General Simpson, Loveliness, Pre-eminent, King of Roses, Sir Colin Campbell, and Standard Bearer. Now, is this the way to encourage a love of floriculture? Is this the means employed to induce florists to grow new things? Does not this show the want of something being done? Verbenas are not the only plant these things are practised in; Dahlias, Fuchsias, and Pelargoniums are all subject to the like evils. Another evil of bringing out worthless novelties is, that it not only affects the wealthier grower who can afford to buy plants at 5*s.* each, but it also affects the poorer amateur. Take any local nurseryman's catalogue, and there you will find all these novelties ticketed at 6*s.* per dozen; thus the poorer amateur grasps at the idea of something new, and orders such as are far behind the old favourites. Perhaps some of your readers say, Why do you purchase so many novelties if you are so often deceived? Because I wish to see floriculture attain a greater degree of importance, to see flowers attain a far higher point of perfection, and (although I do not show myself) to keep up to the mark in the stand at the exhibition; for if a judge sees something novel, which is equal to an older variety, why then the novelty is placed first. Having shown the evil of novelties I will now point out the remedy:—1. The establishment of societies (in connection with existing societies, if possible) in every town where floriculture is ascendant. A head society to be formed in the metropolis, where an office should be kept, and a weekly meeting of judges to judge all novelties intended to be let out. The branch offices would of course receive information from the London office, and in their turn communicate on any novelties raised in their neighbourhood. Every member should be bound to purchase no novelty but that recommended by the society, and by this means the public would be protected. A very small subscription from each member would be quite sufficient to pay expenses; this need not exceed 1*s.* 6*d.* each, and every member would receive information which would be valuable to him. The society might add the privilege of buying the stock of anything really good and letting it out to members at a reduced price, indeed I am sure that were such a society once formed it would prove eminently successful. If "Beatrice," who seems to have some knowledge of how things might be managed, would communicate her address, more might be done on this subject. Should any of your readers wish such a society to be formed, I will gladly give a 5*l.* note and use my best endeavours to help them both in purse and person, provided there is the least probability that such a society might properly be managed. *F. H. S., Nottingham.*

Steeping Seeds in Glycerine.—You may remember about the end of March, 1856, noticing what some one had given out as an important discovery to promote vegetation of seeds. It consisted simply in steeping the seeds in glycerine. Being in the way of receiving seeds from various foreign parts, with which I had often great trouble and innumerable failures, having found all recommended appliances useless, I set myself with avidity to try this new agent. Just then I had received a packet of seeds from the Andes containing a very rare Gentiana from the snow limit. Of all things few are more obdurate than Gentian seeds. These I was assured were quite fresh and newly collected when despatched, being some seven weeks before they reached me. Well, I divided a portion of the Gentian seeds into two; steeped the one-half in glycerine and sowed them in one-half of a small pot, divided from the other by a partition; the other half of the seeds I sowed plain in the other half of the same pot. These sowings were done on the 3d April, 1856. In about two months or so the seeds sown plain began to vegetate, and I had about 12 or 14 up in the course of the summer. Of the seeds steeped in glycerine the first and only one yet vegetated appeared only yesterday in the seed leaf. But in the hope of its efficiency, in an evil hour I steeped many other seeds in glycerine, especially seeds of the Sida Pichinchensis, and none of these have I yet observed to stir. My experience therefore of glycerine is, that it is not only of no use to promote vegetation, but that it is a positive hindrance to, if not a preventative of, that operation. *Isaac Anderson, Maryfield, near Edinburgh.*

Management of Peach Trees.—Allow me to inform your correspondent that the plan of pruning recommended by the late Mr. Knight does not suit the Peach. In the first place, stopping all the shoots to keep them in the form of spurs only starts the buds below into growth and keeps the wood from ripening, whereas if the shoots had been allowed to grow till the end of August and then stopped, less chance would have been afforded them of starting into growth; and little as the sun shines in Scotland, it is a very cold place indeed if they do not very fairly ripen their wood. I have seen Peach trees managed north of the Tay and in cold situations on the following plan, and they have succeeded as well as in England:—As soon as the shoots become fit for thinning they were removed; great care was taken not to leave too many; and if the leaves got so close as to shade the wood a quantity of them was taken off. About the end of August the trees were gone over and all useless wood taken out, the leaves thinned if required, and all the young shoots nailed in order that the sun and wind might get at the wood; if the subsoil is cold I have seen the trees lifted and about 1 foot in thickness of rotten leaf-mould applied to them, both at top and bottom. This stopped gross growth and brought the roots nearer the action of the sun, the effect of which was better ripened wood than otherwise would have been the case. I have two trees that strikingly illustrate the good effect of this treatment, one is on a south aspect, the other on an east—the first is an Acton Scott Peach. From the tree on the south aspect for the last three years fruit could not be got; last season, about the end of August, I thinned out the wood and took off a quantity of leaves to make sure of getting the shoots well ripened; the result is that at the present time I shall have to take off three times the quantity of fruit I shall let remain. The other was a Nectarine tree from which no fruit could be got; the end of last September I lifted it and gave it a quantity of leaf-mould, and the result is the same as in the case of the Peach just mentioned. *James Stewart, Gardener, Witchingham Hall, Norfolk.*

Slugs.—Let your correspondent "J. R." procure a gallon or two of wheaten bran, or brewer's grains, and on a mild evening just before or after a shower, place little patches of it about his garden in all directions, especially near Box edgings and similar places of retreat. About 9 o'clock at night, provided with a good lantern and candle, and armed with a pot full of air-slacked lime, he must visit all the little patches of bran in succession—he will probably be astonished at the vast numbers of his enemies congregated and feasting at his expense; when with his pot of lime he can give them such a dusting as will prevent them from ever again troubling him. If this plan be persevered in for a short time, he will effectually clear the garden of slugs. I have applied this remedy for many years, and have never known it to fail. *H. Mitchell, Clowance, Cornwall.*——Are not ducks the best remedy against slugs? I have allowed several broods of ducks to wander about my garden every evening during the two last summers, and it is very amusing to see the zeal with which they destroy all kinds of vermin without doing the least damage to the plants. They do not care to come into the garden except at dusk, from a small pond close by. *C. B.*——Hot lime or lime that has been air-slacked in a dry place is the best remedy for slugs; but the former is most effective. It should be applied when the slugs or snails are crawling out late on a mild evening or early in the morning. Get as much lime as you think sufficient just before you want to use it; take a "stone" of it in each hand, holding it in water until you find it begin to get warm; then put it to slack either in a heap or in a wheelbarrow, dry tub, or such like. The latter is best, for it runs about when slacked almost as if it were water. In about an hour it will be fit for use. Then take an old water pot or bucket to carry it in, and a round trowel or similar instrument to throw it about the garden with. It is too hot for the naked hand, but it will not injure crops. One bushel of lime well thrown about will do half an acre, and kill every slug and snail that even the dust of it touches, provided rain do not fall immediately. Always have a heap of lime air-slacked at hand, but be sure to keep it in a dry place, or it will be of no use. *Robt. Shackell, 5, Broad Street, Bath.*——Another correspondent, "B. G.," also recommends quick lime; he says it need not be applied in such quantities as to disfigure the garden—1 peck per acre, if quick, fresh, and fine, is sufficient for a dressing. The smallest portion of caustic lime applied to their backs will cause them to throw off a coating of slime, then "J. R." should apply another portion, which they cannot throw off, and they will perish. He has seen them destroyed in this way in a remarkably short time. He generally throws down a lot of Broccoli stumps with the outside leaves left on, those slugs that escape the lime hide under them, and some time in the day after a boy goes round with a small watering-pot and a little clear lime-water in it. He takes hold of the stump and gives it a shake, and then just sprinkles the ground (that was covered by it) with the lime-water, this soon destroys all the slugs that had congregated under it. A more efficient cure could not be discovered, one active man would sow an acre in an hour, and the lime would scarcely cost 6*d.* It is however, he adds, perfectly useless to apply it when the sun shines in the middle of the day, or on a cold dry or frosty morning or night.

Coppice Wood.—In your Paper of March 9, Mr. James Whyte states that stems of Oak coppice containing 3 cubic feet and worth 3*s.* each yield 8 lbs. of bark, and in the *Chronicle* of April 25 he says "the stems at Bywell, near Newcastle-on-Tyne, are worth only 6*d.* each, but produce 7 lbs. of bark." Again: it is stated on March 9 that "on a properly reared acre of coppice wood" there should be 3420 stems, whilst at Bywell there are only 2151 at 18 years of age. These are glaring discrepancies, and I will be obliged if Mr. Whyte will either rectify or explain them. Further: on March 9 Mr. Whyte assumes the annual rental to be derived from "a properly reared acre of coppice wood" to be 10*l.* 14*s.* 9*d.*, the present value of which, computed at interest of 4 per cent. per annum for 30 years, is 3*l.* 6*s.* 3*d.* Why is the supposed income from the Bywell plantations not computed at the same rate for 18 years? This would reduce Mr. Whyte's 4*l.* 1*s.* 11*d.* per acre to something like 2*l.*, or rather less than one-half the sum stated by him. Will he explain? *G. F., Falkirk.*

Fruit Tree Protection.—Your correspondent "J." of Hampstead, is not, I presume, a gardener, or he would

not have made the remarks he has favoured you with. I am sorry that my observations were not intelligible to him, and fully conceiving him to be an amateur will try again to make him understand me. He thinks light has a prejudicial influence on frozen surfaces; granted; but who spoke of them? The fruit tree covered with canvas would be perfectly protected, but if the following day there was a bright sun, and it was not removed, much of the blossom would fall unquestionably from the effects of the close atmosphere and want of light. Fruit tree blossoms need protection, but they do not like coddling. Of the two it were better not to protect than to confine a tree in flower day and night, in sunshine and shade, under a close thick canopy. If frozen at all the more gradually vegetable substances are thawed the better, and till thawed darkness is essential. *Henry Bailey.*

New Plants.—Will you allow me to ask what the merit may be of the Cuphea eminens sent out last season, as a plant for the open ground? I fear it may prove tender from its appearing quite at home in a stove, but some of your readers may have tested its hardiness fully. Concerning another novelty I should be glad of information—the Phygelius capensis; not as to its hardiness, for that is certain, but with regard to its free blooming qualities. Can any of your readers give me positive assurance on this point? Is not the Aquilegia eximia advertised by M. Van Houtte in your columns the same as the A. californica noticed by you some time since? If one may judge from the description in his catalogues I shonld say there can be no doubt of the fact. *Verbum sap.* Having asked for information I may perhaps in return give a little. I observe the Lobelia lutea (Parastranthus) advertised as a novelty, which it certainly is not, and what is of more consequence, is of little or no value as an ornamental plant, a fact some of your readers may be glad to be acquainted with. *Hippolyte.* [Cuphea eminens is said to be half hardy in Belgium, where the summers are warmer than ours. It is from the tierra templada of Mexico, the plants of which region are usually greenhouse. Phygelius capensis died in the winter with us; it is as handsome as Pentstemon gentianoides. About the Aquilegia we find nothing in books.]

Pyrus japonica.—As regards this, allow me to suggest to Mr. Godsall, of Hereford, that nothing good is to be obtained without some difficulty, and the greater the latter the greater the kudos in overcoming it, and English gardeners have done things a hundred times more difficult than that, and can do so again no doubt if they choose to take the trouble—only let him consider what a delightful thing it would be if he could convert a mere suggestion into a very beautiful reality. There is not the slightest doubt but what the standards would sell extremely well if the idea can be carried out. *F. N., Ludlow.*

Grafting Moutans.—Can any one refer me to a passage which I have read somewhere, describing the season and process of the Chinese in grafting Moutans? I thought it was in Fortune's book on China, or in some of his letters published either in the Horticultural Society's Journal, or the *Gardeners' Chronicle*, but after looking for it for some months I have failed to find it. I want to put it in practice, but am at fault as to the season. I should be inclined to try very early spring, say February, but am in some doubt whether the descending sap in August when the plant roots most freely is the proper time. *R.*

Leptotes Fruit.—Professor Morren some years ago stated that the fruit of Leptotes bicolor had the flavour of Vanilla. I have fruited it with a view of trying, but in no stage of ripeness could I detect the slightest flavour. The seeds are meally and tasteless, like Catasetum and most Orchideæ. I fruit Vanilla planifolia in abundance—sufficient to supply my kitchen. *R.*

Fruit of Berberis dulcis.—Permit me to inform your correspondent, Mr. Walter T. Bullock, that the fruit of this Berberis is sweet, luscious, and perfectly wholesome. I have frequently eaten of it, and I should pronounce it in every way agreeable. It seems to me however that the proportion of stone to pulp would prove a formidable objection to its use as a general preserve, and as a jelly there would perhaps be scarcely sufficient pungency of flavour. Berberis dulcis is one of our most beautiful spring-flowering shrubs, and if more generally known would certainly be more extensively cultivated. There are bushes of it in the nurseries here 4 feet high now in full bloom, and so plentifully are they sprinkled with thin round ochreous drop-like flowers, that one might fancy they had been drenched with a shower of golden rain. The berries ripen in autumn, are about the size of a Currant, of the colour and with the bloom of a Black Hamburgh Grape. Thus the plant has a second period of beauty within the year. Birds are fond of the berries, but not more so than they are of the generality of sweet fruits. *William Paul, Nurseries, Cheshunt, Herts.*

Black Rain.—Have any of your correspondents remarked the peculiar black colour of the rain water which fell on Saturday, the 2d inst., or accounted for it? Throughout this neighbourhood it was the case. There was much lightning and blight at the time. *Glastonbury, May 5.*

Flies on Walnut Trees.—Can you tell me how to prevent the influx of flies into the house in July and August? I have a Walnut tree close to my house, which is covered in those months with a small black midge fly, which irritates the skin very much, and lodges on the furniture. *J. E. G.*

Smoke Consumption.—I am about erecting various glass houses costing from 3000*l.* to 4000*l.*; and I am most anxious to put up a furnace or furnaces that will consume the smoke of bituminous coal. The builders who are drawing out my plans say they never before had such a requirement brought before them, and believing them to be as clever as any in their trade I have not sought this information from others. Will you, therefore, kindly inquire amongst your readers if any have already successfully carried out what I am determined to attempt, viz., to put up a furnace to consume the smoke of bituminous coal? *X. X.*

Eugenia Ugni.—Having conversed with several cultivators of this plant on the merits of its fruit, they have all of them depreciated it, and it has been stated to be little better in flavour than a Black Currant. I therefore send you the following information, which may be useful to some of its growers. At the beginning of October last year I gathered several berries which seemed to me to be ripe. Their flavour was very good, but still it did not reach my expectations. About the end of the same month, however, I accidentally discovered on a branch several berries which I had previously overlooked, and I can assure your readers that not only the fragrance but also the flavour of the fruit were perfectly delicious. The conclusion which I have come to is, that the fruit has been generally gathered before it has attained perfect maturity. *W. W.* [No doubt. What is a Peach worth when unripe?]

Fruit of Berberis Aquifolium.—I have eaten more than once the fruit of this Berberis in a tart; the plant in the red marl quite outgrows any other shrub, and now has more flower than leaf on it—some dozens of bunches on every plant. The large and bitter seed is the only objection to it; as a jelly it would be superior to any Currant or other "sharp" conserve. I don't see why a good wine should not be made of it—the "body" would nearly equal northern Grapes and much exceed any Currants; and I repeat, in red marls there is more fruit than on our garden Currants. *Somerset.*

Societies.

Horticultural: *May* 5.—The Rev. L. Vernon Harcourt in the Chair. The following were elected Fellows:

The Right Hon. the Earl of Lichfield, Shugborough
William Fane De Salis, Esq., Dawley Court, Uxbridge
Lady Wilmot Horton, Catton, Burton-on-Trent
John Raymond R. Barker, Esq., Fairford Park
John Craiter, Esq., Craiter Tower, Alnwick
Chas. P. Leslie, Esq., M.P., 48, Berkeley Square
Col. Fras. V. Harcourt, Buxted Park
Saml. Newington, M.D., Ridgeway, Ticehurst
Edw. R. Kelly, Esq., M.A., Burlington Lane, Chiswick
Miss Anderdon, Hammersmith Mall
Thos. Cox, Esq., of Oakenshaw, Surbiton, Surrey
Richd. A. Brooman, Esq., Neville House, Twickenham
Alfred Haines, Esq., Kensal House, Kensal Green
W. Allcard, Esq., Warrington
George J. Cockerell, Esq., Upper Sydenham Hill
Charles Walton, Esq., Llynthal Lodge, Tulse Hill
J. W. P. Watlington, Esq., Moor Hall, Harlow, Essex
Samuel D. Darlestine, Esq., Pendyffryn, near Conway
Charles Lloyd, Esq., Merton Lodge, Chiswick
Park Nelson, Esq., Fulham, Middlesex
J. Brumell, Esq., George Town, Demerara
Andrew B. Knight, Esq., Downton Castle, Ludlow
Adam S. Gladstone, Esq., Olive Mount, near Liverpool
Thomas S. Gladstone, Esq., Capenoch, Dumfries-shire
General Higginson, 9, Wilton Crescent, Belgrave Sq.
Robert Hogg, Esq., 61, Winchester St., Eccleston Sq.
Thomas B. Cross, Esq., Shaw Hill, near Chorley
C. Lockey, Esq., Abingdon Cottage, Lavender Hill
Nathaniel De Rothschild, Esq., 148, Piccadilly
Joshua Sanders, Esq., Thornton Villa, Clifton, Bristol
Mr. John Daniels, The Gardens, Ruthin Castle
Mr. D. Kidd, Gardener, Shed House, Hampton Court
Mr. Busby, Gardener, Stockwood Park, Bedfordshire
Mr. W. Shakespeare, 55, Lionel Street, Birmingham
Mr. John Beningfield, Broxbourne, Herts
Mr. R. G. Foggo, The Gardens, Shrubland Park
Mr. Geo. Cameron, The Gardens, Goodwood Park
Mr. Wm. B. Smith, 27, Gt. George Street, Westminster
Mr. Wm. Thomson, The Gardens, Dalkeith Palace
Mr. Wm. Barron, Sketty, near Swansea
Mr. Thomas Harrisson, Ealing, near Brentford
Mr. James Andrews, 9, West Street, Walworth Road
Mr. Thos. H. Douglas, Rosebank Nursery, Edinburgh

Fruit contributed much to the variety and excellence of the exhibition on this occasion. A Black Prince Pine Apple, a noble specimen of that variety, weighing 6 lbs. 5 oz., came from Mr. Davies, gr. to Lord Bridport; and Mr. Gillham, Market Gardener, Isleworth, had two Queen Pines, weighing respectively 2 lbs. 12 oz. and 2 lbs. 9 oz.

Remarkably fine specimens of Black Hamburgh Grapes came from Mr. Fleming, gr. to the Duke of Sutherland at Trentham; these were large both in bunch and berry, and beautifully coloured. Mr. Hill, gr. to R. Sneyde, Esq., had capital bunches of the Black Prince variety, and very good Black Hamburghs were furnished by Mr. Fleming, of Cliveden. Mr. Forbes, gr. to the Duke of Bedford at Woburn, sent well-grown Black Hamburgh and Chasselas Musqué. Mr. Spary, of Brighton, had good Black Hamburghs; Mr. Clement, of Oak Hill, Sweetwater; and Mr. Tegg, gr. to Baron Hambro, and Mr. Frost, gr. to E. L. Betts, Esq., Preston Hall, Black Hamburghs.

Strawberries were plentiful, and on the whole uncommonly good. The best however came from Mr. Smith, of Twickenham. They were Keens' Seedling, of unusually large size, rich and deep in colour. Mr. Dunsford, of Chingford, Essex, had very good British Queens; Mr. Tillyard, gr. to Viscount Eversley, Keens' Seedling, Sir Harry, and Alice Maude; and Mr. Cox, gr. to R. H. Robertson, Esq., of Tittenhurst, Berks, a beautiful dish of the last named variety. Keens' Seedling finely coloured and altogether good specimens came from Mr. Harrison, of Oatlands; Mr. Ivison, gr. to the Duke of Northumberland, at Syon; Mr. Ingram, gr. to J. J. Blandy, Esq.; Mr. Drummond, gr. to Lyne Stephens, Esq.; and Mr. Fleming of Cliveden. A dish of the new Strawberry "Adair" was furnished by Messrs. E. G. Henderson of the Wellington Nursery. It is deep red in colour and conical in shape. It was out of condition and the judges declined expressing any opinion upon it.

Black Circassian Cherries large and beautiful came from Mr. Fleming, gr. to the Duke of Sutherland at Trentham, and the same variety scarcely inferior in point of merit was furnished by Mr. Ingram, gr. to her Majesty at Frogmore. May Dukes were contributed by Mr. Fleming, of Cliveden.

Among Miscellaneous fruit were Royal George Peaches, large and fine for the season, from Mr. Hill, gr. to R. Sneyde, Esq., Keele Hall, Staffordshire; a collection of Green-fleshed Melons was furnished by Mr. Nichol, gr. to General Studd, of Oxton House, near Exeter; a Prince Albert Melon from Mr. Lambert, gr. to J. Baring, Esq., of Chichester; a dish of fine-looking Oranges, from Mr. Daniels, of Ruthin Castle, North Wales; and Loquats from the Duke of Northumberland's garden at Syon. The last were good specimens of the kind, quite ripe, of a fine Apricot colour, and very superior to imported fruit of that description.

Of plants in flower of different kinds there was a grand display, foremost among which was a magnificent collection of Orchids from Messrs. Veitch. It consisted of a noble Dendrobium speciosum, the charming D. Farmeri, the best variety of D. Pierardi, the rare Uropedium Lindeni, with long-tailed flowers, which look like Lady's Slippers turned inside out; Trichopilia coccinea, various Cattleyas, Vanda suavis, the scarce Odontoglossum Pescatorei, and other beautiful kinds, all extremely well grown and beautifully flowered. Mr. Pilcher, gr. to S. Rucker, Esq., sent a nicely flowered Burlingtonia fragrans; the new Chysis Limminghi, a kind with pink-tipped petals, a rose streaked lip, and yellow throat; and a charming new Trichopilia, in its way quite the gem of the room. This somewhat resembled T. coccinea; but was of a brilliant rose colour, more free flowering, and altogether a wonderful improvement on that variety. Mr. Snow, gr. to Earl de Grey, sent a handful of Smith's Yellow Noisette Rose, a pretty sort, but very inferior to the yellow kind he showed at last meeting. Mr. Braid, of Hendon, had Alonsoa Warcsewiczi, the handsome Swan River Boronia Drummondi, and a white pink spotted Pelargonium called Blanche-fleur, a free flowerer, and reported to be a valuable variety for forcing. Messrs. E. G. Henderson sent a variegated leaved Dahlia; Mr. Gaines a very large flowered Amaryllis called magnifica; Mr. Turner, of Slough, a beautiful collection of Auriculas, consisting of some of the very best varieties; Messrs. Henderson, of Pine-apple Place, a group of greenhouse plants, consisting of yellow or rather buff-coloured Rhododendrons, several Eriostemons, a pyramidal bush covered with flowers of Elæocarpus dentatus, Boronias of different kinds, and other plants. Messrs. Cutbush of Barnet also contributed a nice collection of greenhouse plants, in which were a purple semi-double Azalea loaded with blossoms; Hypocalymma robustum, a Swan River shrub with spikes closely set with pink flowers not unlike those of a Hawthorn; Statice Holfordi; the round orange flowered Erica vernix and other Heaths, and one or two well cultivated Boronias. From Mr. Forsyth, gr. to Baron de Rothschild, came beautiful stove and greenhouse plants, among which Erica lutea was especially striking; he also contributed some select variegated-leaved plants. Dracæna lutea, a drawing of Farfugium grande, the very handsome Coltsfoot-like plant with yellow blotched leaves, formerly noticed by us, and specimens of Rice paper, with a Rice paper plant came from Mr. Glendinning of the Chiswick Nursery. The origin and nature of Rice paper were explained in our report of last meeting; it was now stated that this material might be made more use of by artists in this country than it is; for being itself of the same nature as petals, flowers drawn on it would not only have the colour but also the texture of real blossoms themselves. Messrs. Veitch produced a new crimson flowered bulb from California, the brilliant red flowered Correa cardinalis, whose only fault is rather a bad foliage; Fuchsia Dominiana; Nicotiana fragrans, a kind of Tobacco with long tubular blossoms not unlike those of some white Petunia, to which the Tobacco plant is botanically related; Rhododendron Dalhousieanum quite a tree loaded with greenish yellow flowers; the charming R. javanicum and jasminiflorum, and a new kind from Moulmein with pure white blossoms measuring fully 5 inches across and crimped round the edges like Azalea crispiflora. This must be regarded as a valuable acquisition to greenhouse varieties of this genus. The same firm also showed two boxes of cut hardy Hybrid Rhododendrons from the open ground at Exeter—one filled with pale and the other with crimson sorts, all beautiful examples of their respective kinds. From the Duke of

Northumberland's garden at Syon also came cut Rhododendrons from the open ground, where, with the exception of one (Pereyanum), they had had no protection whatever. The variety so named, a most beautiful thing with large trusses of snow white flowers richly speckled with purple, had been flowered under cover. This, together with the other hybrids, was raised, we believe, by Mr. Carton, then gardener at Syon, between ponticum and some of the Indian kinds; they have all the beauty of the latter, with the hardiness of the first named parent, and are valuable additions to our outdoor early flowering shrubs. Mr. Ellis, gr. to Dr. Bunce, of Woodford, sent four well-grown Lycopods and Ferns and as many Pelargoniums. Mr. Allnutt furnished a fine bush 12 feet in height of Camellia Sasanqua rosea, and Mr. Luscombe, of Lower Knole, Kingsbridge, Devon, cut blooms of Cantua dependens, one of the gayest of all Messrs. Veitch's introductions in the way of half-hardy flowering plants. The specimens exhibited were from an open wall; but even in Devonshire the plant is found almost too tender for that climate. Under ordinary circumstances it is a greenhouse plant, very difficult to cultivate, and therefore seldom seen. It is, however, well worth attention. Mr. Clarke, of Brixton Hill, sent two Seedling Azaleas, one white, the other slightly striped with rose. Amphicome Emodi, which we hope soon to see again in better condition, was furnished by Col. Fairhead.

Of Vegetables, Mr. Lewis Solomon sent as usual an admirable collection of Foreign kinds. It consisted of Asparagus, Green Peas worthy of July, Broad Beans, Globe Artichokes, Kidney Potatoes, Horn Carrots, Turnips, Asparagus, and some excellent Cos Lettuces and Endive. Very fine foreign Asparagus was contributed by Mrs. Johnstone of Covent Garden. Mr. Clark, gr. to the Earl of Darnley, furnished Cabbages, Mushrooms, Asparagus, and Seakale, young Cauliflowers, Potatoes, French Beans, and Cucumbers. Mr. Allen, gr. to J. B. Glegg, Esq., sent some very good Lettuces that had been grown under bell glasses or cloches; they had been planted about the middle of December. A brace of Cucumbers, quite straight and measuring fully 22 inches in length, came from Mr. Frost, gr. to E. L. Betts, Esq. They were cut from a plant that has been in bearing since July last. Mr. Snow produced excellent examples of his Nonpareil Cabbage, and some Cos Lettuces. Tubers of the Chinese Yam (Dioscorea Batatas) in excellent preservation came from Mr. Bart, gr. to G. G. Sandeman Esq., of Chislehampton Lodge, Oxon. When more common, these may be expected to form a useful addition to our winter vegetables. They may be cultivated with as little trouble as a Potato, and when properly cooked are said to be about as good. Care must, however, be taken not to boil them too much; 10 minutes are sufficient; in fact, they require very little cooking, which in itself is a point in their favour.

Young Vines, exhibiting a new mode of propagation, of which some account will be found in another column, were shown by Mr. Fleming, of Trentham.

From the Garden of the Society came Eutaxia myrtifolia, three kinds of Chinese Azaleas, Rhododendron formosum, three varieties of Achimenes, Ceanothus papillosus, and other plants.

The alterations in the bye-laws mentioned in our report of last meeting were read a second time.

Notices of Books.

Road Reform; a Plan for Abolishing Tolls, Pontages, and Statute Labour Assessments; and for Providing other Funds for the Public Roads and Bridges. By Wm. Pagan, Writer. 3d Edition. Pamphlet, pp. 165. Blackwood & Sons; price One Shilling.

This is a curious pamphlet on turnpikes and their attendant evils. Though full of amusing anecdotes and extracts from popular authors, the more important and drier facts necessary to the argument of the writer are not lost sight of, but on the contrary are made to attract attention by contrast with lighter stuff. The "pike" nuisance is well known to most of our readers to be in many places perfectly intolerable; but we doubt whether the public in general have the remotest idea of the real extent of the evil in certain neighbourhoods. The following is a curious picture of the state of Scotland in the 19th century:—

"At Cupar, the county town of Fife, very little arithmetic is required to reckon no fewer than 13 toll-bars within a circuit of three miles. Of these, indeed, so many as seven may be said to be within cry of the market cross, and, five of the seven being under separate trusts, every one who has occasion to pass through them, though within the same half hour, must submit to five separate exactions of toll. An individual with a cart-load of wares, which he is anxious to submit to the inhabitants of the town, enters Cupar from the south—pays there; makes his way along the Bonnygate to Carslogie toll—pays there; crosses to the next public road on the north, and turning towards Cupar, finds himself at Arnott's Comb toll—pays there; having a fancy to try the good people of Kilmaron Castle, which is just at his elbow, he passes Balgarvie toll—pays there; and being by this time resolved to flee from such impositions, he turns towards the populous and thriving village of Ceres, but on leaving Cupar is caught again at the Ceres branch of the south toll—and pays there. The poor man wonders much at these five toll exactions, but his wrath is altogether unavailing, as each and all of the five exactions are quite legal, and fully sanctioned by the acts of Parliament. The Cupar south bar, first mentioned, is under the Fife act; the Carslogie bar, managed well, as it should be, by the road trustees of the four counties of Fife, Kinross, Clackmannan and Perth, is under the Kinross-shire, &c., act; Arnott's Comb bar, Balgarvie bar, and Ceres bar, again, are all in schedule B of the Fife act, which appoints tolls to be demanded and levied at each of these three gates—hence these five successive exactions of tolls."

An amusing anecdote is given of the way in which the rights of pike keepers and the privileges of royalty sometimes conflict to the imminent peril of the former.

"In 1851 the Sheriff of Kincardineshire had the honour of deciding a high question of privilege—relative to tolls levied on horses for her Majesty at Balmoral, in the face of the statutory exemption in favour of horses attending or returning from attending her Majesty. The keeper of Jellybrand's Toll had had more love for her Majesty's coin than for her Majesty's privileges, and he stopped the horses and exacted their toll—not abating royalty a single bodle. The road trustees, singularly enough, felt indignant at this piece of cleverness, and instead of supporting the exaction (as is their general rule), they brought a prosecution in name of their clerk against the toll-keeper, as for having taken tolls wrongfully from royalty. Holding 'the balance with impartial hand' between the Crown and the toll-bar, the judge decided in favour of the pikeman: he found that the horses charged for were not attending her Majesty, but only going to do so—a sufficient distinction in the hair-splitting of pike laws, and so not covered by the exemption; he fearlessly dismissed the case, and found the tollman entitled to costs. We read at Hampton Court of a determined tailor who, in a former century, gained himself everlasting fame by opening a public road through Bushy Park in spite of royalty. Here, in the year of grace 1851, we have a stalwart Highlander, Alexander Gray by name, nobly acquitting himself in toll-bar championship, and acquiring renown for doing the very opposite—for shutting a public road against royalty, and keeping it shut too till his toll was paid. We should not wonder some day to see a monument by his brethren, not to Alexander the Great, but to that valiant pikeman, Alexander Gray, for so manfully standing up for his order, and making good his toll. A parcel of toll-gates and tables of tolls, and toll-bar acts, would be appropriate materials for such a purpose, and we trust they may soon be had cheap.

"The Sheriff's decision, as may be supposed, was taken up by 'the Court' as a grave breach of privilege, and threatened very serious results to the toll-keeper—if not also to all and sundry, from the Judge downwards, who had aided and abetted him in his *quasi* treason. An *Aberdeen Journal* of April 1852 records what followed:—

"'Her Majesty's Master of the Horse having directed the proceedings in the case to be laid before Mr. James Anderson, Q.C., and Mr. Alexander Haldane, Barrister-at-Law, for their opinion, these learned gentlemen, in a joint opinion, have recommended that an information, at the suit of H. M. Advocate-General for Scotland, should be instituted against the toll-gate keeper for recovery of the tolls, in the Court of Exchequer. But the Solicitors to the Master of the Horse, in communicating this opinion to the road clerk, have stated:—"That her Majesty's pleasure on the subject had been taken, and that her Majesty, having regard to the serious consequences to the toll-gate keeper, in a pecuniary point of view, arising from his ignorance of the law as regards her Royal privileges, has commanded that the proceeding, recommended by the counsel, shall not be taken in the present case." It is also stated, in the opinion of the learned counsel, that, "If the transaction were again repeated, we consider that her Majesty's servants ought to be prepared to vindicate the Crown's right to exemption, *breci manu*."'

"Here was a pretty business arising out of a 6*d*-toll; the clerk against the toll-keeper—the parties' agents dusting out their one-sided arguments—the Sheriff sifting them—the Master of the Horse fretting and perplexed—a case drawn up—two learned English barristers fee'd—(much ado about nothing)—the Lord Advocate to haul up the toll-keeper by information, before the Exchequer Court—the faint-heartedness of the Solicitors to the Master of the Horse in shying, and not doing it—her Majesty's pleasure on the subject—her Royal 'regard to the serious consequences to the toll-keeper in a pecuniary point of view, arising from his ignorance (knowledge?) of the law, as regards her Royal privileges, has commanded that the proceedings recommended by counsel shall not be taken in the present case.'"

Mr. Pagan proposes to abolish all pikes and all bars, houses, and keepers incidental thereto, and he recommends in lieu thereof to raise funds for the repair of highways either by a rate on horses or by a rate on land. The learned author's views are not crude or ill digested, he has evidently considered the whole subject of turnpikes with great attention, and his essay contains much valuable statistical and other information not easily met with elsewhere. The fact that the pamphlet has reached a third edition shows that he has hit upon an evil in the remedying of which the public in general takes considerable interest. The remedy suggested by him, and the means by which he proposes to effect it, are stated very fully; and, so far as we are able to judge, they would be practicable and efficient.

A Treatise on Road Legislation and Management. By Richard Bayldon. Longmans, 8vo, pp. 100.

Another book on Roads, but very different from the last. Mr. Pagan attacks the whole turnpike system and proposes another in its stead. Mr. Bayldon's principal object seems to be to protest against the modern system of repudiating turnpike trust debts by lowering the interest of the debts on trusts requiring a renewal of their acts, and to show how a road may be made self-supporting. The principal portion of the work, however, consists of an appendix in which various matters relating to tolls and road management are referred to.

Garden Memoranda.

Mr. James Floris's, Acton Green.—This is one of those quiet suburban residences of which we have so many in the neighbourhood of London, and to which our city tradesmen love to retire to breathe a little fresh air after the business of the day has closed. Mr. Floris, who is a perfumer in Jermyn Street, takes great delight in his garden. He is fond of flowers, not so much of new things in the shape of gaudy beds or masses as of old fashioned plants in mixed borders. Of Roses he has an excellent collection, to which great attention is paid, and, the soil of his garden being admirably adapted to the cultivation of that class of plants, they thrive and bloom in the greatest possible perfection. Dwarfs and half standards are grown in beds of considerable size, climbing kinds are trained up pillars and over arches so as to cover walks, and altogether the effect they produce when in full blossom is excellent.

It is to Mr. Floris' Roses under glass, however, that we wish now particularly to direct attention. In a house upwards of 40 feet in length he has at present a stageful of the "Queen of Flowers" in pots, all in the greatest possible beauty. Such a bank of Roses literally covered with bloom is worth travelling miles to see. The plants are all about one height, charmingly clothed with clean and healthy foliage, and the colour and size of the blooms are all that could be desired. The plants producing this magnificent display we are informed are chiefly from layers taken up from the open ground last autumn. They are potted and placed under glass about the beginning of January, so that in less than 12 months they have become what has just been described. To the mode of ventilation employed, Mr. Floris attributes much of the unusually clean, healthy condition of his plants. The house is warmed by 4-inch hot-water pipes in three tiers, and in the front wall, opposite the middle tier, are apertures at intervals the whole length of the house for the admission of air, which passing over the pipes gets partially heated before it reaches the plants. There are also ventilators at the back of the house near the glass, and thus a free circulation of warm air is continually kept up. A mode of shutting and opening the whole of the air passages along the front of the house simultaneously was put into practice here by Mr. Burn, an architect, and it answers extremely well. The little iron lids or shutters closing the openings are fixed to a thin bar of iron, which runs the whole length of the house; to one end of this is attached an upright handle in such a way as to make it form a lever, which upon being drawn towards you opens the ventilators, and pushed from you shuts them. The hot-water pipes are also so managed as to warm a range of glass about 90 feet in length from one boiler. The house next the latter is a greenhouse, and that farthest from it a forcing-house. The pipes have, therefore, to be carried through the cool department to the warm house in a wooden box, which keeps in the heat and is said to answer the purpose perfectly. The heating apparatus, it may be mentioned, was put up by Mr. Lobjoit, of Turnham Green.

On the lawn were numerous specimens of Portugal Laurels in the form of cones, many of them 14 feet in height, and as much through at the base. We also remarked a large handsome Irish Yew quite 15 feet in height and other well grown shrubs, either in the shape of belts or single specimens. On a mound covered with Ivy grew the white-wood Anemone, which is now flowering beautifully, and a circular bed of Roses, surrounded by a deep rim of Ivy on the middle of the lawn, had a neat and good effect. A little Fernery filled up a shady nook; in summer the lively green fronds with which it is adorned are extremely interesting. We need scarcely say that nothing answers so well for a shady corner as Ferns; no garden, either large or small, should be without them.

Manchester Botanical and Horticultural Gardens.—As the Manchester Exhibition of Art Treasures which was opened by Prince Albert on Tuesday last is adjacent to the Botanical and Horticultural Society's Gardens at Old Trafford, a few descriptive remarks may not be found uninteresting to your readers. These gardens are about two miles from the Manchester Exchange, on the south-west side of the town; the situation is extremely pleasant, and as westerly winds prevail during the greatest part of the year, the atmosphere is clear and salubrious. The approach is from the Chester Road, and the principal entrance is quite equal to any garden entrance in England, having on the right a commodious porter's lodge and council room, and on the left the residence of the curator. The gardens cover an area of 16 acres, are well wooded, laid out in good taste, and kept in beautiful order.

Opposite the entrance is a large mound planted with shrubs and evergreens, the principal object being to prevent a direct view into the gardens from the road, and also to break the force of the north winds. On turning to the right of the mound you come upon the principal walk running east and west, and directly opposite, at right angles with this, is a new walk leading direct to the Art Treasures building. This walk is 12 feet wide, and is in many parts overhung with trees, thus forming a pleasing vista, having as a termination

the north transept, which is one of the most interesting features of the great building.

To the right of the above walk is the Society's new exhibition house, erected three years ago at a cost of 3000*l*. It is a structure at once light, elegant and handsome, and is admirably adapted for the purposes intended. A very neat fountain has just been placed in the centre of this building, and along the front is a broad terrace which overlooks the flower garden, where there is a large basin for gold fish. To the right of the flower garden is the Rose ground, laid out in a simple but effective manner. Here, too, there is an extensive lake agreeably diversified with islands and projecting points spanned here and there by pretty and artistic rustic bridges, and connected at various points by serpentine walks.

Near the centre of the gardens is a beautiful lawn, where, on exhibition and promenade days, is assembled the aristocracy, beauty, and fashion of the district. Parallel with the lawn are the extensive conservatories, well stocked with plants, behind which, on what formerly was the herbaceous ground, has been erected a monster tent 80 by 20 yards, in which will be exhibited the splendid collection of American plants, contributed principally by Messrs. Waterer & Godfrey, Knapp Hill; Mr. Baker, Sunningdale; and Mr. Standish, Bagshot.

Along the north wall is a range of glass nearly 300 feet long, principally for the growth of soft-wooded plants. There are also two propagating houses of a very superior construction, a Victoria Regia, and an Orchid house.

The exhibitions this year are to be on a grand scale, and will be more than usually attractive, and from the liberal prizes offered they will doubtless be well supported. We rejoice to find that the Executive Committee of the Art Treasures Exhibition have arranged with the Council for a communication from their building to the gardens. This is a most desirable union, to link Art to Nature is a happy idea, and we have no doubt the connection will prove advantageous to both.

Miscellaneous.

Persian Habits.—Amongst other titles of the Persian to be considered the Frenchman of the East is his cookery. It is not surprising that he should succeed in this art, when princesses themselves study it, and are in the habit of bestowing upon favoured guests the triumphs of their skill. The Persian pillaw is a dish of world-wide reputation; even the bitterest enemies of the Shiahs, the Osmanli, admit its merit. It is simply a dish of boiled rice, over which is poured melted butter or fat ("chillaw" is rice boiled simply), eaten with some preparation of meat or vegetables; consequently the variety of pillaws is great, but the art—and one hitherto unattained, as far as we are aware, by either Turkish or European skill—consists in the boiling of the rice and the mixture of the melted butter. The process is probably as simple as that of boiling a plum-pudding—a secret which, however, somehow or another, does not appear to have yet been carried across the Channel. In the dinners of the more refined inhabitants of the towns a great variety of excellent stews seasoned with sauces, amongst which is a delicious preparation of the juice of the Pomegranate, accompany the boiled rice, served, however, to the guests on separate plates. The tribes and the poorer classes content themselves with meat, or fowls, plainly boiled, and placed in the centre of the steaming pillaw. Sometimes, on great occasions, almonds and raisins are mixed with the rice. The chiefs have huge platters, which two men can scarcely carry, in which a lamb roasted whole rests on a bed of pillaw; this is a festive dish, when the hall of reception is full of honoured guests. Sometimes a monumental pillaw, of prodigious proportions, is brought into the room and set before the guests by half a dozen men. In the centre of a mountain of rice, stained a bright yellow by saffron, is a sheep roasted whole. The pillaw itself is a blaze of light, thrown out by little wicks of cotton floating in melted butter, held by half-oranges scooped out. This is considered a triumph of cookery. We have not space to enumerate many dishes which would merit the consideration even of a European epicure. But there is one invariable accompaniment to all Persian dinners—a bowl of sugar and water, which is drunk with a wooden spoon, frequently of very elegant shape, and of such extreme delicacy that, when used, it bends almost double. Fruit, too, usually accompanies a dinner, and in most parts of Persia is of excellent quality and flavour. The native poets have celebrated the produce of each district. Isfahan boasts the best flavoured Musk Melons; Nishapour the largest Water Melons; Holwan the most luscious Figs; Kirmanshah the best Apricots; and Shiraz the finest Grapes. Undoubtedly Persia has a good right to boast. We owe to her many of our finest and most favourite fruits, and she still devotes more care than any other Eastern nation to their culture. The Melons of Isfahan are tended with the greatest attention. In the best gardens they are placed on tiles, and turned round several times a day, in order that each side may ripen equally in the heat of the sun. The result is that they probably excel in flavour any Melons in the world. They are esteemed a great delicacy in Persia, and are sent as presents not only to the cities of the interior, but even to Baghdad and the holy places of Kerbela and Nedjef in Arabia. Unlike the Turks, who dine from off a circular tray raised upon a stool, and upon which one dish at a time is served, the Persians place all their dishes together upon a cloth spread over the floor. Those who eat crouch round upon their hams—a position particularly disagreeable and inconvenient—painful, at all times, to Europeans with tight "continuations," but unbearably so when accompanied by the process of lifting rice with one's fingers to one's mouth. At great festivals the floor of the room is frequently covered with dishes, and the servants thread their way, generally with naked feet, through a forest of pillaws, soups, sweets, bowls of sour milk, sherbets, and candlesticks, which they do with considerable skill, waiting upon the guests without treading in the plates or sweeping away their contents with their long flowing garments. During the feast the company are entertained by the shrill and discordant notes of boys, who sing alternately verses from the poets, and are accompanied by a musical instrument consisting of many strings, struck with a hammer. Wine and ardent spirits are always taken by Persians and Turks before dinner, and not during or after a meal. It is considered more wholesome and agreeable to get drunk before eating, and an Eastern never drinks without the intention of doing so to excess. He cannot understand the habit of taking wine in small quantities as a simple stimulant. *From the Quarterly Review.*

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Now is a good time to weed out all extraneous or fading plants from both this and other plant structures; better destroy inferior stock than suffocate the good. Where a system of high cultivation is carried out crowding will assuredly defeat the end in view. Have an eye to the propagation of stock for succession or winter flowering in due time. Take care to secure cuttings of such plants as Brugmansias, Clerodendrons, Erythrinas, Poinsettias, Eranthemums, and of those useful winter flowering plants Euphorbia jacquiniflora and Gesnera bulbosa. As regards Orchids, those who have only one house to grow their whole stock in must make a compromise in point of temperature between those which are natives of hot moist countries and those which come from cooler regions. To accomplish this a free circulation of air should be kept up during the earlier part of the day and even a little at night if possible, accompanied with a great amount of atmospheric moisture, and to accommodate with as little sacrifice as possible such as Aerides, Saccolabiums, Dendrobiums, &c., a considerable amount of heat should be shut up very early in the afternoon. Centradenias now exhausted with flowering should be shaken out of their pots and repotted. Fibrous loam, fibrous heath soil with charcoal and coarse sand make an excellent compost for them. Make cuttings of them as soon as nice young wood can be obtained. See that all tender annuals have timely attention in regard to shifting, pricking out, liquid manure, &c.

FORCING DEPARTMENT.

Pineries.—For plants intended for winter fruiting we would recommend using a somewhat lighter soil than is generally employed for Pines, as there will not be so much danger of getting this too wet as when a strong tenacious loam is used. We prefer a compost consisting of about two-thirds mellow turfy loam, with one-third good strong turfy peat, adding a liberal sprinkling of clean sharp sand, and some crushed broken bones, when they can be obtained. In this the plants root vigorously, and fruiters can be liberally supplied with manure water without any danger of the soil getting sodden. But the great advantage of a light soil is that it soon parts with its moisture, and the plants are more manageable in the way of getting them into fruit at the proper time. Maintain a thoroughly moist atmosphere, especially where the fruit is swelling, and give plenty of manure water to all growing stock, as well as to plants in fruit. Vineries.—See that inside borders are properly supplied with water, giving sufficient quantities to thoroughly moisten the whole mass of soil. The Vine is a gross feeder, and absorbs vast quantities of water when in vigorous health and swelling a heavy crop. Give Vines in pots manure water, first diluting it slightly with warm water to bring it to about the same temperature as that of the house. Attend to the regulation of the growth, stopping laterals, &c., and timely thinning of the bunches and berries, before they injure the principal foliage. And see that the Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. Figs.—Attend to stopping and thinning the shoots, and aim at securing short-jointed strong growth by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist. Where the fruit is ripening, syringing must, of course, be dispensed with, and the atmosphere kept drier, therefore be careful to have the foliage perfectly clear of insects up to the time the fruit begins to ripen. Melons.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil.

FLOWER GARDEN AND SHRUBBERIES.

See that all Rose trees have due attention as to disbudding, stopping, &c. Watch the buds inserted last August; rub off those on the stock in a progressive way, and let all Roses, whether standard or dwarf, be well top dressed with good rotten manure if not already done. The Moss and Provins kinds intended for forcing next winter should have a rich mulching, fairly covering the pots. As Crocuses and other bulbs will now be nearly over, patches of biennials which have stood the winter may be placed close beside them; when the annuals are decayed the bulbs, if necessary, may be removed at the same time. One of the most important matters in this department at this period is the preparation of half-hardy stock for masses. No pains must be spared to have this in good condition by planting-out time.

HARDY FRUIT AND KITCHEN GARDEN.

Seakale should now have all superfluous shoots thinned away; about four or five to each stool will be ample. Keep down all blossom shoots from both Rhubarb and Seakale; these exhaust the plant very much. Stir the ground well between the rows of early Potatoes. Weed all Carrot and Onion beds as soon as the weeds can be got hold of. Those who are short of hands will find this the best economy. Let those who would have first-rate Asparagus see that plenty of manure of half rotten vegetable matter is dug into the alleys forthwith. Disbud Peaches and Nectarines. Pinch off the foreright shoots in Apricots, leaving a leaf or two at the base; these will sometimes cause natural spurs to develop themselves. Coverings, it is to be hoped, may soon be removed from protected fruit trees in general.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending May 7, 1857, as observed at the Horticultural Gardens.

May.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep	Wind	Rain in in.
Friday	1	☽	30.087	30.070	56	37	46.5	49	46	N.	[illegible]
Satur.	2	8	30.073	30.016	56	26	41.0	50	46½	E.	[illegible]
Sunday	3	9	30.133	30.115	57	31	44.0	49	47	N.E.	[illegible]
Mon.	4	10	30.169	30.105	56	23	39.5	49	46½	N.E.	[illegible]
Tues.	5	11	30.230	30.210	55	29	42.0	49	46½	N.E.	[illegible]
Wed.	6	12	30.219	30.184	55	25	40.0	47	49	E.	[illegible]
Thurs.	7	13	30.135	30.111	56	28	42.0	46½	49	E.	[illegible]
Average			30.149	30.116	55.8	28.4	42.1	47.1	47.2		[illegible]

May 1—Overcast; fine; overcast.
— 2—Fine; overcast; frost at night.
— 3—Clear; low white clouds; fine; cloudy.
— 4—Clear early A.M. cloudy; fine but cold dry air; sharp frost.
— 5—Frosty; fine; cloudy and cold; overcast.
— 6—Fine; cloudy, cold and dry; frosty.
— 7—Frosty; cloudy and cold; overcast; clear; frosty.

Mean temperature of the week 9 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending May 16, 1857.

May.		Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday	10	61.9	39.7	50.8	12	0.10 in.	4	6	4	1	2	7	4	[illegible]
Mon.	11	62.3	40.6	51.5	11	0.36	6	6	3	1	5	5	3	[illegible]
Tues.	12	63.1	41.2	52.2	13	0.70	4	6	9	1	4	4	1	[illegible]
Wed.	13	63.2	39.4	51.3	15	1.10	3	7	4	2	3	6	3	[illegible]
Thurs.	14	63.0	40.9	51.9	12	0.66	3	7	6	1	3	6	4	[illegible]
Friday	15	64.1	40.8	52.5	9	0.41	3	8	2	2	3	5	2	[illegible]
Satur.	16	65.5	43.0	54.2	10	0.34	6	5	6	—	2	9	2	[illegible]

The highest temperature during the above period occurred on the 15th, 1833—therm. 86 deg.; and the lowest on the 15th, 1850—therm. 25 deg.

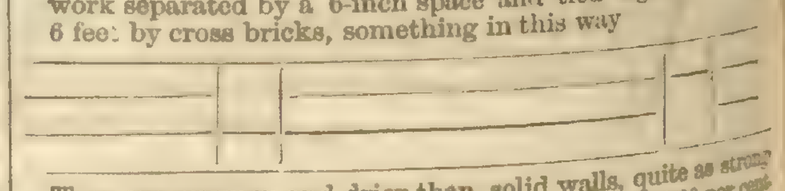
Notices to Correspondents.

Books: *R B.* G. Lindley's Guide to the Orchard and Kitchen Garden.—*Ayling.* It is a thoroughly bad book, on no account whatever to be recommended.—*Gower Street.* You should familiarise yourself with the physiological aphorisms appended to School Botany; after which you may with advantage study the works of De Candolle, Mohl, Senebier, and our own writers upon Vegetable Physiology.

Geraniums: *Little David.* We never recommend dealers. Apply to your nearest nurseryman.‡

Glass Front to Wall: *Meta.* The slope is of very little practical consequence provided you do not force early. You should therefore consult your convenience. For early forcing the angle can hardly be too high. Keep the front wall as low as you can to form ventilators in it, unless you propose to have upright front sashes. If your Vines are planted inside the front wall they will succeed perfectly well provided they are watered when necessary. We cannot advise you as to price. The local builders will no doubt tender against each other, and competition will tell you what you ought to pay.

Hollow Walls: *R B.* All the walls in the Garden of the Hort. Society are hollow, a very easy construction in 14-inch work. Such walls are formed by running up courses of 4-inch work separated by a 6-inch space and tied together at every 6 feet by cross bricks, something in this way



They are warmer and drier than solid walls, quite as strong, and, at the old price of bricks, used to cost about 30 per cent. less than solid work.

Laurus Fergusonii: *Ayling.* This is the common broad leaved Laurel with leaves very much variegated with white. We believe it is sold by Mr. Ferguson of Stowe.

Names of Plants.—*C M F.* Bougainvillea spectabilis, one of the most beautiful of climbers. Pray oblige us with an account of the way in which you have managed to flower it.—*Old Sub.* It is difficult to name florists' varieties of Azaleas with any kind of certainty; yours looks like a bit of some hybrid from lateritia.—*W Brown.* Probably a young plant of some Potamogeton or Pond weed.—*Augusta.* We are unacquainted with any plant called Clyver.

Paths: *J J* asks whether equal parts of gravel and sand, with one-fifth of Portland cement, will make a good walk for a garden, and what kind of small fence will prevent dogs from turning the mould out of flower pots.

Pentstemons: *G J B.* The six best are coccineum, atropurpureum, Murrayanum, speciosum, the real gentianoides and Cobæa; but we are not sure that you can get them all in the trade.

Transplanting: *G C B.* The best month for transplanting your large Araucaria in is September.‡

Vinegar: *An Inquirer.* We suppose if you take out the bung and add a little yeast to the perry you will hasten the process of acetification. But will the vinegar be good when your Perry has been changed to it?

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and dispatch. **Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.**

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.

W. INGLIS CARNE, 10, Mark Lane, London.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Offices, 109, Fenchurch Street (E.C.).
Manufactory, Plaistow Marshes, Essex.

BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

LONDON MANURE COMPANY
(Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the Importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of guaranteed quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

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Office, 81, Gracechurch Street, London.
Manufactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
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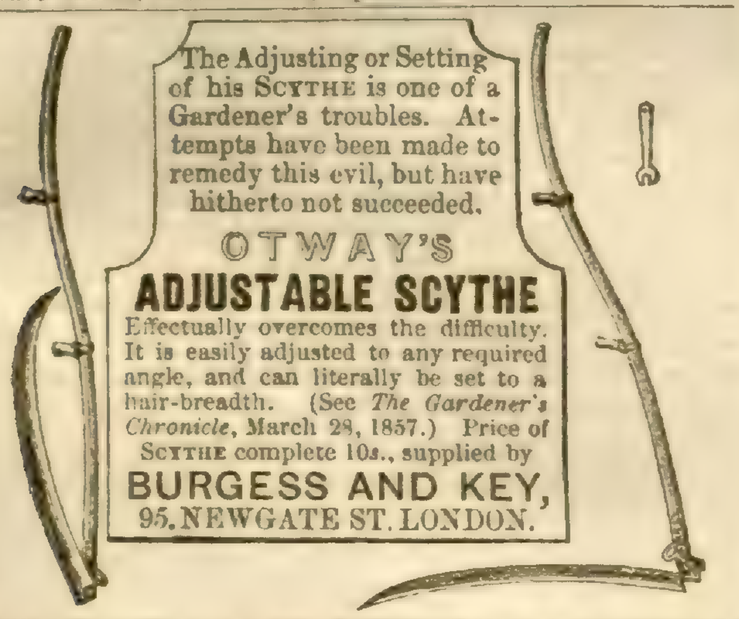
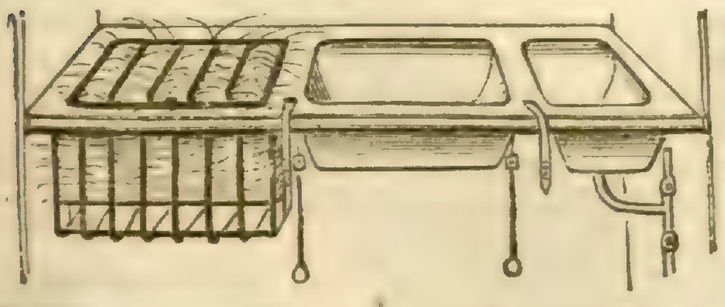
To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.



BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

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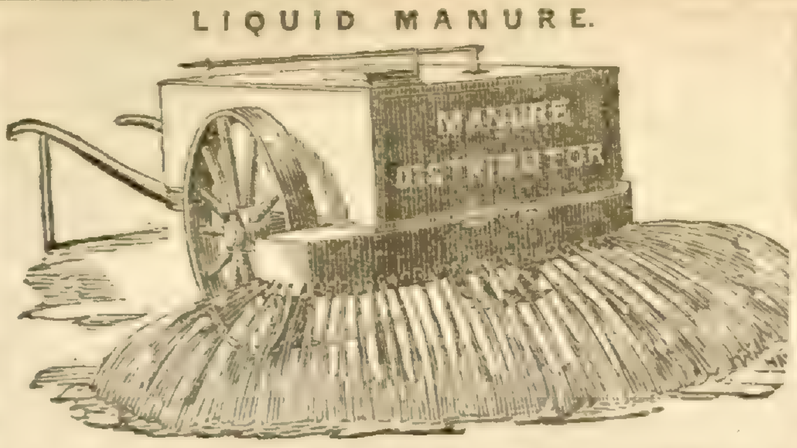

PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

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A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & SON'S Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.
Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2¾ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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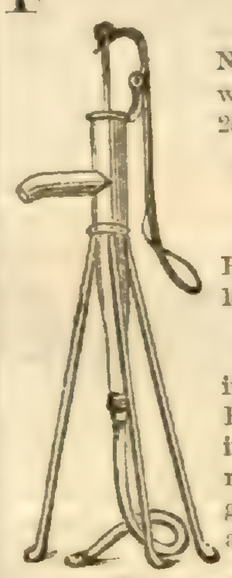
FOWLER'S PUMPS FOR ALL PURPOSES.



PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

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IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

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BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, WM. DRAY & CO., Swan Lane, London Bridge

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BRITTAIN'S PATENT GARDEN NETTING is the most efficient Protection for Fruit Trees against Frost, Birds, Insects, &c., 54 inches wide. No. 1, 5*d.*; No. 2, 6*d.*; and No. 3, 8*d.* per yard. Garden Shade Netting, 2½*d.* per yard. The Trade supplied.

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WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 19 inches to 3 feet diameter, new and original designs. Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

**WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.**

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

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EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

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AGRICULTURIST CATTLE INSURANCE COMPANY.—Chief Offices: 20, Cockspur Street, Charing Cross, London; 50, Lower Sackville Street, Dublin; 9, South St. Andrew Street, Edinburgh.

For the Insurance of Farmers from Loss among their Live Stock, whether occasioned by PLEURO-PNEUMONIA or any other kind of disease or accident.

It is purely a Proprietary Company, has been established 11 years, and transacted more Cattle Insurance business than all other Companies put together.

RATES OF INSURANCE.

CATTLE.		
Dairy Cows	7½*d.*	in the £.
Feeding Stock	6	,, ,,
Oxen	7	,, ,,
HORSES.		
Agricultural Horses	9	,, ,,
Hacks..	10	,, ,,
Mares for Breeding	1*s.*	,, ,,

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DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOW AT YORK, August 5 and 6.—For Prize Lists apply to the Secretary, JOHN HANNAM, Land Agent, Wetherby.

AGRICULTURAL PARTNERSHIP IN THE SOUTH OF FRANCE.—An Agriculturist of great eminence, whose superiority has been acknowledged by the first agricultural societies of France, having been awarded 12 gold and silver medals, wishes to meet with an experienced Englishman to join him in improving and enlarging the estate which he possesses near Bordeaux. Sum required, at least 10,000*l.* The Advertiser offers a handsome residence, and can strongly recommend the above as a safe and remunerative investment. —For further particulars apply to C. G. PHILLIPS & CO., 7, Laurence Pountney Lane, Cannon Street, London.

The Agricultural Gazette.

SATURDAY, MAY 9, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 13 { Agricultural Soc. of England .. Noon. / Society of Arts ..... 8 P.M.

THERE are two questions connected with the quality of agricultural seeds deserving investigation, to each of which we hope to direct attention

—the one is their vitality, and the other is their purity. The average per centage of live seeds in an ordinary sample is a very important subject; the average per centage of seeds which are what the sample professes to be is another very important question. The latter is the point we are at present examining, and we have again to request from our readers small samples of seeds as bought from the seedsman, more especially of Clovers, Grasses, and other plants especially liable to the admixture of weeds.

We are glad to find the practice of buying artificial manures on the strength of an analytical guarantee extending more and more amongst agriculturists. Hardly any manufacturer will purchase a cargo of bone-ash without a guarantee from the importer, stating the percentage of phosphate of lime contained in the ash, or will enter into a contract with a maker of oil of vitrol without fixing the percentage of real acid which the commercial brown acid usually employed in the manufacture of superphosphate shall contain. Agriculturists will do well to imitate the example of these men of business, especially when about to purchase superphosphate of lime. It must be admitted that the analysis of an artificial manure, although it does not afford a criterion whereby to estimate precisely its practical or money value, yet presents the intelligent with a sure safeguard to protect himself against gross impositions on the part of fraudulent dealers. And yet this very remedy to cure a crying evil, which we are sorry to say still affects the trade in manures in no small degree, is used by unprincipled men as one of the most effective means of disposing of all but worthless materials. Most men, uninitiated in the mysteries of the craft, very naturally feel disposed to rank all those manures which are sold with an analysis amongst the better kinds of fertilisers. It does not enter into the minds of the unsuspecting that there are men who have the audacity to procure analyses of their trashy manures from well-known chemists, and to freely circulate *bonâ fide* copies of these analyses, exhibiting in an unblushing manner the worthlessness or inferiority of their manures. Some time ago we came across the following analysis of a patent artificial manure:—

Moisture	9.22
Organic matter	17.07
Siliceous matter	27.37
Phosphate of lime	4.03
Carbonate of lime	25.38
Sulphate of lime	5.22
Common salt	11.71
	100.00
Containing nitrogen	.23
Equal to — ammonia	.28

It will be seen that the analysis of this manure exhibits but a mere trace of ammonia and a small proportion of phosphate of lime, and no other expensive and intrinsically valuable constituents, for all the other ingredients are either altogether valueless or procurable at the rate of 20*s.* to 30*s.* per ton. Making full allowance for the cost at which these constituents can be bought at the present time, we find the intrinsic value of this patent article scarcely rising to 1*l.* per ton, and yet this manure is sold *with an analysis* at the rate of 5*l.* per ton, and gravely advertised as being "equal in fertilising properties to any manure at present known."

This is by no means an isolated instance in which an analytical guarantee is employed by unprincipled persons to puff up a manure, although fraud and deception are plainly written on the face of the analysis, for we are in possession of a number of analyses which show at a glance to all acquainted with the meaning of chemical terms that the makers of some manures afford in the analyses of their manures a guarantee, not of their superior value, but of the small amount of fertilising matters which they contain.

Is it not evident therefore that the meaning of even the commonest chemical expressions is unintelligible to a large number of farmers? Can we doubt the fact that many do not sufficiently discriminate between phosphate and carbonate of lime, organic matter containing a mere trace of ammonia, and animal matters yielding a high percentage of ammonia? that there are men who think hydrated sulphate of lime—in plain English gypsum—must be very good because it has a very long scientific name? others who do not consider that insoluble siliceous matter is but another name for sand? that carbonate of lime means simply chalk? and chloride of sodium is nothing more or less than common salt? This being the case with respect to common chemical terms, we are not surprised in the least to find many thoroughly bamboozled when reading over the names occurring in the published analyses of superphosphates. It can hardly be expected that men engaged all day long in purely practical pursuits should fully understand the precise meaning of some such names as bi-phosphate, soluble phosphate, soluble phosphoric acid, real superphosphate, insoluble phosphate, bone-earth, soluble bone-earth, bone-phosphate, tribasic phosphate of lime, neutral phosphate, acid phosphate, &c. &c.

All these terms are to be found in analyses of superphosphate to denote two of the principal constituents of superphosphate. Chemical terminology, we are sorry to say, does not rest on a sufficiently broad, scientific, and simple basis; hence it abounds in conventional and synonymous expressions, which to disentangle is not always easy even for the professional chemist. We propose therefore to offer to our readers a brief explanation of these and similar names occurring in analyses of superphosphates. In the first place we would observe that the term superphosphate is a commercial name, which is given to a great variety of artificial manures, all containing bone, or bone-ash, or coprolites, or similar phosphatic constituents more or less perfectly dissolved by acid, usually sulphuric acid, and subsequently dried up either by themselves or by means of gypsum, peat-mould, and similar cheap materials.

Dry bones on burning in an open vessel lose about one-third of their weight, and leave behind two-thirds of a white ash. This bone-ash consists principally of a combination of phosphoric acid with lime, which is insoluble in water, and therefore is called insoluble phosphate of lime; and as it constitutes nearly the whole bulk of bone-ash it is also called bone-earth. Another name for the same compound is bone-phosphate. This compound neither changes blue litmus paper red, nor red litmus paper blue, and on account of its neutral reaction is called also neutral phosphate of lime. It contains in 100 parts in round numbers—

46 parts of phosphoric acid, and
54 „ „ lime.
—
100 of phosphate of lime.

Its per-centic composition expressed in chemical equivalents shows that bone-earth is a compound of 3 equivalents of the base lime and 1 equivalent of phosphoric acid. For this reason it is sometimes called likewise tribasic phosphate of lime. We have thus the following synonymous expressions for the combination of 54 parts of lime with 46 of phosphoric acid —

1. Insoluble phosphate of lime.
2. Bone-earth.
3. Bone-phosphate.
4. Neutral phosphate of lime; and lastly
5. Tribasic phosphate of lime.

When oil of vitriol (sulphuric acid) is poured upon bone-dust or bone ash, mixed previously with some water (2 parts of bone ash, 1 part of brown acid, and 1 part of water, or 3 parts of fine bone-dust, 1 part of brown acid, and 1 part of water are useful proportions to those who intend to make their own superphosphate—which we by no means recommend them to do, it acts violently upon the bone materials. The chief result of this chemical action is the production of compound of phosphoric acid with lime, which is soluble in water, and therefore is called soluble phosphate of lime. 100 parts of soluble phosphate of lime contain:

72 parts of phosphoric acid, and
28 parts of lime
—
100

or expressed in equivalents, soluble phosphate of lime consists of 1 equivalent of lime and 1 equivalent of phosphoric acid. This compound sometimes is called real superphosphate, and also more frequently bi-phosphate. It has a strongly acid taste, and rapidly changes blue litmus paper red, for which reason it is termed likewise acid phosphate of lime.

Soluble phosphate, real superphosphate, bi-phosphate, and acid phosphate of lime, thus are synonymous terms applied by chemists to a combination of 72 per cent. of phosphoric acid and 28 parts of lime.

This constituent is by far the most valuable ingredient of commercial superphosphates, and its amount in a sample of this kind of manure determines its chief money value. It is, therefore, to be regretted that commercial men, whose interest it is no doubt to exhibit in an analysis of superphosphate a high percentage of soluble or bi-phosphate of lime, should call frequently bone-earth, when rendered soluble by acid, likewise soluble phosphate, and it is much to be desired that this habit of showing off to advantage should be discountenanced. Bone-earth when dissolved in a proper quantity of acid is no longer bone-earth, but a distinct chemical combination containing 72 per cent. of phosphoric acid and 28 parts of lime, which is described by the best chemical authorities as soluble phosphate of lime. Manufacturers, therefore, should confine the name of soluble phosphate to this combination.

There can be no harm to express the proportions of compounds of lime and phosphoric, which are soluble in water by the corresponding quantity of insoluble phosphate or bone-earth, from which the soluble phosphate has been produced; but it is only fair to the agriculturist to state this as bone-earth *rendered soluble by acid.*

All mistakes might be avoided if the percentage of phosphoric acid which is found in a watery solution of superphosphate were stated. This is sometimes done, and phosphoric acid contained in compounds soluble in water is mentioned in analyses as soluble phosphoric acid. It will appear from these remarks that 72 lbs. of soluble phosphoric acid (*i. e.* phosphoric present in compounds soluble in water) are equal to 156 lbs. of insoluble phosphate of lime or bone-earth, or to 100 lbs. of soluble or bi-phosphate of lime; and 100 lbs. of soluble or bi-phosphate are equal to 156 lbs. of bone-earth *rendered soluble by acid.*

In conclusion, we beg to remind our readers that superphosphate of lime and many artificial manures which are essentially superphosphates but are sold under the name of blood-manure, nitro-phosphate, ammonia-phosphate, &c., can be manufactured at all prices from 4*l.* to 10*l.*, and upwards, and that it is therefore prudent not to buy such manures when an analytical guarantee is refused in which is stated the proportion of soluble or bi-phosphate and of insoluble or bone-phosphate of lime, and in some cases that of ammonia as well.

The exhibition of an analysis is no proof whatever of the superiority of a manure, even if the analysis is signed by such men as Way, Voelcker, or Anderson, and in all cases of doubt respecting the meaning of an analytical guarantee we recommend our friends to apply to one of these and other qualified channels for advice before closing a bargain.

It affords us much pleasure to mention that Dr. Voelcker has kindly promised to give gratuitously an explanation of a copy of an analysis of a manure which may be sent to him by any of the members of the Bath and West of England Agricultural Society, a privilege which we trust he will extend to the agricultural community at large.

It is well to make more generally known the existence in London of an Estate Exchange,* conducted on the same principles and with similar objects in view as the Stock Exchange, where purchasers and sellers of landed property are more likely to transact business with facility and promptitude than they are through any single land agent, just in proportion to the number of land agencies which now have in it a common place of meeting and communication. The Rules for the management of this Institution are, we believe, modelled on those which regulate the Stock Exchange, the object being of course to limit the conditions and define the privileges of membership.

That such an Institution must grow in usefulness and importance cannot be doubted. The present committee of management include members of such well known firms as Messrs. Farebrother, Clarke, & Lye, Messrs. Fuller & Horsey, Messrs. Pullen & Son, Messrs. Brown & Roberts, Messrs. Davis & Vigors, and others.

Some time ago Mr. Sheriff Mechi illustrated the porousness of stiff clay by the fact that the water which issued from his drains became discoloured immediately after the irrigation of his fields with tank water. This circumstance was, however, attributed by others, and more properly, as we think, to the existence of cracks conducting directly to the channels underneath, thus hindering that percolation of the water through the substance of the land which he believed it to illustrate. A better illustration of the permeable character of such soils is furnished by Mr. Bailey Denton's records of his drainage observations at Hinxworth. His invitations have resulted in an examination of that estate during the past fortnight by gentlemen from all parts of the kingdom, and their opinion is that the land is efficiently drained. On walking over the stiff gault clay in the lower part of the estate it trod firm and dry, and the issue from the outfalls proved the passage of water through that adhesive soil.

There are no cracks during the winter months to account for rapid variations in the quantity of water

* 2, Princes Street, opposite the Bank of England.

issuing from the drains immediately after falls of rain—variations recorded in Mr. DENTON's tables, some of which we have already published.

Take the following instances:—On Dec. 12th, the outlets were running 3⅛ gallons per minute; on the 13th, after a fall of rain of nearly half an inch on the previous day, they ran 19½ gallons per minute. In January, which was a wet month, and the pores of the soil were filled, the increase of discharge, resulting from a heavy fall of rain, was much greater. For instance, on the 9th, the outlets were running steadily 3 gallons per minute, and on the 10th, after a rain of more than half an inch, they suddenly increased to above 100 gallons per minute. The land in question had been drained 12 months, and therefore nothing can be made of the greater porosity of the earth newly filled into the drain trenches, to which the observations here recorded might have been attributed. But the circumstance that deep channels will drain stiff soils ought not to excite astonishment; it is perfectly consistent with what we know of capillary attraction, and of the behaviour of water generally. The experience hitherto at Hinxworth is but one more testimony to a truth, which had been already amply established.

WE regret our inability to give a report this week of the meeting last Monday of the London Farmers' Club. The subject under discussion, as announced upon the card, related to the condition of the agricultural labourer. Mr. MARSHALL, of North Lincolnshire, brought under attention the method of boarding and lodging unmarried labourers there: Mr. BAKER, of Writtle, related his experience as an employer of labour in Essex: Mr. SIDNEY referred to the failure of lodging houses in Liverpool and elsewhere, owing to their rigid system of rules to which grown men would not submit: and the Rev. Mr. JAMES spoke at great length on the general character of the accommodation for labourers in agricultural districts, the need of it near the locality of their labour, and the importance of avoiding the truck system in any plan of paying them. We must postpone for a week a full report of the discussion.

FARM ACCOUNTS.

THERE have appeared from time to time in the *Agricultural Gazette* remarks upon the difficulty of keeping accounts. You would be doing the class of gentlemen farmers (myself in particular) a great service if you would tell me whether my system of entering and balancing expenses conveys a fair idea of profit or loss, my own conclusion being that I do lose almost annually, and I do not know why.

In the spring of 1850 I took on lease for 21 years a farm of 94 acres, attached to my residence, and in 1853 obtained possession of 15 acres more (arable), making in all 109 acres, at an average rent of 2*l.* per acre, of which 50 acres were under the plough, and 59 acres were Grass land. I am about 15 miles from London, and have an excellent market within two miles of me. My "house" is a good customer, and everything sent to it is accurately charged and entered in the books at market price. The wages in this country are high; in 1850 they were 12*s.* and 13*s.*; in May 1853 they rose to 15*s.* per week. My bailiff can give no reason for the remarkable increase in our labour account in the three subsequent years. The soil is good, and I have spent a good deal in draining in the two first years of my occupation, as also in repairs, which I consider as so much capital sunk, and have never mixed up with the general farm expenses. Our crops on an average have been good. In 1855 Wheat 4 quarters per acre, Barley 6 quarters 5 bushels, and Oats 8 quarters per acre. I sold my meadow hay at 5*l.* per load, and my Wheat at 88*s.* per quarter.

On taking possession in 1850 I bought by auction on the premises the live and dead stock and furniture, and paid by valuation for standing crops, tillage, manure, and farm fixtures. I balanced accounts at Michaelmas of the same year, taking a valuation of all then on the farm, and I have continued the same system every year; but I must remark that I have not carried on the valuation of the fixtures, which are much improved, nor of the manure we make, which is considerable, for I never buy. The farm house is a roomy one, and I let half of it to a bachelor friend. The rent goes to my credit, as does the furniture in my yearly valuation. I keep accounts very much in detail of the number, cost, food, &c., of sheep, pigs, and cows, with which I need not now trouble you, beyond stating that the average number I sell and buy is of sheep 200, and of pigs 230 annually. *M. W. P.*

From April 1850 to Michaelmas 1850.

To live and dead stock, furniture on premises on taking possession	£469	0	6	By valuation of live and dead stock, standing crops, and furniture	£1229	17	6
,, standing crops, manure, and tillage	160	0	0	,, cash, produce of farm	289	6	2¼
,, fixtures, &c.	40	0	0				
	£669	0	6				
To general expenses of farm, and rent from April to Michaelmas	566	10	4				
,, labour, including bailiff's wages, at 1*l.* per week	112	15	10½				
To balance profits	170	16	11¾				
	£1519	3	8¼		£1519	3	8¼

From Michaelmas 1850				to Michaelmas 1851.			
To valuation as above, 1850	£1229	17	6	By valuation, live and dead stock, &c.	£1348	17	0
,, general expenses and rent	833	13	10	,, cash, produce of farm	860	9	8
,, labour and bailiff's wages	258	5	9	,, loss	112	10	5
	£2321	17	1		£2321	17	1

From Michaelmas 1851				to Michaelmas 1852.			
To valuation as above, 1851	£1348	17	0	By valuation, 1852	£1437	14	2
,, expenses and rent	1140	11	0½	,, cash, produce	1089	18	2
,, labour and bailiff's wages	272	12	9	,, loss	234	8	5½
	£2762	0	9½		£2762	0	9½

From Michaelmas 1852				to Michaelmas 1853.			
To valuation as above, 1852	£1437	14	2	By valuation, 1853	£1953	18	6
,, expenses and rent	1416	5	3½	,, cash, produce	1290	16	6½
,, labour and bailiff's wages	279	15	0				
,, profit	111	0	7				
	£3244	15	0½		£3244	15	0½

From Michaelmas 1853				to Michaelmas 1854.			
To valuation as above, 1853	£1953	18	6	By valuation, Michaelmas 1854	£2045	11	6
,, expenses and rent	1222	7	7	,, cash, produce	1241	19	10¼
,, labour and bailiff's wages	824	10	1½	,, loss	213	4	10¼
	£3500	16	2½		£3500	16	2½

From Michaelmas 1854				to Michaelmas 1855.			
To valuation as above, 1854	£2045	11	6	By valuation, Michaelmas 1855	£2170	8	4½
,, expenses and rent	1258	3	8	,, cash, produce	1376	15	0½
,, labour and bailiff's wages	344	16	11	,, loss	101	8	8
	£3648	12	1		£3648	12	1

From Michaelmas 1855				to Michaelmas 1856.			
To valuation as above, 1855	£2170	8	4½	By valuation, Michaelmas 1856	£1672	17	0
,, general expenses and rent	932	8	5½	,, cash, produce	1565	1	7
,, labour	342	13	2	,, loss	207	11	5
	£3445	10	0		£3445	10	0

[It will be seen from the above that at the close of the half year ending Michaelmas 1850, there was a profit of 170*l.* 16*s.* 11¾*d.* At the close respectively of the two following years ending Michaelmas, a loss of 112*l.* 10*s.* 5*d.*, and of 234*l.* 8*s.* 5½*d.*; in the next year a profit of 111*l.* 0*s.* 7*d.*, and at the close of the three following years a loss of 213*l.* 4*s.* 10½*d.*, of 101*l.* 8*s.* 8*d.*, and of 207*l.* 11*s.* 5*d.* respectively. On the whole, therefore, a loss of 869*l.* 3*s.* 9½*d.* against a profit of 281*l.* 17*s.* 6*d.* in the course of the 6½ years. But in addition to this we are told that during that time there were laid out during the several years respectively in repairs, drainage, &c., 429*l.* 3*s.* 6*d.*, 88*l.* 16*s.*, 86*l.* 11*s.*, 16*l.* 19*s.* 6*d.*, 31*l.* 5*s.* 4*d.*, 240*l.*, or 892*l.* 15*s.* 4*d.* Interest and a sinking charge on account of which we suppose to be charged in the rent. The form given above appears to include all the items necessary to a correct annual balance of accounts, and if the amounts given under each item be correct, the balance must indicate correctly the result of faulty management. 3*l.* per acre is an enormous expenditure for labour on a farm half pasture.]

Home Correspondence.

Autumnal Oat Sowing.—The excessively wet and stormy spring weather in this country has almost entirely prevented the spring sowing of Oats, so that serious apprehensions are felt as to the forthcoming supply. I have long been of opinion that the spring sowing of Oats in many, perhaps most cases, is an agricultural blunder, and would therefore earnestly urge it upon the attention of farmers and others, whether the practice of fall or autumnal sowing should not become general. I know that there are cases, such as that of a cold, wet, undrained soil, and situations cold, bleak, and exposed, which perhaps in such cases render fall or autumnal sowing inexpedient. But keeping off such, I submit that the practice of fall or autumnal sowing should be the rule, not the exception. I submit that fall or autumnal sowing should be universal when the soil is warm and mellow, and naturally well drained, or otherwise drained by the hand of man. Some varieties of Oats too are better suited for autumnal sowing than others it seems. Let such varieties then be selected for the purpose. The advantages of fall or autumnal sowing, coupled with early harvesting, are, I would contend, extremely numerous. There is sure to be a period of dry weather in the autumn, but there is no such surety, especially in the north of Ireland, in the so often wet, and stormy, and precarious spring. The Oat is a hardy grain, and whether sown by itself, or conjoined with some green crop, should stand the winter as well as Wheat. In point of fact I have never seen better Oat crops than what followed autumnal sowing. I saw such an instance among others near this town, after a "shake," when two successive crops were taken off the same ground. The shed grain was ploughed in, and the succeeding crop was indeed in all respects magnificent. Some persons, I am informed, practise autumnal Oat sowing habitually. Would that the practice were general. Autumn-sown Oats are much sooner ripe than spring-sown Oats, a very desirable occurrence, and one in many respects of great moment. It has rained throughout this spring, and the Oat crop remains, I believe, for the most part unsown. How different would be our present position!—how different the prospect of the farmer and of the community, so far as the Oat crop is concerned, had this grain been in the ground last autumn! *H. M'Cormac, M.D., Belfast.*

Tar-water as Used in the Treatment of the Murrain.—The following plan will be found very effectual. Examine your cow's mouth every day, though she appears well; and if you find any pimple in it or on the tongue, or if you perceive any on the skin ready to come out, immediately house her. Keep her warm, and give her warm tar-water; to a large beast give a gallon, to a small one 3 quarts. Give it four times every day, but not every time the quantity you first gave. Lessen the dose by degrees, but never give less than 2 quarts to a large beast, nor less than 3 pints to a small one; and house her every night for some time, and give her warm gruel and malt wash. Stop the feet with tar. *To make the Tar-water.*—Take 1 quart of tar, put to it 4 quarts of water, and stir it very well 10 or 12 minutes; let it stand a little while, and then pour it off for use. You must not put water to the same tar more than twice. Let the first dose be made with fresh tar. Continue to give it till the beast is well. "Don't let her go too soon abroad." Her back may be rubbed two or three times a day with tar ointment, and tar kept boiling in a large pot over a lamp. *J. B. Neil.* [This is much the same expedient as was referred to last week at the meeting of the English Agricultural Society by Mr. Wood, who read the passage from an old journal of the last century. It is evident that the murrain is here mistaken for the epidemic affecting the mouth and feet of cattle. The application of tar-water as an astringent in that disease is common with many other equally efficacious and much more convenient remedies.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *May* 6.—The Right Hon. THE SPEAKER, President, in the chair. Forty-one new members were elected; and the names of 20 candidates for future election, received during the previous week, were read.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts of the Society, from which it appeared that the current cash balance in the hands of the bankers was 1087*l.* He also laid on the table the various quarterly statements connected with the finance department.

COUNTRY MEETING OF 1858.—Mr. Raymond Barker, Mr. Milward, Mr. Cavendish, and Mr. Brandreth Gibbs, as members of the Inspection Committee appointed at the previous monthly council to visit the localities in the North-Wales District proposed for the purposes of the country meeting of 1858, presented their report of that inspection, which was read. A deputation from the city of Chester was then received by the Council, consisting of Field-Marshal Viscount Combermere, Colonel the Hon. Douglas Pennant, Mr. Townshend Mainwaring, M.P., Mr. Salisbury, M.P., the Mayor and Town-Clerk of Chester, Mr. P. S. Humberston, deputy-chairman of the local society, Mr. Charles Townshend, Mr. Samuel Rowe, and Mr. Chivas, honorary secretary to the local committee. The deputation having invited the Council to hold the country meeting for the district of 1858 at Chester, and supplied information on the accommodation the city would afford for the purpose

of that meeting, as well as having submitted a schedule of local prizes amounting to nearly 1500*l.*, which they were prepared to offer in addition to the prize list of the Society, retired. The Council then decided that a special committee, consisting of Mr. Miles, M.P., Colonel Challoner, Mr. Thompson, Mr. Hodgson Barrow, M.P., any Mr. Fisher Hobbs should be requested to meet on that day week, for the purpose of taking into consideration the schedule of proposed local prizes so handsomely placed at the disposal of the Council by the deputation, and if necessary conferring with the deputation on the subject The Council then decided, on the motion of Lord Berners, seconded by Mr. Miles, M.P., that the country meeting of the Society for 1858 should be held at the city of Chester, on the usual condition that the Mayor enters into the usual agreement with the secretary of the Society. The deputation were then recalled, and informed of this decision; the Chairman thanking the deputation for the favour of their attendance, and expressing a hope that their noble efforts to improve the agriculture of their district, and thus advance the objects of the Society, would be followed as an example in other parts of the kingdom.

District for 1860.—Mr. Alcock, M.P., Mr. R. Clutton, Mr. E. Stenning, and Mr. John Lees, Honorary Secretary, favoured the Council with their attendance, as a deputation to represent the peculiar claims possessed by Reigate as the place of the county meeting in 1860; situated, as it was, at a junction of railway lines connecting most completely the whole communication of the south-eastern counties; and prepared to carry out by the most ample means the objects of the Society. The districts for the intervening years having been already determined, the Council decided that the district for the country meeting of 1860 should comprise the counties of Kent and Surrey.

Cattle-Murrain.—Communications on the cattle-murrain were received from the Earl of Clarendon, from Mr. Raymond Barker, Chairman of the Veterinary Committee, Prof. Spooner, of the Royal Veterinary College, Mr. Hall Maxwell, Secretary of the Highland and Agricultural Society of Scotland, and from Captain Croker, Secretary of the Royal Agricultural Improvement Society of Ireland. The following letter was read from Professor Simonds, the Veterinary Commissioner deputed to inquire into the nature of the cattle murrain abroad by the three national agricultural societies of the United Kingdom:—

"Cracow, April 30, 1857.

"My dear Sir,—I have delayed writing to you with a hope that I should be able to communicate that we were busily engaged in studying the nature and consequences of the 'Rinderpest' (contagious typhus of cattle). We have now passed into Galicia, having come by way of Holland, Westphalia, Hanover, Holstein, Hamburgh, Lübeck, Mecklenburg, and Prussia, and this without meeting with a single case of the malady. We have met with disease in every State through which we have come, but on investigation it has proved to be nothing more than pleuro-pneumonia. The severe measures which Prussia has adopted have kept back the malady (Rinderpest) from entering her kingdom, except a short distance from her frontiers on Austria and Russia, and the places where it had broken out are at this time entirely free from the affection. It is evident that the fear which has been excited in England has arisen from the incorrect statements of some of our Consuls, and especially with regard to the disease affecting the cattle in Holstein, Lübeck, and Mecklenburg. This has arisen also in some measure from the Governments of these places requiring infected cattle to be killed, and this on the breaking out of pleuro-pneumonia. Nor do these severe measures stop here, for if but few cases follow the first outbreak, then all the healthy animals which had been in contact with the diseased are killed. Full particulars of all the facts we have ascertained will presently be sent you, and we think that all fear of the Rinderpest entering England by the direct importation of diseased animals may cease to be entertained. Its indirect importation by hides, horns, hoofs, &c., is still a question requiring more examination before an opinion is given, and we have devoted much time to this inquiry. The information we were in possession of at the time of leaving England led us to suppose it would be necessary for us to make our way to Konigsburg, but on arriving at Berlin we ascertained that it would be useless to go in that direction with a hope of falling in with 'Rinderpest.' Statements that the disease would be found in the neighbourhood of Breslau, and of the utter impossibility of our seeing the diseased cattle without undergoing ourselves a quarantine of three weeks within the circle of the military cordon, led me to seek an interview with Lord Augustus Loftus, her Majesty's Chargé d'Affaires at Berlin, who received us most courteously, and not only put himself in communication at once with Baron Manteuffel but also with Sir H. Seymour at Vienna, so that now we are free to carry out our mission both in Prussia and Austria. In the former kingdom we find, through the local authorities, that, as I have before stated, no cases of the disease are now existing; still the cordon is not raised, and will not be for a week or two. This morning, being furnished with introductory letters forwarded to the Poste restante at Cracow by Sir H. Seymour, we have had an interview with Count Clam Martinitz, the Governor of the Province of Galicia, who has afforded us every facility, and pointed out the places distant from here about 100 miles where we shall meet with the disease. We start this evening, and shall only be able to go a few miles by rail, when we must make our way in the direction of Lemberg, in Austrian Galicia, as best we can. It is therefore for this reason, as it will be almost impossible for me to get a report of our proceedings to you from these out-of-the-way districts, that I write this letter, imperfect as it is, of our inquiry up to this time. I am, my dear Sir, very truly yours,

"J. Hudson, Esq." "Jas. B. Simonds.

Mr. Thompson, Chairman of the Journal Committee, reported the recommendation of the Committee, that as Prof. Simonds was at that time on the Continent collecting information on the subject of the murrain amongst cattle, he be requested to embody such information in a report to be furnished to the Journal Committee immediately on his return to this country, in order that the three national societies may be prepared at once to take into consideration the best means of making it public.

Prize Essays.—Mr. Thompson then reported, from the Journal Committee, the following adjudications:—

I. William Bennett, of Regent Street, Cambridge: the Prize of Fifty Sovereigns for the best Report on the Farming of Bedfordshire.

II. John Bailey Denton, of Stevenage, Hertfordshire: the Prize of Ten Sovereigns for the best essay on the construction and maintenance of Farm-roads, with special reference to clay lands.

III. Robert Vallentine, of Burcott Lodge, Leighton Buzzard, the prize of Ten Sovereigns for the best essay on the comparative advantages of sowing Beans in spring and autumn.

Agricultural Chemistry.—Mr. Wren Hoskyns, chairman of the Chemical Committee, laid before the Council the annual report of Professor Way, the consulting chemist of the Society, which was ordered to be read at the ensuing weekly meeting.

Salisbury Meeting.—Mr. Cavendish, Vice-chairman of the General Country Committee, reported the favourable progress of the works and arrangements for the Salisbury meeting. The entries for agricultural implements and machinery were announced to be unusually large; and Mr. Brandeth Gibbs was requested to order the requisite amount of shedding for their accommodation.

Implements at Work.—Colonel Challoner, Chairman of the Implement Committee, reported the following recommendation:—

The want of means of showing the implements at work, belonging to the smaller exhibitors, who do not supply their own motive power, having been brought before the notice of the Society, Messrs. Clayton, Shuttleworth & Co. have offered to furnish a shafting and pulleys about 100 feet long, as well as an engine to work the same, for 10*l.* for this year; and the Committee recommend the above offer to be accepted. Should the Society find this arrangement answer, they will be at liberty to purchase the said shafting and pulleys for the sum of 50*l.* The Committee further recommend that a proper shedding be erected at Salisbury for the above purpose.

The Council adopted this recommendation, and gave instructions accordingly.

Dynamometers.—Colonel Challoner also reported the following recommendation from the Implement Committee:—

In consequence of an application being made by Messrs. Howard, of Bedford, with the concurrence of Mr. Bentall, for them to copy the Plough Dynamometer, at present in use by the Society, and Mr. Amos, the consulting engineer of the Society consenting, the Committee recommend that Messrs. Howard's request be granted.

The Council adopted this recommendation, with an intimation that the concession thus made to Messrs. Howard, would be granted to any other implement makers who might desire to avail themselves of the same advantage.

Guano.—Communications were received from the Foreign Office, from H.M. Consul-General at Woahoo, reporting that H. M. S. *Havannah* had proceeded to examine Bird Island, but that no deposit of guano had been discovered. The following letter, dated the 5th inst., was received from Messrs. Ord, Hindson, and Hayes, the lessees under Government of the Kooria Mooria Islands:—

"In a paper read by Mr. J. C. Nesbit before the Royal Agricultural Society of England on the 22d ult., respecting the deposits at the above-named islands, there are some inaccuracies which we are sure that gentleman will be happy to find corrected. The cargo per 'Colchester,' which proved of such inferior quality, we are assured by the owner, R. L. Bolton, Esq., of Liverpool, *was not* obtained from these islands, but from an island in the Red Sea. The vessel was at that time commanded by Captain Withers, who some two or three weeks ago called upon us previous to sailing for the Kooria Mooria Islands, in the 'Virginia,' and in the course of conversation, said that the cargo in question was taken from 'Burnt Island,' situated some thousand miles from Kooria Mooria. We question very much if any of the samples analysed by Mr. Nesbit were taken from the islands of which we are the lessees. Of course, as at Ichaboe, and even the Chinchas, there will be a difference in quality, particularly near the shore, where there will be less ammonia and more silica mixed with the deposit than at a greater elevation and more inland. During nine months of the year no rain falls in that neighbourhood, and in the other three there are only slight showers occasionally. But it is idle to enter into a discussion on this matter when in the course of a few months the question of quality will be decided by the arrival of several cargoes here. The engagement of Government to station an armed vessel at the islands for the protection of the shipping resorting there and maintenance of order, has induced all classes of shipowners to engage in this enterprise with considerable spirit. A large number of vessels is already on the way out to load there, and many more are about to follow. Practical chemists will be engaged to proceed out in order to select the most valuable deposits for shipment, and Captain Ord also will be there to render all the assistance in his power. We are assured by parties not connected with Captain Ord, who have visited the islands recently, that there is among the deposits a large quantity closely resembling and second only to Peruvian in quality; should this information be correct, of which we have little doubt, this discovery will prove a greater boon to both the agricultural and shipping interests than was at first believed. We are informed by the Admiralty that H.M. screw steam-ship, 'Cordelia,' Commander Vernon, is under orders to proceed to this station for the purpose of regulating and protecting the trade, and will be dispatched immediately."

Lecture.—In the evening, Professor Henfrey, of King's College, London, favoured the Society with an interesting and instructive lecture on the subject of the nutrition of plants, elucidating the organisation and functions by which they derive and assimilate the nutriment obtained by them from various sources. The lecture was illustrated by 11 diagrams, distinctly drawn on a large scale and beautifully coloured, showing the different characters of the cells composing different plants, and their changes according to the nature and growth of particular vegetables. Mr. Fisher Hobbs, as chairman of the meeting, conveyed his own thanks and those of the other members present, for the favour Professor Henfrey had done the Society in favouring them with that lecture, which he hoped to see reduced into the form of a distinct paper for publication in the Journal.

Society of Arts.—[The latter part of Dr. Smith's paper on disinfectants, and especially on the effects of M'Dougall's disinfecting powder, relates to its use in connection with town sewage, as follows:—]

As I have shown, it is chiefly by a combination of results and plans that novelty has been produced, a novelty chiefly practical, but bearing also on science. Our chief intention originally was to use this powder for sewage; of its value in other respects we had only a faint idea. I shall not even begin the consideration of its economical value, as it will be brought forward on another occasion, but there are some points of importance which I wish to bring forward. In precipitating sewage with whatever material, great tanks have been erected outside of towns, and these are a terror to every neighbourhood. But before arriving at these tanks the sewage has passed through the town, has given off what vapour it could, and done all the mischief it was capable of doing; as soon as the mischief is accomplished it is proposed to disinfect the material. The great object desired is to purify towns. We propose to disinfect the whole sewage of a town in the town itself, and to pass the disinfectant into the sewage at various points, so that all the main arteries may be rendered pure. Air rushing from them into private sewers will convey the impurities of the private sewers only, which each may disinfect for himself. If disinfection of private sewers should become common, the public use might then be given up. By this means we purify whole cities. The sewage water will come from the town in a disinfected state, and it may be carried to any point without any fear of creating a nuisance. If carried through an agricultural district it may be used as liquid manure, either by drains or by the jet, without any fear of an action for damages. Without disinfection the sewage will certainly not be an agreeable neighbour; with disinfection the channel will be a more wholesome institution than our present canals. A channel like this need not be covered. To make a covered channel is naturally a most serious undertaking, and even to use the liquid manure from a covered channel will be dangerous. Sewers will then, for the first time, be unqualified blessings. At present they are dangerous at the best, and we dread every connection with them. The state in which the disinfectant will be applied in the sewers must differ to some extent according to the condition of the water or sewage, the principle of its composition not changing. This, as a comprehensive plan for disinfecting towns, and rendering the use of sewage manure agreeable, is, I conceive, of great importance, nor am I aware of any such comprehensive plan ever having been brought before the public, at least not before it was proposed by Mr. M'Dougall and myself. We have never had an opportunity of trying this system in the method proposed, but we had the opportunity of disinfecting a whole town. The town of Leek was attacked by an epidemic last year, and a council of medical men called on Mr. M'Dougall for his advice. He, amongst other things, proposed, on consulting with me, the plan above stated, and, as a temporary measure, not so much promising great good as to allay the fears of the inhabitants, he proposed disinfecting some of the principal cesspools with the disinfecting powder. In reply to my inquiries, Mr. Dale, C.E., the town surveyor, says, "Its use was most efficient in staying the plague; never was the intimate connection between foul cesspools, &c., and disease more strikingly demonstrated. The fever and putrid sore throats prevailed most in the neighbourhoods nearest to the open sewers and cesspools. On using the disinfecting powder, the offensive smells were perfectly removed, and the abatement of the disease immediately followed. There were no new cases, and those under treatment at the time assumed a much milder form. We exhausted a small stock of disinfecting powder on the 3d of January. In the course of a few weeks, when the cesspools began again to give off offensive smells, the disease broke out a second time, when the authorities ordered a further supply, and upon using it as before, the disease again assumed a milder form and eventually disappeared." This is an extreme case, but the purification of towns by means of their sewers I hold to be valuable in all cases, and their corruption should be instantly arrested. It matters nothing to us to be told that the corruption will be arrested next morning at the distance of six miles, when a stream runs by us of the same kind without interruption. The inhabitants of London must either endure the evil, and then send it to their country friends, or they must purify the sewers themselves, the source of the evil, for the benefit of both.

The Chairman said, the powder which had been described by Dr. Smith possessed very singular qualities. One of its ingredients was the substance known among chemists as carbolic acid, a most valuable and interesting substance. It was closely allied to kreasote, and was, in fact, a homologue of kreasote. It had the power of uniting with bases, and forming salts, and thus it could be more readily applied than kreasote. It prevented putrefaction; and when mixed with the sulphite of magnesia had its disinfecting properties increased. There was one point with regard to magnesia which was important in a chemical view. Magnesia rendered ammonia solid, and on that account was valuable. It not only took down the phosphoric and other salts contained in liquid manure, but carried down the ammonia also, thus preserving the most valuable and important constituent of the manure. Therefore the use of magnesian salts, with carbolic acid as a preventive, was a happy idea. Mr. Dugald Campbell observed that he wished he could coincide with the view the chairman had taken of the action of magnesian salts upon sewage water, namely, that they would precipitate phosphoric acid and the ammonia from it; but really practically this was not the case, for it unfortunately happened that the phosphate of magnesia and ammonia was soluble to a certain extent in water, and in every case the water in the sewage of towns was far more than necessary for this purpose. In a paper which he (Mr. Campbell) had been requested to give recently before the Chemical Society, he had shown, and he thought without any exaggeration, that the total solid matter in the sewage of London was in the proportion of one to between four and five thousand of water. He had examined every process hitherto proposed for obtaining the solid matter from sewage, and he regretted to say that there was none by which one-tenth of the value in the sewage could be secured, for the ammonia or the substances representing it, namely, the urea or uric acid, and the potash and phosphoric acid, the true valuable matters for manure in the sewage water, almost entirely passed away in the water after any process as yet suggested. Of course, for stables, cesspools, and such like places, where the fœcal matter was in an undiluted state, the powder mentioned by Dr. Smith, as well as many other things, would, no doubt, do very well and suppress their odour, at the same time preventing the evaporation of their ammonia. —Mr. P. H. Holland (Medical Inspector, Burial Department of the Home Office), bore testimony to the merits of this powder.—Dr. Albert J. Bernays said he had

tried the disinfecting powder alluded to with signal success. His first experiment with it was in removing an offensive odour caused by a drain at his own residence. He had applied a thick coating of the powder, which still remained, and since its application no unpleasantness whatever had been experienced. He mentioned cases of the application of this powder during the process of emptying large cesspools, by which the contents of those receptacles were completely deodorised and the noxious gases driven off, so that the operation was performed without inconvenience to those employed in it. He had also used the powder in the wards of the hospital with which he was connected, with the most satisfactory results as a deodoriser.

Calendar of Operations.

APRIL.

WESTER ROSS, *April* 28.—Although the weather has for some time been cold—scourging east winds prevailing through the day, with keen frost at night—yet the labour of the farm has been uninterrupted, and our work is sufficiently advanced. Our whole grain crop has been committed to the ground, and so far as it has made its appearance it looks healthy and vigorous. Our Barley, which we sow last, has not yet come above ground. In this neighbourhood we are still far from acting upon the advice of the advocates of thin seeding, as the quantity we allow per acre is counted, not by the peck but by the bushel. The quantity we have given this year, and we believe that it is about the quantity given not only in this neighbourhood but throughout the north of Scotland, is of Wheat from 3 to 3½ bushels per acre, Barley 3½, and Oats from 4 to 4½ bushels; and although we believe that this quantity might be materially reduced by more thorough draining, and by a still higher state of cultivation, we are persuaded that by using the small quantity recommended by some we would speedily find ourselves with late harvests, and with miserable returns of inferior grain. The crop this season has been laid down nearly exclusively with farm-yard manure. From its extravagant price, and because of the little advantage resulting from its application last year, very little guano has been used this season for top-dressing, and there will be less guano applied to the Turnip crop this year than has been for many years by-gone. In a former report we stated that part of our last year's Turnip crop weighed 36 tons per acre, and the whole of them were particularly good. We may now say that one third of the crop was eaten off by hoggs at the rate of 2½*d.* per head per week, and that they yielded not less than 8*l.* per acre. These Turnips were grown with about 12 tons of home-made manure, along with a mixture of some 10 bushels of crushed bones and 2 loads of rich manure from the town per acre. The bones and manure were mixed together a few weeks before they were used, and were repeatedly turned and well pulverised ere they were sown. As an experiment 1 acre received 2 cwt. of guano in addition to the manure already mentioned, and at no season of the year had it any perceptible effect. Potato planting is completed, and a pretty respectable breadth is again laid down. With the return of genial weather, with an increasing demand for Wheat, and a thoroughly satisfactory price for all kinds of stock, we are much inclined to forget our late harvest with all its evils, and rejoice because of present benefits.

Notices to Correspondents.

AGRICULTURAL DIRECTORY FOR BERKSHIRE AND KENT: *F F.* We are unable to help you, except by the suggestion that the names in the list of the English Agricultural Society's members might be of use to you.

ALMANAC: *J E G.* Thank you. The error was of course observed—though too late for correction. It is so obvious that it cannot mislead—at least we hope so.

BONES: *An Old Subscriber.* Must have the bones crushed, and apply about one-third their weight of sulphuric acid to them in large tubs. If the bones were first burned, they would crush easily—and would also be more easily acted on by the acid. In the latter case soak them well with water and then add about one-third of acid to them in a heap on a clay floor.

BOOKS: *R D.* The books of such writers as Harry Hieover and Scrutator are likely to meet your wants (Longmans).

DRYING CORN AND OTHER CROPS: *Mr. Heale*, of Albion Terrace, Hatfield New Town, describes his method of drying vegetable and other matters, which consists in placing the material to be treated in vacuum—or, in other words, causing a vacuum between it and the vessel in which it is placed, previously to the admission of rarefied air. The machine consists of a vessel or chamber for the reception of the material to be treated, which, after being charged or filled is to be exhausted by an air-pump, worked by steam or other power, and then filled with air, rarified by passing it through heated tubes. It may be cylindrical or of an egg shape, or so constructed as to resist collapse, and, when required for locomotion should be placed on a frame or cradle on wheels, and the steam-engine may be on a platform on the same frame or otherwise. The chamber should be so constructed as to admit of ready access through an opening, which should be made air-tight when filled; it should be fitted with a perforated floor and ceiling for the equalisation of the temperature. The substances to be treated may be placed in bags or otherwise.

INSURANCE COMPANY: *Lytchett.* We know they do a good deal of business, and that they have passed successfully through considerable difficulty. They behaved satisfactorily to us some years ago. What the present condition of the company is we do not know.

MANGEL WURZEL: *H M* asks of any of our correspondents what has been the heaviest crop of Mangels he has grown on an acre of ground, and how manured.

OAT-STUBBLE FOR SWEDES: *L J R.* Plough up at once, and get it into good tilth by harrowing, rolling, and cultivating. Then ridge up at intervals of 26 inches, put in 20 or 30 cubic yards of dung, and sow 4 cwt. of superphosphate of lime broadcast, and split the drill—sow Swedes in the end of the month. If you have no farm dung sow 3 cwt. of Peruvian guano and 3 cwt. of superphosphate.

QUALITY OF MEAT: *X.* An amusing gathering has taken place during the past week at Paris to determine the quality of the meat yielded by the different breeds of animals shown at Poissy. The jurors engaged on that occasion dined together off soups, and roast and boiled beef, mutton, and pork, and after every trial of dishes declared their relative quality by show of hands. The decision does not agree with English ideas on the subject—thus Cotswold mutton was declared better than Southdown, and Short-horn beef better than other kinds boiled, though when roasted the flesh of the West Highland ox stood first, the Devon second, Charolaise third, and the Short horn nearly lowest.

SCOTCH GRUB-HOE: *Warnewater.* We suppose that our correspondent referred to a very common form of the horse-hoe, in which three teeth curved forwards are fixed in a frame and drawn by one horse. We have no doubt that Busby's horse-hoe will answer the purpose perfectly.

SODA ASH: *J Johnson.* We presume you mean carbonate of soda. If so, we would not recommend your purchase of it as a manure. It is a caustic alkaline substance, possibly useful in peaty or vegetable soils; but not likely to be generally of service.

REIGATE SILVER SAND (good Grit and free from Iron) 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

MCDOUGALL'S DISINFECTING POWDER.—This valuable Disinfectant, so highly praised by Dr. Smith in his recent Paper before the Society of Arts, may be obtained in large or small quantities from the London Agents, A. HERRIOT & Co., 2, Great Scotland Yard, Whitehall, S.W.

TOBACCO PAPER, of superior quality, for Fumigating Greenhouses and Destroying the Fly on Plants.—The article now offered differs materially from that usually sold under this name, it being saturated with the juices exuding from the Negro Head and Pig-tail Tobacco, in the process of its manufacture. From our own experience we can testify that it produces a saving of 60 per cent. in the use of this article. It is so simple in its application that it is merely necessary to place a few hot cinders in an ordinary flower-pot, and the Tobacco Paper on them. Ten minutes will suffice for effectually fumigating a greenhouse 50 feet in length, and it is not necessary for the person to remain in the house during the process. Price 1*s.* 6*d.* per lb.

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BENTALL'S BOTANICAL DRYING PAPER.—The above PAPER is prepared expressly for drying specimens for the Herbarium, for which purpose it has been extensively used for several years past by the most eminent botanists of the day. It possesses all the requisite qualities, preserving form and colour in the best possible manner, and having the peculiar advantage of seldom, if ever, requiring a change of sheets whilst the plants are being dried, thereby saving much time and trouble. Its stoutness and durability also combine to render it economical, making it practically quite as cheap as ordinary papers sold at a lower price. The proprietor has received the most flattering testimonials from Sir W. J. Hooker, Professor Lindley, and many other eminent botanists.

For the convenience of collectors of Foreign as well as British plants the paper is prepared in four sizes, viz., 16 by 10 inches (folded); 18 by 11 inches (ditto); 20 by 12 inches (ditto); and 16 by 20 inches (ditto). Price 15*s.*, 18*s.*, 21*s.* and 28*s.* per ream.

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BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s.* per 100 feet. Boxes charged 2*s* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

WEEKS' ONE BOILER SYSTEM.—FACTS UNDISPUTED.—These Upright Tubular Boilers are fixed in numerous places producing greater effect than any other yet invented, and we now again challenge the whole world to make a Boiler that will produce the same effect with the same quantity of fuel.—JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—An instrument like a pepper-box has been used for the same purpose; but it was found to distribute too freely, causing much waste. The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by th s means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds. 14*s.*; 500 yds. 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

THE VERY BEST MATERIAL

FOR SHADING GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, &c., ALSO AS A PROTECTOR TO THE BLOOMS OF FRUIT TREES ON WALLS FROM FROST IS

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Minier, Nash, & Co., Seed Merchants, London.
" Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

Garden Engines, Syringes, &c., upon the most approved principle.

CAUTION.—THE WELL-KNOWN REPUTATION OF

READ'S ENGINES, MACHINES, AND SYRINGES

Has led to the nefarious practice of placing cards in shop windows with the words "Read's Patent" upon Syringes of the very commonest description. R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal Arms and Address, "35, Regent Circus, London."

Descriptions sent post free.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

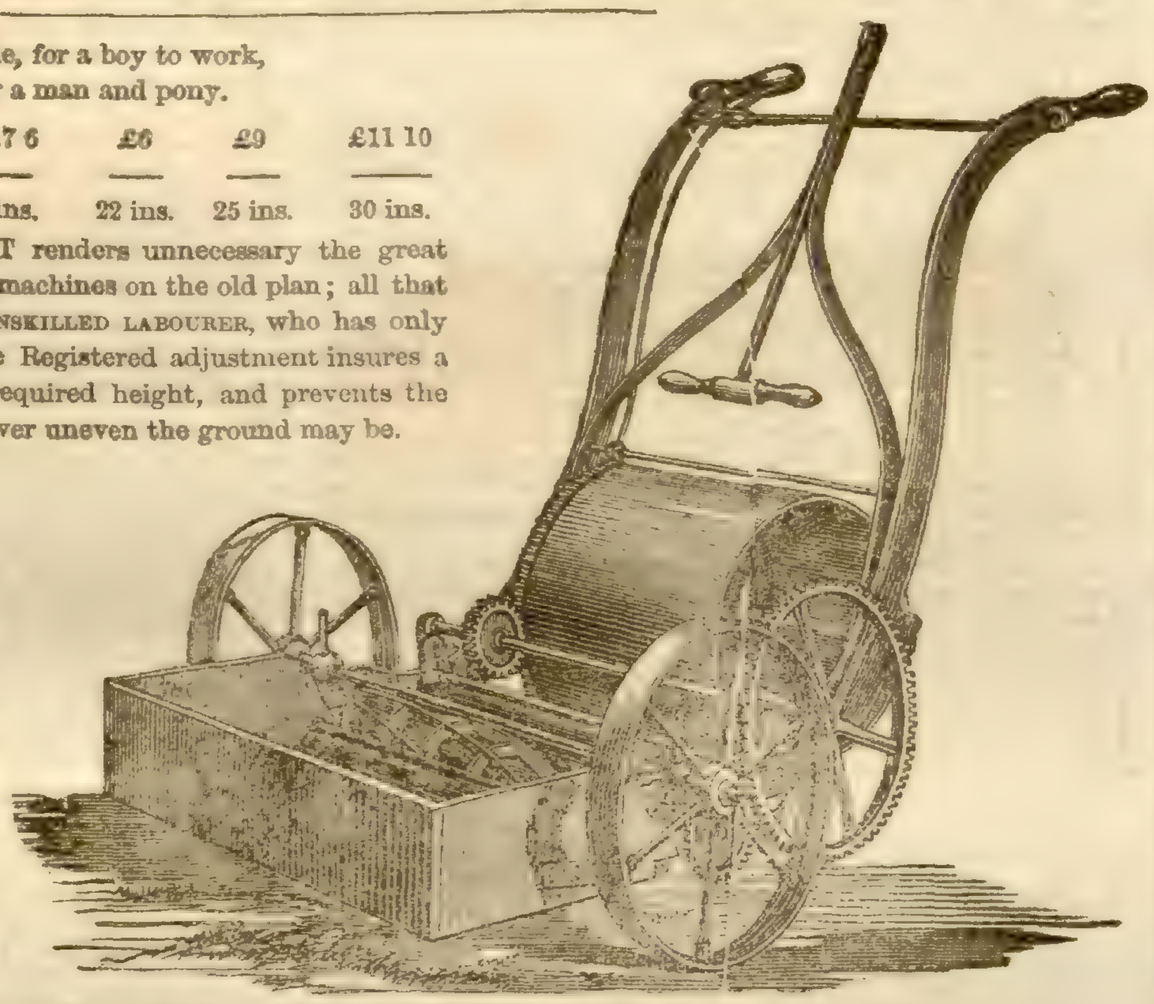
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

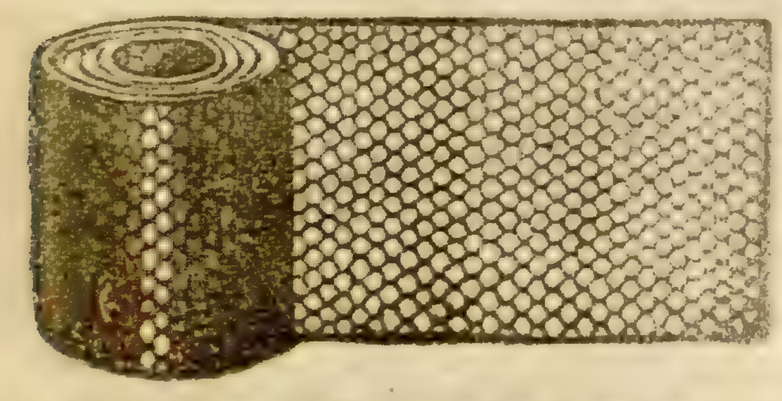
The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



B. SAMUELSON, Britannia Works, Banbury.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide ..	5d. per yd.	4d. per yd.
2-inch ,,	strong do. ..	6 ,,	4¾ ,,
2-inch ,,	intermediate, do.	7 ,,	5½ ,,
2-inch ,,	extra strong, do.	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide ..	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do. ..	6½ ,,	5¼ ,,
1⅝-inch ,,	intermediate, do.	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do.	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½d. per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½d. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5l. 10s.; 25 gallons, 6l. 10s.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

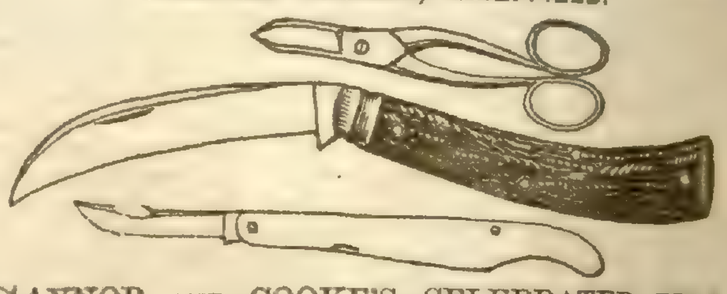
WARNERS' SWING WATER-BARROW,
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3l. 3s.

Brass Syringes, 9s. to 18s.

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

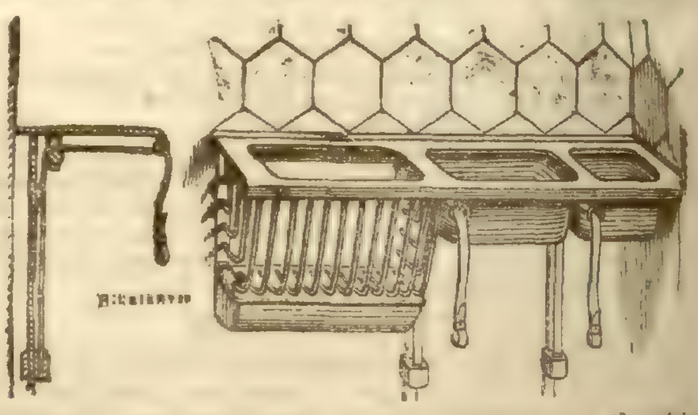
Fountains suitable for Conservatories, Lawns, &c.

PAXTON WORKS, SHEFFIELD.



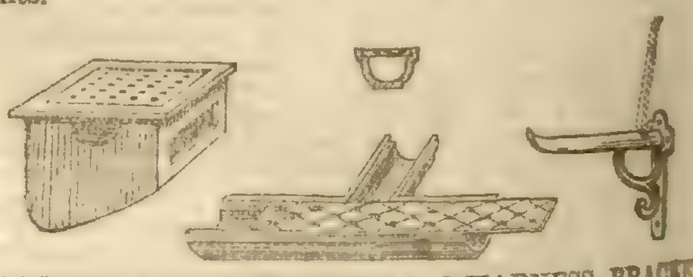
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED BOX, an important addition to the above fittings, being simple in construction, light and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

GARDEN REQUISITES, &c.

COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements, ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10 gallons,	throws 30 feet high				..	£4 10
No. 2	,, 15	,,	,,	45	,,	..	5 10
No. 3	,, 28	,,	,,	45	,,	..	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8 gallons,	throws 25 feet high				..	£2 15
No. 13	,, 12	,,	,,	30	,,	..	3 5
No. 11	,, 16	,,	,,	40	,,	..	4 0
No. 12	,, 24	,,	,,	45	,,	..	5 0
No. 14	,, 30	,,	,,	45	,,	..	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

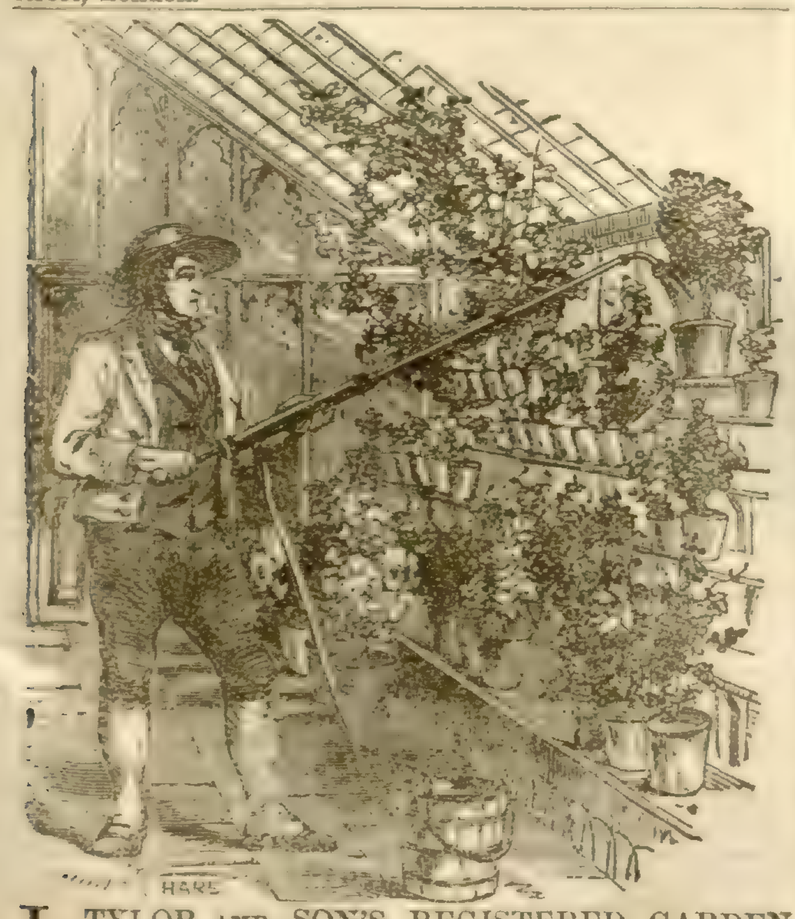
No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1¼ inch, 14*s.* 8*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

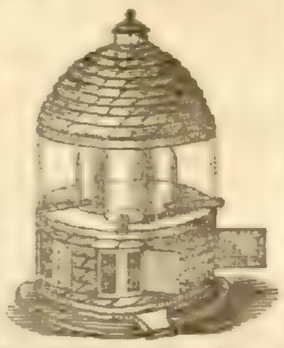
By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.



NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

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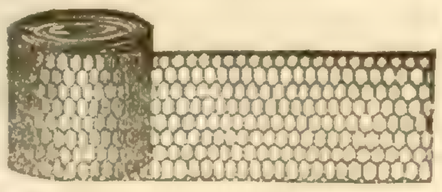
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

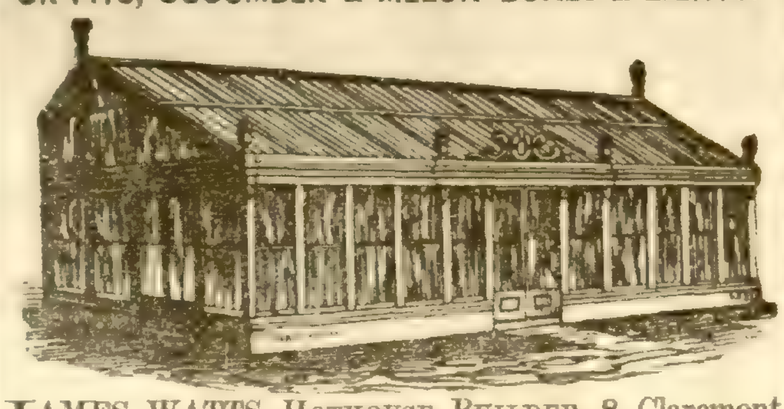
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.

WARRANTED GOOD BY THE MAKERS.

MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

FREE TRADE IN ALL BOOKS, MUSIC, &c.—2*d.* discount in the 1*s.* off all Books, Magazines, Periodicals, Quarterly Reviews, Maps, Prints, &c. The rate of postage is 2*d.* for each half pound. 4*d.* discount in the 1*s.* off music, post free. Buyers of the above will find it a saving in the cost, even after paying the postage or carriage. A 5*l.* order sent carriage free to all parts of the United Kingdom. Town orders 5*s.* and upwards, sent free. Exporters and private buyers are respectfully informed that detailed prospectuses will be sent post free to all applicants.—S. & T. GILBERT, 4, Copthall Buildings, back of the Bank of England, London, E.C. Copy the address.

Sales by Auction.

AZALEAS, ORANGE TREES, PELARGONIUMS, ROSES, BEDDING PLANTS, AND CLIMBERS, ETC.

MR. HASLAM will sell as above at the Mart on THURSDAY, May 14, 21, and 28. N.B. All goods to the amount of 10*s.* and upwards packed and delivered free of charge to the Parcels Delivery Company.

TO SEEDSMEN AND OTHERS.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY next, 12th inst., at half-past 3 o'Clock precisely, 18 cwt. of Superior Large WHITE BELGIAN CARROT SEED, in lots of 1 cwt. each.—May be viewed till the Sale.

ORCHIDS, ETC.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on MONDAY, May 11, at 1 o'Clock precisely, 50 ORCHIDS admirably grown from the Collection of a well known Amateur. Amongst these may be mentioned—

Aerides Schroderii	Phalænopsis amabilis
,, affine	,, grandiflora
,, Larpentæ	Saccolabium guttatum
,, Fieldingi	,, retusum
Anguloa Ruckerii	Vanda suavis (Veitch)

Also an Importation from India in excellent condition, including many plants of Saccolabium retusum, a new Cypripedium, Aerides Fieldingi, Vanda Cathcarti, a collection of Begonias, Ferns, and a few Seeds.—May be viewed on the morning of Sale and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, May 14, at 12 o'Clock, a first-rate collection of Dahlias, Fuchsias, Verbenas, Petunias, &c.; also fine Azalea indica, Geraniums, Roses, and other plants in bloom; with a choice and useful assortment for bedding.—On view the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLAPTON.

TO GENTLEMEN, GARDENERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, Clarence Nursery, Clarence Road, Clapton (about 5 minutes' walk from the Hackney Railway Station), on MONDAY, May 18, at 11 o'Clock (by order of Mr. Finch), a fine assortment of Greenhouse and Bedding Plants, including Show and Scarlet Geraniums, Fuchsias, Verbenas, Calceolarias, Heliotropes, Salvias, Lobelias, Ageratums, Petunias, Intermediate Stocks, Double Nasturtiums, Maurandya, Pompone Chrysanthemums, Dahlias, &c.—May be viewed the Saturday previous to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE-END NURSERY, BOW.

TO GENTLEMEN, NURSERYMEN, FLORISTS AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the Premises, Mile-End Nursery, Bow Road, Middlesex, near the Bow Railway Station, on TUESDAY, May 19, at 12 o'Clock, about 10,000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Cactus, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias (sorts), Phloxes, Petunias, Nierembergia, Lobelias, Dahlias (comprising all the leading kinds), Chrysanthemums, Intermediate Stocks, Maurandya, Tropæolum canariensis, Cobœa, Lophospermum, Eccremocarpus, &c.—May be viewed three days prior to the sale. Catalogues had on the premises, of the principal Seedsmen in London, and at the Auctioneers, American Nursery, Leytonstone, Essex.

BEDDING PLANTS, BEDDING PLANTS, BEDDING PLANTS.

TO NOBLEMEN, GENTLEMEN, GARDENERS, AND OTHERS.

Unreserved Sale at the Westbourne Nursery, Harrow Road, adjoining the Toll Bar, and within 2 miles of Oxford Street.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises as above, on WEDNESDAY, May 20, instead of the 13th, as previously advertised at 11 o'Clock, upwards of 20,000 first class Bedding Plants, consisting of the newest and most approved varieties of Verbena, Calceolaria, Petunia, Anagallis, Lobelia speciosa, Cuphea, Tom Thumb, variegated and other Geraniums; a large quantity of first-rate Flowering Plants, suitable for Conservatories and Window Decorations; Mignonette, &c., for boxes; also Roses of the most suitable kinds for the neighbourhood of London, including Devoniensis, Géant des Batailles, Smith's Yellow Noisette, Cramoisie, Supérieure, &c. Messrs. P. & M. have much pleasure in offering the above to public competition, and can assure their patrons it is an opportunity seldom to be met with. Omnibuses pass the Nursery, leaving the Bank at the half hour; and the Correspondence Office, Regent Circus, every hour exactly.—May be viewed the day previous and morning of Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

BROADOAK, BRENCHLEY, NEAR TONBRIDGE, KENT.

IMPROVED SHORT-HORNED CATTLE.

MR. TOOTELL is directed to Sell by Auction, on WEDNESDAY, May 20, at 12 for 1 o'Clock, at the Crook Farm, Brenchley, 2 miles from the Paddock Wood Junction Station of the South-Eastern Railway, a very few superior SHORT-HORN CATTLE, the genuine property of Captain J. H. Hay Ruxton; they will be sold without reserve, in consequence of his having received an official appointment and relinquishing farming. The stock consists of 10 handsomely framed and thoroughly well bred Cows and Heifers, 2 pure white Bull Calves, a Heifer Calf, a yearling Bull, and 5 Steers; Sires "Diamond" (5918), "Puritan" (9523), "Denmark," "Rivers" 10,716), "Nabob" (13,365), and "Fop" (12,890), bred from the stocks of Mr. Booth, of Killerby; Mr. Cartwright, of Tathwell; Harvey Coombe, Esq., of Cobham, Surrey; Earl Spencer; Sir Chas. Knightley, Bart; Marquess of Exeter, and Earl Ducie. Also a few Pigs of the bloods of Lord Hill, of Hawkstone, Salop; Mr. Samuel Druce, Ensham, Oxford; Fisher Hobbs, Esq., of Essex; and Mr. Coate, of Hainmoon, Dorset. The stock may be seen two days previous to the sale by applying to the herdsman at Broadoak, of whom Catalogues and Pedigrees may be had. They may be also obtained at the Crown Inn, Tonbridge; Albion Hotel, Hastings; Fountain, Canterbury; New Falcon Hotel, Gravesend; Bull, Dartford; Saracen's Head, Ashford; Lion, Farningham; and of Mr. TOOTELL, Estate Agent and Valuer, Maidstone. Broadoak is at the village of Brenchley, about 7½ miles from Tonbridge, 6 from Tonbridge Wells, and 48 from London.

NEW SPRING CATALOGUE OF PLANTS FOR 1857
WILL SHORTLY BE READY.

MESSRS. E. G. HENDERSON AND SON will send out their new plants on and after the 15th May, but those parties wishing for the New Fuchsias will have them immediately by communicating with Messrs. H. & Son. Rose Isabella Grey will be ready in June.

Banks' New FUCHSIAS for 1857 consist of the following: White-sepalled varieties, with different coloured corollas:—The Silver Swan, rosy lilac; the Fair Oriana, pure scarlet; Fairest of the Fair, crimson, or rich velvet rose. Scarlet-sepalled varieties, with new form and half globular corollas, surpassing in beauty the old style of flower:—Cœur de Lion, Catherine Hayes, Little Bo'-Peep, the Little Treasure. Scarlet-sepalled varieties, with quite new coloured corollas:—Etoile du Nord, violet black; Tristram Shandy, pale blueish lilac. Scarlet-sepalled varieties, of immense size and excellent quality:—Souvenir de Chiswick. Star of the Night, Albert Smith.

Wellington Nursery, St. John's Wood, N.W.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 208, High Holborn, London, W.C., Seedsmen to Eleven of the Principal Botanical Societies of the British and Continental Empires, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS (the twenty-second annual issue), forwarded free of charge and post paid to all parts of the world upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, W.C.

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

NEW FUCHSIAS—NEW VERBENAS.

WILLIAM CUTBUSH AND SON beg to offer the following in fine plants:—

NEW FUCHSIAS of 1856 at 12s. per set.—Conqueror, Admiral Boxer, General Williams, Venus de Medici, Charlemagne, Countess of Burlington, L'Esperance, Donna Joaquina, Volcano d'Aqua, Emperor Napoleon, Ranunculæflora, Surprise.

NEW VERBENAS of 1856 at 6s. per set.—King of Scarlets, Lord Nelson, General Simpson, Dandy, John Edwards, Admiral Lyons, Cedo Nulli, Eugenie, Sultan, King of Roses, Criterion, Sir Colin Campbell.—Highgate Nurseries, London, N.

THE TWO MOST BRILLIANT AND ATTRACTIVE HYBRID PERPETUAL ROSES FOR BEDDING are—

	Per doz.
Général Jacqueminot, brilliant crimson	20s.
Géant des Batailles	15s.

Dwarf Plants in Pots.

The above will produce a fine display of bloom throughout the season, and may be had by the thousand if required. We had the above sorts in bloom out of doors last year until nearly Christmas. Plants presented for distant carriage.

Address WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

DOWNIE AND LAIRD can still supply strong plants of the under-mentioned, viz.—

PHLOX ADDISONI, white, with a distinct carmine centre, 5s. each.

Do. COUNTESS OF MORTON, pure white, thick fleshy petal, highly scented, 3s. 6d. each.

PANSY DUCHESS OF WELLINGTON, gold and yellow, deep velvet purple belting, eye well defined. Had two certificates. 5s. each. The usual allowance to the trade on the above, or when six of each are taken half price.

Also a full collection of Antirrhinums, Pansies, Phloxes, &c. which they offer at moderate prices, lists of which may be ac on application.—17, South Frederick Street, Edinburgh.

NEW PLANTS OF 1856.—The following plants were sent out, and very highly recommended, by the Messrs. HENDERSON, of Wellington Road Nurseries, last May, and are now offered at the following prices:—

VERBENAS—Lady Kerrison, Nosegay, Mrs. Archer Clive, Mrs. Hosier Williams, La Stella, Imperialis, Countess of Dunmore, Lady Camoys, purpurea magnifica, Géant des Batailles, picturata, and Impératrice Elizabeth, 2s. per dozen.

PETUNIA Countess of Ellesmere, 3d. each, 2s. 6d. per doz.

FUCHSIA Venus de Medici, 6d. each, 5s. per doz.

CUPHEA EMINENS, 3d. each, 2s. per doz.

The above are now ready, and may be had of T. BARNES, Dane Croft Nurseries, Stowmarket.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

WOOD AND INGRAM beg to offer the following, which are all fine bushy well estabished plants, none in ess than 3-inch pots:—

	per doz.—s. d.		s. d.
Scarlet Geraniums (autumn struck)	3 0	to	4 0
Verbenas, all the colours			2 6
Heliotropes, several sorts	2 6	„	3 0
Calceolarias, shrubby, very fine plants	3 0	„	4 0
Salvia patens			3 0
Nierembergia gracilis			2 6
Cuphea platycentra			2 6
Lantanas, sorts	2 6	„	3 0
Ageratum variegatum and others	2 6	„	3 0
Variegated Geraniums, sorts	4 0	„	5 0
Ivy-leaved do.	3 0	„	4 0
Petunias, mixed	2 6	„	3 0
Dahlias, finest show and fancy varieties	4 0	„	9 0

With many other kinds at the same rates. Huntingdon Nurseries.

AZALEA INDICA ROI LEOPOLD.

LOUIS VAN HOUTTE, NURSERYMAN, Ghent, Belgium, begs to advertise that he has bought the STOCK of the AZALEA INDICA ROI LEOPOLD of Mr. Ed. Vandercruysse, and that he is now sending out nice plants of it at 15s. each (four for three) free to London. This Azalea, with very large thick petals of a dark fine rosy shade, is known at Ghent AS THE FINEST FORMED AZALEA IN EXISTENCE.

Orders directly given, or through his agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London.

ACHIMENES.

LOUIS VAN HOUTTE'S New NÆGELIA AMABILIS, pure white, with a lemon blotch on the lip, habit of Gesnera zebrina; TYDÆA BARON DE PRET, COUNT THEOD. DE MURAT, DR. PICOULINE, ECKHAUTEI and ORTGIESI, are now sent out at 30s. the set (six sorts), to London free. These new kinds contain the richest scarlet, crimson, maroon, and orange ground colours that can be seen; they are mottled, tipped, and striped in the most strange manners. They are flowering nearly nine months in the year.

Messrs. Hugh Low & Co., R. Glendinning, James Veitch, Jun., can give their opinion about these Achimenes, having seen them in flower and subscribed for them.

Agent in London, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street.—Ghent, Belgium, May 9.

GAINES' SEEDLING DAHLIAS, now ready to send out.

	s.	d.
EMPRESS EUGENIE, fine formed white	10	6
ECLIPSE, brilliant crimson, first rate form	10	6
MRS. LINDSAY, bright carmine striped with white, extra	10	6
NAPOLEON III., rich purple, large and fine shape	10	6

EUGENIA UGNI.—Seeing the Horticultural Society offer a prize for the above fruit, T. GAINES begs to say he has a large stock of Fruiting Plants from 3s. 6d. to 5s. each for sale at the Nursery, Surrey Lane, Battersea, where lists of Dahlias, Geraniums, Verbenas, Fuchsias, &c., can be had by applying at the Nursery.

VAN HOUTTE'S NEW ACHIMENES.
SUBSCRIBERS IN ENGLAND:—

Messrs. Hugh Low & Co.	Messrs. Osborn & Sons
„ R. Glendinning	„ Weeks & Co.
„ James Veitch, jun.	„ J. Backhouse & Co.
„ Wm. Rollisson & Sons	„ Robt. Miller
„ Thomas Jackson & Son	„ Walters & Daniel
„ A. Henderson & Co.	„ H. Lane & Son
„ John Cattell	„ J. & J. Fraser.
„ W. Epps	„ D. T. Northwood
„ Alex. Pontey	„ Henry Walton

Mr. Charles Turner.

ORCHIDÆ.—A small Collection of very choice ORCHIDS to be disposed of by Private Contract, consisting of—

Ærides	Calanthes	Odontoglossum
Angræcums	Dendrobiums	Oncidiums
Chysis	Lælias	Phalænopsis
Cœlogynes	Lycastes	and
Cattleyas	Miltonias	Saccolabiums,

in all about 181 Lots of the very best varieties in cultivation, a selection carefully made by a gentleman of great experience during the last 10 years; they are clean, healthy, and in fine condition.—For further particulars apply to Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW BEDDING PLANTS.

MESSRS. ARTHUR HENDERSON AND CO.'S CATALOGUE OF SOFT-WOODED AND OTHER PLANTS is now ready, and can be had on application to them. It contains a descriptive list of the most approved varieties of

Antirrhinums	Fuchsias	Petunias
Calceolarias	Geraniums	Phloxes
Carnations	Heliotropes	Picotees
Chrysanthemums	Hollyhocks	Pinks
Cinerarias	Lantana	Salvias
Dahlias	Lobelias	Verbenas

Also a separate List of the novelties for this season, including the new Dwarf White Bedding Dahlia, the new Muscat Hamburgh, the Golden Hamburgh, and the Bowood Muscat Grapes; specimens of new Holland Plants; an epitome of Stove Plants; Ferns and Greenhouse Plants, Ornamental Climbers, Variegated Plants, Miscellaneous Plants for the Open Border, and the new Yellow Tea Rose "Isabella Gray."

Pine-apple Place, Edgware Road, London, W.

NEW FRENCH VERBENAS OF 1857, at 1s. 6d. (trade).

Amphitrite	Socrate	Comte de Cavour
Madame Turner (C.)	Surprise	Mdlle Casille
Phoebus	Calypso	Gaspard Dosin
Promethie	Eclipse	Madame Castellan
Madame Bastien	Psyche	Sire de Franc-Boisy
Vertumne	Minotaure	Clemence Robert
Andromaque	Cudjo	Madame Morel
Madame Turner (R.)	Evelina	Julia de Courcelle

NEW FRENCH PETUNIAS OF 1857, at 1s. 6d. each (trade).

L'Abbé Lorraine	Madame Plantamour	Madame L. Courant
Adolphe Wieck	Anton Rochel	Madame Kneitzberg
Charles Turner	Iwan Schlumberger	La Pintade
Madame Schmidt	Monsieur Laurentius	Prince Imperial

NEW FRENCH PENTSTEMONS OF 1857, at 5s. each (trade).

Cardinalis | Elegans | Insignis | Lemoinei | Ornatus

FRENCH VERONICAS, at 2s. each (trade).

Meldensis | Verschaffelti | Fortieri

Besides the above, Messrs. WILLIAM ROLLISSON & SONS have several novel and pretty bedding and others oft-wooded plants. An inspection is invited.—The Nurseries, Tooting, London.

NEW VERBENAS OF 1857.

J. AND J. FRASER beg to announce that they can supply good plants of the following new VERBENAS at 1s. 6d. each, which for brilliancy of colour and other good properties are strongly recommended:—

Duchesse de Palmela	Julia de Courcelle
Adriani	Madame Castellan
Madame Turner	Gaspard Dozin
Thomas Barnes	Stephen
Mademoiselle Casille	Surprise
Andromaque	Calypso
Phœbus.	Evelina
	Henriette Huet

Also the following new FUCHSIAS of 1856 (strong plants in 48-pots), at 2s. 6d. each:—

Venus de Medici	Surprise
Chameleon	L'Esperance
Charlemagne	Countess of Burlington
Volcano di Aqua	Donna Joaquina
Emperor Napoleon	Pendulina
Bellidiflora flore pleno	Ranunculæflora
	Malakoff

J. & J. F. can also offer good plants of the following:—Pentstemon Arthur, 5s.; Pentstemon purpureum magnificum, 5s.; Pentstemon Premices de Pantin, 2s.; Gaillardia grandiflora, 3s. 6d.; Lobelia erinus grandiflora superba, 3s. 6d.

The Nurseries, Lea Bridge Road, N.E., May 9.

NEW AND BEAUTIFUL PLANTS.—The Subscribers are prepared to supply well-grown healthy plants of the following kinds at the prices affixed:—

12 NEW GERANIUMS of 1856 for 42s.:—Leopard, Floretta, Bruenda, Iris, Admirable, Countess, Sparkler, Eugène Duval, Elise Miellez, Van Houtte, Eminée, Edouard Miellez.

12 NEW VERBENAS of 1856 for 5s.:—Field-Marshal, Victory, Loveliness, Charles Dickens, Blue Bonnet, King of Sardinia, Impératrice Elizabeth, Dr. McLean, Mrs. Holford, Silistria, Auguste, Macquet;

12 NEW FUCHSIAS of 1856 for 15s.:—Venus de Medici, Favourite, Admiral Boxer, Conqueror, Prince of Wales, Impératrice Eugenie, Donna Joaquina, Figaro, revoluta, General Williams, Charlemagne, Wonderful.

12 TEA ROSES of the best kinds for 18s.
12 AZALEA INDICA do. do. 12s.
12 do. newer do. do. 18s.
12 CAMELLIA JAPONICA, best kinds, 30s.
12 do. larger do. 42s.
12 do. do. do. 60s.
12 SHRUBBY CALCEOLARIAS of new and best kinds, 18s.
12 HERBACEOUS do. do. from 12s. to 18s.
12 Best NEW HOLLAND Plants do. do. 12s. to 18s.

A large collection of the most showy Bedding Plants is now ready, from 20s. per 100, and for which early orders are requested.

WILLIAM MASTERS & SON, Exotic Nursery, Canterbury, and Fant Nursery, Maidstone. A remittance or reference required from unknown correspondents.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.

J. C. WHEELER & SON, Seed Growers, Gloucester.

30,000 BEDDING PLANTS IN POTS.

J. AND W. GILL beg respectfully to inform their customers and others resident in the western suburbs of London, that they are prepared to supply Strong Hardy Plants from their extensive stock of all the old established favourites, and also every other variety of Bedding Plants found to succeed in this district. Purchasers are invited to inspect the Stock, ascertain the prices, and select for themselves. All orders will be carefully delivered free of charge in our own van.

Denbigh Road, Westbourne Grove, Bayswater.

NEW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the New Dahlias of last season, at 10s. per dozen strong plants, and the best varieties of other years, at 4s. and 6s. per dozen.

Fine SHOW PANSIES	4s. and 6s.	per dozen.
BELGIAN DAISIES	4s.	„
Fine PHLOXES	8s.	„

Descriptive Catalogues now ready. Selected Pansy Seed, 1s. and 2s. per packet. Post Office Orders to be made payable at Middleton, near Manchester.

NEW DAHLIAS, ETC.

THOMAS BARNES begs most respectfully to offer his three Seedling Dahlias, plants of which are now ready, viz.:—OPHIR, best yellow; MINNIE, white and lavender; SYMMETRY, shaded purple and mulberry. The above are offered 7s. 6d. each, or the three for 20s.

NEW BEDDING GERANIUM GEM OF THE EAST (Cooper), bright rosy carmine, immense truss, with strong marked foliage, fine and distinct. Now ready, 5s. each.

N.B. Catalogues with description may be had on application.

Dane Croft Nurseries, Stowmarket.

NEW FUCHSIAS.

JOHN AND CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (LEE).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. Now ready, price 10s. 6d.

DANIEL LAMBERT (LEE) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. Now ready, price 7s. 6d.

Nursery, Hammersmith, near London.

ORCHIDACEOUS AND STOVE PLANTS.—A quantity of Orchidaceous and Stove Plants, the property of a private gentleman, to be disposed of, consisting of Dendrobiums, Stanhopeas, Oncidiums, Odontoglossums, &c., &c. Names and prices on application to JOHN HARRISON, Darlington Nursery.—May 9.

N.B. Several experienced and clever Gardeners, also Bailiffs and Gardeners, whose characters and abilities will bear the strictest investigation are now waiting for engagements.

BEDDING PLANTS AND CHOICE FLOWER GARDEN NOVELTIES, at 2s. 6d. per dozen, in 3-inch pots, fine plants. A descriptive Catalogue of 18 pages, containing upwards of a thousand sorts, will be sent on application, inclosing two penny stamps, to J. SCOTT, Merriott Nurseries, Crewkerne, Somerset.

The following is an example of the cheapness of these plants: 12 Calceolarias, 12 Dahlias, 12 Geraniums, 12 Heliotropes, 12 Fuchsias, 12 Petunias, 12 Verbenas, and 12 Salvia and Cuphea, for 20s., and plants added to help to pay for carriage. Basket and packing at the expense of purchaser.

FLOWER SEED.

J. C. WHEELER AND SON have pleasure in offering the following choice GERMAN FLOWER SEEDS, which they have imported from one of the most celebrated growers:—

	s.	d.
German Asters, 24 splendid varieties	3	6
The above varieties mixed	1	0
French Asters (Truffaut's), 12 varieties	3	6
German Stocks, 24 splendid varieties, brilliant and distinct colours	5	0
The above brilliant colours mixed	1	0
New large-flowering Ten-week Stocks, assortment of 8 distinct colours	2	0
The above 8 colours mixed	1	0

All free by Post.—Postage Stamps taken in payment.

From JAMES F. MARTIN, Esq., *Stonehaven, Kincardineshire, N.B., 24th December*, 1856.

"I have much pleasure in testifying to the beauty of the largest flowering Ten-week Stocks which I raised from your seeds last season. Suffice it to say they were admired by all who saw them, and carried the First Prize at our Horticultural Show. Nothing like them has been seen in this quarter."

"December, 1856.

"The flower seeds you sent here last spring, more especially the German Stocks, were very fine indeed—certainly the best I ever saw. My employers were highly pleased with them, and have desired me to have next year's supply from the same source.—Yours truly, "JOHN DAVENPORT,

"Gardener to T. B. Potter, Esq., Buile Hill, Manchester."

From Mr. WILLIAM BARRON, *of Skitty, near Swansea, Nov.* 18, 1856.

"I have pleasure in bearing testimony to the excellency and purity of the seeds supplied to me last season. The imported Stocks and Asters were the best I have seen for many years."

From Mr. MAXTON, *Homme House Gardens, Herefordshire.*

"The German Stocks and Asters are splendid."

J. C. WHEELER & SON, Seed Growers, Gloucester.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in mahogany case, with three powers, condenser, pincers, and two slides, will show the animalculæ in water. Price 18s. 6d.—Address JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six postage stamps.

General Catalogue for March 1857 may be had on application.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, May 9, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 20.—1857.] SATURDAY, MAY 16. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—All persons, whether Fellows of the Society or not, can exhibit at the approaching Fêtes in June and October.

HORTICULTURAL SOCIETY.—MANUFACTURERS' DIVISION.

No applications for space can be received after this day, May 16. Intending Exhibitors should give immediate notice either at 21, Regent Street, or to Mr. G. McEwen, Chiswick Gardens, Turnham Green, W.

CHISWICK FÊTE, June 3 and 4.—Horticultural Society of London.—Tickets at privileged prices can now be had by presenting Fellows' Orders, or their Ivory Tickets, at 21, Regent Street, S.W. The last day for obtaining Privileged Tickets is May 23.

CHISWICK GARDEN FÊTE.—FLOWERS, FRUIT, and VEGETABLE DIVISIONS.—Intending Exhibitors must give notice in writing on or before May 27. Printed forms can be obtained at the rooms of the Horticultural Society, 21, Regent Street, S.W.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—THE FIRST EXHIBITION this season OF PLANTS AND FLOWERS will take place on WEDNESDAY next, May 20. Tickets to be obtained at the Gardens only, by orders from Fellows or Members of the Society. Price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each

CRYSTAL PALACE—FLOWER SHOW AND GREAT FOUNTAINS.—The FIRST GRAND HORTICULTURAL EXHIBITION of the present Season will be held on SATURDAY, May 30. The first display of the Great Fountains and the entire system of Waterworks will take place between 4 and 5 o'clock in the afternoon. Military Bands will be in attendance in addition to the Band of the Company. Admission by Season Tickets of both Classes, or on payment of Half a Guinea. N.B. The other Flower Show of this Season will take place on the 9th, 10th, and 11th of September.

Crystal Palace, May 16. By Order, Geo. Grove, Secretary.

CRYSTAL PALACE FLOWER SHOW. TO GARDENERS.—No Specimens can be entered for Exhibition after MONDAY the 25th instant. Gardeners applying in writing to the Secretary on or before that day, and producing satisfactory evidence of their being bonâ fide Gardeners will receive Special Tickets admissible on the 30th, in payment of 5*s*. at the doors. The regulations and Schedules of Prizes may now be obtained on application.

Crystal Palace, May 16. By Order, Geo. Grove, Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 .. Exhibition of Plants, Flowers, Fruits, &c.
,, 29, 30 .. ,, Tulips (adjourned from the Crystal Palace)
May and June ,, American Plants
June 24, 25 .. ,, Plants, Flowers, Fruits, &c.
Aug. 19, 20 .. ,, Carnations and Picotees
,, 26, 27 .. ,, Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order) John Shaw, Secretary.

MUSICAL AND HORTICULTURAL FÊTE, under the patronage of the President, Sir Wm. F. F. Middleton, Bart., and the Vice-Presidents.—The First Exhibition of the Ipswich Horticultural Society will take place on THURSDAY, May 21, by the kind permission of P. Bruff, Esq., in the picturesque grounds of Handford Lodge, on which occasion the newly-designed Garden and Pleasure Grounds adjacent to the above, and belonging to the Royal William Inn, will, by permission of Mr. Stevens, be opened as an additional promenade for the company, when upwards of 100 PRIZES will be awarded, as per Lists, for FRUIT, FLOWERS, PLANTS, DEVICES, VEGETABLES, &c. All productions for Exhibition will be admitted at the Lodge Gate, near the Royal William Inn, from 7 to 10 o'clock, A.M., and none will be received after that period. Visitors will be admitted at 2 o'clock, at the principal entrance, Blandford Road, opposite Burlington Road, and the Exhibition will close at 5. Admission—Non-subscribers, 1*s*. each; Children under 12 years of age, half-price. An excellent BAND will attend, under the direction of Mr. W. B. Creasey, and perform selections from the most admired and modern Operas and Music Commante of the day. A General Meeting of the Society will be held on the day of Exhibition, at 11 o'clock, on the Show Ground.

R. Canham, Honorary Secretary,
D. Long, Secretary and Collector.

READING HORTICULTURAL SOCIETY.—The first Show will be held on WEDNESDAY, June 10, in the New Corn Exchange, when PRIZES to the amount of EIGHTY GUINEAS will be awarded. Schedules may be had of the Secretary, J. G. B. Marshall, 73, Orford Street, Reading.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The Fourteenth Anniversary Festival in aid of the Funds of this Society will take place at the London Tavern, Bishopgate Street, on MONDAY the 15th June next.

Mr. Sheriff Mechi in the Chair.

Stewards.

James Thomson, Esq., Chairman.

Sir Edward Blount, Bart., F.H.S.
Sir John Cathcart, Bart., F.H.S.
Richard Atlee, Esq.
John Jackson Blandy, Esq., F.H.S.
Henry G. Bohn, Esq., Vice-President, F.H.S.
William Charles, Esq., F.H.S.
Alex. Crosley, Esq., Under-Sheriff. [F.H.S.
Frank Crossley, Esq., M.P.,
H. Winfield Crace, Esq.
John S. Crawley, Esq., F.H.S.
William Cutbush, Esq., F.H.S.
J. Bailey Denton, Esq.
George Donne, Esq.
John Edwards, F.H.S.
William Fowlie, Esq.
J. H. Good, Esq., Jun., F.H.S.
James Gray, Esq., F.H.S.
Sir John Villiers Shelley, Bart., M.P.
Mr. Sheriff Keats.
Everson Harrison, Esq., F.H.S.
William Hurst, Esq., Jun.
Edmund Johnston, Esq., F.H.S.
Edward Lloyd, Esq., M.D.
Conrad Loddiges, Esq., F.H.S.
James Matthews, Esq.
Thomas Moxon, Esq.
Islip Odell, Esq.
Benj. Oliveira, Esq.
Wm. Roupell, Esq., M.P.
John R. Scott, Esq., F.H.S.
J. Budworth Sharpe, Esq., F.H.S.
John Soward, Esq., Jun.
Charles Tanqueray, Esq.
Thomas Tayloe, Esq.
Rob. Wight, Esq., M.D., F.H.S.
Charles Woodroffe, Esq.

Tickets 21*s*. each, to be had (together with Tickets to the Ladies' Gallery) upon application to the Secretary.

Dinner to be upon Table at 6 o'clock precisely. The Musical arrangements to be under the management of Mr. Edney.

E. R. Cutler, Secretary.
14, Tavistock Row, Covent Garden.

TO PLANT EXHIBITORS.

MR. EPPS has to offer upwards of 1000 Specimens of ERICAS, AZALEAS, and GREENHOUSE and STOVE PLANTS, in the finest health and of various sizes. They may be seen at his Nurseries, Maidstone, which are within two hours of London Bridge, *viâ* North Kent line.

FLOWERING PLANTS, FERNS, ETC.

CHANDLER and SONS solicit attention to their large collection of FLOWERING PLANTS, FERNS, and GERANIUMS, which they offer at moderate prices. Also an extensive stock of bedding plants ready for sending out.
Wandsworth Road, S.

STRONG Plants of all the New FUCHSIAS of last year, 12*s*. to 18*s*. per dozen, ditto VERBENAS of 1856, 6*s*. to 9*s*. per dozen.—Epps's Nurseries, Maidstone.

GREENHOUSE and STOVE PLANTS of the very best kinds, from 12*s*. to 21*s*. per dozen.
Epps's Nurseries, Maidstone.

AZALEAS SET WITH FLOWER.

W. J. EPPS has a very large Stock of the best kinds and all sizes, from 24*s*. per dozen and upwards.
Maidstone, May 16.

BEDDING PLANTS, &c.—Good established plants of GERANIUMS, VERBENAS, DAHLIAS, HELIOTROPES, CALCEOLARIAS, and other Plants for Bedding Out may be had at moderate prices; also a few of the leading kinds of BOURBON, HYBRID PERPETUAL, and TEA ROSES in pots.
Joseph May & Co., 1, Wellington Street, Strand.

RICHMOND NURSERIES, RICHMOND, SURREY.

G. and W. STEELL beg to inform the nobility, gentry, &c., that they are now sending out their BEDDING PLANTS in excellent condition, at 3*s*. per dozen in varieties. They have also some very fine large specimen Tom Thumb Geraniums for Vases to offer.

BEDDING PLANTS, ETC.

BASS and BROWN have this season a large and unusually strong stock of BEDDING PLANTS, also GERANIUMS and GREENHOUSE PLANTS generally, strong and in the finest health, ACHIMENES, GLOXINIAS, &c. Catalogues on application.—Sudbury, Suffolk.

BEDDING PLANTS.

HUGH LOW & CO. have now ready for Sale, in large or small quantities, Verbenas, Petunias, Phloxes, Calceolarias, Lobelias, Dahlias, Geraniums (Scarlet and others), Ageratums, Fuchsias, and all other plants suitable for Flower Garden decoration in summer at very reasonable prices.
Clapton Nursery, London, N.E.—May 16.

BEDDING PLANTS! BEDDING PLANTS!!

JAMES HOLDER, Florist, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20*s*. cash, or three dozen for 10*s*. 6*d*., consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Petunias, Gaillardias, Cupheas, Dahlias, Calceolarias, &c.

BEDDING PLANTS.

A. and G. BRAID, Florists, Hendon, Middlesex, beg to offer the following in excellent condition from 2*s*. 6*d*. to 4*s*. per dozen: 60 varieties VERBENAS, including Géant des Batailles, Moonlight, Nosegay, Impératrice Elizabeth, Gaiety, Simpson, &c.; Calceolarias, Heliotropes, Petunias, Salvias, Antirrhinums, Pentstemons, Cupheas, Scarlet and variegated Geraniums in great variety.

20,000 BEDDING PLANTS IN POTS.

JAMES SHEARMAN begs to offer fine healthy plants in 3-inch pots, at 3*s*. per dozen, packing and basket included to all orders amounting to 1*l*.—Scarlet Geraniums, Verbenas, Calceolarias, Heliotropes, Cupheas, Fuchsias, Salvias, Ageratums, Lobelia speciosa.—Post-office Orders payable at Queen's Elms, Brompton.
J. Shearman, The Nurseries, Queen's Elms, Brompton, S.W.

AGRICULTURAL SEEDS.

JAMES CARTER and CO., Seedsmen, 238, High Holborn, London, W. C., forward *free of charge* and *post-paid* to all parts of the World, their priced Catalogue of Agricultural Seeds.
James Carter & Co., Seedsmen, 238, High Holborn, London, W.C.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS and BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
Bass & Brown, Seed Growers, Sudbury, Suffolk.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers.—Nursery, Foot's Cray, Kent, S.E.

EPPS' CATALOGUE of all the New and Select PLANTS is now ready, and will be sent on application. His Wholesale List is also ready, and offers most of the new and leading Plants much to the advantage of the Trade.
The Bower Nurseries, Maidstone.

DILLISTONE and CO.'S ABRIDGED LIST OF BEDDING PLANTS, &c., is now ready, and can be had at the Nurseries, Sturmer, Halstead, Essex.—May 16.

WILLIAM BARNES begs to announce that his SPRING CATALOGUE is now ready for delivery, containing all the choicest Indian Azaleas, Cinerarias, Verbenas, Fuchsias, Hollyhocks, Phloxes, Liliums, Roses, Geraniums, Chrysanthemums, and Tree Carnations, with an extensive collection of Bedding and other Miscellaneous Plants, and will be sent post free on application.
Address, Camden Nursery, Camberwell, S.

GEORGE BAKER begs to announce that his DESCRIPTIVE CATALOGUE of AMERICAN PLANTS, ORNAMENTAL SHRUBS, CONIFERÆ, FRUIT and FOREST TREES is now ready, and may be had on application.
American Nursery, Windlesham, near Bagshot, Surrey, 1¼ mile from Sunningdale Station; one hour's ride from Waterloo Station; ¾ from Reading.

EXHIBITION OF TULIPS.

CHARLES TURNER'S COLLECTION, including many new and rare kinds, is now in very fine bloom, and may be viewed (Sundays excepted) until the end of the month. There are 17 trains daily from Paddington to Slough.
Royal Nursery, Slough, May 16.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

DAHLIAS and FANCY DAHLIAS, in 25 extra fine varieties, in assorted colours and strong plants, 12*s*., hamper and package free.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s*., packing and hamper included.—John Holland, Bradshaw Gardens, Middleton, near Manchester.
Post-office Orders payable at Middleton, near Manchester.

MEDINELLA MAGNIFICA.

JOHN and CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.
Nursery, Hammersmith.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (Perry).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—Thos. Perry, Nurseryman, &c., Banbury.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.
Wood & Ingram, Nurseries, Huntingdon.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2*s*. per lb.—J. G. Waite, Seed Merchant, 181, High Holborn, London, W.C.

STRONG DRUMHEAD CABBAGE PLANTS.—Any quantity of strong Drumhead or Scotch Cabbage Plants may be had on application to Francis & Arthur Dickson & Co., 14, Corporation Street, Manchester.

DAHLIA, CHRYSANTHEMUM, DAISY, PINK, GERANIUM (Bedding), VERBENA, PETUNIA, PANSY, and all the best PERENNIAL and ANNUAL SEEDS as good as it is possible to get them. GLENNY'S Improved BALSAM, 6 classes, 37 stamps; mixed, 13. Aster and Stock equally good.
G. Glenny, Horticultural Agent, Fulham, S.W.

NOTICE OF REMOVAL.

ROBERT M. STARK, Nurseryman and Seedsman, begs to intimate that he has Removed from 135, Princes Street, to more Central Premises, at 91, South Castle Street, where his Seed Business will be conducted as formerly. Every article connected with the Nursery business continues to be supplied at Edgehill Nursery, Dean.

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30*s.* per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32*s.* per acre.

Mixtures for improving and renovating old Grass Land, 1*s.* per lb.

Mixtures (finest sorts) for forming Lawns .. 1*s.* 3*d.* per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND AGRICULTURAL SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, beg to announce that their bulks of GRASS SEEDS are now finished cleaning, **and they can supply Mixtures for laying down Land** to Permanent Meadow and Pasture, Irrigation or Water Meadows, Parks or Pastures near Mansions, Cemeteries, Garden Lawns, &c. Also RENOVATING MIXTURE for improving old **swards, Italian and other Rye-grasses, Clovers,** White Belgian and other Carrots, Drumhead and other Cabbages, Yellow Globe, Long Red and other Mangel Wurzels, Swedes, Hybrids and other Turnips, and all kinds of Farm Seeds.

KITCHEN GARDEN SEEDS, either in collections ready assorted or separate. Grass Seeds for Garden Lawns, &c.

FLOWER SEEDS in assorted packets, or separately to order

T. G. & Co. beg to draw attention to their "GIBBS DEFIANCE" PEA, which they strongly recommend as one of the finest Table Peas in cultivation. Detailed Catalogues sent on application.—THOMAS GIBBS & Co., Seedsmen to the Royal **Agricultural Society of England, corner of Half-Moon Street,** Piccadilly, London, W.

NEW FUCHSIAS, VERBENAS, &c., OF 1856.

MITCHELL AND CO., Bristol Nurseries, Kemp Town, Brighton, are now prepared to send out good strong, healthy, bushy plants well established:—

FUCHSIAS of 1856.—Henderson's Charlemagne, Countess of Burlington, Conqueror, Admiral Boxer, Gloire de Neisse, General Williams, Prince of Wales, Donna Joacquina, Volcano di Aqua, Venus de Medici, Emperor Napoleon, Favourite, and Wonderful—6*s.* per dozen.

PETUNIA COUNTESS of ELLESMERE.—The best for bedding. Strong plants, 6*s* per dozen.

PETUNIAS.—Turner's, Smith's; also the new striped French varieties, 6*s.* per dozen.

VERBENAS.—Turner's, Henderson's, and Smith's varieties **of 1856. Good plants, 4*s.* per dozen.**

DAHLIAS.—Turner's and Keynes' collection of 1856—our own selection, 12*s.* per dozen.

DAHLIAS.—All the leading varieties of older dates, 6*s.* per dozen, or six dozen for 25*s.*

LOBELIA SPECIOSA.—The best in cultivation, 4*s.* per doz.

BOUVARDIA LONGIFLORA ALBA.—The true sweet-scented variety, 12*s* per dozen.

MEYENIA ERECTA.—Strong plants, 1*s.* 6*d.* each.

M. & Co. can supply their usual selection of Bedding Plants at 25*s.* per 100 for cash only.—Post-office Orders are requested from unknown correspondents, made payable to JOHN FAIRBROTHER, at the Upper Bedford Street Post Office, Brighton. **All Orders of 25*s.* and upwards are carriage free to London; or to any Station on the London and South Coast Railway, with plants to compensate for longer distances.**—May 16.

AGRICULTURAL AND HORTICULTURAL SEED ESTABLISHMENT.
195, HIGH STREET, EXETER, OPPOSITE BROADGATE,
LATE THOMAS VEITCH AND CO.

THOMAS CHARMES (23 years with Messrs. VEITCH & SON), announces that he has purchased from the Assignees of THOMAS VEITCH & Co. the above Business, which is now under his entire personal superintendence.

The Stock of **GARDEN, AGRICULTURAL,** and **FLOWER SEEDS** is now complete for the present season. The Stock **contains the newest and most valuable varieties, as well as those in general demand, and will be found well worthy of attention. Every variety has been proved, and all are warranted genuine, and without adulteration.**

The Stock of TURNIPS, MANGEL, CARROT, and GRASS **SEEDS** contains the finest samples **in excellent condition.**

SEED POTATOES, and all articles **connected with the Seed** Business, supplied equally good and reasonable. Lists forwarded on application.

N.B. 12 packets pretty Flower Seeds .. .. 1*s.* 6*d.*
12 ditto, select 2 0
12 ditto, new and choice .. .. .. 3*s.* to 6 0

NEW DOUBLE PETUNIAS. The Subscriber begs to offer to the public the undermentioned beautiful flowers; they will add another gem to the garland of Flora, and no doubt will be admired and appreciated by thousands. They are of the finest growth and most abundant bloomers, and have been selected from many others raised by J. SCOTT, of Merriott Nurseries, **Crewkerne, Somerset, to whom all applications are requested to be made.**

ÆGLE, **a very pretty purple Anemone flowered sort.**

ÆTHRA, a beautiful light lilac, full centre, which is shaded down to green.

ALCESTES, a bold large lilac flower, very handsome and showy.

ARIADNE, **a splendid full rosy purple, quite a lovely flower, will make one of the most beautiful beds that can be imagined. 5*s.* each, if ordered by itself.**

ASTRÆA, **fine Anemone flowered white, very large and free** bloomer.

ATYS, a splendid lilac flower with a fine full centre and abundant bloomer.

LEUCOSIA, **a very beautiful white tinged in the centre** with rose.

PARTHENOPE, **a lovely pure white flower, as double as a** Rose, a great improvement on Imperial.

The above are **all sweet scented and of quite a different habit** from Imperial, **and very free bloomers, 3*s.* 6*d.* each,** or the eight varieties, including basket and packing, for 25*s.* For every three ordered by the trade one will be added. Plants ready the second week in June, and all orders sent out in rotation.

NEW AND RARE PLANTS.

ABIES KÆMPFERI
(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies **Kæmpferi will prove by far the most important of all my** Chinese introductions. Like all northern Chinese plants which **are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape.** The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the **plant is altogether unlike any** Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the **economical arboriculture of this country. Mr. Fortune** consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21*s.* each; a few strong plants 12 to 15 inches high, imported from the North of China, 63*s.* The **usual discount to the trade.**

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21*s.* each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in the open, protected, and looks as green as those under glass. Price per plant, 5*s.* Discount to the trade.

ARALIA PAPYRIFERA
(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which is now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7*s.* Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from very old. It is quite hardy, 31*s.* each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.* says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly intense emerald green, copiously blotched with patches of creamy yellow, having no apparent relation to the veins. The leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured **and described in the February No.** of the "Flora" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improved beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63*s.* each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

WOOD AND INGRAM beg to offer the following, which are all fine bushy well estabished plants, none in less than 3 inch pots:—

	per doz.—*s.* *d.*	*s.* *d.*
Verbenas, all the colours		2 6
Heliotropes, several sorts	2 6	to 3 0
Calceolarias, shrubby, very fine plants	3 0	,, 4 0
Salvia patens		3 0
Nierembergia gracilis		2 6
Cuphea platycentra		2 6
Lantanas, sorts	2 6	,, 3 0
Ageratum variegatum and others	2 6	,, 3 0
Variegated Geraniums, sorts	4 0	,, 5 0
Ivy-leaved do.	3 0	,, 4 0
Dahlias, finest show and fancy varieties	4 0	,, 9 0

With many other kinds at the same rates.
Huntingdon Nurseries, May 16.

R. M. STARK begs to intimate that his LIST OF **GARDEN AND FLOWER SEEDS** for the season is **now ready. Besides securing a supply of all the old varieties** from the purest stocks, he has added every novelty likely to be useful. He would particularly recommend the following New Flower Seeds, most of which he had an opportunity of seeing last season in flower:—

	Per packet.—*s.* *d.*
Acroclinium roseum, a fine large rose-coloured Everlasting, in the way of Rhodanthe	1 0
Bidens ferulæfolia, fine foliage	0 6
Collinsia bicolor flore albo	0 6
,, multicolor marmorata	1 0
Cucumis perennis, a new Perennial Gourd	1 0
Cosmidium Burridgeanum	1 0
Gypsophila muralis	0 6
Lupinus Hartwegi flore albo	1 6
Nemesia versicolor compacta	1 0
Obeliscaria pulcherrima, allied to Rudbeckia, colour of flower resembling a striped French Marigold	1 0
Polycolymna Stuarti, fine large white Everlasting	1 0
Veronica Syriaca, fine new annual species, with gentian-blue and white flowers, for bedding	2 6

GERMAN FLOWER SEEDS of the most approved sorts, mixed or in collections.—31, South Castle Street, Edinburgh.

JOHN CATTELL has the following very CHOICE BEDDING PLANTS now ready to send out at the prices annexed:—

VARIEGATED GERANIUMS.	Each. *s.* *d.*	Dozen *s.* *d.*
Those marked thus * are very strong growers.		
*Alma, brilliant scarlet	2 6	24 0
***Annie, bright deep scarlet**	2 6	24 0
Attraction (Kinghorn's), good plants; the leaves of this are now very highly coloured	1 0	9 0
Do. extra strong in 5-inch pots	—	30 0
Countess of Warwick, bright scarlet	2 6	24 0
Golden Chain	1 0	9 0
Mrs. Lennox	2 6	24 0
Mountain of Light	—	9 0
Silver King	1 6	—
Do. Queen	1 0	9 0
And several others.		
SCARLET GERANIUMS.		
Beauty of Chipstead, of the "Commander-in-Chief" style, but very superior in colour	1 0	9 0
Beauty of Combe Bank, extra fine scarlet	1 0	—
Boule de Feu, of the Tom Thumb habit, but very superior in every way	2 6	24 0
General Pelissier	2 6	24 0
And all the other best varieties.		
Calceolaria Beauty of Westerham, extra fine deep rich crimson of Sultan habit	1 0	9 0
Delphinium formosum	—	6 0
,, Hendersonia	1 0	—
,, magnificum (true)	1 6	—
,, hybrida flore pleno	1 0	—
,, Mooreanum	1 0	—
Linum grandiflorum or coccineum	—	5 0
Lobelia fulgens, multiflora, and St. Clair	1 0	9 0
,, **erinus speciosa, and other dwarf blue varieties**	—	8 0
Oxalis Bowei, now in the right condition to plant out for flowering all the summer and autumn	—	6 0

J. C.'s Catalogue No. 4 may be had gratis on application; it contains lists of the most select French, Florist, and other Geraniums, Indian Azaleas, Fuchsias, and a general assortment of Bedding Plants, &c. A remittance or reference required from unknown correspondents.

Nursery and Seed Establishment, Westerham, Kent.
This Advertisement will not be repeated.

ROSES IN POTS FOR BEDDING.
BY THE HUNDRED OR BY THE THOUSAND.

WM. WOOD AND SON beg to intimate that the present season is very eligible for planting out Roses in beds, and refer with pleasure to their overwintered stock of many thousands of first-rate healthy plants, to a personal inspection of which they earnestly invite their friends.

	Per dozen.		Per dozen.
Hybrid Perpetuals	12*s.* to 18*s.*	Tea-scented	15*s.*
Bourbons	12*s.* ,, 18*s.*	Noisette	9*s.* to 18
China	9*s.* ,, 12*s.*	Banksian (for walls)	15*s.*

The trade supplied at a great reduction. Catalogues, Wholesale and Retail, gratis on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

50,000 DWARF ROSES IN POTS.

WM. WOOD AND SONS have much pleasure in soliciting especial attention to their enormous stock of **ROSES in pots, a portion of which are offered on their own** roots, and the remainder are neatly grafted plants on the Manetti stock, worked close to the root, now ready for immediate planting. Some idea of the extent of the stock offered may be formed from the following select list of a few of the leading kinds:—

HYBRID PERPETUAL. Quantity	Per doz.—*s.*
4000 Géant des Batailles	15
2000 Général Jacqueminot	20
2000 Duchess of Norfolk	20
2000 Jules Margottin	15
1000 Alexandrine Bachmeteff	15
1000 William Griffiths	15
1000 Louise Odier	15
1000 Souvenir de Leveson Gower	20
1000 Duchess of Sutherland	15
1000 Pius the Ninth	15
500 Auguste Mie	15
500 Queen Victoria	15
500 Mrs. Rivers	15
500 La Ville de St. Denis	15
500 Jacques Lafitte	15
500 William Jesse	15
And other leading kinds in large quantities (own selection)	12*s.* to 18
BOURBON.	
500 Sir Joseph Paxton	15
500 Bouquet de Flore	15

BOURBON. Quantity.	Per doz.—
And other leading kinds (own selection)	12*s.* to
2000 Paul Ricaut, Hybrid Bourbon	
TEA ROSES.	
1000 Gloire de Dijon	20*s.* to
500 La Sylphide	
Other fine kinds	
CHINA ROSES ADAPTED FOR BEDDING IN LARGE QUANTITIES.	
Fabvier	
Cramoisie supérieure	
Henri Cinq	
Mrs. Bosanquet (cream)	
Prince Charles	
Marjolin	
L'Eblouissante	
Louis Philippe D'Angers	
And other fine kinds	9*s.* to
Fine Noisette Roses	9*s.* to
Banksian Roses (for walls)	

N.B. Extra plants presented to compensate for the carriage. Catalogues gratis and post-paid on application. The trade supplied at a great reduction on the above prices, particulars of which can be obtained.

Early orders are respectfully solicited, as the greater part of the stock remaining unsold will be planted out in May.

W. W. & S. can supply all the new Roses of this season as required, but will NOT recommend them until they have themselves tested their merits.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.—May 16.

NEW FRENCH VERBENAS OF 1857 at 1*s.* 6*d.* (trade).

Amphitrite	Socrate	Comte de Cavour
Madame Turner (C.)	Surprise	Mdlle Casille
Phoebus	Calypso	Gaspard Dosin
Promethie	Eclipse	Madame Castellan
Madame Bastien	Psyche	Sire de Franc-Bois
Vertumne	Minotaure	Clemence Robert
Andromaque	Cudjo	Madame Morel
Madame Turner (R.)	Evelina	Julia de Courcelle

NEW FRENCH PETUNIAS OF 1857 at 1*s.* 6*d.* each (trade).

L'Abbé Lorraine	Madame Plantamour	Madame L. Cazaux
Adolphe Wieck	Anton Rochel	Madame Kneitscher
Charles Turner	Iwan Schlumberger	La Pintade
Madame Schmidt	Monsieur Laurentius	Prince Imperial

NEW FRENCH PENTSTEMONS OF 1857 at 5*s.* each (trade).

Cardinalis | Elegans | Insignis | Lemoinei | Ornatus

FRENCH VERONICAS, at 2*s.* each (trade).

Meldensis | Verschaffelti | Fortieri

Besides the above, Messrs. WILLIAM ROLLISSON & SONS have several novel and pretty bedding and others soft-wooded plants. An inspection is invited.—The Nurseries, Tooting, London.

HORTICULTURAL SOCIETY OF LONDON.

The Regulations to be observed at the Exhibitions (1857) can be had on application, or by letter, at 21, Regent Street; or at the Gardens, from Mr. M'Ewen, the Superintendent.

SPECIAL GENERAL MEETINGS.

WEDNESDAY and THURSDAY, June 3 and 4; at the Garden. Open FREE to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 a.m. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s.* Admission Tickets. Open to the public, with 5*s.* Tickets, at 2 p.m., June 3, or with 2*s.* 6*d.* Tickets, 2 p.m June 4.

On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends.

SATURDAY, October 24, at Willis's Rooms. Open to Fellows or their Ivory Tickets, accompanied by any two friends bearing 2*s.* 6*d.* Tickets, at noon; to other Visitors, with 2*s.* 6*d.* Tickets, after 1 p.m.

TICKETS are now to be procured at the Society's Rooms, 21, Regent Street (S.W.)

FIVE SHILLING TICKETS will be charged 3*s.* 6*d.* each to Fellows, if paid for on or before May 23. After that day the full price must be paid by all. These Tickets admit the bearer early, as above stated, or after 2 p.m. on June 3; or they will each introduce two persons after 2 p.m. on June 4, at the Gardens, or at Willis's Rooms, October 24, after 1 p.m.

HALF-CROWN TICKETS will be charged 2*s.* each to Fellows, if paid for on or before May 23, for the June Meeting, on or before October 17, for the October Meeting. These Tickets admit the bearer to the Garden after 1 p.m., June 4, or at Willis's Rooms after 2 p.m., October 24.

N.B. On the days of Exhibition, Five Shilling Tickets will be charged 7*s.* 6*d.*, and Half-Crown Tickets, 3*s.* 6*d.* each.

SCHEDULE OF THE EXHIBITION AT CHISWICK GARDEN.

WEDNESDAY, JUNE 3; THURSDAY, JUNE 4.

Section I.—ORNAMENTAL PLANTS.

Classes.	Prizes offered.		
I. *a.* Fifteen Mixed Stove and Greenhouse plants in flower	£20	£15	£10
b. Ten do. do. ...	10	7	5
c. Six do. do. ...	5	3	2
II. *a.* Fifteen Orchids; ... (*Amateurs*)	20	15	10
b. Ten do. ... ... (*do.*)	10	7	5
c. Six do. ... ... (*do.*)	5	3	2
d. Fifteen do. ... ...(*Nurserymen*)	15	10	
III. *a.* Ten Chinese Azaleas...	10	7	5
b. Six do. ... (*Amateurs*)	7	5	3
IV. *a.* Eight Roses in pots; in 13-inch pots ... ... (*Amateurs*)	5	3	2
b. Twelve do. do. (*Nurserymen*)	7	5	3
c. Twenty-five do. cut specimens .. (*Amateurs*)	2	1	15*s.*
d. Fifty do. do. (*Nurserymen*)	2	1	15*s.*
Under *c.* and *d.* three trusses of each are to be exhibited as they are gathered. Any non-compliance will disqualify.			
V. Six Cape Heaths	4	3	2
VI. *a.* Eight Pelargoniums; in 8-inch pots (*Amateurs*)	7	5	3
b. Twelve do. do. ... (*Nurserymen*)	7	5	3
c. Six Fancy Pelargoniums; (*Amateurs*)	5	4	2
d. Eight do. do. (*Nurserymen*)	5	4	2
VII. *a.* Rhododendrons; in sixes	5	4	3
b. Do. Sikkim and Bootan kinds, whether in or out of flower—number unlimited—but one specimen only of a kind	5	4	3
VIII. Twenty Variegated plants	7	5	3
IX. Twelve Plants with fine foliage not in flower	5	4	3
X. Six Tall Cacti	3	2	1
XI. *a.* Ferns; Twelve Stove and Greenhouse	4	3	2
b. Do. Twelve Hardy	3	2	1
XII. Ten Lycopods; of not fewer than five kinds	2	1	15*s.*
XIII. Newly introduced or extremely rare species of ornamental plants in flower, not introduced by the Society			
XIV. The same; not in flower			
These must be handsome well-grown specimens showing the habit of the plants, or will not be entitled to a prize.			
N.B. The Medals in XIII. and XIV. will be awarded by the Society's officers, and not by the usual Judges. Exhibitors will particularly observe that none but new or rare species can be exhibited under this number. *Nothing will be regarded as new which has been exhibited in a previous season.*			
XV. Single Specimens. (*No person can take more than one prize in this class.*)	2	30*s.*	£1 & 15*s.*
XVI. New Garden Hybrids ... ... From this class all Florists' flowers are excluded.	Certificates only.		
XVII. Miscellaneous ... ... Any Plants, of whatever kind, except Florists' flowers, may be shown under this class.			
XVIII. Florists' Flowers ... ... A tent will be set apart for these, and Judges appointed for the purpose, will grant Certificates of Merit of three degrees.			

Section II.—FRUIT.

Classes.	Prizes offered.		
XIX. *a.* Pine Apples, Providence and other large sorts	£2	£1	15*s.*
b. Do. Jamaicas, Queens, &c...	2	1	15*s.*
XX. Grapes; single dishes, each containing three bunches:			
a. Black Hamburgh	3	2	1
b. Other black kinds	3	2	1
c. Muscats	3	2	1
d. Other white kinds	3	2	1
XXI. Vines in pots; in threes	3	2	1
XXII. *a.* Eight Fruit Trees in pots (*Nurserymen*)	3	2	1
b. Six do. do. (*Amateurs*)	3	2	1
XXIII. *a.* Peaches; in single dishes	2	1	15*s.*
b. Nectarines; do.	2	1	15*s.*
XXIV. *a.* Melons, green or white-fleshed ...	1	15*s.*	10*s.*
b. Do. scarlet-fleshed	1	15*s*	10*s.*
XXV. Figs; in sixes	15*s.*		
XXVI. *a.* White Cherries; in single dishes ...	£1	15*s.*	10*s.*
b. Black do.	£1	15*s.*	10*s.*
XXVII. Strawberries; in single dishes	£2., 30*s.*, 20*s.* 15*s.*, 10*s.*		
XXVIII. Seedling fruits never shown before the present year	Certificates only.		

Fruiterers are excluded from competition at this meeting.

Section III.—VEGETABLES.

Classes.	Prizes offered.		
I. Collection (*Market Gardeners*) ...	£2	30*s.*	£1
II. Collection (*Private Growers*) ...	£2	30*s.*	£1
III. Cabbages; in threes	10*s.*	7*s.*	5*s.*
IV. Cauliflowers; in threes	15*s.*	10*s.*	7*s.*
V. *a.* White Cos Lettuces; in sixes ...	10*s.*	7*s.*	5*s.*
b. Cabbage Lettuces; in sixes... ..	10*s.*	7*s.*	5*s.*
VI. Kidney Beans; hundred	10*s.*	7*s.*	5*s.*
VII. Early Peas; in pods	15*s.*	10*s.*	7*s.*
VIII. Asparagus; fifty heads not exceeding eight inches in length... ...	10*s.*	7*s.*	5*s.*
IX. Rhubarb	10*s.*	7*s.*	5*s.*
X. Potatoes; forced, not less than 3 lbs.:			
a. Kidneys	10*s.*	7*s.*	5*s.*
b. Rounds	10*s.*	7*s.*	5*s.*
XI. Carrots	10*s.*	7*s.*	5*s.*
XII. Turnips	10*s.*	7*s.*	5*s.*
XIII. Braces of Cucumbers	15*s.*	10*s.*	7*s.*
XIV. Mushrooms	10*s.*	7*s.*	5*s.*
XV. Salad; the best and most varied ...	£1	15*s.*	10*s.*

Section IV.—HORTICULTURAL MANUFACTURES.

General Rules to be observed in the Department of Manufactured Articles.

I. The objects exhibited will be arranged under the following Classes:—

Class A.—HEATING APPARATUS: Boilers, Hot-water pipes, Furnaces, Flue Tiles fixed, &c.

Class B.—MACHINES: for Mowing, Wheeling, Sowing, Transplanting, Fumigating, Watering, Syringing; Vermin Traps, Pumps and their Fittings, Hose, &c.

Class C.—GARDEN TOOLS: Spades, Forks, Hoes, Rakes, &c.

Class D.—CUTLERY: Knives, Shears, Scissors, Scythes, Pruning Instruments, &c.

Class E.—POTTERY: Garden Pots, Bricks for Horticultural purposes, Pipes, Flue Tiles unfixed, Paving Tiles, Border Edgings, &c.

Class F.—LABELS: whether in Wood, Metal, or Glass; Plain, Enamelled, or otherwise lettered, &c.

Class G.—OBJECTS OF DECORATION: such as Glazed Cases, Aquariums, Vases in Iron, Imitation Stone, or Terra Cotta, Fountain Designs, Ornamental Flower Pots, Encaustic Tiles, Flower Baskets, Brackets and Chandeliers for Conservatories, &c.

Class H.—MATERIALS FOR CONSTRUCTION: Roofs, glazed and unglazed, Ventilators, Asphaltes, Concretes, Slate Work, &c.

Class I.—PROTECTING MATERIALS: Nets, Wire-work, Woven Fabrics, Mats, Straw Coverings, Tents, &c.

Class K.—BEE HIVES, with or without Honey, including all Apiarian Apparatus.

Class L.—PHILOSOPHICAL INSTRUMENTS: such as Thermometers, Hygrometers, Actinometers, &c.

Class M.—MISCELLANEOUS: for any articles used in Gardens which are not included in the other Classes.

II. The productions of all nations will be admitted.

III. No charge whatever will be made to Exhibitors for the space they occupy.

IV. Shelter for the more delicate articles will, if required, be provided at the expense of the Society.

V. Applications for space must be made on or before May 16, in the absence of which, articles will be liable to exclusion, and cannot be included in the Catalogue.

VI. All articles exhibited in this section must be delivered at the Garden not later than Saturday, May 30, unless where special permission to the contrary shall have been granted by the Committee. If they require fixing, they must be fixed by that time.

VII. Every article must be legibly labelled by the owners, subject to the approval of the Committee.

VIII. The expense of fittings and fixing to be borne by each Exhibitor.

IX. Exhibitors will be required to deliver and remove their objects at their own charge and risk, to and from the Society's Garden, Chiswick.

X. The Society is prepared to take the greatest care, in its power, of all objects sent; but is not prepared to incur a degree of responsibility unusual with regard to public Exhibitions. For this reason the Society cannot be responsible for damage which may be occasioned by accident or loss by robbery. The Committee will, however, spare no pains in making such Police and other arrangements as may appear adequate for the protection of the Exhibition, and the security of the articles exhibited.

XI. Machines to be worked by horse or steam power cannot be shown in operation. Machines worked by hand may be shown in operation if practicable, after obtaining permission from the Committee, provided the Exhibitor provides a person to work them.

XII. When Tents, Greenhouses, or other Structures are exhibited, the Committee reserve to themselves the right of occupying the interior with any objects that may be suitable.

XIII. Exhibitors will be allowed to distribute Circulars, or Printed Papers, explanatory of the objects exhibited, provided such Papers shall be approved of by the Committee. But under no circumstances can they be permitted to make such distribution elsewhere than at their own stand.

XIV. Prices it is hoped will be affixed to the articles exhibited.

XV. Should any Exhibitor desire to employ an assistant or agent of his own to preserve or keep in order the articles he exhibits, or to explain them to visitors, he may do so after obtaining permission from the Committee, which will be granted if the Exhibition seems of sufficient importance to justify it. Such persons, however, will be forbidden to invite visitors to purchase the goods of their employers. The pass issued will be admissible on June 3 from 12 o'clock to 6, and on June 4 from 10 o'clock to 6.

XVI. In the Catalogue, which will be published before the Exhibition takes place, all the articles belonging to each Exhibitor will be kept together, but a Classified Index will be prepared. In the Exhibition itself, they will be separated into their different Classes.

XVII. Each Exhibitor is requested to forward as early as possible (not later than May 23), and in duplicate, the list of the objects he proposes to exhibit, with such description of them as he would wish to appear in the Catalogue. Woodcuts, provided by Exhibitors, will be admitted if approved of by the Committee. The Committee reserve to themselves the right of using such portion only of the description sent as they may think proper. All self laudation will be omitted.

XVIII. Exhibitors who may be desirous of leaving their goods in the Garden for the inspection of visitors, will be allowed to do so for the space of one fortnight.

XIX. No goods whatever can be removed until after 6 P.M., June 4.

XX. Attendants disregarding the rules laid down, for the benefit of all, will be liable to removal from the Gardens.

FRUIT EXHIBITION AT WILLIS'S ROOMS.—SATURDAY, October 24.

Classes.	Prizes offered.		
I. COLLECTIONS of fruit (*Fruiterers only*)	£4	£3	£2
II. GRAPES:			
a. Three bunches of Muscats	2	1	15*s.*
b. Do. of other White kinds...	2	1	15*s.*
c. Do. of Black Hamburgh ...	2	1	15*s.*
d. Do. of other Black kinds ..	2	1	15*s.*
e. Collections ... (*Foreigners only*)	4	3	2
f. Boxes of 15 lbs. weight (*Market Gardeners only*)	3	2	1
III. PINE APPLES:			
a. Threes	3	2	1
b. Single specimens	2	1	15*s.*
IV. PEARS, *of Home Growth:*			
a. Twelve sorts, six of each	3	2	1
b. Six sorts; six of each	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
IV.—*Continued*—*d.* Single dishes of kitchen kinds, of one sort, containing six fruit ..	15*s.*	10*s*	10*s.*
V. PEARS; *of Foreign growth:*			
a. Twelve sorts; six of each	£3	£2	£1
b. Six do. do.	1	15*s.*	10*s.*
c. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
d. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VI. APPLES; *of Home growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ..	15*s.*	10*s.*	10*s.*
VII. APPLES; *of Foreign growth:*			
a. Twelve sorts; six of each	2	1	15*s.*
b. Single dishes of dessert kinds, of one sort, containing six fruit	15*s.*	10*s.*	10*s.*
c. Do. kitchen do. do. ...	15*s.*	10*s.*	10*s.*
VIII. ORANGES, LEMONS, AND CITRONS:			
a. Collections of Foreign growth	£3	2	1
b. Do. Home do.	2	1	15*s.*
IX. PEACHES; single dish, containing six specimens	15*s.*	10*s.*	10*s.*
X. NECTARINES do. do.	15*s.*	10*s.*	10*s.*
XI. MELONS; single fruit	15*s.*	10*s.*	10*s.*
XII. PLUMS AND PRUNES; of either English or Foreign growth:			
a. A collection of three sorts, twelve fruit of each	1	15*s.*	10*s.*
b. Single dishes of one sort, containing twelve fruit	15*s.*	10*s.*	10*s.*
XIII. FIGS	1	15*s.*	10*s.*
XIV ALPINE STRAWBERRIES	1	15*s.*	10*s.*
XV. CURRANTS	15*s.*	10*s.*	10*s.*
XVI. RASPBERRIES	15*s.*	10*s.*	10*s.*
XVII. EUGENIA UGNI (See Note below)			

Note.—For Single Dishes of this valuable new Fruit Two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the 1st of £2, the 2nd of £1.

Fruit is expected to be as nearly ripe as circumstances will admit. Winter fruit will of course be unripe. Exhibitors are invited to decorate their stands with suitable Plants or other ornaments.

CHOICE BEDDING PLANTS.

YOUELL AND CO.,

BEG RESPECTFULLY TO SUBMIT THE FOLLOWING, AND TO INVITE PARTICULAR ATTENTION TO THEIR

LIST OF SHRUBBY CALCEOLARIAS,

WHICH THEY CONFIDENTLY RECOMMEND; IT COMPRISES ALL THE MOST BEAUTIFUL AND BRILLIANT VARIETIES IN CULTIVATION, VIZ:—

	Each s. d.	Pr doz. s. d.
Albira (Cole), orange with brown spots		18 0
Beauty of Montreal, bright crimson, an effective and very excellent bedding variety		6 0
Brunettia, bright rich crimson, with extra large fine formed flowers		9 0
Camden Hero (Barnes), brilliant crimson, extra fine	1 6	
Correggio, orange buff, shaded, free, large, and very showy, a first rate bedding variety		9 0
Golden Chain, fine golden yellow, extra		9 0
Goldfinder (Cole), deep yellow	1 6	
Gold-Cap, rich dark maroon, deep yellow cap		9 0
Harlequin (Cole), dull orange, densely spotted with dark brown	1 6	
Kentish Hero, orange buff		6 0
Lemonade (Cole), lemon		12 0
Maggiore, rich ruby crimson, with a large yellow cap, possessing a fine free growth, a noble bedding variety		9 0
Magnificent, rich crimson, with yellow crown		9 0
Minnie, rich bright dark crimson flowers, a beautiful neat bedding variety, and remarkably free blooming, extra		9 0
Mr. White, rich shining bronze red		6 0
Norma, crimson orange, very conspicuous, large flowers, free		9 0
Orange Perfection (Cole), bright pale orange	2 0	
Orange Boven (Cole), bright orange brown, dwarf habit	1 6	
Pallida (Cole), pale canary yellow		9 0
Pilot (Cole), crimson brown, dense bloomer	1 6	
Red Rover, bright crimson, shaded with orange, large and free flowerer, fine habit		9 0
Sultan, fine large crimson		6 0
Superba (Turner), fine dwarf, dark crimson, extra fine		6 0
Vezzosa, flowers large and fine formed, of a bright orange and crimson shaded		12 0
Viscosissima, deep yellow		6 0
Wellington Hero (Henderson), fine yellow		9 0
Wildfire, bright dazzling orange and crimson, shaded, large and very showy, fine free growth, extra		9 0

Fine Selections, left to Youell & Co., 6*s. per dozen.*

MISCELLANEOUS BEDDING PLANTS, ETC.

	s.	d.
Aubrietia purpurea, per dozen	4	0
Ageratum cœlestinum, per dozen	6	0
Aloysia citriodora (Lemon-scented Verbena), per dozen	9	0
Anagallis of sorts, per dozen	6	0
Antirrhinums of finest kinds, by name, per dozen	6	0
Belgian Daisies, 30 new varieties by name, per dozen	4	0
Berberis Darwini, fine golden yellow, per dozen	9	0
Calystegia pubescens, rose-coloured double flowering Convolvulus, a good hardy climber, per dozen	6	0
Cheiranthus Marshalli, golden yellow, very fragrant, per dozen	6	0
Carnations, finest sorts by name, per dozen pairs	18	0
,, ,, mixed border	9	0
,, Tree in perpetual flowering, per dozen	18	0
,, true old Clove, per dozen pairs	12	0
Campanula corallina, blue, per dozen	6	0
,, pulla alba ,,	4	0
Chrysanthemum regalium flore pleno, fine golden yellow, beautiful for clumping or mixed beds, per doz.	6	0
Chrysanthemums, the handsomest of the new large flowering and Pompone kinds, per dozen	6	0
Cobea scandens, per dozen	9	0
Cuphea platycentra, per dozen	6	0
,, strigulosa sanguinea, per dozen	6	0
DELPHINIUM FORMOSUM.—A most beautiful new variety, with flowers larger and habit more dwarf than D. Hendersoni, per dozen	18	0
This fine variety produces flowers from May to October, and forms a lovely and permanent bed of the richest blue.		
DELPHINIUM BARLOWI AND MOOREANUM, per doz.	6	0
Do. HENDERSONI AND MAGNIFICENT, each	1	6
Dahlias, fine show and fancy varieties, per dozen 6*s.* and	9	0
Fuchsias, finest bedding varieties, per dozen	6	0
Gazania rigens, large orange, dark centre, per dozen	6	0
Genista tinctoria (double) deep orange	6	0
Geraniums, scarlets, such as Trentham, Tom Thumb, &c., per 100, 30*s.*; or per dozen	4	0
GERANIUMS, "Variegated," viz.:— Alma, 2*s.* 6*d.* each; Attraction (Lee's), 1*s.* 6*d.* each; Brilliant, per dozen, 9*s.*; Mangles' Silver Edge, 6*s.* per doz.; Mrs. Lennox, 2*s.* 6*d.* each; Prince of Orange (variegated), 18*s.* per doz.; Golden Chain, 12*s.* per doz.; Mountain of Light, 12*s.* per doz.; Silver Ivy Leaf, 12*s.* per doz.; Flower of the Day, 6*s.* per dozen; Silver King, 18*s.* per doz.; Silver Queen, 18*s.* per doz.; Crimson Ivy Leaf, 6*s.* per doz.; White ditto, 6*s.* per doz.		
	s.	d.
Geum atrosanguineum, per dozen	3	0
Hollyhocks, a collection of best named varieties, per doz.	12	0
Heliotropes of choice kinds, per dozen	6	0
Koniga variegata, very pretty for edging and mixing with Verbenas, per dozen	6	0
Lantanas, of sorts, per dozen	6	0
Lithospermum purpureum ceruleum, per dozen	9	0
Lobelia compacta alba, dwarf white, per dozen	4	0
,, Lindleyana, lilac ,,	4	0
,, lucida, light blue ,,	4	0
,, lutea, yellow ,,	6	0
,, ramosoides, dark blue ,,	4	0
,, speciosa, large blue, the finest of its class, and remains in bloom until late in the season, per dozen	6	0
LOBELIAS (tall growing varieties) viz.:— fulgens, 6*s.* per dozen; f. multiflora, 12*s.* per doz.; Roi Leopold, 6*s.*; splendens major, 9*s.*; Feu du Roi (extra fine), 12*s.*; St. Clair, 12*s.* per dozen.		
	s.	d.
Lychnis coronata, 9*s.* per dozen; dioica alba fl. pl., each	1	0
Lophospermums of sorts, per dozen	9	0
MYOSOTIS AZONICA.—Strong plants of this beautiful hardy herbaceous plant, producing numerous heads of bright blue flowers of dwarf habit, per dozen	6	0
Malva Creeana, per dozen	6	0
Mesembryanthemums of showy kinds, per doz.	9	0
Migacea rubra, per dozen	6	0
Mimulus, 10 beautiful new varieties for	6	0
Nasturtium Triomphe de Gand, per dozen	6	0
,, Lille Schmidt	6	0
,, Double Dark and Double Yellow, per dozen	6	0
Nierembergia filicaulis, white; lavender eye, very pretty for bedding, per dozen	6	0
Do. intermedia, rich puce, per dozen	9	0
Oxalis floribunda and rosea, quite hardy, producing a fine bed of rich rose colour, per dozen	6	0
Œnothera macrocarpa (large yellow), per dozen	9	0
,, riparia, bright canary, of dwarf trailing habit, per dozen	6	0
Petunias, a collection of all the handsomest varieties, including the beautiful new striped kinds introduced last season, per dozen	6	0
PHLOXES.—A selection of all the new and handsomest varieties of this much admired flower, including that fine new Phlox, Countess of Home, per dozen	9	0
PHLOXES.—fine do., of 1854 and 1855 ,,	6	0
PANSIES.—A fine collection of all the new and first-rate flowers, per dozen	9	0
PANSIES.—Finest mixed, per dozen	4	0
POTENTILLAS.—10 handsome varieties, by name, for	6	0
PENTSTEMONS.—A fine collection of all the best kinds, per dozen	9	0
PICOTEES, finest sorts by name, per dozen pairs	18	0
,, fine mixed border ,,	9	0
,, ,, yellow, by name ,, 20*s.* to	30	0
PINKS.—A fine collection of first-class kinds, by name, per dozen pairs 9*s.* to	12	0
PINKS.—Fine mixed border, per dozen pairs	6	0
ROCKETS.—Double Crimson, per dozen	9	0
,, ,, Yellow ,,	4	0
ROSES.—Tea-scented and others in pots, strong, per doz.	18	0
Salvia porphyrantha, an extremely pretty species of dwarf habit, bearing a profusion of scarlet flowers, per dozen	9	0
Salvia patens, strong roots of last season's growth ,,	9	0
Salvias, of sorts, per dozen	6	0
Sedum Sieboldi ,,	6	0
Statice latifolia ,,	6	0
,, maritima rosea and pseudo-armeria. Strong plants of these two beautiful and hardy species, producing throughout the year a profusion of lake-coloured flowers	3	0
Senecio, double purple and double white, per dozen	6	0
Silene maritima alba pleno, per dozen	6	0
Trachelium album, per dozen	6	0
"VERBENAS," scarlet, red, crimson, claret, rose, pink, blush, white, lavender, blue, purple, plum, striped and variegated, of the newest and handsomest vars. in cultivation, per 100	25	0
Verbena Imperatrice Josephine or Maonetti; this very pretty variety of dwarf habit (not exceeding 4 inches in height), and bearing a profusion of bright lavender flowers striped with white (well adapted for edging or small beds), per dozen	6	0
Wallflower, double yellow	6	0
,, ,, dark	6	0

N.B.—Less quantities than per dozen will be charged at same rate.

Herbaceous Plants, of which we possess an extensive collection of the most showy kinds, 6*s.* per dozen, 30*s.* per 100.

"FUCHSIAS."

The following choice beautiful varieties at 12*s.* per dozen, viz., Admiral Boxer, Wonderful, Conqueror, Countess of Burlington, Fairy Queen, Empress Eugenie, Mrs. Story, Emperor Napoleon, Raffaelle, Venus de Medici, Queen Victoria, Charlemagne, Prince of Wales, Favourite, Miellezi, Volcano di Aqua, Maid of Kent, Omar Pasha, Thalia, Grand Sultan.

All Orders of £2 and upwards are delivered Carriage Free to

LONDON, MANCHESTER, HULL, AND NEWCASTLE,

as well as to any Railway Station within 150 miles of the Nursery.

COMMUNICATIONS, BY STEAMER AND RAILWAY,

To all parts of England, Ireland, and Scotland, as well as to the Continent.

It is respectfully solicited that all Post-office Orders be made payable to Youell & Co., Yarmouth, Norfolk.

ROYAL NURSERY, GREAT YARMOUTH, NORFOLK.

FLOWER AND VEGETABLE SEEDS.

James Carter and Co., Seedsmen, 208, High Holborn, London, W.C., Seedsmen to Eleven of the Principal Botanical Societies of the British and Continental Empire, invite the attention of the Floricultural World to their Encyclopædic Catalogue of Floricultural, Vegetable, and Agricultural Seeds (the twenty-second annual issue), forwarded free of charge and post paid to all parts of the world upon application.

James Carter & Co., Seedsmen, 238, High Holborn, W.C.

VERBENA "MISS TROTTER."

In consigning the stock of "Miss Trotter" Verbena to Mr. R. Parker for distribution, beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admired by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a gem; scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—James Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in a flower garden."—John Munro, Gardener to Mrs. Oddie, Cottage House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. Parker's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

David Thomson, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. Parker has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1*s.* 6*d.* each, or 12*s.* per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

A BARGAIN.

Parties desirous of obtaining a good collection of GERANIUMS cheap, could not do better than send their orders immediately to Henry Walton, Edge End, Marsden, near Burnley, Lancashire, who, being desirous of clearing them off, offers them at the following unprecedented low prices; the plants are strong and vigorous, in 4 and 5-inch pots:—

The following Show Geraniums of 1855, purchaser's selection, 25*s.* per dozen, viz., Admirable, Amazon, Corsair, Clotilde, delicatum, Eva, Eminée, Edith, Floretta, Gaiety, Juliet, Meteora, Mr. White, Prince of Wales, Purple Prince, Rosaline, Sparkler, and Triumphant.

Geraniums of 1854, purchaser's selection, 14*s.* per dozen, package included; H. W.'s selection, 12*s.* per dozen, viz., Dido, Fidelia, Gem of the West, Grand Sultan, Jessica, Lydia, Laura, Lord Raglan, Pandora, Petruchio, Phaeton, Seraskier, Topaz, Una, Vesper, and Yerda.

Geraniums, choice older varieties, purchaser's selection, 9*s.* per dozen; H. W.'s selection, 6*s.* per dozen, viz., Attraction, Ambassador, Butterfly, Carlos, Commissioner, Commander, Duchess of Wellington, Eugenie, Empress, Eliza, Eurydice, Enchantress, Elise, Flying Dutchman, Governor General, Helen, Heroine, Herald, Indian Chief, Incomparable, Jupiter, Lord of the Isles, Leah, Lucy, Lagoma, Lavinia, Lord Mayo, Little Nell, Monteith, May Queen, Mochanna, Neatness, National, optimum, pictum, Purple Perfection, Pasha, purpureum, Rebecca, Regalia, Rosa, Rhoda, Rubens, Silver Queen, Spot, Tamberlik, Virgin Queen, and Zeno. Spotted varieties among the above at 9*s.* per dozen, Auguste Miellez, Colonel Fossy, Etoile de Jardin, Gloire de Belle Vue, Gustave Odier, Jacques, Duval, Kulla, Madame Lamoricière, Triomphe de la Tour.

Geraniums, Fancy varieties, purchaser's selection, 9*s.* per dozen; H. W.'s selection, 6*s.* per dozen, Advancer, Albion, Barbette, Bride, Beauty of Winchester, Captivation, Caliban, Defiance, Gipsy Queen, Jenny Lind, Lady Hume Campbell, Lady Downes, Madame Sontag, Mazeppa, Superb, Othello, Painted Pet, Parodi, Richard Cobden, Ramona, and Triumphant.

FUCHSIAS—Extra strong plants of the 12 following varieties of last season, 12*s.* per dozen, package included; smaller plants, 9*s.* per dozen, viz., Admiral Boxer, Charlemagne, Conqueror, Countess of Burlington, Donna Joaquina, Emperor Napoleon, General Williams, Favourite, Venus de Medici, Volcano di Aqua, Wonderful, and Prince of Wales.

VERBENAS—New varieties of last season, 4*s.* to 6*s.* per doz., free by post.

PETUNIAS—New of last season, 1*s.* each, or 7*s.* 6*d.* per doz.

CHRYSANTHEMUMS—Large and Pompone-flowered, 4*s.* 6*d.* per doz.

PHLOXES—New of last season, 18*s.* per doz.; ditto, Countess of Morton and Addisoni, strong plants, 3*s.* 6*d.* each.

PANSIES—25 choice show varieties for 15*s.*

PINKS—25 pairs fine named sorts, 10*s.*

GLOXINIAS—The following 6 new erect varieties for 1*l.*, or 3*s.* each, viz., Comte de Niepperg, Duchess de Brabant, Madame Picouline, Roi des Belges, rosea mutabilis, and Wagner; ditto, choice erect varieties, strong, 6 for 10*s.*; not erect, 9*s.*, 12*s.*, and 15*s.* per doz.

ACHIMENES—Locheria magnifica, 2*s.* 6*d.*; ditto, Tydea amabilis, 3*s.* 6*d.*; Estella, 2*s.* 6*d.*; Aurora, 2*s.* 6*d.*; older varieties, 5*s.* and 7*s.* 6*d.* per doz.

ROSES—Choice new Hybrid perpetuals, vars., in pots, 3*s.* 6*d.* each, or 30*s.* per doz.

For descriptions of the above collections see Catalogues, which may be had on receipt of postage stamp. The Catalogue contains a large assortment of Bedding Plants, which are now ready, including DAHLIAS of last season, 9*s.* and 12*s.* per doz.; older ditto, 4*s.* 6*d.* and 6*s.* per doz.; SCARLET and other GERANIUMS, CUPHEAS, HELIOTROPES, &c.

Also a collection of 84 Bedding Plants for 1*l.*, and a collection of 132 Bedding Plants for 30*s.*

Orders executed in rotation as received.

Post-office Orders payable at Marsden, Lancashire.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, May 16.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of RHODODENDRONS in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignus, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, May 16.

DWARF ROSES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have still on hand to offer in large quantities, either singly, by the dozen, or the hundred, all the leading varieties of Roses on their own roots. Suitable for grouping from 9s. to 18s. per dozen.

They can also supply some dozens of ROSES in 32 and 24 sized pots for growing in Greenhouses or Conservatories now coming into bloom. Also strong Climbers for walls such as continue in bloom all the summer.

All the above are kept in pots during summer so as to be available at any time.

Catalogues of Roses, also Spring Catalogues containing a selection of Azaleas, Camellias, Greenhouse, Stove, and Climbing Plants, Orchids, Ferns, &c., may be had on application at the Nurseries, Great Berkhampstead, Herts.

NEW SCARLET GERANIUM JOHN COWAN.—This very handsome and distinct dwarf Scarlet Geranium was raised by Mr. John Cowan, of Calke Abbey, and is far superior to any of the dwarf bedding varieties of the Tom Thumb class. It has a compact short-jointed habit, is a profuse bloomer, having beautiful round flowers, of a large size and great substance, and of a soft and pleasing tint of scarlet. The foliage being particularly round, small, and neat, renders this Plant one that can be recommended as a desirable novelty for the coming summer. Price 3s. 6d. each, or 40s. per dozen; to be had of ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW DWARF WHITE DAHLIA.

THIS exquisite very dwarf free flowering DAHLIA will be hailed as a valuable addition to our bedding collection. It grows from 2 to 2½ feet high, throwing its snow-white flowers, which are of a large size, well above the foliage in prodigious quantities and of fine form. Those who visited the beautiful Gardens at Trentham, during the summer of 1856, must have been highly gratified with the effect produced by this gem. Mr. Fleming, the gardener at Trentham, thus speaks of it:—"Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens."—Strong plants can now be had on application to

Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

ORCHIDÆ.

A SMALL COLLECTION of very choice ORCHIDS to be disposed of by Private Contract, consisting of—

Ærides	Calanthes	Odontoglossum
Angræcums	Dendrobiums	Oncidiums
Chysis	Lælias	Phalænopsis
Cœlogynes	Lycastes	and
Cattleyas	Miltonias	Saccolabiums,

in all about 181 Lots of the very best varieties in cultivation, a selection carefully made by a gentleman of great experience during the last 10 years; they are clean, healthy, and in fine condition.—For further particulars apply to Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW BEDDING PLANTS.

MESSRS. ARTHUR HENDERSON AND CO.'S CATALOGUE OF SOFT-WOODED AND OTHER PLANTS is now ready, and can be had on application to them. It contains a descriptive list of the most approved varieties of

Antirrhinums	Fuchsias	Petunias
Calceolarias	Geraniums	Phloxes
Carnations	Heliotropes	Picotees
Chrysanthemums	Hollyhocks	Pinks
Cinerarias	Lantana	Salvias
Dahlias	Lobelias	Verbenas

Also a separate List of the novelties for this season, including the new Dwarf White Bedding Dahlia, the new Muscat Hamburgh, the Golden Hamburgh, and the Bowood Muscat Grapes specimens of new Holland Plants; an epitome of Stove Plants; Ferns and Greenhouse Plants, Ornamental Climbers, Variegated Plants, Miscellaneous Plants for the Open Border, and the new Yellow Tea Rose "Isabella Gray."

Pine-apple Place, Edgware Road, London, W.

BASS AND BROWN have the pleasure to offer as under:—

GERANIUMS.—A fine stock of strong, bushy, and healthy plants of first-rate varieties. See BASS & BROWN'S Catalogue No. II., including collections of show, fancy, and the new French spotted varieties.

ACHIMENES.—A very superior collection of upwards of 40 varieties, very beautiful and striking. Ten superb new varieties for 35s., including Parsons' fine varieties figured in the "Florist" for November, carminata, splendens, and Parsonsi.

GLOXINIAS.—A collection of upwards of 60 of the most striking and brilliant varieties. 12 fine vars., 12s.; 12 newer vars., 20s.; 12 superb erect-flowering vars., 20s.; 12 erect-flowering, newest selection, 30s.

GREENHOUSE PLANTS.—50 superb and select, 45s.; 50 do. extra, 65s.; or per doz., 12s., 18s., and 25s.

STOVE PLANTS.—50 superb and select, 80s.; or per doz., 24s., 36s., and 42s.

BEDDING PLANTS.—A large and vigorous stock of the finest Verbenas, Petunias, Fuchsias, shrubby Calceolarias, bedding Geraniums, &c., &c., for which early orders are solicited. See Catalogue No. V.

HARDY HERBACEOUS PLANTS.—A very superior collection of these in pots for present sale. See Catalogue No I. and Supplement to No. I. Also a few of the best for bedding in masses. See Catalogue No. V.

BULBOUS PLANTS IN POTS, including beautiful varieties of Ixias, Sparaxis, Gladioli, Tritoneas, and a great variety of other striking and handsome sorts. See Catalogue No V.

Goods carriage free, not under 20s., to all the London termini, and all stations on the London and Norwich, Colchester line.

Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.—BASS & BROWN, Sudbury, Suffolk.

THE GRAND WINTER GARDEN AT CHELSEA.

JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

JOHN WEEKS & Co., King's Road, Chelsea.

JAMES VEITCH, JUN., ROYAL EXOTIC NURSERY, KING'S ROAD, CHELSEA, deeply grateful for the very kind and extended patronage bestowed upon this establishment since his succession to MESSRS. KNIGHT AND PERRY, begs to intimate that he has now completed the *necessary improvements and alterations* to enable him satisfactorily to carry on the

NURSERY AND SEED BUSINESS

on the most extensive scale, in a manner suitable to the requirements of the increased connection and the progress of the day; but instead of adopting the now common practice of recommending his goods by *puffing advertisements*, he most *respectfully invites an inspection of his premises and stock, that* PURCHASERS MAY SEE AND JUDGE FOR THEMSELVES.

JAMES VEITCH, JUN., PLEDGES HIMSELF TO THE FOLLOWING PRINCIPLES OF BUSINESS:—TO SUPPLY FIRST-RATE ARTICLES TRUE TO NAME; MODERATE CHARGES; PUNCTUALITY IN THE EXECUTION OF ORDERS; WITH ATTENTION AND CIVILITY TO VISITORS.

N.B. J. V., JUN., devotes his personal attention to the recommendation of Gardeners and Bailiffs. He has at this time several highly respectable men in his employ, whom he can with perfect confidence recommend to any nobleman or gentleman requiring them.—Chelsea, May 16.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.

27, Great George Street, Westminster, S.W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

VERBENAS.

FOR SALE, Twenty Thousand VERBENAS, one-half Scarlet Defiance. Also all kinds of Bedding-out plants at 2s. per dozen. Catalogues sent free to any part.

JOHN PYLE, St. John's Nursery, John St., Upper Holloway.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH GRAPE.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, beg to intimate that he will commence sending out Plants of the above SPLENDID NEW GRAPE on the 15th of June next, STRICTLY IN THE ROTATION IN WHICH THE ORDERS HAVE BEEN RECEIVED.

For the information of those who have not seen this Grape, J. V., jun., begs to state that it is an English Seedling, raised at Stockwood Park, near Luton, Bedfordshire (the seat of John Crawley, Esq.) by his gardener, Mr. Busby, from the Black Hamburgh crossed with the Sweetwater.

In hardiness of constitution, freeness of setting its fruit, size of bunch and berry, and fineness of flavour, it is equal to the Black Hamburgh, with the distinction of being, when fully ripe, of a beautiful amber colour, thus at once showing it to be a first-class fruit, altogether distinct from all other light-coloured Grapes, and well adapted either for a greenhouse or for forcing.

The first Maiden Bunch was exhibited at the Horticultural Society's Meeting, Regent Street, at the October Meeting, 1853, when it had a First-class Certificate of Merit awarded to it, and was highly approved by all who saw it.

It was again exhibited at Chiswick, at the July Meeting in 1855, and was awarded the Large Silver Medal. (See Report of that meeting in the *Gardeners' Chronicle*.)

It was also exhibited at the Pomological Society's Meeting, August 6, 1855, and was declared to be every way satisfactory. (See description in "Cottage Gardener" for September 1855, and report of the Meeting in the "Florist" for September 1855.)

It was exhibited also at the Caledonian Society's Exhibition in Edinburgh, on September 8, 1855, and was there again awarded a First-class Certificate.

Mr. Busby has also received most satisfactory Testimonials from the following gentlemen, who have seen and tasted the fruit:—

Sir Joseph Paxton, M.P.	Messrs. J. & C. Lee, Hammersmith.
Dr. Lindley.	Mr. Thompson, Dalkeith Gardens.
Dr. Balfour, Edinburgh.	Mr. Melvill, Dalmeney Park Gardens, &c. &c.
Mr. J. A. Henderson, Pine-apple Place.	

Price 21s. each, one over on three to the Trade; with special terms when 25 and upwards are ordered at the same time.

A list of those Nurserymen who have ordered the above, and who will consequently be able to supply it will shortly appear.

TURNIP SEEDS FROM LARGE BULBS.

MESSRS. SUTTON'S TURNIP SEEDS are saved exclusively from fully developed Bulbs, the great advantages of which have been proved for several years past. They can also be recommended with confidence as being genuine unmixed new Seeds as they pass direct from the growers to the retail purchaser. Prices moderate, as see List, which may be had post free. All Seeds delivered carriage free, except very small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1s.; Double Carnation, 1s.; Double Picotee, 1s.; Polyanthus, 1s.; Calceolaria, 2s. 6d.; Primula fimbriata, 1s.; Double Hollyhock, 1s.; Brompton and Intermediate Double German Stocks, each, 1s.; Double German Wallflower, 1s.; Bedding Plants of sorts, 4s. per dozen.

BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market.

SUTTON'S GRASS SEEDS AT THE ROYAL FARMS NEAR WINDSOR, AND IN THE ISLE OF WIGHT.

SUTTON'S GRASS SEEDS FOR PERMANENT PASTURE, PARKS, AND LAWNS, are now sown at the Royal Farms at Osborne Palace, the Crystal Palace, Sydenham, the Horticultural Society's Gardens, and on most of the largest Estates in the Kingdom.

Messrs. SUTTON'S Grass Seeds being mixed expressly to suit the soil for which they are required, are never known to fail. Cost of Seeds, 24s. to 32s. per acre, according to the requirements of the land to be laid down.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE CHAMPION SWEDE.

THE FOUR PRIZE CUPS presented by his Royal Highness Prince Albert to the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Associations in December, 1855, and December, 1856, were gained by our customers, G. Norrington, Esq., Joseph Hobbs, Esq., and John Nash, Esq., for fields of SUTTON'S CHAMPION SWEDE grown from Seed supplied by us. Price of Seed, 1s. per lb. or 50s. per bushel. Every kind of seed required for Farm and Garden at moderate prices. A remittance or reference to bankers requested with orders from unknown correspondents.

Goods delivered carriage-free except small parcels.

Five per cent. discount allowed for cash payments.

J. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, MAY 16, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, May 20 { Royal Botanic ..... 2 P.M. / Society of Arts ..... 8 P.M.

THERE is hardly a man who has not heard ever since he obtained possession of his understanding how scandalously he is imposed upon by the Baker—not merely by short weight, or by schemes for selling water disguised like bread, but by that greatest of all villanies, the mixing alum with flour. We have been assured upon the most wonderful authority, no less than acts of Parliament, that the practice is fraudulent, unwholesome, and to be put down by pains and penalties. Young doctors have alarmed old ladies, old doctors have alarmed young ladies, lecturers have frightened their audiences, and adulteration-mongers have terrified those who can be persuaded to read their books, by a relation of the dismal consequences which follow the introduction of alum into bread. A medical officer of a London Union has quite lately acquainted his clients that among the consequences that follow the use of such bread are constipation, ulceration, dysentery, disordered liver and fatal diarrhœa, especially among children. An alarming communication doubtless, though not so terrible as it should be to those who recollect that no city in the world is more healthy than London, the emporium of alum-made bread.

In the last number of one of our most useful periodicals, the *Pharmaceutical Journal*, the question has at last been reduced to common sense dimensions, and we gladly avail ourselves of the opportunity thus afforded, of disabusing the public mind in respect to a matter of such vital interest to us all. Everybody has run away with the notion that he is forced by wicked bakers to swallow a daily dose of poison, and quite a panic is caused among nervous people when a paragraph appears in a morning paper, just as breakfast is ready, announcing that Mr. N., the eminent chemist, has found a piece of that dreadful drug in bread purchased at the shop of STUFF and SILENCE in Wigmore Street; or how Mr. H., the great detector of adulterations in everything, has discovered that all town-made bread without exception is made with that deleterious article.

Alas! poor bakers, yours is a hard fate, to be abused because of ill-made bread if you leave the alum out, and pounced upon by amateur, if not legal, harpies, when you make it well by putting alum in. Let us assist in endeavouring to obtain some justice for these men. The editor of the *Pharmaceutical Journal* well observes:—

"The bakers' question involves the means of making bread of a good, and as far as possible,

uniform description, from flour which is constantly varying in quality. The bakers are required to convert the corn of the country, such as is furnished by nature and husbandry, into the best bread it is capable of producing, and of supplying this bread to a dense and hungry population at the lowest price at which it can be made. Experience has shown that by the addition of a small quantity of alum a saleable and, to all appearance, a sound wholesome bread may be made with flour of inferior quality, such as would otherwise be scarcely fit for use in the form of bread."

This is the true way to regard the question. Something *must* be added to market flour in order to make bread palatable; small quantities of alum are so used and answer the purpose. But then we are told that alum is unwholesome. We again call in the aid of our able contemporary in the hope of reducing this fundamental subject to something like reasonable dimensions. In commenting upon a report made to the Board of Works of the Holborn district by Dr. Gibbon, their medical officer of health, who without the smallest hesitation joins in the cry against alum, the editor makes the following remarks:—

"We do not propose here to discuss the question whether or not the use of alum in making bread is free from objection, but wish to point out some of the fallacies upon which the current opinion on the subject is founded. Dr. Gibbon having discovered, in the 2 lbs. loaf of bakers' bread, a quantity of alumina and sulphuric acid equivalent to from 15 to 30 grains of alum, proceeds to point out what will be the effect of taking this quantity of alum daily, and concludes that alumed bread must be highly injurious to the health of those who eat it. By a parity of reasoning, it might be concluded that the common salt contained in the bread, and used with almost every article of diet, must be highly injurious, because the chlorine or sodium in a separate state would be so. Dr. Gibbon indeed seems to have been aware that his argument involved a fallacy, for he admits that the alum enters into chemical combination with the gluten of the flour, and therefore that its effects in bread are less active and injurious than when administered in a pure state. Had he carried his chemistry a little further, he would have found that the alumina, and not the alum, combined with the gluten; and then, if he could have shown that the 3 grains of alumina contained in 30 grains of alum (the maximum quantity in the maximum consumption of bread for a grown person) would cause injury to health, he might with better reason, but still without sufficient warrant, have inferred that alumed bread was injurious to health. But his chemistry having failed him, and his first argument having broken down, he resorts to a second—the alum converts the gluten of the flour into a kind of tough, tenacious wash-leather, which is difficult of digestion. Here it may be asked what evidence is there that alum makes the gluten difficult of digestion? The conclusion is arrived at, not as the result of observation, but of reasoning founded upon supposed analogy. Wash-leather is difficult of digestion; alumed gluten is a kind of wash-leather, therefore alumed gluten is difficult of digestion.

"Such are the arguments adduced to show that the public health is injured by the use of alum in making bread. The subject has never been fully and fairly discussed on its true merits. Dr. Gibbon has, we believe, pretty correctly stated the advantages resulting from the use of a small quantity of alum, which, as he says, 'improves the quality of the bread in certain respects, which the public appear to value.' This is the result of observation and practical trial. The use of alum gives tenacity and firmness to the gluten, 'enabling it to retain the thousand of little air bubbles which constitutes the lightness or spongy porous character of the bread,' qualities which Dr. Gibbon tries us to persuade us are very unimportant, but which the public nevertheless 'appear to value.' While these advantages are generally admitted, the objections which are urged against the use of alum are altogether problematical, and unsupported by any satisfactory evidence."

Hear that, ye dietetical terrorists! *The objections to alum are unsupported by any satisfactory evidence.* Those are the words. What they mean no one can mistake. He that says them is one whose scientific knowledge no one is entitled to call in question.

And so it seems that after all there may be no alum in bread, although a baker puts it into flour. The alum is decomposed, and ceases to be alum at all; in its place we have a little harmless alumina or clay, and a little harmless sulphuric acid. Why, in many cases the clay that wiseacres have found in flour, and which they have fancied to be alum, belonged originally to the Wheat from which the flour was obtained. Mr. Reynolds, of Leeds, mentions a case within his own knowledge in which some persons had been accused of adulterating their bread with alum, by a gentleman calling himself an analytical chemist (we wonder who he was). "Having," says Mr. Reynolds, "been entrusted professionally with one set of samples, which were officially verified, whilst the others were forwarded to Dr. Letheby, the result of our independent examinations coincided in reporting that no alum was present, but that a considerable amount of alumina was detected. Experiments upon various descriptions of foreign Wheat had shown me that in the Egyptian variety, extensively used of late, a very large quantity of alumina is present after grinding, being greater or less according to the efficiency of the cleansing process to which the grain is subjected. The method of harvesting, the plant being pulled up by the roots and the grain trodden out by cattle, sufficiently accounts for the large quantity of soil intermixed, and this sometimes amounts to 25 per cent. of the total weight. As the grain is usually perforated by insects, the cavities resulting, and also the natural superficial depressions, are quite certain to retain a portion of aluminous earth, after the washing which it usually undergoes."

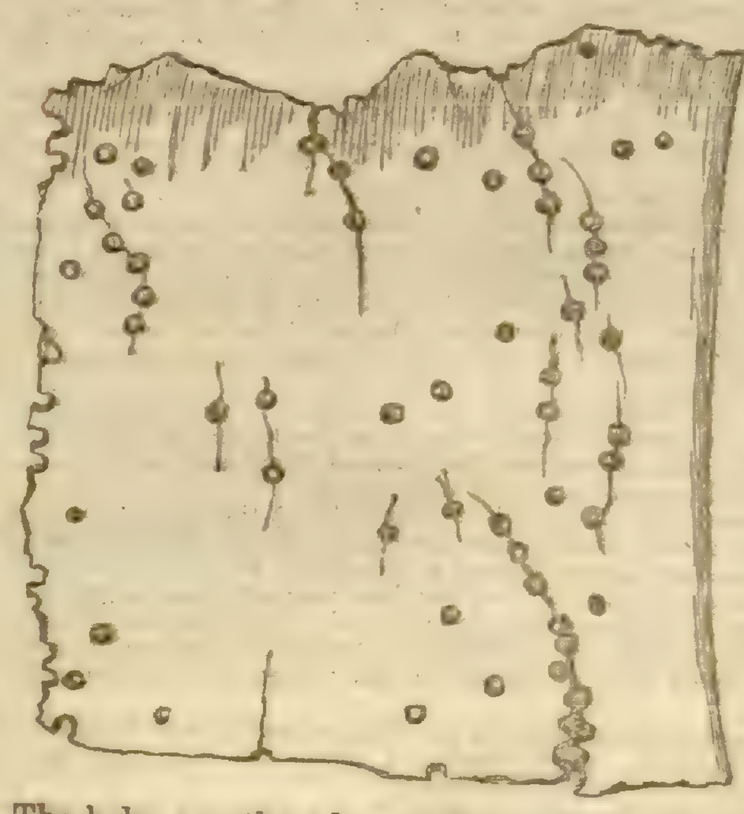
May we hope that after these exposures gentlemen who profess to guide the public in the choice of food will be more cautious in what they say, or, if that is not to be expected, that the public will pluck up courage and cease to believe in them.

The daily papers have lately announced that the trees in Paris are suffering most seriously from a disease that has attacked them, the nature of which is not explained. One of our own Correspondents also writes:—

"I noticed a curious process going on the other day in the Champs Elysées at Paris. They were chipping the bark off all the large trees (chiefly Elms) in strips from pretty high up the trees to the ground, and covering the exposed part of the wood with some resinous substance that made a varnish in the place of bark. I was told it was to get rid of insects that affected the health of the trees, and they recovered their vigour in a wonderful manner after this process. It had a curious effect, for some of the trees looked as if they were almost entirely barked, others had only one strip of 3 inches wide down the stem."

Doubtless these trees are attacked by the little beetle called Scolytus destructor, concerning whose habits the account given many years since by Mr. W. Macleay will be found in another column. The evil he describes seems to have at last come to a head in Paris, and to its cure are our ingenious friends applying themselves in the way above described, concerning which we should be very glad of more detailed information. For if their mode of cure is effectual we ought to adopt it here, where the Elm suffers quite as much as anywhere.

Nothing is more easy than to detect the presence of Scolytus when he infests a tree. If the bark is examined it will be found to be drilled with small holes in very irregular lines, as is shown in the following cut:—



The holes are the places whence the new born insects have escaped, and by which the females re-enter in the manner described by Mr. Macleay.

When a piece of bark thus drilled with holes is stripped off, so that the side next the wood can be examined, we have an appearance of quite another kind. A long deep irregular furrow is observed, from which other irregular lines pass on either side; the first is invariably empty, the second are very generally filled with a firm powdery matter, which is found, when examined with the microscope, to consist of very minute particles of wood. We have in this instance a complete system of galleries, consisting of one main and numerous lateral galleries, as the following figure explains.

The main gallery is that along which the female travels when depositing her eggs. The laterals indicate the course taken by the grubs after they have hatched and begun to feed. Each lateral gallery is narrowest next the main gallery, owing to the young grubs having required but little room to feed in while small; as they grow older they grow bigger, and then they gnaw a larger space for themselves. It will be remarked that every lateral gallery ends by a hole. These are the holes already observed on the outside of the bark, and by which the perfect insects escape, as Mr. Macleay describes.

What may be the best way of dealing with such formidable enemies we confess ourselves unable to say. Some suggestions are made by Mr. Macleay; in France another course seems to be pursued. Perhaps our correspondents, among whom must be some who have had to offer what resistance was possible to Scolytus, will have the goodness to put their experience upon record.

New Plants.

200.—Trichopilia crispa.

T. omninò *Tr. coccinea*, exceptis pedunculo bifloro, labello margine crispo atrosanguineo, perianthiiq. foliolis sanguineo-maculatis magis undulatis.

This most beautiful Orchid was exhibited lately to the Horticultural Society by Mr. Rucker, who obtained it from Warczewitz's collections. It has quite the habit and foliage of Tr. coccinea, but the peduncles appear to be constantly two flowered, the edge of the lip is irregularly but very strongly crisped, and the colour is a deep dull sanguine, which renders it much handsomer. Although we distinguish it by a name, for garden convenience, we fear it can be regarded as nothing more than a variety of T. coccinea, with which it wholly agrees except in the characters above described.

THE MUSHROOM.

It appears even now that Mushroom growing is but little understood, more especially amongst what are called jobbing gardeners. Unfortunately for the amateurs these men are their advisers; I do not for one moment say that all jobbing gardeners are alike ignorant; on the contrary, some of them are men who have held good places, and have been discharged either through having a large family or through getting into years—if all towns, however, are like this, nine-tenths of them never saw a Mushroom bed. Therefore, what advice I have to give to the amateur, for it is for such I write, will be plain and straightforward, so that he may give his own directions with regard to the making and management of his Mushroom bed.

In my papers on Market Gardening round London I explained the process, but having had numerous inquiries lately as to how a Mushroom bed ought to be made and managed (and many letters, I am sorry to say, without a Queen's head on them), I shall now describe two beds at present in bearing, and which have been so ever since last November. They are under a low-roofed pit, just high enough to permit a person to go through the middle. The beds are on both sides. No artificial heat is applied, but the glass on the outside is covered during winter and summer with mats or straw. This covering is as necessary in summer as in winter, and if it is kept damp by syringing or throwing water over it now and then, the interior is kept so cool that the Mushrooms are not attacked by the maggot. Last year I gathered out of this same house Mushrooms which fetched 5*s.* per pound on the 12th July. The whole will however be a complete failure if the litter during hot weather is not kept damp. The manure I have here is from well-fed omnibus horses, and consists of much more droppings than straw, and be it remembered that ill-fed horses never can pro-

duce a fertile Mushroom bed. The manure is taken from the heap almost before it begins to heat; the beds are at once made up with it upon the flat system, not in ridges; the manure is tightly pressed down to the thickness of about 2 feet—the more it is pressed the less fermentation takes place. As soon as you find that the heat will not be violent (not more than blood heat), then let the bed be spawned after the following manner:—the bed having been well pressed, let the shortest material, or droppings, be kept on the top, and have the spawn all ready at hand. The latter I procure from a neighbouring nurseryman, and for that I pay 5*s.* per bushel even for myself to grow for market. I have been gulled like others even in the article of spawn; through having it cheap I have lost my season and crop. The spawn should be broken up into pieces of about 3 inches square, and then inserted about half an inch under the surface of the droppings. The mould should then be put over the bed to the depth of 4 inches; when this is pressed down very hard it will not be more than 2 inches thick when properly finished. Nothing more is done for about six weeks; I then water with strong liquid manure, giving the beds repeated soakings. The failure of Mushroom growing is often caused by watering before the spawn has properly spread itself, or, as it might be termed, has become strong enough to stand much moisture. A very wet season never produces field Mushrooms, simply because the wet weather destroys the spawn; but on the other hand if dry and rain come on towards August the result is fine crops, therefore never water your Mushroom-beds too much, and only when they are dry.

It matters little in what hole or corner the beds are made provided they are kept from rain and too much cold. The natural heat for the Mushroom is an August and September temperature, and even the cottager ought to have his Mushroom bed as well as his pig. Both grow into money and quickly; one pound of Mushrooms is equal in value to half a pound of rump steak at least. If the woodlouse is troublesome boiling water will kill it.

I forgot to mention that the proper Mushroom mould ought to be a soft soapy yellowish loam, if you can get it; it should be pressed very hard. I am however obliged to use only light rich Cucumber mould, and in this they do exceedingly well. *James Cuthill, Camberwell, London.*

THE WARS OF THE ROSES.—No. II.

THE florist is a gentle, genial man; for he who loves flowers loves peace. Floriculture *emollit mores*, and a gardener with black eyes is scarce. The hands that deck the earth with her jewels, and vest the land in glory, are inexpert to spar; they do no hurt to living things except the earwig and the aphis. Even when we do quarrel, we florists, (and "we are the sons of women, Master Page,") we but fling Rose-leaves at each other, and wage a battle of bon-bons, as though at a Roman carnival. "Madame Laffay," it is true, spoke not long ago in the *Chronicle* of calling in her "*beau sabreur*," but so good humouredly withal, that I think were the dear old lady to produce him, we should behold nothing more formidable than a gay young gardener with a pruning-knife. At the worst, and if actually swords were drawn, we should only contend, I am sure, as combatants upon the stage, harmoniously to music, and sup together when the curtain fell, in most convivial cheerfulness. And long may the Wars of the Roses thus maintain their original character, and continue to be Civil Wars.

The gentle spirit of the florist feels more earnestly this fond desire for peace, should sound or sign of actual warfare startle its accustomed calm. Did we not lean in sad surprise upon our spades and listen, when, after trumpet-tones, the voice of the herald reached us on the wind:—"Know all men by these presents that the brave Knight of Bromley defieth unto mortal strife all [illegible] who shall profanely dare to maintain that the aged lady of his love is not of all the most beautiful."* And all! we not tremble with admiring awe, as we saw the great chief of Cheshunt ride boldly forth, the champion of youth and beauty, and spur down fast and furious to the fray?

To speak in more modern phrase, we Rose growers have been called upon to our great astonishment, (Mr. Cobden could scarcely be more astonished, were he to receive a challenge from the convalescent Bright to fight in a twenty-four foot ring) have been summoned to tread a mill for the championship—a mill in which (to quote the elegant language of *Bell*) "both men have napped it severely." Who has won the victory? That is the question, and I will try to answer it.

In the first place, I see no object in instituting a comparison, as "A. R., of Bromley," has done, between old and new Roses. Not to mention the impossibility of making an exact distinction between them; for who is to say when a Rose becomes old? We do not care for age, but excellence. When we buy wine, we ask the vintage, and when we buy a horse, we look at its teeth: but when we buy a Rose we can dispense with [illegible] mts, because it answers all questions *in propriâ personâ*.

But granting the contrast to be desirable, it is not made by "A. R., of Bromley." He says that "the old Roses are the best yet," (*Gardeners' Chronicle*, No. 7, [illegible]) and then mentions twelve, three of which—Prince Leon, Triomphe de Paris, and William Griffiths—are quite of recent introduction. I find the trio still spoken of as "new" Roses in catalogues of 1854-5.

Apart from this, the old Roses are not "the best yet." Roses, like other flowers, are gradually progressing in symmetry and beauty, and every year brings us improvements. It makes one smile to recollect the paus of twenty-four, which used to win not many years ago; when Las Casas, with an eye like a Cyclops, was esteemed a noble Rose, and many others were admired, which, were they now to be exhibited among the new ones, would look about as handsome as Mrs. Gamp's umbrella among the pretty parasols we shall soon see at Chiswick and the Regent's Park. Of the nine old Roses mentioned by "A. R.," one only, in my opinion, is perfect in every respect, and that is Coupe d' Hébé. It would be tedious to discuss the others individually; but we may dismiss the lot with that powerful *argumentum ad hominem* (especially when that *hominem* is an Englishman)—would "A. R." like to exhibit them against nine of the new ones, for a ten-pound note?

I think therefore that, florally speaking, Mr. Paul gains an easy and complete victory. Controversially, "A. R." has hit him hard; and I cannot but fancy, in spite of the clever rejoinder which has been made, that when Mr. Paul was invited (in the *Gardeners' Chronicle* for Dec. 20, 1856) to "look upon that picture and on this," he must have felt that he somewhat resembled the "engineer hoist with his own petard," and that he had "heated a furnace for his foes so hot, that he had singed himself." Descriptions of the Rose must be positive and not "comparative." A young lady is not a belle, because she has sisters plainer than herself; and if Miss Aimée Vibert were to call herself "magnificent, large, and full," because she grew near that pocket Venus, Miss Banksiæ, we should feel painfully compelled to cut her.

But generally speaking, I think that Mr. Paul and our other principal Rose growers have been treated with little generosity or gratitude as regards their catalogues. In the first place, and with reference to new Roses, it seems that a Pelargonium may be introduced at two guineas, subside to as many shillings, and possibly become extinct, without a word of discontent being uttered; but if a Rose grower charge three half-crowns for a Rose which probably he has fetched from France, and this prove inferior—not justifying his first hopes and impressions—immediately we have (to use a noble Oriental phrase) "a bobbery in the bazaar." Where there is zeal, there must be some speculation; especially when the buyer is so far from his market; and the importer but too often falls a "victim to misplaced confidence." We amateurs ought to commiserate rather than to condemn on these occasions, for the disappointment is a common one, and the loss eventually is borne by the original purchaser. I shall never forget a lot of Rose trees which I once saw unpacked at a nursery, on their arrival from France. Three of them, at 25 francs each, were on thin, knotted, withered-looking Briars, between 5 and 6 feet high, and just showed in one or two eyes that they were not dead—only moribund! Supposing life to have continued, each tree would have required two strong men to hold it in a gale of wind; but as the Rose bore about the same proportion to its stock as a crow's nest to a full-grown Poplar, I consider such a supposition too wild for the most sanguine to dwell upon.

But the Rose trade is not merely a matter of £. *s. d.*; and I pity the amateur who thinks that it is so. He can never have read that most pleasant little book, by Thomas Rivers, which replaced the Rose on her throne, as the queen of flowers, nor the larger volumes by Paul and Curtis, which prove that the heart is in the cause—he can never have strolled in the gardens of Berkhampstead, or have driven to "the Common," with worthy Mr. Lane in his gig—he can never have smoked the pipe of peace among the Roses (we florists must fumigate, whatever the *Lancet* may say) with nurserymen, when work was done, and heard them speak, as I have, their love of our royal mistress.

And surely we ought ever to recal with gratitude what glorious Roses have recently been brought to our gardens by the zeal of the importers. Go back ten years, and who had heard of Géant des Batailles! He appears for the first time in Mr. Rivers's catalogue for the autumn of 1847. Whose eyes had been gladdened by the magnificent Paul Ricaut, or those most beautiful Roses, Auguste Mie, Baronne Hallez, Caroline de Sansalles, Generals Bréa, Castellane, and Jacqueminot, Jules Margottin, Lord Raglan, Louise Peyronny, Mesdames Guinoisseau, Martel, Masson, Place, and Rivers; Prince Leon, Reine des Fleurs, William Griffiths, or Gloire de Dijon? What twenty from among the old Roses would "A. R." show against these?

Here, too, I may mention another proof of progress. In Mr. Rivers's catalogue for 1847, fifty-two Hybrid Perpetual Roses are enumerated. How many of these are now thought worthy of notice? Eight only! What a tremendous reflection for the fairer sex! Forty-four ladies, once in full bloom and leaders of fashion, now not even permitted to be "wall flowers," but expelled from the *beau monde*. And such may be the fate of all who have not true excellence of petal, I mean of principle. Rouge and crinoline may cheat us for a time; but realities alone win our lasting love.

The dealers are quite as anxious to send us these realities as we can possibly be to receive them. But they are not omniscient. The Rose they see blooming so beautifully near Paris may degenerate in our colder clime; or if it succeed in Hertfordshire, it may fail in the midland and northern counties.

And this brings me to the consideration of a fact which, in many cases, effectually prevents unanimity among Rose growers, as to the merits of individual flowers—namely, that not only do these vary in different counties, and in gardens within a few miles of each other, but in the same garden continually, according to the change of weather or of treatment. I have alluded to this in the November Number of the "Florist," and I would now name by way of illustration such Roses as Baronne Hallez, Louise Peyronny, and Prince Leon, three noble Roses, but in my garden (Nottinghamshire) very variable and uncertain. The Rose General Jacqueminot, H.P., whose merits have been recently discussed in the *Chronicle*, may be cited as another example; and I have seen it so much more beautiful in the gardens of a friend in Warwickshire than on my own trees, that I shall not be happy until, by improved cultivation, I bring out the flower in its perfection. So that it may sometimes be said of disputants about Roses, as of the travellers and the cameleon, "you both are right and both are wrong"—you see the shield from different sides thereof. And I would exhort the one who has the flower in its beauty thankfully to enjoy and maintain its glory; the other to go home and improve it. Never give up a good Rose, until you have used all means to do justice to it. If it will not succeed with you "worked," try it on its own roots. Give it a sunny corner. Note its habit and endeavour to humour it. Careful and patient love is as necessary to success in Rose growing as in other pursuits, and brings its reward at last. We amateurs are but too apt to decry and denounce a Rose, simply because we don't know how to grow it. I remember the time, when a baby in floriculture, I first "began" (as mammas say) "to take notice," that I uprooted Blairii, No. 2, from my garden because I could not realise her lovely flowers. How was it likely, when every March I hacked off her beautiful arms at the shoulder, and cut off her hair like a convict's?

But it is high time for me to conclude, for the present, at all events, my rambling remarks about Roses; and I will do so with a suggestion to Rose growers—amateurs and professionals:—why should we not have, near some central station (such as Rugby) A GRAND NATIONAL ROSE SHOW?—a feast of Roses, at which the whole brotherhood might meet in love and unity, to drink in prize cups of silver "Success to the Queen of Flowers." —*S. R. H., in Turner's and Spencer's Florist, Fruitist, and Garden Miscellany.*

* See *Gardeners' Chronicle* for November 22, 1856, and subsequent correspondence.

VEGETABLE PATHOLOGY.—No. CLX.

660. PARASITE (*Cecidomyia tritici, Wheat Midge*).—The little fly, whose scientific and popular names have just been given, has almost as much right to be considered a parasite as the Aphides, if it be true, which seems to be the case, that it lives upon the juices of the young germen, and not upon the pollen grains as has sometimes been supposed, probably from the bright colour of the larvæ, which I have conceived to be derived sometimes, when peculiarly deep, in part from the spores of *Uredo Rubigo vera*, which is so frequent an inhabitant of the same glumes as the larvæ. However this may be, it is too certain that the Wheat-midge is at times one of the most formidable enemies of the farmer, and there are probably very few years when the crop does not suffer in some appreciable measure from its ravages. The perfect insect appears about June, being derived partly from larvæ which descended into the earth the previous year, and partly from coccoons spun in the chaff and carried home with the crop, for though it was once conjectured that those larvæ only which were attacked by Ichneumons entered into the soil, later observations seem to prove that this is not the case; but that according to circumstances, strange as it may seem at first sight, the larvæ adopt one or other of the above-mentioned habits. The young larvæ are at first lemon-coloured, and spring from eggs deposited between the glumes. As they increase in size their colour becomes more intense, and as they are found amongst the glumes long after the pollen has vanished, it seems certain that the abortion of the germens which constantly accompanies their presence is due, not to the destruction of the pollen, but to the actual exhaustion of their juices. Those germens only prove abortive which are formed within the scales which are infested by larvæ, and these occur frequently in enormous quantities, 30 or more individuals existing at once in a single flower.

661. Various estimates have been made of the damage done by these insects. It is evident, however, that this must be in direct proportion to the number of the mother flies, and as in the case of so many insects, in one season they are multitudinous, in others comparatively rare. In Scotland and North America the evil reaches perhaps its maximum, but it is often sufficiently great in other parts to attract the notice of farmers, who usually call the ears "blighted" without being aware of the cause. Where this is ascertained, the cultivator will be wise to take some precautions. He will not be able perhaps to contend against those individuals which enter into the soil, but by simply letting the chaff when the grain is winnowed fall on a piece of wire gauze placed before the machine, as suggested by Professor Henslow, he will be able to destroy myriads (*Gardeners' Chronicle*, 1841, p. 52), and several species of Ichneumon will then assist him in thinning those which he has failed to destroy.

662. Destructive as the Wheat midge is in North America, it is not the only species of *Cecidomyia* which affects the Wheat crop. The Hessian fly (*C. destructor*),

of which so much was once heard, as likely to prevent the cultivation of Wheat altogether where it abounds, is equally a species of *Cecidomyia*, though totally distinct in habit. Like the species of *Chlorops* which are so destructive to young plants of Barley, Wheat, &c. (see *Gardeners' Chronicle*, 1848, p. 780, 796), it enters into the stem, and prevents altogether the formation of the ear. For this unfortunately no remedy seems to have been found, but like the Wheat midge it is often kept within tolerable bounds by a host of insects which deposit their eggs in the young larvæ, and these when hatched live like true parasites at their expense, and at length pass into the pupa state, insomuch that what seemed to be the pupa of the *Cecidomyia* yields instead an Ichneumon, destined to modify the plague which would otherwise be intolerable.* *M. J. B.*

OOTACAMUND.

Diary of the Weather and Temperature of the Air, as noted by the aid of a self-registering Thermometer, in the north verandah of a house, nearly 8000 feet above the level of the sea, at Ootacamund, on the Neilgherries, showing the maximum and minimum of the temperature, during the days and nights herein specified.

Date.	Maximum of Temperature.	Minimum of Temperature.	Remarks.
1857. Jan. 1	56°	45°	Misty rain in morning, fine during the day, but rain at night. Wind from east and S. E. and South.
,, 2	56	43	A fine day, but heavy clouds in South and S. E., wind from eastward.
,, 3	56½	43	Ditto, but a little misty rain in afternoon—wind from E. and S. E.
,, 4	56	40	A fine day throughout—wind from N. E.
,, 5	58	32½	Ditto. Wind varying from N. E. in morning to S. E. and S. in evening.
,, 6	57½	40	Ditto, wind from N. E. and E.
,, 7	58	42	Ditto, wind from N. E.
,, 8	58	39	Ditto, strong wind from N. E. and E.
,, 9	56½	40	Ditto, wind still strong from the eastward.
,, 10	52	40	Ditto ditto, from E. and N. E.
,, 11	53	41	Fine in forenoon but cloudy in afternoon, wind from N. E.
,, 12	56	41	Ditto ditto, from eastward.
,, 13	59	40	A fine day throughout, wind moderate from S. E.
,, 14	60	41	Ditto, wind still from S. E.
,, 15	57	41	Ditto, wind from eastward.
,, 16	56½	42	Fine in forenoon but cloudy in afternoon, wind from E.
,, 17	59½	42	Ditto ditto wind from N.E.
,, 18	54	39½	Ditto ditto, wind from N.E.
,, 19	53	38	Fine greater part of the day but cloudy in the evening, wind still from N.E.
,, 20	56	37	A fine day throughout, but a strong wind from N.E.
,, 21	54	36½	Ditto ditto.
,, 22	54	35	Ditto, wind moderate from eastward.
,, 23	54	37	Ditto, wind from N.E.
,, 24	57	34	Ditto ditto.
,, 25	58	35	Ditto, strong wind from N.E.
,, 26	57½	34	Ditto ditto.
,, 27	57	42	Fine in forenoon but cloudy in afternoon, wind moderate from N.E.
,, 28	64	45	Foggy in forenoon and a slight shower shortly after noon, wind from S.E.
,, 29	65	43	Misty during the day and a heavy fall of rain during night, wind from S.E. to S.W.
,, 30	61½	44	A dense fog with some sleety rain and but little wind from S.E.
,, 31	64	45	A fine day throughout, but wind from S. and S.W.
Average say ..	58	40	Mean of day and night during the month, 49°.

Rain fallen during the month 11½ inches.
—*Madras Spectator.*

DESTRUCTION OF ELMS.

Almost all timber-eating insects are comprised in three orders, viz., *Coleoptera*, or beetles; *Lepidoptera*, or moths, butterflies, &c.; and *Hymenoptera*, or bees, wasps, &c. All these in their youngest state are worms or larvæ, and it is while in this stage of their life that they commit the direct injury to the trees, either by gnawing off the bark, or by devouring the wood. The communication of the disease to other trees is periodical; for when the above-mentioned worms or larvæ arrive at their perfect and winged state, the mischief committed by them directly is comparatively trifling, and, in fact, generally results, not so much from their voracity, as from their attempts to extricate themselves, and to arrive at the external air, or from their endeavours to commit their eggs to a proper nidus. But as they are now winged, and capable of depositing myriads of eggs, the germs of as many devouring larvæ, the disease is thus dispersed throughout the neighbourhood of the tree originally infected. If, however, it be, in this their perfect state, that the insects are most formidable, having attained the power of propagating the disease, it is also from an accurate knowledge of them while in this state, that we can alone derive any hope of being able to counteract their mischief.

The first thing, indeed, to be done in all such cases is, to ascertain the species of perfect insect which occasions the disease. The experienced naturalist is able from this examination of the worm or larva which he finds devouring the wood, not only to ascertain the order and family, but often the genus, and even the species of winged insects which has produced it; and having determined the genus or species, it becomes an easy matter to know the season of its appearance. None of these timber-eating insects remain in their perfect or winged state throughout the year, and rarely for more than eight weeks. We may therefore easily ascertain the proper time for cutting down those trees which are so much infected with larvæ as to afford no hope of saving them; for it would obviously be the height of imprudence not to seize the only opportunity of preventing the annual dispersion of the disease, by destroying the brood of larvæ while yet in the tree.

As soon as metamorphosis has taken place, as soon as the winged insect has made its appearance, the mischief for the ensuing year is done. Not only is time thus lost, and more trees inevitably destroyed, but the future eradication of the disease is rendered much more difficult.

We may also derive another advantage from ascertaining the habits of that particular insect which causes the disease, and the season of its appearance; for it is often thus possible, by timely measures, even in places where the perfect insect is prevalent, to prevent any deposition of eggs in such wood as may have remained sound. At all events, the devastation committed by these animals is at times so great, that it is clearly worth while to make experiments to obviate it; although it is difficult to conceive how such experiments can ever be made philosophically by persons who do not in the first instance make themselves acquainted with the natural history of that particular species of destructive insect which may have occasioned the mischief.

Of the evil which is mentioned above in general terms, St. James's and Hyde Parks afford us at present too many examples. The Elm trees in both, and particularly in St. James's Park, are rapidly disappearing, and unless decisive measures be soon taken to resist the progress of the contagion, we must not only expect every tree of this species to be destroyed in the Parks, but may have to regret the dissemination of the evil throughout the vicinity of London.

In St. James's Park, which has more particularly been subject to my examination, there are several species of beetle to be found attacking the Elms. That species, however, which occasions all the havoc which we have now to lament in the Mall and Birdcage Walk, is the *Hylesinus destructor* of Fabricius, or *Scolytus destructor* of Latreille, an insect of which the history is briefly as follows.

A small beetle, with its head rather covered with hair, having a polished black thorax, and brown wing-cases, may be seen in numbers running over the trunks of the Elms from the end of March to the first days of July, but principally about the end of May or commencement of June. It may then be seen entering into holes, with which the bark appears perforated as though with a gimlet. It insinuates itself into these holes, or into the crevices of the bark, for the purpose of depositing its eggs. On stripping off a piece of the loose bark, we may easily at any season understand how the barking of trees is effected by these minute animals, for the surface of the wood thus exposed presents to the view innumerable impressions, which may be compared to impressions or casts of large and broad scolopendræ.

The middle or body of this singular impression marks the path of the perfect female insect, while employed in laying her eggs, which is to her, as to most other winged insects, the immediate forerunner of death. From this tubular path, however, in which she deposits her eggs, the larvæ, which are hatched from these eggs in the shape of little white apod worms, proceed nearly at right angles, eating their way in parallel smaller tubes, which, lying close to each other, effectually serve to separate the bark from the tree. The larvæ remain feeding in the tree, generally between the bark and the wood, throughout the winter season. About the commencement of spring they assume the pupa or nymph state, and, before the end of this season, the bark of an infected tree begins to appear as if all its crevices were full of a very fine sawdust. The last change of the insect takes place; and being now winged, it tries to arrive at the external air, for the purpose of propagating its species, and laying its eggs in other trees. Each hole which now appears as if made with a gimlet, marks the exit of a perfect insect. In the first instance the voracity of the larvæ, and, in the second, the endeavours of the perfect insects to liberate themselves from the wood, particularly when such attempts are made by almost infinite numbers, soon occasion the bark to fall in large pieces. The consequence is that the new leaves only make their appearance to wither, and the tree perishes.

The early entomologists, little acquainted with metamorphosis, on finding the perfect Hylesinus destructor (*le Scolyte* of Geoffroy), on dead or dying trees, erroneously considered their disease to be the cause, and not to be the effect of the insect's appearance. Hence the habitat of this species in many of the older entomological works is said to be rotten wood. The absurdity of this notion will however be obvious on the slightest investigation of the evil in its earlier stages. It is, for instance, allowed on all hands that the tree perishes by being barked; and the mere inspection of any of the trees so barked will sufficiently show that the mischief is effected in the manner above stated. In order to prove that experienced naturalists are now aware of the true cause of such vegetable diseases, it may be sufficient for me to cite, from the third volume of M. Cuvier's "Regne Animal," the prefatory remarks of M. Latreille on the whole family of insects to which the Hylesinus destructor belongs: "Les Xylophages vivent presque tous dans le bois; les larves percent ou y creusent des sillons en divers sens; et lorsqu'elles sont très abondantes dans une forêt, particulièrement dans celles de pins et de sapins, elles font périr en peu d'années un grande quantité d'arbres ou les mettent hors d'état d'être employés utilement dans les arts."

On a review of the above remarks it seems, in the first place, advisable for those persons who have the trees in the state of those in the Parks, to inspect them twice every year, first in summer, when the perfect insect is on the wing; and secondly in winter, when the trees which are much infected ought to be cut down. Such trees ought if possible to be burned with the larvæ in them, or if this be not convenient, they should immediately be subjected to such heat or fumigations as may destroy the larvæ, which at this season are near the surface, and therefore not so difficult to kill. To rest content with having cut down the trees without destroying the larvæ, or even removing the trunks from the vicinity of the sound wood, is in reality to do no good at all.

It may also be recommended that no more Elm trees be, during the continuation of the disease, planted in places where it is prevalent. The Hylesinus destructor is peculiar to the Elm, and was in all probability introduced into the Parks with some of the young Elms which have lately been planted in different parts of them. The other species of trees in these places of public resort seem, on the whole, to be very free from disease; but in planting, and particularly in ornamental planting, it may be well to bear in mind that indigenous trees are much more subject to the attacks of our indigenous insects than those which are not natives of this country.

With respect to those trees which are in an unsound state, it is very difficult to find out a cure for them. When the insects attack the branches, these ought obviously to be examined, and, if infected, ought as soon as possible to be lopped off and burnt. I scarcely know, however, what to propose for the preservation of those trees of which the trunks are infected. Perhaps it may be of use to cover over in the month of March with a mixture of tar and train oil to a certain height from the ground all such trees as it may be thought proper to attempt to save. I venture to recommend this coating of tar, not only by way of experiment, as protecting the trunks from the access of the perfect insects, but for the purpose of filling those little round holes, which, it is easy in summer for an accurate observer to perceive, afford peculiar facilities for the communication of the disease. *W. S. Macleay, in the Edinb. Phil. Journ.*, 1824.

* See Henslow on the Diseases of Wheat. *Gard. Chron.*, 1847, p. 604. Article Cecidomyia, in Morton's Encyclopædia, &c.

Home Correspondence.

Grafting Moutans (see p. 326).—The following directions are to be found in Fortune's Journey to the Tea Countries of China, page 323. "In the beginning of October large quantities of the roots of an herbaceous Pæony are seen heaped up in sheds and other outhouses, and are intended to be used as stocks for the Moutan. The bundle of tubers which forms the root is pulled to pieces, and each of the finger-like rootlets forms a stock upon which the Moutan is destined to be grafted. Having thrown a large number of these rootlets upon the potting bench, the scions are then brought from the plants which it is desirable to increase. Each scion used is not more than 1½ inch or 2 inches in length, and is the point of a shoot formed during the bygone summer. Its base is cut in the form of a wedge, and inserted in the crown of the finger-like tuber. This is tied up or clayed round in the usual way, and the operation is completed. When a large number of plants have been prepared in this manner they are taken to the nursery, where they are planted in rows about 1½ foot apart, with the same distance between the rows. In planting, the bud or point of the scion is the only point which is left above ground; the point between the stalk and scion, where the incision is destined to take place, is always buried beneath the surface. Kæmpfer states that the Chinese propagate the Moutan by budding; but this must be a mistake, as budding is never practised in the country, and is not understood. He was probably deceived by the small portion of scion which is employed and which generally has only a single bud at its apex. Many thousands of plants are grafted in this manner every autumn, and the few vacant spaces which one sees in the rows attest the success which attends the system; indeed it is rare that a graft fails to grow. In about a fortnight the union between the root and the scion is complete, and in the following spring the plants are well established and strong. They frequently bloom the first spring, and rarely later than the second, when they are dug up and taken to the markets for sale." *Sedbury.*

Slugs.—Among the numerous opinions on the best means of destroying slugs in gardens, I have been disappointed that none of your correspondents have attempted to assign any causes for the great evil complained of by "J. R." I think until the cause why such a mass of destructives should accumulate within a certain space, and few or none on the outside, be answered, it would be useless to prescribe remedies, as the best that has been recommended would either be but temporary or must be applied in doses sufficient to destroy all vegetation, that making "the cure worse than the disease." Having formed my opinion on the subject some time past, I will communicate it, and explain the reasons why I adopted it. Paying a visit to a friend who is generally considered to be a first-rate practical farmer, as his fields, crops, and fences prove at once to the eye of the most uninitiated, I walked into his garden to see if he shone there also; to my astonishment it was covered entirely over with a very heavy

dressing of fresh slaked lime. Now, the subsoil being the red calcareous marl of the district, and the active soil very similar, there could be no occasion for such a large dose of lime, which would be rather injurious than otherwise. On inquiry he stated that he was trying (almost in despair) to destroy the slugs which had increased to such an extent that his garden was become nearly useless, not being able to rear any green vegetable, all being destroyed or injured by slugs and caterpillars when young. I thought then surely there must be some particular reasons for this pest being so destructive, everything outside being so healthy and vigorous, and commenced a more minute survey of the spot. It was a garden bounded on the south by the dwelling-house and other buildings, and on the north-east and west by a substantial brick wall 8 or 9 feet high with a stone coping, the paths were all edged with stone kerbs, no edgings of Box or other growths were used that would harbour a snail or slug. A very fine tame hawk was patrolling over the beds, keeping off every other depredator except slugs, snails, and caterpillars. After returning home I pondered the matter over in my own garden thus—this, too, is on the red marl, and the soil is not very dissimilar, neither slugs nor caterpillars trouble me. I have Box edgings (not very neat) on each side every path, and there are some Grass and Parsley beds, in fact, plenty of things to harbour vermin of all kinds. The house and building bound it on the north and east; on the west and part of the south it is open and exposed; well, then, what are the odds in my favour. I think it must be simply this, that Nature is not shut out here from performing her necessary operations in proper season. The west wind visits my garden rather roughly at times, searching and purifying every nook and corner. As soon as my Roses (which are not grown on bare poles, but on their own roots in elegant bushes from 2 to 3½ feet high, and 2 feet through) are attacked by the aphis, or the Gooseberry trees with the caterpillar, a whole army comes flying to my assistance and soon routs the enemy; and if a solitary standard wants their attention and there is nothing to sit on to clean the under boughs, I put a perch across underneath for them to work off. Here is no hawk kept to scare my friends away, nor gun or trap used to destroy them; they do their work without bidding, and charge little for it. Certainly the sparrows, the best workers, will have regular meals with the poultry during the winter months, and all take a little fruit when it suits them; but then I believe the balance is in our favour, as they do not eat the bread of idleness. Your readers will therefore readily perceive what my prescription would be to keep down slugs, &c., in gardens. *R. S., Worcestershire.*

Red Spider.—The day following the putting my leaves in a pit, the whole place seemed alive with red spider, but after placing one or two old garden saucers with a little gas tar in them on the leaves, not a spider was to be seen the following morning; nor indeed has one appeared since. Is this a remedy in common use? *F. P.* [No.]

Bougainvillea spectabilis.—I am sorry that I cannot give you any information with regard to this most lovely climber, never having grown it myself. A friend of mine saw it growing in a greenhouse near Oporto, which is never heated, and she told me on her return from her visit that it was the most beautiful thing she had ever seen. One side of the house was covered with the climber, and immense trusses of bloom were hanging from every part. The plant was growing in a box about 2 or 3 feet high, which went round the house, but what soil my friend did not inquire; probably in the common garden mould, for the Portuguese are no gardeners, and know nothing of varieties of soils. Can this climber be grown in England? and does it require a hothouse? *C. M. F.* [Anybody can grow it in a common greenhouse, but nobody has yet succeeded in making it flower *well.*]

Clyver (see p. 328).—The Clyver of your correspondent "Augusta" is probably the weed Galium aparine, know as Cleavers and Goose Grass, deriving the former name from its ready mechanical attachment to one's dress (whence it seems the Greeks called it "Philanthropos"), and the latter from its being used as food for geese. Young turkeys are also very fond of it, and its expressed juice is a popular remedy in cutaneous disorders. *F. L.*

Disease in Gold Fish.—Having observed in a late number of your Paper a complaint by a "Subscriber" of the loss of his gold-fish, and having lit upon the exact description of the malady but without any cure, and as I keep the Chinese carp myself and have lost many by the same disease, I think I have hit upon a remedy to which your correspondent is perfectly welcome. The account is from "Chambers' Miscellany," the title Curiosities of Vegetation:—"One of the most extraordinary of microscopic plants is the 'Achlya prolifera,' whose soft silky threads may be seen adhering to the surface of gold-fishes and covering them as it were with a whitish slime. This appearance is generally looked upon as a species of decay or consumption in the animal itself, and not as an external clothing of parasitic plants. It is, however, a true vegetable growth, each individual consisting of a single filament, with a minute Pear-shaped ball on the top, containing numerous grains, which are the seeds or embryos of future plants. The green slime, which in summer gathers over the surface of stagnant water, is of the same order of vegetation, namely, 'Confervæ,' an order entirely dependant upon water for their growth and propagation, and to which drought is certainly fatal. The 'Achlya' has been examined by Dr. Unger, who describes it, when at its full growth, as consisting of transparent threads of extreme fineness, packed together as closely as the pile of velvet, and much resembling in general appearance certain kinds of mouldiness. When placed under the microscope—for the unassisted eye can perceive nothing of its true construction—each thread is terminated by the Pear-shaped ball already alluded to, which is about 1-1200th of an inch in diameter, and consists of a single cell filled with a mucilaginous fluid, in which float the procreative granules. The contents of this cell are seen to be in constant motion from the earliest stage of their existence; but as they advance to maturity the mucilage disappears, and then the motion of the granules becomes more rapid and violent, until ultimately they burst their way through the cell and are transferred to the water, there to perform their circle of being, and to give birth to new races of granules. All this takes place with such amazing rapidity that we are assured an hour or two suffices for the complete development and escape of the spores, so that we need not wonder when we are told that once established the 'Achlya prolifera' will often complete the destruction of a healthy gold fish in less than 12 hours." In their native streams of course they can get into the sharp scowers or against the banks to rid themselves of anything that inconveniences them, but they cannot do so against the smooth sides of the vase; therefore the Achlya settles quietly upon them, filling the gills and stopping up the lateral openings that extend down each side from which a mucus exudes (to prevent I suppose the attrition of the water on the body). It is but right, if we keep them in close confinement on account of their great beauty, that we should make their lives as comfortable as possible. Some that I bought this spring were exceedingly sulky, and remained obstinately at the bottom of the vase, so I got and reared a beautiful pair of shells, called the Hippopus maculatus, into a kind of arch at the bottom of the vase. The effect was instantaneous. They began racing about in all directions, as if perfectly delighted with the hiding place I had made for them. They have an odd way of putting their noses down to these shells, and their tails straight up to the top of the water, just like ducks do when in search of worms in shallow water; and talking about ducks reminds me of a very clever contrivance to catch the wild ones practised by a gentleman about here. Not liking to disturb his decoy by gun firing he had many steel traps deposited near the shore where the ducks came to feed, with a Bean fastened on the bridge of each. The traps were under water, and the birds seeing the Beans naturally tried to get possession of the same, and each bridge became to them as a Bridge of Sighs, and the exact quantity were captured without making any noise except certain flapping of wings; but, however, *revenons à nos moutons* I was about to say, which would be wrong, but to our fish, who must indeed be in a gentle stew at having been kept so long waiting. If two sets of the golden carp were kept, one may always be placed in a large tub into which a stream of river water may be brought by a pipe, and so transfer them turn and turn about, which would prevent the accumulation of the dreaded pest I should think. *F. N., Ludlow.*

Dielytra.—What is the reason that this plant if dipped in water entirely rejects all moisture—comes out as dry as a duck? *J. E. G.*

Covering for Vine Borders.—I have a house of Muscats with their roots in an outside border; they produce fine bunches and luxuriant foliage, and are the admiration of every one who sees them until the time of their beginning to ripen (the end of July) when they shank very much, as about this time and a little previously we have generally heavy falls of rain. Being of opinion that the Muscat Vine roots should not be subjected to heavy falls of rain at that period and in that stage of fruiting, I should be greatly obliged for your advice as to the best and cheapest material (waterproof), that I could employ to cover the border with, so as effectually to throw off whatever rain falls? I have been recommended a waterproof tarpauling, such as are employed on hayricks, but I find it very expensive, the size I want, viz., 12 yards by 5. Is there any composition I could put on calico sheeting which would render it durable and impervious to rain? [Waterproofed calico would soon rot; wooden shutters answer very well, but they are expensive. Probably the cheapest and best covering you could employ is asphalte felt; but take care of red spider.]

Hot-water Boilers (see p. 309).—I quite agree with the recommendation of your correspondent "J. T." As an intending exhibitor at Chiswick, I certainly think that the Horticultural Society having gone so far as to have an exhibition of boilers, ought in justice to the designers as well as the public to allow them to be put on trial, otherwise the result will be that every one's boiler will be the best, and purchasers will be as much in the dark as ever. No doubt such a trial will be more expensive to exhibitors, but those having a boiler in which they have confidence must not be afraid to "back it up" by spending a few pounds on it. The way in which I would propose trials to be made would be this: to have a tank built with brick and cement, say 12 feet square and 2 feet deep; let the tank be built in the erections in the Garden, and let it be intercepted with say 200 feet of 4-inch pipe; let there be one main flow and return, and all the boilers attached to the same pipes in the tank, allowing each boiler to be tested separately, and the water to be reduced to a certain temperature at the starting of each boiler. As "J. T." directs I would then register hourly the degrees of heat in the tank and house, and at the end of four hours withdraw fire and weigh fuel. Let the boilers be divided into three or four classes, according to size and price. Each competitor should subscribe 1*l.* to assist in defraying the expenses of building tank, fitting up pipes, &c. Judges would then have some kind of data to go by, and would thus be enabled to give public satisfaction. *John Monro, Gardener, Colney House, St. Albans.*—Since writing the above I see an advertisement in your Paper headed "Weeks' one Boiler System," "Facts Undisputed." In this they again challenge the world to make a boiler that will produce the same effect with the same quantity of fuel. Having recently invented a boiler with the advantages of both saddle-back and retort, I publicly accept Messrs. Weeks' challenge upon condition that they be tested on equal terms as to price of boiler, quantity of pipe, and weight of fuel, and that it can be settled at the public exhibition of the Horticultural Society above alluded to. *J. M.*

Yellow Rose.—I have a plant of the Rose (of which I send blooms) that I generally cut from nine months in the year. Can you favour me with its name? *J. Ansell.* [It seems to be the same as was exhibited by Mr. Snow, gardener to Earl de Grey, at the April meeting of the Horticultural Society, under the name of indica ochroleuca. In the opinion of Mr. Wm. Paul, of Cheshunt, than whom there is no one more conversant with the varieties of Rose, it may be Noisette Solfaterre: he adds that the nearest kinds on either side of it are T. Princesse Adelaide and T. Leveson Gower, neither of which is this likely to be.]

Gnarled Oak Furniture.—I observe that a Welsh correspondent has sent you a sketch of an Oak with an extraordinary protuberance or tumour upon it, and my object in writing to you now is to recommend him to get this wen carefully cut off, and get it seasoned (if he can), and he will then, I have no doubt, find if he cut it into veneers that he has some magnificent specimens of curled Oak, that is supposing it is not spoiled by what are called here inbarks, or bark slacks, which are in fact the bark getting overgrown by the gnarled wood growing over and burying it. I have been a collector of curled wood for more than 30 years, and I never knew one of these protuberances in an Oak or an Elm that was not beautifully curled and knotted; but the Elm is often spoilt by the coarseness of the grain, and the Oak by the great difficulty there is in seasoning it, a difficulty so great that I have not yet learnt how to overcome it to my satisfaction. However, if your Welsh subscriber admires beautiful wood and values it more for growing it himself, I would by all means recommend him to treat this tumour in the way I propose, particularly as it will be of no value for any other purpose. If I knew how to season it I would tell him, but he may meet with other parties who can do so, as the most beautiful furniture is made of this curled Oak. If he tries the experiment perhaps he will kindly publish the result in your columns. *T. G.*

Early Leafing of Sycamores.—A branch of a Sycamore on which a swing for children had been suspended, and whose bark the cord had cut through, was in leaf before any other part of the tree. Another smaller tree of the same kind has got into a stunted condition, making no wood, but from near the root has sprung a vigorous branch pushing strongly into growth; the stunted part is in leaf before the healthy sprout. Does the above throw any light on the "local sporting" of the Beech alluded to in page 309? If your Devizes correspondent will examine he may probably find traces of a wound. Perhaps some of the Maidstone nurserymen will also examine the Beech on the Tunbridge and Sevenoaks road and see if it is really an early variety, or if its leafing can be ascribed to some cause similar to that mentioned above in the case of the Sycamore. *W., Dundee.*

Protective Societies (see p. 325).—Will you inform the writer who signs himself "F. H. S., Nottingham," that I am deputed by "Beatrice," who is now on a visit near Linton, North Devon, to receive and reply to any communication he may be pleased to make on the subject of a "Protective Association for the Amateur Florist." *Thomas Ingle, M.D., The Villetta, Emsworth, Hants.*

Societies.

Linnean, *April* 21.—Professor Bell, President, in the chair. An alteration of the bye laws, proposed by Council, substituting Thursday for Tuesday as the day of meeting, was at this meeting confirmed in the terms of the charter. James Yates, Esq., exhibited a specimen of the wood of the Whitethorn from a tree which had been growing at Kenwood, near Highgate. It was stated that the tree was [? appeared] in perfect health until November, when it became covered with a Lichen, and in 10 days was dead and blown down by the wind, the wood being shrunk and without sap. [The wood, however, appeared to have become somewhat crumbly, though still hard, and had probably been for some time dead in the interior of the trunk.] The conclusion of Professor Owen's memoir "On the Classification of the Mammalia," was read.

Entomological, *April* 6.—J. E. Gray, Esq., F.R.S., in the chair. Mr. Foxcroft sent for exhibition specimens of Petasia nubeculosa from Rannock, where the brood

of this season seemed to have already disappeared, although Mr. Samuel Stevens had specimens still in the pupa state. A paper was read by Mr. Newman on the cause of the scutellar depression on the elytra of some of the individuals of certain species of ground beetles, especially those of the genus Agonum. Mr. Douglas exhibited a specimen of the American Buprestis aurulenta, taken by Mr. McLachlan alive in London. Mr. Syme exhibited specimens of Deilephila Galii, reared at the end of March, the chrysalids having been placed daily near a fire, whereby their exclusion was accelerated several months before the usual time. Mr. Lubbock exhibited and explained the stereoscopic peculiarities of a binocular microscope recently obtained by him from Paris. Mr. Wollaston read a notice of a peculiarity in the eyes of the beetles of the genus Trixagus (Throscus *Latr.*). A paper by Mr. Tapping was read on Acari and Psoci found in drawers and boxes; also on a black species of Psocidæ found in the Barbadoes Nut—a number of specimens of the insect having completely devoured one of these nuts. Mr. F. Smith read some notes in reply to Mr. Jansen's observations on the nomenclature of a new British species of Bledius. Mr. Fortune exhibited two Chinese pastiles, half a yard long, made of the sawings of Juniper and Pine wood, used for the purpose of driving mosquitoes from apartments; also some rolls of the same material used for the same purpose. Likewise some torches formed of the stems and leaves of Artemisia indica, used by the Chinese when taking honey from hives, one of these torches being lighted and waved about by an attendant, the smoke completely stupifying the bees, which fly around without stinging the operators, although they are naked to the waist.

Botanical of Edinburgh; *April* 9.—Prof. Balfour in the chair. The following papers were read:—

1. "On the Effects of a Solution of Bi-Carbonate of Ammonia in promoting Vegetation." By C. J. Burnett, Esq. The author stated, that the carbonate of ammonia had been recommended as existing in the refuse liquor of gas works, on account of the comparative cheapness of the ammonia in this form, but that he was inclined to recommend the carbonates of ammonia also on other very important grounds; that the compound of ammonia with carbonic acid was the most natural of all the ammonia manures, and that, in converting it into the sulphate and other salts commonly sold for manure, we drive off a most important element of plant food, of much more universal value than the sulphuric or other acid by which it was replaced. For healthy growth, a proper proportion of carbon should accompany the nitrogen added; and we should not attempt to dissever those substances which nature had shown such an evident desire to associate in their application to plants. Instead of driving off the carbonic acid, he would recommend adding more of it, so as to convert the mono-carbonate, or mixture of carbonates, into a more fixed and more nutritious bi-carbonate. Till a cheap form of bi-carbonate, corresponding to the other agricultural salts, should be in the market, a solution of the proper nature might be easily and conveniently made by any one, by saturating with carbonic acid evolved from muriatic acid and chalk or limestone a solution of the common carbonate or perhaps the common gas liquor. The manufacture was one which any farmer or gardener could readily carry on with two barrels and a bent piece of lead tube, and the solution might be carried to the field in barrels, and applied by a rose or pierced tube. The solution should be very dilute when applied. To make more clear the particular object for which he now recommended the use of this manure, he would say a word or two on the different natures and applications of manures in general. They might be divided into two classes. 1st, Manures which afforded ingredients of plant food which could be supplied by the soil alone. 2d, Manures which supplied ingredients which were also contained in the air. As to the first class, whether (as in the majority of instances), required during the whole period of plant growth, or merely in its latter stages (as phosphates in case of corn crops, &c.), they should be added in a quantity sufficient for one crop at least, and in a sparingly or gradually soluble form, to prevent serious loss from their being washed down out of reach of the roots. As to the second class, however, the case was very different indeed. Though the carbon and nitrogen which they supplied were essential elements of plant food at every stage, yet, as it was only in the earliest stages that the earth was their only source, and, as it was manifestly bad economy to pay money for what you could have for nothing, the use of manure of this class should be principally confined to the plant in the earliest stages of growth, and then made with the view of giving the plant such a start as would enable it to draw, at an earlier period than it otherwise would, on the unlimited and untaxed supplies of carbon and nitrogen which our atmosphere provides. He could not doubt that one pound of nitrogen and carbon applied at the critical period so as to lift the plant expeditiously out of helpless infancy and entire dependence on mother earth into comparative independence, drawing still gratefully on earth for what she alone could supply, but able to forage for much in free air, would, at the seasons when harvest arrived, be found to have produced a much larger addition to our crop than the same pound protractedly doled out as a supplementary supply during the entire period of growth by the decay of organic matters in the soil. He would recommend the application of the bi-carbonated ammoniacal solution to the young crop to be made during what the farmer most expressively terms growing weather, when the ground is moist enough to ensure its immediate penetration, and there is sufficient warmth and geniality in both air and earth. The author stated that he had made numerous and varied experiments with the bi-carbonate during the last five or six years, on Wheat, Oats, Beans, Peas, &c., as well as Roses, Lupines, Sweet Peas, and many other garden plants; and that their results, along with the theoretical considerations alluded to, justified him in recommending the bi-carbonated ammonia solution, as deserving of a thorough trial both by farmers and gardeners."

2. "Does Magnetism Influence Vegetation?" By H. F. Baxter, Esq. The author states that the results of his inquiry into the subject are negative, that is, no positive evidence has been obtained to show that magnetism either does or does not influence vegetation. After noticing the opinions of Becquerel, Dutrochet, and Wartmann, the author says—"As it may be considered a law in vegetable physiology that all plants have a tendency, during the germination of their seeds, to develop in two diametrically opposite directions (the root and the stem), the question arose—might not this direction be influenced or counteracted by submitting the seeds whilst germinating to the influence of magnetic force." Accordingly, a series of experiments were undertaken by the author, which are classed under two principal heads: 1st, Those in which the line of magnetic force was directed perpendicularly to the plants; and 2d, in which the line of force was directed transversely to the plant. The author gave details of the experiments, which were varied and multiplied. No definite conclusions, however, could be drawn from them relative to the effect of magnetism.

3. "On Lycium mediterraneum." By Dr. T. Anderson.

4. "On the applications of Botany to Ornamental Art." By Mr. Geo. Lawson. Mr. Lawson exhibited a panel carved by Mr. B. Reeve, representing in its side ornaments Polypodium alpestre and Polystichum Lonchitis. In connection with this study from nature, he called attention to the inexhaustible source of novelty in design which the vegetable kingdom presents, and which he hoped would be made more fully available than hitherto, for although "flowers have in all ages been used by the aspiring ornamentist, and have ever been the basis on which the science of ornament has stood," much still remained to be done. The Papyrus and the Lotus, in their numerous combinations, were the chief subjects of Egyptian ornament; the Acanthus leaf formed a pattern for the capital of the Corinthian pillar; the Fleur-de-lis is also an ornament which has stood the test of time. Even in our own day novelties are occasionally introduced by enterprising designers; still, how easy would it be to catalogue all the vegetable forms that have actually been referred to in design. Of the 93,000 living plants (not to speak of dead species), how few have actually come into general use for this purpose! Mr. Lawson stated that in a late lecture to the Royal College of Surgeons, Professor Balfour pointed out the wonderful symmetry that prevails throughout the vegetable kingdom, both in the minute tissues, and in the compound organs of plants. Professor M'Cosh and Professor Dickie have illustrated the laws of form, and the relations of colour to form in plants; Dr. Lindley and, more recently, Mr. Dresser have done much to elucidate this very subject of the relations of botany to ornamental art, and with such aids, the wall of separation that has so long existed between the botanist and the ornamentist will surely be speedily broken down. Mr. Lawson then referred to some of the authors who had been instrumental in drawing attention to this subject, alluding particularly to Pugin's "Floriated Ornament," and to various writers in the *Builder*, *Art Journal*, &c. He proceeded—It is to be kept in view, when the artist is recommended to study nature under the light of science, that this does not necessitate a naturalistic treatment of his subject. Attention to botany is even more essential to him who would create a design by the conventional treatment of natural forms, than it is to the naturalistic designer. It is what anatomy is to the painter of the human figure. It enables him to modify his leaves and flowers according to the requirements of his design, without overstepping the boundaries of truth, and originating a caricature, instead of adapting nature to his special purpose. It is a common error to suppose that the artist has merely to take natural forms as his starting point, and give these a geometrical disposition, modifying them according to his taste. Truth to nature is necessary in all decorations intended for an educated eye, and especially so in an age of science. And the beautiful laws of form, and of colour, and of number, and of arrangement of parts, that prevail throughout the vegetable kingdom are necessary to be known by the artist, who has high aims. This knowledge loosens him from the trammels of a mere copyist, and gives him a wide range of conventional treatment, while his work assumes the character of an exposition of principles instead of a slavish copy of details. It is a well known fact that many of the finest carved works, in both ancient and modern buildings, are direct studies from nature, and several modern writers have lately pointed out to designers that it is to "natural forms geometrically disposed" that they must all look for new inspirations. "By repeated copying (says Pugin), the spirit of the original work is liable to be lost, so in decoration, the constant reproduction of old patterns, without reference to the natural type from which they were composed, leads to debased forms and spiritless outline, and in the end to a mere caricature of a beautiful original. It is impossible to improve on the works of God, and the natural outlines of leaves and flowers must be more perfect and beautiful than any invention of man." And the same writer observes, "Nature supplied the mediævalists with all their forms and ideas; the same inexhaustible source is open to us, and if we go to the fountain-head we shall produce a multitude of beautiful designs treated in the same spirit as the old, but new in form. We have the advantage of many important botanical discoveries which were unknown to our ancestors; and surely it is in accordance with the true principles of art to avail ourselves of all that is beautiful for the composition of our designs." Mr. Lawson illustrated by means of drawings the beautiful designs that may be occasionally produced from the judicious treatment of even the simplest materials, such as the trifoliate leaf. This led to a discussion of the origin of the trefoil as an architectural ornament, which was stated to belong to a very early period, although its extensive use during the Christian era was probably connected with the myth of St. Patrick and the Irish Shamrock. The differences of opinion that prevailed respecting the species of plants which form our national emblems were alluded to in detail. Such matters, the author observed, "are of little importance in a botanical point of view; but it must be confessed that when an artist asks such questions as—what plant is the Scotch Thistle? or what is the Irish Shamrock? and we cannot tell, it places botany in a humiliating light; and we are not to charge him with wanton neglect, if he does not refer to nature in embodying these our national emblems."

5. "Remarks on Dust Showers, with Notice of a Shower of Mud which occurred at Corfu on 21st March, 1857." By Mr. Geo. Lawson.

Notices of Books.

The Testimony of the Rocks, or Geology in its bearings on the two Theologies, natural and revealed. By Hugh Miller. 8vo, pp. 500. Constable.

This is a book for clergymen to study and criticise, as well as for naturalists. The object of the lamented author was to show that geology does not conflict with revelation, provided we accept, as he does, the six days of creation as vastly extended periods. Once indeed he thought otherwise, as he tells us, believing with Buckland and Chalmers that the six days were simply natural days of 24 hours each. Why more knowledge caused him to alter that belief his book most amply explains: in his introduction he briefly sums up the reasons in the following characteristic sentences:—

"During the last nine years, however, I have spent a few weeks every autumn in exploring the later formations, and acquainting myself with their peculiar organisms. I have traced them upwards from the raised beaches and old coast lines of the human period to the brick clays, Clyde beds, and drift and boulder deposits of the Pleistocene era, and again from these, with the help of museums and collections, up through the mammaliferous crag of England, to its Red and its Coral crags. And the conclusion at which I have been compelled to arrive is, that for many long ages ere man was ushered into being, not a few of his humbler contemporaries of the fields and woods enjoyed life in their present haunts, and that for thousands of years anterior to even *their* appearance, many of the existing molluscs lived in our seas. That *day* during which the present creation came into being, and in which God, when he had made 'the beast of the earth after his kind, and the cattle after their kind,' at length terminated the work by moulding a creature in His own image, to whom he gave dominion over them all, was not a brief period of a few hours' duration, but extended over mayhap millenniums of centuries. No blank chaotic gap of death and darkness separated the creation to which man belongs from that of the old extinct elephant, hippopotamus, and hyæna; for familiar animals, such as the red deer, the roe, the fox, the wildcat, and the badger, lived throughout the period which connected their time with our own; and so I have been compelled to believe that the days of creation were not natural, but prophetic days, and stretched far back into the bygone eternity. After in some degree committing myself to the other side, I have yielded to evidence which I found it impossible to resist; and such in this matter has been my *inconsistency*,—an inconsistency of which the world has furnished examples in all the sciences, and which I trust, in its onward progress, continue to furnish many more."

The work itself takes its place among the more important of modern geological treatises. How far it also concerns the general reader, the following extract, very characteristic of poor Miller's geologico-theological style, will enable any one to judge.

"In looking abroad on that great history of life of which the latter portions are recorded in the pages of revelation, and the earlier in the rocks, I felt my grasp of a doctrine first taught me by our Calvinistic Catechism at my mother's knee, tightening instead of relaxing. 'The decrees of God are his eternal purposes,' I was told, 'according to the counsel of his will, whereby for his own glory He hath fore-ordained whatsoever comes to pass.' And what I was told early I still believe. The programme of Creation and Providence, in all its successive periods, is of God, not of man. With the arrangements of the old geological periods it is obvious man could have had nothing to do: the primæval ages of wondrous plants and monster animals ran their course without counsel taken of him;

and in reading their record in the bowels of the earth, and in learning from their strange characters that such ages there were, and what they produced, we are the better enabled to appreciate the impressive directness of the sublime message to Job, when the 'Lord answered him out of the whirlwind, and said, Where wast thou when I laid the foundations of the earth? Declare if thou hast understanding.' And I can as little regard the present scene of things as an ultimate consequence of what man had willed or wrought, as even any of the pre-Adamic ages. It is simply one scene in a fore-ordained series,—a scene intermediate in place between the age of the irresponsible mammal and of glorified man; and to provide for the upward passage to the ultimate state, we know that, in reference to the purposes of the Eternal, He through whom the work of restoration has been effected was in reality what He is designated in the remarkable text, 'The Lamb slain from the foundations of the world.' First in the course of things, man in the image of God, and next, in meet sequence, God in the form of man, have been equally from all eternity pre-determined actors in the same great scheme. I approach a profound and terrible mystery. We can see how in the pre-Adamic ages higher should have succeeded lower dynasties. To be low was not to be immoral; to be low was not to be guilt-stained and miserable. The sea anemone on its half-tide rock, and the Fern on its mossy hill-side, are low in their respective kingdoms; but they are notwithstanding worthy, in their quiet, unobtrusive beauty, of the God who formed them. It is only when the human period begins that we are startled and perplexed by the problem of a lowness not innocent, —an inferiority tantamount to moral deformity. In the period of responsibility, to be low means to be evil; and how, we ask, could a lowness and inferiority resolvable into moral evil have had any place in the decrees of that Judge who ever does what is right, and in whom moral evil can have no place? The subject is one which it seems not given to man thoroughly to comprehend. Permit me, however, to remark in reply, that in a sense so plain, so obvious, so unequivocally true, that it would lead an intelligent jury, impannelled in the case, conscientiously to convict, and a wise judge righteously to condemn, all that is evil in the present state of things man may as certainly have wrought out for himself, as the criminals whom we see sentenced at every justiciary court work out for themselves the course of punishment to which they are justly subjected."

Description des Muriers; by N. C. Seringe (Paris, Masson, 8vo., pp. 336), is a very complete treatise upon the White Mulberry, its varieties, and the mode of its cultivation. It will be found a useful guide to colonists, who desire to attempt silkworm breeding as an agricultural occupation. We regret to add that the pages being of one size and the plates of another, according to a bad continental custom now dying out, the work is inconvenient to use.

We have also, from the same celebrated writer, some odd numbers of his *Analyse des Familles Naturelles*, and a *Nouvelle disposition des Familles Végétales*, a thin 4to pamphlet of a dozen pages. Of the latter we can only say that it abounds in new names for old things, and of the former that it illustrates, with neat plates, the peculiar systematical ideas of the author.

We hail with much pleasure the appearance under the guidance of Messrs. Siebold & De Vriese of the *Annales d'Horticulture et de Botanique*, a new monthly periodical published at Leyden, and intended to illustrate the more interesting of the cultivated and ornamental plants found in the Dutch possessions in the East Indies, America, and Japan. It is, we presume, the successor of the *Tuinbouw Flora*, which, being written in Dutch, was a sealed book to most persons in this country. The number before us contains a coloured figure of a Tree Pæony called "Impératrice de France."

The last number of the *Archives du Museum* contains a continuation of Mons. Weddell's careful, learned, and judicious work on Urticaceæ. The plates are beautiful examples of scientific art, as the treatise itself is an honourable example of systematical science.

In a single 12mo. volume of 748 pages, admirably printed and illustrated, Messrs. Black, of Edinburgh, have condensed the whole poetical works of Walter Scott. The print, notwithstanding its smallness, is legible by even aged eyes, so that the volume may become a delightful pocket companion to everybody whether old or young.

Mr. Frederick Hanham has prepared *a Manual for the Royal Victoria Park, Bath* (Longmans), in which he gives a description of all the plants found in that very pretty place. Doubtless it will possess local interest; if, however, the Christ's Thorn should fruit at Bath, the visitors to the park will be puzzled to discover why it is called buckle-shaped (see p. 56); as they must also be when they read that the male and female Chinese Junipers are two *varieties!* of Juniperus chinensis. We would also venture to suggest that our common Juniper bush is not likely to have been the tree under which "the prophet Elijah took refuge in the wilderness of Beersheba, to avoid the persecution of King Ahab." Such slips will doubtless be corrected in another edition of the book.

Garden Memoranda.

MESSRS. VEITCH'S NURSERY, KING'S ROAD, CHELSEA.—Among other improvements lately effected here, perhaps one of the most important is a handsome new frontage, which, in addition to its affording a suitable accommodation for a large number of plants of a highly ornamental character placed in it, serves at the same time to set off the entrance to the conservatory and other glass houses to great advantage. In this new glass erection, the front of which is some 14 feet in height and whose roof is a series of spans like those of the Crystal Palace, are warm and cool compartments, one on each side of the principal or central entrance. In the warm end are Palms and other plants remarkable for fine foliage, together with a salt water aquarium about to be stocked with its proper occupants; in the cool end are plants in flower and a fresh water aquarium; and against the principal supports in this division has been trained, so as in time to cover the roof, that most charming of greenhouse climbers the Chilian Lapageria rosea. In the culture of this Messrs. Veitch have been most successful at Exeter, and doubtless they will not be less so here. In order to flower this plant in perfection it is found that it must have a well-drained highly porous soil of peat and loam which will admit of the plant while growing being deluged with water; in short, too much of the latter can scarcely be given from the time it begins to push till it has done blooming, after which moisture should be gradually withdrawn, with the view of inducing it to ripen its wood. Under this treatment it flowers abundantly, each shoot forming a wreath of gay crimson blossoms, mottled with white, several feet in length. In the corridor between the two compartments just noticed are fine standard Bays, and inverted bell-shaped aquaria set on China pedestals. Associated with these are Wardian cases, some ready filled, others about to be filled with Ferns, and plants likely to succeed in such places, hanging baskets, and other objects of decoration, producing together great variety and excellent effect.

On the other side of the King's Road, immediately opposite the entrance just mentioned, a piece of waste ground has been converted into a new ornamental garden with a main walk running up the middle of it, and a "chain" border on either side, formed into beds by means of narrow pathways made of Derbyshire spar. In these beds noble standard Bays are surrounded with dwarf Conifers, such as Junipers, Thujas, and small Firs here and there intermixed with vases for flowering plants set on square pedestals. In the centre of this garden of evergreens, for so it may be termed, is a neat scrollwork in Box and different coloured gravels, the whole being bounded by a shrubbery border of graceful outline and a broad band of Grass, out of which rise numerous pyramidal specimens of variegated Box and other plants of neat close habit. The wall which cuts off this new department from the grounds adjoining it is covered with Exmouth Magnolias which when in bloom cannot fail to be highly attractive. A light iron gate and railing divide this ground from the King's Road, and on account of the main walk being in a line with that running through the glass-houses and down the centre of the nursery on the opposite side, a view can be obtained from the top of this ground right through to the Brompton Road, a distance of 336 yards.

The small square garden at the rear of the conservatory is now filled with hardy hybrid Rhododendrons, which will soon be a mass of gay flowers; and here, as well as along the sides of the main walk down the middle of the grounds, are magnificent standard Bay, Box, and Yew trees, such as it would be almost impossible elsewhere to match. Some of the latter are 12 and 14 feet in height, closely clipped into pyramids and cones, while others have heads natural and graceful, so as to suit tastes and situations of different kinds. Golden Yews are also worked upon other Yews, which form good supports for them. Materials such as these skilfully introduced into gardens have a good effect.

In the various glass houses, which multiply here every year, little alteration has taken place since we last gave some account of them. Three we may mention are filled with Orchids, all in excellent health, and many of them beginning to come into flower; one is chiefly devoted to Pitcher plants, of which Messrs. Veitch have the finest collection in the world. These are placed in an open tank of water, from which constant evaporation proceeds, and thus situated they grow with a luxuriance and beauty rarely met with in this class of plants. Some of the stronger kinds are also trained up the roof, where they afford an agreeable amount of shade and have an interesting appearance. On the front shelf was a capital collection of variegated Orchids under bell glasses. Among these we observed the new Anæctochilus Veitchi, a handsome green-leaved sort, beautifully streaked and veined with silver. Of the singular lattice plant (Ouvirandra fenestralis) or Water Yam of Madagascar, we noticed a great many specimens; though not attractive at a distance, their neatly-formed skeleton leaves spread out on the white Derbyshire spar which covers the soil at the bottom of the water pans in which they are planted, when closely inspected, are extremely interesting; on the largest plant some of the leaves already measure quite 4 inches in length and 2 in breadth. Two long span-roofed houses are almost wholly filled with Ferns, one chiefly with Madeira kinds, in front of which are Barkerias, Odontoglossums, and other more hardy sorts of exotic Orchids; the other with tender Ferns, among which we noticed some extremely rare and beautiful species. These are intermixed with Orchids in flower which rise up here and there from among the graceful and variously coloured fronds with excellent effect. No two classes of plants harmonise and associate with one another better than these do; in tasteful hands there need be no end to the variety and graceful effect which they might be made to produce. A specimen of the handsome Gleichenia microphylla was especially remarkable; it formed a globe of charmingly divided fronds fully 2 feet in diameter. While speaking of Ferns we may mention that some of the Madeira ones have been tried here out of doors, where on a dry rockwork under a slight protection of straw they have wintered safely. Already Polystichum falcinellum, Balantium culcita, and Woodwardias are pushing vigorously, and others look as if they would soon follow their example.

The house furnished with ornamental foliaged plants is now, as indeed it always is, full of fine specimens of that now deservedly esteemed class. Conspicuous among them were Rhopala de Jonghi, Brownea erecta, Hippomane spinosa, Ficus Leopoldi, with leaves 15 inches long and 8 inches broad, and the new Tradescantia discolor vittata, a variety with yellow-striped foliage. Among flowering plants on the shelves of this house was Gesnera Miellezi, a handsome mule with cream-coloured blossoms deeply edged with purplish lilac; this is a real acquisition to the class to which it belongs. Scrambling along the roof was Hoya imperialis coming profusely into flower.

In the New Holland house was a well-grown specimen of Philesia buxifolia, which promises to bloom abundantly. Like the Lapageria mentioned above, this likes a free open soil, good drainage, and plenty of water, of which while growing it can hardly have too much. We also noticed a good plant of the new fruit-bearing shrub, Eugenia Ugni. For the accommodation of young stock of New Holland plants, a small span-roofed house has recently been built here. It has a sunken path up the middle and beds on either side, which afford great facility for watering and otherwise attending to the stock. Messrs. Veitch contemplate having more of these houses, which are found much more useful than ordinary low brick frames or pits.

The large Aquarium or water house is now filled with plants of the most interesting character. The leaves of Nymphæa dentata, rubra, Devoniana, and cœrulea, literally clothe the surface of the tank, and with a view to produce variety and at the same time augment the ornamental appearance of this house, some remarkably well-grown specimens of fine foliaged plants have been introduced here and there with good effect. To persons fond of water plants this aquarium will now amply repay inspection.

The new ridge and furrow roofed orchard houses at the Brompton end of this nursery are about to be filled with fruit trees in pots. During winter they have been employed in protecting young Conifers and things of that sort from the severity of the weather. Among plants now being moved out of them were beautiful specimens of Abies bracteata, Wellingtonia gigantea, and Cephalotaxus Fortuni.

Of young Vines, a house 44 feet in length and 14 feet in width was quite full of strong well-grown plants of all the approved varieties. A pit of equal length, but not quite so wide, is also filled with strong plants of the Golden Hamburgh, which we are pleased to see by an advertisement in another column will very soon be "let out" to the public. Of the merits of this new sort nothing need now be said. They are already sufficiently established.

Among novelties may be mentioned the large white-blossomed Rhododendron from the Burmese Empire, exhibited the other day to the Horticultural Society; this we understand has been named by Sir W. Hooker R. Veitchi. Associated with it were the hardy Scarlet Larkspur (Delphinium cardinale); Phygelius capensis, mentioned at p. 326 of our last week's number; the yellow Tecoma fulva, and Desfontainea spinosa. The last is a fine hardy evergreen shrub, with glossy Holly-like foliage, from the Andes of Patagonia. Its beautiful tubular-shaped blossoms are said to be often 2 inches in length; in colour they are a rich scarlet tipped with yellow.

Out of doors the borders and beds are being re-arranged and put in order for the summer, and the nursery altogether begins to put on a trim and neat appearance.

Miscellaneous.

Sale of Orchids.—A fourth portion of Messrs. Loddiges' Orchids, and also the collection of a "well-known amateur" have, within the last few days, been brought to the hammer by Mr. Stevens. Of the prices they realised the following are a few of the more important:—Aerides Schröderi fetched 31*l.* 10*s.*; A. quinquevulnera (the best variety), 15*l.* 15*s.*; Cœlogyne Lowi, 22*l.* 1*s.*; Vanda violacea, 20*l.*; V. suavis (Veitch's variety), 15*l.* 5*s.*; the larger variety of Saccolabium guttatum, 17*l.* 17*s.*; Dendrobium Dalhousieanum, 12*l.*; D. Farmeri, 8*l.*; Phalænopsis amabilis, 13*l.*; Angræcum caudatum, 9*l.*; Cattleya spectabilis, a kind in the way of marginata, 11*l.*; C. labiata, 10*l.* 10*s.*; Cypripedium caudatum, 5*l.* 5*s.*; Lælia grandis, 5*l.* 10*s.*; and Oncidium Lanceanum majus, 5*l.* 5*s.*; other lots fetched from 10*s.* to 3*l.* per lot.

Poison of Cyclamens.—M. de Luca has just communicated to the Academy of Sciences the discovery of the poisonous principle of the *Cyclamen Europæum*, or Common Sowbread. This plant has long been used in medicine as a violent purgative, and externally as a

resolvent and a remedy for the ear-ache; but it was not known that it contained a powerful poison, producing effects not unlike those of the curara, which the Indians of the Rio Negro use to poison their arrows with. M. de Luca obtains it by digesting the root for 45 days in alcohol, then pounding the root, digesting it again in a fresh quantity of alcohol, and repeating this process until the pulp had lost its acrid taste. All the tinctures thus obtained are then left to spontaneous evaporation in a cellar. At the end of about 40 days a whitish substance is deposited, which, after being repeatedly washed in boiling alcohol, is left to dry in the dark. The cyclamine, or vegetable base of the cyclamen, thus produced is white, opaque, and brittle, and emits no particular smell; it absorbs the humidity of the air, becomes transparent and gelatinous in water, and assumes a dark colour when exposed to the action of light. It is a curious fact that, while pigs can eat any quantity of the root with impunity, not only the active principle itself, but even the natural juice of the root, acts as a poison on small fish, if mixed with the water in which they are in the proportion of 1 to 3000. Four grammes of the juice injected into the trachea of a rabbit caused it to die in convulsions in the course of ten minutes. Bromine appears to be an antidote to this poison, or at least to mitigate its effects considerably; it has the same neutralising power over the curara poison.—*Daily Papers.*

Vegetation of Borneo.—All over the padangs or great Grassy plains of this country the Oulin clumps stand up, white and ghastly mementos of the vast forests which once covered the whole district, and of which the oldest natives have no recollection; the stumps were there when they were young, and to all appearance will be there for a hundred years longer. In many cases they are hollow, and then a large tree has frequently grown in the centre, and by its gradual increase split the Oulin into three or four pieces. In some places the padangs are covered with trees, which thus look as if they grew in huge flower-pots, and whose roots squeeze themselves in strange shapes through the cracks of their ancient pedestals, which have preserved them when young from the fires which, in the dry season, sweep roaring and crackling across the padangs, destroying every living leaf. The trees chiefly seen in the padangs are Vitex tomentosa, Emblica officinalis, and some two or three others, whose bark, being very full of sap, resists the fire for a moment or two. That is enough, for the tempest of flame, fed only by Grass, is gone in an instant; and when a tree has, by one accident or another, survived three or four years, it is safe from such immediate destruction. These padang trees however, after all, are destined to perish by fire. A bit of bark is killed or knocked off: perhaps a dead stick has rested against it, and given the fire time to kill the bark; or a buffalo rubs his horn, or a pig whets his tusk there. Then the verdict has gone forth; next year the bit of bare dead surface burns long enough to kill further the edges of the wound, which is next year, and every year, more and more extended, till the tree stands up, as upon a stick, which gives way to the first storm, generally however alive to the last moment. Wherever a group of trees, other than of these few species, is seen on the padangs, it is a pretty sure sign of nearly bare rock, or gravel, too barren to carry Alalang (Imperata Kœnigii) sufficiently thick to conduct the fire. The changes in the appearance of these vast Grassy plains within a few days is indeed singular. After the long dry weather they are a light greenish yellow; the fire passes, and leaves them black; in three days more they are the lightest and freshest of green again; and in 10 days after the fire they are white, as if a snowstorm had fallen upon them, with the waving plumes of flowers, which never appear except after fire, though it be delayed several years. Of course these fires destroy all that is above ground of thousands of sapling trees, but the roots remaining alive throw up fresh shoots; these in their turn are burnt off year after year, and again, year after year, fresh shoots are thrown out from the edge of the stool, which becomes at last a thin distorted disc of wood, fixed to the ground by innumerable perpendicular fibres, and burnt perfectly smooth on the upper surface. These bare stools, sometimes 18 inches in diameter, have a strange appearance immediately after the fire, but are soon again hidden by the Grass. *Hooker's Journal of Botany.*

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—As the New Holland plants go out of bloom their seed pods should be picked off, the shoots cut back and arranged in the form most favourable to secure compact growth, placing them in an airy part of the greenhouse until they fairly start into growth. When the buds have fairly started will be the proper time for shifting such as require more pot room, as they can then be kept somewhat close for a fortnight to encourage a free root action without incurring the risk of the buds breaking scantily. Look well to the stock of plants for summer and autumn decoration, and do not allow them to sustain any check through want of pot room or carelessness in watering. The Croweas are first-rate subjects for this purpose, remaining longer in beauty than almost any other hard wooded plant which we possess, and are not nearly so much used as they should be. Fuchsias for late blooming must not be kept too warm; but should be placed in a moist shady house, where they will grow much more freely than in a high temperature. Stove plants will now be growing freely, and will require frequent attention as regards stopping and training. Keep them properly supplied with pot room, and afford them all the sunshine they will bear without scorching, with a moist atmosphere, admitting air freely on mild days. Also afford them sufficient space for the perfect development of their foliage. Look sharply after insects, and attend to cleanliness, washing the floors and pots as often as it may be necessary to do so. Go over creepers frequently, so as to regulate their growth and prevent confusion, which without attention soon happens. Syringe and shut up early on the afternoons of bright days, and be as sparing as possible in the use of artificial heat. Orchids.—Afford those in growth a thoroughly moist atmosphere, giving them a good steaming every bright afternoon by syringing and shutting up early. Admit air in moderate quantities on mild soft days, but carefully avoid currents of drying wind. Examine the plants individually every other day, and water such as require it, but be careful not to give too much to those starting into growth, and a cool atmosphere will greatly assist in prolonging the beauty of those in bloom.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit should be divested of all suckers, except as many as may be wanted for stock, directly they make their appearance. This will throw more of the energies of the plant into the fruit, and will also secure stronger suckers than if too many were left. Our more valuable sorts of Pines are not, however, very apt to produce any excess of suckers, but some varieties of Queen still in cultivation produce so many that the fruit never attains any size unless the suckers are thinned early. Guard against any decline of the bottom-heat, and where this is obtained from fermenting materials, a little fresh tan should be added before the heat gets too low; and it will be much safer to add a few inches occasionally as it may be wanted than to follow the old practice of renewing the bed only once or twice in the year. See to keeping the soil about the roots, where the plants are in pots or planted in the open bed, in a nice healthy state as to moisture, and give manure-water regularly to fruiters and stock in free growth. Vineries.—Go over the Vines in succession houses, frequently removing laterals, &c., before they shade or interfere with the principal foliage. Where plants must be grown under the Vines the latter should be kept sufficiently thin to allow of a moderate share of light reaching the plants, and neither laterals nor any useless wood should be allowed to obstruct the light. See that none of the plants are infested with red spider or thrips, especially the latter, which if once allowed to get upon the Vines is very difficult to eradicate, and is most destructive to the foliage. Azaleas are very subject to this pest, and if these are grown under the Vines they must be closely watched, and kept clean at any expense. See that Vines in the late house are tied up in their places before the shoots get too far advanced, as there is considerable danger of breaking these off when they are allowed to get too long before the rods are tied up. Look sharply after red spider, and use every means to keep clear of this pest. Figs.—Attend to stopping and thinning the shoots, and aim at securing short-jointed strong growth, by exposing the young wood to all the light possible. This will, of course, necessitate keeping the trees rather thin, but it is useless hoping for a crop of good fruit from trees that are crowded with wood. Keep the atmosphere moist, and give the foliage a good washing with the syringe after shutting up the house in the afternoon, to prevent red spider, and also see that the roots are kept properly moist.

FLOWER GARDEN AND SHRUBBERIES.

Recently transplanted shrubs and trees must be carefully attended to with water until they get fairly established. It is frequently the case however that too much water is given at the root, thereby souring the soil, and rendering it uncongenial to the young rootlets and the after growth of the plants. The soil should be kept moist, but not to saturation, and the plants should be watered over head with the engine on the evenings of bright days, which will be of vastly more service in repairing the loss sustained by evaporation than if given in excess to the soil while there is a deficiency of active rootlets to absorb it. Where Roses are infested with the grub it will be necessary to go over the plants frequently to destroy this pest. Green-fly is also very troublesome at this season; a good washing with the garden engine on two or three successive evenings will greatly assist in getting rid of these destructive vermin. With the wind north east and a likelihood of having frost any night, there is no irresistible temptation to commence bedding out in good earnest. It is to be hoped however that we shall have experienced a favourable change before the appearance of this notice, and that the planting of all properly prepared stock may be proceeding under favourable auspices. Begin with Calceolarias, Verbenas, Scarlet Geraniums, &c., leaving Heliotropes, Lantanas, Anagallis, and such things as are usually injured by frost until planting of the more hardy kinds is completed. Branches of evergreens are easily enough obtained about most places, and a sprinkling of these stuck into the beds after planting will be of great service in protecting the plants from the drying effects of bright sunshine, and will also ward off a degree of frost which to unprotected plants would be destructive.

HARDY FRUIT AND KITCHEN GARDEN.

Persevere in the destruction of insects on fruit trees in order to afford the young shoots a fair chance to make healthy growth; also proceed with disbudding and stopping gross shoots. See that recently transplanted trees are not allowed to suffer through want of water. Look after the caterpillar on the Gooseberry trees. The quickest way of getting rid of this pest is to give the trees a heavy washing with a powerful engine, throwing the water against the under sides of the leaves, which will wash off the caterpillars, and they are readily killed on the ground by means of an iron rake. Get trenches filled with some fermenting materials in readiness for Cucumbers, &c., and expose the plants rather freely to light and air, to prepare them for planting under the protection of hand-glasses. If not already done go to sowing plenty of sweet Basil, Savory, &c., on a warm border of light rich soil. Persevere in the destruction of weeds, and keep the surface of the ground frequently stirred among growing crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the week ending May 14, 1857, as observed at the Horticultural Garden

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind
Friday 8	14	30.029	29.908	60	32	46.0	48½	46½	E.
Satur. 9	○	29.805	29.731	65	34	49.5	50	47	E.
Sunday 10	16	29.691	29.626	60	46	53.0	51	47	E.
Mon. 11	17	29.765	29.623	72	38	55.0	51	48	E.
Tues. 12	18	30.027	29.934	75	31	53.0	51½	48	S.W.
Wed. 13	19	30.054	30.002	72	49	60.5	54	48½	N.E.
Thurs. 14	20	29.975	29.950	71	40	55.5	55	50	E.
Average.		29.906	29.824	67.8	38.6	53.2	51.5	47.8	

May 8—Overcast; fine; clear at night.
— 9—Clear; very fine; overcast.
— 10—Hazy; overcast; cloudy.
— 11—Slight rain; sultry; 4 P.M. severe hail-storm accompanied with thunder and lightning; the hail fell thickly, some of the pieces were of a flatly-ovate shape ¾ inch long, ½ inch broad, and ¾ thick.
— 12—Overcast: very fine; rain.
— 13—Cloudy; overcast; clear and fine.
— 14—Very fine throughout.

Mean temperature of the week 1¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending May 23, 1857.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.
Sunday 17	65.6	42.2	53.9	13	0.58 in.	1	6	4	1	3	8	4
Mon. 18	64.6	43.1	53.8	14	0.17	1	6	5	3	2	9	4
Tues. 19	65.8	43.6	54.7	11	0.50	2	6	6	3	3	8	3
Wed. 20	65.6	43.4	54.5	15	0.64	1	5	7	3	4	6	4
Thurs. 21	65.6	45.2	55.4	13	0.36	3	5	9	2	5	3	2
Friday 22	65.5	43.5	54.5	15	0.30	6	6	3	3	3	7	2
Satur. 23	67.4	45.5	56.5	9	0.53	1	5	5	4	2	5	4

The highest temperature during the above period occurred on the 23rd, 1847—therm. 89 deg.; and the lowest on the 17th, 1838 and 1855, 18th, 1838, 19th, 1854 and 1856, and 20th, 1853 and 1856—therm. 30 deg.

Notices to Correspondents.

Books: *E R S.* Moore's British Ferns. There is no book worth having upon exotic cultivated species.—*R B.* The second volume of M'Intosh's Book of the Garden is full of information upon Fruits, and it will not mislead you.—*Propagator.* Sweet's Hothouse and Greenhouse Cultivator may possibly answer your purpose.‡

Fungi: *F P.* Flowers of sulphur are your best remedy unless you can use a solution of sulphuret of lime, or sulphurous acid. It will yield to nothing else except corrosive sublimate, which will poison your plants.

Glass: *Moff.* Hartley's rough plate will be found to answer your purpose perfectly ‡

Insects. The grubs which you have sent as injurious in gardens at Brighton are those of the common Daddy-long-legs, Tipula oleracea. Watering the plants with lime-water will drive the grubs from them, but not kill the insects. The only sure remedy is to employ children to kill the flies when they appear in the winged state. *W.*

Kitchen Gardens: *W S* asks what quantity of land is necessary to supply a family of 24 persons with the different sorts of vegetables throughout the year, Potatoes being grown in the field; but he does not say whether a great variety is required or merely a few common things; nor whether small fruits are also to be grown in the place in question.

Mushrooms: *D H.* In all probability they are attacked by woodlice. If so, the latter may be greatly thinned by pouring boiling water along the sides of the bed after they have retired to rest. They may also be trapped by means of dry hollow stems like those of Beans for instance, by tiles laid over Cabbage leaves, or by two tiles or boards placed over one another. They crawl between these as morning approaches, and may then easily be destroyed.‡

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—Pinus Banksiana and Pinus contorta are two names for the same species.—*Cheshunt.* Pinus ponderosa.—*Ashburton.* They are not the seeds of Pinus insignis, but seem to belong to the common Stone Pine Pinus pinea.—*Botanist.* The red Lychnis dioica.—*H P.* Apparently Dendrobium Farmeri and transparens—*E P.* Colletia spinosa.—*Student.* Aponogeton distachyum, a native of the Cape of Good Hope, not at all related to Nymphæas.

Old Seeds: *D H.* You see that Glycerine is inoperative. So we suspect are all other agents. If your seeds *will* grow you may make them do so by placing them between two damp turves having the Grass outwards, put upon the ground of a hotbed. They must not be watered, but require to be looked at from time to time.

Peach Trees: *A B C.* They are covered with green fly. fumigate with Tobacco smoke by all means.‡

Wounds in Old Trees: *W J.* If holes caused by decay are cleaned carefully from dead wood and then stuffed full of well tempered clay, itself, when dry, coated by Stockholm tar and pitch, all will have been done that is practicable. It is, however, necessary that the tar be examined occasionally and replaced when it cracks or comes off. The Garden of the Horticultural Society at Chiswick is accessible to all persons bringing the order of a Fellow on any day except Sundays. If you apply to the Secretary, 21, Regent Street, he will explain how Fellows are elected. Dropmore is what is called a show place, and therefore accessible to all respectable persons.

Yew Tree: *J M S.* Next week. Pray send us the sparrows anecdote.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*
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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATES.

BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*
To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

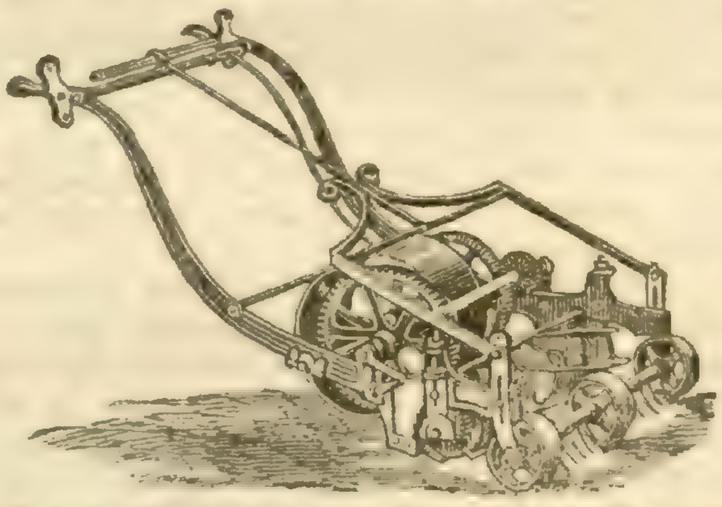
GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—
From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*
"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."
Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London; and sold by their Wholesale Dealers in town and country.

BY ROYAL LETTERS PATENT.

GREEN'S PATENT LAWN MOWERS will be exhibited at the Horticultural Show, Chiswick Gardens, June 3 and 4, 1857.

BY ROYAL LETTERS PATENT.
GREEN'S PATENT PONY AND HAND GRASS-CUTTING MACHINES.—DATE OF PATENT, August 2, 1856. No. 1831.
THOMAS GREEN, PATENTEE and SOLE MANUFACTURER, Leeds, Yorkshire.



T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.
The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.
The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Testimonial from JAMES MCMILLAN, Esq., *Moffat, Dumfries, Scotland, May* 2, 1857.
"Sir,—The 16 inch Patent Mowing Machine came safely to hand on Thursday, and gives entire satisfaction. We return packing case, and enclose amount of account.
"I am, yours respectfully,
"Mr. Green." "JAMES MCMILLAN.

Testimonial from WM. DOWLING, Esq., *Over Wallop, Stockbridge April* 22, 1857.
"Sir,—I am exceedingly pleased with the Grass Cutting Machine that you have sent me; it is very simple in its construction, easy to work, and far surpasses any Mowing that I have seen done. I consider the Machine to be a great improvement over all others; the working-gear being within the frame is a great advantage, and the labour of drawing at least one-third less.—Yours obediently, "WM. DOWLING.
"Mr. Thomas Green."

Testimonial from Mr. GROOM, *Gardener to Sir John Lowther, Bart., Swillington House Gardens, May* 5, 1857.
Sir,—The trial of your 30-inch Pony Mowing Machine at this place yesterday gave every satisfaction. As we have some 20 acres or more of short Grass mowing, I certainly feel some interest in machines. The one we have been using I have always considered as good as anything out, but certainly the performance of your Patented Machine yesterday by far surpassed anything I had ever seen, and this on a piece of Grass that had never been cleaned, swept, or mown this season before. It certainly cut it in first-rate style, leaving a perfectly even surface, and not the least sign of ribbing nor a mark of any description; in fact, no one could tell which way of the Grass the Machine had worked. The gearing being inside the frame work is a great advantage, as it enables us to cut nearer the shrubs, &c., without danger of breaking them. Another decided improvement is the small wheels or rollers in front of the cutters, keeping the Machine perfectly steady, and preventing the possibility of cutting up the ground. The facility with which every part of the Machine is adjusted is an immense advantage. Any one that has used Mowing Machines extensively must admit that the difficulty of getting them nicely adjusted has been a serious affair; in yours it is only the work of a few minutes. Certainly you have made great improvements, and the facilities for quick turning surpass all I have ever seen.—Yours obediently, "HENRY GROOM.
"Mr. Green."

Testimonial from THOMAS CLAPHAM, Esq. *Leeds Royal Gardens, September* 10, 1856.
"Sir,—Having seen one of your Patent Mowing Machines, 28 inches in width, mow one of the Grass plots in the gardens containing 3 acres, neat, and even in one-tenth the time any of my gardeners have done it, I have no hesitation in ordering two of your Machines; one for a pony to work, to cut not less than 32 inches in width, and another Hand Machine for the Grass Borders 20 inches in width. As there are about 15 acres of Grass plots in the gardens, I need not say that the knives must be very good, and if so, I have no doubt the work will be done at considerably less cost and much better than by hand labour. —I am, Sir, yours obediently, "THOMAS CLAPHAM."

THE FOLLOWING ARE THE PRICES:—

To cut		If with improved Rake.	To cut		If with improved Rake.
,, 8 in.	£4 4 0	2*s.* 6*d.*	,, 20 in.	£7 7 0	4*s.* 0*d.*
,, 10 in.	4 14 6	2 6	,, 22 in.	7 17 6	4 6
,, 12 in.	5 5 0	2 6	,, 24 in.	8 8 0	5 0
,, 14 in.	5 15 0	2 6	For pony ,, 30 in.	15 15 0	10 0
,, 16 in.	6 6 0	3 0	,, 36 in.	18 18 0	12 0
,, 18 in.	6 16 6	3 6	,, 42 in.	22 0 0	14 0

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra.
The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.
P.S. Three Hundred of these Machines have been sold this season, and references can now be given to parties using them.
T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.
The Machines may be seen at the Works, also of Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

TO LANDOWNERS, THE CLERGY, SOLICITORS, ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.
The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.
No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.
The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.
Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.
Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.
For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.
The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.
52, Parliament Street, London, S.W.

AGRICULTURIST CATTLE INSURANCE COMPANY.—Chief Offices: 20, Cockspur Street, Charing Cross, London; 50, Lower Sackville Street, Dublin; 9, South St. Andrew Street, Edinburgh.
For the Insurance of Farmers from Loss among their Live Stock, whether occasioned by PLEURO-PNEUMONIA or any other kind of disease or accident.
It is purely a Proprietary Company, has been established 11 years, and transacted more Cattle Insurance business than all other Companies put together.

RATES OF INSURANCE.

CATTLE.		
Dairy Cows	7½*d.*	in the £.
Feeding Stock	6	,, ,,
Oxen	7	,, ,,
HORSES.		
Agricultural Horses	9	,, ,,
Hacks	10	,, ,,
Mares for Breeding	1*s.*	,, ,,

AGENTS WANTED in every district where none are already appointed.—Apply to R. W. GOOLD, Secretary.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
The GENERAL MEETING of Members will be held at the Society's House, in Hanover Square, on FRIDAY, the 22d of May, at 12 o'clock. JAMES HUDSON, Secretary.

The Agricultural Gazette.
SATURDAY, MAY 16, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY,	May	20	Agricultural Soc. of England ..	Noon.
			Society of Arts	8 P.M.
FRIDAY,	—	22	Agricultural Soc. of England, General Meeting	Noon.

MR. WILLOUGHBY WOOD again contends for the importance of attention to the breeding of Stock. We referred last year to his letters on this subject in the columns of *Bell's Weekly Messenger*; and the present communication in which he follows up the same argument is, we are sure, equally deserving of all the prominence we can give it. The points chiefly insisted on are—(1), the propriety in any attempt at improving a herd of using none but a pure-bred bull; and (2), the importance of all stock being liberally kept during the first year. "Bad breeding and early starvation are the two main causes of deterioration among stock, and ought to be abandoned along with undrained land, foul crops, and crooked fences, as relics of an age less enlightened than the present."

We cannot do better than extract in full the illustration by which the contrast between good and bad management in breeding cattle is urged by Mr. WOOD upon his readers.

"He who wishes to lose by breeding," says Mr. WOOD, "has only to follow the example of Mr. THRIFTLESS, who buys at hazard any animals he may see at market, being guided solely by their *nominal* cheapness. He disregards the indications of breed, and pays no attention to uniformity of character, provided he has to pay a trifle extra for these qualities. Health and strength of

constitution he considers as utterly unworthy of notice. When he has got together a heterogeneous assemblage of cows of all breeds and crosses, the next step is to find a bull. Here again, cheapness being the main consideration, he takes the first male animal which a neighbour offers him. He makes no inquiry as to pedigree, because 'he is not one of your fancy breeders.' For a similar reason, he is contented to overlook the most glaring defects of shape, and the total absence of quality. He deludes himself with the idea that the worthless mongrel is *cheap*, whereas in reality he is dear at any price. Thus does Mr. Thriftless glide down the easy slope of ignorance and indolence, until, after the lapse of years, he finds, to his astonishment, that no entreaties will induce customers to buy his weedy, raw-boned mongrels, while they are eagerly contending for the thriving stock of his neighbour, Mr. Thoughtful, who has pursued a course in every respect the opposite to that which has entailed such heavy loss upon him.

"Mr. Thoughtful had a few good cows of the ordinary short-horn breed on his farm, which he considered as well adapted for producing promising stock as they had proved themselves for filling the milk pail. Having discarded all which did not answer to this description, he neglected no opportunity of filling their places with others of a similar character, and thought little of giving a couple of pounds or so over the market price for such as came up to his standard. But while he deemed liberality to be sound policy whenever he recognised superior shape, high quality, and superior blood, he carefully avoided paying extra for mere condition which was the result of high keep, for he possessed that rarest and most money-making of all qualifications, the power of discerning merit in an animal when out of condition.

"As regards his bull, Mr. Thoughtful actually had the extravagance to give a celebrated breeder 20 guineas for him at a week old. His reasons for committing this piece of folly, as it was regarded by Mr. Thriftless and his school, are perhaps not unworthy of consideration. In the first place, he knew the dam not only as the possessor of a high pedigree, but as one of the finest cows and best mothers in the country. He had seen former calves of hers grow up to fetch enormous prices. He was aware that his sire had cost 300 guineas, and that his stock proved him to be worth it. And he well knew, too, that if he waited until this calf was a year old, there would be no chance of his obtaining him for a sum within his means. He, therefore, deemed himself most fortunate that his offer, made before the calf was born, had been accepted, for he had thus become the owner of one of the best bred bulls in the neighbourhood, at what he rightly deemed a very low price.

"Disregarding the offers which flowed upon him to part with the young animal, for which he even refused to name a price, he was in due course rewarded by witnessing the annual arrival of a healthy, even handsome, lot of calves, from which he selects the healthiest and most promising to rear. Having an object in view, he keeps it steadily before him, turning neither to the right hand nor the left till he has attained it; and, therefore, declines the most tempting offers for his young stock. At last, the long-looked for day of his sale of heifers arrives. The concourse of buyers is numerous and influential. and the competition which ensues is such as had never before been witnessed in that neighbourhood. His cows are well known as milkers, while the heifers are not only by a Herd Book bull, but are in calf to another of equal value. His name is now established; he has by common consent achieved a success, but henceforth all is plain sailing before him."

We have remarked on a former occasion that superphosphate of lime can be prepared at all prices from 4*l.* to 10*l.* per ton and upwards. All superphosphates and, we may add, three-fourths of all manufactured fertilisers contain as essential ingredients—bone-dust, or bone-ash, or mineral phosphates, more or less completely dissolved in acid, usually sulphuric acid. These materials are sometimes dried by artificial heat without any addition, or they are kept for a considerable length of time until they become by spontaneous evaporation sufficiently pulverulent to be sent out; but more generally they are dried up at once with ground gypsum, peat mould, peat charcoal, sand, sawdust, or similar cheap materials. At one time bone-dust was the only phosphatic material employed for making superphosphate, but at present large quantities of bone-ash, bone-black (the refuse black of sugar refineries), coprolites, apatite—a mineral phosphate found in Norway and no doubt also to be found in other countries, if search were made for it, are used. Some superphosphates are made from bone and acid alone, others partly from bone and partly from bone-ash, bone-black, or ground coprolites and acid. Others again made in a similar way are mixed up with salt, dried night-soil, or with a certain small proportion of sulphate of ammonia, blood, animal refuse matters, or guano. The names of these different superphosphates are as multiform as the modes in which they are produced; in reality however all artificials, sold as blood-manure, bone-compost, vitriolised bones, Turnip manure, Mangel manure, nitrophosphate, ammonia phosphate, superphosphate, compost manure, nitrobiphosphate, &c., are essentially superphosphates of various degrees of efficiency and commercial value. We are afraid many, unacquainted with the true character of this description of manures, are often led astray by high sounding names, or by names which at the time find favour with the agriculturists, for it is a fact that such manures are often sold at high prices and are nothing more or less than very inferior kinds of superposphate.

The variable composition of these manures of course precludes the adoption of a standard superphosphate, with which others may be compared, and it is for this reason of great importance to the farmer to entertain clear views respecting the characters of these manures; in other words, to understand which constituents of superphosphate are the most efficacious, and how to estimate their relative commercial value.

In order to facilitate the solution of several practical questions which have lately been addressed to us, let us inquire in the first place into the object which the manufacturer has in view in dissolving bones or mineral phosphates in sulphuric acid. On the addition of oil of vitriol to bone-dust, bone-ash, coprolites, and similar substances, previously washed with a certain quantity of water, a portion of phosphoric acid, combined in the bone-ash, &c., with lime, is liberated and the lime of this bone-ash thus released from phosphoric acid unites with sulphuric acid, forming with it sulphate of lime or gypsum. The liberated phosphoric acid, however, rapidly acts on a fresh portion of bone-ash not acted upon by sulphuric acid and by combining with the insoluble phosphate of lime, of which bone-ash chiefly consists, produces a compound which is soluble in water, and is called soluble or bi-phosphate of lime. According to the quantity of acid and bone-materials employed a larger or smaller quantity of insoluble phosphate is thus rendered soluble.

It is believed that the superior efficacy of superphosphate in comparison with bone-dust is just due to the fact that the insoluble phosphate of lime contained in the latter is rendered soluble in water by the addition of acid, in which state it is maintained, and is readily taken up by the plant. This view of the matter, however, is not strictly speaking correct, at least not in the sense in which it is usually accepted. Is it likely, we would ask, that a highly acid solution can come into contact with the tender spongioles of the Turnip root without damaging them? Does not experience teach us that even weak organic acids, such as humic and ulmic acid, when not neutralised by lime or similar basic substances exercise an injurious effect upon vegetation? How much more pernicious, therefore, must strong mineral acid compounds be towards growing plants? We observe, however, no injurious effect even when superphosphate is sown with Turnip seed; and we mention in passing that last year we have made several experiments with a view of ascertaining what quantity of superphosphate might prove injurious when sown with the Turnip seed, and have found that as large a quantity of superphosphate as 1 ton per acre, instead of producing an injurious effect, promoted the germination of the seed and rapid development of the young plant in a marked degree. As this superphosphate contained no less than 28 per cent. of soluble phosphate the experiment is conclusive, and proves that, on calcareous soils at least, a heavy dressing of the most concentrated superphosphate will not injure Turnip seed.

But does this not show that the acid soluble phosphate of lime may come in direct contact with the young rootlets of the Turnip without injuring them? By no means; for all soils contain, if not lime, alumina, or oxide of iron or magnesia, which like all basic substances have a great affinity for acids. In consequence of this affinity they remove gradually that portion of phosphoric acid in the soluble or bi-phosphate of lime which has rendered the bone-earth soluble, and insoluble phosphate is thus again restored as soon as the rain washes the soluble phosphate contained in superphosphate into the soil. This being the case it may occur to many to ask what is the use of dissolving bones in acid with a view of rendering the phosphate soluble if the latter is again rendered insoluble on contact with the soil. In reply to this question we answer that the great benefit resulting from this preparation is due to the minute subdivision of the insoluble phosphate, which is effected *in the soil.* Dissolved by acids and precipitated *in the soil*, the insoluble phosphate of lime is obtained in an incomparably finer state of division than it can be prepared by any mechanical means. In this condition of chemical subdivision a given weight of insoluble phosphate not only occupies a much larger bulk—perhaps eight or 10 times the bulk as the same weight of bone-earth, reduced by mechanical means to the finest powder, and therefore can be more uniformly incorporated with the soil and goes further as a manure, but it is also more energetic in its action upon vegetation.

The insoluble phosphate of lime prepared by chemical means possesses properties not found in the same degree in bone-earth, although the composition of both is exactly the same. An analogous instance is presented to us in flowers of sulphur and in precipitated sulphur; both have the same composition, but the precipitated sulphur is so minutely divided that its colour is pale yellow, almost white, and its medicinal properties so great that one part of precipitated sulphur produces about as much effect as eight parts of fine flowers of sulphur.

Notwithstanding the fact that soluble or bi-phosphate of lime is gradually rendered insoluble in contact with the soil, the advantages of treating bone-dust and other phosphatic materials with sulphuric acid are undeniable. Now, if the efficacy of bone-earth is greatly increased by this means, which no one can deny, and if this can be done with profit to the consumer—a fact which experience has established—it is evident that a superphosphate containing 30 per cent. of phosphate of lime, all rendered soluble by chemical means, must be more valuable than another in which only one-half of this proportion is made soluble and the other half left in its original condition.

We have often heard the opinion advanced that the Turnip plant requires soluble phosphates to give it a rapid start, and insoluble phosphates for its after growth. But we cannot concur in this idea, which evidently rests on the mistaken idea that the soluble phosphate is soon washed away beyond the reach of the plant as it advances in its growth, for we have seen that the soluble phosphate is rendered insoluble in the soil, and cannot therefore be readily removed by rain. It is no doubt a convenient doctrine for manufacturers. To render only a portion of bone-earth soluble, would save them much cost in acid and manipulation, but the doctrine is not supported by fact, and rests on no correct principle.

It must not be supposed, however, from this, that we attach no value to insoluble or rather unaltered bone-phosphate. What we maintain is simply this, that bone-earth rendered soluble by chemical means is at least 10 times as efficacious as unaltered bone-earth, however finely it may be powdered. At the same time it is well to bear in mind that superphosphate often contains insoluble phosphate of lime in the form of coarsely powdered coprolite or mineral phosphate. In this state the insoluble phosphate possesses hardly any more practical value than sand. It is desirable, therefore, that chemists should state whether the insoluble phosphate present in a sample of superphosphate is in the form of bone or as coprolite.

Although good superphosphates have a strong acid taste, the soluble or bi-phosphate contained in them being highly acid, a highly acid reaction must not be considered as an infallible proof of the superiority of a superphosphate, for the acid reaction may be due to the presence of free sulphuric acid, which exists in badly made samples often in considerable quantities.

The amount of soluble phosphate is usually, though not always, determined by precipitating the watery solution of a superphosphate with ammonia. Now it is quite true that some substances may be added, which fall down with the precipitated phosphate of lime, but fraudulent admixtures of that kind seldom occur, simply because those persons who sell inferior articles at high prices possess sand, peat-mould, and gypsum, cheap materials ready at hand for mixing. In all cases of doubt a careful analyst will determine the amount of phosphoric acid and lime in the ammonia precipitate, and readily detect by this means any foreign matter in this precipitate.

In answer to an inquiry addressed to us by a correspondent, in reference to a text book on the analysis of manures, we beg to say that we do not think such a text-book, if in existence, would afford any material assistance to an unpractised hand. For the same reasons that agricultural experience is acquired pre-eminently by farming and not merely from books, skill and experience in analytical chemistry can only be attained by practical work in a well-appointed laboratory.

THE WINDOW OF THE COTTAGE.

[From the Journal of the English Agricultural Society.]

The committee of the Highland Agricultural Society appointed to consider the means of improving the lodging of the peasantry gave much attention to the subject. They offered a premium for the best description of

cottage window, and awarded the same to the one invented by M'Culloch.

"The window for which the premium was awarded to Messrs. M'Culloch & Co. is extremely simple in its construction, and may with safety be pronounced efficient in point of comfort and utility; while the price, it is believed, will be not higher than the cheapest description of iron windows now in use, and for durability will be preferable to those of any other material. The dimensions that have been recommended for the windows of ordinary cottages are 39 inches for the height, and 24 inches to the width, within the wooden frames. The size of glass required for these frames is 7¼ by 5½ inches. The sash is divided into two unequal parts, the lower part having three squares in height, and the upper part two. The lower part is permanently fixed, while the upper part is constructed to turn in the vertical direction on pivots, which are situate in the line of its middleastragal; and both parts are set in a substantial wooden frame, which may be either built in while the wall is erecting, or may be set in afterwards in the ordinary way with or without checked rabots, according to the taste of the proprietor. The window and its arrangements will be better understood by reference to the sketches, where Fig. 1 is an inside elevation, Fig. 2 a plan, and Fig. 3 a vertical section, in each of which a portion of the wall is exhibited, and the same letters refer to the corresponding parts in each figure; *a* is a portion of the surrounding wall, *b* the wooden frame of the window, *c* the lower sash, which is dormant, and *d* the upper and moveable sash. In Fig. 3 the upper sash is represented as open for ventilation; when shut the parts of the opening sash cover and overlap the fixed parts in such a manner as to exclude wind and water, but when ventilation is required the arrangement of the parts which produce this is such as to enable the housekeeper to admit air to any extent. For this purpose the notched latch *e* is jointed to a stud in the edge of the sash; a simple iron pin or stud is also fixed in the wooden frame at *s*, and, the notches of the latch being made to fall upon this stud at any required distance, the requisite degree of opening is secured, and when the sash is again closed the latch falls down parallel with and close to the sash. To secure the sashes when shut, the T bolt *f*, in the middle of the meeting bars, has only to be turned one-fourth round, and the moveable sash is held fast in close contact with the other.

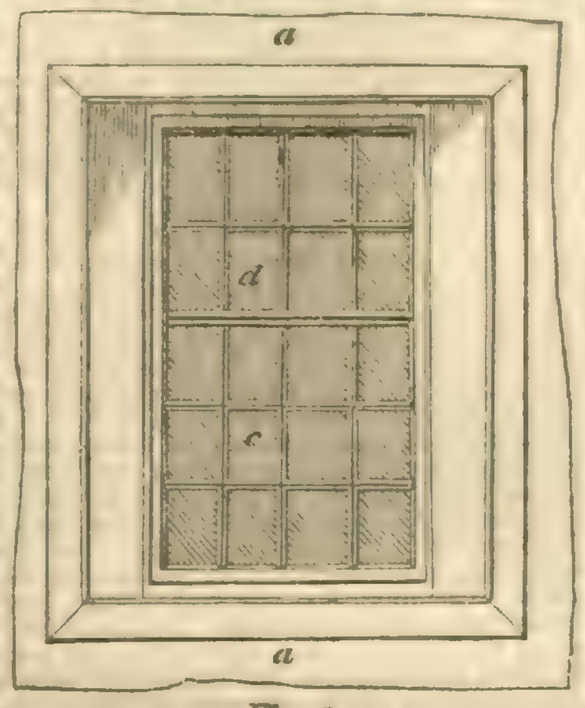
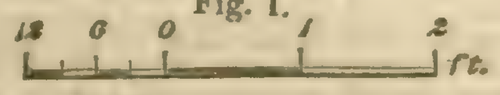


Fig. 1.



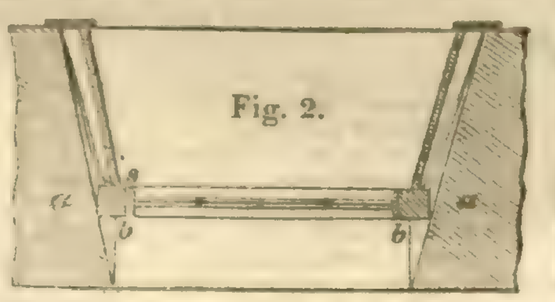


Fig. 2.

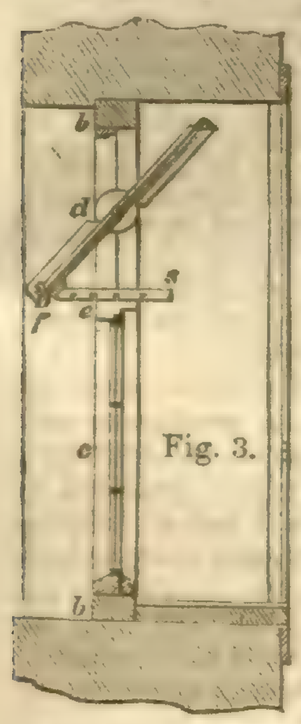


Fig. 3.

"The figures represent the window as finished up with simple dressings, viz. plain deal shutters, facings, and sole, which, at a small expense, would give an air of neatness and comfort to the apartment, and promote a corresponding taste in the other parts of the cottage.

"Though the dimensions of the window here stated may be conceived sufficient for lighting an apartment of ordinary size, they can nevertheless be varied to suit every purpose; this may be done either by employing two such windows as above described, with a mullion of wood or of stone between them, or the single window may be enlarged by one or two squares in width or in height, or in both directions." *Mr. Isaac in the Journal of the Royal Agricultural Society.*

FARM PROFITS AND FARM ACCOUNTS.

"M. W. P." (see p. 331) will accept my explanation upon the subject of farm accounts as one made in a practical sense only. The error of his accounts lies in the management. Farming profits are not easily to be obtained by gentlemen; they consist of the aggregation of little matters and little savings in expenditure and general economy of management in everything, especially in that most important item, labour. In the first place 50 acres of arable and 59 acres of Grass land will not require the constant superintendence of a bailiff; in addition he ought to perform at least two-thirds of the entire labour of the farm throughout the year, excepting during the hay and harvest season; it will therefore, for the purposes of revision, be better to estimate them separately, and only treat of 46 weeks' ordinary labour, which should include that of another labourer and lad during that period, taking two-thirds of the bailiff's payment as for labour actually performed, and the remainder for superintendence only. The labour account would then stand as follows:—

	£	s.	d.	£	s.	d.
Bailiff—labour	0	13	8			
1 labourer	0	13	8			
1 lad..	0	6	8			
46 weeks	1	14	0	78	4	0
Occasional labour, 20 weeks, 13*s.* ..				13	0	0
Harvesting 34 acres at 15*s.* per acre..				25	10	0
Hay crop, 36 acres at 12*s.*				21	12	0
Bailiff, superintendence, 52 weeks, 6*s.* 8*d.* ..				17	6	8
Keep of 2 horses, and keep of occasional horse ..				62	8	0
Tradesmans' bills				8	0	0
Repairs				5	5	0
Rent				218	0	0
Tithe, rent charge, rates, &c., say at 12*s.* 6*d.* ..				68	2	6
Seeds, 2*l.* 10*s.*; machinery and drilling, 2*l.* 10*s.*; thatching, 1*l.* 10*s.*..				6	10	0
Seed corn, 34 a., at 15*s.*				26	5	0
				£550	3	2

The foregoing will comprise all the charges that ought in fairness to appertain, unless artificial manures are used, and which in that case are presumed to repay their cost by an increased production of crops.

The foregoing statement is in accordance with my previous calculations—that manual and horse labour ought not to exceed 3*l.* per acre on arable land, viz., on 50 acres 150*l.* The labour in this case 91*l.* 4*s.*, harvesting 23*l.* 10*s.*, and horse labour 62*l.* 8*s.*, amounts to 179*l.* 2*s.*, the excess arising from the high rate of wages paid; the bailiff's superintendence, charged at 17*l.* 6*s.* 6*d.*, ought not to be charged to the farm but to the occupier, as a set-off against his not attending to the details of the business. The sum 342*l.* charged in the statement for labour absorbs nearly the entire produce of the arable land, estimating the return at 7*l.* per acre, which I apprehend is above the actual proceeds.

The difficulty attendant upon any system of farm accounts arises mainly from the circumstance of having annually to take stock at Michaelmas, when the estimated and not the actual value of the crops are brought into account. The proper time from whence to commence an account should be Midsummer, when the whole crop may have been realised; for instance, when upon a Michelmas entry, charge all outgoings, valuation, rent and taxes paid up to Midsummer as so much capital invested; this being in addition to the value of the live and dead stock of the farm, will form the amount of the capital actually invested, and should be debited to the farm. By the ensuing Midsummer the whole of the produce may have been realised, and thus the exact profit and loss of the farm be ascertained without proceeding upon estimated quantities and values as is invariably the case under Michaelmas entries when the balance is struck at that period.

I find I have dilated too much upon this subject, but as large profits are expected by amateur farmers, I have deemed it right to show them that unless expenses can be kept down, such a result must be impossible, as any large outlay upon land must be very judiciously made to repay the investment. *R. B.*

If "M. W. P." will keep his farm accounts in columns in the manner suggested by "*£. s. d.*" in the *Agricultural Gazette* of January 10, of this year, p. 27, he will have a better check on his profit and loss than in the general statement which appears at page 331 of the last *Gazette.*

Home Correspondence.

Preparation of Soils for Root Crops.—In preparing light soils for Turnips the first consideration—if foul—is getting rid of the filth in autumn. Opinions and practice vary as to the best means of accomplishing so desirable an end. A few years ago we remember seeing an account furnished to the Irish Agricultural Improvement Society by that eminent and thoroughly practical agriculturist, John Grey, Esq., of Dilston. He had a farm—if memory serves us right—on Tweedside, which during his minority had been farmed in a very inefficient style. The Couch and other weeds were a prolific crop on the farm, and on attaining his majority he took it in hand with thoughts intent on working a reformation. His plan for eradicating the Couch was this: he first had a deep furrow drawn, into the bottom of which he threw with a surface plough about 4 inches of the top of the next furrow, which would of course sweep away all the surface weeds and Couch. A plough drawn by three horses immediately followed the plough which skinned the surface, and throwing on above another furrow 10 inches in depth, as it were sealing up the weeds and causing their total destruction. He went over the farm in this manner and to his perfect satisfaction. Evidently this would be a very economical method of getting rid of weeds, and after a recommendation by such an authority as Mr. Grey, we should in special cases not have a shadow of a doubt as to its practicable efficiency. But every farmer is not blessed with 14 inches of good soil, and where as much cannot be had we would deem it advisable to use other means to free our soils from weeds. A plan which in practice we have found very efficient, and which we can confidently submit for consideration, is to scarify or grub with one of the many good grubbers now in use the field lengthways and crossways, and should the surface not then be sufficiently loosened, in any other angular direction thought necessary. This grubbing must be done at a depth not less than 4 inches. The harrows are then applied, which will bring by far the greatest part of the weeds to surface with little admixture of soil, and which renders them in admirable order for raking off. The advantages of this over what we fear we must still call the common method are very obvious. If, as is generally done, we first plough the land, we must either again cross plough or grub before we can get a moderate proportion of the weeds to the surface, and then they will in two cases out of three be so incorporated with clods and soil that to rake them off will not be practicable, and then by a large expenditure of labour in hand-picking we get not more than the half the soil contains at nearly double cost of cleaning by first scarifying. Besides by ploughing first there is seldom any chance to get over all the fallow break in autumn and thereby entailing much more labour and ploughings during the spring and summer months, and consequently incurring the risk of losing the moisture, which might be followed by a deficient braird and scant crop. Our plan would be to clean as before described, and if the soil was moderately clean to cart on and plough in the farmyard manure, and which would render the spring culture easy of completion. If after the scarifying and raking the land was not thought sufficiently free from weeds, we would plough and complete the cleaning as early as possible during the spring months. If infested with annuals we should harrow as soon as there was any chance of raising a braird of young weeds, which when got to a certain stage of growth we would again harrow to furnish them a grave. Again lightly plough or grub and take another braird of weeds, which again destroy, and this carried on until the soil is thoroughly clean. It will, however, be seen that our plan entails much more expense than that recommended by Mr. Grey; nor are we sure whether it would accomplish the object any better than it. At any rate should circumstances favour we should be glad to adopt his in preference to our own, well believing we were following no day dreamer, no Will-o'-the-Wisp, but the opinions of a gentleman weighed in the balance and not found wanting. *W. J. M.*

Expense of breaking up Heath-growing Land, and preparing for a crop of Turnips, 1854–55–56, calculated at the rate of 2*s.* 6*d.* per day for a man's wages, and 10*s.* per day for hire of a pair of horses and driver, including use of implements. Speed of horses calculated equal to 1¼ acres of Clover-lea, ploughed 9 inches wide and 6 inches deep, in a day of 10 hours, the cost 8*s.* per acre.

				A. £	s.	d.	B. £	s.	d.
Ploughing				0	13	0	0	13	0
Cross ploughing				0	9	0	0	8	0
Three draggings with three horses				0	5	0	0	3	4
Heavy harrows, five times				0	5	0	0	3	0
Roller, once				0	1	0	0	1	0
Clearing rubbish, *i. e.*, Heath, &c.				0	5	0	0	4	0
One dragging				0	1	6	0	1	6
Two harrowings				0	1	8	0	1	8
One rolling				0	1	0	0	1	0
Clearing rubbish				0	2	6	0	1	6
Grubbing or cultivating (Bentall)				0	1	10	0	1	10
Draggings, one or two, say 1½ times				0	2	0	0	1	4
Harrowing, three times				0	2	0	0	1	4
One rolling				0	1	0		..	
Clearing rubbish				0	3	6	0	2	0
Deep ploughing				0	10	0	0	10	0
Draggings, one or two, say 1½				0	2	0	0	1	4
Harrows, two				0	1	4	0	0	8
Rolling				0	1	0	0	1	0
Clearing rubbish				0	2	6	0	1	6
The land would now be ready for drilling on the flat, or for ridging up, although it is by some persons thought a better plan to plough again, so as to have moist soil to receive the seed; but when the Turnip ground is ploughed up for corn, there will still be rubbish, &c., requiring subsequent cleaning, say				0	5	0	0	3	6
Total cultivation (manure, seed, and sowing not included)				3	16	10	3	2	6
It is desirable (not essential) to apply lime, say 30 cwt..	18	0							
Carriage of line, three miles	3	6							
Turning once, and spreading	0	10							
				1	2	4	0	11	2
Total expense (manure, seed, and sowing not included)				4	19	2	3	13	8

The column marked A indicates the expense if the operations are carried on rapidly, so as to be completed in from 8 to 12 months, whereas column B denotes a reduced expenditure, which will produce a superior result if the operations are extended over, say, 18 to 24, or more months, which will secure the action of the frosts of two winters, in aid of implements in disintegrating the soil. There also appears to be a kind of rawness, perhaps acidity, in the soil which yields to the action of the weather, or to the more energetic operation of lime; hence the smaller outlay for lime under column B. The slower method may be very advantageously employed when carried on in connection with the ordinary work of a farm, and as an occupation for horses during the slack times, thus:—Plough moorland after the Turnips are sown and before harvest begins; cross plough at any leisure time during the winter; drag, harrow, roll, clear rubbish, &c., after Turnips are sown and before harvest begins the following year; deep plough, and lead and spread lime at leisure during winter; sow Turnips about 23 months after first breaking ground. The manure applied when farm-yard dung cannot be procured may vary from 20 bushels bones, 1½ cwt. guano, 2 cwt. superphosphate, worth say 4*l.* 7*s.* per acre, to only one-half of those quantities worth 2*l.* 3*s.* 6*d.* per acre, according to the fancy or capital of

the cultivator; perhaps the most profitable outlay will lie between these extremes. *S. H.*

Rotation of Crops, and the best kind of Drill for general purposes, on a small Farm.—I wish to ask your opinion as to the most judicious method of cultivating, what may be called a small farm, but which, under the peculiar circumstances of the case, will in a short time become a large garden, being necessarily under spade and fork tillage. It comprises about 40 acres: soil a deep loam, incumbent on clay, well adapted to the growth of Wheat and Beans, and when thoroughly drained, will no doubt produce abundant crops of Clover, Italian Ryegrass, Mangel Wurzel, Potatoes, and Swedes. The supplies of manure from the laundry and water-closets of the large public establishment to which it is annexed will be amply sufficient, under a regular system of hand-culture, not only to keep the land in heart but progressively to increase its fertility. Bearing in mind these circumstances, it will be obvious that the production of such grain and vegetables as are best adapted to sustain human life, must be a primary object of attention. May I therefore beg the favour of your opinion and that of your readers as to the most suitable course of cropping such a tract of land? It strikes me that with the advantages both as to culture and manure I have stated it to possess, something like the following three-course system might be adopted:—1. Wheat; 2, Mangel Wurzel, and Swedes; 3, Potatoes. The proportion of each will necessarily vary according to circumstances, and occasionally other plants both of grain and vegetables may be introduced, but take the above as the basis of our field operations. It is obvious that such a system ought, as a matter of course, to be carried out by the drill or row culture, and that one horse would amply suffice for this part of the work, but what kind of drill would be best for the purpose? It ought to be on a scale proportioned to the motive power, and to the extent of the required work, a sort of universal drill, suitable alike for grain or Turnips, raised or flat work, to which might be added hoes on Garrett's "inverted" principle; but these perhaps will hardly be necessary where manual labour will be always at hand, and in abundance. I may be told that drills for all purposes, with and without manure, are as thick as Blackberries, and may be hired any day in almost every village. I am aware of it, but they are too cumbrous for the purpose I have mentioned, and would involve extra horse hire. Can either of my friends Ransome or Garrett give me a helping hand in this matter? I might, and perhaps they may say, I ought, to confer with them privately on such an occasion; but bearing in mind that "in a multitude of counsellors there is wisdom," I have preferred submitting my case through the medium of your columns to the public. *Saml. Taylor, Gloucester, May* 11.

On the Improvement of Small Farms in Ireland.—Much controversy to little purpose, sometimes with more of heat than of discretion, has obtained on the comparative advantages of large and small farms; each have the wherewith to recommend them, each have their convenience, while both are more dependant on circumstances than on any well founded principle. The small farms evidently belong to the periods of deficient capital, of large command of manual labour and of inferior intelligence; they are the precursors of large farms, of accumulated wealth, of advanced science; they however produce a better description and less demoralised class of men, they constitute the strength of a country by the greater amount of population they induce, they give recruits to our armies and labourers in their stress to the larger farms. Each conduce in their way to the wealth and welfare of the country, and, in the capitals and intelligences they require and command, are mutually necessary to the various conditions and requirements of our agricultural population. The circumstances of Ireland, in the deficiency of her agricultural capital and in the limited information of her husbandmen and from the nature of much of the land, will perhaps long render small farming a necessity, be it for good or ill, notwithstanding the somewhat ill-advised efforts of many proprietors to force large holdings against these conditions, and which indeed appear the less called for as there is always a sufficiently strong and active desire on the part of their tenants to avail themselves of every opportunity to increase their holdings. One however of the strongest objections that were offered to the aggregation of small farms, in the comfort, well-being, nay existence of a large agricultural community no longer exists; the famine, the clearances, and the tide of emigration have so thinned our multitudes that a scarcity of labourers is very much felt, and the price of labour, too low as it still is, exceeds the abilities of the employers both in their pockets and their heads. Taking then the existence of small farms in Ireland as a thing that must be, our efforts should be directed to render them to the highest degree productive, and to improve the skill and increase the knowledge of the tillers of her soil: much I think may be done in these latter connections by the parochial or proprietorial establishment of instructive farms as suggested in a former paper and by gardens attached to all our national school houses, but to make the land yield her produce, to give us harvests that shall enable us to pay remunerative wages for labour, and so to increase our exports as to make our land a granary to England, one of the first things required, and that must strike even the most casual observer, is the drainage of the clay soils of these small holdings (holdings reaching to a hundred acres or more) in the more backward neighbourhoods, and which perhaps cover half the territorial extent of Ireland. These soils redolent in Rushes and aquatic Grasses, cold and late in their spring productions, soaked in the winter, cold in the spring, the September or October harvests destroyed by the tempests, are far beyond the economy of the men in whose hands they are; they require an expenditure in drainage they cannot afford, and which, even if they could, they rarely would expend; the landlord will not undertake it, and even when disposed to do so he is frequently deterred from not being met on equitable terms by the tenants, who are too frequently well inclined to take undue advantages of a landlord's liberality. It is lamentable to see in this respect so much indifference on both sides. Did a proper understanding exist between landlord and tenant, with the aid of Government funds and the assistance of the Land Companies, all the necessary drainage of these cold clay soils might be effected; but in the absence of this I would suggest a means of progressively effecting their drainage by the tenant, at, perhaps, little more cost than his present annual outlay in the partial and ineffectual drainage he attempts (the shovelling up of the furrows of his Potato ridges, &c.). As soon after harvest as possible, plough the ground in lands 20 or 24 feet wide; then before or during winter dig the furrows a foot or so deeper, spreading the soil over the lands (a skeleton plough may be run along them first); labour at this time of the year is at a discount; however crude, infertile or bad may be this stuff, still it will in such small quantities do no harm, but most generally it will renovate the worn ground. This operation of deepening the furrow should be repeated every winter that the tillage of the land will permit, and, where the Cereal is Oats, as it is almost invariably in such soils, it may be done every winter until the full drain depth is obtained, when probably there will be found stones enough on the surface of the land for the drains. The last digging should take place immediately previous to the stones being thrown in and the raised clay left on the side of the drains. The stones and this clay will fill up from 1½ to 2 feet of the drain; the previous working of the land by drawing the soil from the drains will probably leave not more than a foot and a half of the drain to fill, the digging of the brows may fill in half a foot more, and the succeeding successive ploughings and harrowings of the land will soon fill in the remainder, and bring the field to a level. Should there not be stones enough on the surface of the lands for all the drains, and should they not be convenient elsewhere, every alternate or third or fourth drill might be filled, and the remainder done in subsequent years as stones came to the surface. I have here treated of stones, not tiles, for the stones require only labour, not money, and I am not proposing money outlay. While these drains remain open the centre of the lands can only be ploughed, the edges must be dry, but digging is better work on these stiff clays. Although high ridges are ever objectionable yet there are cases in which we must choose the lesser evil, and certainly there can be none greater than the quasi level land supersaturated with water. *J. M. Goodiff.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *May* 13.—Mr. Miles, M.P., in the chair. Communications were received from Mr. Garnett, M.P., and Mr. Flemming, on the successful trials recently made with Boydell's Traction Engine and Endless Railway in Norfolk; from Lieut. Du Cane, R.E., on Locusts in America and at the Cape of Good Hope; and from the Foreign Office on the progress of Cattle Disease abroad.—Professor Way's annual Report, as consulting-chemist to the Society, was read.—A discussion took place on the value of data possessed by Cattle Insurance Companies in reference to the conditions of disease among live-stock of farmers.

Farmers' Clubs.

London: *Lodging and Maintenance of Agricultural Servants.* At the last monthly meeting of this Club, Mr. Marshall read a paper on the subject. He said:—

"In some of the southern and midland counties the custom prevails of hiring by the year at a certain sum per week, which is regularly paid every Saturday night, a small deduction, say about 2*s.*, being kept in hand to ensure the service to the end of the contract, the servant in all cases engaging to board and lodge himself at his own expense. This he usually does with the foreman on the farm, who undertakes to supply him with bread, meat, milk, and vegetables, at a fair market price. In addition to the cost of provision, 1*s.* 6*d.* per week is charged for lodging and cooking; no beer whatever is allowed except during the time of hay and harvest, when four pints per day are commonly given. The greater portion of the servant's wages is thus absorbed or spent in some less creditable manner, and the only accumulation he can boast of at the end of the year is that of the 2*s.* per week retained in his master's hands, and which he will require for the purchase of clothes, shoes, &c., leaving little or nothing as a fund for the savings bank, to fall back upon when his increased expenses or infirmity of any kind may render it necessary that he should avail himself of what he may have been able to save out of his wages in early life. In some of the northern counties, and also in North Lincolnshire, with which I am more immediately connected, it is the custom to employ a large number of unmarried servant men and lads, who are regularly hired by the year at the various statutes held in the district for that purpose, from Old May-day to Old May-day. At the present time wages vary from 5*l.* for lads who can plough and go with horses, to 20*l.* for head waggoners, who are also drill men and stack during harvest. On a farm of 500 acres of Turnip land it is customary here to work about 14 horses, for which five farm servants, under the superintendence and control of a married foreman, with whom they reside, are considered sufficient. The first and second waggoner are wholly employed from 4 o'clock in the morning until 8 in the evening in feeding, and in the care of seven horses each, whilst the three younger are in the morning till half-past 5 (when they go to breakfast) assisting in cleaning and gearing them for their day's work, which they commence at 6, and discontinue at 3 o'clock, when they cease. After dinner, these three lads with a 10*l.* 'Richmond and Chandler' chaff machine, improved by 'Simpson' of Lincoln, cut what chaff the 14 horses require, and which they are generally able to accomplish between 4 and 6 o'clock in the afternoon. Our horses here are commonly fed on cut chaff sheaves, of which they consume about 36 or 40 lb. per day, containing probably about 12 lb. of Oats of an 8-quarter crop per acre, or nearly three stones per horse. As the lads can cut (two turning and one feeding) nearly 30 stones per hour, no difficulty whatever is felt in getting 42 stones in two hours. In addition to this allowance, 1½ stone of bran, and ½ stone of split Beans is given weekly to each horse without any rack-meat or other provender whatever. The foreman with whom these men reside is of course a responsible person, and undertakes to provide them with everything that is requisite as far as board and lodging is concerned. He also sees that they do their duty during the week, and that they invariably go to church with him on a Sunday once at least. In the parish of Riseholme, in which I reside, they have also the kindly assistance of the rector one evening during the week, who teaches them to write, explains to them the Scriptures, and lays down a course of duty for their guidance and adoption. This has the very best possible effect, it teaches them self-respect, and softens their naturally rough, uncouth manners, and is in the end productive in every way of the best and happiest results. An ample house, and garden for vegetables, is provided rent free; 30*l.* a year in wages is given to the foreman, who has also the produce of two cows for five, or one cow for three men; 26 stones of bacon (*i. e.*, a fat pig weighing 26 stones) for himself, and 26 stones for each of his men; he has further 40 stones of flour, 20 of best seconds for puddings and pies, and 20 best thirds for bread for each man, one quarter of malt for himself and the harvest men, and one sack for each man servant (equivalent to one pint per day and four in harvest). He brews himself, and has 5 tons of coals for the year's consumption; he finds candles for the stables and chaff-house, when required; and has 1*s.* per day for all casual boarders, such as additional harvest men, blacksmiths, carpenters, &c., who work by the day, and have their board. The men have three meals per day. For breakfast hot bread and milk, and cold meat; for dinner hot meat, pies and puddings, vegetables, and one pint of ale; for supper hot meat, bread and milk, or Pea soup. By this means they have always meat three times a day, milk twice, and beer once. They pay for their own washing, and are allowed an interlude of three or four days as a holiday at some fitting period during the year, which always expires on the 13th of May. I believe the quantity of bacon allowed is always consumed, but the flour is a little above what is required. The ordinary consumption of a man, his wife, a servant maid, and five men, usually averages about 30 stones for each person per annum. The annual expenses of their board and wages may be set down as follows:—

Foreman's wages	£30 0 0
26 stones of bacon, at 7*s.*	9 2 0
1 quarter of malt	3 12 0
2 cows, at 3*s.* 6*d.* each per week	18 4 0
130 stones of bacon, for five men, at 7*s.* ..	45 10 0
200 stones of flour, at 2*s.*	20 0 0
5 sacks of malt at 9*s.*	9 0 0
5 tons of coals, at 12*s.*	3 0 0
2 waggoners' wages, at 12*l.*	24 0 0
2 middle men, at 10*l.*	20 0 0
1 boy, at 6*l.*	6 0 0
	£188 8 0

In addition to the above the foreman's wife shares largely in the profits of this system, inasmuch as she has the butter and superfluous milk from two cows to dispose of, valued at 20*l.* to 25*l.* per annum, the privilege of raising poultry of every description, and gathering eggs. For these she receives a certain price per couple and per score, out of which she pays her maid servant, and retains the residue as her own perquisite in return for her vigilance and labour. Upon her good management very much depends the comfort and well-being of the whole establishment. These items amount to 188*l.* 8*s.* for six men, namely—one foreman and five farm servants, the yearly average for each being 31*l.* 8*s*, or within a very trifling sum of 12*s.* per week. Now, if it be taken into consideration that the ordinary wages of a daily labourer (whose day begins at 6 o'clock in the morning and finishes at 6 o'clock in the evening) are 15*s.* per week, exclusive of a very considerable increase during harvest, I think it must in justice be conceded to me that I have at least pointed out to you not only a far cheaper but in every other respect a far better plan; such a one, moreover, as may at any time be made available in any county or in any locality, and one that is equally advantageous to master and servant. It has, too, the acknowledged authority of one of the largest and best cultivated districts in England, to confirm its practical utility, and to warrant its more general adoption."

Mr. Cheffins then read a paper on lodging-houses, accompanying it with specifications of architectural details to which we may hereafter refer.

Mr. R. Baker said, old habits and customs were not easily eradicated. Mr. Fortescue, a gentleman well known in Essex, went to great expense in erecting a lodging-house, much upon the principles described by Mr. Cheffins; but, though there was a lack of lodging-house accommodation in the district, and every inducement was held out to the labourers, the experiment was altogether unsuccessful, and at this moment, upon the farm of North Wick, in Southminster, in the occupation of Mr. John Kemp, the lodging-houses were totally useless.

"Having heard the statement of Mr. Marshall, it would appear that in Essex the farmers were paying a larger sum to their labourers than was paid in Lincolnshire, where the advantages enjoyed by the labourers were so much greater; 31*l.* 8*s.* a year seemed to cover the whole expense of a labouring man in Lincolnshire, whereas he (Mr. Baker) could not make out that his labourers cost him less than from 35*l.* to 37*l.* on the average. He made his calculations thus:—

	£.	s.	d.
48 weeks at 11*s.*	26	8	0
4 weeks in the harvest and hay season ..	6	0	0
Beer for 48 weeks	1	16	0
Beer in the harvest and hay season ..	1	0	0
	£35	4	0

Horsekeepers in Essex were generally paid from 1*s.* to 2*s.* a week more than the ordinary men, either in money or rent, besides having other advantages which he had not enumerated. He (Mr. Baker) paid them 12*s.* a week for 48 weeks; they also got 6*l.* for the harvest and hay season; and this, with 2*l.* 16*s.* for beer, brought their wages to 37*l.* 10*s.* But though he was paying more to his labourers than was paid to labourers in Mr. Marshall's district, he presumed the latter were better off, managed in the way they were, at 31*l.* 8*s.* than in Essex at 37*l.* 10*s.* The difficulty would be to introduce the system into Essex. Mr. Bramston had laid it down as one of his rules that

all the men should be in the lodging-house by a quarter to 10 o'clock. Such a regulation he believed it would be impossible to carry out; indeed he remembered his own father giving up the system of boarding his servants on that very account. Old Marshall, who wrote in the year 1775, and was a farmer in Surrey, kept his farming minutes for every day in the year: and on various occasions he found him breaking out on the drunkenness, ignorance, and carelessness of his labourers, and the great difficulty he had in managing them, especially at night. He mentioned one particular occasion of their coming home half intoxicated, turning the working oxen into a field of Clover, and his rising in the morning and finding that two or three of the oxen had died from the quantity of Clover they had eaten. Most bitterly, and with good reason, did he ejaculate, 'Oh, Ignorance, thou pander to ill luck!' What happened then was happening now. He did not think we had advanced one jot in the management of our labourers from that time to this present. For his own part, he could not take upon himself to suggest anything upon a general principle that was calculated to improve the position of the labourer, except that he should have constant and regular employment upon the farm; that he should not be turned adrift when his services were not absolutely required, and be put on again when they could not do without him; that every labourer should receive proper encouragement in his work, and that the practice of paying a uniform rate of wages to all alike should be done away with, for some labourers were worth half as much again as others, and the payment of all alike tended rather to encourage idleness and the bad execution of work. Every labourer should have the opportunity afforded him of occupying a sufficient quantity of garden ground near his dwelling, into which he might put his surplus labour, as a sort of savings bank, to fall back upon at the end of the year. But he would take care that there should be due regulations for the management of the ground, that it should be cultivated on the gardening system, not for the growth of corn, so that the man's labour should be turned to the best account. Good home-brewed beer too, however weak it might be, was in his opinion exceedingly beneficial to the labourer, and should be supplied to him on the farm where he worked. He allowed his men four pints of table-beer a day, every day in the year that they worked for him, and this could be done for the low sum of 9*d.* a week! In harvest time he gave them six pints of good ale per day, with as much table-beer as they liked to drink. That perhaps was somewhat in excess, but it was an old custom, and one that was difficult to break through. The more encouragement the farmers gave to a well-conducted class of labourers the better it would be for themselves; for upon every farm he could tell what the management was by a glance, first at the labourers, and next at the horses."

The Rev. C. T. James, of Devonshire, observed that boarding, lodging, and maintaining of agricultural labourers are necessarily confined to those parts of England in which employment was abundant and labour comparatively scarce.

"There was one part of the system described by Mr. Marshall which appeared to him objectionable; he referred to the statement that 4*s.* was paid to the foreman for the maintenance of each of the young men. He was not surprised that it did not work well. That arrangement appeared to him to partake of the character of the truck system, a system which, wherever it prevailed in any degree, was injurious to the position of the labourer, and unsatisfactory to all who were interested in his welfare. With regard to the excellent remarks of Mr. Cheffins, he must observe that in his opinion there should never be a labourer's house erected without three sleeping apartments being provided. In the existing lodging-houses there was a great deficiency in the provision for cases of illness, inasmuch as a separate room was not appropriated as a sort of hospital, where sick persons might have quiet and comfort, in addition to medical attendance. He was much struck the other day by observing a lodging-house at Clevedon, in Somersetshire, erected expressly by Sir Arthur Elton, where there was not a single inmate belonging to the class for which the building was designed. It appeared to him that the landlords of England had great responsibility resting upon them with regard to the improvement of the dwellings of agricultural labourers. Where lodging-houses existed, the first rule which should be laid down by every landowner with regard to the cottages on his estate was, that no lodger should be admitted into any of them. At Coleshill, Lord Radnor's place, in Wiltshire, the shepherds and carters all slept over the animals who were entrusted to their care; prizes were given to the men on the farm; all the boys were provided with a dinner; and fines were enforced for any impropriety of conduct. That had been the system pursued for years; and one valuable feature was, that the connecting link between the boy and the man had not been lost sight of."

Mr. Sidney said he anticipated that it would create surprise when it went forth that there was a part of England where the labourer could earn his 16*s.* a week, and have meat three times a day:—

"With regard to lodging-houses, Mr. Baker was perfectly right when he stated that the rules by which they were governed would, in most instances, prevent those establishments from succeeding. People seemed to forget what they were dealing with, when they spoke of the labourer. 'Man did not live by bread alone.' He wanted amusement and instruction as well as food and clothing; and in their absence he had recourse to the public-house, but it was too bad to censure him as therefore drunken and idle. If good was to be effected in the training of the labourers, we must begin earlier and go deeper. At present for the most part the education given in parish schools was not of that useful character, or sufficiently directed to the pursuits which the children were to follow. There was no reason why elementary books should not be circulated by the Committee of Council on Education, which would give the children some idea of the nature and habits of the stock of which they might have to take charge, the principles upon which agricultural implements were constructed, the injurious qualities of various weeds, and the nature and properties of different crops. The first effects of such instruction would be to make the children, as soon as they left school, much more valuable aids to their employers. Improve the education of the labouring classes, and the lodging-house system might come into play; indeed, he did not see why it should not proceed on parallell lines. But then care must be taken not to 'regulate' too much, or look too curiously into what the labourer did with his idle or unoccupied hours."

Mr. Trethewy said that much of the comfort and well-being of the labourer and his family depended upon the character of the labourers' wives.

"It had always pained him to observe that in many parts of the country women were employed to work in the fields. He could only suppose that, when the husband returned home, after a hard day's work, he must content himself with many discomforts, to which, but for this practice, he would, in all probability, not have to submit. In the absence of domestic comfort the labourer was too frequently driven to seek for relaxation at the alehouse. It was most unjust to the labourer, to take and treat him as a mere tool. Too frequently he was sent away as soon as the immediate pressure for his services had terminated. The consequence was that the labourer, being 'here to-day and gone to-morrow,' lost all interest in his employer, and the tie between them was completely severed. Such a system as this was ill calculated to promote that identity of feeling, which it was so desirable should exist, between employer and employed."

Reviews.

The Cattle Plague and Diseased Meat, in their Relations with the Public Health and with the Interests of Agriculture. A Second Letter to the Right Hon. Sir George Grey, Bart., &c. By Joseph Sampson Gamgee, &c., &c. T. Richards, 37, Great Queen Street, London.

This, like a preceding pamphlet from the same pen, is written by an intelligent man, who is evidently thoroughly in earnest. His object now, more especially, is to exhibit the relations in which the whole subject of cattle diseases stands to the public health. His statement of "the existing evil," "the impending danger," "the inefficiency of existing laws," and "the principles on which the urgently required legislation should be based"—is powerful and explicit. Under the first head is given a most graphic account of visits paid to Newgate Market on several occasions when diseased and putrid meat was exposed for sale. Under the third head the importation of diseased cattle is referred to, and on the impending murrain it is said:—

"All authorities are agreed that the contagious typhus of cattle has a period of incubation of several days' duration; consequently a ship-load of beasts might at the time of landing be in apparent health, and yet be the bearers of the seeds of contagion, which, once introduced into the country, it would almost be hopeless to attempt to eradicate. Difficult as it is to enforce all quarantine regulations, it is now very generally admitted that inspection of cargoes at the time of landing is a measure of very doubtful utility, unless at the same time it be enjoined that the ship shall have a clean bill of health."

In the fourth division of the pamphlet it is suggested—

"(1). That inspectors should be on duty in the great live and dead meat markets whenever business is being carried on, particularly at night, which, honest people should remember, is busy day with rogues.

"(2). That inspectors of nuisances in the metropolitan districts should be provided in number and character proportionate to the duties to be performed.

"(3). That no cattle should be allowed to land on our shores without a clean bill of health, which bill the British consuls at the places of export should be instructed to furnish only upon reliable information, such as could be gleaned from the excellent veterinary schools which abound on the continent."

How energetically in Prussia they provide against this dreaded murrain appears from a report to M. von Witzleben, President of the Province of Saxony in the Prussian territory, lately published by the Foreign Office. The Polish frontier was closed—markets were prohibited — veterinary inspectors were appointed for districts and villages—a military cordon was established—infected farmyards were placed under sentries—quarantine stables were established—all trade in cattle was forbidden within a certain distance of the diseased locality — infected cattle were killed, destroyed and buried—and at length, as the reward of all this energy, the district was declared free of the disease.

Mr. Gamgee's pamphlets will undoubtedly be widely circulated and read.

The New Method of Planting, Setting, or Dibbling Grain, Pulse, Mangel, &c., with a Description of an Invention to carry out the System in an Expeditious, Economical, and Perfect Manner; also a Description of the Light Drag Hoe and Hand Cultivator, to hoe and stir between crops growing in rows. By Sigma. James Ridgway, Piccadilly.

The practice of dibbling corn is not new, as indeed the author of this pamphlet admits in his opening sentence. He retains the title of his pamphlet notwithstanding, as the system he advocates is, if not new everywhere, at least new in many a locality where his pamphlet will be read.

But though the practice of dibbling may be old, the implement which Sigma has devised for its performance is new, and one chief purpose of the pamphlet being to describe and introduce this instrument, it may very well be entitled "the new system." The following is his description of the seed planter:—

"Imagine an angular piece of wood cased in brass and shod with iron, 4 feet long, from the angles of which project four, five, six, seven, or eight small steel rods; if I jerk these, by means of an upright handle, into the ground, and then draw them up without removing the angular piece of wood, every hole will remain open, excepting it be very dry sand, and even in this case the steel dibbers, when pushed down again, would thrust any seed that might have been dropped into the hole, as far as the dibber was pushed down; but to make sure I have adopted the following plan. I have had small brass nozzles firmly fixed to this angular piece of wood (the flat upper surface of which wood forms the floor of the seed box) which nozzles penetrate half an inch or so into the holes, and acting as a guide, cause every seed to be buried and firmly planted by the small steel dibbers. The action of the implement being thus: it is jerked lightly on the ground, which causes the projecting dibbers to penetrate up to the angle, the dibbers by means of the handle are withdrawn—the implement being retained in its position by means of the foot placed on a step, the seed falls into the holes, as many grains as may be thought advisable, the handle is then pushed down again, when every hole will have its allotted number of grains firmly planted. Thirty-four of these operations can on an average be effected in a minute, *i.e.*, with a 5-row depositor, or 170 holes, and the work executed in the most perfect manner."

This account of the instrument, though lucid enough to any one who has the machine before him, will scarcely convey a sufficient idea of it to those who have not yet seen it. For them it must suffice that we assure them the instrument is light, simple, easily managed, and efficient. It is an improvement upon previous "depositors" by the same ingenious contriver, and will, we do not doubt, come on small farms into very general use. As to its use as a seed planter Sigma says:

"I have made experiments on a very large scale, and have induced many others to do the same on hundreds of acres of land, but with implements by no means so perfect as the present one. One of my first converts was Mr W. Griffin, of Eyden, near Daventry, Northamptonshire; his first experiment was in dibbling 2 pecks of Barley to the acre. This crop he told me produced 10 quarters of grain to the acre, besides 2 tons and 6 cwts. of straw; he afterwards informed me that he sold all this Barley for seed, at an increased price, under the name of 'Griffin's Prolific Barley.' I could name other instances, but none so remarkable."

The writer of this pamphlet contrasts two methods of growing Wheat, which however resemble one another in the comparatively small quantity of seed they require; and for each of which therefore no doubt his machine is available. He says:—

"I have before alluded, in this little work, to two new systems of growing Wheat; the latter bearing some analogy to Jethro Tull's method, but with this important exception:—the one I have alluded to appearing to pay well, whereas Jethro Tull's became in time a complete failure, resulting from his ignorance of the description of diet required by plants, which chemistry has now unfolded to us. The systems I allude to are those of Mr. Piper and Mr. Smith. They both, within a few pence, have on the average for many years realised a profit of 7*l.* per acre; the former without any tillage whatever, merely applying artificial manure on the surface; the latter depending entirely on tillage, without any application of manure. So that precisely the same results are arrived at by totally different means, and it remains a question which will answer best in the long run. If the object was to find labour for the poor, and I was assured that by this continued digging, stirring, and turning up fresh soil, my crop was not exhausting my land of its inorganics, I should not hesitate in adopting Mr. Smith's plan, and by pulverising and exposing the soil to the air, cause ammonia to be absorbed and silicates to be disintegrated, sufficient for my crop from year to year; and no doubt a crop grown in this way would be of the healthiest description. But should labour be scarce and artificial manure cheap, I should certainly—since on an average of 12 years the same results have been brought about—lean mostly towards the 'Colne Engaine Husbandry.' But without seeing and knowing a good deal more of the business than I do at present, I candidly confess I would adopt neither on a large scale; and these two gentlemen probably might return me the compliment, though Mr. Piper has in some measure adopted my plan, having inserted his seed with a dibbler at even distances and at a uniform depth. It must be allowed that great credit is due to both, and that they well deserve our thanks. On what other method could 7*l.* be cleared per acre on an average of so many years? These two methods, so opposite to each other, and yet both turning out so satisfactorily, give room for much reflection, and throw considerable light on the cultivation of Wheat and crops in general. Nine years since, while walking by the side of a railroad, I observed growing on the hard well trodden path, then unused, very fine plants of black Oats, throwing up from 40 to 50 stout stems each, with large heads full of heavy grain; I had some time before observed the same thing of Wheat. This being so contrary to all theory and practice, I published these facts, asking why we ploughed our land, when apparently Wheat and Oats grew better without this expense? Now don't think that I am about to advocate growing corn on unploughed land, I am only stating facts. Mr. Mechi, known far and near from the great lifts he has given to agriculture, wrote to me and informed me that Mr. Piper had for three years grown Wheat after Wheat and produced a capital crop, without having once ploughed, or dug, or stirred his land. And what was my surprise, when I came to inquire again about the system, nearly a year ago, to find that he had been carrying on the same plan ever since, growing on the average of the 12 harvests 39 bushels to the acre, at a profit of 6*l.* 19*s.* 3*d.* per acre. As I have never heard of any one making the same experiments, I presume no one has followed his example; and I say again, how backward we are to take lessons from what we see around us."

Sigma announces in this pamphlet another invention—a drag hoe, which from the specimens we have seen of it and its operations, is, except on hard and cloddy land, an efficient tool, especially useful for surface weeds on comparatively soft land. We shall find room for a description of it hereafter.

Miscellaneous.

The Cost of Improvement.—As a general estimate, you cannot effectually improve stiff land under 25*l.* per acre, or, with buildings, 30*l.* per acre; your drainage will cost you 6*l.* per acre; fallowing, levelling, subsoiling, &c., 7*l.*, and a good heavy manuring, 7*l.*; lime or chalk, 5*l.*; then comes the question—Are you not better off, having to pay 10 per cent., or 2*l.* to 3*l.* per acre extra, than if these improvements were not made? I have no hesitation in saying that the difference is more often 6*l.* per acre than 2*l.* What a miserable miscalculation, then, not to make these amendments. Your sowings and harvestings become earlier and cheaper, your horse and manual labour less, and the *tout ensemble* one of prosperity in lieu of adversity. Covered yards are cheaper than the ordinary homesteads, and can be effected completely for 5*l.* to 7*l.* per acre, a profitable investment at 5 per cent. for the tenant. *Mr. Sheriff Mechi's Pamphlet.*

Calendar of Operations.

MAY.

Border of the Fens, *May* 11.—This morning presented to us the welcome sight of a steady copious rain, in some measure intimated yesterday by a considerable fall of the barometer, without at present any material change of wind from the north-east. The dry weather with occasional frosts and strong winds retarded vegetation, and on cold lands had a prejudicial effect, starving the Wheat, cutting the early sown Potatoes, and stopping the pastures wherever the stock had been turned out, so that for several weeks things have remained at a "stand still," and the spring after all will not be much forwarder them usual. Weeds have, however, been checked, and a few children with the horse-hoe have sufficed at present to clean the Wheat and Beans. Fallows have made progress, Potato planting completed, Mangels sown, and our forces ready to get the land in order for Turnips and Coleseed. Clover is coming up well, Tares are nearly ready for the scythe, manure almost cleared from the yard, ashes sifted, bones mixed, spring corn rolled, Beans hoed, gaps stopped, roads levelled, corn threshed and sold, and our only care now to weed the growing crops, clean

and manure the fallows, and get in the Turnips. Our anxiety about Mangels is relieved by this morning's rain, which we trust will also restore the colour and thicken the growth of Wheat, fill up and strengthen the Barley and Oats, refresh the Clover and seeds, and give us a bountiful crop of hay and fodder of all kinds. The sharp winds and absence of rain have had a depressing effect on the prices of stock which a few weeks since were unprecedentedly high; in a few weeks we may expect Grass fat beasts to furnish an ample supply, and sheep also will be brought forward in larger quantities now that the highest point seems to have been turned. There has been generally a good lot of lambs, with but little loss of ewes; the lamb hoggs brought to market have been this year of first-rate quality, with plenty of wool and mutton, each being not at all in uncommon figure realised. Sheep have all been "clagged," and we shall soon be thinking about washing them for stripping as soon as the warm weather of June approaches. Beasts may now be wholly turned out; we saw the other day a score of 3 or 4 yr olds that have been out three or four weeks on meadow land; the Grass is all gone, and so has the condition and freshness of the bullocks. We cannot avoid concluding it would have been better to have kept them in the yard a fortnight longer, or to have given them partial shelter with a portion of cake or roots, or even straw, would have been better than nothing but Grass. Labourers are not now fully employed, and there are great numbers of tramps about the country, nevertheless the number of poor applying for relief is not so great as last year, and the amount of relief given also presents a considerable diminution; but this may be partly attributed to the lower prices now given for bread and flour. *J. W., Peterborough*

Notices to Correspondents.

Berkshire Boar: *Subscriber.* Mr. Sadler, of Swindon, has a good stock.

Horses: *Albury.* The books named and especially that by Scrutator will probably give you the information you want. The columns of our contemporary the *Field* contain weekly instructions on the art of riding.

Insects: *D M L.* The grubs which have injured the Grass in the parks at Glasgow are the larvæ of one of the species of Tipula, or daddy-long-legs. (See answers to correspondents in the gardening portion of this day's Paper.) Ducks turned into the walks in the early morning would devour them greedily. *W.*

M'Dougall's Disinfecting Powder: *Colonel Harcourt* will find that it is now advertised in our columns as for sale by Heriot & Co., Scotland Yard, Westminster.

Manual for the Park: *F H.* Not received.

Piggery: *X Z.* In answer to your question we extract the following description from the account of Petitbourg farm in the *North British Agriculturist*: The piggery is extensive; the divisions for the pigs are constructed of stone and lime, each division having a small court in the open air. There are doors to confine them out of the sun during a portion of the day. In front of each division is a door for the person in charge to go in to the pig when necessary; but the feeding is performed from the centre passage—a trough with moveable door being placed in each. These divisions, in two rows, extended to each side of the main entrance, at the extremity of which is a house for cooking the food. Three large boilers are placed on a brick flooring, to which heat is applied: the food consisting of green chopped Rye, Potatoes, bran, and meal of several of the cereals, which is fermented for about eight days previous to its being given to the pigs. Besides the pigs confined to the piggery, others are kept in open courts. These are either breeding swine, or pigs in the process of fattening. The more valuable breeds of English pigs are kept in the piggery. The prices which M. Allier receives for the young pigs of the larger English breeds are remarkable. For the Yorkshire large breed the pigs are sold at 8*l.* at six weeks old. They are bespoke for the next few months. M. Allier objects to this large breed, but the purchasers continue to prefer them to the smaller breeds. It would appear that the French are now thoroughly alive to the importance of breeding a better description of pigs than is generally to be met with in France; but size is still the chief recommendation, not quality.

Specimen of Italian Rye-grass, *from the Albert Model Farm, Glasnevin, Dublin.* Cut on the 4th May, 1857. A statute perch weighed 1 cwt. 3 qrs. 14 lbs., or 15 tons per statute acre. [Will Dr. Kirkpatrick kindly give us the history of the field?]

Sutton's Farm List: *Subscriber.* We observe in the present issue of this Annual that Messrs. Sutton have been appointed Corresponding Members of the Agricultural Society of Oporto.

The Alpaca: *F R I.* We understand that it is being introduced into New South Wales with success. Mr. C. Ledger, an Englishman, has been engaged in the undertaking five years, and he writes "that he has actually succeeded in getting out of Bolivia a large flock of alpacas;" that in October last "he had more than 300 alpaca sheep far advanced on the road to Copiapo;" and that "in April (the present month) he had no doubt they would be on their voyage to New South Wales." The alpaca sheep are to be met with only in the Cordilleras of Peru and Bolivia. The Peruvian Government in 1845, and afterwards the Bolivian Government, issued a decree prohibiting the exportation of those animals; and active measures were adopted, by authority, to destroy any flocks found on their way to the territory of the Argentine republic. Mr. Ledger had to drive his flock about 400 leagues (three leagues being a day's journey), and after every 10 days of journeying a rest of a month [?] was necessary; besides which, the passing of the difficult ranges of Cordillera could only be effected at certain seasons. In fact, no one at all conversant with the peculiar habits of this valuable animal would have ventured to expect that Mr. Ledger would have been able to carry out his daring, arduous, and dangerous project; but by dint of his indomitable energy, his intimate knowledge of the alpaca, and of the roads, and by his politic management of the Indians, he has so far succeeded as to get about 300 alpacas fairly *en route* for New South Wales.

The Dublin Show: *A L F.* The exhibition was almost entirely confined to Irish exhibitors, and the stock shown proved that nowhere is there better than in Ireland.

Top-dressing: *Somerset* says:—"Having 'laid' a hedge in a Grass meadow on a marly soil, I burnt the refuse and scattered it over the Grass, and thereby destroyed two lambs, and should have lost all had not a neighbour kindly told me why the lambs died. My land being, excepting this field, on a different formation, caused my man to be ignorant of the effects of potass on marly soils. I may add it will, which I knew before, cause cattle to scour terribly, as will lime containing magnesia when spread on pastures."

Turnip Cutter: *Correspondent.* Wedlake's modification of the Banbury cutter cuts slices for cattle by turning it one way, and finger shaped pieces for sheep by turning it in the other direction. Drilling machines for Turnips and Mangel Wurzel must act by revolving cups, on the principle of the Suffolk drill: the Suffolk drill itself is the only machine of the kind likely to sow both seeds well.

Weather in Ireland: *A Correspondent* writes, April 30:—"Almost constantly wet for the last six weeks, much Oats unsown, and very few Potatoes of the general crop down. If a hot and dry May come we may expect scarcely any next year."

Now ready for Distribution,

THE NEW SPRING CATALOGUE OF PLANTS
FOR 1857.

MESSRS. E. G. HENDERSON & SON

Are now sending out their NEW PLANTS for the present Season, and with them the following Novelties and Varieties they can recommend:—

Achimenes carminata splendens, extra
Achimenes spectabilis
Allamandra paraguayensis
Anactochilus Eldorado, very distinct
,, Veitchi
Ardisia lutea
Arundo donax variegata
Azalea Roi Leopoldi
Bellis perennis fol. variegatis
Begonia Billeteri
,, cinnabarina hybrida
,, nitida coccinea
,, Griffithi (picta)
Calceolaria (shrubby) Admiration
,, aurea floribunda
,, ericoides
Calyptraria haemantha
Castanea chrysophylla, Californian evergreen Chesnut
Chætogastra Lindeniana
Calystegia pubescens flore pleno
Calystegia pubescens simplex
Clematis glandulosa
Clematis Guascoi
,, aristata
Delphinium cardinale
,, delicatum
,, formosum
,, La Belle Alliance
,, Queen of England
Dianthus albo nigricans
Dodecatheon integrifolia, new
Echites Houtteana
Eucharis amazonica
Fuchsia Lina von Mainz
,, Princess Royal
Gaillardia grandiflora
Genetyllis macrostegia
,, tulipifera
Geranium (Youell) Auber Henderson
,, British Flag
,, Richmond Gem
,, var. Emperor
,, quercifolium floribundum
Gesneria Donckelaari
,, Miellezi
,, zebrina excelsa
,, Griffina hiboni
Hedera macrophylla
Heliotropium aucubæfolium
,, Miss Nightingale
Iochroma Warscewiczi
Lobelia Texana
Lapageria rosea
Leptodactylon californicum
Passiflora Imperatrice Eugenie
Pentstemon cardinale
Petunia Gloire de Lyon
,, La Mesange
,, La Perfection
,, Polydor
,, Gem of Suffolk var.
,, Mrs. Cutbush
Phlox Drummondi cruciata
,, Lord John Russell
,, Lady John Russell
Polygala grandis
Primula sinensis alba pl. fimb.
Pyrethrum Duchess de Brabant
Rose Bacchus
,, Madam Zodiac (striped)
,, Queen Victoria
,, Reine de Panachè
,, Souvenir de l'Exposition
,, Victor Trouillard
Salvia Rœmeriana, true (or porphyrantha)
Stadmannia Jongheii
Thunbergia laurifolia
Tradescantia discolor lineata
Tydæa amabilis
,, argyroneura
,, Ærythrichina
Verbena Dazzle
,, Moonlight
,, Miss Trotter
Veronica Meldensis, extra
,, splendida
Vriesia Psittacena
Wistaria frutescens magnifica
Weigela Middendorffiana

CHOICE NEW PLANTS SHORTLY TO BE SENT OUT.

Achimenes (Nagelia) amabilis
Ditto, Eckhautei, extra ex.
Aquilegia eximia
Arduina grandiflora
Azalea magnifica
Azalea Princess Royal
Correa Cardinale
Grevillia elegans
Gardenia Planti
Ixora affinis
Rhododendron Blumei
,, Princess Royal
,, tubæflorum
Rhynchosia volubilis
Solanum africanum
Tradescantia argentea
New Strawberry from California
The Golden Hamburgh Grape
The Bowood Muscat Grape
The Muscat Hamburgh Grape

On the 1st of June will be issued, price 10s. 6d., the First Part of the

ILLUSTRATED BOUQUET;
CONSISTING OF FIGURES WITH DESCRIPTIONS OF NEW FLOWERS.

THE ILLUSTRATED BOUQUET has been projected by Messrs. E. G. Henderson & Son for the purpose of providing their patrons and the public with notices, accompanied by first-class Illustrations of New Plants.

The Descriptions, which will be accompanied by all requisite available information connected with the Plants figured, will be given under the superintendence of

MR. ANDREW HENDERSON,

who will be assisted when requisite by competent persons. It is intended to append to the information directly applying to the Illustrations, notes of such other varieties of the same tribes as can be recommended for general cultivation.

MR. JAMES ANDREWS

will design and superintend the colouring of the Plates, which will be produced in the most accurate and finished style; the size will be imperial quarto. The proprietors propose to issue the publication at four periods during the year. Each Part will contain five or more Plates of Flowers taken from Nature and faithfully coloured, every Plate being intended to form a bouquet of itself. Groups of several varieties of one kind of flower or different genera will frequently occupy the Plate. The subjects represented will be principally new Plants and improved Hybrids, together with such other rare or valuable Plants as may be considered worthy of being brought more into notice for cultivation. Indeed, it is proposed that such flowers only shall be represented as are of an ornamental character, and are useful and likely to become favourites with all classes; such in fact, as may be termed the fashionable flowers of the day. The proprietors have the satisfaction to announce that they have been promised such aid as will enable them to carry out their design in a manner worthy of the support which they trust their efforts to gratify public taste will ensure to them.

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(Fig. 2.)

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No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1¾ inch, 12*s.*; No. 3, do., diameter of barrel, 1¾ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

SAMUELSON, Britannia Works, Banbury.

MOW YOUR OWN LAWNS.

BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, WM. DRAY & Co., Swan Lane, London Bridge.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Mosses, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: the Manager of the Agricultural Depôt, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

IMPROVED MOWING MACHINES.

BUDDING'S PATENT WITH FERRABEE'S REGISTERED IMPROVEMENTS, MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, Stroud, Gloucestershire.

Mowing Machines were first introduced by the Proprietors of the Phœnix Iron Works, who have manufactured and sold upwards of 6000. They have from time to time effected many Improvements in the Machines, and have this year introduced in the large Hand Machines a more ready mode of adjusting the length of the cut, setting on the box, &c. They can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower Beds, on Bowling Greens, and Cricket Grounds, and may be either drawn or pushed. For extensive Lawns and Pleasure Grounds, the Horse Machines will be found all that is desirable, and J. F. and Co. can strongly recommend their 28-inch Machine as easy to manage, readily turned, and capable of cutting the longest and coarsest Grass usually met with where such Machines can be used, while its size and weight will admit of its being worked by a strong pony. They execute their work in an expeditious and superior manner, producing a beautifully even and uniform surface, and are readily adjusted to cut various lengths. The Grass is cut best when dry, so that a Machine can be used at the most convenient time to the workman.

PRICE LIST,

Including Carriage to any Railway Station in England or Wales:

Hand Machine for one man cutting	..	12 in. wide	£4	5*s.*	0*d.*
Do. do. do. do.	..	16 ,, ,,	5	10	0
Do. do. for man and boy ,,	..	22 ,, ,,	6	0	0
Pony Machine (or donkey) ,,	..	26 ,, ,,	8	0	0
Horse Machine.. .. .. ,,	..	28 ,, ,,	11	0	0
Do. .. .. ,,	..	36 ,, ,,	15	0	0

London Agency, Manager of Agricultural Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the country.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. GARROOD, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and of J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.

Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

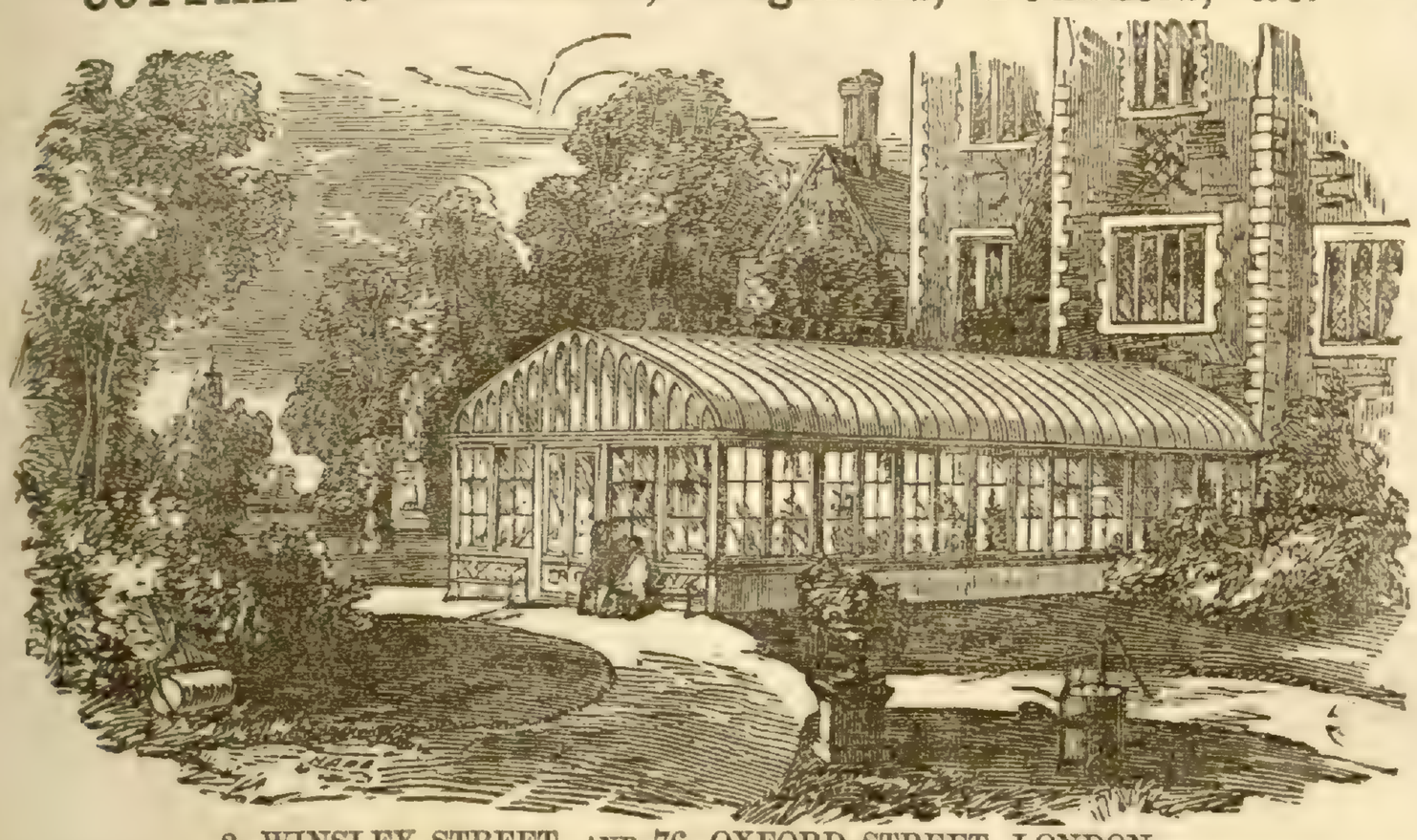
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

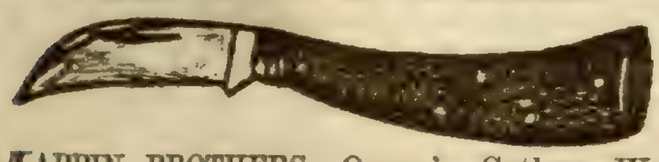
Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

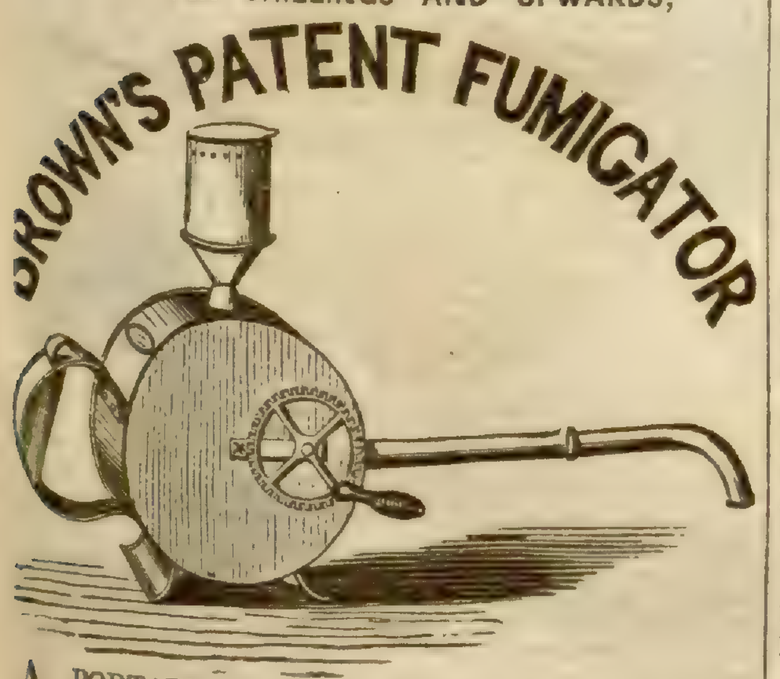
MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

PRICE TEN SHILLINGS AND UPWARDS,



A PORTABLE INSTRUMENT for Fumigating Greenhouses, Stoves, and Frames, or Shrubs and Flowers, in the open air, without injuring the most delicate plant; delivering the smoke cool, in a dense mass, and effecting a great saving of Tobacco.—Manufactured and supplied to the Trade by Messrs. BARBER & GROOM, London; and may be had of all Ironmongers, Seedsmen, and Florists.

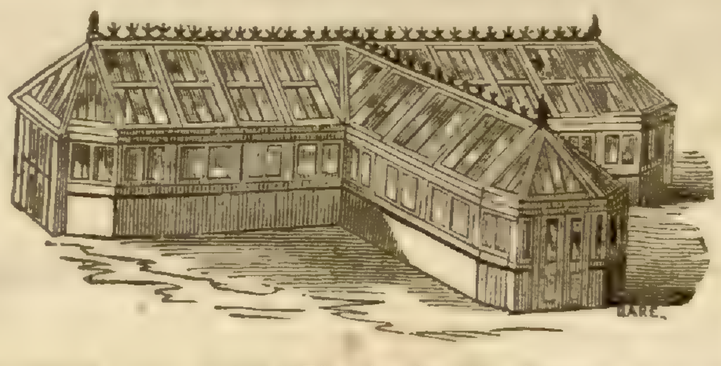
WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

HORTICULTURAL WORKS.



HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hot Houses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

N.B. See our Improved Corrugated Tubular Boiler warranted to Heat 500 feet of 4-inch piping. Size, 24 inches by 14 inches. Price of our Small Boilers, 5*l.* 5*s.* Satisfaction given or no charge made.

Plans and Estimates forwarded on application as above.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

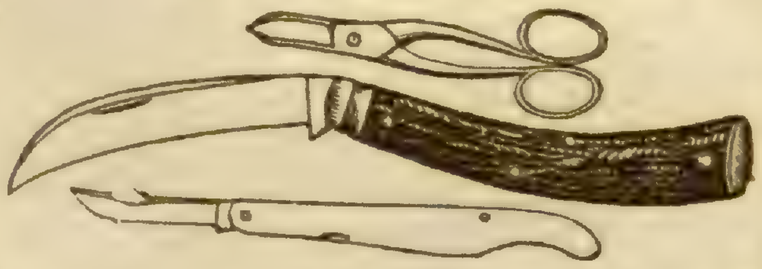
This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square, Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

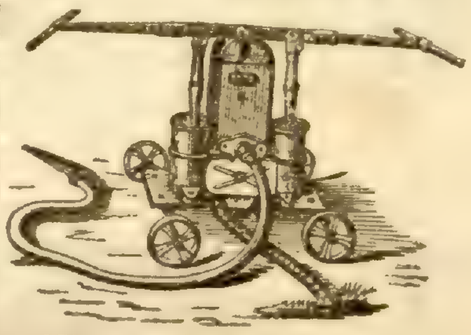
PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

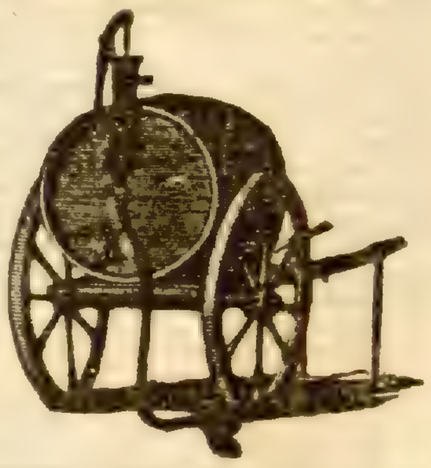
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams, Apparatus for Warming, Boiling, and Drying, and every class of Engineers' work.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought-iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2 in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to **BURGESS & KEY**, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*" ..	16	8650	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,977	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the two I had on the old system.*"	12	6000	2300
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c. ..	12	..	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total	..	4050	
Mr. Paget says:—"*Your apparatus is working very satisfactorily.* * * * *The boiler is quite master of its work.*"			
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

JOHN WEEKS & COMPANY,
Horticultural Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

WEEKS' ONE BOILER SYSTEM.—FACTS UNDISPUTED.—These Upright Tubular Boilers are fixed in numerous places producing greater effect than any other yet invented, and we now again challenge the whole world to make a Boiler that will produce the same effect with the same quantity of fuel.—JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10*s.* per 100 feet.	8 by 6 9 by 7 9½ by 7½ 10 by 8	12*s.*
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s.*	12 by 10 13 by 10 14 by 10 15 by 10	14*s.*

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 ft. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 ft. extra.

19 by 12 20 by 12	16*s.*	20 by 13 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ¼ to $\frac{3}{16}$ and ⅛-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their REDUCED PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

	s.	*d.*	
6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ 8 ,, 6, 8½ ,, 6, 9 ,, 7, 9½ ,, 7½	11	6	per 100 feet.
10 by 8 and 10½ by 8½ ..	12	6	,,
Larger sizes from 12 by 9 to 15 by 10 ..	14	0	,,
Above 15 ,, 10 ,, 24 ,, 18 ..	16	0	,,

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 ..	18	0	,,
20 ,, 13 ,, 20 ,, 15 ..			

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3 *d.*

Foreign Sheet Glass, in crates of 200 feet, 40*s.* and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	10*s.*	6*d.*	per box.
7 ,, 5 ,, 7½ ,, 5½	12	0	,,
8 ,, 6 ,, 8½ ,, 6½	13	6	,,
9 ,, 7 ,, 9½ .. 7½ & 10 by 8	15	0	,,

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

SOUND AND WHITE TEETH are not only indispensably requisite to a pleasing exterior in both sexes, but they are peculiarly appreciated through life as a blessing highly conducive to the purposes of health and longevity. Among the various preparations offered for the purpose,

ROWLANDS' ODONTO, OR PEARL DENTIFRICE,

stands unrivalled. Prepared from Oriental Herbs with unusual care, transmitted to this country at great expense, this unique compound will be found to eradicate all tartar and concretions, and impart a pearl like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, fix the teeth firmly in their sockets, and from its aromatic influence impart sweetness and purity to the breath. Price 2*s.* 9*d.* per box. CAUTION.—The words "ROWLANDS' ODONTO" are on the label, and "A. ROWLAND & SONS, 20, Hatton Garden," engraved on the Government Stamp affixed on each Box. Sold by them and by Chemists and Perfumers.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire

HOLLOWAY'S OINTMENT AND PILLS.—These remedies are unequalled in their astonishing effects in all painful and serious cases of ulceration, being as penetrating as powerful, exercising a wonderful influence over the diseased system, but "one established fact is worth a thousand theories." Charles Croft, of Chepstow, was afflicted with an abscess in the side, baffling all medical skill; despairing of relief, he was persuaded to use HOLLOWAY'S Ointment and Pills. He did so, and in a short time the healing process commenced, and the perfect cure rapidly followed.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.,

ALSO AS A PROTECTOR TO THE BLOOMS OF FRUIT TREES ON WALLS FROM FROST IS

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
,, Hurst & M'Mullen, Seed Merchants, London.
,, A. Henderson & Co., Pine Apple Place, London.
,, Minier, Nash, & Co., Seed Merchants, London.
,, Peter Lawson & Son, Seed Merchants, London and [Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
,, Francis and Arthur Dickson & Sons, Seed Merchants, [Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
,, John Edmondson & Co., Seed Merchants, Dublin.
,, B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
,, James Dickson, Sons, & Co., Nurserymen, Manchester.
,, Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
,, Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
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J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
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,, Bainbridge & Hewison, York.
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BEDSTEADS, BATHS, AND LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12*s.*	0*d.*	to	£12	0*s.* each.
Shower Baths, from	7	6	,,	5	12 ,,
Lamps (Moderateur), from ..	6	0	,,	6	6 ,,

(All other kinds at the same rate.)

Pure Colza Oil .. .. 5*s.* per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s.* per doz.; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* per pair; larger sizes, from 19*s.* to 26*s.* per doz.; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per doz.; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per doz.; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per doz.; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

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	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen	38*s.* ..	48*s.* ..	60*s.*
Dessert ditto and ditto ,,	30*s.* ..	35*s.* ..	42*s.*
Tea ditto .. .. ,,	18*s.* ..	24*s.* ..	30*s.*

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12*s.* ..	28*s.* ..	30*s.*
Dessert ditto and ditto ,, ..	16*s.* ..	21*s.* ..	25*s.*
Tea ditto .. .. ,, ..	5*s.* ..	11*s.* ..	12*s.*

In these Premises, formed of Eight Houses, is on show the most magnificent STOCK of GENERAL HOUSE IRONMONGERY, with Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Clocks, Candelabra, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings, so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere. Illustrated Catalogues sent (per post) free.

39, Oxford Street (W.); 1, 1a, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

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The best quality SIX for FORTY-TWO SHILLINGS.
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JOHN WILLIAMS AND SON'S "SWEET SOFT SOAP," in 6 lb. jars, with directions for use; also, Family Boxes of Prize Medal Household Soaps. (For further particulars see this day or Monday's *Times.*) Cut, dried, and ready for Use. Can only be had by order through a Grocer or Oilman.—Soap Works, Clerkenwell, London, E.C.

THE BELMONT GLYCERINE SOAP contains PRICE'S Pure Glycerine, distilled by their patent process from Palm Oil. It is recommended for washing infants and shaving, it softens the skin, and is a most agreeable toilet soap for general use.
PRICE'S CANDLES, which will not drop grease when carried. These used as Chamber Candles prevent damage to dresses and carpets. They should be burnt in the candlesticks made specially for them in imitation bronze, with cotton branch stems, and palm leaf feet, having stamped round the edge—"PRICE'S Patent Candle Company, Limited." All the above may now be had retail through any druggist, perfumer, or grocer. The Soap in English ornamental boxes, price 6*d.*, 1*s.*, and 1*s.* 6*d.* each; the Candles in boxes, 1*s.* and 3*s.* Candlesticks, 2*s* 6*d.* each, and wholesale at Belmont, Vauxhall, London.

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Author of "The Spas of Germany," "On Sudden Death," &c. &c.
ON DR. DE JONGH'S
LIGHT BROWN COD LIVER OIL.—"Dr Granville has used Dr. de Jongh's Light-Brown Cod Liver Oil extensively in his practice, and has found it not only efficacious, but uniform in its qualities. He believes it to be preferable in many respects to Oils sold without the guarantee of such an authority as De Jongh. DR. GRANVILLE HAS FOUND THAT THIS PARTICULAR KIND PRODUCES THE DESIRED EFFECT IN A SHORTER TIME THAN OTHERS, AND THAT IT DOES NOT CAUSE THE NAUSEA OR INDIGESTION TOO OFTEN CONSEQUENT ON THE ADMINISTRATION OF THE PALE NEWFOUNDLAND OILS. The Oil being, moreover, much more palatable, Dr. Granville's patients themselves have expressed a preference for Dr. de Jongh's Light-Brown Cod Liver Oil."
1, Curzon Street, Mayfair, January 7th, 1856.

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Has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

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DR. DE JONGH'S SOLE BRITISH CONSIGNEES,
By whom the Oil is daily forwarded to all parts of the Metropolis.

SCHWEPPE'S MALVERN SELTZER WATER, Manufactured by J. SCHWEPPE & Co. (the sole lessees), from the Pure Water of the Holy Well, possesses all the celebrated properties of the Nassau Spring. SCHWEPPE'S SODA, MAGNESIA, POTASS WATERS, and LEMONADE, are manufactured as usual. Every Bottle is protected by a special label.—London, Liverpool, Bristol, and Derby.

PERCH, ROACH, AND PIKE.—Wanted to stock a Moat with, delivered in London or at the Tottenham Station on the Eastern Counties.—Address, stating terms, to B. B., 12, Salisbury Square.

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TO FLORISTS, GENTLEMEN'S GARDENERS, ETC.
TO BE LET, a small NURSERY with Cottage, 4 Greenhouses, and about 1 Acre of Land, in an excellent neighbourhood for jobbing Gardeners.—Apply by letter to Mr. J. CHARTRES, 74, King William Street, City, London.

FARM TO BE LET.—A Gentleman wishes to let his FARM ON LEASE, which he has occupied for the last seven years. It is situated at Hadlow Down, in the parishes of Buxted and Mayfield, Sussex, and consists of about 122 acres of Arable, Meadow, Pasture, and Hop Ground, together with 33 acres of Marsh Land, at the option of the tenant. There are ample Yards for Stock and Stalls for Fatting 24 head of Cattle, with Liquid Manure Tanks and Boiling House for Artificial Food. The Land will grow all sorts of Roots, and would suit a Beetroot Distiller or an Amateur Farmer.—For particulars apply by letter to R. T. G., 4, Calverley Terrace, Tonbridge Wells. Ample capital and good references indispensable.

TO BE SOLD, by public Auction, the first week in June, the unrivalled Collection of TULIPS belonging to the late Mr. Robert J. Lawrence, of Hampton. The collection is now in bloom. Admittance gratis.—Catalogues had on application at the Red Lion Inn, Hampton, or of Mr. JOHN WILLMER, Auctioneer, Sunbury, Middlesex.

TO BE SOLD, very cheap, the unexpired LEASE for 7½ years of the Manor Nursery, Shacklewell, near Kingsland. It contains two good Dwelling-houses and 1 acre of ground, Stabling, Sheds, &c., and is well supplied with water. The above offers to a person of small capital an excellent opportunity, as the ground can be taken with or without the Stock and Glass.—Particulars of F. J. BUCK, on the Premises.

Sales by Auction.

IMPORTANT SALE OF SHORT-HORNS.
MR. STRAFFORD is requested to announce for unreserved Sale by Auction, at the Dudding Hill Farm, Willesden, Middlesex, on THURSDAY, May 21, a choice selection of Fourteen SHORT-HORNED COWS and HEIFERS, with Two BULL CALVES, from the far-famed herd of S. E. Bolden, Esq., Springfield Hall, near Lancaster, which have been chiefly bred from the renowned stock of Messrs. Bates and Booth.—Catalogues, with Pedigrees, may be had of Mr. STRAFFORD, 13, Euston Square, London.

DUDDING HILL FARM, WILLESDEN.
IMPORTANT SALE OF SHORT-HORNED CATTLE.
MR. STRAFFORD is favoured with instructions to Sell by Auction, without reserve, on THURSDAY, May 21, at the Dudding Hill Farm, Willesden, Middlesex, the entire Herd of First-Class SHORT-HORNS, belonging to Charles Pascoe Grenfell, Esq., M.P., of Taplow Court, who has let his Farms. They comprise about 40 Head of Bulls, Cows, and Heifers, of the most fashionable and pure blood, including the purchases made at the renowed Tortworth Sale, and their produce, several of them being of the "Barmpton Rose" tribe, from which the famous Bull "Master Butterfly" was descended, and are by The Fourth Duke of York (10,167), Duke of Glo'ster (11382), and other celebrated animals. Catalogues, with Pedigrees, may be had on application to Mr. STRAFFORD, 13, Euston Square, London.

ORCHIDS.
MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, May 19, at 1 o'clock precisely, the concluding portion of the Loddiges' COLLECTION OF ORCHIDS. Amongst them are specimens of—

Vanda Lowi	Saccolabium ampullaceum
Ærides Schröderi	Cattleya Mossiæ maxima
,, quinquevulnerum	Galeandra Devoniania
Cœlogyne pandurata	A few Ferns.

&c., &c.
May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

ORCHIDS.
MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on THURSDAY, May 21, at 1 o'Clock precisely, a collection of ORCHIDS, including many very rare and new species in excellent health. Amongst them are—

Vanda Batemani	Saccolabium curvifolium
,, suavis	,, ampullaceum
,, insignis	Cypripedium caudatum
Chysis Limminghi	Uropedium Lindeni
Ærides species (new)	Scuticaria Hadweni
,, Larpentæ	Dendrobium virgatum

&c., &c., &c.
May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

BURNHAM, SOMERSET.
IMPORTANT COLLECTION OF SPECIMEN STOVE AND GREENHOUSE PLANTS.
MR. J. C. STEVENS is favoured with instructions to Sell by Auction on the Premises, on TUESDAY, May 26, at 12 o'clock, the renowned collection of STOVE and GREENHOUSE PLANTS, belonging to GEORGE REED, Esq., of Burnham, who is declining the cultivation of Specimen hard-wooded plants for exhibition, and the houses being required to extend the collection of Orchids. The specimens are in fine health, and many of them calculated for exhibiting this season, being well set with bloom; they consist of the most popular varieties of Stove Plants, Ferns, Lycopods, Greenhouse Plants, Azaleas, Heaths, Camellias, &c., and are especially deserving the attention of noblemen, gentlemen, and exhibitors.—May be viewed on the day before the Sale, and Catalogues had on the premises, or by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, London. Burnham is situate about a mile from the Highbridge Station (Bristol and Exeter Railway). Omnibuses meet every train.

TO GENTLEMEN, FLORISTS, AND OTHERS.
MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY and FRIDAY, May 21 and 22, at 12 o'Clock, a first-rate collection of Dahlias, Fuchsias, Verbenas, Petunias, &c.; also choice Double Hollyhocks from a celebrated grower; fine Azalea indica, Geraniums, Roses, and other plants in bloom; with a choice and useful assortment for bedding.—On view the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.
N.B. The Hollyhocks will be sold on Thursday.

CLAPTON.
To GENTLEMEN, GARDENERS, AND OTHERS.
MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, Clarence Nursery, Clarence Road, Clapton (about 5 minutes' walk from the Hackney Railway Station), on MONDAY, May 18, at 11 o'Clock (by order of Mr. Finch), a fine assortment of Greenhouse and Bedding Plants, including Show and Scarlet Geraniums, Fuchsias, Verbenas, Calceolarias, Heliotropes, Salvias, Lobelias, Ageratums, Petunias, Intermediate Stocks, Double Nasturtiums, Maurandya, Pompone Chrysanthemums, Dahlias, &c.—May be viewed the Saturday previous to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

MILE-END NURSERY, BOW.
To GENTLEMEN, NURSERYMEN, FLORISTS AND OTHERS.
MESSRS. PROTHEROE AND MORRIS will submit to public competition by Auction on the Premises, Mile-End Nursery, Bow Road, Middlesex, near the Bow Railway Station, on TUESDAY, May 19, at 12 o'Clock, about 10,000 BEDDING and other GREENHOUSE PLANTS, consisting of fine Show and Scarlet Geraniums, Cactus, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias (sorts), Phloxes, Petunias, Nierembergia, Lobelias, Dahlias (comprising all the leading kinds), Chrysanthemums, Intermediate Stocks, Maurandya, Tropæolum canariensis, Cobœa, Lophospermum, Eccremocarpus, &c.—May be viewed three days prior to the sale. Catalogues had on the premises, of the principal Seedsmen in London, and at the Auctioneers, American Nursery, Leytonstone, Essex.

BEDDING PLANTS, BEDDING PLANTS, BEDDING PLANTS.
To NOBLEMEN, GENTLEMEN, GARDENERS, AND OTHERS.
Unreserved Sale at the Westbourne Nursery, Harrow Road, adjoining the Toll Bar, and within 2 miles of Oxford Street.
MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises as above, on WEDNESDAY, May 20, instead of the 13th, as previously advertised at 11 o'Clock, upwards of 20,000 first class Bedding Plants, consisting of the newest and most approved varieties of Verbena, Calceolaria, Petunia, Anagallis, Lobelia speciosa, Cuphea, Tom Thumb, variegated and other Geraniums; a large quantity of first-rate Flowering Plants, suitable for Conservatories and Window Decorations; Mignonette, &c., for boxes; also Roses of the most suitable kinds for the neighbourhood of London, including Devoniensis, Géant des Batailles, Smith's Yellow Noisette, Cramoisie, Supérieure, &c. Messrs. P. & M. have much pleasure in offering the above to public competition, and can assure their patrons it is an opportunity seldom to be met with. Omnibuses pass the Nursery, leaving the Bank at the half hour; and the Correspondence Office, Regent Circus, every hour exactly.—May be viewed the day previous and morning of Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HOMERTON.
To GENTLEMEN, NURSERYMEN, AND OTHERS.
MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Brooksby's Nursery, Brooksby's Walk, Homerton, on MONDAY, May 25, at 11 o'Clock, by order of Mr. Shaw, in consequence of the Lease having expired, about 7000 GREENHOUSE AND BEDDING PLANTS, consisting of 1000 Tom Thumb and other Scarlet Geraniums, 2000 Verbenas, 400 Fuchsias, 300 Shrubby Calceolarias, 300 Heliotropes, 3000 Petunias, Cupheas, and other Ornamental Plants; also two capital Greenhouses, Pits, Leaden Pump, and Sundry Effects.—May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

YORK NURSERY, HANGER LANE, STAMFORD HILL.
To GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.
MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises as above, on TUESDAY, May 26, at 11 o'Clock, about 10,000 Bedding and other Greenhouse Plants; consisting of fine Show, Fancy, and Scarlet Geraniums, Verbenas, Fuchsias, Heliotropium, Salvias, Calceolarias (sorts), Petunias, Lobelias, Cuphea, Ageratum, Clematis, Passiflora, Dahlias, comprising all the leading kinds; Lilium lancifolium rubrum and album; Climbing Plants of sorts; likewise 100 Cupressus funebris, 500 Chinese Arbor Vitæ, 1½ in. to 2 ft. Perpetual and China Roses, &c.—May be viewed three days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

STOCKWELL.
To GENTLEMEN, NURSERYMEN, GARDENERS AND OTHERS.
MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Tyler to Sell by Auction, on the premises, Stockwell Green Nursery, Stockwell, Surrey, on WEDNESBURY, May 27, at 11 o'Clock, about 10,000 BEDDING AND GREENHOUSE PLANTS, including 4600 Scarlet and Show Geraniums, 700 Rollisson's Unique, 1700 Fuchsias, 800 Calceolarias, Heliotropes, and various other ornamental and useful Plants.—May be viewed prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneer's, American Nursery, Leytonstone, Essex.

MITCHAM, SURREY.
TO TULIP FANCIERS.
MESSRS. PROTHEROE AND MORRIS have received instructions to submit to public competition by Auction, without reserve, on the premises, Merton Lane, Mitcham, Surrey, on SATURDAY, May 30, at 2 o'Clock, a portion of the collection of TULIPS of the late John Goldham, Esq. Several new varieties and Seedlings will be offered at this Sale, which have not hitherto been parted with, besides many of those kinds which have previously been sent out from this collection.—May be viewed two days prior to the Sale. Catalogues may be obtained on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

BRENCHLEY, KENT. TWO MILES FROM THE PADDOCK WOOD STATION, ON THE SOUTH-EASTERN RAILWAY.
MR. TOOTELL will Sell by Auction, without reserve, at the Crook Farm, Broad Oak, on WEDNESDAY, May 20, at 12 for 1 o'Clock, improved SHORT-HORN CATTLE, the genuine property of Captain J. H. Hay Ruxton, who having received an official appointment, relinquishes farming—10 handsomely-framed and thoroughly well-bred Cows and Heifers (four of which have been served by Charley (12,582) and Highland Laddie (13,026), 2 Bull Calves, 1 Heifer Calf, a Yearling Bull, and 5 Steers, sires Diamond (5918), Puritan (9523), Denmark, Rivers (10,716), Nabob (13,365), and Fop (12,890); also a few Pigs of very superior blood.—The Stock may be seen any time previous to the Sale by applying to the Herdsman, at Broad Oak, of whom Catalogues with Pedigrees may be had: they may be also obtained at the Crown, Tonbridge; Albion Hotel, Hastings; Fountain, Canterbury; New Falcon Hotel, Gravesend; Bull, Dartford; Saracen's Head, Ashford; Lion, Farningham; and of Mr. TOOTELL, Estate Agent and Valuer, Maidstone.

NEW AND DELICIOUS FRUIT.

EUGENIA UGNI.—C. Wentworth Dilke, Esq., having offered Special Prizes for the above Fruit at the Grand Autumn Fruit Show of the London Horticultural Society in October next, Messrs. Veitch & Son beg to intimate that they have a fine stock of healthy young plants of various sizes at the following prices:—

Strong well-established plants	3s. 6d.
2d size do. do.	2 6
A few extra sized plants, in 8-inch pots ..	7 6

Royal Exotic Nurseries, Exeter and Chelsea, May 16.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.

J. C. Wheeler & Son, Seed Growers, Gloucester.

NEW SHRUBBY CALCEOLARIA.
BURNS'S MRS. BURNS.

JOHN PERKINS has much pleasure in offering the above beautiful CALCEOLARIA, colour orange red, with dwarf compact habit. Invaluable as a bedding Calceolaria, and extraordinary profusion and long continuation of bloom. Strong plants will be sent out on the 20th of this month, 2s. 6d. each, or 24s. per dozen.

Bedford Road Nursery, Northampton, May 16.

HOLLYHOCK SEED.

J. CHATER and SON offer the above, saved from their best flowers, as under:—25 varieties named, in separate packets, the collection, 6s.; 15 ditto, 4s.; best mixed, 200 seeds, 1s. 6d.; 400, 2s. 6d. Also plants of Pompone Chrysanthemums, per name, 4s. per dozen. Osborne's Brilliant and Crimson Ivy-leaved Geraniums, strong plants, 4s. per dozen.

Nursery, Haverhill, May 16.

THE TWO MOST BRILLIANT AND ATTRACTIVE HYBRID PERPETUAL ROSES FOR BEDDING are—

	Per doz.
Général Jacqueminot, brilliant crimson..	20s.
Géant des Batailles	15s.

Dwarf Plants in Pots.

The above will produce a fine display of bloom throughout the season, and may be had by the thousand if required. We had the above sorts in bloom out of doors last year until nearly Christmas. Plants presented for distant carriage.

Address William Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection, fine healthy plants, forward for flowering, for 21s., package included, viz., Attraction, Cordelia, Carlos, Mary, exactum, Empress Rowena, Lucy, Jessica, Majestic, Phaeton, Queen of May, Serena, Rosa Sereskier, Topsy, Virgin Queen, Zeno, Chloe, Beatrice, Constance, Floretta, Old Story, Rosamond, Magnificent, Gulielma, Enchantress, Lord Mayor, Ganymede, Celestial, Petruchio, Leona, Optimum, Kulla, Zaria, Rhoda, Captivation, Magnet, Advancer, Mochanna.

Horticultural Gardens, Norwich.

AZALEAS, 25 new hardy Ghent varieties, one of a sort, by name	20s. 0d.
Azaleas, hardy American scarlet, fine, per dozen ..	10 0
Hardy Heaths, Kalmias, and Ledums, per dozen ..	6 0
12 Rhododendrons, including scarlet, white, and rose, hardy	12 0
Hardy Scarlet Rhododendrons, 2 feet, per dozen ..	15 0
New yellow Rhododendrons, each	7 6

Messrs. J. & H. Brown, Albion Nursery, Stoke Newington, London, N.

NEW AZALEA INDICA.

ROSY CIRCLE (Ivery's).—This very fine distinct variety will be ready for delivery on the 27th inst.; it was awarded a First Class Certificate at the National Floricultural Society's Meeting on May 17th, 1855, the only time it has been exhibited. For description, see Catalogue, which also contains a descriptive list of all the most approved kinds, sent post-free upon written application.—Dorking, May 16.

J. Ivery & Son beg to say that the above-named new Azalea may now be seen in bloom at this Nursery; also that their fine collection will be in perfection from the 20th inst. until the middle of June.—Dorking, May 16.

NEW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the New Dahlias of last season, at 10s. per dozen strong plants, and the best varieties of other years, at 4s. and 6s. per dozen.

Fine SHOW PANSIES ..	4s. and 6s.	per dozen.
BELGIAN DAISIES ..	4s.	,,
Fine PHLOXES	8s.	,,

Descriptive Catalogues now ready. Selected Pansy Seed, 1s. and 2s. per packet. Post Office Orders to be made payable at Middleton, near Manchester.

NEW FUCHSIAS.

JOHN and CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (Lee).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. Now ready, price 10s. 6d.

DANIEL LAMBERT (Lee) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. Now ready, price 7s. 6d.

Nursery, Hammersmith, near London.

NEW PLANTS.

JOHN and CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (Lee).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5s.

VARIEGATED GERANIUM EMPEROR (Lee).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10s. 6d. The usual discount to the Trade.—Nursery, Hammersmith.

PAGE & CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, AND STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make four.

Jars and Barrels charged at cost price.

Ten Gallons and upwards, Carriage Free to London.

B. PAGE and CO. beg to refer to Professor Lindley's analysis of the leading Gardeners' opinions, and also his remarks in the leading article of the *Gardeners' Chronicle* of October 25, 1856, where it will be observed that in 192 cases, 10 only were adverse; a majority sufficient to convince the most sceptical. It should be in the possession of every one who has a Rose Bush or a Wall-fruit Tree.

Their Agents (the principal Houses in the Trade) were recently published, to which should be added—

Mr. Thomas, Nurseryman, Wolverhampton.
Mr. Jennings, Nurseryman, Shipton-on-Stour.
Messrs. Dickson & Sons, Edinburgh (in place of Downie & Laird); or of

B. PAGE & CO., Seed Merchants and Growers, Southampton.

MCDOUGALL'S DISINFECTING POWDER.—This valuable Disinfectant, so highly praised by Dr. Smith in his recent Paper before the Society of Arts, may be obtained in large or small quantities from the London Agents, A. Herriot & Co., 2, Great Scotland Yard, Whitehall, S.W.

THE CELEBRATED REIGATE SILVER SAND, 15s. per ton, a less quantity 1s. 6d. per bushel; delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to John G. Bryan, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. May & Co., Seedsmen, Wellington Street, Strand.

N.B. Goods landed, shipped, housed, and carted.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½d. Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PARK AND ORNAMENTAL BRIDGES.

THE IRON BRIDGE ASSOCIATION, 58, Pall Mall, London, manufacture and erect Iron Bridges, Landing Jetties, and Piers of every description. Plans and Estimates free of charge on application.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON and CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from Crescens, Robinson, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

THE BEST AND CHEAPEST PAINT FOR PARK FENCING, BARNS, STABLES, ALL OUTSIDE WOOD AND IRON WORK, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17s. 6d. per cwt. Used largely, now and for many years past, by the West India Dock Company, for Fencing, Barges, &c. Recommended to the Nobility and Gentry, Stewards, Land Agents, &c.—Manufactory, Kennington Lane, Lambeth. Allowance on large orders.

IRON HURDLES MADE BY MACHINERY.

COTTAM and HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL and ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, Oxford Street, London, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1d. per square yard; 200 yds, 14s.; 500 yds. 30s.; 1000 yds. 50s. Screen Canvas for Wall Fruit.—At Edgington & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

"FRIGI DOMO."—**Patronised by her Majesty the** Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS
OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY and CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30s.), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6d. per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1s. per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

MICROSCOPES.

JOSEPH AMADIO'S Improved Compound MICROSCOPE, 2l. 2s.; Students', 3l. 13s. 6d.

"Both these are from Amadio, of Throgmorton Street, and are excellent of their kind, the more expensive one especially."—*Household Words*, No. 345.

A large Assortment of ACHROMATIC MICROSCOPES.

ACHROMATIC MICROSCOPES.

SMITH and BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six postage stamps.

General Catalogue for March 1857 may be had on application.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, and CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of Metcalfe's celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

THE
EXHIBITION
OF THE
ART TREASURES OF THE UNITED KINGDOM, NOW OPEN AT MANCHESTER.

THIS PALACE, covering a space of 18,000 square yards, contains the LARGEST and most VALUABLE COLLECTION OF WORKS OF ART,

Ancient and Modern, ever collected, and which, there are many reasons for supposing, can never be brought together again.

REFRESHMENTS are provided on an extensive scale, at moderate charges.

PRICES OF ADMISSION:—From May 6 to 16 (both days inclusive), 2s. 6d. for each person. On and after Monday, May 18, 1s. for each person, except on Thursday in each week, when the charge will be 2s. 6d. for each person.

SEASON TICKETS, at 2l. 2s., entitle the proprietors to admission on all occasions when the Exhibition is open to the public; tickets at 1l. 1s. entitle to admission on all but the "reserved days." These Tickets may be procured at the Exhibition Building; or at the Offices, 100, Mosley Street.

HOURS OF EXHIBITION.—The doors will be open daily at 10 o'clock, and will be closed at sunset. A bell will be rung half an hour before closing.

CATALOGUES.—A General Catalogue, price 1s., is sold in the Palace.

BATH CHAIRS are provided at a moderate charge for the use of ladies and invalids.

Arrangements are being made with the various railway companies to enable visitors to come direct from any part of the country to the Building. The London and North-Western Railway Company have arranged to convey passengers from London by the 6 15 A.M. train, returning to London in the evening, allowing four or five hours in the Exhibion.

Offices, 100, Mosley Street. Thomas Hamilton, Secretary.

EXHIBITION OF ART TREASURES OF THE UNITED KINGDOM, 1857.—Notice to Householders: APARTMENTS.—The Executive Committee having reason to believe that many of their fellow-citizens will be disposed to offer accommodation to strangers visiting Manchester during the period of the Exhibition, have determined to OPEN for the convenience of visitors a REGISTRY of the APARTMENTS which, upon application, may be obtained. All parties disposed are invited to send, without delay, their proposals in writing, in which must be stated the situation of the house, the number of sitting and bedrooms, and other accommodations offered, and the terms required.—Further information may be obtained at the offices, and all applications must be addressed to Mr. Samuel Haden, Registrar of Apartments, 100, Mosley Street, Manchester.—By order,

Thos. Hamilton, Secretary.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, May 16, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 21.—1857.] SATURDAY, MAY 23. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—All persons, whether Fellows of the Society or not, can exhibit at the approaching FÊTES at Chiswick, WEDNESDAY, June 3, and THURSDAY, June 4; and also at the FRUIT SHOW, October 24.

HORTICULTURAL SOCIETY.—MANUFACTURERS' DIVISION.

The Descriptions for the Catalogue ought to be forwarded to the Secretary, 21, Regent Street, S.W., not later than MONDAY next, with such Woodcuts as Exhibitors are anxious should be inserted.

CHISWICK GARDEN FETE.—FLOWERS, FRUIT, and VEGETABLE DIVISIONS.—Intending Exhibitors must give notice in writing on or before May 27 of the Classes in which they propose to show. Lists of the Plants should also be sent to the Secretary, 21, Regent Street, S.W., that they may be included in the Catalogue.

CHISWICK FETE, JUNE 3 AND 4.—HORTICULTURAL SOCIETY OF LONDON.—LAST DAY for obtaining Tickets at privileged prices, 3*s*. 6*d*. and 2*s*., on production of Fellows' Orders or Ivory Tickets.—21, Regent Street, S.W.

CHISWICK FÊTES.—GREAT HORTICULTURAL EXHIBITION on WEDNESDAY and THURSDAY, June 3 and 4. Free to Fellows or holders of their Ivory Tickets, on June 3, at 12 o'clock, or June 4, at 10 A.M. Fellows and the holders of their Ivory Tickets may at the same hours be accompanied by any two Visitors producing 5*s*. Admission Tickets. Open to the public, with 5*s*. Tickets, at 2 P.M., June 3, or with 2*s*. 6*d*. Tickets, 2 P.M., June 4. On both these days his Grace the Duke of Devonshire, President of the Society, has kindly intimated his intention of throwing open the grounds of Chiswick House to the Fellows of the Society and their friends. Tickets are to be procured at 21, Regent Street till the days of Exhibition, when Five Shilling Tickets will be charged 7*s*. 6*d*., and Half-Crown Tickets, 3*s*. 6*d*. each. Special trains to Chiswick by the South-Western Railway and to Turnham Green by the North London Railway.

ROYAL BOTANIC SOCIETY.—THE LIST OF AWARDS at the Exhibition on Wednesday last will be given in our Next Number.

CRYSTAL PALACE FLOWER SHOW AND GREAT FOUNTAINS.—The FIRST GRAND HORTICULTURAL EXHIBITION of the present Season will be held on SATURDAY, May 30. The first display of the Great Fountains and the entire system of Waterworks will take place between 4 and 5 o'clock in the afternoon. Doors open at 12 o'Clock.

Military Bands will be in attendance in addition to the Band of the Company. Admission by Season Tickets of both Classes, or on payment of Half a Guinea.

For the accommodation of Gardeners a Special Train will leave London Bridge at 6 o'clock on the morning of Saturday, May 30, calling at New Cross and Forest Hill.

N.B. The other Flower Show of this Season will take place on the 9th, 10th, and 11th of September.

Crystal Palace, May 23. By Order, GEO. GROVE, Secretary.

CRYSTAL PALACE FLOWER SHOW. TO GARDENERS.—No Specimens can be entered for Exhibition after MONDAY the 25th instant. Gardeners applying in writing to the Secretary on or before that day, and producing satisfactory evidence of their being bonâ fide Gardeners will receive Special Tickets admissible on the 30th, on payment of 5*s*. at the doors. The regulations and Schedules of Prizes may now be obtained on application.

Crystal Palace, May 23. By Order, GEO. GROVE, Secretary.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The Exhibitions this season will be held at the Society's Gardens as under:—

May 26, 27 .. Exhibition of Plants, Flowers, Fruits, &c.
" 29, 30 .. " Tulips (adjourned from the Crystal Palace)
May and June " American Plants
June 24, 25 .. " Plants, Flowers, Fruits, &c.
Aug. 19, 20 .. " Carnations and Picotees
" 26, 27 .. " Plants, Flowers, Fruits, &c.

For particulars and Schedules, apply to the Secretary, 40, Princess Street. (By order) JOHN SHAW, Secretary.

STAMFORD FLORAL AND HORTICULTURAL SOCIETY.—The SUMMER SHOW of this Society will take place on WEDNESDAY, July 15, in the grounds of O. Edmonds, Esq., Rutland Terrace. A Military Band will be in attendance, and it is expected there will be Special Trains on the various lines of Railway running into Stamford on the day of Show. The services of Mr. Glenny have been secured as Censor. The Schedule has been materially altered, the Prizes considerably increased, the Subscription reduced, and every exertion is being made to put these Exhibitions on a first class footing. A Silver Cup of the value of 5*l*. at the least will be given for the best stand of ROSES, 12 varieties, three blooms each. A handsome SILVER MEDAL, value 1*l*. 10*s*., has been struck for the Society, eight of which will be given to Exhibitors of various productions. The Rules and Regulations with Schedules will be forwarded free on application to

Stamford, May 23. H. JOHNSON, Hon. Sec.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
BASS & BROWN, Seed Growers, Sudbury, Suffolk.

AGRICULTURAL SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W. C., forward *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, their priced CATALOGUE OF AGRICULTURAL SEEDS.
JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** A Descriptive Supplement to the above will be issued early.—Nursery, Foot's Cray, Kent, S.E.

W. IVERY'S Select CATALOGUE of CHOICE PLANTS is now ready, and will be sent on application. W. I. begs to inform his patrons that his Stock is unusually fine this season, and at very moderate prices.
Hanover Nursery, Peckham, near London, S.E.

NEW CATALOGUE.

WILLIAM CUTBUSH AND SON'S CATALOGUE of Ferns, Pelargoniums, Fuchsias, Petunias, Verbenas, and other soft-wooded Plants, &c., can be obtained post free on application.—Highgate Nurseries, London, N.

NEW FORCING PELARGONIUM "BLANCHFLEUR."

WM. CUTBUSH AND SON have pleasure in announcing that they have purchased the above beautiful early white Pelargonium from the raisers, Messrs. A. & G. Braid, of Hendon, and will give due notice of price and time of sending out.—Highgate Nurseries, London, N.

BEDDING PLANTS.

HUGH LOW & CO. have now ready for Sale, in large or small quantities, Verbenas, Petunias, Phloxes, Calceolarias, Lobelias, Dahlias, Geraniums (Scarlet and others), Ageratums, Fuchsias, and all other plants suitable for Flower Garden decoration in summer at very reasonable prices.
Clapton Nursery, London, N.E.—May 23.

BEDDING PLANTS! BEDDING PLANTS!!

JAMES HOLDER, FLORIST, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20*s*. cash, or three dozen for 10*s*. 6*d*., consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Petunias, Gaillardias, Cupheas, Dahlias, Calceolarias, &c.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—THOS. PERRY, Nurseryman, &c., Banbury.

RAILWAY NURSERIES, WATFORD.

BEDDING PLANTS, SUMMER CLIMBERS, &c., can be obtained of the best quality, and on the most reasonable terms, by application to E. R. GREENUS, at the above Establishments.

BEDDING PLANTS, ETC.

BASS AND BROWN have this season a large and unusually strong stock of BEDDING PLANTS, also GERANIUMS and GREENHOUSE PLANTS generally, strong and in the finest health, ACHIMENES, GLOXINIAS, &c. Catalogues on application.—Sudbury, Suffolk.

EXHIBITION OF TULIPS.

CHARLES TURNER'S COLLECTION, including many new and rare kinds, is now in very fine bloom, and may be viewed (Sundays excepted) until the end of the month. There are 17 trains daily from Paddington to Slough.
Royal Nursery, Slough, May 23.

DAHLIAS AND FANCY DAHLIAS, in 25 extra fine varieties, in assorted colours and strong plants, 12*s*., hamper and package free.

25 extra fine and distinct show		Pansies	12*s*.
25	" "	Belgian Daisies ..	8*s*.
12	" "	Phloxes..	8*s*.

Selected Pansy Seed, 1*s*. and 2*s*. per packet.
JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1*s*.; Double Carnation, 1*s*.; Double Picotee, 1*s*.; Polyanthus, 1*s*.; Calceolaria, 2*s*. 6*d*.; Primula fimbriata, 1*s*.; Double Hollyhock, 1*s*.; Brompton and Intermediate Double German Stocks, each, 1*s*.; Double German Wallflower, 1*s*.; Bedding Plants of sorts, 4*s*. per dozen.
BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

NEW SCARLET GERANIUM JOHN COWAN.—This very handsome and distinct dwarf Scarlet Geranium was raised by Mr. John Cowan, of Calke Abbey, and is far superior to any of the dwarf bedding varieties of the Tom Thumb class. It has a compact short-jointed habit, is a profuse bloomer, having beautiful round flowers, of a large size and great substance, and of a soft and pleasing tint of scarlet. The foliage being particularly round, small, and neat, renders this Plant one that can be recommended as a desirable novelty for the coming summer. Price 3*s*. 6*d*. each, or 40*s*. per dozen; to be had of ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

MEDINELLA MAGNIFICA.

JOHN AND CHARLES LEE have a large stock of the above in three sizes, which they offer to the trade on reasonable terms. Price on application.
Nursery, Hammersmith.

PHLOXES.—Twenty-five of the best and most distinct kinds, including "Countess of Home," in strong plants well established in pots, 16*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

PANSIES.—Twenty-five vigorous well rooted plants, in 25 first class and distinct show varieties, named, 12*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.

BELGIAN DAISIES.—Twenty-five distinct varieties, in good plants, 8*s*., packing and hamper included.—JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester.
Post-office Orders payable at Middleton, near Manchester.

NEW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, is now sending out the New Dahlias of last season, at 10*s*. per dozen strong plants, and the best varieties of other years, at 4*s*. and 6*s*. per dozen.

Fine SHOW PANSIES	..	4*s*. and 6*s*. per dozen.
BELGIAN DAISIES	..	4*s*. "
Fine PHLOXES ..	..	8*s*. "

Descriptive Catalogues now ready. Selected Pansy Seed, 1*s*. and 2*s*. per packet. Post Office Orders to be made payable at Middleton, near Manchester.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.
American Nursery, Bagshot, Surrey.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.
WOOD & INGRAM, Nurseries, Huntingdon.

NEW SHRUBBY CALCEOLARIA.
BURNS'S MRS. BURNS.

JOHN PERKINS begs to offer the above beautiful CALCEOLARIA, colour orange red, dwarf compact habit. Invaluable as a bedding Calceolaria, and extraordinary profusion and long continuation of bloom. Strong plants now ready, 2*s*. 6*d*. each, or 24*s*. per dozen.
Bedford Road Nursery, Northampton, May 23.

TO AMATEURS.

W. H. WHEELER, FLORIST, &c., Farnham, Surrey, can still supply Six good VERBENAS, including Miss Trotter, a bloom of which will be sent on application. All kinds of Bedding Plants, well hardened and good plants; most of the Verbenas in flower. Prices as low as good plants and kinds can be sold at.

TURNIP SEEDS FROM LARGE BULBS.

MESSRS. SUTTON'S TURNIP SEEDS are saved exclusively from fully developed Bulbs, the great advantages of which have been proved for several years past. They can also be recommended with confidence as being genuine unmixed new Seeds as they pass direct from the growers to the retail purchaser. Prices moderate, as see List, which may be had post free. All Seeds delivered carriage free, except very small parcels.
SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2*s*. per lb.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

STRONG DRUMHEAD CABBAGE PLANTS.—Any quantity of strong Drumhead or Scotch Cabbage Plants may be had on application to FRANCIS & ARTHUR DICKSON & Co., 14, Corporation Street, Manchester.

TO MARKET GARDENERS.

WANTED, a supply of all kinds of VEGETABLES three days per week, to be sent by railway to Bishop Auckland.—Application, stating terms, to be made to Mr. W. THOMPSON, Corn Close, Bishop Auckland.

TO BEEKEEPERS AND OTHERS.

THE beautiful hardy odoriferous long flowering biennial MELILOT free by post for present sowing, 1*s*. per packet.—J. ROGERS, Horticulturist, &c., Chelsea.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.
J. C. WHEELER & SON, Seed Growers, Gloucester.

NOTICE.

J. H. BIRD, FLORIST, of Stoke Newington, having offered in May, 1856, a 5 Guinea CUP for the best 4 Plants of his Marshal Pelissier Horse Shoe Scarlet Geranium, he is fully prepared to carry out that promise, but there being no show in June this year at the Palace, and having heard from several of his friends that the May Show would be too early, he would be glad if all those that are growing the plants for Exhibition would communicate with him as to about the time that would be more suitable, and then he would try and make an arrangement that would suit all parties.—May 23.

NEW AND RARE PLANTS.

ABIES KÆMPFERI

(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-lo-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21*s.* each; a few strong plants 12 to 15 inches high, imported from the North of China, 63*s.* The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21*s.* each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5*s.* Discount to the trade.

ARALIA PAPYRIFERA

(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7*s.* 6*d.* Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31*s.* each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63*s.* each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

Now ready for Distribution,

THE NEW SPRING CATALOGUE OF PLANTS FOR 1857.

MESSRS. E. G. HENDERSON & SON

Are now sending out their NEW PLANTS for the present Season, and with them the following:—

Æchmea spectabilis
Allamandra paraguayensis
Anæctochilus Eldorado
Ardisia crispa lutea
Arundo donax variegata
Azalea Roi Leopoldi
Begonia Billeteri
,, cinnabarina hybrida
,, nitida coccinea
,, Griffithi (picta)
Calceolaria Admiration
,, aurea floribunda
,, ericoides
Castanea chrysophylla
Chætogastra Lindeniana
Clematis glandulosa
,, Guascoi
Delphinium cardinale
Delphinium Queen of England
Dianthus albo nigricans
Dodecatheon integrifolia
Echites Houtteana
Eucharis amazonica
Fuchsia Lina von Mainz
,, Princess Royal
Gaillardia grandiflora
Genetyllis macrostegia
,, tulipifera
Geranium Auber Henderson
,, British Flag
,, Richmond Gem
,, var. Emperor
,, quercifolium floribundum
Gesneria Donckelaari
,, Miellezi
,, zebrina excelsa
Hedera macrophylla
Heliotropium aucubæfolium
,, Miss Nightingale
Iochroma Warscewiczi
Lobelia Texana
Lapageria rosea
Leptodactylon californicum
Passiflora Imperatrice Eugenie
Pentstemon cardinale
Petunia Gloire de Lyon
,, La Messange
,, La Perfection
,, Polydor
,, Gem of Suffolk var.
Phlox Drummondi cruciata
,, ,, Lord John Russell
,, ,, Lady John Russell
Polygala grandis
Primula sinensis alba pl. fimb.
Rose Bacchus
,, Victor Trouillard
Salvia Roemeriana, true (not porphyrantha)
Thunbergia laurifolia
Tradescantia discolor lineata
Verbena Dazzle
,, Moonlight
,, Madam Zondiac (striped)
,, Queen Victoria
,, Reine de Panachè
,, Souvenir de l'Exposition
,, Miss Trotter
Veronica Meldensis
Vriesia Psittacena
Wistaria frutescens magnifica
Weigela Middendorffiana

ILLUSTRATED BOUQUET;

CONSISTING OF FIGURES WITH DESCRIPTIONS OF NEW FLOWERS.

PART THE FIRST WILL CONTAIN COLOURED FIGURES OF THE FOLLOWING:—

ROSE.—ISABELLA GREY.
VERONICA.—DECUSSATA DEVONIANA.
BOUVARDIAS.—HOGARTH, LAURA, and ORIANA.
GERANIUMS, with Ornamental Foliage.—CULFORD BEAUTY, LADY OF LORETTO, FONTAINEBLEAU, ROYAL STANDARD.
VERBENAS.—LADY PALMERSTON, LADY TURNER, LADY FREDERICK FITZROY, LADY ALBINIA FOSTER, QUEEN OF OUDE, PRINCE OF PRUSSIA, SOUVENIR DE L'EXPOSITION, MARIETTA.
GLOXINIAS.—PRINCESS ROYAL, ROI DES BELGES, SIR HUGO, DONNA COLONNA, TARRAGONA, HELEN OF ORLEANS, MADAME PICOULINE, ELOISA, FULGENS, DIONYSIUS.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

AGRICULTURAL SEEDS (Carriage Free).

B. PAGE AND CO. have had the honour to supply for some years the MANGEL WURZEL, TURNIPS, &c., grown on the ROYAL FARMS at OSBORNE, and their Trade is considerable with Practical Farmers throughout the Kingdom, indicating first quality and strict market prices.

B. PAGE & Co. have great pleasure in stating that their STOCKS of SWEDES, TURNIPS, MANGEL WURZEL, &c., are, as usual, from select Transplanted Roots, grown by them in different districts, to avoid hybridisation, experience having proved that Turnips grown in close proximity, or repeated on the same land, causes general deterioration.

Present Prices, Carriage Free, to all Parts of England:—

SWEDE—Matson's Purple-top	per lb.	0*s.* 8*d.*
,, Lothian do.		0 8
,, Skirving's Imperial		0 8
,, Bullock's Heart		1 0
,, Green-top do.		0 9
TURNIP—Aberdeen, Bullock, or Scotch Yellow		1 0
,, White Norfolk		0 7
,, ,, Globe		0 8
,, ,, Tankard		0 10
,, Red ,,		0 10
,, Green ,,		0 10
,, Yellow ,,		1 0
,, Green Round		0 8
TURNIP—Lincoln Tom, large Early	per lb.	0*s.* 9*d.*
,, Red Round		0 9
,, Early Six Weeks		0 9
MANGEL WURZEL—Elvetham, Long Red		0 9
,, Fine Long Red		0 6
,, Orange Globe		0 6
,, Red Globe		0 7
,, Long Yellow		0 7
CARROT—White Belgian		1 0
CABBAGE—Drumhead		2 6
CLOVER, in sorts,		
RAPE, per bushel		14 0
RYE-GRASS, ITALIAN, &c.		

Special Contracts for large quantities.

AGENTS FOR "ODAM'S" BLOOD MANURE.

Joseph Blundell, Esq., of Bursledon, one of the most eminent Agriculturists in England, expresses his opinion of B. PAGE & Co.'s Stock of Orange Globe Mangel Wurzel in particular, "as the finest he has ever seen or grown."

Markets attended—Basingstoke, Botley, Bishop's Stoke, Chichester, Fareham, Romsey, Winchester, Ringwood, Southampton, Newport, I.W.

B. PAGE & Co.'s Stocks are so well known and appreciated that comment on their part is unnecessary, and their prices compete with any house in the Kingdom.

PERMANENT PASTURE AND LAWN GRASSES.

B. P. & Co. have laid down some thousands of acres most successfully, and very recently the PUBLIC GROUNDS of SOUTHAMPTON, of which the Surveyor to the Corporation has expressed his great satisfaction in a testimonial inserted in their Catalogue.

B. PAGE & CO., Seed Merchants and Growers, Oxford Street (adjoining Radley's Hotel), and above Bar, Southampton.

TO GERANIUM GROWERS, ETC.

GERANIUM TOM THUMB SUPERB.—This splendid Scarlet Geranium, far superior to Tom Thumb, of a fine bright colour, with flowers perfectly round, well adapted for bedding, and of a dry habit. Flowers of it can be seen at the Bedford Conservatory, Covent Garden, where Plants may be obtained at 9*s.* per doz.; or of GEORGE H. BUNNEY, Nurseryman, Stratford, Essex, E. Post-office Orders to be made payable at Stratford, near London.

GRAND EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER has the honour to announce that his matchless collection of Hardy Scarlet and other RHODODENDRONS will shortly be on view at the Royal Botanic Gardens, Regent's Park, London. From a fresh arrangement of the clumps, and enlargement of the exhibition ground, the forthcoming season will greatly exceed in gorgeousness any former year's display. Notice will be given when the plants can be seen in perfection.

*** The celebrated collection of Rhododendrons, choice Azaleas, &c., at the Nursery, is now coming finely into bloom, and will continue in great perfection throughout the month of June. We earnestly recommend persons interested in the cultivation of this truly noble class of plants to pay a visit of inspection, which can be readily attained by South-Western and Reading Railway to Sunningdale Station, where excellent conveyances meet all trains.

The American Nursery, Bagshot, Surrey.

ROLL TOBACCO RAG AND CORD.

JOSEPH BAKER, 5, Walcot Cottages, can supply Nurserymen with the above for Smoking Greenhouses at 1*s.* 4*d.* per lb., over 10 lbs. 1*s.* Post-office Orders payable at Kennington Cross.

THE TURNIP SOWING SEASON.—Many farmers are sowing M'DOUGALL'S DISINFECTING POWDER along with the seed to protect the seedlings from grubs. It is a perfect remedy.—A. HERRIOT & Co., 2, Great Scotland Yard, Whitehall, S.W.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

THE BEST AND CHEAPEST PAINT FOR PARK FENCING, BARNS, STABLES, ALL OUTSIDE WOOD AND IRON WORK, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past, by the West India Dock Company, for Fencing, Barges, &c. Recommended to the Nobility and Gentry, Stewards, Land Agents, &c.—Manufactory, Kennington Lane, Lambeth. Allowance on large orders.

PARK AND ORNAMENTAL BRIDGES.

THE IRON BRIDGE ASSOCIATION, 58, Pall Mall, London, manufacture and erect Iron Bridges, Landing Jetties, and Piers of every description. Plans and Estimates free of charge on application.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

GREENHOUSE SYRINGES, &c.

PATENT WATERING ENGINES, MACHINES, AND SYRINGES of every description, with the latest improvements. Manufactured only by

RICHARD READ, 35, REGENT CIRCUS, PICCADILLY, LONDON.

Descriptions sent Post Free.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.,

ALSO AS A PROTECTOR TO THE BLOOMS OF FRUIT TREES ON WALLS FROM FROST.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds. 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming Lawns .. 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND TURNIP SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, corner of Half-Moon Street, Piccadilly, beg to announce that they have still on hand a large supply of Grass Seeds for the following purposes. Mixtures for laying down Land to Permanent Pasture and Meadow. Mixtures for Park and Field Lawns. Mixtures for Cemeteries and Churchyards, Cricket Grounds, &c. Mixtures for Renovating and Improving old Grass Land. Fine Grass Seeds for Garden Lawns and Grass Plots.

TURNIPS.—Purple top Swedes; Skirving's Swedes. Gibbs' Green top yellow Hybrid; Red top Hybrid. Globes or rounds of sorts. Tankard Turnips sorts.

MANGEL WURZEL.—Long Red; Yellow Globe; Red Globe. All other kinds of Seeds for Farm, Kitchen Garden, and Flower Garden. Detailed Catalogues sent free by post on application.

THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

THE DAHLIAS FOR 1857.

CLARKE AND Co., SEEDSMEN & FLORISTS, 86, High Street, Borough, London, S.E., beg to intimate they have on sale a first class collection of DAHLIA PLANTS, which will be found as hitherto true to name. Catalogues are now published, and will be forwarded to any part free on application. Special care is taken in packing the plants, so as to insure their safe arrival to the most distant parts. Amongst the varieties sold by C. & Co., at 10s. per dozen, will be found the following scarce and first-rate kinds, viz.:—Lord Palmerston, Colonel Wyndham, Lollipop, Captain Ingram, Duchess of Wellington, Perfection, Yellow Beauty, Magicienne F, Inimitable F, Enchantress F; and the 4s. per dozen comprise such good old kinds as the following, viz., Pre-eminent, Annie, Admiral Dundas, Salvator Rosa, Lord Bath, Empress, Lady Folkstone.

Choice Bedding Plants from 3s. per dozen.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. PARKER for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Wilkinson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. PARKER's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

DAVID THOMSON, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1s. 6d. each, or 12s. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

NEW FUCHSIAS, VERBENAS, &c., OF 1856.

MITCHELL AND CO., Bristol Nurseries, Kemp Town, Brighton, are now prepared to send out good strong, healthy, bushy plants well established:—

FUCHSIAS of 1856.—Henderson's Charlemagne, Countess of Burlington, Conqueror, Admiral Boxer, Gloire de Neisse, General Williams, Prince of Wales, Donna Joacquina, Volcano di Aqua, Venus de Medici, Emperor Napoleon, Favourite, and Wonderful—6s. per dozen.

PETUNIA COUNTESS of ELLESMERE.—The best for bedding. Strong plants, 6s. per dozen.

PETUNIAS.—Turner's, Smith's; also the new striped French varieties, 6s. per dozen.

VERBENAS.—Turner's, Henderson's, and Smith's varieties of 1856. Good plants, 4s. per dozen.

DAHLIAS.—Turner's and Keynes' collection of 1856—our own selection, 12s. per dozen.

DAHLIAS.—All the leading varieties of older dates, 6s. per dozen, or six dozen for 25s.

LOBELIA SPECIOSA.—The best in cultivation, 4s. per doz.

BOUVARDIA LONGIFLORA ALBA.—The true sweet-scented variety, 12s. per dozen.

MEYENIA ERECTA.—Strong plants, 1s. 6d. each.

M. & Co can supply their usual selection of Bedding Plants at 25s. per 100 for cash only.—Post-office Orders are requested from unknown correspondents, made payable to JOHN FAIRBROTHER, at the Upper Bedford Street Post Office, Brighton. All Orders of 25s. and upwards are carriage free to London; or to any Station on the London and South Coast Railway, with plants to compensate for longer distances.—May 23.

THE CHAMPION SWEDE.

THE FOUR PRIZE CUPS presented by his Royal Highness Prince Albert to the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Associations in December, 1855, and December, 1856, were gained by our customers, G. Norrington, Esq., Joseph Hobbs, Esq., and John Nash, Esq., for fields of SUTTON'S CHAMPION SWEDE grown from Seed supplied by us. Price of Seed, 1s. per lb. or 50s. per bushel. Every kind of seed required for Farm and Garden at moderate prices. A remittance or reference to bankers requested with orders from unknown correspondents.

Goods delivered carriage-free except small parcels.

Five per cent. discount allowed for cash payments.

J. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.

27, Great George Street, Westminster, S.W.

GRASS SEEDS.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

THE GRAND WINTER GARDEN AT CHELSEA.

JOHN WEEKS AND CO., King's Road, Chelsea, have now completed this fine Conservatory, which is justly called the Second Crystal Palace of the day; it is a perfect masterpiece in the Horticultural Art of Building, Ventilating, and Decorating, as also in Heating by Hot Water. It exceeds the most sanguine expectations. The favour of a visit is most respectfully requested, where will also be seen, ready for immediate use, a great variety of Hothouses, Greenhouses, Conservatories, Forcing Pits, and the Hot-water Apparatus, adapted for every required purpose.

JOHN WEEKS & Co., King's Road, Chelsea.

DWARF ROSES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have still on hand to offer in large quantities, either singly, by the dozen, or the hundred, all the leading varieties of Roses on their own roots. Suitable for grouping from 9s. to 18s. per dozen.

They can also supply some dozens of ROSES in 32 and 24 sized pots for growing in Greenhouses or Conservatories now coming into bloom. Also strong Climbers for walls such as continue in bloom all the summer.

All the above are kept in pots during summer so as to be available at any time.

Catalogues of Roses, also Spring Catalogues containing a selection of Azaleas, Camellias, Greenhouse, Stove, and Climbing Plants, Orchids, Ferns, &c., may be had on application at the Nurseries, Great Berkhampstead, Herts.

ORCHIDÆ.

A SMALL COLLECTION of very choice ORCHIDS to be disposed of by Private Contract, consisting of—

Ærides	Calanthes	Odontoglossum
Angræcums	Dendrobiums	Oncidiums
Chysis	Lælias	Phalænopsis
Cœlogynes	Lycastes	and
Cattleyas	Miltonias	Saccolabiums,

in all about 181 Lots of the very best varieties in cultivation, a selection carefully made by a gentleman of great experience during the last 10 years; they are clean, healthy, and in fine condition.—For further particulars apply to Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW BEDDING PLANTS.

MESSRS. ARTHUR HENDERSON AND CO.'S CATALOGUE OF SOFT-WOODED AND OTHER PLANTS is now ready, and can be had on application to them. It contains a descriptive list of the most approved varieties of

Antirrhinums	Fuchsias	Petunias
Calceolarias	Geraniums	Phloxes
Carnations	Heliotropes	Picotees
Chrysanthemums	Hollyhocks	Pinks
Cinerarias	Lantana	Salvias
Dahlias	Lobelias	Verbenas

Also a separate List of the novelties for this season, including the new Dwarf White Bedding Dahlia, the new Muscat Hamburgh, the Golden Hamburgh, and the Bowood Muscat Grapes; specimens of new Holland Plants; an epitome of Stove Plants; Ferns and Greenhouse Plants, Ornamental Climbers, Variegated Plants, Miscellaneous Plants for the Open Border, and the new Yellow Tea Rose "Isabella Gray."

Pine-apple Place, Edgware Road, London, W.

NEW DWARF WHITE DAHLIA.

THIS exquisite very dwarf free flowering DAHLIA will be hailed as a valuable addition to our bedding collection. It grows from 2 to 2½ feet high, throwing its snow-white flowers, which are of a large size, well above the foliage in prodigious quantities and of fine form. Those who visited the beautiful Gardens at Trentham, during the summer of 1856, must have been highly gratified with the effect produced by this gem. Mr. Fleming, the gardener at Trentham, thus speaks of it:—"Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens."—Strong plants can now be had on application to

Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., Seedsmen to Eleven of the Principal Botanical Societies of the British and Continental Empires, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS (the twenty-second annual issue), forwarded free of charge and post paid to all parts of the world upon application.

JAMES CARTER & Co., Seedsmen, 238, High Holborn, W.C.

NEW FUCHSIAS.

JOHN AND CHARLES LEE have the satisfaction of offering the following remarkably fine NEW FUCHSIAS, which are very great improvements on all others in their respective classes:—

MRS. SIMPSON (LEE).—This magnificent show variety is a most abundant bloomer and of first-rate habit. The corolla is very large and of the richest purple velvet; the sepals are bright glossy crimson and reflex perfectly. It is considered by competent judges to be the finest dark Fuchsia yet flowered. Now ready, price 10s. 6d.

DANIEL LAMBERT (LEE) is an extra large flower of immense substance and good shape. Corolla, rich purple shaded. Sepals scarlet and slightly reflexed. The habit is bold and erect; nothing can exceed the multitude of its flowers, and it is certainly the largest of all Fuchsias. Now ready, price 7s. 6d.

Nursery, Hammersmith, near London.

NEW PLANTS.

JOHN AND CHARLES LEE have the pleasure to offer the following novelties, which they are prepared to send out, and which they guarantee are of superior excellence.

GERANIUM GENERAL SIR F. WILLIAMS (LEE).—This superb bedding variety is of the most intense scarlet combined with perfect shape. The habit is dwarf and very free, producing a succession of flowers in the greenhouse till Christmas. The foliage is bright green, and the general aspect of the plant is unique and beautiful. Price 5s.

VARIEGATED GERANIUM EMPEROR (LEE).—This is decidedly the finest variegated Geranium yet raised. It was obtained by a cross between the FLOWER OF THE DAY and the MOUNTAIN OF LIGHT, retaining the brilliant scarlet of the latter, with improved size and shape, and possessing the robust free growing habit and hardiness of the former. The leaves are flat with a broad silver margin; the variegation is constant, and the flowers being of good substance will bear exposure to the sun without burning, rendering it all that can be desired in a Variegated Geranium. Price 10s. 6d. The usual discount to the Trade.—Nursery, Hammersmith.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, May 23.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of RHODODENDRONS in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignus, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, May 23.

The Gardeners' Chronicle.

SATURDAY, MAY 23, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	May	25—Linnean (Anniversary)	1 P.M.
WEDNESDAY,	—	27—Society of Arts	8 P.M.
SATURDAY,	—	30—Crystal Palace Horticultural Exhibition.	

THAT the approaching Exhibition at Chiswick will possess unusually great attractions is now beyond all doubt. Preparations have in fact advanced far enough to enable us to give some idea of what may be expected.

One of the inconveniences formerly experienced was want of shelter. That has been provided against by removing the iron tent up to the principal entrance in the Duke of DEVONSHIRE's road, and by providing so considerable a number of tents that the garden will have the appearance of a horticultural encampment. The iron tent alone furnishes shelter for about 500 persons.

In addition to the usual Exhibition tents, the Great Conservatory has been converted into a magnificent glazed hall, beneath whose ample roof there will be a gorgeous display of the most valuable and delicate plants.

Not only are fine plants and fruit admitted to competition as heretofore, but the produce of the Kitchen Garden will find a place; an arrangement that must add greatly to the practical value of the meeting, as well as to its interest in the eyes of all who have gardens of their own.

The division of manufactured articles will be well represented, as may be gathered from the fact that entries had been already made last Monday of 24 boilers, 28 mowing machines, 35 sorts of pumps, 8 transplanting machines, about a dozen greenhouses and conservatories, or their models, to say nothing of tools, cutlery, bee-hives, philosophical instruments, and all sorts of miscellaneous articles. Of objects of decoration alone there are 24 exhibitors. French and Scotch as well as English manufacturers have secured space for various purposes. It is thus apparent that a very satisfactory beginning will be made of what it is to be hoped will be an annual trade display of ingenuity, skill, and

taste applied to horticulture; for which the large space available at Chiswick renders the Horticultural Society's garden far better suited than any place at the same distance from London.

The Garden itself will be in all its beauty, the turf in its utmost elasticity, and the flowers and foliage of early summer in their freshest and most brilliant condition.

Since the last Exhibition some material improvement has been made in the access to Chiswick. A station has been opened at Turnham Green, which will enable the North London Railway to bring visitors from the whole north of the metropolis, and even from Greenwich. And the Chiswick station of the South Western Railway has been brought within an easy distance in consequence of the Society having opened a new gate, which will admit visitors at once into what is called the American Garden, a very beautiful place lately reconstructed by Mr. M'Ewen. Special trains will be provided by both Railway Companies on each day of Exhibition; so that the Garden will be brought within the shortest possible distance from the metropolis.

A dispute between a market gardener and others in a parish not a hundred miles from London, leads us to think that the following statement of the Law of Streams, Water-Courses, &c. will not be without interest, especially since, in the case to which we allude, there can be no doubt that great injustice and we believe illegality also was committed.

Market gardeners and nurserymen whose grounds adjoin a stream of water are often prevented from deriving the full benefit from it in consequence of their ignorance of their own and their neighbours' rights. Questions touching the right to interfere with a flow of water are generally regarded as more than ordinarily abstruse and perplexing, and yet it will be found upon examination that, to a certain extent at all events, the law upon the subject is free from doubt and capable of being understood as well by non-lawyers as by lawyers.

A natural stream of running water belongs to nobody in particular. Every possessor of the land through which it flows has a right to use and enjoy it for his own purposes, provided he does not interfere with the similar right of the others, either above or below him. Hence a gardener or farmer may not only take a reasonable quantity of water for watering his plants or cattle, but he may divert it and use it for irrigating purposes provided he neither dams back the stream to the prejudice of those higher up, nor diminishes its quantity nor impairs its quality to the prejudice of those below. On the other hand, he has a right in his turn to have the stream flow past him in its natural quantity and quality, and if that flow be sensibly impeded, by being either dammed back or diverted, or if the stream is polluted before it gets to him, he has by law his remedy against those who thus infringe his rights.

Natural streams of water sometimes originate in a spongy, boggy piece of land, through which the water oozes, and down the surface of which it flows until it forms a defined channel for itself. After the water assumes the form of a natural running stream, the remarks already made are applicable to it. But until it assumes that form it may be diverted, or in other words the owner of the swampy ground may drain it, even though by so doing he may for the future prevent the formation of the running stream originating there. Oozings and mere surface water which have for ages flowed off in a given direction may be drained away in some other direction with perfect impunity; such water may be got rid of in any way most convenient to the owner of the land in which it is found.

Artificial watercourses stand on a somewhat different footing. If a person makes a drain to carry off water from his own land he is at liberty, if he likes, to do away with it or to divert the water from it; and the mere fact that the drain has existed 20 years and been useful to others by supplying them with water will not deprive him of this right. The drain exists for his convenience and not theirs, and they have no right to insist that he shall allow the drain to continue, simply because since he first made it they have found it advantageous to themselves. Disputes sometimes arise between millowners and miners on this subject. The miners drain their mine by pumping water into some cut or channel, and the quantity is so great and the fall so rapid that some mill owner puts up a wheel to be turned by it. This of course he has a right to do, but having done so he does not acquire any right to insist that the flow of water from the mine shall continue unabated and in the same channel as before; that rests with the miners as much after the wheel was set up as before, and as they are at liberty to stop their mining operations and supply no more water at all, so are they also at liberty to continue those operations and pump off their water in some other direction. So if a landowner makes a drain which carries water off his land in one direction, his neighbour who may have been thereby benefited is wholly without redress if the level of the drain be subsequently lowered or if some new drain be made, and the accustomed supply of water be thereby lessened or wholly stopped. In each of these cases the purpose for which the drains are created shows that they are liable to change, and if as soon as water began to flow through a new drain a right was acquired to have that flow continued, there would be an end of all improvements in draining. Again, as regards watercourses of the kind now in question, no one through whose land the water flows has a right to have it come to him; consequently any possessor of land through which such water passes may appropriate the whole of it and those below him are without redress. In this respect therefore the difference between natural and artificial streams is most important. The influence of time has not been hitherto adverted to, but we must not close these observations without reminding our reader that acquiescence for 20 years may have deprived a person aggrieved by an improper use of a flow of all the remedies which might otherwise be open to him. *Vigilantibus non dormientibus subveniunt leges.*

One word as to wells. It is quite clear that a person who sinks a well and thereby drains a natural stream to the injury of those through whose lands such stream formerly flowed does them a wrong for which there is a legal remedy. But if a person sinks a well in his own land and thereby draws off the water from a pre-existing well on my land, it seems that I am without remedy. In the first case the existence and position of the stream were patent and the well might have been so sunk as to avoid draining it, whilst in the last case until the second well was sunk there might be no reason to suppose that it would affect the one already in existence. This at least is the reason given by lawyers for the difference between the two cases. A man who drains water from his neighbour's well is said to be in the same position as he who plants out a magnificent prospect from his neighbour's windows. In each case there is ground for complaint, but in neither is there any redress.

Whether the reason is satisfactory or not it is no business of ours to decide.

New Plants.

201. Aërides Wightianum.

Lindl. in Wall. Cat. No. 7320. *Gen. and Sp. Orch. p.* 238. A. testaceum, *ibid.* Vanda parviflora, *Lindl. in Bot. Reg.* 1844, *misc.* 57. *Wight. ic. t.* 1669.

Mr. Charles B. Warner has sent us a fresh specimen of this pretty species, which is a native of Hindostan, especially the Concan, whence we have it from the collection of J. S. Law, Esq., and the Iyamally Hills, Coimbatore, from which locality Dr. Wight obtained it; it also inhabits Ceylon, whence it was sent by Macrae. It was first introduced by Loddiges in 1843, and flowered so very miserably at Hackney in the following year that its identity with A. Wightianum was not even suspected.

In general appearance it resembles the other garden Aërides, but its flowers are quite different. They form an erect raceme at the end of a common stalk, 5 or 6 inches long. The flowers have a faint honey smell, and are pure apricot colour except the lip, which is tipped with violet, cuneate, nearly entire, with a pair of strong parallel ridges running along the middle. It is very distinct from others.

DO FRUIT TREES DEGENERATE?

As this question has been opened afresh, it should not be allowed to rest until by careful investigation sufficient evidence is collected to convince the most doubtful. As you solicit information from your correspondents, I willingly contribute my mite.

It has never surprised me that the theory of the late Mr. Knight has met with many ready supporters. When orchard trees, through neglect, are allowed to get into a state of decay, it is an easy way of accounting for it, to say that the varieties are wearing out. Before Mr. Knight advanced his theory, it was the general belief that when a good variety of fruit was once originated from seed it might be continued by grafting and budding for ever. And this opinion is still maintained by the most distinguished physiologists. "Varieties," says De Candolle, "will endure and remain permanent, so long as man chooses to take care of them, as is evident from the continued existence, to this day, of sorts, the most ancient of those which have been described in books. By negligence or through successive bad seasons, they may become diseased, but careful culture will restore them, to all appearance, for ever." I at once admit that in the common mode of propagation, varieties are constantly liable to decay or become comparatively worthless; but I believe that this is owing not to natural limits set upon the duration of a variety—that it does not depend on the longevity of the parent tree, but upon the care with which the sort is propagated, and the nature of the climate or soil where the tree is grown. It is a well-established fact that a seedling tree, if allowed to grow on its own root, is always much longer lived and often more vigorous than the same variety when grafted upon another stock; and experience has always proved that in proportion to the likeness or close relation between the stock and the graft is the long life of the grafted tree. Thus a variety of Pear grafted upon a healthy Pear seedling lasts almost as long as upon its own roots; but when grafted on a Quince, it is comparatively short lived: this is well known to every practical gardener.

The apparent decay of a variety is often caused by grafting upon unhealthy stocks. For although grafts of very vigorous habit have frequently the power of renovating in some measure, or for a time, the health of the stock; yet the tree, when it arrives at a bearing state, will, sooner or later, suffer from the diseased or feeble nature of the stock. Carelessness in selecting scions for grafting is another fertile source of degeneracy in varieties. Every good cultivator is aware that if grafts are cut from the ends of old bearing branches, exhausted by overbearing, the same feebleness of habit will in a great degree be shared by the young graft. And on the contrary, if the thrifty straight shoots that are thrown out by the upright extremities, or the strong limb sprouts, are selected for grafting, they insure vigorous growth and healthy habit in the graft.

Unfavourable soil and climate are likewise powerful agents in deteriorating varieties of fruit trees. Certain sorts that have originated in a cold climate are often short-lived and unproductive when taken to warmer ones, and the reverse. This arises from a want of constitutional fitness for a climate different from their natural one.

Any or all of these causes are sufficient to explain the apparent decay of some varieties of fruit.

Having given this brief explanation of the degeneracy of races, I will now take a glance at the actual state of one of the so-called decayed varieties—the Ribston Pippin Apple—and see whether it is really extinct or on the verge of annihilation.

You have satisfactorily shown in the "Florist" for March that this much-esteemed Apple is not extinct in the south of England; and that it has not disappeared from Yorkshire I am prepared to show. I am now writing within three miles of Ribston, and I will show that although the original tree has disappeared, the variety has not ceased to exist. I cannot at present state the exact date of the disappearance of the original tree, at Ribston; but it is something more than 20 years. Mr. Abbott, the very able and intelligent gardener at Ribston, has a drawing of the original tree as it appeared about 30 years ago. It was then only the mere relic of a tree, nearly prostrate on the ground, and supported by props; it had scarcely any branches, and from appearances it was all but dead. Now, if this was the actual state of the original tree 30 years ago, it must have been *in extremis* many years before that time. I have been informed that this was actually the case.

If I have made the least mis-statement respecting the original tree at Ribston, I shall feel thankful to be corrected. On the spot where the original tree stood, there is now growing a young tree, said to be a sucker from the original. It makes pretty vigorous growth every year, but it can never attain a large size, for two reasons—first, because it has a bad crooked stem; and secondly, because it stands singly in a rather exposed situation. From the above it will be seen that the original tree totally disappeared more than 20 years ago; and it was *in extremis* many years previous, and that, according to Mr. Knight's theory, all the other Ribston Apple trees in Yorkshire had ceased to exist. I will now show that this is not the case.

There are at this place 12 Apple trees in a corner of what was once a large orchard. The greater portion was taken away upwards of 60 years ago, and planted with forest trees, principally Ash, Elm, and Sycamore. Many of these measure 12 and 13 feet in circumference within 1 foot of the ground. Of these 12 Apple trees, 7 are Ribston Pippins, and the other five are a small sort, the name of which I do not know. These Apple trees are considerably more than 100 years old, and they are still healthy and productive. Last year they had very few fruit; but in 1855 they bore a good crop of Apples. I that season gathered several bushels of fruit from these trees as perfect and as fine as any person could wish to see. There is at the present time, living within 300 yards of these trees, an old gentleman who has known them since 1804, and he assures me that they have increased little in size these last 53 years. He says they were old trees when he first knew them; and that they have borne crops of fruit ever since when Apples have been a crop in this neighbourhood. I see no reason why these trees should not continue to bear fruit for many years to come. They have never had anything done to them in the way of pruning. These are not the only Ribston Pippin trees in this neighbourhood. There are others to be found in every old orchard—in several to my knowledge. When Apples are a good crop, Ribstons of a superior quality can be bought in any of the market towns around here. This is proof that they

have not wholly disappeared. That the Ribston Pippin has gone to decay in many localities, and that young trees become diseased, are facts but too true; but I repeat that this is owing entirely to bad culture and propagation. There is no practical gardener who would expect a graft taken from, I will say, the original Ribston Pippin tree, when *in extremis* and put on to a bad stock, ever to come to a strong healthy tree: yet this is too common a practice. In general there is very little attention paid to the stocks, and much less to the grafts. Is it any wonder that we hear so much about the wearing out of races! No, it is only the results of our own bad management. When a variety degenerates through the want of proper culture, proper attention to the selection of grafts and stocks, and good culture, will restore it to its original vigour.

Though the original tree at Ribston has disappeared, and those in East Lothian have also ceased to exist, it is satisfactory to know that there are still many healthy fine old trees throughout the length and breadth of the land, and it is also satisfactory to know that the sort can be perpetuated in a healthy state as long as man chooses to do so, by properly attending to its propagation and culture. *M. Saul, in Turner and Spencer's Florist, Fruitist, and Garden Miscellany for May.*

VINE PROPAGATION.

Your suspicion that the propagation of Vines by means of the young growing wood is not a new idea is quite correct; for more than 20 years ago, when working in the gardens at Welbeck under the late Mr. Mearns, of Vine coiling notoriety, I propagated many Vines of the choicer kinds from the young wood, and that too by a process entirely different from that pursued by Mr. Fleming. My first inducement to try the system originated in the fact that the coiled branches of Vines when enveloped in Moss protruded their stem-roots, air-roots, or whatever roots you may please to call them, with great freedom into it, and some of these branchlets when taken off and potted made excellent independent plants. I noticed that roots were formed from the young as well as old wood, and hence the next move was to try independent cuttings. These were taken when about 6 inches long, some with a heel of old wood adhering, and others were heeled out, not cut from the old wood. Silver sand in those days was not only a scarce and dear commodity in that part of the country, but its use in propagation was but little understood, and hence the Vine cuttings were managed in this way:—A portion of Moss being placed in the hand, a cutting was placed upon it with its base surrounded by light turfy soil, and some more Moss being put over the soil it was tied into a compact little bundle, just on the same plan as Mr. Ferguson pursues with his "penny plants." The cuttings were then plunged in a nice growing bottom-heat, covered with a hand-glass, and produced roots in a very short time. In point of growth I do not recollect any difference being remarked from those propagated from ripened wood in the ordinary way, and I have in later years propagated quantities in the same way without remarking any peculiarity as to their growth or the want of it; indeed, if strong healthy short-jointed cuttings are selected, more especially if taken from the old wood, rooted quickly in a genial atmosphere, and grown on, I have not the slightest doubt but they will make plants quite as good as need be wished, and strong enough to fruit within 12 months if required to do so.

Laterals of strong Vines I have also used for propagation, making every leaf and bud into a plant by retaining the bud at the top, and severing it from the branch at the base of the internode, or just above the bud below it. This is a mere trick of multiplication, useful with new kinds, but not necessary when young shoots of the first growth can be got direct from the plant. Of course lateral plants cannot be so strong, and will decrease in strength in proportion as the plants, or rather parent plant, approach the maturity of that season's growth, but whether the weakness of a plant, even from a lateral of the third generation, will become constitutional and extend beyond the first season is a matter of very considerable doubt. In my opinion it will not, for though a Dahlia, a Verbena, or other soft-wooded plant may by excessive forcing and propagation become weakened in vital energy for a season, yet I believe, if the weakest of the exhausted plants is placed under circumstances suitable for the accumulation of energy, or, in other words, is properly grown, cuttings taken from such a plant will be as strong as those taken from the foster parent. You will please to observe I am speaking of cuttings, and in the case of a Vine or other hard-wooded plant I presuppose a perfect maturation of the first season's wood. When plants are propagated from seed, then I grant degeneracy may be transmittable; in fact the wide-spread mischief among our culinary and agricultural seeds is mainly, if not entirely, attributable to this cause. All gardeners know that Lettuce, if well grown, rarely produces much seed; but sow the same kind on poor ground, the plants rush up thickly, and you get seed in comparative abundance. Again, Mr. Cheap does not like to waste substance by planting selected bulbs of Mangel or Turnips, but he sows possibly under the protection of an old garden frame in September; these plants are put out in the spring, and soon start for seed. But what is the result? He is converting a biennial into an annual plant; a plant which under proper management requires one season for the maturation of its bulb, and a second for the production of seed, is made to produce seed by autumn sowing in a few months, and as like begets like in the vegetable as well as animal kingdom, this degeneracy manifests itself in the next generation, and hence the complaints of crops of Mangel and other bulbs running to seed.

Reverting again to the degeneracy of cuttings, those who are acquainted with the propagation of hard-wooded plants know that in the case of such things as the stronger growing Heaths, as the varieties of favoides, pinea, vestita, &c., it is impossible to strike them unless the cuttings are what propagators call "wire-drawn;" that is, instead of being taken with their characteristic strength the plants are placed in heat and the cuttings drawn out until they are not thicker than a knitting-needle. This process of weakening has been going on for years, and yet under a proper accumulative system of cultivation, no weakness, no degeneracy is perceptible. The same, I have no doubt, will be the case with Vines from laterals; they may be weak for a season, but that weakness will not become constitutional, nor will it, under proper management, extend beyond the first year of the plant's growth. *A. P. W., Orchardleigh Park.*

VEGETABLE PATHOLOGY.—No. CLXI.

663. Parasitæ (*Pyralis vitana, Vine Moth*). The little insect which is the subject of the present notice is not a native of Great Britain, or if so, sufficiently rare to attract little attention. Its ravages however in France have been so serious and the means employed so effectual towards its suppression within tolerable bounds, that it affords a good example of what may be done in horticulture by a knowledge of the habits of the insects which often prove so severe a scourge. I have already noticed the more prominent cases of real parasites, and it would extend the series of papers on Vegetable Pathology too far to enter at greater length upon the subject, even if I felt competent for the task or had many original observations to bring forward.

664. It is now some 30 years since the Vines in certain districts of France were almost annihilated by a little moth, the larvæ of which preyed in myriads on the leaves and young shoots. It was fondly hoped at first that the plague was only septennial, but experience soon showed the futility of this hope. Unlike the Vine mildew, the plague affected more especially those Vines which were kept short or "en souche," while those on trellices "en treille" were comparatively free, a circumstance which on close examination received its explanation from the habits of the larvæ.

665. The eggs are laid by the moths upon the leaves in little patches in the month of July; the larvæ soon make their appearance, and at once commence their ravages, which they continue till they are compelled by the increasing cold to take shelter either under the loose bark of the Vine, or under that of the stakes to which the Vines are attached, where they weave a slight silken web, and pass the winter collected together in groups. They come forth from their winter's inactivity on the return of genial weather, destroying everything about the Vine which is green and tender, after which they assume the state of a chrysalis amongst the remains of the leaves and appear in their perfect condition in June, and are ready to lay their eggs in July.

666. Taking the habits of the insect then into account there are two conditions under which it may be advantageously attacked; first in the state of eggs, in which condition a little examination of the leaves will enable an active and intelligent hand to destroy myriads in the course of a day; or, secondly, the larvæ may be attacked after they are hatched when congregated under the bark of the Vine or stakes. The stakes should not be used a second time without careful scraping, and the destruction of the loose bark which has been removed from them. The stems themselves again may be stripped of all loose bark; but a far more efficient and less hazardous method was proposed by M. Raclet, viz., to wash all the principal branches of the Vines with hot water, which, while it destroys the larvæ and many other insects collected beneath the bark, has not the slightest prejudicial effect upon the bud or upon the general health. It is said that an active person can cleanse 800 Vines a day, and therefore the process is not attended with any serious expense. The two processes carried on in their respective seasons will soon check the evil where it is most prevalent. It is to Monsieur Audouin that the knowledge of the true habits of the insect are due, and his life was ultimately sacrificed to his zeal in procuring information respecting this and other insects by which the vineyard is affected.

667. The lesson to be learnt from this and other diseases which are dependant upon parasites, whether animal or vegetable, is most important. It is simply that in our treatment of the maladies of vegetables as well as those which affect our own frame, we should not trust to chance or mere empiricism, but as a first step, we should study as intimately as possible the nature and habits of the organisms which produce the disease. And to this end, science must be the helpmate of practice, to enable the cultivator to observe and distinguish accurately. A knowledge of the cause of disease is a step more than halfway towards its cure, and thus the student in the obscurest branches of science, against which utilitarian objections may most readily be urged, may prove a real benefactor to his fellow-men.* *M. J. B.*

* Consult on this subject Audouin in Ann. des Sc. Nat., sér 2., vol. viii; Histoire des Insectes nuisibles à la Vigne. Westwood in *Gard. Chron.*, June, 1847.

Home Correspondence.

Rhododendron argenteum and others.—As I hear that this is believed never yet to have flowered in England, pray allow me the pleasure of saying that it has done so at Morval, the seat of John Francis Buller, Esq., in Cornwall, in the month of March last, and such was the stoutness of the flower that it continued in beauty for fully a month. The truss had eight fine white flowers, averaging each about 2½ inches across the mouth; they were of a beautiful waxy white, and the stamens spreading out around the interior of the flower something in the way of those of a Kalmia; the shape of each flower was that of a shallow cup with scarcely any tube, from the scales being persistent the truss was very erect and compact, and was altogether a beautiful sight. Rhododendrons Dalhousiæ and Edgeworthi are now in flower in many places in the neighbourhood, and prove themselves well worthy of the interest they have excited in the gardening world. I measured one of the flowers of Edgeworthi (of a truss of four) which was 5¼ inches in diameter at the mouth, and was exceedingly sweet scented and of the purest white, making a lovely contrast to the fine rough, dark, rich green foliage. Ciliatum and glaucum are both exceedingly pretty dwarf varieties, the latter something in appearance like Apple blossom, and making a beautiful addition to a bouquet. If Hodgsoni and Wrighti, fulgens and Thomsoni prove equally fine as those already mentioned, they will indeed be most valuable additions to our collections of hardy evergreens, though I ought to mention that those I have mentioned, except ciliaris and glaucum, were flowered in the greenhouse, though Edgeworthi has stood the winter quite unprotected. *Derru.*

Wistaria (Glycine) sinensis.—Let me call attention to a plant at Tooting, Surrey, which covers a two-storied house up to the coping with flowers as thick as Ivy leaves. As it is close to the road there is no difficulty in finding it. Whilst at Tooting you may look in at a Mr. Mac Something's front gate (near the new church) to see some most beautiful Rhododendrons now in perfection. *Somerset.*

Great Central Rose Show.—The proposal of "S. R. H." in last week's *Chronicle* that Rose amateurs should have a grand exhibition at some central situation, such as Rugby, is an excellent one, and I am sure most acceptable it would prove to all lovers (and are they not innumerable?) of that noble flower. Pray lend us your powerful aid in furtherance of such a praiseworthy design. The exhibition should take place quite early in July, and I will only add that my 1*l.* is ready at any time the subscription may be called for. *Alpha.*

Large Yew Tree.—The following account of a Yew tree growing in the churchyard of Broughton Hackett, in this county, may interest yourself and readers. The girth of the stem at 5 feet from the ground is 14 feet 7 inches, and at 3 feet from the ground about 14 feet 3 inches. It is perfectly hollow, and was much injured by a high wind in the autumn of 1841, at which time the branches were very long and spreading. To save the tree from any further injury from the wind playing on the long arms, the then rector had them all shortened back almost to the stem of the tree, since which time it has formed a new flourishing head. There is a tombstone in the churchyard in memory of a Mrs. Edwards, who died in the year 1800, aged 91. A nephew of that lady told me that she had told him that when she was a child she used to play in the hollow of the old tree, which as regards the stem was much the same at that time as at present. Am I justified in supposing the tree to be 1000 years old? *Wm. Sherwood, Rector of Broughton Hackett, White Ladies, Aston Vicarage, Worcester.* [It is possible.]

Monster Apple Blossom.—A very curious monstrosity grew on an espalier tree here, and was first noticed about the middle of March, when the trees were being pruned; it then much resembled one of those large sappy excrescences produced by the American bug. Early in April thin cankerous scales were thrown off from the edge, when small swellings, like scaly seeds, were to be seen; these proved to be flower buds, which notwithstanding their smallness have produced flowers quite as large and perfect as those from ordinary floral buds, and I have no doubt that if they were not disturbed fruit would have set. I am unable to discern any immediate cause for such a production, neither do I suppose there is any, it being a mere accidental malformation. *F. Symons, Carclew, Cornwall.* [This is a case of a deformed half-fasciated stem covered with flowers.]

Curious Oaks.—In my letter to you last week describing the very large Oak in Sir George Jenkinson's Park at Eastwood, I forgot to mention a very important item of its size, viz., that the circumference of the spread of its branches is exactly 100 yards. It is so well and evenly spread, and still so fresh and vigorous in its foliage, that its branching limbs are most of them equal to large trees in size. I hope a photograph publication of all the curious Oaks in England may be undertaken. *A Subscriber.*——In looking over a number of books belonging to our old master of the hounds—now dead, I am sorry to say—a quarto edition of Evelyn's Silva, dated 1786, turned up, and in one of the volumes is an excellent wood engraving of the Cowthorpe Oak as it stood in the year 1776. There is a celebrated Oak called the Nonnupton, about four miles from Ludlow, burnt down by accident, owing to a workman striking the ashes out of his pipe without thinking among a

quantity of dried leaves in the interior, where he had taken refuge from a severe storm. The fire broke out in the night, long after he had left, and as it was on a steep hill, and no water near, of course it fell; still it is a splendid wreck yet. And there are five or six most venerable monarchs of the forest nearly in a circle, called from time immemorial "the Druids' Oaks," in the pleasure grounds of the Hon. Robert Windsor Clive, Oakley Park, near Ludlow. Should the admirable suggestion of photographing all the celebrated trees in England be carried out, I would suggest that the head paper in each county be written to to collect all information on so important a subject, and there cannot be the slightest doubt but that the noblemen and gentlemen who are the fortunate possessors of those precious reliques of antiquity will gladly avail themselves of the chance of getting perfect fac-similes of the venerable patriarchs before time levels them with the dust. *F. N., Ludlow.*

Eucnide bartonioides.—Not having seen any previous account of the readiness by which this pretty annual may be made to flower all through the winter, perhaps it may not be uninteresting to state a few particulars concerning it. I saved some seeds last April twelvemonth, and placed the seed-pan in a shady part of a Vinery, where they were very much neglected, and scarcely any notice taken of them for two or three months. They were then potted singly into 4-inch pots in soil composed of turfy loam, leaf mould, and sand, and placed in a more congenial situation in a light airy part of the stove. Here they soon began to flower, and have continued to do so ever since they were kept in a cool stove during the winter, and their numerous pretty yellow star-like blossoms have a very pretty effect during the dull months when flowers are scarce. I have just shifted them into larger pots, and they appear as healthy and vigorous as ever, and promise to be objects of great beauty during the summer. *Viola.*

Large American Oak.—I cut the following from a Canadian paper received this morning. It will give some idea of the magnitude of a large Oak growing in North Carolina:—"There is said to be an Oak tree near Raleigh, N. C., which at the sun's meridian covers with a shade 9000 feet. It would afford shelter for 4500 men." *Geo. S. Rogers.*

Slugs.—

* * * * "Nihil est ab omni parte beatum."—Q. H. F.

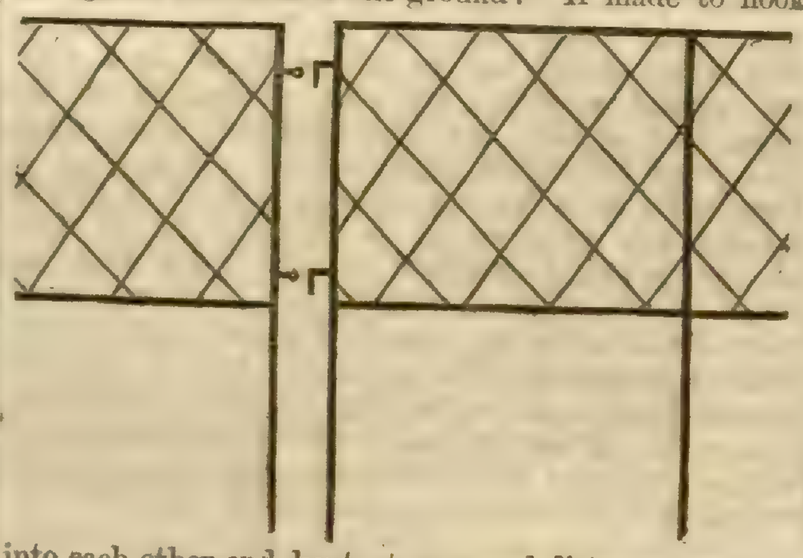
I suspect all gardeners have too often proved the truthfulness of the above shrewd remark of my good friend Horace. Your correspondent "J. R." evidently has. When I saw his appeal some time ago, I thought there would be so many responses to it that I refrained from writing down my experience in slug warfare, supposing it would be superfluous; but as he seems so little satisfied with the various methods for destroying slugs hitherto suggested, I thought it would be as well to state the remedy I used and its results. I entered on a garden which had been in the possession of two ancient ladies for nearly 30 years: there was no resident gardener, and the place was literally thronged with snails and slugs. I one night picked up 72 large snails within an area of 1½ feet. At first I set about hand-picking them; but this system was not sufficiently expeditious. I then resorted to what I believed, and found to be, the best remedy—lime. Many practical men expressed in last week's *Chronicle* the same opinion. I used to choose a mild quiet night, when these gentry show out most, and then strew quicklime smartly all over the garden, dashing it about slantways, so that not half a foot escaped out of the whole. Remember I say night, not evening merely, as some slugs dine at very aristocratic hours. I did not commence liming generally until 10 or 11 P.M. I'll warrant not one escaped that was out that night; for I said to myself—"Give them plenty; never mind the expense," as the man observed when pouring water into the teapot. This I did occasionally, and I was never afterwards plagued with slugs, although of course I never thoroughly exterminated them; still I could go to bed in peace, feeling that my choicest things were safe. I cannot at all understand how it is that "J. R." does not find lime effective. Perhaps that used by him was not quick; if it has absorbed too much moisture slugs can crawl over it with perfect immunity from injury, but I will guarantee that no slug shall be alive five minutes after he has been properly dosed with quicklime. There is but one objection to the lime, and that is, as "J. R." observes, its unsightliness. That must be remedied by raking and forking over the ground. Remember what Horace says:—"Nihil est ab *omni*." Now, with regard to the slow-worm, I believe it is a fallacious remedy. He would not stay a week in a place for which Nature had not fitted him. As for the windhover, I am not quite certain, but I do not think he would eat slugs. I have kept as many as four at a time; and although I found them fond of snails, I never saw them take slugs. Concerning the keeping of the gull, if "J. R." asked my advice I should say at once "Don't!" I tried three, and although I used occasionally to keep them without food until they were very hungry just to prove their efficiency, I always found them resolutely reject both snails and slugs. Besides this, the gull always chooses some particular spot for his abiding place; it may be in the centre of your choicest beds, and with his palmate feet he soon makes it very like a well trodden path. One would scarcely believe that the light weight of the bird would tell so detrimentally on the borders. I cannot quite agree with "J. R." in his supposition that he suffers "from the continuous hatching of eggs long since buried in the soil." Would they retain their vitality over one season? Let me then recommend perseverance with lime, and I am sure that by and bye the foe will be conquered. And in the good company of such an efficient ally I leave "J. R.," with my best wishes for his success.

——— "I, pede fausto,
Grandia laturus meritorum præmia."—Q. H. F.

—*Priapus, Oakham.*——An old Cornish friend of mine has communicated the enclosed cure for slugs and worms as a certain remedy:—"Lime water and carbonate of potash much diluted, and used with a watering pot at night—it seems to dissolve them." Of course it will require a few experiments to ascertain the precise quantities that will destroy animal life without injuring vegetation. *F. N., Ludlow.*

Hot water Boilers (see p. 345).—In acknowledging the acceptance of our public challenge by "J. M." we agree that the trial shall be under the control of the Horticultural Society, and are ready to test our one boiler against whomsoever else may be inclined to compete with us, at such time and place as the Society may appoint; and we beg to be allowed to make a few suggestions. We are willing to test boilers of various sizes; but we do not think that very small ones should be selected for the purpose—we say that 2000 feet of 4-inch pipe is the smallest quantity to which any of the boilers should be attached, and if it were 10,000 feet so much the better—the latter quantity will be absolutely necessary for the larger boilers. It may well be thought that there will be a difficulty in finding so much 4-inch pipe already fixed that would be available, unless Sir William Hooker would allow us to make the trial of heating the large Palm-house at Kew Gardens—in that there is about 15,000 feet of 4-inch pipe; we will undertake to fix one boiler which shall effectually heat that noble structure. But should that not be conceded too, and that there be no other establishment which affords the necessary facilities, it will not be difficult to find a tank which would hold 10,000 gallons of water. There let us fix our boilers side by side, as many as like to compete—of course each boiler to be tested separately, the fuel carefully weighed, the heat of the water registered hourly; each boiler should be tested continuously for at the least three or four days, for it is not only the power of attaining the greatest heat in the shortest time with the smallest quantity of fuel, but to ascertain which boiler will maintain the greatest heat for the longest time without attendance to the fire. Each competitor to defray all his own expenses, and also to pay down such a sum as the Horticultural Society may think sufficient to liquidate all charges, except the champion, who will deserve to be crowned with Laurels and pass Scot free.—*John Weeks & Co., King's Road, Chelsea, May* 19.

To keep Sparrows off Early Peas.—I have had my Early Peas much damaged by sparrows this season; I therefore covered the rows with netting, elevated on Birch twigs, and pegged down on either side, but wherever the net happened to get near the Peas, sparrows still pulled them up, also early-sown Lettuce, Cabbage, &c. I likewise tied white worsted over some drills of Mustard and Cress, and in a few hours after both sparrows and green linnets were hopping along the worsted as bold as ever, still destroying the seeds. I think we must therefore have a more impudent breed of sparrows than your correspondent "R. C." While on the subject of Peas, let me ask if there is any serviceable substitute for Pea sticks, which in some neighbourhoods, and this particularly, are difficult to obtain. Would not something after this plan answer, if made of wire, with stays or uprights at certain distances to strengthen and stick in the ground? If made to hook



into each other and kept at an equal distance apart at the top, I think they may be made to answer the purpose perfectly. *J. S., Gardener to W. Harter, Esq., Hope Hall, Manchester.*

Societies.

Royal Botanic, Regent's Park, *May* 20.—The Society had a good exhibition on this occasion. Stove and Greenhouse Plants were numerous, and generally in good condition. Roses were excellent, especially the collection from Messrs. Lane, and Cape Heaths good of their kinds; Azaleas and tall Cacti, with one or two exceptions, were however deficient in size and striking effect. This remark is only applicable to them in the shape of collections; for in several of the Miscellaneous groups were specimens which for size and beauty could not be surpassed. The number of visitors was 7238.

Collections of 16 Stove and Greenhouse Plants were furnished by Mr. Whitbread, gr. to J. H. Colyer, Esq.; Mr. Green, gr. to Sir E. Antrobus, Bart.; Mr. Taylor, gr. to J. Coster, Esq.; and Mr. Hamp, gr. to J. Thorn, Esq. The plants in Mr. Colyer's group were mostly large in size and beautifully in flower. Among them were Ixora coccinea, Gompholobium polymorphum, a handsome bush very different from the same plant stiffly trained over a wire-trellis to "a face;" Leschenaultias, the handsome Swan River Boronia Drummondi, loaded with rich rosy blossoms; Pimelea Hendersoni and spectabilis, a huge Epacris, Chorozema varium, Azalea optima and variegata, Ixora javanica, Everlastings, Eriostemons, Rondeletia speciosa, and an immense Cavendish Heath. Mr. Green had two very fine Azaleas, one of the smaller kinds of Acacias which accommodate themselves to pot culture; Pimelea spectabilis, Chorozema Lawrenceanum, Franciscea calycina, Tetratheca verticillata and ericifolia, the last a very desirable lilac kind; Erica depressa, Boronia Drummondi, Polygalas, and Heaths. Mr. Taylor sent Everlastings, Pimelea spectabilis, Ixoras, Erica elegans, Polygalas, Eriostemons, and Boronias. Mr. Hamp's plants were small, and not very different from what have just been named.

Among collections of 10 Stove and Greenhouse Plants was a beautiful group from Mr. Barter, gr. to A. Bassett, Esq., of Stamford Hill. It contained a magnificent Azalea coronata, literally a ball of purple blossoms, quite 7 feet in diameter; a yellow Heath of nearly equally gigantic dimensions, huge Eriostemons, Pimelea spectabilis, the rosy P. Hendersoni, Franciscea confertifolia, perhaps the most showy of that genus, and the Lawrence Chorozema. Mr. Dods, gr. to Sir J. Cathcart, Bart., had beautiful plants of Pimelea spectabilis, a yellow Heath, an Everlasting, Eriostemon myoporoides, Boronia pinnata, Polygala acuminata, an Epacris, a double red Azalea, Chorozema varium, and a large yellow-flowered Gompholobium. Mr. Peed, gr. to Mrs. Tredwell, contributed Pimelea spectabilis, a depressed cone of flowers; the Heath-leaved Tetratheca, an Everlasting, Erica depressa, Allamanda grandiflora, Polygala acuminata, and Boronia pinnata. Mr. Clarke, gr. to Mrs. Webb, of Hoddesdon, sent Adenandra fragans, the Oleander-leaved Eriostemon, and Pimelea Hendersoni and spectabilis. Mr. Carson, gr. to W. F. G. Farmer, Esq., furnished the Intermediate Eriostemon, Azalea triumphans, the rosy Adenandra fragrans, an Everlasting, Polygala acuminata, Pimelea spectabilis, Ixoras, and Heaths. Mr. Baxendale also furnished a collection.

Exhibitions of six Stove and Greenhouse plants were supplied by Mr. Rhodes, gr. to J. Philpot, Esq., Mr. Williams, gr. to Miss Trail, Mr. Peed, and Mr. Morris. In the first group were Chorozema Henchmanni, gracefully trained, and skilfully grown; Tetratheca verticillata, Hovea Celsi, Dracophyllum gracile, a very useful plant for cutting from, Pimelea spectabilis, and the buff Erica Albertus. In the other collections were some well grown plants not different from what have already been named. Some of them were however hardly sufficiently in flower.

In the nurserymen's class of 12 Stove and Greenhouse plants the exhibitors were Messrs. Cutbush and Fraser. The former sent Statice Holfordi, different kinds of Heaths, Pimeleas, Polygalas, Boronias, and Dillwynias. In the Messrs. Fraser's group were Medinilla magnifica, and Sempervivum lineolare, the last a charming plant literally covered with starry golden yellow blossoms, rendering it justly an object of great admiration.

Orchids as a whole were not so fine as we have seen them at former shows. One exception however was a collection from Mr. Gedney, gr. to Mrs. Ellis, which was in all respects excellent. It contained very fine plants of Dendrobium nobile, the Rhubarb-scented D. macrophyllum, D. densiflorum, D. albo-sanguineum, the white Butterfly plant (Phalænopsis amabilis) magnificently bloomed, Cattleya Skinneri and Mossiæ, Phaius Wallichi, Lælia cinnabarina and L. purpurata, a glorious species with large pure white blossoms deeply edged with purple, and Vanda suavis. Mr. Carson, gr. to W. F. G. Farmer, Esq., had Acanthophippium bicolor, carpeting the surface of the pot with blossoms; Saccolabium guttatum, a very finely-bloomed Lady's Slipper, Anguloa Ruckeri, with upright Tulip-like flowers; Vanda teres, beautifully bloomed; Dendrobium speciosum, D. nobile, and Miltonia stellata. Mr. Woolley, gr. to H. B. Ker, Esq., sent the charming Dendrobium Farmeri, D. Paxtoni, D. lituiflorum, Cattleya amethystina, and C. intermedia, Gongora truncata, and the orange Epidendrum rhizophorum.

Collections of 12 Orchids came from Mr. Clarke, of High Grounds, Hoddesdon; Mr. Keele, gr. to R. Butler, Esq., of Woolwich, and Mr. Morris. In the first group were plants of Dendrobium albo-sanguineum, buff with dark crimson blotched throat; D. tortile, D. nobile, D. densiflorum, and Cattleya Mossiæ. Mr. Keele sent Trichopilia coccinea, Lælia cinnabarina, the Feildingi, Fox Brush (Aerides Feildingi) and Vanda suavis. Most conspicuous in Mr. Morris's group were Lycaste Harrisoniæ and Phaius grandifolius, the last a very fine specimen.

Groups of 6 Orchids came from Messrs. Dods, Green, Grix, and Dedman. In these collections were Dendrobium densiflorum, D. nobile, Lycaste Barringtoni, the singular Cœlogyne Lowi, Dendrobium nobile, Lycaste Harrisoniæ, and Oncidium Lanceanum.

Groups of 16 Orchids were furnished by Messrs. Parker and Jackson. Among these were Dendrobium lituiflorum, D. Devonianum, the yellow D. Jenkinsi, Cattleya Mossiæ, Oncidium ochroleucum, Chysis bractescens, and Lælia Brysiana—the last like L. purpurata, but larger and extremely handsome.

Of Azaleas, the best groups came from Mr. Turner, of Slough, Mr. Bray, gr. to Baron Goldsmid, and Messrs. Ivery, of Dorking. Mr. Turner's plants were well grown and beautifully flowered. They consisted of Murryana, Minerva, Beauty of Sunning Hill, variegata, optima, and arborea purpurea—the last with large purple blossoms having an agreeable dash of violet in them. Mr. Bray had standards which were much admired. The sorts were purpurea superba, Sidonia, Napoleon, variegata, and exquisita. Among Mr. Ivery's plants were Duke of Devonshire, Iveryana, delicata, and a white and red kind united in one plant. "Unions" of this description are now coming into favour, and deservedly, for they have a very pretty appearance. Messrs. Clarke, Cutbush, Fraser, Gaines, Peed, and others all showed well bloomed small plants of kinds whose names have often been recorded in our columns.

Tall Cacti were contributed by Messrs. Green, Grix, and Mortimer. They were small plants and therefore made comparatively little display. Mr. Green had some well bloomed varieties, chiefly of Epiphyllum speciosum, and we also noticed a white sort, apparently E. crenatum.

Roses in pots were produced in excellent condition. Messrs. Lane's specimens were at least 5 feet in height, pyramidal, and well furnished with large finely developed blossoms. The only observable fault was that the colours were too much alike, a circumstance doubtless attributable to the shading they had received. Among them were Lamarque white, Lion des Combats deep crimson, Chenêdolé deep rose, Duchess of Sutherland, Comte Molé, Paul Perras, Queen, and Coupe d'Hébé. Mr. Francis sent Souvenir d'un Ami, a glorious kind, Nephetos, Goubalt, Géant des Batailles, Aubernon, Souvenir de Malmaison, Baron Prevost, and Chenêdolé. In the Amateurs' Class the best varieties were contributed by Messrs. Terry, Busby, and Rowland. Among these we noticed Paul Ricaut, Chênédolé, Madeleine, Paul Perras, William Jesse, Baron Prevost, Blairi No. 2, and Queen. These were all beautifully bloomed, and the foliage unusually clean and healthy. Messrs. Paul and others showed small plants in pots, all of which were much admired.

Cape Heaths came from Messrs. Cutbush, Glendinning, Williams, Peed, Rhodes, Taylor, Harlock, Whitbread, and Green. Among the varieties we noticed the pretty E. Spenceriana, a new kind so named by Mr. Glendinning, capital bushes of Hartnelli, the buff variety called Albertus, metulæflora, different sorts of ventricosa, Cavendishi, perspicua nana, elegans, vestita rosea, fastigiata, and other well-known kinds.

New Plants were not very numerous. Messrs. Veitch showed the large white-flowered Rhododendron Veitchi, produced for the first time at the Horticultural Society's last meeting in Regent Street; the same firm also had a white Ixora, and the handsome Gesnera Miellezi. Mr. Standish sent a handsome hybrid Rhododendron named limbatum; it had flowers pale pink in the throat deeply edged with crimson, the two colours contrasting well together, and producing a charming effect. Mr. Glendinning sent handsome examples of the new Chinese Larch (Abies Kæmpferi), a large plant of the charmingly variegated Farfugium grande, the Rice-paper plant (Aralia papyrifera), a Statice called macroptera, a Dammara, and Limonia trifoliata. Mr. Gaines contributed a pale sulphur-coloured Rhododendron, which promised to be an acquisition. Messrs. Jackson, of Kingston, showed a pretty variety of Cypripedium, and Mr. Parker a Cattleya in the way of intermedia; Rhododendron Edgeworthi came from Messrs. Lane, and Messrs. E. G. Henderson had the following Conifers, viz., Cupressus Lawsoniana, the rare Mexican Chamæcyparis thurifera, and another species of Chamæcyparis, Pinus Bungeana, and a Norfolk Island Pine—variegated here and there with white on the points of the branches.

Of Miscellaneous plants the last named firm had a collection in which were the new variegated Tradescantia discolor and other things remarkable for fine foliage. A small group of hardy variegated plants came from Mr. Salter, of the Versailles Nursery, Hammersmith. A collection of handsome Amaryllids from Mr. Hamp, gr. to J. Thorn, Esq. From Messrs. Henderson, of Pine-apple Place, also came a collection of miscellaneous plants.

Pelargoniums were shown in about their usual quantities and in first-rate condition. In the Nurserymen's Class Mr. Turner had excellent plants of Lord Raglan, Lucy, Viola, Zeno, Una, Wonderful, Sanspareil, Carlos, Governor-General, Saracen, Rosamond, and Majestic. Mr. Dobson sent Euphemia, Governor-General, Lucy, Rosamond, Arethusa, Rosa, Sanspareil, Fandango, Clara, Leah, delicatum and Carlos. Messrs. Fraser produced Sanspareil, in admirable condition. In the Amateurs' Class Mr. Nye, gr. to E. Foster, Esq., of Clewer, sent Wonderful, Conqueror, Una, Sanspareil, Carlos, Saracen, Fair Ellen, Purple Perfection, Queen of May, and Lucy. Mr. Wiggins, gr. to E. Beck, Esq., had the next best collection in point of merit; it consisted of Euphemia, Arethusa, Fanny, Laura, Lætitia, Lucy, Mr. White, Gem of the West, Black Prince, and Companion. Of Fancies Mr. Turner had magnificent specimens of Lady Hume Campbell, Cloth of Silver, Madame Sontag, Lady of the Lake, Celestial, and Evening Star. Among Messrs. Fraser's were good plants of Advancer, formosum, Jenny Lind, and Gaiety. In the Amateur Class Mr. Bousie, gr. to the Right Honourable — Labouchere, had Madame Sontag, Princess Marie Galitzin, formosum, Richard Cobden, delicatissimum, and Advancer. These were all beautifully grown plants. In Mr. Windsor's group were capital plants of Madame Miellezi and Electra. Among Seedlings the best were Rose Celestial (Turner's), pink with a white throat; Adela, pink with a white eye; Acme, dark maroon with white eye; Dinah, very dark top. These three fancies from Mr. Turner. Mars, scarlet, dark-top medium size; Sequori, style of Rose Celestial; Bride, a nice light kind; and Aurelia—the last a dark-topped sort with a white eye and slightly spotted under petals. These were Mr. Beck's, of Isleworth. Mr. Cutbush sent Blanchfleur, a good light forcing kind.

Cinerarias still in good condition were furnished by Mr. Turner, of Slough. They were Mrs. Hoyle, Brilliant, Baroness Rothschild (a beautiful new kind), Lord Eversley, Magnum Bonum, Excelsior.

Verbenas Evening Star, scarlet with a white eye, and Sir J. Paxton, crimson with a white eye, were shown from the Royal Nursery, Slough. A stand of very nice Tulips was also shown from the same nursery.

Pansies were shown both in pots and cut from Mr. Bragg and others. They were well grown and flowered, and justly attracted considerable attention.

Linnean, *May* 5.—Prof. Bell, President, in the Chair. G. D. Pollock, Esq., was elected a Fellow; and Professors Van der Hoeven and Meisner Foreign Members of the Society. The following papers were read:—1. A memoir "On Brachynema, and Phoxanthus, two new genera of Brazilian plants," by G. Bentham, Esq. These two plants, which occur among Mr. Spruce's North Brazilian collections, present some interesting anomalies preventing their being referred absolutely to any of the natural orders as at present defined. One of these, Brachynema ramiflorum, has foliage recalling to mind a simple-leaved Galipea, &c., whilst the structure of the flowers is nearer Ebenaceæ; it must for the present be considered as a doubtful Ebenaceous plant, anomalous in its foliage, in its hermaphrodite flowers, long tubed corolla, and in the number of stamens equal to, and alternate with the lobes of the corolla. The flowers appear only on the older branches. The other plant, named Phoxanthus heterophyllus, seems allied to the Simarubaceæ, though differing in the stamens; indeed, the author observes, if that family be extended as proposed by Planchon, it may well include Phoxanthus. 2. "On the classification of warm-blooded vertebratæ," by Dr. M'Donald. 3. "On some new Fungi," by the Rev. M. J. Berkeley. The paper was devoted to an account of these out of many new species occurring in a valuable collection of fungi lately made by Fendler in Venezuela, and shortly to be offered for sale; a description of a new species of Mitremyces from South Carolina; and a notice of a curious genus of hypogæous fungi proposed to be called Mesophellia, lately received from Tasmania. 4. "Note on some suprasoriferous Ferns," by Mr. T. Moore. The normal condition of most Ferns, it was remarked, was to produce dorsal sori, *i. e.*, sori on the back of the frond, but remarkable deviations from this rule have been observed among the normally dorsal Ferns, some of which were referred to. Some varieties of the common Scolopendium, especially those having crenato-lobate margins, were stated to produce sori habitually on the upper as well as under surface; in these cases the sori of the under side often seemed to be prolonged so as to reach the margin at the sinus of the lobes, and then returned on the upper side, but it was mentioned that frequently the upper sori were distinct from the margin, and borne where there was no correspondent sorus beneath. These instances had been recorded in the "Nature-printed Ferns of Great Britain and Ireland." Subsequently Sir W. Hooker recorded an Aspidium-like Polypodium from Ceylon, in which the sori were principally borne on the upper surface. Another instance was now mentioned in the case of Cionidium Moorii, a Deparia-like Fern from New Caledonia. Fronds of this, cultivated in the Sydney Botanic Garden, were found to have in addition to the normal marginal exserted sori, which were abundant, numerous others having the inferior cup-like involucre proper to the genus, but almost without footstalks, scattered here and there on the veins of the upper and under surfaces, but most numerous on the former. The inference drawn from a consideration of these instances of anomalous development were (1), that the veins were important structures in the economy of Fern development, since they thus appeared capable of originating the receptacle and spore-cases from their surface in any part—even in unusual parts—of the frond; and (2), that sufficient importance seemed thus to attach to them to justify their employment for the purpose of assisting in the definition of genera in a family of plants when something more than the so-called fructification itself was confessedly needed to supply distinctive characters.

Notices of Books.

Xenophon's Minor Works. Translated from the Greek by the Rev. J. S. Watson, M.A. Bohn: small 8vo. 5*s*.

The minor works of the great Athenian General which are here collected comprise amongst other things Treatises on Rural Economy, on Horsemanship, on the Duties of a Cavalry Officer, and on Hunting. Xenophon was quite as remarkable for a philosophical tendency of mind and a habit of close observation as for his great skill as a general, and the treatises collected in the volume before us are by no means without interest to general readers of the nineteenth century. Mr. Bohn has done well to insert them in his Classical Library. The following extract upon the mode of planting trees affords a fair example of the treatise on Rural Economy:—

1. "'Is planting of trees, too,' said I, 'a part of the art of agriculture?' 'Assuredly it is,' replied Ischomachus. 'How is it then,' said I, 'that I had a knowledge of what relates to grain, and have no knowledge of what concerns planting of trees?' 2. 'Have you then no knowledge of it?' inquired Ischomachus. 'How can I have any,' rejoined I, 'when I neither know in what sort of soil I ought to plant, nor how deep to dig for the tree, nor how wide, nor how deep to put the tree in the ground, nor how a tree should be placed in the earth so as to grow best.' 3. 'Come then,' said Ischomachus, 'and learn what you do not know. You have seen, I presume,' continued he, 'that people dig trenches in the ground for trees.' 'I have indeed often seen it,' said I. 'Have you seen any one of them deeper than 3 feet?' 'No, by Jupiter,' replied I, 'nor deeper than 2 feet and a half. 'And have you ever seen any one more than 3 feet in breadth?' 'No indeed,' said I, 'nor more than 2 feet.' 4. 'Well then,' said he, 'answer me this too; have you ever seen one less than a foot in depth?' 'No, certainly,' said I, 'nor less than a foot and a half; for the young trees would be uprooted in digging about them, if the roots were put so small a distance below the surface.' 5. 'You know this well enough, then, Socrates,' said he, 'that men do not dig for planting deeper than 2½ feet, nor less deep than 1½ foot.' 'This, indeed,' said I, 'must have fallen under my eyes, being so manifest.' 6. 'Well, then,' continued he, 'do you know the drier and moister sorts of ground when you see them?' 'The ground about Lycabettus, and such as is similar to it, appears to me, at least,' said I, 'to be dry ground; and that which is in the Phalerian marsh and such as resembles it, to be dry.' 7. 'Whether, then,' said he, "would you dig a deep pit for a tree in a dry soil or in a moist one?' 'In a dry soil, assuredly,' answered I; 'for if you dig deep in a wet soil, you will come to water, and you will then be unable to plant your trees in the water.' 'You seem to me to answer well,' said he; 'but when your pits are dug, have you ever observed when you must plant the several kinds of trees?' 8. 'Certainly,' said I. 'When you wish them to grow up, then, as quick as possible, whether do you think that the sprout from the cutting of a Vine, for instance, if you put it under well-dug earth, would shoot up sooner through such soft ground, or through undug earth against hard ground?' 'It is evident,' replied I, 'that it would shoot up through dug sooner than through undug ground.' 9. 'A layer of earth should then be put under the plant?' 'How can it be otherwise?' said I. 'But whether do you think that if you place the cutting quite upright, pointing towards the heaven, it would thus take root better, or if you place it a little obliquely in the earth thrown in beneath the surface, so that it may lie like a gamma turned up?' 10. 'In the latter way, certainly, for so there would be more buds under the earth; and as it is from buds that I see shoots spring above the ground, I suppose that the buds which are below the ground produce also shoots in like manner? And when many shoots take root in the ground, I conclude that the plant will spring up quickly and with great vigour.' 11. 'Concerning these points, then,' said he, 'you entertain the same notions with myself. But would you merely heap up the earth around the plant, or tread it down hard?' 'I would tread it down,' said I, 'assuredly; for if it were not trodden down I am well aware that the untrodden earth if wetted by rain would be turned into mud, and if scorched by the sun would become dry to the very bottom; so that there would be danger lest the roots of the plant, under a prevalence of wet weather, should be rotted by damp, or should be scorched up in hot weather from the roots being heated through the dryness or porousness of the earth.'"

Such is the kind of information afforded by Xenophon on the subject of planting. His instructions for drilling, hunting, and the *ménage* are curiously illustrative of the manners of his time.

Dr. Carl Müller has commenced a continuation of the *Annales Botanices Systematicæ* of Walpers, of which Vol. IV. part 1. is before us, extending from Ranunculaceæ to Nymphæaceæ. Considering the great bulk of these very useful works, we cannot but suggest to the learned author that his matter might be considerably reduced by a little alteration in his plan. For instance, all who use this continuation will, we presume, also possess Hooker and Thomson's Flora Indica. Why then introduce all the details to be found in that work? Surely it would be sufficient to enumerate the species with merely a reference to the original, where all details are to be found. Of course however this remark does not apply to works in less general use. Nor is this the only way in which the work might be profitably condensed.

Garden Memoranda.

Mr. Turner's, Royal Nursery, Slough.—A visit to this nursery at the present time cannot fail to be highly interesting to all lovers of florists' flowers. Tulips, of which Mr. Turner has one of the best collections in the kingdom, are now in perfection. The best bed, which is of great length and contains an immense number of bulbs, is of itself a sight worth travelling miles to see. It is covered with canvas, and along the upright sides at certain distances apart have been planted Arbor-vitæ, between each of which are plants of Humea

elegans and beautiful specimen Cinerarias, while at the corners have been erected stages for the last named plants. These when viewed from either end of the bed have an excellent effect, and serve to set off the Tulips to much advantage. Among the latter we noticed beautiful blooms of the following:—Bizarres: Duke of Wellington, Uncle Tom, J. Sanderson, Dr. Sanders, Lord Raglan, Chas. Brown, Omar Pacha, a charming variety, and Louis Napoleon. These were third row flowers; the Marquess of Bristol and Owen Glendower were in the fourth rank; and of first and second row kinds many may be mentioned—Dr. Horner, Eurydice, Lord Canning, a finely feathered variety, Henry Groom, Lord Hardinge, Everard, Strong's King, Prince of Wales, and F. Perkins; the last six flamed sorts, and great favourites in their class. Among Feathered Roses the following are a few of the best—Fleur de Marie, Aglaia, Gem (Willison's), Heroine, Lady Grey, Ondine, Rose Camuse, Miss Eliza Seymour, and Eva (Willison's). Of Flamed Roses Lady Stanley, Duchess of Sutherland (Groom), Countess of Wilton, Arlette, Triomphe Royal, and Anastasia, are good. Among Feathered Bybloemens what struck us as most remarkable were Duchess of Cambridge, Coupe d'Hébé, and Queen (Rutley), all fourth row blooms. In the first row were Victoria Regina, Gem (Abbott's), and two seedlings. Maid of Orleans is still a good third row flower. Among third and fourth row flamed Bybloemens were Thalia, Miss Groom, General Barnoveldt, Queen Charlotte, and Cleopatra. David and Pandora are useful first and second row varieties. Among these are some of the very best of the new or comparatively new kinds. It may be worthy of remark that seedlings the produce of the late Mr. Groom's breeders have turned out uncommonly good here; under skilful treatment and pure air their beauties have been brought out in a manner quite unlooked for; his breeders have also broken well this year; among them we observed several of the charming variety called Omar Pacha. Beds under hoops covered with Frigi Domo are numerous; even in the open ground Tulips have bloomed remarkably well this season.

Auriculas we saw; but they are now nearly over. Of selfs, Blackbird, Meteor Flag, Bessie Bell, Mrs. Hancock, Mrs. Smith, and Mary Gray are first class. Among green-edged kinds, Duke of Wellington (Dickson's, Apollo (Beeston's), Lovely Ann (Oliver's), Champion, (Page's), Sir J. Moore (Lightbody's); grey edges: Lancashire Hero (Cheetham's), Perfection, Unique (Bone's), Sophia (Chapman's), and Duke of Cambridge (Dickson's). Among white edges: Glory (Taylor's), Robert Burns (Campbell's), Catherina, Smiling Beauty, and Earl Grosvenor (Lees'). These are all sorts worthy of the utmost attention.

Of Pelargoniums lists of the best show kinds will be found in our report of the Regent's Park exhibition in another column. Variegated sorts are grown here extensively. Among the best were Alma, Bijou, Julia, and Countess of Warwick. Of these the first is perhaps the brightest. Mr. Turner has however a seedling which promises to be an improvement on all of them in point of whiteness of edging round the leaf; it is also a brilliant scarlet, and will doubtless prove an acquisition. Seedling show kinds will be found noticed in another column.

Fine varieties of shrubby Calceolarias are now becoming abundant. Among the best for bedding purposes are Dropmore, Indispensable, which is an improved Shankleyana; California, Prince of Orange, erecta, pallida, a sort in the way of the old amplexicaulis; aurea floribunda, a dwarf very free growing kind, with ample foliage; King of Yellows, Yellow Prince of Orange, and rubra. These are all handsome additions to the useful class to which they belong. For pot culture the best are Hawk, Gem, Albira, Eclipse, Snowflake, and Hebe.

Of Verbenas with brilliant colours and large white or yellow eyes, we saw some distinct and beautiful kinds. The best were Sir J. Paxton, Evening Star, Rosy Gem, a charming variety; Lady Palmerston, Prince of Wales, and Prince of Oude. These are sorts in which nobody need be disappointed. The light eye gives relief to the other colours and sets them off to so much advantage that selfs suffer from comparison with them.

Pansies both in pots and beds are at present literally masses of flower. Few early spring blooming plants equal them in point of ornament, and yet strange to say they are comparatively little grown for that purpose. We understand however that they have been introduced with good effect into the flower garden at Cliveden, and doubtless other great places will follow the example. They are also easily cultivated in pots, and the time they remain in bloom amply repays the trouble bestowed on them.

Among general out-door stock, which is grown here largely, we remarked some beautiful young plants of the rarer kinds of Conifers all raised from seed. In borders were Wellingtonias, very fine examples of Picea Nordmanniana, Thuja gigantea, Thujopsis borealis, Cupressus Lawsoniana, Pinus Benthamiana, Araucarias, and others. We also observed beds of the pretty Skimmia japonica and Eugenia Ugni. Fruit trees, especially Peaches and Nectarines, succeed uncommonly well here, and owing to the earliness of the locality and suitableness of the soil for stone fruit, they break early in the season with great vigour, which they afterwards maintain. Of the Salway Peach, a fine new kind with an Apricot colour, we noticed quantities. The grounds generally were in excellent order, which indeed they always are; long lines of Hollyhocks and shrubby Calceolarias have been planted out along the sides of some of the principal walks, untried bedding plants have just been put out to prove their comparative merits for that purpose, and everything looks neat and trim. Monday next, we understand, is the day fixed for the inspection of the Tulip bed, when a band of music will be in attendance.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—Climbing or trained plants still require attention in regard to thinning, training, stopping, &c. If the sun shines very brightly a slight shading would be of benefit for a few hours on very hot days. The inmates of such structures however are sometimes very various in character and habit, and the foregoing advice would be more applicable perhaps to New Holland plants, Oranges, Camellias, &c. As regards stove plants and Orchids, thorough cleanliness, free ventilation, plenty of atmospheric moisture, and occasionally a slight shading in very bright sunshine are at present the prime requisites. No means should be neglected to encourage a free growth at this period in Orchids, in order to get their pseudo-bulbs firm, well fed, and well ripened betimes. In mixed greenhouses fires may now be nearly or entirely dispensed with. If the weather is genial and accompanied with bright sunshine, heat sufficient for the night may be secured by shutting up early, not however soon enough to scorch. A general rule can scarcely be laid down in such cases to guide the inexperienced. On a sunny afternoon one-half of the air may be reduced at 3 o'clock and the whole taken away at 4 o'clock. Continue the various points of cultivation previously recommended, remembering that now is the period for rapid growth, and all the encouragements accessory thereto.

FORCING DEPARTMENT.

Pineries.—Where the quality of the fruit is the first consideration, which it is or should be in every instance, care must be observed to have the soil about the roots in a rather dry state during the ripening period, and where it can be done without injuring the rest of the stock the atmosphere should be kept rather dry, admitting air more freely while the fruit is colouring: for there is no chance of fruit of prime quality if the soil is very wet about the roots, and the atmosphere kept close and saturated with moisture during the ripening period. In the case of plants growing in pots the trouble of collecting and placing together those approaching ripeness, so as to be able to treat them properly, would be well repaid. Now that we have something like summer weather give air freely to the growing stock, particularly in the case of plants that may have been making rather weakly growth, but shut up early in the afternoon, dewing the plants lightly with the syringe, and sprinkling every available surface, so as to secure a thoroughly moist atmosphere. Use fire heat as sparingly as may consist with maintaining the proper degree of temperature. Be very careful to keep the plants properly supplied with water at the root, and give plenty of manure water to those in vigorous growth, and also to plants swelling their fruit. Vineries.—Where Muscats are grown for a late crop the night temperature of the house must not be allowed to fall too low after the bunches begin to appear, and a temperature of from 65° to 70° must be maintained while the fruit is setting to ensure good sized, close bunches. Keep a sharp look out for red spider in houses where the fruit is colouring, and if this pest makes its appearance lose no time in coating the hot-water pipes with sulphur. If not already done get the litter removed from the outside borders, but if it is found that the roots have crept up into it, which will probably be the case where the Vines were started early in the season, the decayed portion at the bottom should be left, and every caution used not to disturb the young roots. And if many roots are found at the surface it will be necessary, after removing the litter, to top-dress the border to prevent these getting dried up; a slight coat of turfy loam, leaf soil, and horse-droppings will answer very well for this purpose. See that the borders of houses, where the fruit is swelling, are not allowed to get too dry. Melons.—Maintain a rather close, moist, warm temperature to plants recently planted out until they get into full growth, but avoid inducing a gross habit of growth by too much moisture and warmth after the roots fairly get hold of the soil, for it is generally somewhat difficult to secure a crop from wood of this sort. Give air as freely as the state of the weather will admit, in order to secure firm short-jointed wood, and where the crop is setting, as the young fruit is very apt to damp off unless the atmosphere is kept moderately dry. Endeavour to secure a steady bottom-heat of about 80° to 85° for plants in all stages, and also to keep the soil in a proper state as to moisture; avoid having to water while the crop is setting, by well soaking the soil before the principal blossoms begin to expand. Keep a careful look out for insects, and use every precaution to prevent these getting established upon the foliage, for there is hardly any chance of a crop of fruit unless the leaves can be preserved in health.

FLOWER GARDEN AND SHRUBBERIES.

It is now high time to think of bedding out some of the mass flowers, at least such as are least liable to injury by frost and have undergone a proper hardening process. Much may be done as to display by a judicious arrangement or combination of both colour and figure. As a general principle, our best authorities seem to agree that the various shades of orange and yellows will class well with the various purples and blues, whites are suitable with the blues, oranges, and reds; whites however derange the effect of the yellows, as also the violet shades, whilst the various red or rose coloured flowers are, as far as colour is concerned, capable of forming a bed by themselves. Every individual bed of a flower garden should, in our opinion, be complete in itself, both with regard to colour and outline.

HARDY FRUIT AND KITCHEN GARDEN.

Let a sowing of Endive be made directly. Throw in a sprinkling of early Dutch Turnips on a cool border, neither digging and using manure. It is a mistaken notion to persist in digging ground for these in kitchen gardens so full of old manures, the Turnip being naturally too gross there under any circumstances. Always choose the poorest and hardest ground you can find, and merely hoe the seed in; by these means you will always procure good Turnips. Nothing can exceed well-burnt ashes of any vegetable refuse for the Turnip. Let full crops of Kidney Beans be planted forthwith, and a row of Knight's Marrow Peas, or the British Queen. The row should be prepared after the way of a Celery drill, and the manure completely saturated with moisture. Strawberries in blossom must be well watered. Cover your rows with the old pit linings, chiefly half rotten leaves, and water over this. Remove some of the watery wood from the Currant bushes and thin Raspberry suckers.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending May 21, 1857, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer.		Temperature					Wind.	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 15	21	30.085	29.994	80	45	62.5	56.0	50½	E.	.00
Satur. 16	22	30.134	30.082	78	41	59.5	57	51½	W.	.00
Sunday 17	23	30.080	30.022	76	37	56.5	57	52	S.	.00
Mon. 18	24	30.011	29.944	78	46	62.0	58	52	W.	.00
Tues. 19	25	29.971	29.876	75	48	61.5	58	53	S.W.	.00
Wed. 20	26	29.898	29.725	75	46	60.5	58	53	S.W.	.01
Thurs. 21	27	29.760	29.648	66	46	56.0	58	53½	S.W.	.02
Average..		29.991	29.898	75.4	44.1	59.7	57.4	52.2		.03

May 15—Fine; very hot; clear; lightning at night.
— 16—Fine; very hot; clear at night.
— 17—Very fine; hot; clear and fine.
— 18—Very fine; cloudy; fine.
— 19—Overcast; very fine; overcast at night.
— 20—Densely overcast; very fine; overcast.
— 21—Short rain; densely clouded; fine.
Mean temperature of the week 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending May 30, 1857.

May.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 24	68.0	45.2	56.6	10	0.54 in.	2	6	7	1	5	6	3	1
Mon. 25	66.4	45.0	55.7	12	0.64	1	11	2	2	1	8	5	1
Tues. 26	66.8	43.9	55.3	14	0.48	2	10	4	1	2	7	3	2
Wed. 27	68.0	45.5	56.8	17	0.63	2	9	6	2	1	7	2	2
Thurs. 28	66.9	44.6	55.8	14	0.97	—	9	7	1	5	7	2	—
Friday 29	65.6	44.5	55.0	12	0.97	3	11	1	2	5	5	4	—
Satur. 30	67.0	44.9	55.5	11	0.34	3	6	6	—	3	7	3	3

The highest temperature during the above period occurred on the 28th, 1847—therm. 91 deg.; and the lowest on the 25th, 1839—therm. 29 deg.

Notices to Correspondents.

Ants: *G B S.* Ants frequent fruit trees at this season in search of the honey to be found on the trees. In the autumn they frequent them for the sake of the fruit.

Banks: *A B.* We know nothing about that which you name; and should hesitate before trusting it or any of the sort. Why not put your money into the real Savings Bank, where it is certainly as safe as if in the Bank of England? The interest is not much, but the principal is secure. Did you ever read the fable of the dog who crossing a bridge with a piece of meat in his mouth snapped at a shadow and lost his meat? A gardener earns money hardly and should keep it warily.

Books: *G J M.* The best book to commence studying landscape gardening is the book of Nature. The best helps for beginners are Kemp's Directions how to lay out a small Garden, Loudon's Self-Instruction for Young Gardeners, and the same author's Villa Gardener.

Ground Bees: *R A H.* Pour boiling water into the holes, or push in a rag soaked in turpentine. But are you sure it is they that destroy your Grass?

Lilium Colchicum: *H P.* This garden name belongs to L. Szowitzianum, which is L. Loddigesianum of some, which is sometimes but incorrectly called L. monadelphum. It is a Martagon, from Caucasus, and must have been introduced before 1848.

Lilium giganteum: *Pierpoint.* You have kept it too warm and damp. A greenhouse temperature suits it best.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*E C.* Myosotis sylvatica.—*M.* Silene maritima.—*A R.* It is Nicotiana suaveolens; but surely it has nothing to do with La Picciola.—*L Van Houtte.* Cypripedium hirsutissimum of Sir Wm. Hooker.—*Olitor.* Iberis sempervirens and Alyssum saxatile; neither numbered.—*F.* Ribes petræum.—*Thos. Anneys.* Rhododendron Dalhousiæ. Leaf of water plant not received.—*I L.* Helleborus orientalis.—*A D.* Nemophila discoidea.

Rose Disease: *J S.* Sulphur cannot affect the fungus attacking your Rose leaves, which grows from *inside* the leaves. It is useless to attempt to get rid of it. Probably it will go away of itself without doing much harm. At any rate you cannot drive it away.

Vines: *P P.* Wet and cold are your enemies. Probably they lie in your border. The disease is "shanking."

Misc.: To James Matthews at the Strand Office.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and dispatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

TO FARMERS AND OTHERS.

MANURE.—Required Tenders for all the REFUSE LIME produced at the Works of the Crystal Palace District Gas Company, Bell Green, Sydenham, S.E.—For particulars apply to Mr. MAGNUS OHREN, Secretary and Manager, Bell Green.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7 per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY (Established 1840).

In consequence of the further rise of 1*l.* per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and URATE, which have been used most extensively for Corn, Grasses, and Root Crops for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the Importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of guaranteed quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

THE PATENT NITRO-PHOSPHATE BLOOD MANURE COMPANY. (Limited.)
Offices, 109, Fenchurch Street (E.C.).
Manufactory, Plaistow Marshes, Essex.

BLOOD MANURE FOR TURNIPS, 7*l.* per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

PATENT WOOL MANURE COMPANY.—(LIMITED.)
Office, 81, Gracechurch Street, London.
Manufactories, Deptford and Walworth.

Wool Manure for Wheat, Grass, Hops, &c., per ton, 7*l.* 10*s.*
Wool Manure for Turnips and Root Crops, per ton, 6*l.* 10*s.*
Superphosphate of Lime, manufactured by this Co., per ton, 7*l.*

Delivered free to any Railway Station or Wharf in London.—Orders received at the Office of the Company, 81, Gracechurch Street; or by any of the Provincial Agents.

TURNIP AND HOP MANURES.

THE NATIONAL GUARANTEED MANURE COMPANY (LIMITED).—Head Offices: 2, Moorgate Street, City, London, E.C. Branch Offices: Bank St., Carlisle. Works at Millwall, London; Carlisle, and Port Carlisle, Cumberland.

Concentrated Manure .. .. £9 0 0 per ton.
Superphosphate for Turnips .. 7 10 0 ,,

The Company manufactures a superior Manure for Hops at 9*l.* per ton, also special Manures for every description of crop.

This Company's Manures are guaranteed and sold by analyses. For testimonials and analyses apply at the Head Offices, No. 2, Moorgate Street, City, E. C.; or at the Branch Office, Bank Street, Carlisle.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATES.

BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
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REIGATE SILVER SAND (good Grit and free from Iron) 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & SON'S Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.
Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead,	1	10	0
2½ ,,	long 3 ,, 3 ,,	gutta percha,	1	14	0
3 ,,	ditto 3 ,, 6 ,,	or cast iron	2	8	0
3½ ,,	ditto 3 ,, 6 ,,	flanged pipe,	2	12	0
4 ,,	ditto 3 ,, 6 ,,	as required.	3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

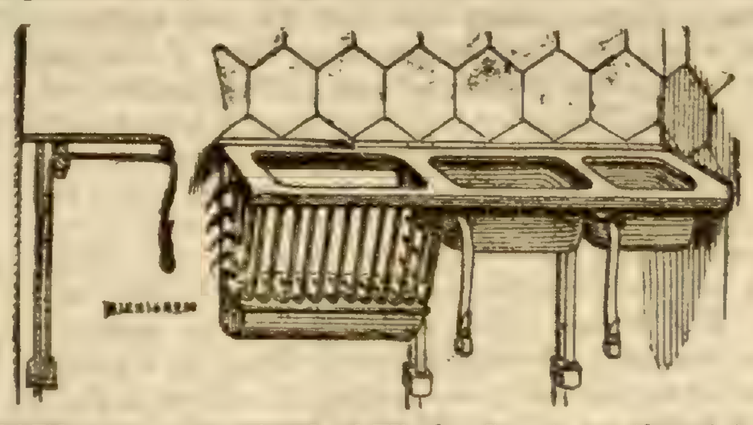
Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

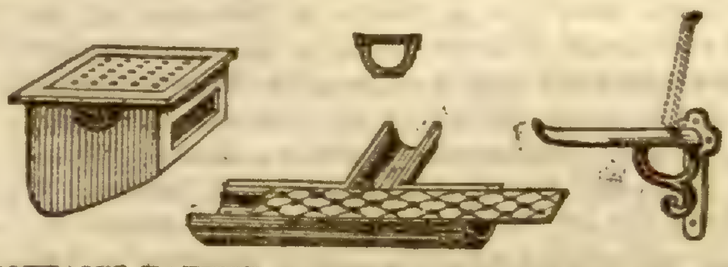
WHITEFRIARS STREET, FLEET STREET, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

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WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., C. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

AGRICULTURIST CATTLE INSURANCE COMPANY.—Chief Offices: 20, Cockspur Street, Charing Cross, London; 50, Lower Sackville Street, Dublin; 9, South St. Andrew Street, Edinburgh.

For the Insurance of Farmers from Loss among their Live Stock, whether occasioned by PLEURO-PNEUMONIA or any other kind of disease or accident.

It is purely a Proprietary Company, has been established 11 years, and transacted more Cattle Insurance business than all other Companies put together.

RATES OF INSURANCE.

CATTLE.		
Dairy Cows	7½*d.*	in the £.
Feeding Stock	6	,, ,,
Oxen	7	,, ,,
HORSES.		
Agricultural Horses	9	,, ,,
Hacks..	10	,, ,,
Mares for Breeding	1*s.*	,, ,,

AGENTS WANTED in every district where none are already appointed.—Apply to R. W. GOOLD, Secretary.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, MAY 23, 1857.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY, June 3 } Meeting of Bath and West of England
THURSDAY, — 4 } Agri. Society at Newton.

THE general meeting of the English Agricultural Society was held yesterday at their rooms in Hanover Square. The Council for the coming year were elected—the Trustees and Vice-Presidents were re-elected—Lord BERNERS, than whom no one worthier of the office could have been named, was made President for the ensuing year. The report of the Council was then read. It intimated an increase in the membership of the Society and a favourable state of the cash account. It referred to Professor WAY'S researches into the soluble substances in the soil contributing to the nourishment of the plant, and to his lecture on the Geography of Guano. It alluded to a lecture by Professor HENFREY on Vegetable Physiology, given to the members of the Society last month, and to Professor SIMONDS' travels and investigations in connection with the contagious typhus of Austria and Russia. It spoke of the costly but successful character of the last general meeting of the Society at Chelmsford: and it concluded with general remarks on the services rendered by the Society to the agriculture of the country.

After the adoption of the report had been moved and carried, the Chairman called for any suggestions which members present might be disposed to offer to the Council. Suggestions had been made elsewhere by men dissatisfied with the proceedings of the Council—the present was the time to give them utterance before those who had been thus called to account. Only two remarks resulted from this appeal:—Mr. FRERE suggested the appointment of a consulting botanist, and the Rev. Mr. JAMES alluded with satisfaction to the infusion of new blood into the Council.

Important as both these topics may have been, it appears to us that an even more important

matter deserved consideration. Mr. Frere alluded to the fact that some, at any rate, of the duties of the botanical officer whose appointment he had advocated, had been efficiently performed by Mr. Henfrey, who had lectured on a botanical subject before the Society. But why has no report of that lecture yet appeared? Even if a botanical officer had existed, the members of the Society generally would have been no better off than they are at present. The lectures of Professor Way and of Professor Simonds are in the same predicament. We have to wait six months before those of them which it is resolved to print appear; while any which remain unprinted are so much labour lost. These are single illustrations of a multitude which might be given to show that more immediate publicity is desirable for the agricultural information which reaches Hanover Square. This is one of the most important subjects which can engage the attention of the Council.

Unfortunately, as we believe, they have decided with the last month to continue the publication of their proceedings on the same footing as hitherto. Whatever is adapted for their Journal will make its appearance twice a year; and that which is allowed admission into our own and other columns will be the same official report as heretofore, drawn up by the Secretary of the Society, whose hands are already full of labour. It may be urged that in this they do but follow the example of other similar bodies in London who publish their Transactions and only allow official abstracts of their Papers to appear elsewhere. But the members of the Agricultural Society do not reside in town, they live in the country. They cannot attend these weekly meetings, and it is surely unwise to deny them as full a participation in the privileges of membership as the press can give them.

There were a larger number than usual present at the last weekly meeting of the Society, and a very interesting meeting it was, unusually full of instructive discussion. The application of steam power in cultivation—the statistics of cattle insurance, and other important topics had much light thrown on them. Those who were present at that meeting went away gratified by the privilege of being there, which as members of the Society they possessed. But what availed all that for the .99 per cent of the Society's members who were absent? There is no report of that meeting; and a great deal of useful agricultural matter has been lost which, had reporters been present, would have been read in every part of the Kingdom—would have convinced the 4000 members of the Society that they were fortunate in contributing to the efficiency of so useful an institution—would have tended to convince the 16,000 other gentlemen who ought to be members that the sooner they joined the Society the better.

We hope that the Council will yet reconsider their decision as to the publicity of the proceedings at their weekly meetings. It is a decision which appears to us conceived in a very mistaken idea of the true interests of the Society.

"Opinions" have been published lately at Taunton, in the form of a small pamphlet, "respecting Martin & Co.'s (late Hibberd's) ammoniated superphosphate, with hints on the use of artificial manures, and some remarks on the theories of Professor Voelcker."*

It is for the most part a trade advertisement, and as such would not have received notice here were it not that its author has thought it for his interest that he should publish the antagonism of his views with those of Dr. Voelcker on that branch of agricultural chemistry which includes the theory and practice of manuring.

Dr. Voelcker was for several years the colleague of Professor Johnston, of Durham, than whom no one has had larger opportunity or greater success as an agricultural chemist; and he has since then, as our readers know, been professor of chemistry at the Cirencester Agricultural College. Latterly he has been lecturing under the auspices of the Bath and West of England Agricultural Society; and he has all along had large experience as analyst and adviser in connection with agriculturists and manure dealers. Whether his opinion is likely to be a trustworthy one or not under these circumstances any one can judge for himself. It does not appear to have been favourable to the gentlemen who have issued this pamphlet, if one is to guess from the temper in which many of its pages are written. Take the following as an instance:—

"For analytical chemists to presume to dogmatise on the value of manures by trying them in their pestles and mortars is bad enough; but to interfere between buyers and sellers, and dictate the arrangement of prices, to the manifest injury of both, is not scientific *dogmatism*, but impertinent *puppyism*. Let these and other gentlemen who are innocent of trade, and who appear never to have bestowed a thought on its philosophy, learn that in a free commercial community like ours the ordinary influences of trading competition will always be sufficient for the regulation of prices and the prevention of exorbitant profits, without the least necessity for their interference, which can serve no honest purpose, but which has done great mischief in misleading the farmers, and only benefited *certain favoured* manufacturers."

It seems to us plain that agricultural chemists may most usefully publish such information as their researches give them on the relations of soil, and plant, and manure—information which happily both for farmers and manure dealers necessarily interferes between the tradesman and the agriculturist as soon as it is known. It is not sufficient to publish testimonials to the effective character of a manure. We want to know whether the price at which it is sold is a fair one considering the ingredients of which it is composed. It is quite possible that a manure offered at 12*l.* a ton might be made of ingredients which did not cost the maker 50*s.* And if the chemist can find out that, he does good service to the farmer by publishing the information.

We can pretend to no knowledge of "Martin's (late Hibberd's) ammoniated superphosphate." We do not doubt that its application proved beneficial in all the instances quoted in this pamphlet — and it is quite possible that the difference between the price at which it is offered in the market and the cost at which it is made by Messrs. Martin is no more than the fair profit to which "the philosophy of trade" and "the ordinary influences of trading competition" entitle them. It is, however, certain that Dr. Voelcker is right and that they are wrong in their estimate of the proper office of the chemist in relation to the farmer and manure dealer.

The analysis which the chemist furnishes will indicate whether the price at which the manure is offered is a fair one, and when read in the light of the ordinary deficiencies of soils and the ordinary wants of crops it will also indicate whether the manure is likely to be a good one. On the other hand, the certificate of its worth given by the farmer who has tried it can be true only of the particular case in which it has been tried by him, and the differences existing in the character of such certificates are sufficient proof of their comparatively untrustworthy character. There can be no doubt that a long course of experience all pointing one way is irresistible, but such experience is a very rare exception in agricultural history. Even Mr. Martin's manure, though certified by some as "equal to the best Peruvian guano," and "one of the best artificial manures of the day," is an illustration here. And the *Taunton Gazette* reported the trial of a case the other day in which Mr. Roberts, of Brown's farm, Huish Champflower, resisted payment of 33*l.* 16*s.* claimed by Mr. W. Featherstone, of Wiveliscombe, a manure dealer, for 5 tons 4 cwt. of a composition called "Martin's manure," on the ground that the manure in question had been of no service to him. At this trial Mr. A. Corner, of Woolcot's Farm; Mr. E. Elworthy, of Ockington Farm; Mr. F. Fishley, of Fitzhead; Mr. J. Yandle, Hillbridge Farm, Dulverton; Mr. W. Langdon, Holwell Farm, Chipstable; Mr. J. Tarr, of White's Farm, Clatworthy; Mr. J. Blackmore, of Gollick Farm, Clayhidon; and others, deposed to having tried Martin's manure, and spoke very highly of it. Mr. J. Warren, of Kingsbrompton, on the other hand, had tried Martin's manure for Turnips, without any dung—the first field of Turnips was a failure; he tried it again against Burnard and Lack's, and the latter was very good, but the other was only half a crop. Mr. George Hawkins, a farmer, of Huish, spoke to having used this manure with dung for Turnips, but although the plants came up very fair they soon turned yellow and went off. He had only half a crop. The soil was generally the same as Mr. Robert's. Mr. H. Palmer, of Sperry Farm, Huish, stated that he used the manure, and had some very good and some very bad Turnips. It was a failure where he did not use dung. Mr. F. Merson, of Waterhouse Farm, Bampton, stated that he last year used Mr. Martin's manure, purchased of Mr. Featherstone, and only had half a crop. It was on very poor ground.

We are told that the jury, "without a moment's hesitation, returned a verdict for the plaintiff for the full amount claimed"—a verdict which we have not the least doubt was according to the evidence. The trial is referred to here only as illustrating the fact that agricultural testimony is necessarily various owing to the varying circumstances under which agricultural experience arises. The boast that this manure has been tried "hundreds of times—not in pestles and mortars!—but in those laboratories where, *and where alone*, its value can be determined—viz., in the field—by hundreds of operators, against whose decisions the opinions of all the professors in the world is but dust in the balance," amounts to nothing. "The laboratories of the field" do not agree in their reports: those reports are useful only when read in the light which chemical analysis throws upon the subject, and then their differences as well as their agreements are intelligible and instructive. For this reason it is probable that intelligent manure makers and intelligent farmers will continue to court the advice and respect the opinions of the chemist. It is at any rate quite certain that such attacks as those in the pamphlet before us, whether aimed at chemists as a body, or at so distinguished a member of that body as Dr. Voelcker, can lead only to the disgrace of those who make them.

* "Opinions, &c.," pp. 31. W. A. Woodley, Taunton.

A NEW GUANO.

An agent of the American Guano Company has arrived in New York with about four tons of guano from Jervis Island, Pacific Ocean, as a sample. The following extract from the *Honolulu Commercial Advertiser* will be read with interest by agriculturists.

"The arrival of the fine schooner Liholiho, Captain John Paty, on Saturday, with about 100 tons of guano, from Jervis and New Nantucket Islands, caused no little excitement in our town. When the expedition sailed, on the 25th of December, no one appeared to take much interest in it, further than to express a general denunciation of all humbugs. The appearance of the specimens of guano which we have seen is that of a fine powder, very much resembling snuff, without the strong smell of ammonia which the Chincha guano has. Under a microscope it appears entirely composed of crystallised substance, and resembles snow. Good judges pronounce it to be first-quality guano, but what its value is compared with Chincha guano remains to be determined. About eight tons of this guano goes forward by the bark Yankee, to be sent on by the mail steamer *viâ* Panama to New York, the object being to land it in New York as soon as possible; the balance is being shipped on the clipper ship Aspasia for New York direct, and will reach that port about July 25. The vessel was 10 days from Honolulu to the Islands, and the same number of days loading, which was effected with whale-boats. On the 29th of January they sailed for Howland's Island, where they arrived on the 5th of February, landed and erected a hut, brought off a sample of the deposit, and set sail next day. They saw New Nantucket on the 9th of February, a low island, which as they approached gave faint signs of vegetation in the shape of dry Grass and dead bushes on the water's edge. They landed on the 10th, and were agreeably surprised to find the entire surface of the island not only destitute of vegetation, but affording a vast deposit of guano of the very best quality. The Liholiho being already well down in the water and somewhat leaky, only 74 bags of this guano were taken on board. The passage to Honolulu was made in 23 days, reckoning from the 12th of February until the 7th of March; absence from Honolulu 71 days. The usual course of the wind was from the north-east or south-east, and, although the voyage was made in mid-winter, the weather was mild, excepting the great heat on shore at mid-day. The currents appeared to change with changes of the moon from the westward or eastward, and from 1 to 1½ mile an hour. The landing might, perhaps, be considered difficult by inexperienced persons, but it appears to have presented no obstacle to our enterprising voyagers. The agent of the company, Mr. A. Benson, erected upon each island a flagstaff, upon which now floats the American flag, and each island has on it a small house for the protection of the property of the company, as well as a general caveat against all intruders. One great drawback to these guano islands is the want of fresh water, not a drop of which is anywhere to be found. Rain seldom falls, as appears by the very dry condition in which they found the guano as deep as 4 or 5 feet below the surface. Birds, eggs, and fish are in such abundance as almost to stagger our faith in human testimony. At times the birds were so thick as actually to cloud the atmosphere, and it was almost impossible to step without treading on the nests. Altogether, it seems these islands are, by all accounts, wonderful places." *Times.*

FARM NEAR THE ISLE OF ELY.

During the last month we have had varied weather. The former part of April was mild with heavy falls of rain; but towards the end of the month the wind veered round to the east, and has been blowing from the N.N.E. and east every day since up to yesterday (May 12), when it blew a soft breeze from the south. The cold and frosty nights have considerably impeded vegetation, and the Wheat and Grass fields scarcely present so forward an appearance as they did a month ago; but with a

continuance of the present weather we may speedily expect a great improvement.

Upon the strongest and best fen soils the Wheat plant is looking healthy, and has been strengthened by the cold weather, and we think seasonably checked. Early in April it was growing much too fast, and was looking weak, but it is now stiffened and more promising. On some of the light weak fen soils the plant has been seriously cut with the frost, and the flag presents a brown, withered, and dying appearance; but with seasonable weather will probably soon rally again, but must grow weaker in the straw, and afford a smaller yield of grain than if uninjured by the frost. We think on all these light soils spring rolling cannot be too strongly recommended, and this should be done early in March, or even in February, if the weather will permit, just to catch the land before it becomes too dry and dusty, as it consolidates so much better when rather wet, provided the roll will work clean. A case showing the advantage of rolling and consolidating these light soils has just come under our own observation. For certain reasons this land could not be rolled before April, but it was then sufficiently moist to squeeze down firmly and closely. There were 15 acres of Wheat; 10 acres, part of this, were rolled on one day; heavy rains followed which prevented the other 5 acres getting done; after these rains came the dry cold easterly winds and frosty nights, and it can now be seen to 1 inch where the roll was used and where not, the former looking strong, healthy and vigorous, and the latter brown, sickly and dying. A more decided and marked difference could not well be conceived.

On our high lands the Wheat plant looks very various. The dry deep-soiled lands look strong and vigorous; the wet, undrained lands present a yellow and sickly aspect, and must be light crops. Oats present a very varied appearance. Many of our fen farmers put in Oat crops this season with the water-drill, putting on a mixture of Peruvian guano and superphosphate of lime, and these in every case we have witnessed are looking strong and healthy, and altogether uninjured by the weather. In some fields one width of the drill has been sown without manure, just as an experiment, and these rows present altogether a different appearance, looking brown, rusty, and much cut. Many fields too put in without manure are looking very much cut, and the wireworm is busy, making them look still worse. We think the water-drill and early sowing system will be considerably extended another season.

Beans are strong and healthy, and promise well. Linseed is coming strong, and is being more extensively cultivated this year. Potatoes are just coming up, and with a cessation of frosty nights will soon show themselves. Mangels are nearly finished sowing. They were put in later this year than usual, as the wet weather in April retarded the cleaning and preparation of the land.

Store cattle and sheep have been worse to sell in consequence of the severe weather, but with a return to warm and summer days will probably soon meet a readier sale. The meat trade is heavy, except for pork, which is dearer and becoming more scarce. The corn trade has been more active, but the favourable change in the weather has produced a slight reaction. *R.*

WEIGHTS AND MEASURES.

The following are returns from public bodies and otherwise showing the differences in the weights and measures in different localities in the United Kingdom.

Published by the International Association for obtaining a uniform decimal system of weights, measures, and coins:—

Linear Measures of Land.

At Falmouth, the linear measure of land is the land yard of					18 feet.
Saltash	,,	,,	,,		16½ ,,
Bridgend	,,	,,	,,		18 ,,
Downpatrick	,,	,,	,,		21 ,,
Hertford	,,	,,	,,		3 ,,
Hastings	,,	,,	,,	chain	66 ,,
Vale of Leven	,,	,,	,,	rood	36 yards.
Wrexham	,,	,,	,,	,,	24 feet.
Burnley	,,	,,	,,	,,	21 ,,
Preston	,,	,,	,,	,,	22½ ,,
do.	,,	,,	,,	,,	24 ,,
do.	,,	,,	,,	,,	21 ,,
Barnsley	,,	,,	,,	,,	16½ ,,
do.	,,	,,	,,	,,	21 ,,
do.	,,	,,	,,	pole or rod	16½ ,,
do.	,,	,,	Cheshire pole		24 ,,
do.	,,	,,	,,	acre	28 yards.
Bath	,,	,,	,,	chain	22 ,,
	,,	,,	,,	rope	20 ,,

Superficial Measures of Land.

At Falmouth the superficial measure of land is the acre of					4840 sq. yards.
Preston	,,	,,	acre	7840	,,
do.	,,	,,	acre	10,240	,,
do.	,,	,,	acre	9000	,,
Hyde	,,	,,	acre	4840	,,
Dundalk	,,	,,	acre	10,240	,,
Barnsley	,,	,,	acre	7040	,,
do.	,,	,,	acre	4840	,,
do.	,,	,,	Cheshire acre	10,240	,,
do.	,,	,,	Scotch acre	6084	,,
do.	,,	,,	Irish acre	7840	,,
Falmouth	,,	,,	pole	30¼	,,
Barnsley	,,	,,	pole or perch	272	sq. feet.
do.	,,	,,	rood	1210	sq. yards.
Burnley	,,	,,	rood	63	sq. feet.
Stoke-upon-Trent	,,	,,	rood or fall	49	sq. yards.
Preston	,,	,,	rood	64	,,
Falmouth	,,	,,	rood	49	,,
Penzance	,,	,,	rood	1210	,,
do.	,,	,,	rood (7 × 7)	49	,,
do.	,,	,,	rood (8 × 8)	64	,,
Kingston-upon-Hull	,,	,,	rood (5½ × 5½)	30¼	,,
Falmouth	,,	,,	chain	484	,,
Dundalk	,,	,,	lase	324	sq. feet.
	,,	,,	perch	44	,,

Wheat.

At Bridgend	Wheat is sold by the		bushel of	168	lbs.
Darlington	,,	,,	,,	73⅓	,,
Worcester	,,	,,	,,	62	,,
Gloucester	,,	,,	,,	62	,,
Monmouth	,,	,,	,,	80	,,
Abergavenny	,,	,,	,,	80	,,
Shrewsbury	,,	,,	,,	75	,,
Wolverhampton	,,	,,	,,	72	,,
Manchester (English Wheat)			,,	60	,,
Do. (American do.)			,,	70	,,
Liverpool	,,	,,	,,	70	,,
Aberystwith	,,	,,	,,	65	,,
Newcastle-on-Tyne	,,	,,	,,	63	,,
Carmarthen	,,	,,	,,	64	,,
Hull	,,	,,	,,	63	,,
Boston	,,	,,	,,	63	,,
Doncaster	,,	,,	,,	60	,,
Wakefield	,,	,,	,,	60	,,
Saltash	,,	,,	,,	8	gallons.
Dundalk	,,	,,	,,	20	stones.
Hertford	,,	,,	load of	5	bushels.
Bishop's Stortford		,,	,,	40	bushels.
Hitchin	,,	,,	load about	5	,,
Pontefract	,,	,,	load of	3	,,
Bedford	,,	,,	,,	5	,,
Dorking	,,	,,	,,	5	qrs.
Oxford	,,	,,	,,	5	,,
Ulverstone	,,	,,	,,	144	quarts.
Royston	,,	,,	,,	488	lbs.
Stow	,,	,,	,,	488	,,
London	,,	,,	quarter of	480	,,
Bridgenorth	,,	,,	bag of	11	scores.
Much Wenlock		,,	,,	11	scores 4 lbs.
Ludlow	,,	,,	,,	11	scores 10 lbs.
Leominster	,,	,,	,,	12	scores.
Saltash	,,	,,	,,	2	bushels.
Modbury	,,	,,	,,	2	,,
Whitehaven	,,	,,	weight of	14	stones.
Nottingham	,,	,,	,,	36	,,
Grantham	,,	,,	,,	36	,,
Malton	,,	,,	,,	40	,,
Scarborough	,,	,,	,,	40	,,
Swansea	,,	,,	stack of	3	bushels.
Barnardcastle		,,	boll of	2	,,
Darlington	,,	,,	,,	2	bushels.
Glasgow	,,	,,	,,	240	lbs.
Do. (Indian corn)		,,	,,	280	,,
Beccles	,,	,,	comb of	240	,,
Preston	,,	,,	windle of	220	,,
Wrexham	,,	,,	hobbet of	168	,, (or 80 quarts.)
Denbigh	,,	,,	,,	168	lbs.
Pwlheli*	,,	,,	,,	252	,,
Holmfirth	,,	,,	strike of	2	pecks.
Chester	,,	,,	measure of	75	lbs.
Wrexham	,,	,,	,,	75	,,
Belfast	,,	,,	cwt. of	112	,,
Dublin	,,	,,	barrel of	282	,,
Cork	,,	,,	,,	20	stones.
Limerick	,,	,,	stone of	14	lbs.
Sligo	,,	,,	barrel of	20	stones.
Llandovery	,,	,,	winch of	1	Winchester bushel.

* N.B.—The Denbigh hobbet is about ⅔ of the Pwlheli hobbet.

Oats.

At Liverpool	Oats are sold by the		bushel of	45	lbs.
Saltash	,,	,,	,,	24	gallons.
do.	,,	,,	bag of	3	bushels.
Modbury	,,	,,	,,	20	gallons.
Darlington	,,	,,	boll of	2	bushels. (1 bushel 50 lbs.)
Glasgow	,,	,,	,,	264	lbs.
Dublin	,,	,,	barrel of	14	stones.
Dundalk	,,	,,	,,	14	stones.
Sligo	,,	,,	,,	24	stones.
Belfast	,,	,,	cwt. of	112	lbs.
Chester	,,	,,	measure of	46	lbs. (or 38 quarts).
Wrexham	,,	,,	,,	46	lbs. (or 38 quarts).
do.	,,	,,	hobbet of	105	lbs. (or 80 quarts).

Barley.

At Belfast	Barley is sold by the		cwt. of	112	lbs.
Dublin	,,	,,	barrel of	16	stones.
Preston (for malting)		,,	,,	224	lbs.
do. (grinding)		,,	,,	240	,,
Sligo	,,	,,	,,	24	stones.
do.	,,	,,	cwt. of	112	lbs.
Limerick	,,	,,	stone of	14	,,
Liverpool	,,	,,	bushel of	60	,,
Birmingham	,,	,,	,,	49	,,
Gloucester	,,	,,	,,	50	,,
Leeds	,,	,,	,,	52½	,,
Newcastle-on-Tyne		,,	,,	56	,,
Glasgow	,,	,,	boll of	320	,,
Hertford	,,	,,	quarter of	8	bushels.
Pwlheli	,,	,,	hobbet of	220	lbs.
Denbigh	,,	,,	,,	147	,,

Butter.

At Bedale	butter is sold by the		roll of	24	oz.
Norwich	,,	,,	pint of	20	,, (formerly 22 oz.)
Hyde	,,	,,	dish of	22	oz.
Chester	,,	,,	,,	24	,,
Stoke-upon-Trent		,,	lb. of	18	,, (varies from 16 to 24 oz.)
Darlington		,,	,,	24	oz.
Bridgend		,,	,,	18	,,
Newry		,,	,,	20	,,
Armagh		,,	,,	16	,,

Potatoes.

At Burnley	Potatoes are sold by the		cwt. of	120	lbs.
Norwich	,,	,,	sack of	10	pecks.
Bishop's Stortford		,,	,,	3	bushels.
do.	,,	,,	bag of	140	lbs.
Preston	,,	,,	load of	240	lbs.
Bedale	,,	,,	stone of	14	lbs.
Chester	,,	,,	measure of	84	lbs.
do.	,,	,,	long measure of	90	lbs.
Llandovery	,,	,,	winch of		

Timber.

At Hastings	timber is sold by the		load of	50	cubic feet
do.	,,	,,	cord	126	cubic feet, or 14 ft. × 3 ft. × 3 ft.
do.	,,	,,	cord	128	cubic feet, or 8 ft. × 4 ft. × 4 ft.

Coals.

At Preston	coals are sold by the		long cwt. of	120	lbs.
Wrexham	,,	,,	cwt.	120	,,
Bedale	,,	,,	stone	14	,,
Hyde	,,	,,	peck	1,209	cubic inches.
Downpatrick	,,	,,	barrel	2 cwt. 2 qrs. 0 lb.	
do.	,,	,,	tub or bag	1 cwt. 1 qr. 0 lb.	
Sheffield	,,	,,	corf, about	3	cwt.
do.	,,	,,	,,	1	cwt.
do.	,,	,,	,,	3 to 4	tons.

Pork.

At Belfast	pork is sold by the		cwt. of	120	lbs.
Cork	,,	,,	cwt.	112	,,

Flour.

At Hastings	Flour is sold by the		gallon of	8	lbs. 1 oz.
Burnley	,,	,,	Aigendale of	8	lbs.
Holmfirth	,,	,,	pack of	240	,,
Bishop's Stortford		,,	sack of	5	bushels.

Wool and Flax.

At Horsham	wool is sold by the		todd of	28	lbs.
Darlington	,,	,,	stone	18	lbs.
Belfast } Dublin }	,,	,,	stone	16	lbs.
Downpatrick	Flax is sold by the		Scotch stone of	24	lbs.
Belfast	,,	,,	,, stone	16¼	,,
do.	,,	,,	,, stone	24½	,,
Newry	,,	,,	,, stone	16	,,
Londonderry	,,	,,	,, cwt.	120	,,

Brickwork.

At Saltash	brickwork is measured by the		perch of	36	cubic feet.
Bath	,,	,,	,, perch	22½	,,
Dundalk	,,	,,	,, perch	31½	,,
Hertford	,,	,,	,, rod of	272	sup. feet × 1½ brick thick.
Downpatrick		,,	,, pole	3	cu. yds, 4 ft. 72 inches.

FERTILITY AND INFERTILITY OF SOILS.

Among the points affecting the character of a soil in these respects are its physical properties, including the weight of various kinds of earth per cubic foot, the ability of soil to absorb, hold, and retain water—the capillary attraction which it exerts on water—its shrinkage upon drying—and its adhesiveness as affecting the cost of cultivation as well as indicating its comparative consistency. Its relations both to moisture and to heat regulate the practice and the theory of land drainage.

All these points are affected rather by the structure of the land than by its composition: they concern the accommodation provided in the storeroom rather than the food for plants existing in it. Under this latter head comes the influence of the several principal mineral ingredients on the texture and consistency of the soil, modified in farm practice by the processes of claying, liming, and marling. The presence of the other ingredients in the soil, alkaline salts, phosphate of lime, soluble silicates, and ammonia, required by plants as food, regulates the need of artificial additions made of each in the application of manure. Lastly, the absorptive powers of soils in reference to ammonia due to certain chemicals existing in them as in a laboratory—by which both their capacity and their retentiveness as a storeroom are increased—is an important topic under this division of the subject.

The fertility of soils has been of course actually increased in practice by operations influencing the soil in the several respects which have been named. I have enumerated rather than described what the scientific man has determined as the causes of fertility; I must now enumerate rather than describe the particular instances in which the farmer has observed them and employed them.

As to observing them, I do not think you could do better than take your station on some hill top along the edge of the Cotswold range and look down upon the various geology of the vale of Gloucester. You will see in the waste and common lands upon the several formations the unassisted fertility of the soil on each. Rushes, Sedges, Brambles on the lias clay; short sweet Grass, easily burned up, however, on the carboniferous limestone; excellent pasture on the calcareous gravel and the marlstone of the lower oolite. And if you walk across the districts of the several formations you will see how, whatever be the character of the soil—clay, sand, or gravel—the home grounds where the cattle are foddered during winter on all the dairy farms are greenest in the winter months and most productive in the summer, showing how composition and store of food for plants influence fertility more than questions of consistency, capacity for water, or weight.

You would see, too, in that district in actual operation all the several methods which experience has devised of altering texture, modifying faulty relations to water, increasing the stores of food for plants, and so of increasing fertility. The process of burning clays, of marling sands, of draining both—of applying lime—of adding all manures—may be witnessed with the effects proper to each.

These processes have been signalised on the great scale in particular localities, which it may be well to name. Light sands once almost barren have been rendered fertile in West Norfolk by applying chalk marl—and clay—and folding sheep upon the land. In that same district, too, fertility is now maintained by liberal manuring and liberal feeding on the land. The Lincoln Heath, once a waste, is now one of the most fertile districts, owing to the employment of sheep as manurers and hardeners of the land. Sherwood Forest, a light sandy waste in Notts, is being enclosed, and is acquiring a fertility which Nature did not give it by the use of similar means. Mr. Telfer, of Canning Park, near Ayr, manures with extraordinary liberality a soil which not long since must have been a barren sand, and obtains extraordinary crops, especially of Italian Rye-grass. Light peaty soils in Lincolnshire have by spreading clay dug from beneath them—and a system of drainage which lowers the water to some 30 inches below their present surface—been made among the most productive and valuable in the kingdom. I saw on a farm in Deeping Fen, not many months ago, crops of Flax, of Rape, of Clover, of Potatoes, and of Wheat which would have done credit to the richest

alluvial soils in the kingdom—where high tide *used* to flow, and where it would still be 6 and 8 feet deep were it not for artificial drainage.

Light chalky soils in Sussex and Surrey are improved by folding sheep and hardening them by rollers, and applying chalk marl to them, all processes tending to increase their consistency. Tillage, as comminuting soils and so increasing the quantity of material surface within a given bulk of earth—as opening soils to the influence of air and sunshine—as removing weeds, and so confining all the productive powers of the land to the growth of the crop in cultivation—as reducing the consistency of stiff clays—may be seen in all its fertilising influence everywhere; perhaps as a special illustration of its powers in this way I may refer to the little farm at Lois Weedon, in Northamptonshire, occupied by the clergyman of the parish, where for many years the Rev. Samuel Smith has grown Wheat after Wheat upon the land, simply by perseverance and attention in the cultivation of the intervals between each year's rows of Wheat, making that intervening space a more liberal feeding ground for the current crop, and a better seed-bed for that of the following year. As for manuring every farm of course illustrates its fertilising effect, and on the great scale there cannot be a doubt that the great increase in the produce of this country which late years have witnessed is attributable in great measure to the enormous annual importations of guano and to the continual progress made in turning to a useful account waste material of every kind, as blood and woollen rags and bones, and ultimately, I do not doubt, the sewage matter of our towns. *M. S.*

Home Correspondence.

A Rotation of Crops.—I shall be obliged if you will inform me whether you think the following system of cropping one which would be likely to answer for a continuance, or whether the root crops would occur too often. The arable land on my farm is about 300 acres in extent, and consists of a variety of soils—strong loam on marl, a sandy loam of considerable depth, and a black alluvial deposit of great richness, though not deep. I am anxious, if possible, to grow 100 acres of Wheat, 100 acres of Mangel Wurzel and Sugar Beet (no Turnips, or very few), and the remainder to be divided among other crops. For the last two years my Turnips have almost totally failed through finger and toe, and I shall plant so small a breadth for some years that it will not be worth consideration. The present system is the four field. 1st, roots; 2d, Barley; 3d, Clover or Beans; 4th, Wheat. The following rotation will give—

One-third or 100	acres	Beet and Mangel Wurzel.
One-third or 100	,,	Wheat.
One-twelfth or 25	,,	Oats.
One-twelfth or 25	,,	Clover.
One-twelfth or 25	,,	Barley.
One-twelfth or 25	,,	Beans, &c.
300		

1st year,	Mangel Wurzel		7th year,	Mangel Wurzel
2d	,,	Barley	8th	,, Oats
3d	,,	Clover	9th	,, Beans
4th	,,	Wheat	10th	,, Wheat
5th	,,	Beet	11th	,, Beet
6th	,,	Wheat	12th	,, Wheat

Do you think that there would be any difference in the requirements of the Mangel Wurzel and Sugar Beet, or that they should be considered as the same crop? *Agricola.* [We have seen no instance of land tiring of Mangel Wurzel as it does of Turnips; and whether Mangel Wurzel and Beet coming so often as once every third year is a possible or desirable thing has yet to be proved. We should think it unlikely to succeed in the long run.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

Weekly Council, *May* 20.—Colonel Challoner, Trustee, in the Chair.

Cattle Murrain.—Mr. Raymond Barker, Chairman of the Veterinary Committee, read the following communication:—

"Cracow, May 13, 1857.

"My dear Sir,—I have now the pleasure of informing you that, through the interest taken in the subject of my inquiry by her Majesty's Ambassadors both at Berlin and Vienna, and their kind interference on my behalf, of which I gave you the particulars in my last communication, every facility has been afforded me by the Austrian authorities throughout Poland to investigate the cattle pest; and that although we have had to travel a far wider extent of country in search of the malady than we had anticipated, we have nevertheless not only succeeded in meeting with it, but in studying its nature and effects. It was not until we reached the Carpathian mountains that we came up with the disease, as it had subsided already in every place we passed through, and chiefly in consequence of the rigorous measures which are promptly adopted to stay its ravages, by killing not only the infected cattle but also those which they had been in contact with. We arrived at a village named Lükowica the day after a slaughtering had taken place, which forced us onwards to another named Zabzrez, where we found some animals in quarantine, and in the adjoining parish of Hamienico, but distant five miles from us, another quarantine station had been established. Here we determined to halt and watch the course of events, and joining the Austrian Commission in their next journey to camp quarters we daily visited the stations. Within two days a case occurred, and I arranged to purchase the animal for investigation to save its being at once killed. A second case I dealt with in the same way, and as this was followed by other cases very quickly, by the deaths of some animals and the killing of others in various stages of the malady, we have had a far better opportunity of carrying out our mission than was to be anticipated. We have stayed as long as an animal was left in the quarantine stations, more having come in while we were there; and under these circumstances we are now on our way back. I hope soon to reach England, and to lay an entire report before the Society, which I will not anticipate by adding to this letter. I may, however, say that I believe no fears need be entertained at home that this cattle pest will reach our shores. I am, &c.

"Jas. Hudson, Esq." "Jas. B. Simonds.

At the Annual Meeting held yesterday, the following Report was read:—

The Society consists at the present time of—

83	Life Governors,
137	Annual Governors,
896	Life Members,
3933	Annual Members, and
19	Honorary Members,

making a total of 5068, or an increase of 89 names on the list of the Society since the last anniversary meeting.

During the past half-year the Society has lost by death two of its earliest members, the Duke of Rutland, a trustee, and Mr. Francis Woodward, one of the general Members of Council, each within his respective sphere distinguished for his devotion to agriculture, and for promoting the welfare of all connected with its pursuit. The Council have supplied the vacancies consequent on their decease by the election of Mr. Bramston, M.P., as a Trustee, and of Mr. Pain, Mayor of Salisbury, and Mr. Paget, M.P., as general Members of the Council.

The invested capital of the Society stands at 9264*l.* 8*s.* 11*d.* stock in the New Three per Cents., and the current cash-balance in the hands of the bankers on the first instant was 1087*l.*

The Consulting Chemist of the Society is engaged in investigations on the solubility of substances in the soil, supplying nourishment to plants. He has also delivered a lecture before the members on the general character and geographical distribution of guano deposits, and has made his annual report on the details connected with his department. The Council have been favoured by Professor Henfrey, of King's College, with a lecture delivered before the members on the nutrition of plants, elucidating the organisation and functions by which they derive and assimilate the nutriment obtained by them from various sources.

The Council have again to record their sense of the Earl of Clarendon's interest in promoting the objects of the Society, by obtaining from the Ministers and Consuls abroad not only information on the occurrence of guano and other manuring substances, but also details connected with the progress of pleuro-pneumonia and contagious typhus among the cattle in different parts of Europe. The Council having received from the Royal Agricultural Improvement Society of Ireland a suggestion that it would be desirable for the three Agricultural Societies of the United Kingdom to unite in the common object of despatching abroad a special Veterinary Inspector, for the purpose of ascertaining the exact nature of the contagious typhus, they at once concurred with the Highland and Agricultural Society of Scotland in adopting that suggestion, and on the 9th of last month Professor Simonds, furnished with a circular letter from the Earl of Clarendon to the several Consuls of Europe, left England as the Veterinary Inspector of the three National Societies, and on the 30th forwarded his first communication, in which he reports that he found, to a great extent, that the pleuro-pneumonia had been mistaken for the severer malady of contagious typhus; and that he had to penetrate into Poland itself in order to meet with cases that might furnish evidences for his study and report. He expresses his firm opinion that there is at present no fear of the contagious typhus being introduced into this country by means of living animals, whatever danger may arise from the importation of hides or other integumentary portions of slaughtered cattle. Copies of this communication were at once forwarded to the Foreign Office, and to the Highland and Agricultural Society of Scotland and the Royal Agricultural Improvement Society of Ireland.

The arrangements for the Salisbury Meeting are proceeding satisfactorily. A very large entry is already made of implements; and the entries for stock, which close on the 1st of next month, promise to be equally numerous. The implements at work will this year be presented under a new arrangement, which will essentially tend to increase the interest of that part of the Show.

The Council have decided, subject to the usual conditions, to hold the Society's Country Meeting of next year at Chester; and have determined the district for the year 1860 to be composed of the counties of Kent and Surrey.

While the Chelmsford Meeting of last year was one of the most successful meetings hitherto held in promoting the objects of the Society, it also proved in its results to have been one of the most expensive in a financial point of view; and the Council have under their consideration the adoption of various modifications which may tend to reduce the expenditure of future county meetings, while their full efficiency is in every respect essentially maintained.

The steady increase of permanent Members on the list of the Society, the great interest felt in various districts of the kingdom respecting the practical value of its country meetings, and the gradual union of the owners and occupiers of land, who are brought into communication with each other, and thus led to co-operate in the common object of promoting their individual interests, while advancing at the same time the general cultivation of the country and the principles of rational agriculture throughout the world, are circumstances which furnish well grounded hopes of the beneficial influence of the Society's operations, and a just expectation of its continued and increasing usefulness. James Hudson, Secretary.

London, *May*, 1857.

Reviews.

Facts and Fallacies of the Sewage System of London and other Large Towns, &c. By Jasper W. Rogers, C.E., &c. Atchley & Co., 106, Great Russell Street, Bedford Square.

Mr. Rogers is the author of a number of pamphlets and other publications on the social condition of Ireland, and on the great value of its bogs as the means of furnishing a valuable sanitary and fertilising agent. The present pamphlet urges the use of peat charcoal as a disinfectant of the refuse of London houses before it reaches the sewer. The evil which it is proposed to remedy by its use is stated in the words of the Registrar-General as follows:—

"The third class of atmospheric impurities is invisible, but it arises from the long retention of the excrement of London under the houses and in the sewers. According to the estimates of Mr. Lawes, London could supply the farmers of England daily with 29 tons of ammonia, 51 tons of carbon, 14 tons of phosphates, 32 tons of mineral matter, and 14 tons of other matter; making in the aggregate 140 tons of dry manure, dissolved naturally in about 19 times its weight of water. The country requires this precious manure, which London is anxious to get rid of at any reasonable cost, as it is now known to be as insalubrious as it is offensive.

"The problem for the engineer to solve is, how can 3000 tons of town guano be returned daily to the disinfecting soil, from which it was chiefly taken, with the least offence to health and with the least cost? shall it be distributed by pipes or by railways? shall it be disinfected by water, earth, ashes, or any chemical compound?

"Under the present arrangements some hundreds of thousands of tons of this matter lie in store in London, putrefying in cesspools, and percolating the streets, while the residue is thrown into the Thames at a great cost."

It is the putrefying matter now lying in sewers and cesspools that Mr. Rogers would deal with, purify, and render harmless by filtration through peat charcoal. A considerable portion of his pamphlet is taken up with a defence of the author's original discoveries of those peculiar properties of charcoal which fit it for the purpose here contemplated, and there is a long appendix of extracts from periodicals and reports illustrative of Mr. Rogers's labours in connection with this subject.

Miscellaneous.

The Birmingham Prize Lists for 1857.—The private view will take place on Monday the 30th of November, and the exhibition will close on the following Thursday evening, the 3d of December, the stock being required to be in the yard on the previous Friday, the 27th of November, and the prizes will be awarded on the following day, Saturday, the 28th of November. With regard to the prize lists for stock, the general classes for Herefords, short-horns, and Devons remain the same as last year. An additional class has been opened for long-horn oxen and steers, with a prize of 5*l.*; and two prizes for long-horn cows and heifers are again offered—10*l.* and 5*l.*—only one, of 5*l.*, having been given in this class in 1856.—In the extra classes, for oxen and steers, and cows and heifers, not qualified to compete, from various causes, in any of the other classes, two prizes of 5*l.* each are now offered, instead of silver medals. These form the only changes in the ordinary competition; but there are this year additional extra prizes. In the first place, Lord Ward, the president, has offered a silver cup, or other piece of ornamental plate, of the value of 25*l.*, as an extra prize for the best ox or steer of any breed or age, to be bred and fed by the exhibitor. Three extra prizes of 20*l.* each are offered by the council for the best Hereford, short-horn, and Devon, to be selected from the four classes—oxen or steers, steers not exceeding three years and three months old, cows, and heifers—occupied in each case by these breeds. The gold medals, or articles of plate of the same value, for the best ox or steer, and for the best cow or heifer in the exhibition, are also continued; and thus it is possible that one exhibitor may be the winner of the class prize of 10*l.*, the extra prize offered by the president, one of the extra prizes offered by the council, and one of the gold medals, making a total of prizes of the value of 75*l.* The sweepstakes for breeders, being also exhibitors, are continued on the same plan as last year, when the experiment was tried for the first time, and with satisfactory results. The only alterations in the prizes for sheep are the addition of two extra prizes of 10*l.* each for the best pens of long and short-woolled sheep, instead of silver medals, an addition which was well deserved, and which cannot fail to give increased interest to an important department of the exhibition. No change whatever has been made in the prizes and regulations relating to pigs.

Terms of Arrangement between the Liverpool Shipowners' Association and Ord, Hindson, and Hayes, of Liverpool, the Lessees, under Government, of the Guano Islands in Kooria Mooria Bay.—1st. The trade to be confined to importation into the United Kingdom and British Colonies, and to be open to all parties on payment of 1*l.* per ton, and the Royalty payable to Government of 2*s.* per ton for the first year, and 4*s.* per ton the second and subsequent years. 2d. The payment to be on the quantity of the cargo delivered at the port of discharge; but, in order to meet cases of non-arrival or jettison, and on the principle of the party taking the guano bearing the risk of the cargo, the party, in the event of non-arrival or jettison, to be liable to pay on a tonnage of one-third in addition to the ship's registered tonnage, unless it be shown by the certificate of the lessees' superintendent at the islands, or otherwise, that the vessel from leakage, or other accident, could only load a part cargo, and then the payment to be made on the quantity loaded. 3d. Licenses to be only granted through the lessees at Liverpool; but vessels will be allowed to load without licenses, paying at the islands for the cargo and royalty in specie or approved bills on British or Colonial Banks. 4th. Ships to be entitled to claim to be loaded according to priority of arrival at the islands, and being ready to receive cargo with a competent number of efficient men, consisting of her crew and others (if necessary) for the purpose of loading, being not less than three men to every 100 tons of registered tonnage. 5th. The lessees not to be obliged to find stages and apparatus for getting cargo, but if stages and other facilities are provided by the lessees, the ship first on turn to have the option of using the same or her own means of loading; but an uniform charge for use of the same to be made to all alike if used. 6th. All parties to be treated alike, without partiality to any, upon the basis of these terms, and licenses not to be refused, provided security satisfactory to the lessees be offered by the party applying for the license. 7th. All questions of difference arising at the islands between the parties loading, or coming to load

guano, and the representatives of the lessees there, to be referred to and decided upon by her Majesty's officer in command at the island, and his decision to be final. Kooria Mooria Bay is on the south-east coast of Arabia in latitude 17° North, longitude East of Greenwich 57°, about 750 miles from Aden and at 850 miles from Bombay. There are three islands, viz., Haski, Giblea, and Ghurzood, covered with guano, the quantity of which is estimated at as high as three millions of tons, but it is not improbable may much exceed this estimate. The quality resembles that obtained from Ichaboe and Upper Peru, but the facilities for loading are much greater than at the first-named island, and, as it is intended to work the three islands at once, there is little doubt each vessel will be able to commence working immediately on arrival. Vessels can load from the end of August to the end of April. During that time the sea on the coast and at the islands is perfectly smooth, besides there are natural harbours round some of the islands, in which several vessels can lay perfectly land-locked; from the end of April, however, to the end of August, the south-west monsoon prevails, and loading is impracticable.

Copy of Analysis of Samples of Guano from the Kooria Mooria Islands, sent by Captain Freemantle, Commander of Her Majesty's ship Juno, January 1855.

	No. 1.	No. 2.	No. 3.	No. 4.	No. 5.
Azotised Organic matter with fixed Salts of Ammonia	16 4 Ama.	13 3½ Ama.	12 3 Ama.	23 6 Ama.	31 9 Ama.
Phosphates of Lime ..	54	63	72	50	38
Fixed Alkaline Sulphates and Muriates	7	5	4	8	5
Moisture	10	11	6	12	12
Silica	13	8	6	7	14
	100	100	100	100	100

(Signed) GEO. C. HUSON, Analyst, Liverpool.

Copy of Analysis of Samples of Guano brought by Captain Ord from the Kooria Mooria Islands, 10th February, 1857.

	No. 1.	No. 2.
Azotised Animal Matter with fixed Salts of Ammonia	20 4½ Ama.	22 5½ Ama.
Phosphate of Lime	43	38
Fixed Alkaline Sulphates and Muriates ..	7	9
Sulphate of Lime	None.	8
Moisture	16	14
Sand and other earthy matter	14	9
	100	100

(Signed) GEO. C. HUSON, Analyst, Liverpool.

Calendar of Operations.

MAY.

WEST SUSSEX, *May* 19.—Throughout this month, so far as it has gone, we have had the weather far from favourable for the growth of Grass and Barley, and though Wheat generally looks well, still a few warm showers, of which we have had none, might have improved it. We had frost, and many times severe, every night during the first half of the month, which proved a cold reception for the Potatoes as they came up. For a week it has been warm and very dry, and upon cold-bottomed land the colour of the Wheat improves, especially if it has had a light top-dressing of guano, which answers well in a cold season if not put on when too dry, and in April we got some very suitable weather for it. And we can also see that the colour is best where the plant is thinner; but for all that some of it might be thicker with a prospect of a better yield at harvest. The wireworm has had her little share of both oats and Wheat, and the mole has her liberty to contest the field with it. Do you think this is anything like employing two lawyers—one to look after the other—but both to eat up the estate? We got our Mangel sown in good time; but there is not much chance of its coming up very quickly, as it was sown when the land was dry, and has had no rain since; but once up there are few plants that will do better in a dry season. The Wheat sown after it does not look so good in colour as the rest, and ought to have a dunging in the spring. Horses are all busy preparing for Swedes; but there will not be many sown this month, as they are apt to mildew.

Notices to Correspondents.

A NEW MANURE: *A Novice* says he has 30 or 40 bushels of old Turnip and Cabbage seeds which he wishes to use as manure, and would be glad to be advised as to the best mode of preparing and applying it—whether crushing is indispensable? or if damping so as to produce fermentation would do equally well? [The quantity—a ton weight—would, if fermented and well rotted, probably form a good dressing for two acres of land.]

AUSTRIAN AGRICULTURAL EXHIBITION: *Correspondent.* A very large contribution of English machinery by our principal makers forms part of it. The meeting itself took place the week before last. It is said to have excited considerable interest, and to have been visited by many thousands of persons—22,000 on a single day. English agricultural machinery finds a ready market—Hungarian proprietors in particular are large purchasers. The distribution of the prizes took place on the 15th inst. in the Angarten, and the British machinists had every reason to be satisfied with their share of them. Gold Medals were allotted to the following English firms:—Messrs. Barrett, Exall, and Andrews, for locomotives and threshing machines; Messrs. Clayton and Shuttleworth, for locomotives and threshing machines; Messrs. Garrett, for locomotives and threshing machines; Messrs. Howard, for ploughs and harrows; Messrs. Ransomes & Sims, who had the largest collection, for locomotives, threshing machines, ploughs, &c.; Messrs. Davy, Brothers, for a new kind of locomotive; Mr. Henry Clayton, for a brickmaking machine; Messrs. Hornsby, for locomotive and threshing machines. Large Silver Medals were awarded to Messrs. Cranman, Turner, & Co., and Priest and Woolnough. Small Silver Medals were given to Messrs. Lloyd, Smith, and Ashby, Hassman & Son, and Dray & Co. Messrs. Burgess & Key, Hunt, Lyndon, and Wright, obtained Bronze Medals. Great good humour prevailed at the distribution of the prizes, and each person who appeared before the Archduke Francis Charles, the father of the Emperor, to receive his medal, was cheered with a flourish of trumpets. The Medal for the best reaper is said to have been awarded to Dean, Dray, & Co. BOOKS: *A R.* White's Compendium of the Veterinary Art, last edition. Longman & Co.; Youatt on the Horse. *W. C. S.*

Gor. Lambs not unfrequently die on being first turned out to Grass with the ewes. You cannot attribute this to the Lungia of which a specimen was sent.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*" ..	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten fires I had on the old system.*"	12	6000	2300
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c. ..	12	..	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total .. .. Mr. Paget says:—"*Your apparatus is working very satisfactorily.* * * * *The boiler is quite master of its work.*"	..	4050	
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

JOHN WEEKS & COMPANY,
Horticultural Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their REDUCED PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

	s.	d.	
6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ / 8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½	11	6	per 100 feet.
10 by 8 and 10½ by 8½ ..	12	6	,,
Larger sizes from 12 by 9 to 15 by 10 ..	14	0	,,
Above 15 ,, 10 ,, 24 ,, 18 ..	16	0	,,

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. / 20 ,, 13 ,, 20 ,, 15 ..	18	0	,,

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2s. each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2d. to 3d., 21 oz. from 2½d. to 5d. per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½d. per foot. 21 oz., 3½d.

Foreign Sheet Glass, in crates of 200 feet, 40s. and 42s. per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	10s.	6d.	per box.
7 ,, 5 ,, 7½ ,, 5½	12	0	,,
8 ,, 6 ,, 8½ ,, 6½	13	6	,,
9 ,, 7 ,, 9½ ,, 7½ & 10 by 8	15	0	,,

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15s. 6d. per 100 feet. Some of the above in 21 oz. Glass at 1s. and 2s. per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10s. per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12s.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14s.	12 by 10, 13 by 10, 14 by 10, 15 by 10	14s.

Above 15 by 10, and not exceeding 18 by 12, 15s. 6d. per 100 ft. Some of the above in 21 oz. Glass at 1s. and 2s. per 100 ft. extra.

19 by 12, 20 by 12	16s.	20 by 13, 20 by 14

Foreign Sheet Glass in 200 ft. cases, 32s. and 40s. per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2d. to 3d. per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s.; and 21 oz. 25s. per 100 feet. Boxes charged 2s each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

WEEKS' ONE BOILER SYSTEM.—FACTS UNDISPUTED.—These Upright Tubular Boilers are fixed in numerous places producing greater effect than any other yet invented, and we now again challenge the whole world to make a Boiler that will produce the same effect with the same quantity of fuel.—JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

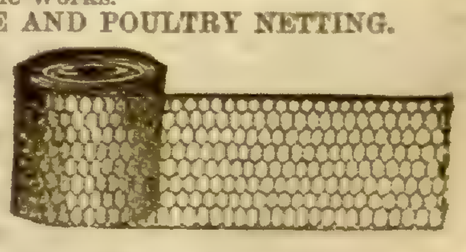
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½d. per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6d., 8d., and 11d. per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4d., 5½d., and 7½d. per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6s. 6d. to 13s. 6d. each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½d. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co Basinghall Buildings, Leeds.

BEE-HIVES.

Prize Medal awarded to G. N. & Sons, for Bee-Hives and Honey, at the Paris Exposition of 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by George Neighbour & Sons, with all the recent improvements, glasses, and thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to George Neighbour & Sons, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

Agents.—Liverpool: James Cuthbert, 12, Clayton Square, Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

(Fig. 1.)

(Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14s. 3d.; No. 2, do., diameter of barrel, 1⅜ inch, 12s.; No. 3, do., diameter of barrel, 1⅜ inch, 10s. 6d.

Read's Syringe, with two roses and one jet, 19s.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR and SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

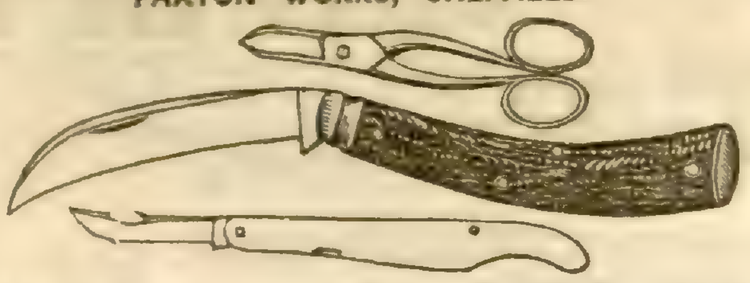
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

PAXTON WORKS, SHEFFIELD.



SAYNOR and COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

WARNERS' SWING WATER-BARROW (To Hold Thirty Gallons)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

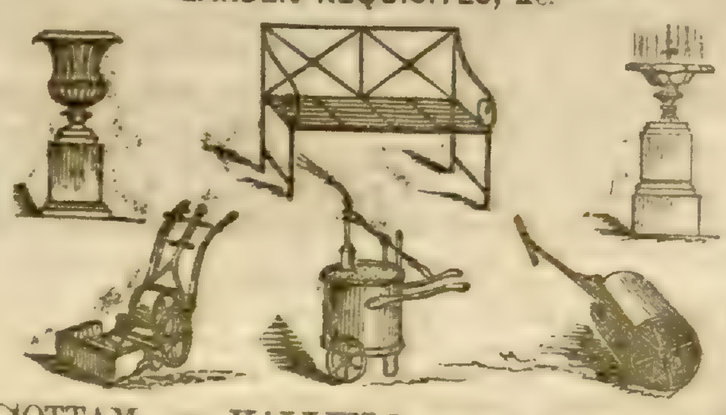
Fountains suitable for Conservatories, Lawns, &c.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

GARDEN REQUISITES, &c.



COTTAM and HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

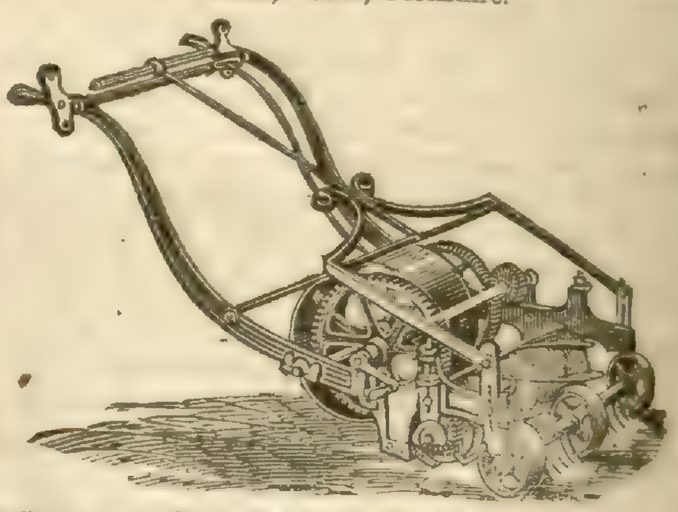
MOW YOUR OWN LAWNS.

BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, Wm. Dray & Co., Swan Lane, London Bridge.

By Royal Letters Patent.

GREEN'S PATENT PONY AND HAND GRASS-CUTTING MACHINES.—Date of Patent, August 2, 1856. No. 1831.

THOMAS GREEN, Patentee and Sole Manufacturer, Leeds, Yorkshire.



T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake or Guard to work in front of the cutters of the Machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters, a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other Machine or Scythe. T. G. calls particular attention to his small sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the Scythe or Shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Testimonial from James McMillan, Esq., *Moffat, Dumfries, Scotland, May* 2, 1857.

"Sir,—The 16-inch Patent Mowing Machine came safely to hand on Thursday, and gives entire satisfaction. We return packing case, and enclose amount of account.

"I am, yours respectfully,

"Mr. Green." "James McMillan.

Testimonial from Wm. Dowling, Esq., *Over Wallop, Stockbridge, April* 22, 1857.

"Sir,—I am exceedingly pleased with the Grass Cutting Machine that you have sent me; it is very simple in its construction, easy to work, and far surpasses any Mowing that I have seen done. I consider the Machine to be a great improvement over all others; the working-gear being within the frame is a great advantage, and the labour of drawing at least one-third less.—Yours obediently, "Wm. Dowling.

"Mr. Thomas Green."

Testimonial from Mr. Groom, *Gardener to Sir John Lowther, Bart., Swillington House Gardens, May* 5, 1857.

Sir,—The trial of your 30-inch Pony Mowing Machine at this place yesterday gave every satisfaction. As we have some 30 acres or more of short Grass mowing, I certainly feel some interest in machines. The one we have been using I have always considered as good as anything out, but certainly the performance of your Patented Machine yesterday by far surpassed anything I had ever seen, and this on a piece of Grass that had never been cleaned, swept, or mown this season before. It certainly cut it in first-rate style, leaving a perfectly even surface, and not the least sign of ribbing nor a mark of any description; in fact, no one could tell which way of the Grass the Machine had worked. The gearing being inside the frame work is a great advantage, as it enables us to cut nearer the shrubs, &c., without danger of breaking them. Another decided improvement is the small wheels or rollers in front of the cutters, keeping the Machine perfectly steady, and preventing the possibility of cutting up the ground. The facility with which every part of the Machine is adjusted is an immense advantage. Any one that has used Mowing Machines extensively must admit that the difficulty of getting them nicely adjusted has been a serious affair; in yours it is only the work of a few minutes. Certainly you have made great improvements, and the facilities for quick turning surpass all I have ever seen.—Yours obediently, "Henry Groom.

"Mr. Green."

Testimonial from Thomas Clapham, Esq. *Leeds Royal Gardens, September* 10, 1856.

"Sir,—Having seen one of your Patent Mowing Machines, 28 inches in width, mow one of the Grass plots in the gardens containing 3 acres, neat, and even in one-tenth the time any of my gardeners have done it, I have no hesitation in ordering two of your Machines; one for a pony to work, to cut not less than 32 inches in width, and another Hand Machine for the Grass Borders 20 inches in width. As there are about 15 acres of Grass plots in the gardens, I need not say that the knives must be very good, and if so, I have no doubt the work will be done at considerably less cost and much better than by hand labour. —I am, Sir, yours obediently, "Thomas Clapham."

THE FOLLOWING ARE THE PRICES:—

To cut		If with improved Rake.
,, 8 in.	£4 4 0	2*s.* 6*d.*
,, 10 in.	4 14 6	2 6
,, 12 in.	5 5 0	2 6
,, 14 in.	5 15 0	2 6
,, 16 in.	6 6 0	3 0
,, 18 in.	6 16 6	3 6

	To cut		If with improved Rake.
For pony	,, 20 in.	£7 7 0	4*s.* 6*d.*
	,, 22 in.	7 17 6	5 0
	,, 24 in.	8 8 0	10 0
	,, 30 in.	15 15 0	12 0
	,, 36 in.	18 18 0	14 0
	,, 42 in.	22 0 0	

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra.

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

P.S. Three Hundred of these Machines have been sold this season, and references can now be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

The Machines may be seen at the Works, also of Mr. Charles Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

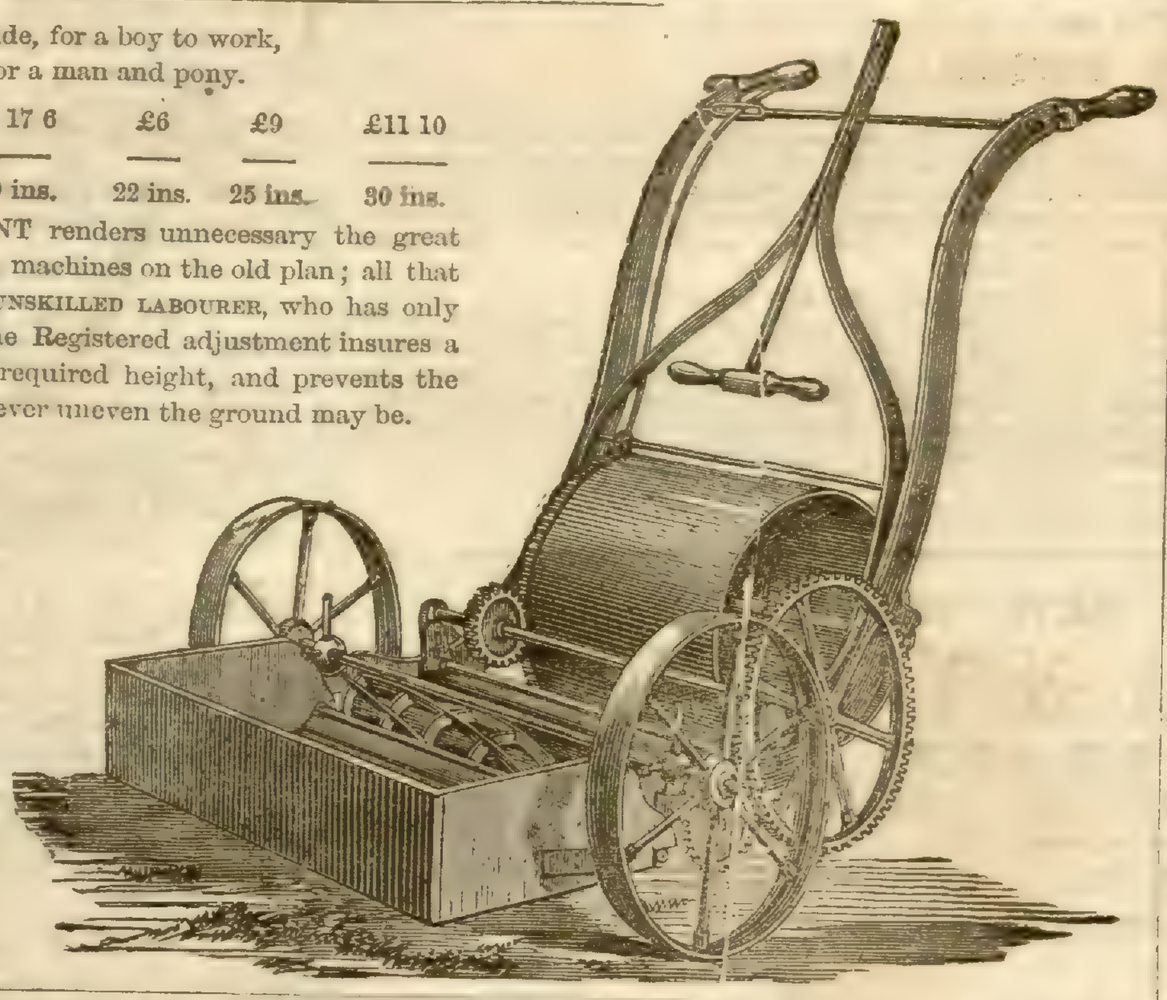
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a fine and perfectly level cut of any required height, and prevents the rollers from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

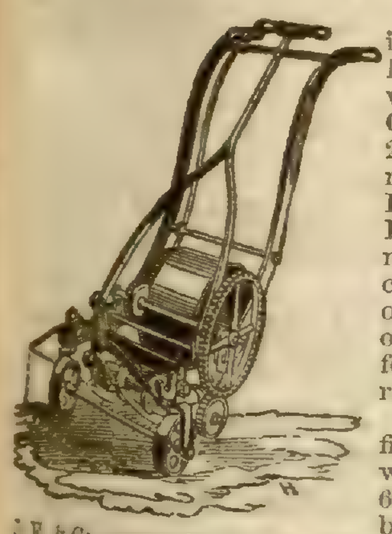


SAMUELSON, Britannia Works, Banbury.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.



The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and F. & Co possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; andsold by all respectable Ironmongers and Seedsmen in the Country.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 50 per cent. in labour is effected and the turf much improved.

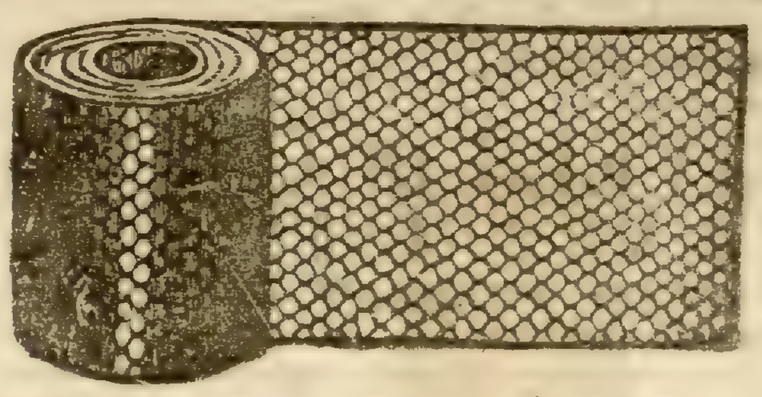
The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. GARROOD, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.

JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 24 feet. Upwards of 200 Cucumber and Melon Boxes and Lights from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, and ready for immediate use, all made of best material, packed and carriage paid to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,,	strong do.	6 ,,	4¾ ,,
2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,,	intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

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MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Brooksby's Nursery Brooksby's Walk, Homerton, on MONDAY, May 25, at 11 o'Clock, by order of Mr. Shaw, in consequence of the Lease having expired, about 7000 GREENHOUSE AND BEDDING PLANTS, consisting of 1000 Tom Thumb and other Scarlet Geraniums, 2000 Verbenas, 400 Fuchsias, 300 Shrubby Calceolarias, 300 Heliotropes, 3000 Petunias, Cupheas, and other Ornamental Plants; also two capital Greenhouses, Pits, Leaden Pump, and Sundry Effects.—May be viewed three days prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

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TO GENTLEMEN, NURSERYMEN, GARDENERS AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Tyler to Sell by Auction, on the premises, Stockwell Green Nursery, Stockwell, Surrey, on WEDNESDAY, May 27, at 11 o'Clock, about 10,000 BEDDING AND GREENHOUSE PLANTS, including 4600 Scarlet and Show Geraniums, 700 Rollisson's Unique, 1700 Fuchsias, 800 Calceolarias, Heliotropes, and various other ornamental and useful Plants.—May be viewed prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY and FRIDAY, May 28 and 29, at 12 o'Clock, a first-rate Collection of DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, &c.; also fine Azalea indica, Geraniums, Roses, and other Plants in bloom, with a choice and useful assortment for Bedding.—On view the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

MITCHAM, SURREY.

TO TULIP FANCIERS.

MESSRS. PROTHEROE AND MORRIS have received instructions to submit to public competition by Auction, without reserve, on the premises, Merton Lane, Mitcham, Surrey, on SATURDAY, May 30, at 2 o'Clock, a portion of the collection of TULIPS of the late John Goldham, Esq. Several new varieties and Seedlings will be offered at this Sale, which have not hitherto been parted with, besides many of those kinds which have previously been sent out from this collection.—May be viewed two days prior to the Sale. Catalogues may be obtained on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

CLAPTON.

TO GENTLEMEN, TULIP FANCIERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. James Batton to Sell by Auction, on the premises, Union Cottage, Brook Street, Clapton, on MONDAY, June 1, a costly bed of 177 rows of valuable TULIPS, including the most valuable kinds in cultivation, and many choice Flowers only in this collection; also above 2000 Bedding and Greenhouse Plants, comprising Pelargoniums, Scarlet Geraniums, Fuchsias, Verbenas, Heliotropes, &c.; together with a fine assortment of Heartsease, Pentstemons, Antirrhinums, &c.—May be viewed prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

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Between Kilburn and Hammersmith, Single Journey—1st class, 8*d*.; 2d, 6*d*. Return, 1st class, 1*s*.; 2d, 9*d*.

SOUTH-WESTERN RAILWAY.

GREAT HORTICULTURAL FÊTE AT CHISWICK, on WEDNESDAY, 3d, and THURSDAY, 4th June. On June 3 and 4 a SPECIAL TRAIN will leave Reading each day for Chiswick Station (from which there is an entrace into the Garden), as follows:—

	A.M.	Fares to Chiswick and Back. First Class.	Second Class.
		s. d.	*s. d.*
Leave READING .. at	11.40	7 0	5 0
Wokingham ..	11.52	6 0	4 0
Bracknell	12.5	5 6	3 9
Ascot & Sunninghill	12.14	5 0	3 6
Sunningdale ..	12.19	4 6	3 0
Virginia Water ..	12.28	4 0	2 9
Egham	12.33	3 6	2 6
Staines	12.43	3 6	2 6
Ashford	12.47	2 10	2 2
Feltham	12.54	2 0	1 6
Hounslow	1.2	1 0	0 10
Spring Grove ..	1.6	0 9	0 6
Brentford	1.10	0 6	0 4
Kew	1.14	0 5	0 3
Arrive CHISWICK	1.20	..	..

Returning from Chiswick at 6.30 P.M. each day.
Waterloo Bridge Station, May. By Order.

SOUTH-WESTERN RAILWAY.

GREAT HORTICULTURAL FÊTE AT CHISWICK, on WEDNESDAY, 3d, and THURSDAY, 4th June. On Wednesday 3d, and Thursday, 4th June, Trains will leave London for Chiswick Station (from which there is an Entrance into the Garden) at 11.15 A.M.; 12.15, 1.15 and 2.15 P.M. Returning from Chiswick at 4.12, 5.22, 6.20, and 7.22 P.M.

FARES.

	First Class.	Second Class.
Waterloo Bridge Station to Chiswick and Back ..	1*s*. 6*d*.	1*s*. 1*d*.

May, 1857. By Order.

SOUTH-WESTERN RAILWAY.

GREAT HORTICULTURAL FÊTE AT CHISWICK, on WEDNESDAY, 3d, and THURSDAY, 4th June. On June 3 and 4 a TRAIN will leave Windsor each day for Chiswick Station (from which there is an entrance into the Garden) as follows:—

	P.M.	Fares to Chiswick and Back. First Class.	Second Class.
		s. d.	*s. d.*
Leave Windsor .. at	12.25	5 0	3 0
Datchet	12.30	4 6	3 0
Wraysbury ..	12.36	4 6	3 0
Staines	12.43	3 6	2 6
Arrive Chiswick	1.20	..	..

Returning from Chiswick at 6.30 P.M. each Day.
Waterloo Bridge Station, May. By Order.

HORTICULTURAL EXHIBITION, CHISWICK. MANUFACTURERS' DIVISION.—PATENT WATERPROOF MATTING for Horticultural purposes will be exhibited. The attention of Horticulturists is requested.

SIGMA'S different Inventions will be exhibited at the Horticultural Exhibition, Turnham Green, June 3 and 4. Agent, Mr. CHARLES POWELL, Hurstgreen, Sussex. A Packet of Aphis Powder sent free on receipt of 6 postage stamps.

ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The EXHIBITION of AMERICAN PLANTS will take place on SATURDAY next, June 6. Tickets to be obtained at the Gardens only, by orders from Fellows or Members of the Society, price 5*s*. each, or on the day of Exhibition, 7*s*. 6*d*. each.

THE CHERTSEY HORTICULTURAL SOCIETY will hold their ANNUAL SHOW on FRIDAY, June 19, at Sandgates, Chertsey, when Prizes will be awarded for Collections of Plants, Flowers, Fruit and Vegetables. All persons desirous of exhibiting are requested to give three days' notice AT LEAST to the Secretary, of whom Schedules and Rules may be obtained. A Military Band will be in attendance.
H. KEMPSON, Secretary.

IPSWICH CHRYSANTHEMUM SOCIETY.—ANNUAL MEETING, Nov. 26, 1857.
In addition to the usual Prizes given by the Society, the following EXTRA PRIZES are offered Open to all England:—By JNO. EDWARDS, Esq., 20, Sharp's Alley, for the best Pompone Plant in an 8-inch pot, 10*s*. 6*d*.; for the best Cut Bloom in the Exhibition, 10*s*. 6*d*. By J. B. COBBOLD, Esq., for the best 12 Cut Blooms, distinct varieties, 1*l*. 1*s*. By Mr. HY. BOWLER, the best three Pompone Plants, distinct varieties, in 8-inch pots on single stems, 10*s*.; for the second best do., 7*s*. 6*d*. Schedules to be obtained of Mr. WM. GREEN, Hon. Sec., Woodbridge Road, Ipswich.

GRAND NATIONAL ROSE SHOW.—It is proposed to hold a NATIONAL EXHIBITION OF ROSES at some central town, such as Rugby, early in July next, and subscriptions are earnestly solicited towards the worthy realisation of this object.—Subscriptions and communications from those favourable to the scheme are requested, directed to the Rev. S. REYNOLDS HOLE, Caunton Manor, Newark, Nottinghamshire, Sec. pro tem.

THE EARL OF STAMFORD AND WARRINGTON will allow the PUBLIC to walk in the GARDENS of ENVILLE HALL upon TUESDAYS, THURSDAYS, and SATURDAYS, commencing upon TUESDAY, the 2d of June. All persons must apply at the Stamford and Warrington Arms Hotel for a ticket of admission, which must be produced at the Garden entrance.

TO AGRICULTURISTS AND BOTANISTS.

RARE COLLECTION OF NATURAL AND ARTIFICIAL GRASSES.—An interesting COLLECTION of 120 species and varieties of the most useful Grasses are now growing in Messrs. SUTTON'S TRIAL GROUNDS, Reading, Berks. These grounds are always open to Messrs. SUTTON'S customers, on presentation of their cards at the Office, No. 7, Market Place, Reading.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2*s*. per lb.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

CHINESE AZALEAS in all their varieties and blooming beauty are now to be seen at H. LANE & SON'S Nurseries, Great Berkhampstead, Herts. Nice Plants, 12*s*., 18*s*., 24*s*., and 30*s*. per doz. Specimens of all sizes.
Priced Catalogues can be had on application.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1*s*.; Double Carnation, 1*s*.; Double Picotee, 1*s*.; Polyanthus, 1*s*.; Calceolaria, 2*s*. 6*d*.; Primula fimbriata, 1*s*.; Double Hollyhock, 1*s*.; Brompton and Intermediate Double German Stocks, each, 1*s*.; Double German Wallflower, 1*s*.; Bedding Plants of sorts, 4*s*. per dozen.

BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market.

CARNATIONS AND PICOTEES.

MESSRS. YOUELL AND CO. beg to offer to the admirers of these elegant flowers a quantity in pots, part of the stock originally intended for their own blooming, at 21*s*. per dozen pairs.

They are fine strong plants, and may be either turned out into the borders immediately, or repotted without suffering the least check, a manifest advantage at this season.
Royal Nursery, Great Yarmouth.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South-Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.
American Nursery, Bagshot, Surrey.

CAPE BULBS.

JAMES CARTER AND CO. have just received a consignment of CAPE BULBS, and will be glad to forward a Descriptive List of them, post free, upon application.
238, High Holborn, W. C.

AGRICULTURAL SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W. C., forward *free of charge* and *post-paid* to ALL PARTS OF THE WORLD, their priced CATALOGUE OF AGRICULTURAL SEEDS.
JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
BASS & BROWN, Seed Growers, Sudbury, Suffolk.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

NEW CATALOGUE.

WILLIAM CUTBUSH AND SON'S CATALOGUE of Ferns, Pelargoniums, Fuchsias, Petunias, Verbenas, and other soft-wooded Plants, &c., can be obtained post free on application.—Highgate Nurseries, London, N.

W. IVERY'S Select CATALOGUE of CHOICE PLANTS is now ready, and will be sent on application. W. I. begs to inform his patrons that his Stock is unusually fine this season, and at very moderate prices.
Hanover Nursery, Peckham, near London, S.E.

VERBENAS.

JOHN PYLE can now send out VERBENAS at 2*s*. per dozen, strong plants; or store plants at 7*s*. 6*d*. per 100.
St. John's Nursery, John Street, Upper Holloway.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

ROSES, HOLLYHOCKS, AND DAHLIAS.

JOHN HARRISON has still on hand a large stock of the above plants in pots, in fine healthy condition, fit for immediate planting. The Roses consist of the choicest varieties of Hybrid Perpetuals, Bourbons, and Teas. The Dahlias comprise the choicest varieties of the day, including the splendid new Dwarf White Dahlia Zelinda. Catalogues with prices on application.—Darlington Nursery, May 30.

BEDDING PLANTS, ETC.

BASS AND BROWN have this season a large and unusually strong stock of BEDDING PLANTS, also GERANIUMS and GREENHOUSE PLANTS generally, strong and in the finest health, ACHIMENES, GLOXINIAS, &c. Catalogues on application.—Sudbury, Suffolk.

BEDDING PLANTS! BEDDING PLANTS!!

JAMES HOLDER, FLORIST, &c., Reading, Berkshire, can supply six dozen strong plants, hamper included, for 20*s*. cash, or three dozen for 10*s*. 6*d*., consisting of Geraniums, Verbenas, Fuchsias, Heliotropes, Salvias, Petunias, Gaillardias, Cupheas, Dahlias, Calceolarias, &c.

RAILWAY NURSERIES, WATFORD.

BEDDING PLANTS, SUMMER CLIMBERS, &c., can be obtained of the best quality, and on the most reasonable terms, by application to E. R. GREENUS, at the above Establishments.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—THOS. PERRY, Nurseryman, &c., Banbury.

FINE GERANIUMS AND FUCHSIAS.—Excellent flowering Plants of the above are now ready to be sent out, from 6*s*. to 9*s*. per dozen, consisting of the most showy varieties, including several of the French spotted Geraniums, all very stocky plants in 4 and 5-inch pots. Lists of the varieties may be had on application.
WOOD & INGRAM, Nurseries, Huntingdon.

DAHLIAS AND FANCY DAHLIAS, in 25 extra fine varieties, in assorted colours and strong plants, [illegible] hamper and package free.

25 extra fine and distinct show Pansies ..	..	12*s*.
25 ,, ,, Belgian Daisies	..	5*s*.
12 ,, ,, Phloxes ..	..	[illegible]

Selected Pansy Seed, 1*s*. and 2*s*. per packet.
JOHN HOLLAND, Bradshaw Gardens, Middleton, Lower Broughton.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.
J. C. WHEELER & SON, Seed Growers, Gloucester.

LIST OF THE AWARD OF PRIZES

AT THE FIRST EXHIBITION,

ROYAL BOTANIC GARDENS,

REGENT'S PARK, May 20, 1857.

EXTRA GOLD MEDAL.

Mr. Thomas Whitbread, Gr. to H. Collyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, Herts, for 20 Exotic Orchids

LARGE GOLD MEDAL.

Mr. J. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 16 Stove and Greenhouse Plants
Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, Surrey, for 16 Stove and Greenhouse Plants
Mr. G. Barter, Gr. to A. Basset, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
Mr. G. Clarke, Nurseryman, Streatham Place, Brixton Hill, for 10 Greenhouse Azaleas
Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 8 Greenhouse Azaleas
Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, Herts, for 20 Exotic Orchids
Messrs. Jackson & Son, Nurserymen, Kingston, Surrey, for 16 Exotic Orchids
Mr. M. Clarke, Gr. to C. Webb, Esq., Hoddesdon, Herts, for 12 Exotic Orchids
Messrs. Lane & Son, Nurserymen, Great Berkhampstead, for 10 Roses in 13-inch pots

GOLD MEDAL.

Mr. W. Cutbush, Nurseryman, Barnet, Herts, for 12 Stove and Greenhouse Plants
Mr. Dods, Gr. to Sir J. Cathcart, Englefield Green, for 10 Stove and Greenhouse Plants
Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants
Mr. W. Cutbush, Nurseryman, Barnet, Herts, for 10 Cape Heaths
Mr. Thomas Williams, Gr. to Miss Traill, Hayes Place, Kent, for 8 Cape Heaths
Mr. W. Cutbush, Nurseryman, Barnet, Herts, for 10 Greenhouse Azaleas
Mr. Taylor, Gr. to J. Coster, Esq., Streatham, for 8 Greenhouse Azaleas
Mr. Parker, Nurseryman, Paradise, Holloway, for 16 Exotic Orchids
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 12 Exotic Orchids
Mr. Chas. Turner, Nurseryman, Slough, for 12 Pelargoniums in 8-inch pots
Mr. E. P. Francis, Nurseryman, Hertford, for 10 Roses in 13-inch pots
Mr. Nye, Gr. to E. Foster, Esq., Clewer Manor, Berks, for 10 Pelargoniums in 8-inch pots

LARGE SILVER GILT MEDAL.

Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton, Essex, for 12 Stove and Greenhouse Plants
Mr. M. Clarke, Gr. to Chas. Webb, Esq., Hoddesdon, Herts, for 10 Stove and Greenhouse Plants
Mr. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, Cheam, for 10 Stove and Greenhouse Plants
Mr. Rhodes, Gr. to J. Phillpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
Mr. Green, Gr. to Sir A. Antrobus, Bart., Lower Cheam, Surrey, for 6 Tall Cacti
Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton, Essex, for 10 Greenhouse Azaleas
Mr. M. Clarke, Gr. to Chas. Webb, Esq., Hoddesdon, Herts, for 8 Greenhouse Azaleas
Mr. Chas. Turner, Nurseryman, Slough, for 6 Greenhouse Azaleas
Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 12 Exotic Orchids
Mr. Dods, Gr. to Sir J. Cathcart, Bart., Englefield Green, for 6 Exotic Orchids
Messrs. Dobson & Son, Nurserymen, Isleworth, for 12 Pelargoniums in 8-inch pots
Mr. Terry, Gr. to Lady Puller, Youngbury, Herts, for 6 Roses in 13-inch pots
Mr. Wiggins, Gr. to E. Beck, Esq., Isleworth, for 10 Pelargoniums in 8-inch pots
Mr. Thomas Williams, Gr. to Miss Traill, Hayes Place, Kent, for 6 Stove and Greenhouse Plants
Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 8 Cape Heaths
Mr. Wm. Taylor, Gr. to J. Coster, Esq., Streatham, for 6 Cape Heaths
Mr. Bray, Gr. to Sir J. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 6 Greenhouse Azaleas
Mr. Green, Gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey, for 6 Exotic Orchids
Mr. Charles Turner, Nurseryman, Slough, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Bousie, Gr. to the Hon. — Labouchere, Stoke Park, for 6 Fancy Pelargoniums in 8-inch pots

SILVER GILT MEDAL.

Mr. Hamp, Gr. to Jas. Thorne, Esq., Mawbey House, South Lambeth, for 16 Stove and Greenhouse Plants
Mr. R Baxendine, Gr. to W. H. Haydon Smallpiece, Esq., Rydinghurst, Surrey, for 10 Stove and Greenhouse Plants
Mr. J. Peed, Gr. to C. T. Gabriel, Esq., Norfolk House, Streatham, for 6 Stove and Greenhouse Plants
Mr. R. Grix, Gr. to the late A. Palmer, Esq., Cheam, Surrey, for 6 Tall Cacti
Mr. Glendinning, Nurseryman, Chiswick, for 10 Cape Heaths
Mr. J. Peed, Gr. to T. Gabriel, Esq., Norfolk House, Streatham, for 8 Cape Heaths
Mr. James Harlock, Gr. to R. W. Nutter, Esq., Wanstead, Essex, for 6 Cape Heaths

SILVER GILT MEDAL.

Mr. Gaines, Surrey Lane, Battersea, for 10 Greenhouse Azaleas
Mr. R. Grix, Gr. to the late A. Palmer, Esq., Cheam, Surrey, for 8 Greenhouse Azaleas
Messrs. Ivery & Son, Nurserymen, Dorking and Reigate, for 6 Greenhouse Azaleas
Mr. R. Grix, Gr. to the late A. Palmer, Esq., Cheam, Surrey, for 6 Exotic Orchids
Mr. Charles Turner, Nurseryman, Slough, for 6 Cinerarias in 11-inch pots
Messrs. Fraser, Nurserymen, Lea Bridge Road, for 12 Pelargoniums in 8-inch pots
Messrs. Fraser, Nurserymen, Lea Bridge Road, Leyton, Essex, for 6 Fancy Pelargoniums in 8-inch pots
Mr. T. Windsor, Gr. to Charles Cannon, Esq., Kiddapore Hall, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Busby, Gr. to J. S. Crawley, Esq., Stockwood Park, Luton, Beds, for 6 Roses in 13-inch pots

SILVER MEDAL.

Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 6 Stove and Greenhouse Plants
Mr. William Mortimer, Gr. to J. R. Scott, Esq., Hornsey, for 6 Tall Cacti
Mr. Rhodes, Gr. to J. Phillpotts, Esq., Stamford Hill, for 8 Cape Heaths
Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam, Surrey, for 6 Cape Heaths
Messrs. Jackson & Son, Nurserymen, Kingston, for Cypripedium sp.
Messrs. Veitch & Son, Nurserymen, Exotic Nursery, Chelsea, for Rhododendron Veitchi
Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 6 Greenhouse Azaleas
Mr. J. Dedman, Gr. to G. Foster, Esq., the Holme, Regent's Park, for 6 Exotic Orchids
Mr. Jas. Holland, Gr. to B. Peak, Esq., Spring Grove, Hounslow, for 6 Cinerarias in 11-inch pots
Mr. Weir, Gr. to J. Hodgson, Esq., the Elms, Hampstead, for 10 Pelargoniums in 8-inch pots
Mr. Bragg, Nurseryman, Slough, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Weir, Gr. to J. Hodgson, Esq., the Elms, Hampstead, for 6 Fancy Pelargoniums in 8-inch pots
A. Rowland, Esq., Lewisham, Kent, for 6 Roses, in 13-inch pots
Messrs. Paul & Son, Cheshunt, Herts, for collection of New Roses
Messrs. E. G. Henderson, for collection of 6 Dracena

SMALL SILVER MEDAL.

Mr. Parker, Paradise Nursery, Holloway, for Cattleya sp.
Messrs. Veitch & Son, Exotic Nursery, Chelsea, for Ixora sp. nova
Mr. J. Standish, Nurseryman, Bagshot, for Rhododendon limbatum
Mr. Taylor, Gr. to J. Coster, Esq., Streatham, for correct Labels on 16 Stove and Greenhouse Plants
Mr. J. Peed, Gr. to C. T. Gabriel, Esq., Norfolk House, Streatham, for 8 Greenhouse Azaleas
Mr. Jas. Harlock, Gr. to R. W. Nutter, Esq., Wanstead, for 6 Greenhouse Azaleas
Messrs. Dobson & Son, Nurserymen, Isleworth, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Bray, Gr. to Sir J. Goldsmid, Bart., St. John's Lodge, Regent's Park, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Bragg, Nurseryman, Slough, for 36 Pansies
Mr. James, Gr. to W. F. Watson, Esq., Isleworth, for 24 Pansies
Mr. Glendinning, Nurseryman, Chiswick, for Farfugium grande
Mr. Glendinning, Nurseryman, Chiswick, for Abies Kæmpferi
Mr. Bragg, Nurseryman, Slough, for 12 Pansies in pots
Mr. Chas. Turner, Nurseryman, for a collection of 24 Tulips
Mr. Hamp, Gr. to Jas. Thorne, Esq., for a collection of Amaryllis
Mr. Salter, Nurseryman, Hammersmith, for 20 Hardy Plants, fine foliage

BRONZE MEDAL.

Mr. Glendinning, Nurseryman, Chiswick, for Statice macroptera
Mr. Rhodes, Gr. to J. Phillpotts, Esq., for correct Labels on 8 Cape Heaths
Mr. August, Florist, Beddington, Surrey, for 36 Pansies
Mr. August, Florist, Beddington, Surrey, for 24 Pansies
Mr. E. P. Francis, Nurseryman, Hertford, for a collection of Miscellaneous Roses

CERTIFICATES OF MERIT.

Mr. Wm. Cutbush, Nurseryman, Barnet, Herts, for correct Labels on 10 Cape Heaths
Messrs. Dobson & Son, Nurserymen, Isleworth, for 36 Pansies
Mr. R. Anderson, Nurseryman, Teddington, for 36 Pansies
Mr. Salter, Nurseryman, Hammersmith, for 36 Pansies
Mr. Glendinning, Nurseryman, Chiswick, for Aralia papyrifera
Mr. Gaines, Nurseryman, Surrey Lane, Battersea, for Rhododendron aureum
Mr. Charles Turner, Nurseryman, Slough, for 1 Seedling Pelargonium Rose Celestial
Mr. Charles Turner, ditto, 1 Fancy Pelargonium Adelia (by Turner)
Mr. Charles Turner, 1 Fancy Pelargonium Acine (Turner)
Mr. Hoyle, Reading, Berks, for a Seedling Pelargonium Dinah
Mr. Green, to Sir E. Antrobus, Bart., for 6 Seedling Cacti
Messrs. Cutbush & Son, Nurserymen, Highgate, for 1 Seedling Pelargonium Blanchfleur
Mr. Charles Turner, Nurseryman, 1 Seedling Cineraria Baroness de Rothschild
Messrs. Lane & Son, Great Berkhampstead, for collection of 6 Rhododendrons
Messrs. Veitch & Son, Nursery, Chelsea, for Gesneria Micllezi
Mr. Wiggins, Gr. to E. Beck, Esq., Isleworth, for Seedling Pelargonium Signora
Mr. Wiggins, Gr. to E. Beck, for Seedling Pelargonium Aurelia
Mr. Wiggins, for Seedling Pelargonium The Bride
Mr. Wiggins, for Seedling Pelargonium Mars

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH AND SON, of the Royal Exotic Nurseries, Exeter and Chelsea, have much pleasure in now offering for the first time the following novelties, in the selection of which they have been guided solely by the determination of submitting only such Plants as are of general usefulness and sterling merit.

Plants will be ready for delivery on and after June 1st.

ADHATODA CYDONÆFOLIA.—A very pretty stove plant allied to Justicia, and blooming abundantly in the autumn and early winter months; the upper lip of each flower being white, tipped with purple, and the lower one a deep purple with a white stripe down the centre. The habit is neat, with good foliage, and from its flowering so late in the season it will undoubtedly prove a great acquisition. It is figured in Curtis's "Botanical Magazine" for January, 1857. Price 15s. each.

CORRÆA CARDINALIS.—Decidedly the finest and most brilliant-coloured of the genus. The flowers, which are of a rich bright scarlet, are produced in great abundance during the spring and summer months. It will therefore be a most valuable addition to our early blooming greenhouse plants. Its foliage and habit are both particularly neat and compact. It was awarded the first prize as a new plant in flower at the Crystal Palace, May 24, 1855, and received a similar distinction at the Royal Botanic Society's Exhibition on the 28th May, 1856. It was also awarded a Certificate at the meeting of the Horticultural Society, March 30, and Honourable Mention at that of May 5, 1857. It is described and figured in Curtis's "Botanical Magazine" for April, 1856, and in the "Florist" for August in the same year. This is a first-class plant. Strong established plants, 21s. each.

COLLETIA BICTONENSIS.—This fine and remarkable perfectly hardy Evergreen Flowering Shrub was raised at the seat of the Right Hon. Lady Rolle, through whose kind permission the entire stock has been transferred to us by Mr. Barnes, the gardener at Bicton. It is of compact habit, with foliage of a bright green colour, and producing clear white flowers in masses. It will certainly be a great acquisition to the shrubbery. Strong healthy plants, 10s. 6d. each.

EMBOTHRIUM COCCINEUM.—We have now much pleasure in being enabled to offer plants of this truly beautiful evergreen Proteaceous shrub. It is a native of the Straits of Magellan and Terra del Fuego, and having withstood the severity of the five last winters in the open air without the slightest protection, there can be no doubt as to its being perfectly hardy. It is figured in Curtis's "Botanical Magazine" for June, 1855, and is there described by Sir W. Hooker as "A handsome evergreen shrub, with racemes of the richest scarlet flowers." The foliage is of a deep dark green, and very ornamental. It was awarded prizes at the Crystal Palace in May, 1855, at the Horticultural Society's meeting in June, 1855, and the Crystal Palace in May, 1856. The habit is good, and being a free bloomer it cannot fail to be universally admired. Messrs. V. & Son feel justified in particularly recommending this truly beautiful acquisition, which they confidently believe will give general satisfaction. Price 21s. each.

FUCHSIA PRINCESS ROYAL (VEITCH).—Rich scarlet tube and sepals, beautifully reflexed white corolla, free bloomer, and undoubtedly the best habit of all the white corolla'd varieties. Price 7s. 6d. each.

HYPERICUM OBLONGIFOLIUM.—This fine species was collected on the hills about Assam by Mr. Thomas Lobb, and is described by Sir W. Hooker as a "most lovely hardy shrub, with evergreen foliage and large handsome yellow blossoms. A native of Northern India, Nepal, and the Himalayas. We think that so ornamental a plant will soon find its way into every garden and shrubbery." The habit is neat and compact, and it is certainly a decided acquisition, being, without any doubt, perfectly hardy. It is well adapted either for a single bush on a lawn or for masses in a shrubbery. Good established plants, 10s. 6d. each.

IXORA ACUMINATA.—A pure white species, decidedly distinct from all others. Its merits and recommendations are—habit and foliage unexceptional, flowers white and sweet-scented, a most abundant bloomer, small plants in 6-inch pots flowering freely. This is a valuable addition to our stove plants. Price 21s. each.

PELARGONIUM QUERCIFOLIUM FLORIBUNDUM (VEITCH).—An excellent bedding variety, being of a very dwarf habit, blooming most profusely in small pots, and having the valuable property of retaining its flowers for a length of time. It was exhibited at the Crystal Palace Horticultural Show on the 25th of June, 1856, and awarded the first prize as a seedling for bedding purposes. The flowers are large and round, of a beautiful rose colour, with dark spots in the upper petals. Strong plants, 7s. 6d. each.

RHODODENDRON PRINCESS ROYAL.—We have peculiar satisfaction in stating that our plants of this lovely hybrid greenhouse Rhododendron are now sufficiently numerous to allow of our sending it out. It was exhibited at Chiswick, June 20, 1855, and described by Dr. LINDLEY in a leading article in the *Gardeners' Chronicle* in the following terms:—

"Of real novelties it is impossible not to direct attention in the first instance to the very curious and singularly beautiful Princess Royal Rhododendron, exhibited by Messrs. Veitch. This striking novelty was obtained from the white R. jasminiflorum, by the palest variety of R. javanicum. In form it is intermediate between its parents, but its flowers were a clear pure rose colour."

At this exhibition it was awarded a Large Silver Medal. The habit and foliage are faultless, and it is undoubtedly the gem of this class of Rhododendrons, and worthy of the universal admiration with which it has invariably been regarded.

Good established plants .. .. .. 42s. each.
A limited number of larger ditto .. .. 63s. each.

We have also a few nice specimen plants, of which we shall be happy to furnish a quotation on application.

RHODODENDRON LADY DOROTHY NEVILL (VEITCH).—A magnificent late flowering variety, perfectly hardy, blooming at the same time as Lady Eleanor Cathcart, John Waterer, and the other latest kinds. Colour a fine purple, beautifully and plentifully spotted with black. It is certainly a first class Rhododendron. Young plants, 21s. each.

THUNBERGIA LAURIFOLIA.—This is a really very fine stove climber, producing large blue flowers, which are of great beauty, in the early spring. The growth is free and rapid, and it will certainly be a most useful addition to our stove climbers. Good established plants, 10s. 6d. each.

*** The usual allowance of one plant over will be made to the Trade, when three plants are taken; and special Trade Terms may be had for larger quantities. No Trade allowance on less than three plants of a sort.

BASS AND BROWN have the pleasure to offer as under:—

GERANIUMS.—A fine stock of strong, bushy, and healthy plants of first-rate varieties. See BASS & BROWN's Catalogue No. II., including collections of show, fancy, and the new French spotted varieties.

ACHIMENES.—A very superior collection of upwards of 40 varieties, very beautiful and striking. Ten superb new varieties for 35s., including Parsons' fine varieties figured in the "Florist" for November, carminata, splendens, and Parsonsi.

GLOXINIAS.—A collection of upwards of 60 of the most striking and brilliant varieties. 12 fine vars., 12s.; 12 newer vars., 20s.; 12 superb erect-flowering vars., 20s.; 12 erect-flowering, newest selection, 30s.

GREENHOUSE PLANTS.—50 superb and select, 45s.; 50 do. extra, 65s.; or per doz., 12s., 18s., and 25s.

STOVE PLANTS.—50 superb and select, 80s.; or per doz., 24s., 36s., and 42s.

BEDDING PLANTS.—A large and vigorous stock of the finest Verbenas, Petunias, Fuchsias, shrubby Calceolarias, bedding Geraniums, &c., &c., for which early orders are solicited. See Catalogue No. V.

HARDY HERBACEOUS PLANTS.—A very superior collection of these in pots for present sale. See Catalogue No I. and Supplement to No. I. Also a few of the best for bedding in masses. See Catalogue No. V.

BULBOUS PLANTS IN POTS, including beautiful varieties of Ixias, Sporaxis, Gladioli, Tritoneas, and a great variety of other striking and handsome sorts. See Catalogue No V.

Goods carriage free, not under 20s., to all the London termini, and all stations on the London and Norwich, Colchester line.

Post-office orders payable to BASS & BROWN, or to STEPHEN BROWN.—BASS & BROWN, Sudbury, Suffolk.

PLANTS OF DRUMHEAD & EARLY CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, & CAULIFLOWER.

JOHN CATTELL has a plentiful supply of the above, which he will forward to order on receipt of postage stamps or post office order made payable here at the following prices, package included. Autumn sown Drumhead, Savoy, and early Cabbage, 4s. 6d. per 1000; Spring sown Drumhead, 3s. 6d. per 1000. All the sorts of spring sown early Cabbage, Savoy, and Kail, including Brussels Sprouts, 6d. per 100, 4s. 6d. per 1000. All the sorts of autumn and spring Broccoli and bedded Celery 8d. per 100, 5s. 6d. per 1000. Early and late Cauliflower and Red pickling Cabbage, 10d. per 100. Packages containing plants to the value of 1l. and upwards will be delivered carriage free to the Borough, London, or to the Edenbridge Station of the South-Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of Cattell's Early Dwarf Barnes, and of his superior Early Dwarf Reliance Cabbage, may be had as usual in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

NEW DOUBLE PETUNIAS.—The Subscriber begs to offer to the public the undermentioned beautiful flowers; they will add another gem to the garland of Flora, and no doubt will be admired and appreciated by thousands. They are of the finest growth and most abundant bloomers, and have been selected from many others raised by J. SCOTT, of Merriott Nurseries, Crewkerne, Somerset, to whom all applications are requested to be made.

ÆGLE, a very pretty purple Anemone flowered sort.

ÆTHRA, a beautiful light lilac, full centre, which is shaded down to green.

ALCESTES, a bold large lilac flower, very handsome and showy.

ARIADNE, a splendid full rosy purple, quite a lovely flower, will make one of the most beautiful beds that can be imagined. 5s. each, if ordered by itself.

ASTRÆA, fine Anemone flowered white, very large and free bloomer.

ATYS, a splendid lilac flower with a fine full centre and abundant bloomer.

LEUCOSIA, a very beautiful white tinged in the centre with rose.

PARTHENOPE, a lovely pure white flower, as double as a Rose, a great improvement on Imperial.

The above are all sweet scented and of quite a different habit from Imperial, and very free bloomers, 3s. 6d. each, or the eight varieties, including basket and packing, for 25s. For every three ordered by the trade one will be added. Plants ready the second week in June, and all orders sent out in rotation.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. PARKER for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Wilkinson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. PARKER's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

DAVID THOMSON, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1s. 6d. each, or 12s. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

SPLENDID NEW HARDY CONIFER, THUJOPSIS DOLABRATA (TRUE).

MESSRS. VEITCH AND SON have much pleasure in announcing that they are in possession of the above truly remarkable and beautiful Japanese Coniferous Tree.—(*See Professor Lindley's full description of it in another part of this Paper.*)

This being an EVERGREEN TREE of great size and beautiful form, which without doubt will prove to be PERFECTLY HARDY IN BRITAIN, renders the introduction of it a matter of great arboricultural importance, and of much satisfaction to the introducers, who have of late years had the pleasure of adding so many fine things to the gardens of this country.

Messrs. VEITCH & SON's stock of plants being as yet small and scarcely of sufficient size for present distribution, they propose taking orders for them to be delivered as soon as ready, which will probably be in the autumn of this year, but certainly not later than the spring of 1858.

The orders will be executed strictly in the rotation in which they are received, and the earliest orders will have the strongest plants. The plants will be 63s. each.

Royal Exotic Nurseries, Exeter and Chelsea.

THE CHAMPION SWEDE.

THE FOUR PRIZE CUPS presented by his Royal Highness Prince Albert to the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Associations in December, 1855, and December, 1856, were gained by our customers, G. Norrington, Esq., Joseph Hobbs, Esq., and John Nash, Esq., for fields of SUTTON'S CHAMPION SWEDE grown from Seed supplied by us. Price of Seed, 1s. per lb. or 50s. per bushel. Every kind of seed required for Farm and Garden at moderate prices. A remittance or reference to bankers requested with orders from unknown correspondents.

Goods delivered carriage-free except small parcels.

Five per cent. discount allowed for cash payments.

J. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.

27, Great George Street, Westminster, S.W.

GRASS SEEDS

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH GRAPE.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, begs to intimate that he will commence sending out plants of the above SPLENDID NEW GRAPE on the 15th June next, strictly in the rotation in which they have been received. Price 21s. per plant; one over on three to the trade; with special terms when 25 and upwards are ordered at the same time.

Ample descriptions of this really distinct and desirable acquisition have appeared in former advertisements, but to those who may desire it full particulars will be sent on application.

The following nurserymen, having given orders for plants, will be able to supply them to their customers TRUE TO NAME after the 15th inst.

Austin & M'Aslan, Messrs., Glasgow, N.B.
Backhouse, Messrs. & Son, York
Balfour, Mr., Newcastle-on-Tyne
Barnes, Mr. Thos., Thirsk, Yorkshire
Barnes, Mr. W., Camden Nursery, Camberwell
Barratt, Mr., Wakefield, Yorkshire
Buist, Mr. Philadelphia, U.S.
Cutbush, Mr. W., Barnet, Herts
Dickson, Messrs. F. & A., Manchester
Dickson, Messrs. Jas. & Sons, South Hanover Street, Edinburgh
Dickson & Turnbull, Messrs., Perth, N.B.
Dreghorn & Aitken, Messrs. Kilmarnock, N.B.
Edwards, Mr. Jos., Bloxwich, Walsall
Ferguson, Mr., Philadelphia, U.S.
Fraser, Messrs. J. & J., Lea Bridge Road, Leyton, Essex
Garaway, Mayes, & Co., Messrs., Bristol
Glendinning, Mr., Chiswick, Middlesex
Gould, Mr. Jno., Rose Cottage Nursery, Redditch
Graham, Mr., Chichester, Sussex
Griffin, Mr., Bath
Henderson, Messrs. A. & Co., Pine-apple Place, Edgeware Road, London
Henderson, Messrs. E. G. & Son, Wellington Nursery, St. John's Wood, London
Hirst, Mr., Ashton-under-Lyne
Jackman, Mr., Woking, Surrey
Keynes, Mr., Salisbury, Wilts
Kinghorn, Mr., Richmond, Surrey
Lane, Messrs. & Son, Berkhampstead, Herts
Lee, Messrs. J. & C., Hammersmith, near London
Low, Messrs. & Co., Clapton, near London
Meredith, Mr., Garston, near Liverpool
Niven, Mr. N., Garden Farm, Dublin
Noble, Mr., Bagshot, Surrey
Osborn & Son, Messrs., Fulham, near London
Paul & Son, Messrs., Cheshunt, Herts
Perkins, Mr., Northampton
Penyon, Messrs., Walham Green, Middlesex
Rivers, Messrs., Sawbridgeworth, Herts
Rollisson & Son, Messrs., Tooting, Surrey
Standish, Mr., Royal Nursery, Bagshot
Sutton, Messrs. & Sons, Reading, Berks
Turner, Mr. C., Royal Nursery, Slough
Veitch, Messrs. & Son, Exeter
Watson, Mr., Ealing, Middlesex
Wheeler, Mr., Warminster, Wilts
Wood, Messrs. & Son, Maresfield, Uckfield, Sussex

GRAND EXHIBITION OF AMERICAN PLANTS.

JOHN WATERER begs to announce that his collection of Hardy Scarlet and other RHODODENDRONS is now on view at the Royal Botanic Gardens, Regent's Park, London. The exhibition this season greatly exceeds in gorgeousness any former year's display.

Thousands of specimens of Rhododendrons, Azaleas, &c., are also now in bloom at the Nursery, and we earnestly recommend admirers of this truly noble class of plants to pay a visit of inspection, which can be readily attained by South-Western Railway to the Sunningdale Station, where excellent conveyances are always in attendance.

The American Nursery, Bagshot, Surrey.

TURNIP SEEDS FROM LARGE BULBS.

MESSRS. SUTTON'S TURNIP SEEDS are saved exclusively from fully developed Bulbs, the great advantages of which have been proved for several years past. They can also be recommended with confidence as being genuine unmixed new Seeds as they pass direct from the growers to the retail purchaser. Prices moderate, as see List, which may be had post free. All Seeds delivered carriage free, except very small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

MEADOW AND PASTURE GRASS SEEDS.

GEORGE GIBBS AND CO., 26, Down Street, Piccadilly, beg to announce that their MIXTURES OF GRASS SEEDS are now ready for delivery at the following prices:—

Mixtures for laying Land down to permanent Grass, for light, heavy, and other soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.

Mixtures for Park or Field Lawns (allowing 2 bushels and 12 lbs. to the acre) .. .. 32s. per acre.

Mixtures for improving and renovating old Grass Land, 1s. per lb.

Mixtures (finest sorts) for forming Lawns .. 1s. 3d. per lb.

G. G. & Co.'s New Priced AGRICULTURAL CATALOGUE is now ready, and will be forwarded free on application.—GEORGE GIBBS & Co., Seedsmen, 26, Down Street, Piccadilly, London.

GRASS AND TURNIP SEEDS, ETC.

THOMAS GIBBS AND CO., THE SEEDSMEN TO THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND, corner of Half-Moon Street, Piccadilly, beg to announce that they have still on hand a large supply of Grass Seeds for the following purposes. Mixtures for laying down Land to Permanent Pasture and Meadow. Mixtures for Park and Field Lawns. Mixtures for Cemeteries and Churchyards, Cricket Grounds, &c. Mixtures for Renovating and Improving old Grass Land. Fine Grass Seeds for Garden Lawns and Grass Plots.

TURNIPS.—Purple top Swedes; Skirving's Swedes. Gibbs' Green top yellow Hybrid; Red top Hybrid. Globes or rounds of sorts. Tankard Turnips sorts.

MANGEL WURZEL.—Long Red; Yellow Globe; Red Globe. All other kinds of Seeds for Farm, Kitchen Garden, and Flower Garden. Detailed Catalogues sent free by post on application.

THOMAS GIBBS & Co., Seedsmen to the Royal Agricultural Society of England, corner of Half-Moon Street, Piccadilly, London, W.

NEW SCARLET GERANIUM JOHN COWAN.—This very handsome and distinct dwarf Scarlet Geranium was raised by Mr. John Cowan, of Calke Abbey, and is far superior to any of the dwarf bedding varieties of the Tom Thumb class. It has a compact short-jointed habit, is a profuse bloomer, having beautiful round flowers, of a large size and great substance, and of a soft and pleasing tint of scarlet. The foliage being particularly round, small, and neat, renders this Plant one that can be recommended as a desirable novelty for the coming summer. Price 3s. 6d. each, or 40s. per dozen; to be had of ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW BEDDING PLANTS.

MESSRS. ARTHUR HENDERSON AND CO.'S CATALOGUE OF SOFT-WOODED AND OTHER PLANTS is now ready, and can be had on application to them. It contains a descriptive list of the most approved varieties of

Antirrhinums	Fuchsias	Petunias
Calceolarias	Geraniums	Phloxes
Carnations	Heliotropes	Picotees
Chrysanthemums	Hollyhocks	Pinks
Cinerarias	Lantana	Salvias
Dahlias	Lobelias	Verbenas

Also a separate List of the novelties for this season, including the new Dwarf White Bedding Dahlia, the new Muscat Hamburgh, the Golden Hamburgh, and the Bowood Muscat Grapes; specimens of new Holland Plants; an epitome of Stove Plants; Ferns and Greenhouse Plants, Ornamental Climbers, Variegated Plants, Miscellaneous Plants for the Open Border, and the new Yellow Tea Rose "Isabella Gray."

Pine-apple Place, Edgware Road, London, W.

NEW DWARF WHITE DAHLIA.

THIS exquisite very dwarf free flowering DAHLIA will be hailed as a valuable addition to our bedding collection. It grows from 2 to 2½ feet high, throwing its snow-white flowers, which are of a large size, well above the foliage in prodigious quantities and of fine form. Those who visited the beautiful Gardens at Trentham, during the summer of 1856, must have been highly gratified with the effect produced by this gem. Mr. Fleming, the gardener at Trentham, thus speaks of it:—"Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens."—Strong plants can now be had on application to

Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS AND CALCEOLARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

The Gardeners' Chronicle.

SATURDAY, MAY 30, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	June	1—Entomological	8 P.M.
TUESDAY,	—	2—Linnean	8 P.M.
WEDNESDAY,	—	3 } Horticultural—Garden Exhibition	2 P.M.
THURSDAY,	—	4 }	

ON one or two previous occasions we have directed attention to the existence in Japan of a Coniferous tree of singular beauty, called THUJOPSIS DOLABRATA. Specimens in our herbarium, communi-

cated by the late Professor Zuccarini, had taught us that its foliage, of the deepest green on one side, and white on the other, could not fail to render it a plant possessing ornamental qualities of the highest value. How far we were right in this estimate of the plant will be seen next Wednesday, when it will be exhibited in the Garden of the Horticultural Society by Messrs. Veitch, who are the fortunate possessors of it. In the meanwhile some further history of it now seems desirable.

The first person who announced the existence of this tree was the Swedish surgeon Thunberg, who in his travels in Japan in 1775 and 1776 found it near Fakonia after passing over the mountains of that name on the road to Jeddo. One of the handsomest trees he there saw was "the superb and incomparable Thuja (now Thujopsis) dolabrata, which was planted everywhere by the roadside." "I consider this the finest of all Fir trees, on account of its height, its straight trunk, and its beautiful leaves which are dark green on the upper side and silver white beneath." In his Flora Japonica he says it is called by the Japanese, Sawaragi, and also Asnero or Assuraro; that it grows in the countries of Oygawa and Fakonia, between Miaco and Jeddo. A very lofty and wide-spreading tree planted by the roadside over Mount Fakonia; the most beautiful of all evergreens.

Siebold and Zuccarini speak of it to the following effect. Its Japanese names are Asu naro, Asufi, and Hiba. The Chinese call it Rakan hak and Gan si hak. It is only found on the moist slopes of the valleys of the island of Nippon (in the latitude of Portugal and S. Spain). It is a tall tree, with a thick trunk, and a hard red wood in request for building purposes. In another place these authors say, "The Hiba is a very high tree, with a majestic aspect. Its head is pyramidal, and formed of spreading or even drooping branches. It grows on the mountains of the island of Nippon,

and especially on the Hakone chain, where it prefers the damp sides of valleys. The Japanese are fond of growing it for ornament in their gardens, where they make it into dwarf bushes 3 to 6 feet high; but none will keep to this size except plants raised from cuttings; seedlings will not dwarf. There is a thin leaved variety called Nezu."

Thujopsis dolabrata must not be confounded with the *Quai* of Kæmpfer, "commonly called *Fi no ki* and *Ibuki*, a sort of Cypress, with a thick viscid aromatic sap, smelling of Juniper, and having a small warted fruit the size of a Pea," which was thought by Thunberg to be this, but certainly without reason. The words here translated evidently belong to some Juniper; and probably to J. chinensis, as Zuccarini has pointed out.

Such being the authentic history of this noble tree, the next question is what degree of hardiness may it be expected to possess. Upon this we can form an opinion by no other means than by considering what is already known of the climate and plants of Niphon, concerning which however we find no very precise information. It is said that the Japanese islands experience by turns the extremes of heat and cold. In winter the north and north-west winds are exceedingly sharp, and bring along with them intense frost (*Malte Brun*). But this is inconsistent with another statement that ginger, black pepper, sugar, cotton, and indigo are cultivated with great success. We may suppose that the latter statement applies merely to the low ground of Kiusiu, the southernmost of the Japanese islands, and the former statement to the more northern island of Niphon. Better evidence is furnished by the fact that our plant grows associated with the Chinese Larch (Abies leptolepis), Beeches, and Oaks; we may also suppose that Rosa rugosa, one of the hardiest of plants, a Niphon species, is among its companions. It is also important to remember that Pawlovnia and Cryptomeria, of indisputable hardiness, are natives of more southern provinces. We therefore conceive that no reasonable doubt can be entertained of the perfect suitability of Thujopsis to this climate.

It is as well to announce that, in consequence of the excessive inconvenience experienced at the Garden of the Horticultural Society from the intrusion of swarms of unauthorised persons, early in the morning on Exhibition days, strict orders have been now issued to the gatekeepers to refuse admission to all applicants who cannot produce some written proof of their being Gentlemen's Gardeners. The names of the great nurserymen, formerly extensively made use of by unscrupulous people, without any sort of authority, will not now be permitted to pass in strangers. The cards of nurserymen will, however, be regarded as a sufficient introduction.

The remarks and offers that have lately been inserted in our columns from the makers of hothouse boilers, and others that we have since received, are assuming a form which renders it undesirable to continue them. A. praises his own, as a matter of course, B. does the same, C. is quite of another mind, and offers to back his boiler against all the world; E. says that C. knows nothing about boilers, and sells a very bad one, while F. employs still stronger language. We must, therefore, decline inserting any further remarks upon this head, and leave the rivals to settle their merits by such arrangements as they can make without our intervention.

ON THINNING PLANTATIONS.

By Mr. Philip, Forester to J. I. Chalmers, Esq., of Aldbar.

No universal rule can be laid down by any one for thinning, but general principles can be given sufficient for the guidance of those who want information. Every district supplies lamentable evidence of thinning having been too long neglected, and in many instances where it has been performed, it has been conducted on anything but rational principles. This state of matters is to be met with on the small property with a few acres of wood only, as well as on properties containing thousands of acres. I have had frequent opportunities of examining small plantations under bad management. One, in particular, composed of Scots Firs principally, with a very few Larch; these may have been about 25 years old, and in general healthy. It had been thinned by the land-steward, and the trees cut out and laid in lots for public roup (sale). To my astonishment I found that he had cut down the largest and straightest of the trees, and left the smallest, bent, twisted ones, which had been rendered so by strong Whins and Broom having been allowed to rise with the young plants, as the permanent crop. I found, on inquiry, that his reason for thus acting was because the bent trees would bring but a low price at the sale. Nothing can be more injurious to the future prosperity of a plantation than to thin for the purpose of making up a certain sum of money. Not a single tree ought to be cut, unless for the benefit of those left on the ground, as if the plantation be properly managed, it is to the full crop, when matured, that the proprietor must look for the greatest profits of planting. There is, certainly, no reason why the thinnings should not be made the most of, keeping the general welfare of the plantation in view. Indeed, thinnings, under a good system of management, in many parts of the country are a source of great profit; but the ultimate value of the crop, the maturity of the greatest quantity of clean, sound timber of good dimensions, ought to be steadily kept in view in every operation of thinning. As to the proprietor of thousands of acres of woods and plantations, who has allowed them to be neglected and mismanaged, there can be no excuse, as the profit arising from such an extent of woods, well managed, would more than repay the employment of a forester of the best ability and skill in his profession.

I have already stated that there is no universal rule for thinning. A plantation composed entirely of Scots Firs, planted on soil suitable to its growth, requires to be kept thicker than any other kind of trees, in order to grow clean, useful timber; as the value of the Scots Fir consists in this. From my own observation I am of opinion that the best rule which can be adopted in thinning Fir plantations is to keep the trees at such a distance from each other as to preserve the branches alive on one-half of the whole height of the tree, from the first thinning till the trees are 40 years old, after which they ought to be allowed to assume their natural habit, which every one acquainted with the Scots Fir knows to be a bare tall trunk, with a spreading top, small in proportion to the height of the tree when grown in its native forests. By the time they are from 40 to 45 years of age, if they have been well managed, they ought to stand so far apart as to require no more regular thinning. They will not, by the time they are the above age, be regular all over the ground, that is, they will not be any regular number of feet apart. Some may be a little too close for all arriving at maturity; but allowance must be made for a few dying during the remaining period they may occupy the ground, for, were they thinned out to stand at something like 16 to 20 feet apart, then when one died a space twice as large would be made, and should two contiguous trees die a blank is made, and the wind makes havoc among the trees around. Scots Firs, when so regulated during the time I have specified, will be found neither drawn up nor too tapering, but with girth of stem in proportion to their height. When they are so thinned that more than one-half of the whole height is covered with live branches, they are short in proportion to their girth near the ground, and the branches getting too much space, grow large, and produce coarse timber; but when they are kept so close as to deprive them of living branches for much less than the above proportion, they get tall and drawn up, without sufficient strength of stem, and, when thinned, the wind waves them, and the one whips the other often to death, or renders them unhealthy for a time. I have had the charge of a plantation consisting chiefly of Scots Firs, with a few Larches here and there through it, of about 600 acres, which was in bad condition, from being neglected too long. It was from 15 to 32 years old, and large tracts of it had never been thinned up to the time it came under my charge. It has been very difficult to thin it, and it is not yet anything like what it ought to be for its age and height. My first object was to get all the dead and unhealthy trees, with a few of the overtopped ones, removed from those places which had never been thinned at all; then to go over the rest as fast as I could and give it a cautious thinning. I was not able for a number of years to get anything like regular periodical thinning performed, but directed my attention to the most necessitous parts. I have gone over it cautiously, generally every second year, and, except on the exposed sides and any rising ground, it promises yet to become a good plantation; but as it was so long neglected, and the outsides had received rather a severe thinning, which unduly exposed the trees, one side in particular, where the soil is wet (although originally drained, the drains having been neglected), it will be impossible to recover. On the higher parts of the plantation, the trees having been kept so long in a close state, they have a very insufficient hold of the ground, and having slender stems for their height, with a very small proportion of top, they are liable to be blown down by every gale. On some of these parts it will also be impossible to keep sufficient trees for a full crop till they arrive at maturity. The only portion on which the trees have attained anything like the dimensions which their age and the nature of the soil would warrant us to expect is where lines of Larch and Scots Fir had been planted alternately; the greater part of the Larches have been killed by disease, and the Scots Firs, although too close in the lines, have had good space between them. Even here they are a very unequal crop. In addition to the regular thinnings, the whole extent of the plantation is gone over twice every year—in spring and autumn—and all the unhealthy trees cut down and disposed of. By this method there is a great saving; if they were left till dead the price would be from 2*d.* to 4*d.* per tree, while the labour of cutting and carrying out is nearly the same; whereas before they die they bring from 6*d.* to 1*s.* 6*d.* each.

A great mistake has been committed in the management of Scots Fir plantations, by keeping the trees too close on the outside of the plantation, from a fear of the wind breaking in upon it. On one of the sides of this plantation the trees are comparatively wide apart, and clad with healthy branches to near the ground; from this point the wind does very little damage, while on the other sides, where the trees are much closer, the damage is often great. When trees at the outside of a plantation are kept as wide apart as to allow their branches to be healthy from near the ground, they get a much firmer hold of the soil, and bring up strength of stem suited to their situation, and in this state they are healthier, and remain so for a longer period. I have been told that trees so managed will not defend the plantation against the storm, and that such a system of thinning the outsides will prove its ruin in course of time. But how comes it that trees standing singly in a park or hedgerow are seldom uprooted by the storm? Nature adapts the growth of such trees to their circumstances; the free circulation of air through and around their tops causes them to throw out strong branches, and furnishes the tree with abundance of them. Clad with a large foliage, inhaling a large quantity of the gases from the atmosphere, which give strength and stability to the plant, and the large space afforded for the ramification of the roots; these circumstances enable it to fix itself so firmly in the ground that no storm can uproot it. And, on the same principle, will trees round the outsides of a plantation grow, and prove of more benefit as shelter to the interior than the unsightly bare poles too often to be met with in such situations. In order to have the outside trees of such a nature it will be necessary, a year or two previous to thinning, to shorten the branches of those intended to be taken out, so as to allow those remaining to stand as close as possible, and not interfere with each other, or make too wide an opening. On the principle of keeping the trees close at the outsides, too many are left on the ground, and in such cases they are very insufficiently

rooted, have little proportion of top, are more delicate in their constitution, and consequently more liable to die off, leaving blanks, which give the wind play amongst those left; from being top-heavy, of slender stem, and with roots confined within a narrow space, they get strained and loosened at the roots, which causes more deaths, and so the evil goes on increasing until the plantation becomes entirely a ruin long before the trees have reached that maturity which the soil and situation would warrant us to expect.

Where narrow strips are planted, it must be for shelter and ornament. If rightly managed, to attain these two objects, it will be impossible to combine clean valuable timber, as in a large plantation. Good dimensions may be obtained if the soil be suitable to the trees planted, but it will be of coarser quality. My opinion is, where narrow strips are planted they ought to be managed on the same principle as the outside of a large plantation. No doubt the management of such strips has led writers almost universally to condemn them; and certainly, where shelter, ornament, and clean timber of good dimensions are the objects of the planter, they ought justly to be condemned; but the first two may be attained where there is breadth enough for three trees only; less than this should never be planted in the form of a strip, a single hedgerow will answer the purpose much better. As strips are generally planted on exposed situations, care must be taken not to unduly expose the trees, by severe or sudden thinning, to the storm; this would render them unhealthy and difficult to raise above mere bushes. If it be a mixture of hardwood and Firs, and it is designed to keep these as the permanent crop, no better one can be chosen amongst the Firs than the Silver; it is evergreen, attains good dimensions, and, where it is allowed plenty of space, retains its branches from the base, and the thinning should be so arranged as to encourage it.

As to mixed plantations, those composed of hardwood and Firs, or those composed of a mixture of the Firs only, are not so easily managed as when each kind is grown separately in masses. Larch, Spruce, and Silver Fir, all being of the same habit of growth, can be grown intermixed with advantage, so far as thinning is concerned, as they all require more space in their earlier stages to develop themselves properly than the Scots Fir; but it becomes a difficult matter to thin properly, to suit the growth of the Scots Fir, and that of the others in the same plantation. Larch, Spruce, and Silver Fir will require to be so thinned as to allow them to retain their branches on three-fourths of their whole height during the entire period of their growth, whilst the Scots Fir, as I have already stated, requires its branches preserved on one-half of its height, to keep it in vigour and to make clean timber, and that proportion for one-half of the period of its growth only. I do not mean to assert that these proportions of top can be always exactly preserved; but the nearer they can be approached the better. I do not lay down rules to be implicitly followed under all circumstances. Some writers give the number of feet apart at which trees ought to stand at certain stages of their growth, and the number of thinnings they require. This I think a rule which will not be found applicable in all cases. I have found it necessary to thin a plantation this season which has been planted six years only. It is composed of a large mixture of hardwood, with Larch, Spruce, and Silver Fir, for nurses. The Larches are 9 to 11 feet high, and 2 to 3 inches in diameter at the ground; the Silver Fir and Spruce from 3 to 4 feet high; the hardwood, 3 to 6 feet high. Besides taking out a number of the Larches, I found it necessary to shorten the branches of many of them which were interfering with plants not so far advanced. There is another plantation on this estate, consisting of Oak, Ash, Elm, Sycamore, with Larch, Spruce, and Silver Fir, as nurses, which will not be ready for thinning for three or four years, although planted at the same time as the last. The first was formed on ground which had been under agricultural crops, and the plants put into the ground after a crop of Turnips; the ground kept clean of weeds for three years. The soil is a damp, rough clay. The second plantation mentioned was formed on ground which had previously produced a crop of matured Scots Fir, and was planted three years after it was cut down; the plants here have done remarkably well, but are not so far advanced as those in the first-mentioned. The soil is poor—gravelly clay in some parts, and in others a few inches of moorish soil resting on a hard tilly subsoil. The most of this plantation was drained 2 feet deep, and from 9 to 12 yards apart. Beside the last named, there is a plantation of Fir, which I found it necessary to thin for the first time when about 14 years old; another Fir plantation on the estate I have just thinned for the first time, which has been planted 18 years, but I must confess it was in want of thinning three years before I could get at it. So much for the time to commence thinning, when planted from 3 to 4 feet apart. If it be intended to leave the hardwood trees as the permanent crop, using the Firs as nurses only, it will be necessary, previous to any thinning, to go carefully over the whole extent of the plantation and shorten any branches of the Firs which may be found interfering with, or overtopping the hardwood. This is a work which takes up but little time, and is of great service to the young plants, as it can be done when the hardwood is pruned by merely going through with a hedgebill and shortening where necessary. Hardwood being more inclined to spread out in large branches, and less inclined naturally to rise with a central stem than the Fir tribe, requires great attention to thinning and pruning, so as to have the nurses cut away gradually, taking care that the trees bring up strength of stem proportionate to their height. Many a good plantation of hardwood is spoiled by neglecting to thin in time, the Firs having been allowed to stand so close that any hardwood trees which had not been choked and killed are seen rising to such a height with a weak stem, that when the Firs are cut away they cannot support themselves. And even although they should be as strong of stem as to support themselves, with the assistance of a little pruning which such trees will always require to balance their tops, still they will be unduly exposed and liable to fall into bad health and even die. Some of the hardwood, such as the Sycamore and the Ash, if once rendered unhealthy are difficult again to restore to health; the Oak and the Elm are more easily recovered if they are not too far gone. Much shortening of the side branches of the nurses will be necessary in exposed situations before they are entirely cut away, to preserve shelter to the plants intended as the permanent crop; but where the situation is naturally sheltered, they will require less shortening, and can be sooner cut away. I consider that by the time the plantation is 20 years old in the exposed, and 15 years in sheltered situations, the nurses ought to be all removed. Where a mixed plantation of hardwood and Firs is wanted, Spruce, Silver Fir, and Larch ought to be kept; as, where hardwood will grow to ordinary dimensions, these trees will be found to answer best,—the Spruce on the dampest parts, Larch where the soil is damp but not wet, and the Silver Fir on the driest parts of the soil. Scots Firs should never be left among hardwood as a permanent crop, unless where the soil is of a very poor quality; for although of a conical habit when young and in a close state, yet where it gets as much space as hardwood requires it is very apt to grow rough and branchy, and the timber of little value. Nor is it so well adapted to preserve shelter as the others mentioned, which keep their branches alive on a larger proportion of their height, and are still valuable as timber. But in thinning a plantation of mixed trees, those which appear to thrive best on the soil ought in all cases to be encouraged, and left as the permanent crop; for where there is a great variety of trees, all will not be found to thrive alike, and on no account should they be thinned and pruned the same year; such a course exposes them too much at once, and should be carefully guarded against at all times. Such thinning, instead of proving an advantage, will be found the very reverse; space enough to permit light and free circulation of air amongst the trees, and no more, is the condition under which they will thrive and grow most profitably; more than that will only induce the side branches to grow strong, which robs the main stem of its due nourishment, and produces coarse timber, or causes additional work to the pruner to keep these branches within due limits. Amongst trees of whatever species there will always be found some of coarser growth than the rest; these have a natural inclination to grow strong in their branches, and should be all cut out, if possible, in the course of thinning; for there can be no doubt the smaller the branches the cleaner the timber will be.

All thinning operations must be performed in a neat and careful manner by the workman, and the work conducted in as profitable and economical a way as possible. Where the trees are young, and not more than 6 or under 6 inches diameter at the root, it will be cheapest to cut them down with the axe, and the workman should be made to cut them over as nearly level with the surface as possible; if Heath or rank Grass grows round them, it should be pushed down with the head of the axe, in order to get them cut low. All trees above 6 inches should be cut with the saw, if they are suitable for sawing purposes. If the wood is cut, and laid out in lots for public roup, it will always be found that the more the buyer's interest is studied, the better a price will be got for the wood; for much depends on the way in which the trees are laid out to public view, as people at a sale have but little time to judge of the value of each lot, and have often but a mere glance at it. All trees of any size ought to be seen at once, and the different sizes all put in separate lots; nor should hardwood and Fir be put in the same lot, but, if possible, keep each kind separate. And another point to be attended to, is to have at least one good cart-load in each lot, a large number of small worthless lots always have a prejudicial effect upon a sale; it takes up time to no purpose, and the purchasers get out of humour. The trees, when cut down, ought to be all carried, or, if too heavy for carrying on men's shoulders, dragged out to the nearest road leading out of the plantation. Dragging out trees is dangerous to those left standing, if great care be not taken, as it often damages the bark on the bare roots and lower part of the trunk. Where the wood is very heavy, and not on steep ground, it may also be carried out to the road by a junker; and this is not so injurious to the roots of the standing trees as dragging. All trees should be conveyed out of the wood whole, if possible, as cutting may spoil them for a particular purpose for which they may be wanted by some of the purchasers; and all branches dressed off the trees must be carried out and laid in lots, and sold along with the trees, if a sale for such can be got. Nothing looks more trashy than tops and branches lying about in the wood, and such rubbish encourages vermin and insects injurious to the growing trees. The decay of such rubbish by the gases arising from it also proves detrimental to the health of trees, especially if the plantation be composed only of one kind; but if it be a mixed plantation, the decay of refuse will prove beneficial, as such refuse of hardwood proves a natural manure to the Fir-tribe, and *vice versâ*. Objections may be raised on the score of expense in taking out all this rubbish, in coal and peat districts where fire-wood will not sell at any price; but although it should have to be burnt on the ground, I am prepared to assert that the better health of the plantation will repay all expenses; and where fuel is scarce, it not only refunds the outlay, but it will leave a good profit. Where the trees are of considerable size, either Fir or hardwood, great care is necessary in thinning to prevent the falling trees from injuring those left on the ground; where there is not plenty of space for them to fall, their tops should be lightened, and in some cases entirely cut off. This operation is performed by a man ascending the trees with a hand-saw, and commencing at the first branches, he cuts the whole off till he arrives at the top, he then cuts off as much of it as is safe and convenient, by holding the saw in a slanting direction towards the root of the tree, and in an opposite direction from himself; this is the only dangerous part of the operation, and the man must keep a firm hold while the top falls, as the swing given to the tree may throw him off his balance. If the trees be much off the perpendicular, and leaning to one side, in order to make them fall where they will do no damage, the man should be furnished with a strong rope, and a large hook fixed to it, with a socket to fix it on the end of a pole; the pole may be from 20 to 35 feet long, according to the height of the tree to be cut, and fixing the hook on the end of it, it is pushed up through the branches, and hooked on to a strong one, and the tree made to fall in any direction wanted. By this pole much time is saved in climbing to fix the rope to the tree. When thinning on the home grounds, all trees should be cut as low as possible, for nothing looks worse than high stools, and indeed this ought to be attended to in all plantations, as they are not only unsightly, but become a great annoyance in carting or taking out the thinnings at all after times.

The proprietor's forester, or a responsible person for him, should superintend all thinnings of plantations, and on no account allow the parties who purchase the wood to cut it for themselves; they are careless as to how they perform the work, provided they can do it cheaply for themselves, and many of the standing trees may be ruined by their carelessness. Much damage is often done to the growing trees by parties removing the wood from plantations, by knocking against them. The forester or person superintending should look well after this, and check it, as every piece of bark removed from any growing trees makes a blemish in the timber, and is injurious to its health.

The expense of thinning will very much depend on the nature of the ground on which the plantation stands, and the price of labour in the district; the profits arising from the operation will depend on the way in which it is performed, and the price of thinnings in the market. But if the operation is judiciously performed, the health and progress of the plantation will amply repay all outlay on it; and the money-profit at the time ought to be but a secondary consideration with those who wish to raise timber to good size, and retain a full crop on the ground. I trust the time is not far distant when thinning will be better attended to by proprietors of plantations, and the country no longer disgraced by a system of management which would induce the belief on the part of planters that no further care is necessary after planting but to receive the produce of their woods as a gift from Nature. *Condensed from Transactions of the Scottish Arboricultural Society.*

Home Correspondence.

Large Oaks.—Perhaps there is not another park in England in which there is so great a number of very large old Oaks as there is here. They are supposed to be 1000 years old, and many of them are still magnificent trees. Though none of them are so large as some that have been noticed in your Paper, still the following measurements will show that some of them are noble specimens. No. 1 is a fine old relic; has lost its top; is hollow, and has a number of branches which annually put out a fine healthy foliage. Its circumference, at 6 feet from the ground, is 39 feet 7 inches. No. 2. Not so fine a specimen as the foregoing, though the trunk is entire; it is a little decayed towards the bottom. Circumference at 6 feet from the ground, 26 feet 3 inches. No. 3 is a magnificent tree, perfectly sound; the circumference of the spread of the branches is 103 yards; the girth of stem within 1 foot of the ground, including the large root projections, is 50 feet. The girth at 16 feet from the ground, where it divides into two main stems, is 27 feet. No. 4. Another grand tree; circumference of the spread of the branches 99 yards. Circumference of trunk 1 foot from ground, including root projection, 52 feet. Girth at 6 feet, 26 feet 9 inches. No. 5 is quite hollow and has lost a great portion of its trunk. At 1 foot from the ground its girth is 41 feet. No. 6. Another very old hollow tree like the foregoing. It measures at 6 feet from the ground 28 feet 4 inches. No. 7. Very little decayed, a grand tree. Within 1 foot of the ground it girths 51 feet, and at 6 feet 29 feet 8 inches. No. 8. A majestic old relic. At 6 feet from the ground the circumference is 36 feet. No. 9 is a very splendid tree; all the branches nearly entire. At 6 feet it measures 27 feet 9 inches in circumference. No. 10. This noble tree, which is only a little decayed at the bottom of the trunk, measures at 3 feet from the ground 32 feet 6 inches in circumference. No. 11 is

still in full vigour, and measures at 3 feet from the ground 27 feet in circumference. No. 12. This tree is only 15 yards distant from the foregoing; it is quite hollow, and is remarkably gnarled. It is a noble relic, measuring at 6 feet from the ground 32 feet round. All these trees, with the exception of Nos. 3 and 4, are supposed to be 1000 years old. There is a great number of others of the same age which measure nearly as much in circumference as these; whilst some of them are most magnificent trees whose branches are all entire and spread out to a great extent. The part of the park where these old Oaks are may be said to be in a state of nature; being full of very old Thorns and Fern. The greatest care is taken of the whole, and as the situation is rather sheltered, the Oaks will exist for many ages. Within half a mile of these trees on this estate is "Claro Hill," which is supposed to have been the place where Claro Wapentake court was anciently held. There are some magnificent Beeches close to these Oaks; they are in the greatest health and vigour. The circumference of the spread of the branches of several of them is 130 yards. If photographs of all the old Oaks in this park were taken, they would of themselves form an important volume. *M. Saul, Stourton, Yorkshire.*

Grand National Rose Show.—I was delighted to read the first letter (written, of course, by "Alpha") in reply to my suggestion that we should have a National Rose Show. "Alpha" writes briefly, but eminently to the purpose, for he suggests a subscription. Consistently with his name, he begins at the beginning. I trust that his example may be followed by his influential brethren £ *s. d.*, and then we shall certainly (if we only mind our p.s and q.s) accomplish our object. But no time is to be lost, for the arrangements must be worthy of the Queen of Flowers, and the buds are swelling on our trees. Will the *Times* of our floricultural world help us? And will the great fathers of Rose-growing come forward? In another page will be found an advertisement on the subject, and I shall anxiously await the result. I would propose prizes both for nurserymen and amateurs, and so to arrange our schedule as to test the relative merits of the different classes. It is, in my opinion, not worth our while to attempt a national show unless we can offer at least 100*l.* in prizes. Surely the lovers of the Rose will not prove more penurious than the votaries of the Dahlia and Carnation? *S. R. H.* [Is there time for the necessary arrangements now that the year is so far advanced? Surely, if success is the object, 1858 would be a better year.]

Laburnum Sports.—I forward a specimen branch of a Laburnum now growing in my garden. Some few years since three grafts of the Cytisus were inserted, and now the whole character of the tree is changing, and every year since losing the yellow flower of the Laburnum, and producing the short purple flower, as you see. I am not aware whether it is an unusual occurrence, but large branches (quite removed from the Cytisus) produced flowers of both characters, and are now in full bloom. *E. Purser, Clapham Park.* [We have another letter on this subject, to which we shall return next week.]

Ancient Seeds.—What do you consider the contents of the accompanying box to be? They are found most plentifully 5 feet beneath the surface in sandy soil in various parts of the new cemetery at Earlham, near Norwich. The ground had been under the plough for some years previous to the formation of the cemetery. Beneath the surface is gravel, and then the gravelly sand in which they are found. *T.* [They belong to some common Chenopodium.]

Eurybia Gunniana.—This has proved perfectly hardy here, a plant of it having stood out of doors during the last five years without any protection whatever, though in 1855 the thermometer fell to 15° Fahr. When first sent here, I think from Kew, it was treated as a greenhouse plant, but appearing pretty hardy it was planted in the open ground, where it has done well, and now forms a handsome bush 4 or 5 feet high, and as many feet in diameter, covered with flowers from top to bottom. Its free flowering property should, I think, entitle it to a place in every shrubbery where it will live out of doors. The plant here differs but little from the variety salicifolia, the leaves being obtusely serrated, and flowers forming a 14-pointed star instead of a 12. *F. Symons, Carclew.*

To Keep Birds off Young Peas.—By recommendation I have tried a new method of protecting newly-sown Peas from the ravages of small birds, and have found it to answer perfectly, viz., placing a few wine bottles—sound or broken—along the row a yard or two apart. I should like your correspondent to try this, and I shall be greatly mistaken if he does not find it answer much better than any method he has as yet employed. *J. B. Clark, Wingfield, Wilts.*

The Sparrow Story which I promised (see p. 354) relates to a circumstance which took place about 15 years ago. At that time there was a stove pipe projecting nearly horizontally out of a landing window just below the eaves of this house, a pane of glass having been removed, and a piece of sheet iron substituted for the purpose of supporting the pipe. Just above this and under the eaves was a swallow's nest; for two or three mornings my wife and myself had been awakened early by an unaccountable noise, such as would be made by a person tapping forcibly against the sheet iron pane, but for some time we could not learn what was the cause. After two or three mornings had passed, and on a day when we had been more than usually annoyed, we detected the delinquent, for while walking in the garden we observed a sparrow perched on the stove pipe chattering loudly, and at intervals flying against the iron pane, battering it with beak and wings, making an awful noise. In the course of the morning I was away from home, but my wife watched the bird a good deal, and her account is as follows. After some time had elapsed she saw the sparrow enter the swallow's nest, and then there arose a terrible screaming and sound of struggling, and presently the sparrow was seen to come out and fly a short distance, when it dropped something on the carriage drive which on examination proved to be a young swallow quite dead. This was I believe repeated, and the sparrow succeeded in expelling the swallows and establishing himself in their place. The noise made by striking the iron pane must I presume have been intended to frighten away the old birds. *H. M. Sherwood, White Ladies' Aston Vicarage, Worcester.*

Rose Insects.—My Rose trees have this year been infested by an insect which has made dreadful havoc, not only on the young shoots and buds of the present year, but on the wood of the last season, and has in many instances attacked even the old wood—I presume in places where there has been any disposition in the plant to throw out a bud. Neither do they confine themselves to the low growing Roses, upon their own sorts, but ascend the standards, though not perhaps quite to the same extent. One night I made a careful examination of the plants between 10 and 11 o'clock, when I discovered my enemy hard at work upon the wood of last year. It is of a pale brown colour, and has a hard brittle covering, requiring a tolerably hard pinch to kill it, is from ⅛th to ¼ of an inch long, somewhat in shape like a small beetle, apparently without wings, attacks the plant in considerable numbers, eating the bark of last year's wood so regularly and systematically that it works its way all round the shoot, and that for some length, so as to completely destroy the wood. Its attack upon the old wood is more partial confining itself to spots here and there, but its ravages on the shoots of the present season are still more destructive, eating through them, although of the thickness of a quill, and having arrived at a growth of 8 or 10 inches long, and of course being wholly destroyed. It is curious that no trace whatever can be found of these insects during the day. They are very easily removed from their hold at night, and indeed while I have been searching for them by the light of a candle they fall off the plant, from the mere effect of the light, without being touched, apparently backwards, and are lost immediately, being so much the colour of the ground that they cannot be seen. Upon making this discovery I made a tolerably strong mixture of lime-water and sprinkled it plentifully on the plants and ground, but it had no effect whatever on the insects, which were as plentiful on the same evening as they had been on the previous one. I find they do not confine themselves entirely to Roses but are found also on Laurels and other plants. *Thos. R. Ward, Upton Park, Slough.* [Your Roses are attacked by that common garden pest the Otiorhynchus sulcatus, the grubs (larvæ) of which feed upon the roots of tender plants. They are easily destroyed by laying a sheet under the trees in the day-time, and then towards midnight, on the introduction of a light, they will fall down, or the trees may be shaken when their dark colour will render them conspicuous. They may then be collected and carefully destroyed. *W.* We have seen a quart collected in a night. The best way is to put them into a glass bottle and to fill it with boiling water.]

Mule Pink.—You would very much oblige by giving me the true name of the common Mule Pink. The only account I find of it is in the "Annals of Horticulture" for 1846, p. 304, where it is said to be Dianthus barbatus var., a very beautiful hybrid, supposed to be between Sweetwilliam and the Clove or Carnation, of which there appears to be little doubt, and if so, why barbatus var? If it has no other name than this, I think hybridus would be better. I hope erelong that the public will be favoured with a correct catalogue of plants by Dr. Lindley, arranged on the same principle as his Vegetable Kingdom; Loudon's Hortus Britannicus requires remodelling altogether, and Hortus Cantabrigiensis, by P. N. Don, is completely spoiled. I remember about 12 years ago seeing what I considered a good catalogue lying on the table of the council-room in the Horticultural Society's Garden at Chiswick, but by whom I do not recollect. Be that as it may, however, I am sure that a catalogue corresponding with Dr. Lindley's Vegetable Kingdom is much wanted, even by botanists as well as nurserymen and gardeners. *Interim.* [There is no settled nomenclature for garden Mules. D. hybridus is a bad name, because there may be other hybrids. The proper form of the word would be D. barbato-caryophyllus; but it is too long].

Peach Trees not Setting their Fruit.—I have a house of Peach trees which have produced splendid crops of first-rate fruit for some years past, but this season they have failed, most of the flowers not having set, and what have set appear to be falling off. They have received the same treatment as in former years, and I know of nothing to have induced failure except that we had six weeks of cold rainy weather while they were in flower, and that bees never visited the blossom, the bad weather having kept them shut up in their hives. If any of your correspondents, therefore, are similarly situated, or can show cause why my fruit has not set, I shall be obliged to them. My trees while in bloom never were more promising. *An Amateur, Forfarshire.*

Slugs.—Soot freely applied to the surface of the ground is a very effective way of destroying slugs. It at the same time, forms a rich dressing to the plants round which it may be used, and is moreover less unsightly in appearance than lime. *T. W. P.*

Colour in Flower-beds.—In directions on this subject an important item is generally left out, namely, whether the beds are to be on gravel or Grass. Cheiranthus Marshalli is like gold on Grass, but on new gravel nothing. As a rule, blues look best on yellow, red and yellow on Grass, white equally well on either, purples look better for being cut off from Grass by a white or yellow border. *Somerset.*

Cucumbers Preserved Whole in Syrup.—I think I have seen Cucumbers so treated, but I am not quite sure whether the fruit was whole, or whether the seeds had been withdrawn through an opening which had afterwards been closed up. I shall feel greatly obliged to any of your correspondents who will favour me with information, such as shall enable me to prolong the memory of the triumphs of my frame. *Diss.*

Aquilegia californica and eximia.—One of your correspondents asks if the A. eximia is not the same as his A. californica. Would he be good enough to say where it is described? If not, how can I, from Ghent, know the co-existence in England of a plant similar to that of which I received seeds from Oregon. My plant has been before a botanist, and is described in the January number of the "Flore des Serres." *L. Van Houtte.* [A. californica is mentioned and figured in our New Plants, No. 107, 1854, p. 836. It is certainly the same as A. eximia, and we still think a very handsome variety of A. canadensis.]

Wistaria (Glycine) sinensis.—There is now a fine specimen of this in full bloom at the Queen's Head Hotel, Hawkhurst; it is considered one of the finest in England. Within the last 10 years it has grown upwards of 180 feet; its bunches of Lilac coloured flowers, averaging 13 inches in circumference and 10 inches in length, cover 24 square feet of wall; 83 of such clusters, with which the tree is furnished, have a most beautiful appearance. *Arch. Kay, Gardener, Lillesden.*

Societies.

Entomological, *May* 4.—W. W. Saunders, Esq., F.R.S., President, in the Chair. The President introduced Messrs. Dohrer and Hagen to the members. Mr. Samuel Stevens exhibited fine specimens of Endromis versicolor taken in Scotland by Mr. Foxcroft; also a fine pair of the rare Eastern beetle, Eucheirus longimanus, and several Chinese insects which had been painted by the natives; likewise some specimens of a rare species of Pieris, taken by Mr. Wallace in various localities in the Eastern Archipelago, remarkable for their local variation; also Hetærius quadratus from the nests of Formica fusca. A number of rare Coleoptera, including several new British species from the neighbourhood of Brighton and London, were exhibited by various members. Mr. Dillon Croker presented a case of Indian locusts, and also a musquito flapper of beautiful manufacture from Constantinople. Mr. Trimmer exhibited a very remarkable web from South America, supposed to have been spun by some caterpillar in the interior of the trunk of a tree. Mr. Smith exhibited Tropideres sepicola, collected by Mr. Plant; and Mr. Robinson a drawing of the larva of Polyommatus Artaxerxes. Mr. Westwood exhibited a gigantic species of flea, of which a single specimen had been found at Gateshead by Mr. Bold; also a sphinx (S. Atropos?) which he had found imbedded in one of the combs of a beehive in his garden. Major Vardon exhibited several remarkable insects collected by Dr. Livingston in the interior of Africa, including a species of Acarus which sucks the blood of men, getting into the flesh between the toes, and causing inflammation and fever; also several larvæ which when crushed emit a poisonous fluid into which the natives dip their arrows; also a larva of some species of beetle, which buries its head in the sand, leaving exposed its bifid tail, with which it seizes ants or other insects on which it feeds. Mr. Shepherd exhibited Mixodia Hawkerana reared from the sea sponge. Mr. Jansen read some remarks in reply to Mr. Smith's comments on his paper on the nomenclature of a species of Bledius. Mr. Newman read a paper on sterility in female moths, asserting that he had observed that in double brooded species the summer broods are destitute of the organs necessary for the development of the eggs. A paper by Mr. Grant was read on the Entomology of Canada, and another by Mr. Douglas, being the translation of a Memoir on the Transformations of Trachys pygmæa.

Caledonian Horticultural.—At a meeting held the other day in the Experimental Garden, the following prizes were awarded:—Greenhouse Plants, Nurserymen, 1st, Messrs. J. Dickson & Sons, with Azaleas Stanleyana and Prince Albert, Boronia Drummondi, and Pimelea Nieppergiana. Stove or Greenhouse Plants, practical gardeners, 1st, Mr. Blair, gr. to G. C. Arbuthnot, Esq., with Leschenaultia formosa and Pimelea spectabilis; 2d, Mr. Lockhart, gr. to R. Dundas, Esq., with Leschenaultia formosa and Pultenæa stricta; 3d, Mr. Ritchie, gr. to Mrs. Hamilton, with Calceolaria violacea and Pimelea decussata. Cape Heaths, 1st, Mr. Ritchie, with Erica ventricosa coccinea minor and E. linnæoides nova; 2d, Mr. Lockhart, with Beaumontiana and E. ventricosa grandiflora superba. Cape Heaths, in 10-inch pots, 1st, Mr. Lockhart, with E. ventricosa coccinea, E. ventricosa densa carnea, and E. jasminoides nana; 2d, Mr. Blair, with

E. linnæoides superba, E. perspicua nana, and E. vasiflora. Perennial climbing plant: 1st, Mr. Blair, with Tropæolum tricolorum, trained in form of a vase; 2d, Mr. Lockhart, with a plant of the same species, neatly trained in a balloon form. Indian Azaleas: 1st, Mr. Henderson, gr. to C. K. Sivewright, Esq., with Egertoni and a neat plant of Iveryana, covered with bloom. Azaleas in 8-inch pots: 1st, Mr. Henderson, with Prince Albert, Stanleyana, and purpurea superba. Cinerarias: 1st, Mr. W. M'Farlane, gr. to C. W. R. Ramsay, Esq., with well-grown plants of True-love, Lady Paxton, optima, and Scottish Chieftain. Pansy blooms: 1st, Mr. M'Farlane, with Sir Colin Campbell, Mrs. E. Barclay, Nonpareil, Alice, Sir C. Napier, Louise, William, Climax, Mary Taylor, Sir J. Cathcart, Cyrus, and Jeanie; 2d, Mr. Henderson, with Flower of the Day, Minerva, Mr. Dodwell, Jeanie, Lord Raglan, Cyrus, Royal Standard, Monarch, Alice, Mesmerist, Earl of Cardigan, and Nonpareil. Hardy Herbaceous Plants: 1st, Mr. Falconer, with Pulmonaria grandiflora and Euphorbia epithymoides. Alpine Plants: 1st, Mr. Falconer, with Mitella diphylla, Arenaria balearica, Schivereckia podolica, and Androsace villosa. Exotic variegated plants: 1st, Mr. Blair, with Begonia hybrida, Aspidistra japonica variegata, Coleus Blumei (variegated), Maranta bicolor, Agave americana variegata, and Cissus discolor. Ferns: 1st, Mr. Blair, with Polypodium angustifolium, Pteris hastata, Adiantum affine, formosum, and assimile, Polypodium crassifolium, Lomaria attenuata, Allantodea umbrosa, Pteris rotundifolia, Polystichum proliferum, Asplenium viviparum, and Doodia rupestris; 2d, Mr. Falconer, with Pteris tremula, Asplenium fontanum, Cystopteris montana, and other interesting species. The prize of Two Sovereigns, offered by the office-bearers for the best collection of Stove or Greenhouse Plants, was awarded to Mr. Paterson, gr. to Professor Syme, for excellent specimens of the following:—Boronia denticulata, Podolobium triangulare and trilobatum, Cytisus racemosus superbus, a fine plant, of a very superior variety; Erica Cavendishi, E. perspicua nana, and E. propendens, also a fine plant; Azaleas vesta, optima, lacteola, Duke of Devonshire, aurantiaca and lateritia alba; Deutzia gracilis, Pultenæa stricta, Pimelea spectabilis, the gem of the collection; Eriostemon cuspidatum, Tropæolum tricolorum, and Rhododendron Gibsoni. The prize of One Guinea, offered by Messrs. Dicksons & Co. for the best 24 Pansies, was awarded to Mr. Reid, gr. to W. Wilson, Esq., whose stand contained fine blooms of the following sorts:—Mrs. Dodwell, Miss Walker, William, Mary Taylor, Alice, Sir C. Campbell, Earl of Mansfield, Sir J. Cathcart, Nonpareil, Duchess of Wellington, Louise, Lord Dunfermline, Sir C. Napier, Marchioness of Bath, Royal White, Mary, Emperor, Climax, Jeanie, Christina, Argo, Catherine Dundas, & Cyrus. Of articles for exhibition only Messrs. J. Dickson & Sons sent Boronia tetranda, Epacris Christisoni, with Auriculas, &c.; from Messrs. P. Lawson & Son came a collection of rare Coniferæ, including Pinus Pattoniana and Hookeriana, Thuja Craigana, Cupressus Lawsoniana, and Larix Kæmpferi, together with good specimens of greenhouse plants; from Messrs. Dicksons & Co., Azalea amœna, Heaths, Begonias, and other exotic plants; from Messrs. Downie & Laird Cinerarias; from Messrs. Cunningham, Fraser, & Co. Viburnum macrocephalum, together with Azalea Duke of Devonshire, Deutzia gracilis, &c.; from Mr. R. M. Stark Illicium religiosum and other greenhouse plants, and a few interesting Ferns; from Mr. C. Alexander Rhododendron splendens and Cinerarias; from Mr. Douglas Auriculas, with blooms of Cinerarias and Pansies; and from Mr. Forrester Auriculas. From the garden of S. Hay, Esq., were Azaleas, purpurea magnifica, aurea, &c; from C. K. Sivewright, Esq., Azaleas, and a large well-bloomed plant of Dielytra spectabilis; from Mr. Lockhart Leschenaultia formosa; from Mr. M'Farlane Cinerarias; from Mr. Melville Purple Intermediate Stocks and Seedling Cinerarias, for one of which a Certificate of Merit was granted; from J. Mood, Esq., Calceolaria violacea and Auriculas; from Mr. Gavin Pine Apples, viz., a Queen, a Trinidad, and two smooth Antiguas; from Mr. Beveridge Seedling Shrubby Calceolarias; from Mr. Anderson flowers of a Seedling Azalea, semidouble and of a novel colour. Mr. Taylor, market gardener, Inverleith, exhibited good Broccoli and M'Ewen Cabbages; Mr. Jameson, fruiterer, sent a bunch (25 heads) of Giant Asparagus grown by Mr. G. Bessent, Barnes, Surrey, which weighed 3 lbs. 2 oz. The exhibition was enhanced by specimens from the Society's Garden, including Azaleas, Cinerarias, &c., and a fine plant of Rhododendron Edgeworthi bearing trusses of unusually large flowers, there being four or five in each truss; also fruit trees in pots from the orchard house, covered with blossoms.

Notices of Books.

Memorials, Scientific and Literary, of Andrew Crosse, the Electrician. 8vo., Longmans, pp. 360.

Rather more than 20 years ago the world was startled by the newspaper announcement that Mr. Andrew Crosse, a private gentleman who had for many years devoted himself to the investigation of electrical phænomena, had succeeded in creating an insect, an Acarus, by the long action of electricity upon caustic or poisonous solutions. The book before us is the life of that Mr. Crosse: an affectionate tribute offered to his memory by his widow; and an extremely interesting well written piece of biography it is. To men of science the value of the labours of the deceased, in their relation to geology as well as general physics, is well known. Before the young student they are now brought vividly by one who had the best means of relating them faithfully. Among other results at which Mr. Crosse arrived was the conviction that the vitality of the Vegetable Kingdom was dependent, or at least most intimately associated with electrical action.

"He invariably found that negative electricity was injurious to all vegetation, except the development of fungi. Positive electricity, on the other hand, he found most favourable to all vegetation, except all fungoid appearances, which it entirely checked. In the course of his experiments he constantly found fungi growing in copper and other acid solutions. On one occasion a Mushroom-shaped fungus grew out of electrified hydrosulphuret of potash; and frequently I have myself seen the surface of an electrified fluid covered, or nearly so, by a thick flesh-like fungus that was strong enough to bear a considerable weight, and which was so tough as hardly to be torn apart by the fingers. Mr. Crosse considered that the roots and leaves of plants were in opposite states of electricity, and he often proposed trying to make a battery of growing plants, or at least an arrangement that might prove that electricity was present. I remember his description of a very elegant experiment on some Roses. He had two branches cut from the same tree; they were as nearly alike as it was possible, with the same number of buds, and both equally blown. An arrangement was made by which a negative current of electricity was passed through one, a positive current through the other. In a few hours the negative Rose drooped and died; but the positive continued its freshness for nearly a fortnight, the Rose itself became full blown, and the buds expanded and survived an unusual length of time. Mr. Crosse was not very sanguine about artificial electro-vegetation, from the great and almost insuperable difficulty of applying electricity to any extent."

Experience has now led others to the same conclusion; and we no longer hear of Potatoes being saved from the rot by positive, or hurried to destruction by negative electricity.

The account given by Mrs. Crosse of the real facts, as she believes, connected with the unexpected appearance of animal life, as we have above remarked, cannot fail to be read with curiosity. She vouches for the occurrence having taken place, assuring her readers that "Insects, in fact, were found to have been developed under conditions usually fatal to animal life, namely, in highly caustic solutions and out of contact of atmospheric air. The circumstance certainly was extraordinary, and deserved, as it still does deserve, further inquiry. The true spirit of philosophy lies in an equal mean between credulity and denial; but the prejudices acquired by education rarely allow us to observe the just medium. Mr. Crosse was no entomologist or physiologist, therefore he did not pretend to know whether these little animals, which had so strangely presented themselves between the poles of the voltaic circuit, were a new species or not (and it is still an open question, though they clearly belong to the Acarus tribe); he knew that under certain arrangements he could reproduce them at pleasure, and that unless these conditions were observed they did not appear. He formed no theory in respect to their development, and he was far too honest to attempt an explanation of what he freely allowed he did not comprehend."

How the mites first appeared is thus more particularly described in a letter from Mr. Crosse to Miss Martineau.

"As to the appearance of the acari under long-continued electrical action, I have never in thought, word, or deed, given any one a right to suppose that I considered them as a creation, or even as a formation, from inorganic matter. To create is to form a something out of a nothing. To annihilate is to reduce that something to a nothing. Both of these, of course, can only be the attributes of the Almighty. In fact, I can assure you most sacredly that I have never dreamed of any theory sufficient to account for their appearance. I confess that I was not a little surprised, and am so still, and quite as much as I was when the acari made their first appearance. Again, I have never claimed any merit as attached to these experiments. It was a matter of chance. I was looking for silicious formations, and animal matter appeared instead. In a great number of my experiments, made by passing a long current of electricity through various fluids (and some of them were considered to be destructive to animal life), acari have made their appearance; but never excepting on an electrified surface kept constantly moistened, or beneath the surface of an electrified fluid. In some instances these little animals have been produced two inches below the surface of a poisonous liquid. In one instance they made their appearance upon the lower part of a small piece of quartz, plunged two inches deep into a glass vessel of fluo-silica acid, or, in other words, into fluoric acid holding silica in solution. A current of electricity was passed through this fluid for a twelvemonth or more; and at the end of some months three of these acari were visible on the piece of quartz, which was kept negatively electrified. I have closely examined the progress of these insects. Their first appearance consists in a very minute whitish hemisphere, formed upon the surface of the electrified body, sometimes at the positive end, and sometimes at the negative, and occasionally between the two, or in the middle of the electrified current; and sometimes upon all. In a few days this speck enlarges and elongates vertically, and shoots out filaments of a whitish wavy appearance, and easily seen through a lens of very low power. Then commences the first appearance of animal life. If a fine point be made to approach these filaments, they immediately shrink up and collapse like zoophytes upon moss, but expand again some time after the removal of the point. Some days afterwards these filaments become legs and bristles, and a perfect acarus is the result, which finally detaches itself from its birth-place, and if under a fluid, climbs up the electrified wire, and escapes from the vessel, and afterwards feeds either on the moisture or the outside of the vessel, or on paper or card, or other substance in its vicinity. If one of them be afterwards thrown into the fluid in which he was produced, he is immediately drowned.'

For much more that follows on the same subject we refer to the volume itself, which will well repay a perusal as the history of a very remarkable man, prosecuting one of the most difficult branches of science with great originality for many years, alone, unaided, away from the world; and even at last shrinking sensitively from the announcement of what he had so long been working to discover. There are few such men as he was.

Parts 13 to 16 of the 2nd volume of Blume's *Museum Botanicum Lugduno-Batavum* have just reached us. They are almost wholly occupied with Urticaceæ, and may be regarded as a commentary on M. Weddell's learned work upon the same subject. Surely it would be more consistent with the interests of historical science if Prof. Blume would date the sheets of his work as they appear, so that no difficulty might arise as regards priority of publication. For ourselves we can only regard these parts as appearing about the time when they reach us, and not as dating from any earlier period.

We have before us the 1st number of the 2nd volume of the 2nd series of Van Houtte's Flore des Serres. It contains excellent original figures of Gaillardia grandiflora, a very fine supposed mule between G. Drummondi and G. aristata; Delphinium formosum, a very showy deep indigo blue flower; Aquilegia eximia, the A. californica of English gardens; a beautifully variegated variety of Weigela amabilis; Tydæa Eckhautei, a handsome Garden hybrid Achimenes; and Tanacetum elegans, a hardy Californian herbaceous plant with bipinnate and pinnatifid leaves.

Garden Memoranda.

S. Rucker's, Esq., West Hill, Wandsworth.—Few suburban gardens possess so much to interest and admire as this. Around the house is a beautifully kept lawn well furnished with specimen Conifers and magnificent Standard Rhododendrons. Some of the latter are of great age and size, and are now covered with undeveloped bloom buds, others again, as Blandfordianum for instance, are at present in full blossom, their large heads of rich crimson flowers forming a striking contrast with the orange, yellow, and flame-coloured tints of hardy Azaleas with which they are associated. John Waterer, one of the very finest of the high-coloured Hybrid Rhododendrons, of which we have now so many, has not yet expanded a single bud; this is a point so much in its favour as to be worthy of attention; for its lateness enables it to escape spring frosts, which so frequently impair the beauty of more early sorts. Between the lawn and an adjacent field is a strip of flower garden tastefully laid out on Grass; on one side a noble bank of Azaleas separates it from other portions of the grounds, and on another, looking towards the house, are the conservatories, in front of which are two charming fountains and some very fine pyramidal and standard Bays in tubs. These latter are placed along the sides of a gravel walk, and looked at from a distance have a striking and excellent effect. The beds in the flower garden are already all filled with their summer occupants; one we observed planted with the brilliant scarlety-crimson Rose General Jacqueminot. This is pegged down close to the ground, and though rather thin of petals, which is the only fault this variety has, its glowing colour when in full blossom cannot fail to render it highly attractive. A long border outside the flower garden is planted as follows:—at the back is a row of Hollyhocks, in front of that is one of Dahlias, then comes a row of standard Roses intermixed with Larkspurs, and in front of these are the taller varieties of Phlox, supported by a mixture of Stocks and other dwarf growing plants as a margin. These when in bloom will doubtless have a fine effect. On the north side of the lawn is a glass covered promenade some 50 yards in length, with a pathway down the middle, and borders on each side. These last are kept gay with flowering plants in pots, which are plunged, intermixed with Conifers in winter, and in summer with tall standard Fuchsias. Among other climbers on the outside of this small winter garden, for so it may be termed, are specimens of Clematis azurea grandiflora, now charmingly furnished with gay blossoms. Rustic and other vases filled with variegated Geraniums are employed freely here for decorative purposes, and in front of a little arbour, half hid among Rhododendrons, was a clump of the useful Geranium Brilliant, already covered with scarlet or rather rich crimson blossoms. This had been furnished with old plants that had been wintered under cover.

The conservatory, which is divided in the middle into

two houses, as it were, by a corridor, in which are an aviary and some fine specimen Ferns and Camellias, is a handsome erection, which is always interesting both in summer and winter, on account of the great variety of fine foliaged and other plants which it contains. One wing is devoted chiefly to Camellias, with a front shelf full of flowering plants, such as Azaleas, Calceolarias, Pelargoniums, Roses, and things of that sort. The other wing is kept warmer, and is filled mostly with stove plants and the finer sorts of tender Ferns, of which Mr. Rucker has an excellent collection. These occupy with advantage the back and more shady parts of the house, where they form handsome banks, edged with the common toothed Lycopod, the refreshing green of which is particularly pleasing to the eye. Among the more striking varieties here and elsewhere were Davallia aculeata and tenuifolia, Cheilanthes elegans, various Gymnogrammas, among which was luteo-alba; the handsome Pteris aspericaulis, and a fine plant of P. scaberula; Platyloma Calomelanos, Todea pellucida, and Trichomanes reniforme.

From amongst different kinds of Ficus and other damp wall plants issued the noble-looking fronds of Platycerium grande; in such situations these have a striking effect. Among flowering plants was the charming Meyenia erecta. This was covered with yellow-eyed violet blossoms of considerable size and beauty, and is really a first-class shrub. Bouvardia longiflora is also a useful plant; it has handsome pure white flowers which are sweet-scented and much prized in bouquets on account of their resemblance to Jasmine. The pretty Gesnera Donklaari was likewise beautifully in blossom.

The grand collection of Orchids, for which this place is so justly celebrated, is now in excellent condition; the different varieties of Cattleya Mossiæ are in full blossom; the extremely handsome Lælia purpurata is about to open no fewer than 15 flowers; of Aerides Schröderi, for which 30*l.* was given the other day for a moderate sized specimen at a sale, Mr. Rucker has one of the best plants in the country; it promises to bloom abundantly. Among other Orchids now in bloom were some glorious examples of the White Butterfly plant (Phalænopsis amabilis), the brilliant orange-coloured Lælia cinnabarina, with 10 spikes of bloom and many others coming; the rare orange red-blossomed Saccolabium curvifolium, the Sweet Vanda, V. teres, finely flowered; and many other equally remarkable specimens. The principal house in which these plants are grown has undergone some alteration since we last visited it. A new roof has been put on it with the ends and part of the upright sides of glass instead of brickwork; this has had the effect of making it more light and cheerful. Tiffany has been employed on this house for shading; but on the south side it was found too thin for that purpose; till linen blinds can be obtained it has, therefore, been removed to the north side, and Frigi Domo used in its place. This has had the effect of keeping the leaves from burning, which the Tiffany failed to do.

The Aquarium is now, as it always is, extremely interesting. Ample leaves of red, white, and blue Lilies cover the surface of the water, while around and suspended over them are Pitcher Plants, Orchids, and Ferns. Shallow panfuls, in the shape of little lively green circular tufts of the pretty compact-growing Lycopodium apodum, met the eye here and there in passing round the tank, and altogether the different forms and tints which the inmates of this house possess render it second to none in importance or point of attractiveness.

Of greenhouses there are many; in one of them we noticed a long row of Peaches and Nectarines in pots. These had just been brought out of a Vinery, where the leaves were beginning to produce too much shade for them. The Vines were swelling a good crop, and Figs in pots were ripening below them.

Out of doors here is a pretty little orchard of pyramidal trees; but unfortunately there is this year little fruit on them. Early spring frosts have rendered Plums and early Cherries a failure; late Cherries have escaped, and there is a slight sprinkling of Apples and Pears.

By the margins of shady shrubbery walks, and round the brick basement of some of the different glasshouses wherever they could be introduced with pro priety, have been planted hardy Ferns and other shade-loving plants among rockwork. These little cool retreats are thus made sources of attraction where little else would grow. A contrivance for watering one of these borders all at once has been invented. It consists of a perforated pipe led along and fastened to the wall above it. By turning a tap at one end this permits a shower of fine rain to fall on the plants below, which keeps them clean and healthy even in the most dry and dusty weather.

We may add, that not a weed or other unsightly thing was to be seen about the whole place, which reflects much credit on Mr. Pilcher, Mr. Rucker's gardener, to whom the management of everything is entrusted.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Some of the hardier stock in this structure, such as Hybrid Rhododendrons, Camellias forming buds, and Orange trees in tubs or pots may soon be set out of doors. This will give more room to such plants as must remain, both on account of their tenderness and the display they make. A sheltered spot should be selected out of doors, but by no means under the drip of trees. A temporary awning should be suspended over them for a week or two at first, but of a very thin character. When they are reconciled to the change, such as the Oranges may be removed to other situations in the open air. Such of the stove plants or those belonging to an intermediate house as have made a good and early growth may now be removed to a cooler shade, which will arrest their rapid vegetation in some degree, causing robustness of habit, and in many a tendency to produce autumn and winter flowers. Every attention should now be paid to keeping down vermin in Orchid houses; nothing short of extermination should ever satisfy the zealous cultivator. Heaths in full growth will at this period require abundance of water, at least in bright weather. Many good specimens are lost through imperfect watering. The Coral tree (Erythrina Crista-galli) is a fine old plant; cuttings may be made of the young shoots of those which have been headed down. The old plants started in heat in January and now exhausted with flowering, if removed to a cool and light greenhouse and suffered to go to rest, will bloom well a second time in September by the excitement of heat and moisture, after resting a few weeks. In regard to pits or frames, after the stock for the flower garden masses is removed, all surplus Verbenas, Fuchsias, Geraniums, Calceolarias, Petunias, &c., remaining in store pots should be potted off forthwith into 3-inch pots, and should receive every attention in the way of cultivation. As soon as they grow freely they should be stopped and made to form bushy plants. These will be a reserve to succeed plants in full bloom at this period, and also to fill up gaps as they occur in the beds or borders.

FORCING DEPARTMENT.

Pinery.—Where the quality of the fruit is of first importance, care must be observed to have the soil in a healthy rather dry state during the period of ripening, for as there is no reasonable hope of obtaining high flavoured fruit from plants growing in pots, the trouble necessary to collect and place together those approaching ripeness, so as to be able to afford them a rather dry atmosphere, and avoid touching them with the syringe after they begin to colour, will be well repaid. Suckers that are not very strong will be benefited by being left on the stool for a month after the fruit is cut, but this will seldom be necessary in the case of healthy vigorous plants. Any neglect in the way of watering and maintaining a moist atmosphere in the case of succession stock may lead to their fruiting prematurely, therefore let there be no lack of attention at present. Plants swelling their fruit should be encouraged with plenty of liquid manure and a moist high temperature, shutting up early in the afternoon after syringing. Vines.—If spider makes its appearance on the foliage after fruit has commenced colouring, no time should be lost in coating the hot-water pipes with sulphur. The sulphur should be mixed in water with about equal quantities of lime and soot, and applied with a brush. The lime serves to prevent the sulphur being washed or rubbed off, and the soot helps to prevent the disagreeable appearance. The temperature of late houses where the fruit is now showing must not be allowed to fall too low at night if good sized bunches are expected, and where Muscats are grown for a late supply, there will be but little chance of securing a good crop of these unless a temperature of 70° is maintained. Attend carefully to young Vines recently planted, keeping the borders in a healthy moist state, maintaining a moist atmosphere, and shading if necessary until the Vines get a fair start. Proceed diligently with thinning the berries, &c., immediately they are ready, for they progress rapidly at this season; stop all laterals in time, and allow no confusion. Melons.—Where the fruit is swelling the soil should be kept in a properly moist state, and every means should be used to preserve the foliage in perfect health, as there is no possibility of obtaining good flavoured fruit unless the foliage is kept in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves at once, as these when left only serve as a harbour for insects. There is yet plenty of time to secure a good crop in dung beds, and if any of the frames which have been used for getting up "bedding-out stuff" can be spared for this purpose the plants should be got out at once.

FLOWER GARDEN AND SHRUBBERIES.

Newly planted shrubs will require thorough waterings in periods of droughts. Masses of American shrubs under or near large trees should have a top dressing of some kind to keep them cool, and to compensate for the exhaustion oocasioned by the roots of the trees. A coating of bog earth, sphagnum, half rotten leaves, or old tan will be perfectly suitable. Conservative walls, trellises, or ornamental arcades should have close attention at this period. Some of the remarks as applied to conservatory climbers are applicable here. Continue getting out masses of flowers as soon as they are hardened. If they flag screen them with boughs of trees stuck amongst them.

HARDY FRUIT AND KITCHEN GARDEN.

Asparagus beds in full cutting, *i. e.*, in their prime may have every shoot cut away until the middle of June. "Sprue," or very small Asparagus may however be permitted to grow. This will hardly prevent the development of the dormant buds. Tomatoes if hardened may now be planted out, the blanks on the walls are most eligible. Plant them on raised mounds, which will have the effect of reducing their grossness. Capsicums may also be planted under the front of Vineries or other warm situations. Let Celery plants in all their stages have due attention as to pricking-out, watering, stirring the soil, &c. The watering above all is a most important point, it should ever be borne in mind that Celery will grow in a ditch. See to sowings of Cape or other autumn Broccoli. Get trenches filled with some fermenting material in readiness for Cucumbers, &c., and expose the plants rather freely to light and air to prepare them for planting under the protection of the hand-glasses. If not already done, see to sowing plenty of Sweet Basil, Savory, &c., on a warm border of light rich soil. Persevere in the destruction of weeds, and keep the surface of the ground frequently stirred among growing crops.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending May 28, 1857, as observed at the Horticultural Gardens.

May.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 22	28	29.846	29.793	60	47	53.5	57	53	N.E.	.20
Satur. 23	[illegible]	29.598	29.462	66	49	57.5	56	53	E.	.23
Sunday 24	1	29.623	29.472	70	40	55.0	57	53	S.W.	.10
Mon. 25	2	29.492	29.384	69	40	54.5	57	53½	E.	.10
Tues. 26	3	29.629	29.520	70	38	54.0	57	53½	S.	.10
Wed. 27	4	29.780	29.646	73	36	54.5	57	54	S.W.	.00
Thurs. 28	5	29.835	29.573	74	50	62.0	57½	53½	E.	.00
Average..		29.686	29.521	68.8	42.8	55.8	57.1	52.2		.80

May 22—Fine; overcast; rain.
— 23—Rain; hazy: overcast at night.
— 24—Cloudy; very fine throughout.
— 25—Exceedingly fine; cloudy; rain at night.
— 26—Fine; very fine throughout.
— 27—Fine; very fine; cold at night.
— 28—Very fine throughout.

Mean temperature of the week 1-10th deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending June 6, 1857.

May and June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 31	68.4	45.4	56.9	11	0.46 in.	2	7	5	—	3	8	4	2
Mon. 1	69.3	45.9	57.6	11	0.27	1	9	2	—	5	9	3	2
Tues. 2	69.1	45.9	57.5	13	0.33	1	5	2	2	3	8	5	5
Wed. 3	70.6	46.1	58.3	12	0.91	—	3	4	1	5	11	3	4
Thurs. 4	70.8	46.9	58.8	11	0.76	1	5	2	2	3	8	6	4
Friday 5	70.2	47.5	58.9	15	0.64	2	5	2	1	5	7	6	3
Satur. 6	68.7	47.4	58.1	15	0.28	6	4	1	2	4	9	2	3

The highest temperature during the above period occurred on the 6th, 1844—therm. 89 deg.; and the lowest on the 1st and 5th, 1856—therm. 33 deg.

Notices to Correspondents.

Abusive Writers: *G B.* We really have not time to trouble ourselves about the miserable people you describe. We suppose that they imagine some advantage to be derived from the course you say they take. Let us hope they judge correctly.

Advertisements: *Arvicola.* We cannot advise you. You should judge for yourself. We may, however, state that advertisements of things to be sold should never be sent to papers, be their circulation what it may, *unless the readers are also buyers.*

Batatas paniculata: *C D.* This is a tender stove plant. We know nothing of the quality of its roots; but its affinities would lead us to desire some authentic information before we ventured to eat them.

Diseases: *H A.* Your Potato is extremely interesting. You will find a notice of it elsewhere. Would you be so good as to send any information you may possess as to the rapidity with which the disease extends towards the centre, or the circumstances under which it appeared, with one or two characteristic specimens, directed Rev. M. J. Berkeley, King's Cliffe, Wansford.—*G W P.* Your Grape leaves No. 1 a ppear to be sunburnt; those marked No. 2 exhibit the little warts which are so common on leaves where the roots are in a bad condition, as may be easily seen in Vines grown in pots, when similarly affected. It is very possible that the leaves of No. 1 might not have been sunburnt had they been perfectly healthy. Examine the state of the roots, whether running into bad ill-drained soil, or planted too deep. *M J B.*

Flues: *R S.* We do not see why it should not draw, provided the whole length is in the house. Undoubtedly if in so long a line the flue becomes damp and cold it will be difficult to make it work, so that it may take more time than usual to make the fire draw.

Insects: *N T A.* The insects found on your Vines are females of the common Vine Coccus. You had better examine your plants at once or the myriads of eggs under their bodies will very soon hatch and your trees will be ruined. *W.*

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*L V H.* It is certainly Rhododendron argenteum. Dr. Hooker, the first authority in the matter, is of the same opinion.—*H S A.* Dimorphotheca pluvialis.—*F.* Saxifraga Geum.—*W G.* 1, Veronica serpyllifolia; 2, Cardamine hirsuta; 3, Montia fontana; 4, Euphorbia Lathyris.—*H G H.* Coleus Blumei is the right name.—*E J M.* The Fungus you have sent is very curious and apparently new. It is something like Peziza sepulta, *Fries*, a species which resembles yours in its subterranean habits, but which is densely clothed with matted hairs. If you can send one or two more specimens, it shall be described. *M J B.*

Pæonies: *J R.* There is no art in crossing the tree and herbaceous Pæonies. The question is whether they will mix. The method is the same as in all other plants.

Peach Trees: *J B C.* Cold and damp acting on the tender surface of your leaves have caused them to curl. Aphides also augment the evil.

Plums: *G C B.* Whether they will succeed or not on glazed walls all depends on proper management and good ventilation. Without the last they will be sure to fail.†

Scythes: *J B C.* Otway's self-adjustment we prefer to the one you name; it is more easily set and is found to work well.‡

The Olive Tree: *Halesleigh.* A work upon the Vine, Olive, Fig and other southern plants was published at Sydney by the late Sir Thomas Mitchell, and you will doubtless find in it the information you seek. If not we refer you to the 4th vol. of De Gasparin's Cours d'Agriculture. There is an Italian work on the subject, called we believe Trattato sul l'Oliva, which we suppose may be heard of through the Italian booksellers.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

TO FARMERS AND OTHERS.

MANURE.—Required Tenders for all the REFUSE LIME produced at the Works of the Crystal Palace Disinfecting Gas Company, Bell Green, Sydenham, S.E.—For particulars apply to Mr. MAGNUS OHREN, Secretary and Manager, Bell Green.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Superphosphates, 6l.—Office, 1, Adelaide Place, London Bridge.

N.b. Genuine Peruvian Guano, guaranteed to contain 16 per cent of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY (Established 1840).

In consequence of the further rise of 1l. per ton in the price of Peruvian Guano, the London Manure Company beg to call the attention of Agriculturists to their CORN MANURE and ALKALINE, which have been used most extensively for Corn, Grasses, and Root Crops for many years.

THE LONDON MANURE COMPANY also supply genuine Peruvian Guano direct from the Importers' warehouses, Sulphate of Ammonia, Nitrate of Soda, Superphosphate of Lime of guaranteed quality, Blood Manure, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, or of their Agents.

EDWARD PURSER, Secretary.

THE PATENT NITRO-PHOSPHATE BLOOD MANURE COMPANY. (Limited.)
Offices, 109, Fenchurch Street (E.C.).
Manufactory, Plaistow Marshes, Essex.

BLOOD MANURE FOR TURNIPS, 7l. per ton, delivered free to any Railway or Wharf in London.

Every bag contains 2 cwt. marked "ODAMS' PATENT BLOOD MANURE," and sold only by the authorised Agents of the Company.

F. C. HILLS' ARTIFICIAL MANURES.

SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATES.

BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12l. 15s. per ton, packages included; in less quantities at 13l.

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 400 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London and sold by their Wholesale Dealers in town and country.

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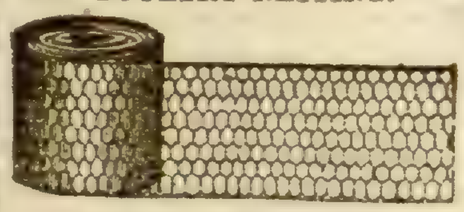
GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½d. per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6d., 8d., and 11d. per yard.
Galvanised, 24 ins. wide, 1-inch mesh, 4d., 5½d., and 7½d. per yard.
The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6s. 6d. to 12s. 6d. each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

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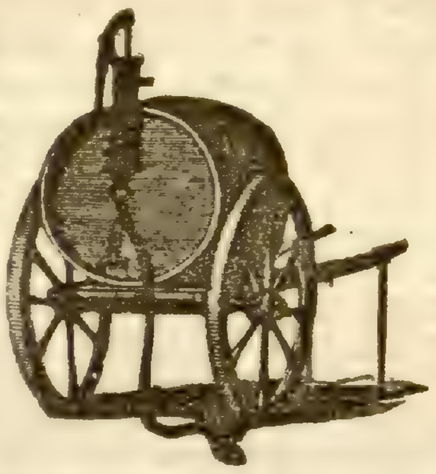
WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½d. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2s. 9d. per foot.

1½ Gutta Percha Suction, 1s. 9d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in. short	1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ ,, long	3 ,, 3 ,,		1 14 0
3 ,, ditto	3 ,, 6 ,,		2 8 0
3½ ,, ditto	3 ,, 6 ,,		2 12 0
4 ,, ditto	3 ,, 6 ,,		3 3 0
2½ ,, short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

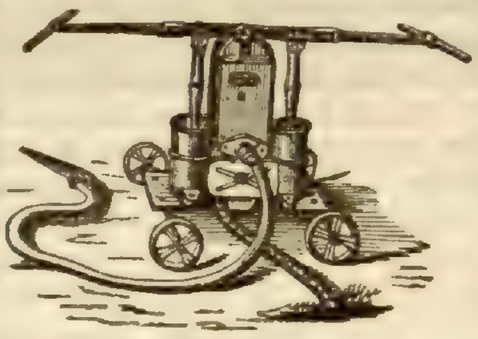
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams, Apparatus for Warming, Boiling, and Drying, and every class of Engineers' work.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS

MESSRS. BURGESS & KEY, as Mr. PARKES' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

TODD'S PATENT IMPROVED METALLIC PROTOXIDE PAINT.—Indestructible by Heat, more durable than White Lead, and cheaper.—Testimonials and Specimens at the Office of the Company (Limited), 58, King William Street, E.C. The Company will not be responsible for any but their own Manufacture.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

BATH & WEST OF ENGLAND SHOW AT NEWTON ABBOTT, DEVON.

3D, 4TH, AND 5TH JUNE, 1857. STAND No. 35.

B. SAMUELSON, BRITANNIA WORKS, BANBURY, OXON.

SAMUELSON'S Patent Gardner's Turnip Cutters and Graters, Chaff-Cutters, Cake-Breakers' Mills, and every description of Food preparing Implements; Clod-Crushers, Haymakers, Horse-Rakes, Harrows, &c.; Lawn-Mowers, Pumps, and Garden Implements; Churns, Mangles, Washing Machines, &c. May be seen at Stand No. 35, Bath and West of England Show at Newton Abbott, where illustrated priced Catalogues may be obtained, or will be forwarded post free on application to B. SAMUELSON, Britannia Works, Banbury, Oxon.

THIRTY-SEVENTH PUBLIC DRAWING FOR RIGHTS OF CHOICE. — CONSERVATIVE LAND SOCIETY. — On TUESDAY at 3 o'Clock, June 9, at the Offices, 33, Norfolk Street, Strand, London, W.C., a Public Drawing of 100 uncompleted Shares will take place, and 50 Numbers will be registered by seniority of date of Membership in order to fix the rotation of the Numbers on the Register of Rights of Choice, which enable Members at their option to select Plots of Land on the various Estates for Building in several counties, and whilst securing the ancient Freehold Franchise must produce most eligible Ground Rents, the safest and most substantial of investments. Prospectuses will be sent free to any part of the world.

CHARLES LEWIS GRUNEISEN, Secretary.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

NOMINATION OF JUDGES.

The Members of the Society generally are requested to forward to the Secretary, on or before SATURDAY, the 20th of June, their nominations of such Judges for Live Stock or Implements, at the ensuing Salisbury Meeting, to be held the third Week of July, as they can certify, from their personal knowledge, to be qualified and willing to act in the particular classes of Stock, or department of Implements, for which they are respectively recommended. JAMES HUDSON, Secretary.

12, Hanover Square, London, May 30.

The Agricultural Gazette.

SATURDAY, MAY 30, 1857.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

WEDNESDAY,	June 3	Agricultural Soc. of England ..	Noon.
		Society of Arts	8 P.M.
WEDNESDAY,	June 3	Meeting of Bath and West of England	
THURSDAY,	— 4	Agri. Society at Newton.	

ON Friday of last week the whole of Mr. MARJORIBANKS' herd of Short-horns were disposed of by auction at Bushey Grove. At the last great sale—that of the Fawsley herd—the average price attained for 78 animals was 76 guineas, the highest prices attained being 155 guineas in four several instances for cows and heifers, and 330 guineas for a 3-year old bull (Duke of Cambridge). At the

Hendon sale, the great event of the previous year, 76 cows and heifers averaged 73*l.* 7*s.* each, and 24 bulls and bull calves sold for 76*l.* 11*s.* 3*d.* apiece; and the highest prices reached were 500 guineas and 480 guineas respectively for a cow and heifer, and 280 guineas for a bull, the same Duke of Cambridge which sold at Fawsley for 50 guineas more. At Bushey Grove last week 59 animals fetched upwards of 90*l.* each, considerably higher than in the former instance; and it is gratifying to understand that American competition had nothing to do with so high an average price, in this instance none of the animals having been sold to leave the country. Among the more remarkable of the prices given were the following:—

Names.	Calved in	Names of Purchasers.	Prices in Guineas.
COWS AND HEIFERS.			
Kirklee	1851	Mr. Robinson ..	130
Careless 2d	"	" Guilden	115
Lucy 2d	1852	" Bodger	105
Cassandra	1853	" Leslie	110
Kirklee 2d	1855	" H. Combe ..	140
Diamond	"	" Grundy	125
BULLS.			
Marmaduke	1855	" H. Combe ..	500
Master Butterfly 2d..	"	" Cruikshanks ..	400
Cobham	"	Lord Zetland ..	145
Great Mogul	1856	Mr. Duckworth ..	400

The sale was conducted by Mr. WETHERELL.

At Dudding Hill on the previous day Mr. STRAFFORD had sold by auction the herd of Mr. GRENFELL, and a draft from that of Mr. BOLDEN, of Lancaster. In the former case 27 cow and heifer lots averaged 69½ guineas, and six bulls averaged 71 guineas: the sum realised by 33 animals being about 2300 guineas, or upwards of 73*l.* each, as nearly as possible the average of the Hendon sale, two years before. The draft from Mr. BOLDEN'S herd averaged 65*l.*

Among Mr. GRENFELL'S cattle were Lizzy, a 4-year old cow, which was sold to Captain SPENCER for 150 guineas; Leila, a yearling heifer, sold to Mr. H. COMBE for 200 guineas; Brigadier, a yearling bull, sold to Mr. KNOWLES for 145 guineas. The highest prices realised by any of Mr. BOLDEN'S lots was 100 guineas for Bijou, a 4-year old cow, bought by Mr. STANHOPE, M.P.; and 91 guineas for Asia, a yearling heifer, bought by Mr. H. COMBE.

At a sale near Flint, North Wales, in the early part of last week, the herd of Mr. E. BATES, of Kelsterton, was brought to the hammer, and Mr. STRAFFORD again realised good prices, as 100 guineas for a young bull (Daisy Duke), and 80 and 90 guineas for cows.

WE are afraid that Messrs. LAWES and GILBERT'S paper on the Lois-Weedon plan of growing Wheat (in the last number of the R. A. S. E. Journal), may tend to close the farmer's ear against the "Word in Season." Chemists might argue as conclusively as they pleased that the removal of crops with no manuring must eventually impoverish the land; but as long as Mr. SMITH continued to obtain full average and even increasing yields, farmers would continue to believe in actual results in preference to the productions of theory. Now, however, their confidence will be shaken; Mr. LAWES, our deservedly high authority in the chemistry of soils and manures especially in relation to Wheat growing, having practically tested the scheme and found it to fail.

The experiment was tried upon two acres, during four years; so that it cannot lie open to the objection of being too restricted in extent or too limited in duration. Then again, the soil is "a heavy loam, with a subsoil of stiff reddish yellow clay, which rests upon chalk. The depth from the surface to the chalk is perhaps never less than 6 or 7 feet, and frequently twice as much; the natural drainage is, however, good. This soil, without being high, is still of good average quality, and capable of growing good Wheat crops. It is well suited, therefore, to test the degree of applicability to other soils of plans proposed for extensive adoption in the cultivation of that crop." Yet the average yield per acre has been only about 7½ bushels of dressed corn with a very thin seeding, and 10¼ bushels with a rather thicker seeding,—the greatest produce in one year being only 15 bushels 2½ pecks per acre. To show the completeness of the failure, this yield after expensive digging and other tillage is compared with that of an adjoining plot on precisely the same description of land, which being simply ploughed, cleaned, and drilled in the ordinary way, every year without any manure, produced in the same four years an average of 14 bushels, 1¾ pecks per acre; and these were the 9th, 10th, 11th, and 12th successive crops taken from it.

Now the mere fact of this utter failure of the Lois-Weedon system of Wheat growing, in the hands of so scientific a cultivator as Mr. LAWES, will be sufficient to condemn it in the judgment of many as obviously adapted only to a limited district, and probably successful there only in consequence of some unparalleled skill and attention bestowed upon every minute operation. True, Mr. LAWES has candidlly stated the details of his management and suggested various causes as having militated against him; still, many readers who may follow him through his elaborate computations and comparisons, his interesting and valuable analyses of the Lois-Weedon and Rothamsted soils and subsoils, and his examination of their respective measures of porosity and absorptive power, will certainly rise from the perusal of his somewhat involved and redundant utterances with some such impression as the following:—"Well, no wonder that Mr. SMITH is so successful, because his land naturally contains so much nitrogen, and possesses also such an inherent power of absorbing this constituent from atmospheric sources; but from Mr. LAWES' experience on a good average Wheat soil it seems that the Lois-Weedon method can only be of local and limited applicability."

Such a conclusion from the Rothamsted experiments, we believe to be quite erroneous; and we think there are sufficient causes of failure clearly apparent in Mr. LAWES' treatise, which do not at all tend to restrict the practical availability of the Lois-Weedon discoveries to any special soil or locality. And for the sake of precluding such wholesale deductions unfavourable to the system, we wish that Mr. LAWES besides avoiding sweeping assertions himself (which he certainly does,) had also added in so many words:—"My investigations, while throwing an interesting light upon the different conditions of soil existing at Lois-Weedon and at Rothamsted, upon the power of tillage to render available the mineral food of the Wheat plant and accumulate organic riches in the soil, and upon various other important points, must not be taken to disprove the general applicability of Mr. SMITH'S husbandry, because I did not strictly follow his rules, and my management differed considerably from his. While therefore my particular version of the story has proved unsatisfactory, it is quite possible that the original, faithfully translated, may be remarkably advantageous."

The field selected for the trial was under Wheat in 1850, and was a *bare fallow* in 1851, prior to commencing the Lois-Weedon operations in the autumn of that year. For the first crop the land was ploughed and harrowed in the ordinary way; and the triple rows of Wheat (at one foot apart) alternated with fallow intervals 4 instead of 3 feet wide, as adopted by Mr. SMITH. The seed was dibbled in at a distance of 2 to 3 inches apart in the rows, one part of the ground with only a single seed in each hole, and the rest with two seeds in each hole, the quantities being in the first case little more than half a peck, and in the other about one peck per acre. Now, that with such a scanty seeding as this upon bare-fallowed land the crop should have been "foul, poor, and much blighted," is just what we should expect. After a year's fallow the field was in a condition to produce a full crop of Wheat by the common method—as shown by an adjoining acre of the same fallow which was drilled with 2 bushels of Wheat in rows 9 inches apart, and yielded 37 bushels of head corn and more than 2 tons of straw. It was not likely, therefore, that a remarkably thin seeding, in rows averaging 2 feet apart, (there being a set of three rows in every strip of 6 feet) would bring a healthy crop; and the failure was rendered inevitable when the already prolific condition of the soil was heightened and the crop forced and over-fed by the fallow-trenching and stirring of the intervals. It is true that in "Lois-Weedon Husbandry" one of the "indispensable conditions" insisted on is "a clean pulverised fallow at the outset," but from the connexion in which the words occur, the direction evidently applies to the yearly practice of the system when established, and not to the first year's start. In private letters we know that Mr. SMITH strongly urges beginners to choose a piece of ground in a *sufficiently exhausted* state, in order to avoid blight and ruin to the crop. In the "Word in Season" he advises the farmer, in commencing the system, to dig up the field at once a good spit deep, expose it during a winter, and then after pulverising, to sow an intermediate crop of Oats in triple rows, the intervals being prepared by horse-hoeing, &c., during the summer for the Wheat-rows to be sown in autumn. Mr. SMITH'S 4-acre piece was sown upon the three-row plan, not after a dead fallow, but after an average crop of Wheat (*i. e.*, 24 to 28 bushels per acre) sown broadcast; this was after Clover following an average crop of Barley, and this had been grown after Swedes which had received an ordinary dressing of farm-yard manure but were carted off the land. In the "Word in Season" he writes, "Nothing can be better suited to my purpose than this 4-acre field; for it is what is usually deemed exhausted." He ploughed it one inch deeper than the former staple, cleared and levelled it, and sowed the seed. In the *Agricultural Gazette*, No. 35, 1855, he writes, "As a proof that exhausted land is best suited to this plan of growing Wheat, being a security, to a great extent, against mildew and a bad sample, there is the fact that the whole crop of the original 4-acre piece, both last year and this, was good in straw and in grain, while an added piece of about 2 chains, which had been manured for roots, and was in Wheat two years ago, was badly mildewed the first year, and barely escaped it this.* * *A fresh portion of the clay piece had also been manured for a root crop two years ago, and—on an after thought—was added at that time to the original piece and sown with Wheat; and all that fresh portion was fearfully blighted last year, and the original portion was comparatively clean.* * * With regard to this year's crop on the clay, the line was distinctly marked to a foot between the old portion and the new, the former being bright as fine gold, while the latter was late and discoloured, and only saved from mildew by the extraordinary season." In "Lois-Weedon Husbandry" he says, "So far from its unexhausted state being advantageous, the fresh broken-up land for several years produced over-luxuriant crops, and very frequently the usual evil results.* * * While enough nourishment for the Wheat plant brings the grain to a healthy maturity, more than enough leads often to over-luxuriance, mildew and ruin. So cautious, indeed, am I compelled to be in this matter, that when the plant is doing well, even an injudicious and ill-timed stirring, which is tantamount to a dressing, is unsafe and frequently fatal.* * * While the green crops, in order to pay, require to be forced, the Wheat crops, on this plan, not only do not require it, but absolutely will not bear it. So that were I to alternate my Wheat with the Beans or the root-crops, which are heavily manured, the cereal crop on this plan would become gross and mildewed."

So that for the first year's crop Mr. LAWES neglected one important condition of success; and, as we shall see on another occasion, did not strictly follow the Lois-Weedon directions in the other three years of the experiment. *I. A. C.*

THE BREEDING OF SHORT-HORNS.

[Mr. Willoughby Wood continues to discuss this subject in the columns of *Bell's Messenger*, and we extract the following passage from his last letter.]

IT deserves the serious consideration of short-horn breeders, whether it would not be for their interest to convert their inferior bull calves into steers. In former days this was the usual practice, even in herds of the highest blood. Although the demand for bulls has of late years greatly increased, still inferior animals of this kind hang very heavy on hand. As they can only be used for the purpose of crossing ordinary cows of other breeds, the price which they fetch is usually too low to remunerate the breeder. In this case a double loss is sustained. It costs considerably more for instance to rear a bull up to the age of two years old, than it does an ox; while, if not sold for breeding purposes, the butcher will not give so much for him in proportion to his weight. It never answers to run counter to the nature of things, or to endeavour to extract private advantage from public loss. A male animal ought to be good of his kind, or he ought not to be used as a male at all. It is not indeed necessary that the ordinary farmer, whose object it is to breed some useful dairy heifers or feeding steers, should use a bull of the high quality, and faultless symmetry, on which the professed breeder of short-horns habitually insists. But there are certain points which ought to be found in every bull; there is a degree of size and quality, below which the breeder is acting contrary to the public interest in offering bulls for sale. The buyer is dissatisfied with them; their stock does not turn out as it ought to do, and thus the vendor loses caste as a breeder. If, on the other hand, such fourth-rate bulls have been converted into steers, they would have realised a higher price, and have cost less in keep. According to the remark of the late Earl Spencer, male animals frequently show faults in shape, which as oxen or as wethers they would not have manifested. Besides this, a deficiency in symmetry, which is fatal to the reputation of the former class, may in no degree impair the utility of the latter. Worthless bulls, in short, might have been superior oxen, and thus have afforded to the breeder an enhanced profit, while yielding to the public an additional supply of meat.

It is not probable that pure-bred short-horn heifers will ever be fed for the butcher, with the exception of such as refuse to breed. But as the best heifers of

other breeds are constantly fed, it is all the more necessary, in order to afford the public a fair opportunity of estimating the comparative merits of short-horns, that their owners should supply the principal markets with a certain number of steers. Practical men know the increasing difficulty of meeting with steers, calculated, by their size and quality, to graze on first-class land. The price, therefore, which animals of this description fetch is amply remunerative to the breeder. Nothing would enhance the reputation of the short-horns in the eyes of the general public more than seeing their breeders annually turn out a number of oxen which, in point of quality, size, and early maturity, were equal or superior to those of other breeds. In these days no assertion is long taken on trust. We who maintain that the short-horns are the finest breed of cattle in the world must hold ourselves prepared to prove it.

I had written thus far previously to the publication of the Birmingham prize list for the fat show of 1857. It may not be inopportune to notice the encouragement which the forthcoming meeting holds out to breeders. In addition to the usual prizes, it offers three extra prizes for the best Hereford, the best short-horn, and the best Devon exhibited. Besides this, there will be a gold medal or piece of plate for the best ox or steer of any breed, and another for the best cow or heifer in the yard. Surely breeders will now be on their mettle, and bring strong musters of their favourites into the field. But the circumstance to which I desire especially to call attention, is the judicious liberality of Lord Ward, who offers a silver cup or piece of plate, as an extra prize, for the best ox or steer of any age or breed, to be bred and fed by the exhibitor.

Here is an opportunity which breeders ought not to neglect. On such large farms especially, as have a portion of good grazing land, it is for many reasons of much importance that the feeding stock should be reared at home. In the first place, animals usually thrive best on the ground on which they have been reared. 2. It is cheaper at present prices to rear a two-year-old steer of high quality, than to buy him. 3. Animals destined to be fed by the breeder will have been better kept from their birth, than is usually the case with those intended for sale as stores. They will, therefore, be fit for market at an earlier period, and consequently with a greater real economy of food. No plan is so wasteful as that of letting an animal down so low, that he will for a long time consume largely without apparent benefit. 4. The breeder who watches his stock through all the stages of their growth up to the period which is to reward his energy and his skill, enjoys opportunities for acquiring a knowledge of his profession which no other circumstances afford. The ordinary grazier may know what points constitute a thriver, and what are the signs of an unprofitable consumer; but the breeder alone learns the tokens which in the calf denote the quality and the value of the future cow or ox. His daily study is to compare the actual result of his plans with the anticipations which he had formed from them. How often does he see the showy calf grow plainer as it advances in age, while another, which has been scouted by common consent, has meanwhile been improving into a first-rate animal.

THE COMPOSITION OF BREAD.

On the assumption that it is established by others (for we have not ourselves any direct experiments on the point), that the loss of dry substance, by the panary fermentation, is less than one and, perhaps less than 0.5 per cent. of that of the flour employed, it is obvious that the number of loaves of a given weight obtained from a sack of flour (280 lbs.) being given, and the per centage of water in the flour also known, we could easily estimate, within very narrow limits, the per centage of dry substance in the bread prepared. The per centage of dry matter in bread, thus determined by calculation from the actual or assumed amount in the flour, will be too high by the unknown quantity lost by fermentation, and too low by the amount of salt, or other saline matter, added. On the latter point it may be stated, that about 4 lbs of salt to the sack of flour is equal to about 1 per cent. in the bread. Indeed, assuming the loss by fermentation as above, and taking such data as we possess as to the usual amount of mineral matter added by the baker, we are disposed to conclude that the dry matter in bread, calculated as above supposed from the amount of dry substance in flour, and the amount of bread it yields, would be too low by from 0.5—1 per cent., depending on the quantity of the extraneous mineral matter used.

Again, if the whole of the loss by the changes during fermentation be less than 0.5 per cent., and if these, as is known to be the case, mainly affect the non-nitrogenous constituents, we can, in the same way as for the dry matter and the water, estimate pretty exactly the amount of nitrogen, or of nitrogenous compounds, from the amount of the one or the other in the flour employed.

Frequently, however, the estimates which are given by one and the same authority, for the composition of wheaten flour and bread respectively, do not seem to bear a proper relation to each other. We have thought, therefore, that it might be useful to give, as an appendix to our paper, a tabular form, showing the yield of bread from 100 of flour, and the per-centages of dry matter, water, nitrogen, or nitrogenous compounds, in the former—assuming any given number of four-pound loaves to be obtained from a sack of flour, and assuming also given probable amounts of water and of nitrogen in the flour. This is accordingly done in Table XVI., which follows:—

*Table showing the Composition of Wheaten Bread, calculated from the Quantity of Bread obtained from a given Weight of Flour, and from the Composition of the Flour.**

Number of 4-lb. Loaves obtained from a Sack (280 lbs.) of Flour.	Equal to Bread for 100 Flour.	Per cent. Dry Matter and Water in the Bread. If 16 per cent. Water in Flour. Dry Matter in Bread.	Water in Bread	If 15 per cent. Water in Flour. Dry Matter in Bread.	Water in Bread	If 14 per cent. Water in Flour. Dry Matter in Bread.	Water in Bread	Per Cent. Nitrogen, or Nitrogenous Compounds (Gluten, Albumen, &c.), in Bread. Nitrogenous Compounds = Nitrogen × 6.3). If 1.65 Nitrogen (=10.4 Nit. Compound) per cent. in Flour. Nitrogen in Bread.	Nitrogenous Compounds in Bread.	If 1.7 Nitrogen (=10.7 Nit. Compound) per cent. in Flour. Nitrogen in Bread.	Nitrogenous Compounds in Bread.	If 1.75 Nitrogen (=11.0 Nit. Compound) per cent. in Flour. Nitrogen in Bread.	Nitrogenous Compounds in Bread.	If 1.8 Nitrogen (= 11.3 Nit. Compound) per cent. in Flour. Nitrogen in Bread.	Nitrogenous Compounds in Bread.
90	128.6	65.3	34.7	66.1	33.9	66.9	33.1	1.28	8.06	1.32	8.32	1.36	8.57	1.40	8.82
91	130.0	64.6	35.4	65.4	34.6	66.1	33.9	1.26	7.94	1.31	8.25	1.35	8.50	1.38	8.69
92	131.4	63.9	36.1	64.7	35.3	65.4	34.6	1.25	7.87	1.29	8.13	1.33	8.38	1.37	8.63
93	132.8	63.2	36.8	64.0	36.0	64.7	35.3	1.24	7.81	1.28	8.06	1.32	8.32	1.35	8.50
94	134.3	62.5	37.5	63.3	36.7	64.0	36.0	1.23	7.75	1.26	7.94	1.30	8.19	1.34	8.44
95	135.7	61.9	38.1	62.6	37.4	63.4	36.6	1.22	7.69	1.25	7.87	1.29	8.13	1.33	8.38
96	137.1	61.3	38.7	62.0	38.0	62.7	37.3	1.20	7.56	1.24	7.81	1.28	8.06	1.31	8.25
97	138.6	60.6	39.4	61.3	38.7	62.0	38.0	1.19	7.50	1.23	7.75	1.26	7.94	1.30	8.19
98	140.0	60.0	40.0	60.7	39.3	61.4	38.6	1.18	7.43	1.21	7.62	1.25	7.87	1.29	8.13
99	141.4	59.4	40.6	60.1	39.9	60.8	39.2	1.17	7.37	1.20	7.56	1.24	7.81	1.27	8.00
100	142.8	58.8	41.2	59.5	40.5	60.2	39.8	1.15	7.24	1.19	7.50	1.22	7.69	1.26	7.94
101	144.3	58.2	41.8	58.9	41.1	59.6	40.4	1.14	7.18	1.18	7.43	1.21	7.62	1.25	7.87
102	145.7	57.6	42.4	58.3	41.7	59.0	41.0	1.13	7.12	1.17	7.37	1.20	7.56	1.23	7.75
103	147.1	57.1	42.9	57.8	42.2	58.5	41.5	1.12	7.05	1.15	7.24	1.19	7.50	1.22	7.69
104	148.6	56.5	43.5	57.2	42.8	57.9	42.1	1.11	6.99	1.14	7.18	1.18	7.43	1.21	7.62
105	150.0	56.0	44.0	56.7	43.3	57.3	42.7	1.10	6.93	1.13	7.12	1.17	7.37	1.20	7.56

* The figures in the Table should, of course, be taken subject to the qualifying remarks which have been made. It is obvious that the form can easily be extended to include any further or intermediate ranges of produce of bread, or composition of flour.

We need only further say that, with fermented baker's bread of good quality, 95 really 4-pound loaves to the sack of flour is a yield perhaps very seldom reached.* It would appear however from published statements, that of unfermented bread more than 100 4-pound loaves may be obtained from the sack of flour. It is worthy of remark that if this be the case, and if the loss by the fermentative process be really so small as is now supposed, the gain in weight by the non-fermenting method is only a gain of water retained in the bread. Unless, therefore, the unfermented bread be better adapted for digestion or assimilation, or be sold at a correspondingly lower price, the consumer will be a considerable loser by the purchase of the unfermented loaf. *From a pamphlet on the Composition of Wheat grain, its products in the mill and bread, by J. B. Lawes, F.R.S., and H. Gilbert, Ph.D., F.C.S.*

Home Correspondence.

Rotation of Crops on a Small Farm.—Mr. Taylor, of Gloucester, asks for opinions on the cultivation of a garden farm of 40 acres by hand labour. As it is the sort of thing that I have ever had a fancy for I shall venture to give mine. First, however, I must observe that there is, I think, a little discrepancy which may perhaps lead me to take a view of Mr. Taylor's proposal, not in strict accordance with his intention. He speaks of producing on it such grain and vegetables as are best adapted to sustain human life, which must be a primary object of attention, and then goes on to intimate a proposed three-course, as, 1, Wheat; 2, Mangel Wurzel; 3, Potatoes; thus adapting one-third of the farm to cattle feeding: and as he does not require their manure, for milk and butter is in excess, and unless he proposes fattening them in the winter for the market, I do not understand why he would grow such a breadth of this root. If for dairy stock he has not provided any summer feeding for them. I will then, as I think it more obviously his intention, confine my view to the raising of food for human consumption, for the consumption of his establishment, for which object I suppose the land is attached to it, and not for the production of beef for the market; but here again I am at a loss, for is it desirable to find beef for the establishment, or will pork, butter, and milk suffice? Were it an Irish thing little but milk and Potatoes or bread would do, but as we must cater for Englishmen, I will suppose a beast or two fattened, and some swine in addition to the dairy stock. And here I will call Mr. Taylor's notice, in respect to the repeated production of the two main articles of human food, Wheat and Potatoes, to the fact that much land in Ireland produces, with inferior manure and under rather barbarous treatment, for many years together these crops in repeated alternate succession, and that his soil ought to be equal to this with the command of the rich manure he says he possesses, and with the amount of hand labour at his disposal, with the superior intelligence he no doubt can bring to bear on it. In this case perhaps about three-fourths of the land might, in equal divisions, be put under Wheat and Potatoes; giving to the production of the summer and winter food of dairy stock, and to the ring fence and other waste the other fourth; taking the green cropped land every year into the Potato land, and throwing out an equal quantity of the Wheat land. The Wheat should be drilled in rows about 2 feet asunder, affording sufficient space for perfect fallowing either by hand or by a light one-horse grubber, hoe, &c.; and also such a free passage of air as would probably make it a standing crop as well as encouraging the growth of the seeds when sown among it, and which I would not do till it was about to pipe. I feel confident that a crop well tilled and two or three times hoed would at such distances bring a produce superior to a broad-cast one, or one of narrow rows, while the cleanliness induced would well repay the labour. We have then 15 acres of Wheat and 15 acres of Potatoes every year with 10 acres for dairy stock, say 2½ acres for exercise ground of cows and ring fence, 3 acres for Italian Rye-grass and Clover, and 3 acres of Vetches (the early cut Vetches to be followed by transplanted Rape), and 1½ acre for Mangel Wurzel. I should reckon these 6 acres of green crop with the exercise ground would sustain 10 or 12 cows through the summer, which would give abundance of milk and butter for the consumers of the Potatoes and Wheat; about 2 acres of the Vetches might be followed by transplanted Rape, which with the 1½ acre of Mangel Wurzel and the small Potatoes and Wheat straw would go very far to their winter support, and, in addition, the Wheat land, which was not sown down with Italian Rye-grass and Clover, nor intended for Vetches, should be sown with Yellow Clover, say 10 acres as autumn and winter pasture, saving the exercise ground for an early spring bite. A more simple plan, and for which Mr. Taylor's land with his amount of hand-labour is well suitable, would be the Lois-Weedon system, but, for the support of the people of the establishment, which I suppose has much respect to the intent for which the 40 acres are annexed to it, it would not be by any means so ample. There is another plan of tillage to which I may refer as suitable to this farm—that of interlining such crops as use up different elements of nourishment, as Wheat and green crops; there are two ways of effecting this by the interchanging of these crops every year, or by allowing each crop to retain its own ground, applying the manure always to the green crop. In the first case to afford sufficient space for reaping, two or three rows of Wheat should be sown together, say at wide hoeing distances, and the same number of rows of Potatoes. I believe that crops so cultivated would yield heavier returns than where each of them occupied exclusively its own area, and the Wheat would, as in common alternating tillage, occupy the ground manured the previous year. But in the second case the land under the green crop being every year manured might be expected to yield more, while the grain crop would receive by an underground current the manure in a reduced state, more suitable to its requirements; and it is possible that the more solid and undissolved *débris* of the former year's manuring may be more answerable to a green crop, being set into action by the fresh manuring, while the liquified matters that proceed from them may be more suitable to the requirements of the cereal. Cows that prove not in calf may be fattened in the winter, or two or three may be brought in for the purpose as may be thought advisable, but whether cows are fattened or not there should be a good number of pigs reared, fed, and fattened on the large amount of offal in such an establishment, and from the refuse of cattle fed in the house. *J. M. Goodiff.*

* We speak of course of pure wheaten bread.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *May* 27: Mr. Raymond Barker V.P., in the chair. The names of 46 candidates were announced for election at the next meeting.

VIENNA MEETING.—The Earl of Clarendon favoured the Council with the following communication:—

Extracts from a despatch addressed to the Earl of Clarendon by Sir Hamilton Seymour, dated Vienna, May 18, 1857.

"I will only then observe shortly, that among the horses exhibited I did not see one very worthy of that distinction; that of the beasts there were some of great beauty; that among these an animal marked No. 244 in the catalogue, which attracted great attention from the circumstance of its being asserted to be a hybrid (the produce of a stag and a cow), is, I am convinced nothing more than a bull of a fawn colour, and with thin legs; that I have seen in markets better pigs than any which were exhibited in the 'Augarten;' and that, as I was told, the best sheep were those of the merino breed.

"Of the machinery, the best—naturally—was that exhibited by the English manufacturers, who were very well represented.

"I am told (but I did not see them) that at the exhibition there were some specimens of very excellent writing paper manufactured out of the leaves of the Maize or Indian Corn. I mention this because it occurs to me that the fact may not be known to our English paper manufacturers. As very bad writing paper is made with straw, so very good is to be manufactured from Maize, and the plant though requiring for its full maturity more sun than it would meet with in England, might, I submit, be worthy of the attention of our agriculturists for the admirable fodder which it supplies, and of our manufacturers for the new purpose to which it is now applied."

Bird-Island Guano.—The Earl of Clarendon also favoured the Council with an extract from the report of Captain Paynter, of H.M.S. Brilliant, on the inferior quality of the guano remaining on the Aves Island.

Horse-Powers.—Mr. Isaac Hartas, of Wrelton, near Pickering, in Yorkshire, favoured the Council with his attendance, for the purpose of submitting to the Members, in full detail, the satisfactory results he had obtained from the experience of 40 different parties in reference to the application of the combined weight and muscular power of horses, exerted on inclined planes, and communicating motion to small machines. The attention of the Council having been called by the Rev. F. G. Holcombe, in December last, to the great convenience of the employment of an economical power to the working of small machinery, and subsequently by Mr. Chadwick and Mr. Whitworth, it was considered desirable to postpone the consideration of Mr. Hartas's details until the 17th of June next, when a fuller attendance of members might be expected than on that occasion (the Derby Day at Epsom).

The following information in the meantime may be considered interesting:—

I. Mr. Amos's Report.—Mr. Hartas, of Pickering, exhibited at the Ripon Meeting of the Yorkshire Agricultural Society a single horse power Threshing Machine (an American invention) which attracted considerable notice from the novel mode of applying the power. The horse was confined in a narrow gangway, the floor of which was an inclined pathway, consisting of a succession of cross boards, connected by pitch chains working over rollers at each end of the gangway, and forming a travelling floor, which, when put in motion, represented a complete tread wheel. At first sight, it might appear that a horse would require some training before he would work steadily in such a position; but this is not the case, as any steady horse may be led into the gangway, the floor being made immovable by a break under the command of the feeder of the machine. The horse's head having been secured to a head rail at the end of the gangway, the feeder eases the break, and the travelling floor being considerably elevated in front, the weight of the horse naturally sets it in motion, and compels the horse to exert himself in a walking action, which is all that is required to drive the threshing part of the machine. This mode of applying power was certainly attractive for its novelty, whatever may be the advantage to be derived from driving agricultural machinery by it. Mr. Amos, having subjected the machine to experiment, has furnished us with the following interesting report:—

"*Hartas' Horse-Power.*—A single horse works, by Isaac Hartas, of Pickering, attracted a great deal of attention. The principle of this machine has been used for some time in America. It consists of a movable platform attached to an endless chain passing over rollers at each end; this endless platform is placed so as to form an inclined plane, upon which the horse walks, and the platform recedes beneath the horse's feet. The platform has cogged "racks" attached to it, which gear into a toothed wheel, which drives machinery. In this case, it drove a small threshing machine, and had also a small chaff-cutter attached to it. The whole arrangement is very simple. As some discussion took place, as to the usual effect, or otherwise, a horse could exert, when working with this machine, some careful experiments were made on the machine in question, and on a well-made horse-works, in which the horse walked round the circle in the usual way. In the first experiment, one of Richmond and Chandler's Oat Crushers or Linseed Mills was attached to the horse-works, with a dynamometer intervening to record the work done. The horse walking at the rate of 2.04 miles per hour, did work equivalent to the raising of 33110 lbs. one foot high per minute. During this experiment, at the rate the horse walked, and taking into consideration the angle of elevation of the platform, the horse would have raised himself to the height of 33.66 feet in one minute, that is, had the platform been stationary and prolonged indefinitely. The horse with his harness weighing 1084.5 lbs., and this multiplied by 33.66 feet, the height the horse would have raised himself equals 36504 lbs. lifted one foot high per minute. In the second experiment, the horse walked 1.7 miles per hour, and did work, as shown by the dynamometer, equivalent to raising 31350 lbs. one foot high per minute, during which time he would have climbed 28.21 feet, which is equivalent to the raising of 30594 lbs. one foot high per minute. In this experiment the horse walked and worked exceedingly steadily, and the work he did at that time (31350 lbs. lifted one foot high per minute) fairly represented the work a horse can do by this machine. To compare the above with a common horse-works, the horse used in the last experiment was yoked with another of similar power and quality, to a two-horse power works, made by Mr. John Barker, of Dunnington. The power was applied to the same mill and dynamometer, and the work done by each horse was equivalent to 26500 lbs. lifted one foot high per minute, being about 16 per cent. less than the duty done by Mr. Hartas' horse-works. It was apparent to observers that the horses worked equally in all the experiments, and every care the circumstances afforded was taken to obtain the best results. "C. E. Amos."

II. Mr. Joshua East's Report:—

"7, Curzon Street, May Fair, May 21, 1857.

"Having had one of Mr. Hartas' two-horse powers in use for more than a twelvemonth, I have no hesitation in saying that I consider it the best power of the sort I have seen, being easy to control, and as true in its working as steam, and I feel confident more work can be done with two horses with his power than with three with the old fashioned horse-power; with his no draught being required, the horses working without collars.

"Up to the present time I have not been at the least expense with the exception of the wooden platform, which was of too soft a material, but now having replaced with a harder wood I do not anticipate anything further will be required, at least for a considerable time.

(Signed) "Joshua East."

III. Mr. Yeoman's Report:—

"Guildford Street, Russell Square, May 21, 1857.

"Mr. Hartas' horse-power with the present chaff cutter answers very well; we are cutting nine trusses per hour with one man feeding and attending, and have no doubt that as soon as it is publicly known there will be a great demand for them. The horse seems to perform the work without any apparent fatigue, and at any time I should be happy to show it to any person desiring one. (Signed) "Geo. Yeomans."

IV. Mr. Lysaght's Report:—

"Mowbray Lodge, Ripon, May 23, 1857.

"Mr. Hartas' horse-power has been applied to the following purposes: threshing, chaff-cutting, Oat crushing, and sawing. I have not often timed the quantity of corn threshed, as it usually is only sufficient to supply fresh straw for fodder; however, on one occasion, a stack of black Oats, yielding 12 qrs. 5 bush., was threshed out in 4½ hours, the straw of which was very long, having been grown on fresh land. I have since had a straw shaker and a blast attached to the threshing machine, which, though it saves much manual labour, is estimated to absorb about half the horse power. Five-and-forty minutes has been the average time consumed every other day in cutting straw into half inch lengths for foddering 30 head of moderate-sized cattle and four horses, (during the winter months) for two days, estimated weight thus cut 8 to 10 cwt. Five-and-twenty minutes are very uniformly occupied in crushing 1 quarter of Oats. A circular saw 18 inches in diameter has been found very useful for cutting fence wood, not exceeding 6½ inches in thickness. The advantages I conceive to be the much greater ease to the horse than the ordinary method of applying more power, the horse's weight in walking on the incline doing the work without the necessity of any traction, and no driver being required a saving of manual labour is effected. The general results have given me great satisfaction during two years' and a half constant use, and I think the machine is well suited to all the purposes of a moderate sized farm, whether for fixe or moveable barn works.

(Signed) "James Lysaght."

The thanks of the meeting were given to Mr. Hartas for the kind trouble he had taken in being present on that occasion, and for his acquiescence in the arrangement then made, that he should again attend the Council at 12 o'clock on Wednesday, the 17th June.

Reviews.

Sixteenth Annual Report and Transactions of the Royal Society for the Promotion and Improvement of the Growth of Flax in Ireland. Daily Mercury Office, Belfast.

This pamphlet contains, besides the matter interesting merely to members of the Society, information on the culture and management of the Flax crop, and on the extent of its cultivation in Ireland which is interesting to all agricultural readers. We learn from it that:—

"The statistical returns of Irish agriculture, as published by Government, show the breadth of land under Flax in Ireland, last year, as 106,826 acres, against 97,192 in 1855, being an increase of 9684 acres, or ten per cent. The produce of fibre from this year's crop may be calculated at 27,000 tons, value 1,350,000*l.* exclusive of the seed." The past year has produced the usual number of new projects, chiefly as modifications of the hot-water steep. Only two of these appear to the Committee to merit closer investigation. Mr. Pye, of Ipswich, instead of steeping the entire stems of the plant, first separates the fibre from the woody matter, and steeps the former only. He also employs fuller's earth in the steep-water. With the woody portion of the stems he prepares a meal which he recommends for feeding cattle. Mr. Cator, of Selby, has perfected his invention for drying, instantaneously, the Flax straw, when taken from the steep. His plan consists in squeezing the straw between hollow metal cylinders containing steam. The stems are, he states, by this means at the same time dried and bruised for scutching, so that they can be scutched in a few minutes after taking out of steep. If this process be found to warrant the inventor's expectations, and can be carried out without much expense, it must obviate the difficulty experienced at all retteries of drying the steeped straw during the winter months.

Mr. Pye explained his process at the annual meeting of the Society, and we give his statement as follows:—

"He took the plant, as grown and harvested, and, after the seed was removed, he passed the straw through a machine composed of plain and crimping rollers, by the combined action of which the woody part in its natural state was easily separated from the fibre and the epidermis, thus disproving a prevalent idea, that the woody part was adhesive to the fibre, and showing that the adhesiveness was confined to the cellular tissue between the fibre and the epidermis. The machine, being properly regulated, presented the fibre entire and uninjured, from the root end to the seed-pod, and, by its action, effected upon the fibre a mild degree of scutching, by softening and expanding the fibres. Having thus got the fibre, with its gummy matter, held between it and the epidermis, he placed the fibre in stricks into a vat, a model of which he had brought from his works at Ipswich, and now exhibited on the table before them. The vat being filled with alternately crossed stricks of Flax fibre, to an extent equal to about one ton, was then filled to the overflow pipes with cold soft water. The vat, as would be seen, contained two false ends, to enable the operation to be seen, and the surplus water to be removed; it had also a perforated false bottom, leaving between it and the real bottom about 6 inches. Into and between the two bottoms, steam, with a pressure of 50 lbs. to an inch, was introduced and disseminated by means of perforated tubes. In like manner, a tube conveyed also a fluid, in a cold state, being a solution of fuller's earth in water. The solution, coming in contact with the steam, and causing a condensation, was forced by the pressure of steam into the mass of Flax. He would here state that he adopted fuller's earth as the agent, from its well known qualities as a neutral salt, whose base was potash, and possessing the qualities of softening and abstracting gums and oleaginous matters. The solution and steam, thus introduced, displaced the original water, and he continued its introduction until the steam produced a warmth in the vat equal to 80° Fahrenheit. The Flax was allowed to remain at this temperature for about 30 hours, when the surface showed evidence of a saponaceous froth, caused by the softening of the gummy matter in its contact with the solution. When in this state, the uses of the plunger or piston, of equal size with the vat, as shown by the model, were brought into action, and its pressure upon the fibre, whilst in immersion, operated upon by two very powerful screws, caused an expression of the gums previously softened. From this point an alternating pressure is applied, the supply of solution stopped, and cold soft water is alone supplied with the steam, so regulated until the temperature of the water is raised to about 150°; the alternating pressing action being continued until the water is found to be free from any gummy or albuminous matter; thus presenting an evidence that the Flax is entirely freed from all its gums. The water in the vat is then withdrawn through a valve in the bottom, and a pressure equal to about 200 tons is applied to the mass of Flax. The Flax remains under this pressure for about four hours, when it becomes not only semi-dried, but, by its so laying the fibres, becomes more open, and its natural vitality or essential oil is restored to it. The Flax is then taken out, and dried in the open air or in sheds. When dry, the Flax is then passed through a machine with plain and crimping rollers. This operation, which partook of the nature of scutching, softened, and at the same time opened out the fibres, making the Flax fit for the spinner."

On the details of cultivation we make an extract from the address of Mr. M'Carten at the same meeting.

"The ground should be perfectly thorough-drained, ploughed in October, and grubbed, crosswise and lengthwise, in the latter end of March or beginning of April, until as finely pulverised as an Onion bed, and completely cleaned of weeds, which must be got rid of at any cost, in order to secure a good bed for the seed. The time for sowing is a very important point. For my own part, experience has taught me, that early sowing is the best, even if it had no other recommendation than that the crop is the sooner ready for pulling and can be put in steep during warm weather, when four or five days will suffice for watering it. When it is late sown, it cannot be got steeped before the approach of the long cold nights of the latter end of autumn, when, instead of being properly watered in the space of six or eight days, it has to my own knowledge remained for four weeks in steep, and the process is imperfect after all. In fact, if it be long in watering, the Flax scarcely ever turns out good. With respect to the proper period of pulling, there seems to exist a considerable difference of opinion; some advocating early pulling, for the sake of procuring a fine fibre; and others late pulling, in order to mature the seed for market. Both plans appear to have their advantages. No person can deny that a quantity of well-saved seed will form an important item in the gross value of the crop; but, on the other hand, by suffering it to remain until the seed is quite matured, it is alleged that all the powers of the plan go to the production of seed and woody fibre, to the detriment of those qualities—namely, oiliness and silkiness of feel—which render it best adapted for spinning; and, besides, there is often great loss by the laying of a heavy crop, by which the fibre gets tainted and subject to rot, so that as much fibre is produced by pulling the Flax rather on the green side, and it is of superior quality. My own opinion, from an experiment which I have made on a small scale, rather inclines to the side of early pulling. There is a sample of my own crop of this year's production, which Mr. M'Adam will submit to the inspection of any gentleman who may desire to see it. It was pulled a week before the rest of the field, and watered in an open drain in four days, and it is worth from 2*s.* 6*d.* to 3*s.* per stone more than the remainder of the crop. I had a very good yield from the small quantity pulled; and, should I be spared another year, I intend to pull an entire acre before the usual time, so that the experiment may be fairly tested. Steeping is the most important operation in the manipulation of the crop; and yet, strange to say, it is here the least attended to; and I am convinced that much the greater part of the produce is greatly deteriorated in value by its not being properly watered. Many of the small farmers (as I have said before), only begin to think of looking for water after the Flax is pulled. Now, there surely can be no great difficulty in a farmer having a proper steep-hole on his own farm—in fact, this is the very step he should take, as soon as he has resolved on growing Flax. As well might a linen manufacturer pretend to carry on his business without a furnace in which to boil his yarn, as a farmer to grow Flax without providing a proper tank to steep it in. Steeping tanks may be made of various lengths and depths, as circumstances may require. I have seen tanks of considerable depth in Belgium; and I am informed that the greater depth does not prevent the Flax from being equally watered, as what extra heat is gained by the top, from the action of the sun's rays, in the day-time, is imparted to the bottom during the night, so that a proper temperature is maintained throughout the whole mass. The nature of the subsoil where the tank is formed is of vast importance. As I am not a chemist, I can only speak from experience; and I find that a subsoil of sand is quite unsuitable, and that a stiff blue clay is by far the best. I have known 3*s.* a stone difference in the value of various portions of the same crop, watered in different soils, that were steeped in a tank formed of blue clay commanding the highest price. Were I in the position of a landlord, and any tenant so blind to his interest as to decline performing this important operation in a proper manner, I would do it myself; and, indeed, I know of no improvement that could be introduced on a Flax-growing farm that would enhance its value so much. I may here remark, that I am no friend to Schenck's plan of steeping, never having known it to produce Flax of first-rate quality. As we have a very large rural population, particularly in Ulster, for whom it is most desirable to provide remunerative employment, I rejoice to know that 'the good old way' is still the best, and, besides, leaves the whole profits of the crop to the farmer, and checks that inordinate tendency to 'centralisation' which is so much t e fashion of the day."

Miscellaneous.

Austrian Agriculture.—An address lately made to the members of the Austrian Agricultural Society by the Chevalier von Kleyle contains the following passage: "The provinces of the Austrian empire, which contain about 100,000,000 'acres' (*joch*) of productive soil, may be divided into four groups:—1. The Alpine countries, which consist of Upper and Lower Austria, Salzburg, the Tyrol, Carniola, Carinthia, and Styria. 2. The eastern countries, comprehending Hungary, the Banat, Croatia, Sclavonia, the military frontiers, and Transylvania. 3. The northern countries—which include Moravia, Bohemia, Gallicia, and the Bukowina. 4. The southern countries, namely, Lombardy, Venice, and Dalmatia. Of the 17,000,000 acres of productive soil which fall to the share of the Alpine countries, 11,000,000 are covered with forests. The remaining 6,000,000 are arable land and pastures. The attention of the inhabitants of the Alpine countries is particularly directed to the improvement of their forests and to the breeding of cattle, and it is but natural that this should be the case, as the land on which wood and Grass are now grown could not advantageously be used for any other agricultural purpose. The corn and cattle produced in the Alpine countries do not suffice for the

necessities of their inhabitants. The eastern countries contain 47,000,000 acres of productive soil, 15,000,000 acres of which are covered with forests. Only 7,000,000 acres of land are ploughed. but corn might advantageously be grown on a great part of the soil on which horned cattle, sheep, and horses now graze. The countries in question produce 105,000,000 metzen* of corn, out of the 260,000,000 which are grown in the whole empire. The weight of the wool grown in the eastern countries in the year 1851 was 260,000 cwt. Vast numbers of swine are also bred and fattened in Hungary, and the average quantity of wine produced in that fertile Crown land is 30,000,000 barrels per annum. The quantity of Tobacco grown in Hungary during the last year was about 600,000 cwt. The northern countries do not produce enough corn to supply the wants of their inhabitants, although a large proportion of the land is ploughed and sown. The article of food on which the lower classes principally depend is the Potato. A great part of the fine wool exported from Austria to England and France is grown in the northern countries, which have 26,000,000 acres of productive soil. About 16,000,000 acres are arable and meadow land; the other 10,000,000 acres are forests and commons. The southern countries have 9,000,000 acres of productive soil, 2,400,000 acres of which are pasture land. The extent of the forests is 1,500,000 acres. The provinces of Lombardy and Venice produce 980,000 cwt. of cheese, which is not quite half the quantity that is annually consumed in the empire.

Notices to Correspondents.

GAS WATER: *Sub.* We have made inquiries, but have not yet received replies. — *F L.* It is said to cost at the works about half-a-crown per butt of 108 gallons. The gas-lime sells for less than lime from the kiln.

HORSEHOE: *A B.* Busby's Turnip horsehoe will serve your purpose perfectly for hoeing between winter Beans. As to sowing Rape, we would sow it by hand, after the use of the horsehoe along the centre of each drill, and use a drill-harrow to cover it in.

RELATIONS OF CHEMISTRY TO AGRICULTURE: *Student.* The chemist has conferred on agriculture the character of a quantitative manufacture. The idea of waste in the process of tillage either took its origin in the researches of the chemist, or has been defined by them. Growth, whether of plant or animal, has been in a great measure recognised in a simple building up of the particular kinds of matter needed and presented as food. Infertility of soil has been recognised simply as starvation or possibly as poisoning of the plants upon it—in the one case the deficiency and in the other the injury has been read with accuracy. There is not an act of cultivation, whether draining, liming, thinning or manuring, ploughing, sowing, hoeing, or corn harvesting, of which, as its object is the alteration of the matter dealt with, there is not a most instructive chemistry to learn and act upon if we would conduct these processes with economy and success. The progress made of late years in investigating the chemistry of agriculture has not only determined the needs of plants and animals, and the value of all sorts of things professing to supply those needs, but it has been gradually determining the bounds within which the application of its own results is possible. And in the researches of Messrs. Lawes & Gilbert we are gradually learning how the influence of specific character and habit, whether of plant or animal, overrules the theory of growth as being mere accumulation and erection of the matters which are supplied as food. And through the investigations of the same gentlemen, and especially through those of Mr. Robert Russell, of Kilwhiss, we are learning how the truth of this same theory becomes modified and confirmed by distinction and peculiarities of climate.

"STURDY." *T A.* The following is the account given by Mr. Curtis, in the *Cyclopædia of Agriculture*:—"The bot (Æstrus ovis) is a dreadful scourge in a flock, the large maggots residing in the frontal sinus for many months, causing vertigo and staggers, suffocation, and death. Sheep are often cured of the bots by trepanning; and as the maggots are sometimes discharged by sneezing, it seems reasonable to believe that about June this might be encouraged by inserting the leaves of the Yarrow into the nostrils of affected sheep, or giving them snuff. The larvæ when discharged must be killed; and the flies, which may be seen sticking to walls and paling where sheep are folded, are easily detected and killed. It seems that polled sheep are the least subject to the bot. The bot is best arrested by removing the flock to a dry soil; but it is said that sheep are cured by eating the bark and young shoots of the Elder; and that flocks fed where the Broom is in flower are free from the disease."

THE KEYTHORPE DRAINAGE: *F R S.* The history of the affair is shortly as follows:—Mr. Joshua Trimmer, of Egham, Middlesex, a gentleman whose geological investigations have been especially directed to the nature and arrangement of those superficial deposits by which the under structure of the land is very generally obscured, and who has observed in almost every county in England the singularly furrowed surface of the older formations where covered by these more recent deposits of diluvial drift, visits the estate of Lord Berners at Keythorpe in Northamptonshire. He finds that his lordship, in place of draining his estate by means of conduits placed at regular intervals and depths, has dug trial holes here and there in every field, waited until they filled with water, and then taking a single drain up the acclivity in their midst, has watched its effect in emptying this water before a second drain was opened. Sometimes holes at a distance were thus emptied, while others close by remained full. Mr. Trimmer reads in this anomaly an instance of the operation of that wavy furrowed structure of the subsoil which he has observed elsewhere. These furrows in an impervious subsoil filled with more porous drift become real drains as soon as exit is given to the water, which they hold by a conduit laid across them. Drains laid in ignorance of their positions may avoid them altogether, and being placed wholly in the interior ridges of impervious clay are comparatively inefficient. Drains laid across the direction of these furrowings convert them into the means of cheaply drawing off the water lodging in them, it may be at a considerable distance from the exit thus provided. Mr. Trimmer there reads accurately the cause of Lord Berners' economy and success in the Keythorpe drainage, and he proposes to apply this cheap method of executing drainage wherever his geological experience shall enable him to ascertain that similar circumstances exist, and though we do not say that what he calls the Keythorpe system of land drainage is applicable generally, still every instance of its successful appliaation is obviously an illustration of the value of geological science in enabling us to read correctly the circumstances of agricultural experience.

* The Austrian "metzen" is considerably larger than the English bushel.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*" ..	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten fires I had on the old system.*"	12	6000	23[illegible]
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c. ..	12	..	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total .. .. Mr. Paget says:—"*Your apparatus is working very satisfactorily.* * * * *The boiler is quite master of its work.*"	..	4050	
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

JOHN WEEKS & COMPANY,
Horticultural Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

AQUARIA.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5s. 0d.	12 inches diameter, each	4s. 6d.
13 ,, ,,	6 0	13 ,, ,,	5 0
14 ,, ,,	8 0	14 ,, ,,	5 6
15 ,, ,,	9 0	15 ,, ,,	6 6
16 ,, ,,	10 0	16 ,, ,,	7 0
17 ,, ,,	12 0	17 ,, ,,	8 0
18 ,, ,,	13 0	18 ,, ,,	10 0
19 ,, ,,	14 0	19 ,, ,,	11 6
20 ,, ,,	15 0	20 ,, ,,	12 6

Syphons, each .. .. 2s.

TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep £3 10 0
26 inches long, 16 wide, 15 deep 3 0 0
20 inches long, 13 wide, 9½ deep 1 18 0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.

GLASS FERN SHADES AND STANDS.

6 inches diameter, each	2s. 6d.	12 inches diameter, each	8s. 6d.
7 ,, ,,	3 0	13 ,, ,,	11 0
8 ,, ,,	3 6	14 ,, ,,	14 0
9 ,, ,,	4 6	15 ,, ,,	18 6
10 ,, ,,	5 6	16 ,, ,,	23 6
11 ,, ,,	6 6		

CUCUMBER GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 ,, ...	1 10	14 ,, ...	1 2
20 ,, ...	1 8	12 ,, ...	1 0
18 ,, ...	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1s. 6d. per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21s. per doz.; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Oruamental Glass, Shades for Ornaments, and every article in the Trade.

Specimens will be exhibited at Chiswick Gardens on Wednesday and Thursday next.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 24 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s,; and 21 oz. 25s. per 100 feet. Boxes charged 2s. each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeeding 18 by 12. 15s. 6d. per 100 feet. Some of the above in 21 oz. Glass at 1s. and 2s. per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10s. per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12s.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14s.	12 by 10, 13 by 10, 14 by 10, 15 by 10	14s.
19 by 12, 20 by 12	16s.	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32s. and 40s. per case.
Glass for Orchard Houses as supplied to Mr. Rivers.
Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.
Rough Plate and Sheet Glass Tiles to ½-inch in thickness.
A variety of other articles as per Horticultural List, which may be had on application.
Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.
Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.
All packages charged, but allowed for when returned.
Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

BELGIAN SHEET GLASS, cut to size up to 44 inches in length, 16 oz. at 2d. and 21 oz. at 3d. per foot. Conservatories, &c., Glazed in any part of the country, by W. HICKSON, 46, Long Acre, London. Established 1840.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2d. to 3d. per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

WEEKS' ONE BOILER SYSTEM.—FACTS UNDISPUTED.—These Upright Tubular Boilers are fixed in numerous places producing greater effect than any other yet invented, and we now again challenge the whole world to make a Boiler that will produce the same effect with the same quantity of fuel.—JOHN WEEKS & Co., Horticultural Builders and Hot-water Apparatus Manufacturers, King's Road, Chelsea.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.—Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

SAMUEL C. HEMMING AND CO., MANUFACTURERS OF IRON BUILDINGS, with Improvements as to Construction, Ventilation, and Equalisation of Temperature. Iron Churches, Chapels, School-rooms, Farm Buildings, Stores, Ball and Concert Rooms, Theatres, Additions to Buildings, Verandahs, and Iron Roofing erected complete in any part of the Kingdom.—For particulars, apply only to 40, Broad Street Buildings, London.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

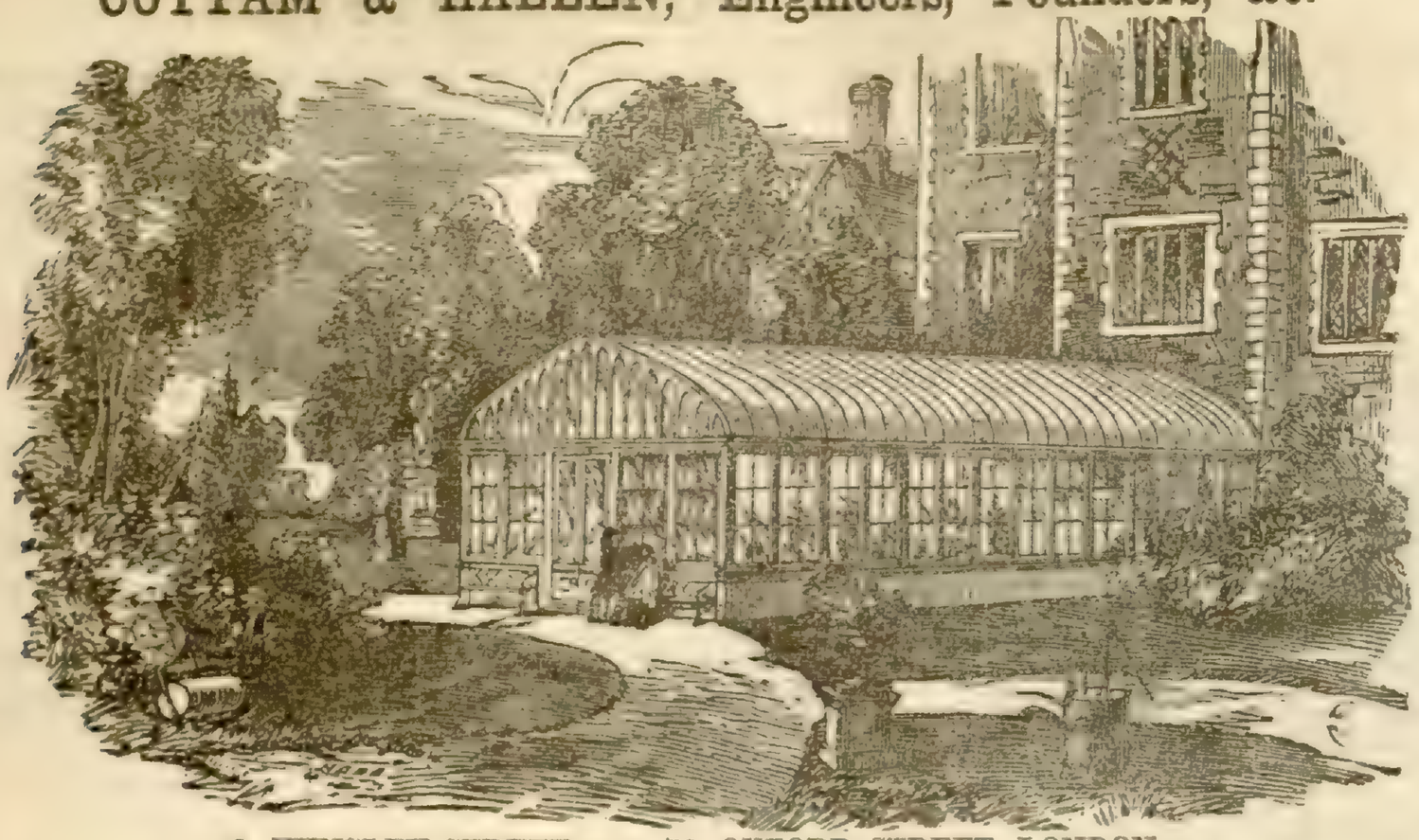
HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS

OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30s.), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6d. per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1s. per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

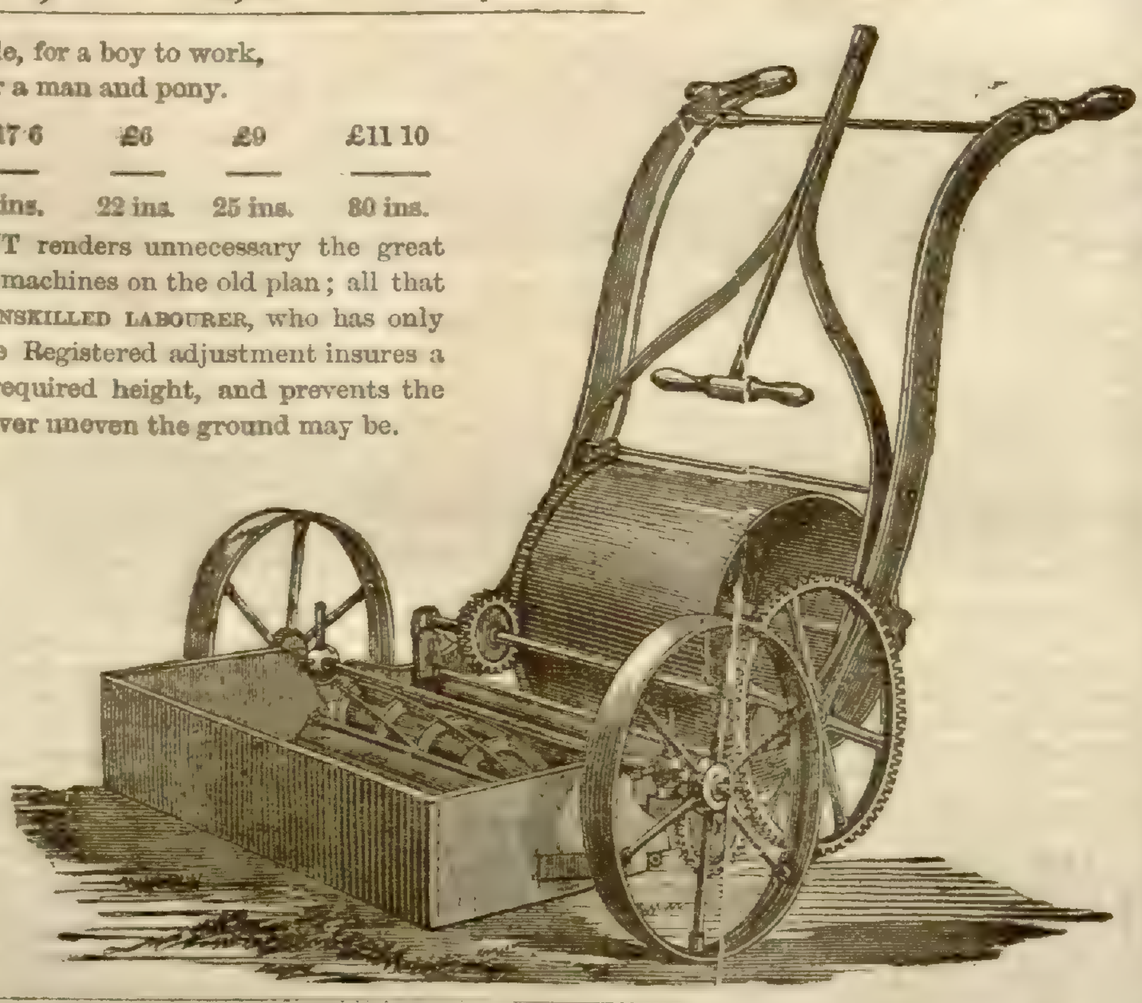
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; of Mr. Charles Garrood, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from Crescens, Robinson, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

MOW YOUR OWN LAWNS.

BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, Wm. Dray & Co., Swan Lane, London Bridge.

IMPROVED MOWING AND ROLLING MACHINE.

Patronised by her Majesty Queen Victoria, and his Majesty the Emperor of the French.

ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, Patentees.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. Garrood, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

IMPROVED LAWN MOWING MACHINES,

Manufactured and Sold by

JAMES FERRABEE AND CO., Phœnix Iron Works, near Stroud, Gloucestershire.

The accompanying engraving represents Ferrabee's Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with Warner's Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, who also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

Read's Syringe, with two roses and one jet, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, &c.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

EARLY PEAS.

SIR,—Noticing complaints in your publication of this season of Early Peas being much destroyed by small birds, I beg to recommend your correspondents to obtain Wire Netting, ¾-inch mesh, 3 feet wide, of any required length, bend this in a half circular form and peg it down over their crops, when they will most effectually stop the nuisance. I am, yours obediently,
THOS. P. HAWKINS.

Manufacturer of the Improved PEA HURDLE as a substitute for Pea Sticks or Riscls; GAME and POULTRY NETTING, and Wire goods of every description.
Manufactory, 27, Dale End, Birmingham.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of newly sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds. 28*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At KENNINGTON & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.
Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior dog cages, &c.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Minier, Nash, & Co., Seed Merchants, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bambridge & Hewison, York.
Mr. Caldwell, Knutsford.

WATERPROOF PATHS. BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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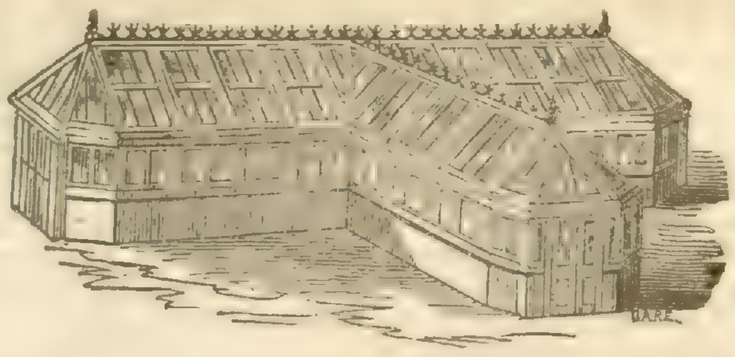
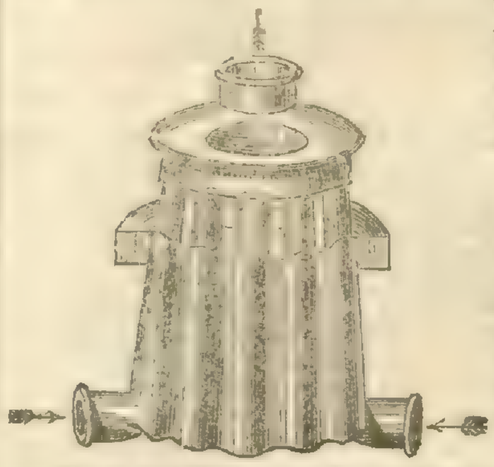
HORTICULTURAL WORKS.



HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hot Houses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.



N.B. See our Improved Corrugated Tubular Boiler warranted to Heat 500 feet of 4-inch piping. Size, 24 inches by 14 inches. Price of our Small Boilers, 5*l.* 5*s.* Satisfaction given or no charge made.

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THE IMPROVED PATENT GARDEN, WATER AND ROLLING ENGINE may be had in the Agricultural Department at the Crystal Palace, Sydenham; and at J. DORE'S, the sole Manufacturer, 17, Exmouth Street, Clerkenwell, London.

The threefold use of this neat little Machine must be obvious in Watering, Rolling, or Syringing; it will throw about 60 feet and is so portable that any ordinary domestic may use it. It contains about 20 gallons, price 5*l.* 10*s.*; 25 gallons, 6*l.* 10*s.*

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PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

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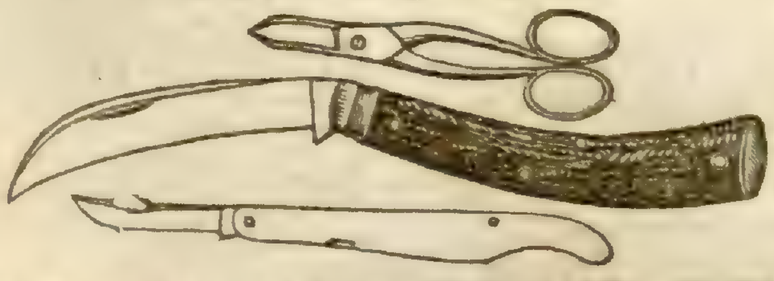

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

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FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

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IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

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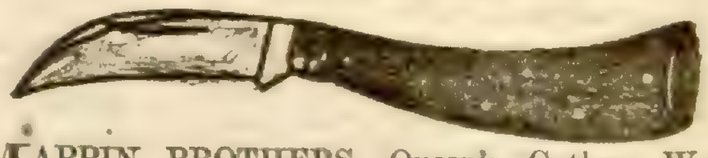
WARRANTED GOOD BY THE MAKERS.



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TO BE LET, on Lease, a WATER CORN MILL, in the Borough of Dover, driving 10 pair of Stones, fitted with new and superior machinery, supplied with ample power, and doing a good business.—For particulars and to view, apply to G. T. THOMPSON, Esq., Solicitor, Dover.

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TO BE LET, a delightfully situate COTTAGE RESIDENCE, with two-stalled Stable and Coach House, and one acre and a quarter of Garden and Pleasure Ground. This is worth the attention of Botanists and Dendrologists, as there is a Pinetum containing many very choice Coniferous trees. A pew in the neighbouring church.—Particulars may be known of the owner, or letters of inquiry may be addressed to the Incumbent. Weald Parsonage, Sevenoaks.

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TO BE LET ON LEASE, with immediate possession, a GARDEN stocked with the choicest Fruit Trees and Vegetables, together with a COTTAGE; the whole enclosed by a substantial brick wall upwards of 400 feet in extent, adjacent to a Railway Station, and only three quarters of an hour from Covent Garden Market.—For particulars and cards to view, apply to Mr. H. POWELL, Land and Estate Agent, Surbiton Hill, Kingston-on-Thames.

TO BE SOLD, very cheap, the UNEXPIRED LEASE for 7½ years of the MANOR NURSERY, Shacklewell, near Kingsland. It contains two good Dwelling Houses and 1 acre of Ground, Stabling, Sheds, &c., and is well supplied with water. The above offers to a person of small capital an excellent opportunity, as the ground can be taken with or without the stock and glass.—Particulars of F. J. BUCK, on the premises.

FREEHOLD LAND for Sale cheap, about 6½ acres, together or in lots, from one acre, at 31*l.* 10*s.* an acre, 42 miles from London and only 2 from a good town and station.—Apply to Mr. HANNAN, 4, Goulden Terrace, Barnsbury Road, London.

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STOVE, GREENHOUSE, AND BEDDING PLANTS IN VARIETY.

MR. HASLAM will Sell a quantity of the above at Fulham, near the Wheatsheaf Inn, on the premises late in the occupation of Messrs. Pinyon, on FRIDAY, June 5.—May be seen till the day of Sale.

Sales by Auction.

BATTON'S SALE OF TULIPS, ETC.

MESSRS. PROTHEROE AND MORRIS beg to announce that the above Sale as advertised last week on the premises, Union Cottage, Brook Street, Clapton, for MONDAY, June 1, will not take place, in consequence of many of the flowers not blooming.—American Nursery, Leytonstone, Essex, May 30.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, on THURSDAY, June 4, at 12 o'Clock, a first-rate Collection of DAHLIAS, FUCHSIAS, VERBENAS, PETUNIAS, &c.; also fine Azalea indica, Geraniums, Roses, and other Plants in bloom, with a choice and useful assortment for Bedding.—On view the morning of Sale; Catalogues may be had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, May 30.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of RHODODENDRONS in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignus, Benthamiana, Sabiniana, &c.; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late Firm has been so long celebrated.—Bagshot, May 30.

DWARF ROSES IN POTS.

H. LANE AND SON, the Nurseries, Great Berkhampstead, Herts, have still on hand to offer in large quantities, either singly, by the dozen, or the hundred, all the leading varieties of Roses on their own roots. Suitable for grouping from 9s. to 18s. per dozen.

They can also supply some dozens of ROSES in 32 and 24 sized pots for growing in Greenhouses or Conservatories now coming into bloom. Also strong Climbers for walls such as continue in bloom all the summer.

All the above are kept in pots during summer so as to be available at any time.

Catalogues of Roses, also Spring Catalogues containing a selection of Azaleas, Camellias, Greenhouse, Stove, and Climbing Plants, Orchids, Ferns, &c., may be had on application at the Nurseries, Great Berkhampstead, Herts.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, (Belgium), can now send out the following new plants:

STOVE PLANTS.	
Gesneria egregia (see Illustr. Hort.)	7s. 6d.
Tradescantia discolor lineata	7 6
GREENHOUSE PLANTS.	
Clematis Guascoi (see Illust. Hort.)	7 6
Passiflora Empress Eugenie	5 0
Petunia Inimitable, the finest fancy Petunia yet raised, and will be shortly figured in L'Illust. Hort.	3 6
HARDY PLANTS.	
Gaillardia grandiflora, strong plants	5 0
Potentilla Mulleri	5 0
Pyrus Mallardi	7 6

R. SILBERRAD, Agent, 5, Harp Lane, Great Tower Street.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., Seedsmen to Eleven of the Principal Botanical Societies of the British and Continental Empires, invite the attention of the Floricultural World to their ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS (the twenty-second annual issue), forwarded free of charge and post paid to all parts of the world upon application.

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Scarlet Geraniums	2 6	Dahlias, finest show and fancy vrs., very strong	4 0
Verbenas, all colours	2 0	Show and fancy Geraniums, in large 48 pots, full of flower-buds	5 0
Calceolarias, very fine	2 6		
Petunias, mixed, fine sorts	2 6		
Lobelia speciosa	2 6		

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A SMALL COLLECTION of very choice ORCHIDS to be disposed of by Private Contract, consisting of—

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Cœlogynes	Lycastes	and
Cattleyas	Miltonias	Saccolabiums,

in all about 181 Lots of the very best varieties in cultivation, a selection carefully made by a gentleman of great experience during the last 10 years; they are clean, healthy, and in fine condition.—For further particulars apply to Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

THE CELEBRATED REIGATE SILVER SAND, 15s. per ton, a less quantity 1s. 6d. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

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BASS AND BROWN'S No. V. CATALOGUE is just published, containing their superb collection of Achimenes and Gloxinias, and Plants for summer Bedding.

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THE TURF.—"REFLEX," the Turf Contributor of the "FIELD," THE COUNTRY GENTLEMAN'S NEWSPAPER, has restored anticipations on Racing Events to a trustworthy position. "REFLEX" selected Blink Bonny alone to win the Derby for 1857, and Leamington alone to win the Chester Cup for 1857. See the Numbers of the "FIELD" immediately preceding the dates of these races, published weekly, price 6d., at 2 to 5, Essex Street, Strand, London.

N.B. The "FIELD" gives all the Sporting Intelligence of the week.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—SATURDAY, May 30, 1857.

NEW AND RARE PLANTS.

ABIES KÆMPFERI

(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

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In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA

(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

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Extra Strong, 4s. per Gallon, sufficient to make four.

Jars and Barrels charged at cost price.

Ten Gallons and upwards, Carriage Free to London.

B. PAGE AND CO. beg to refer to Professor Lindley's analysis of the leading Gardeners' opinions, and also his remarks in the leading article of the *Gardeners' Chronicle* of October 25, 1856, where it will be observed that in 192 cases, 10 only were adverse; a majority sufficient to convince the most sceptical. It should be in the possession of every one who has a Rose Bush or a Wall-fruit Tree.

Their Agents (the principal Houses in the Trade) were recently published, to which should be added—

Mr. Thomas, Nurseryman, Wolverhampton.
Mr. Jennings, Nurseryman, Shipton-on-Stour.
Messrs. Dickson & Sons, Edinburgh (in place of Downie & Laird); or of

B. PAGE & CO., Seed Merchants and Growers, Southampton.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 23.—1857.] SATURDAY, JUNE 6. {Price Fivepence. Stamped Edition, 6*d*.

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THE ANNUAL SUMMER EXHIBITION of the BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will take place at the Royal Pavilion, Brighton, on WEDNESDAY and THURSDAY, June 24 and 25.

PRESIDENT—His Grace the Duke of Devonshire.

VICE-PRESIDENTS.

The Mayor of Brighton	Viscount Pevensey, M.P.
His Grace the Duke of Norfolk, E.M.	The Baron de Goldsmid
His Grace the Duke of Richmond (Lord-Lieutenant of the county)	Admiral Sir G. B. Pechell, Bart., M.P.
The Most Noble the Marquis of Bristol	Rear-Admiral Sir G. Westphal, R.N.
The Right Hon. the Earl of Chichester	The Hon. Hanbury Tracy
Lord Alfred Hervey	The Hon. A. Macdonald
	J. G. Dodson, Esq., M.P.
	W. Coningham, Esq., M.P.
	P. Salomons, Esq.; &c., &c.

CHAIRMAN OF COMMITTEE—T. Attree, Esq., V.P.

TREASURER—E. N. Hall, Esq., Union Bank.

SUPERINTENDENT OF THE EXHIBITION—Mr. E. Spary, Graperies, Park Street.

ABOUT £250 IN PRIZES.

Schedules may be had on application to E. Spary, Queen's Graperies, or of the Secretary, 96, St. James's Street, Brighton.

By permission of Col. Parker, the Band of the First Life Guards will attend each day, under the direction of Mr. Wardell; also, by permission of Col. Low, the Band of the Fourth Light Dragoons will be in attendance, under the direction of Mr. Devin. The entire suite of Rooms and the eastern Lawn will be thrown open for the occasion.

The Public will be admitted on WEDNESDAY, June 24, from 2 o'clock till 6, by Tickets purchased on or before Saturday, June 20, at 2*s*. 6*d*.; after that date they will be charged 3*s*. 6*d*.; and on THURSDAY, June 25, from 10 o'clock till 6, 1*s*.

By order of the Committee,
EDWARD CARPENTER, Secretary.

ROYAL OXFORDSHIRE HORTICULTURAL SOCIETY.—The next SHOW for this Season will be held on TUESDAY, June 23, in the Gardens of New College, Oxford. In addition to the Prizes to be competed for by Members exclusively the following are offered, open to all England, entrance free:—Stove or Greenhouse Plants (not Fuchsias or Geraniums) in pots, 9 varieties, 1st prize, 10*l*.; 2d do., 8*l*.; 3d do., 7*l*. Geraniums, in 8-inch pots, 12 varieties, 1st prize, 5*l*.; 2d do., 3*l*.; 3d do., 2*l*. Notice of intention to exhibit to be given to me on or before SATURDAY next, the 13th inst. The Bands of the Coldstream Guards and of the Oxfordshire Militia will (by leave of their respective Commanding Officers) play during the afternoon. W. R. HOBBS, Acting Sec.
73, St. Giles's Street, Oxford

MANCHESTER GRAND HORTICULTURAL EXHIBITION.—The Second Exhibition will take place at the Society's Gardens, Old Trafford, Manchester, on WEDNESDAY and THURSDAY, June 24 and 25, when a large amount will be given in Prizes for Collections and Specimens of Plants, Flowers, Fruits, &c. For Schedules and particulars apply to the Secretary. By Order,
JOHN SHAW, Secretary.
Council Room, 3, St. Peter's Square, Manchester.

EXHIBITION OF AMERICAN PLANTS, BOTANICAL GARDENS, MANCHESTER.—The beautiful collection of these plants supplied by Messrs. WATERER & GODFREY, of Knaphill Nursery, Woking, are just now in great beauty.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next Exhibition of this Society will be held at Chatteris on WEDNESDAY, July 1st next. In addition to the usual Prizes the following will be offered, viz.:—For the best 36 varieties of Roses (single trusses), a SILVER CUP, value FIVE GUINEAS; second best, 1*l*. 10*s*. Persons intending to compete for these Prizes must give written notice to the Hon. Secretary by the 24th inst. Four Entries or the Cup will not be given, and no Exhibitor will be allowed to take both Prizes. The Hon. Secretary will inform intending competitors whether a sufficient number of Entries have been made. Each Exhibitor must find his own stands, and must be a Subscriber of 10*s*. or upwards to the funds of the Society, which Subscriptions will also entitle him to show for the General Prizes at both Exhibitions for the present year.

Persons intending to Exhibit for the General Prizes must give notice in writing, stating what they intend to Exhibit and in which Class, to the Hon. Secretary by 8 o'Clock in the evening of TUESDAY, the 30th inst. Prize Lists and Regulations, and all further information may be obtained on application to WILLIAM FRYER, Hon. Secretary.
Chatteris, June 6.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21*s*. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.
Porking Nursery, June 6.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Notice is hereby given that the Half-Yearly General Meeting of the Members of this Society will take place at the HORTICULTURAL SOCIETY'S ROOMS, 21, Regent Street, on WEDNESDAY, July 1. The Committee beg to give notice that Four Pensioners will be added to the List on that day; but in consequence of JOHN PAVEY, of Madron, Penzance, being in distress, having subscribed upwards of fifteen years consecutively, and complied with all the requisitions of the Committee, he will, in accordance with the Rules, be placed on the List of Pensioners without an election.

A Ballot will take place for the Three remaining vacancies. The Chair to be taken at 12 o'clock. The Ballot will close at 2 o'clock precisely.

No person will be allowed to vote whose subscription for the present year is unpaid on the day of Election. The usual Voting Papers have all been delivered, and it is respectfully requested in the event of any subscriber not having received one he will made immediate application.

EDWARD ROGER CUTLER, Sec.
14, Tavistock Row, Covent Garden, London, June 6.

AGRICULTURAL SEEDS OF THE FINEST STOCKS.

BASS AND BROWN'S CATALOGUE of PRESENT PRICES can now be had on application.
BASS & BROWN, Seed Growers, Sudbury, Suffolk.

NEW CATALOGUE.

WILLIAM CUTBUSH AND SON'S CATALOGUE of Ferns, Pelargoniums, Fuchsias, Petunias, Verbenas, and other soft-wooded Plants, &c., can be obtained post free on application.—Highgate Nurseries, London, N.

W. IVERY'S Select CATALOGUE of CHOICE PLANTS is now ready, and will be sent on application. W. I. begs to inform his patrons that his Stock is unusually fine this season, and at very moderate prices.
Hanover Nursery, Peckham, near London, S.E.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

RAILWAY NURSERIES, WATFORD.

BEDDING PLANTS, SUMMER CLIMBERS, &c., can be obtained of the best quality, and on the most reasonable terms, by application to E. R. GREENUS, at the above Establishments.

BEDDING PLANTS, ETC.

BASS AND BROWN have this season a large and unusually strong stock of BEDDING PLANTS, also GERANIUMS and GREENHOUSE PLANTS generally, strong and in the finest health, ACHIMENES, GLOXINIAS, &c. Catalogues on application.—Sudbury, Suffolk.

BEDDING PLANTS.

HUGH LOW & CO. have now ready for Sale, in large or small quantities, Verbenas, Petunias, Phloxes, Calceolarias, Lobelias, Dahlias, Geraniums (Scarlet and others), Ageratums, Fuchsias, and all other plants suitable for Flower Garden decoration in summer at very reasonable prices.
Clapton Nursery, London, N.E.—June 6.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

N. LAURENCE, SEEDSMAN and FLORIST, begs to offer the following fine well-established plants:—

	Per doz.—*s*. *d*.		Per doz.—*s*. *d*.
Scarlet Geraniums	2 6	Dahlias, finest show and fancy vrs., very strong	4 0
Verbenas, all colours	2 0	Show and fancy Geraniums, in large 48 pots, full of flower-buds	5 0
Calceolarias, very fine	2 6		
Petunias, mixed, fine sorts	2 6		
Lobelia speciosa	2 6		

Catalogues may be had on application at the General Cemetery, Chatteris.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South-Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.
American Nursery, Bagshot, Surrey.

VERBENAS.

JOHN PYLE can now send out VERBENAS at 2*s*. per dozen, strong plants; or store plants at 5*s*. 6*d*. per 100.—St. John's Nursery, John Street, Upper Holloway.

GLOXINIAS, new Flowering Plants of st kinds, 6, 9, 12 doz.; to the Trade 50*s*. per 100.
FUCHSIAS—All the new and leading kinds of ur, 6*s*. per doz.; VERY strong Plants, 12*s*.
Mr. PALETHORPE, S. E. Nurseries, Ashford, Ke.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

TO GERANIUM GROWERS, ETC.

GERANIUM TOM THUMB SUPERB.—This splendid Scarlet Geranium, far superior to Tom Thumb, is of a fine bright colour, with flowers perfectly round, well adapted for bedding, and of a dry habit. Flowers of it can be seen at the Bedford Conservatory, Covent Garden, where Plants can be obtained at 9*s*. per doz.; or of GEORGE H. BUNNEY, Nurseryman, Stratford, Essex, E. Post-office Orders to be made payable at Stratford, near London

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1*s*.; Double Carnation, 1*s*.; Double Picotee, 1*s*.; Polyanthus, 1*s*.; Calceolaria, 2*s*. 6*d*.; Primula fimbriata, 1*s*.; Double Hollyhock, 1*s*.; Brompton and Intermediate Double German Stocks, each, 1*s*.; Double German Wallflower, 1*s*.; Bedding Plants of sorts, 4*s*. per dozen.

BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market.

CAPE BULBS.

JAMES CARTER AND CO. have just received a consignment of CAPE BULBS, and will be glad to forward a Descriptive List of them, post free, upon application.
238, High Holborn, W. C.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—THOS. PERRY, Nurseryman, &c., Banbury.

PELARGONIUMS.

CHARLES TURNER begs to announce that his extensive Collection is now in full Bloom. The above include Large and Fancy varieties, and the French Spotted kinds; also numerous Seedlings.
Royal Nursery, Slough.

FERNS! FERNS! FERNS!—Parties desirous of planting the above interesting tribe of plants in quantity can be supplied in fine strong plants, at the very low prices annexed, in 12 to 15 varieties, at 3*s*., 4*s*., 6*s*., and 12*s*. per dozen; less per 100, by P. EDWARDS, Old Merrion, Dublin.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior
CINERARIAS AND CALCEOLARIAS,
which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.
Packets sealed and warranted, at 2*s*. 6*d*. each free by post.

ROSES, DWARFED PEAR TREES, &c.—From a contemplated change in the Proprietorship of the West of England Roseries, at Westbury-upon-Tyne, near Bristol, the whole of the extensive Stock will be sold by Public Auction (unless previously disposed of Private Contract, of which due notice will be given) in the first week in OCTOBER, in lots to suit small as well as large purchasers. Future Advertisements will particularise the many varieties in this large collection.

TO BEE KEEPERS.

SOW MELILOTUS LEUCANTHA for an abundant supply of rich honey. Sixpence per packet, free.
PERSAC & Co., Seedsmen and Florists, 253, High Street, Exeter.

SELECT PLANTS, sent post free, at prices annexed:—12 distinct VERBENAS, 2*s*. 6*d*.; 12 distinct FUCHSIAS, 4*s*.; 12 fine CHRYSANTHEMUMS, 3*s*. 6*d*.; 12 fine BELGIAN DAISIES, 3*s*.—Catalogues sent on application to WILLIAM KNIGHT, Florist, Battle, Sussex.

CABBAGE PLANTS.—Fine Early Plants of the choicest kinds; also Globe and Green Curled Savoys, Kales, &c., packed and delivered at the Station, Godalming, at 3*s*. 6*d*. per 1000; Broccolis, various, at 5*s*. per 1000.—THOMAS WELLAND, Surrey Gardens, Godalming, Surrey.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2*s*. per lb.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

TO SEED MERCHANTS AND GROWERS.

FOR SALE, about 50 bushels of GREEN ROUND TURNIP SEED of very superior stock.—For samples and further particulars, apply to ALFRED WOOLDRIDGE, Sidcup, Foot's Cray, Kent, S.E.

ORANGE TREES.

TO BE SOLD BY PRIVATE CONTRACT, the property of a Nobleman, at a sacrifice, several fine ORANGE TREES, varying in height from 3 to 10 feet.—To be seen at TAYLOR'S Nursery, Park Village East, Regent's Park.

AGRICULTURISTS AND BOTANISTS.

RA[illegible] COLLECTION OF NATURAL AND [illegible]FICIAL GRASSES.—An interesting COLLECTION of 120 [illegible]ies and varieties of the most useful Grasses are now growing in Messrs. SUTTON'S TRIAL GROUNDS, Reading, Berks. These grounds are always open to Messrs. SUTTON'S customers, on presentation of their cards at the Office, No. 7, Market Place, Reading.

GERANIUMS OR PELARGONIUMS.

ONE of the Largest Collections in the World is now in Flower, and can be seen Gratis any day, Sunday's excepted. Catalogues of Geraniums, Azaleas, Ferns, Dahlias, Fuchsias, Ericas, &c., also a very large Stock of all kinds of Bedding Plants, can be had at T. GAINES' Nursery, Surrey Lane, Battersea.—June 6.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.
J. C. WHEELER & SON, Seed Growers, Gloucester.

FOR GOOD AND CHEAP BARGAINS IN BEDDING AND OTHER PLANTS, APPLY TO

HENRY WALTON, Edge End, Marsden, near Bromley, Lancashire.—Strong and well-established plants of Geraniums of 1855, 25*s*. per dozen; older varieties, 5*s*. and 9*s* per dozen. Fuchsias of last season, extra strong, 9*s*. and 12*s*. per dozen; smaller do., free by post, 13*s*. 6*d*. per dozen. Verbenas, Petunias, Dahlias, and other Bedding Plants equally cheap. Erect and other Gloxinias, 9*s*., 12*s*. and 18*s*. per dozen; 6 new erect flowering varieties for 1*l*., or 3*s*. each; Achimenes, 5*s*. and 7*s*. 6*d*. per dozen; new do., 2*s*. 6*d*. each.—Descriptive Lists of the above may be had on application. Post-office orders payable at Marsden, Lancashire.

CRYSTAL PALACE.

GRAND HORTICULTURAL EXHIBITION,

MAY 30, 1857.

LIST OF SUCCESSFUL COMPETITORS.

FLOWERS.

Class

I.—20 STOVE AND GREENHOUSE PLANTS, in flower.
£30 0 Thomas Whitebread, Gardener to Henry Colyer, Esq., Dartford
20 0 John Green, Gardener to Sir Edmond Antrobus, Lower Cheam, Surrey, and William Taylor, Gardener to J. Coster, Esq., Streatham
10 0 Thomas Page, Gardener to William Leaf, Esq., Park Hill, Streatham Common
7 0 E. A. Hamp, Gardener to James Thorne, Esq., Marlby House, South Lambeth
4 0 (Extra) W. J. Epps, High Street, Maidstone

II.—12 STOVE AND GREENHOUSE PLANTS, in flower.
£18 0 George S. Dods, Gardener to Sir John Cathcart, Cooper's Hill, Chertsey
12 0 S. M. Carson, Gardener to F. G. Farmer, Esq., Nonsuch Park, Surrey
6 0 B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood
4 0 Samuel Morris, Gardener to Coles Child, Esq., Bromley, Kent

III.—6 STOVE AND GREENHOUSE PLANTS, in flower.
£10 0 J. Peed, Gardener to C. T. Gabriel, Esq., Norfolk House, Streatham
6 0 Osman Rhodes, Gardener to J. Philpott, Esq., Stamford Hill
3 0 W. Cutbush & Son, Nurserymen, Highgate
2 0 Thomas Frost, Gardener to E. L. Betts, Esq., Preston Hall, Maidstone
2 0 (Equal) William Kaile, Gardener to Rt. Hon. The Earl of Lovelace
1 10 (Extra) G. Webb, Gardener to H. Walmisley, Esq., Easton Lodge, Tulse Hill
1 10 (Extra) George Young, Gardener to W. Stone, Esq., Dulwich Hill
1 10 (Extra) R. Baxendine, Gardener, Ridenhurst, near Guildford
1 10 (Extra) G. T. Brush, Gardener to Jos. Tritton, Esq., Bloomfield Hall, Norwood
1 10 (Extra) Thomas Williams, Gardener to Miss Traill, Haye Place, Kent
1 10 (Extra) J. George, Gardener to J. W. Nicholson, Esq., Stamford Hill

IV.—25 STOVE AND GREENHOUSE PLANTS, Grouped for effect, in or out of Flower.
£25 0 James Veitch & Son, Exotic Nurseries, Chelsea
15 0 Robert Parker, Paradise Nursery, Holloway
10 0 Alfred Bye, Gardener to G. S. Wintle, Esq., Uppercote Gardens, Gloucester
7 0 Messrs. Jackson & Son, Nurserymen, &c., Kingston, Surrey
5 0 Samuel Morris, Gardener to Coles Child, Esq., Bromley, Kent
5 0 George Young, Esq., Gardener to W. Stone, Esq., Dulwich Hill
2 10 Mr. J. Epps, Nurseryman, &c., High Street, Maidstone

V.—20 ORCHIDS, of Exotic species (Amateurs).
£30 0 Mr. Gedney, Gardener to Mrs. Ellis, Hoddesdon
20 0 S. Woolley, Gardener to H. B. Ther, Cheshunt

VI.—20 ORCHIDS, of Exotic species (Nurserymen).
£30 0 J. Veitch & Son, Exotic Nursery, Chelsea
20 0 J. Jackson & Son, Nurserymen, Kingston
10 0 Robert Parker, Nurseryman, &c., Paradise Nursery, Holloway

VII.—12 ORCHIDS, of Exotic species (Amateurs).
£15 0 S. M. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, Surrey
10 0 Mr. Clarke, Gardener to Charles Webb, Esq., High Grounds, Hoddesdon
7 0 Mr. W. Keele, Gardener to Dr. Butler, Woolwich, Kent
5 0 Mr. S. Morris, Gardener to Coles Child, Esq., Bromley, Kent

VIII.—6 ORCHIDS, of Exotic species.
£10 0 G. S. Dods, Gardener to Sir John Cathcart, Cooper's Hill, Chertsey
6 0 R. Grix, Gardener to the late A. Palmer, Esq., Cheam Park, Surrey
3 0 Mr. John Green, Lower Cheam, Surrey

IX.—12 GREENHOUSE AZALEAS.
£18 0 John Green, Gardener to Sir E. Antrobus, Lower Cheam, Surrey
12 0 S. M. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, Surrey
6 0 J. & J. Fraser, Nurserymen, &c., Lea Bridge Road
4 0 Mr. B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood
1 10 T. Gaines, Nurseryman, &c., Surrey Lane, Battersea
1 10 Mr. J. Peed, Gardener to C. T. Gabriel, Esq., Norfolk House, Streatham

X.—6 GREENHOUSE AZALEAS (Amateurs).
£8 0 Thomas Page, Gardener to W. Leaf, Esq., Park Hill, Streatham
6 0 William Taylor, Gardener to J. Coster, Esq., Park Hill, Streatham
4 0 James Terry, Gardener to Baron Hambro, Roehampton, Surrey
3 0 Osman Rhodes, Gardener to J. Philpott, Esq., Stamford Hill
1 10 George Young, Gardener to W. Stone, Esq., Dulwich Hill

Class

XI.—12 GREENHOUSE AZALEAS, of new kinds.
£10 0 John Green, Gardener to Sir E. Antrobus, Lower Cheam, Surrey
7 0 (Equal) James Ivery & Son, Nurserymen, Dorking, and William Taylor, Gardener to J. Coster, Esq., Streatham
4 0 B. Peed, Gardener to T. Tredwell, Esq., St. John's Lodge, Norwood
3 0 W. J. Epps, Nurseryman, High Street, Maidstone

XII.—6 CHINESE AZALEAS, species imported since 1844.
£4, £3, £2, *nil*

XIII.—6 HELICHRYSUMS.
£4 0 William Laybank, Gardener to Thomas Maudsley, Esq., Norwood
3 0 Thomas Page, Gardener to William Leaf, Esq., Park Hill, Streatham
2 0 W. Cutbush, Nurseryman, &c., Barnet, Herts
1 0 Mr. John Green, Gardener to Sir E. Antrobus, Bt., Lower Cheam
1 0 Mr. Osman Rhodes, Gardener to J. Philpott, Esq., Stamford Hill

XIV.—10 CAPE HEATHS.
£8 0 B. Peed, Gardener to T. Tredwell, Esq., Norwood
6 0 Thomas Williams, Gardener to Miss Traill, East Place, Kent
5 0 Osman Rhodes, Gardener to J. Philpott, Esq., Stamford Hill
4 0 William Cutbush, Nurseryman, Barnet, Herts
2 0 R. Glendinning, Nurseryman, Chiswick, Middlesex

XV.—6 CAPE HEATHS (Amateurs).
£6 0 George Young, Gardener to W. Stone, Esq., Dulwich Hill
4 0 William Taylor, Gardener to J. Coster, Esq., Streatham
3 0 J. Peed, Gardener to C. T. Gabriel, Esq., Norfolk House, Streatham
1 10 James Harlock, Gardener to R. W. Nutter, Esq., Wanstead, Essex

XVI.—6 TALL CACTI, species or varieties of, in flower, large plants.
£7 0 John Green, Gardener to Sir E. Antrobus, Lower Cheam, Surrey
5 0 Robert Grix do. do. Cheam Park, Surrey
3 0 W. Mortimer, Gardener to J. R. Scott, Esq., Crouch End, Hornsey

XVII.—12 ROSES in pots, distinct kinds.
£10 0 A. Paul & Son, Nursery, Cheshunt
7 0 E. P. Francis, Nursery, Hertford

XVIII.—6 ROSES in pots, distinct kinds (Amateurs).
£5 0 Alexander Rowland, Esq., Rosenthal, Lewisham
4 0 Mr. Busby, Gardener to John Crawley, Esq. Stockwood Park, Luton
2 0 W. Mortimer, Gardener to G. R. Scott, Esq., Crouch End, Hornsey.

XIX.—12 CALCEOLARIAS, distinct varieties, in pots not more than 11 inches in diameter.
£5 0 John Dobson, Esq., Woodlands Nursery, Isleworth
5 0 (Extra) Charles Turner, Royal Nursery, Slough
4 0 George Lambert, Oakwood, Chichester
3 0 John Cole, Keyfield Nurseries, St. Alban's
3 0 Robert Pryer, Gardener to W. J. Carne, Esq., Tulse Hill, Brixton

XX.—6 FUCHSIAS in pots, distinct varieties.
£4 0 Thomas Reid, Gardener to T. N. Farquhar, Esq., Sydenham
3 0 Edward Harper, Gardener to J. F. Bennett, Esq., Upper Tulse Hill
2 0 Archibald Bousie, Gardener to the Right Honourable H. Labouchere, Slough
1 0 George Blundell, Gardener to D. Rowland, Esq., Sydenham Hill
1 0 H. Chilman, Gardener to Mrs Smith, Ashtead House, near Epsom
1 0 H. Elliott, Gardener to C. Davidson, Esq., Sydenham [Hill

XXI.—12 PELARGONIUMS, distinct varieties, in pots not more than 8 inches in diameter (Amateurs).
£10 0 William Nye, Gardener to E. Foster, Esq., Manor, Berks
7 0 John Wiggins, Gardener to E. Beck, Esq., Isleworth
5 0 Thomas Windsor, Gardener to — Cannon, Esq., Hampstead
4 0 William Holder, Gardener to the Rev. E. Coleridge, Eton College
2 0 Mr James Weir, Gardener to John Hodgson, Esq., The Elms, Hampstead
1 10 George Lambert, Oakwood, Chichester, Sussex

XXII.—12 PELARGONIUMS, distinct varieties, in pots not more than 8 inches in diameter (Nurserymen).
£10 0 Charles Turner, Royal Nursery, Slough
7 0 J. and J. Fraser, Lea Bridge Nurseries
5 0 John Dobson & Son, Woodlands Nursery, Isleworth
4 0 Mr. William Bragg, Star Nursery, Slough
1 10 William Cutbush and Sons, Nurserymen, Highgate
1 10 Mr Thos. Gaines, Nurseryman, Surrey Lane, Battersea

XXIII.—6 FANCY PELARGONIUMS, distinct varieties, in pots not more than 8 inches in diameter (Amateurs).
£5 0 Archibald Bousie, Gardener to the Right Hon. H. Labouchere
3 0 Thomas Windsor, Gardener to Charles Cannon, Esq., Hampstead
2 0 George Lambert, Oakwood, Chichester, Sussex
1 10 James Weir, Gardener to John Hodgson, Esq., The Elms, Hampstead
1 0 William Mockett, Gardener to J. Allnutt, Esq., Clapham [Common

Class

XXIV.—6 FANCY PELARGONIUMS, distinct varieties, in pots not more than 8 inches in diameter (Nurserymen).
£5 0 Charles Turner, Royal Nursery, Slough
3 0 J. & J. Fraser, Lea Bridge Nursery
2 0 William Bragg, Slough
1 0 (Extra) Thomas Gaines
1 0 (Extra) John Dobson & Son

XXV.—NEWLY-INTRODUCED, or EXTREMELY RARE PLANTS, remarkable for their beauty, in flower.
£3 0 James Veitch & Son, Chelsea, Rhododendron Veitchi
2 0 J. Jackson & Son, Kingston, Surrey, Cypripedium sp. nova
1 0 James Veitch & Son, for Odontoglossum Reichenari

XXVI.—NEWLY-INTRODUCED or EXTREMELY RARE PLANTS, remarkable for their beauty, not in flower.
£3 0 R. Glendinning, Chiswick, Farfugium grande
2 0 James Veitch & Son, Exeter and Chelsea, Fleurantthus, sp.
1 0 Ditto, Hippomane spinosa
1 0 W. Cutbush & Son, for Solanum purpureum

XXVII.—HARDY ORNAMENTAL PLANTS, remarkable for their fine habit or beauty of foliage.
£3 0 James Veitch & Son, Exeter and Chelsea, Wellingtonia gigantea
2 0 Ditto, Abies Kæmpferi
1 0 Ditto, Thuja gigantea
0 15 John Hally & Son, Nurserymen, Blackheath, for Cephalotaxus Fortuni

XXVIII.—SEEDLING PELARGONIUMS of 1856 and 1857.
£1 0 E. Beck, Esq., Isleworth, for Pelargonium Bride
0 15 Charles Turner, Royal Nursery, Slough, Fancy Pelargonium Acme
0 10 Mr. Beck, Pelargonium Signora

XXIX.—6 Plants of NEPENTHES, with Pitchers.
£10 0 William Gedney, Gardener to Mrs. Ellis, Hoddesdon

XXX.—6 Plants of ANÆCTOCHILUS and PHYSIURUS.
£3 0 James Veitch & Son, Exotic Nurseries, Exeter and Chelsea
2 0 Alfred Bye, Gardener to J. S. Wintle, Esq., Hopelecote Gardens, near Gloucester
1 0 William Cutbush, Barnet, Herts

XXXI.—12 EXOTIC FERNS.
£4 0 Robert Parker, Paradise Nursery, Holloway
3 0 (Equal) James Veitch & Son, Exotic Nurseries, Exeter and Chelsea, and Frederick Fletcher, Gardener to J. F. Young, Esq., Upper Kennington Lane
2 0 W. Gedney, Gardener to Mrs. Ellis, Hoddesdon
1 0 S. M. Carson, Gardener to W. F. J. Farmer, Esq., Nonsuch Park, Surrey

XXXII.—BRITISH FERNS.
£3 0 Thomas Sims, Foots Cray, Kent
2 10 Samuel Morris, Gardener to Coles Child, Esq., Bromley
W. Bragg, Slough, for collection of Tulips
H. Lavey, Gardener to E. A. De Grave, Esq., Tetcham, collection of British Ferns
J. James, Gardener to W. F. Watson, Esq., Isleworth, for a collection of Pansies
1 10 John Halley, Nurseryman, &c., Blackheath, collection of Lycopodiums
Frederick Fletcher, Gardener to J. F. Young, Esq., Upper Kennington Lane, collection of Gloxinias
W. Bragg, Star Nursery, Slough, for collection of Pansies
S. Morris, Gardener to Coles Child, Esq., for collection of Lycopods
1 0 J. James, Gardener to W. F. Watson, Esq., Isleworth
Messrs. Veitch & Son, Exotic Nurseries, Exeter and Chelsea, for Rhododendron Brookeanum
Ditto for Rhododendron Princess Royal
W. Bragg, for Cut Pansies
Ditto, for Geranium Unique
J. Holland, Gardener to Robert W. Peake, Esq., Spring Grove, Hounslow
James August, Rose Cottage, Beddington, Surrey, for 12 pots of Pansies
W. Mackett, Gardener to J. Allnutt, Esq., Clapham Common, collection of Gloxinias
J. Green, Gardener to Sir E. Antrobus, Bt., Lower Cheam, Surrey, for Rhododendron Dalhousiæ
E. A. Hamp, Gardener to James Thorne, Esq., Maurley House, South Lambeth, collection of Amaryllis
S. Morris, for Rhododendron cinnabarina
0 15 Mr. E. P. Shenton, Hendon Park Villas, Hendon, for a collection of Pansies, stand of 24 blooms
J. Dobson and Son, Woodlands Nursery, Isleworth, stand of Pansies
R. Glendinning, Chiswick Nursery, for Gesneri Donckelaari
W. J. Epps, Maidstone, for Gloxinias
E. P. Francis, Nurseries, Hertford, collection of Roses on Manetti stocks
H. Lavey, Gardener to E. A. De Grave, Esq., of Tetcham
A. Henderson, Pine Apple Nursery, for Lilium giganteum, for set Geraniums, and Achimenes
0 10 W. Kaile, Gardener to Rt. Hon. Earl Lovelace, East Horsley Towers, near Ripley, Surrey, 6 Plants various
Charles Turner, for Petunia Attraction.

FRUIT.

A.—COLLECTIONS OF FRUIT in 8 dishes, consisting of at least 5 distinct kinds.
£4 0 James Nichol, Gardener to General Studd, Oxon House, near Exeter, Devon

B.—PINE APPLES, Collections of 3, viz., Providence, Smooth Cayenne, and Black Prince, or any other variety.
£6 0 John Davis, Oakhill, Barnet
4 0 Robert Turnbull, The Gardens, Blenheim Palace
2 0 James Temple, Dowlais Iron Co., Merthyr Tydvil
2 0 (Extra) Walter Davies, Starch Green, Hammersmith
1 10 (Extra) B. Peed, Gardener to T. Tredwell, Esq., Norwood

C.—PINE APPLE, single Fruit of the Providence.
£3 0 Walter Davies, Starch Green, Hammersmith

D.—PINE APPLE, single Fruit of the Queen, any variety.
£3 0 Thomas Dawson, Gardener to Earl Cowper, Panshanger
2 0 Robert Turnbull, The Gardens, Blenheim Palace
1 0 Thomas Bray, Gardener to J. B. Lousada, Esq., Sidmouth
0 15 (Extra) J. Davis, Oakhill, East Barnet
0 10 (Extra) Charles Smith, Gardener to A. Anderson, Esq., Norwood Grove

E.—PINE APPLE, single Fruit of the Jamaica, or any variety not named above.
£3 0 John Davis, Oakhill, East Barnet
2 0 Joseph Gillham, Isleworth
1 0 James Temple, Dowlais Ironworks, Merthyr Tydvil
0 15 (Extra) Thomas Dawson, Gardener to Earl Cowper, Panshanger

For continuation of Crystal Palace List of Prizes see next page.

CRYSTAL PALACE LIST OF PRIZES.—*Continued.*

FRUIT.

CLASS
F.—GRAPES, collections of 3 dishes, of 3 distinct kinds.
£3 0 (Equal 2nds) Robert Turnbull, The Gardens, Blenheim Palace
3 0 " Thomas Frost, Gardener to E. L. Betts, Esq., Maidstone
2 0 James Tegg, Gardener to Baron Hambro, Roehampton
1 10 (Extra) Walter Reid, Gardener to James Hunt, Esq., Sydenham
1 0 (Extra) Mitchell & Co., Bristol Nursery, Kemp Town, Brighton
1 0 (Extra) John Monro, Gardener to Mrs. Oddie, St. Albans

G.—GRAPES, Black, single dish.
£3 0 Thomas Frost, Gardener to E. L. Betts, Esq., Maidstone
2 0 George S. Dods, Gardener to Sir John Cathcart, Chertsey
2 0 G. Fleming, Trentham, Staffordshire
1 0 Edward Bundle, Gardener to G. Soanes, Esq., Streatham
1 0 Mr. Henderson, Cole Orton Hall, Ashby-de-la-Zouch
1 0 John Davis, Oakhill, East Barnet
0 15 (Extra) M. Clarke, Gardener to Charles Webb, Esq., Hoddesdon
0 10 (Extra) J. Cross, Gardener to Rt. Hon. Lord Ashburton, Addiscombe
0 10 (Extra) George Wortley, Gardener to Mrs. Maubert, Norwood

H.—GRAPES, White, single dish.
£3 0 M. Henderson, Cole Orton Hall, Ashby-de-la-Zouch
2 0 Charles Smith, Gardener to A. Anderson, Esq., Norwood
1 0 Henry Jackson [Grange
1 0 (Extra) Thomas Bailey
0 10 (Extra M. Busby, Gardener to John Crawley, Esq., Stockwood Park, Luton, Beds.
0 10 (Extra) Mitchell & Co., Bristol Nursery, Kemptown, Brighton

I.—GRAPES, Muscats, single dish.
£4, £3, £2, *nil*

J.—GRAPES, 12 lbs. weight (Market Gardeners only).
£4 0 J. A. Watson, Market Gardener, Ealing, Middlesex
3 0 Spary & Campbell, Queen's Graperies, Brighton
(Equal) William Kay, Finchley
2 0 Mitchell & Co.
(Equal) John Davis, Oakhill, Barnet [Lambeth
1 0 C. W. Alderson, The Vineries, Langley Lane, South
(Equal) Edwin Skeen, Nelson Lodge, Stoke Newington

K.—PEACHES, single dish of one kind only.
£3 0 H. Constantine, Gardener to C. Mills, Esq., Hillingdon Court
2 0 William Hill, Gardener to R. Sneyd, Keele Hall, Stafford
1 0 G. Fleming, Trentham Gardens
0 10 (Extra) Edward Tomlinson, Gardener to Sir E. Antrobus, Bart., Amesbury, Wilts

L.—NECTARINES, single dish of one kind only.
£3 0 M. Busby, Gardener to John Crawley, Esq., Stockwood Park, Luton, Beds
2 0 G. Fleming, Trentham, Staffordshire
1 0 William Hill, Gardener to R. Sneyd, Esq., Keele Hall, Staffordshire
1 0 Edward Tomlinson, Gardener to Sir E. Antrobus, Bart., Amesbury, Wilts
0 15 (Extra) James Nichol, Gardener to General Studd, Oxton House, near Exeter

CLASS
M.—MELONS, Persian, or hybrids from it, the heaviest.
£2 0 Peter Boreham, Gardener to Sir Fitzroy Kelly, M.P., The Chantrey, Ipswich
1 0 Mr. Page, Gardener to W. Leaf, Esq., Park Hill

N.—MELONS, green-fleshed, single fruits.
£2 0 William Kaile, Gardener to Rt. Hon. Earl of Lovelace, Ripley
1 0 J. G. Fleming, Trentham, Staffordshire
0 10 (Extra) Thomas Blake, Gardener to E. Green, Esq., Sprangewells, Ware, Herts
0 10 (Extra) Thomas Page, Gardener to W. Leaf, Esq., Park Hill, Streatham Common

O.—MELONS, scarlet-fleshed, single fruits.
£1 0 William Taylor, Gardener to J. Coster, Esq., Streatham

P.—FIGS, single dish, consisting of 10 fruits.
£2 0 C. Hutt, Gardener to Miss Coutts, Holly Lodge, Highgate

Q.—CHERRIES, in collections of three kinds, 1 dish of each, in Fifties.
£4 0 G. Fleming, Trentham, Staffordshire

R.—CHERRIES, single dish (white), in Fifties.
£2, £1. 5s., 15s., no entries

S.—CHERRIES, single dish (black) in Fifties.
£2 0 Edward Shuter, Gardener to Earl of Wilton, Heaton, Manchester
1 5 Thomas Frost, Gardener to E. L. Betts, Esq., Preston Hall, Maidstone
0 15 Robert Wilson, Saltisford, Warwick

T.—PLUMS, single dish, 10 fruits.
£2, £1 10s., £1., no entries.

U.—STRAWBERRIES, collections of 3 dishes, British Queen, Keens' Seedling, and any other variety.
£3 0 (Equal) Robert Turnbull, Gardens, Blenheim Palace, and J. A. Watson, Market Gardener, Vine Garden, Ealing

W.—STRAWBERRIES, single dish, in Fifties.
£2 0 Mr. William Smith, Twickenham
1 5 J. A. Watson, Market Gardener, Vine Garden, Ealing
1 5 W. Dunsford, Chingford, Essex
0 15 Mr. Wallace, Market Gardener, Barnes, Surrey
0 10 (Extra) Robert Turnbull, Blenheim
0 10 (Extra) Joseph Gilham, Isleworth

X.—VINES IN POTS, with ripe fruit, 4 plants.
£5 0 C. Hutt, Gardener to Miss Coutts, Highgate
4 0 W. Kaile, Gardener to the Right Hon. Earl Lovelace, East Horsley
3 0 W. Jackson, Gardener to G. Beaufoy, Esq., Lambeth

Y.—PEACHES AND NECTARINES IN POTS, 4 plants.
£5, £4, £3, £2, no entries

Z.—PLUMS, APRICOTS, CHERRIES, &c., IN POTS, 4 plants
£5., £4., £3., £2., no entries.

MISCELLANEOUS.
£2 0 J. Williams, Gardener to Mrs. Warner, Hoddesdon
1 10 Thomas Bailey, Gardener to J. J. Drake, Esq., Amersham
1 0 William Kaile, Gardener to the Right Hon. Earl Lovelace, East Horsley Towers
1 0 S. Elliott, Gardener to Mrs. Barnes, Lower Sydenham
1 0 — Street

AGRICULTURAL SEEDS (Carriage Free).

B. PAGE AND CO. have had the honour to supply for some years the MANGEL WURZEL, TURNIPS, &c. grown on the ROYAL FARMS at OSBORNE, and their Trade is considerable with Practical Farmers throughout the Kingdom, indicating first quality and strict market prices.

B. PAGE & Co have great pleasure in stating that their STOCKS of SWEDES, TURNIPS, MANGEL WURZEL, &c., are, as usual, from select Transplanted Roots, grown by them in different districts, to avoid hybridisation, experience having proved that Turnips grown in close proximity, or repeated on the same land, causes general deterioration.

Present Prices, Carriage Free, to all Parts of England:—

SWEDE—Matson's Purple-top .. .. .. per lb.	0s.	8d.
" Lothian do.	0	8
" Skirving's Imperial	0	8
" Bullock's Heart	1	0
" Green-top do.	0	9
TURNIP—Aberdeen, Bullock, or Scotch Yellow ..	1	0
" White Norfolk	0	7
" " Globe	0	8
" " Tankard	0	10
" Red "	0	10
" Green "	0	10
" Yellow "	1	0
" Green Round	0	8
TURNIP—Lincoln Tom, large Early .. .. per lb.	0s.	9d.
" Red Round	0	9
" Early Six Weeks	0	9
MANGEL WURZEL—Elvetham, Long Red	0	6
" Fine Long Red	0	6
" Orange Globe	0	7
" Red Globe	0	7
" Long Yellow	1	0
CARROT—White Belgian	2	0
CABBAGE—Drumhead	14	0
CLOVER, in sorts.		
RAPE, per bushel		
RYE-GRASS, ITALIAN, &c.		

Special Contracts for large quantities.

AGENTS FOR "ODAM'S" BLOOD MANURE.

Joseph Blundell, Esq., of Bursledon, one of the most eminent Agriculturists in England, expresses his opinion of B. PAGE & Co.'s Stock of Orange Globe Mangel Wurzel in particular, "as the finest he has ever seen or grown."

Markets attended—Basingstoke, Botley, Bishop's Stoke, Chichester, Fareham, Romsey, Winchester, Ringwood, Southampton, Newport, I.W.

B. PAGE & Co.'s Stocks are so well known and appreciated that comment on their part is unnecessary, and their prices compete with any house in the Kingdom.

PERMANENT PASTURE AND LAWN GRASSES.

B. P. & Co. have laid down some thousands of acres most successfully, and very recently the PUBLIC GROUNDS of SOUTHAMPTON, of which the Surveyor to the Corporation has expressed his great satisfaction in a testimonial inserted in their Catalogue.

B. PAGE & CO., Seed Merchants and Growers, Oxford Street (adjoining Radley's Hotel), and above Bar, Southampton.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, June 6.

CHARLES NOBLE, of the late Firm of STANDISH & NOBLE, has still to offer fine selections of RHODODENDRONS in finest named varieties; also commoner showy kinds, fine blooming plants; Pinus insignis, Benthamiana, Sabiniana, &c; Wellingtonia gigantea, as well as most of the leading kinds of Conifers, hardy Evergreens, &c., for which the late firm has been so long celebrated.—Bagshot, June 6.

SEEDS SUITABLE FOR PRESENT SOWING

TO BE HAD OF

WILLIAM DENYER, SEEDSMAN, &c., 82, Gracechurch Street, London.

AQUILEGIA, 6 distinct and beautiful colours	2s.	0d.
These are quite hardy, and when planted out will last and flower for several years.		
HOLLYHOCKS, from Chater's best varieties, 6 sorts..	2	0
STOCK, Brompton or Gigantic, 6 varieties	2	0
" Emperor or Perpetual, 12 varieties, splendid, 4s.; 6 ditto	2	0
WALLFLOWERS, 6 Gigantic double varieties, bright and singular colours	2	0
These are from a Continental Grower, who has gained many first-class prizes.		
CALCEOLARIA hybrida nana	2	0
A new dwarf variety, spotted brilliant colours, very distinct, in habit growing only 6 or 8 inches high, does not require tying up.		
CARNATION	1	0
From prize flowers saved by an Amateur.		
CINERARIA, from the most splendid flowers	1	0
PANSEY, from the best flowers	1	0
Saved by Thomson and other eminent growers.		
PICOTEE	1	0
From named show flowers, saved by an Amateur.		

NEW DOUBLE PETUNIAS.—The Subscriber begs to offer to the public the undermentioned beautiful flowers; they will add another gem to the garland of Flora, and no doubt will be admired and appreciated by thousands. They are of the finest growth and most abundant bloomers, and have been selected from many others raised by J. SCOTT, of Merriott Nurseries, Crewkerne, Somerset, to whom all applications are requested to be made.

ÆGLE, a very pretty purple Anemone flowered sort.

ÆTHRA, a beautiful light lilac, full centre, which is shaded down to green.

ALCESTES, a bold large lilac flower, very handsome and showy.

ARIADNE, a splendid full rosy purple, quite a lovely flower, will make one of the most beautiful beds that can be imagined. 5s. each, if ordered by itself.

ASTRÆA, fine Anemone flowered white, very large and free bloomer.

ATYS, a splendid lilac flower with a fine full centre and abundant bloomer.

LEUCOSIA, a very beautiful white tinged in the centre with rose.

PARTHENOPE, a lovely pure white flower, as double as a Rose, a great improvement on Imperial.

The above are all sweet scented and of quite a different habit from Imperial, and very free bloomers, 3s. 6d. each, or the eight varieties, including basket and packing, for 25s. For every three ordered by the trade one will be added. Plants ready the second week in June, and all orders sent out in rotation.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. PARKER for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. PARKER's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

DAVID THOMSON, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1s. 6d. each, or 12s. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

NEW OR RARE FERNS.

JAMES BACKHOUSE AND SON have pleasure in offering to the public the following highly interesting and distinct Ferns, several of which are of great rarity:—

MICROLEPIA (DAVALLIA) NOVÆ ZEALANDIÆ.—A most elegant species, forming beautifully incised shining fronds, 6 to 9 inches long, from a creeping hairy rhizome. 7s. 6d. to 10s. 6d. each.

NOTHOCHLÆNA LÆVIS.—Very distinct and pretty. Fronds linear, 9 to 15 inches long, with simple blunt pinnæ, clothed beneath with rufescent scales, which are silvery and shining when young. 5s. to 10s. 6d.

DIDYMOCHLÆNA PULCHERRIMA.—Handsome dark green glossy fronds. 7s. 6d. to 10s. 6d.

LOPHOSORIA (ALSOPHILA) PRUINATA. (The Silver Tree Fern of Jamaica.)—Nice young plants of this rare and handsome species, 10s. 6d. to 21s. each.

ASPLENIUM CAUDATUM.—A scarce Fern, with deeply incised tapering pinnæ. 7s. 6d. and 15s.

ALSOPHILA SPECIES (received as "A. GUIANENSE").—A fine Tree Fern with rich glossy prickly stemmed fronds. 10s. 6d. to 21s. Stronger plants, 42s. and 63s. each.

HEMITELIA GRANDIFOLIA?—A few strong plants of this rare and noble Tree Fern, 63s. each.

HEMITELIA SPECIOSA. (Described in Hooker's "Species Filicum" as "a truly beautiful species.")—Fronds simply pinnate, Palm-like, curiously veined. A Tree Fern from Caraccas. 21s. to 42s.

POLYPODIUM (PSEUD-ATHYRIUM) FLEXILE.—A few strong plants of this scarce and elegant British Fern at 7s. 6d. and 10s. 6d. each.

CYSTOPTERIS MONTANA. (Another rare and very distinct British Fern.)—Strong plants, 5s. and 7s. 6d.

NOTHOCHLÆNA LANUGINOSA.—A pretty little Fern from Algeria; fronds covered beneath with soft white woolly hairs. 7s. 6d.

PLATYLOMA BROWNI.—Distinct and scarce. 5s. to 7s. 6d.

NOTHOCHLÆNA ECKLONIANA.—A pretty and distinct species. 5s. to 7s. 6d.

DICKSONIA ANTARCTICA. (The Van Diemen's Land Tree Fern.)—A very handsome species, forming a crest 12 to 20 feet across, of dark green graceful fronds. Easy of cultivation in a greenhouse. Fine young plants, 10s. 6d. each. Strong ditto, 42s. to 63s. each.

CIBOTIUM SCHIEDEI.—A beautiful Tree Fern from Mexico, with large, much divided, gracefully drooping pale green fronds, glaucous beneath and densely shaggy at the base, with long, soft, fulvous hair. 21s. to 31s. 6d. each.

J. B. & Son's NEW CATALOGUE OF FERNS (which contains many rarities) may be had on application.

York Nurseries, June 6.

NEW, BEAUTIFUL, AND RARE PLANTS

OFFERED FOR SALE FOR THE FIRST TIME BY

MESSRS. WILLIAM ROLLISSON AND SONS,

THE NURSERIES, TOOTING, LONDON.

THE ANNEXED LIST OF VALUABLE PLANTS have been selected from a large and rich collection of novelties; and the advertisers having proved them to be desirable acquisitions, have therefore no hesitation in strongly and confidently recommending them: an inspection is respectfully invited. The trains from London Bridge Railway Station calling at the Crystal Palace leave every half hour for Balham Station, which is only 1 mile from our Tooting Nursery; and the Omnibuses from Gracechurch Street and Charing Cross, calling at the Elephant and Castle, pass the Nurseries frequently during the day.

THE USUAL DISCOUNT TO THE TRADE.

TRADESCANTIA ARGENTEA.—A very pretty variegated plant, imported from Monte Video, in growth after the manner of Tradescantia zebrina, but the variegation more distinct and whiter, indeed the beautiful silvery bands on the leaves impart to the plant a striking and pleasing character. This plant will be well adapted from its graceful, trailing character, for ornamental suspended baskets and vases, or it is very pretty when grown as a trailing plant in pots. 7*s.* 6*d.* each; fine specimens 21*s.* each.

RHODODENDRON BLUMEI, OR "ALBUM OF BLUME."—This interesting and beautiful Greenhouse species was first introduced in a living state from Java by our Collector, although named "Album" by Dr. Blume, when he discovered it on the Salak Mountains in Java, which term was doubtless, as Sir William Hooker has observed, only used "in comparison with the rich orange or red of the other Javanese species, known to that botanist," as the blossoms are of a delicate lemon colour, and freely produced on small plants. It is figured in "Curtis's Botanical Magazine" for March 1857. 63*s.* each.

GARDENIA PLANTII.—This handsome species has been sent from the Zulu Country, Southern Africa, by Mr. Plant, who in his description thus speaks of it:—"A fine bush, having large bell-shaped white blossoms, which are very sweet, and produced in great profusion." 21*s.* and 42*s.* each.

RHYNCOSIA VOLUBILIS.—This charming Stove Creeper, introduced from Sierra Leone, will make a pleasing change in our Hothouse Climbers, as the plant has nice foliage, and produces freely fine racemes a foot long, densely covered with purple and lilac pea-shaped flowers. 21*s.* each.

AZALEA INDICA PRINCESS ROYAL.—A very handsome Indica variety; colour soft lake, with a dense vermilion blotch; flowers freely produced, of good form and substance, excellent habit; this splendid variety has been raised by an amateur, and the entire stock purchased by us. 21*s.* each.

RHODODENDRON TUBÆFLORUM.—For the introduction of this very distinct species we are indebted to our collector, Mr. John Henshall, who found it on the Talaga-Warna Mountain, western part of Java; it is of a very dwarf compact habit, and distinct from any other species, producing freely clusters of tubular rosy purple flowers. 63*s.* each.

GERANIUM PRINCESS ALICE.—A handsome and distinct variety of the scarlect section; colour vivid carmine, peculiarly shaded with scarlet, and producing fine large trusses of bloom. The entire stock of this variety has been purchased by us from an amateur. 5*s.* each

GERANIUM KENTISH HERO.—We have purchased the entire stock of this superb scarlet Geranium from Mr. Johnson, of Dover; it was awarded a label of Commendation by the National Floricultural Society, for its dazzling brilliancy and superior merits as a bedding Geranium. 5*s.* each.

LOBELIA GEM.—This desirable herbaceous plant, either adapted for bedding or grouping in masses, will be esteemed a favourite in this handsome class; the colour being very distinct, of a bright violet, with white lip. The entire stock of this and the following variety we purchased from the Messrs. L. J. Makoy, of Liège. 7*s.* 6*d.* each.

LOBELIA FLORETTA.—A pretty herbaceous variety of excellent habit, equally suitable as the preceding for bedding or grouping purposes; colour bright blue. 5*s.* each.

ARDUINIA GRANDIFLORA.—A valuable Exotic Fruit, sent by Mr. Plant from the Amatingala Country, Southern Africa, and thus described by him:—"A handsome evergreen shrub that will amply repay cultivation, either as an ornamental plant, or for its flowers or fruit; it has white sweet blossoms, similar to a gigantic Jessamine, followed by richly flavoured crimson fruit; the plant has been named by Professor Bojer, and pronounced by him to be vastly superior and distinct from Arduinia bispinosa." 21*s.* and 42*s.* each.

AZALEA MAGNIFICA.—This superb hardy hybrid will be found a great acquisition to this valuable tribe; it is much superior to any of its progenitors, having trusses of blossom equal in size to that of a Rhododendron: colour of the top petals rich amber, lower delicate blush, suffused with pink. 21*s.* each.

IXORA AFFINIS.—A handsome pink flowering species, perfectly distinct from any other, discovered by our collector on the plains of Lebak, Java,; the blossoms are produced in large trusses, and like most of this family in the greatest profusion. 21*s.* each.

SOLANUM AFRICANUM.—A very ornamental climbing Stove species, the foliage being dark green on the surface, and underneath of a beautiful bright violet crimson, which gives the plant as a creeper a very distinct and striking character. 15*s.* each.

GREVILLEA ELEGANS; OR, "DALLACHII," OF MUELLER.—This extremely pretty species has been raised from seed introduced from New South Wales: it is an elegant little plant, and flowers in a most profuse manner: the blossoms are orange-scarlet, with white apex, tipped with yellow. 21*s.* each.

GONIOPHLEBIUM UNDULATUM.—A magnificent Fern introduced from Java, having long pendent fronds, which hang in the most graceful manner; from which characteristic it is well adapted for suspending in ornamental baskets or vases; the rachis is well furnished with bright green pinnules which are much undulated. 21*s.* each.

AZALEA INDICA VIRGIN QUEEN.—A first-rate useful variety flowering in the most profuse manner; blossoms of good substance, white, with peculiar and very distinct glossy sulphur marking on the top petals. 10*s.* 6*d.* each,

NIPHÆA ANÆCTOCHILIFOLIA.—A very pretty species introduced by M. Warczewicz, the well-known botanist and traveller; the foliage is very ornamental, similar in appearance and beauty to that of an Anæctochilus, of an olive-green colour, and distinctly marked with silvery white veins; the blossoms are of snowy whiteness, and produced in great profusion. 10*s.* 6*d.* each.

NEW GLOXINIAS.

FLORENCE (not erect flowering), tube and lobes pure white, throat pale sulphur, bluish carmine encircling the mouth, a very pretty distinct variety. 7*s.* 6*d.* each.

ECLIPSE (not erect flowering), white tube, stained inside with rick lake, lower part spotted and shaded with blue, white lobes. 7*s.* 6*d.* each.

EVANGELINE (not erect flowering), tube and lobes blush white, with pink belt round the throat; very delicate and pretty. 7*s.* 6*d.* each.

AMABILIS (not erect flowering), tube and lobes white, with an azure zone at the mouth of the tube; very striking. 7*s.* 6*d.* each.

PRESIDENT (erect flowering), tube white outside, and darkly shaded with purple inside; lower part of the throat much spotted, white lobes, a fine bold flower. 7*s.* 6*d.* each.

MINERVA (erect flowering), pure white tube, lobes rosy lake, throat shaded with blue, a beautiful variety. 7*s.* 6*d.* each.

The following is a list of NEW and GOOD PLANTS, selected from our general stock of novelties, that have been recently introduced by us and other horticulturists it contains the new Plants imported from foreign growers, many of which we have proved to be of sterling merit; and we also include in this list a few new Plants of especial merit that we have imported from foreign horticulturists during the present year.

CITHEROXYLON CYANOCARPUM.—A neat and compact new hardy shrub from Bolivia, resembling in foliage Mitraria coccinea; the flowers are succeeded by fruit of a blue colour, which renders the plant very interesting. 10*s.* 6*d.* each.

ACACIA ERIOCARPA.—This pretty greenhouse plant, to which we draw particular notice, is the best of its family, much more handsome than A. grandis; deep golden colour, free flowering, and good habit. 15*s.* each.

BEGONIA RICINIFOLIA MACULATA.—An extremely handsome species, and a great addition to our variegated plants; foliage bright green, beautifully and distinctly marbled with brown; a plant that should be in every collection where ornamental plants are grown. 15*s.* each.

ARALIA RETICULATA.—A plant that will rank foremost in the ornamental section; foliage undivided, a foot long, deep green with white midrib, and prettily interlaced with white throughout. 63*s.* each.

SEEMANNIA TENUIFOLIA.—A pretty and desirable stove plant; blossoms orange and scarlet, produced freely in terminal bunches. 5*s.* each.

BIGNONIA ROLLISSONI.—A first-rate stove climber from Brazil; the blossoms are of a bright golden colour, tipped with white, which make a pleasing and striking contrast; the plant is of good habit, and the flowers freely produced in bunches. 21*s.* each.

CASTANEA CHRYSOPHYLLA. "THE GOLDEN CHESTNUT OF CALIFORNIA."—This extremely interesting, hardy, and magnificent evergreen shrub, we have much pleasure in offering as a great novelty; as an ornamental plant, it will rank foremost among our evergreens; any description we may give of this beautiful plant would but imperfectly convey a true representation of its character; the foliage is of a dark green on the upper surface of the leaves, and the under part of a beautiful golden colour, which gives to the plant a most remarkable feature. 63*s.* each.

MELASTOMA ATROPURPUREA.—One of the handsomest of the Melastomaceous family, possessing fine foliage, and producing its large flowers freely, which are from 2 to 3 inches in diameter, of a rosy-lilac colour; a very desirable stove species. 10*s.* 6*d.* each.

AZALEA INDICA MADAME MIELLEZ.—A really good continental variety, white, striped with purple; the best we have seen of its class. 7*s.* 6*d.* each.

THUJA CAUCASICA (TRUE).—This rare species is deserving of especial attention, being one of the most handsome of our thoroughly hardy Coniferæ; it is quite distinct and different to the plant received from the continent under the above name. 21*s.* each.

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour: altogether this is a very distinct variety. 15*s.* each.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower, and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first Seedling Prize at the Royal Botanic Gardens, 1852. 21*s.* each.

BIOTA FRENELLOIDES.—This elegant plant will rank foremost among our hardy Ornamental Coniferæ; good habit, and neat compact growth. 10*s.* 6*d.* each.

MELASTOMA DENTICULATA.—A pretty stove species, with white blossoms, slightly tinged with rose. 5*s.* each.

TRADESCANTIA DISCOLOR, FOLIIS VARIEGATIS.—An exceedingly ornamental variegated Stove Plant; the surface of its foliage is green, and lined down the centre with yellow, the under part of the leaves being of a rich plum colour. 21*s.* and 31*s.* 6*d.* each.

THUNBERGIA LAURIFOLIA.—A splendid free flowering species, the blossoms are an immense size, persistent, and produced in bunches, or racemes 1 foot long. This is a striking plant, grown either as Stove Climber or for Exhibition purposes. 10*s.* 6*d.* each.

CLEMATIS GUASCOI.—A very fine Hybrid variety, perfectly hardy, flowers freely, blossoms of a rich violet blue colour. 7*s.* 6*d.* each.

CLEMATIS LEPTOPHYLLA.—This unique hardy species is very pretty, and totally different to any other of the family. 10*s.* 6*d.* each.

ACALYPHA COLORATA.—The colour of the foliage of this plant renders it peculiarly interesting and ornamental, being of a bronzy crimson colour. 10*s.* 6*d.* each.

AZALEA INDICA SEBASTOPOL.—Nice compact habit, blossoms orange scarlet of excellent form, a pretty and pleasing variety. 10*s.* 6*d.* each.

CUPRESSUS LAWSONIANA.—This elegant plant is quite hardy, very glaucous and graceful in its habit, and of the highest ornamental character. 21*s.* each.

ARCTOSTAPHYLOS CALIFORNICA.—A new and distinct species, which has proved quite hardy, and therefore an acquisition. 10*s.* 6*d.* each.

PASSIFLORA PANAMENSIS.—We have much pleasure in being able to offer this rare and beautiful stove species: the blossoms are scarlet, and produced in great profusion; good habit. 21*s.* each.

PASSIFLORA IMPERATRICE EUGENIE.—A handsome free flowering Greenhouse variety; outside of the petals white, inside rose; filaments dark chestnut at the base, white midway, upper part indigo blue, shading to white at the extremity; sweet scented. 10*s.* 6*d.* each.

GYNOXIA FRAGRANS.—Stove Climber, free flowering, blossoms yellow, and deliciously fragrant. 21*s.* each.

HOYA GRANDIFLORA.—This beautiful species was first discovered in the dense forest near the shore of the island Næsa Kambangan, to the south of Java, and forwarded to us by our collector, Mr. John Henshall; the flowers are equal in size to H. imperialis, but of a pure white; the foliage elliptic and slightly lanuginous. 42*s* each.

RHODODENDRON COCCINEUM PUNCTATUM.—This peculiar, free flowering variety will be a desirable addition to our thoroughly hardy kinds; the habit is good, colour a crimson scarlet, and the flowers are richly spotted on all the petals, after the style of an Alstrœmeria. 15*s.* each.

RHODODENDRON INCOMPARABILE.—A useful hardy and very late blooming kind, with noble trusses of finely shaped bright red blossoms. 15*s.* each.

RHODODENDRON STAMFORDIANUM.—This variety is an immense acquisition, possessing all the sterling qualities which constitute a good Rhododendron, being perfectly hardy late, and a profuse bloomer; colour crimsonish purple, with intense black marking on the upper petals, which renders it extremely attractive. 31*s.* 6*d.* each.

RHODODENDRON PAVONIUM.—A very conspicuous, late, and free blooming hardy variety, of a deep blush colour, and rich dark blotch on the upper petals, similar to a Geranium. 15*s.* each.

RHODODENDRON CLOWESIANUM.—A free flowering thoroughly hardy kind; the blossoms are pure white, of exquisite shape, and the upper petals are strikingly marked with dark spots. 10*s.* 6*d.* each.

AZALEA HARTNELLI.—A new hardy variety that blossoms freely, with very large trusses; the flowers individually are also large and well formed; the colours are pleasing and distinct from other existing varieties; top petal yellow, all the other petals of a light orange, peculiarly shaded with scarlet, and spotted in a remarkable manner with brown at the base. 15*s.* each.

MESSRS. WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and the Trade, that their CATALOGUE for 1857, containing NEW and RARE PLANTS only will be ready about the third week in June, and after that time will be forwarded on application, and on receipt of three postage stamps. It will contain upwards of 300 New Plants, in species, and varieties, many of which can now be seen in blossom at

THE NURSERIES, TOOTING, LONDON.

SHOW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, offers the below-named set of 24 DAHLIAS in strong plants, for 12*s.*, hamper and package free:

Admiration	Jonas	Pre-eminent
Amazon	Lord Bath	Port Royal
Annie Rawlings	Louisa Glenny	Ringleader
Comet	Miss Frampton	Ruby Queen
General Canrobert	Miss Herbert	Scarlet King
General Faucher	Mrs. Rawlings	Sir R. Whittington
Goldsmith	Mr. Seldon	Spot
John Keynes	Pigeon	Triomphe de Roubaix

	Per doz.—*s. d.*		Per doz.—*s. d.*
Fine Phloxes, including Countess of Home	.. 8 0	Scarlet Geraniums..	.. 4 0
Fine Show Pansies	.. 4 0	Bedding Calceolarias	.. 4 0
		Belgian Daisies ..	.. 4 0

Hamper and package free.

Pansy Seed from the best Show Flowers, 1*s.* and 2*s.* per packet.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, (Belgium), can now send out the following new plants:

STOVE PLANTS.

Gesneria egregia (see Illustr. Hort.)	7*s.* 6*d.*
Tradescantia discolor lineata	7 6

GREENHOUSE PLANTS.

Clematis Guascoi (see Illust. Hort.)	7 6
Passiflora Empress Eugenie	5 0
Petunia Inimitable, the finest fancy Petunia yet raised, and will be shortly figured in L'Illust. Hort.	3 6

HARDY PLANTS.

Gaillardia grandiflora, strong plants	5 0
Potentilla Mulleri	5 0
Pyrus Mallardi	7 6

R. SILBERRAD, Agent, 5, Harp Lane, Great Tower Street.

THE DAHLIAS FOR 1857.

CLARKE AND CO., SEEDSMEN & FLORISTS, 86, High Street, Borough, London, S.E., beg to intimate they have on sale a first class collection of DAHLIA PLANTS, which will be found as hitherto true to name. Catalogues are now published, and will be forwarded to any part free on application. Special care is taken in packing the plants, so as to insure their safe arrival to the most distant parts. Amongst the varieties sold by C. & Co., at 10*s.* per dozen, will be found the following rarce and first-rate kinds, viz.:—Lord Palmerston, Colonel Wyndham, Lollipop, Captain Ingram, Duchess of Wellington, Perfection, Yellow Beauty, Magicienne F, Inimitable F, Enchantress F; and the 4*s.* per dozen comprise such good old kinds as the following, viz., Pre-eminent, Annie, Admiral Dundas, Salvator Rosa, Lord Bath, Empress, Lady Folkstone.

Choice Bedding Plants from 3*s.* per dozen.

ORCHIDÆ.

A SMALL COLLECTION of very choice ORCHIDS to be disposed of by Private Contract, consisting of—

Ærides	Calanthes	Odontoglossum
Angræcums	Dendrobiums	Oncidiums
Chysis	Lælias	Phalænopsis
Cœlogynes	Lycastes	and
Cattleyas	Miltonias	Saccolabiums,

in all about 181 Lots of the very best varieties in cultivation, a selection carefully made by a gentleman of great experience during the last 10 years; they are clean, healthy, and in fine condition.—For further particulars apply to Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW BEDDING PLANTS.

MESSRS. ARTHUR HENDERSON AND CO.'S CATALOGUE OF SOFT-WOODED AND OTHER PLANTS is now ready, and can be had on application to them. It contains a descriptive list of the most approved varieties of

Antirrhinums	Fuchsias	Petunias
Calceolarias	Geraniums	Phloxes
Carnations	Heliotropes	Picotees
Chrysanthemums	Hollyhocks	Pinks
Cinerarias	Lantana	Salvias
Dahlias	Lobelias	Verbenas

Also a separate List of the novelties for this season, including the new Dwarf White Bedding Dahlia, the new Muscat Hamburgh, the Golden Hamburgh, and the Bowood Muscat Grapes; specimens of new Holland Plants; an epitome of Stove Plants; Ferns and Greenhouse Plants, Ornamental Climbers, Variegated Plants, Miscellaneous Plants for the Open Border, and the new Yellow Tea Rose "Isabella Gray."

Pine-apple Place, Edgware Road, London, W.

NEW SCARLET GERANIUM JOHN COWAN.—This very handsome and distinct dwarf Scarlet Geranium was raised by Mr. John Cowan, of Calke Abbey, and is far superior to any of the dwarf bedding varieties of the Tom Thumb class. It has a compact short-jointed habit, is a profuse bloomer, having beautiful round flowers, of a large size and great substance, and of a soft and pleasing tint of scarlet. The foliage being particularly round, small, and neat, renders this Plant one that can be recommended as a desirable novelty for the coming summer. Price 3*s.* 6*d.* each, or 40*s.* per dozen; to be had of ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

NEW DWARF WHITE DAHLIA.

THIS exquisite very dwarf free flowering DAHLIA will be hailed as a valuable addition to our bedding collection. It grows from 2 to 2½ feet high, throwing its snow white flowers, which are of a large size, well above the foliage in prodigious quantities and of fine form. Those who visited the beautiful Gardens at Trentham, during the summer of 1856, must have been highly gratified with the effect produced by this gem. Mr. Fleming, the gardener at Trentham, thus speaks of it:—"Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens."—Strong plants can now be had on application to

Messrs. ARTHUR HENDERSON & Co., Pine-apple Place, Edgware Road, London, W.

PLANTS OF DRUMHEAD & EARLY CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, & CAULIFLOWER.

JOHN CATTELL has a plentiful supply of the above, which he will forward to order on receipt of postage stamps or post office order made payable here at the following prices, carriage included. Autumn sown Drumhead, Savoy, and early Cabbage, 4*s.* 6*d.* per 1000; Spring sown Drumhead, 3*s.* 6*d.* per 1000. All the sorts of spring sown early Cabbage, Savoy, and Kail, including Brussels Sprouts, 6*d.* per 100, 4*s.* 6*d.* per 1000. All the sorts of autumn and spring Broccoli and bedded Celery 6*d.* per 100, 5*s.* 6*d.* per 1000. Early and late Cauliflower and Red Pickling Cabbage, 10*d.* per 100. Packages containing plants to the value of 1*l.* and upwards will be delivered carriage free to the Borough, London, or to the Edenbridge Station of the South-Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of Cattell's Early Dwarf Barnes, and of his superior Early Dwarf Reliance Cabbage, may be had as usual in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.

Nurseries, Westerham, Kent.

WELLINGTONIA GIGANTEA,

THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH GRAPE.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, begs to intimate that he will commence sending out plants of the above SPLENDID NEW GRAPE on the 15th June next, strictly in the rotation in which they have been received. Price 21*s.* per plant; one over on three to the trade; with special terms when 25 and upwards are ordered at the same time.

Ample descriptions of this really distinct and desirable acquisition have appeared in former advertisements, but to those who may desire it full particulars will be sent on application.

The following nurserymen, having given orders for plants, will be able to supply them, to their customers TRUE TO NAME **after the 15th inst.**

Austin & M'Aslan, Messrs., Glasgow, N.B.
Backhouse, Messrs. & Son, York
Balfour, Mr., Newcastle-on-Tyne
Barnes, Mr. Thos., Thirsk, Yorkshire
Barnes, Mr. W., Camden Nursery, Camberwell
Barratt, Mr., Wakefield, Yorkshire
Buist, Mr. Philadelphia, U.S.
Cutbush, Mr. W., Barnet, Herts
Dickson, Messrs. F. & A., Manchester
Dickson, Messrs. Jas. & Sons, South Hanover Street, Edinburgh
Dickson & Turnbull, Messrs., Perth, N.B.
Dreghorn & Aitken, Messrs. Kilmarnock, N.B.
Edwards, Mr. Jos., Bloxwich, Walsall
Ferguson, Mr., Philadelphia, [U.S.
Fisher, Holmes & Co., Messrs., Sheffield
Fraser, Messrs. J. & J., Lea Bridge Road, Leyton, Essex
Garaway, Mayes, & Co., Messrs., Bristol
Glendinning, Mr., Chiswick, Middlesex
Gould, Mr. Jno., Rose Cottage Nursery, Redditch
Graham, Mr., Chichester, Sussex
Griffin, Mr., Bath
Henderson, Messrs. A. & Co., Pine-apple Place, Edgeware Road, London
Henderson, Messrs. E. G. & Son, Wellington Nursery, St. John's Wood, London
Hirst, Mr., Ashton-under-Lyne
Jackman, Mr., Woking, Surrey
Keynes, Mr., Salisbury, Wilts
Kinghorn, Mr., Richmond, Surrey
Lane, Messrs. & Son, Berkhampstead, Herts
Lawson & Son, Messrs., Edinburgh
Lee, Messrs. J. & C., Hammersmith, near London
Low, Messrs. & Co., Clapton, near London
Meredith, Mr., Garston, near Liverpool
Niven, Mr. N., Garden Farm, Dublin
Noble, Mr., Bagshot, Surrey
Osborn & Son, Messrs., Fulham, near London
Paul & Son, Messrs., Cheshunt, Herts
Perkins, Mr., Northampton
Penyon, Messrs., Walham Green, Middlesex
Rivers, Messrs., Sawbridgeworth, Herts
Rollisson & Son, Messrs., Tooting, Surrey
Standish, Mr., Royal Nursery, Bagshot
Sutton, Messrs. & Sons, Reading, Berks
Turner, Mr. C., Royal Nursery, Slough
Veitch, Messrs. & Son, Exeter
Watson, Mr., Ealing, Middlesex
Wheeler, Mr., Warminster, Wilts
Wood, Messrs. & Son, Maresfield, Uckfield, Sussex

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS

OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in mahogany case, with three powers, condenser, pincers, and two slides, will show the animalculæ in water, Price 18*s.* 6*d.*—Address JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

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BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

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THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4	10*s.* per 100 feet.	8 by 6	12*s.*
6½ by 4½		9 by 7	
7 by 5		9½ by 7½	
7½ by 5½		10 by 8	
10½ by 8½	14*s.*	12 by 10	14*s.*
11 by 9		13 by 10	
11½ by 9½		14 by 10	
12 by 9		15 by 10	
19 by 12	16*s.*	20 by 13	
20 by 12		20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

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Hartley's Patent Rough Plate Glass, ¼ to $\frac{3}{16}$ and ⅛-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

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Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot		Per 10 feet.
	Under	6 by 4	at	1½*d.*	is	£0 12 6
From 6 by 4	,,	7 ,, 5	,,	2*d.*	,,	0 16 8
,, 7 ,, 5	,,	8 ,, 6	,,	2¼*d.*	,,	0 18 9
,, 8 ,, 6	,,	10 ,, 8	,,	2½*d.*	,,	1 0 10
,, 10 ,, 8	,,	12 ,, 9	,,	2¾*d.*	,,	1 2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3¼*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3½*d.* to 7½*d.* ,, ,, ,,

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 55, Soho Square, London.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDENS, JUNE 3 and 4, 1857.

AWARD OF THE JUDGES.

Section I.—ORNAMENTAL PLANTS.

15 MIXED STOVE AND GREENHOUSE PLANTS, in flower.
PRIZE.
1st, Mr. Dods, Gardener to Sir John Cathcart, Bart., F.H.S.
2d, Mr. Green, Gardener to Sir E. Antrobus, Bart., F.H.S.
3d, Mr. W. Taylor, Gardener to J. Coster, Esq., Streatham
(Extra ditto) Mr. Barter, Gardener to A. Basset, Esq., Stamford Hill
(Extra ditto) Mr. Rhodes, Gardener to P. Philpott, Esq., Stamford Hill

10 MIXED STOVE AND GREENHOUSE PLANTS.
1st, Mr. Peed, Gardener to T. Treadwell, Esq., Lower Norwood
2d, Mr. Carson, Gardener to W. F. G. Farmer, Esq., Nonsuch Park, Cheam
3d, Mr. W. Cutbush, F.H.S., Nurseryman, Barnet
(Extra ditto) Mr. R. Baxendine, Gardener to W. H. Smallpiece, Esq., Ridinghurst, Surrey

6 MIXED STOVE AND GREENHOUSE PLANTS.
1st, Mr. Dods
2d, Mr. Rhodes
3d, Mr. J. Peed, Gardener to C. S. Gabriel, Esq., Streatham
(Extra ditto) Mr. W. Cutbush, F.H.S.

15 ORCHIDS (Amateurs).
1st, Mr. C. Pilcher, Gardener to S. Rucker, Esq., F.H.S., Wandsworth
2d, Mr. W. Gedney, Gardener to W. Ellis, Esq., Hoddesdon, F.H.S.
3d, Mr. S. Williams, Gardener to C. B. Warner, Esq.

10 ORCHIDS (Amateurs).
1st, Mr. Carson, Gardener to W. F. G. Farmer, Esq., F.H.S.
2d, Mr. Keele, Gardener to J. Butler, Esq., Woolwich
3d, Mr. S. Woolley, Gardener to Henry Bellenden Ker, Esq., Cheshunt

6 ORCHIDS (Amateurs).
1st, Mr. R. Grix, Gardener to Mrs. Palmer, Cheam
2d, Mr. Barter, Gardener to A. Bassett, Esq.
3d, Mr. Woolley, Gardener to H. B. Ker, Esq.
4th, Mr. Dods, Gardener to Sir John Cathcart, Bart., F.H.S.

15 ORCHIDS (Nurserymen).
1st, Messrs. J. Veitch
2d, Messrs. Jackson
3d, Mr. Parker, Paradise Nursery, Holloway

10 CHINESE AZALEAS.
1st, Mr. Green
2d, Messrs. Lane & Son, Nurserymen, Great Berkhampstead
3d, Messrs. Ivery & Son, Nurserymen, Dorking and Reigate
(Extra ditto) Mr. Peed, Gardener to T. Treadwell, Esq., Lower Norwood

6 CHINESE AZALEAS (Amateurs).
1st, Mr. Carson
2d, Mr. W. Taylor
3d, Mr. Green
(Extra ditto) Mr. Rhodes

PRIZE. 8 ROSES IN POTS (Amateurs).
1st, A. Rowland, Esq., F.H.S., Lewisham
2d, Mr. Terry, Youngsbury
3d, Mr. W. Mortimer, Gardener to J. R. Scott, Esq., F.H.S., Hornsey

12 ROSES IN POTS (Nurserymen).
1st, Messrs. Lane & Son
2d, Messrs. A. Paul & Son, Nurserymen, Cheshunt

6 CAPE HEATHS.
1st, Mr. Peed, Gardener to T. Treadwell Esq.,
2d, Mr. W. Taylor
3d, Mr. W. Cutbush
(Extra ditto) Mr. J. Peed, Gardener to C. Gabriel, Esq., Streatham
(Extra ditto) Mr. Rhodes

8 PELARGONIUMS (Amateurs).
1st, Mr. Wiggins, Gardener to E. Beck, Esq., F.H.S.,
2d, Mr. Nye, Gardener to E. Foster, Esq., Clewer Manor, Isleworth
3d, Mr. J. Windsor, Gardener to C. Cannon, Esq., Hampstead
Commended) Mr. J. Weir

12 PELARGONIUMS (Nurserymen).
1st, Mr. Turner, F.H.S.
2d, Messrs. Dobson
3d, Messrs. Fraser
(Commended) Mr. Bragg

6 FANCY PELARGONIUMS (Amateurs).
1st, Mr. Bousie, Gardener to the Right Hon. H. Labouchere, Stoke Park, Slough
2d, Mr. Windsor
3d, Mr. Weir

8 FANCY PELARGONIUMS (Nurserymen).
1st, Mr. Turner, F.H.S.
2d, Messrs. Fraser
3d, Mr. Bragg

RHODODENDRONS, in Sixes.
1st, Mr. Standish, Bagshot
2d, Mr. C. Noble, Bagshot

RHODODENDRONS, Sikkim and Bootan kinds.
2d, Messrs. Jackson
3d, Messrs. Cutbush

20 VARIEGATED PLANTS.
1st, Messrs. Veitch
2d, Mr. Parker
3d, Mr. Bye, Gardener to G. S. Wintle, Esq., Hucclecote
3d, Messrs. Jackson
3d, Mr. Cutbush
Certificate, 1st class, Mr. J. Salter, Hammersmith

PRIZE. 12 PLANTS WITH FINE FOLIAGE.
1st, Messrs. Veitch
2d, Mr. Parker
3d, Mr. Bye, Gardener to G. S. Wintle, Esq.

6 TALL CACTI.
1st, Mr. Mortimer, Gardener to J. R. Scott, Esq., Hornsey
2d, Mr. Green

12 STOVE AND GREENHOUSE FERNS.
1st, Mr. Parker
2d, Messrs. Veitch
3d, Messrs. Jackson

10 LYCOPODS.
1st, Mr. Parker
2d, Messrs. Veitch
3d, Mr. W. Gedney, Gardener to W. Ellis, Esq., F.H.S.
4th, Mr. F. Williams, Gardener to C. B. Warner, Esq., F.H.S.

NEW OR RARE PLANTS, in flower.
1st Class, Messrs. Backhouse, Chysis Limminghi; Messrs. Veitch, a new species of Thibaudia and Rhododendron Veitchi
2d Class, Messrs. Veitch, Ceanothus Lobbi; Pernettya, sp. n. from Patagonia; Mr. Glendinning, Statice macroptera
3d Class, Messrs. Veitch, Grevillea Drummondi; Mr. Cutbush, Eucharis amazonica; Mr. Jackson, Cypripedium hirsutissimum

NEW OR RARE PLANTS, not in flower.
1st Class, Messrs. Veitch, Thujopsis dolabrata and Abies Kæmpferi; Mr. Glendinning, Abies Kæmpferi and Farfugium grande
2d Class, Mr. Glendinning, Aralia papyrifera; Messrs. Veitch, Theophrasta imperialis and macrophylla, Hippomane spinosa, Cissus sp. with purple variegated leaves, and Rhopala Skinneri; Mr. Linden, Cyanophyllum magnificum

NEW GARDEN HYBRIDS.
2d, Messrs. Henderson, St. John's Wood, Gesnera Mitlisii

MISCELLANEOUS.
1st Class Certificate, Mr. Turner, Shrubby Calceolarias
Ditto Ditto Spotted Pelargonium
Ditto Mr. Parker, collection of 10 Plants
Ditto Messrs. Ivery, collection of Azaleas
Ditto Messrs. Veitch, collection of Conifers
Ditto Ditto Anæctochili
2d Class Certificate, Mr. Gedney, Gardener to W. Ellis, Esq., F.H.S., 6 Nepenthes

FLORISTS' FLOWERS.
1st Class Certificate, Mr. Turner, Fancy Pelargonium Acme
Ditto Mr. Wiggins, Gardener to E. Beck, Esq., F.H.S., Fancy Pelargonium The Bride

Section II.—FRUIT.

PINE APPLES, PROVIDENCE AND OTHER LARGE SORTS.
PRIZE.
1st, Mr. T. Bailey, Gardener to T. T. Drake, Esq., Shardeloes, Amersham
2d, Mr. W. Davies, Starch Green

PINE APPLES, JAMAICAS, QUEENS, &c.
1st, Mr. Daniel Clements
2d, Mr. Bray, Gardener to J. B. Lousada, Esq., Peak House, Sidmouth
3d, Mr. D. Price, Gardener to W. Forman, Esq., Penydarren House, Merthyr Tydvil
3d, Mr. Temple, Gardener to the Dowlais Iron Company, Merthyr Tydvil
4th, Mr. W. Davies

GRAPES: Single Dishes, each containing 3 bunches; Black Hamburgh.
1st, Mr. T. Frost
2d, Mr. G. Fleming, Gardener to His Grace the Duke of Sutherland, Trentham
3d, Mr. W. Hill, Gardener to R. Sneyd, Esq., F.H.S.
3d, Mr. Dods
4th, Mr. Tillyard
4th, Mr. Thomson, Gardener to Mrs. Dixon, Stanstead Park
4th, Mr. J. Fleming, Gardener to His Grace the Duke of Sutherland, Cliveden

OTHER BLACK KINDS OF GRAPES.
1st, Mr. W. Hill

MUSCAT GRAPES.
2d, Mr. J. Tegg
3d, Mr. T. Frost

PRIZE. OTHER WHITE KINDS OF GRAPES.
1st, Mr. Busby, Gardener to J. Crawley, Esq., F.H.S.
2d, Mr. Bousie, Gardener to the Right Hon. H. Labouchere, Stoke Park
2d, Mr. G. Fleming, Trentham
3d, Mr. Hutt, Gardener to Miss Burdett Coutts, Highgate

VINES IN POTS; in threes.
1st, Prize, Mr. Ivison
1st, Mr. W. Forsyth, Gardener to Baron Rothschild, Gunnersbury Park
2d, Mr. Risley, Gardener to W. Fane De Salis, Esq., Dawley Court, Uxbridge
3d, Mr. C. Hutt, Gardener to Miss Burdett Coutts, Highgate

MELONS, green or white-fleshed.
1st, Mr. Peter Boreham, Gardener to Sir Fitzroy Kelly, M.P.
2d, Mr. T. Frost
3d, Mr. J. Tegg
3d, Mr. G. Fleming, Trentham

MELONS, scarlet-fleshed
2d, Mr. Munro, Gardener to Mrs. Oddie, Colney House, St. Albans

FIGS, in sixes.
1st, Mr. Ivison
2d, Mr. C. Hutt

8 FRUIT TREES IN POTS (Nurserymen).
1st, Messrs. E. Lane & Sons, Nurserymen, Great Berkhampstead

PRIZE. PEACHES, in single dishes.
1st, Mr. W. Hill, Royal George
2d, Mr. H. Constantine, Gardener to C. Mills, Esq., Hillingdon Court, Royal George
2d, Mr. Fleming, Trentham, Royal George

NECTARINES, in single dishes.
1st, Mr. Busby, Gardener to J. Crawley, Esq., F.H.S., Stockwood Park, Violette Hâtive
2d, Mr. G. Fleming, Trentham, Violette Hâtive and Elruge
3d, Mr. W. Hill, Violette Hâtive

BLACK CHERRIES.
1st, Mr. G. Fleming, Trentham
2d, Mr. J. Fleming, Cliveden, Black Circasian
3d, Mr. Shuter, Heaton Park, Manchester, May Duke

STRAWBERRIES, in single dishes.
1st, Mr. R. Smith, Market Gardener, Twickenham, British Queen
2d, Mr. Dods, British Queen
3d, Mr. W. Dunsford, Chingford, Essex, British Queen
3d, Mr. A. Ingram, British Queen
4th, Mr. J. Frost, British Queen
5th, Mr. Watson, Alice Maude

MISCELLANEOUS.
Extra Prize—£1, Messrs. Spary & Campbell, Brighton
" 10s., Mr. J. Fleming, Raspberries, Cliveden
" 10s., Mr. Ivison, a dish of a quart
" 10s., Mr. T. Williams, Gardener to C. B. Warner, Esq., F.H.S., for a dish of Oranges

Section III.—VEGETABLES.

PRIZE. CABBAGES, in threes.
1st, Mr. J. B. Whiting, Gardener to H. T. Hope, Esq., F.H.S.
2d, Mr. Tillyard; 3d, Mr. Carson

CAULIFLOWERS, in threes.
1st, Mr. S. Snow, Gardener to the Earl de Grey, Wrest Park
2d, Mr. Shrimpton, Gardener to A. Doxat, Esq., Putney Heath

WHITE COSS LETTUCE, in threes.
1st, Mr. S. Snow, Gardener to the Earl de Grey
2d, Mr. Shrimpton, Gardener to A. Doxat, Esq., Putney Heath
3d, Mr. Alfred George, Gardener to William Short, Esq., Barnes

CABBAGE LETTUCES, in threes.
1st, Mr. Snow, Gardener to the Earl de Grey, Wrest Park

KIDNEY BEANS, 100.
1st, Mr. George Munro, Market Gardener, Barnet.

PRIZE. EARLY PEAS, in pod.
1st, Mr. J. B. Whiting, Gardener to H. T. Hope, Esq., F.H.S.
2d, Mr. Bye, Gardener to S. Wintle, Esq., F.H.S.
3d, Mr. Tillyard, Gardener to Viscount Eversley, F.H.S.

ASPARAGUS, 50 heads, not exceeding 8 inches in length.
1st, Mrs. Johnstone, Covent Garden
2d, Mr. S. Snow, Gardener to the Earl de Grey
3d, Mr. Beer, Gardener to Captain Smart, R.N., Chiswick Mall

RHUBARB.
1st, Mr. Roberts, Willesden
2d, Mr. J. B. Whiting, Gardener to H. T. Hope, Esq.

POTATOES, forced, not less than 3 lbs., Kidneys.
1st, Mr. Bailey, Gardener to G. Harcourt, Esq., M.P., F.H.S.
2d, Mr. J. B. Whiting
3d, Mr. Snow

POTATOES, Rounds.
1st, Mr. J. B. Whiting
2d, Mr. Snow
3d, Mr. Garson

PRIZE. CARROTS.
1st, Mr. J. B. Whiting
2d, Mr. Snow

TURNIPS.
1st, Mr. A. Ingram, Gardener to J. J. Blandy, Esq., F.H.S.
2d, Mr. J. B. Whiting

BRACES OF CUCUMBERS.
1st, Mr. George Munro, Market Gardener, Barnet
2d, Mr. T. Frost
3d, Mr. Munro, Gardener to Mrs. Oddie, Colney House, St. Alban's

MUSHROOMS.
1st, Mr. J. A. Watson, Market Gardener, Ealing
2d, Mr. Munro, Market Gardener, Barnet
3d, Mr. Tillyard

SALAD, the best and most varied.
1st, Mr. J. B. Whiting

NEW AND BEAUTIFUL PLANTS.

MESSRS. VEITCH AND SON,

OF THE

ROYAL EXOTIC NURSERIES, EXETER AND CHELSEA,

HAVE much pleasure in now offering for the first time the following novelties, in the selection of which they have been guided solely by the determination of submitting only such Plants as are of general usefulness and sterling merit. Plants will be ready for delivery on and after June 1st.

ADHADOTA CYDONÆFOLIA.

A very pretty stove plant allied to Justicia, and blooming abundantly in the autumn and early winter months; the upper lip of each flower being white, tipped with purple, and the lower one a deep purple with a white stripe down the centre. Its habit is neat, with good foliage, and from its flowering so late in the season it will undoubtedly prove a great acquisition. It is figured in Curtis's "Botanical Magazine" for January, 1857. Price 15s. each.

CORRÆA CARDINALIS.

Decidedly the finest and most brilliant-coloured of the genus. The flowers, which are of a rich bright scarlet, are produced in great abundance during the spring and summer months. It will therefore be a most valuable addition to our early blooming greenhouse plants. Its foliage and habit are both particularly neat and compact. It was awarded a first prize as a new plant in flower at the Crystal Palace, May 24, 1855, and received a similar distinction at the Royal Botanic Society's Exhibition on the 28th May, 1855. It was also awarded a Certificate at the meeting of the Horticultural Society, March 30, and Honourable Mention at Chiswick May 5, 1857. It is described and figured in Curtis's "Botanical Magazine" for April, 1856, and in the "Florist" for August in the same year. This is a first-class plant. Strong established plants, 21s. each.

COLLETIA BICTONENSIS.

This fine and remarkable perfectly hardy Evergreen Flowering Shrub was raised at the seat of the Right Hon. Lady Dover, through whose kind permission the entire stock has been transferred to us by Mr. Barnes, the gardener at Bicton. It is of a compact habit, with foliage of a bright green colour, and producing clear white flowers in masses. It will certainly be a great acquisition to the shrubbery. Strong healthy plants, 10s. 6d. each.

EMBOTHRIUM COCCINEUM.

We have now much pleasure in being enabled to offer plants of this truly beautiful evergreen Proteaceous shrub. It is a native of the Straits of Magellan and Terra del Fuego, and having withstood the severity of the five last winters in the open air without the slightest protection, there can be no doubt as to its being perfectly hardy. It is figured in Curtis's "Botanical Magazine" for June, 1856, and is there described by Sir W. Hooker as "A handsome evergreen shrub, with racemes of the richest scarlet flowers." The foliage is of a deep dark green, and very ornamental. It was awarded prizes at the Crystal Palace in May, 1855, at the Horticultural Society's meeting in June, 1855, and the Crystal Palace in May, 1856. The habit is good, and being a free bloomer it cannot fail to be universally admired. Messrs V. & Son feel justified in particularly recommending this truly beautiful acquisition, which they confidently believe will give general satisfaction. Price 21s. each.

FUCHSIA PRINCESS ROYAL (Veitch).

Rich scarlet tube and sepals, beautifully reflexed white corolla, free bloomer, and undoubtedly the best habit of all the white corolla'd varieties. Price 7s. 6d. each.

HYPERICUM OBLONGIFOLIUM.

This fine species was collected on the hills about Assam by Mr. Thomas Lobb, and is described by Sir W. Hooker as a "most lovely hardy shrub, with evergreen foliage and large handsome yellow blossoms. A native of Northern India, Nepal, and the Himalayas. We think that so ornamental a plant will soon find its way into every garden and shrubbery." The habit is neat and compact, and it is certainly a decided acquisition, being, without any doubt, perfectly hardy. It is well adapted either for a single bush on a lawn or for masses in a shrubbery. Good established plants, 10s. 6d. each.

IXORA ACUMINATA.

A pure white species, decidedly distinct from all others. Its merits and recommendations are—habit and foliage unexceptional, flowers white and sweet-scented, a most abundant bloomer, small plants in 6-inch pots flowering freely. This is a valuable addition to our stove plants. Price 21s. each.

PELARGONIUM QUERCIFOLIUM FLORIBUNDUM (Veitch).

An excellent bedding variety, being of a very dwarf habit, blooming most profusely in small pots, and having the valuable property of retaining its flowers for a length of time. It was exhibited at the Crystal Palace Horticultural Show on the 25th of June, 1856, and awarded the first prize as a seedling for bedding purposes. The flowers are large and round, of a beautiful rose colour, with dark spots in the upper petals. Strong plants, 7s. 6d. each.

RHODODENDRON PRINCESS ROYAL.

We have peculiar satisfaction in stating that our plants of this lovely hybrid greenhouse Rhododendron are now sufficiently numerous to allow of our sending it out. It was exhibited at Chiswick, June 20, 1855, and described by Dr. LINDLEY in a leading article in the *Gardeners' Chronicle* in the following terms:—

"Of real novelties it is impossible not to direct attention in the first instance to the very curious and singularly beautiful Princess Royal Rhododendron, exhibited by Messrs. Veitch. This striking novelty was obtained from the white R. jasminiflorum, by the palest variety of R. javanicum. In form it is intermediate between its parents, but its flowers were a clear pure rose colour."

At this exhibition it was awarded a Large Silver Medal. The habit and foliage are faultless, and it is undoubtedly the gem of this class of Rhododendrons, and worthy of the universal admiration with which it has invariably been regarded.

Good established plants .. .. .. 42s. each.
A limited number of larger ditto .. .. 63s. each.

We have also a few nice specimen plants, of which we shall be happy to furnish a quotation on application.

RHODODENDRON LADY DOROTHY NEVILL (Veitch).

A magnificent late flowering variety, perfectly hardy, blooming at the same time as Lady Eleanor Cathcart, John Waterer, and the other latest kinds. Colour a fine purple, beautifully and plentifully spotted with black. It is certainly a first class Rhododendron. Young plants, 21s. each.

THUNBERGIA LAURIFOLIA.

This is a really very fine stove climber, producing large blue flowers, which are of great beauty, in the early spring. The growth is free and rapid, and it will certainly be a most useful addition to our stove climbers. Good established plants, 10s. 6d. each.

*** The usual allowance of one plant over will be made to the Trade, when three plants are taken; and special Trade Terms may be had for larger quantities. No Trade allowance on less than three plants of a sort.

NEW AND RARE PLANTS.

ABIES KÆMPFERI
(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and twigs are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, vol. i. 255, says, "We have been able to ascertain that the tree is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be considered as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced." Abies Kæmpferi attains the height of 150 feet, perfectly hardy, and is in fact the most valuable tree ever added to the ornamental arboriculture of this country. Mr. Fortune confided the entire stock of this tree to me, and all I possess are offspring. Plants in pots, 21s. each; a few strong plants 12 to 15 feet high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with compound leaves and spines. It is quite hardy, having stood out in my nursery during the last winter without sustaining the least injury. It will form a novel and valuable addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA
(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

TURNIP SEEDS FROM LARGE BULBS.

MESSRS. SUTTON'S TURNIP SEEDS are saved exclusively from fully developed Bulbs, the great advantages of which have been proved for several years past. They can also be recommended with confidence as being genuine unmixed new Seeds as they pass direct from the growers to the retail purchaser. Prices moderate, as see List, which may be had post free. All Seeds delivered carriage free, except very small parcels.

SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE CHAMPION SWEDE.

THE FOUR PRIZE CUPS presented by his Royal Highness Prince Albert to the ROYAL EAST BERKS and the ROYAL SOUTH BUCKS Agricultural Associations in December, 1855, and December, 1856, were gained by our customers, G. Norrington, Esq., Joseph Hobbs, Esq., and John Nash, Esq., for fields of SUTTON'S CHAMPION SWEDE grown from Seed supplied by us. Price of Seed, 1s. per lb. or 50s. per bushel. Every kind of seed required for Farm and Garden at moderate prices. A remittance or reference to bankers requested with orders from unknown correspondents.

Goods delivered carriage-free except small parcels.
Five per cent. discount allowed for cash payments.
J. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.
27, Great George Street, Westminster, S.W.

GRASS SEEDS

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & Son have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

SEEDLING PELARGONIUM.

ISAAC DAVIES has now in flower about a dozen plants of his Seedling; it is a pure white with a small pink spot, a large flower in trusses of from 6 to 11, a most abundant bloomer. The plants are now a mass of flowers. I. D. will be happy to show any person who may favour him with a call his Seedling, and all the leading whites of the day grown under the same circumstances.

Larkfield Nursery, Wavertree, near Liverpool.

The Gardeners' Chronicle.

SATURDAY, JUNE 6, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, June 9—Horticultural ..... 3 P.M.

THE GREAT HORTICULTURAL EXPERIMENT of the season has been tried. The question whether the attractions of Chiswick could be revived has been answered in the affirmative; and those who fancied that the Horticultural Society was dead and buried have met with an agreeable surprise. Never before has a finer or more varied mass of plants been collected on that celebrated ground, nor have they, on any former occasion, been so well displayed. The garden too was in a state of unusual beauty; no late frosts had ruined the tender foliage of spring; the turf was green and soft, gay flowers in abundance met the eye in all directions, and the alterations made with so much taste by Mr. M'EWEN in what is called the American garden, although but six weeks old, were quite in a condition to be appreciated. Rhododendrons and Azaleas were glowing with crimson and yellow and purple and white in all directions, and left no room for doubt, on the part of the most indifferent spectator, that if American plants are to be seen in perfection it is not by crowding them under canvas so as to reduce their beauty to the level of a childish "peepshow," but by displaying them in the free air, to the bright sun, arranged as they would be where Nature is the artist.

The principal changes in the arrangements of the Exhibition were the conversion of the large conservatory into an exhibition hall, and the display of Roses and some other plants without tables. The conservatory was fitted up with stages on each side, between which along the middle passed a gravel walk, ending in a large semicircular mass of noble plants remarkable for their fine foliage, contributed by Messrs. VEITCH. On one side were Orchids in great profusion, among which a collection from Mr. RUCKER, in

wondrous beauty, stood pre-eminent. His Lælia cinnabarina and Lælia purpurata excelled anything we had seen before; while a beautiful specimen of Saccolabium curvifolium, a very difficult plant to manage, and a noble example of that large form of *Aerides crispum* which Dr. Wight calls *Aerides Lindleyanum*, bore testimony to the great horticultural skill of Mr. Rucker's gardener. On the left of the entrance were superb specimens of Ferns, among which we venture to single out *Gleichenia flabellata*, from Mr. Parker, of Hornsey, as the finest species in the garden, or perhaps in cultivation. We did not suppose it possible to have brought the plant to such perfection. In the conservatory, too, were displayed all the new plants of any importance, and among these were some of very unusual interest. First stood the *Thujopsis dolabrata* from Messrs. Veitch, described in last week's columns, and *Abies Kæmpferi*, the Kin-le-sung or Golden Fir of China, from both Messrs. Veitch and Mr. Glendinning, two new hardy trees that claim rank with Abies Douglasi, Pinsapo, Wellingtonia, and the other princes of that noble race. Less interesting than these, only because hardy trees are of more importance than hardy herbaceous plants, were magnificent specimens of that Farfugium grande which we have so often described already as a noble acquisition, placed by Mr. Fortune in the hands of Mr. Glendinning. After these came many fine things, chiefly from Messrs. Veitch, especially an extremely pretty Thibaudia with globular crimson flowers melting into snow white at the tips; a hardy blue Californian Ceanothus called Lobbii, somewhat resembling C. papillosus; Rhododendron Veitchi, the very handsome new species which gained a first class prize in Regent Street a few weeks since; a most beautiful Pernettya, loaded with myriads of white blossoms like little hailstones; and a stately Grevillea called Drummondi: these were in flower. Other novelties, merely shown by Messrs. Veitch for their foliage, were a couple of species of Theophrasta, Hippomane spinosa, and Rhopala Skinneri, capital plants of their class, and a purple leaved variegated twining Cissus which promises well. *Chysis Limminghi*, a very pretty Orchid with white flowers striped with purple, came from Messrs. Backhouse of York, and a large leaved majestic Melastomad called Cyanophyllum magnificum, second to none in beauty, appeared from Mr. Linden.

Roses were disposed under a large tent in circles formed on the lawn, and surrounded by a deep turf border, and the effect thus produced was charming. Let the lovers of florist's Pelargoniums say what they will the "fancies" still stood first in the opinion of spectators; and most beautiful things they were; none however quite so handsome as the new Belgian Avenir must be, if any faith is to be placed in coloured drawings.

Fruit was scanty, but good; and the Vines in pots contributed by Mr. Forsyth, gr. to Baron Rothschild at Gunnersbury, and Mr. Iveson, gr. to the Duke of Northumberland at Syon, gave considerable beauty to the tables. Vegetables, as a branch of the exhibition, were a total failure; although a few good examples were seen among them.

The manufacturers' department conduced, as we always anticipated, very much to the interest of the day. Vases, baskets, and stands filled with gay flowers profusely distributed over and along the principal walks, and richly filled with flowers, produced the happiest effect. Numerous tents, white, grey, striped, and brown, of various patterns, were pitched upon the lawn; while in other places collections of tools, engines, machines, glass ware, protecting materials, beehives, boilers, and all sorts of heating apparatus, cement work, &c., were arranged in groups without cover, or under tents, or in some of the pattern greenhouses erected for exhibition on this occasion. To all these we hope to revert in considerable detail next week. For the present we confine our remarks to the announcement that the general public has free access to the Society's garden for a week, so as to afford ample opportunity for every one to study these manufactured articles, which to be appreciated must be carefully examined; and that a Catalogue,* with full descriptions of most of the articles, is on sale in the garden.

During the afternoon the grounds of Chiswick House, which were in all their beauty, were a scene of great attraction, His Grace the Duke of Devonshire having thrown them open to the Society's visitors with his accustomed kindness and consideration.

* By some accident a pattern Greenhouse, erected by Mr. Freeman, was omitted in this Catalogue, as were a few exhibitors whose lists arrived too late. They are all now included in a supplemental list which is furnished along with the original Catalogue.

As had been previously arranged, the Exhibition remained open on Thursday, for the convenience of those who did not use their tickets on the previous day, and of the purchasers of the lower-priced admissions.

A trial on the Grass lawn of mowing-machines was made yesterday; but at 4 o'clock it was not over. The competitors were Messrs. Green, Shanks, Ferrabee, and Samuelson.

No point in vegetable physiology is of greater interest to gardeners than the influence, if any, of the scion upon its stock; or *vice versa*. It is a common belief that when the graft of one Pear is worked upon the stock of another, neither is the graft influenced by the stock nor the stock by the graft. When a Peach is budded on a Plum the Plum-blood seems not to be mingled with that of the Peach, nor the Peach-blood with that of the Plum. The Peach is a Peach and nothing less; the Plum is a Plum and nothing more.

Is this true? or are we here, as in so many other cases, led astray by our own blindness and inability to see what really exists. Perhaps so.

There is a green Jasmine and a variegated Jasmine. Apart the green is always green. Budded with the variegated sort the whole system of the green sort is tainted, as it were, and breaks out into variegations. There is no conceivable explanation of this indisputable fact, except that the quality inducing variegation has been communicated by the one to the other. It is a true case of vegetable inoculation, using the word in its medical sense. Nor, indeed, can it be otherwise when we consider the facility with which the fluids of plants are transferred from one part to another. We may suppose that variegation is produced by some virus affecting the system of a plant; such a virus, or constitutional peculiarity, whatever it is, is certainly communicable.

A short memorandum by Mr. Purser, in last week's *Chronicle*, has led to these remarks. Everybody now knows that what is called the purple Laburnum, or Cytisus Adami, is a Laburnum that sometimes produces yellow flowers, sometimes purple ones, and sometimes bunches of the dirty yellow colour that would be artificially formed by mixing purple and yellow on a pallet. In Mr. Purser's case the purple Cytisus (Cytisus purpureus) was grafted on the common Laburnum. Widely different as the species are the one takes readily on the other. As soon as the union is effected the sap of the first begins to mingle with that of the second, and in a year or two the Laburnum produces out of its own substance tufts of mere Cytisus purpureus, or bunches of flowers unchanged indeed in size and form but completely altered as to colour.

Here then are two notorious cases, the history of each perfectly ascertained; in one case the sap of a variegated communicates the *variegation* to a green plant; in the other case the sap of a totally distinct species communicates to another not merely colour, but form, size, and every other *specific attribute*. If then, in the two cases before us, such striking changes are producible, we are fully justified in assuming that similar changes, greater or less, will inevitably attend the union of any other two plants. We must regard such changes as resulting from some constant law, although we may continually fail to perceive its presence.

This being the case one of the most important of all inquiries in horticulture is the extent to which the diffusion and blending of the qualities of graft and stock really go. Not that the subject has been hitherto overlooked, but because we have as yet no such precise evidence as is demanded in a question of this degree of importance, gardeners are apt to think that any stock upon which a graft will take is sufficient for this purpose. No greater error could be committed; it has been pointed out in our columns on former occasions; but the practice of disregarding the stock prevails extensively, and no series of experiments, carefully continued and conscientiously recorded, has as yet been brought to bear upon it.

In the *Theory and Practice of Horticulture* (p. 356) the subject has, indeed, been introduced, and some evidence upon it collected, as will appear from the following extract:—

"Since the quality of fruit is thus affected by the stock, it seems allowable to infer that the goodness of cultivated fruits is deteriorated by their being uniformly worked upon stocks whose fruit is worthless; for example, the Almond or the austere Plum can only injure the Peaches they are made to bear, the Crab the Apple, and so on. On the other hand, if trees of excellent quality were used for stocks they ought to improve the fruit of the scion that is worked upon them. Some German writers, proceeding upon such reasoning as this, recommend gardeners to practise the art of 'ennobling' fruit trees by taking the best varieties for stocks instead of the worst; and they assert that, by such means, the excellence of fruit is greatly increased. Treffz is represented by Meyer, as translated in *Taylor's Magazine*, to have made known as long ago as 1803 several instances of ennobling, from which it appears that Apple trees twice ennobled bore fruit of distinguished excellence; Currants and Gooseberries improved after one ennobling, and much more so after the operation had been repeated three and four times. An Apricot is said to have been worked on a Greengage Plum, and a Quince upon the autumn Bergamot Pear; the Apricot became as juicy as the Greengage, and far more delicate; the Quince was much more tender and less gritty."

Is there no one in this country with the necessary leisure and address to verify these statements, which at present stand unconfirmed although uncontradicted. Surely, considering how much hybridising has done for us, the question now proposed, which is second to nothing in importance, can hardly fail to meet with the same zealous and skilful examination.

The crowded state of our columns prevents our giving any detailed account of the Manchester Horticultural Exhibition on the 26th and 27th ult. The local papers describe it as a very successful affair, and the printed list of prizes now before us seems to confirm the statement. The winners were for the most part gardeners within an easy distance of Manchester, Messrs. Lane, Cutbush, & Cole appearing to have been the chief exceptions. We also find that Messrs. Lucombe & Pince of Exeter, Waterer & Godfrey of Knaphill, and Baker of Bagshot, sent collections which must have greatly assisted the display.

VEGETABLE PATHOLOGY. No. CLXII.

271.** Apostaxis (*Gumming*).—Before entering upon the last division of our subject which treats of the Remedial Measures of the Diseases of Vegetables, I shall take opportunity to fill up one or two gaps where better information has been obtained than I possessed at the time when the respective numbers in which they occur were written. In No. 65, for instance, though much information was given relative to the exusion of Tragacanth, there was still much uncertainty as to the origin of the cellular structure which is so conspicuous both in flat and vermiform Tragacanth, and which has been asserted to exist also in Cherry gum. The nature of Tragacanth is not, however, to be ascertained from the gum itself. It is necessary to examine the stems which produce it, and this Mohl has done with his usual sagacity, and though his materials were not so perfect as might have been wished, he has thrown much light upon the matter. The structure of the gum itself has already been described. I shall therefore pass over that part of Mohl's paper (Botanische Zeitung, Jan. 16, 1857), and proceed to that which treats of the stems from which the gum oozes. The wood of those species of Astragalus which yield Tragacanth presents numerous narrow rings of growth and easily splits longitudinally into thin threads, incloses a slender pith, and is traversed by a moderate quantity of medullary rays, exhibiting nothing peculiar in its structure, nor does the bark, which contains a distinct layer of bast and is covered by a tough cuticle. The pith however and many of the medullary rays present on the contrary a very striking peculiarity. Instead of consisting of thin walled parenchymatous tissue, they offer to the naked eye a hard transparent gummy mass, which swells out when placed in water, and thus when a portion of the stem is cut off gum is seen to project from the exposed medullary rays. When this substance is submitted to the microscope it is found to consist not simply of a uniform gum which has filled up the cavities of the pith and some of the medullary rays, but of the tissues of those organs which have been changed into Tragacanth. In general this change does not involve the whole of the tissues, but principally those which are in the centre, while those which are in contact with neighbouring wood-cells or vascular bundles have thin walls, which become violet on the application of the solution of iodine and chloride of zinc. It appears, moreover, from the structure of these parts in younger branches that the Tragacanth did not originally exist in the tissues, but that it arises from a transformation of the cell walls. Every condition of the cells indeed may be found, from the usual angular form to the rounded almost free cells which are so striking in the gum itself after it has oozed out. The change takes place first in a centripetal direction, for the external surface may sometimes be detected completely changed, while the inner unchanged portion is separated by a neatly defined line. The change in size is very considerable. In *Astragalus denudatus* the diameter of the transformed cells was six times that of the original cells, while in *A. Echinus* it was more than nine times as long. Tragacanth is therefore not simply a secretion of the plant oozing out from its superabundance and dried in the sun or air, much less as Kützing supposes, an autonomous cryptogamic plant, belonging to the race of Fungi; but it arises from the more or less perfect transformation of the tissue of the pith and medullary rays into a gelatinous substance, which causes the cells to swell out on the application of water into

dimensions very far exceeding their original size. As the conditions have never been minutely examined in the countries where Tragacanth is produced, it is not known whether there is only one exusion, or whether it is repeated every year, or what are its effects upon the plant. After the transformation has once taken place, the pith cannot be in a condition to undergo another change, and the same may be said of the medullary rays, except that all of them are not similarly affected at one and the same time. Similar transformations of the cellular tissue are not uncommon in the lower Algæ, and there is much reason to suppose that they exist in the peculiar cellular tissue of many of the higher species. Now that the true nature of Tragacanth is ascertained, we may hope to ascertain what the condition of those Drupaceous plants in which are subject to gumming. The tissues where the gumming takes place are evidently easily separable, as they appear frequently in the gum, and Kützing even figures a cellular structure as in Tragacanth, though this at present requires confirmation. I have for some time been inclined to believe from observation of Apricot shoots in the earliest stage of gumming, that the gum oozes out from the medullary rays, and if so since the affection is for a time partial, it is easy to understand how destructive the process is to those parts of the wood to which it is confined, extending to the very centre and from thence to the woody tissue beneath those parts of the bark and young wood which remain healthy. *M. J. B.*

Home Correspondence.

The Rook a Destroyer of Vermin.—In turning over Yarrell in search of something else, the following notice of my favourite the rook as a locust destroyer presented itself, and I would willingly give him a lift in the right direction if possible, since he is a much persecuted individual. "The balance between injury or benefit derived from rooks by the agriculturist is a question which general opinion seems to have settled by considering that the occasional injury is much more than counterbalanced by the amount of benefit conferred in the consumption of thousands of destructive grubs, of the common cockchafer, the wireworms of several sorts, and as mentioned by Mr. Selby, the larvæ also of the insect commonly known by the name of Harry-long-legs; these and probably many others equally injurious to vegetation are searched for and devoured with avidity, forming a very large proportion of the food of this most numerous species. Early in the morning rooks visit meadow land, while the Grass is yet wet with dew, to break their fast on worms and slugs which the moisture of that period induces to crawl forth. Later in the day they may be seen searching newly ploughed ground for the various insects there exposed, or again visiting pastures for other purposes. Then they are accused of destroying the Grass by pulling it up by the roots; but it has been stated, and I believe truly, that this is an error arising out of the following circumstances. In searching for grubs which are concealed in the earth, and supported by eating the roots of the Grass, the rook pulls at the blade of Grass with its bill, and when the Grass comes up readily the bird knows there are under it insects which have destroyed its roots, and in this way detects them, but if the blade of Grass is firm the rook goes to another part of the ground. In a field where grubs are very abundant the rooks scatter the Grass everywhere, so as to give the appearance of having rooted it up, while they have only exposed the depredations of insects by which the roots have been destroyed. The author of the 'Journal of a Naturalist,' speaking of the readiness with which the rooks detect the places where grubs are sure to be found, says:—'I have often observed them alight on a pasture of uniform verdure, and exhibiting no sensible appearance of feathering or decay, and immediately commence stocking up the ground. Upon investigating the object of their operations, I have found many heads of Plantains, the little autumnal Dandelions, and other plants drawn out of the ground and scattered about, their roots having been eaten off by a grub, leaving only a crown of leaves on the surface." It may readily be supposed that extensive injury at the root of a plant cannot long exist without some alteration in the appearance of the leaves or other parts above ground, and the rooks seem to have learned by experience how to select those plants most likely to afford them recompense for the trouble they take in grubbing them up. Mr. Jesse, in his instructive 'Gleanings,' says:—'A gentleman once showed me a field, which had all the appearance of having been scorched, as if by a burning sun in dry hot weather; the turf peeled from the ground as if it had been cut with a turfing-spade, and we then discovered that the roots of the Grass had been eaten away by the larvæ of the cockchafer, which were found in countless numbers at various depths in the soil. This field was visited by a great quantity of rooks, though there was no rookery within many miles of the neighbourhood, who turned up and appeared to devour the grubs with great satisfaction.' To prove their utility on other occasions two or three quotations from the 'Magazine of Natural History,' among many others, will suffice:—'A flight of locusts visited Craven, and they were so numerous as to create considerable alarm among the farmers of the district; they were, however, soon relieved from their anxiety, for the rooks flocked in from all quarters by thousands and tens of thousands, and devoured them so greedily that they were all destroyed in a short time.' 'It was stated a few years ago that that there was such an enormous quantity of caterpillars upon Skiddaw that they devoured all the vegetation upon the mountain, and people were apprehensive they would attack the crops in the enclosed lands, but the rooks, which are fond of high ground in summer, having discovered them, in a very short time put a stop to their ravages. The attempts occasionally made by man to interfere with the balance of powers as arranged and sustained by Nature are seldom successful.' 'An extensive experiment appears to have been made in some of the agricultural districts on the continent, the result of which has been the opinion that farmers do wrong in destroying rooks, jays, sparrows, and indeed birds in general on their farms, particularly where there are orchards. In our own country, on some very large farms in Devonshire, the proprietors determined a few summers ago to try the result of offering a great reward for the heads of rooks, but the issue proved destructive to the farms, for nearly the whole of the crops failed for three successive years, and they have since been forced to import rooks and other birds to restock their farms with.' A similar experiment was made a few years ago in a northern county, particularly in reference to rooks; but with no better success, the farmers were obliged to reinstate the rooks to save their crops." So much for Yarrell, an undoubted authority on such subjects. The rook has always appeared to me as the parson among birds—he is generally so grave and dignified in all his movements; even when following close upon the footsteps of the ploughman in search of all and sundry that may turn up, he rarely hurries himself much, and if he condescends to hop at all, it is done with an air as if to say "I am somebody"—not the pert, long, saucy jump of the magpie. In a general way the ploughman is lenient to what he calls "dumb animals;" but when seed time comes, or as some call it "seedness," then is there war to the knife between the smockfrock and the black-jacket, and the man of hobnails ensconces behind a bush, and pulls down his reverence at a long shot, yes, and hangs him up by the head or heels *in terrorem* to his brethren, who know full well the difference between a maukin and a reality, for they are wise and long-headed birds, and should any doubts remain on their minds, three or four days will solve the problem, and convince their olfactory nerves that there's something rotten in the state of Denmark, and that some of their *confrères* have come to an untimely end. Many of the farmers now steep their seed Wheat in a pickle of arsenic, which causes wholesale destruction to the rooks and game. I know a friend of mine, who has a large rookery, who picked up a great barrowful of old birds in his grove, all poisoned in the way mentioned, and how many died on the way home no one could tell, but it spoiled our shooting for that season. Many persons turn up their noses at rook, or, as we call it down here, crow-pie, but to show the force of imagination and prejudice, I will just quote a capital trick played by Waterton on two of his friends, who had no doubt been holding forth pretty strongly on the subject:—"We labour under a mistake in supposing that the flesh of the young carrion crow is rank and unpalatable; it is fully as good as that of the rook, and I believe that nobody who is accustomed to eat rook-pie will deny that rook-pie is as good as pigeon-pie. Having fully satisfied myself of the delicacy of the flesh of young carrion crows, I once caused a pie of these birds to be served up to two convalescent friends, whose stomachs would have yearned spasmodically had they known the nature of the dish. I had the satisfaction of seeing them make a hearty meal upon what they considered pigeon-pie." The quotation is from Waterton's Essays on Natural History, heading Carrion Crow. So the sages were beautifully taken in. Introducing so hardy and prolific a bird as the rook into Australia may most materially check the ravages of the locusts, and the familiar caw of the birds to many a one who shall never see his native land again will bring the home of his childhood vividly to his memory, adding one more link between the mother country and her stately colony; for there is very much in association, as witness the incident of the lark in Sir Francis Head's "Emigrant." There is no denying that the rook in hard times does as many higher in authority do, that is, begs leave to bring in his bill (in the Turnip field), for which he often meets with condign punishment. He is essentially an aristocratic bird, taking up his quarters, and not without sufficient cause (for safety), near the lordly castle, mansion, grange, or wherever there are trees stately enough to suit his taste, and to which a goodly rookery gives great dignity, and sorely would it grieve all lovers of Nature that the sage grave bird should be diminished, much less extirpated, from the land he does much to adorn and benefit, which the poisoning of the seed Wheat goes to bring about materially. *F. N., Ludlow.*

Heating and Ventilating.—Among the various modes of heating and ventilating greenhouses, none appears to me superior to that I saw in January, 1803, near Derby. It was invented by Mr. William Strutt for heating his manufactories at Belper, and consisted of a large chamber for the admission of atmospheric air, which was surrounded by a flue so narrow as to require a scraper for cleaning it. I saw this apparatus at work near Derby in a conservatory, in which the plants were remarkably healthy and vigorous. This mode was proved to be economical at Ochta, near St. Petersburg, where a very small quantity of inferior wood sufficed for heating a structure of four stories, each of them upwards of 100 feet in length. It is evident that any required degree of temperature may be attained by the same apparatus, simply by admitting more or less atmospheric air. *M. S. B.*

Night-preying Insects.—In reading your *Chronicle* yesterday I observe an account from a gardener of some insects which he observed on Roses, &c., and which appear to be the same insects that were so destructive to buds and grafts in the year 1801 and nine following years, and which were regularly collected at the Calton Nursery every night during several weeks, until the buds and grafts were out of danger. Curculio was the name they were known by. They were similar in size and shape to those your correspondent describes, but were winged, particularly in the latter part of the season. Ten and twelve hands went out every night to collect them, with a wide-mouthed glass bottle and candle and lantern, always finding them on the tops of the tallest standard fruit trees, but most destructive to the buds and grafts. In the latter years they attacked the young wood of Raspberries, eating them so as to drop the shoots and spoil the crop. A few could be found in the day time at the stems of the plants, but mostly they were either spread or lower down in soil. I was always one who went out every night during the time I have named. *Robt. Fitt.*¶

Grand National Rose-Show.—As I anticipated, I have already received ample proof that my proposition to hold an Exhibition of Roses at some central town may be, so far as funds are concerned, most nobly realised. I have to acknowledge numerous and very liberal offers of pecuniary aid, accompanied by the most genial expressions of sympathy. I only wish that my suggestion had been as warmly seconded, when first made in "The Florist" of April, as it now is when transferred to the *Gardeners' Chronicle*, for we should then have had ample time, as well as ample funds, to make the necessary arrangements. As you suggested, in reply to my letter last week, I now find that, though I should not hesitate to guarantee 100*l.* in prizes, there is not a possibility of appointing committees, central and local, drawing up a schedule, hiring ground, tents, music, &c.; and I therefore propose to postpone our first show to the first week in July, 1858. To prove the zeal with which my project has been welcomed, I may mention that more than one nurseryman has offered a subscription of 5*l.* To these, and to many others, whose letters I may not have answered privately, allow me to tender my true thanks, and to assure them that I have no doubt whatever as to the complete success of a Grand National Rose-Show in the summer of 1858. *S. R. H.*

Laburnum Sports.—As I see you are going to treat on Cytisus, for the mere *chance* of your not knowing the case at Vienna I call to your recollection the account in the "Flora, 1848, p. 26, et seq.," of a well-known commonLaburnum tree, in the Botanic Garden, which suddenly produced, on the same branch and raceme, yellow and red flowers like C. Adami, and one twig of the true Cytisus. Could not this one twig have been grafted or budded by some gardener unknown to Dr. Reissek? The case seems to bear on that at Clapham, if I understand the paragraph. Are the *old* accounts of White-edged Jasmine affecting the stock true? *C. D.* [Yes].

Societies.

CRYSTAL PALACE HORTICULTURAL FETE.—This took place on Saturday last, when the display of plants, whether shown for the beauty of their leaves or flowers, was most extensive. Double benches of them occupied the centre transept, in front of the orchestra, and the nave right and left afforded suitable accommodation for the rest. Nothing could possibly exceed the beauty and charming variety of the fine foliaged plants, of which Messrs. Veitch and Parker had magnificent collections, and of which dense masses lined the tables for 70 yards in length. Orchids, which were as a whole well-flowered and otherwise in excellent condition, occupied more than half that amount of space; and stove and greenhouse plants, to which familiar names were attached and which did credit to their respective exhibitors, filled a stage three rows deep quite 360 feet in length. Of Cape Heaths—all fine specimens—there were not less than 39 yards, Indian Azaleas 71, and Ferns and Lycopods 62. The Azaleas, it may be observed, were here, as at Regent's Park, comparatively small plants; the display they therefore made was not so striking as we have seen it in former years. To this remark, however, the collections of Messrs. Green and Carson formed glorious exceptions; these were large and fine specimens, beautifully flowered. Of what are termed florists' flowers the numbers were also proportionately large. Pelargoniums formed a bank literally covered with flowers 210 feet in length; Fuchsias and Calceolarias filled 138 feet; and of Roses it is impossible to say too much; the whole of the collections, occupying a space some 31 yards in length, consisted of first class plants. The exhibition from Messrs. Paul, especially, was grand in the extreme; it contained kinds widely different from each other in colour, a point too often overlooked by Rose exhibitors in general.

Among what were called new plants Messsrs. Veitch showed some fine things; as did also Mr. Glendinning, Messrs. Jackson of Kingston, Messrs. Henderson, and others; these however, and nearly all the other plants shown on the occasion, were reproduced at Chiswick on Wednesday and Thursday last; a full account of them

will therefore be found in the annexed report of that meeting.

Fruit was shown, but with one or two exceptions it was neither above mediocrity in quality nor quantity. The best Queen Pine, beautifully ripened and finely coloured, but comparatively small, came from Mr. Bailey, Shardiloes. A good Providence was furnished by Mr. Davis, but none of this class of Pines were first rate. Of Jamaicas there were one or two fair fruit. The best Black Grapes (Hamburgh) came from Mr. Frost, gr. to E. L. Betts, Esq., and Mr. Fleming, gr. to the Duke of Sutherland at Trentham. These were both beautiful exhibitions, especially the bunches from Mr. Frost, whose berries were unusually large. Mr. M. Henderson sent some good Grizzly Frontignans. White Grapes were wholly unripe and should have been excluded from receiving prizes. Pot Vines were not good. Of Peaches and Nectarines there were 13 dishes. Mr. Hill showed Royal George Peaches and Violette Hâtive Nectarines; Mr. Busby had some well ripened Elruge Nectarines, and Mr. Constantine Royal George Peaches. Of Cherries Mr. Fleming had fine dishes of Black Circassian, Elton, and May Duke. By far the best Strawberries came from Mr. Smith of Twickenham, who had British Queens which for size and colour could not possibly be excelled. Good examples of Nimrod came from Mr. Turnbull, and Mr. Frost sent Kitley's Goliath, Victoria, and British Queen. We noticed one dish of good Figs from Mr. Hutt, gr. to Miss Coutts. Of Melons there were 15; the best was Bromham Hall. Some good Citronworts were furnished by Mr. Williams, and we noticed some White Raspberries in pots—low bushes well covered with fruit.

Horticultural Garden Exhibition, *June* 3 & 4.—As the leading features of this in all respects excellent display are given in another column, we will at once proceed to particularise the various matters exhibited.

Of collections of 15 Stove and Greenhouse Plants, Mr. Dods had an excellent group. It consisted of—

Adenandra speciosa	Erica depressa
Aphelexis humilis rosea	,, Cavendishi
,, macrantha purpurea	Leschenaultia biloba
Azalea lateritia	,, formosa
,, Gledstanesi variegata	Polygala acuminata
Chorozema ilicifolium	,, Dalmaisiana
Coleonema rubrum	Vinca rosea

Of these the blue Leschenaultia, Erica depressa and Cavendishi were beautiful specimens of their kind; the Azalea Gledstanesi and variegata were also very fine, and the same may be said of the purple Everlasting, which was literally one mass of flowers.

Mr. Green, gr. to Sir E. Antrobus, Bart., was second. His plants were—

Acrophyllum venosum	Erica tricolor Wilsoni
Allamanda cathartica	,, depressa
Aphelexis macrantha purpurea	Pimelea spectabilis
Aphelexis macrantha rosea	Polygala acuminata
Azalea Iveryana	,, Dalmaisiana
,, prestantissima	,, cordifolia
Chorozema Laurenceanum	Rondeletia speciosa
	Stephanotis floribunda

Ivery's Azalea in this collection was a noble bush, covered with purple striped white blossoms; the Allamanda was also well bloomed, its numerous large, rich, yellow flowers contrasting favourably with other colours of a different hue with which they were associated; both the Everlastings were also good plants, as were likewise Erica depressa and the Stephanotis—the last the only good plant of the kind we saw at the whole exhibition.

A collection of 15 Stove and Greenhouse Plants came from Mr. Taylor: they were—

Aphelexis grandiflora	Erica obbata
,, macrantha rosea	Eriostemon buxifolium
Azalea excelsa	Epacris microphylla
,, Beauty of Reigate	Ixora aurantiaca
,, optima	Leschenaultia formosa
Boronia serrulata	Polygala cordifolia
Dracophyllum gracile	Rondeletia speciosa
Erica Candolleana	

One of the most effective plants in this collection was Aphelexis macrantha rosea, which was richly clothed with blossoms of the most showy description. The Orange Ixora though a small plant was also very pretty, and so were the different Heaths and the Azalea Beauty of Reigate, which is one of the handsomest of the light coloured striped varieties.

Mr. Barter had 15 plants. They were—

Allamanda cathartica	Franciscea confertiflora
Azalea Murryana	Ixora crocata
,, lateritia	,, javanica
Chorozema varium elegans	Phaenocoma proliferum
Dillwynia rudis sanguinea	Polygala Dalmaisiana
Erica Bergiana	,, cordata
,, Cavendishi	Pimelea Hendersoni
,, perspicua erecta	

These were noble specimens in point of size, and for the most part finely in bloom. Among them the most conspicuous were Erica Bergiana, which was one mass of small round purple blossoms, and the Java Ixora, whose numerous globular heads of brilliant orange flowers were the admiration of all who saw them. The upright growing variety of Erica perspicua is also a useful and really pretty Heath.

Mr. Rhodes exhibited a group of 15 plants which consisted of—

Adenandra fragrans	Dipladenia crassinoda
Aphelexis rosea grandiflora	Epacris grandiflora
,, spectabilis	,, lævigata
Azalea alba magna	Erica coccinea minor
,, optima	Ixora coccinea
Boronia pinnata	Leschenaultia biloba
Chorozema varium elegans	Tetratheca verticillata
Cyrtoceras reflexum	

These were small plants; but nicely grown.

Collections of 10 Stove and Greenhouse Plants were furnished by Mr. Peed, gr. to J. Treadwell, Esq.; Mr. Carson, gr. to W. F. G. Farmer, Esq.; Mr. Cutbush, Nurseryman, Barnet; Mr. Baxendine, gr. to W. H. Smallpiece, Esq., Ridinghurst, Surrey. Mr. Peed sent—

Aphelexis spectabilis	Leschenaultia formosa
Boronia pinnata	Pimelea spectabilis
Cyrtoceras reflexum	,, Hendersoni
Erioscemon buxifolium	Polygala oppositifolia
Erica ventricosa nana	,, acuminata

These were extremely well grown plants, more especially the Boronia and Hoya-like Cyrtoceras reflexum.

Mr. Carson contributed—

Allamanda cathartica	Ixora crocata
Aphelexis macrantha purpurea	,, coccinea
Azalea variegata	Polygala acuminata
Clerodendron splendens	,, cordifolia
Erica Cavendishi	Rhynchospermum jasminoides

One of the best plants in this group was the scarlet Clerodendron, which was well flowered, a condition in which it is seldom seen; the Allamanda, though good, was not quite at its best; the purple Aphelexis, the yellow Heath, and the variegated Azalea were all noble specimens of their kind.

Mr. Cutbush produced—

Aphelexis humilis	Eriostemon buxifolium
,, sesamoides	Polygala acuminata
Azalea lateritia	,, Dalmaisiana
Boronia tetrandra	Rhynchospermum jasminoides
Erica intermedia	Statice Holfordi

By far the most remarkable plant in this group was the Statice, which was in the most robust health and magnificently flowered; the sweet-scented Rhynchospermum was large and finely flowered; on the Azalea had been worked variegata, the flowers of which mingling with those of lateritia had a fine effect.

Mr. Baxendine showed—

Acrophyllum venosum	Coleonema rubrum
Aphelexis macrantha purpurea	Dracophyllum gracile
Azalea Gledstanesi	Erica Cavendishi
,, carminata	Epacris miniata
Clerodendron Kæmpferi	Stephanotis floribunda

Of these the Dracophyllum and Acrophyllum venosum were both good plants, especially the latter, whose red young leaves and feathery spikes of Spiræa-like flowers place it in the first rank among ornamental plants.

Collections of 6 Stove and Greenhouse Plants were exhibited by Messrs. Dods, Rhodes, Peed (of Streatham), and Mr. Cutbush of Barnet. Mr. Dods had large and fine plants of Leschenaultia formosa, Cavendish Heath, Vinca rosea, Azalea refulgens, the blue Leschenaultia, and an Everlasting. Mr. Rhodes sent Boronia serrulata, Dracophyllum gracile, whose small compact white heads are very useful for bouquets; Eriostemon buxifolium, the buff-coloured Erica Albertus, Dipladenia crassinoda, and Polygala acuminata. The last named plant also came from Mr. Peed, who likewise sent the Oleander-leaved Eriostemon, a yellow Heath, Epacris miniata, Azalea Gledstanesi, and Chorozema cordatum. Mr. Cutbush had Chorozema varium, the blue Leschenaultia, Polygala cordifolia, two of the best varieties of Everlasting, and Erica coccinea minor.

Orchids.—These were numerous, and as a whole as fine as ever we remember to have seen them.

The best collection of 15 plants was shown by Mr. Pilcher, gr. to S. Rucker, Esq. It consisted of—

Aerides crispum	Phalænopsis grandiflora
,, Schröderi	Saccolabium curvifolium
Cattleya Mossiæ	,, guttatum
Cypripedium barbatum	Schomburgkia tibicinis
Lælia cinnabarina	Vanda insignis
,, purpurata	,, suavis
Odontoglossum citrosmum	,, teres
Phalænopsis amabilis	

Some account of the more remarkable plants in this collection will be found in a leading article in another page.

Mr. Gedney, gr. to W. Ellis, Esq., of Hoddesdon, sent

Aerides affine	Phalænopsis amabilis
,, crispum	,, grandiflora
,, roseum	Phaius Wallichi
,, Larpentæ	Saccolabium præmorsum
Calanthe veratrifolia	,, guttatum
Cattleya Mossiæ	Vanda tricolor
Dendrobium macrophyllum	,, insignis

The different kinds of Aerides shown in this group were extremely well flowered, a remark which also applies to the Dendrobium macrophyllum, the Wallich Phaius, and the two White Butterfly plants (Phalænopsis).

Mr. Williams, gr. to C. B. Warner, Esq., contributed—

Aerides Warneri	Oncidium ampliatum majus
,, affine	Phalænopsis amabilis
Cypripedium barbatum	,, grandiflora
Dendrobium nobile cucullatum	Phaius Wallichi
,, macrophyllum	Saccolabium guttatum
,, densiflorum	Sobralia macrantha
	Vanda suavis

The yellow Dendrobium densiflorum in this group was very well flowered; so likewise were the White Butterfly plants, and the large yellow blossomed Oncidium ampliatum.

Messrs. Jackson, of Kingston, sent—

Aerides crispum	Epidendrum prismatum
,, Feildingi	Oncidium leucochilum
,, roseum	Saccolabium retusum
Burlingtonia fragrans	Trichopilia tortilis
Calanthe veratrifolia	,, coccinea
Cattleya Mossiæ	Vanda tricolor
,, ,, maxima	,, ,, flavescens
Dendrobium Devonianum	

Among these the most striking plant was perhaps the charming Dendrobium Devonianum, whose various coloured flowers are very attractive; the Aerides Feildingi and the Moss Cattleyas were also fine specimens.

Collections of 10 Orchids were numerous. The best came from Mr. Carson, gr. to W. F. G. Farmer, Esq. It contained—

Acanthophippium bicolor	Dendrobium Farmeri
Aerides crispum	Epidendrum longipetalum
,, odoratum	Saccolabium guttatum
Cattleya Mossiæ	Vanda teres
Cypripedium barbatum	

Remarkable among these were Dendrobium Farmeri and Cattleya Mossiæ; the former had three new bunches of yellow-spotted cream-coloured flowers, and the latter was literally one mass of blossoms.

Mr. Keele, gr. to J. Butler, Esq., of Woolwich, produced—

Anguloa Clowesi	Epidendrum album
Cœlogyne Lowi	Phalænopsis amabilis
Dendrobium Dalhousieanum	Saccolabium guttatum
,, clavatum	Trichopilia coccinea
Epidendrum macrochilum	Vanda suavis

The Clowes Anguloa in this group, it may be remarked, had five flowers on it—large and fine coloured; the other plants of which the collection was composed were also equally well bloomed.

Mr. Woolley, gr. to H. B. Ker, Esq., sent—

Aerides maculosum	Dendrobium transparens
,, virens	,, nobile
Cattleya Mossiæ	,, Paxtoni
,, intermedia	Vanda suavis
Chysis bractescens	,, insignis

Dendrobium transparens in this collection, though small flowered kind, was very attractive; the comparatively rare Aerides maculosum was also much admired.

Mr. Green also showed 10 plants, among which were good examples of Dendrobium nobile and Oncidium Lanceanum.

In the Nurserymen's Class Messrs. Veitch had the best collection; it was composed of—

Aerides Feildingi	Dendrobium nobile
,, virens	Lælia sp.
,, sp. Veitch	,, purpurata
Calanthe veratrifolia	Phalænopsis grandiflora
Cattleya Skinneri	Saccolabium guttatum
,, Mossiæ	Vanda suavis
Cypripedium barbatum	,, tricolor

Lælia purpurata in this group was a magnificent plant, as was also another species in the same way but with pink instead of deep crimson on the lip; these were deservedly much admired; the Bearded Lady's Slipper was also a beautiful specimen of its kind, and the same may with justice be said of the different Aerides and Phalænopsis. Altogether this collection formed a worthy companion to that from Mr. Rucker.

Mr. Parker showed—

Aerides odoratum	Epidendrum ciliatum
,, crispum	Oncidium Papilio
Calanthe veratrifolia	,, flexuosum
Cattleya Mossiæ	Saccolabium guttatum
Cypripedium barbatum	,, præmorsum
Dendrobium formosum	Vanda Roxburghi
,, nobile	,, suavis

These were well-flowered examples of good Orchid growing.

Collections of six Orchids were contributed by Messrs. Grix, Barter, Woolley, Dods, and Ivison. In these groups we remarked good plants of Oncidium flexuosum and divaricatum, Dendrobium nobile and aggregatum, Aerides crispum and odoratum, the Aloe-leaved Cymbidium, Saccolabium guttatum, Cattleya Mossiæ and Skinneri, the White Butterfly plant, Calanthe veratrifolia, and Brassia caudata.

Fine foliaged plants were shown in admirable condition by Messrs. Veitch. Among them were some noble Palms, Pandanus utilis, Aralia pulchra, Brownea erecta, Theophrastas, more especially one called imperialis with leaves of immense size; Philodendron pinnatifidum, Dracænas of different sorts, among which were D. indivisa and the Dragon tree (D. Draco); the Rice Paper plant (Aralia papyrifera), and other examples of this class of plants scarcely less remarkable. Mr. Parker of Hornsey sent among others several Palms, fine specimens of Dracæna ferrea, Philodendron pertusum, Rhopala corcovadensis, Yuccas, and Araucarias.

Of Variegated plants Messrs. Veitch had a well-varied and beautiful collection. It contained Arundo Donax, Cissus discolor, Crotons of different kinds, Marantas, variegated Aloe-leaved Yucca and Y. quadricolor, Pandanus javanica variegata, Pavetta borbonica, a Sansevieria, Coleus pectinatus and Blumei, Caladiums, Dieffenbachia picta, with white blotched leaves; a variegated variety of Ananassa sativa, and Aspidistra lurida variegata. Mr. Parker showed some good plants in this class; conspicuous among them were Maranta zebrina, Warsewiczi, and lineata rosea, Croton pictum, and others, Cissus discolor, Guzmannia picta, Bromelia sceptrum, Sonerila margaritacea, Dracæna ferrea, different sorts of Yucca, and variegated Orchids.

From Messrs. Jackson, of Kingston, came Pavetta borbonica, Hoya variegata, Tradescantia discolor vittata, Maranta pardina, M. bicolor, and vittata, what was called M. roseo-lineata elegans, and M. albo-lineata; Caladium bicolor superbum, Ananassa bracteata variegata, Saracenia flava, Aspidistra lurida variegata, Croton discolor and variegata, Dracæna ferrea and ferrea variegata, a beautiful plant of Hydrangea japonica variegata; Solanum variegatum, some Bromelias, and Arundo Donax versicolor. The last, although a common plant, was different in form from others with which it was associated, and looked very pretty. G. Wintle, Esq., of Gloucester, and Mr. Cutbush, of Barnet, also showed good collections of Variegated and fine foliaged plants, all well grown, handsome specimens, and hardy variegated plants came from Mr. Salter, of Hammersmith.

Lycopods were numerous, and if possible even more handsome than the Ferns. Mr. Parker had the best specimens, which consisted of L. cuspidatum, uncinatum

natum, Wildenovi, serpens, Mertensi, inæqualifolium, umbrosum, lævigatum, Galeotti, and Schotti. Messrs. Veitch had nice plants of serpens, apodum, the prettiest of the small kinds, cordatum, braziliense, inæqualifolium, the Fern-like umbrosum, formosum, the tall scrambling lævigatum, Wildenovi, and Cæsium, the last with that beautiful blue metallic hue about it which none of the others possess. Other Lycopods were also contributed, but they did not differ materially in kind from those just named.

Of FERNS there was a charming bank. The best came from Mr. Parker, of Hornsey. It contained the admirable Gleichenia flabellata mentioned in another column, Cheilanthes hirta Ellisiana, the slender leaved Davallia, Dicksonia Culcita, Hymenodium crinitum, Cyathea excelsa and medullaris, Pteris scaberula, Platyceriums, Cibotium Schiedei, and other well grown varieties. Messrs. Veitch had Platyceriums, the handsome Gleichenia microphylla, Todea Fraseri, Balantium Culcita, Thyrsopteris elegans, Dicksonia antarctica, Davallia nova zelandica, Gymnogramma peruviana argyrophylla, Adiantum trapeziforme, and others. Among Messrs. Jackson's plants we noticed Gymnogrammas of different sorts, Dictyoglossum crinitum, and Sagenia alata.

AZALEAS were shown largely, but scarcely so fine as we have seen them. In the class of 10 plants Mr. Green produced Juliana and Perryana, two sorts a good deal alike; lateritia, the purple Rawsoni, sinensis, a wonderful plant literally covered with golden blossoms; the white variety of exquisita, Sir Charles Napier, a large salmon kind; purpurea perfecta, coronata, and a white variety of sinensis. Mr. Peed, of Norwood, showed Griswoodi, Glory of Sunninghill, a perfectly double salmon coloured variety, Broughtoni Barclayana, coronata, Symmetry, Iveryana, Conqueror, and magnifica. Messrs. Lane contributed Elise Miellez, Perryana, optima, Double Red, violacea, Broughtoni, conspicua purpurea, triumphans and Chelsoni. From this firm also came some handsome Standard Azaleas, which were much admired. Messrs. Ivery of Dorking showed Iveryana, magnificans, Barclayana, Criterion, coccinea superba, Gledstanesi, variegata, Beauty of Reigate, the charming kind called crispiflora, Gem—a rosy salmon sort of exquisite form and substance, Beauty of Europe, and Stanleyana—a kind in the way of Gem but paler. Among other sorts, which were shown by Messrs. Carson, Taylor, Rhodes, and Green, were dilecta, Trotteriana, Eulalie, an improvement on Criterion; Apollo, Bella, and Ruckeri.

TALL CACTI were furnished in good condition by Messrs. Green & Mortimer. In the first group were Cereus Mallisoni rosea, a small red kind; Epiphyllum Greeni, an improvement on speciosum; E. speciosum elegans, a very handsome sort; E. Jenkinsoni multiflorum; E. Ackermanni, and Cereus Egertoni. Mr. Mortimer, gr. to Mr. Scott, of Hornsey, had the white E. crenatum, E. azureum, a charming variety, with a large amount of violet tinge in it; coccineum, Egertoni, and speciosum pulchrum.

Of RHODODENDRONS, fine groups came from Mr. Standish and Mr. Noble. The former had Manglesi, a clear rosy pink kind; Schiller, bluish purple with dark spot; General Cabrera, spotted crimson; Comtesse de Morello, pink shaded with white; Charlotte Bronté, crimson; and Mrs. Standish, the last a good white spotted with yellow. Mr. Noble contributed Penelope, pink; Emilia and Beatrice, two delicate pink kinds a good deal alike; Paxtoni, rosy pink; Brabantia, dark chocolate; and Sago, a large purple kind with dark spots. Of yellow sorts, Messrs. Lane sent Sabinianum, aureum superbum, a really good yellow; sulphureum, and javanicum.

Sikkim and Bootan Rhododendrons were shown in great variety by Messrs. Jackson. The sorts were—Sikkims, Campbelli, cinnabarinum, lancifolium, ditto variegatum, lepidotum, setosum, lanatum, anthopogon, Roylei, eriginosum, niveum, ditto variety (broad leaved), Falconeri, barbatum, Wallichi, argenteum, Maddeni, fulgens, campylocarpum, glaucum, ditto variegatum, ciliatum, Thomsoni, Hodgsoni, Edgeworthi, Aucklandi, calycatum, formosum var., Dalhousiæ, Blandfordiæflorum. BOOTANS: lucidum, eximium, nobile, longifolium, macrophyllum, Nuttalli, Aucklandi var., Boothi, Keysi, camelliæflorum, edephyllum and Jenkinsi; of the above glaucum and Dalhousiæ were in flower. Mr. Forsyth, gr. to Baron Rothschild, also furnished an interesting group of Sikkim Rhododendrons.

ROSES were shown in beautiful condition both by nurserymen and amateurs. Messrs. Lane had magnificent plants of the following:—Blairi No. 2, Magna rosea, Chénédolé, Comtesse Mole, Coupe d'Hébé, Paul Perras, Paul Ricaut, Cornet, Duchess of Sutherland, Miellez, Adam, Madame Willermorz, a charming variety, and Nephetos. Messrs. Paul had Mansais, Jules Margottin, Auguste Mie, Géant des Batailles, Elize Mercœur, Louis Odier, Madame Willermorz, Charles Duval, Paul Ricaut, Paul Perras, a glorious specimen; Nephetos, and Coupe d'Hébé. In the Amateurs' Class, A. Rowland, Esq., had the best plants—his Chênédolé was justly admired by all who saw it, it was truly a grand specimen of that favourite Rose; he had also Blairi No. 2, Baronne Prevost, Coupe d'Hébé, Queen, and Richelieu in good condition. Mr. Terry sent Pauline Plantier and Mrs. Bosanquet beautifully grown and flowered. Mr. Mortimer had a specimen of Paul's Victoria, a handsome delicate pink variety, which was greatly admired. Other good sorts were Souvenir d'un Ami, Malmaison, and Comte de Paris.

HEATHS were well grown and unusually well flowered. They were shown by Messrs. Cutbush, Peed, Rhodes, and Taylor. Among the sorts we noticed Cavendishi, ventricosa coccinea minor, perspicua nana, Sprengeli, suaveolens, Albertus, Beaumonti, ventricosa magnifica—one of the handsomest Heaths in cultivation; tricolor, florida, mutabilis, metulæflora, Parmentieri rosea, depressa, Bergiana, elegans, vasiflora, and propendens.

Of what were called NEW PLANTS, in addition to those mentioned in another column, there were shown Maranta regalis and Eucharis amazonica from Mr. Cutbush; Limonia trifoliata, the Rice Paper plant, and Statice macroptera, from Mr. Glendinning; Rhopala Skinneri, the scarlet Embothrium coccineum, a yellow flowered Cyclobothra, the pink Rhododendron Princess Alice, the yellow Rhododendron Brookeanum, the pink spotted R. formosum elegans, and Tradescantia discolor vittata from Messrs. Veitch. The curious Cypripedium hirsutissimum was shown by Messrs. Jackson, and from Messrs. E. G. Henderson came the charming hybrid Gesnera Miellezi, Stadmannia Jonghi, Aralia elliptica, Phyllocladus Cunninghami, and a variegated Dahlia.

Of rare hardy CONIFERS in pots, Messrs Veitch showed good plants of the following:—Wellingtonia gigantea, Abies Hookeri, Picea amabilis and grandis, Cupressus MacNabiana, Thuja gigantea, Cephalotaxus Fortuni, male and female, with Thujopsis borealis, and another kind unnamed.

PELARGONIUMS were numerous, finely grown, and beautifully flowered. Mr. Turner had astrea, Lucy, Sanspareil, a pretty spotted variety; Admirable, Una, Lord Raglan, Governor-General, Frances, Rosamond, Attraction, Basilisk, Wonderful, and Esther. Mr. Dobson sent Wonderful, Carlos, Gem of the West, Rowena, Fandango, Ambassador, Admirable, Mr. White, Star, Lucy, Painter Improved, and Commander-in-Chief. Messrs. Fraser produced Sanspareil, Mochanna, Ganymede, exactum, Rowena, Magnificent, Rosamond, Majestic, Lablache, Portia, Zeno, and Governor-General. Mr. Bragg also showed a collection. In the Amateurs' Class Mr. Beck exhibited Sunset, Gem of the West, Emperor, Laura, Sanspareil, Evelyn, Wonderful, and Fanny. Mr. Foster, of Clewer, sent Wonderful, Seraskier, Purple Perfection, Prince of Wales, Sanspareil, Meteora, Symmetry, and Carlos. Mr. Windsor and Mr. Weir also showed good plants. Of Fancy Varieties Mr. Turner furnished Criterion, delicatum, Attraction, Fornarina, Madame Sontag, R. Cobden, Cassandra, Celestial, and Ne Plus Ultra. Messrs. Fraser showed Celestial, imperialis, Fairy Queen, Hero of Surrey, Cassandra, Jenny Lind, R. Cobden, and Madame Sontag. Mr. Dobson had Lady Alice Peel, Fleur de Marie, Perfection, Evening Star, Celestial, triumphans, Cassandra, and erubescens. In the Amateurs' Class, Mr. Bousie, gr. to the Right Hon. H. Labouchere, showed fine plants of Madame Sontag, Bridesmaid, Charles Dickens, Criterion, delicatum, and Cassandra. Mr. Windsor had Madame Sontag, delicatum, Madame Miellez, Electra, Lady Alice Peel, and Celestial. Mr. Weir sent Lady Hume Campbell, delicatum, erubescens, Evening Star, and Fairy Queen.

A collection of French spotted PELARGONIUMS attracted considerable attention. These were sent by Mr. Turner, of Slough, and consisted of Madame Lebois, Jacques Duval, Adolphe Odier, Verschaffelti, Perrugino, Pescatorie, Count de Morny, Triomphe de la Tour, James Odier, Etoile des Jardins, Madame Heine, Madame Lamoricière, Madame Corbay, Eugène Duval, Madame Lemichez, Adèle Odier, Madame Pescatorie, Napoleon the 3d, Roi des Pourpres, Ernest Duval, and Gustave Odier.

A long bank of seedling Pelargoniums formed an interesting feature of the show. Mr. Beck sent The Bride, an excellent white, with rosy carmine spot in the upper petals; Bellona and Indian Queen, two small but high coloured varieties, with rich and strikingly painted lower petals; Bellona is very striking in colour. Mr. Beck sent numerous other varieties of more or less merit—of these Vestal, a full-sized white, and Aurelia appeared to be the best. Mr. C. Turner also contributed a considerable number—Rosy Gem is a large flower of good shape, and most pleasing shade of rosy carmine, very bright; Etna has dark top petals with scarlet margin and scarlet lower petals, and Rose Celestial is a large flower with white centre: also the following varieties with distinct spots in the lower petals; Mazeppa, Mr. Marnock, Mrs. Ingram, Cherry Ripe, and Spotted Beauty. Mr. Hoyle, of Reading, sent some pleasing kinds. Belle of the Season is a large free flowering light variety, large carmine spot on the upper petals, with white margin, light silvery lower petals; also Richard Benyon, Queen of Scarlets, and Cynthia, all free flowering high coloured varieties, and Charles Turner, a smooth flower like Wonderful. Fancy varieties were very good, particularly Mrs. Turner, deep rose with clear white centre of the finest form; Acme, a flower resembling, but an improvement on Evening Star, being darker, and with clear centre, very free; Princess Royal, a greatly improved Cloth of Silver, being of fine form with the same freeness; Claudiana, Crimson Pet, and Alice; these were all from Mr. Turner.

There were some pretty new bedding GERANIUMS. A new variegated kind, named Perfection, exhibited by Mr. Lennox, has smooth white variegation, bright scarlet flowers, and foliage of good size. Mr. Kinghorn and Mr. Elphinstone also exhibited some pretty things.

FRUIT, as is stated elsewhere, was shown scantily but good. Mr. Bray sent a good Queen Pine Apple, as did also Mr. Davies, of Starch Green, Mr. Temple, and Messrs. Price, Peed, Bailey, and Harrison. A smooth Cayenne, weighing 4 lbs. 3 ozs., was furnished by Mr Temple. Mr. Clements had a handsome Black Jamaica as had also Mr. Tillyard, Mr. Price, Mr. Frost, and Mr. Povey. The best Providence, a large fruit but a little deformed at the top, came from Mr. Bailey, Shardiloes. Other fruit of this variety were shown by Mr. Davis. Mr. Temple sent a Globe Pine weighing 3½ lbs.

Of BLACK GRAPES, there were some remarkably fine bunches. Mr. Frost, gr. to E. L. Betts, Esq., had Black Hamburghs with berries nearly as large as Orleans Plums, and beautifully coloured. Next came splendid bunches from Mr. Fleming, gr. to the Duke of Sutherland at Trentham. The only fault belonging to these was they were just a little deficient in colour. Mr. Hill, gr. to R. Sneyde, Esq., sent 3 admirable bunches weighing together 38¼ lbs. Other Black Hamburghs came from Mr. Spary, of Brighton; Mr. Williamson, gr. to Lord Lonsdale; Mr. Dods, gr. to Sir J. Cathcart, Bart.; Mr. Tillyard, Mr. Fleming, of Cliveden; Mr. Forbes, of Woburn; Mr. Dunsford; and Mr. Thompson, gr. to Mrs. Dixon. Mr. Hill furnished some very good examples of Black Prince. White Grapes were unripe. Mr. Busby, gr. to J. Crawley, Esq., had fine bunches of Sweetwater, as had also Mr. Fleming, Mr. Bousie, Mr. Munro, and Mr. Hutt, gr. to Miss Coutts. Mr. Frost and Mr. Tegg sent Muscats. Some splendidly fruited Vines in pots (Sweetwater) were contributed by Mr. Forsyth, gr. to Baron Rothschild. Mr. Ivison had good specimens of Black Hamburgh. Mr. Hutt and Mr. Risley also showed Vines in pots.

Of PEACHES Mr. Hill and Mr. Fleming had both excellent examples of Royal George. The same variety was also furnished by Mr. Constantine. Mr. Higgs sent Violette Hâtive. Mr. Busby had large and finely coloured Violette Hâtive Nectarines. Mr. Fleming sent Violette Hâtive and Elruge, and small fruit of Violette Hâtive came from Mr. Hill.

FIGS (unnamed) were shown by Messrs. Hutt, Frost, and Ivison.

Of CHERRIES there were fine dishes of Black Circassian from Mr. Fleming of Trentham and Cliveden. From Lord Wilton and Mr. Tillyard came May Duke, and Mr. Bousie sent the last named kind somewhat unripe.

Very good RED RASPBERRIES were furnished by Mr. Fleming.

Of STRAWBERRIES Mr. Smith, of Twickenham, again showed most beautiful dishes of British Queen, Sir Charles Napier and Keens' Seedling. British Queens came from Mr. Frost, Mr. Ingram of Reading, Mr. Dods, and Mr. Dunsford. Mr. Watson of Ealing had Alice Maude, and Mr. Bailey had a dish of Hautbois.

Among MISCELLANEOUS FRUITS were Loquats from Mr. Ivison, gr. to the Duke of Northumberland, at Syon, and some Oranges and Shaddocks from Mr. Williams, of Hoddesdon.

Of Fruit trees in pots Messrs. Lane sent a collection consisting of Figs, Cherries, White Currants, Peaches and Nectarines.

Vegetables were neither plentiful nor very good. Messrs. Paul showed specimens of their Tom Thumb Pea in pots, well furnished with pods. Good dishes of Peas came from Mr. Whiting, of the Deepdene, and Mr. Wintle, of Gloucester; Mr. Tillyard sent Sangster's No. 1. Kidney Beans were exhibited by Mr. Munro; Potatoes by Mr. Whiting, Mr. Bailey, and others, but as they were unnamed, we are unable more particularly to allude to them. Excellent Rhubarb was contributed by Mr. Roberts, of Willesden; Turnips by Mr. Ingram, of Reading, and Mr. Whiting; and Mushrooms by Mr. Watson, of Ealing, and others. Mr. Whiting showed some excellent Early Horn Carrots. The best Cucumbers came from Mr. Munro. The best Cabbage shown was Dancer's, Fulham, from Mr. Whiting. The first prize for Cauliflowers was awarded to Mr. Snow, who also exhibited beautiful specimens of his Matchless Cos and Cabbage Lettuces. Mr. Whiting sent an interesting collection of Salad Vegetables. These as well as most of the other Vegetables shown on this occasion were, however, unnamed.

From the Times.

Yesterday the most charming of all the metropolitan *fêtes*—the spring flower-show of this society—was, after a lapse of two years, again given at Chiswick with unusual success. The gardens were beautiful, the attendance of rank and fashion most numerous, and nothing but more favourable weather was required to make the display equal to those days of old when the Chiswick flower-show was *par excellence* the *fete champêtre* of the London season; but the weather—as is not unfrequently the case in England—was not entirely propitious. It sprinkled rain a little now and then, and was always threatening much more. To a certain extent this must have influenced the attendance of visitors, though we seldom recollect to have seen the gardens more crowded. Just now the Chiswick grounds form one of Nature's flower shows on the richest and most beautiful scale. Clumps of flowering trees, bushes of Lilac, Guelders Roses, Hawthorns, and Laburnums are decked in all their varied blossoms, checkering the colour of the smooth soft turf like giant flower beds. The very air seems heavy with their fragrance, and the light young leaves to rustle sympathetically under a flood of song which is poured unceasingly from trees and bushes. The cuckoos, in particular, were busy, and their well known notes echoed through the gardens as if ten springs had come at once.

Yesterday, as the brilliant company wandered in groups among this foliage of blossoms, the effect of the scene was rich and glowing in the extreme, irresistibly reminding the spectator of the pictures of Watteau, or the sylvan fêtes which Boccaccio conjures up.

The flower show was disposed yesterday under a number of extensive marquees—one of which was nearly a hundred yards in length. Indeed tents and marquees quite covered one part of the grounds, and seemed put there as if to tempt the company to rush into sylvan life, and never more return to

hot and close apartments. Most of the tents seemed exhibited to show their improvement on the Ordnance Bell tent (than which nothing is easier to improve), and their applicability to campaigning purposes. All were without exception more spacious than the "regulation umbrella," and in most instances lighter, cooler, cheaper, and more durable. They were exhibited by B. Edgington, of the Borough.

The bands of the Grenadier, Coldstream, and Life Guards were in attendance in the gardens during the day, and materially contributed to the animation of the scene by their performances. Towards the close the three bands were united, and the effect produced was most powerful.

Notices of Books.

A Residence among the Chinese; Inland, on the Coast and at Sea, &c. By Robert Fortune. Large 8vo. Murray. Pp. 440, with illustrations.

China: a general description of that Empire and its Inhabitants. By Sir John F. Davis, Bart., F.R.S. 2 vols., small 8vo. Murray. With Illustrations.

Since Du Halde no writer has thrown more light upon China and its inhabitants than Sir John Davis, an accomplished Chinese scholar, long acquainted with the country, and during the latter years of his residence the English Chief Commissioner there. The information collected in both his private and high official capacities is therefore of the utmost value, consisting as it does in part of the history of events within his own personal knowledge and in which he bore a share, and in part of such a description of the country, its inhabitants, and their customs, as local experience and a perfect familiarity with Chinese literature could alone enable any one to shape into a consistent whole. This, the last of several previous editions, must always form a most important guide to those who are interested in the affairs of the Celestial empire—affairs that recent events have made our own.

The first of the volumes before us is occupied by a sketch of Chinese history, and a detailed account of the circumstances which led to the last war, of the incidents belonging to the war itself, and of the events that have forced the English authorities in China into a violent collision—not with the Chinese Government and people, but the brutal rabble of Canton and their ferocious governor Yeh. For it is to be observed that up to the present time at least we have not a Chinese war before us, but a sacred duty to perform, that of avenging outrages upon our own countrymen committed with a pertinacity and audacity which we have too long endured. The blame indeed that attaches to Great Britain in her relations with China consists in our having tamely permitted outrage upon outrage to accumulate till they were unbearable, instead of having stopped them, by the bayonet if necessary, upon their first appearance. This is Sir J. Davis's opinion, and we venture to say is that of all well informed men outside the little circle of peace-at-any-price politicians and twaddling humanitarians, who think it better that British subjects should be ill-treated and murdered than that a Canton mob should be brought to its senses by military execution. Let us hope that Lord Palmerston will adopt Sir John Davis' opinion that "such a lesson as can be neither misinterpreted nor forgotten, unflinchingly administered in the right place, may long serve as the best of all peacemakers."

The historical narrative, brought down to the operations of Sir John Bowring and Sir Michael Seymour, is succeeded by an account of the government and legislation of China, the national character and institutions, manners and customs, and of the cities of Peking, Nanking, and Canton.

The second volume treats of Religion, Literature, Arts and Sciences, Natural History, Agriculture, and Commerce, upon all which points the information is as copious as it is authentic.

Mr. Fortune's new volume is an interesting account of his personal experience of the Chinese during his residence among them for the last four years. Those who are familiar with his former volumes know how skilfully he paints the scenery before him, and how great an interest he gives to his personal adventures. In the work just published the narrative is better told than ever, a greater power of painting the minute details which invest truth with its peculiar charm having been gained by 14 years' experience.

From Shanghae, where the present story commences, Mr. Fortune proceeded at once to the Tea farms in the interior, where he lived for a long time among the Chinese "like one of themselves." Having returned to Shanghae he again visited the Tea districts of Chekiang, accomplished a journey to the "snowy valley and waterfalls," once more reached Shanghae, and thence proceeded south to Canton. His next move was to the port of Foo-chow-foo, whence he found an opportunity of visiting the great island of Formosa. At a later period he reached the colder provinces of China, including the silk country, in the heart of which he remained for some months, and where he had the rare opportunity of observing the cultivation of the Mulberry, the feeding and rearing the silkworm, and the reeling the silk, being the first Englishman who ever witnessed the Chinese method of conducting these important operations. Eventually he brought to a satisfactory conclusion the duties with which he was intrusted by the East India Company, carried his collections away with him, and finally revisited the great Tea plantations in the Himalayas and Punjaub, after which he returned to England.

His concluding chapter is occupied by an explanation of his own views concerning the Canton dispute. In one thing he is explicit—and that is that the Cantonese must be effectually broken down at once and for ever. His observations upon the climate will we trust be carefully borne in mind by those charged in England with the arrangements for carrying on the present dispute. If not, we shall have a repetition of the calamities that formerly befel the troops in Chusan, one of the finest and healthiest islands in the world.

Next week we propose to return to Mr. Fortune's volume.

We observe that a new monthly botanical work, to be called 'Filices Exoticæ, or, Figures and Descriptions of Exotic Ferns, particularly of such as are most deserving of cultivation," is to appear from the practised pen of Sir William Hooker. Each part is to contain eight coloured plates executed by Mr. Fitch. Such a publication is wanted, and we trust will contribute to the settlement of the names of Ferns, which pseudo-scientific writers have contrived to reduce to deplorable confusion. The work will be published by Mr. Lovell Reeve.

The same publisher announces the preparation by Professor Harvey of a work to appear in monthly parts, each containing six coloured plates and as many pages of letter-press, under the name of *Phycologia Australasica; or, Figures and Descriptions of Australian Seaweeds.* Publication to commence as soon as a sufficient number of subscribers' names to justify the necessary outlay shall have been received.

At last we have to welcome the 4th volume of *Thackeray's Miscellanies* (Bradbury & Evans), containing the Fitzboodle papers, Men's Wives, a Shabby Genteel Story, the History of Samuel Titmarsh, and the Great Hoggarty Diamond, with another story or two.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Many of the new Holland plants and other greenhouse subjects will soon be getting past their best, and some foresight and care will be necessary to avoid being short of specimens in bloom with which to supply their places. Where circumstances will admit, plants that have been grown in a warm moist atmosphere should be removed to an intermediate house about a fortnight previous to their being taken to the conservatory, and gradually inured to a free circulation of air. By attention to this, and placing the plants in the warmest corners in the conservatory the Clerodendrons, Allamandas, Achimenes, &c., will continue growing slowly and bloom for some three months, whereas if this is neglected their beauty may be very short lived. Aim at maintaining an even temperature in the conservatory after removing thence plants that have been grown in the stove, and avoid allowing the atmosphere to become very dry on bright warm days. Also see that every plant is perfectly clean before placing it in this house, and that the creepers, &c., are not infested with insects. Go over the house every morning, and remove decaying flowers and leaves as they make their appearance. Young stock in pits and frames will now be making rapid growth, and must be carefully attended to as to watering, stopping, training, &c. Examine Heaths frequently for mildew, and apply sulphur the moment it is perceived, some of the soft leaved varieties being very liable to be attacked by this pest at this season.

FORCING DEPARTMENT.

PINERY.—Where Pines are grown to any extent on the Hamiltonian system, a close watch must be kept upon the most likely plants for immediate fruiting, so as to keep them dry at the root or otherwise as circumstances may dictate, and those showing fruit must not be syringed over head to the extent of causing water to lodge in the centres of the plants, for this would probably cause the fruit to be deformed. Young stock growing in dung pits must be allowed plenty of air to prevent their making weakly growth, and must not be over watered, which through the greater amount of moisture in the atmosphere, is more apt to be the case here than in houses heated by any other means. Encourage recently potted stock with plenty of warmth and a corresponding degree of humidity in the atmosphere, but water carefully until the roots get hold of the fresh soil. The most certain method of obtaining a regular supply of fruit is by securing and potting a limited number of suckers at short intervals throughout the growing season; therefore attend to this, which will save much trouble and disappointment as compared with the old practice of doing this but once, or at the most but twice in the year. VINERIES.—Where Grapes are intended to be kept until next January the berries should be thinned so that they will scarcely touch after they are fully swelled, for it is hardly possible to prevent their damping off during winter, when the berries are left as thick as is usually done for summer and autumn use. Muscats and St. Peter's will be benefited by a very little fire-heat at night.

FLOWER GARDEN AND SHRUBBERIES.

Examine recently transplanted trees, shrubs, &c., frequently to see that they are not suffering from want of water. Give a liberal soaking when necessary, and stir and mulch the surface afterwards. The half hardy plants now consigned to their summer places after many months' shelter under glass, and much attention and care, must be duly attended to with water, until they lay hold of the soil, and with the present favourable weather and proper attention they will speedily cover the beds, and well repay all the trouble and attention bestowed on them, but every effort must be used to prevent their sustaining any check, for if allowed to get into an unhealthy state at present there will be much difficulty in getting them into free growth without much loss of time. Spare hand-glasses should now be used for the propagation of favourite spring-blooming plants, as Pansies, Phloxes, &c. These do best on a shady border.

HARDY FRUIT AND KITCHEN GARDEN.

The Strawberry beds will now require attention as to watering, &c. After thoroughly cleaning the beds, a thorough soaking should be given the first possible opportunity, and if a moderate watering from the stable tank can be given when the ground has been well saturated with clear water it will greatly assist in securing large fruit. The beds should be mulched as soon after watering as convenient, in order to prevent evaporation and the fruit from being soiled. Next to slates or tiles clean straw is the best material for this purpose, and mowings of lawns the worst. The latter besides forming an excellent harbour for slugs soils the fruit, spoils its flavour, and in wet seasons hastens the decay of any over ripe fruit. Where clean straw cannot be afforded, the fresh litter from the stable yard will form a very good substitute. Exposure to the air and a few showers will perfectly sweeten this, so that there need be no fears entertained of its injuring the flavour, but it should be applied immediately. Persevere in the destruction of insects on fruit trees as soon as they are perceived.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending June 4, 1857, as observed at the Horticultural Gardens.

May and June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 29	6	29.984	29.881	66	49	57.5	57	53½	N.E.	.00
Satur. 30	☽	30.027	29.985	63	39	51.0	58	53½	N.E.	.01
Sunday 31	☽	30.062	30.023	68	32	50.0	58	54	E.	.00
Mon. 1	9	30.009	29.947	69	40	54.5	59	55	E.	.00
Tues. 2	10	—	—	—	—	—	—	—	—	—
Wed. 3	11	—	—	—	—	—	—	—	—	—
Thurs. 4	12	—	—	—	—	—	—	—	—	—
Average..										

May 29—Hazy; overcast; fine.
— 30—Slight rain; overcast; very fine.
— 31—Very fine throughout; cold at night.
June 1—Very fine; very dry air; fine.
— 2—Fine throughout; slight rain at night.
— 3—Cloudy; slight rain; cloudy; very fine.
— 4—Fine; very fine throughout.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending June 13, 1857.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 7	68.2	47.4	57.8	11	0.53 in.	3	6	—	3	4	8	3	4
Mon. 8	70.1	47.2	58.7	11	0.45	3	6	1	—	4	11	4	2
Tues. 9	70.3	48.0	59.2	14	1.48	1	5	1	2	3	13	3	3
Wed. 10	71.2	47.8	59.5	13	0.95	1	8	1	2	3	7	5	4
Thurs. 11	72.0	48.9	60.4	10	0.47	—	7	3	1	4	7	8	—
Friday 12	71.1	50.5	60.8	14	0.78	—	6	3	1	5	10	3	2
Satur. 13	71.8	49.5	60.6	15	0.77	1	5	4	1	2	9	7	2

The highest temperature during the above period occurred on the 7th, 1846, and 12th and 13th, 1842——therm. 90 deg.; and the lowest on the 13th, 1849—therm. 34 deg.

Notices to Correspondents.

BOTANY: *Ayland.* There can be no possible objection to your knowing what questions were put at the examination for honours in University College in the Junior Class of Botany. They were as follows:—1. What is the difference between a tuber and a bulb? 2. Explain the meaning of the following terms,—viz. verticillus (whorl); peltate, papilionaceous, pinnate, pinnatifid, digitate; testa, hilum, albumen, embryo. 3. What is meant in botanical science by the term fruit? 4. What is the difference between a raceme and a corymb? 5. What are stipules? 6. When a seed germinates, what part is first observed to grow? 7. Describe the various characters by which Exogens are known from Endogens. State the characters by which the following Natural Orders are known:—8. Labiates (*Lamiaceæ*). 9. Borageworts (*Boraginaceæ*). 10. Crucifers (*Cruciferæ*). 11. Spurgeworts (*Euphorbiaceæ*). 12. Gentianworts (*Gentianaceæ*). 13. Caryophylls (*Caryophyllaceæ*). 14. What order of Thalamifloral Exogens is that with recurved anther-valves? 15. Describe in technical language the differences between Hordeum (Barley), Triticum (Wheat), and Secale (Rye). To what Natural Orders do the following plants belong? viz.:—16. ——— 17. ——— 18. ———.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W F.* Melianthus major.—*Novice.* We have not the least idea. The drawing conveys no information.—*Diss.* Claytonia perfoliata.

LABURNUM: *T.* The case is exactly the same as that mentioned last week (p. 382), and referred to in a leading article to-day. Whether the "white Cytisus" would also take on the Laburnum we cannot say. Very likely; but you can only ascertain by trying the experiment.

LIME TREES: *A B., Middlesex.* We will endeavour to give you obtain some answer next week.

POMPANO: We have no idea what it is.

THE PHARMACEUTICAL SOCIETY: *Epsilon* is strangely misinformed. There is not a more important association in the kingdom, and young gentlemen instead of listening to the abuse of persons whose intelligence, if they ever had any, is at least out of date, should show themselves worthy of becoming admitted into the Society.

THE SHAMROCK: *E L.* It is either Oxalis Acetosella, or the common white Clover, with a spot on each leaflet. Both are common in England. Yellow Clovers have no right to be called Shamrocks.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

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SUPERPHOSPHATE OF LIME, WHEAT, CORN, GRASS, AND HOP MANURES, &c., are manufactured by F. C. HILLS at the Chemical and Artificial Manure Works, Deptford and East Greenwich. These Manures will be found equal or superior to any in the market. The per centage of phosphates and of nitrogen, so essential to the growth of crops, is in all cases guaranteed under analysis by Mr. Nesbit (or Messrs. Way, Teschermacher, Voelcker, &c.).—Orders or inquiries for further particulars to be addressed as above, or to the local Agents.

SOLUBLE PHOSPHATES.

BURNARD, LACK, AND CO, Inventors and Patentees of the Concentrated Superphosphates of Lime, invite the attention of Agriculturists to their PATENT CONCENTRATED SUPERPHOSPHATE, now in its fourth year before the public, having gained for itself a very high place as a really cheap and valuable Manure. Guaranteed to contain 40 per cent. of Bone Phosphate soluble in water. Delivered at Seaports or Railway Stations in quantities of 4 tons and upwards, at 12*l.* 15*s.* per ton, packages included; in less quantities at 13*l.*

To gentlemen using the Liquid Manure Drill, this Superphosphate will be found especially serviceable.—Apply to the Dealers, or to BURNARD, LACK, & Co., Chemical and Patent Manure Works, Sutton Road, Plymouth.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY S. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

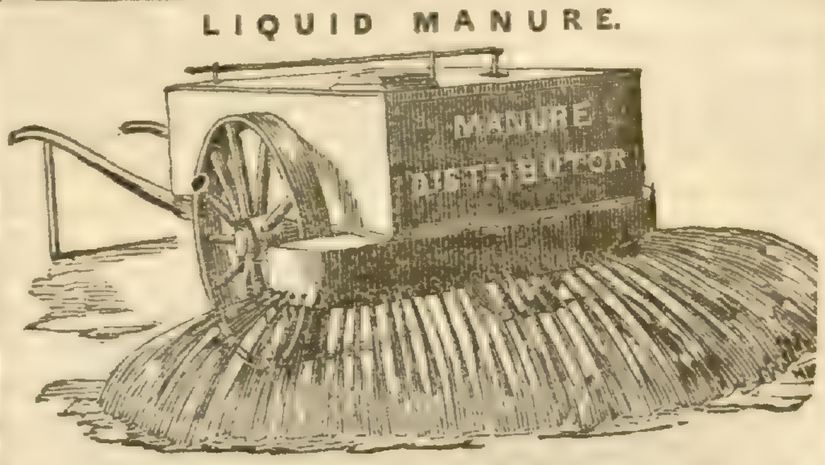
WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides.

The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

PRIZES:—
A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & SON'S Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

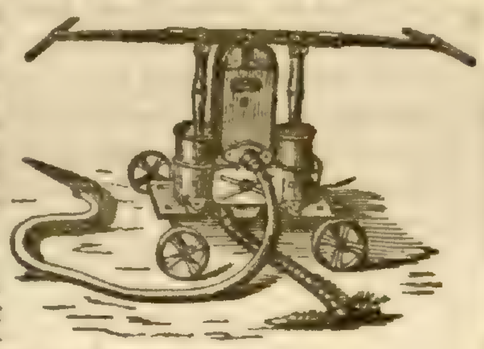
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

WHITEFRIARS STREET, FLEET STREET, London.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.
NOMINATION OF JUDGES.

The Members of the Society generally are requested to forward to the Secretary, on or before SATURDAY, the 20th of June, their nominations of such Judges for Live Stock or Implements, at the ensuing Salisbury Meeting, to be held the third Week of July, as they can certify, from their personal knowledge, to be qualified and willing to act in the particular classes of Stock, or department of Implements, for which they are respectively recommended.

JAMES HUDSON, Secretary.

12, Hanover Square, London, June 6.

SMITHFIELD CLUB FAT STOCK SHOW, 1857.—The Annual Show of FAT CATTLE, SHEEP, AND PIGS will take place on the 8th, 9th, 10th, and 11th December next, at the Bazaar, King Street, Portman Square.

Thirteen new Classes have been added for this year, and Prizes are now offered for all the following Breeds in SEPARATE CLASSES:—

CATTLE.

Devons—Herefords—Short-horns—Sussex—Norfolk or Suffolk Polled—Long-horns, Scotch-horned—Scotch Polled—Irish—Welsh—Cross or Mixed.

SHEEP.

Long Wools—Long Wools (not Leicesters)—Cross Breeds—Short Wools—Short Wools (not Southdowns).

PIGS.

Any Breeds—not exceeding 4 months old.
,, above 4 and not exceeding 8 months.
,, above 8 and not exceeding 12 months.
,, above 12 and under 18 months.

GOLD MEDALS.

Five Gold Medals for Oxen or Steers—Cows or Heifers—Long Wool Sheep—Short Wool Sheep—and Pigs.

BREEDERS' MEDALS.

Forty-two Silver Medals to Breeders of Animals shown in the Classes.

EXTRA STOCK.

Seven Silver Medals for Cattle, Sheep, and Pigs in Extra Stock.

The total amount now offered in Prizes and Medals is upwards of 1200*l.*

Prize Sheets, with Rules and Regulations, and all necessary particulars forwarded on application.

B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half-Moon Street, Piccadilly, London, W.

The Agricultural Gazette.
SATURDAY, JUNE 6, 1857.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 10—Agricultural Soc. of England .. Noon.

THE past week has been full of agricultural interest. On Monday the London Farmers' Club at their last meeting for the season were addressed by Mr. BOND of Long Melford, Suffolk, on the autumnal cultivation of Wheat stubbles, and their subsequent preparation for the growth of a root crop, especially on stiff retentive soils. On Tuesday and Wednesday the Society of Arts held their annual examination of candidates for their certificates respectively of competency, proficiency, and excellence in the several departments of education, and amongst others in that of agriculture. On Tuesday Professor SIMONDS returned from his continental tour, prepared to report upon the steppe murrain of Russia and Austria which has this spring so much alarmed us: and on Wednesday and Thursday the Bath and West of England Agricultural Society held their annual meeting at Newton, in South Devonshire. On some of these points further information will be found in the adjoining columns.

Professor SIMONDS will give a lecture descriptive of his continental researches in the Society's rooms at Hanover Square, on June 17, at 1 P.M. Whether his tour shall have resulted in any direct benefit to the members of the Agricultural Society or not, we are quite sure that every one will approve of the energy and resolution which promptly directed his despatch to the seat of the cattle disease. It is not by the quantity of exclusive privilege conferred upon its members, but by the obviousness of its public utility that the prosperity of the Agricultural Society will be measured. There are many particulars in which this principle if once admitted would alter the existing arrangements, and alter them, as we believe, for the better.

DAIRY management is of all departments of husbandry perhaps the most completely under the control of custom. There are, indeed, dairy districts which have deputed reporters to visit Gloucestershire, Cheshire, and Somersetshire for information on methods and details of management, and these have been afterwards transplanted with success: but take the localities which have been copied—the *best* dairy districts of the country—which have no superiors in Great Britain whose methods they might copy with advantage, and it will be almost universally found that their plans have been the same for half a century back, and that recent additions to our knowledge and our means, whether by the chemist or mechanic, have had but little influence there. Churns and lactometers, and milk pans and cheese presses, have multiplied of late years like every other class of agricultural implements; but if, through introductions from any cheesemonger who knows where the best article is made, you visit the most successful dairies of Gloucestershire or Somerset, you will in all probability find the old barrel churn—the old sieve curd-breaker—the old milk pans and other vessels—the old box press—the old manage-

ment—and the old standard of excellence, very likely never yet surpassed, which has characterised the district for a century or more.

During the past few months however, especially in the vale district of Gloucestershire, several excellent dairies have adopted new methods in the manufacture of cheese, which, as they seem to promise a profitable result, we shall here describe.

Under ordinary management the Gloster cheese is made twice a day—the morning's milk is heated or cooled to about 80° in one or more large vessels of from 80 to 100 gallons—a pint and a half or thereabouts of rennet is added to every 100 gallons—in an hour's time or so, when the curd has set, the curd-breaker, a wire sieve fixed on the end of a pole, is slowly and repeatedly drawn hither and thither through the mass, the whey is baled out, the curd is pressed by the hand, crumbled fine and placed in a cloth and in the cheese vat under a press for 12 hours; it is then salted and turned and again pressed. It is kept there as long as there is press-room for it, and afterwards transferred to the dairy shelves, where it is turned at intervals, and where it gradually ripens.

The whey baled out of the curd tub stands and throws up a cream from which an inferior butter is made. The less the quantity of cream that rises the more of course is the butter left in the cheese, and the more gentle the management of the curd and the removal of the whey the less is the quantity of this cream that rises on it.

Two methods have been adopted for removing the whey from the curd, so as to avoid the loss of butter from the cheese which the ordinary plan involves. Mr. Keevil's patent curd machine consists of a cylindrical tin vessel, with a drainer up the side from top to bottom, through which the whey escapes, and with a revolving frame of vertical and horizontal wires, by which the curd is systematically broken. The escape of the whey is in this case assisted by no manual operation whatever; it simply drains off; and this it does so quietly that much less than the ordinary quantity of the buttery matter of the milk escapes along with it. Mr. Keevil's machine is being adopted in Gloucestershire, with, we undertand, satisfaction to those who have broken through the ordinary practice of the district by employing it.

The other method of separating whey is by means of the ordinary centrifugal drying machine, the use of which for this purpose was patented so long ago as 1852, but never tried or carried out till now. It has been this spring applied to the purpose then first contemplated, at the dairy farm of Frocester Court, near Stroud. A small turbine or water-wheel drives the revolving vessel—the curd is placed within it in a cloth, as unbroken as possible, and as the vessel attains its velocity, never very great, the whey is driven outwards through the perforated surface which incloses it and escapes. The curd is not in this case broken purposely at all, its watery contents pass through it outwards unassisted by any division of the material, and it is found that the whey thus separated contains no cream which will rise on standing.

Of course the advantage thus attained consists in this—that either you may make a richer cheese, or if a cheese of only equal quality be desired, you may take the cream off the milk before making curd instead of off the whey after making curd; in the former case a better butter is obtained than in the latter.

Book Farming.—The relations between oral instruction and experience in agriculture may be brought out by considering the routine of operations on a farm. We will suppose that the first act of our twelvemonths consists in the entry on a farm. A farm is offered, and the terms of the lease having been discussed and acquiesced in it is taken. Such of the rights and property of the outgoing tenant as remain upon it are valued and paid for. Working cattle and implements are purchased and labourers are hired. The crop for the ensuing year on each of the fields is fixed upon, and such cultivation as the season indicates for each is at once commenced. Seeds and seed corn sufficient for the extent contemplated of every crop must be procured. The details of the previous cultivation must be directed and the seed put in in proper season and condition. The cultivation of the land and the cultivation of the crop go on together—hoeing, thinning, and perhaps top-dressing the young plant and the tillage of the soil as its feeding ground. Meanwhile the consumption of some of the growing crops must be provided for. Young cattle for fattening during the ensuing winter, or perhaps sheep in a condition to sell before the winter, must be purchased for the pastures. Possibly dairying may be determined on, in which case special arrangements must be made. By and bye sheep-shearing and all the details of shepherding, and of live stock management in general will require attention. Haymaking time comes round, and harvest time for grain crops and for root crops, and the hazards of our island climate will try all the intelligence, the temper, and the skill of the agriculturist. Sales of farm produce next put his judgment to the test; purchases of stock, too, will do the same, when he comes to arrange for the consumption of the crops provided by the summer's cultivation; and the management of his cattle and his sheep when on their winter's store of food, so as most economically to manufacture meat and provide manure, will give scope enough for all his agricultural ability. The accounts of all his proceedings having been carefully recorded and arranged, the balance will at length appear as the unquestionable indication of the way in which that ability has made use of the circumstances on and under which it had to operate.

Now where in all these particulars is there one instance in which practical skill, to be obtained only in the field, and professional intelligence, such as may be gained from books, are not both required? The general relationship of landlord and tenant, and the expression given to it in the conditions of the lease, may be discussed intelligently and with good effect by one acquainted only with the literature of the subject, but that one condition which more than any other affects the character of the bargain—the amount of rent regarding which it covenants—must be left to experience alone, and even in the other particulars of the agreement there are peculiarities of circumstance to be accommodated which only a practised and accustomed hand can efficiently arrange. A book can no more give the details of the arrangement between landlord and tenant proper for every variety of circumstance, or between the occupier of a farm and his successor, than can an Act of Parliament, and the inability of that seems now very generally admitted. The principles of the arrangement best calculated to maintain fertility while the interests of landlord and his tenants are provided for can be described, but the application of them under the peculiarities of every separate case must be left to local tact and skill, including much in addition to mere general intelligence. Obviously all valuations—whether between tenants or in purchases of stock—come under the same class of particulars, needing experience and skill in addition to mere general intelligence.

Then take the details of cultivation. These, as everybody knows, are especially under the guidance of local experience determined by such local peculiarities as the average annual rainfall, the number of dry days in the summer months, the *maximum* and *minimum* of the thermometer, the quality of the soil, and the character of the labourer. A Scottish Turnip seed time would produce a mildewed crop in southern England; the seeding of the Wheat and Oat crops deemed enough on well cultivated land in south and midland England—5 pecks of the former and 3 bushels of the latter per imperial acre—would not, we believe, be generally approved of by Scottish farmers. And it is not always a question of mere climate. A friend of ours occupying a large extent of land in Gloucestershire took a farm in Sussex on the edge of the chalk downs there, two districts not particularly different in their climate. The labourers employed upon that farm had been resident 20 and 30 years upon it, and of course knew perfectly the character of the land and the agricultural customs to which it had given rise. On arriving there one April morning the new tenant was frightened to find them at work trampling the young Wheat in with long teams of oxen drawing heavy rollers twice to a place over the field, leaving the dry white chalky land behind them as hard as a road, and with really little better promise of a Wheat crop on it than the road itself presented. His opinion that local experience ought to override all other guides induced him to submit (for so he felt it at the time), and the result justified a practice against which all his previously acquired agricultural intelligence protested: the experience of the district had already proved its propriety—had proved the need of that induration of the soil—for the accomplishment of which, however, no doubt "intelligence" may find some more compendious and less laborious means than the driving of long teams of heavy cattle over it appears to be. Skill, the result of local practice, as well as intelligence to be acquired from books, is needed for the efficient direction of the details of cultivation.

The same truth appears still later on the scene—and at haymaking and in harvest time, both of grain and green crops, local peculiarities of management, sometimes condemned by mere general intelligence, are justified in their several localities by those results *upon the whole*, in which the lessons of agricultural experience consist. It appears, too, in the management of live stock—indeed, it is more obvious here than in any previous department of the farmer's operations; for here, in addition to the local influences which produce local peculiarities of practice, there are individual influences at work. Of course many rules affecting all animals alike have been determined; the influence of shelter, quiet, warmth, and the relative nutritive effects of different kinds of food and management have been illustrated by science and confirmed by practice, but a good herdsman knows that these rules need to be applied with discriminating judgment, and varied according to the temperament and character of individual animals. A skill which cannot be acquired from books is needed here. The labourer in charge of course is the man who must exhibit it, but the master needs it too, or he will not detect the failure of his servants. In dairying especially is there need of this detailed attention, of which experience only will sufficiently impress the importance. The best illustration we can give of this is the answer of an old Gloucestershire dairyman to one who had been speaking of the way in which a knowledge of the chemistry of milk might influence dairy management. Says he, "Nine-tenths of the profits of the dairy farmer depend simply on the master seeing for himself that his cows are always thoroughly and completely milked." Such was the proportion which long experience had laid down as existing between the influence of a commonplace ordinary matter like attention to a point of mere routine—and that which all the knowledge of the scientific man could exercise on the profits of that branch of agriculture.

We would place this—the practical aspect of the subject—thus strongly before agricultural students, because we may presume that they are already sufficiently impressed with the value of such general and professional intelligence as books and lectures can convey—so that if the need of either branch of an efficient agricultural education require to be especially insisted on, it is that of which practice and experience are the only efficient teachers.

THE LUCERNE.

It is well known that all animals love variety in their food, and thrive upon it. To the Italian Rye-grass, therefore, I have added the classic Lucerne. I had of old heard much of this plant; how choice it is in its food; how precarious in unsuitable undersoils; how short-lived at best in ordinary treatment; and how quickly it is choked to death by ineradicable weeds. On the other hand, antiquity ran mad about it. At last I came across a sober and well digested plan in Harte's "Essays on Husbandry," published in 1768, which met the difficulties of its cultivation, and held forth high promises of perennial growth, and of a produce unheard of before.

"In April sow the seed in a nursery, and thin the plants and keep them clean. Take them carefully up in August, cut off the shoots to within 5 or 6 inches of the crown, and shorten the tap roots to 7 or 8 inches long. Having beforehand deeply dug and manured a suitable well drained spot with spit dung, transplant the Lucerne 8 or 10 inches from plant to plant in single rows 3 feet apart. Weed the beds with hand and with hoe. At first it will yield little; but still cut the plants as they grow, to give them strength and make them branch. The second year after planting, the produce will increase. In the third it will yield you four full cuttings at least, very probably five or six; and its life will last longer than yours." Such is the substance of Mr. Harte's advice; and I thank him for it, as I do for the suggestion of a motto for my work.

"Cut the tap root of the Lucerne plant, and thus check its descent, and lure the roots into the intervals, and there feed them with their proper food." Here was the plan for my purpose. So, modifying it in some measure,—sowing in spring, and for safety sake transplanting in the following spring in double rows 2 feet apart, with intervals of 3 feet, I have verified to a certain extent the assertions of the author by this year's results. About 2 roods of my clay land are in Lucerne, transplanted in the spring of this year. But, on my gravel piece there are 2 roods of this plant which have reached their third year; and even this ungenial season has given me four bulky cuttings of the most heartening green stuff an animal can eat. Cows devour it greedily, and it fattens and invigorates horses as if they were feeding on corn. "In fact," says a black letter quarto, "no better food can be desired for cattle wherewith they will better feed or sooner rise." It was very striking to see it flourishing this spring, when a blade of Grass had not shot elsewhere. And scarcely anything in vegetation can exceed the beauty of its growth and of its foliage of tender emerald green. I quote with all the pleasure of entire sympathy the impression made by this growing crop on the cultivated mind of the

agrist whom I have followed. "The regularity of the rows, and the exactness of distance from plant to plant amuse the eye as a work of industry. It is something, also, to behold, as it were, the returns of several springs in the same year. To-day, the field is clothed with verdure. To-morrow, it is cut and removed. In a fortnight more, it appears in all the bloom of fresh vegetation, and in another fortnight arrives at maturity. Thus, the picture changes almost every day,—a variety and repetition of appearances rarely to be found even in the vegetable world!"

I grow my Lucerne thus, and cut it with the sickle. After every cutting the rows are cleaned, and dressed with gypsum, and horse-hoed; and watered, if dry. In winter, a dressing of soot is applied, and forked in in the spring. If the cuttings are more than can be consumed, the Grass is brought home and made into hay. It makes excellent hay, without further making than gently forming it into small cocks, and as gently turning them till half dry, when the hay is carried to my open-slated, well-aired hay-loft, and bedded between layers of straw. For green food, I cut the Lucerne the day before using, to dry as much as possible in the time; and give it sparingly at first.

The frenzy of the ancients about Lucerne does not prove to be excessive after all. For no writer can be more candid and truthful than the one I have quoted; and he assures us, from calculations in his own case, that, even in the second year, when it had not arrived at its due size, the produce of his transplanted Lucerne amounted to 10 tons at least per acre. And, with relation to other men's crops, treated in the same way, he brings forward reliable instances of 20 and even 40 tons. *Rev. S. Smith's Lois-Weedon Husbandry.*

OBSTRUCTIONS IN DRAINING-TILES.

[FROM THE JOURNAL OF THE ENGLISH AGRICULTURAL SOCIETY.]

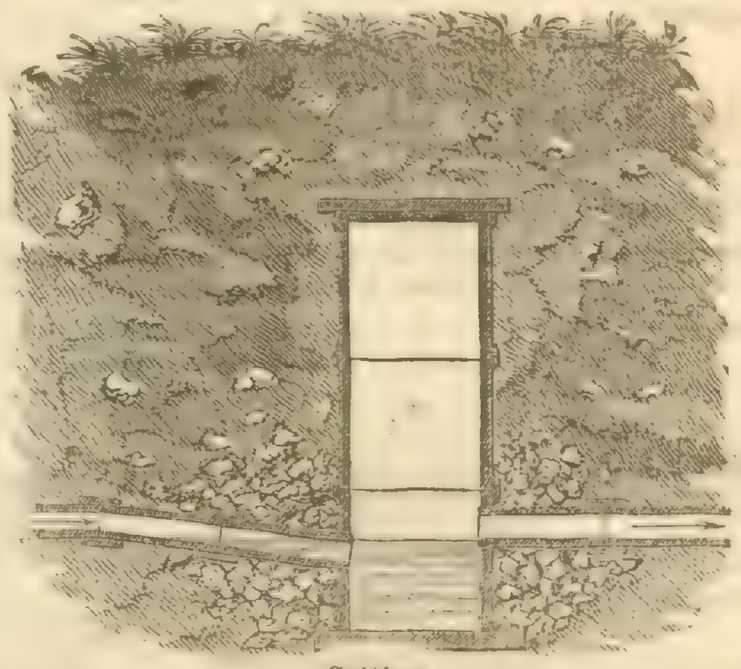
IN certain soils the water from drains forms, more or less quickly, a deposit of solid matters, which create an obstruction in tiles, prevent all flow, and render the work done useless. This is the most serious mischief which can happen to works of drainage; and unless it can be prevented, it is vain to attempt the improvement of lands liable to be so affected by draining. The obstructions formed in tiles by the chemical deposit of substances held in solution in the drainage-water are of two different natures. One is formed principally of carbonate of lime; the other contains a large proportion of oxide of iron, and exhibits an ochreous colouring, which has acquired for it the name of the ferruginous deposit.

I will now explain the results of my investigations into these two classes of obstructions, and the simple means by which I am enabled to prevent their formation in draining tiles.

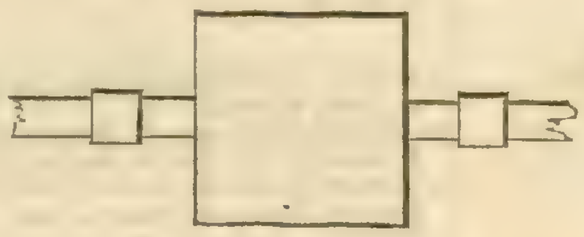
Calcareous Obstructions. Spring waters in calcareous soils contain sometimes a sufficient proportion of carbonate of lime to form incrustations; that is, they will deposit by exposure to air a greater or less proportion of calcareous salts. The same phenomenon occurs in draining-tiles; the bore rapidly diminishes, soon it becomes insufficient to allow a passage for the water which should flow through them, and the fruits of a great outlay are entirely lost. Waters charged with carbonate of lime hold it in solution by means of the carbonic acid gas which they contain. They remain limpid as long as the gas does not disengage itself. The calcareous deposit is only formed when the quantity of carbonic acid is no longer proportioned to the calcareous salt which the water contains. The formation of calcareous substances in drains may therefore be obviated by preventing the disengagement of the carbonic acid in the water which runs in the drains. This is easily done by cutting off all communication between the drains and the external air. The small quantity of atmospheric air in the subterraneous conduits soon imbibes carbonic acid in proportion to the volume of gas dissolved in the water. This has then no longer a tendency to disengage itself. The water charged with the calcareous matter preserves its limpidity, and the flow may continue without interruption. Nothing is more easy than to realise this in practice. It is only necessary to place an air-trap (un regard pneumatique) a few yards above the outfall, and, if it can be conveniently done, at the points of junction of the main drains. These air-traps are constructed like ordinary traps, with two or three large tiles placed vertically on a flat stone, or upon a large flat tile, and covered in the same manner; a little bit of solid work in brick or masonry is placed at the base of these traps. The tiles which discharge into them, in greater or less number, are solidly fixed, and sometimes built in for a short distance to avoid all danger of displacement. But contrary to the plan pursued with the ordinary trap, the conducting tile, to which an increased fall is given for a short distance, is placed at a slightly lower level than the discharging tile; by this device the drain-tiles are cut off from all communication with the outward air and the desired condition is obtained.

Ferruginous Obstructions.—The obstructions of this nature are formed by abundant deposits of a muddy or gelatinous consistency. Their tint varies from deep red to faded ochreous yellow. When the deposits are formed in calm water you see pellicules of varied hues appear on the surface, which the smallest agitation precipitates to the bottom. These deposits rapidly choke tiles of any dimensions, and completely stop the flow of the water. The waters in which these deposits are formed are those especially which spring from lands rich in oxide or in sulphate of iron, from bogs, from peaty grounds, and from lands exposed to infiltrations from woods placed on a higher level. The products designated by the names crenic and apocrenic acids play an important part in the production of these

Air-trap.



Cutting.



Plan.

deposits. The study of them in a purely chemical point of view merits attention, and I propose to undertake an examination of them as soon as a favourable opportunity permits me to collect a mass of materials sufficient for the inquiry. For the present, in a practical point of view, the following facts will suffice:—The composition of these deposits is necessarily very variable. It depends doubtless on the nature of the soils traversed by the waters which produce it. On the other hand, the deposits are almost always mechanically compounded with indeterminate, but often considerable, proportions of clay, of fine sand, and of vegetable detritus.

To give an idea of the differences of composition which exist between one sample and another, the three following analyses are supplied:—

	1.	2.	3.
Sand, iron, and clay insoluble in hydrochloric acid	17·00	29·75	76·75
Alumina	3·67	3·75	5·75
Oxide of iron	37·67	49·70	4·75
Carbonate of lime	6·33	8·48	3·66
Carbonate of magnesia	..	3·24	1·14
Water in combination, substances not proportioned, and combustible organic matter, azote not included	34·67	3·07	7·55
Azote	0·66	2·01	0.40
	100·00	100·00	100·00

Sample No. 1. was collected in the environs of Cassel; it was only dried in the air. The other two, before analysis, were dried at a temperature of about 80°. Sample 2 was collected in the environs of Arras, and sample 3 comes from Henonville (Oise). I boiled 100 portions of these samples with potass.

	Sample 2.	Sample 3.
Silica	7·63	5·35
Alumina	traces	2·15
	7·63	7·50

An analogous deposit, collected at Drayton Manor, and analysed by Mr. Phillips of London, furnished—

Silica and alumina, with traces of lime ..	49·20
Peroxide of iron	27·80
Organic matter	23·00
	100·00

It would be difficult, as I said at the beginning, to deduce very useful conclusions from these figures without more detailed research. It is not the same with regard to the following facts, of which the practical interest will easily be appreciated. When you collect a recent deposit, and some of the water from which it is formed, by passing the whole through a filter you will obtain a liquid perfectly pure. This liquid, enclosed in bottles, entirely filled, and well corked, or placed in an atmosphere quite deprived of oxygen, preserves its transparency indefinitely. Exposed to the action of oxygen, or of atmospheric air, it becomes turbid in a few moments, and begins to deposit the ochreous matter which forms the basis of the obstructions of which we are treating. The deposit collected in the drains, or in the ditches into which they discharge themselves, may be easily freed from the liquid by washings with pure water. By exposure to air the tint becomes more red. When after some hours it appears no longer to vary in colour, the deposit is placed in a bottle filled with water and well corked: the red tint will be seen to become by degrees dark brown or almost black. After some weeks, if the produce is filtered, a pure liquid is again obtained, but which rapidly becomes turbid by exposure to air, and allows the ochreous deposit, of which I have spoken, to form. At the same time the deposit left behind in the filter resumes the red tint which it presented at the moment it was enclosed in the bottle. The same series of observations may be repeated several times by the same sample. The product in question presents then this double character: it becomes insoluble by its oxidation, and it is able, when left to itself, to reduce itself, so as to become partly soluble. If you place three or four cubic centimétres of the ochreous precipitate, recently collected, and saturated with the water from out of which it was formed, in a prover filled with oxygen, secured over a bowl of mercury, the absorption of gas is at first very rapid, then it slackens by degrees, and at last ceases altogether. During the first eight days of one of my experiments 14 cubic centimétres of gas were absorbed, whilst on the thirteen following days 5 cubic centimétres only disappeared. The mass was then completely of a red tint, and, put through a filter gave a clear liquid, and did not contain in solution any product worthy of remark. The liquid which impregnates the new precipitates contains variable proportions of substances precipitable by the action of air. We have obtained up to 0·80 per litre, although the oxygen had already precipitated a part of it. Commonly from 0·25 to 0·50 per litre will be found, which is sufficient, on account of the lightness of the product and its gelatinous consistency, quickly to produce an obstruction in tiles. From these facts it results—

1. That the waters which produce the ferruginous obstruction in tiles preserve their limpidity, and do not form any deposit, when they are placed beyond the reach of the oxygen of the air.

2. That a deposit recently formed can exert upon itself a reducing action which makes it in a great degree return to a soluble state.

From these two facts it is easy to conclude that air traps resembling those described in speaking of calcareous deposits, will equally prevent the formation of ochreous deposits in drain tiles. In the second case the trap, instead of preventing the dispersal of the carbonic acid, as in the first case, will prevent the entrance of the oxygen of the air. If a little of the gas reaches the tiles during great droughts, or with the water of the first rains, some deposits, it is true, may accidentally be formed, but they will re-act upon themselves after having absorbed the oxygen contained in the air of the tiles, they will speedily return to a soluble state, and they will be easily carried along by the movement of the water in the drains during the rainy season.

It is superfluous to add that drains formed in land subject to produce these ferruginous obstructions ought to be executed with more than ordinary care. The refilling of the trenches ought above all things to be attended to. The most argillaceous parts of the soil should be chosen to place over the tiles; these should be chopped fine and carefully rammed in the most perfect manner. The composition which forms the basis of these ferruginous incrustations in drain tiles is found in great quantities in soils circumstanced as above described. It is equally found, but in smaller proportions, in many other soils. It probably plays an important part in the phenomena of vegetation. It is not impossible, indeed, that it is in this particular state of combination that iron introduces itself into the tissue of plants. It is very probable that ammonia may be formed during the oxidation of this substance, as it is formed when iron rusts in the damp air. The experiments which I have in hand may, I hope, place beyond doubt this reaction so interesting for agriculture.

The chemists who have spoken of the ferruginous obstructions of drains, supposed with reason that these deposits were due to the oxidation of the salts of the protoxide of iron. It was generally thought, however, that they were formed by the precipitation of a certain quantity of the carbonate of the protoxide of iron, produced in the bosom of the earth by the action of the organic materials on the peroxide of iron, and held in solution in the water by an excess of carbonic acid. The solubility of the carbonate of the peroxide of iron is insufficient to explain the abundance of some of these deposits. No one, moreover, had demonstrated positively the absorption of the oxygen, and no one had observed the spontaneous reduction of the deposit, which completely insures the success of the air traps of which I have now pointed out the use to prevent the ochreous obstructions in drain tiles. *Hervé Mangon, in Journal of the English Agricultural Society.*

ALLEGED DISCOVERY OF GUANO.

[The following is condensed from an article in the *Madrid Gazette* of May 22, reprinted in the *Times* of June 2.]

"Havannah, March 24.

"We have lately spoken of the discovery of a deposit of guano upon the Keys (Cayos) adjacent to the island on its southern side; we announced the appointment and departure of a commission deputed to make a detailed survey of the said rocks, and also notified the fact of the arrival of some cases of samples sent from Trinidad by the commission; from which place, according to the intelligence published in our number of last Sunday, it announced that the guano had been met with in abundance and of fine quality.

"According to our information, the existence of a species of guano upon the Cayos, adjacent to the island, and even upon some point of the island itself, was a circumstance that had been long since ascertained.

"However this may be, in the course of the past year Captain Green, of the American brig Moncure, succeeded

in convincing the firm of Tyng & Co., of this city, that guano in large quantities did actually exist upon the Cayos of Jardines and Jardinillos, and that a large profit would be derived from its exploitation, if permission could be obtained to work it. The house of Tyng & Co. applied to his Excellency the Superior Civil Governor, Captain-General and Superintendent of Finance, requesting such exclusive privilege for a certain term, and presenting a sample of the substance in question, submitting that they had established a right to claim that or an equivalent reward for the information which might be conceded without prejudice to the State, since from the before-mentioned Cayos alone as much as 150,000 tons might be annually extracted.

"As it may naturally be presumed, our supreme authority gave immediate orders that the sample of guano should be analysed, committing this task to the care of the intelligent director of the laboratory of chemical investigations. Although the analysis did not furnish results entirely conformable to the qualities which had been attributed to the sample of guano submitted, it on the other hand gave others more than sufficiently satisfactory and valuable to render it highly advisable to continue the investigation; for although no guano equal to that of Peru had been found, still the substance which had been examined possessed qualities, as a manure, of an exceedingly valuable nature, which would render its employment in our agriculture highly profitable, and even afford ample returns to the exchequer by the granting licenses for its exportation, which would not have been so earnestly sought for without well-grounded reasons for counting upon a profitable return.

"The sample submitted to examination was a substance which, taking the result of its qualitative analysis, was found to contain sulphate of lime or gypsum, traces of salt, or chloride of sodium, phosphate of lime with oxide of iron, carbonate of lime with indications of magnesia, silica and silicate of iron, vegetable organic matter and water combined; the quantitative analysis showing that the sulphate of lime and the traces of salt entered into its composition in the proportion of 40 parts in the 100, the phosphate of lime 20 parts, the carbonate of lime 12, the silica and silicate of iron 2, organic vegetable matter 6, and water and loss 20 parts. Mr. Casaseca very justly called attention to the comparison of this analysis with that of the guano of Peru, from which the sample examined materially differed, since the latter contained neither uric acid, urate of ammonia, or ammoniacal salts. While the average qualitative analysis of the Peruvian guano supplies no sulphate of lime, the sample analysed contained no less than 40 per cent. of that substance, it being to be observed that no guano hitherto examined had yet furnished gypsum, on which account Mr. Casaseca considered himself authorised in terming it a calcareous stone.

"But Mr. Casaseca was notwithstanding of opinion that this substance was to be considered as a mineral manure of great utility, on account of the large quantity of gypsum it contained, and to a high degree valuable in particular descriptions of cultivation, no less than on account of the remarkable proportion it contained of phosphate of lime, one of the best mineral manures known. He was of opinion, therefore, as we have already stated, that the subject was a matter calling for thorough investigation; and this accordingly is the object with which the commission appointed has set out on its voyage, accompanied by the before-mentioned Captain Green, sent by the firm of Tyng and Company.

"The commission left Batabano on the 6th; on the 7th the steamer arrived, conveying it nearly as far as the extremity of the Rosario Channel, and anchoring near the Cantiles Cayo. This cayo was examined, and an abundance of white guano, similar to that sold in the United States as Mexican guano, was found upon it. On the 8th the Rosario Cayo was examined, and on the 9th the Pasages Cayo, upon which was found guano equal to that of the Cantiles. On the 10th, after going in the direction of the Largo Cayo, their explorations were continued with various results, but they had found on some islets in sight of the said cayo an immense number of birds and a considerable quantity of guano.

"On the 11th, directing their course along the south of the Largo reef and cayo towards the Ballenatos Cayos, they found upon the larger one to the east some guano of superior quality. On the 12th, at daybreak, the steamer went in a direction E. by S. of the Largo Cayo, and visited some cayos which they had not examined on the 10th, meeting with a dark-coloured guano, and upon one of them so immense an assemblage of birds that the very 'sun was darkened by them;' the soil of this cayo was covered with eggs, it being calculated there were as many as a dozen to every square yard. The guano appeared to be abundant, and of excellent quality. The steamer afterwards sailed to Trinidad, from which place the commission was about to leave for the cayos of Doce Leguas, and to continue their explorations as far as the Cruz Cayo, also reserving for examination the cayos situated between the Rosario Channel and the Isle of Pinos.

"But before resuming their labours the commission took care to remit to his Excellency the Governor and Captain-General six cases of samples of the qualities of guano, to all appearance distinct, which it had met with at different spots. Some at least of these samples, which we have had the pleasure of inspecting, must differ considerably from that previously analysed by Mr. Casaseca; for, if we are not mistaken, it cannot be doubted that they exhale ammonia in abundance, and that consequently that essential point of distinction between it and the guano of Peru no longer exists."

TABLE OF AGRICULTURAL CUSTOMS.

Will any of our readers in any of the counties specified give those corrections which this table no doubt requires?]

Counties.	Usual Rotation of Crops.	Usual Restrictions on Tenants.
Bedfordshire	Sands.—1, Turnips; 2, Barley; 3, seeds; 4, Wheat Loams.—Beans or Oats after Wheat Clays.—Chiefly Beans and Wheat	None as to rotation or quantity of crop; none as to quantity of Wheat; must feed all hay and straw; cannot break up pasture
Berkshire	Turnip lands.—1, Turnips; 2, Barley or Oats; 3, seeds; 4, Wheat; 5, Oats Heavy soils.—1, fallow; 2, Wheat; 3, Beans; 4, Wheat; 5, Oats	None as to mode of cropping previous to last year; at that time so many acres in fallow; may sell hay and straw until last crop
Buckinghamshire	High lands.—1, Turnips; 2, Barley; 3, seeds; 4, Wheat or Oats Low grounds.—1, Wheat; 2, Beans	Scarcely any, except sometimes to two crops and a fallow
Cambridgeshire	1, Fallow; 2, Wheat or Barley; 3, Oats or Beans	None as to mode of cropping; may not remove hay or straw, nor plough pasture
Cheshire	1, Potatoes; 2, Oats or Wheat; 3, Barley or Oats; 4, Wheat or seeds	May not till more than a given proportion of the farm, but none as to cropping such tillage land; varies as to removing hay and straw
Cornwall	1, Wheat; 2 Oats; 3, Potatoes or Turnips; 4, Barley; 5, seeds for three years	Not more than two white crops without fallow or manure; must use 100 bushels of lime for first crop; must let seeds lie down three years; cannot mow more than one crop without fresh manure (except water meadows); may sell hay and wheat straw, but no other straw
Cumberland	1, three years' Grass; 2, Oats; 3, Turnips; 4, Barley or Wheat; 5, seeds Clays.—1, Oats; 2, fallow; 3, Wheat; 4, seeds	Must not take two white crops successively; must regularly rotate the crops; a certain proportion must remain in Grass three years; must leave a like quantity in seed as he found; cannot remove hay or straw; must use 80 bushels of lime for Wheat or Turnips upon a fallow
Derbyshire	1, Oats; 2, Turnips or fallow; 3, Barley or Wheat; 4, seeds; 5, Beans, 6, Wheat Chiefly Wheat and Beans	In the north, cannot break up pasture, nor remove hay or straw; in the south, not so strict; none as to cropping
Devonshire	1, Wheat; 2, Barley, Oats, or Turnips; 3, Wheat	Cannot take more than two white crops for a fallow; must use lime for Wheat or Barley, and leave same quantity of Wheat land as found; may sell Wheat straw, but must feed the other; may sell hay
Dorsetshire	1, Wheat; 2, Turnips or Tares; 3, Barley or Oats; 4, seeds In Western Districts.—1, Wheat; 2, Oats; 3, fallow or Turnips; 4, Barley; 5, seeds	Must feed hay and straw; cannot take two successive crops of same kind; but no restrictions as to two white crops
Durham	1, Turnips or fallow; 2, Barley or Wheat; 3, seeds, Tares, or Peas; 4, Oats	Must generally rotate strictly, so as to have one-fourth in fallow, sometimes divided into three parts
Essex	1, Turnips; 2, Barley or Oats; 3, seeds; 4, Wheat; 5, Tares; 6, clean fallow; 7, Wheat or Barley Clay lands.—1, fallow; 2, Wheat; 3, seeds; 4, Oats Some places, alternate fallows	Not usual to take two white crops in succession; usual to fallow after every third crop; no restriction as to manuring, mowing, or grazing pasture; may remove hay and straw upon bringing back dung for hay, one load; for straw, one, and in some places two loads
Gloucester	In the Vale.—1, Turnips; 2, Barley; 3, seeds for two years; 4, Wheat	Cannot remove hay or straw, but no restriction as to mode of cropping; usual to allow three crops to a fallow; must leave as found
Hampshire	1, fallow; 2, Wheat; 3, Oats or Barley; 4, seeds for two or more years Turnip land.—1, Wheat; 2, Turnips or Tares; 3, Barley or Oats; 4, seeds for two years	Cannot remove hay or straw, nor take two Wheat crops successively, but two white crops not objectionable; no restriction as to quantity of seeds
Herefordshire	1, Turnips; 2, Barley; 3, seeds; 4, Wheat; 5, Tares or Peas Clays.—1, fallow; 2, Wheat; 3, Beans or Tares; 4, Barley; 5, seeds	Cannot remove hay or straw, but no restriction as to quantity or rotation of crops, except cannot sow more than a certain quantity of Wheat in the last year (generally one-third of the arable land).
Hertfordshire	1, fallow; 2, Wheat; 3, seeds; 4, Wheat or Beans; 5, Oats or Wheat	Usually two crops to a fallow; may sell hay and Wheat straw, but must feed the other straw
Huntingdonshire	1, fallow; 2, Barley or Wheat; 3, seeds; 4, Beans or Wheat; 5, Wheat or Oats Cross-cropping much practised	Cannot break up pasture, nor remove hay or straw; but no restriction as to cropping
Kent	East Kent.—1, Turnips; 2, Barley; 3 seeds; 4, Wheat; 5, Peas West Kent.—1, fallow; 2, Wheat; 3, Oats; 4, seeds or Beans	Cannot remove hay or straw; but in some places are allowed, upon bringing back dung; not more than two crops to a fallow allowed; otherwise no restrictions as to cropping
Lancashire	1, Potatoes; 2, Wheat; 3, Oats; 4, Barley fallowed; 5, seeds. Or, 1, Oats; 2, Potatoes; 3, Wheat; 4, Barley; 5, seeds	Cannot have more than a proportion of under tillage at one time, but may manage the tillage at option; cannot take more than two white crops without laying down for seeds for one or more years in rotation; must lay a proportion of dung yearly; may sell hay and straw
Leicestershire	Clays.—1, fallow; 2, Wheat Loams.—1, Turnips; 2, Barley or Oats; 3, seeds; 4, Wheat	Cannot sell hay or straw, nor break up pasture; must take only two white crops to a fallow; in some places, must lay a certain quantity of lime
Lincolnshire	Wolds.—1 Turnips; 2, Barley or Oats; 3 seeds; 4, Wheat Fen.—1, Cole-seed; 2, Oats; 3, Wheat; 4, Oats	Cannot remove hay or straw, nor take more than two white crops to a fallow, except in fen land
Monmouthshire	Clays.—1, fallow; 2, Wheat; 3, Oats; 4, seeds Sands.—1, Turnips; 2, Barley; 3, seeds; 4, Oats; 5, fallow or Wheat	Generally, cannot sell hay or straw, except to other tenants on the same estate; in some parts there is no restriction; no restriction as to mode of cropping or quantity of Wheat, provided there is a fallow after it
Norfolk	1, Turnips; 2, Barley; 3, seeds for one year; 4, Wheat	Must rotate crops regularly; some places no Oats allowed; in others only a certain portion; cannot remove hay or straw
Northampton	Clays.—1, fallow; 2, Wheat; 3, Beans Loams.—1, Turnips; 2, Barley; 3, seeds; 4, Wheat	Cannot remove hay or straw, nor take more than two crops to a fallow; but no restriction as to quantity of Wheat
Northumberland	1, fallow; 2, Wheat; 3, seeds; 4, Oats; 5, fallow again for Wheat	Generally, cannot remove hay or straw; where allowed, manure must be brought back, load for load; cannot take more than two white crops, with a green one between them, for a fallow
Nottinghamshire	1, Turnips; 2, Barley or Oats; 3, seeds; 4, Wheat; 5, Peas Clays.—1, fallow; 2, Wheat; 3, seeds; 4, Wheat; 5, Oats	Cannot remove hay or straw, but no restriction as to cropping, except where tenant enters at Michaelmas, in which case he can but take three crops to a fallow, and never two white ones successively
Oxfordshire	1, Turnips; 2, Barley; 3, seeds for two years; 4, Wheat	Cannot remove hay or straw; but no restrictions as to cropping or quantity of Wheat
Rutlandshire	1, fallow; 2, Wheat; 3 Beans. Or, 1, Turnips; 2, Barley; 3, seeds; 4, Wheat	Cannot sell hay or straw; no other restriction
Shropshire	1, Turnips; 2, Barley; 3, seeds or Peas; 4, Wheat; 5, Oats	Cannot sell hay or straw; no other restriction
Somersetshire	South.—1, fallow; 2, Wheat; 3, seeds or Beans; 4, Oats East.—1, fallow; 2, Wheat; 3, Oats or Barley; 4 seeds	Cannot sell hay or straw, nor take more than two white crops to a fallow, nor break up pasture, nor have above a certain quantity of Wheat
Staffordshire	Clays.—1, fallow; 2, Wheat; 3, Oats; 4, seeds Loams.—1, Turnips; 2, Barley; 3, Wheat; 4, seeds; 5, Oats	Cannot carry away hay or straw; but no restriction as to cropping, or breaking up pasture—frequently done after 20 years—nor as to quantity of Wheat
Suffolk	Loams.—1, Turnips; 2, Barley; 3, seeds; 4, Wheat	Cannot take more than three crops of a corn to fallow; but not otherwise restricted as to mode of cropping or quantity of Wheat; cannot remove hay or straw
Surrey	Heavy lands.—1, fallow; 2, Wheat; 3, seeds or Beans; 4, Wheat or Oats Weald.—1, fallow; 2, Wheat; 3, seeds; 4, Oats; 5, Tares which are fed off; 6, Wheat	Cannot remove hay or straw, nor take more than two white crops to a fallow; but no restrictions as to the quantity of Wheat, or succession of the two white crops
Sussex	North.—1, Turnips; 2, Barley; 3, seeds; 4. Wheat; 5, Tares Hills.—1, Turnips; 2, Barley; 3, seeds; 4, Wheat; 5, Rape Weald.—1, fallow; 2, Wheat; 3, seeds; 4, Oats	Generally, may sell hay upon bringing back dung; some places restricted; cannot take more than two straw crops to a fallow, but no restrictions as to the sorts or quantity of Wheat; bound to manure once in three years
Warwickshire	Loams.—1, Turnips; 2, Barley or Oats; 3, seeds for two years—1st cut, 2d fed; 4, Beans; 5, Wheat. Or, 1, fallow; 2, Wheat; 3, seeds in some way; 4, Beans; 5, Oats or Turnips Barley land.—1, Turnips; 2, Barley; 3, seeds in some way; 4, Wheat.5; Barley	Cannot remove hay or straw, nor take more than three crops to a fallow; but no restriction as to quantity of Wheat
Westmoreland	1, Oats; 2, Turnips; 3, Barley; 4 seeds. Or, 1, Oats; 2, fallow; 3, Wheat; 4, seeds	Cannot take more than two white crops before seeds are sown, and between them must have a green crop or fallow; must manure meadow once in three years; must leave the farm as found
Wiltshire	Clays.—1, fallow; 2, Wheat; 3, seeds; 4 Beans; 5, Wheat Loams.—1, Turnips; 2, Barley; 3, seeds for two years—1st cut, 2d fed; 4, Wheat	Restrained from removing hay or straw, and taking two white crops in succession

[Continued on next page.

TABLE OF AGRICULTURAL CUSTOMS.—*Continued.*

COUNTIES.	USUAL ROTATION OF CROPS.	USUAL RESTRICTIONS ON TENANTS.
WORCESTERSHIRE ..	No regular system	Cannot remove hay or straw, nor sow more than one-third of the arable land with Wheat during the last years; otherwise no restrictions
YORKSHIRE (W. R.).	1, Turnips or fallow; 2, Barley; 3, seeds; 4, Wheat	Cannot carry away hay or straw, nor break up pasture; but must leave the farm with the same advantages as taken; otherwise no restriction as to mode of cultivation
" (N. R.).	1, Turnips; 2, Wheat or Barley; 3, Oats or Wheat; 4, seeds, fed off and pared and burnt	
" (E. R.).	No regular system except in the Wolds. 1, Turnips; 2, Barley; 3, seeds; 4, Wheat	

SHELL SAND AS MANURE.

SHELL and coral sand resemble each other so much in composition, in the manner in which both are formed, and in their effects upon vegetation, that we shall consider them together under one head. Shell-sand is calcareous sand, which consists of the fragments of broken shells, silicious sand, variable quantities of animal matters, and soluble alkaline salts. In coral sand, the silicious sand of the sea is mixed with fragments of corals and similar marine calcareous deposits. In both varieties the proportion of carbonate of lime varies from 40 to 80 per cent., and in the latter, the amount of animal matter is generally a little larger than in shell sand. Shell sand differs much in colour and fineness, general appearance, and chemical composition, and consequently in quality.

The more carbonate of lime, phosphoric acid, and animal matter it contains, the more valuable it will be found for improving the land. It is easily distinguished from common or silicious sand by the effervescence which is observed on the addition of a few drops of spirit of salt, or hydrochloric acid, to shell sand. Common silicious sand does not effervesce, but coral sand exhibits the same reaction with acids as shell sand.

Both shell and coral sand are employed with much advantage for improving clay soils and heavy loams, as well as peaty soils and Moss land. Stiff clay soils by the application of them are rendered more open and friable; and in peaty soils or on Mossy lands, they act beneficially by neutralising the organic acids which abound generally in the sour humus of such land, and by converting these acids into food for plants. On all soils deficient in lime shell or coral sand, moreover, will exercise a beneficial action.

Shell sand abounds in many parts of the eastern, western, and south-western shores of England. Extensive deposits are found especially in many parts of the Devonshire and Cornish coasts; and in so high an estimation is this sand held, that it is carried from the sea side many miles into the interior for the purpose of raising the fertility of the land. It has been estimated by Sir Henry de la Beche, "Geological Report on Cornwall," p. 480, that 4,000,000 of cubic feet are at present employed every year in that county for agricultural purposes. An immense deposit of indefinite depth occurs in the estuary of Padstow, from whence it is transported, in large quantities, to great distances inland, since the railway accommodations in the neighbourhood afford every facility for its general distribution over the country. It is of especial value on the soils of Cornwall, which are either stiff clays or poor sand; both the result of the disintegration of the granite rock of the country, and both deficient in the lime which it is the province of this manure to supply.

Mr. Herapath has analysed a sample of shell sand from Barracaine, a small cove within a few miles of Ilfracombe, and found it to consist, in 100 parts, of—

Water	.500
Soluble salts, consisting chiefly of chloride of sodium, sulphate of soda, and magnesia, with minute traces of potash	.300
Organic matter	2.420*
Carbonate of lime	47.438
Carbonate of magnesia	minute traces.
Sulphate of lime	.097
Phosphate of lime	.025
Oxide of iron and alumina	.460
Sand, and debris of slatey and granitic rocks	48.760
	100.000

The proportion of organic matter in this sand is rather larger than in the majority of cases; and as it contained nitrogen, it adds to the fertilising effects for which this sand is highly appreciated by the Cornish and Devonshire farmers. Shell sand is also largely found on the western shores and the western islands of Scotland. An enormous deposit extends along a large portion of the great outer Hebridean group, known as the Long Island. In the island of Barray alone there are four square miles of shells and shell sand of the finest quality and of an indefinite depth. It also occurs on the shores of the island of Arran; and here, and in other parts of the north of Scotland, is used with much advantage on the peaty soils which abound in the neighbourhood. A deposit of less extent occurs on the east coasts of Scotland, near Gosford, in East Lothian. The sand here is intermixed with pebbles and fragments of rocks of pretty large size, which rather deteriorate in value.

In Ireland shell sand abounds on the northern, southern, and south-western coasts. A very extensive deposit of great value extends over a great part of the south-western sea margin of Ireland.

On the south coasts of Ireland (Bantry Bay and elsewhere), moreover, coral sand is collected in large quantities by the aid of the drag. According to Mrs. Hall, the coral sand raised in Bantry Bay alone produces 4000*l.* to 5000*l.* a year to the fishermen who collect it, and to the parties who convey it up the country. This coral sand is rich in animal matters; and as the animal matters soon decay, we can readily understand why the farmers should prefer it in a fresh state.

A valuable calcareous sand occurs in large quantities on the coasts of France, especially in Brittany, where it is employed extensively under the name of *trez*. It consists principally of the remains of shells, corals, and of silicious sand, and may thus be regarded as a natural mixture of shell and coral sand. It is applied to marshy Grass lands at the rate of 10 to 12 tons per acre, with much benefit, and with equal advantage to clay soils. On the southern coast of France, shell sand is known by the name of *tangue* or *tanque*.

Two specimens of tangue, from the south of France, analysed by Vitalis, and one of shell sand from the island of Islay, examined by Professor Johnston, consisted of—

	Tangue from the South of France.		Shell sand from Islay.	
	I.	II.		
Sand chiefly silicious ..	20 3	40.0	71.7 to	65.7
Alumina, and oxide of iron .	4.6	4.6	..	..
Carbonate of lime	66.0	47.5	28.0 to	34.0
Phosphate of lime	..	..	.3 to	.3
Water and loss	9.1	7.9	..	..
	100.0	100.0	100.0	100.0

The proportion of phosphoric acid in the shell sand of Islay is considerable, and renders this material a valuable fertiliser. Another specimen of a calcareous sea sand, which occurs on the coasts of Normandy in the form of a fine meal, was found by Johnston to contain—

Organic matter	5.06
Carbonate of lime	43.50
Sulphate of lime (gypsum)	.32
Magnesia	a trace.
Common salt	1.01
Chloride of calcium	.73
Alumina	.17
Oxide of iron	1.20
Silicious matter	47.69

Under the microscope, this sand appeared to consist of minute crystals of carbonate of lime, of broken limbs and claws of small crustaceous animals, and of the shells or sheaths of numberless infusorial animals (Dr. Stark). It is, therefore, properly speaking, an infusorial sand, rich in organic matter, finely-divided silica, and in carbonate of lime. The finely powdered silica is evidently derived from the shells of the infusorial animals, from which also the organic matter originates. Its value as a manure is highly estimated by the farmers in Normandy, who greatly prefer it to the coarser kinds of shell sand with which the fine infusorial sand is frequently mixed, but in which the organic matter is present in smaller quantity. *A. V. in the Agricultural Cyclopædia.*

* In the organic matter was found .18 per cent. of nitrogen, or .22 per cent. of ammonia.

Home Correspondence.

On Cotswold Sheep.—The sheep of Great Britain may be divided into two classes—long and short-wooled. The leading long-wooled sheep are Cotswolds, Leicesters, Lincolns, Romsey Marsh, and Cheviots. It is pretty clearly admitted the Cotswolds have carried off the palm at the great cattle shows the last few years, and that all these named breeds are much improved by their crop. I will mention a few leading points of their superiority:—1st. Constitution—there are no sheep that will bear exposure better—they will not bear driving like the short-wooled sheep; but they may be confined to the marshes all the year round without injury—they will live and thrive on poor land—such is their native country, and they will fat quicker, carry more lean, and come to more weight than any other breed; I have had them 80 lbs. a quarter myself. 2dly. They will cut more wool—several flocks are averaging 9 lb. a fleece all the flock round—and more than that, there is not the marked difference of price between long and short-wool—this is a great point. 3dly. They will come to maturity sooner than others—the average flocks in the district will produce their tegs or shearhogs 11 months old 20 lbs. a quarter out of their wool, without any artifical food. What other breed can do this? Lastly their superior flesh, a point which I have always maintained, and which the French judges (allowed to be no mean authority in the article of food), have now proclaimed before the world to be superior to all other breeds. At a future day I will give an account of their management in this country. *T. Beale Browne, Salperton Park, Gloucestershire, May* 29.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *June* 3.—Mr. RAYMOND BARKER, V.P., in the chair. Fifty-three new members were elected.

FINANCES.—Mr. Raymond Barker, as Chairman of the Finance Committee, reported that the current cash-balance in the hands of the bankers was 1054*l.*

PRESIDENT.—On the motion of Mr. Thompson, seconded by Colonel Challoner, the following resolution was carried unanimously:—

That the President be requested to withdraw the offer of resignation made at the last monthly meeting in consequence of his election to be Speaker of the House of Commons, and that the Secretary do convey to him the cordial thanks of the Council for his exertions to promote the objects and welfare of the Society since the period of his appointment, together with the assurance that his attendance at the Council for the few remaining weeks of his Presidential year, though always welcome, will not be considered indispensable.

PRIZES FOR ESSAYS.—Mr. Thompson, Chairman of the Journal Committee, reported the following additional prizes to be offered for essays and reports sent to the Secretary on or before the 1st of March, 1858:—

On the Breeding of Cattle, with reference especially to the kind of diet, the treatment, and the condition, best calculated to ensure regular fecundity and successful gestation; and on the causes which act adversely in certain seasons ..	£20	0	0
On the comparative advantages of large and small farms: dairy, arable, and grazing ..	20	0	0
On manuring Grass-land	20	0	0
On any other agricultural subject	10	0	0

SALISBURY MEETING.—Colonel Challoner reported the favourable progress of the works for the Salisbury Meeting to be held in the week commencing the 20th of July.

JUDGES.—Mr. Fisher Hobbs, Chairman of the Judges' Committee, presented the following Report:—

The Committee beg to recommend to the Council the following arrangements for the nomination and selection of the Judges of Live Stock and Implements at the Salisbury Meeting:—

1. That a special advertisement be inserted in the usual agricultural papers requesting Members of the Society generally to send to the Secretary, by the 20th June, nominations of such persons to act as Judges in those departments and on that occasion as they can certify from their personal knowledge to be able and willing to act.

2. That a special circular be addressed to each Member of Council, conveying the same request.

3. That Exhibitors be at liberty to nominate persons for Judges, but to have no voice in the nomination or selection of Judges for the particular classes in which they have made entries for competition.

4. That the general list of these nominations be exhibited in the Secretary's room from the 21st of June until the 1st of July for any objections that may be made in writing and forwarded to the Secretary.

5. That the Council be requested to appoint a committee (excluding from its members all exhibitors) to select from the nomination list the several judges required, and which shall be requested to report its recommendations to the Monthly Council on the 1st of July, when the final appointments will be made.

The Council adopted this report, and appointed a committee agreeably with its recommendation.

AGRICULTURAL INSPECTIONS.—Mr. Fisher Hobbs called the attention of the Council to the great interest with which the members at the Exeter Meeting inspected the water-meadows of Sir Thomas Acland, at Killerton, and of Mr. Turner, at Barton; and to the additional interest which would be given to the ensuing country meeting, if arrangements could be made for a similar inspection of the modes of irrigation practised in the neighbourhood of Salisbury, as well as of other objects of an agricultural character within a moderate distance of that city. On the motion of Mr. Fisher Hobbs, seconded by Mr. Brandreth Gibbs, the Council agreed to the appointment of a committee, consisting of Lord Portman, Mr. Dyke Acland, Mr. Brandreth Gibbs, Mr. Fisher Hobbs, and Mr. George Turner, to communicate with the Mayor on the subject of the proposed arrangements, and to report their recommendations to the Monthly Council on the 1st July.

FOREIGN INVITATIONS.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Bramston, M.P., the Secretary was directed to address invitations, on the part of the Council, to the Minister of Agriculture of France and the Agricultural authorities of Vienna, in the hope that the Society might be honoured by their attendance and co-operation at the Salisbury Meeting.

LECTURES.—On the motion of Sir John Shelley, Bart, M.P., seconded by Mr. Milward, it was ordered that in consequence of Professor Way not being perfectly recovered from the effects of his recent illness, there should be no lecture delivered on that evening.

On the motion of Colonel Challoner, seconded by Sir John Shelley, Bart., M.P., it was ordered that Professor Simonds' Lecture on Cattle-Murrain should be delivered before the Members of the Society at one o'clock in the afternoon of Wednesday the 17th of June, and that free access be given on that occasion to the Members of the Highland and Agricultural Society of Scotland and the Royal Agricultural Improvement Society of Ireland.

BATH AND WEST OF ENGLAND, *June* 4.—The cattle yards were opened this morning, and the prize lists are given below. There is a very good show of live stock of all descriptions—the short-horns and Herefords surpassing all others. Mr. John Hewer's Hereford bull is one of the finest animals in the yard. The short-horns are in great number, and there are six or seven magnificent animals, not so fat as to hide their natural proportions. There is a good show of Leicester sheep. The following is the award of prizes:—

CATTLE.

DEVONS.

Class I. Bulls over 3 years old: Gold Medal—Mr. J. Bodley, Stockley Pomeroy, Crediton. Silver Medal—Mr. J. Davy, of Flitton Barton, South Molton.

Class II. Bull under 3 years old: 12*l.*—Mr. George Turner, Barton, Exeter. 5*l.*—Mr. James Hole, of Knowle House, Dunster.

Class IV. Cows in Calf or in Milk: 8*l.*—Mr. Walter Farthing, of Stowey Court, Bridgwater. 4*l.*—Mr. T. W. Fouracre, of Dursten, Taunton.

Class V. Heifers in Calf or in Milk under 3 years old: 8*l.*—

Mr Thomas Webber, Halberton Court, Tiverton. 4*l.*—J. W. Buller, Esq., of The Downes, Crediton

Class VI. Pairs of Heifers under two years old: 8*l.*—J. W. Buller, Esq., M.P. 4*l.*—Mr. Thomas Strong, of Dunchidcock Farm, Exeter.

SHORT-HORNS.

(Prizes in Classes VIII. to XI. not awarded when our report left.)

Class XII. Heifers in Calf or in Milk, under 3 years old: 8*l.*—Mr. Richard Stratton, of Broadhinton, Swindon; 4*l.*—Mr. Richard Stratton.

Class XIII. Pairs of Heifers under 2 years old: 8*l.*—Mr. Richard Stratton; 4*l.*—Mr. William Hewer, of Sevenhampton, Highworth.

HEREFORDS, OR CATTLE OF ANY OTHER PURE BREED.

Class XVI. Bulls under 3 years old: 12*l.*—Mr. J. E. L. Hewer, jun. of Vern House, Marde, Hereford; 5*l.*—Mr. W. C. Coles, Yewtree Close, Yeovil.

Class XVII. Bulls under 2 years old: 10*l.*—Mr. John Feaver, Westcamel, Ilchester; 5*l.*—Mr. J. E. L. Hewer, jun. of Vern House

Class XVIII. Cows in Calf or in Milk: 8*l.*—Mr. E. Palmer, of Ilchester, Somerset; 4*l.*—Mr. T. B. Brown, of Hampen, Andoversford, Cheltenham.

Class XIX. Heifers in Calf or in Milk under 3 years old: 8*l.*—Mr. William James, of Mapowder, Blandford; 4*l.*—Mr. William James.

SHEEP.

LEICESTER OR LONG-WOOLLED.

Class XXII. Yearling Rams—1st, Mr. George Turner, of Barton, Exeter, Devon; 2d, Mr. George Turner; Mr. John Bodley, of Stockley Pomeroy, Devon.

Class XXIII. Rams of any other age—1st, Mr. John Bodley; 2d, Mr. George Turner.

Class XXIV. Pens of Five Ewes—James W. Buller, Esq., M.P.

Class XXV. Pens of Five two-teeth Ewes—1st, Mr. John Salter, of Peverston, Cullompton, Devon; 2d, James W. Buller, Esq., M.P.; 3d, Mr. Francis Doble, of Holcombe Barton, Crediton.

COTSWOLD.

Class XXVI. Yearling Rams—1st, Mr. John King Tombs, of Langford, Gloucester; 2d, Mr. Edward Handy, of Fairford, Cheltenham, Gloucester.

Class XXVII. Rams of any other age—1st, Mr. Thomas B. Brown, of Hampen, Andoversford; 2d, Mr. Edmund Ruck, of Castle Hill, Cricklade.

Class XXVIII. Pens of Five Ewes—Mr. Thomas B. Brown, of Hampen, Andoversford.

Class XXIX. Pens of Five 2-teeth Ewes—1st, Mr. John K. Tombs, of Langford; 2d, Mr. Thomas B. Brown.

SOUTH DOWNS.

Class XXXII. Yearling Rams—1st, Mr. John Moore, of Littlecott Farm, Pewsey; 2d, Mr. John Moore.

Class XXXIV. Pen of Five Ewes—Mr. William Lucas, of East Coker, Yeovil, Somerset.

Class XXXV. Pens of Five 2-teeth Ewes—1st, Mr. William Lucas, of East Coker, Yeovil; 2d, Mr. R. K. M. King, of Walford, Taunton.

ALL OTHER DOWNS.

Class XXXVI. Yearling Rams—1st, Mr. John Moore, of Littlecott Farm; 2d, Mr. George Harbin, of Newton House, Yeovil.

Class XXXVII. Rams of any other age—1st, Mr. George Harbin, of Newton House; 2d, Mr. George Harbin

Class XXXVIII. Pens of Five Ewes—Mr. George Harbin, of Newton House.

Class XXXIX. Pens of Five 2-teeth Ewes—1st, Mr. John Moore, of Littlecott Farm, Pewsey; 2d, Mr. George Harbin, of Newton House.

SOMERSET AND DORSET HORNS.

Class XL. Yearling Rams—1st, Mr. Thomas Danger, of Huntstile, Bridgwater; 2d, Mr. Thomas Danger

Class XLI. Rams of any other age—1st, Mr. Robert Templeman, of North Perrott, Crewkerne, Somerset.

Class XLII. Pen of Five Ewes—Silver Medal, Mr. Robert Templeman, of North Perrott, Crewkerne.

Class XLIII. Pens of Five 2-teeth Ewes—1st, Mr. Thomas Danger, of Huntstile; 2d, Mr. Robert Templeman, of North Perrott.

MOUNTAIN SHEEP.

Class XLIV. Rams of any Age—1st, Mr. James Quartly, of Molland House, South Molton; 2d, Mr. Petheric Bunt, of Willshead, Exford.

Class XLV. Pens of Five Ewes of any age—1st, Mr. James Quartly; 2d, Sir T. D. Acland, Bart., M.P., of Killerton, Exeter.

HORSES.

FOR AGRICULTURAL PURPOSES.

Prizes not yet awarded.

PIGS.

LARGE BREED.

Class LV. Boars under 2 years old on 1st January, 1857—1st, Mr. John K. Tombs, of Langford, Lechlade; 2d, Mr. William Hewer, of Sevenhampton.

Class LVI. Breeding Sows in farrow, or that have farrowed within four months of the first day of the Exhibition—1st, Mr. Wm. Hewer, Sevenhampton; 2d, R. N. Grenville, Esq., Butleigh, Glastonbury.

Class LVII. Pen of three Breeding Sows, under nine months of age—1st, Mr. William Hewer, of Sevenhampton; 2d, R. N. Grenville, Esq.

SMALL BREEDS.

Class LVIII. Boars under 2 years old in January, 1857—1st, Mr. George Turner, of Barton; 2d, Mr. W. L. Breyley, of Corfe Farm, Barnstaple.

Class LIX. Breeding Sows in furrow, or that have furrowed within four months of the first day of the Exhibition—1st, Rev. G. F. Hodson, of North Petherton, Bridgewater; 2d, Mr. George Turner, of Barton.

Class LX. Pens of three Breeding Sows, not exceeding 9 months of age—1st, Mr. George Turner, Barton; 2d, Mrs. E. Palmer, of Ilchester, Somerset.

Of this meeting of the West of England Agricultural we will only add, that it was a very successful gathering. Upwards of a thousand implements were exhibited by many of the principal agricultural implement makers of the country, and by a large number of local machinists. Mr. Fowler was there with his steam-plough, already described in these columns. The prize for the turn-wrest plough, an implement much used in the hilly districts of Devonshire, excited much competition. Even the reaping machine was also tried.

The local character of the Show, which is its most important feature, was proved by the large number of Devon cattle (55) exhibited, and by the show of mountain sheep. Nearly 300 sheep and upwards of 30 pigs were also shown.

One of the most important claims of this society to general praise, notwithstanding its provincial character, is the interest which, through its office bearers, has been excited on the subject of middle-class education. We cannot now give a history of the movement, but will refer to a pamph'et* on the subject, from which both the scheme itself and its connection with the society may be gathered. The following is an extract:—

"A local agricultural society, the oldest,† it is believed, in England, has been extended over several counties, and the stimulus of unrestricted competition has brought together a number of persons in various occupations with a common object in view. A thirst for knowledge has been excited; and a consequent sense of the evils of neglected education has been awakened, especially as regards the subjects of language and natural science. A few persons of various shades of opinion, political and religious, having learned to act together and to trust each other, have provided a small prize fund, with a view to put to a practical test the value which the middle ranks may be disposed to attach to certificates of the progress of their children if awarded by competent examiners.

"The promoters of the prizes do not offer education: no attempt is made to found Agricultural Colleges or Middle Schools; no inspection is proposed; still less is it intended to protect the interest of existing establishments by encouraging a monopoly of education. The one thing that is offered to the middle classes is an examination which shall test the success of the education given, whether in schools or elsewhere; and thus at once give parents the power of discriminating efficient teachers, and teachers the opportunity of proving their own skill."

We do not refer at present to the details of this scheme, but we recommend our readers to study it as given in full detail by Mr. Acland in the pamphlet named below.

Reviews.

The Agriculturist's Assistant, a Note Book of Principles, Rules, and Tables, adapted to the use of all engaged in Agriculture or the Management of Landed Property. By John Ewart, Land Surveyor and Agricultural Architect and Engineer. Blackie & Son, Glasgow, Edinburgh, and London.

We have seen a good deal of Mr. Ewart's work, both literary and professional, and have always been struck by the laborious patience and industry it has exhibited. The present book is no exception to the general rule of his performances. It is an excellent illustration of the advantages of good arrangement and close packing.

The first part of the book is a short treatise on arithmetic—furnishing such instruction as is needed in making the calculations required in the subsequent portions of the work.

"The second part contains rules for computing the value of all operations incident to the usual routine of practical husbandry by *the piece*, whether performed by manual or animal labour. The mode by which this result is obtained is by the use of certain numbers or factors, representing the time occupied in performing definite quantities of work, as multipliers of the rate of wages by the day, current at any time and in any particular locality.

"The third part relates to the permanent improvement of landed property by such works as the construction and repairing of farm buildings, land draining, construction of embankments, construction of fences, laying land to permanent Grass, planting, and the making and repairing of roads."

We shall in future notices refer in detail to the manner in which the plan of the work under these several departments is carried out. Meanwhile we give the following passage explanatory of the methods and the cost of manure management as an illustration of the way in which Mr. Ewart has performed his task:—

"The density of fold-yard manure, as compressed by the trampling of the cattle in yards, varies from 15 to 18 cwts. to the cubic yard of its bulk; but the manure of cattle kept in boxes, in which the whole of the urine is retained, is 20 cwts. to the cubic yard. In removing farm-yard dung it will increase in bulk in the proportion of about 3 to 2—*i. e.*, every cubic yard in its compressed state by the trampling of cattle in yards and boxes, to 1½ yard, when disturbed in removal.

"Fold-yard manure loses considerable weight by keeping, according to the extent to which the decomposition by putrefaction has attained. The loss in weight which takes place in different stages of its decomposition may be stated as follows, viz.:—

	Cwt.
If manure when first disturbed from its compressed state in the fold yard or boxes should weigh.. ..	100
When so far decomposed as to be half rotten or easily separated by the fork, it will weigh only	80
When decomposition is so far advanced that the mass assumes a *fatty* or *cheesy* consistence, its weight will be reduced to	60
And when completely decomposed, it will then only weigh..	50

Or be reduced, when in that state, to one-half its original weight. A loss of bulk also takes place from the first to the last stages of decomposition about equal to what it gains by disturbance, that is, a loosed heap of thoroughly decomposed manure will not exceed its compressed state at first.

"The quantity of dung which an able-bodied labourer can remove or fill into a cart from the fold yard in a day is about 24 cubic yards; but of the more firmly compressed contents of cattle boxes, the quantity will not exceed 20 cubic yards. So that in the one case the multiplier representing the value of filling a cubic yard in proportion to a day's work is ·0416, and in the other ·05. Boxes not being accessible to carts in their usual construction, manure from them requires to be twice lifted in its removal, and the constant value of filling will, therefore, become ·1 instead of ·05.

"Having stated so much of the cost of manuring as relates to the filling of manure from fold yards and boxes, the next subject for consideration in the matter will be the cost of placing the manure in proper order in heaps—exclusive of the cost of cartage (which will come to be considered under another chapter).

"It is a fair day's work for one man to trim on the heap 48 cubic yards of fold manure in its original state, or 72 cubic yards after its having been disturbed and thrown loose into a heap; and the cost of such operation, therefore, of original cubic yard, will be represented in a constant multiplier by ·02083.

"The next process in the preparation of fold-yard manure is turning the heaps. This may be performed in two ways—either by reversing the heap in respect to its top and bottom, or by first picking down the former heap from top to bottom, and thoroughly mixing its components, and then forming a new heap; and in either case the amount of labour of the operation will be influenced by the state of decomposition of the manure, for the expense will be much greater when the straw is long and with difficulty separated, than when it is short and putrefaction so far advanced as to be easily separated. In the first-mentioned mode, the quantity for a day's work may be stated to be from 30 to 35 cubic yards, according to the state of decomposition, and the cost per cubic yard will be represented by the multipliers ·0333 and ·0287 respectively; but in the other mode, according to similar circumstances, from 15 to 20 cubic yards is an ample day's work, and represented by the constant multipliers of ·0666 and ·05 respectively.

"The final process in preparing fold-yard manure is covering it with soil to a depth of from 6 to 9 inches, in performing which a labourer will dig and spread on the heap about 12 cubic yards in a day's work.

"After fold-yard manure has been turned, and remained a few weeks in the new heap, a day's work in filling it for application to the soil is about 30 cubic yards, or the cost per load of 1 cubic yard is represented by the constant multiplier ·0333.

"The application of manure may be either broadcast or in drills. The spreading, in either case, is usually performed by women or boys, at one-third the rate of wages of able-bodied labourers; and as the quantity that can be spread by three women or boys is about the same as the quantity that can be filled by an able-bodied man, the cost of the labour of spreading per cubic yard will be represented by the same constant multiplier as for filling from the heap, viz., .0333.

"*To find the cost per cubic yard of preparing or applying fold-yard manure for one, any number, or the whole of the previously described processes, except covering the heap with soil, at a given rate of wages per day.*—Multiply the day's wages in pence by any of the constants, or the sum of them, as the case may require, and the product will be the cost per load of 1 cubic yard.

	From Fold-yard.	From Boxes.
Filling	.0416	.1
Trimming heap	.02083	.02083
Turning when fresh	.0333	.0333
Turning when rotten	.0287	.0287
Turning and mixing when fresh ..	.0666	.0666
Turning and mixing when rotten ..	.05	.05
Filling from heap	.0333	.0333
Unfilling	.0166	.0166
Spreading	.0333	.0333

"*To find the quantity of soil in cubic yards required to cover a heap of manure to any given depth in inches.*—Find the surface of the heap in square yards by the rule of mensuration applicable in the case; multiply such surface by the given depth in inches, and divide the product by 36 for the cubic yards of soil required.

"*To find the number of days' work which a given heap will require, to have it covered to a given depth.*—Divide the result of the last rule by 12.

"*To find the cost of covering per cubic yard.*—Divide the whole amount of cost of covering the heap by the number of cubic yards there are in it. It should be observed that the soil required in covering a heap will, under ordinary circumstances, nearly compensate for the loss of bulk of the original quantity of manure by the various processes of its preparation.

"EXAMPLE.—Required the cost per cubic yard of filling out and preparing the manure from 17 cattle boxes, each box being 9 feet square and 2½ feet deep, the rate of wages being 2*s.* 6*d.* per day, and the heap to be covered 9 inches with soil. From the foregoing table the constant multipliers are, for filling .1, for

* Middle Class Education Scheme of the West of England Examination and Prizes. By T. D. Acland. J. Ridgway, 169, Piccadilly.

† The Society was established in the city of Bath on the 8th September, 1777, "For the Encouragement of Agriculture, Manufactures, Commerce, and the Fine Arts." No particular attention seems to have been given to the last-named object, but committees were appointed at an early period for "Agriculture and Planting," for "Manufactures and Commerce," and for "Mechanics and the Useful Arts." In the year 1790 it was resolved "that the title of the Society stand as under—'The Bath and West of England Society, for the Encouragement of Agriculture, Arts, Manufactures, and Commerce.'" This title appears to be in part borrowed from that of the "Society for the Encouragement of Arts, Manufactures, and Commerce," Adelphi, London, now holding its 104th Session. The Highland Society in Scotland was instituted in 1784, and chartered in 1787. The Board of Agriculture was established in England in 1793.

The present arrangements of the Bath and West of England Society date from the year 1851.

...ming the heap .02083, and for mixing and turning ...d, the sum of which is .17083, which, multiplied by ...d., the day's wages, gives 5.125, or 5⅛*d.* per cubic yard. The contents of each box is 202.5 cubic feet, and for the 17 is 3442.5 cubic feet, or 127½ cubic yards. If the heap be cast up in a prismatic form of 15 feet wide and 6 feet high, the bulk will be increased to 2163.5 cubic feet—or increased by half the bulk, its length will be 38¼ yards long, 6.4 yards in girth across the top, and its superficies will be 244.8 superficial yards. 244.8 superficial yards, multiplied by 9 and divided by 36, gives 61.2 as the cubic yards of earth required as the cover; and which divided by 12 gives 5 days' work for the operation of covering. Then 5 days' work divided by 127.5 cubic yards, the original contents of the manure, gives .0392 to be added to .17083, the sum of which is .21, the multiplier to find the cost per cubic yard of the whole processes named, which, multiplied by 30, the product is 6.3*d.* per cubic yard; and 127½ at 6.3*d.* amounts to 3*l.* 6*s.* 11¼*d.* as the total cost of the preparation of the manure previous to its being filled from the heap for application to the land.

"In the same way the cost per cubic yard for filling from heap, unfilling, and spreading, may be found by multiplying the sum of the constants in the table by the rate of wages; or the whole of the processes may be found by adding such sum to the former sum: thus, the sum of .0333, .01666, and .0333, is .0833, which, multiplied by 30, is 2½*d.*; or the sum of .21 and .0833 is .2933, which, multiplied by 30, gives 8.8*d.*, or about 8¾*d.* per cubic yard, and the whole amount 4*l.* 13*s.* 6*d.*

"Above has been shown the mode of computing the expense of the preparation and application of fold-yard manure in so far as the cost of manual labour is incurred, and it remains to show the calculations in setting manure out."

Report on Murrain in Horned Cattle. By E. H. Greenhow, M.D. Presented to Parliament. Eyre & Spottiswoode.

We just mention the publication of this pamphlet at present, in case any of our readers should wish to procure it. We shall refer to its contents in detail next week. Of its 78 pages 33 are occupied with a report on pulmonary murrain, and only five with the steppe murrain which has lately so alarmed us. The remainder of the pamphlet discusses the relation of the subject to human health.

Miscellaneous.

Barley may often be sown with advantage after Wheat or any preceding corn crop, provided the land is clean and the tilth is good; it is, however, necessary to employ a larger quantity of artificial manure when Barley follows a corn crop than after a root or other green crop; and although the quantities I have named (see p. 317), may appear too great, I do not consider them more than sufficient to produce a full crop, and to grow a small crop is simply to fill the land with weeds and rubbish. When Barley follows corn it should be sown early, the first half of March is probably as good as any other time, and the manure should be sown at the same time as the seed, and harrowed into the land. If the Barley is drilled, the manure may be sown immediately behind the drill and before the harrows. When the whole of the Turnips or Mangels have been removed from the land, the artificial manure required will be nearly as much as when Barley follows corn. Nitrate of soda is the only manure which can safely be used as a top-dressing at any time; the nitrogen being in the form of nitric acid, is not volatile, as it is when in the form of ammonia. When guano or sulphate of ammonia are used for a top-dressing, they should be sifted very fine, and sown before or during rain. *J. B. Lawes, in Rendle's Directory.*

The Light Drag Hoe.—As every person does not possess a horse hoe, and hand hoeing, as it is generally performed, is a laborious and tedious operation, I have for some time turned my attention to this description of implement, and after many failures have at last produced something which I trust will be approved of by both master and man—the former for expedition and efficiency, the latter for ease in labour. This implement is suited for all crops growing in rows; I have had it manufactured in various ways, so as to suit persons of different tastes; but my chief object in all has been simplicity combined with ease in operation. The first is merely a share, of the width of the row to be hoed, turned up at each end, which ends are prolonged so as to form the letter V, to the acute angle of which letter there is a gooseneck fixed into a handle; this, without anything else attached to it, is a great favourite; the share, having both edges sharpened, can be thrust backwards or forwards; at the same time the labourer can go the row nearly as fast as he can walk. Again, if I wish to convert this into a drag hoe, I merely place a weight, in which there are slots to keep it tight, on the top of the V, and attach a cross handle to the shaft, capable of being shifted up and down; by means of a wedge the shaft can thus be lengthened or shortened, and the share adapted to the proper depth, and the handle to the man's height; the tool thus becomes a drag hoe, and performs its work well; from the shape of the share it is unable to cut the crop, unless dragged into it by careless hands. The soil is left mellow to admit air, rain, dews, &c., to the roots of the growing crop, and the weeds are not trodden on after having been cut off. On heavy land this implement does not do its work so satisfactorily. The third form of this implement is as follows:—the letter V is made to contract or expand, so as to suit moveable shares of different widths, and this is effected in two ways, either like a pair of shears, or by means of two straight slotted bars. Knife-like shares with chisel heads can be also fixed in these slots, which are used for pulverizing or breaking the crust of the soil, and to prevent cracking in hot weather; but I have adjusted so many articles to the same handle, that, without illustrations, it would be difficult to convey my meaning. The same handle is suited to the above apparatus, or each implement is perfect in itself. This handle is a shaft, to which there is a shifting cross handle, made to be adapted to the height of the workman and the depth to be hoed, or stirred, if required; it is also made with a gooseneck to suit the angle of draught. In this gooseneck or half circle there is a slot; by adjusting the frame up or down this slot the depth is regulated in the same manner as by the cross handles, but in this case the cross handle is a fixture. The hoeing shares are made of the best hammered steel, and are capable of taking a keen edge; in the moveable shares, when one edge becomes blunt, the other edge can be turned round and used. The implement is worked thus: the man or lad having adjusted the blade according to the width of the row, and having by means of the screw arranged the handle so as to suit his height and the angle of draught, he either walks backwards, dragging the implement after him, leaving all the weeds in the row cut up and not trodden in, the earth also loose and friable; or he pushes it in front of him, the weight over the blade keeping it steady, and he may walk as fast as he feels inclined, the blade being thin the labour is easy. If the soil be light, and the rows 14 to 15 inches wide, he may get over an acre or more in a day. *Sigma's New System.*

Calendar of Operations.

JUNE.

CHESHIRE.—Had I reported upon the agriculture of this district three weeks or even a fortnight ago, it would have been a very different description of the general appearance of the country and the prospects of the farmer from what I am enabled to give at the present date. In consequence of a cold and wet spring field operations were very much retarded, especially on the stiff clay lands, and many farmers were obliged to sow spring corn on land in bad condition or not sow at all. Early Potatoes were cut down by frosty nights, and the pastures, too, were kept back by cold easterly winds, which prevailed throughout a great portion of the month of April, and until about the 12th of May, when a change in the weather was very perceptible, and the thunder showers, which fell copiously on the 14th, have had almost a magical effect upon every description of crop, and the appearance of the country now is what every one interested in agriculture could desire. Mangel Wurzel has become a very important crop amongst dairy farmers, and the late showery weather has brought up the plants quickly where the seed is new and of good quality. Fat and store stock of all descriptions have been selling well, and it is many years since milking cows realised such high prices. *W. P.*

Notices to Correspondents.

A BILL TO AMEND THE ACTS TO PREVENT A SPREADING OF DISEASE AMONG SHEEP AND CATTLE: *T R S.* This bill introduced by Messrs. Bentinck and Stafford, contains a clause enacting that "from and after the passing of this act any person exposing or bringing or attempting to expose or bring any horse, ox, bull, cow, calf, or other horned cattle, sheep, lamb, or other animal, into any market, fair, or other open or public space where animals are commonly exposed for sale, knowing such horse, ox, bull, cow, calf, or other horned cattle, sheep, lamb, or other animal, to be infected with or labouring under the disease called glanders, pleuro pneumonia, sheep-pox, variola ovina, any or either of them, or any other contagious or infectious disorder; and any person turning out, keeping, or depasturing any horse, ox, bull, cow, calf, or other horned cattle, sheep, lamb, or other animal, infected with or labouring under the said diseases, any or either of them, or any other contagious or infectious disorder, in or upon any forest, chase, wood, moor, marsh, heath, common, waste land, open field, road side, or other undivided or unenclosed land, shall, on conviction of any such offence, forfeit and pay any sum not exceeding 20*l.*"

GUANO: *J T.* We should not have judged No. 1 to have been adulterated from its appearance, but so large a remainder of No. 2 after merely washing No. 1 proves it to have been far from genuine. You should have it analysed, and proceed upon the report of a chemist on its composition.

MILDEW: *B.* It has been long supposed that the Berberry has a great influence on the production of mildew, probably from the fact that it is very generally attacked by a fungus with rusty spores, which are supposed to communicate the disease. The structure of the two genera is, however, so very different that this is scarcely probable; and when it is considered that the Berrbery in many districts is wholly unknown, and in others far from common, the strongest evidence alone can be considered as sufficient to establish the fact. Still competent authorities are divided in opinion, and though in this country the notion has not met with much encouragement from scientific men, it is perhaps worthy of remark that a commission appointed expressly to examine the subject by the *Royal Agr. Soc. of Lille*—a town which has nurtured several excellent botanists—came, after due consideration, to the conclusion that the matter was not without foundation. *M. J. B. in the Cyclopædia of Agriculture.*

PLOUGHING BY STEAM: *J L.* In the instance you refer to the trial took place last season near Hounslow. During last week a similar trial was made on Mr. Woodham's farm, Wimbish Hall, in Essex. Twenty-three acres, called "Mill Field," an exceedingly heavy soil, usually ploughed with three or four horses, were ploughed with four single ploughs, drawn by Boydell's traction engine, and after a time, under Mr. Boydell's superintendence, they did their work most admirably, ploughing from 6 to 9 inches deep. So clung and tough, so close and heavy was the soil that, in answer to inquiries made as to how the matter was going on, the observation of those who knew the locality intimately was, "Well, if it can plough here it can plough anything."

TOLLS FOR STEAM THRESHING MACHINES: *J J G.* At Ongar lately a toll collector was ordered to return the toll wrongfully taken for six horses, used in drawing a steam engine and threshing-machine. 3 Geo. IV., c. 126, sec. 32, exempts horses drawing "implements of husbandry" from payment of toll. A turnpike act, passed in 1851, states that the words "implements of husbandry" include "threshing-machines;" and decisions of the courts, under the Malicious Injuries Act, show that the words "threshing machine" include the engine by which this machine was worked, and the statutes make no distinction whether the machine belong to the farmer himself, or not.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by MISS COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

DR. GRANVILLE, F.R.S.,

Author of "The Spas of Germany," "On Sudden Death," &c. &c., ON DR. DE JONGH'S

LIGHT BROWN COD LIVER OIL.—"Dr. Granville has used Dr. de Jongh's Light-Brown Cod Liver Oil extensively in his practice, and has found it not only efficacious, but uniform in its qualities. He believes it to be preferable in many respects to Oils sold without the guarantee of such an authority as De Jongh. DR. GRANVILLE HAS FOUND THAT THIS PARTICULAR KIND PRODUCES THE DESIRED EFFECT IN A SHORTER TIME THAN OTHERS, AND THAT IT DOES NOT CAUSE THE NAUSEA OR INDIGESTION TOO OFTEN CONSEQUENT ON THE ADMINISTRATION OF THE PALE NEWFOUNDLAND OILS. The Oil being, moreover, much more palatable, Dr. Granville's patients themselves have expressed a preference for Dr. de Jongh's Light-Brown Cod Liver Oil."

1, Curzon Street, Mayfair, January 7th, 1856.

DR. DE JONGH'S COD LIVER OIL

Has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; Pints, 4*s.* 9*d.*; Quarts, 9*s.*, capsuled and labelled with Dr. DE JONGH'S Stamp and Signature, WITHOUT WHICH NONE ARE GENUINE, by many respectable Chemists throughout the United Kingdom.

WHOLESALE AND RETAIL DEPOT.

ANSAR, HARFORD & CO., 77, Strand, London, W.C.,

DR DE JONGH'S SOLE BRITISH CONSIGNEES,

By whom the Oil is daily forwarded to all parts of the Metropolis

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 437 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10*s.* 6*d.* by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

OLDRIDGE'S BALM of COLUMBIA, acknowledged for the last thirty years to be the most effectual remedy ever produced for RESTORING the HAIR, promoting the growth of whiskers and moustaches, and preventing its falling off or turning grey, has received recently most distinguished patronage from the ladies, for the important feature it possesses in not soiling the most delicate head dress or bonnet. In bottles, 3*s.* 6*d.*, 6*s.*, and 11*s.*—Wholesale and retail, 13, Wellington Street North, 7 doors from the Strand.

PARR'S LIFE PILLS stimulate and improve the working of all the important functions of the body, and thus help to insure good health from youth to old age.

Those who use Parr's Pills judiciously have seldom occasion to resort to doctors, or to take any other medicine.

It will be true economy always to have in the house a box of Parr's Life Pills.

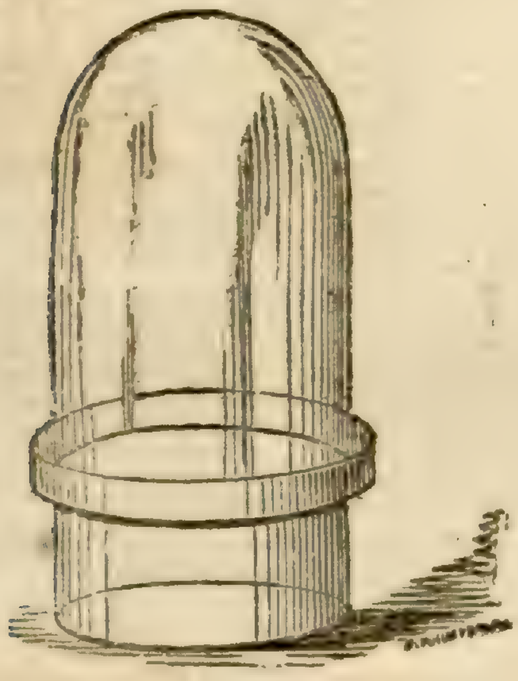
Sold by all respectable Chemists and Medicine Vendors in Town and Country.

In boxes, price 1*s.* 1½*d.* and 2*s.* 9*d.*; and in family packets, 11*s.* each. The English Government stamp is affixed to each box of the genuine Medicine.

AN EXTRAORDINARY CURE OF DIARRHŒA BY HOLLOWAY'S PILLS.—Rebecca Price, late warper in a factory at Gorton, near Manchester, suffered severely from violent griping, vomiting, and occasional purging for a long period. She was under several of the medical faculty and pronounced incurable; at last she was recommended to use HOLLOWAY'S Pills, which cured in a few days after all other means failed. This astounding cure has excited the wonder of all who knew her, the more especially as she had become so attenuated as to be scarcely recognisable by her most intimate friends.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MOTH, Malta.

JAMES PHILLIPS AND CO.

HAVE THE PLEASURE TO SUBMIT THEIR PRICES OF AQUARIA, FERN SHADES, &c., FOR CASH.



Tank Aquarium, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep	£3 10s. 0d.
26 inches long, 16 wide, 15 deep	3 0 0
20 inches long, 13 wide, 9½ deep	1 18 0

The above are the dimensions of Slate bottom. The Pillars are iron, and the water cannot come in contact with the metal.

*** *Larger or smaller sizes in proportion.*

Fern Shades and Stands.

Shades.	s. d.	Stands.	s. d.
6 in. diameter ..	1 4 each.	6 in. diameter ..	1 0 each.
7 " " ..	1 8 "	7 " " ..	1 3 "
8 " " ..	2 0 "	8 " " ..	1 6 "
9 " " ..	2 6 "	9 " " ..	1 9 "
10 " " ..	3 3 "	10 " " ..	2 0 "
11 " " ..	4 0 "	11 " " ..	2 6 "
12 " " ..	5 6 "	12 " " ..	3 0 "
13 " " ..	7 6 "	13 " " ..	3 6 "
14 " " ..	10 0 "	14 " " ..	4 0 "
15 " " ..	14 0 "	15 " " ..	4 6 "
16 " " ..	18 6 "	16 " " ..	5 0 "

Wardian Cases.

10 inches	12s. 0d.	14 inches	18s. 0d.
11 "	13 6	15 "	22 0
12 "	15 0	16 "	25 0
13 "	16 0		

Cucumber Glasses.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 " "	1 10	14 " "	1 2
20 " "	1 8	12 " "	1 0
18 " "	1 6		

MADE TO ANY LENGTH.

Best Round Aquaria, with Ebony Stands.

	s. d.		s. d.
12 inches diameter	5 0 each.	17 inches diameter	12 0 each.
13 " "	6 0 "	18 " "	13 0 "
14 " "	8 0 "	19 " "	14 0 "
15 " "	9 0 "	20 " "	15 0 "
16 " "	10 0 "		

Syphons 1s. 6d. and 2s. each.

SPECIMENS WERE EXHIBITED AT THE CHISWICK FLOWER SHOW.

Horticultural Glass Warehouse, 116, Bishopsgate Street Without.

ORNAMENTAL WIRE WORK.

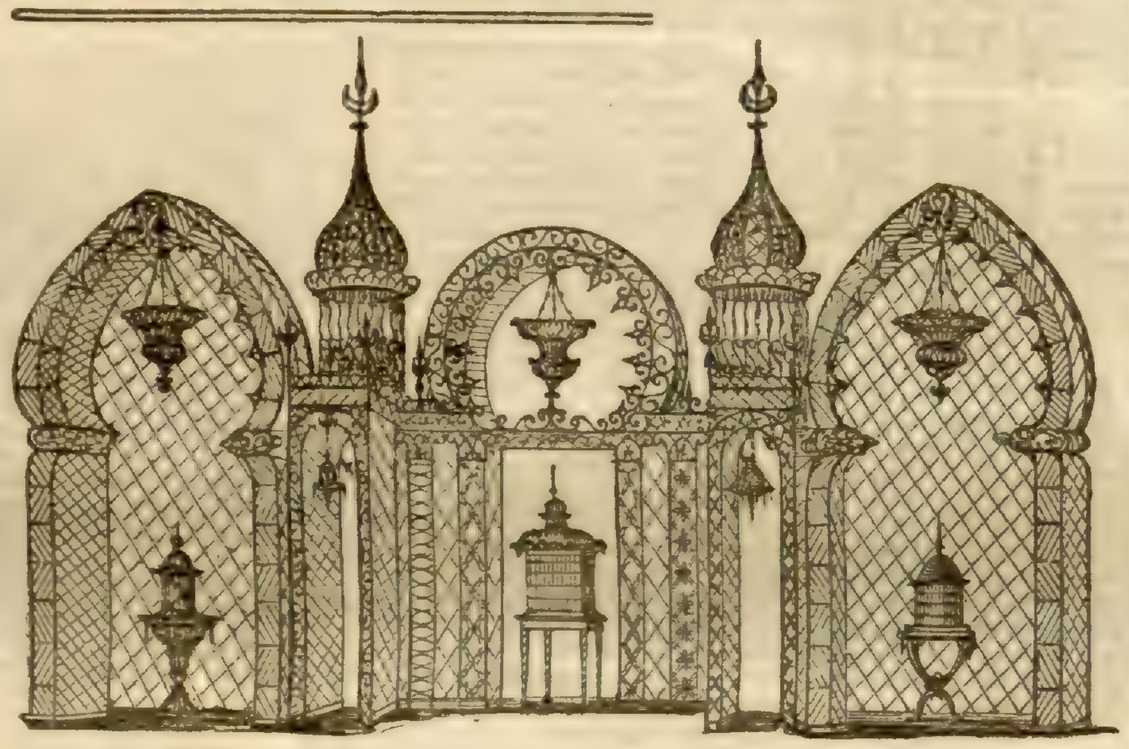
WIRE WORK, useful and ornamental, as exhibited on a limited scale in the Horticultural Society's Grounds at Chiswick, as also at Sydenham, by

W. RICHARDS,
IMPERIAL WIRE WORKS,
370, Oxford Street.

W. R. regrets that for want of suitable accommodation under cover he was unable to exhibit the more delicate and elegant of his productions.

370, OXFORD STREET
(opposite the Princess's Theatre).

N.B. The Flower Baskets in the large Conservatory and in the Iron Tent, &c., were all supplied by W. Richards.



BOITE À HOUPPE.

For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2s. 6d. each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

MESSRS. BURGESS & KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent. Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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BURGESS AND KEY'S LIFT PUMP.—THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

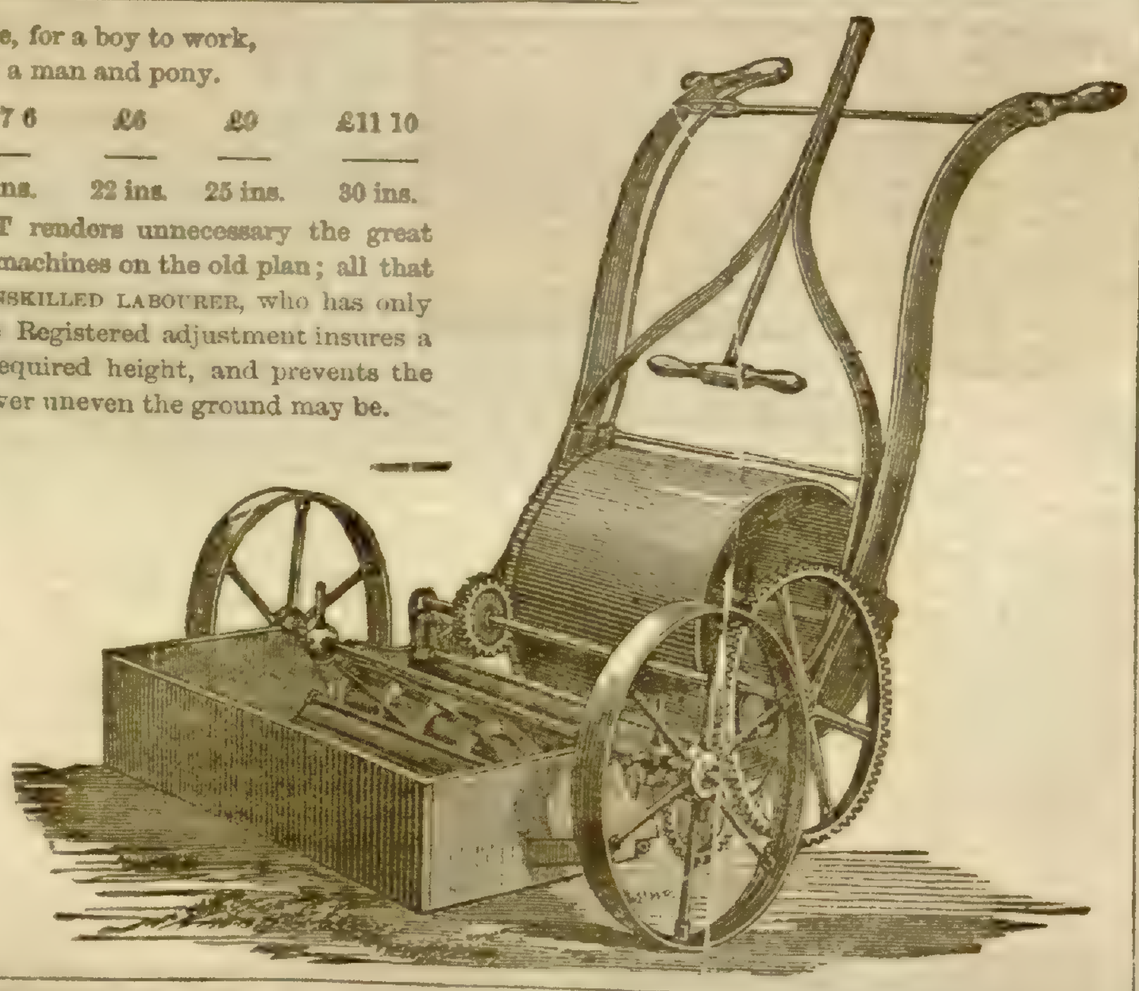
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done by any unskilled labourer, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. Veitch & Son, Exotic Nurseries, Chelsea; of Mr. Charles Garrood, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

ROLL TOBACCO RAG AND CORD.

JOSEPH BAKER, 5, Walcot Cottages, Kennington Road, can supply Nurserymen with the above for Smoking Greenhouses at 1*s.* 4*d.* per lb, over 10 lbs. 1*s.*—Post-office Orders payable at Kennington Cross.

IMPROVED MOWING MACHINES.

BURGESS'S PATENT WITH FERRABEE'S REGISTERED IMPROVEMENTS, MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, Stroud, Gloucestershire.

Mowing Machines were first introduced by the Proprietors of the Phœnix Iron Works, who have manufactured and sold upwards of 6000. They have from time to time effected many Improvements in the Machines, and have this year introduced in the large Hand Machines a more ready mode of adjusting the length of the cut, setting on the box, &c. They can be used by unskilled labourers with equal facility on Lawns, Verges, between Flower Beds, on Bowling Greens, and Coarsest Grounds, and may be either drawn or pushed. For Extensive Lawns and Pleasure Grounds, the Horse Machines will be found all that is desirable, and J. F. and Co. can strongly recommend their 28-inch Machine as easy to manage, readily turned, and capable of cutting the longest and coarsest Grass easily met with where such Machines can be used, while its size and weight will admit of its being worked by a strong pony. They execute their work in an expeditious and superior manner, leaving a beautifully even and uniform surface, and are readily adjusted to cut various lengths. The Grass is cut best when dry, so that a Machine can be used at the most convenient time to the workman.

PRICE LIST,

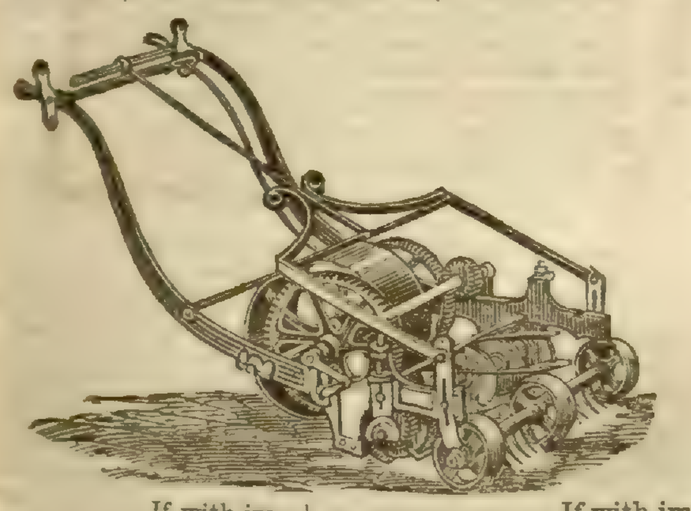
Including Carriage to any Railway Station in England or Wales:

Hand Machine for one man cutting ..	12 in. wide	£4	5*s.*	0*d.*
Do. do. do. do. ..	16 ,, ,,	5	10	0
Do. do. for man and boy ,, ..	22 ,, ,,	6	0	0
Pony Machine (or donkey) ,, ..	26 ,, ,,	8	0	0
Horse Machine.. .. .. ,, ..	28 ,, ,,	11	0	0
Do. .. .. ,, ..	36 ,, ,,	15	0	0

London Agency, Manager of Agricultural Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the country.

BY ROYAL LETTERS PATENT.

THOMAS GREEN, PATENTEE and SOLE MANUFACTURER of the IMPROVED MOWING or GRASS-CUTTING MACHINES, for Lawns, Pleasure Grounds, Verges, &c.; IRON-FOUNDER, WIRE-WORKER, and MANUFACTURER OF WROUGHT-IRON BEDSTEADS, &c. Iron and Wire Works, North Street, Leeds.



To cut		If with improved Rake.
,, 8 in.	£4 4 0	2*s.* 6*d.*
,, 10 in.	4 14 6	2 6
,, 12 in.	5 5 0	2 6
,, 14 in.	5 15 0	2 6
,, 16 in.	6 6 0	3 0
,, 18 in.	6 16 6	3 6

For pony	To cut		If with improved Rake.
	,, 20 in.	£7 7 0	4*s.* 0*d.*
	,, 22 in.	7 17 6	4 6
	,, 24 in.	8 8 0	5 0
	,, 30 in.	15 15 0	10 0
	,, 36 in.	18 18 0	12 0
	,, 42 in.	22 0 0	14 0

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra.

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The Patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake, or Guard, to work in front of the cutters of the machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters—a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other machine or scythe.

T. G. calls particular attention to his small-sized Machines, which will mow in intricate places where others will not, and in parts where there is so much difficulty in cutting with the scythe or shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Five hundred of these Machines have been sold this season, and reference can be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

The Machines may be seen at the Works, also of Mr. CHARLES CLARKSON, Manager of the Agricultural Department, Crystal Palace, Sydenham.

The above Machine obtained the First Prize at the Great Yorkshire Agricultural Show at Rotherham, August, 1856.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

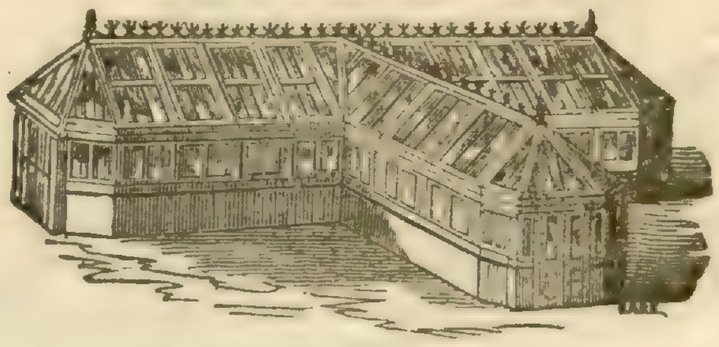
JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

The accompanying engraving represents FERRABEE'S improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

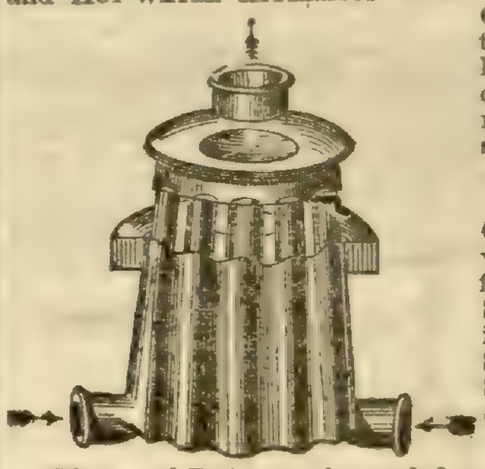
Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

HORTICULTURAL WORKS.



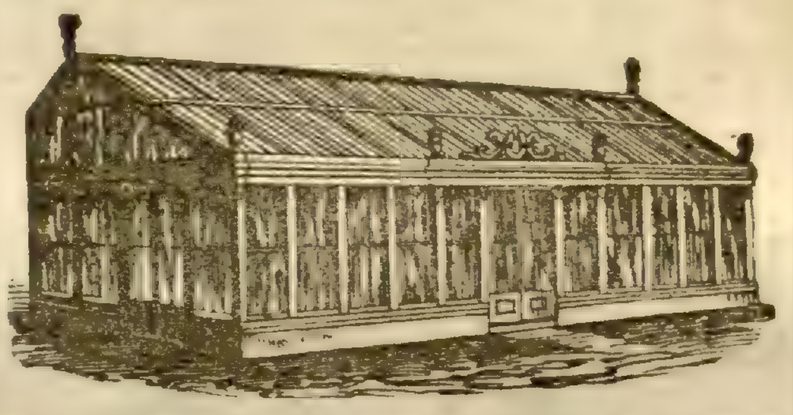
HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hot Houses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.



N.B. See our Improved Corrugated Tubular Boiler warranted to Heat 500 feet of 4-inch piping. Size, 24 inches by 14 inches. Price of our Small Boilers, 5*l.* 5*s.* Satisfaction given or no charge made.

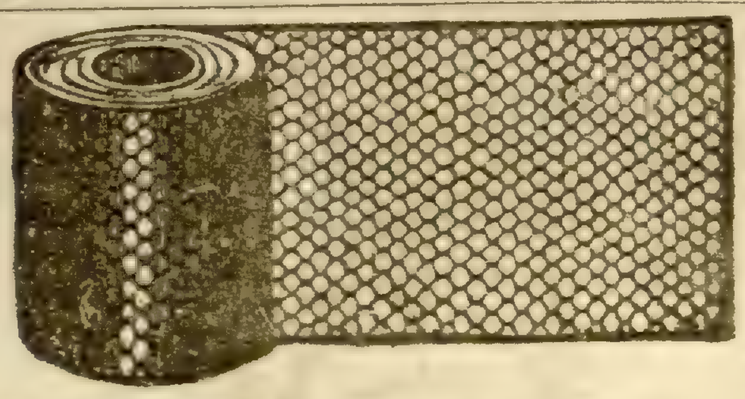
Plans and Estimates forwarded on application as above.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,,	strong do.	6 ,,	4¾ ,,
2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,,	intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVES AND HONEY, AT THE PARIS EXPOSITION OF 1855.

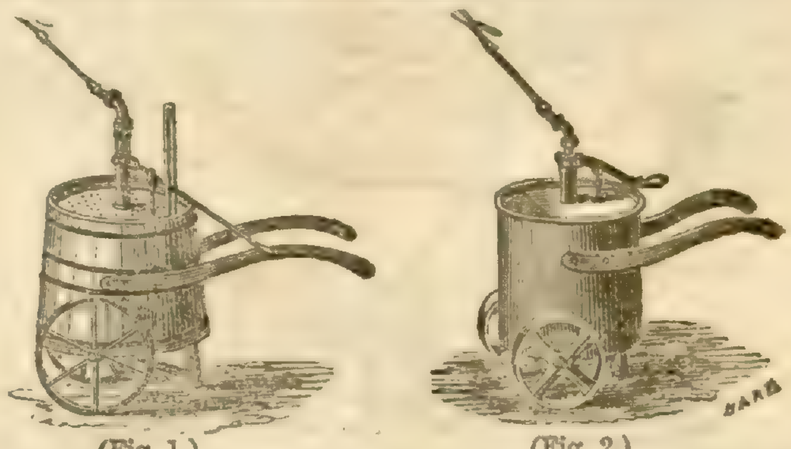
NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35*s.*, securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square, Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 1 holds 10 gallons, throws 30 feet high ..	£4	10
No. 2 ,, 15 ,, ,, 45 ,, ..	5	10
No. 3 ,, 28 ,, ,, 45 ,, ..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump, universal joint, and registered Spreader, which answers the purpose of the separate rose fan and jet.

No. 10 holds 8 gallons, throws 25 feet high ..	£2	15
No. 13 ,, 12 ,, ,, 30 ,, ..	3	5
No. 11 ,, 16 ,, ,, 40 ,, ..	4	0
No. 12 ,, 24 ,, ,, 45 ,, ..	5	0
No. 14 ,, 30 ,, ,, 45 ,, ..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

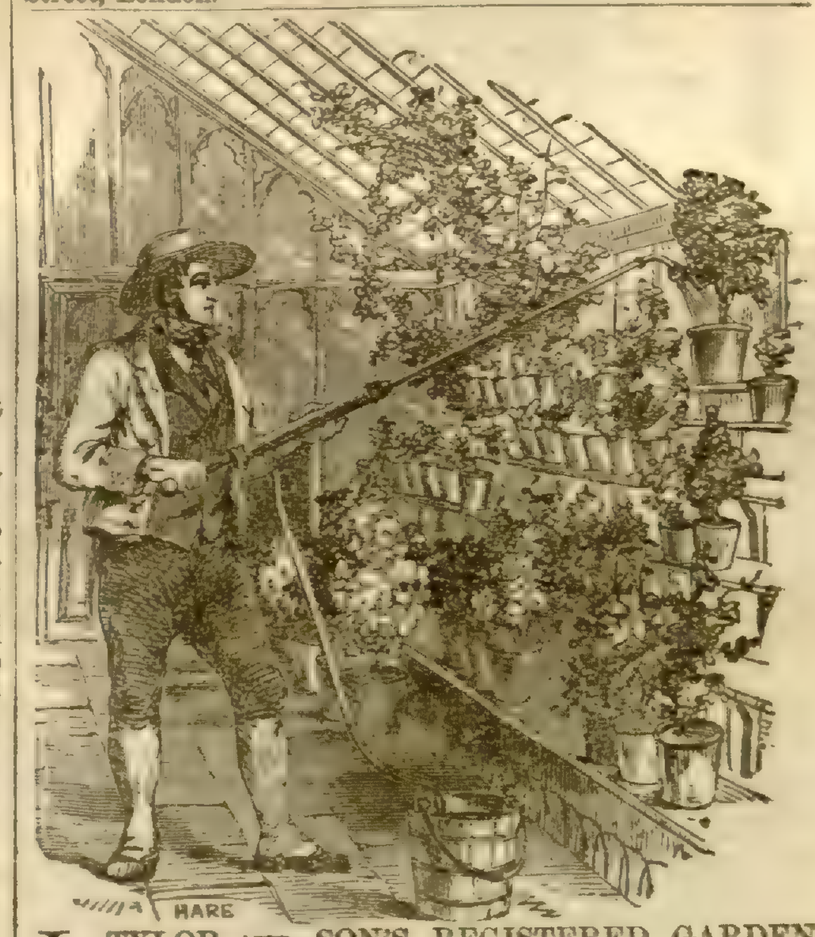
No. 1. Plain Syringe, with rose and jet, diameter of barrel, 1½ inch, 14*s.* 3*d.*; No. 2, do., diameter of barrel, 1⅜ inch, 12*s.*; No. 3, do., diameter of barrel, 1⅜ inch, 10*s.* 6*d.*

READ'S SYRINGE, with two roses and one jet, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

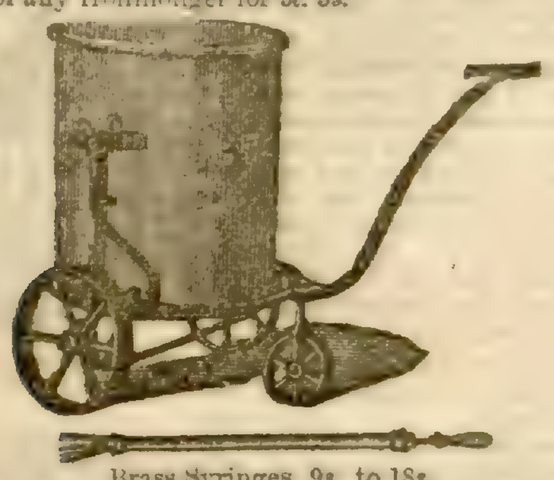
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

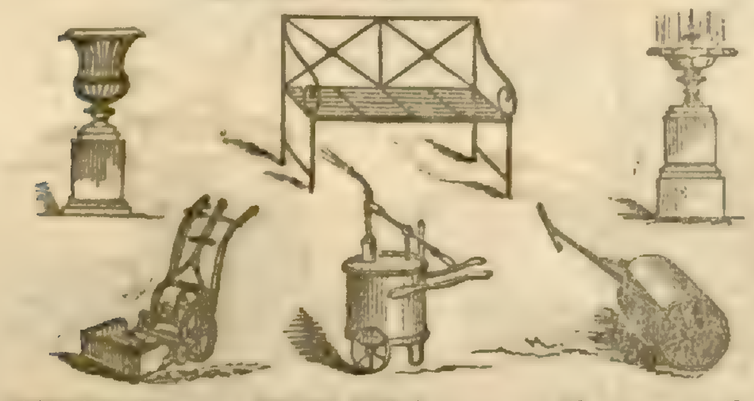


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

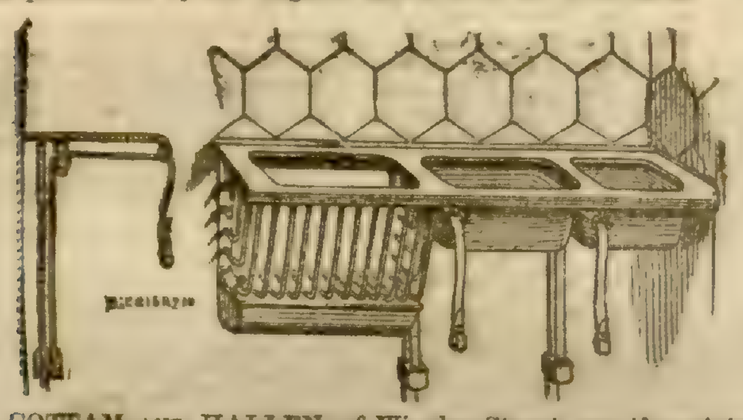
Fountains suitable for Conservatories, Lawns, &c.

GARDEN REQUISITES, &c.



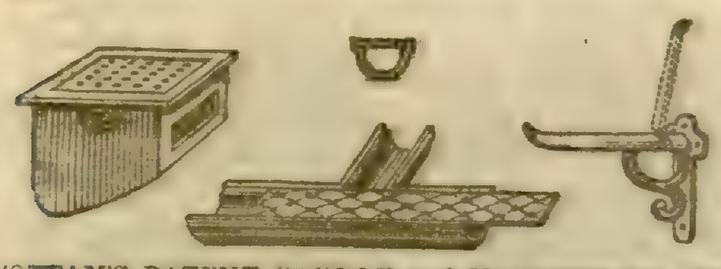
COTTAM and HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM and HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having Cottam's patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

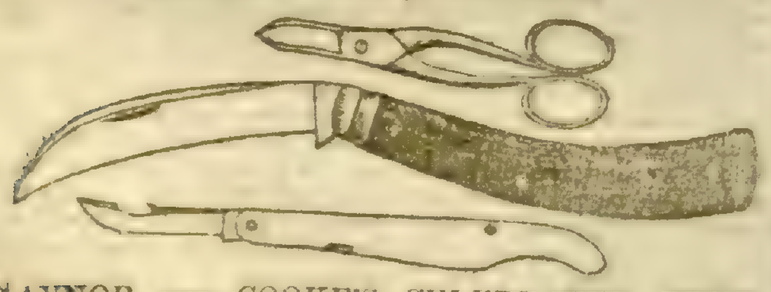
COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

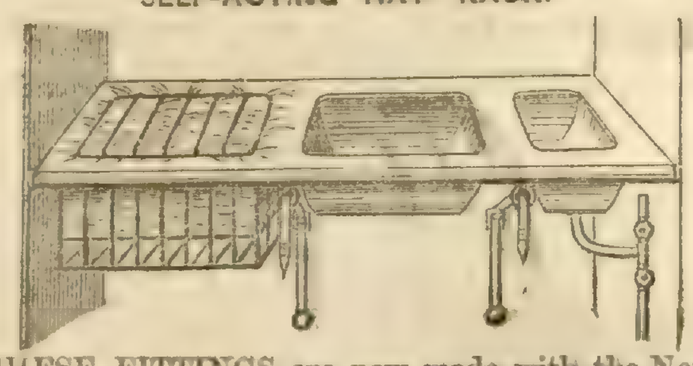
The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

PAXTON WORKS, SHEFFIELD.

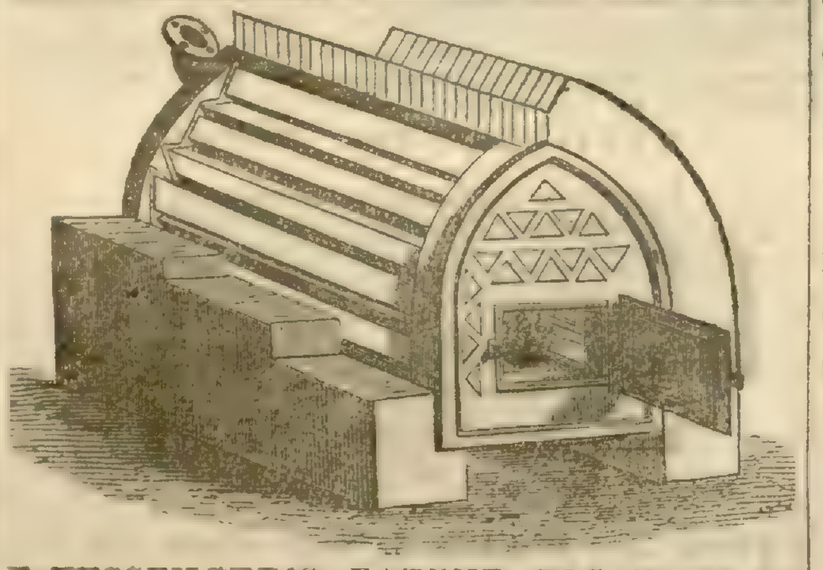


SAYNOR and COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 17[illegible]

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—James Barton, Iron Founder, &c., 370, Oxford Street, London.



MESSENGER'S PATENT TRIANGULAR TUBULAR BOILER FOR HEATING BUILDINGS of every description.—The great advantage of this Boiler over any other is the great surface exposed to the direct action of the fire, and consequently requiring but very little fuel; it contains but little water, in consequence of which the circulation commences directly. The tubes being of triangular shape and placed horizontally, allowing only just sufficient space for draught, the whole of the heat is expended on the Boiler before it can reach the flue. The whole of the exterior and interior can be cleaned at any time. With these advantages I think it cannot fail to recommend itself to the public.—J. G. Messenger, Loughborough.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, Patent Hothouse Works, King's Road, Chelsea, and at Granby Nursery, Mornington Place, Hampstead Road, Inventor, Patentee, and Sole Manufacturer of PATENT GALVANISED SHEET IRON GREEN AND HOTHOUSES, CONSERVATORIES, &c. Also Manufacturer of all kinds of Horticultural Structures in wood and iron, of the best materials, and at the lowest price, as well as his two patent principles of Galvanised Iron, one glazed with putty, one without. A specimen of both principles combined now standing at the H. S. Gardens, Chiswick.

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

MOW YOUR OWN LAWNS.

BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, Wm. Dray & Co., Swan Lane, London Bridge.

IMPROVED MOWING AND ROLLING MACHINE.

Patronised by her Majesty Queen Victoria, and his Majesty the Emperor of the French.

ALEXANDER SHANKS and SON, Arbroath, Forfarshire, Patentees.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. Garrood, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

H. J. MORTON and CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 5 years. An illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.

Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS (These are made to close up and are very neat, 8*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

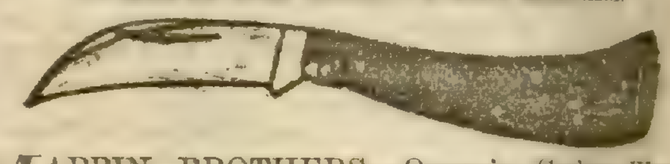
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN BROTHERS, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, London. Drawings forwarded by post.

MAPPIN'S "SHILLING" RAZOR, sold everywhere, warranted good by the Makers, Mappin Brothers, Queen's Cutlery Works, Sheffield, and 67 and 68, King William Street, City, London, where the largest stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE-KNIVES maintain their unrivalled superiority—handles cannot possibly become loose—the blades are all of the very first quality, being their own Sheffield manufacture.

Buyers supplied at their London Warehouse, 67 and 68, King William Street, City, and Queen's Cutlery Works, Sheffield.

MAPPIN'S ELECTRO-SILVER PLATE.

MESSRS. MAPPIN'S celebrated Manufactures in ELECTRO-PLATE, comprising Tea and Coffee Services, Side-dishes, Spoons and Forks, and all articles usually made in silver, can now be obtained from their London Warehouse, No 67, King William Street, City, where the largest stock in London may be seen. Catalogue with prices sent free on application.—Manufactory, Queen's Cutlery Works, Sheffield.

BEDSTEADS, BATHS, AND LAMPS.—William S. Burton has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make this establishment the most distinguished in this country.

Bedsteads, from	12*s.* 0*d.*	to	£12 0*s.*	each.
Shower Baths, from	7 6	"	5 12 0	"
Lamps (Moderateur), from ..	6 0	"	6 6 0	"

(All other kinds at the same rate.)

Pure Colza Oil .. .. 5*s.* per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at William S. Burton's, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s.* per doz.; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* per pair; larger sizes, from 19*s.* to 26*s.* per doz.; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per doz.; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per doz.; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per doz.; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in silver and otherwise, and of the new plated Fish Carvers.

PAPIER-MACHE and IRON TEA-TRAYS.—An assortment of Tea-Trays and Waiters wholly unprecedented, whether as to extent, variety, or novelty.

New oval Papier-Maché Trays, per set of 3, from	20*s.* 0*d.*	to	16 gs.
Ditto, iron ditto .. .. "	13*s.* 0*d.*	to	4 gs.
Convex shape, ditto .. .. "	7*s.* 6*d.*		

Round and Gothic Waiters, Cattle and Bread Baskets, equally low.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by William S. Burton, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle.		Thread.		King's.
Table Spoons and Forks, per dozen	38*s.*	..	48*s.*	..	[illegible]
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TENTS FROM THE CRIMEA, circular, 16 feet diameter, in good condition, complete, with Poles, Pins, Mallet, &c., 30*s.* to 50*s.* each, suitable for Pleasure Grounds, Pic nics, Cricket Clubs, &c.; can be put up and removed in minutes. May be seen erected on the Cricket Ground of the Crystal Palace Company, Sydenham; the area of the Great Globe, Leicester Square; and Surrey Gardens, Walworth. Orders addressed to ALDRIDGE & Co., 24, Rood Lane, Fenchurch Street, who have also on sale a few Field Officers' Marquees, large Hospital Tents, and other Government Stores equally cheap.

VASES, STATUES, BUSTS, PEDESTALS, FOUNTAIN BASINS, FLOWER TRAYS, Suspended and other FLOWER POTS, and numerous ornaments for Parks, Garden Terraces, and Conservatories, of superior design and workmanship in patent imperishable Terra Cotta, specimens of which were exhibited at the Horticultural Fête at Chiswick.—At BLASHFIELD'S, Praed Street, Edgeware Road.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed in any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

THE PATENT CREAM ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin.—Manufactured by JOHN FISHER & Co., West Road Works, Boston, Lincolnshire.

THE BEST AND CHEAPEST PAINT FOR PARK FENCING, BARNS, STABLES, ALL OUTSIDE WOOD AND IRON WORK, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past, by the West India Dock Company, for Fencing, Barges, &c. Recommended by the Nobility and Gentry, Stewards, Land Agents, &c.—Manufactory, Kennington Lane, Lambeth. Allowance on large orders.

ALLENS' ILLUSTRATED CATALOGUE of PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE FOLDING RACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue).—18 and 22, Strand.

DRESSING CASES.

AT MR. MECHI'S ESTABLISHMENTS, 112, Regent Street, 4, Leadenhall Street, and Crystal Palace, are exhibited the finest specimens of British manufactures in Dressing Cases, Work Boxes, Writing Cases, Dressing Bags, and other articles of utility or luxury. A separate department for Papier Maché Manufactures and Bagatelle Tables. Table Cutlery, Razors, Scissors, Pocknives, Strops, Paste, &c. Shipping orders executed.

The same prices charged at all the Establishments.

SHIRTS.—"FORD'S EUREKA SHIRTS differ from other patterns, not merely in shape and design, but in their great superiority of Fit, Quality of Material, and Workmanship."—*Globe.*

The best quality SIX for FORTY-TWO SHILLINGS. Detailed List of Prices and mode of Self-measurement post free.

SHIRTS.—PATTERNS OF THE NEW COLOURED SHIRTINGS in every variety of Colours. 100 different styles for making FORD'S EUREKA SHIRTS sent to select from on the receipt of six postage stamps, self-measurement and all particulars included. Price 27*s.* the Half-dozen.

RICHARD FORD, 38, Poultry, London, E.C.

MANTLES.—Ladies are invited to inspect a very beautiful Stock of the last Fashions in Mantles; the Spanish Mantle, the most graceful shape of the season; French Lace, from 2*l.* 18*s.* 6*d.*; and the real Spanish lace, 15 guineas. Many exclusive novelties in Ball and Evening Dresses. Ladies are solicited to give their orders early.

Compton House, 44 and 45, Old Compton Street, Soho.

GLENFIELD PATENT STARCH USED IN THE ROYAL LAUNDRY, AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS TO BE THE FINEST STARCH SHE EVER USED.

Sold by all Chandlers, Grocers, &c., &c.

ECONOMY IN WASHING CLOTHES.

JOHN WILLIAMS AND SON'S "SWEET SOFT SOAP," in 6 lb. jars, with directions for use; also, Fine Boxes of Prize Medal Household Soaps. (For further particulars see this day or Monday's *Times.*) Cut, dried, and ready for use. Can only be had by order through a Grocer or Oilman.—Works, Clerkenwell, London, E.C.

SCHWEPPE'S MALVERN SELTZER WATER. Manufactured by J. SCHWEPPE & Co. (the sole lessees) from the Pure Water of the Holy Well, possesses all the celebrated properties of the Nassau Spring. SCHWEPPE'S SODA, MAGNESIA, POTASS WATERS, and LEMONADE, manufactured as usual. Every Bottle is protected by a special label.—London, Liverpool, Bristol, and Derby.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 24.—1857.] SATURDAY, JUNE 13. {Price Fivepence. Stamped Edition, 6*d*.

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ROYAL BOTANIC SOCIETY, REGENT'S PARK.—The SECOND GENERAL EXHIBITION of PLANTS, FLOWERS, and FRUIT will take place on THURSDAY next, June 18, at 2 o'Clock.

Tickets to be obtained at the Gardens only by orders from Fellows or Members of the Society, price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each.

The Fruit will be exhibited on a new and extended plan.

THE CHERTSEY HORTICULTURAL SOCIETY will hold their ANNUAL SHOW on FRIDAY, June 19, at Sandgates, Chertsey, when Prizes will be awarded for Collections of Plants, Flowers, Fruit, and Vegetables. All persons desirous of exhibiting are requested to give three days' notice AT LEAST to the Secretary, of whom Schedules and Rules may be obtained. A Military Band will be in attendance.

H. KEMPSON, Secretary.

CHICHESTER GRAND HORTICULTURAL SOCIETY.—The SUMMER EXHIBITION will take place on THURSDAY, June 18, and will be held by the kind permission of the Lord Bishop in the Palace Gardens. The Railway Company have kindly consented to issue Return Tickets at Single Fares from Brighton, Portsmouth, and all intermediate Stations, to Chichester during the Show. Two Military Bands will attend. Particulars of Premiums may be had of JAMES GRAHAM, Hon. Sec.

MAIDSTONE HORTICULTURAL SOCIETY.—THE GRAND FETE will take place on THURSDAY, June 25, in the Mote Park, the seat of the Rt. Hon. the Earl of Romney. The Bands of the Royal Marines, Maidstone Cavalry Depôt, and West Kent L.I. Militia will be in attendance.

PRIZES OPEN TO ALL ENGLAND.

For the best collection of 8 Stove and Greenhouse Plants (excluding Calceolarias, Geraniums, and Fuchsias) .. £5 0 0
Second best do. .. .. £3 0 0 | Best 6 Exotic Orchids .. £2 0 0
Third best do. .. .. 1 0 0 | Second best do. 1 0 0
Best collection of 36 Roses in single trusses, with one or more flowers, and the buds so as to show the habit of the variety £2 0 0
Second best do. .. .. £1 0 0 | Third best do. £0 10 0
For the best collection of Fruits, to include Grapes, Pine, Melon, Peaches, Nectarines, and Strawberries .. £3 0 0
Second best ditto 2 0 0

Notice of intention to compete for these Prizes must be given to the Secretary before Wednesday, June 24. Entrance Fee to Non-Subscribers:—Stove Plants, 7*s*. 6*d*.; Orchids, Roses, and Fruit, 5*s*. Productions will be received in the Marquees on the previous afternoon, and on the morning of the Fête till 10 o'Clock, and not later. JOHN B. MONCKTON, Hon. Sec.

THE ANNUAL SUMMER EXHIBITION of the BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will take place at the Royal Pavilion, Brighton, on WEDNESDAY and THURSDAY, June 24 and 25.

PRESIDENT—His Grace the Duke of Devonshire.

VICE-PRESIDENTS.

The Mayor of Brighton
His Grace the Duke of Norfolk, E.M.
His Grace the Duke of Richmond (Lord-Lieutenant of the county)
The Most Noble the Marquis of Bristol
The Right Hon. the Earl of Chichester
Lord Alfred Hervey
Viscount Pevensey, M.P.
The Baron de Goldsmid
Admiral Sir G. B. Pechell, Bart., M.P.
Rear-Admiral Sir G. Westphal, R.N.
The Hon. Hanbury Tracy
The Hon. A. Macdonald
J. G. Dodson, Esq., M.P.
W. Coningham, Esq., M.P.
P. Salomons, Esq.; &c., &c.

CHAIRMAN OF COMMITTEE—T. Attree, Esq., V.P.
TREASURER—E. N. Hall, Esq., Union Bank.
SUPERINTENDENT OF THE EXHIBITION—Mr. E. Spary, Graperies, Park Street.

ABOUT £250 IN PRIZES.

Schedules may be had on application to E. Spary, Queen's Graperies, or of the Secretary, 96, St. James's Street, Brighton. By permission of Col. Parker, the Band of the First Life Guards will attend each day, under the direction of Mr. Wardell: also, by permission of Col. Low, the Band of the Fourth Light Dragoons will be in attendance, under the direction of Mr. Devin. The entire suite of Rooms and the eastern Lawn will be thrown open for the occasion.

The Public will be admitted on WEDNESDAY, June 24, from 2 o'clock till 6, by Tickets purchased on or before Saturday, June 20, at 2*s*. 6*d*.; after that date they will be charged 3*s*. 6*d*.; and on THURSDAY, June 25, from 10 o'clock till 6, 1*s*.

By order of the Committee,
EDWARD CARPENTER, Secretary.

TO THE SUBSCRIBERS OF THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—GEORGE DRURY begs to solicit the favour of your Vote and Interest on his behalf, at the ensuing Election, July 1. He has been a Gardener all his life, is now 71 years of age, and his Wife is 80, and depends entirely upon the support of a few friends for his support.—Acton, June 13.

CAPE BULBS.

JAMES CARTER AND CO. have just received a consignment of CAPE BULBS, and will be glad to forward a Descriptive List of them, post free, upon application.
238, High Holborn, W. C.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

GLOXINIAS, new Flowering Plants of the best kinds, 6, 9, 12 doz.; to the Trade 50*s*. per 100.

FUCHSIAS—All the new and leading kinds of last year, 6*s*. per doz.; VERY strong Plants, 12*s*.

Mr. PALETHORPE, S. E. Nurseries, Ashford, Kent.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

RAILWAY NURSERIES, WATFORD.

BEDDING PLANTS, SUMMER CLIMBERS, &c., can be obtained of the best quality, and on the most reasonable terms, by application to E. R. GREENUS, at the above Establishments.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2*s*. per lb.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South-Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.
American Nursery, Bagshot, Surrey.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—THOS. PERRY, Nurseryman, &c., Banbury.

TO BEE KEEPERS.

SOW MELILOTUS LEUCANTHA for an abundant supply of rich honey. Sixpence per packet, free.
PERSAC & Co., Seedsmen and Florists, 253, High Street, Exeter.

SELECT PLANTS, sent post free, at prices annexed:—12 distinct VERBENAS, 2*s*. 6*d*.; 12 distinct FUCHSIAS, 4*s*.; 12 fine CHRYSANTHEMUMS, 3*s*. 6*d*.; 12 fine BELGIAN DAISIES, 3*s*.—Catalogues sent on application to WILLIAM KNIGHT, Florist, Battle, Sussex.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21*s*. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.
Dorking Nursery, June 13.

ESTABLISHED BEDDING PLANTS, EXTRA STRONG.

N. LAURENCE, SEEDSMAN and FLORIST, begs to offer the following fine well-established plants:—

	Per doz.—*s*. *d*.		Per doz.—*s*. *d*.
Scarlet Geraniums	2 6	Dahlias, finest show and fancy vars., very strong	4 0
Verbenas, all colours	2 0	Show and fancy Geraniums, in large 48 pots, full of flower-buds	5 0
Calceolarias, very fine	2 6		
Petunias, mixed, fine sorts	2 6		
Lobelia speciosa	2 6		

Catalogues may be had on application at the General Cemetery, Chatteris.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, (Belgium), can now send out the following new plants:

STOVE PLANTS.	
Gesneria egregia (see Illustr. Hort.)	7*s*. 6*d*.
Tradescantia discolor lineata	7 6
GREENHOUSE PLANTS.	
Clematis Guascoi (see Illust. Hort.)	7 6
Passiflora Empress Eugenie	5 0
Petunia Inimitable, the finest fancy Petunia yet raised, and will be shortly figured in L'Illust. Hort.	3 6
HARDY PLANTS.	
Gaillardia grandiflora, strong plants	5 0
Potentilla Mulleri	5 0
Pyrus Mallardi	7 6

R. SILBERRAD, Agent, 5, Harp Lane, Great Tower Street.

THE DAHLIAS FOR 1857.

CLARKE AND CO., SEEDSMEN & FLORISTS, 86, High Street, Borough, London, S.E., beg to intimate they have on sale a first class collection of DAHLIA PLANTS, which will be found as hitherto true to name. Catalogues are now published, and will be forwarded to any part free on application. Special care is taken in packing the plants, so as to insure their safe arrival to the most distant parts. Amongst the varieties sold by C. & Co., at 10*s*. per dozen, will be found the following scarce and first-rate kinds, viz.:—Lord Palmerston, Colonel Wyndham, Lollipop, Captain Ingram, Duchess of Wellington, Perfection, Yellow Beauty, Magicienne F, Inimitable F, Enchantress F; and the 4*s*. per dozen comprise such good old kinds as the following, viz., Pre-eminent, Annie, Admiral Dundas, Salvator Rosa, Lord Bath, Empress, Lady Folkstone.
Choice Bedding Plants from 3*s*. per dozen.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior
CINERARIAS AND CALCEOLARIAS,
which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.
Packets sealed and warranted, at 2*s*. 6*d*. each free by post.
Exeter Nursery, Exeter.—Established 1720.

AMERICAN PLANTS.

KNAP HILL NURSERY, WOKING, SURREY.

MESSRS. WATERER AND GODFREY beg to announce that their collection of RHODODENDRONS, AZALEAS, KALMIAS, &c., are now in bloom in great perfection. May be seen gratis. The Nursery is near the Woking Station, South-Western Railway, where all Trains stop and conveyances are to be obtained.

ROSES.—THE COLLECTION OF ROSES at the Cheshunt Nurseries is just coming into bloom, will be in fullest beauty from the 20th inst. to the 11th July, a succession continuing till the end of autumn. Admirers of Roses are respectfully invited to visit the Nurseries, where every novelty that can be obtained is fairly submitted to trial.

Cheshunt is 13 miles N. of London. Trains of the Eastern Counties Railway from Shoreditch to Cheshunt Station, 1 mile from the Nurseries, run to and fro several times daily.
Nurseries, Cheshunt, Herts.

FLOWER SEEDS.—30 Packets Hardy Annuals to flower this autumn, 5*s*.; 15 ditto, 2*s*. 6*d*.; 12 Packets Biennial and Perennial Flower Seed, 2*s*. 6*d*. Sent post free on receipt of Stamps or Post Order.
JOSEPH MAY & Co., 1, Wellington Street, Strand.

WELLINGTONIA GIGANTEA,
THE GIANT TREE OF CALIFORNIA.

W. SKIRVING, of Walton Nursery, Liverpool, begs to announce the safe arrival of many hundreds of this "MONARCH of the WOODS," direct from their native country. They are fine well grown little specimens, two and three years old, and will be sold at very moderate prices per hundred, or in smaller quantities. Apply as above.

W. S. has still on hand a large quantity of ARAUCARIA IMBRICATA and CEDRUS DEODARA, of all sizes, from 1 to 10 feet high. The large sizes are particularly well adapted for avenue or ornamental planting where immediate effect is wanted. Prices moderate.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1*s*.; Double Carnation, 1*s*.; Double Picotee, 1*s*.; Polyanthus, 1*s*.; Calceolaria, 2*s*. 6*d*.; Primula fimbriata, 1*s*.; Double Hollyhock, 1*s*.; Brompton and Intermediate Double German Stocks, each, 1*s*.; Double German Wallflower, 1*s*.; Bedding Plants of sorts, 4*s*. per dozen.

BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market.

CHOICE PELARGONIUMS.

WILLIAM HUSSEY begs to offer the undernamed collection, fine healthy Plants now coming into bloom, for 18*s*., package included, viz.:—exactum, Mogul, Purple Perfection, Jessica, Empress, Virginia, Carlos, Lucy, Rosa, Attraction, Enchantress, Virgin Queen, Serena, Narcissus, Pandora, Mochanna, Lord Mayor, Beatrice, Old Story, Chloe, Seraskier, Ganymede, Phaeton, Queen of May, Magnificent, Zeno, Rosamond, Tepsy, Petruchio, Rowena, Floretta, Ajax, Vesper, Gulielma.—Horticultural Gardens, Norwich.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

TO ALL WHO LOVE A GARDEN.—SEEDS, to sow this month:—Asters, Stocks, six stamps each; 12 Annuals, 30 Balsam, Chrysanthemum, Hollyhock, Daisy, Polyanthus, Auricula, Verbena, Petunia, Primula, Calceolaria, Cineraria, Dahlia, Bedding Geranium, Pansy, Pink, 13 each.—GEORGE GLENNY, Horticultural Agent, Fulham, S.W.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.
J. C. WHEELER & SON, Seed Growers, Gloucester.

PLANTS OF DRUMHEAD & EARLY CABBAGE, SAVOY, KAIL, BROCCOLI, CELERY, & CAULIFLOWER.

JOHN CATTELL has a plentiful supply of the above, which he will forward to order on receipt of postage stamps or post office order made payable here at the following prices, package included. Autumn sown Drumhead, Savoy, and early Cabbage, 4*s*. 6*d*. per 1000; Spring sown Drumhead, 3*s*. 6*d*. per 1000. All the sorts of spring sown early Cabbage, Savoy, and Kail, including Brussels Sprouts, 6*d*. per 100, 4*s*. 6*d*. per 1000. All the sorts of autumn and spring Broccoli and Dedfield Celery 8*d*. per 100, 5*s*. 6*d*. per 1000. Early and late Cauliflower and Red pickling Cabbage, 10*d*. per 100. Packages containing plants to the value of 1*l*. and upwards will be delivered carriage free to the Borough, London, or to the Dulwich Station of the South-Eastern Railway. A remittance must accompany orders from unknown correspondents.

Seed of Cattell's Early Dwarf Battersea, and of his superior Early Dwarf Reliance Cabbage, may be had as usual in packets by post for 12 penny stamps per packet, the former containing one ounce and the latter half an ounce.
Nurseries, Westerham, Kent.

NEW, BEAUTIFUL, AND RARE PLANTS

OFFERED FOR SALE FOR THE FIRST TIME BY

MESSRS. WILLIAM ROLLISSON AND SONS,

THE NURSERIES, TOOTING, LONDON.

THE ANNEXED LIST OF VALUABLE PLANTS have been selected from a large and rich collection of novelties; and the advertisers having proved them to be desirable acquisitions, have therefore no hesitation in strongly and confidently recommending them: an inspection is respectfully invited. The trains from London Bridge Railway Station calling at the Crystal Palace leave every half hour for Balham Station, which is only 1 mile from our Tooting Nursery; and the Omnibuses from Gracechurch Street and Charing Cross, calling at the Elephant and Castle, pass the Nurseries frequently during the day.

THE USUAL DISCOUNT TO THE TRADE.

TRADESCANTIA ARGENTEA.—A very pretty variegated plant, imported from Monte Video, in growth after the manner of Tradescantia zebrina, but the variegation more distinct and whiter, indeed the beautiful silvery bands on the leaves impart to the plant a striking and pleasing character. This plant will be well adapted from its graceful, trailing character, for ornamental suspended baskets and vases, or it is very pretty when grown as a trailing plant in pots. 7*s.* 6*d.* each; fine specimens 21*s.* each.

RHODODENDRON BLUMEI, OR "ALBUM OF BLUME."—This interesting and beautiful Greenhouse species was first introduced in a living state from Java by our Collector, although named "Album" by Dr. Blume, when he discovered it on the Salak Mountains in Java, which term was doubtless, as Sir William Hooker has observed, only used "in comparison with the rich orange or red of the other Javanese species, known to that botanist," as the blossoms are of a delicate lemon colour, and freely produced on small plants. It is figured in "Curtis's Botanical Magazine" for March 1857. 63*s.* each.

GARDENIA PLANTII.—This handsome species has been sent from the Zulu Country, Southern Africa, by Mr. Plant, who in his description thus speaks of it:—"A fine bush, having large bell-shaped white blossoms, which are very sweet, and produced in great profusion." 21*s.* and 42*s.* each.

RHYNCOSIA VOLUBILIS.—This charming Stove Creeper, introduced from Sierra Leone, will make a pleasing change in our Hothouse Climbers, as the plant has nice foliage, and produces freely fine racemes a foot long, densely covered with purple and lilac pea-shaped flowers. 21*s.* each.

AZALEA INDICA PRINCESS ROYAL.—A very handsome Indica variety; colour soft lake, with a dense vermilion blotch; flowers freely produced, of good form and substance, excellent habit; this splendid variety has been raised by an amateur, and the entire stock purchased by us. 21*s.* each.

RHODODENDRON TUBÆFLORUM.—For the introduction of this very distinct species we are indebted to our collector, Mr. John Henshall, who found it on the Talaga-Warna Mountain, western part of Java; it is of a very dwarf compact habit, and distinct from any other species, producing freely clusters of tubular rosy-purple flowers. 63*s.* each.

GERANIUM PRINCESS ALICE.—A handsome and distinct variety of the scarlet section; colour vivid carmine, peculiarly shaded with scarlet, and producing fine large trusses of bloom. The entire stock of this variety has been purchased by us from an amateur. 5*s.* each

GERANIUM KENTISH HERO.—We have purchased the entire stock of this superb scarlet Geranium from Mr. Johnson, of Dover; it was awarded a label of Commendation by the National Floricultural Society, for its dazzling brilliancy and superior merits as a bedding Geranium. 5*s.* each.

LOBELIA GEM.—This desirable herbaceous plant, either adapted for bedding or grouping in masses, will be esteemed a favourite in this handsome class; the colour being very distinct, of a bright violet, with white lip. The entire stock of this and the following variety we purchased from the Messrs. L. J. Makoy, of Liège. 7*s.* 6*d.* each.

LOBELIA FLORETTA.—A pretty herbaceous variety of excellent habit, equally suitable as the preceding for bedding or grouping purposes; colour bright blue. 5*s.* each.

ARDUINIA GRANDIFLORA.—A valuable Exotic Fruit, sent by Mr. Plant from the Amatingala Country, Southern Africa, and thus described by him:—"A handsome evergreen shrub that will amply repay cultivation, either as an ornamental plant, or for its flowers or fruit; it has white sweet blossoms, similar to a gigantic Jessamine, followed by richly flavoured crimson fruit; the plant has been named by Professor Bojer, and pronounced by him to be vastly superior and distinct from Arduinia bispinosa." 21*s.* and 42*s.* each.

AZALEA MAGNIFICA.—This superb hardy hybrid will be found a great acquisition to this valuable tribe; it is much superior to any of its progenitors, having trusses of blossom equal in size to that of a Rhododendron: colour of the top petals rich amber, lower delicate blush, suffused with pink. 21*s.* each.

IXORA AFFINIS.—A handsome pink flowering species, perfectly distinct from any other, discovered by our collector on the plains of Lebak, Java,; the blossoms are produced in large trusses, and like most of this family in the greatest profusion. 21*s.* each.

SOLANUM AFRICANUM.—A very ornamental climbing Stove species, the foliage being dark green on the surface, and underneath of a beautiful bright violet crimson, which gives the plant as a creeper a very distinct and striking character. 15*s.* each.

GREVILLEA ELEGANS; OR, "DALLACHII," OF MUELLER.—This extremely pretty species has been raised from seed introduced from New South Wales: it is an elegant little plant, and flowers in a most profuse manner: the blossoms are orange-scarlet, with white apex, tipped with yellow. 21*s.* each.

GONIOPHLEBIUM UNDULATUM.—A magnificent Fern introduced from Java, having long pendent fronds, which hang in the most graceful manner; from which characteristic it is well adapted for suspending in ornamental baskets or vases; the rachis is well furnished with bright green pinnules which are much undulated. 21*s.* each.

AZALEA INDICA VIRGIN QUEEN.—A first-rate useful variety flowering in the most profuse manner; blossoms of good substance, white, with peculiar and very distinct glossy sulphur marking on the top petals. 10*s.* 6*d.* each,

NIPHÆA ANÆCTOCHILIFOLIA.—A very pretty species introduced by M. Warczewicz, the well-known botanist and traveller; the foliage is very ornamental, similar in appearance and beauty to that of an Anæctochilus, of an olive-green colour, and distinctly marked with silvery white veins; the blossoms are of snowy whiteness, and produced in great profusion. 10*s.* 6*d.* each.

NEW CLOXINIAS.

FLORENCE (not erect flowering), tube and lobes pure white, throat pale sulphur, bluish carmine encircling the mouth, a very pretty distinct variety. 7*s.* 6*d.* each.

ECLIPSE (not erect flowering), white tube, stained inside with rick lake, lower part spotted and shaded with blue, white lobes. 7*s.* 6*d.* each.

EVANGELINE (not erect flowering), tube and lobes blush white, with pink belt round the throat; very delicate and pretty. 7*s.* 6*d.* each.

AMABILIS (not erect flowering), tube and lobes white, with an azure zone at the mouth of the tube; very striking. 7*s.* 6*d.* each.

PRESIDENT (erect flowering), tube white outside, and darkly shaded with purple inside; lower part of the throat much spotted, white lobes, a fine bold flower. 7*s.* 6*d.* each.

MINERVA (erect flowering), pure white tube, lobes rosy lake, throat shaded with blue, a beautiful variety. 7*s.* 6*d.* each.

The following is a list of NEW and GOOD PLANTS, selected from our general stock of novelties, that have been recently introduced by us and other horticulturists It contains the new Plants imported from foreign growers, many of which we have proved to be of sterling merit; and we also include in this list a few new Plants of especial merit that we have imported from foreign horticulturists during the present year.

CITHEROXYLON CYANOCARPUM.—A neat and compact new hardy shrub from Bolivia, resembling in foliage Mitraria coccinea; the flowers are succeeded by fruit of a blue colour, which renders the plant very interesting. 10*s.* 6*d.* each.

ACACIA ERIOCARPA.—This pretty greenhouse plant, to which we draw particular notice, is the best of its family, much more handsome than A. grandis; deep golden colour, free flowering, and good habit. 15*s.* each.

BEGONIA RICINIFOLIA MACULATA.—An extremely handsome species, and a great addition to our variegated plants: foliage bright green, beautifully and distinctly marbled with brown; a plant that should be in every collection where ornamental plants are grown. 15*s.* each.

ARALIA RETICULATA.—A plant that will rank foremost in the ornamental section; foliage undivided, a foot long, deep green with white midrib, and prettily interlaced with white throughout. 63*s.* each.

SEEMANNIA TENUIFOLIA.—A pretty and desirable stove plant: blossoms orange and scarlet, produced freely in terminal bunches. 5*s.* each.

BIGNONIA ROLLISSONI.—A first-rate stove climber from Brazil; the blossoms are of a bright golden colour, tipped with white, which make a pleasing and striking contrast; the plant is of good habit, and the flowers freely produced in bunches. 21*s.* each.

CASTANEA CHRYSOPHYLLA. "THE GOLDEN CHESTNUT OF CALIFORNIA."—This extremely interesting, hardy, and magnificent evergreen shrub, we have much pleasure in offering as a great novelty; as an ornamental plant, it will rank foremost among our evergreens; any description we may give of this beautiful plant would but imperfectly convey a true representation of its character; the foliage is of a dark green on the upper surface of the leaves, and the under part of a beautiful golden colour, which gives to the plant a most remarkable feature. 63*s.* each.

MELASTOMA ATROPURPUREA.—One of the handsomest of the Melastomaceous family, possessing fine foliage, and producing its large flowers freely, which are from 2 to 3 inches in diameter, of a rosy-lilac colour; a very desirable stove species. 10*s.* 6*d.* each.

AZALEA INDICA MADAME MIELLEZ.—A really good continental variety, white, striped with purple; the best we have seen of its class. 7*s.* 6*d.* each.

THUJA CAUCASICA (TRUE).—This rare species is deserving of especial attention, being one of the most handsome of our thoroughly hardy Coniferæ; it is quite distinct and different to the plant received from the continent under the above name. 21*s.* each.

ERICA ÆMULA.—This is a very beautiful hybrid, in the Erica Massoni section, of a fine bright crimson colour, after the style of Erica aristata, but very much higher in colour: altogether this is a very distinct variety. 15*s.* each.

ERICA EXIMIA SUPERBA.—This variety may really be said to be three times as fine as the parent, whose name it bears; it is a very compact grower, and excellent in habit, with tubular blossoms of a fiery scarlet colour. This charming variety obtained the first Seedling Prize at the Royal Botanic Gardens, 1852. 21*s.* each.

BIOTA FRENELLOIDES.—This elegant plant will rank foremost among our hardy Ornamental Coniferæ; good habit, and neat compact growth. 10*s.* 6*d.* each.

MELASTOMA DENTICULATA.—A pretty stove species, with white blossoms, slightly tinged with rose. 5*s.* each.

TRADESCANTIA DISCOLOR, FOLIIS VARIEGATIS.—An exceedingly ornamental variegated Stove Plant; the surface of its foliage is green, and lined down the centre with yellow, the under part of the leaves being of a rich plum colour. 21*s.* and 31*s.* 6*d.* each.

THUNBERGIA LAURIFOLIA.—A splendid free flowering species, the blossoms are an immense size, persistent, and produced in bunches, or racemes 1 foot long. This is a striking plant, grown either as Stove Climber or for Exhibition purposes. 10*s.* 6*d.* each.

CLEMATIS GUASCOI.—A very fine Hybrid variety, perfectly hardy, flowers freely, blossoms of a rich violet blue colour. 7*s.* 6*d.* each.

CLEMATIS LEPTOPHYLLA.—This unique hardy species is very pretty, and totally different to any other of the family. 10*s.* 6*d.* each.

ACALYPHA COLORATA.—The colour of the foliage of this plant renders it peculiarly interesting and ornamental, being of a bronzy crimson colour. 10*s.* 6*d.* each.

AZALEA INDICA SEBASTOPOL.—Nice compact habit, blossoms orange scarlet of excellent form, a pretty and pleasing variety. 10*s.* 6*d.* each.

CUPRESSUS LAWSONIANA.—This elegant plant is quite hardy, very glaucous and graceful in its habit, and of the highest ornamental character. 21*s.* each.

ARCTOSTAPHYLOS CALIFORNICA.—A new and distinct species, which has proved quite hardy, and therefore an acquisition. 10*s.* 6*d.* each.

PASSIFLORA PANAMENSIS.—We have much pleasure in being able to offer this rare and beautiful stove species: the blossoms are scarlet, and produced in great profusion; good habit. 21*s.* each.

PASSIFLORA IMPERATRICE EUGENIE.—A handsome free flowering Greenhouse variety; outside of the petals white, inside rose; filaments dark chestnut at the base, white midway, upper part indigo blue, shading to white at the extremity; sweet scented. 10*s.* 6*d.* each.

GYNOXIA FRAGRANS.—Stove Climber, free flowering, blossoms yellow, and deliciously fragrant. 21*s.* each.

HOYA GRANDIFLORA.—This beautiful species was first discovered in the dense forest near the shore of the island Næsa Kambangan, to the south of Java, and forwarded to us by our collector, Mr. John Henshall; the flowers are equal in size to H. imperialis, but of a pure white; the foliage elliptic and slightly lanuginous. 42*s.* each.

RHODODENDRON COCCINEUM PUNCTATUM.—This peculiar, free flowering variety will be a desirable addition to our thoroughly hardy kinds; the habit is good, colour a crimson scarlet, and the flowers are richly spotted on all the petals, after the style of an Alstrœmeria. 15*s.* each.

RHODODENDRON INCOMPARABILE.—A useful hardy and very late blooming kind, with noble trusses of finely shaped bright red blossoms. 15*s.* each.

RHODODENDRON STAMFORDIANUM.—This variety is an immense acquisition, possessing all the sterling qualities which constitute a good Rhododendron, being perfectly hardy, late, and a profuse bloomer; colour crimsonish purple, with intense black marking on the upper petals, which renders it extremely attractive. 31*s.* 6*d.* each.

RHODODENDRON PAVONIUM.—A very conspicuous late, and free blooming hardy variety, of a deep blush colour, and rich dark blotch on the upper petals, similar to a Geranium. 15*s.* each.

RHODODENDRON CLOWESIANUM.—A free flowering thoroughly hardy kind; the blossoms are pure white, of exquisite shape, and the upper petals are strikingly marked with dark spots. 10*s.* 6*d.* each.

AZALEA HARTNELLI.—A new hardy variety that blossoms freely, with very large trusses; the flowers individually are also large and well formed; the colours are pleasing and distinct from other existing varieties; top petal yellow, all the other petals of a light orange, peculiarly shaded with scarlet, and spotted in a remarkable manner with brown at the base. 15*s.* each.

MESSRS. WILLIAM ROLLISSON AND SONS beg to inform the Nobility, Gentry, and the Trade, that their CATALOGUE for 1857, containing NEW and RARE PLANTS only will be ready about the third week in June, and after that time will be forwarded on application, and on receipt of three postage stamps. It will contain upwards of 300 New Plants, in species, and varieties, many of which can now be seen in blossom at

THE NURSERIES, TOOTING, LONDON.

SEEDS OF VERY SUPERIOR BIENNIAL STOCKS, CALCEOLARIAS, CINERARIAS, &c. for present sowing:

	s.	d.
12 varieties separate dwarf Emperor Stocks, 100 seeds, each	5	0
Ditto ditto 50 seeds, each	2	6
Ditto ditto mixed, p. pckt. 6d. to	1	0
4 ditto ditto new large flowering	2	0
18 ditto Brompton 100 seeds, each	5	0
Ditto ditto 50 seeds, each	2	6
Ditto ditto mixed, p. pckt. 6d. to	1	0
6 ditto new Giant, extra, new Giant, extra fine	2	0
Scarlet Intermediate, extra fine	0	6
White and Scarlet Giant, English saved	0	6

Specimens of the above assortments of Stocks are now flowering in my Nursery, and have been admired by all who have seen them.

German Ten-week Stock in assortments as imported, and also mixed, for autumn sowing, in packets from 1s. to	5	0
Calceolaria, from very superior varieties, carefully hybridised .. .. per pkt.	2	6
Cineraria, from extra fine varieties .. .. .. ,,	1	6
Ditto, from very superior new varieties .. .. ,,	2	6
Carnation, producing Clove-scented self-coloured flowers ,,	0	6
Sweet William, extra fine mixed .. .. ,,	0	6
Ditto, extra fine dark .. .. ,,	0	6
Heartsease, from French spotted and striped .. ,,	1	0
Ditto, from show flowers .. .. ,,	1	0
Polyanthus, extra fine mixed .. .. ,,	1	0
Anemone, extra fine mixed Poppy .. .. .. ,,	0	6
Ditto Scarlet ditto .. .. .. ,,	0	6

Orders from unknown parties must contain postage stamps or Post-office Order for the amount.

JOHN CATTELL, Nursery and Seed Establishment, Westerham, Kent.—This advertisement will not be repeated.

VERBENA "MISS TROTTER."

IN CONSIGNING THE STOCK OF "MISS TROTTER" Verbena to Mr. R. PARKER for distribution I beg respectfully to intimate that it has been thoroughly tested by extensive growth here and at Dalkeith Park, and is admitted by all who have seen it to be superior in qualities as a bedding plant to any Verbena yet raised. Its characteristics as a bedding Verbena are extraordinary profusion of bloom, brilliancy of colour, superiority of habit, early and long continuation in flower. Those who have had ample opportunity of judging as to its merits have kindly handed me the following testimonials:—

"The Verbena Miss Trotter, raised by D. Thomson, is a good scarlet, early, good habit, and large truss; and for profusion and continuance in bloom is superior to any I have seen."—Joseph Thrower, Gardener to R. Durant, Esq., High Canons, Herts.

"I consider Miss Trotter Verbena unequalled for bedding purposes by any I have ever seen. It will be quite a gem in the flower garden."—John Munro, Gardener to Mrs. Oddie, Colney House, Herts.

"There is no scarlet Verbena that I ever saw to be compared with Miss Trotter for bedding purposes. I had a ribbon of it 150 yards long, and it covered the ground as with a sheet of scarlet cloth, and was the admiration of all who saw it. Its habit leaves nothing to be desired."—William Thomson, Dalkeith Park Gardens.

"Miss Trotter Verbena, a brilliant scarlet fine truss, free flowering, and in every respect a first-rate variety."—A. Williamson, Gardener to Viscount Enfield, Wrotham Park.

"I saw your Verbena in the gardens at Dalkeith, and from its dwarf compact habit, free blooming and attractive colour, I consider it decidedly superior, and far more telling than any bedding Verbena that has come under my notice."—A. Turnbull, Gardener to Lord Douglas, Bothwell Castle, Glasgow.

"Decidedly the best scarlet bedding Verbena out, besides being the earliest and latest bloomer I have ever seen."—A. Lindsey, Gardener to Lady Montague, Ditton Park, Slough.

"I know no Verbena to compare with Miss Trotter. Wherever it is grown for Bedding purposes, all other scarlets must disappear; its fine habit, compact growth, brilliant colour, and immense profusion of bloom, place it completely beyond competition. The bed I had of it last summer attracted all eyes."—John Smith, the Gardens, Melville Castle.

Full particulars as to price and time of sending out are stated in Mr. PARKER's advertisement of this day, to whom it is respectfully requested all orders may be addressed.

DAVID THOMSON, Dyrham Parks, Herts.

VERBENA "MISS TROTTER."

R. PARKER has much pleasure in offering the above beautiful Verbena, and begs to say that from personal observation during the last two seasons he can confirm all that is stated of it in the above list of testimonials. Strong plants are now ready, and all orders will be executed in strict rotation. Price 1s. 6d. each, or 12s. per dozen, with the usual discount to the Trade, and a further reduction if taken by the 100.—Paradise Nursery, Holloway, London, N.

SEEDS SUITABLE FOR PRESENT SOWING

TO BE HAD OF

WILLIAM DENYER, SEEDSMAN, &c., 82, Gracechurch Street, London.

AQUILEGIA, 6 distinct and beautiful colours .. .. 2s. 0d.
These are quite hardy, and when planted out will last and flower for several years.
HOLLYHOCKS, from Chater's best varieties, 6 sorts.. 2 0
STOCK, Brompton or Gigantic, 6 varieties 2 0
,, Emperor or Perpetual, 12 varieties, splendid, 4s.; 6 ditto 2 0
WALLFLOWERS, 6 Gigantic double varieties, bright and singular colours 2 0
These are from a Continental Grower, who has gained many first-class prizes.
CALCEOLARIA hybrida nana 2 0
A new dwarf variety, spotted brilliant colours, very distinct, in habit growing only 6 or 8 inches high, does not require tying up.
CARNATION 1 0
From prize flowers saved by an Amateur.
CINERARIA, from the most splendid flowers 1 0
PANSEY, from the best flowers 1 0
Saved by Thomson and other eminent growers.
PICOTEE 1 0
From named show flowers, saved by an Amateur.

SELECT AMD NEW PLANTS.

BASS AND BROWN beg to offer the following well established Plants:—

	Each—s. d.
Acacia grandis (true) ..	3 6
,, hispidissima ..	5 0
,, oleifolia elegans, 3s. 6d. to	5 0
Achimenes:—	
,, carminata splendens, 3s. 6d. to	7 6
,, ,, Parsonsi, 3s. 6d. to	7 6
,, ,, leopardi, 2s. 6d. to	5 0
,, (Tydea) amabilis ..	2 6
,, (Tydea) argyronense, 2s. 6d. to	5 0
,, (Tydea) elegans, 2s. 6d. to	3 6
,, (Mandirola) lanata ..	2 6
,, (Sciadocalyx) Warscewiczi	2 6
,, (Mandirola) Roezli, 2s. 6d. to	3 6
A Plant of each, 9 vars..	20 0
Any six for	15 0
Akebia quinata	3 6
Aphelandra Porteana ..	3 6
,, variegata, fine ..	3 6
,, Leopoldi.. ..	3 6
Berberis Nepaulensis, 3s. 6d. to	7 6
Ceratostema longiflora, 5s. to	10 6
Cereus Mac Donaldi, 7s. 6d. to	10 6
Clematis lanuginosa longipetala	7 6
,, patens Amelia, 2s. 6d. to	7 6
,, ,, Louisa, 2s. 6d. to	7 6
Coniferæ:—	
,, Abies Jezoensis ..	21 0
,, Biota Meldensis, 10s. 6d. to	50 0
,, Cupressus Knighti ..	3 6
,, Pinus Benthamiana ..	7 6
,, Thujopsis Borealis, small .. 5s. to	10 6
,, Thuja Doniana ..	7 6
,, ,, gigantea 5s. to	31 6
Desfontainia spinosa ..	10 6
Dillwynia cinnabarina ..	3 6

	Each—s. d.
Eriostemon scabrum latifolium	3 6
,, intermedium ..	5 0
,, nerifolium .. 2s. 6d. to	5 0
Escallonia pterocladon, 2s. 6d. to	5 0
Eugenia (Myrtus) Ugni, 2s. 6d. to	3 6
Eurybia Gunni	2 6
,, illicifolia	2 6
Gastrolobium ovalifolium	2 6
Gesneria Donckelaari, 3s. 6d. to	5 0
Grevillea Lavendulacea rosea .. .. 2s. 6d. to	3 6
Hemiandria pungens, small	2 6
Hypericum oblongifolium	5 0
Kennedia ovata alba ..	2 6
Lardizabala biternata, 3s. 6d. to	5 0
Locheria magnifica ..	3 6
Mandirola (Achimenes) lanata	2 6
Philesia buxifolia	10 6
Phygelus capensis.. ..	3 6
Rhodolea Championi ..	5 0
Ribes subvestitum, 2s. 6d. to	10 6
Rhododendron Gibsoni, 3s. 6d. to	10 6
,, Maddeni, 3s. 6d. to	21 0
Rhopala corcovadensis, fine plants	21 0
Salisburia adiantifolia incisa	10 6
Scutellaria scarletina ..	5 0
Skimmea japonica, 2s. 6d. to	7 6
Swansonia Osborni ..	2 6
Tecoma fulva .. 5s. to	7 6
Telopia speciosissima ..	7 6
Tritonea aurea	2 6
,, fine specimen pots, 5s. 6d. to	10 6
Vaccinum Rollissoni ..	7 6
,, erithrinum ..	10 6

GLOXINIAS.—The following 12 splendid new erect-flowering vars. for 30s., or any six for 17s. 6d., viz., Carthusiana, Comte de Neipperg, Comte Ernest, Talleyrand, Duchess de Brabant, Helen of Orleans, Impératrice Eugenie, Madame Picouline, Maria Paulowna, Roi des Belges, Victoria, Violette, Wagneriana. Splendid vars. of prior introduction, erect and others, per doz., 12s. to 20s.

GOODS CARRIAGE FREE (not under 20s.) to all the London Termini, and all stations on the London and Norwich (Colchester) Line. Extra plants gratis for longer carriage.

BASS & BROWN, Sudbury, Suffolk.

NEW DOUBLE PETUNIAS.—The Subscriber begs to offer to the public the undermentioned beautiful flowers; they will add another gem to the garland of Flora, and no doubt will be admired and appreciated by thousands. They are of the finest growth and most abundant bloomers, and have been selected from many others raised by J. SCOTT, of Merriott Nurseries, Crewkerne, Somerset, to whom all applications are requested to be made.

ÆGLE, a very pretty purple Anemone flowered sort.

ÆTHRA, a beautiful light lilac, full centre, which is shaded down to green.

ALCESTES, a bold large lilac flower, very handsome and showy.

ARIADNE, a splendid full rosy purple, quite a lovely flower, will make one of the most beautiful beds that can be imagined. 5s. each, if ordered by itself.

ASTRÆA, fine Anemone flowered white, very large and free bloomer.

ATYS, a splendid lilac flower with a fine full centre and abundant bloomer.

LEUCOSIA, a very beautiful white tinged in the centre with rose.

PARTHENOPE, a lovely pure white flower, as double as a Rose, a great improvement on Imperial.

The above are all sweet scented and of quite a different habit from Imperial, and very free bloomers, 3s. 6d. each, or the eight varieties, including basket and packing, for 25s. For every three ordered by the trade one will be added. Plants ready the second week in June, and all orders sent out in rotation.

SHOW DAHLIAS, ETC.

JOHN HOLLAND, Bradshaw Gardens, Middleton, near Manchester, offers the below-named set of 24 DAHLIAS in strong plants, for 12s., hamper and package free:

Admiration	Jonas	Pre-eminent
Amazon	Lord Bath	Port Royal
Annie Rawlings	Louisa Glenny	Ringleader
Comet	Miss Frampton	Ruby Queen
General Canrobert	Miss Herbert	Scarlet King
General Faucher	Mrs. Rawlings	Sir R. Whittington
Goldsmith	Mr. Seldon	Spot
John Keynes	Pigeon	Triomphe de Roubaix

	Per doz.—s. d.		Per doz.—s. d.
Fine Phloxes, including Countess of Home	8 0	Scarlet Geraniums..	4 0
Fine Show Pansies	4 0	Bedding Calceolarias	4 0
		Belgian Daisies ..	4 0

Hamper and package free.

Pansy Seed from the best Show Flowers, 1s. and 2s. per packet.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application. 27, Great George Street, Westminster, S.W.

GRASS SEEDS

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

GOOD TURNIP SEEDS, CARRIAGE FREE.

SEEDS DIRECT FROM THE GROWERS THE MOST CERTAIN MEANS OF PREVENTING DISAPPOINTMENT.

SUTTON AND SONS, SEED GROWERS, Reading, Berks, can supply every kind of TURNIP SEEDS of genuine and superior quality.

Agriculturists residing in the most remote parts of the kingdom can procure good Seeds at very moderate prices from this Establishment.—For particulars, apply to

SUTTON & SONS, Seed Growers, Reading, Berks.

NEW AND RARE PLANTS.

ABIES KÆMPFERI

(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA

(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

The Gardeners' Chronicle.

SATURDAY, JUNE 13, 1857.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, June 18—Royal Botanic ..... 2 P.M.

MANY questions have been this year put to us in the hope that some explanation might be given of the irregularity observed in the leafing of trees. One correspondent sees a Beech tree in young leaf before its neighbours are well in bud; and he asks the reason why. A second has a Horsechesnut that always flowers a week earlier than any others, and he too wishes to know the cause. Another has a Birch one of whose branches is green with leaves when all the other branches are brown and bare; in this case again we are appealed to for information.

We pretend to no such gifts as that of explaining the inexplicable. We cannot tell why a peacock has a long tail and a duck a short one. No reason occurs to us why a Negro's head is woolly and our own hairy; or why a greyhound is slender, prick-eared, thin muzzled, and fine skinned, while a Newfoundland dog is muscular, round-eared, wide muzzled, and shaggy. Nor can we pretend to explain why a frog is made for leaping and the toad for crawling. So profound is our

ignorance of such causes that we even shrink from expressing any opinion concerning the Dog-rose having prickles and the Alpine Rose none. Not that we are wholly uninformed concerning the speculations of sundry worthy, well-intentioned, near-sighted persons, who have discovered the explanation of everything; we only say that such explanations as we have been fortunate enough to meet with seem better suited to making darkness visible than to removing it.

For entertaining such opinions we have doubtless been regarded as unintelligent, obstinately shutting our eyes to the luminous theories of the great writers on causation. Be it so: we plead guilty to a want of taste for researches after all sorts of "mysterious unintelligible somethings." In short we are of the same mind as Abercrombie, who considered causation as belonging to those first truths any demonstration of which it is absurdity to attempt. That we are not alone in this view we are happy to be able to show by the following extracts from a paper by Mons. Charles Martins of Montpellier, who has studied with his usual care the class of phænomena to which belongs the irregular leafing of trees.

Every year the great Nettle trees (*Celtis australis*) in the garden of plants at Montpellier are remarkable for this habit. While the larger part of their heads remains leafless and the immense majority of the branches is only furnished with buds just breaking, a few shoots may be observed whose ends are covered with full grown leaves, among which are young fruits as large as a Pea. For five years M. Martins watched this phænomenon and sought in vain for the reason why some branches are a fortnight earlier than others. Neither their place on the tree, nor their relative age, nor their exposure, threw light upon the circumstance. All he remarked was, that it was always the last ends of the branches that leafed before the others. On some trees there were few of them, and only patches of leaves were seen here and there; in other cases they were confined to one side of a tree, a part being green and the rest naked. Sometimes half, or the third, or the quarter of the tree was thus in advance of the rest. "I can find," adds M. Martins, "no explanation of this fact; for to those who say that the vitality of the early branches is more active than in the others, I reply that they merely express the fact in another form, without, in the smallest degree, removing our ignorance of the physical or physiological causes of the phænomenon."

It would not however surprise us to find that the so-called explanation referred to M. Martins is deemed perfectly satisfactory by some of our inquiring friends: so easily are men led to believe they have found the reason of a fact in the dexterous change of words which some know so well how to employ. If they are indeed satisfied, then we may add that for them the inexplicable may generally be very readily explained.

A small pamphlet has lately been published by Mr. John Pearson,* professing to explain the certain cause of canker in fruit trees, and at the same time its certain prevention. The views which it holds forth, though not absolutely new, are worth attention, as they tend to show the folly of expecting that, without care, plants like the Peach and Apricot, which come from far warmer countries than our own, can bear uninjured the constant wear and tear of our changeable climate, in addition to all the untoward circumstances under which they are placed by bad cultivation. Mr. Pearson's notion is that the buds of the half ripened wood are affected by the alternations of wet and cold weather, with heat and drought, during our changeable and often ungenial summers; and he has attempted to prove this by causing artificially a stream of water to pass over denuded buds, with intervals of rest. By these means he has induced undoubted canker or gum, and he therefore concludes that such alternations are the cause of the disease in general, and the only way of prevention is to protect the trees, especially when young, with proper screens. The experiment however is not altogether new. We have long been familiar with it, and believe that it was tried by Mr. Knight. But granting its novelty and the wisdom of the plan he recommends where practicable, we are by no means prepared to assent to his views that this is the only cause of canker. The origin of the disease is often difficult enough to trace, but on the other hand it is often quite clear to what it owes its rise. Sometimes it is cold and wet, as Mr. Pearson tells us, acting on unripened wood; sometimes as certainly intense heat, or alternations of cold and heat; the soil is ungenial, the roots run too deep into the ground, and either meet with stagnant water or too low a temperature; the weakly constitution again of some varieties is such that without any apparent cause the tissues become diseased. When once these are impaired, from whatever cause, there is always danger of the incipient decomposition being communicated to neighbouring tissues, and in those trees more especially where gum oozes out under such circumstances the wound is seldom permanently healed. That the injury often proceeds from a bud we have ourselves stated our conviction in this Journal. We have, for instance, traced in the Bedfordshire Foundling extensive canker to a particular bud, and that on a tree where no other cankered branch has ever appeared; but though this is sometimes the case, we have abundant evidence that the disease arises in spots where there is no bud either developed or latent, and where no external injury has been received, whether accidental or from injudicious pruning.

It is well known how much more Peach trees suffer in the open quarter of a nursery, or where no care is taken to protect them, and this is one amongst other reasons why it is always the best economy to obtain such trees, though it be at double the expense, from respectable nurserymen who have a character to lose. But however good the early nursing may have been, it will avail little unless it is remembered that the trees are truly exotics, and require care and scientific treatment even where hot walls and other expensive appliances are out of the question. Mr. Pearson deserves our thanks for calling attention to this point. The ill-ripened wood of succeeding years will canker just as badly as before when subject to strong atmospheric changes, and ungenial soil and subsoil will be sure to aggravate the evil. We do not however subscribe to his theory of the conversion of the sap into gum being due to a mere oxidisation. It is the subtraction of one or more particles of the constituents of water which makes the great difference between many of the substances with which vegetable physiology is most conversant. Why the diseased tissues produce gum is a mystery not yet explained. If all the cells were simply filled with gum, and the effect of disease was simply to break down the walls and liberate the contained gum, we should still have to account for its increased density. Nor indeed does gumming always arise from exposure to the atmosphere. In many cases where the tissues have not been at all exposed the gum collects, distending all around till it at length bursts through the cuticle, generally in an upward direction. Gumming sometimes arises from a deep seated stratum covered with one or more layers of wood through which it bursts, ultimately forcing its way through the healthy bark above, and inducing at the same time disease along its course. We have before us a branch of an Apricot in which this has been the case, the gum having formed a circular orifice through the superincumbent tissues till it burst through the cuticle. The tissues below the healthy wood were diseased for some distance, those parts above only being injured where the gum forced a passage. There could have been no immediate contact of the diseased parts with the external atmosphere. Mere conjectures about such matters are of little avail, except so far as they may lead a competent chemist to turn attention to some particular point, and the subject is one which richly deserves more accurate investigation than it has received at present. It is very possible that the decay of cell-walls may have some especial chemical effect upon the matter which they contain, though it must be remembered that canker does not always induce gumming, which is a mere symptom peculiar to Almond-worts (*Drupaceæ*) as far as regards the fruit trees which we cultivate.

In conclusion, we cannot help remarking that the matter contained in books upon the subject of canker is not so worthless as Mr. Pearson seems to imagine. We may refer him amongst other sources of information to a paper of Mr. Knight's published in 1817, to several communications in our volume for 1844, to the communications of Mr. Lovell and Mr. Whiting to the Horticultural Society of London, published in the volumes of its Transactions for 1851 and 1853, and Mr. Reid's papers quoted in the new edition of the Theory and Practice of Horticulture, in all of which there is much valuable information. We do not however by these observations at all wish to detract from the merit of Mr. Pearson's experiment, but merely to give a caution that we are not to consider the question as by any means completely set at rest. *M. J. B.*

* Canker in Fruit Trees, its certain cause and certain prevention. By John Pearson. 8vo., pp. 12. Published by Mrs. Pearson, Mass House, near Bewdley, 1857.

SALE OF POISONS.

I take the liberty of addressing a few lines to you on the subject of the proposed act for the sale of poisons, now in the House of Lords, to know whether any movement is being made by the trade in general to see that justice is done to us, and that we may not have a bungling piece of machinery made that it will be impossible to work; if any movement is making, I will cheerfully send up my contribution towards it. This colouring system, which our law-makers seem to think so clever, is simply absurd—here, in the country, arsenic is sold considerably; the man who has 1000 sheep may have his 10 lb. of arsenic uncoloured, but the man who has only 100 must have his coloured with the black or blue. Need I tell you that the farmers won't have their wool dyed gratuitously, and we sell the arsenic white and genuine. Now, as regards the new act, how are we to colour nux vomica? Some of these very wise heads will be ordering their grooms to get their hunters ready, and see that the boot-tops, saddles, &c., are all clean; but if the oxalic acid is sent according to their order, will they not be rather surprised to see their grooms with blue tops smiling at their own blue stockings? Take the straw trade—what colour shall we have our women's bonnets, hats, &c.? It can never be sold but as pure oxalic acid. I believe I only express the feelings of the whole trade. The ironmonger sells "driers" in the shape of plumbi acetas, zinci sulphas, &c., with impunity, not even labelled! Was the idea of taking a man's business away from him on a second conviction obtained from Russia? Certainly 'tis new to English ears. How many dozens of pennyworths of white precipitate are sold by every druggist in the course of the year? Are the poor people to be sent to the parson of the parish (our rector lives two miles off) to get a certificate that the poor woman merely wants to kill "bobs" in her children's heads? In Dunstable and Luton there are tons of oxalic acid annually sold, so also of salt of sorrel. Your obedient servant, H. Nichols. *Petersfield, May* 25, 1857.

We have received the following extract from a newspaper, with comments from a correspondent:—

SUICIDE.

"Yesterday Mr. C. Jewison, the coroner, held an inquest at the Fox and Hounds Inn, Bradford, touching the death of James Hustler. The deceased, who was 36 years of age, resided in Jury Street, North Wing. He had been unwell and in a desponding state of mind for some time. Yesterday morning, about 7 o'clock, while his wife was employed at a mill, a young woman discovered him suspended by the neck in the staircase of his dwelling. Some neighbours who were called in cut him down. The jury returned a verdict that the deceased had hanged himself while in a state of temporary insanity."

Please to read the enclosed and consider the importance of obtaining an act of Parliament to prevent persons selling rope! or stockings! unless the buyer has obtained a certificate from a priest or medical man, or is accompanied by a sane person! of mature age! Also to have all persons buying cutlery! watched, and if found to feel the sharpness of that cutlery, to have them immediately brought before a magistrate, and if not able to give a good account of themselves, to send them to a lunatic asylum forthwith. Also all persons buying firearms to be provided with a certificate from a priest or medical man to the effect that they do not intend to make an improper use of them. Also all persons found walking alone! near the sea or a river, or on a mountain or precipitous place, to be immediately brought before a magistrate, and if not able to give a good account of themselves to be sent to a lunatic asylum! That sane priests and medical men be appointed at 2000*l.* per annum to give certificates, &c.; also a larger number of magistrates at the same sum; that grants be made to build lunatic asylums to any extent that may be required. That the person bringing in the Bill to regulate the sale of poisons be examined, and if found to have common sense? to be set at liberty; if not, to have his house searched, and if any of the before enumerated articles be found, and he not able to give a good account of himself, that he be taken care of immediately, until an asylum of sufficient magnitude be built to receive him. *From the Pharmaceutical Journal.*

Home Correspondence.

Vegetable Fertilisation.—The position of the question of impregnation as it regards Phænogamic and Cryptogamic plants respectively is at the present moment somewhat antithetical. Whilst some botanists are exerting themselves to prove the fact and the necessity of the existence of sexual organs in Cryptogamic plants, others are directing attention to instances of apparently undeniable parthenogenesis in Phænogamic plants. As the word sounds unfamiliar, it may be as well to state that (as applied to vegetables) parthenogenesis means the production of a perfect embryo without the intervention of the fertilising action of the pollen. It is now nearly 30 years since Mr. J. Smith, of Kew, observed that in a certain Euphorbiaceous plant called Cœlebogyne ilicifolia, although no stamens or pollen-bearing organs of any kind were to be found, perfect fruit was nevertheless produced. This, however, is not the earliest case on record, as the same fact had been noticed by Spallanzani at the end of the last century in the case of the female Hemp plant, and his observations were confirmed by Bernhardi. The experiments on the Hemp plant have lately been repeated by MM. Naudin and Decaisne, and an account of the results obtained by them

is to be found in the 43d vol. of the "Comptes Rendus" of the French Academy (1856). These results are entirely in accordance with the observations of Spallanzani. M. Naudin has also ascertained that the female plants of Mercurialis annua and Bryonia dioica are capable in like manner of producing perfect seeds without previous impregnation, and similar results were obtained by him with a plant of Ecbalium elaterium, the Spirting Cucumber, from which all the male flowers were carefully removed upon the first appearance of their buds. The observations of Naudin on Mercurialis annua, and those of Smith on Cœlebogyne ilicifolia have been repeated, the former by M. Thuret, and the latter by Dr. Radlkofer and Dr. Braun, and the fact of the production in both cases of perfect seed without impregnation has been fully verified. Dr. Braun's observations are to be found in the Monthly Reports of the Berlin Academy for September and October, 1856; and Dr. Radlkofer's in "Siebold and Kölliker's Zeitschrift für wissenschaftliche Zoologie," vol. viii., Heft 4, 1857. It has been noticed that in Cœlebogyne, Cannabis, and Mercurialis, when fructification takes place without the intervention of the pollen, the stigma does not wither and become detached from the ovary, as is the case when the pollen acts in the ordinary manner. This is explained by the fact that when the pollen acts the tubes given out by the pollen grains are nourished at the expense of the contents of the cells of the stigma and style, which latter cells retain their vitality when not required to part with their own nutriment for the support of the pollen tubes. The facts here briefly referred to are of great physiological interest, and now that the embryologists have settled their dispute as to the place of origin of the embryo (even Schleiden and Schacht having recanted their error as to its production within the pollen tube), the above question of vegetable parthenogenesis opens a fresh field for the exercise of their powers of observation. *C. T.*

Lime Tree Caterpillars.—An avenue of Lime trees is infested with caterpillars, the leaves have been almost entirely destroyed. These insects vary from ¾ inch to 1¼ inch in length, their colours various; green the most common. They appear to breed on the boughs, and are found in great quantities on the Grass underneath, to which they let themselves down by cobweb lines. They do not seem to attack any other kind of tree. This is the third year of their appearance in large numbers, and each year they have been worse than the last. The size and number of the trees affected makes it impossible to smoke them or pull them off by hand. Can you suggest a remedy, and state whether this nuisance is general throughout England? *A. B., Middlesex.* [It would appear from the preceding observations that the Lime trees in question are infested with several different kinds of the larvæ or caterpillars of Lepidopterous insects. They do not appear to be sufficiently large for those of the Lime hawk moth (Sphinx, Smerinthus, Tiliæ), but may possibly be those of the Canary-shouldered thorn moth (Geometra Tiliaria) the buff-tip moth (Pygæra bucephala), the Gypsey moth (Hypogymna dispar), the dagger moth (Acronycta Psi), or the common vapourer moth (Orgyia antiqua). We would advise large sheets to be laid under the trees, the branches of which should then be strongly struck with poles. This will dislodge the caterpillars, which will fall on the cloths, and may be easily destroyed with boiling water; they must not be buried alive. But a better plan is to collect the moths, which may generally be found at the proper season sitting on the trunks of the trees. *J. O. W.*]

Potato Disease, cure for.—As soon as the Potato plants begin to show themselves let the ground be dug over (just turned in), and immediately afterwards earth them once for all. The stems soon get through the earth and form their Potato bearing shoots much quicker than when they are not earthed up till they have become well grown. When earthed up early the Potatoes form sooner, and by the time when the disease appears are pretty nearly if not quite ripe. The reason why so many bad Potatoes are found in the ridges is that they are not ripe, owing to their having been earthed up late; and this seems to me the explanation of the fact that Potatoes which have never been earthed up escape the disease. When the ridges are formed at the moment of the appearance of the shoots above ground they protect the young plants from late frosts, itself a great advantage. The plan proposed has the further advantage of increasing the crop by at least a quarter. *Victor Chatel, Campandré-Valcongrain, May* 15.

Sussex Truck Baskets.—These do not seem to be so well known as their merits demand. Specimens of them were exhibited at Chiswick the other day, but as they came all the way from Norfolk, I fear that distance may have a tendency to deter many from searching for them; besides these specimens were made as "models of perfection," "to exhibit" rather than for economy and garden rough work. I found specimens of these baskets also in the museum at Kew, and I have learned that the London agent for them is Mr. James Revell, 272, Oxford Street. I get mine from Mr. Killick, Penshurst, Kent. The prices I pay are as follows:—Largest size, 27 in. long by 14 in. wide, 1*s.* 4*d.* each; next size, 24 in. by 13 in., 1*s.* 2*d.*; and the smallest size I use, 21 in. by 12 in., 1*s.* each; they are made much smaller, but I never use them. Although we have several, it is seldom one is found unemployed. They are in general demand in the houses, the potting shed, the stoke-holes, for weeds, &c., and frequently for vegetables. They only require a trial to be appreciated. Upon turning to the Society's Catalogue of manufactured articles, I find a list with prices from Norfolk, but these are unnecessarily well finished for general garden purposes. *C. E. Wells, Great Highnam Court.*

Large Yew Tree.—Having seen at p. 365 of your Paper an account of a large Yew tree growing at Broughton Hackett, whose girth at 3 feet from the ground was 14 feet 3 inches, I beg to inform your readers that there is now in the churchyard at Darley Dale, near Matlock, Derbyshire, a Yew tree said to be the largest in England, the girth of whose trunk at 3 feet from the ground is 33 feet 9 inches; the tree is quite hollow, but to all appearance healthy. It has been injured by high winds, many of the largest branches having been blown off close to the trunk. A few years ago one of the boughs was so large that the boys used to climb up and get into the church roof by it, although the tree stands 60 or 70 feet from the church. This bough was blown down one Sunday afternoon some six or seven years ago. *H. Smith, Darley Dale.*

Gas Tar.—A friend has spread a quantity of this over his new greenhouse floor before laying the "quarries;" the stench is so offensive that you cannot breathe in it. Will you kindly inform me what he had better do to get rid of the nuisance? *M. W. K.* [You cannot get rid of it, except by waiting patiently for a long time, or by removing it again.]

Lilium giganteum.—If any of your Norfolk friends have not seen this in flower they may now see it here. The plant is nearly 11 feet in height and has 20 flowers upon it all open except two and these will probably expand to-morrow; the first leaf is only 13 inches from the soil; below this the stem is ornamented with the leaves of four strong offsets. Some of the largest leaves including the stalk are 32 inches long, 16 inches without the stalk, and as much across. This I should think is one of the finest specimens ever produced *in a pot*, which is a 15 inch one and surely worth coming some distance to see. *William Breadley, Somerleyton.*

Haricot Beans.—I am required to keep up a supply of this vegetable during autumn and winter "for a small family," and I am anxious to know the kind best adapted for this purpose, "and the best way of preserving," cooking, &c., for winter use. Of dwarf French Beans, I grow Fulmer's Early Forcing, Pale Don, and Six Weeks. Would these kinds answer the purpose required? *An Old Subscriber.* [Our common Kidney Beans will not answer; they are too coarse. You must grow kinds with white skins; the Haricot de Soissons, for example, a runner, and the Haricot riz—a dwarf.]

Early Out-door Strawberries.—I have sent you 1 lb. of my Black Prince, fair samples from the open ground, which I am now selling at 2*s.* a lb. Cultivators generally I find still continue to grow Keens' Seedling, which will not be ripe yet out of doors for some time. *James Cuthill, Camberwell, June* 9. [The specimens were large for the kind, and well flavoured. The utility of growing this sort for a first crop is now beginning to be generally recognised.]

Monstrous Potato.—Not having seen any previous account of a monstrosity similar to the inclosed I have sent it for your inspection. You will observe that it is a branch from the haulm of a Potato the point of which had been bent down and buried at the time of earthing up, and which has resulted in the forming of two Potatoes at the end. I may add that it branches off about 4 inches from the surface of the soil. *Thos. Young, Gardener to Crawshay Bailey, Esq., M.P., Aberaman, Aberdare.* [All Potatoes are gouty branches.]

Laburnum Sports.—I hope Mr. Purser will complete his highly interesting observations by carefully noticing whether the red flowers on his Laburnum are sterile like the common C. Adami, and report the result. Would it not be very desirable if Mr. Purser would endeavour to trace the *course* of the influence from the grafts of C. purpurea along the stock? I presume the foliage is changed as well as flowers. It would be a curious experiment to save the seed of any raceme of pure yellow and get unaltered flowers in the midst of the red racemes, and see what the seedlings will turn out. I have now a fine crop of seedlings from a branch of C. Adami, in Mr. Cattell's garden at Westerham, which had sported back into pure yellow; and whenever the seedlings flower I will report result. Bradley in his "Treatise of Husbandry," 1724, vol. i., p. 199, says, "We find by inarching or insulating the striped Jessamine into either the plain common sort, or the Spanish Jessamine, or the Indian or Brazil kinds, that the malignity which causes the whiteness in the leaves of the first mixes itself in such a manner with the juices of the plants 'tis ingraffed with, that their leaves become infected and tinged in some places with the white colour." He goes on:—"The curious Mr. Greening, nurseryman at Brentford, told me he had seen some Ash trees that had been budded or inoculated with some buds of a striped Ash, which (though the buds had not sprouted), yet the shoots of the budded trees which were below the inoculation became variegated or striped." What does Bradley mean by the Brazilian, Indian, and Spanish Jessamines? Are they distinct species; if so the case is more strictly parallel with the Laburnum? Bradley also states distinctly that if the bud of a non-variegated plant be inserted in a variegated, the budded plant becomes variegated, but in less degree if only inarched, as in that case the sap will be derived from two stocks. Every one has heard of the famous case of Lord Morton's chesnut mare, which produced a hybrid foal by a Quagga, and whose subsequent produce by a black Arabian were distinctly marked like a Quagga; indeed more plainly barred on the legs than the real hybrid. Parallel instances have been observed in crossing varieties, as with Mr. Gilbert's case of the wild boar. Now, some physiologists have explained these astonishing facts by the supposition that the mother had been, as it were, inoculated by her embryo, and had assumed in a latent form the character of her first husband, and thus had affected her subsequent progeny. And really the Laburnum case makes this view not so utterly impossible as it must at first appear. *C. D., Down.*—Mr. Purser's description of his Laburnum sport applies almost exactly to a tree in my garden. Until I read that paragraph I had supposed that the purple blossoms arose from buds inserted on the Yellow Laburnum, but your correspondent seems to think they are occasioned by a change in the circulation of the tree. On one of my branches sits, evidently a bud, a tuft of Purple Cytisus, and that branch has all Purple Laburnum flowers; two other large lateral branches 6 feet long at opposite sides of the tree have each a single yellow flower suspended at about the middle of the branch, about 9 inches long, while the purple racemes do not exceed 3 or 4 inches. One of the yellow blossoms is purplish on one side, which looks like inoculation by the Cytisus. Some other branches have the pure yellow blossoms of the original tree. I have had mine two years, and it is 12 years old I should think at least. The Cytisus does not appear to increase in size, being in a tuft of about a foot in diameter. *George Fitt, Norwich.*

Improvement of the Potato.—It occurred to me some time since that it might be practicable so to alter the physical constituents of the Potato as to render it proof against the attacks of humidity to which it is liable from coming to maturity at a late period in the season. This I conceive might be effected by inoculation, which would not only alter its tendency to absorb moisture but improve its feculent qualities, and in seasons where our Wheat harvests fail enable it in a measure to supply the deficiency. Being only an amateur gardener I have not the requisite space of ground to test the experiment I propose fairly, therefore I suggest it to the notice of those in the possession of large tracts of land, market gardeners and others. I propose that pieces be scooped out down to the centre of the Potato, and Wheat or Pea-meal be deposited therein, the pieces so cut out to be inserted again, allowing for the space occupied by the meal; of course the young Potatoes should be the ones chiefly operated upon, though it might be advantageous to inoculate full-grown tubers with a view to gather an improved seed. The constitution of Potato tubers would, I believe, after such inoculation better withstand the evil effects of continuous wet to which the crop is so particularly exposed. The principle of inoculation might, I conceive, be carried out in many other cases with advantageous results; our domestic or culinary botany is comparatively in a very slowly progressive state; not so, however, is floriculture. Yet this is of secondary importance to horticulture; our list of vegetables, roots, and seeds for the sustenance of mankind is but meagre in proportion to the vast number of plants in existence. It would be well if men of science and practical minds would investigate more fully the properties and nature of vegetables throughout the world. *A Botanical Amateur.*

Tiffany.—A correspondent in your Paper of May 29th mentions that this failed to preserve plants under glass from burning or sun scorching. Perhaps in the case referred to it had only been used outside the glass. I have used it both summer and winter inside instead of outside, and do not find my plants scorched or frozen, the Tiffany being a few inches from the glass, and between it and the foliage. Permit me to add that the Pyrus vestita is blooming with us this summer. We have had the plants these 20 years, and never saw a blossom on them before. They are 20 feet high. *Ignoramus.* [The Tiffany in the case alluded to by our correspondent was *outside* the glass, not inside.]

Mowing Machines.—I have just read in your Paper of Saturday last that a trial of mowing machines was made on the lawn of the Chiswick Gardens on the Friday previous. Allow me to state, on the part of our firm, that no intimation was given us that there would be any trial, and that consequently we had no one there to work our machines. We shall be ready at any time to place them in competition with any other maker, but think it only fair play that we should have an opportunity afforded us of being present. I would just remark that I saw on Wednesday the machines that were exhibited at Chiswick, and observed that all of them followed in the cutting part the original plan introduced by Budding, and the result of all the patents and so-called improvements has been little more than a change in the position of the wheels. *James Ferrabee, Phœnix Iron Works, near Stroud.*

Pines v. *Grapes.*—I should feel obliged if your correspondent would tell me how far the cost of growing Pines must necessarily exceed that of hothouse Grapes, and if it need not, the best *vade mecum* for a beginner, and how I may get the best account of the Meudon and Hamiltonian systems, and how Mr. Barnes' open-air system answers? *G. E. S.* [We hope our friend Barnes will answer for himself. The Meudon method has been fully described in our former volumes. Hamilton's own book on the Pine Apple should be studied for the practice he recommends.]

Horticultural Society's Exhibition.—I submit that your comments are not quite fair and just. At the Crystal Palace Show the prizes for Peaches, Royal George, were—1, Mr. Constantine, gr. to C. Mills, Esq.;

2, Mr. Hill, gr. to R. Sneyd, Esq.; 3, Mr. Fleming, gr. to the Duke of Norfolk. On this your comment is:—"Mr. Hill showed Royal George Peaches and Violette Hâtive Nectarines; Mr. Busby had some well ripened Nectarines; and Mr. Constantine Royal George Peaches." At the Chiswick Show the prizes for Peaches were—1, Mr. Hill, gr. to R. Sneyd, Esq.; 2, Mr. Constantine, gr. to C. Mills, Esq.; 3, Mr. Fleming, gr. to the Duke of Sutherland. Your comment is:—"Of Peaches, Mr. Hill and Mr. Fleming had both excellent examples of Royal George; the same variety was also furnished by Mr. Constantine." Nobody would suppose from this that my gardener was first at the Crystal Palace and second at Chiswick. It is a matter of very small importance, but no favour should be shown. *Charles Mills, Hillingdon Court, Uxbridge.* [Our reporter's remarks were not intended to describe the result of the competition, which is seen from the official prize lists, but his own opinion respecting the fruit as exhibited. At the time when his report was written he had had no means of knowing what the award of the judges could be.]

Variegated Jasmines.—Observing the notice in your last Number respecting the variegation imparted to the green Jasminum officinale by budding it with the variegated kind, I beg to say that I have several plants which have been so worked for many years, and still retain the variegation; and conceiving that such variegation transferred to the fine foliage of J. revolutum would be desirable, I operated upon several plants two successive seasons, but not one of the buds made progress, though one or two remained apparently plump for a time. I therefore gave up the experiment as hopeless, thinking the affinity not sufficiently near; but was gratified the following season by the appearance of golden blotches upon the leaves of two of the plants so budded, and which extended along the young shoots, yet I fear (as usual) the variegation is at the expense of the blossoms, as variegated plants are not so productive of bloom as plain green ones. *W. Godsall, Nurseryman, Hereford.*

Societies.

Horticultural: Garden Exhibition, *June* 3 & 4.—The invitation to manufacturers to exhibit garden implements and other articles connected with horticulture on this occasion was well supported. Instead, however, of allowing their goods to remain open for inspection for a week, as it was announced they would do, many of them removed them on the Friday after the show. The following report of them made from notes taken last Saturday must therefore necessarily be somewhat imperfect:—

Nothing perhaps can be said to have possessed more solid interest than Messrs. Bazley White's specimens of Portland Cement. One was a moveable brick tank, lined with cement and filled with water, not one drop of which could escape through the sides; a second was a piece of concrete floor, as hard as stone; and the third was a specimen of very handsome massive border edging, not distinguishable from wrought stone, and apparently as durable.

Among Tents the most remarkable came from Messrs. B. Edgington. They were all strong and serviceable, easily pitched, securely fastened to their places, and free to a great extent from the inconvenience of being supported by long tent lines. Among the most remarkable were the following:—A very fine circular tent, 40 feet diameter, which although portable and easily handled, was capable of affording stabling for 30 horses. It was used for the exhibition of vegetables. Two marquees for military hospitals, each 32 feet by 17 feet, far superior to the Government marquees—being better ventilated, better calculated to resist wind, held by only one quarter the number of lines, and occupying about half their area—*the lines only extending* 4 *feet.* A square tent of brown canvas intended for cooking; this was ventilated by square windows in the sides, and seemed to be well deserving the attention of officers. We also remarked a couple of bell tents, which in addition to being lighter, better ventilated, and requiring fewer lines than the "regulation tents," possess the additional advantage of forming altogether but *one package.* The poles of regulation tents form a *separate* package. In addition to these, to a capital round tent and an umbrella tent for garden purposes only, there were various patterns of other descriptions, such as officers' boat-shaped tents, light and easily erected; a patrol tent for cavalry officers to carry at the back of the saddle, weighing only 37 lbs. complete; an Indian tent, adapted for hot climates; a pair of French marquee tents, small but comfortable; and some low service tents formed of triangular sheets of canvas, brown or white, capable of being divided into two rooms if necessary, which appeared to combine so much comfort and convenience as to render them a great improvement upon the tents generally in use. A Prize Medal was awarded for this at the Great Exhibition in London, 1851; its figure is a pyramid, the angles being strengthened from the head of the tent by 1-inch rope, to which the canvas is "bolted," and which being secured by strong iron pegs to the ground, constitutes the principal support of the tent. A porch is formed at each end, sustained by a light 6-foot pole, giving entrance to the tent, and affording the advantage of a thorough draught of air. There is also a ventilation at the top. The centre pole is divided into three parts—the small poles into two, and the whole (including poles, pegs, and every requisite) is packed into a valise 45 inches long by 15 inches in diameter, weighing 90 lbs. The two porches, and the very complete *ventilation,* are great improvements, while the ease and rapidity with which the tent can be erected (one man being sufficient), and the resistance it offers both to wind and rain, render it invaluable in windy places, especially since it can be pegged down before the pole is erected. In all respects this was one of the most interesting parts of the Exhibition. The tents were so placed as to add very much to the beauty of the scene.

Other tents came from Messrs. Cullingford, Richardson, & Roof; and Messrs. Weeks exhibited their goods under a large framed marquee, braced with strong wire diagonals; a method of fixing such structures which seemed to be very effectual. It, however, wanted the picturesque appearance which renders ordinary tents so great an ornament among trees.

Mowing Machines of various sizes were exhibited by Dray and Co., Shanks of Arbroath, Burgess and Key, Samuelson, Warner and Sons, Cottam, Ferrabee, and Green, of Leeds. As we mentioned last week an attempt was made to ascertain their relative merits by actual trial. The state of the Grass to be mowed, want of space, absence of skilled workmen, and other circumstances rendered the trial difficult and inconclusive, so that the following description of what passed must not be taken as a criterion of excellence. It was agreed that the trial should be confined to 16-inch hand machines; Ferrabee, Green, Samuelson, and Shanks alone entered into competition; other exhibitors, having had no notice of the trial, were absent. The following are the prices of the machines employed, and their measurements, from the end of the cutting knives to the outside of the gear. Ferrabee, 5*l.* 10*s.*, distance to outside, $3\frac{1}{2}$ and $3\frac{3}{4}$ inches; Green, 6*l.* 6*s.*, distance to outside, $2\frac{3}{4}$ and $3\frac{3}{4}$ inches; Samuelson, 5*l.* 10*s.*, distance to outside, 6 and $6\frac{1}{2}$ inches; Shanks, 6*l.*, distance to outside, $2\frac{1}{2}$ and $3\frac{1}{4}$ inches. Each was tried upon level ground, upon undulating ground, and round borders and trees. In each case Green's machine had the advantage, Samuelson's performed better than Shanks' on level ground, but Shanks' did its work best round borders and trees. In making this announcement the judges expressly declared that the result was not regarded by them as any decision as to the merits of the machines; in which we quite agree. It is to be hoped that a real trial which shall leave no doubt behind may be made by the Society on some future occasion.

Many were the objects of decoration in the form of vases, in metal and terra cotta, fountain-basins, and flower baskets. It would be unjust if we did not select from them the collections of Mr. Blashfield and Mr. Seeley. A highly enriched vase on its stand, from the Townley Collection in the British Museum, representing a Bacchanalian festival, the original of which was found at Monte Cagnuolo, the site of the villa of Antoninus Pius, at the ancient Lanuvium, was shown by Mr. Blashfield, and was certainly the finest thing in the garden; beautiful as also were the numerous tazzas, vases, pedestals, and other works in terra cotta supplied by the same eminent artist. Mr. Seeley's flower baskets and tazzas and vases were also fine things, especially the former, some of which were 7 feet in diameter. Having been filled with flowers and placed on one of the broad gravel walks they produced a singularly rich effect, which could scarcely have been gained in any other way.

It is a little remarkable that the makers of ornamental garden pavement did not appear, with the exception of Messrs. Maw & Co., of the Benthall Works, Salop, who produced a few beautiful patterns quite sufficient to show that it is by no means necessary to go to the Staffordshire potteries if first class work of this kind has to be executed.

Seats, chairs, and tables, which are so necessary in gardens, were supplied in abundance by Barnard of Norwich, S. Hood, Samuelson, Dray & Co., the Baker Street Bazaar, and others. Some, like Barnard's, were admired for their cheapness combined with utility; others, especially Dray's, for the beauty of the castings and their immobility, so that no storm or ordinary accident could upset them. A pattern of a rustic chair of this kind, painted oak colour, we forget from whom, most especially deserves remembrance. Here too we ought to introduce the articles in wirework, of which a very great variety, applied to all sorts of purposes, was shown by Mr. Richards, of 370, Oxford Street. Many of his stands were filled with flowers, and showed perfectly their character when placed upon a lawn.

Many Aquaria, some of considerable beauty, were shown by Messrs. Hely, Phillips, Ramadge, Cogan, and Lloyd, the last manufactured by Saunders & Woolcott, 54, Doughty Street. Mr. Phillips exhibited in his a collection of wild flowers suited to such contrivances; viz.—Nymphæa alba, Nuphar luteum, Acorus calamus, Œnanthe fistulosa, Alisma plantago, Menyanthes trifoliata, Caltha palustris, Ranunculus aquatilis, Ranunculus sceleratus, Butomus umbellatus, Cardamine pratensis, Veronica Beccabunga, Eleocharis palustris, Potamogeton natans, Potamogeton crispum, Potamogeton densum, Callitriche verna, and Myriophyllum spicatum, all nicely prepared by Mr. J. Mason. An expensive, but very handsome one, was that shown by Mr. Ramadge, forming an octagon box of glass and brass, with a flat glass top, standing on oblique pierced zinc ventilating panels.

Boilers came from various firms. Messrs. Weeks sent one of their largest sized upright tubular ones with hollow furnace bars. In this boiler the fire is in the middle, and it is fed from the top. Of its efficiency few have any doubt; from the nature of its construction it is obvious that it exposes a very large amount of heating surface to the action of the fire. Along with it were various improvements in the way of fixing and arranging hot-water pipes, together with a stack of the same, and an ornamental case for covering them where such is desirable. Another boiler whose merits are already acknowledged is Thomson's retort. Two specimens of this were exhibited by Messrs. Shanks, of Arbroath. The triple retort has three openings through it some 10 inches diameter, exposing a large surface to the fire; in proportion to this surface it contains a very small quantity of water, thereby causing circulation to begin almost immediately upon the application of heat. Every part of the boiler admits it is said of being swept clear of soot in about a minute, the advantage of which must be obvious. A perforated pipe may also be fixed to it so as to throw jets of air into the flame at that point where it begins to return through the boiler, which tends to more perfect combustion, and in a great degree to the consumption of smoke. Wherever they have been tried these boilers have been reported to have given perfect satisfaction, not only as regards their simplicity and economy in attendance and fuel, but also as respects the large amount of heating power which they possess. Like the last named boiler, but still different from it, was one from Mr. Munro, gr. to Mrs. Oddie; this is horizontal and made of wrought iron with tubular supports and pedestals, said to combine in one and the same boiler the advantages of the cylindrical, tubular, and saddleback. From Messrs. Hood, of Earl Street, Blackfriars, came a wrought iron arched boiler with furnace fittings. These can be made of all sizes, from 18 inches to 12 feet long, so as to heat from 50 to 5000 feet of pipe, also cast-iron conical boilers with furnace fittings. One of the latter was placed on a stand with fire-clay furnace, not requiring any brickwork. These boilers can be used for the smallest description of hot-water apparatus, and are reported to burn steadily with as little as 25 feet of pipe if required. From the same firm was also a hot-water column, consisting of upright pipes connected at the ends for warming halls and conservatories. These are made of various sizes from 4 to 7 feet in height; the one exhibited was stated to contain 75 square feet of heating surface. Hot-water coils with cases for covering them were also shown by the same firm. An improved boiler and model illustrating the circulation of hot water in pipes was shown by Messrs. Hood & Son, of 68, Upper Thames Street. A triangular tubular boiler came from Mr. Messenger, of Loughborough. The ordinary fault of boilers of this description is their liability to collect soot; in this case however the latter might easily be removed by taking away the ends of the boiler, which are moveable; the fire bars also form water spaces, and thus become a working part of the apparatus. Mr. Macrostie, of Kingston-on-Thames, also had a boiler and working model. Other heating apparatus came from Messrs. Taylor, of Kensall Green, and Mr. Overall, of Shacklewell Lane. The latter was simply a coil of 3-inch pipes. From Messrs. Taylor came a horizontal tubular boiler, and another kind with circular dome, having a corrugated opening in the middle and pipes underneath. Mr. Lyndon White, of Ground Street, sent a boiler, various hot-water pipes and connections for heating purposes; and various hot-water pipes, a new kind of sheet iron flue and four boilers came from Mr. Eley, of the City Road. From Mr. Hutchison, gr. at Castle Malgwyn, came a tin model of an arched semicircular boiler, on whose top was a horizontal hollow pipe through which flame might pass, thus exposing a large surface to the action of the fire. Though different in shape, the principle on which it was constructed was the same as that of Thomson & Munro's. Connected with boilers may be mentioned Hazard's "Heat Extractor," one of which was exhibited, together with a model showing how it should be applied.

Of Levels, Thermometers, &c., Mr. Thompson, Mr. Weir, and others showed several. Mr. Thompson had a plunging thermometer for ascertaining bottom heat. It was a silvered scale thermometer enclosed in a glass and brass tube with pointed extremity and handle. Thermometers and other Meteorological Instruments were also exhibited by Mr. Casella, of 23, Hatton Garden, and Mr. Bennett, of Cheapside.

Three full-sized Greenhouses were put up as examples of that kind of garden structure. Mr. Taylor's, of Kensall Green, was a span-roofed building, 46 feet long and 20 wide, a beautiful object and in extremely good proportions. Mr. Freeman, of Hackney, had a highly decorated span-roof Greenhouse, with a good deal of coloured glass, and carved pannelling picked in with colours on a white ground; inside was a model of a conservatory with a pagoda roof. From Mr. Dench came a Patent lean-to Greenhouse, with galvanised iron sashes and wooden frame, its roof exhibiting two methods of glazing. Another model came from Mr. Overall, of Shacklewell Lane; by mistake it stood in the Catalogue as having been constructed by Phillips & Co. Other models of handsome buildings came from Messrs. Weeks & Co.; and finally Mr. Robinson exhibited a model of his rising stage arrangements, formerly noticed by us, and Mr. Isambert, 83, Boulevard Mazas, Paris, produced a model of a conservatory roof, one face of which was curvilinear, the other sloping. It had some ingenious little contrivances for ventilation, impossible to describe without the aid of a figure.

Little was seen of the class of protecting mate-

RIALS. We only remarked indeed two, one French, the other English. The first, from Ivose-Laurent, 17, Rue Neuve Papincourt, Paris, was a coarse tarpaulin, composed of what is called *Bure de Soie*, which we take to be silk waste, and which was said to be good for six years' wear, without stretching or shrinking, price 3*s.* 9*d.* per square yard in Paris. The other, called Lancaster's patent waterproof garden mats, was formed of light strips platted together and pitched or painted. Their merit was said to consist in their great strength and durability, in the power of supporting themselves from bar to bar of the light, which prevents its freezing to the glass by retaining a stratum of air between, and in not shrinking or becoming loose by use.

PUMPS both for water and liquid manure were shown by Messrs. Fowler of Whitefriars Street, Fleet Street, and others. Among these was a new patent force pump on carriage, a galvanised portable pump on tripod folding legs, galvanised pump with clips, for bolting to back of carts, a 4-inch portable manure pump, and Holman's patent doubleaction pump, the last with 4-inch iron bored barrels, doorway to take out valves, on wheels and carriage complete. The advantages which these pumps possess are said to be in the arrangement of the valves, which are all contained in one chamber, in their permitting a free passage for thick substances, and in their being easily got at for repairs or clearance by removing a single plate without interfering with any other portion of the pump. A patent double action conservatory pump, constructed entirely of brass with metal valves, came from Mr. Thompson, of Lewes; this pumps with both the up and down stroke, has an air vessel, and delivers the water in a continual stream. The same maker also sent a portable manure pump on tripod stand. The barrel of this was formed of wrought iron galvanised and tinned, fitted in a cast-iron pipe with valve at top. The clip band of the tripod clasps this pipe, with set screws to allow the pump to be raised or lowered. The hose pipe is made of vulcanised india-rubber, which is said to resist the actions of acids and alkalies. From Mr. Weir, of Bath Place, New Road, was a very good manure pump or rather irrigator on barrow. This machine is intended for pumping the fluid direct from the tank and pond and distributing it over the land by means of a hose pipe and spreader. With one man at the handle and another to direct the nozzle of the hose it will distribute, it is said, from 15 to 20 gallons a minute. The valve seats and suction and delivery nozzles are of brass, and there is no leather to be injured by acids or salts of manure. The lever or handle, which works in a quadrant, fixes down to the bottom of the latter, and then becomes a handle by which the machine may be moved from place to place. From Messrs. Dray & Co., Burgess & Key, and Warner also came pumps. From the last firm especially were some very clever and cheap contrivances in this way.

GARDEN ENGINES and SYRINGES were shown by Messrs. Read of Regent Circus, Dore of Exmouth Street, Dray & Co., Gidney, Reid of Aberdeen, Thompson of Lewes, Burgess & Key, Warner, and others. Among these we did not recognise anything very new; Messrs. Warner had perhaps the greatest variety.

A HYDRAULIC RAM for raising water "without labour, or any mechanical power whatever," was contributed by Messrs. Hood, of Earl Street, Blackfriars. These rams are made of various sizes. It was stated that the one exhibited would raise about 2000 gallons a day to a height of 80 or 100 feet above the source.

Among WHEELBARROWS, which were furnished from the Baker Street Bazaar and others, we saw nothing to recommend. None of them appeared to us so good as a wooden kind with sloping sides which Mr. McEwen has just got made for use in the Society's garden. Some zinc and iron sorts exhibited were, to say the least of them, very unsightly, heavy, and awkward.

BEE-HIVES were contributed by Messrs. Neighbour & Sons, 149, Regent Street. Of these the most attractive was a ladies' observatory hive filled with bees. This was a narrow wooden box glazed at the sides through which, on opening a pair of folding doors, the bees could be seen at work. The entrance to this hive was through a long low glass covered passage or spout, which during the day time was constantly filled with bees in a state of great activity. Other hives, more useful perhaps though less fanciful, were the cottager's straw hive improved by having zinc ventilators at top. We also noticed a straw hive cut through the middle as it were with a wooden top. In the latter were two or three large holes closed down with bits of thin zinc; the latter could be removed and a straw top put on. There were also a box-hive, some bee feeders, honey cutters and glasses, altogether making an extremely interesting exhibition. Mr. Downie, of Barnet, Herts, also showed an improved hive; and from Major Munn was a specimen of his patent bar and frame bee-hive. This differs from all others in not having a floor-board, thus removing the possibility of the settlement of dirt, dead bees, wet, &c., as the two sides approaching each other form the box into a triangle, left open at the bottom, and being placed on four cross legs keep the hive from the ground, and is easily removed from place to place; and the bar and frame containing the bees and comb being let in on the upper side of the triangle, is readily drawn into a glass frame to be examined and returned or not, according to the wish of the bee-master, without the possibility of the bees attacking him in his operations—thus eight separate bars and frames containing the combs can be examined one after the other.

Mr. Henderson, gr. to the Duke of Atholl at Dunkeld, showed various kinds of BROOMS, some fan-shaped, and made of Birch and Palm fibre, for sweeping lawns and carriage drives; others square, filled with Birch and Heather, for scavengers and maltsters, while some were round, for stables and other purposes. The principal object in exhibiting these was to show an improved mode of fixing the material in the broom head. The fan-shaped ones had two clips, the lower one toothed, between which the material is placed and fastened together with screws. Others were fixed in round hoses, and all had an additional tie of wire or iron a short distance up the broom for the purpose of better holding them together. This plan doubtless has its advantages, though some may object to its expense.

TRANSPLANTING MACHINES were contributed by Mr. McGlashan and Mr. Reid, Orton Hall, Peterborough. Of Mr. McGlashan's contrivances we have spoken fully in former volumes; they were employed on Friday to transplant some trees in the Garden, with what success time will show. A drawing and description of Mr. Reid's apparatus appeared at p. 821 of our volume for last year. Hand transplanting tools in constant use at Portnall Park were shown by Col. Challoner. They consist of four long bladed semicircular spades, two of them very strong both in the blades and handles, which are about 7 feet long, and which after cutting with them round the shrub act as levers to tilt it on one side with a large ball attached, and to which a small truck on rollers may be made fast, or (if not too heavy) a transplanting sack may be put under the ball, and two, four, or more men with levers run through the hoops on the transplanting sack carry it to its new position. The only tools employed for this kind of moving are two long spades, two smaller ditto, a sack to which rings are attached, two levers, two chains, and a small roller truck.

DAISY RAKES were exhibited by Mr. Thornton and Mr. Thompson, of Lewes. The latter had an improved one; it consisted of two rows of steel teeth arranged in opposite directions on each side a bevilled plate, to which is adapted a long handle. This contrivance has also an iron box, with two vibrating doors or flaps above the teeth for the purpose of collecting the Daisy heads. The implement is pushed before the operator, and should any Daisies be missed it is pulled back, when the opposite row of teeth cannot fail to cut them off. The advantage offered by this rake is the retaining as it does the cut Daisies, thereby rendering sweeping unnecessary.

WIRE NETTING, machine made and galvanised, was shown in quantity by Barnard and Bishop of Norwich. That which was marked hare and rabbit-proof was 1⅝-inch mesh, and from 2 to 6 feet wide. The same firm also showed wrought-iron garden chairs with galvanised iron seats. Messrs. Cottam & Hallen, Kemp & Co., Dray & Co., Gidney, and the Baker Street Bazaar also showed wire netting.

A small self-acting FUMIGATOR by Gidney & Son may be worth notice, inasmuch as by its use the unpleasantness of contact with the smoke is removed; it merely requires lighting and it fumigates of its own accord, delivering the smoke in a dense body; this the makers state no other fumigator effects without constant blowing.

Of Miscellaneous GARDEN TOOLS Mr. Thornton, of Turnham Green, had an excellent collection. Among them were pickaxes and pitchforks, of whose merits we have already spoken in previous volumes: square-tined and Parkes' flat-tined digging forks, Thornton's improved sucker irons, *i.e.*, iron for removing suckers from trees and bushes; the common fault of such irons is they wear away at the corners, the improvement in this instance consisted in having the cutting part or face in the form of a half circle, thus causing the corners to project. Of hoes there were all forms and sizes, from the small swan-necked Onion hoe upwards. Of draw hoes the Vernon seemed to us to be as good as any; but above all the Canterbury is especially worthy of notice; it is a three-tined drag hoe, with a head about 6 inches square and a handle 4 feet 6 inches in length. This is a clean working tool, which for stirring the soil among growing crops must be found of the utmost service. It is in short an implement which cannot be too highly commended. Of dibbers Mr. Thornton had some nice wrought iron ones with steel points. The spades, shovels, and other tools in this collection all appeared to be of the most improved and best description. Collections of implements similar to the above were also furnished by Messrs. Dray & Co., and Pfeil & Stedall, of Bloomsbury; Sigma's dibbles and hoes were shown by Mr. Powell, of Ticehurst, Hurst Green.

A PROPAGATING POT which may be new to some of our readers was shown by Mr. Deans, of Jedburgh. It is of ordinary form, with a large hole in the bottom; over the latter fits an inverted earthenware funnel perforated all round to the top, on which is a knob which stands above the material with which the pot is filled. This affords complete drainage, and pulling up the funnel by the knob brings the cuttings and soil with it unbroken, thus affording means of examining the state of the roots as often as it may be thought desirable to do so. This pot has been used, we believe, with success in Scotland.

A neatly finished specimen of the ROYAL SUSSEX TRUCK BASKET was exhibited by Gidney & Son, of East Dereham, Norfolk. A good representation of this basket, which is made of thin laths of wood nicely planed and nailed together, will be found at p. 53 of the Catalogue of Manufactured Articles sold by the Society. Further information respecting it will also be found in our Home Correspondence in another column.

Let us not forget among minor matters a very ingenious mode of applying louvre work externally to the shading greenhouses, &c. Mr. Howlett had a small model of this apparatus, which worked so perfectly that the whole interior could be rapidly buried in darkness or exposed to full light at the will of the operator. The same ingenious gardener had a pretty rustic flower-stand made of Fir cones secured to wooden frame work. Moriac's graceful little French fountains played all day long in the conservatory. Lenoir, of Paris (26, Rue du Boule), had heaps of little circular mirrors, framed in zinc, for driving away birds, and labels impervious to wet, apparently made by covering the name with a glass surface. Mr. Gidney, of Dereham, produced a very good, cheap, serviceable iron triangular scraper for garden use.

For further particulars the reader is referred to the copiously illustrated catalogue, sold by the Society for a shilling. Should the experiment be repeated we would urge upon the most serious attention of exhibitors the great importance of labelling their goods distinctly, which on this occasion was in many cases quite forgotten, so that the spectator, struck by the beauty or utility of some contrivance, could get little or no information about it, even although the grounds were far from being crowded. We may name, as an instance, Mr. Blashfield's beautiful Terra Cottas, the admiration of everybody, but unnamed, unnumbered, and unpriced. Had they been of an inferior order they might very well have been overlooked.

We are glad to be able to add of our own knowledge that some of the exhibitors have already derived substantial advantages from the presence of their goods; and we entertain no doubt that those who may not have felt the effects directly will do so indirectly.

Notices of Books.

A Residence among the Chinese. By R. Fortune-Murray. (Second Notice.)

It is difficult to rise from a perusal of this volume without feeling that the Northern Chinese are very much as we ourselves were, and still are in some parts of the country. Chinese ladies pass from anger to passion, and from passion to hysterics in a perfectly English manner. A Chinese fair is an old English fair. Rural hospitality is as pressing and irresistible as in some of our provinces. An old Chinese into whose garden Mr. Fortune thought proper to intrude, threatened to thrash him just as he might have *himself* threatened a trespasser breaking into his garden at Brompton. Bows and scrapes and all the politely irresolute abnegations of rank or precedence which used to attend the introduction of guests to a dinner in this country are still the fashion in northern China. As you go along the road the cottagers ask you to take refreshment. In short it is impossible to deny that the Chinese, as painted by Mr. Fortune, are a good sort of people, kind and obliging. But for these and all other matters touching upon manners and customs the reader must be referred to the volume itself. We must now confine ourselves to the vegetation of the country.

Blue dyes are obtained from at least three different plants,—the well known *Polygonum tinctorium*, which Mr. Fortune does not seem to have met with—*Isatis indigotica*, which he formerly described—and a very imperfectly known Acanthad, which he calls *Ruellia indigotica*, but of which the genus must be undetermined till its fructification can be seen. We need not extract his description of the cultivation, seeing that the plant cannot become an English field crop; but what he says of the way of keeping it through the winter may be suggestive.

"The Chinese method of preserving plants for next year's crop is most ingenious and well worth notice. Cuttings are found to be much more vigorous and productive than the old roots, and to the formation and preservation of these cuttings the Chinese cultivator directs his attention. When the stems are cut down for the manufacture of indigo, a sufficient quantity have their leaves stripped off, and are afterwards taken into a house or shed to be properly prepared. The leaves thus stripped from the cuttings are thrown into the tanks with the other stems and leaves, so that nothing is lost except what is actually required for the purposes of propagation. The stems are now tied up firmly in large bundles, each containing upwards of 1000, and the ends of each bundle are cut across, so as to leave them perfectly neat and even both at top and bottom. These bundles are each about a foot long, and, of course, nearly round. Having been thus prepared, they are carried to a dry shed or outhouse, where, in some snug corner, they are packed closely and firmly together, and banked round with very dry loam. A portion of the dry soil is also shaken in between the bundles; and this being done, the operation is complete. Should the winter prove unusually severe, a little dry straw or litter is thrown over the surface of the cuttings, but nothing else is required. During the winter months the cuttings remain green and plump; and, although no leaves are produced, a few roots are generally found formed, or in the act of forming, when the winter has passed, and the season for planting has come round."

Another dye is a natural green of a very peculiar tint, which is now attracting the attention of the French,

This is "green indigo," of which we have a full account as grown at Hang-chow-foo.

"Here I found fields under cultivation with a kind of Rhamnus apparently. The Chinese farmer called it 'Loh-zah,' or 'Soh-loh-shoo,' and showed me samples of the cloth which had been dyed with it. To my delight these samples corresponded exactly with those sent back from France, one of which was in my possession. But he told me that two kinds were necessary—namely, the variety they cultivated in their fields, and one which grew wild on the hills—in order to produce the dye in question. The former they called the yellow kind, and the latter the white kind."

The yellow Rhamnus has been found to be very near the *Rhamnus hirsutus* of Northern India; the white kind Mr. Fortune's dried specimens show to be *Rhamnus globosus*. Both are alive in England from his seeds. The mode of manufacture is fully described in a subsequent page.

Pinus sinensis, a plant with heavy good timber, was found forming forests along with *Cryptomeria japonica* in mountain forests. We regard the first as tender. Is the northern form really so?

Of the mow-chok—"the graceful mow-chok—the most beautiful Bamboo in the world," Mr. Fortune speaks in the language of admiration:—

"Like all other species of the same tribe, it grows with great rapidity and perfects its growth in a few months. To use a common expression, 'one could almost see it growing.' I was in the habit of measuring the daily growth in the Chinese woods, and found that a healthy plant generally grew 2 feet or 2½ feet in the 24 hours, and the greatest rate of growth was during the night. The young shoots just as they peep out of the ground are highly esteemed as food, and are taken to the markets in large quantities. I was in the habit of using them as a vegetable every day during the season, and latterly was as fond of them as the Chinese are themselves. Sometimes I had them split up, boiled, and dished by themselves; at other times they were used in soup, like Cabbage; and on one occasion Mr. Forbes, the American consul in China, to whom I recommended them, taught me to make an excellent omelette, in which they formed one of the ingredients."

He strongly advises the introduction of it, the long-sin-chok and the hoo-chok, into the S. of Europe and our Australian colonies. All are good to eat.

Let the lovers of *Glycine sinensis* observe what it becomes in China:—

"But perhaps the most beautiful sight of all is the *Glycine sinensis*, climbing upon and hanging down from other trees. I believe I noticed in my former works the fine effects produced by this climber when in such situations. I again observed numerous examples this spring, and cannot help drawing attention once more to the subject. The fine plant of this species upon the Chiswick garden-wall is much and justly admired; but imagine a plant equally large, or in some instances much larger, attaching itself to a tree, or even a group of trees, entwining itself round the stem, running up every branch, and weighing down every branchlet; and, in the end of April or beginning of May, covered with flowers, some faint idea may be formed of the fine effects produced by the Glycine in its native country. I believe it would not succeed if managed in this way near London, or anywhere in the north; but the experiment would be worth a trial in some parts of Europe, where the summers are warmer than they are in England. As this description may meet the eye of readers in the United States of America, who are as fond of their parks and gardens as we are of ours, I cannot do better than recommend the experiment to them."

In the province of Che-Kiang there is a winter crop never, we think, before mentioned:—

"Large tracts of land are planted with the bulbs of a liliaceous plant—probably a *Fritillaria*—which are used in medicine. This is planted in November, and dug up again in April and May. In March these Lily-fields are in full blossom, and give quite a feature to the country. The flowers are of a dingy greyish white, and not very ornamental."

It does not appear for what purposes this bulb is used.

Among other discoveries mention is made of a new Rhododendron met with in some "romantic glen," perhaps the same as that published by Siebold and Zuccarini; of the *Abies Kæmpferi*, now attracting so much attention in England; of the cultivation of Safflower, *Carthamus tinctorius*; of the Silk Mulberry, and other interesting species. Of these we want space to render an account, nor perhaps have the details already given been quite necessary, seeing that Mr. Fortune's curious and entertaining relation will soon be familiar to everybody. We only regret that the volume has neither index nor some simple guide map, to tell us the whereabouts of the Moo-yuens, Ping-shuys, Kong-k'hows, Kan-poos, Ne-ka-loos, and Yuen-hwas which our traveller describes, but which are as little known to Europe as if their sites were lunar not celestial.

The 2d part of Van Houtte's *Flore des Serres* contains among other things figures of Achimenes amabilis, a handsome plant resembling Gloxinia tubiflora, the Fancy Pelargonium called Avenir, a new Begonia called rosacea, Hæmanthus cinnabarinus from the Gold Coast, a deep crimson Fuchsia with white petals marbled with purple, and oddly enough called galanthiflora. There is also a plate of the handsome French Camellia-flowered Balsams, and some miscellaneous matter to which we shall probably advert hereafter.

Miscellaneous.

Botanical Education, Cambridge.—The Vice-chancellor has published a set of recommendations as a guide to the studies of those who intend to be candidates for honours in the Natural Sciences Tripos in the year 1858. We select those which relate to botany. 1. Questions concerning prominent external characters exposed in specimens of any plants exhibited, to be restricted to the following particulars:—*General character* of root, stem, leaf, inflorescence, flower, fruit, seed. *Characters of the flower* (botanically expressed) derived from the numerical relations, arrest (or abortion), cohesion and adhesion of floral organs. 2. To refer specimens to the natural orders here selected; and to arrange their orders (if *correctly determined*) to their positions in the eight groups here specified. Class 1, Dicotyledones. Div. 1, Angiospermæ. Sect. 1, group I., Thalamifloræ; sect. 2, group II., Calycifloræ; sect. 3, group III., Corollifloræ; sect. 4, group IV., Incompletæ. Div. 2, group V., Gymnospermæ. Class 2, Monocotyledones. Div. 1, Petaloideæ, sect. 1, group VI., Epigynæ; sect. 2, group VII., Hypogynæ. Div. 2, group VIII., Glumaceæ. To refer unobscure Acotyledonous plants to the natural orders to which they belong—as Filices, Musci, Lichenes, &c. 3. To define or explain any of the terms required under the two former heads. 4. The physiological details contained in Book II. of Lindley's Introduction to Botany.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—The beds of this house (if they have been properly made) will now require a large supply of water to keep them in a sufficiently moist state, and the soil should be occasionally examined, especially near strong growing plants, for the amount of moisture absorbed by these at this season is greater than many persons imagine. Whenever water is applied the beds should be thoroughly soaked to the bottom, and where it can be done without annoyance to the family, &c., manure water should be given to plants known to enjoy it. This should be furnished, however, in moderate quantities, and after well soaking the soil with clean water; for to give it in large quantities would probably cause it to reach and injure some adjacent plant. If red spider make its appearance upon any of the specimens growing in the borders the pot plants in flower should be moved as soon as possible, and the infested subjects given a thorough washing with the engine, and this should be repeated at short intervals until the enemy is thoroughly subdued.

Stove.—See that the specimens here are afforded plenty of space, for there is nothing more injurious than huddling growing plants together. The inmates of this house are mostly plants of easy propagation and rapid growth, and in many cases advantage is taken of this to grow too many for the accommodation at command, and the result is that there is hardly a respectable specimen produced. There can be no doubt that a moderate quantity of well managed specimens will be more valued than a larger number of half-starved miserable looking subjects. Keep a sharp look out for insects, and apply the proper remedies in time to prevent their injuring the plants.

FORCING DEPARTMENT.

Vineries.—Borders that have been lately uncovered should be carefully examined, and if found too dry give a liberal soaking of good strong manure-water from the stable or farm-yard tank. It will be advisable, however, to mix the manure-water with sufficient warm water to bring the temperature to from 70° to 90°. Take advantage of bright days to admit air freely where the Grapes are colouring, and avoid moisture in the atmosphere by removing all plants from under the Vines. Attend carefully to young Vines recently planted, keeping the soil about the roots in a healthy moist state, maintaining a moderately moist atmosphere, and shading if necessary until the Vines get a fair start.

Melons.—Where the fruit is swelling endeavour to keep the soil in a nice healthy state as to moisture, avoiding either extreme. Give air freely whenever the weather admits, and use every means to preserve the foliage in health. Keep the Vines thin, and prevent their being encumbered with useless laterals, and remove any decaying leaves immediately they are perceived, which when left only serves as nurseries for insects. There is yet a fair chance of obtaining a good crop in "dung frames," and if any of the frames which have been used for getting up the bedding-out stock can be spared for this purpose the beds should be made and the plants got in without loss of time. Very little artificial heat will be necessary at present, and the bed should not be made to heat too strongly, otherwise there will be time lost before the plants can be safely put in. The beds should be made high enough however to allow of applying a lining if necessary later in the season, but this will be easily managed by making the bed some 2 feet high with any useless material which will not ferment, and placing upon this sufficient well worked stable dung to afford a gentle heat.

FLOWER GARDEN AND SHRUBBERIES.

On light dry soils many things will be greatly benefited by a thorough soaking of water, especially Coniferous plants, most of which make but one growth during the season, and should be encouraged at the proper season where rapid growth is wished. This attention will be especially necessary in the case of young specimens growing on lawns. If Stocks, China Asters, &c., are not already planted out where they are to flower take advantage of the present cool showery weather to do this and attend to them with water, and for a few days until they become established. See that Dahlias, Hollyhocks, &c., are properly staked and kept tied up to prevent their being broken by sudden storms. Stir the surface of the soil among the "bedding out stock," which will prevent the growth of weeds and greatly encourage the growth of the plants. Select a few plants from the reserve stock of the more difficult to winter kinds of bedding things, pot them in 7-inch pots (using rather poor sandy soil), and plunge them in a bed of sand. These with an occasional stopping will make nice little plants in course of the summer, and will be very easily carried over the winter, and may come in very useful next spring for supplying cuttings.

HARDY FRUIT AND KITCHEN GARDEN.

Where the quantity of Peas already sown is not considered sufficient for the autumn supply sow an early variety on deep heavily manured soil. After the showers which we have had the ground is in a good state for planting out winter greens, &c., therefore get the Brussels Sprouts, Broccoli, German Greens, a small breadth of Savoys, &c., planted out as soon as possible. Also get Leeks planted if sufficiently strong for removal, affording them an open piece of very rich deep soil. Attend to keeping up a succession of Salad. Where it can be done Lettuce should be planted on a north border at this season, as it is difficult to have these crisp and tender in hot weather if they are fully exposed to the mid-day sun.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending June 11, 1857, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain
Friday 5	13	30.080	29.988	91	54	72.5	63	55	S.W.	.02
Satur. 6	14	29.975	29.944	89	55	72.0	64½	57	W.	.05
Sunday 7	○	29.783	29.588	79	51	65.0	64½	57	S.E.	.20
Mon. 8	16	29.759	29.725	69	47	58.0	64	57½	S.W.	.35
Tues. 9	17	29.794	29.759	66	43	54.5	63	58	S.W.	.10
Wed. 10	18	29.589	29.528	67	44	55.5	63	57	S.W.	.02
Thurs. 11	19	29.085	29.801	68	35	51.5	61	57	W.	
Average..		29.723	29.672	75.6	47.0	61.3	63.3	57.1		.54

June 5—Thunder; very hot; cloudy; rain.
— 6—Excessively hot; overcast; heavy rain; overcast.
— 7—Rain; cloudy and hot; overcast; boisterous with rain.
— 8—Heavy clouds and rather boisterous; thunder and rain; clear.
— 9—Fine; cloudy; rain.
— 10—Cloudy; fine; slight showers; fine at night.
— 11—Very fine; low white clouds; exceeding y fine; cold at night.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending June 20, 1857.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.
Sunday 14	72.3	49.3	60.8	15	0.36 in.	1	2	4	1	5	10	7	1
Mon. 15	72.3	49.4	60.9	14	0.38	1	4	5	2	4	7	3	3
Tues. 16	71.9	49.2	60.5	13	0.46	2	3	5	1	8	7	3	2
Wed. 17	72.6	49.1	60.8	18	0.80	1	4	2	—	6	9	4	3
Thurs. 18	72.3	50.7	61.5	17	0.30	2	2	2	2	5	6	10	2
Friday 19	70.2	48.7	59.4	15	0.37	2	3	1	2	3	4	10	6
Satur. 20	71.8	49.7	61.3	13	0.21	2	4	1	1	6	9	7	1

The highest temperature during the above period occurred on the 19th, 1846—therm. 93 deg.; and the lowest on the 15th, 1850, and 20th, 1836—therm. 30 deg.

Notices to Correspondents.

Books: *Oyamel.* We do not know who are the ignorant people that write such things.—*Fris.* You cannot do better.—*Festuca.* We hold to our opinion, which was formed deliberately after careful examination.—*Delhi.* Hooker and Thomson's Flora Indica, one of the best works known on local Botany. A single volume only is published.—*Fiery Queen.* The Memoir by Seringe was read March 16, 1838, before the Agricultural Society of Lyons. But it was on the *fruit* of Geraniums, and has no horticultural bearing.—*E P N.* Williams's book on Orchids will give you the information you seek for.‡

Gooseberry Bushes: *G A.* The shoots you mention should have been rubbed off when in a very young state; all you can do now is to cut them half way down, and then remove them entirely at the winter pruning.‡

Ilex: *Scotus.* I. Tarago is said to come from Japan; with excelsa, castaneæfolia, and ovata, we are unacquainted; Dahoon comes from North America.

Insects next week.

Names of Plants.—*A D.* 1, Eria stellata: 2, Oncidium pumilum.—*Robin Hood.* 1, Tamus communis; 2, Salvia Verbenacea.—*Braddon.* Dendrobium secundum.—*G P.* Crataegus crenulata.—*Botanist.* Rhinanthus Crista galli.—*Ignoramus.* We do not recognise it; be so good as send it when in flower.—*M D.* 1, Umbilicus pendulinus; 2, Anthyllis vulneraria; 3, Erodium cicutarium.

Stipules and Albumen: *P.* The presence of these parts is regarded as important in systematical botany because they are constant. Moreover the existence of much albumen in a seed shows that its embryo requires to be specially supplied with nutriment, which the Pea and such exalbuminous seeds do not want—a physiological peculiarity of importance.

The Chiswick Fete. *Panshanger.* The garden arrangements were wholly under the management of Mr. M'Ewen.

Thermometers: *J K.* Those at Chiswick are self-registering. The observations of the maximum temperature of the preceding day and minimum of the preceding night are taken in the morning about 10 A.M. The thermometer indicating the max. in the shade is not exposed to the rays of the sun.

Tubing: *Col. H.* We have found the vulcanised India rubber, if combined with a canvas foundation, the best.

Water Rams, &c.: *Cyonophilus.* Next week.

Misc.: *Barnet.* We cannot possibly answer for the mistakes of others. How can you expect it? It is not our fault if people write about or undertake things for which they are incompetent. As to "showing them up," that should only be done when public interests imperatively demand it. We are all more fallible than we suppose.—*E P N.* For green fly fumigate with tobacco smoke. Cold and too moist an atmosphere have probably caused your Melons to damp off. The secret of flowering Tecoma is having the wood well ripened. Early growth should therefore be encouraged; after it has finished growing keep it rather dry than otherwise, and rest it in winter. If your plant is very luxuriant flowering might also be accelerated by slightly root-pruning it.‡

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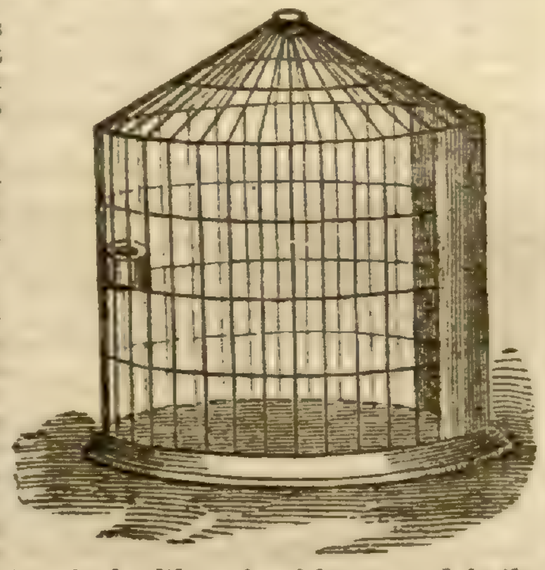

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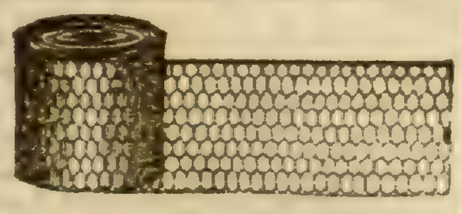

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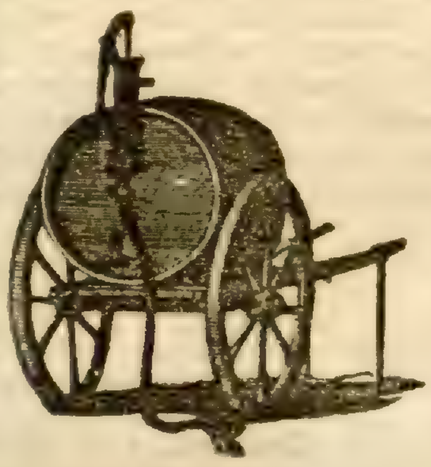

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2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
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SIGMA'S NEW SYSTEM OF PLANTING GRAIN, 1*s.*, at all Railway Stations. Persons intending to set or dibble their Wheat next autumn should communicate at once with the agent, Mr. C. POWELL. As the demand for Corn Planters is very great, and orders can only be executed in their turn, many persons may have to wait six or eight weeks; 5-row depositors, 3*l.* 3*s.*, made to any size. SIGMA'S Draw Shave Steel Hoes, from 3*s.* 6*d.* A prospectus sent. Machines may be seen at Messrs. BURGESS & KEY'S, 95, Newgate Street; Messrs. LAWSON'S, 27, Great George Street, Westminster; Messrs. MEAD & POWELL, Railway Arcade, London Bridge Station. SIGMA'S Pamphlet, 3d Edition, 12 postage stamps. A packet of Aphis Powder for six postage stamps, sent to Mr. C. POWELL, Hurstgreen, Sussex.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., C. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

HIGHLAND AND AGRICULTURAL SOCIETY.
GLASGOW SHOW,
3d, 4th, 5th, 6th, and 7th AUGUST, 1857.

All Entries must be made on or before the 18th of June. Applications for Bills of the Show and Forms of Entry to be addressed to Mr. HALL MAXWELL, 6, Albyn Place, Edinburgh.

YORKSHIRE AGRICULTURAL SOCIETY. (OPEN TO THE UNITED KINGDOM.)—The TWENTIETH ANNUAL MEETING will be held at York on AUGUST 5 & 6. The Entry closes on JULY 18. Prize Sheets and forms of Certificates may be had on application to the Secretary.

JOHN HANNAM, Secretary.

Kirk Deighton, Wetherby, June 13.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

PROFESSOR SIMONDS, as Veterinary Inspector, recently deputed by the National Agricultural Societies of Scotland, Ireland, and England, to inquire into the nature of the Cattle Murrain abroad, will deliver a LECTURE before the Members of those Societies at 12, Hanover Square, London, on WEDNESDAY, the 17th inst., at 1 o'Clock.

The Agricultural Gazette.

SATURDAY, JUNE 13, 1857.

MEETINGS FOR THE ENSUING WEEK.
WEDNESDAY, June 17—Agricultural Soc. of England .. Noon.

MEMBERS of the Royal Agricultural Society of England should bear in mind that they are asked to nominate judges of the several classes to be exhibited at Salisbury next month; and that these nominations, to be made on personal knowledge of the qualifications of the nominees, must reach Mr. HUDSON'S hands at 12, Hanover Square, W. London, on or before the 20th of this month. It is desirable that full lists of gentlemen specially qualified to act as judges, whether of the different classes of implements or of the several classes of live stock, should be in the

hands of those with whom the final selection may rest—not only because their office is thus the more likely to be satisfactorily performed, but also because the interest of the members in the life and prosperity of the Society will thus be proved.

We may add, as regards the gathering of the sister society at Glasgow, that those who mean to send stock or implements to the Highland and Agricultural Society's Show there on the 3d, 4th, 5th, 6th, and 7th of August, must make their entries on or before next Thursday, addressing them to Mr. HALL MAXWELL, 6, Albion Place, Edinburgh.

THE present is not more the season of growth than of those tillage operations by which growth is facilitated. These operations may indeed properly occupy our attention at any season of the year, but especially during the period of fallow operations, either during the growth of crops or in preparation for it, no subject could better occupy the attention of the agriculturist. The subject includes all those field operations of the farm whose object is the production of tilth—a state in which land neither hardened by drought nor saturated with water is so far reduced to an incoherent powder as that air and moisture have free access throughout it.

Some years ago, in a lecture before the Highland Society, Dr. MADDEN, now of Brighton, exhibited diagrams in which he represented soil in the state to which ploughing, harrowing, rolling bring it, as actually observed under the microscope. His figures represented it as a collection of particles full of pores and cavities, the channels between which particles were filled with air, while the particles themselves were full of water. It is probable that, to some extent at any rate, these diagrams were speculative—not strictly pictures of what the microscope exhibited—but it is certain that they tallied in some very important points with the results of tillage operations on the soil.

Thus, in the first place, well stirred soil holds more air than it previously did. This will be plain to any one who shall dig a hole in the hardened ground, and then attempt to restore the earth he has taken out. The heap remaining over which he cannot replace without pressure will obviously indicate the bulk of additional air which has been introduced into the land by its disturbance. And that by tillage the quantity of moisture retainable and retained by soil is greatly increased is plain to any witness of the effect of horse-hoeing between the rows in the Turnip field previous to and during a drought.

That both effects should follow tillage operations might be expected from the fact that all such operations, by reducing clods and breaking up fragments within the soil, act directly as disintegrators of it, and so (multiplying the number of particles in a given quantity) increase the quantity of surface within the soil—that *internal superficies*, as JETHRO TULL called it—on which, as *he* saw, the quantity of food for plants which soil provides so materially depends, on which as we now know not only does the extent of pasturage for roots depend, but the quantity of that absorptive power as well which enables soil to gather from the air ammoniacal and other matters fit for use by plants.

If we still use the language of theory for awhile, then, it appears that tillage promotes fertility by increasing the *quantity of surface*, OFF which rain water can wash the food of plants already there, ON which, by direct attraction, atmospheric food for plants accumulates, and *by means of* which the matters, vegetable and other, capable by the chemistry of Nature of supplying food for plants are spread out for more easy treatment by those chemicals of the air, the water, and the land, on whose action their power of yielding vegetable food depends. And on this last point, while field practice proves how tillage does in this way confer fertility, the experience of the laboratory could be quoted to show that it is actually in this way that it does so. As to the influence of air and of rain-water (carrying oxygen and carbonic acid) upon the mineral matter in the soil, the actual manufacture of the soil from the parent rock is a sufficient illustration; and of their influence on the vegetable matter in the soil, the hungry character of a sandy soil, in which such matters are so much more exposed, is the practical illustration—while the chemist tells us what BOUSSINGAULT has directly ascertained, that while there are only 4 parts of carbonic acid in 10,000 parts of common air, that taken from a soil manured some months before contains 20 times as much, while the air of a recently manured soil did, in the instance he examined, hold 200 times the quantity of carbonic acid, the product of that chemical disintegration and decomposition of vegetable fibre which air and water holding it in solution effect.

The practical effect of these considerations regarding the influence of the internal superficies of the soil amounts to this, that the real extent of any farm is not merely that which meets the eye or is exhibited on the map. The practical man gave expression to this truth when he explained the greater fertility of the well and deeply tilled small farm, on the ground that it was two ordinarily tilled farms of that extent one atop of the other.

The truth in short may be represented thus: the increase of our crops in so far as it depends upon the soil depends on that which water can extract from it; for it is only what is soluble in water that is useful to the growing plants, and thus fertility bears a very important relation to the quantity rather than to the extent of the land—the quantity not merely considered as so many cubic yards but rather as furnishing so much internal surface on which water operates as it passes by. Drainage increases fertility by inducing this passage of the water; and tillage increases fertility by quickening this passage and by multiplying the surface by which it passes, as well as by all the other effects of that increased surface on other properties which the soil possesses.

And this is true, notwithstanding that some tillage processes seem to act in other ways than by loosening the ground. Ploughing, harrowing, and scarifying the land act apparently as dividers and looseners of the soil; while rolling and pressing, also important tillage operations, seem to harden it. It must be remembered, however, that the object of cultivation is not merely, in general terms, to produce constant and liberal supplies of food for vegetable growth—the object of the cultivator is to procure a crop of a certain plant. The particular habit of growth which nature has conferred upon that plant has therefore to be consulted, as well as the laws affecting vegetable growth in general. An induration of the soil may be required in particular cases, while a looseness of the soil may be desirable in others. We must accommodate ourselves in this to those wants of the plants we cultivate, which must be accepted as ultimate facts resulting from the constitution and character they have inherited. Thus Wheat is the better for the hardening of the soil on which it grows, and Turnips like it loose and friable.

Rolling, nevertheless, has this in common with the other tillage operations—that it reduces clods and masses into particles and powder, it breaks old contacts and effects new ones within the soil, and so, like ploughing, harrowing, and stirring, multiplies the active surface within the soil on which fertility depends.

But let us leave the definitions and explanations of the theorist, and hear the purpose of his tillage operations from the practical man. He says:—"I plough to cut the roots and bury the leaves of weeds—to cut off from the general mass of earth a definite layer on which I can afterwards operate more efficiently; and the purpose of this subsequent operation is to remove the natural growths of the land, and so far to reduce the soil in which they grow to powder as that the first shower shall permeate the whole without clogging it together. I plough to bury the manure which I lay upon the surface so prepared. I plough to lay up the land for exposure to that most efficient of all tillage processes, the alternate rain and drought, warmth and frost of weather. I harrow in order that the clods may be broken which previous operations may have failed to break, and in order that the weeds and filth may be dragged to the surface which previous operations may have failed to remove. I roll too, in order to break surface clods—in order to keep in moisture—in order to level the surface for the even action of subsequent implements, the cultivator, the reaping machine, or even the scythe—in order to confer that induration of the land which some plants require. The object of my tillage operations is to remove all weeds, to bury manure, to prepare a seed bed, to have a softened soil in which my plants can swell with unrestricted growth. The seeds I sow need to be in contact with air and moisture, in order to their germination, and they must therefore be covered with particles of moistened earth smaller than themselves, and thus the smaller seeds, as those of Grass, of Clover, of the Turnip need a finer tilth than the larger seeds, as those of Barley, and as after germination the young plants need scope for the ready extension of their roots and stems, so tillage operations are needed deeper before seed time than the mere act of germination would require, especially in the case of large stemmed plants, as the Turnip, the Potato, or the Mangel Wurzel, in order to permit the easy enlargement of those parts whose growth I want. But from the beginning till the end of the annual tillage of my land, one object of all my tillage operations is the destruction of weeds."

A writer on bare fallows some years ago, evidently taking his cue from the report of the mere labourer as much as of the intelligent practical farmer, enumerates all the supposed objects and effects which the chemistry of those days suggested as the aim and end of the months of cultivation which the process involves, only to exclaim in derision of them all, "the main purpose of fallowing is to destroy weeds." The destruction of weeds is one object of tillage operations certainly—and if they cannot (though everybody knows they can) be destroyed year by year under good farm management, the gradually increasing accumulation requires this periodical bare fallow to effect their destruction, and so far Mr. RENNIE was right in his assertion — nevertheless the main object of tillage operations is not to destroy but to produce, to increase the quantity of food within the land in order to its conversion into food for man and beast by plants upon its surface.

It is plain that the practical and the theoretical accounts of the matter are perfectly consistent, and tillage operations have at once the effect of forming the seed-bed, of loosening land to enable unrestricted growth within it and upon it, and of destroying any plant but those we wish to grow, at the same time that the soil by this reduction of its substance is thus enabled to present within a given bulk a greater quantity of surface, so as to act as feeding ground for plants, and as a warehouse of their food. Both farmers and philosophers will thus agree in the effects of deep and thorough tillage of the soil—and we shall hereafter refer to those instances of the fertilising influence of thorough tillage within the experience of the farmer which the practice of JETHRO TULL and of the Rev. SAMUEL SMITH, his present intelligent representative, as well as of every energetic cultivator of the land present—those proofs also of the fertilising influence of deeper cultivation which many an individual farmer has realised, and of which the farm of Deanston then first subsoil-ploughed presented 20 years ago a remarkable illustration—of which, too, we are informed by Mr. HENRY STEPHENS that Lord TWEEDDALE's farm at Yester Mains presents a remarkable illustration now.

SOCIETY OF ARTS EXAMINATION.

[THE following are the questions put to candidates for the Society's certificates of competency, proficiency, and excellence in Agricultural knowledge. We should be glad to receive answers to the questions from any of our readers.]

Agricultural proficiency is measured by agricultural ability to explain, act, and foresee: and the following questions, drawn up in order to ascertain agricultural ability, are accordingly arranged under these three divisions—explanation—practice—estimate.

I.—AGRICULTURAL EXPERIENCE.

1. Explain the greater efficiency of the deeper drain in soils of ordinary texture.
2. To what is the increased fertility due that follows the burning of a clay soil?
3. Explain the action of lime on the soil; and say under what circumstances it is wrong to apply it along with manure.
4. How does the operation of tillage implements increase the fertility of the soil?
5. What is the reason of the decreasing fertility consequent on the continued cultivation of one crop on the same land?
6. State the explanations generally given of what is called the Clover sickness.
7. In what way does the use of a caustic wash to the seed hinder smut and bunt in the Wheat crop?
8. To what causes has the Finger and Toe disease in Turnips been attributed?
9. How do shelter and warmth promote the fattening of cattle and sheep?
10. Why is the excrement of growing stock less valuable as manure than that of full-grown fatting cattle?

II.—FARM PRACTICE.

1. Name and describe the best roller, chaffcutter, and churn.
2. State the ordinary cost per acre of hand-hoeing Wheat, singling Turnips, mowing Clover, cutting Wheat, pulling and pitting Mangel Wurzel, and digging and harvesting Potatoes, respectively.
3. What are the hands, men and women, employed on an arable farm, likely to be engaged in during the months of June and October respectively?
4. Calculate, from given prices of the horse-food under different modes of stable management, the average daily cost of a pair of horses; and calculate from that the expense of ploughing, harrowing, and rolling per acre.
5. State the cultivation, for the year, of an acre of light soil after Oats, bearing a crop of Rye followed by Swedish Turnips; and estimate the cost of its cultivation from September till September.
6. State the probable yield per acre, on good land, under good culture, in South or Midland England, of

Wheat, Barley, Oats, Beans, Mangel Wurzel, Swedes, and Potatoes.

7. What is the cost of a ton of Turnips?—justify your estimate by stating the particulars of the crop on which you found it.

8. Describe two or three of the best varieties of Wheat, Turnips, and Mangel Wurzel, respectively.

9. Name four of the commonest rotations of cropping adopted in England and Scotland on light and clayey land.

10. Estimate the value of an acre's produce per annum under the four and six field course of cropping respectively, stating the amount and value of the several crops per acre.

11. Name the crops in their order from which on arable land a succession of cattle food can be obtained all the year round.

12. State the quantity and kinds of the daily food of a cow in milk, and of a fatting ox respectively, under liberal treatment during autumn and winter.

13. State the distinctive characters of two of our best long-woolled breeds of sheep, and of the Southdowns, respectively.

15. Describe the three best breeds of cattle, and give the history of the Short-horns.

III.—ESTIMATE.

1. Estimate, under the heads of rent and taxes, seed, manure, labour, purchased cattle food, and loss by depreciation of live and dead stock, the annual expenditure on 100 acres of good arable land.

2. Estimate under the heads of Wheat, Barley, and increased value of live stock, the annual returns from a farm of 100 acres of good arable land, cultivated on the Norfolk rotation.

3. What will be the amount of your expenditure after harvest in rent, purchase of live stock, and manure respectively, on 100 acres of good arable land cultivated on the Norfolk system—and when must these several demands be met?

4. What kinds and quantity of stock must you purchase to consume 20 acres of Swedes and 30 acres of Mangel Wurzel during winter, the stock already on the farm being a flock of 200 ewes, to lamb in February and early in March?

5. How many hands will you, under ordinary circumstances require to get in 150 acres of Wheat, Barley, and Oats—50 acres of each—within the harvest month? And how many of them would you save by using Dray's Reaping Machine?

Home Correspondence.

The Decimal System of Measures, &c.—While the "Decimal System" of money, weights and measures is occupying so much attention, the Duodecimal, which possesses some convenient facilities, appears to have been lost sight of; but there seems no time so suitable for its reconsideration as on making another great change, which it may advance, at once, to a further degree of perfection. The number ten is divisible only by 2 and 5, neither of which is again subdivisible. The number 12 is divisible by 2, 3, 4, and 6, the 6 further subdivisible by 3 and 2; and the 4, by 2. This, running through all its multiples, produces many facilities in calculation; and applies directly to all the monetary, weight and measure divisions, by 12, 6, 4, and 3, neither of which will come into the "Decimal System") as pence in the shilling, inches in the foot, dozens of all kinds, farthings in the penny, feet in the yard, &c., all forming true divisions of the 12. The great objection to its universal employment is, the change that it would require in our entire arithmetical system. To attain its full advantages, the cypher must come in at twelve instead of 10, and there must be eleven other figures instead of nine, thus:—

Decimal	1,	2,	3,	4,	5,	6,	7,	8,	9,	10,	11,	12.
Duodecimal	1,	2,	3,	4,	5,	6,	7,	8,	9,	χ,	μ,	10.

So 10 would signify 12, 20 twenty-four, 100 one hundred and forty-four, &c., of our present (decimal) numeration. There was, forty or more years ago, a book in which this system was worked out in examples, showing the facilities and conciseness of having so many divisors without remainders, but I have not met with it of late years, nor can I recollect the title. This outline is however perhaps better than a more elaborate exposition to introduce it to your readers, who may, if they feel interested in it, lay it open by discussion in your columns, or otherwise; and test it by appropriate calculations. *I. Prideaux.*

Keeping and Breeding of Rabbits, as a means of education and early training of youth, also for the destruction of weeds in our meadows. You some few months ago inserted in your columns a suggestion I ventured to make that at our agricultural shows premiums for rabbits should be given to youths under a limited age, with a view of encouraging and training boys in a knowledge of the economy and management of animals. Besides the practical training this would afford for the future breeding of the higher classes of animals of the farm, there would be the additional benefit of inculcating the care and knowledge demanded in feeding with proper food, and with regularity and cleanliness, animals generally. I have been in the the county of Durham, and almost wherever I go the meadows are white with the bloom of what is called in the north Hemlock, but in the south of England Cow's Parsley or Hogweed, and as this is a weed of very little value indeed in hay its destruction would be an advantage. Rabbits are not only very fond of this plant, but it is the best food which can be given to them, and rabbits can eat more of it in a green state without causing any injury to their health than of any other class of green herbage, indeed so natural does the Umbelliferous vegetation seem to be to them that the poisonous lesser Hemlock they can feed upon with impunity. Cow Parsley is of early growth in the spring, and could then be pulled up out of the meadows without any injury to the Grass; and if boys were not only encouraged to keep and breed rabbits to show, but told that this plant is very good for them, it might thus be without expense eradicated out of our crops, and at the same time utilised in producing not a very bad dish for a poor man's table. If these plants were also dried they would make good winter food for rabbits, and the great abundance of them would enable a lad to collect during his unemployed hours a good store for use at that season. *W. Wooler.*

Mouse-coloured Breed of Ponies.—Mr. Charles Darwin asks if any of our readers will kindly inform him how dun or mouse-coloured ponies with a dark stripe down their back are bred. He says:—"The breed is common in Norway, on the banks of the Indus, and in the Malayan Archipelago; and in some respects very interesting in relation to the origin of the domestic horse. Is the peculiar colour thrown from ponies of any other colour, or must one or both parents be dun? Occasionally ponies of this colour have a cross stripe on the shoulder like that on the ass, and likewise bars on the legs. If any one who has bred ponies of this colour would inform me whether these stripes are more distinct in the colt than in aged ponies I should be much obliged. The transverse bars sometimes seen on the legs of the ass are said to be plainest during growth." *Ch. Darwin, Down, Bromley, Kent.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *June* 10.—Mr. Raymond Barker, V.P., in the chair.

SEWERAGE-MANURE IN FRANCE.—Mr. Chadwick, C.B., called the attention of the Council to the Trial-works in Paris on the application of sewer-manure, and submitted a communication which, through want of space, we are reluctantly compelled to postpone. The Council expressed to Mr. Chadwick their best thanks for the trouble he had so kindly taken in bringing before them these results of the application of liquid manure in France.

The Earl of Clarendon transmitted communications on guano deposits on islands in the Pacific ocean, received from Mr. Thomas Rowlandson, at present residing at San Francisco, with a request that the specimen of the guano forwarded to his Lordship might be analysed. —Messrs. Burgess and Key stated that a new liquid manure hose had been introduced to their notice, apparently composed of India rubber and canvas, and of a much cheaper character than the ordinary hose, the price for the new hose (of 2 inches internal diameter) being only 1*s.* 4*d.* per foot, while the common hose is 3*s.* They also stated that they had received samples of cotton hose from America, which could be sold at a price one-third less than that now in use, namely, at 1*s.* 4*d.* per yard (of 2 inches internal diameter).—M. Revel communicated a copy of the work detailing his mode of obtaining Truffles.

The Council adjourned to their weekly meeting at 12 o'clock on Wednesday, the 17th instant, when Mr. Hartas and Mr. Chadwick would detail their experience in the employment of horse-powers, and Prof. Simonds, at 1 o'clock on the same day, would deliver a lecture on the cattle-murrain abroad.

BATH AND WEST OF ENGLAND AT NEWTON.—We have to add to our short report of last week the following list of prizes not then awarded.

SHORTHORNS.

Class VIII. Bulls 3 years old.—Gold Medal to Mr. W. Jefferys, of Maiden Bradley, Frome; Silver Medal to Mr. W. Hewer, of Highworth.

Class IX. Bulls under 3 years old.—12*l.*, to Mr. T. B. Miles, of Langford, Bristol; 5*l.*, to Mr. John Bultcel, of Flete, Ermebridge, Devon.

Class X. Bulls under 2 years old.—10*l.*, to Mr. R. Stratton, of Broad Hinton, Swindon; 5*l.*, to Mr. R. Stratton.

Class XI. Cows in calf, or in milk.—8*l.*, to Mr. R. Stratton; 4*l.*, to Mr. R. Stratton.

HORSES.

FOR AGRICULTURAL PURPOSES.

Class XLVI. Mares in foal or with foals.—10*l.*, Rev. J. G. Copleston, of Offwell, Honiton; 5*l.*, Mr. T. B. Miles, of Langford, Bristol.

Class XLVII. 2-year-old Colts.—20*l.*, Mr. H. Hitchcock, Heytesbury, Wilts; 5*l.*, Mr. I. Humphry, of East Lambrook, South Petheron.

Class XLVIII. 2-year-old Fillies.—5*l.*, to Mr. J. Anthony, of Yealmpton.

Class XLIX. Yearling Colts or Fillies.—5*l.*, Mr. T. Searell, of Bellamarsh, Chudleigh.

Class L. Mares in foal, or with foals at their sides, for Riding Purposes.—5*l.*, to Mr. R. Watson, of Dorseley, Totnes; 3*l.*, to Mr. F. Coaker, of Marldon, Totnes.

Class LI. 2 or 3-year-old Fillies.—5*l.*, to Mr. R. Watson; 3*l.*, to Mr. H. M. Northcote, of Hatherleigh

Class LII. Yearling Colts or Fillies.—5*l.*, to Mr. W. Gapper, of Duddlestone, Taunton; 3*l.*, to Mr. H. M. Northcote,

Class LIII. 2 or 3-year-old Colts or Geldings.—Silver Medal, to Mr. R. H. Watson; Bronze Medal, to Mr. E. Elliott, of Hollowcombe, Gymebridge.

PONIES.

Class LIV. Mare Ponies of any breed, not exceeding 13 hands high.—4*l.*, to Mr. W. Nosworthy, of Ford Manaton, Moreton Hampstead; 2*l.*, to Mr. W. Furneaux, of South Brent.

PRIZES FOR IMPLEMENTS.

Best Plough, 1*l.* 10*s.*, to Messrs. J. and R. Wright, Sandford, Devon; 1*l.* 10*s.*, to Mr. John Eddy, Kennford, Exeter.

Best Subsoil Plough, 3*l.*, to Mr. E. H. Bentall, Heybridge, Essex.

Best Turnwrest Plough, 3*l.*, to Mr. John Eddy.

Best Cultivator (Wide), 1*l.*, to Mr. E. H. Bentall; 1*l.*, to R. Coleman, Chelmsford; ditto (Narrow), 2*l.*, to Mr. R Coleman.

Best Scarifier for Light Land Soil, 1*l.*, to Mr. R. Collins, Trent, Somerset.

Best Pair of Drags, 1*l.*, to Mr. John Eddy.

Best Set of Harrows, 10*s.*, to Mr. J. Eddy; 10*s.* to Messrs. A. and T. Fry, Bristol.

Best Seed Harrows, 1*l.*, to Mr. J. Comins, Southmolton.

Best Clod Crusher, 2*l.*, to Mr. J. Eddy.

Best Corn Drill, 5*l.*, to Messrs. Holmes and Sons, Norwich. Ditto, 2*l.*, to Mr. J. L. Bowhay, Modbury.

Best Corn Drill for Small Occupations, in Hilly Districts, 5*l.*, to Messrs. Holmes and Sons.; 2*l.*, to Mr. J. L. Bowhay, Modbury.

Best Turnip and Mangel Wurzel Drill, for Ridge or Flat, depositing manure with the seed, 5*l.*, to Messrs. Reeves, Bratton, Westbury, Wilts; 2*l.*, Messrs. Holmes & Sons, Norwich.

Best General Drill (liquid manure with the seed), 5*l.*, to Messrs. Reeves.

Best General Manure Distributor, 5*l.*, to Messrs. Holmes & Sons; 2*l.*, to Messrs. Reeves.

Best Horse-hoe for Green Crops, 1*l.*, to Mr. H. Carson, Warminster.

Best Ditto on Steep Hill-sides, 2*l.*, to Mr. H. Carson.

Best Machine for Setting-out Turnips preparatory to singling, 3*l.*, to Mr. John Eaton, Thrapstone.

Best Hand Machine for filling up vacancies in Drilled Green Crops, 1*l.*, to Mr. W. C. Cambridge, Bristol.

Best Reaping Machine, 5*l.*, to Mr. J. . L Bowhay; 2*l.*, to Mr. J. L. Bowhay.

Most Efficient Horse Rake, 2*l.*, to Mr. B. J. Webber, Newton Abbott.

Most Economical and practically useful portable Steam Engine, under 8-horse power, 5*l.*, to Mr. Maggs, Wincanton, Somerset.

Portable combined Steam Threshing Machine, which shall most perfectly prepare the sample for market, 10*l.*, to Messrs. Humphries, Pershore, Worcester.

Simplest and most practically useful portable combined Steam Threshing Machine, not requiring more than 6-horse power, 5*l.*, to Messrs. Humphries, Pershore, Worcester.

Simplest and most practically useful portable Threshing Machine, with Riddle and Straw-shaker, not requiring more than 3½-horse power, when worked independently of its horse gear, 5*l.*, to Messrs. Brinsmead, Great Torrington, Devon.

Best portable 4-Horse Gear, adapted for driving threshing machines, 3*l.*, to Mr. Webber.

Best Machine for Stamping Seed out of Flax, 2*l.*, to Messrs. Brinsmead.

Best Machine for Scutching Flax, 3*l.*, to Messrs. Brinsmead, Devon.

Best Adaption of the Threshing Machine for Shelling Clover, 2*l.*, to Messrs. Brinsmead.

Best Winnowing Machine, which shall be also convertible into a Simple Blower, 3*l.*, to Mr. J. Eaton, Thrapston, Northampton.

Best One-horse Cart for General Purposes, 2*l.*, to Messrs. Milford & Son, Thorverton.

Best Two-horse Waggon, 2*l.*, to Messrs. Milford & Son.

Best Chaff cutter, worked by Horse or Steam Power, 3*l.*, to Mr. James Cornes, Barbridge, Nantwich, Cheshire.

Best Chaff-cutter, worked by Hand, 2*l.*, to Mr. James Cornes.

Best Machine for Grating or Pulping Roots, 2*l.*, to E. N. Bentall, Heybridge, Maldon.

Best Turnip-cutter, 1*l.*, to Mr. H. Carson, Warminster.

Best Corn and Pulse Bruiser, worked by Horse or Steam-power, 2*l.*, to Messrs. Turner, Ipswich.

Best Corn and Pulse-crusher, worked by Hand, 1*l.*, to Mr. Woods, Stowmarket.

Best Oilcake Crusher, 1*l.*, to Messrs. Smith & Ashby, Stamford.

Best Gorse-bruiser, 1*l.*, to Messrs. Smith & Ashby.

Best and most Economical Steaming Apparatus, 2*l.*, to Messrs. Richmond & Chandler, Salford.

Best Churn, 1*l.*, to the Rev. E. A. Ferryman, Wadenhoe, Oundle Rectory, Northampton.

Best Cheese-press, 1*l.*, to Mr. H. Carson, Warminster, Wilts.

Best Apple-mill, calculated to crush the Pips also, 2*l.*, to Messrs. Wightman & Denning, Chard.

Best Cooking Apparatus for Farm Kitchens, 2*l.*, to Mr. John Gliddon, Williton, Somerset.

Best Specimen of Substantial Fencing, 2*l.*, to Messrs. Hill & Smith, Brierly Hill, Dudley.

Weighing-machine and Sack-lifter combined, Mr. W. Sawney, Beverley, York.

Flour-mill, 10*s.*, to Messrs. Whitmee & Co., London.

Combined Crushing and Grinding-mill, 3*l.*, to Messrs. E. R. and F. Turner, Ipswich.

Scarifier for Light Lands, to be worked with One, Two, or Three Horses, 1*l.*, to Mr. R. Collins, Trent, Sherborne.

Hay Collector, Mr. S. Rowsell, Buckland Saint Mary, Chard.

The report of the Council of the Bath and West of England Society communicates the following facts:—

—— The Society will meet next year at Cardiff.

—— The Council have engaged the services of Professor George Brown, veterinary surgeon of the Royal Agricultural College, Cirencester, to fill the office of veterinary inspector.

—— Prizes have been offered for the following subjects:—

1. Farm Buildings for Small Farms, 20*l.*
2. Personal Experience on a Farm in the West of England, 20*l.*
3. Irrigation, 10*l.*
4. Sheep suited to the West of England, 15*l.*
5. Carts and Waggons, 10*l.*
6. Orchards, 10*l.*
7. Any Chemical Subject calculated to Assist the Agriculturist, 10*l.*
8. Sir W. Trevelyan has also placed at the disposal of the Council two special Prizes for Essays on the Economical, Physical, Moral, and Social Effects of Cider, more especially with reference to its use in the rural districts of Somersetshire and other parts of the West of England, as follows: For the best and approved Essay, 25*l.*; for the second best, 10*l.*

—— The entries this year at the Exhibition much exceed those of any former meeting. The number of exhibitors of stock department is 120. The stock exhibited are 131 cattle, 470 sheep, 41 horses, 40 pigs; total, 682. There are 96 exhibitors of implements and other articles. The total number of articles entered is 1100, including eight stands of manure, and occupying a space of 2200 feet of shedding.

—— Lectures have been delivered by Professor Voelcker at Bath, Exeter, Yeovil, Barnstaple, Plymouth, and Newton, on various subjects connected with agricultural chemistry. The Council have requested the professor to undertake a careful examination of the different kinds of lime and shell sand used in the West of England, and to write a report upon them, founded on careful analysis.

—— Middle-class education, which was brought under the consideration of the Society by Lord Ebrington in October, 1855, has again engaged the attention of the Council in consequence of proceedings which originated at Exeter in January of the present year. The plan was laid before the Council in February last, in the form of a correspondence with the Committee of her Majesty's Privy Council on Education, intimating the fact that two of her Majesty's Inspectors, connected with this district, had been instructed to give their assistance to the scheme, The prizes being offered to boys educated with a view to employments in agriculture, arts, manufactures, and commerce in the three counties of Somerset, Devon, and Cornwall, and

being therefore closely connected with the objects and district of this society, received the sanction of the Council at a meeting summoned by special notice.

Farmers' Clubs

LONDON, *June* 1.—*Autumnal Cultivation of Wheat Stubble.*—Mr. R. Bond, of Kentwell, Long Melford, Suffolk, read a paper on this subject, from which we make the following extracts:—

1. *General remarks.*—"I shall confine my observations to the comparatively dry districts of England, such as the Eastern, South-Eastern, Southern, and Midland counties, for it is evident the same remarks cannot well apply to a rainfall, as in East Suffolk, of 21 inches, and a rain-fall, as in Westmoreland, Cumberland, and Lancashire, of nearly 70 inches.—I believe we each know of instances in our respective counties of farms which, to use a popular phrase, 'might be dragged away by the Couch-grass.' I know of nothing more expensive than this foul farming. I cannot comprehend the economy of manuring for rubbish. I cannot understand the policy of seeding on pre-occupied ground—and I cannot believe in the necessity for a cleansing process every fourth year. If England is to be farmed with the requisite skill and capital, if the utmost profit is to be realised from the soil, if the maximum of food is to be produced, foul farming must be done away, clean farming must be general. I do not share the views of those who succumb to Couch-grass; it is not a necessary evil and may be eradicated. I know of whole farms from which it has been expunged; they were once as foul as others. I know, too, that upon these very farms no fallow for a cleansing purpose has been necessary for years, one earth for Turnips has been the system; any stray piece of Grass has been removed by the fork, and the land is thus kept clean from other than annual weeds at a very trifling cost. It has been my experience that August and September are by far the best months for the destruction of weeds or rubbish. The unusual dryness of the soil, the extreme heat of the sun, the high mean temperature of the atmosphere, and the expended energies of the plants themselves, all favour the autumnal work. With judicious management perennial weeds cannot live through it, and I am convinced more good can be done by one day's work in August or September than by five days of hard labour in the spring. Should we succeed in the economical application of steam to field operations, as appears both probable and immediate, it is in autumn cultivation that such an invaluable adjunct as steam for a motive power would be of incalculable service. But without this assistance I have always been able, with the horse strength of the farm, to clean three-fourths of the Wheat stubbles for early roots and the remaining in the spring. In this way I believe any farm may possibly be cleaned from Couch-grass in four years, but it may always positively be done in eight. I mention Couch-grass thus pointedly, because it is common to almost all soils, and it is more difficult to destroy than any other perennial excepting the Dock; if, therefore, the Couch is killed all else will submit. I have always observed the heavy land weeds, which we in Suffolk know by the local names of Mint, Water-grass, Peagle, &c., die very quickly from exposure."

2. *Process of autumnal fallowing:*—

"I will proceed to state the plan I have pursued upon different foul farms which have come under my management in the eastern division of Suffolk. The farms have a clay subsoil. I farm them on the four-course shift, and, to show the adjustment of the horse labour, I will mention that I manure for the Bean crop and the Clover. This course obtains the largest returns from the crops themselves, lessens the horse work in the Wheat preparation, and allows of increased strength for cultivation on the stubbles. I mow the Wheat, which is the first crop ripe at harvest, before carting any; the whole horse strength of the farm is, therefore, at liberty for 8 or 9 days; the harvestmen work in a company; the sheaves are shocked a considerable distance apart from ridge to ridge; an extra lad suffices for carrying the extra distance; the labourers' wives are admitted to glean, and the two men reserved at harvest wages for working the horses begin operations between the rows of shocks upon the same or succeeding day of commencing harvest. As the land lays up in small stetches of 8 feet 3 inches one man opens the furrows with a common plough and two horses; the other man follows with Biddell's scarifier, to which four or six horses are attached according to the extent of the occupation and the size of the implement. These horses are worked from 5 o'clock in the morning till 12 o'clock at noon, the men in the mean time staying for breakfast; at 1 o clock the men proceed with fresh horses, and work till 7 in the evening, again stopping in the meantime half an hour for refreshment; thus, but little manual labour is required for working a large number of horses, and as it is hard work, is enough for the horses themselves. It is necessary to pass over the land twice with the scarifier, first with the tips or tines, afterwards with the hoes; in this way the land is thoroughly broken and the rubbish exposed to the action of a scorching sun; after the cartage of the Wheat the few remaining stetches are scarified in the same manner; this can be done in harvest, and if a farm is conveniently situated the corn cartage and the autumnal cultivation may both be proceeded with; I observe, by reference to my labour book, that last year one scarifier was at work 20 days, which was 10 days after the corn securing had commenced. Upon very foul land I scarify a third time, and at right angles to the previous direction; the entire surface is thereby disturbed and more fully exposed to the action of the sun's rays. I have used the Biddell scarifier because it is a strong effective implement; I prefer it to the skim-plough—it can be worked more economically with manual labour, and this is a great consideration at harvest. The common plough is not suitable for autumnal cultivation, it buries the weeds instead of bringing them to the surface. After harvest, and probably after rain, I harrow the very foul land, when the scorched and withered Grass harrows out, and the clods fall to a powder; the Couch-grass is then collected with the horse dragrake and burned; if any small pieces remaining show the slightest signs of vitality they are picked by women and children."

3. *Cost of the Process:*—

"It requires the equivalent of three horses per acre for a common day of nine hours to do the scarifyings and the furrow opening; therefore—

	£	s.	d.
Three horses, at 3*s.* 6*d.* per day	0	10	6
One man, one day, at harvest wages	0	5	0
For harrowing, raking, burning, and picking, if necessary	0	8	0
Total per acre	1	3	6

This is the average of the cost to me; in very extreme cases of foulness the expense is more—in other cases less, as the scarifyings often prove sufficient. I have drawn out the cost of the spring cultivation for comparison with the autumnal. Thus for cleaning purposes:—

	£	s.	d.
Three ploughings, at 8*s.* per acre	1	4	0
Two cromings, at 1*s.* 6*d.*	0	3	0
Three rollings, at 9*d.*	0	2	3
Harrowing, raking, and burning	0	8	0
Total per acre	1	17	3

When we contrast the two systems it is evident which has the advantage in expense, and I do without the slightest hesitation assert that the cleaning in autumn is much more effectually done than in the spring, it is the season alone which makes the difference. Spring is not so favourable a time—in March the soil is wet from the winter rains, April is characterised by its showers, May has but a mean temperature of 53°, and in June the fervid heat of summer does not usually commence till the 18th. Not only is the autumn cultivation cheaper and more effective, but the subsequent beneficial results are very considerable, especially on stiff retentive soils; it allows of early preparation for the root crop. The frost disintegrates the soil, allows early drilling of the Mangel Wurzel or Swede, thereby not only securing a plant but a heavier crop, and insuring the early maturity of the plants and early harvesting, whereby the crop is carted from the soil in dry weather and the land ploughed before the wet season sets in; this again allows of thorough frosting, and causes the yield of a much better succeeding crop of Barley."

4. *Subsequent Cultivation of a Root Crop on Clays.*

"I am no advocate for long fallows. I do not like the straw and water-manure system which it induces. It was all very well when we had neither the Mangel Wurzel as a root, nor artificial manures to assist us; when a root crop could not be grown, or if grown would not pay; but if we are to have cheap Wheat and dear meat, our clay soils must be made stock-producing as well as corn-producing. But again, I do not like the common Turnip system on heavy land, except for early feeding; it is prepared for late, it comes late, and it is carted off late. And if any two principles are more fully established than others as to such soils, they are that 'the land should never be trodden in wet weather;' and 'that it should be ploughed early to receive the winter's frost.' I often see these golden principles disregarded; I see the cart going all weathers — wet and dry the same; I see the field rutted in different directions—perhaps one mass of mud; and then to complete the mismanagement, the land is unploughed till spring. It is the mismanagement of root culture which has raised a strong objection to its extension. I advocate the greatly increased growth of a good root itself—I mean the Mangel Wurzel. It has been my experience that we cannot in reason grow too much per acre, and the more acres we can manage to grow the better. It is suited to our dry climate. It will grow as well on the stiff soils as upon the light; it is peculiarly a heavy land root, its early maturity suits the retentive soil, as it can be harvested before the wet season sets in, and its keeping property renders it invaluable, especially on such lands, because of the lateness of the growth of the Grass for feed in spring. It is of superior quality to the Swede or common Turnip, and a much greater weight may regularly be grown per acre. All stock like it, even horses thrive upon it; it is cheap food, and it may be given to cattle in autumn if chaff is but mixed with it to counteract its laxative effect. It is yearly becoming more appreciated, and I believe it will be most extensively cultivated as its value becomes known."

5. *Cultivation of Mangel Wurzel:*—

"After the autumn cultivation, and as quickly as possible—generally in November—I plough the land upon the ridge of 27 in.; this land receives the frost, and if the weather is dry and suitable I again plough—usually in January or February—the fresh upturned surface probably becomes well frozen; in February or March I apply 18 or 20 loads of rich well-rotted manure, which has previously been admixed with a sufficient quantity of soil to affix the ammonia; I also sow 3 or 4 cwt. of salt and about 25*s.* or 30*s.* worth of artificial manure to the acre, after which I plough for the third time on the ridge, and the land remains thus till the 9th or 10th of April, when I commence to roll and drill; I put on 6 lb. of Mangel Wurzel seed and half a pound of Swede seed to the acre. I prefer the ridge system, because I can grow larger crops; the manure is thereby placed at the full disposal of the plant—the land can be more effectually cleaned; the hoeing down the ridge and the withdrawing the soil from around the root promote its growth. I plough in the spring, for by manuring and ploughing in the autumn, and simply horse-hoeing or scarifying previous to the seeding in spring, the land becomes too foul. I always endeavour to arrange that the land is ploughed a fortnight or three weeks before the drilling; this insures a moist soil and the rapid sprouting of the seed. I had a good plant this year on 70 acres by the middle of May, when we know much land cannot be proceeded with in the cultivation for Mangel Wurzel, because of the absence of rain. I use well prepared manure, as the raw muck from the shed or yard does not decompose in the land sufficiently fast to become fully available to the growing root crop. Guano hitherto has been my favourite artificial manure, but its present high price compelled me to resort to a manufactured article, and from previous satisfactory trials I was induced this year to substitute the Mangel Wurzel manure made by the firm of Messrs. Packard & Co., Ipswich. Although I plough in the artificial, I am careful to sow in such a manner that a portion is near the surface for forcing the vegetation of the young plants. I consider salt most advantageous, as it certainly increases the produce and assists to early maturity. I am of opinion the land should be well consolidated; I therefore roll before drilling and frequently after. I apply a large amount of seed, as its average price is but 6d. per lb., and an extra 2 or 3 lbs. per acre almost invariably ensures a full plant and allows of much earlier hoeing. Upon the growth of Mangel Wurzel I have but to remark that I hoe with the Messrs. Garrett & Sons' invaluable horse hoe, and the common furrow-plough directly the plants can be seen in the ridge; this year I commenced the 20th of last month; upon hoeing out by hand and singling I allow each Mangel a space of 20 ins. by 27 ins. I repeatedly horse-hoe, and I feel I cannot sufficiently recommend its use, for the repeated stirring of the land greatly promotes vegetation, and I believe it even pays to hoe when there are no weeds to destroy; it appears to furnish food to the plant. I hand-hoe twice in addition to the equalising the distance apart of each root. In September I remove by the fork any chance piece of Couch-grass which may have escaped. In October I harvest the crop; it has then attained its full growth, and it is a mistake to suppose that it needs to stand to ripen. It keeps best when carted at once without the least delay. Last year I commenced carting on the 16th of October and finished on the 25th; the tops remaining were at once ploughed in."

6. *Culture of the Swedish Turnip:*—

"For the management of the Swede crop precisely the same principles apply as for the Mangel Wurzel, viz., early ploughing on the ridge for thorough frosting, liberal manuring, early seeding, repeated stirring of the land with the horse and hand hoe, early harvesting and early ploughing for the following grain crop. I have always had my heaviest produce from seed drilled the latter part of April or the first week in May; we have then no Turnip-fly to harm, and it is in May all nature commences growth. Why should the Swede have so late a start in vegetation as June, whereby one of the best months, and perhaps even six weeks, are lost to its progress? I have never suffered the slightest loss from mildew, although the Swedes have been kept to the spring of the year; but I advocate securing them in October. It is the late standing which does the harm, and I am convinced that the stiff retentive soils which will grow good early Swedes will not grow them to any size if planted late. I believe it a mistake to suppose the early sown of inferior quality to those sown later; the one may have a greater juiciness than the other, but to me this is no proof of quality—it is only an evidence of immaturity, or of an increased proportion of water. We do not harvest the green juicy stem of the Wheat plant for human consumption, but we allow the fluids to be converted into the good dry grain; and as with the Wheat so with the Swede; the fluids of the early Swede have only performed their function and have been converted into the solid matter of the Swede itself. This simply accounts for the popular errors as to the apparent want of quality because of comparative dryness, and I have always noticed that stock thrive as well, if not better, upon the early planted than the late. My father writes me on this point as follows:—'I have [illegible] drilling Swedes in April, and I never saw for the breadth [illegible] acres better Turnips or more feed; they were cut into [illegible] for hoggets, and no hoggets could do better.' As it was [illegible] soiled land the Swedes for later feeding were earthed in [illegible] of two or three loads upon the fields, and thus reserved till the spring. I am certain the word 'early' is the secret of [illegible] in the preparation and growth of a root crop on stiff retentive soils; it induces a chain of consequences ending in a heavy crop of roots, without injury to the soil producing the crop, and of the greatest possible benefit to the farm at large, allowing as it does of ample stock, of good and abundant manure, productive corn crops, and of a high state of fertility generally. These are no mean results, and they present a marked contrast to the old-fashioned fallow system. The habits of men are changing, the population requires more meat, we consume more, the French consume more, and for profit the law of demand must govern us; we cannot do better than to attend to it, and as more animal food is required I conceive our best plan is to produce it. I believe we can all grow more than we do; and I believe we can all keep more stock than we do; but the root crop must be a paying crop, and the stock must be a paying stock. This I believe to be a matter of management. We can grow Mangel Wurzel at a cheap rate per ton, and if we feed stock with an economical admixture of chaff, cake, and corn, we may manufacture meat at a profit; but the old plan of giving cattle all the cake and corn they will consume is simply wasteful—the animal system cannot appropriate the elements of nutrition, the major proportions are voided in the dung, and although such manure may be rich and nitrogenous, yet the constituents of meat (or that which should have been beef if properly admixed as food) are too costly for manure. We want the animal to manufacture the largest amount of meat from a given quantity of food, and expensive cramming will not do—it is too unpaying. By the extended growth of roots the manual labour of the farm is increased, and the horse labour also; but the thorough drainage of the soil which precedes root culture produces a much more rapid drying of the soil, whereby additional days are secured for field operation, and as the labour of ploughing and tillage is reduced, it allows of increased execution in the work, and extra horses therefore are not needed. I never considered it an indication of economical and good management that but a small proportion of horse strength should be maintained, as a little too late is then the bane of every operation, and it is the great curse of heavy-land farming. Five good horses, well fed and worked daily, are a fair allowance for every 100 acres of arable land, and they are sufficient for carrying out the root culture I have described. Much depends upon the proper adjustment of the horse work, and I have usually found the cultivation after harvest to come as follows:—Cleaning Wheat stubbles, ploughing for Wheat, Mangel Wurzel, carting and ploughing the land, Wheat seed, ploughing Wheat stubbles on ridge, mucking and ploughing for Beans, mucking Clover layers, preparing muck for Mangel Wurzel, second ploughing of Wheat stubbles, spring corn seeding, mucking for Mangel Wurzel and ploughing land, &c. This is the usual course of operations, but the weather often overrules, and I am particularly careful not to tread upon the land unless the work will do well; patience and expedition, we well know, are very important qualities in the management of stiff retentive soils. I purposely avoid any remarks upon security of tenure, agreements, buildings or capital, nor am I prepared to say that the four-course shift is the best system."

Farm Memoranda.

BLACKACRE, one of the farms on the Theydon Bois estate, belonging to R. W. Hall Dare, Esq., consists of about 200 acres of fine land, lying on the borders of Epping Forest. From Loughton Station on one of the branches of the Eastern Counties Railway, a drive of about three miles through forest scenery of the most beautiful description brings the visitor to this farm, which Mr. Hall Dare keeps in his own hand. By means of energy, skill, and perseverance Blackacre has been brought within the last three years from a state of comparative neglect into which it had been allowed to fall by its previous occupier, into first-class condition, and that not so much by heavy manuring or other expensive measures, as by thorough drainage and deep and clean cultivation. The farm of Blackacre has been all drained 4 feet deep, and from 24 to 27 feet apart under Government inspection, and as an example of what that kind of drainage and clean cultivation can effect it is well worth attention. With an intelligence and foresight which did him credit, Mr. Hall Dare, ably supported by his steward, Mr. P. Mitchell, in direct opposition to the views entertained by men of everyday habits, not only drained his farm efficiently at the depth named; but he rooted up misplaced hedgerows, threw two and three fields into one, did away with all furrows, and otherwise introduced such innovations as made him, like his neighbour Mr. Mechi, a marked man in his locality. Such observations as "the only thorough drainage he would effect was the drainage of his purse," are however now seen to have been misapplied, and now all the more important tenants on his estate are fast following his example. This is as it should be; we only want a few landlords of sufficient spirit and liberality to take the lead, and we need have no fear of the result. Long-established customs handed down from father to son would give way, as they are already beginning to do in this part of Essex, before improved cultivation; and our poorer classes would then be more cheaply and better fed than they are at present.

If examples were wanted of the striking effects produced by thorough drainage, they might be found in the case of two meadows near the house; since these have been drained coarser Grasses have not only given way to others of finer quality, but they are at least a fortnight in advance of undrained fields of the same description, an advantage of immense importance when it is considered that this earliness has often in dry seasons the effect of securing a crop, while that on undrained land is a failure. Nor are these cases without a parallel. A field of artificial Grass laid down on the 25th of April last year without a crop was, when we saw it about a month ago, quite 18 inches in height, and as even and beautiful as it was possible for a crop of the kind to be. The seeds sown were Lawson's mixture for stiff land; it consists of Alopecurus pratensis, Anthoxanthum odoratum, Avena flavescens, Dactylis glomerata, Festuca

[illegible]uscula, F. elatior, F. heterophylla, F. pratensis, and F. rubra, Lolium italicum and perenne, and Poa nemoralis, P. n. sempervirens and P. trivialis, Lotus corniculatus and major, Medicago lupulina, Phleum pratense, Trifolium hybridum, pratense, pratense perenne, and repens. Than this mixture nothing could possibly have succeeded better, indeed so well has it answered that nothing else should ever be employed for permanent pasture. These Grasses have been mixed and sown this year with Talavera Wheat—the latter drilled in 6 pecks to the acre; though thin it has tillered most satisfactorily and promises to be an admirable crop. From a field which under ordinary circumstances should have been fallow is this year to be taken a crop of Beans; they have been drilled in 28 inches apart, and are regularly horse-hoed with Smith's (of Kettering) hoe every 10 days. The width at which they are sown, and this constant stirring and moving of the soil gives the field all the advantages of a fallow, and at the same time it is known that it will furnish a good crop of Beans, an item surely worth attention. Last year under the same management the yield was 4½ quarters an acre. By way of experiment a field was sown with Clover on the 1st of May last year in rows 1 foot apart. Being so wide it was thought by many that it would never cover the ground; it has, however, not only done this, but it has kept all along obviously in advance of the same kind of crop on one of the best farmed fields in the neighbourhood. So satisfied has Mr. Mitchell been with this kind of wide drilling that Spalding Wheat has both last year and this been put in on the same principle, and so far with the best results. It tillers admirably, and the yield last year was equal to 4 quarters an acre, the seed being at the rate of 1 bushel an acre. Wide drilling and thin seeding will, therefore, henceforth be here at least the rule and not the exception, and thus a great saving will be effected to the country.

A new feature introduced here by Mr. Hall Dare has been the growth of roots; the ground has always been considered too heavy for them. Last year however he had 20 tons of Swedes an acre, and 25 tons of Mangel Wurzel.

The whole of the farm was scrupulously clean, and we think sufficient has been stated to show that in addition to thorough drainage new modes of culture, wherever such have been practicable, have not been neglected. Let us hope that an equally good example will be set by other landowners to their tenants in other localities.

Reviews.

The Irish in England. By W. G. Todd, D.D., reprinted with additions from the "Dublin Review." C. Dolman, 22, Paternoster Row.

We took up this pamphlet hoping to find information on the social condition of men to whom English and Scottish, as well as Irish, farmers are largely indebted during the busier times of the agricultural year. It is however, we find, for the most part merely a religious estimate of the relative merits and demerits of the Irish and Anglo-Saxon races, and that from the Roman Catholic point of view.

Notices to Correspondents.

[illegible]ERS: *W* asks of the *Agricultural Gazette* if any of our readers can speak of the merits of a churn which was exhibited at Chelmsford last summer by Messrs. Whitworth & Eastwood, and whether it would be better for a largish quantity of cream than the American churn.

[illegible] OF WHEAT: *A Northman* asks what it costs to grow a bushel of Wheat. The correct answer would be to say it does not cost the same in any two places, nor twice following. One man grows Wheat at a profit where another fails. Nevertheless the question is one which deserves discussion. Will any of our correspondents give their experience?

NEW MANURE: *R S.* The *Times* refers to a Mons. Bickes, who has published a method of fertilising seeds by coating them with manure, so that the future plant requires no extra manure applied to the land. This is the revival of a scheme in which a Mr Bickes attached his name some 12 years ago. We tried it then and failed.

SUPERPHOSPHATE OF LIME: *J P.* It is not needed so much for Potatoes as for Turnips.

TURNIP FLY: *J G.* Dust the young plants with lime when still wet with dew in the morning. Do this on successive mornings, and as soon as the plants appear. Mr. Charles Poffy received a gold Ceres medal from the Socity of Arts, in 1827, for describing a means of obtaining a plant of Swedes, in spite of the fly, by drilling alternate rows of common Turnip seed. The mode was tested by the Society at Blandford, Dorsetshire, and as it is stated in the "Transactions of the Society," "the result was the only good crop of Turnips obtained during that year (1826) in that part of the country."

WAGES OF FARM LABOURERS AT MELBOURNE: *X.* The following is the latest report. With rations: married couples, without families, 75*l.* to 90*l.*; ditto, with families, 65*l.* to 75*l.*; gardeners, 65*l.* to 70*l.*; grooms, 55*l.* to 65*l.*; stock-keepers, 60*l.* to 70*l.*; shepherds, 30*l.* to 40*l.*; hutkeepers, 25*l.* to 30*l.* per annum; ploughmen, 25*s.* to 30*s.*; ploughmen to plough with bullocks, 25*s.*; farm labourers, 20*s.* to 25*s.*; Potato diggers, 20*s.* to 25*s.*; haymakers and pitchers, 30*s.* per week; shearers, 14*s.* to 18*s.* per 100; sheep washers, 30*s.* per week; mowers, 5*s.* to 6*s.* per acre; reapers, 20*s.* to 25*s.* per acre, according to crop; men to bind after the reaping-machines, 35*s.* to 40*s.* per week; threshers, 10*d.* to 1*s.* per bushel; bullock-drivers for roads, 30*s.* to 35*s.*; ditto for farms, 25*s.*; horse team drivers for roads, 25*s.* to 27*s.* 6*d.* per week; hay cutters and trussers, 35*s.* per week, or 7*s.* per ton; male cooks, 30*s.* to 35*s.*; waiters, 20*s.* to 30*s.*; blacksmiths, 60*s.* to 70*s.*; carpenters, 50*s.* to 2*l.* 5*s.*; rough ditto, 30*s.* to 35*s.* per week. Without rations: Blacksmiths, 5*l.* to 5*l.* 10*s.* per week; carpenters, 15*s.* to 17*s.*; masons, 15*s.* to 17*s.*; bricklayers, 15*s.* to 16*s.*; plasterers, 15*s.* to 17*s.*; quarrymen, 12*s.* to 14*s.*; labourers, 10*s.* per day; pick-and-shovel men for roads, 10*s.* per day and tent accommodation; stone-breakers, 6*s* to 7*s.* per yard; compositors, 1*s.* 6*d.* per 1000; pressmen, 4*l.* to 5*l.* per week. Female Domestics: Thorough servants, 35*l.* to 45*l.*; housemaids, 32*l.* to 36*l.*; laundresses, 35*l.* to 45*l.*; cooks, 45*l.* to 50*l.*; dairymaids, 20*l.* to 30*l.*; needlewomen, 30*l.* to 35*l.* per annum.

AQUARIA.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5*s.* 0*d.*	12 inches diameter, each	4*s.* 6*d.*
13 ,, ,,	6 0	13 ,, ,,	5 0
14 ,, ,,	8 0	14 ,, ,,	5 6
15 ,, ,,	9 0	15 ,, ,,	6 6
16 ,, ,,	10 0	16 ,, ,,	7 0
17 ,, ,,	12 0	17 ,, ,,	8 0
18 ,, ,,	13 0	18 ,, ,,	10 0
19 ,, ,,	14 0	19 ,, ,,	11 6
20 ,, ,,	15 0	20 ,, ,,	12 6

Syphons, each .. .. 2*s.*

TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep	£3 10 0
26 inches long, 16 wide, 15 deep	3 0 0
20 inches long, 13 wide, 9½ deep	1 18 0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.

GLASS FERN SHADES AND STANDS.

6 inches diameter, each	2*s.* 6*d.*	12 inches diameter, each	8*s.* 6*d.*
7 ,, ,,	3 0	13 ,, ,,	11 0
8 ,, ,,	3 6	14 ,, ,,	14 0
9 ,, ,,	4 6	15 ,, ,,	18 6
10 ,, ,,	5 6	16 ,, ,,	23 6
11 ,, ,,	6 6		

CUCUMBER GLASSES.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 ,, ...	1 10	14 ,, ...	1 2
20 ,, ...	1 8	12 ,, ...	1 0
18 ,, ...	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per doz.; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the Trade.

Specimens will be exhibited at Chiswick Gardens on Wednesday and Thursday next.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without. E.C.

COGAN'S WINDOW GLASS WAREHOUSE, 5, Princes Street, Leicester Square, London, W. C.

Stout Sheet and Rough Plate, in Crates or Squares, cut to any size.

Hothouse, Conservatory, and other Garden Glass.

Glass Milk Pans, Glass Churns, and other dairy Glass.

French Glass Shades, Fern Shades, and Vivariums all sizes and shapes. Aquariums fitted up as exhibited at Chiswick.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s.* per 100 feet. Boxes charged 2*s* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4	10*s.* per 100 feet.	8 by 6	12*s.*
6½ by 4½		9 by 7	
7 by 5		9½ by 7½	
7½ by 5½		10 by 8	
10½ by 8½	14*s.*	12 by 10	14*s.*
11 by 9		13 by 10	
11½ by 9½		14 by 10	
12 by 9		15 by 10	
19 by 12	16*s.*	20 by 13	
20 by 12		20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to $\frac{3}{16}$ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	**Fern Shades and Stands.**
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails throughout, by the

CONTINENTAL EXPRESS PARCELS AGENCY,

of which the proprietors are the sole correspondents of the Royal Prussian Post Office, the Belgian Government Railway, and Agents of the Mail Packets between Dover and Ostend. Rates fixed and moderate, tables of which, with every information, to be had on application to the Chief Office, 52, Gracechurch Street, London.—N.B. Parcels to be sent the same day must be at the Chief Office by 3 P.M.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hot-houses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
,, Hurst & M'Mullen, Seed Merchants, London.
,, A. Henderson & Co., Pine Apple Place, London.
,, Minier, Nash, & Co., Seed Merchants, London.
,, Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
,, Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. T. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
,, John Edmondson & Co., Seed Merchants, Dublin.
,, B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
,, James Dickson, Sons, & Co., Nurserymen, Manchester.
,, Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
,, Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton
Messrs. Bass and Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
,, Rollisson & Son, Tooting.
,, A. Paul & Son, Cheshunt, Herts.
,, Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

COTTAM & HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

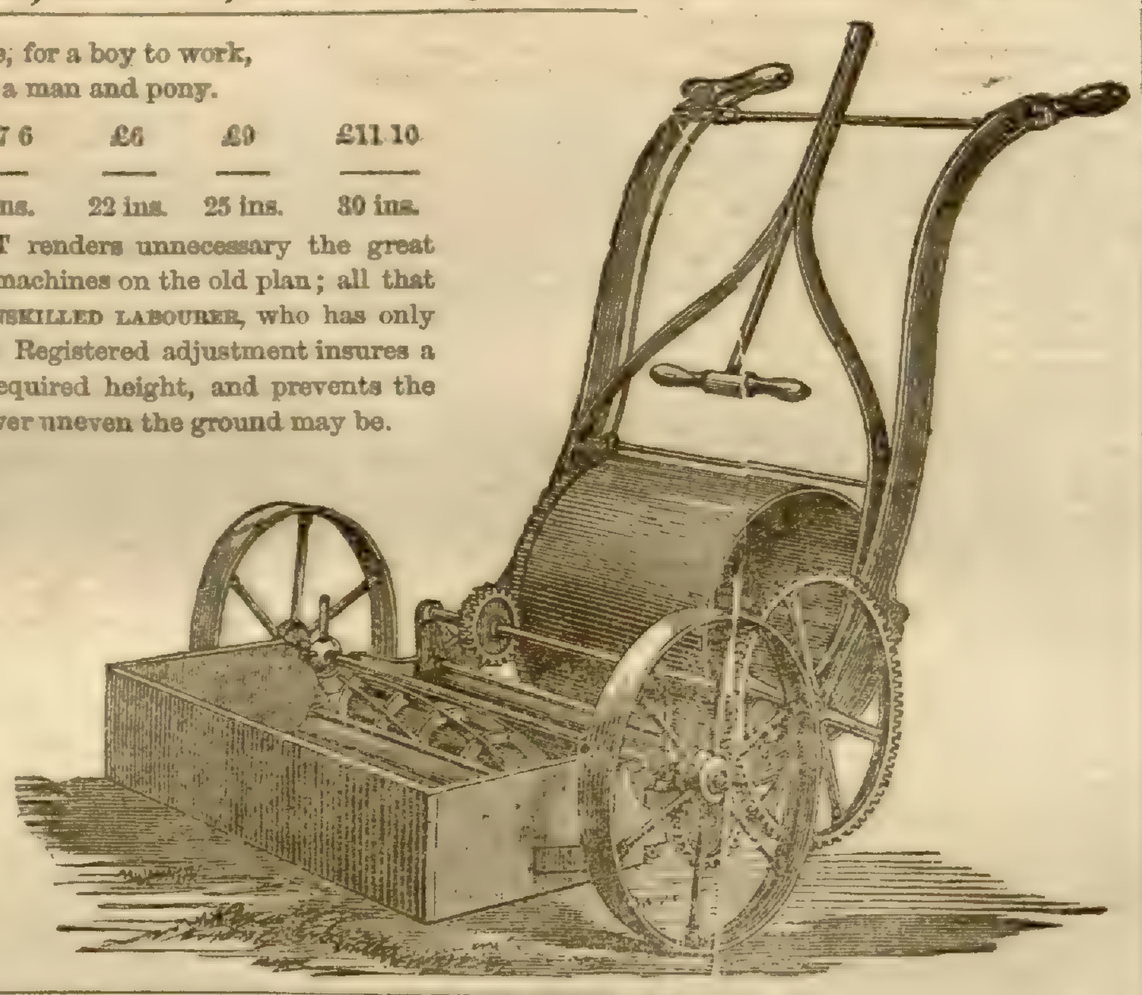
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

MOW YOUR OWN LAWNS.

BOYD'S PATENT SELF ADJUSTING SCYTHES are so prepared as to enable amateurs to indulge in this healthful, agreeable, and really economic recreation.—Sold by every Ironmonger, Nurseryman, and Seedsman in the kingdom, and at the Sole Wholesale Makers, WM. DRAY & Co., Swan Lane, London Bridge.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

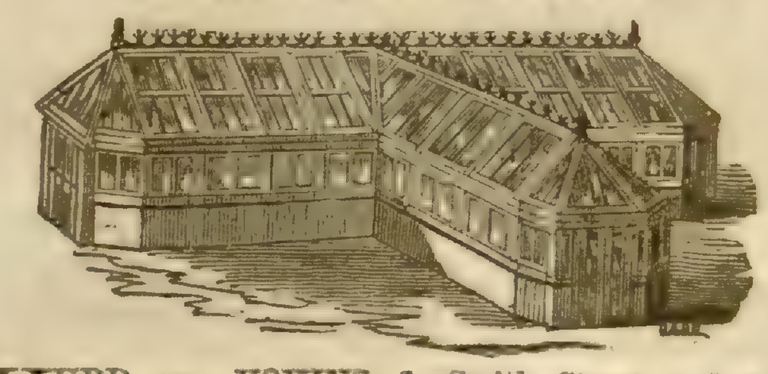
ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. GARROOD, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

VASES, STATUES, BUSTS, PEDESTALS, FOUNTAIN BASINS, FLOWER TRAYS, Suspending and other FLOWER POTS, and numerous ornaments for Halls, Garden Terraces, and Conservatories, of superior design and workmanship in patent imperishable Terra Cotta, specimens of which were exhibited at the Horticultural Fête at Chiswick. —At BLASHFIELD'S, Praed Street, Edgeware Road.

HORTICULTURAL WORKS.



HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hot Houses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

N.B. See our Improved Corrugated Tubular Boiler warranted to Heat 500 feet of 4-inch piping. Size, 24 inches by 14 inches. Price of our Small Boilers, 5*l.* 5*s.* Satisfaction given or no charge made.

Plans and Estimates forwarded on application as above.

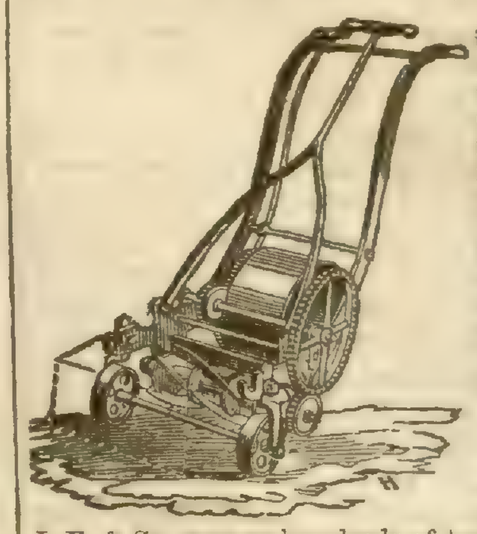
RICK CLOTHS, of the best quality, at the lowest prices.—E. J. DAVIS, 64, West Smithfield, London, E.C.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the protection of fresh sown Seeds, at 1*d.* per square yard; 200 yds. 14*s.*; 500 yds. 30*s.*; 1000 yds. 50*s.* Screen Canvas for Wall Protection. EDGINGTON & Co.'s Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and 104, Blackfriars Road, Southwark, S.E.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX Iron Works, near Stroud, Gloucestershire.



The accompanying engraving represents Ferrabee's Improved Machine, which will cut and collect Grass on a Lawn at the rate of 200 square yards in 5 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level at any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are not surpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

TRIAL OF LAWN-MOWING MACHINES at the London Horticultural Society's Gardens, Chiswick, June 5, 1847.

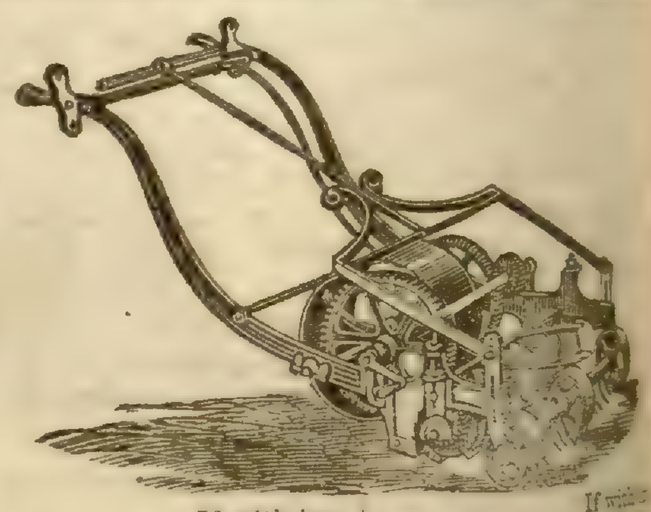
FOUR COMPETITORS.

First trial on level ground.
Second do. on undulated.
Third do. on intricate—round trees, figures, &c.,

when GREEN'S Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to the Secretary of the Society, 21, Regent Street; also of Mr. M'EWEN, Superintendent, Chiswick, where the Machines may be seen at work.

BY ROYAL LETTERS PATENT.

THOMAS GREEN, PATENTEE and SOLE MANUFACTURER OF the IMPROVED MOWING or GRASS-CUTTING MACHINES, for Lawns, Pleasure Grounds, Verges, &c.; Iron FOUNDER, WIRE-WORKER, and MANUFACTURER OF Wire and IRON BEDSTEADS, &c. Iron and Wire Works, North Street, Leeds.



To cut		If with improved Rake.
,, 8 in.	£4 4 0	2*s.* 6*d.*
,, 10 in.	4 14 6	2 6
,, 12 in.	5 5 0	2 6
,, 14 in.	5 15 0	2 6
,, 16 in.	6 6 0	3 0
,, 18 in.	6 16 6	3 6

For pony	To cut		If with improved Rake
	,, 20 in.	£7 7 0	[illegible]
	,, 22 in.	7 17 6	[illegible]
	,, 24 in.	8 8 0	[illegible]
	,, 30 in.	15 15 0	[illegible]
	,, 36 in.	18 18 0	[illegible]
	,, 42 in.	22 0 0	[illegible]

If with box of requisites for cleaning, sharpening, &c., 5*s.* each.

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one third, consequently saving a large amount of labour; at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The Patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, tender flower-bed without damaging the plants; it will mow on any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also on undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake, or Guard, to work in front of the cutters of the machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters—a great defect back in all previous Mowing Machines. It can be set to rake and straighten the Grass, which cannot be done at all by any other machine or scythe.

T. G. calls particular attention to his small-sized Machine which will mow in intricate places where others will not, also in parts where there is so much difficulty in cutting with the scythe or shears.

The Machines are made of the best materials, are superior in workmanship, and warranted to perform all that is said of them.

Five hundred of these Machines have been sold this season and reference can be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

The Machines may be seen at the Works, also of Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

The above Machine obtained the First Prize at the Royal Yorkshire Agricultural Show at Rotherham, August, 1856.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., **2l. 19s., to hold 10 gallons.**

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. **Prices sent on application.**

Syringes of various constructions and sizes from 9s. upwards. Metallic String from 5d. to 1s. 3d. per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Fail Engines, Conservatory Pumps, &c., kept in Stock.

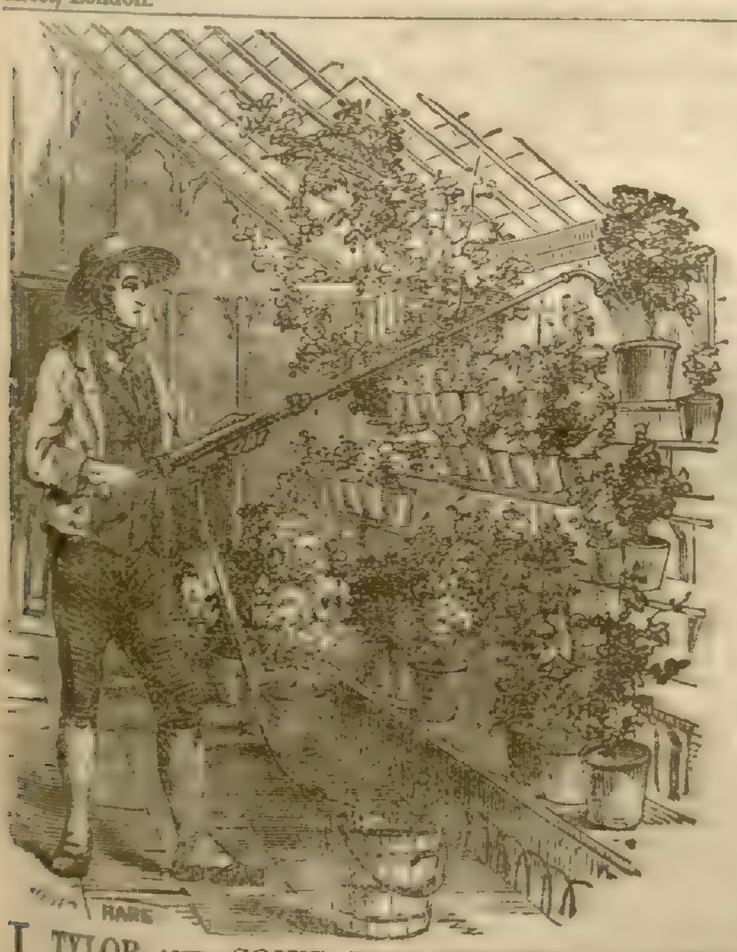
No. 1. Plain Syringe, 14s. 3d.; No. 2, do., 12s.; No. 3, do., 10s. 6d.

READ'S SYRINGE, 19s.

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10s.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVE AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35s., securely packed for the country.

This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

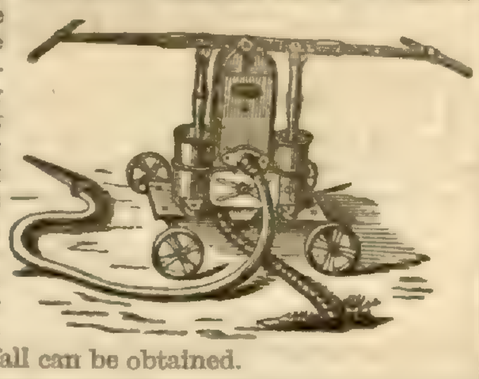
Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square, Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

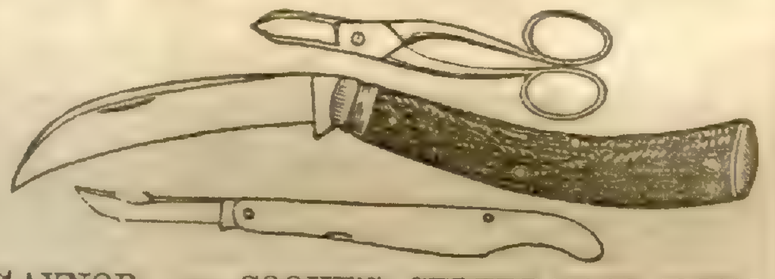
FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

THE CELEBRATED REIGATE SILVER SAND, 15s. per ton, a less quantity 1s. 6d. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

PEAFOWLS.—To be disposed of, 2 Cocks and 1 Hen, 12 months old.

PIGS, improved Essex Breed (Black), WANTED, 2 Gilts and 1 Boar, young.—Apply, stating price and particulars, to Mr. KENYON, Thorne, Yorkshire.

TO LET, a small piece of LAND, an acre in extent, suitable for Nursery purposes, at Sunbury, Middlesex. Rent, 8l. per annum.—Address, post paid, A. C., 18, Pall Mall, S.W.

TO MARKET GARDENERS AND OTHERS.

TO BE LET ON LEASE, with immediate possession, a GARDEN stocked with the choicest Fruit Trees and Vegetables, together with GARDENER'S COTTAGE; the whole enclosed by a substantial brick wall, the girth of which is about 1240 feet without the gateways. Adjacent to a Railway Station, and only three quarters of an hour from Covent Garden Market.—For particulars and cards to view, apply personally only to Mr. H. POWELL, Land and Estate Agent, Surbiton Hill, Kingston-on-Thames.

FOR SALE, a new first-rate handsome CONSERVATORY, 30 feet long, 18 feet wide, price 180l., to be seen at the Horticultural Society's Garden, Chiswick, where it was exhibited and highly approved of at the last Flower Show the 3d and 4th inst.—Belonging to H. FREEMAN, Horticultural Builder, Triangle, Hackney.

Sales by Auction.

WINDING-UP SALE FOR THE SEASON.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on THURSDAY, June 18, at 12 o'Clock, a first-class collection of **Dahlias, Fuchsias, Verbenas, Petunias, Pinks, &c.; Geraniums, Roses, and other Plants in bloom, with a large assortment for Bedding.—On view the morning of Sale; Catalogues had at the Mart, and of the Auctioneers, American Nursery, Leytonstone, Essex.**

OAK HILL, EAST BARNET.

Important to Pine and Grape Growers, Market Gardeners, Florists, &c.—Valuable Freehold walled Garden, containing about 3 acres, with large area of Glass, having all requisite Forcing Appliances, Buildings, &c., at present let to Annual Tenant at 100l. per annum.

MESSRS. CHINNOCK AND GALSWORTHY will Sell by Auction, at the Auction Mart, London, TUESDAY, July 7, at 12 o'Clock, the valuable FREEHOLD KITCHEN and FRUIT GARDENS of Oak Hill Mansion, containing about 3 acres, almost entirely surrounded, and also intersected by lofty brick walls clothed with the choicest Fruit Trees, and having two Graperies each 40 feet by 15 feet 6 inches, two ditto 33 feet by 16 feet, Peach-house 40 feet by 14 feet, Greenhouse and Grapery 33 feet by 16 feet, three Pineries, together 110 feet long, with copper-framed Lights, numerous Forcing-pits, Stoves, Mushroom-houses, and every appliance conducive to the production of the finest fruit, for which these gardens have long been celebrated, and the cultivation of which has gained for the present enterprising tenant the chief prizes at the horticultural exhibitions. There is also a large yard, surrounded by stables, cowsheds, and numerous out-buildings, a **comfortable gardener's residence**, and a cottage. The gardens are at present let on a yearly tenancy to Mr. Davis, at the very low rent of 100l. per annum.—The premises may be viewed by permission of the tenant. Particulars may be obtained at the Mart; of Messrs JAS. TAYLOR, MASON, & TAYLOR, 15, Furnival's Inn, Holborn; and of Messrs. CHINNOCK & GALSWORTHY, Auctioneers and Land Agents, 28, Regent Street, Waterloo Place, London.

WILTS.

MANOR and ESTATE of 1187 acres, with a rental of 2313l. a year, and Mansion, 4 miles from the Stations at Melksham and Bradford, on the Wilts, Somerset and Weymouth Railway, and 3 miles from Box, 4 miles from Corsham, and 8 miles from Bath and Chippenham, on the Great Western Railway.

MESSRS. DAVIS AND VIGERS are favoured with instructions to Sell by Auction, at the Mart, London, on TUESDAY, June 30, at 12 for 1 o'clock, the COTTLES ESTATE, a desirable residential estate, situate in Cottles (extra parochial), in the Tithings of Atworth and South Wraxhall, in the parish of Bradford, and in the parishes of Great Chalfield and Little Chalfield, all in the county of Wilts, comprising an old family property of 1187 acres of very fertile Land, principally rich dairy pasture, divided into suitable occupations, provided with the necessary Farm Residences and Buildings, with a superior Family Mansion surrounded by park-like grounds, situate in the centre of the estate. The whole, with the exception of about 17 acres, is freehold; the principal part is tithe free and extra parochial. The Mansion is approached by a lodge entrance and carriage drives and has offices, stabling, well-enclosed gardens, hot and greenhouses, and pleasure grounds, adapted to the occupation of a wealthy proprietor. The whole is let with the exception of the Mansion and 12 acres of wood and plantation, and the fields around the house retained by the late proprietor. The Mansion and all the buildings are of stone, of which there are several quarries of very superior quality on the estate. The Land lies compact, and favourable for Game. The Duke of Beaufort's fox hounds meet frequently in the neighbourhood. The climate is mild and healthy, and the country round is very beautiful.—For cards to view apply to the Solicitors and Auctioneers. Particulars, with Plans and a Sketch of the Mansion, may be had of Messrs. VIZARD & SHUTE, Solicitors, Dursley, Gloucestershire; at the Bear Inn, Melksham; the York House and White Hart, Bath; the Angel, Chippenham; at the Mart; and of the Auctioneers, 3, Frederick's Place, Old Jewry, London.

WILTSHIRE.

Two small FARMS, with RESIDENCES, a HOUSE, GARDEN, and MEADOW, and 3 CLOSES, suitable for building, in the Village of Atworth, in all 149A. 2R. 3P., within 4 miles of Melksham and Bradford, and 3 miles of Box, 4 miles of Corsham, and only 8 miles from Bath and Chippenham.

MESSRS. DAVIS AND VIGERS are favoured with instructions to Sell by Auction, at the Angel Inn, Chippenham, on TUESDAY, July 7, at 12 o'Clock, in six Lots, 149A. 2R. 3P. of FREEHOLD LAND, divided into two Farms, with Residences and Homesteads, a House in the Village, with Stable, &c., Garden, and Grass Close, and three Closes aside the high road, offering very eligible sites for building. The Land is naturally fertile, the Grass affording rich pasture. The Arable is adapted to the alternate growth of Roots and artificial Grasses with Corn. It is well watered, and the climate is mild and salubrious. The Buildings are principally of stone, of which there is an abundant supply of superior quality in the neighbourhood. The Wilts, Somerset, and Weymouth Railways have Stations at Melksham and Bradford, and the Great Western at Box and Corsham.—The property may be viewed by leave of the tenants; and particulars, with plans, may be had at the Bear Inn, Melksham; the Angel, Chippenham; of Messrs. Vizard & Shute, Solicitors, Dursley, Gloucestershire; and of the Auctioneers, 3, Frederick's Place, Old Jewry, London.

VALE OF AYLESBURY, BUCKS.

Within 7 miles of Aylesbury, 9 of Buckingham, and 5 of Winslow, The LEE GRANGE ESTATE of 1345 Acres, principally rich pasture, producing 2246l. per annum, singularly desirable for investment.

MESSRS. DAVIS AND VIGERS are favoured with instructions to Sell by Auction, at the Mart, London, on WEDNESDAY, July 15, unless previously disposed of by private contract. This very important Property, situate in one of the richest districts in England, and comprising some of its finest Pasture, includes the Manor and nearly the whole of the Hamlet of Shipton Lee, in all 1345 Acres (of which only 132 acres are Arable and 56 Woodland) divided into eight Farms, in the occupation of respectable Tenants at Rents much below what such land usually lets for. The whole is Freehold and exonerated from Land-tax. The Tithes are commuted at a low sum, being in part covered by a small modus, and the poor rates are trifling, the population being very small, and the hamlet supporting only its own poor. The Estate embraces and includes the Grange Hill, a prominent feature in the neighbourhood, offering an attractive site for the erection of a Mansion with the advantage of being finely studded with old trees; a stream runs through the property which formerly supplied several large fish ponds, and apparently has afforded water power to one or more mills. The present rental averages only 33s. per acre, and by a comparatively small outlay in draining and in increasing the tenants' accommodation for stock it may be largely increased without prejudice to the tenant.—Particulars and Plans may be had at the White Hart, Aylesbury; Cobham Arms, Buckingham; King's Arms, Winslow; in London of S. H. C. MADDOCK, Esq., Solicitor, 3, Spring Gardens, Westminster; at the Mart; and at the Auctioneer's Offices, 3, Frederick's Place, Old Jewry.

CHINESE HERBACEOUS PÆONIES.

JOHN SALTER'S fine collection of these gorgeous Flowers is now in bloom, and may be seen every day except Sunday.—Versailles Nursery, near Hammersmith turnpike.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, June 13.

FOR GOOD AND CHEAP BARGAINS IN BEDDING AND OTHER PLANTS, APPLY TO

HENRY WALTON, Edge End, Marsden, near Bromley, Lancashire.—Strong and well-established plants of Geraniums of 1855, 25*s.* per dozen; older varieties, 6*s.* and 9*s.* per dozen. Fuchsias of last season, extra strong, 9*s.* and 12*s.* per dozen; smaller do., free by post, 7*s.* 6*d.* per dozen. Verbenas, Petunias, Dahlias, and other Bedding Plants equally cheap. Erect and other Gloxinias, 9*s.*, 12*s.*, and 15*s.* per dozen; 6 new erect flowering varieties for 1*l.*, or 5*s.* each. Achimenes, 5*s.* and 7*s.* 6*d.* per dozen; new do., 2*s.* 6*d.* each.—Descriptive Lists of the above may be had on application. Post-office Orders payable at Marsden, Lancashire.

NEW OR RARE FERNS.

JAMES BACKHOUSE AND SON have pleasure in offering to the public the following highly interesting and distinct Ferns, several of which are of great rarity:—

MICROLEPIA (DAVALLIA) NOVÆ ZEALANDIÆ.—A most elegant species, forming beautifully incised shining fronds, 6 to 9 inches long, from a creeping hairy rhizome. 7*s.* 6*d.* to 10*s.* 6*d.* each.

NOTHOCHLÆNA LÆVIS.—Very distinct and pretty. Fronds linear, 9 to 15 inches long, with simple blunt pinnæ, clothed beneath with rufescent scales, which are silvery and shining when young. 5*s.* to 10*s.* 6*d.*

DIDYMOCHLÆNA PULCHERRIMA. — Handsome dark green glossy fronds. 7*s.* 6*d.* to 10*s.* 6*d.*

LOPHOSORIA (ALSOPHILA) PRUINATA. (The Silver Tree Fern of Jamaica.)—Nice young plants of this rare and handsome species, 10*s.* 6*d.* to 21*s.* each.

ASPLENIUM CAUDATUM.—A scarce Fern, with deeply incised tapering pinnæ. 7*s.* 6*d.* and 15*s.*

ALSOPHILA SPECIES (received as "A. GUIANENIS").—A fine Tree Fern with rich glossy prickly stemmed fronds. 10*s.* 6*d.* to 21*s.* Stronger plants, 42*s.* and 63*s.* each.

HEMITELIA GRANDIFOLIA?—A few strong plants of this rare and noble Tree Fern, 63*s.* each.

HEMITELIA SPECIOSA. (Described in Hooker's "Species Filicum" as "a truly beautiful species.")—Fronds simply pinnate, Palm-like, curiously veined. A Tree Fern from Caraccas. 21*s.* to 42*s.*

POLYPODIUM (PSEUD-ATHYRIUM) FLEXILE.—A few strong plants of this scarce and elegant British Fern at 7*s.* 6*d.* and 10*s.* 6*d.* each.

CYSTOPTERIS MONTANA. (Another rare and very distinct British Fern.)—Strong plants, 5*s.* and 7*s.* 6*d.*

NOTHOCHLÆNA LANUGINOSA.—A pretty little Fern from Algeria; fronds covered beneath with soft white woolly hairs. 7*s.* 6*d.*

PLATYLOMA BROWNI.—Distinct and scarce. 5*s.* to 7*s.* 6*d.*

NOTHOCHLÆNA ECKLONIANA.—A pretty and distinct species. 5*s.* to 7*s.* 6*d.*

DICKSONIA ANTARCTICA. (The Van Diemen's Land Tree Fern.)—A very handsome species, forming a crest 12 to 20 feet across, of dark green graceful fronds. Easy of cultivation in a greenhouse. Fine young plants, 10*s.* 6*d.* each. Strong ditto, 42*s.* to 63*s.* each.

CIBOTIUM SCHIEDEI.—A beautiful Tree Fern from Mexico, with large, much divided, gracefully drooping pale green fronds, glaucous beneath and densely shaggy at the base, with long, soft, fulvous hair. 21*s.* to 31*s.* 6*d.* each.

J. B. & SON'S NEW CATALOGUE OF FERNS (which contains many rarities) may be had on application.

York Nurseries, June 13.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

SAMUEL C. HEMMING AND CO., MANUFACTURERS OF IRON BUILDINGS, with Improvements as to Construction, Ventilation, and Equalisation of Temperature. Iron Churches, Chapels, School-rooms, Farm Buildings, Stores, Ball and Concert Rooms, Theatres, Additions to Buildings, Verandahs, and Iron Roofing erected complete in any part of the Kingdom.—For particulars, apply only to 40, Broad Street Buildings, London.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

E. DENCH, PATENT HOTHOUSE WORKS, King's Road, Chelsea, and at Granby Nursery, Mornington Place, Hampstead Road, Inventor, Patentee, and Sole Manufacturer of PATENT GALVANISED SHEET IRON GREEN AND HOTHOUSES, CONSERVATORIES, &c. Also Manufacturer of all kinds of Horticultural Structures in wood and iron, of the best materials, and at the lowest price, as well as his two patent principles of Galvanised Iron, one glazed with putty, one without. A specimen of both principles combined now standing at the H. S. Gardens, Chiswick.

MONRO'S NEWLY INVENTED CANNON BOILER.

I hereby give Notice that I have disposed of the entire interest in my Cannon Boiler, as Exhibited by me at Chiswick, to Mr. J. Jones, Iron Merchant, 6, Bankside, Southwark, London. This Boiler is made both of Wrought and Cast-iron of different sizes. It possesses the combined advantages of the Cylindrical, Tubular, and Saddleback Boilers. For lowness in price, economy in fuel, rapidity in circulation, and in the power of heating great lengths of pipe, this Boiler will be found to satisfy the expectations of the most sanguine.

Colney House, St. Albans. (Signed) JOHN MONRO.

PAGE & CO.'S
COMPOSITION FOR THE DESTRUCTION OF BLIGHT
UPON THE
HOP, ROSES, WALL-FRUIT TREES, CUCUMBERS, MELONS, VINES, AND STOVE AND GREENHOUSE PLANTS.

Extra Strong, 4s. per Gallon, sufficient to make four.

Jars and Barrels charged at cost price.

Ten Gallons and upwards, Carriage Free to London.

B. PAGE AND CO. beg to refer to Professor Lindley's analysis of the leading Gardeners' opinions, and also his remarks in the leading article of the *Gardeners' Chronicle* of October 25, 1856, where it will be observed that in 192 cases, 10 only were adverse; a majority sufficient to convince the most sceptical. It should be in the possession of every one who has a Rose Bush or a Wall-fruit Tree.

Their Agents (the principal Houses in the Trade) were recently published, to which should be added—

Mr. Thomas, Nurseryman, Wolverhampton.
Mr. Jennings, Nurseryman, Shipton-on-Stour.
Messrs. Dickson & Sons, Edinburgh (in place of Downie & Laird); or of

B. PAGE & CO., Seed Merchants and Growers. Southampton.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	7000
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*" ..	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten fires I had on the old system.*"	12	6000	2300
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c. ..	12	..	1850
Area of dwelling-house heated, 2140; hothouse, 1910. Total	..	4050	
Mr. Paget says:—"*Your apparatus is working very satisfactorily.* * * * *The boiler is quite master of its work.*"			
The establishment of W. Leaf, Esq., Norwood	15	4410	1980
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

JOHN WEEKS & COMPANY,
Horticultural Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

Garden Engines, Syringes, &c., upon the most approved principle.

CAUTION.—THE WELL-KNOWN REPUTATION OF

READ'S ENGINES, MACHINES, AND SYRINGES

Has led to the nefarious practice of placing cards in shop windows with the words "Read's Patent" upon Syringes of the very commonest description. R. READ begs to caution the Public against being deceived by such false representations, as many of these instruments, upon trial, will be found defective and useless.

READ'S Instruments have the Royal Arms and Address, "35, Regent Circus, London."

Descriptions sent post free.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden, in the said Co.—SATURDAY, June 13, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 25.—1857.] SATURDAY, JUNE 20. {Price Fivepence. STAMPED EDITION, 6*d*.

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MANCHESTER GRAND HORTICULTURAL EXHIBITION.—The Second Exhibition will take place at the Society's Gardens, Old Trafford, Manchester, on WEDNESDAY and THURSDAY, June 24 and 25, when a large amount will be given in Prizes for Collections and Specimens of Plants, Flowers, Fruits, &c. For Schedules and particulars apply to the Secretary.

By Order,
JOHN SHAW, Secretary.

Council Room, 3, St. Peter's Square, Manchester.

IPSWICH HORTICULTURAL SOCIETY. — The SECOND EXHIBITION of the above Society will be held in the Arboretum, Ipswich, on FRIDAY, July 3. The splendid Band of the Royal Artillery is engaged for the occasion.

DANIEL LONG, Sec., St. Helen's Street, June 20.

CAUNTON HORTICULTURAL SOCIETY.—The FIRST EXHIBITION of this SOCIETY for 1857 will be held at Caunton on TUESDAY, July 14. Schedules may be obtained from the Hon. Secretary, Mr. WILLIAM FOWLE, Beesthorpe Hall, near Newark, Notts. Omnibuses will leave Newark shortly after the arrival of the Early Trains from Lincoln, Nottingham, Retford, and Peterborough.

HEREFORD HORTICULTURAL SOCIETY.—The first Show for this Season will be held on the Castle Green, Hereford, on TUESDAY, June 30, when Prizes for NINE STOVE AND GREENHOUSE PLANTS of 5*l*. 5*s*., and 3*l*. 3*s*., either in Cups or Specie; GERANIUMS (6), 2*l*. and 1*l*.; FANCY DITTO, 2*l*. and 1*l*.; ROSES (24), single, 1*l*. 10*s*. and 1*l*.; DITTO, Clusters, three stems (24), 1*l*. 10*s*. and 1*l*.; RANUNCULUS (12), 15*s*. and 10*s*.; COLLECTION OF FRUIT, 1*l*. and 10*s*.; SILVER CUP, 18 varieties of ROSES, in Clusters, three stems, for Amateurs only, value 3*l*. 3*s*., with many other Prizes, will be awarded. J. EDWARDS, Esq., F.H.S., Censor. Exhibitors must be Subscribers of 5*s*. or upwards to the funds, and which will entitle them to Exhibit also at the SEPTEMBER SHOW, to be held on the 4th. For Schedules, &c., apply to

Mr. W. PHILLIPS, Hon. Secretary.

*** Three days' Notice to be given by Exhibitors.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next Exhibition of this Society will be held at Chatteris on WEDNESDAY, July 1st next. In addition to the usual Prizes the following will be offered, viz.:—For the best 36 varieties of Roses (single trusses), a SILVER CUP, value FIVE GUINEAS; second best, 1*l*. 10*s*. Persons intending to compete for these Prizes must give written notice to the Hon. Secretary by the 24th inst. Four Entries or the Cup will not be given, and no Exhibitor will be allowed to take both Prizes. The Hon. Secretary will inform intending competitors whether a sufficient number of Entries have been made. Each Exhibitor must find his own stands, and must be a Subscriber of 10*s*. or upwards to the funds of the Society, which Subscriptions will also entitle him to show for the General Prizes at both Exhibitions for the present year.

Persons intending to Exhibit for the General Prizes must give notice in writing, stating what they intend to Exhibit and in which Class, to the Hon. Secretary by 8 o'Clock in the evening of TUESDAY, the 30th inst. Prize Lists and Regulations, and all further information may be obtained on application to

WILLIAM FRYER, Hon. Secretary.

Chatteris, June 20.

ROYAL PAVILION, BRIGHTON.—The GRAND ANNUAL SUMMER EXHIBITION of the BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will be held on WEDNESDAY and THURSDAY next, June 24 and 25. Prizes are offered on the same grand scale as former years, and first-class Military Bands engaged. Schedules on application to E. SPARY, Queen's Graperies; or E. CARPENTER, 96, St. James Street, Brighton. CONVEYANCE OF PLANTS, &c.—Through the liberality of the Directors of the South Coast Railway, the Committee have the pleasure to announce to Exhibitors that Plants, &c., for Exhibition, will be conveyed to Brighton, from all stations, and back whence they came, FREE OF CHARGE. The Plants, &c., from London must be delivered at Bricklayers' Arms Station, Willow Walk, Bermondsey, not later than 8 P.M., on the day preceding the Show, to be delivered up to the Exhibitors early on the following morning at the Brighton Station. Where plants are loaded in the owners' vans and carriages, trucks are required, of which notice should be given to the Superintendent at London Bridge or Bricklayers' Arms, at least 24 hours before, to prevent disappointment. No van for transit on a carriage-truck must be loaded more than 9 feet from the ground. N.B.—Vans will be in readiness at the Brighton Station on the morning of the Show to convey Plants, &c., to the Pavilion, at moderate charges. P.S.—Exhibitors accompanying their Boxes of Fruits, Cut Flowers, &c., if such exceed the weight allowed, will by booking them at the London Bridge Booking Office, have their productions conveyed to and fro Carriage Free.

Brighton, June 20. By Order of the Committee,
EDWARD CARPENTER, Secretary.

TO THE SUBSCRIBERS TO THE GARDENERS' ROYAL BENEVOLENT SOCIETY.—The favour of your Vote and Interest is earnestly solicited, at the next Election, on behalf of SUSANNA GULLETT, Widow of the late John Gullett, who was Gardener at Woodbine Cottage, Torquay, for 33 years, and who died October 24, 1856. John Gullett had subscribed to the Institution for 13 years, and was 69 years of age when he died. His Widow (now 62 years of age), is in very delicate health, and was entirely dependent on her husband for support, but now being deprived of that support, she is induced to make an appeal to the Institution. The undermentioned Ladies and Gentlemen do strongly recommend SUSANNA GULLETT as a person worthy of your sympathy and support:—

J. V. Shelley, Bart., M.P.
W. G. Parks Smith, M.A., Incumbent of St. John's, Torquay
C. Paget Blake, M.D., Torquay
E. Vivian, Magistrate for the County of Devon
H. C. March Phillipps, Magistrate for the County of Devon
Capt. J. H. Ward, R.N.
Miss Goodenough, Torquay
Mrs. Champnes, Torquay

THE SOCIETY OF ARTS ANNUAL DINNER, Lord STANLEY, M.P., in the chair, will take place at the Crystal Palace, Sydenham, on TUESDAY, June 23, at 6 o'clock instead of 5, as originally announced, in order to suit the convenience of those attending her Majesty's Drawing Room. The Chairman will be supported by the following gentlemen, as Vice-Chairmen:—

Colonel SYKES, M.P., F.R.S., Chairman of Council.
Professor T. L. DONALDSON, as representing Art.
JAMES CAIRD, Esq., M.P., „ Agriculture.
WILLIAM BROWN, Esq., M.P. „ Commerce.
The Hon. Chief Justice TEMPLE, „ the Colonies.
ARTHUR RYLAND, Esq., „ the Institutions in Union.

Tickets, 10*s*. 6*d*. each, may be had at the Society's House, John Street, Adelphi, W.C. By order,
P. LE NEVE FOSTER, Secretary.

DICKSONIA ANTARCTICA.

ROBERT SIM can supply very nice plants of the above noble Tree Fern (greenhouse) at 10*s*. 6*d*. each. Carriage paid to London.—Nursery, Foot's Cray, Kent, S.E.

NEW SCARLET GERANIUM FOR BEDDING.

ECLIPSE (PERRY).—Compact habit and fine form, producing large trusses of bright scarlet flowers with a clear white eye. Strong plants will be ready early in May, price 5*s*.—THOS. PERRY, Nurseryman, &c., Banbury.

VAN HOUTTE'S CONTINENTAL CALCEOLARIAS, in sealed packets, at 5*s*. each, to be had on July 1, from Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Applications post paid, with a Post-office order.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above Seed, saved from their best flowers, as follows:—25 varieties, named in separate packets, the collection, 6*s*.; 15 ditto, 4*s*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*.; also choice Sweet William Seed, 6*d*. per packet.—Nursery, Haverhill, June 20.

GLOXINIAS, new Flowering Plants of the best kinds, 6, 9, 12 doz.; to the Trade 50*s*. per 100.

FUCHSIAS—All the new and leading kinds of last year, 6*s*. per doz.; VERY strong Plants, 12*s*.

Mr. PALETHORPE, S. E. Nurseries, Ashford, Kent.

GERANIUMS OR PELARGONIUMS.—One of the Largest Collections in the World is now in Flower, and can be seen Gratis any day, Sundays excepted.

CATALOGUES of GERANIUMS, AZALEAS, FERNS, DAHLIAS, FUCHSIAS, ERICAS, &c., also a very large Stock of all kinds of BEDDING PLANTS, can be had at

T. GAINES' Nursery, Surrey Lane, Battersea.—June 20.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Clarissa, optima, Mrs. B. Stowe, Miss Trotter.—8*s*. per dozen, or 1*s*. each selected free by post. Also the varieties of 1856, 4*s*. per dozen free by post.

Address HENRY MAY, The Hope Nurseries, near Bedale.

TO SEEDSMEN AND OTHERS.—The Assignee appointed under the Bankruptcy of HORATIO BUNTING, SEED GROWER, of the Lexden Road, Colchester, begs to inform the Seed Trade that he is now prepared to receive Tenders for the purchase of a portion of the Bankrupt's Stock of Seeds (not compelled to accept the highest or any Tender).—For further particulars apply to E. T. HOMER, 58, North Hill, Colchester.

TO THE SEED TRADE.—A quantity of English grown HOP SEED for present sowing. Sample and price on application to CHARLES SHARPE, Wisbeach.

PINES.

WANTED, 500 Plants, QUEENS and JAMAICAS.—State price and particulars by letter to A. B. C., Post Office, Cardiff.

TO NURSERYMEN.

TO BE DISPOSED OF, by Private Contract, the whole of the STOCK IN TRADE of the late Mr. A. J. STEWART, at the Salt Hill Nursery; also Two Good Pits and a Propagating House.

THE CLIMATE OF GLOUCESTERSHIRE is peculiarly favourable for the Growth and Harvesting of GARDEN SEEDS. We have this season succeeded in getting in our Stock in excellent condition, and can offer it on very low terms, carriage free to any Railway Station. A Priced List will be forwarded free on application.

J. C. WHEELER & SON, Seed Growers, Gloucester.

CAPE BULBS.

JAMES CARTER AND CO. have just received a consignment of CAPE BULBS, and will be glad to forward a Descriptive List of them, post free, upon application.

238, High Holborn, W. C.

FOR BEES, BOUQUETS, ETC.,

SOW in June and July the sweet scented ever-flowering MELILOTUS. Packets 6*d*. and 1*s*. each, free by post.—J. ROGERS, Horticulturist, &c., Chelsea.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d*. Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1817. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

PARCHMENT LABELS superseded by CRESCENS, ROBINSON AND CO.'S PREPARED LINEN LABELS. They are cheaper, written upon with greater ease and rapidity, and quite as durable. Specimens, printed to any pattern, sent post free from CRESCENS, ROBINSON, & Co.'s Paper and Paper Bag Warehouse, 79, Upper Thames Street, London.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

RICK CLOTHS, of the best quality, at the lowest prices.—E. J. DAVIS, 64, West Smithfield, London, E.C.

SAMUEL C. HEMMING AND CO., MANUFACTURERS OF IRON BUILDINGS, with Improvements as to Construction, Ventilation, and Equalisation of Temperature. Iron Churches, Chapels, School-rooms, Farm Buildings, Stores, Ball and Concert Rooms, Theatres, Additions to Buildings, Verandahs, and Iron Roofing erected complete in any part of the Kingdom.—For particulars, apply only to 40, Broad Street Buildings, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

GARDENS.

GUTTA PERCHA TUBING FOR WATERING GARDENS, half-inch 4*d*.; five-eighths, 5*d*., three-fourths, 6*d*. per foot; also the Improved Flexible Hose from 6*d*. per foot.—98, New Bond Street. SELLING OFF.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d*. per yard, or 5*s*. per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Mayfield, near Uckfield, Sussex. Appointed Agents.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d*. per square yard; 200 yds. 14*s*.; 500 yds., 30*s*.; 1000 yds., 50*s*. Screen Canvas for Wall Fruit.—At EDGINGTON & CO.'S, Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	2	2¼	2½	2¾	3 in.
9*d*.	11*d*.	1*s*. 1*d*.	1*s*. 3*d*.	1*s*. 5*d*.	1*s*. 7*d*.	1*s*. 9*d*.	2*s*.	2*s* 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s*.	2*s*. 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.	3*s*. per yard.

The hose is Burnettized at an extra charge of 3*d*. per yard. Union Joints, Couplings, and Jets are also supplied.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE USE OF PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO.—have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s*.), Flower Stands, Garden Seats, &c., Galvanized Garden Netting from 6*d*. per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s*. per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument) London Bridge, E.C. Established, A.D. 1700.

A Q U A R I A.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5s. 0d.	12 inches diameter, each	4s. 6d.
13 " "	6 0	13 " "	5 0
14 " "	8 0	14 " "	5 6
15 " "	9 0	15 " "	6 6
16 " "	10 0	16 " "	7 0
17 " "	12 0	17 " "	8 0
18 " "	18 0	18 " "	10 0
19 " "	14 0	19 " "	11 6
20 " "	15 0	20 " "	12 6

Syphons, each .. .. 2s.

TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep	£3 10 0
26 inches long, 16 wide, 15 deep	3 0 0
20 inches long, 13 wide, 9½ deep	1 18 0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.

GLASS FERN SHADES AND STANDS.

6 inches diameter, each	2s. 6d.	12 inches diameter, each	8s. 6d.
7 " "	3 0	13 " "	11 0
8 " "	3 6	14 " "	14 0
9 " "	4 6	15 " "	18 6
10 " "	5 6	16 " "	23 6
11 " "	6 6		

CUCUMBER GLASSES.

24 inches long	2s. 0d.	16 inches long	1s. 4d.
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1s. 6d. per foot.

Glass Tiles and Slates.

Glass Milk Pans, 21s. per doz.; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the Trade.

Specimens will be exhibited at Chiswick Gardens on Wednesday and Thursday next.

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11s. 6d. per 100 foot box; 9½ by 7½ and 10 by 8, at 12s. 6d. per box, in 21 oz. 1s. per box extra; larger sizes up to 22 by 14, 15 oz., at 16s,; and 21 oz. 25s. per 100 feet. Boxes charged 2s each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2d. to 3d. per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

G L A S S.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15s. 6d. per 100 feet. Some of the above in 21 oz. Glass at 1s. and 2s. per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10s. per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12s.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14s.	12 by 10, 13 by 10, 14 by 10, 15 by 10	14s.
19 by 12, 20 by 12	16s.	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32s. and 40s. per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee "	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

WEEKS' ONE BOILER SYSTEM.

THE following STATISTICS of some Works executed on this system by JOHN WEEKS AND COMPANY are given as proofs of the efficiency and power of their BOILERS, combined with the scientific manner in which their Apparatus are constructed.

	No. of Compartments	Area of houses in feet.	Total length of piping in feet.
Our own establishment at Chelsea, including the Winter Garden	27	18,600	[illegible]
The Hothouse Establishment of his Grace the Duke of Leeds, Hornby Castle, Yorkshire. The houses are widely scattered, some being 300 feet from the boilers. There are two boilers, one being a reserve in case of unforeseen accident. J. C. Niven, Esq., Curator of the Botanic Gardens, Hull, who has examined this apparatus, says:—"*Great credit is due to* Messrs. WEEKS *for the very efficient manner in which it is carried out.*"	31	12,023	5000
The establishment of T. Assheton Smith, Esq., Tedworth, Wilts, contains 4200 feet of pipe, 900 of which is 6 inch, and is equal to 5100 of 4-inch pipe. Mr. Sanders, the Gardener, writer of the well-known book on the Vine, in an article in the "Cottage Gardener," March 10, says:—"*Strongly as* Messrs. WEEKS & SON'S *Boiler had been recommended to me, it considerably exceeds my expectations.*" ..	16	8050	5100
The establishment of W. Pearson, Esq., East Bergholt, Suffolk. Mr. Pearson says:—"*The apparatus is satisfactory.*"	40	5360	4520
Messrs. E. G. Henderson's Nursery, Wellington Road, St. John's Wood. Mr. Henderson says:—"*I am more than satisfied with the extraordinary results of what* Messrs. WEEKS & Co. *have done for me in heating a great number of our Hothouses from one Boiler.*"	15	11,077	2940
The establishment of Josiah Spode, Esq., Rugeley, Staffordshire. Mr. Spode says:—"*It is accomplished perfectly by the one Boiler instead of the ten fires I had on the old system.*"	12	6000	2300
The dwelling-house and Hothouse of Charles Paget, Esq., M.P., Ruddington, Notts. The dwelling-house is 200 feet from the boiler, which is in the garden, and also heats a range of hothouses, &c. ..	12	..	1550
Area of dwelling-house heated, 2140; hothouse, 1910. Total	..	4050	
Mr. Paget says:—"*Your apparatus is working very satisfactorily.* * * * *The boiler is quite master of its work.*"			
The establishment of W. Leaf, Esq., Norwood	15	4410	1960
The Law Court, Lancaster Castle, comprising two courts and judges' rooms	..	3750	1700

For additional proof, see our List of Works, Testimonials, &c.; and as a guarantee of the power of our Upright Tubular Boiler, we now again challenge the whole world to make a Boiler that will produce anything like the same effect with the same quantity of fuel.

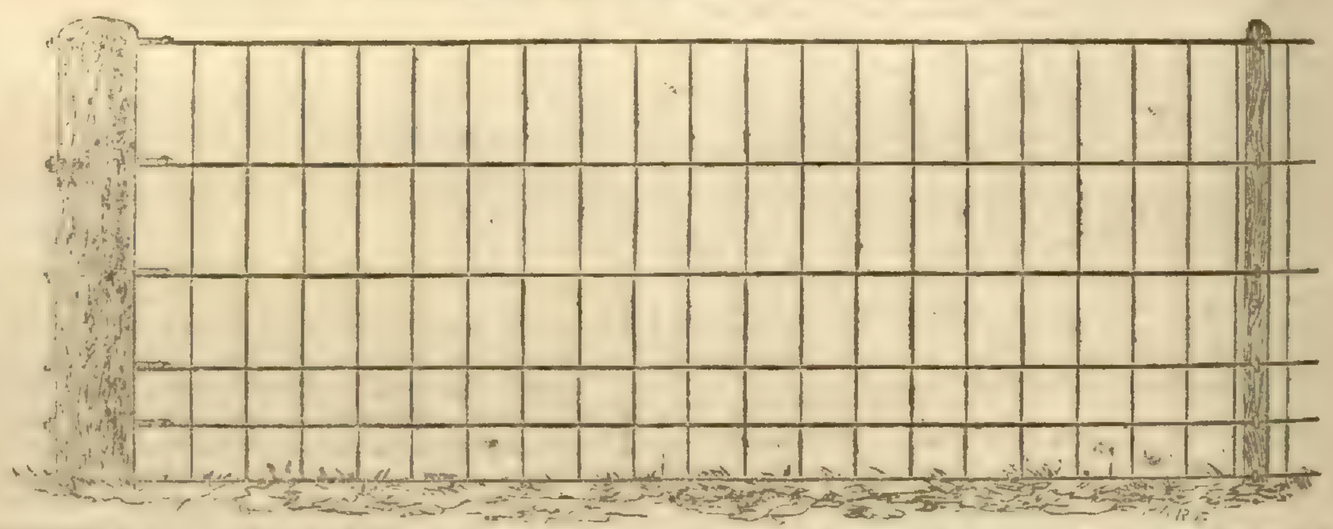
JOHN WEEKS & COMPANY,

Horticultural Builders and Hot-water Apparatus Manufacturers,

KING'S ROAD. CHELSEA, S.W.

GREENING & COMPANY'S PATENT FENCES.

Patronised by H.R.H. Prince Albert.



THIS FENCE is so constructed that a very large quantity per day can be erected with facility by a labourer, shepherd, gardener, or any person, however unaccustomed to mechanical employments.

The Judges of the Manchester and Liverpool Agricultural Society in their report for 1855 thus remark on the importance of this invention:—"We may be permitted to notice a very great improvement in the make of the Wire Fences, *by which they are rendered perfectly moveable*—A VERY GREAT DESIDERATUM;" in accordance with which they awarded to Messrs. GREENING & Co. the SOCIETY'S SILVER MEDAL. Special Premiums, Extra Prizes, have also been awarded to G. & Co.'s Manufactures by the West of England, Yorkshire, and other most important Societies—in all, Seventeen Special Awards.

GREENING & Co. have had the honour of supplying their Fences to upwards of 1000 of the most eminent Noblemen, Landowners, and Agriculturists in the Kingdom, apparently with universal and unvarying satisfaction. They have received more than 200 Testimonials, of which they subjoin four, selected for their brevity.

From C. E. MOLINEAUX, Esq., J.P., *Wolverhampton.*

"The Fence gives me great satisfaction; it is certainly the most unique, and, to all present appearance, durable one I ever saw, and I have no doubt you will have a great demand when it becomes known that so excellent a Fence can be made so cheap."

From Captain F. MATHIAS, *Royal Flint Militia.*

"I like the Fencing very much."

From THOMAS WALPOLE, Esq., *Weybridge, Surrey* (whom G. & Co. have supplied with many separate lots).

"It gives very great satisfaction, and is much approved of."

From JOHN COOKE, Esq., *Steward to Col. Davenport, Bramall Hall.*

"The Patent Wire Cattle Fencing we had from you in October last has given us every satisfaction."

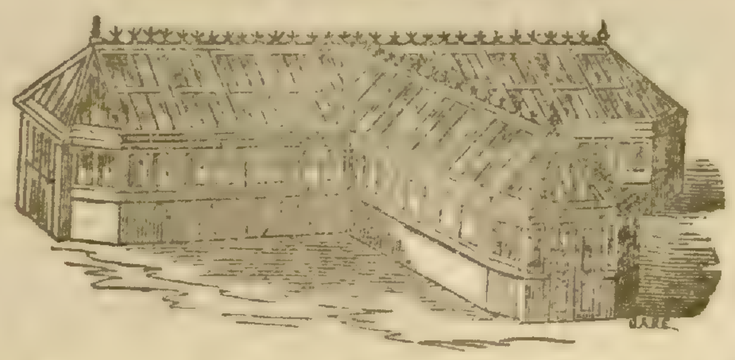
The Fences are sent out from the Works in rolls of 50 and 100 yards, japanned, if desired, with GREENING & Co.'s Jet Varnish. Detailed "Instructions" for fixing are forwarded with each order; and the price, ONE SHILLING PER YARD (RUN), includes all materials for fixing, except the wooden supports, for which purpose may be used up such timber as is lying useless on the estate or farm. Gentlemen remitting at the time of order are authorised to deduct 5 per cent. discount.

Carriage is prepaid by GREENING & Co. to London, Liverpool, Hull, Birmingham, &c., on all orders for 100 yards or more.

GREENING & COMPANY, Sole Manufacturers,

Victoria Iron Works, 81, Oxford Road, Manchester.

HORTICULTURAL WORKS.



HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hot Houses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

N.B. See our Improved Corrugated Tubular Boiler warranted to Heat 500 feet of 4-inch piping. Size, 24 inches by 14 inches. Price of our Small Boilers, 5l. 5s. Satisfaction given or no charge made.

Plans and Estimates forwarded on application as above.

BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5d. per yd.	4d. per yd.
2-inch "	strong do.	6 "	4¾ "
2-inch "	intermediate, do. ..	7 "	5½ "
2-inch "	extra strong, do. ..	9½ "	7½ "
1⅝-inch "	24 inches wide	5½ "	4½ "
1⅝-inch "	strong, do.	6½ "	5¼ "
1⅝-inch "	intermediate, do. ..	7½ "	6 "
1⅝-inch "	extra strong, do. ..	10 "	8 "

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½d. per yard, 3 feet wide. Galvanised Sparrow-proof Netting for Pheasantries, 2½d. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, June 20.

NEW PLANTS.

A. VERSCHAFFELT, NURSERYMAN, Ghent, (Belgium), can now send out the following new plants:

STOVE PLANTS.

Gesneria egregia (see Illustr. Hort.)	7s. 6d.
Tradescantia discolor lineata	7 6

GREENHOUSE PLANTS.

Clematis Guascoi (see Illust. Hort.)	7 6
Passiflora Empress Eugenie	5 0
Petunia Inimitable, the finest fancy Petunia yet raised, and will be shortly figured in L'Illust. Hort.	3 6

HARDY PLANTS.

Gaillardia grandiflora, strong plants	5 0
Potentilla Mulleri	5 0
Pyrus Mallardi	7 6

R. SILBERRAD, Agent, 5, Harp Lane, Great Tower Street.

NEW OR RARE FERNS.

JAMES BACKHOUSE AND SON have pleasure in offering to the public the following highly interesting and distinct Ferns, several of which are of great rarity:—

MICROLEPIA (DAVALLIA) NOVÆ ZEALANDIÆ.—A most elegant species, forming beautifully incised shining fronds, 8 to 9 inches long, from a creeping hairy rhizome. 7s. 6d. to 10s. 6d. each.

NOTHOCHLÆNA LÆVIS.—Very distinct and pretty. Fronds linear, 9 to 15 inches long, with simple blunt pinnæ, clothed beneath with rufescent scales, which are silvery and shining when young. 5s. to 10s. 6d.

DIDYMOCHLÆNA PULCHERRIMA.—Handsome dark green glossy fronds. 7s. 6d. to 10s. 6d.

LOPHOSORIA (ALSOPHILA) PRUINATA. (The Silver Tree Fern of Jamaica.)—Nice young plants of this rare and handsome species. 10s. 6d. to 21s. each.

ASPLENIUM CAUDATUM.—A scarce Fern, with deeply incised tapering pinnæ. 7s. 6d. and 15s.

ALSOPHILA SPECIES (received as "A. GUIANENIS").—A fine Tree Fern with rich glossy prickly stemmed fronds. 10s. 6d. to 21s. Stronger plants, 42s. and 63s. each.

HEMITELIA GRANDIFOLIA?—A few strong plants of this rare and noble Tree Fern, 63s. each.

HEMITELIA SPECIOSA. (Described in Hooker's "Species Filicum" as "a truly beautiful species.")—Fronds simply pinnate, Palm-like, curiously veined. A Tree Fern from Caraccas. 21s. to 42s.

POLYPODIUM (PSEUD-ATHYRIUM) FLEXILE.—A few strong plants of this scarce and elegant British Fern at 7s. 6d. and 10s. 6d. each.

CYSTOPTERIS MONTANA. (Another rare and very distinct British Fern.)—Strong plants, 5s. and 7s. 6d.

NOTHOCHLÆNA LANUGINOSA.—A pretty little Fern from Algeria; fronds covered beneath with soft white woolly hairs. 7s. 6d.

PLATYLOMA BROWNI.—Distinct and scarce. 5s. to 7s. 6d.

NOTHOCHLÆNA ECKLONIANA.—A pretty and distinct species. 5s. to 7s. 6d.

DICKSONIA ANTARCTICA. (The Van Diemen's Land Tree Fern.)—A very handsome species, forming a crest 12 to 20 feet across, of dark green graceful fronds. Easy of cultivation in a greenhouse. Fine young plants, 10s. 6d. each. Strong ditto, 42s. to 63s. each.

CIBOTIUM SCHIEDEI.—A beautiful Tree Fern from Mexico, with large, much divided, gracefully drooping pale green fronds, glaucous beneath and densely shaggy at the base, with long, soft, fulvous hair. 21s. to 31s. 6d. each.

J. B. & SON'S NEW CATALOGUE OF FERNS (which contains many rarities) may be had on application.

York Nurseries, June 20.

J. AND J. FRASER beg to announce that their collection of ROSES is now in flower, and respectfully invite their patrons and the public generally to an inspection of the same. Trains leave the Bishopgate Station for Lea Bridge at 9.10 A.M., 9.30 A.M., 12.0 NOON, 12.45 P.M., 3.0 P.M., 3.30 P.M., 4.40 P.M., 5.20 P.M., 6.20 P.M., and 7.20 P.M.

The Nurseries, Lea Bridge Road, N. E., June 20.

ROSES.

T. RIVERS has much pleasure in informing his friends and the public that his ROSES, now in full bloom, are remarkably clear from blight and vigorous in growth. The large collection of Dwarfs on the Manetti stock is blooming in great perfection, and is particularly worthy of attention, as no other Rose stock is so well adapted for Dwarf Autumnal Roses. As a day may be spent among the Roses and Orchard Houses, the 8 and 10.57 A.M. trains to Harlow Station, Cambridge Line, about 1 mile from the Nursery, are recommended.—Nurseries, Sawbridgeworth, Herts.

ROSES.—THE COLLECTION OF ROSES at the Cheshunt Nurseries is just coming into bloom, will be in fullest beauty from the 20th inst. to the 11th July, a succession continuing till the end of autumn. Admirers of Roses are respectfully invited to visit the Nurseries, where every novelty that can be obtained is fairly submitted to trial.

Cheshunt is 13 miles N. of London. Trains of the Eastern Counties Railway from Shoreditch to Cheshunt Station, 1 mile from the Nurseries, run to and fro several times daily.

Nurseries, Cheshunt, Herts.

JOSEPH MAY AND CO. beg to offer the following SEEDS for the present and next months' sowing, which they can recommend with confidence:—

	Per oz.—s. d.
Shilling's Queen Cabbage—very best for general purposes	1 0
Nonpareil do.	1 0
Enfield Market do.	1 0
Rosette Colewort	1 0
Hampshire Brown Cos Lettuce, white seeded	1 4
Hardy White Winter Cos	1 4

A Catalogue of Vegetable and Flower Seeds can be had, post free.—No. 1, Wellington Street, Strand.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, June 20.

CHOICE FLOWER SEEDS.—Sent free by Post on receipt of Postage Stamps, in packets at the following prices:—Cineraria, 1s.; Double Carnation, 1s.; Double Picotee, 1s.; Polyanthus, 1s.; Calceolaria, 2s. 6d.; Primula fimbriata, 1s.; Double Hollyhock, 1s.; Brompton and Intermediate Double German Stocks, each, 1s.; Double German Wallflower, 1s.; Bedding Plants of sorts, 4s. per dozen.

BUTLER & M'CULLOCH, Seedsmen (established upwards of 100 years), opposite Southampton Street, Covent Garden Market.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

FOR GOOD AND CHEAP BARGAINS IN BEDDING AND OTHER PLANTS, APPLY TO

HENRY WALTON, Edge End, Marsden, near Bromley, Lancashire.—Strong and well-established plants of Geraniums of 1855, 25s. per dozen; older varieties, 6s. and 9s. per dozen. Fuchsias of last season, extra strong, 9s. and 12s. per dozen; smaller do., free by post, 7s. 6d. per dozen. Verbenas, Petunias, Dahlias, and other Bedding Plants equally cheap. Erect and other Gloxinias, 9s., 12s., and 15s. per dozen; 6 new erect flowering varieties for 1l., or 5s. each. Achimenes, 5s. and 7s. 6d. per dozen; new do., 2s. 6d. each.—Descriptive Lists of the above may be had on application. Post-office Orders payable at Marsden, Lancashire.

NEW FIELD TURNIP.

WAITE'S ECLIPSE Purple-top Yellow Hybrid TURNIP, a new distinct variety.—This is the most valuable Turnip in cultivation for early feeding purposes, and grows to a very large size and great weight. To be had of all respectable Seedsmen in the United Kingdom. 2s. per lb.—J. G. WAITE, Seed Merchant, 181, High Holborn, London, W.C.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South-Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.

American Nursery, Bagshot, Surrey.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.

27, Great George Street, Westminster, S.W.

GRASS SEEDS

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15s. upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

The Gardeners' Chronicle.

SATURDAY, JUNE 20, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 24—Society of Arts (Anniversary) 4 P.M.

IT has long since been placed beyond all doubt that the proper remedy for the VINE MILDEW is sulphur in some of its forms. Sulphur was stated in this journal in 1846 to be the approved remedy in all cases of mildew, though with some hesitation as to its efficacy, and in the very first notice which we published of the Vine mildew in 1847, sulphur was without any remaining hesitation pronounced its effectual cure. From that time to the present experience has shown its efficacy notwithstanding some statements to the contrary, or some disbelief that the sulphur, though apparently active, was really the cause of relief. Though, however, sublimed sulphur is so effectual when properly applied, it does not follow as a matter of course that it should be equally effectual in all cases or in all climates. Mr. FORRESTER, to whom we are indebted for so much information respecting the growth and produce of the Vine, has lately written a pamphlet* on the subject in Portuguese, in which, though he acknowledges the good effects which have been produced by the use of sulphur under the care of M. MARÈS in the south of France, he denies that it is equally applicable to Portugal. M. MARÈS, he says, wrote in France for the use of the French, while he writes in Portugal for the Portuguese. He tells us moreover that he has seen disastrous effects from the use of sulphur, and that the Vines are often so high, some 20 or 30 feet, that the plan is inapplicable. We have ourselves seen nothing but good from flowers of sulphur when applied sufficiently early and with sufficient frequency, and the height of the best varieties of Hops, some 18 or 20 feet, does not prevent the use of sulphur, though the machines called sulphurators are not always applicable. Indeed, it has been found that by far the best way of applying the sulphur is with a common flour-dredge at the end of a long pole, and a short ladder would render its use almost as easy in the

* Memoria sobre o Curativo da Molestia nas Videiras com a Carta Topografica do Paiz Vinhateiro de Alto-Douro. Por J. J. FORRESTER (Barão de FORRESTER, em Portugal). Porto, 1857. 8vo, pp. 36. With a map and two lithographed plates.

NEW AND RARE PLANTS.

ABIES KÆMPFERI

(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 255, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 18 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA

(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Piné. It was introduced by Mr. Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

case of the Vine as of the Hop. We have, however, no right to contradict without further information the statements of Mr. Forrester. What we have ourselves to report especially are the remedies he proposes for Portugal. The first is an attenuated solution of the penta-sulphide of calcium as prepared by Dr. Astley Paston Price, of Margate, applied by means of powerful syringes. The other is the application of the fumes of sulphur (sulphurous acid) by drawing rapidly through the Vineyard a little two-wheeled truck, to which is fixed by a perpendicular shaft a small table containing a number of little pans of burning sulphur, or where this is impracticable a pole with a single vessel attached to its extremity, and passed by the hand under the branches. Especial care in the latter case must obviously be taken that the Vines themselves, as well as their parasites, are not injured. Few substances are less manageable in our hothouses, and it has always been found that the only safe way of applying the fumes is not by actually igniting, but by placing the sulphur on a hot pipe. Mr. Forrester himself confesses that the operation is delicate; but he tells us that last year a maker of distaffs having burnt his pit of sulphur under his ramada or trellice once a week, obtained a splendid crop of Grapes in the immediate locality of his labours, whereas all the Grapes on either side or around him were covered with the Oidium. One difficulty in the application of any remedy arises from the sluggish habits of the peasants, and another from religious scruples, as if any exertions of their own out of the ordinary course interfered with the dispensations of Providence. We shall be anxious to have Mr. Forrester's report on both these plans, which he has kindly promised to send us; but we hope that meanwhile he will not entirely abandon the use of crude sulphur, taking care that he has really sublimed sulphur to deal with, and not merely ground brimstone, which will not answer the purpose. *M. J. B.*

Some useful discussion took place in our columns of last year concerning a wild plant called Arum italicum, by some held to be a species distinct from the common *A. maculatum*, by others reduced to a variety of it. Some years since Mr. Albert Hambrough mentioned the existence in the Isle of Wight of what he considered the true *Arum italicum* of the continent; but Dr. Bromfield, in his Flora Vectensis, reduced the Isle of Wight plant to a mere variety of *A. maculatum*, and thought it not to be the same as the real *A. italicum*. Live specimens of the Ventnor plant just received from Mr. Hambrough leave, however, no doubt of that gentleman's having been perfectly right in his first statement, and not only that his plant is the true *A. italicum* of continental writers, but that it is esentially distinct as a species from *A. maculatum*. What the differences are between the two species have been well explained by Mr. Babington (see p. 118, 1856), and need not be now repeated in similar detail. It is sufficient to state that now in mid June, when *A. maculatum* is ripening its berries in Middlesex, *A. italicum* is just in flower in the Isle of Wight; that the latter is three times as large in every part, with knobby corms, firm flat very lucid leaves, cirrhous rudiments both above and below the stamens as Grenier and Godron have well pointed out, and that the spadix, which is much shorter in proportion to the spathe, forms a very obtuse club-shaped body, quite unlike that of the common Wake Robin. It seems evident, moreover, that the description in the Flora Vectensis has been made up from both species.

The Editor of the *Gardeners' Chronicle*, much as he is opposed to the reception of the swarms of bad species with which books are inundated, is only too happy to welcome such sterling additions to our Flora as those of Arum italicum, Simethis bicolor, and Epipogium Gmelini, real discoveries which do honour to the acuteness of those who first announced their existence among us.

All know that the temperature of the air diminishes as we rise into it. A mountain is clothed at its base with Palms and Plantains, Epiphytal Orchids, Bromeliads, and other forms of tropical vegetation, while its summit is crested with eternal snow. The temperature may fall upon the sides of the mountain from 100° to 0°, or in any such proportion.

This fact, which is familiar to schoolboys, is often applied horticulturally by placing a garden at the lowest level attainable. Nor has this been unnatural, for if the fall in temperature as we rise into the air is a general rule, some decrement ought to exist at slight as well as much decrement at great elevations.

Some excellent observations upon this subject were made by Dr. Hooker in our last year's volume, p. 192. It was there shown, from Quetelet's observations as given by Alphonse De Candolle, that at Brussels a thermometer at 10.8 feet elevation stands in summer 5°6 *higher* than one placed on the surface of the soil, quite contrary to the usual belief, but on the other hand that the lowest temperature on the surface at 9 A.M. during the spring being 35°4 it was 2°3 *lower* at the 10.8 feet elevation, which would be according to rule. Thus, according to Quetelet, the absolute surface is warmest in spring when small differences in temperature are of the most importance to gardeners; and, if this be really so, spring crops should always be at the lowest level attainable, as our forefathers thought. But when we see how constantly orchard fruit escapes spring frosts on the topmost boughs of a tree while it perishes on the lower, it is difficult not to suspect either some error in observation or that 9 A.M., the time of Quetelet's observations, when the effects of nocturnal radiation are disappearing, is an unsuitable hour for the examination of thermometers provided for the purpose of determining such questions as that before us.

Further experiment upon this subject was therefore desirable, and accordingly, in the beginning of March of the present year, an apparatus was provided in the Garden of the Horticultural Society for the express purpose of determining the lowest temperature experienced during the night at various elevations between the surface and 36 feet above it. Upon a perpendicular pole five accurate self-registering thermometers were fixed at six feet distances, and a sixth was placed on the ground. Every morning the state of these thermometers was carefully noted, and we now produce the result for a few days in April and May when vegetation was becoming active, and when all tender crops were most sensible of low temperatures.

Thermometers at	Feet. 0	Feet. 12	Feet. 24	Feet. 30	Above the surface.
April 12	30°	33½°	35°	35°	
,, 15	24	27	28	28	
,, 16	25	27½	29	30	
,, 17	27	30	32	32	
,, 21	31	35	38	37	
,, 24	24	26	28	28	
,, 29	23	26	27	27	
May 3	26	31	32	32	
,, 4	31	33	34		
,, 5	23	27	28		
,, 6	27	32	33		
,, 7	25	29	30	30	
,, 8	28	29½	31	31	
,, 18	37	40	41½	42	

This it will be observed is entirely opposed to M. Quetelet's observations; but at the same time is consistent with what occurs, as we have already said, on the topmost and lowest boughs of a fruit tree. It shows conclusively that in the spring the night temperature near the ground is much lower than at small distances above it.

It proves that the air 12 feet above the ground is in April and May, the period of our fatal frosts, about 3° warmer than on the surface itself; that at 24 feet it is from 4° to 7° warmer; but that the difference between 24 feet and 30 feet is immaterial. Surely this is a fact not to be lightly regarded by the gardener, especially when it is found that the sharper the cold on the ground level the greater the gain in warmth on a higher level. The above table shows that although the thermometer may not fall below 32° at 24 feet above the ground, it may stand at 25° on the ground itself; an immense difference when we consider how sensitive plants are to even small variations of temperature, especially when they are growing fast, as in the spring. Whether this happens, as a friend suggests, in consequence of cold being radiated from the ground, or whether it arises from any other cause is practically unimportant. The fact remains. Only it must be remembered that if the lower temperature of the surface is really due to the radiation of cold from the earth, then similar differences would exist at all elevations above the sea.

That being so, it becomes a serious question whether in gardens where there is no natural fall of the ground, and where artificial rises cannot be provided, it is wise to rely for a crop of fruit upon dwarf trees to the exclusion of standards. For it is evident that in the first case all the blossoms may be frozen in a night, when those in the second would escape.

It is scarcely necessary to dwell further upon this point at present; the facts above cited speak for themselves. But we certainly should like to hear from intelligent observers whether any experience, having sufficient exactness for the purpose, can be produced either for or against the inference we seem justified in drawing. In the meanwhile we may point out one case which came last autumn under our own observation. In a county where there was a general failure of orchard crops, one orchard only bore as abundantly as usual, and that orchard enjoyed no advantage that we could discover, except that it stood near a river some 50 or 60 feet higher than the neighbouring country. In this case was the air really warmer in the orchard than at a lower level, or was the crop secured in consequence of the air of the orchard, after having been cooled down by radiation, rolling down to the river as its temperature decreased?

VEGETABLE PATHOLOGY.—No. CLXIII.

308*. Chlorosis (*Chlorosis of Clover*).—The disease to which the attention of the cultivator is called in this article, if it exists to any great extent, is extremely formidable, and well worth especial notice. A large and apparently very healthy crop of White Clover, mixed more or less with a variety of Red Clover,* at the beginning of April exhibited no particular appearance but gave promise of a very good produce. Parts of the field, however, failed, and were ploughed up as useless in order to secure a late crop of Tares. My attention was then called to its condition. Part of it was already stocked, and part, as being more healthy, fenced off to prevent any hindrance to its growth. In the former large patches were completely bare, without a trace of anything in the shape of Clover except a few decayed stumps. In some cases the vacant patches were circular, in others the circular development of the disease had ceased, while it took its course in a straight line up and down the slope on which the crop was seated. In the unstocked part it was easy to observe the progress of the disease, originating in two or three contiguous roots. The first symptom was a chlorosis occupying the base of the three leaflets of which the leaves are composed. The substance at these points had not only lost its vivid green tint and had become pale, but was far more thickened and succulent than elsewhere. A few of the lower leaves only were affected, while the terminal ones were quite sound. In a short time the chlorotised portion became spotted with brown, and the green part of the leaflets flaccid. The brown tint was evidently due to a disorganisation of the cell walls and their contents, and the taint spread rapidly down the leaf-stalk affecting at length the stem itself, and extending to the crown of the root from which the stems ultimately rotted off, the green tips of the shoots withering in consequence of their supply of nutriment being effectually interrupted. There was not a trace of fungi on the chlorotised leaves, nor was there anything peculiar about the diseased cells. The roots when dug up were perfectly healthy, and free from the *Rhizoctonium*, which is often so destructive to plants of various orders, as Lucerne, Asparagus, Saffron, Carrots, Potatoes, &c., and which I at first rather expected to find from the circular development of the patches. It is this latter circumstance which makes the matter so difficult to understand. Bad draining, cold, or other causes may induce Chlorosis, but in such cases the disease will be confined to the especial spots affected by external causes, or to particular plants of a weak constitution; but here was something like infection, the disease without any apparent cause being propagated to neighbouring plants. Should it unfortunately prove common, the best method will certainly be to dig out the infected patches as soon as it makes its appearance, exactly as it is needful to do when crops are infected with Rhizoctonium. The subject, however, requires further observation, my experience at present being confined to a single field. The thickening of the base of the leaflets at first reminded me of the blister in Peaches and Apricots, which is supposed to arise from cold, but which in many cases at least is due to a very minute fungus of the genus *Ascomyces*, which forms a delicate white bloom on the thickened surface. I was especially careful to look out for this, which might have accounted for the spreading of the disease from a common centre, but I could find nothing of the kind. For the present, then, the cause must rest in uncertainty, but as the disease affects so very important a crop, it is highly desirable that it should not be left without notice. *M. J. B.*

ON RINGING THE VINE.

M. Bourgeois presented to the Imperial and Central Society of Agriculture some shoots of a Vine as the result of numerous experiments which he had made with respect to ringing, and which he stated had been completely successful as regards the improvement of the Grapes, the berries of which became larger, and ripened earlier in consequence of the operation. According to him, this experiment is of great importance, especially in cold, moist, and late situations in the neighbourhood of Paris, where last year the Grapes did not ripen well. He also states that it prevents the berries from dropping off.

The experiments were made with a view to determine—1. At what period the ringing should be performed? 2. What should be the breadth of the ring of bark taken off? 3. The depth of the incision—that

* The Red Clover was affected equally with the White. The disease is still progressing, and plants are now attacked which are just coming into flower, the disease still as before originating in the lower leaves. The dry weather has had little or no influence in checking it.

is to say, must it only go as deep as the epidermis, or must it go to the alburnum? 4. Should ringing always be performed on the young branches? 5. What would be the effect of practising it upon old wood? 6. Should it be made as near as possible to the base of the shoot, leaving however an eye to which the shoot may be trained back? 7. What would be the effect of ringing between two bunches, and of ringing both above and below a bunch? 8. Should the shoot be allowed to grow at full length after ringing, or should it be stopped above the bunches?

Although ringing the Vine has been long known and practised, M. Pepin thinks it advisable to call the attention of Vine growers to this very useful proceeding, in the case of Vines placed in very unfavourable conditions for ripening.

M. Hardy, who has practised the operation for 8 or 10 years, stated that it had the effect of hastening the period of ripening from 4 to 17 days; but he remarked, at the same time, that the practice deteriorated the quality of the fruit. He had also operated upon Cherries and Plums; the period of ripening was earlier, it is true, but this precocity was always at the expense of the quality of the fruit. He cited an instance of a proprietor of Vines in the neighbourhood of Soissons who performed the operation on a large scale, and was obliged to give it up because his wines became deteriorated, and sold for less than those of his neighbours. M. Chevreux, who had tasted the Grapes deposited by M. Bourgeois, declared that he found an appreciable difference between the Grapes produced beneath the ring and those above it, not only in the size, but also in the firmness and solidity of the berries.

As far back as 1776, M. Bourgeois states the ringing the Vine was practised by Lancry; nevertheless, it does not appear that this mode of obtaining table Grapes of larger size and better quality was otherwise employed than as a matter of curiosity by some amateurs who from time to time have made the experiment—not even at Thomery, where the cultivation of the Vine is carried to such a degree of perfection, and where the most minute care is taken to produce the remarkable Grapes which are sent to the Parisian market under the name of Chasselas de Fontainebleau.

M. Brongniart inquired if the Grapes situated beneath the ring exhibited any difference from those situated above it. M. Bourgeois replied that there was none. M. Brongniart was of opinion that the operation would have no effect upon the Grapes situated below the incision. According to M. Pepin, ringing weakens the plant upon which it is practised. M. Hardy confirmed this statement. Every time that he had operated upon fruit trees, he observed that it weakened the individual. *Moniteur des Comices.*

Home Correspondence.

Mowing Machines.—From the tone of Mr. Ferrabee's remarks in your Paper of Saturday last, the public might be led to suppose that something unfair had taken place at the trial of these at Chiswick Gardens. Allow me to say that none of the competitors were previously aware of a trial being about to take place, and that all the machines were worked by labourers indiscriminately from the grounds, the parties competing were not allowed to work their own machines. I shall be most happy to meet Mr. Ferrabee along with others at any place in or near London for an immediate trial, and I have no doubt that under competent judges my machines will be found, as in the trial at Chiswick, to do their work the best, and with the least labour of any contrivance of the kind now in use. *Thos. Green, Leeds, Yorkshire.*

Apricots in Orchard Houses.—A visit the other day to Sawbridgeworth taught me one thing, viz., that we amateurs must not believe all that is said in Mr. Rivers' book; and I cannot help thinking that it is not right in Mr. Rivers to go on printing editions of that work without pointing out where orchard houses fail. I would myself advise persons to be very careful about introducing Apricots, for I do not believe they will fruit, and on all Mr. Rivers' trees I scarcely saw a single one. Again, I think those who buy 5*s.* trees expecting a crop the first season will most commonly be grievously disappointed, as I myself have been; for although from the whole stock Mr. Rivers himself may be able to select a few that will bear, still I do not think that many trees of that kind will give a crop the first year. *X. Y. Z.* [The Horticultural Society's orchard house told a very different story last year and the year before.]

Sweet-scented Crab, Grafting Hawthorns, &c.—In passing some years ago under a small clump of trees from Turnham Green to town in spring my attention was suddenly attracted by a new and most delicious scent; the Hawthorns were in blossom, but it was not their aroma—less heavy and headachy, more brisk and penetrating—so looking sharply up to the tops of the trees which had been much drawn up by close planting, I espied Cherry coloured blossoms in pretty good abundance, and being just from school, and passionately fond of flowers, it was not long before some of the said blossoms visited the ground, although it cost me a good scramble to get them. The flowers were entirely new to me, the scent most delicious, and I thought at the time it was a species of Cherry; but having repeatedly since inquired if there was such a thing as a sweet-scented Cherry, the reply has always been in the negative; but after much inquiry it appears there is a remarkably sweet-scented Crab. If it is so, no shrubbery or perhaps lawn should be without several of these, for to this day (and it is some years ago now), the extremely delicious scent has often recurred to me, although I have never met with the tree but that once. It is a sad pity it is not more widely known and more extensively planted, and should it prove to be this said Crab (of which I intend to order a couple in autumn), those who take the hint will be thankful for the prize so secured. Having incidentally mentioned the Hawthorn, it is a curious fact that although the crimson Hawthorn will readily graft or bud on the white one, they are scarcely ever united (although they may be planted side by side). It has often struck me that the effect would be very good if the crest or crown of the Whitethorn could be grafted with the crimson, the force of contrast would be preferable to the other way, or the white on the crimson would be equally beautiful. This may be readily carried into effect on the lawns or pleasure-grounds, where the trees would be safe, which they would scarcely be in more exposed situations. In Oakley Park this season there was one Hawthorn so splendidly in blossom, wave above wave, one mass of rich white, that it might have well served as a throne for the Fairy Queen herself. There is another plan which I have observed the young ladies adopt in the ball room, to have a dress of one colour, and ribbon of quite a different shade, starting from the waist and flowing halfway down the dress, the effect of which was extremely good, and, why may not the same experiment be tried on the Hawthorn as regards introducing branches of the white or crimson, as the case may be, at regular intervals round the stems?—it would have the appearance of singularity and beauty both, as something out of the common way; and there can be no doubt of the richness of effect, crimson resting on white or the reverse. *F. N., Ludlow.*

Pegs for Verbenas, Petunias, &c.—I have this season used the stems of the Wild Carrot for pegging down Verbenas, Petunias, &c. I find that they answer the purpose as well as anything I have before tried, and where they grow plentifully a large quantity can be cut in a very short time. *Wm. F., Scriven Park.*

Double Silene maritima.—I observed the inclosed very beautiful little plant in a window in passing through Burton. It is evidently a variety of Silene maritima, perfectly double, beautifully round, pure white, and one of the most desirable rock plants I ever saw. Is it known among gardeners? *F.* [Yes.]

Variegated Brugmansia.—One of my plants of B. sanguinea has thrown out a variegated branch; is it common for this plant to sport thus, or is this a novelty and worth propagating? The variegation is an irregular broad light green stripe round the leaves, which are also slightly blotched inside; it seems likely to be perpetual, as every leaf on the branch, which is 8 or 9 inches long, has the same markings. As B. sanguinea is evergreen in a warm conservatory, I am thinking this would make a desirable addition to our rather limited number of variegated foliaged greenhouse plants. *James Moly, Hawkchurch, near Axminster, Devon.*

Blue Hydrangeas.—Few things out of the conservatory and tents struck me more at the Chiswick Fête than the Blue Hydrangeas in the Duke of Devonshire's private garden. The secret of the tint, its manufacture, I in vain attempted to elicit from a gardener, so am compelled to apply to you for help. Alum I have tried, and other recipes as recommended by the "faculty," but my plants still retain the old pink and white complexion. *Cyanophilus.* [We learn that in the cultivation of the Blue Hydrangeas, above alluded to, nothing is used but Peat and a little silver sand mixed with it. The Peat is procured from Wimbledon Common, and the sand from a person named Clark, who resides at Pinner, near Harrow. In this mixture the cuttings are struck, and grown till they flower; the water used is supplied by the West Middlesex Water Company.]

Sutton's Champion Cucumber.—From one plant of this variety I have this day, June 17th, cut two fruit measuring together 6 feet 1 inch in length. The same plant has supplied me with no small quantity of Cucumbers since the 28th of April this year, averaging 1 foot 6 inch in length each. I am also growing many other varieties supplied to me by different firms and I am sorry to say that the majority of them are not worth growing, either for culinary purposes or for exhibition; the above Cucumber I would recommend to all who desire to cultivate a first-rate variety.—*Joseph Nielner, Gardener to G. W. Tireman, Esq., Loftus Hall, Redcar, Yorkshire.*

Foreign Correspondence.

Elms in the Champs Elysées.—Owing to an absence from home I did not see your Number for May 16. In it you ask for more information about the barked Elms in the Champs Elysées, and, as I have not noticed any communication on the subject since that date, a few words even now may be not unacceptable. I have just seen these Elms. Most of them look rather unhappy, but whether this is owing to the disease or its cure, I am unable to say. They were very late in coming into leaf, and I thought that the barking must have been carried too far. Now however, though, as I have said, they are anything but flourishing, an improvement is visible, and I dare say they will recover. Of course your correspondent does not mean that both the layers of bark were removed. It was only the outer bark, the liber being carefully preserved, and very odd the trees look with their trunks of a bright brown. This brown inner bark seems to be changing pretty quickly into rough bark, for it is full of cracks like those of the latter. The manner of stripping the trees was curious. The workman was furnished (like the Australian savages when climbing) with a girdle passing round his own body and that of the tree. Each of his feet was armed with two spikes pointing obliquely downwards and fixed to a sort of iron frame strapped firmly to the leg. By sticking the spikes into the tree and bearing on the girdle he was able to go up or down or to remain stationary at any height with perfect ease and safety. At the same time he was in a convenient posture for plying the little adze, which was the tool used for barking the trees. It is by the help of this apparatus that all the Poplars in France, and indeed most scattered trees of other kinds, are reduced to bare poles every few years. I should have mentioned that many of the Elms in the Champs Elysées have their trunks *entirely* barked. They have the bare and varnished stripes spoken of by your correspondent, and which seem to have been made last year, and this year all the rest of the trunk has been stripped.

In the Champs Elysées there are some other trees which present an odd appearance. They are good sized young Horse Chesnuts which were planted this spring when in leaf. They are alive, but seem not yet to have a hold on the soil enough to supply the exhaustion of evaporation. Accordingly the trunks are bound round with canvas enclosing a quantity of Moss. At the top of this the stem is surrounded by a funnel-shaped piece of zinc, doubtless to facilitate the moistening of the Moss. *H. J. Moule,* 11, *Rue Henri IV., St. Germaine en Laye, June* 16.

Societies.

Royal Botanic: *Regent's Park, June* 18.—The second exhibition of the season held under the auspices of this Society took place on Thursday last. The day was all that could possibly have been desired, the show a good one, and the attendance large. Stove and Greenhouse plants were numerous, and in excellent condition. Of groups of 16 plants, the best came from Mr. Whitbread, gr. to J. H. Colyer, of Dartford. It contained Azalea Iveryana, still in good condition; an immense bush of the Cavendish Heath, scarcely less sized Epacrises and Polygalas, some magnificent Everlastings (Aphelexis); one of the best specimens in the country of the Willow-leaved Ixora covered with bloom; the white flowered Ixora nearly equally fine, though scarcely so large a plant; the charming rosy pink blossomed Dipladenia crassinoda; a large red Azalea, and a huge Pimelea decussata. Mr. Green, gr. to Sir E. Antrobus, Bart, showed 16 well cultivated and finely flowered plants. Among them were three splendid specimens of Allamanda, Azalea variegata, still full of flower; Azalea Symmetry, one mass of blossoms; a lovely Stephanotis, and a glorious example of Erica depressa. Mr. Taylor, gr. to J. Coster, Esq., of Streatham, who was placed next in point of merit, sent some charmingly flowered Aphelexis, Dipladenia crassinoda, Rondeletia speciosa, the white and red Ixoras, both beautifully in flower; Azalea variegata, a well-grown Erica obbata, and the pale yellow Allamanda grandiflora.

Groups of 12 Stove and Greenhouse plants were contributed by Messrs. Cutbush, Fraser, and Epps. The first sent the Cavendish Heath, a beautiful Erica Bergiana loaded with small round purple blossoms; Rhynchospermum jasminoides, and the very fine Statice Holfordi, alluded to in our report of the Chiswick exhibition on the 3d inst., still in admirable condition. Messrs. Fraser had two finely flowered Allamandas, various Cape Heaths, Vincas, Azaleas, the sweet smelling Rhynchospermum jasminoides, and a handsome Kalosanthes. Mr. Epps showed among other things good plants of Stephanotis floribunda, Aphelexis rupestris, small but beautifully flowered, an Allamanda, and Rhynchospermum jasminoides.

Among collections of 10 Stove and Greenhouse plants the best came from Mr. Dods, gr. to Sir J. Cathcart, Bt. It consisted of a charming blue Leschenaultia, some admirably managed Everlastings, a yellow Heath, Allamandas, well flowered; Vincas, and Leschenaultia formosa. Mr. Barter, who was placed second in this class, sent a large and fine Ixora javanica, scarcely however sufficiently in flower; a red Azalea equally large, a vigorous Erica Cavendishi, one of the varieties of E. tricolor, Allamanda grandiflora, and Azalea Gledstanesi. Mr. Peed of Norwood contributed among other things a handsome Dipladenia crassinoda, the Hoya-like Cyrtoceras reflexum, two large Cape Heaths, especially one of E. tricolor, which was excellent; and an Everlasting (Aphelexis). Mr. Morris, gr. to Coles Child, Esq., contributed some Everlastings, the White Vinca, Azaleas, and Cape Heaths. Among Mr. Hamp's plants was the yellow Relhania squarrosa, a plant seldom seen, but which when well grown and flowered as this was has a really good appearance.

In collections of 6 Stove and Greenhouse plants Mr. Carson, gr. to W. F. G. Farmer, Esq., furnished Rhynchospermum jasminoides, Ixora javanica not quite fully in flower, various Aphelexis and Polygalas. In this group the most remarkable plant however was Mussænda frondosa, which measured more than 2 feet in diameter, and being covered with large white bracts or floral leaves, it had a most conspicuous appearance. Mr. Rhodes sent a large Erica tricolor Wilsoni, one of the very best Heaths of the

class to which it belongs; the Box-leaved Eriostemon, Ixora coccinea, and the useful white-flowered Dracophyllum gracile. Mr. Williams, gr. to Miss Traill, sent the well known Pimelea decussata, magnificently grown and bloomed; its head was a regular half ball, quite 6 feet in diameter, forming one of the finest specimens of the kind perhaps ever exhibited.

Orchids were produced in about their usual quantities and condition. Collections of 20 came from Mr. Gedney, gr. to Mrs. Ellis; Mr. Keele, gr. to J. Butler, Esq.; and Mr. Woolley, gr. to H. B. Ker, Esq. Mr. Gedney furnished Aerides odoratum, affine, and Feildingi, Odontoglossum citrosmum, Phalænopsis grandiflora, beautifully flowered; the white Calanthe veratrifolia, very fine examples of Cattleya Mossiæ and C. superba, the last with handsome purple flowers with deep crimson tipped lips. In Mr. Keele's group were Anguloa Clowesi, with four large yellow blossoms; Dendrobium tortile, with sulphur coloured trumpet-shaped lip and pink sepals and petals; Cattleya Mossiæ with 10 flowers each measuring half a foot across; a small plant of the orange Epidendrum vitellinum, E. verrucosum, and the red Trichopil (T. coccinea). From Mr. Woolley came, among others, examples of the sweet Vanda (V. suavis), Sobralia macrantha, Saccolabium præmorsum and guttatum, each with flower spikes large enough to form wreaths for the head; Barkeria spectabilis, well bloomed; Cattleya intermedia, and Lycaste Deppei.

Collections of 16 Orchids came from Messrs. Veitch, Jackson, and Parker. From the first came the rare Cattleya Acklandiæ, the White Butterfly plant (Phalænopsis amabilis), two of the best varieties of Cypripedium barbatum, or Bearded Lady's Slipper; Aerides Feildingi, and other species; Vanda tricolor and suavis, the Yellow Cattleya citrina, and Brassia caudata. Messrs. Jackson furnished the Bearded Lady's Slipper, a handsome Phaius Wallichi, Calanthe Masuca, and some well flowered Cattleyas, among which was C. Wageneri, a species with pure white blossoms stained in the throat with yellow, and certainly a real acquisition to this class of plants. Mr. Parker sent, among others, showy examples of Cattleya Mossiæ, the yellow Dendrobium densiflorum, and Aerides virens, and odoratum.

Groups of 12 Orchids came from Messrs. Clarke, Carson, and Morris. The first had Phalænopsis in fine condition, Dendrobium tortile, the Moss Cattleya, and various Aerides. Mr. Carson sent Dendrobium Farmeri and moschatum, Saccolabium Blumei, the pale straw-coloured Miltonia stellata, Lady's Slippers, and Odontoglossum hastilabium. From Mr. Morris came Acineta Humboldti with three spikes covered with brown spotted flowers, and finely bloomed specimens of Stanhopea tigrina.

Collections of 6 Orchids were contributed by Messrs. Bunney, Ivison, Green, Barter, and Dedman. In these groups we noticed good plants of Saccolabium guttatum, Cattleya Mossiæ, Stanhopea tigrina, Dendrobium chrysanthum, Aerides odoratum, and Acineta Humboldti.

Roses in pots were good for June. They were contributed by Messrs. Lane, Paul, and Francis; Mr. Terry, gr. to Lady Puller; Mr. Mortimer, gr. to J. R. Scott, Esq., and A. Rowland, Esq., of Lewisham. Among Mr. Lane's plants were Miss Glegg, Baronne Prevost, Chénédolé, Paul Ricaut, Madame Plantier, Queen, and Coupe d'Hébé. Messrs. Paul also had Coupe d'Hébé, Velours Episcopal, a handsome Rose; Madame Masson, Blairi No. 2, Duke of Cambridge, and Jules Margottin. Among Mr. Francis's plants were Paul Perras, Charles Duval, Auguste Mie, Amandine, and Devoniensis. In other groups we noticed Paul Ricaut, and Paul's Victoria finely flowered. Mr. Francis showed a collection of small Roses on Manetti stocks. Among them were Jules Margottin and General Jacqueminot, the latter more double than ever we remember it.

Of cut Roses fine boxes came from Messrs. Paul, Mitchell of Piltdown, Francis, Epps, Wilkinson, Palmer, Terry, Frost, Rowland, and others. Among these were charming blooms of Gloire de Dijon, Paul Ricaut, Chas. Lawson, a large bold Rose; Caroline de Sansalles, Duchess of Norfolk, the new scarlet Rose Lord Raglan, a large, full, fine flower, which attracted, and deservedly, much attention; Gen. Castellane, Prince Leon, Madame Vidot, William Griffiths, Pauline Lansezeur, Emperor Napoleon, a very dark velvety flower; Souvenir de Malmaison, Madame Place, Souvenir d'un Ami, and Narcisse de Salvandy, a small crimson mottled with white. These, it may be added, are all first class flowers.

Cape Heaths were contributed in good condition by Messrs. Epps, Glendinning, Cutbush, Whitbread, Williams, Peed, Taylor, Harlock, and Rhodes. Among the different varieties were tricolor Wilsoni, and other sorts belonging to that class; metulæflora, denticulata moschata, depressa, ventricosa grandiflora, Cavendishi, Bergiana, ampullacea, mutabilis, Massoni, perspicua nana, gemmifera, and tortiflora.

Azaleas and Tall Cacti were shown by Messrs. Green, Peed, and others; the varieties, however, which were considerably past their best, differed but little from those produced by the same growers at Chiswick on the 3d and 4th inst.

Of novelty there was little. Mr. Linden had some remarkably fine foliaged plants:—among them Cyanophyllum magnificum, with leaves more than 1 foot long and nearly half as much wide; and Bahmeria argentea attracted considerable attention, more especially the first, which was truly beautiful. Some Marantas and variegated plants also came from Mr. Parker. Mr. Glendinning again sent Farfugium grande, and the new Chinese Larch (Abies Kæmpferi). Messrs. Veitch had Grevillea Drummondi in flower, and Theophrasta latifolia, the latter with a compact head of greenish yellow blossoms as large as that of a Cauliflower. Mr. Cutbush had Rhododendron Jenkinsi, a Bhotan kind, with white flowers tinged with pink, measuring some 2 inches across the mouth. The same nurseryman also showed the Daisy-leaved Stylidium, a pretty pink-flowered kind. Mr. Harlock had a scarlet Heath called grandis, which promises to be a good addition to that tribe of plants; there were likewise a Dendrobium in the way of tortile, a Cattleya belonging to the Mossiæ class, and an Aerides.

Ferns were produced in excellent condition and in great variety, nine collections of Exotics being staged. The first prize was won by Mr. Parker, nurseryman, Holloway, whose fine mass of Gleichenia *alias* Mertensia flabellata was unsurpassed. In the same collection was a remarkably fine plant of Hymenodium *alias* Acrostichum crinitum; also Cheilanthes elegans, C. hirta var. Ellisiana, Davallia tenuifolia, Pteris scaberula, all finely grown and extremely elegant species, backed up by some large Cyatheas, Dicksonias, Cibotium Schiedei, &c. The second prize was awarded to Mr. Baillie, gr. to W. C. Carbonell, Esq., who showed a fine plant of the rare Microlepia platyphylla *alias* Davallia lonchitidea; other fine specimens in this collection were Cheilanthes frigida, Pteris scaberula, Lomaria nuda, together with larger plants of Lastrea invisa, Cibotium Schiedei, &c. The third collection was that shown by Mr. Fletcher, gr. to Dr. Young, the best of whose plants were two handsomely grown Gleichenias, dicarpa and Speluncæ; and a very handsome Todea pellucida. Among the other collections Mr. Gedney had a fine specimen of the true Gymnogramma chrysophylla; Messrs. Jackson & Son had Adiantum caudatum, Platycerium stemmaria, and Gymnogramma pulchella, var. sulphurea; in a collection of some small but very nicely grown plants, Mr. Hally had the two species of Hemionitis, cordata and palmata, remarkable for their dissimilarity to Ferns in general. Several plants of the Silver-frosted Gymnogramma, called peruviana var. argyrophylla, were exhibited in the different groups. The first prize, the only one awarded for British Ferns, was given to Mr. Baillie, gr. to W. C. Carbonell, Esq., whose collection, consisting of twelve interesting species and varieties, contained Polypodium alpestre and its var. flexile, a very nicely managed Asplenium Trichomanes incisum, and the rare Polystichum angulare var. imbricatum. The other collections exhibited were disqualified from their containing an exotic species, not British.

Of Gloxinias, upright kinds, some handsome varieties were shown by Messrs. E. G. Henderson and Lane; among them the most striking were Boothiana, M. Picouline, Princess of Prussia, Carthusiana, alba auriculata, and rosa ignea.

Miscellaneous subjects consisted of a collection of variegated plants from Messrs. Henderson, Pine-apple Place, two dozen very pretty Amaryllids from Mr. Hamp, blooms of Pæonies from Mr. Salter, and Pinks and Pansies from Mr. Turner, Messrs. Downie & Laird, and others. We also remarked some Cockscombs and Balsams.

Pelargoniums were shown in excellent condition by the usual exhibitors of them. The names of the sorts did not differ greatly from those recorded at p. 403.

There was a large bank of Seedling Pelargoniums, several of which possessed considerable merit; nearly all of them were sent by Mr. Turner. Etna (Turner) is a rich crimson scarlet, with dark top petals, very free and fine; several plants were exhibited: Mazeppa (Turner) appeared to be by far the best of the dark spotted varieties; Richard Benyon, rich crimson; and Empress Eugénie (Story), a pure white, of fine form and substance; Rose Celestial and Rosy Gem were good, and new in character; also a pretty new spotted variety, named Queen of Beauties. Seedling Fancies were numerous, Mrs. Turner, Acme, Queen of Lilacs, Alice, Clara Novello, Princess Royal, Indispensable, and Rosabella are all new and fine. These were raised and exhibited by Mr. Turner, of Slough.

New Bedding Geraniums, with variegated foliage, were shown in considerable numbers. Perfection is, however, by far the best, having pure white variegation with rich scarlet flowers.

In named Pelargoniums the most interesting were the new class varieties sent out in 1855-6. The first prize was awarded to Mr. C. Turner for Spotted Gem, King of Scarlets, Agnes, Pallas, Matilda, and Hermione, all well contrasted flowers, the plants being clothed with fine large blooms. Mr. Nye, gr. to E. Foster, Esq., Clewer Manor, had the next best collection.

Calceolarias were contributed both in the shape of herbaceous and shrubby kinds. The last however seemed to excite most attention. Mr. Turner's group consisted of beautiful sorts extremely well flowered. Their names were Orange Perfection, Clown, King of Sardinia, Yellow Dwarf, Golden Nugget, and Lady Middleton.

Fruit was plentiful and good. It was shown under a new tent, which was placed so as to form a kind of connecting link between the exhibition we have just been reporting and that of American plants from Messrs. John Waterer, of Bagshot. It was also broken up into sections by here and there introducing boxes of cut Roses; behind it was backed up with plants in pots.

Pine Apples, of which there were in all about 47, were large and well ripened. A Providence weighing 12 lbs., girthing round the middle 23¼ inches, and measuring 13 inches in length, was shown by Mr. Barnes of Bicton. Another fruit nearly equally large came from the same grower. Mr. Oats, gr. to Lord Leigh, had a Providence weighing 8 lbs.; Mr. Bailey, Shardiloes, also had a good fruit of this variety, as was likewise Mr. Young, gr. to C. Bailey, Esq. Of Queen Pines Mr. Barnes had one which weighed 5¼ lbs., and another 5 lbs. From Mr. Rattray, gr. to J. Back, Esq., came a fine fruit weighing 4½ lbs.; beautiful specimens of this kind of Pine also came from Messrs. Dattens, Maher, Davies, Nicholl, Smith, Dibbins, Young, Bray, and Constantine.

Of Grapes there were some 38 dishes of black, and 26 dishes of white sorts. Black Hamburghs were shown in capital condition by Messrs. Henderson, Frost, Hall, Hume, Hill, Allport, Turnbull, Tegg, Harrison, Tillyard, and Watson. Mr. Sparrow, gr. to Lord Grosvenor, also sent good Black Hamburghs, as did likewise Mr. Dodd, Mr. Phipps, Mr. Dawson, and Mr. Taylor. Muscats, though better than at the Crystal Palace or Chiswick, were not by any means all quite ripe. The best came from Mr. Turnbull, gr. to the Duke of Marlborough, and Mr. Gooday, of Witham. The last had a peculiar red tinge about the base of the berries, which in some cases extended half way up them, giving the bunches an unusual appearance. Tolerably well ripened Muscats also came from Messrs. Frost, Allport, and Tillyard. Sweetwater was furnished by Messrs. Wood, Bailey, Tillyard, and Munro. Very good Grizzly Frontignans came from Mr. Montgomery Henderson. Messrs. Drewitt, Tillyard, & Fleming also showed good fruit of this variety. Mr. Wells, gr. to Viscount Dillon, had fair specimens of Black Prince. Mr. Hill's bunches of this, though well coloured, were on this occasion small in the berry. Mr. Turnbull sent good West's St. Peters.

The best Peaches Noblesse came from Mr. Snow, gr. to Earl de Grey. Mr. Ivison, gr. to the Duke of Northumberland, also sent very good Royal George; beautiful French Mignonne Peaches came from Mr. Ruffett, gr. to Lord Palmerston; and Mr. Dawson, gr. to Lady Cooper, also sent fine specimens of that variety. From Mr. Miller, gr. to Sir W. Smith, Bart., came Royal George and Noblesse Peaches and Elruge Nectarines. Good Peaches were likewise shown by Mr. Ewing, of Bodorgan, and Royal George came from Mr. Hill, Mr. Constantine, and Mr. Watson. Fair Peaches, though a little bruised from travelling, came from Mr. Oats. Well grown fruit of this class was also contributed by Mr. Fleming, and Mr. Taylor, gr. to C. A. Hanbury, Esq.; Mr. Fleming sent some first class Violet Hâtive Nectarines, and very good fruit of Hunt's Tawney came from Mr. Tegg; Elruge was shown by Mr. Nicholls, gr. to General Studd; Newington by Mr. Vare, Spring Grove; and Red Roman by Mr. Wells.

A few Figs were shown by Mr. Ivison and others; but the sorts were not named. Of Cherries only 6 dishes were exhibited.

Strawberries, large well-ripened fruit, were furnished by Mr. Smith, of Twickenham, The sorts were Sir Charles Napier, Comte de Paris, Victoria, and British Queen. Mr. Taylor sent British Queen, Mr. Dawson that variety and Keens' Seedling. Mr. Underhill sent large and well coloured examples of Sir Harry gathered from the open ground. Black Prince from the open ground was also shown by Mr. Cuthill, and Mr. Lloyd, gr. to J. Scorer, Esq.; the latter had also Cuthill's Prince of Wales. Mr. Weddowson sent Myatt's Surprise, very large, and Sir Harry; Mr. Turnbull, Nimrod and British Queen; Mr. Bailey, Admiral Dundas; Mr. Bates, Keens' Seedling and Alice Maude. Messrs. Lane exhibited specimens of different varieties of Strawberries in pots; also Red and White Currants, Gooseberries, Cherries, Peaches, and Nectarines, all in pots from their orchard-house.

Horticultural: Since our report on the implements exhibited at Chiswick on the 3d and 4th inst. appeared at p. 422, we have received the following additional information from Mr. Hutchison, gr. at Castle Malgwyn, and Mr. Messenger, of Loughborough, respecting the boilers they showed on that occasion:—

Mr. Hutchison states that his is a combination of Thomson's retort and the saddle boiler; it was not however shown to the best advantage; through delay of the person who made it, he was prevented from having it fitted in wood, which would at once have shown how the same should be done with bricks and mortar; its great power of heating would also have been better exhibited. It is however, perhaps, sufficient to say that the mode of setting up is the same as that practised in setting up Mr. Thomson's retort boiler, which is now known to most gardeners. Mr. Hutchison adds, likewise, that the boiler can be made any size, either to heat one house or many; it has also this advantage, that any kind of fuel will do, and it is particularly suitable for culm.

Of his triangular tubular boiler Mr. Messenger says—"The only objection I heard at Chiswick to the arrangement was the small space allowed for the fire. Since I was there I have altered that part of the boiler, whereby I can allow any amount of space that may be required. I also make them now, that if an additional house be erected I can add to the boiler first fixed, to make it adequate to the extra heating that would be wanted. Further, it may not be generally known that I make a provision for cleaning the whole of the space from soot."

We may add, that a very good woodcut representation of this boiler will be found at p. 10 of the Horticultural Society's Catalogue of Implements.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The fourteenth anniversary dinner of this charity was held at the London Tavern on Monday last, the 15th inst., Mr. Sheriff Mechi in the chair, supported by W. Roupell, Esq., M.P., H. G. Bohn, Esq., Robert Wrench, Esq., Dr. Wight, F.H.S., Samuel Brookes, Esq., Mr. Under-Sheriff Crossley, and about 150 gentlemen, nurserymen, and gardeners.

The usual toasts were proposed and responded to. The Chairman made a warm appeal to the company on behalf of the charity, the success attending which will perhaps be best seen from the following list of subscriptions which were handed over on the occasion:—

Mr. Sheriff Mechi, 15*l.* 15*s.*; Wm. Roupell, Esq., M.P., 15*l.* 15*s.*; J. Bailey Denton, Esq., 10*l.* 10*s.*; Edmund Johnston, Esq., 10*l.* 10*s.*; John Edwards, Esq., 10*l.* 10*s.*; Wm. Hurst, Esq., jun., 10*l.* 10*s.*; Hurst and M'Mullen, 10*l.* 10*s.*; Charles Woodroffe, Esq., 10*l.* 10*s.*; J. Baxendale, Esq., 10*l.*; Mr. Under-Sheriff Crossley, 7*l.* 7*s.*; Mr. Sheriff Keates, 5*l.* 5*s.*; Charles Tanqueray, Esq., 5*l.* 5*s.*; Conrad Loddiges, Esq., 5*l.* 5*s.*; Henry G. Bohn, Esq., 5*l.* 5*s.*; John and Charles Lee, 5*l.* 5*s.*; James Veitch, Esq., jun., 5*l.* 5*s.*; Felix Moxon, Esq., 5*l.* 5*s.*; The Cottage Gardener, 5*l.* 5*s.*; Thomas Rivers, Esq., 5*l.* 5*s.*; J. J. Blandy, Esq., 5*l.*; James Gray, Esq., 3*l.* 3*s.*; Henry Ormson, Esq., 3*l.* 3*s.*; Messrs. Wrench & Sons, 3*l.* 3*s.*; J. Thomson, Esq., 3*l.* 3*s.*; Dr. Wight, 3*l.* 3*s.*

Behind the chairman was a noble bank of Pelargoniums, liberally contributed by Mr. Turner, of Slough, for the decoration of the room. Other flowers of great rarity were also furnished by other nurserymen, and there was a capital dessert of excellent fruit.

One fact gleaned from the proceedings may be worth recording; it is that Mr. Mechi lately saw near Peterborough 12 stacks of Couch Grass, which had been collected for the purpose of being converted into paper. This is surely, as was justly remarked, turning a plague into a profit.

Notices of Books.

A second edition of Mr. Baker's *Rifle and Hound in Ceylon* (with woodcuts, 4*s.* 6*d.*, Longmans) has just appeared. Those who have read the author's very interesting *Eight Years' Wanderings in Ceylon*, formerly noticed by us, will gladly make acquaintance with the little volume just out; those who now read the latter will be anxious to see the former. The *Rifle and Hound* is a sportsman's book, full of hunting adventures, advice about guns, and stalking, and camping out; and of the way to make hunter's war upon Elephants, Deer, Bulls, Boars and Bears, the chief objects of attention in the wild sports of Ceylon—sports wild enough and dangerous enough to satisfy the most eager of our British Nimrods, who stand alone in their fondness for the excitement of hourly and imminent peril. Upon one point only do we presume to express some doubt. The first edition of the work having appeared some years since, it was at that time natural for the author to despise smooth bore guns, and to prefer grooved rifles; if however he will provide himself with one of Lancaster's rifles, or even Sappers' muskets, we venture to predict he will find reason entirely to change his opinion, as regards the value of smooth bores for accuracy, power of penetration, low trajectory, and facility of loading. That good arms are wanted when men engage in adventures like those of Mr. Baker will be seen from the following anecdote. Only imagine a man in such a condition with nothing but a rascally unloadable polygroove shooting iron to depend upon. The chase was a Buffalo.

"Running round the borders of the creek as fast as I could, I arrived at the opposite side on his intended landing place just as his black form reared from the deep water and gained the shallows, into which I had waded knee deep to meet him. I now experienced that pleasure as he stood sullenly eyeing me within 15 paces. Poor stupid fellow! I would willingly, in my ignorance, have betted ten to one upon the shot, so certain was I of his death in another instant.

"I took a quick but steady aim at his chest, at the point of connection with the throat. The smoke of the barrel passed to one side;—there he stood,—he had not flinched, he literally had not moved a muscle. The only change that had taken place was in his eye; this, which had hitherto been merely sullen, was now beaming with fury; but his form was as motionless as a statue. A stream of blood poured from a wound within an inch of the spot at which I had aimed; had it not been for this fact, I should not have believed him struck.

"Annoyed at the failure of the shot, I tried him with the left-hand barrel at the same hole. The report of the gun echoed over the lake, but there he stood as though he bore a charmed life;—an increased flow of blood from the wound and additional lustre in his eye were the only signs of his being struck.

"I was now unloaded, and had not a single ball remaining. It was now his turn. I dared not turn to retreat, as I knew he would immediately charge, and we stared each other out of countenance.

"With a short grunt he suddenly sprung forward, but fortunately, as I did not move, he halted: he had, however, decreased his distance, and we now gazed at each other within ten paces. I began to think buffalo shooting somewhat dangerous, and I would have given something to have been a mile away, but ten times as much to have had my four-ounce rifle in my hand. Oh, how I longed for that rifle in this moment of suspense! Unloaded, without the power of defence, with the absolute certainty of a charge from an overpowering brute, my hand instinctively found the handle of my hunting knife, a useless weapon against such a foe.

"Knowing that B. was not aware of my situation at the distance which separated us (about a mile), without taking my eyes from the figure before me, I raised my hand to my mouth and gave a long and loud whistle; this was a signal that I knew would be soon answered if heard.

"With a stealthy step, and another short grunt, the bull again advanced a couple of paces towards me. He seemed aware of my helplessness, and he was the picture of rage and fury, pawing the water, and stamping violently with his fore feet.

"This was very pleasant! I gave myself up for lost, but putting as fierce an expression into my features as I could possibly assume, I stared hopelessly at my maddened antagonist.

"Suddenly a bright thought flashed through my mind. Without taking my eyes off the animal before me, I put a double charge of powder down the right-hand barrel, and tearing off a piece of my shirt, I took all the money from my pouch, three shillings in sixpenny pieces, and two anna pieces, which I luckily had with me in this small coin for paying coolies. Quickly making them into a rouleau with the piece of rag, I rammed them down the barrel, and they were hardly well home before the bull again sprang forward. So quick was it that I had no time to replace the ramrod, and I threw it in the water, bringing my gun on the full cock in the same instant. However, he again halted, being now within about seven paces from me, and we again gazed fixedly at each other, but with altered feelings on my part. I had faced him hopelessly with an empty gun for more than a quarter of an hour, which seemed a century. I now had a charge in my gun, which I knew if reserved till he was within a foot of the muzzle would certainly floor him, and I waited his onset with comparative carelessness, still keeping my eyes opposed to his gaze.

"At this moment I heard a splashing in the water behind me, accompanied by the hard breathing of something evidently distressed. The next moment I heard B.'s voice. He could hardly speak for want of breath, having run the whole way to my rescue, but I could understand that he had only one barrel loaded and no bullets left. I dared not turn my face from the buffalo, but I cautioned B. to reserve his fire till the bull should be close into me, and then to aim at the head.

"The words were hardly uttered when, with the concentrated rage of the last twenty minutes, he rushed straight at me. It was the work of an instant. B. fired without effect. The horns were lowered, their points were on either side of me, and the muzzle of the gun barely touched his forehead when I pulled the trigger, and three shillings' worth of small change rattled into his hard head. Down he went, and rolled over with the suddenly checked momentum of his charge. Away went B. and I as fast as our heels would carry us, through the water and over the plain, knowing that he was not dead but only stunned."

The volume is full of tales like this, which however is by no means one of the most exciting.

Backhouse's Catalogue of Ferns and Orchids for 1857 is a carefully prepared price-list of a considerable number of the best varieties of these plants on sale in the Nursery at York.

E. G. Henderson & Son, of the Wellington Road, have also issued a price-list for the spring of 1857. Their collection appears to be very rich in Stove and Greenhouse plants, Ferns and all sorts of Florists' Flowers, which with other matters fill 96 pages of closely printed matter.

The *Reason Why* (Houlston & Co.) is a collection of questions and answers upon natural History and general Physics. Along with a good deal of sound and therefore useful information for young people, there is no small admixture of error, as is so frequently the case in "popular" books. As one example let us take the following:—

"1151. Of what do vegetable structures consist?

"Of *membranes*, or thin tissues, which, being variously arranged, form cells, tubes, air passages, &c. Of *fibres*, which form a stronger kind of membrane, and which is variously applied to the production of the organs of the plants. And of *organs*, formed by those elementary substances, and by which the plants absorb, secrete, and grow, and fulfil the conditions of their existence."

This is either incorrect or so awkwardly worded as to be unintelligible. Fibres are merely thin tubular tissues hardened, and not a second kind of internal structure as the author seems to imply, nor do they form a membrane.

So again:—

"1159. Why, if we cut across the stem of a plant do we see numerous tubes arranged in parallel lines?

"Because we thereby bring to view *the vessels formed by the membranes and fibres* of the vegetable body, for the transmission of the fluids by which the structure is sustained."

It is not correct to say that when we cut across the stem of a plant we see tubes arranged in parallel lines. We see nothing of the sort; we only *see* the ends of tubes and we *infer* that the tubes are parallel, which is not exactly the case. Nor do we perceive the connection between the veins of leaves and what is seen upon a cross section of a stem.

The following note added by the author to the answer we have last quoted is therefore, although useful, wholly out of place:—

"* Skeleton leaves and seed vessels of plants form exceedingly interesting objects, and serve to illustrate the wonderful structure of plants. With patience and care they may be produced by any person, and will supply an interesting occupation. The leaves should be gathered when they are in perfection—that is, when some of the earliest leaves begin to fall from the trees. Select perfect leaves, taking care that they are not broken or injured by insects. Lay them in pans of *rain water*, and expose them to the air to undergo decomposition. Renew the water from time to time, taking care not to damage the leaves. They need not be examined more than once a week, and then only to see that the water is sufficient to cover them. Give them sufficient time for their soft parts to become decomposed, then take them out, and laying them on a white plate with a little water, wash away carefully with a camel-hair pencil the green matter that clings to the fibres. The chief requirement is *patience* on the part of the operator, to allow the leaves and seed vessels sufficient time to decompose. Some leaves will take a few weeks and others a few months, but a large painful may be put to decompose at the same time, and there will always be some ready for the process of cleansing. When they are thoroughly cleaned they should be bleached, by steeping for a short time in a weak solution of chloride of lime. They should then be dried, and either pressed flat or arranged in bouquets for preservation under glass shades. The result will amply reward the perseverance of the operator."

Martin Doyle's *Common Things* (Routledge) is a shilling volume of 182 pages in which the common reader will find much useful information. It might be introduced advantageously into Gardeners' Libraries.

Brannon's Guide to Poole and Isle of Brauksea (Longmans) will be found a useful companion by visitors to that town. Much of it is historical and gives interest to places and things that would be otherwise passed by without notice. It is illustrated by maps and views of scenery.

Miscellaneous.

New Zealand Flax. — 4000*l.* reward.—Colonial Secretary's Office, Auckland, December 20th, 1856.—The Government of New Zealand is prepared, subject to the under-mentioned conditions, to give rewards to the amount of 4000*l.*, for the discovery of efficient means for rendering the Flax, and other fibrous plants of New Zealand, available as articles of export, viz.:—Two thousand pounds to the person who shall, by some process of his own invention, first produce from the Phormium tenax, or other fibrous plant indigenous to New Zealand, 100 tons of merchandise. One thousand pounds to any person, other than the person entitled to the first reward, who shall, by some process of his own invention, next produce from the Phormium tenax, or other fibrous plant indigenous to New Zealand, 100 tons of merchandise. One thousand pounds, viz.: 200*l.* to each of the first five persons, other than those entitled to the first and second rewards, who shall by any process, whether of his own invention or not, produce from the Phormium tenax, or other fibrous plant indigenous to New Zealand, 25 tons of merchandise. The merchandise must be saleable as an article of export from the colony of New Zealand, and have been produced at a cost not exceeding 75 per cent. of its value at the port of entry from which it is exported; and the process used must be fully made known, with a view to the discovery being at once made available to the public. His Excellency the Governor of New Zealand will from time to time appoint Commissions, to consist of not less than three persons, to act at such places as circumstances may require, and each claim for reward will be referred to such Commission as may be considered the most convenient for its proper investigation. The acts of the majority will be deemed the acts of the Commission. Each Commission shall be at liberty to adopt such means as it may deem most fit for determining the value and cost of production of the merchandise, for ascertaining the process employed, and for fully investigating in all respects and reporting upon the validity of any claim. Every claim for reward must be preferred in writing before the 1st January, 1859, to the principal officer of Customs at the port of entry nearest to the place where it is desired that the examination of the merchandise shall take place, who will at once proceed to ascertain whether the full quantity in respect of which the reward is claimed is ready or examination; and if such quantity be ready, he will give a certificate to that effect, dated on the day on which he shall have ascertained the fact, and such day shall be deemed to be the day on which the merchandise was produced. Whenever any officer of Customs is required to go more than three miles from his residence, his travelling expenses must be paid beforehand by the person requiring his attendance, and he cannot be required to attend a second time if the quantity was found deficient on the first occasion. One-half of any reward will be paid at once to any person whom a Commission shall report, and the governor shall have determined to be entitled to the same,—after which no other claim to the same reward will be entertained,—and the other half upon satisfactory proof being given to the governor of the *bonâ fide* sale of the merchandise in Europe, at an advance of not less than 20 per cent. upon the *bonâ fide* actual cost of the article landed in Europe.—By his Excellency's command, *E. W. Stafford.*

On Papyrus, Bonapartea, and other Plants which can furnish Fibre for Paper-pulp.—[The Chevalier Claussen has published the following interesting notices relating to these plants.] The paper makers are in want of a material to replace rags in the manufacture of paper; and as I have paid attention to the subject, I proceed

to communicate the result. First, however, I will explain what is required: viz., a cheap material, with a strong fibre, easily bleached, and procurable in an unlimited quantity. I shall now enumerate a few of the substances which I have examined in my researches for a proper substitute for rags. Rags, containing about 50 per cent. of vegetable fibre, mixed with wool or silk, are considered useless by the paper makers, and are yearly burnt, to the amount of several thousand tons, in manufacturing prussiate of potash. By the simple process of boiling these rags in caustic alkali, animal fibre is dissolved, and the vegetable fibre becomes available for making white paper pulp. Surat, or Jute, the inner bark of Corchorus indicus (?), affords a paper pulp of inferior quality, and with difficulty bleached. Agave, Phormium tenax, and Banana, or Plaintain fibre (Manilla Hemp), are not only costly, but it is almost impossible to bleach them. The Banana leaves contain 40 per cent. of fibre. Flax would replace rags in the manufacture of paper, were it not for its high price and scarcity, due partly to the war, and partly to the injudicious way in which it is cultivated. Six tons of Flax straw are required to give 1 ton of Flax fibre; and by the present mode of treatment all the woody part is lost. By my process the bulk of Flax straw is lessened by partial clearing before retting, whereby 50 to 60 per cent. of shoves (a most valuable cattle food) are saved, and the cost of the fibre reduced. By the foregoing statement it will be seen that the Flax plant yields only 12 to 15 per cent. of paper pulp. All that I have said of Flax is applicable to Hemp, which produces 25 per cent. of paper pulp. Nettles afford 25 per cent. of a very beautiful and easily bleached fibre, Palm leaves 30 to 40 per cent., but not easily bleached, and the Bromeliaceæ 25 to 40 per cent. Bonapartea juncoidea (an Agave geminiflora ?) contains 35 per cent. of the most beautiful vegetable fibre known, which is not only available for paper pulp, but for all manufactures in which Flax, Cotton, silk, or wool are used. It appears that this plant exists in great quantities in Australia (?); and it were highly desirable that our manufacturers should import a large quantity of it. The only preparation it requires is to be cut, dried, and compressed, like hay; the bleaching and finishing may be done here. Ferns give 15 to 20 per cent. of fibre, hard to bleach, and Equisetum the same quantity, easily bleached, but of inferior quality. The inner bark of the Lime tree affords an easily bleached, but not very strong fibre. Altheaæ and many Malvaceæ yield 15 to 20 per cent. of paper pulp. Stalks of Beans, Peas, Hops, Buckwheat, Potatoes, Heather, Broom, and many other plants, contain 10 to 20 per cent. of fibre; but the extraction and bleaching present difficulties which will probably forbid their use. The straws of the Cereals cannot be converted into white paper pulp after they have ripened their seeds, the joints or knots of the stalks having then become so hard as to resist all bleaching agents. To produce paper from them it would be needful to cut them green, before the grain appears—a probably disadvantageous plan. Many Grasses contain 30 to 50 per cent. of fibre, not very strong, but readily bleached. Of our indigenous Grasses, Rye-grass gives 35 per cent. of paper pulp, Phalaris 30, Arrhenatherum 30, Dactylis and Carex the same. Several Reeds and canes contain 30 to 50 per cent. of fibre, easily bleached. The stalk of the Sugar Cane gives 40 per cent. of white paper pulp. The wood of the Coniferæ affords a fibre adapted for making paper pulp—an accidental discovery of mine when manufacturing Flax cotton in my model establishment at Stepney in 1851. I remarked that the Pine wood vats, in which I bleached, were rapidly decomposed on the surface into a kind of paper pulp. I collected some and sent it to the Great Exhibition; but it failed to excite attention, because the want of paper stuff was not then felt. The leaves and top branches of the Scotch Fir give 25 per cent. of paper pulp, and the shavings and saw-dust of its wood 40 per cent. The expense of reducing to pulp and bleaching the Pine wood will be about thrice as much as that of bleaching rags. As none of the above substances or plants would fully satisfy, in all points, the wants of the paper makers, I pursued my researches, and at last remembered the Papyrus (the paper plant of the ancients), which I examined, and ascertained it to contain about 40 per cent. of strong fibre, excellent for paper, and easily bleached. The sole point which was not quite satisfactory is the question of abundant supply, the plant being confined to Egypt (?). I therefore turned my attention to the plants of this country, and had the satisfaction to find that the common Rushes (Juncus effusus, and others) contain 40 per cent. of fibre, quite equal, if not superior, to the Papyrus fibre, and a perfect substitute for rags in the manufacture of paper, and that 1 ton of Rushes contains more fibre than 2 tons of Flax Straw. *Hooker's Journal of Botany.*

Names of Dogs.—We should give them short names, that it may be easy to call them. They ought to be such as these:—Psyche, spirit; Thymus, courage; Porpax, shield-hasp; Styrax, spike (at the lower end of a spear-handle); Lonche, lance; Lochos, ambush; Phrura, guard; Phylax, keeper; Taxis, order; Xiphon, darter; Phonax, barker; Phlegon, fiery; Alce, strength; Teuchon, active; Hyleus, search-wood; Medas, plotter; Porthon, ravager; Sperchon, speed; Orge, passion; Bremon, roarer; Hybris, audacious; Thalion, cheerful; Rhome, might; Antheus, flowery; Hebe, youth; Getheus, joyous; Chara, gladness; Leusson, looker; Augo, bright eyes; Polys, stout; Bia, force; Stichon, goer; Speude, swift; Bryas, lively; Œnas, reveller; Sterrhos, stubborn; Crauge, yelper; Cænon, killer; Tyrbas, bustler; Sthenon, vigorous; Æther, sky; Actis, ray; Æchme, spear; Noes, marker; Gnome, prudence; Stibon, tracker; Horme, eager. *Xenophon's Minor Works, Bohn's Edition.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The conservatory should now be thoroughly relieved of all superfluous stock; nothing therefore will be needed here but to carry out a cleanly system of cultivation, and to introduce fine specimens from other houses or pits. All available surfaces should be moistened with water morning and evening, thorough ventilation obtained, and a thin canvas screen kept on during bright sunshine. Give every possible attention to plants for autumn and early winter flowering, such as Japan Lilies, Chrysanthemums, Salvia splendens, Globe Amaranths, Tree Carnations, Scarlet Geraniums, Cinerarias, Gesneras, Begonias, Euphorbias, &c. Let these have plenty of pot room, good rich compost, a moist atmosphere, and plenty of space for the perfect development of their foliage, regulating the temperature according to the nature of the plant, and they will make very rapid progress. Selago distans is an exceedingly useful winter flowering plant, requiring merely a cold pit to grow it in. We have however nothing that surpasses the Epacris, winter blooming Heaths, and Cytisus for decoration during the dull months, and these should not be overlooked. The atmosphere of plant houses can hardly be kept too moist at this season, but it is very easy to err in the opposite direction; as has been already stated, therefore, sprinkle every available surface frequently, and syringe growing stock lightly twice a day during bright weather.

FORCING DEPARTMENT.

PINERIES.—Where the bottom heat is obtained from tan or other fermenting matter it will be necessary to add a little fresh material at intervals, in order to recruit the heat, but at this season it will be safer to surface with a few inches of fresh tan in a rather dry state than to turn the bed, mixing the fresh materials, which often cause too strong a heat; and at this season there is much more danger of erring on the side of too much than too little bottom heat. Give every attention to keeping up a succession of fruit. Perhaps the most certain method of doing this is by securing and potting a number of suckers proportionate to the demand, at short intervals during the growing season, therefore attend to keeping up a regular supply of young plants, if doing this should necessitate throwing away a few overgrown plants which have failed to fruit at the desired time. We have frequently seen gardeners allow the number of large plants to increase, so that there was little room left for the young stock, which suffered accordingly, and disappointment came in due course. Do not let the growing stock suffer for want of pot room, or through dryness at the root, and afford them a moist atmosphere, syringing and shutting up early in the afternoon, so as to give the house a good steaming. Recently potted plants, especially if they were much pot bound before being repotted, should be kept rather close and shady, with a thoroughly moist atmosphere, and very carefully attended to with water until they appear to have taken to the fresh soil. VINERIES.—In the case of fruit intended to be kept as long as possible, the berries should be thinned, so that they will hardly touch when fully swelled, for it is scarcely possible to keep Grapes through the winter except they are severely thinned. Be particularly careful of the foliage of the Vines intended to furnish a late supply of Grapes, and if plants must be grown in the house, see that they are not infested with black thrips or red spider, for if either of these pests is allowed to gain a footing on the Vines, the foliage will probably be greatly injured, and then there will be no chance of keeping the Grapes in good condition for any time after they are ripe. Muscats must be encouraged with a brisk temperature while setting.

FLOWER GARDEN AND SHRUBBERIES.

All newly bedded out things will during hot weather require daily waterings. The benefits of little basins round each plant will now be readily seen. Let the young shoots on all old Fuchsia stools be thinned out to five or six. Attend diligently to standard Roses, constant disbudding is necessary at this period; also keep down suckers. Let every attention be paid to propagating a reserve stock to fill gaps, and let those already rooted, or the remains of store pots, have kindly cultivation forthwith, in order to be ready to fill blanks. They should be kept in a shady border entirely by themselves, and should receive free waterings.

HARDY FRUIT AND KITCHEN GARDEN.

Those who desire a good and constant supply of autumn and winter Endive must make a full sowing forthwith. Endive is generally sown too thickly. Another good sowing should be made in the first week of July, and a second towards the middle, after which the plant will not attain full size. As soon as the plants are a few inches high mow the tops of the leaves off with a scythe, cutting about one-third of the leaves away. This will stiffen the plants and cause much heart to develope itself; it will also enable them to bear transplanting better. A good breadth of dwarf and compact Cabbages may be sown for early Coleworts; also a bed of Horn Carrots. This is a good time for a liberal sowing of autumn Turnips; the Dutch or Stone are useful sorts for the kitchen garden. Prepare for Leeks by heavy dressings of manure, also for Celery. Water late Cauliflowers abundantly, also Lettuces for salad. Mushroom spawn should be made without delay. See that fresh planted trees have thorough mulchings and waterings.

COTTAGER'S GARDEN.

As soon as early Potatoes are fit for use and up let the ground be immediately cropped with winter greens. The Early Ulm Savoy, Brussels Sprouts, and above all Green Kale should be amongst the foremost to claim the cottager's attention. If a cow is kept the Thousand-headed Cabbage will be found to furnish a large amount of good food for her. A bit of the early Potato ground should be sown with Turnips forthwith. Celery and Leek ground should be got ready. Leeks well grown and large are most useful in a cottager's family; they form a good substitute for Onions when the latter are "grubbed" and fail. Blanks among late Potatoes should be filled up when rain comes by transplanting Swedes.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending June 18, 1857, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 12	20	30.278	30.155	66	31	48.5	60	57	N.E.	.00
Satur. 13	21	30.297	30.206	69	31	50.0	60	57	E.	.00
Sunday 14	22	30.135	29.977	70	43	56.5	59½	56½	E.	.00
Mon. 15	23	29.929	29.904	74	42	58.0	62	57	E.	.00
Tues. 16	24	30.073	29.907	74	50	62.0	62½	57	E.	.00
Wed. 17	25	30.130	30.021	79	44	61.5	63	57½	E.	.00
Thurs. 18	26	30.159	30.122	75	48	61.5	61	57½	E.	.00
Average..		30.143	30.041	72.4	41.2	56.8	61.1	57.1		.00

June 12—Fine; hazy clouds; dry haze; slight frost.
— 13—Fine; dry slight haze; cold at night.
— 14—Fine; very dry air; fine at night.
— 15—Fine throughout.
— 16—Clear and dry; slight showers; fine.
— 17—Cloudy; hot and dry; fine throughout.
— 18—Fine; cloudless; dry cold air and hot sun.
Mean temperature of the week 4 deg. below the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending June 27, 1857.

June.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 21	73.5	50.7	62.1	14	0.68 in.	2	4	3	2	1	15	4	—
Mon. 22	72.8	49.6	61.2	12	0.59	2	1	1	1	2	11	8	5
Tues. 23	73.4	48.9	61.1	12	0.44	1	2	3	10	3	3	5	4
Wed. 24	73.5	47.0	60.3	11	0.49	—	2	4	1	2	12	8	2
Thurs. 25	72.2	50.8	61.5	16	0.72	1	1	5	2	6	9	5	2
Friday 26	73.0	51.0	62.0	14	1.00	1	2	4	1	2	10	8	3
Satur. 27	73.6	51.4	62.5	17	0.80	2	2	2	2	3	13	6	—

The highest temperature during the above period occurred on the 22d, 1846, and 27th, 1826—therm. 93 deg.; and the lowest on the 23d, 1851—therm. 35 deg.

Notices to Correspondents.

ARAUCARIA: *Gallaw.* By no means prune your young plants of A. imbricata. If your old plant has lost its leader all you can do is to tie up the next best side shoot to fill its place. The dead shoot stripped of its leaves may perhaps serve as a stake for it.‡

CALCEOLARIAS: *G Tirey.* All handsome, but no improvement on sorts already in cultivation.

COAST TREES: *M.* Evergreen Oaks and Pinasters must be your chief reliance. They are invaluable in such a place. You may add under their lee, common Yews, small Laurels, Privets, and any cheap shrubs. Under drip you will get no trees to thrive except Yews, and some of the Silver Fir race, but the latter will not live long. You had better make a coppice of Hazels, Ash, and Mountain Ashes.

GRAPES: *W M.* We are unacquainted with Muscat St. Laurent. For Black Grapes take Black Hamburgh, West's St. Peter's, and Barbarossa. For white take Sweetwater and Royal Muscadine, or Chasselas Musqué. The Muscat of Alexandria will not succeed without fire heat.‡

INSECTS: *Woodside.* Your insects found on the leaves of Lime trees are the young caterpillars of a small species of moth, belonging to the family Geometridæ which we cannot determine at this early stage, but which we suppose to be those of the winter moth (Cheimatobia brumata). Beating the branches over a large sheet, or catching and destroying the moths when they appear in the winged state, are the best remedies. The eggs were deposited on the young shoots last autumn or in the early winter months.—*H L K.* Your worm-like insects are the thread worm (Gordius sp.) which live in damp earth; they are harmless, but their economy is obscure.—*W G A.* The insects you have sent are the males of the Eucera longicornis, the long-horned bee, flying over the Grass in search of their partners, which alone make the holes in the lawn. A gauze net, like a fisherman's landing-net, swept over the lawn would catch them by hundreds. Beating the ground with a broad mallet at the time when the females first appear, or are engaged in making their nests, would be beneficial.—*J G.* The insects which attack the young shoots of the Ash are the larvæ of the little moth Prays Curtisellus, upon which we are preparing an article for the *Gardeners' Chronicle.*—*K K.* The grubs which are injuring your Oaks are the caterpillars either of Tortrix viridana or T. quercana, pretty little green moths, which will shortly appear in swarms. As the trees are stunted it would not be difficult to dislodge the grubs by beating the branches over sheets laid on the ground. They should then be killed with boiling water.—*F.* No. 1 is the garden beetle, Melolontha horticola, a general feeder on blooms; No. 2, the Rose chaffer, Cetonia aurata; No. 3, Elater murinus, the larvæ of which are one of the kinds of wire worms. *J. O. W.*

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*G P.* Plants out of flower cannot be named.—*H.* Your inquiry shall be answered next week.—*A Beg.* 1, Alopecurus pratensis; 2, Lolium tenue; 3, some Festuca, a miserable morsel; 4, Avena strigosa.—*A B.* Marchantia polymorpha.—*J N.* One seems to be Carduus eriophorus, the other is some wretched Stevia indeterminable from the imperfect specimen sent to us.—*Thos. Blair.* We cannot undertake to answer such inquiries unless we are furnished with good specimens of the plants of which you speak.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto	ditto ditto	2	18	0

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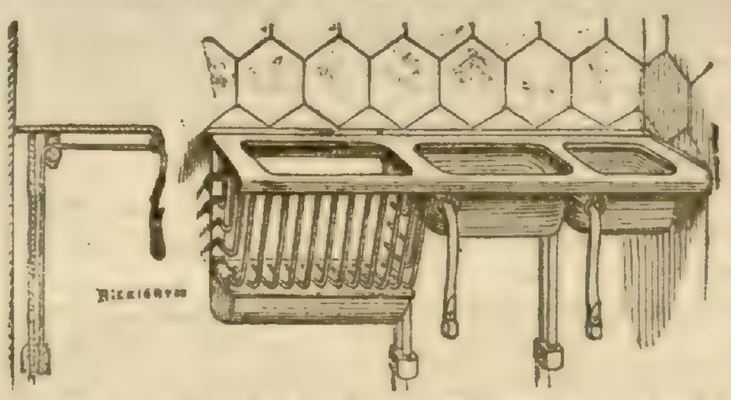

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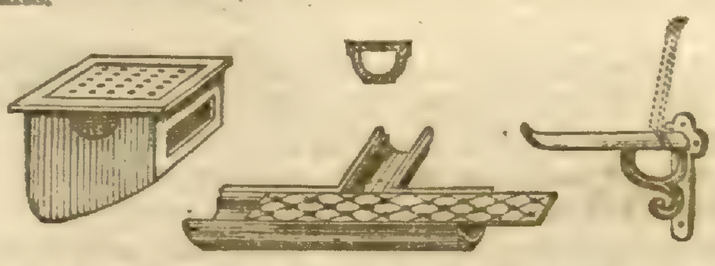

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr. BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., C. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The Annual CATTLE SHOW of this Society will take place at Waterford, on the 19th, 20th, and 21st of August next. The Implement Trials will commence on the 14th of August. The last day for receiving Entries will be the 25th of July.

Full particulars and entry forms can be had on application to
EDWARD CROKER, Secretary.

42, Upper Sackville Street, Dublin.

YORKSHIRE AGRICULTURAL SOCIETY. (OPEN TO THE UNITED KINGDOM.)—The TWENTIETH ANNUAL MEETING will be held at York on AUGUST 5 & 6. The Entry closes on JULY 18. Prize Sheets and forms of Certificates may be had on application to the Secretary.

JOHN HANNAM, Secretary.

Kirk Deighton, Wetherby, June 20.

The Agricultural Gazette.

SATURDAY, JUNE 20, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, June 24—Agricultural Soc. of England .. Noon.

A VERY interesting meeting of the Council of the Agricultural Society took place last Wednesday, when Professor SIMONDS, who had been deputed by the National Agricultural Societies to visit the districts where THE CATTLE MURRAIN was supposed to be raging, gave a report of his tour and of his investigations. His journey led him through Belgium, Holland, Holstein, Mecklenburg, Prussia and Austria, to the borders of Hungary. It was only at the extreme distance which he reached, 1500 miles from England, that he met with the disease, and then in a form, and with results, proving it to be entirely under the control of the means employed to hinder it from spreading. Among the particulars which he gathered by inquiry on his road the most interesting relate to the existing health of the live stock in the countries traversed—the traffic from those countries tending to the spread of any contagious malady—and the measures adopted by the Governments of those countries to check its spread.

Under the first head he learned that there is at present no contagious disease among cattle in Belgium—none in Holland—none known to the veterinary authorities of Utrecht, who being armed with government authority receive complete and constant information on those subjects;—that there has been and is considerable prevalence of pleuro-pneumonia in the neighbourhood of Hamburgh traceable to the purchase and introduction of 150 cattle from Hungary some two years ago—but that there is hardly any pleuro and no Steppe murrain in Mecklenburg which had been declared especially infected; that there is at present no Steppe murrain in Prussia—it had indeed last year occurred near Breslau but that neighbourhood now is free. After a journey of 1500 miles the

infected district was reached at length, and a residence for a considerable period in the midst of the disease, using the facilities provided by the authorities for its examination, gave Professor SIMONDS ample opportunity of becoming acquainted with its nature.

As to our liability to infection through the importation of live stock from the Continent, Professor SIMONDS informs us that the importation from Belgium is almost exclusively of calves, 2010 calves and only 10 oxen having been imported thence last year—that the appointment of veterinary inspectors on our own shores has made the exporters of live stock from Holland exceedingly careful as to the health of the cattle sent to us by them—that Holland sends out so many cattle in all directions, to France and Saxony as well as England, that she is an importer not an exporter of hides—that there is no exportation whatever from Lübeck; indeed, that so far as regards cattle, England never has received and never will receive a single head from any Baltic port—so that in that matter the Order in Council forbidding importation thence was entirely a mistake—that, as to the importation thence of hides, Lübeck receives only 6000 hides annually from Russia, which however are dried, prepared, and harmless—that it receives, indeed, 80,000 hides a year from Mecklenburg, but these are all dried and prepared in Lübeck, and sent not to England but to Switzerland—that, above all, our great safeguard lies in the extraordinarily strict governmental supervision of infected districts, localities, and individual farms. The man who owns a glandered horse cannot sell a horse till after six months from the declared departure of the disease—the farm tainted either with the pleuro-pneumonia or with the Steppe murrain is kept in such entire isolation that one chief difficulty of the mission lay in escaping from the infested district after having once entered it.

The disease itself—the Rinderpest or Steppe murrain—which it was the object of the mission to examine, differs very materially from the descriptions of it which have hitherto appeared. An animal which had been condemned and slaughtered was disinterred after two days, and examined; its flesh, so far from having undergone that rapid decomposition which was declared characteristic of the disease, was still sound and even "healthy!" An animal when first attacked exhibited merely the symptoms of a slight chill—there was hardly an increase in the pulse, no difficulty of breathing—no tenderness of the back to the touch. The main symptom consisted in a slight trembling or spasmodic twitching of the muscles of the neck, shoulders, and hind quarters. Towards night the animal refused all food, but no fever existed, and the breathing continued unaffected. During the next day the extremities were cold, the coat was staring, a thick discharge took place from the eyes and nostrils, diarrhœa became violent, the strength was prostrated, and on the third day the animal died.

The history of the disease in the locality visited proved it to have been imported, and the means employed to confine it, which consisted simply in the enforced isolation of the infected farm, were successful: the only instance of its occurrence anywhere else in this neighbourhood arose out of the cordon confining it having been broken. The whole history, while it certainly proves the extremely fatal character of the disease, is at the same time calculated entirely to remove the extravagant fears which had been entertained of our own liability to it. So far from its being likely to traverse the long interval by which we are happily separated from it, there seems no fear of its reaching even adjoining farms so long as communication of every kind is cut off. Professor SIMONDS was in nothing more emphatic and decided than in declaring his belief that it was always imported from contact, direct or indirect, with infected animals — and nothing struck his audience more forcibly than the wonderfully rigid and vigorous character of the isolation and confinement to which infected districts are subjected by all the continental governments so soon as cattle disease of any contagious kind appears.

THE discussion which followed the very substantial and useful Paper read last week by Mr. BOND, before the Central Farmers' Club, was a very instructive commentary on the difficulties of that autumnal cultivation which had been so strongly recommended, and on the desirableness of some substitute for horse power or auxiliary to it ust at that particular season of the year.

Mr. PILE (of Tufton, Hants) stated that the great difficulty which he experienced in autumnal cultivation was, that he had so many calls for his horses. In that part of Hampshire where he resided there was no down, and last year he was obliged to sow 200 acres of Vetches, Rye, winter Oats and Barley, and Trefolium for sheep keep in the spring, before he could sow any Wheat. It was not at all surprising, therefore, that he could not spare men and horses to prepare the Wheat stubble for the root crop. But he agreed with Mr. BOND that it was desirable that the stubble should be prepared. He believed that all land that was intended for root crops required to be cleaned in the previous year, in order that the moisture might be retained in the soil. The great art in the cultivation of root crops was to retain the moisture after the soil has been well pulverised, and, as Mr. BOND observed, to get the crops in early. He hoped that week to finish drilling Swedes. He had always found that early sowing produced the heaviest crops. He was led to adopt that system by attending a meeting of a club at Northampton, at which he heard some intelligent farmers who were present, and in particular a Scotch farmer, recommend early sowing and the use of the scarifier; and the advantage which he had derived from what he then heard illustrated how much good might be done among agriculturists through their imparting information to each other."

Another speaker, Mr. COUSSMAKER, of Westwood, near Croydon, also bore testimony to the importance of early sowing for the Turnip crop even for the county of Surrey. He alluded to remedies for the Turnip fly and to the use of salt for the Mangel Wurzel crop. He said—

"When he first began farming 16 or 17 years ago, he tried the plan of growing May Swedes, and the result was that he had good crops if the weather were favourable, while if the weather were very dry there was mildew. By commencing in the first or second week in June he avoided mildew. He perfectly agreed with Mr. BOND with regard to the injury done to clay lands by the treading of horses; and in order to avoid that evil he laid out his lands in such a manner that every acre could be cultivated without a horse putting his foot upon it. He had implements to fit the land, and the horses worked in the furrows. Salt was, he had no doubt, a very good manure for Mangel Wurzel on light lands, but he durst not use it for heavy land. It had the effect of running his land together, the soil being very retentive of moisture, and it prevented the action of the frost. In the case of heavy lands, therefore, he thought the use of salt in large quantities was very objectionable. To avoid the fly he had adopted a very simple remedy, and the result of its application was that he had not yet lost half an acre of Swedes; it was the dusting them with about three bushels of lime per acre. The moment the Swede showed itself, in the morning his labourers applied the lime in the proportion per acre which he had mentioned, and so long as the lime adhered to the leaf the fly did not touch it."

Mr. WILLIAMS, of Baydon, Wiltshire, spoke of the applicability of steam power to the cultivation of the land, and of its general value during the autumn:—

"He was glad to hear Mr. BOND's declaration that he had been enabled to carry out autumn cultivation already to the extent of two-thirds of his stubbles. He would appeal to the others present whether they had been enabled to succeed to the extent of one-third, or anything like it. All admitted the practical benefits of autumn cultivation, and for years they had been deploring the want of adequate power to carry it out. The portable steam engine would, he believed, be the means of supplying the deficiency. Autumn cultivâtion ought, in his opinion, to be commenced immediately after harvest, one hour's sun being of more value at that period than a whole day's sun later in the year. The earlier such cultivation was begun the more effectual would it be. The question under discussion resolved itself into this—had they power to carry on autumn cultivation? He believed all present would agree with him that they had not; and the consequence was that it was never done. On Saturday last his steam cultivator was doing at the rate of 10 acres a day, at a cost to himself, who found the implement, of 2s. per acre, cultivating his strong clay land 6 inches deep."

Mr. SMITHIES, of Marlow, followed Mr. WILLIAMS with remarks on the relative value of Swedes and Mangel Wurzel, and, as related to that, on the subject of cattle feeding generally. He said:

"There could be no doubt that Swedes grown in the north or north-west of England were much more nutritious than Swedes grown on the east coast; while, on the other hand, the Mangel Wurzel of the former was inferior to that of the latter. They were quite astonished in the north when they heard of a stone of cake a day being given to cattle. He had never found it possible to get an animal to eat more than 5 lbs., except when he had mixed a little malt with the cake, which induced the stock to eat a greater quantity. Three or four pounds a day was the utmost quantity that his cattle would generally eat. How cattle were got to eat so much on the east coast he could not conceive."

Mr. HAMMOND, of St. Mary Cray, Kent, spoke of the expense of Turnip culture under existing circumstances:—

"He would tell them what it cost him to raise a crop of Turnips in Kent. He ploughed his land immediately after harvest, and ploughed it again as soon as the land was in a fit state. His practice was to plough in all three times, and to give the land such harrowing as it required. Swede Turnips he would not on any account sow before the end of May. He would put 20 yards of farm-yard manure, which he would charge on the land at 3s. per yard; he would put 2 cwt. of guano; he would horse-hoe and other hoe at 1*l.* per acre, and, taking into account rent and taxes, he had no doubt his crop would cost him nearly 10*l.* per acre. Mr. BOND, no doubt, grew superior crops of Turnips to his own, but he would be glad to hear from him what was the expense which he incurred. He believed that last year the cost to himself was not less than 11*l.* per acre, and at that expense he was on the whole rather a loser—growing, as he did, 31 tons of Mangel per acre."

The Chairman of the meeting spoke of the difference in value per ton and per acre between Swedish Turnips and Mangel Wurzel, and on the probability of our soon having the assistance of steam power in the cultivation of our fields:—

"With respect to the autumnal cultivation of stubbles, he would remark that he was quite as sanguine as Mr. WILLIAMS himself in reference to the application of steam-power to field culture. He had no more doubt than that gentleman had, that in a short time—and he did not care in how short a time—they would see the steam engine as busy in the field as it was now in the stack-yard. He was convinced that the greatest benefit that could be conferred on agriculture was the application of steam-power to field cultivation."

Mr. BOND having briefly replied, the following resolution was adopted:—

"That, in the opinion of this Club, the progress of agriculture will be greatly developed by an extension of autumn cultivation—and that the adaptation of steam-power to that object is extremely desirable."

TRIAL WORKS AT PARIS

ON THE APPLICATION OF LIQUIFIED TOWN MANURE TO AGRICULTURAL PRODUCTION.

[We give here that portion of the report of the Council Meeting of the English Agricultural Society which we were unable to publish last week.]

Mr. Chadwick, C.B., brought before the meeting a translation of a report made by commissioners appointed in Paris to conduct some trial works on the application of liquified town manure to agricultural production. Being one of the international jury at the great Exposition, having under charge the class of subjects in relation to hygiene, and being also one of a committee of the Society of Arts appointed to examine the new constructions in Paris, to determine what might be recommended for adoption in London, he had deemed it within his province to look at the new sewerage works intended for the relief of the sanitary condition of the population. In doing so he found the constructions bad, the air fœtid with the evaporations of the richest manure, the population oppressed by the presence of that, the absence of which and its immediate and proper application to the land, would give the land the fertility, and the population the relief of which they stood in need; and the extent of the need of the land in the department of the Seine was indicated by the fact shown in the official agricultural statistics, and attested by competent agriculturists, that the average yield was only 13 bushels per acre, and, according to official returns, it is no more throughout all France. In London there are cesspools in between 60 and 70 per cent of the houses: in Paris cesspool system in houses is universal. In London the average mortality is about 26 in a thousand; in Paris it is between 28 and 30. He attributed a large proportion of the excess of mortality in Paris above London to the greater extent and prolongation of the retention of manure in a state of decomposition and waste beneath the houses. On the occasion of the presentation of an address from the Society of Arts to the Emperor, his Majesty did Mr. Chadwick, who was present as one of the deputation, the honour to ask him his opinion of the new works, when that gentleman frankly but most respectfully declared his view of what he had seen, and that whilst all was fair above, all was foul beneath. He submitted to his Majesty's notice the fact that whilst in Paris and in London the general mortality was stated, in the model dwellings the death rate was reduced to nearly one half, or to 13 in a 1000. He also called attention to the new town drainage works by which the immediate removal of town manure is effected before decomposition can take place, and particularly to the instance of Rugby where it is immediately or within an hour or two of its production applied to the land; and he submitted particular instances of successful small farm culture as peculiarly applicable to France. He did not ask credit to his own representations, but only that the instances referred to should be examined by competent officers. He respectfully represented that whilst it had been said that Augustus found Rome of brick and left it of marble, his Majesty would do far more, if finding Paris stinking he left it sweet. The representations were honoured with marked attention, particularly those in relation to the means of improving the agriculture of France, and Mr. Chadwick assured the meeting that he only expressed the common feeling of those Englishmen who like himself had communicated with the Emperor, that they all felt the highest confidence in whatever was attended to by himself, or designed by himself, or of which the execution could be attended to by himself. It turned out that the works recommended to be examined had been examined and reported upon most favourably by French agriculturists. The next recommendation was that visible experience should be presented to French farmers and others by means of trial works. The subject was referred to the Prefect of the Seine, and the direction of the trial works was confided to Professor Moll, the chief of the Conservatoire des Arts et des Métiers, himself an eminent agriculturist, and the writer of a popular manual current in France and Belgium, and to M. Mille, engineer in chief. The report now read was a translation of the first report.

The following is a statement, with extracts, of the report of the Commissioners:—

The report then read stated, that on the motion of M. Dumas (the celebrated chemist and member of the Institute), a sum of money was voted by the municipality for the execution of trial works for the application of liquified town manure to the cultivation of various species of plants. The manure was taken from the "depotoir," a general receptacle of the contents of cesspools brought by carts, and from that receptacle the greater part is conveyed to an establishment in the Forest of Bondy, where it is chiefly desiccated, and made into "poudrette," for sale in the solid form as manure. One set of the new trial works described in the report consisted in the distribution of liquified manure to 36 of the adjacent farmers, to whom water-carts were lent for its application to their land, or their crops, in the Flemish method. Another portion of the trial works consisted in the distribution of the sewer, or cesspool, manure by means of subterranean pipes and the jet, in the new English method in use for sewerage at Rugby, at Watford, and at Rushholme, near Manchester, and at Mr. Mechi's, and various farms. A third set of trials consisted in a systematic application of the sewer manure to the chief species of commercial plants, in spaces of ground in which one equal portion of each species was irrigated, and one was left, for comparison, undressed.

Experiments on Farms:—

In respect to the trials by the farmers, the reporters state that the quantity distributed was 6,000 cubic metres, equal to 7,848 cubic yards, English. "Manure has been distributed on an average about 25 m the hectare (the hectare 2.47, may be treated as 2½ acres English), or say ten horse loads the acre, upon meadow and Clover lands; on Corn land that had been more or less poor, on land laid out for Barley, Oats, Turnips, Beetroots, and Potatoes. It is to be borne in mind that the application was by an imperfect method. In consequence of the want of labourers knowing the Flemish method, and willing to use it, the casks were merely taken into the fields and the taps opened to water the plants, as they water the streets of Paris: a very simple but imperfect method, as it does not allow an equal distribution of the fertiliser, and makes it impossible to manure the land when the crop has gained a certain growth. Nevertheless, as in Flanders, they have operated not only on the naked soil, but also on the springing crop. They neglected, however, to dig the ground afterwards, in order to mix the manure well with the land, and they did not take the precautions, so general in the north, to hoe and weed and earth up the plants, yet the results are remarkable. According to the declaration of the farmers themselves, who are well accustomed to such calculations, and who were little interested in the exaggeration of the efficiency of a manure, which they were to pay for in the following year, the increase of production has been from 15 to 40 per cent., and may be valued in money at an average of 150fr. per hectare, that is to say, 2*l.* 8*s.* the acre. This result will appear satisfactory if we take into consideration the imperfection of the methods, the inexperience of the farmers, and also that the application of the manure was risked only on poor land." The results on the chief species of culture by the farmers, they report to have been all in various rates of increase over the cultivation, over the culture in the old form by stable manure. Thus Wheat, lowest 25 per cent. of increase, highest 33—average increase 30; Oats, lowest 20, highest 25—average 22; Barley, one farm, 38 per cent. of increase; Turnips, lowest 25 per cent., highest 50, average 44; Potatoes, 16

highest 50—average 24; Beetroot, lowest 16, highest 50—average 26.

Trials on the surface of earthworks of the fortifications:—

Of the trials on the surface of the earthwork of the fortification, the report states that the means of dilution were imperfect, and it adds:—"The land was all made-soil, the earthwork of the fortification partly taken from the fosse, and consequently was very various in quality, and generally poor. The lightness of the soil, however, suited the Clover, which was sowed immediately on the works being completed, and succeeded generally. Ten years, however, had worn out the land, and such was the poverty of the soil that the numerous slopes had not the least vegetation, and not only did the production promise nothing, but it was feared the profile of the fortification would be injured. There was, then, a double reason for making experiments with the sewer manure, which could be used only on the English method on a slope so steep as that of the fortification. The surface of the two hectares was divided into strips, which were manured in different proportions in order to ascertain what proportion of manure acted on the crop. From the month of May, the irrigated proportions presented the aspect of a meadow, the dark and vigorous green of which contrasted with the scanty and yellow vegetation of the unirrigated portions. The Grass was cut for the first time in June, and the crop was abundant; the second crop was affected by the drought of July, and the third was retarded till October. After the cuttings there is still a thick Grass on the irrigated portions, whilst on the unirrigated portions the land is sandy and poorly covered, or positively naked, presenting the appearance on the face of the earthwork of two soils and two climates. The produce on the earthwork of the fortifications was, by the ordinary cultivation, at the rate of 2,800 kilos. of hay per hectare, or little more than one ton; watered with 100 cubic metres or loads of liquified manure, it was 4,950; with 200 (loads) cubic metres, it was 7,100; with 250 cubic metres, 9,000, 8 ton, 15 cwt. 15 lb.; with 350, it was 11,200, 11 ton, 1 cwt.; with 400, it was 12,500, 12 ton, 6 cwt. 68 lb.; with 500, it was 12,800. It was one part of our experiment to carry the application of manure to the point of satiety, as it may be called, that is, till the increase of manure had no effect on production. It will be seen that this limit is attained at 12,500 per hectare, beyond which the production remains the same. The poor soil, the inequality of the surface, the steepness of the slope necessitated the use of a large quantity of manure in order to penetrate to the deep roots of the old plants; and, notwithstanding this high manuring, the Clover showed very moderate effects of this irrigation; it was chiefly the Grasses which came up spontaneously in the numerous spaces left by the old roots which formed the increased production."

Comparative trials on equal spaces of ground:—

In respect to the third set of experiments, those on equal spaces of land, the reporters, in commenting on the tabular results, observe:—"It might seem at first that the cereals were not suited to the manure of towns, as the crops at the depot, with the exception of the Rye, were certainly less in the irrigated than in the unirrigated land, and yet the same manure had most excellent effects on the cereals of the farms at Bondy. A little consideration, however, will make it clear that these two facts are not contradictory. The produce of the undressed plots proves that the soil was already rich enough for grain crops. The manure in increasing this richness excluded the maximum of fertility required by the plants. The proof of this is that they were laid. Perhaps, also, the prolonged rains at the beginning of the summer have contributed to this failure, and that in a drier season the result would have been different. Nothing, therefore, can be concluded from these facts, and the question remains in suspense, except in respect to the Indian corn or Maize, whose rigid stalk is not easily laid, and the produce of which will always be, in all probability, in proportion to the amount of manure. As to the plants known in commerce as Farinaceous, such as Beans, Haricots, Peas, Lentils, Vetches, &c., they all yielded less in the dressed than the undressed soil. It may, therefore, be concluded that they are unfitted, if not for the manure, at least for the application of it during their vegetation. On the other hand, the potherbs, Radishes, Tomatoes, Artichokes, Spinach, have flourished perfectly under the treatment, and the rapid growth has not been accompanied by any taste betraying the nature of the nourishment they may have received. The plants of commerce show considerable difference, whilst the Poppy and Flax have yielded less with the dressing than without; the Piedmontese and Chinese Hemp, Chicory for Coffee, and the spring Colza have yielded more, the last, indeed, in the proportion of 35 to 50. From this we are led to believe, that for the autumn Colza a dressing applied before sowing, and then again in winter, and one in the spring, would produce excellent results. These variations, not to say anomalies, reappear in the group of root and tuberous plants. Thus Potatoes and Jerusalem Artichokes have produced less on the irrigated land than in the unirrigated land, and the difference on the Rutabaga, although in favour of the manure, is so slight that it would not be taken as a proof. We had foreseen this result in regard to Potatoes and Jerusalem Artichokes, which cannot bear a too high degree of fertility in the soil without the stalks increasing at the expense of the tubers. It will be, therefore, only on poor soils that sewer manure dressings can be employed for these two crops. In complete contrast with these results is that given by the Beetroot. This plant, which is the most important of all our crops, and whose cultivation is extending more and more, seems perfectly adapted to the sewer manure, and it is the plants which contain the largest amount of azote that have most profited by the dressings. Thus, in the yellow of "Virtus" the production is increased from 23 to 56, and for the yellow Beetroot of yellow globe Beetroot from 28 to 64, whilst for the Disette the increase has been only from 33 to 54, and from 42 to 52 for the white sugar Beetroot. But the Grass crops show the most beautiful results. Except the Sainfoin, which has failed from some cause which we do not yet know, all the other mowed crops comprising the Trefoil and Lucerne species, have yielded really magnificent crops; thus the white Trefoil, which has generally been merely pastured on the land, has yielded in two cuttings 30,310 kilogrammes of green fodder, or 29 tons 16 cwt. 2 qrs. 19 lb. The Lucerne, which in the year of sowing does not spring up sufficiently to be cut at all, has been mown three times, and has yielded 31,500 kilogrammes, or about 31 tons of green fodder on the dressed land, whilst the undressed produced only 14,650 kilogrammes, about 14½ tons. The Grasses, and especially the Italian Ryegrass, have exceeded even these; the last gave 27,640 kilogrammes, or 27¼ tons of green fodder in three cuttings on the undressed land, and 36,260 kilogrammes, or nearly 85 tons in five cuttings on the dressed land. Reducing this to dry hay, viz., one-third, we have the enormous product of 28,800 kilogrammes, about 27½ tons, as the ordinary produce of from 5 to 7 hectares of good natural Grass land, that is to say, of from 12½ to more than 17 acres. This result alone will suffice to show the advantage that can be derived from the use of sewer manure applied to the production of fodder. France is deficient in fodder, and consequently in cattle, manure, and corn. To procure abundance of fodder would be to procure all the rest."

Influence of the manure on the quality of produce:—

"But the increase of crops would be hardly an advantage, if in the end the quality of the produce were inferior. Strong prejudices exist on this point. The cattle-feeders assert that the Grass will be contaminated with the manure; that the cows will reject it, or, if they eat the Grass, their milk will be affected by it. In order to carry on our experiments without interference, and not to have to contend with the prejudices of these people, we bought at the market of La Chapelle a cow which was not in any respect remarkable. It was a young one, of the Flanders breed, and newly in milk. Put at once to feed on the Grass to which manure had been applied, it did not hesitate an instant to eat it. When, some time afterwards, they gave it for the space of twelve days Grass that had not been irrigated, it did not seem to distinguish any difference. For four months it fed on the Grass from the fortifications and the garden. Its health was perfectly good, and its milk, cream, and butter, which were tasted by more than 100 persons, were declared excellent. The milk at three different times has been sent to the laboratory at the school of the Ponts et Chaussées, and the analysis has proved that its composition was perfectly normal. Moreover, during ten days they made trial of the milk at the hospitals Salpetrière and Riboissière for the invalids, and the physicians found it of a superior quality and richness."

The following are the conclusions to which the Commissioners were led:—

They state as conclusions:—"Our different experiments have had but one and the same object, viz., to introduce in the neighbourhood of Paris amongst the farmers the use of the valuable town manure, which is as rich as farm manure, and yet has been hitherto neglected owing to the prejudices against it. With the view to this, we have engaged a certain number of farmers to try, according to the Flemish method, (that is, of the distribution of sewer manure by the water carts) some experiments, which we made as easy and inexpensive as possible. We have changed the meagre grass of the fortifications into rich herbage. We have applied this manure to almost all the plants of commerce, and to market-culture. We have applied it on the new English method, which is admirably adapted to the distribution of town manure, not only because it is specially for liquid manure, but also, and above all, because it deprives the distribution of all that is repulsive and embarrassing. Moreover, we have demonstrated, even to the most incredulous, that the fodder obtained from this manure did not partake of the flavour or smell of the dressing, and that the milk, &c., was of excellent quality. Has the expenditure so liberally granted by the city given any adequate return? In an economical point of view our experiments have been of little value. It is not in making additions of material to the material culture in trying new methods of application in making such experiments that one can realise the advantages or establish the price of the returns. Moreover, the comparative results at the depôt have been singularly disturbed by two circumstances, viz. the smallness of the squares of ground allotted to the experiment, and the ammoniacal atmosphere in the midst of which the plants lived. A space of four metres square was not sufficiently large to prevent a portion of the dressing from going upon the square that was not intended to be subjected to the manure. At the same time those plants whose aerial respiration is much developed, might derive good from the vapours brought by the wind from the adjacent receptacles which might render the dressing almost useless. A true comparison, however, such as will give exact differential returns, and also the positive price of the returns, the example, in fact, which alone will attract numerous followers, can only be found in the real business-like carrying on of a farm. This opinion is not ours only, it is the opinion of those practical men who have taken a deep interest in our experiments. Nevertheless, essential facts and useful suggestions have been derived from these trial works. We have shown that the manure would be used immediately if it could be conveyed conveniently by conduits, boats, or waggons to where it was required, and the mode of using it were explained. We have resolved also several essential points on the subject as to the time, the amount of manure, and the proportion of water required in the irrigation. We have shown also a not less important question to what crop the sewer manure is most applicable. We have for the first time established in France a specimen of the new method of liquid manuring by subterranean pipes. We have demonstrated, thanks to this method, and to the manure of sewers, that 300 hectares of the meagre Grass of the fortifications can be transformed into a rich herbage, capable of nourishing 1000 milk cows. We have proved that the process of vegetation changes so completely this manure, that no odour or flavour from it is imparted to the plants. If our experiments have yet left it doubtful if this manure is adapted to the cereals, to the farinaceous plants, and to some of the commercial plants, we have put beyond doubt its efficacy when applied to green crops. This has been remarkably the case with the Italian Ryegrass, the crops of which have exceeded any other grown even in the most favourable circumstances, 28,000 kilogrammes of dry hay per hectare. New fodder is what France is most deficient in. Climate, and the system of culture are equally against the extension of its production. To create around each of our large towns, by the well-understood use of the sewer manure, a belt of fodder, supplying the town and the adjoining neighbourhoods, and becoming itself an abundant source of animal produce, is a certain means of quickly increasing the general production of the country, and of placing it on a level with the demands of consumption."

Mr. Chadwick observed, that the trial works had all started from a far lower level of production than in England, and though they were all satisfactory to the reporters, and so far satisfactory to the Government, that extended and practical trials had been determined upon, yet they had scarcely attained more than one-half of the produce, which a more *intensive* culture in England had proved to be attainable. The results in England had proved that the whole sewerage of London might be inoffensively utilised on an area ten miles square; of course, for Paris, on half that area. The sewerage of five houses, or 25 persons, might be utilised on an acre of drained land of an average quality. It was to be observed that the manure applied at Paris was decomposed manure, which had been retained in the cesspools for weeks and months, whereas it was now ascertained that the decomposition of cesspool matter began only in four days, and in the new tubular drainage works it was discharged immediately, and would be applied to the land at once, or within half a day, and before decomposition could commence. Upon the facts, as set forth in the report, Mr. Chadwick said it is naturally asked why is it that these demonstrations are not at once acted upon? These questions I can only proximately answer by other questions, as why, in respect to agriculture, is it that little more than one-twentieth of the land that requires draining is drained, although nearly a quarter of a century ago demonstrations were given of the efficiency of land drainage, and although it was early proved that it repaid its expenses in eight, six, or even four years? Why will most farmers continue to let all their liquid manure run into ditches, and by exposure (as shown by Professor Voelcker), allow two-thirds of the fertilising power of the solid manures to be wasted by exposure to the weather? Why, when land is sought for this public purpose, is it that the owners are not content with an addition of one-half to its value, but require three times its value or more? Why is it that in the interior of towns rough and large and expensive constructions, which accumulate foul matters, are maintained in the face of the working of small and smooth and comparatively cheap constructions which discharge them? I am answered, that in our present state it requires many years to ensure prevalence to very simple principles. For my own part, I am compelled to confine my hopes to seeing eventually the more general practical adoption of two of the simple principles, which I may pretend to have elaborated; one of which is for towns—that all smells of decomposing animal and vegetable matter mean eventually, and, when intense, immediately disease, and denote small administration; the other of which is for rural districts and for agriculture—that all smells of decomposing vegetable and animal matter, means the waste of valuable manure, and bad husbandry; in short, making it practically understood that whether in urban or in rural districts, the unlearned population may test the administration by the ill-used organ which God has given us all for warning—the nose."

The Earl of Essex attended to state that he had only got into operation for one month the works for the application on Mr. Chadwick's principle of the sewerage of between two and three thousand of population, on some land belonging to himself near Watford; but he could fully confirm all that Mr. Chadwick had said as to the sanitary results. There was no smell of decomposition in the manure as it was discharged from the town, and none as it was applied to the land, which would commonly be at a mile distant from the town, within half-an-hour or so; there was no smell of decomposition from the manure which had stood in his tank a day: there was only the smell of common filthy water—nothing to object to. He agreed also with Mr. Chadwick in preferring intensive culture on a small area to the reverse, and would, from finding the great absorptive power of the soil, if he had to do his work over again, restrict his subterranean pipes to a narrower area, although he was satisfied that he should be well paid by what he had done, of which he promised to give the Society an account.

In the course of a discussion which ensued, M. Trehonnais having objected that the plan required too much capital for France, the Earl of Essex replied that he considered that the works paid him even for the power of applying plain water. Suppose they cost six pounds an acre. He found that he could throw on water for about a penny a ton, or put an inch of water on an acre for about 8s. Consider what a power that gave him of advancing or saving a valuable crop. Recently, with his Grass burnt up, he did not know what he could have done without it.

THE KEYTHORPE SYSTEM OF DRAINAGE.

[Mr. Trimmer has published a pamphlet on this subject, rather we presume as an advertisement of his position as unquestionably the first geo-agricultural authority of the day, than for the purpose of discussing or defending the system on which Lord Berners has succeeded in the drainage of the Keythorpe estate. We take the following passage from it as a succinct explanation of a system on which a week or two ago we gave some information to a correspondent:—]

Wherever this method of draining has been tried by those landowners who have seen the Keythorpe estate, and the efficiency of the drainage there, the results of its application to their own property have invariably been satisfactory.

It may be as well to explain at the outset that the economy of the system does not arise from low prices of labour and materials, nor from shallowness of drains, but from the small number of drains with which it lays dry a given area. It accomplishes this by studying the subterranean conditions, and the form of the surface of the retentive bed, which renders draining necessary.

It thus takes advantage of those subterranean furrows or natural water channels between the soil, subsoil, and substrata which exist at different depths, and subserve different purposes in land and spring draining, as well as that kind of draining which is intermediate between the two.

These furrows have no relation whatever to the "geological formation" by which some profess to be guided in their draining operations. A formation shown under one colour on a geological map is merely a conventional representation of a group of strata, consisting of numerous alternating beds of clay, sand, sandstone, and calcareous rocks, permeable by water in different degrees, but united for the purposes of classification by a common and distinctive group of fossils. Moreover, there are not only these variations vertically, but the strata vary in composition horizontally, so that the same bed is frequently limestone in one part of its course and passes, by a number of insensible gradations, into sand, sandstone, or clay in another. There is scarcely a formation in which these changes may not be pointed out within very short distances.

Clay may prevail in one formation, and sand or sandstone in another, but still every formation contains numerous alternating strata, permeable by water in different degrees. These, and not the fossils which they contain, would be the point of importance if we really drained the formations themselves.

The fact however is, that the drains of the deepest drainers only occasionally reach those beds shown on geological maps, which are the real substrata, and it is some member of the superficial deposits with which we have to deal in land draining, as well as in most agricultural operations.

Our present geological maps afford no information respecting these, because, by another necessary convention, soils and subsoils are supposed to be removed in order that the rock nearest to the surface may be represented as the actual surface.

The furrows then of which the Keythorpe system avails itself, and by which it is enabled to reduce the number of drains without impairing the efficiency of the drainage, are common to all geological formations. They were produced by aqueous operations of recent date, into the nature of which it is unnecessary to enter. Those operations took place on a terrestrial surface after the general configuration of hill and valley had been established. They were connected with the draining of large bodies of water off the land. They have relation to the form of the surface and the direction of the valley, varying in different parts of the same valley. They have been old water channels, and they are subterranean water channels still. The whole island has been subject to those operations, as proved by the presence of marine shells of existing species in sand and gravel, and accompanied by erratic blocks, up to nearly 1400 feet, and by erratic blocks alone up to nearly 1800 feet. Those are elevations above which it is to be presumed few would wish to carry draining or other agricultural operations in this climate. There are more than one set of these furrows at different

depths, and produced by aqueous operations of different kinds during the most recent geological epoch.

Principles by which Mr. Trimmer will be guided in applying the Keythorpe system as regards depth, distance, and direction of drains.

Depth of Drains.—A minimum depth of four feet will be adhered to, except in those cases in which such a depth would be impracticable or injurious; those cases will be pointed out to the landowner, and he will be consulted whether he will drain at a less depth or not.

Distance of Drains.—This will be determined by means of trial-holes. The method of trial holes is neither tedious, difficult, nor expensive, while it is a safe and practical method. There are, however, others equally efficacious and more expeditious.

Direction of Drains.—No great deviation from the established practice will be recommended, except on the clearest grounds determined by trial-holes, or the equally safe and practical method indicated above for determining the direction of the subterranean furrows and the distance of drains. The best guarantee which a landowner can have against rash innovation is, that drains at irregular intervals involve more trouble of superintendence, in laying out the drains and in their execution, than the system of parallel drains at regular intervals carried all over the land, whether the whole requires to be drained or not.

Refutation of Objections respecting the Irregularity of the Subterranean Furrows.—The existence of irregularities in the bottom of these furrows has been asserted by some as rendering them unavailable for draining purposes; in reply to this, the reader is requested to observe the following sections of such furrows, extracted from a paper by Mr. Trimmer on the geology of Norfolk, &c., in the Journal of the Royal Agricultural Society.

Attention was first drawn to those furrows, between soil and subsoil, in the following passage in the above paper written in 1847, long before the Keythorpe system had been brought into notice:—

"The phenomena presented by the junction of soil and subsoil are very remarkable. The surface of the subsoil is indented with furrows and pierced with conical and cylindrical cavities, similar to those which are common on the surface of the chalk, whether covered by the tertiary strata of all ages, from the plastic clay to the Norwich crag inclusive, or by the more recent strata of the drift which may be called the erratic tertiaries.

"Almost every section opened throughout the district shows this furrowed surface of the subsoil, the depth of the cavities varying, except in some extreme cases, from 2 to 4 feet. It is most striking where the subsoil consists of chalk or boulder clay, but is not confined to them. The furrows abound in subsoils of sand and gravel as well as of transported chalk and boulder clay. The cylindrical and conical cavities are best developed in the two latter, but I have seen them in sand. Section VIII.* is a sketch of the junction of soil and subsoil over a pit of the more chalky varieties of boulder clay near Langham. In this case the greatest depth of indentation is 3 feet, and the depth of warp, or surface soil, varies in the space of a few yards from less than 6 inches to 3 feet. Section X.* is a sketch of the junction of the soil, with a more clayey variety of boulder clay than the last, near Hardingham. In this the depths of the furrows and pipes varies from 3 to 6 feet, and one of the pipes extends to the depth of 9 feet. If all the projecting points of boulder clay were removed to a level with the dotted line A B, it would give a soil with a regular depth of 3 feet.

"This furrowing of the surface of the subsoil is a fact of considerable importance in pure geology, with reference to the agencies concerned in the formation of the surface soil or warp-drift. It is of no less importance in its bearing on practical questions in agriculture connected with drainage, evaporation, scalds, or patches of burning soil, deep and shallow ploughing, subsoiling, &c."

Economy of the System.—On this point it is only necessary to say that, where applicable, it saves from one-third to one-half of the number of drains required to drain a given area as compared with drains at equidistant intervals of 8 yards, and equidistant intervals of 10 yards.

Home Correspondence.

The Royal Agricultural Society.—When I read the remarks you lately made respecting this association I had hoped that the reports of its proceedings were to be henceforward relieved of the twaddle that forms their staple, and that useful information would take its place. Your last Number teaches me otherwise. There is no room for Mr. Chadwick's remarks upon sewer manure, but there is space enough for a cloud of words signifying nothing. What with "calling attention," "expressing best thanks," "kind trouble," "liquid manure in France," and "sewerage manure in France," the alpha and omega of the same paragraph, a mouthful of long words from a Mr. Rowlandson, the Earl of Clarendon, and "his lordship," an advertisement from Burgess & Key, and more stuff of the same kind, you have printed a report worthy of Dickens's Circumlocution Office itself. And yet it must be owned that this very report is superior to the bulk of what the Royal Agricultural Society forces down the throats of you editors. We don't want paragraphs made of indigestible honey and butter, proper enough no doubt in the right place; but solid information, condensed by the omission of surplusage and fiddle de dee. Unless the old ladies in Hanover Square can supply the former, or will allow you to supply it, the sooner its proceedings are omitted from the columns of newspapers the better for your readers, all of whom among my acquaintances entertain the same opinion as is here expressed by a *Suffolk Farmer.*

Land Drainage.—I hope you will not be offended at my ignorance in asking one or two questions on the subject of land drainage which have sorely puzzled me in the dissertations on the subject with which your friends, the draining engineers, occasionally enlighten us. I would ask what is "bottom water," and where does it come from? Again, I would ask what is the "water of pressure," and where does it come from? Are they different things, or the same thing under different names? I should infer the former as I see them both occasionally used in the drainage writings of the same eminent gentleman. Your Paper lately contained an account of the drainage of the Lyne Hall estate, to which the Liverpool and Manchester Agricultural Society awarded a premium to the proprietor for drainage done for his tenants in the year ending the 12th May, 1856. Can you inform me the name of the draining engineer under whose direction this work appears to have been so ably executed. *A Humble Inquirer.*

* We do not give these cuts, but it may be stated that they perfectly illustrate Mr. Trimmer's assertion as to the very great uniformity of depth which characterises these subterranean furrows.

Societies.

Belfast Flax Society, *May* 27.—Prof. Hodges handed in an analysis made by him, by desire of the committee, of the slob land of Lough Foyle, upon which Flax has been so very successfully grown since the land was reclaimed. It was as follows:—

"Composition of Slob Land from Lough Foyle.

1. By washing:—

Clay and organic matters	10.97	Sandy garden loam.
Sand	89.03	
	100.00	

2. By analysis:—

Potash	0.11	0.94 soluble in water.
Soda	0.03	
Lime	0.09	
Chlorine	0.17	
Sulphuric acid	0.06	
Organic matter	0.48	
Oxide of iron	7.49	12.48 soluble in acid.
Alumina	3.31	
Lime	1.12	
Magnesia	0.09	
Carbonic acid	0.65	
Phosphoric acid	0.02	
Silica	0.28	
Organic matter	7.14	
Insoluble siliceous matter	79.08	
	100.12	

Nitrogen, per cent. .. .. 0.19 equal to 0.23 ammonia.
Water in the sample 11.38

"John F. Hodges, M.D."

A comparison of this analysis with others, formerly made by Sir Robert Kane and Professor Hodges, of celebrated Flax soils, from Russia, Belgium, Holland, and Ireland, gives the following result:—

Per cent. of	Russia. Average of two Samples	Belgium. Average of two Samples.	Holland. One Sample.	Ireland. Average of two Samples, Derry and Armagh.	Ireland. Slob Land of Lough Foyle.
Silica	82.21	83.93	60.94	69.32	79.36
Lime	00.45	00.35	00.36	2.36	1.19
Alumina .	6.93	1.29	5.62	7.81	3.31
Iron .. .	traces	traces	6.04	00.45	7.49

The object of the committee, in entrusting the analysis of the slob land to Professor Hodges, was to direct public attention to the advantage of growing Flax on lands reclaimed from the sea, at the *embouchure* of rivers, or from lakes and rivers themselves. In many parts of Ireland such operations had, of late years, been carried out, and it was an object to call attention to the suitability of soil so reclaimed, for the growth of Flax. The polders of Holland, so celebrated for their Flax produce, consist of detritus from the Rhine deposit, in its delta, and similar soils, in Ireland, might be profitably turned to the culture of Flax, as in the case of Lough Foyle, in the regular rotation.

In confirmation of this, there was shown to the meeting some Flax fibre grown on land recently reclaimed from Lough Neagh, through the operations of the Board of Public Works. It was presented by Captain Dubourdieu, and appeared strong and reedy, and of good spinning quality.

Reviews.

Report on Murrain in Horned Cattle, the Public Sale of Diseased Animals, and the Effects of the Consumption of their Flesh on Human Health. Addressed to the Rt. Hon. the President of the General Board of Health, by E. Headlam Greenhow, M.D. Presented to Parliament by Her Majesty's command.

This report is the result of an inquiry which Dr. Greenhow was commissioned to make into the spread of certain diseases in the cowhouses of London, the means of their prevention and cure, and their relation to certain disorders in the human subject.

The disease which has proved so fatal there is the pulmonary murrain, or pleuro-pneumonia:—

"It is more scientifically called exudative pleuro-pneumonia by Professor Gluge, of Brussels, and is identical with the *Lungenseuche*, or 'pulmonary murrain' of German writers. In this country it is also frequently called 'the new disease,' to distinguish it from an eruptive disease that preceded it, popularly known as the 'foot and tongue disease,' and now commonly spoken of by cattle-keepers as the 'old epidemic.' The latter disease was characterised by apthous ulcerations of the month, lips, and nose, and by swelling of the fauces, causing a constant slavering or dribbling of frothy saliva; by vesicles and ulcerations of the feet; and by pustules and ulcers of the teats, accompanied by inflammation and abscesses of the udders. This epidemic was the forerunner of the more serious and fatal pulmonary affection, much as influenza has occasionally preceded outbreaks of cholera and dysentery in the human subject."

We shall extract from this pamphlet a series of passages illustrative of the points to which Dr. Greenhow's instructions directed his attention:—

"The eruptive disease does not seem to have existed in England until 1839, and only to have become generally diffused in the course of the following year. It would appear to be contagious, but is now much less frequent than formerly. It has often been considered, but as will presently be seen incorrectly, as but a different stage or form of the disease, which, when it attacks the lungs, is called pleuro-pneumonia. Mr. Faussett, who has published a very interesting account of both diseases in the Dublin 'Medical Press,' considers the eruptive disease as only the primary stage of the pulmonary affection, which he calls the secondary distemper, and which he says follows the former at variable intervals. So far as his inquiries extended, he found the eruptive disease had, with a single exception, invariably preceded pleuro-pneumonia. The fact is unquestionable that both diseases have often co-existed in the same herd. It is equally true that the eruptive affection, which is a comparatively mild disease, very often occurs without being followed by pleuro-pneumonia, which, on the other hand, is very common in animals that have not suffered from the so called primary distemper."

"There are good reasons for supposing that a similar disease prevailed among the horned cattle of Britain about a century ago. Its invasion was then also heralded, although with a longer interval, by an eruptive disease similar to that which preceded the appearance of pulmonary murrain in 1841. Prior to its appearance in England, pulmonary murrain had prevailed extensively, and proved most destructive to the cattle on the continent. More than 200,000 cattle are reported to have perished from the murrain in Holland in 1745, and more than 40,000 in Nottinghamshire in 1747, whilst in Cheshire 30,000 died in less than six months. Its importation into this country is attributed either to the introduction of two calves imported from Holland by a farmer at Poplar, or to the introduction of a parcel of distempered hides which had been ordered to be buried in Zealand, but were purchased by an English tanner. The evidence in favour of the importation of the murrain is, however, most inconclusive; although supposing the disease to have been contagious as well as epidemic, it is impossible to deny the possibility of its having been imported. The destructive nature of the disorder attracted the attention of Government, and after a time orders were issued for the destruction of every animal that exhibited the slightest symptom of infection, the owner of course being remunerated for his loss. In the third year of the murrain no less than 80,000 cattle were thus destroyed, in addition to at least double the number that died of the disease. In the fourth year cattle were destroyed at the rate of 7000 per month, until it was found that the farmers frequently concealed the cattle really suffering from murrain, and brought their otherwise diseased and old and worn-out cattle to be slaughtered, in order to obtain the allowance made by Government for the destruction of such as suffered from murrain."

"The causes which produce the spontaneous development of pulmonary murrain are said to be variable and intemperate weather, and hot, crowded, and foul stables. M. Delafond enumerates cold, and especially the respiration of a cold, moist, foggy atmosphere, such as prevails in moist pastures, particularly in spring and autumn, as amongst the causes which generate the complaint independently of contagion. He also attaches much importance to the character of the breed, asserting that a liability to the disease is capable of hereditary transmission. This view harmonises well with a statement made by a friend of mine who has a large farm in Shropshire, that the disease has never been known to prevail among the Hereford breed of cattle, excepting when there was distinct evidence of contagion."

"The kind of food seems to have had no influence in the causation or aggravation of the disease, animals fed on Grass being equally liable with those fed on grain, Mangel Wurzel, and hay or straw. Well fed animals in good condition are, however, universally allowed to be the least liable to suffer. M. Delafond mentions the drinking of very cold water in winter and of stagnant water in summer as occasional causes of the disease. I obtained no evidence to show that the kind of water used by the animals had anything to do either with exciting or aggravating the disorder."

As to treatment of the diseased animals a lengthened description is introduced of the remedy by inoculation, which is referred to as a failure. It was recommended by Dr. Layard exactly 100 years ago in a pamphlet on the nature, causes, and cure of the contagious disease then prevalent among cattle in England. It has been revived by Dr. Willems, of Hassell, Belgium, and extensively tried both in this country and elsewhere, with, generally speaking, discouraging results. It is this pulmonary murrain which is the prevalent disease in those districts of Northern Germany (from which the chief importations of cattle into England take place)—the pulmonary murrain which during the last 16 or 17 years has never been entirely absent from the herds and dairies of Great Britain and Ireland:—

"The importance of this fact can scarcely be over-estimated. It proves that, for the present at least, it is unnecessary to employ any additional restrictions to prevent the admission of diseased cattle from abroad. As nearly one-fifth of the horned cattle sold in the Metropolitan Cattle Market during the years 1855 and 1856 has consisted of animals imported from the continent, this is of great consequence in an economical point of view. Even if pulmonary murrain were propagated exclusively by contagion, any attempt to exclude from this country a disease which has already been existing here for many years, by means of prohibitory or quarantine regulations, must be futile. That it does not extend itself exclusively by contagion, but that it is frequently developed spontaneously, is the all but unanimous opinion of the most competent observers both at home and abroad, an opinion which is supported by my own investigations."

"Besides the pulmonary murrain which, as already shown, has been prevalent in several countries of Northern Europe, contemporaneously with its existence in the cow-sheds of the metropolis and among the herds and dairies of other parts of this country, two other diseases are reported to be at present prevailing on the continent. To these diseases, of which the one is of a contagious, the other of an epidemic nature, it is now necessary to refer. Both in some of the official accounts and by writers for the public journals in this country, these diseases have been confounded with each other, and with pulmonary murrain. Hence, probably, one cause of the exaggerated alarm that has been evinced lest a new, highly contagious, and fatal murrain should be introduced among our herds by means of the cattle imported from abroad. To the first of these diseases, which is in Germany called the *Rinderpest*, I shall apply the team Steppe Murrain, by which also it is known in that country."

It is this steppe murrain which has so alarmed agriculturists in this country, and which has induced our agricultural societies to commission Professor Simonds to visit and report upon the districts infested by it.

"Steppe murrain or *Rinderpest* is described as a febrile disease analogous to continued fever in the human subject, but incommunicable to man or to other animals. It is preceded by a

period of incubation, during which, however, an experienced observer will, it is said, be able to detect the approaching disease; runs through a definite course; and is accompanied at first by constipation, which usually in the last stage of the disorder gives place to choleraic diarrhœa. The preliminary or incubative period of the disease is said to last about seven days. The spread of this disease beyond the steppe country is believed to be exclusively by means of contagion."

"There is at present no prospect of its extinction in provinces some of which are its natural birthplace, and in others of which no measures had until lately been adopted for its eradication. Any further regulations which it may therefore be proposed to adopt, with the intention of excluding steppe murrain from this country, must necessarily be of a permanent character. A good deal of the foreign cattle sold in the metropolitan live cattle market comes from Prussia. Some of it is said to come from places eastward of Berlin. The facilities afforded by railway communication will, no doubt, eventually be rendered available for the transmission of cattle to the western markets from districts yet more remote. It is asserted that measures are even now in progress to improve the breed of cattle in those remoter districts, with a view to supplying the markets of Western Europe. Our real protection hitherto has lain—

"*a.* In the energetic measures adopted by intermediate States to secure the exclusion of the murrain from their territories;—

"*b.* In our insular position; and in the length of the transit from those countries into the United Kingdom."

The fact is, however, as Dr. Greenhow states, that the great alarm expressed in this country at the so-called "impending murrain" has been based upon a mistaken supposition that the disease prevailing in Mecklenburg and Holstein is a disease from which our herds are free, and that it is identical with *Rinderpest* or steppe murrain. On the contrary, as already explained, it is pulmonary murrain, which is as prevalent among the horned cattle of the United Kingdom as in the herds of Mecklenburg and Holstein. The *Rinderpest* or steppe murrain of German writers has not been prevailing in Mecklenburg and Holstein. It is not more prevalent now in the western provinces of Russia and Poland than it has usually been, and is at present much less prevalent in the territories of Austria and Prussia than it has often been.

Miscellaneous.

Society for Improving the condition of the Labouring Classes.—Depend upon it, the interests of classes too often contrasted are identical, and it is only ignorance which prevents their uniting for each other's advantage. To dispel that ignorance, to show how man can help man, notwithstanding the complicated state of civilised society, ought to be the aim of every philanthropic person; but it is more peculiarly the duty of those who, under the blessing of Divine Providence, enjoy station, wealth, and education. Let them be careful, however, to avoid any dictatorial interference with labour and employment, which frightens away capital, destroys that freedom of thought and independence of action which must remain to every one, if he is to work out his own happiness, and impairs that confidence under which alone engagements for mutual benefit are possible. God has created man imperfect, and left him with many wants, as it were to stimulate each to individual exertion, and to make all feel that it is only by united exertions and combined action that these imperfections can be supplied, and these wants satisfied. This presupposes self-reliance and confidence in each other. To show the way how these individual exertions can be directed with the greatest benefit, and to foster that confidence upon which the readiness to assist each other depends, this Society deems its most sacred duty. There has been no ostentatious display of charity, or munificence, nor the pretension of becoming the arbiter of the fate of thousands, but the quiet working out of particular schemes of social improvement: for which however, as I said before, the Society has only established examples for the community at large to follow. *H. R. H. Prince Albert, May* 18, 1844.

Calendar of Operations.

JUNE.

BORDER OF THE FENS, *June* 15.—The luxuriant appearance of the Wheat crop has been the general theme of observation: almost everywhere there is a full plant, and scarcely an unfavourable symptom has occurred until within the last week. The appearance of the ear at first does often disappoint the expectations formed by a heavy flag, the battered and brown aspect of some fields of Wheat leads to an inference of mildew, and no doubt among heavy crops there is always a tendency to damp and mouldiness of stem which in wet weather would surely lead to bad consequences, but the continuance of dry weather attended by strong easterly winds and plenty of sunshine will, we trust, remove all serious apprehensions of evil, whether arising from frosty nights or exuberant growth. Of Barley we speak with stronger misgivings, it wants rain, and is getting into ear with a short stem and weakness of plant, excepting on deep rich soils, and where sown very early. Oats are also at present short and scanty; perhaps there is yet time enough with a few warm rains for both Barley and Oats to yield well, but a much longer continuance of drying winds and cold nights will inevitably limit their production to less than an average amount. Beans and Peas are in full blossom and setting freely—they promise well. Potatoes are backward and more trouble than usual to mould up properly. We are concluding the sowing of Swede Turnips; Mangels have vegetated fairly, so that we can reckon upon a tolerable plant, now almost out of the way of the fly: they require hand-hoeing at once, for dry as the weather is where plenty of manure has been applied and the land in "good heart," Thistles, Equisetum, and a host of intruders want clearing out of the way before they quite smother the slower growing and diminutive Mangel. We hear the mowers whetting their scythes, but the swathe will not be so heavy as was anticipated. Cutting easterly winds have done great service in preventing the excessive increase of aphides and other insects; they have perhaps strengthened the stems of heavy growths of corn, and done good in a variety of ways, but they have also checked the Grass, which promised at one time to be an unusually abundant crop; it will now be rather above an average, but not so weighty as was predicted. Feeding pastures have been extremely productive and almost every one has found himself short of stock, consequently the prices of store beasts and sheep have risen prodigiously, and many persons have had some difficulty in supplying themselves with a sufficient quantity. For the same reason fat stock has also been high, food being comparatively more plentiful than feeders. When the Grass is reduced by consumption or age we are inclined to think there will not be an inadequate amount of fat stock, so that prices may be looked for somewhat easier as the pasture fed beasts and sheep are drawn for the market. Agricultural labour is in a healthy state; weeding is diligently followed up, so that every industrious man, woman, and child fit for work may earn fair wages. *J. W., Peterborough.*

ISLE OF ELY, *June* 16.—Since our last report the weather has continued variable; heat and cold alternating. We have also had some copious rains, but these have been very much lost upon vegetation in consequence of their being succeeded by such intensely cold and scathing easterly winds. Last Friday night (12th) we had a severe frost, which has inflicted considerable injury upon some of our crops in the fens, especially upon the Potatoes. These are looking black and withered, and must be seriously damaged, and can scarcely be expected now to yield either an abundant crop or a good quality. The Wheat is breaking fast into the ear, and as far as can be ascertained, appears to have escaped injury by the frost. The crop is not so heavy as it was at one time expected to be; the straw is stiffer and less weighed down with flag, and we hope promises an average yield and good quality. We shall have an earlier harvest than usual most probably. The forward districts appear likely to be ready by the end of July or the beginning of August. The Oat crop continues a very uneven one. Those put in with the water drill still keep the lead, and must now make the heaviest crops. Some of the late sown Oats are very inferior, being infested with wireworms, and in many instances are hardly worth standing for harvest. Mangels have planted very irregularly this year. In some instances we see a full crop; in others, scarcely a plant is perceptible; and several fields have been resown, and even now are almost worthless. Where there is a plant, however, they are growing rapidly, and will soon require to be thinned. Flax is generally looking healthy, and is now growing rapidly. A good crop of Linseed promises this year to be very valuable, as the last harvest in Russia was, to a great extent, a failure, and we have consequently the prospect of high prices. Linseed cakes are now selling at from 20*s.* to 30*s.* per ton higher than last year, where contracts are being entered into for winter delivery. The weather is favourable for haymaking, and our farmers seem to be making the best of it. The crop is good, but not over heavy, and the quality of that now stacked is excellent. The pastures are fading rapidly. The cold, dry, easterly winds are withering and drying up the Grass lands fearfully; and we shall soon be complaining, without a change of weather, of a scarcity of keeping, although we have had such an abundance hitherto. The corn markets are again advancing. The future supplies must necessarily be short; and we see no reason to apprehend a return to low prices for a long time to come. *A. R.*

WESTER ROSS, *June* 8.—We have now had about a month of peculiarly fine growing weather, and all the different crops are making satisfactory progress. The autumn-sown Wheat is getting into the shot blade, is closely planted, and will be abundantly strawed. Wheat sown in winter and spring did not look so well for some time, but the genial weather we have had has greatly improved it, so much so that fields which a few weeks ago appeared only half seeded and looked quite unpromising, are now so improved that an abundant crop is confidently anticipated. A breadth of Wheat, perhaps not so large as last year but yet beyond an average, is on its way to harvest with every prospect of an abundant return. Barley and Oats have started vigorously, and with a continuation of such weather as we now have will not fail in yielding an ample return. Potatoes never looked better; everywhere they are brairding regularly, and presenting a stem so strong and a leaf so broad as if they were determined not to fall, at least for one year, before any disease. For some time we have been busily engaged preparing the land for Turnips, and sowing the Swedes, and for this work the weather has been very favourable. The earlier sown Swedes have made good progress, and will in a few days be fit for singling. A commencement has been made with the sowing of common Turnips, but this part of our operations will not be completed before the end of the month. The hay crop, where not destroyed by the much laid crop of corn last year, looks well, and the abundant showers we are now receiving will greatly improve it. The pasture Grass was standing more in need of rain than any other part of the crop, and is now greatly refreshed. Not only is there abundance of employment for all agricultural labourers, but the wages of all classes have so materially risen that we suppose that, with an ordinary price for grain and stock, the profits of those farms which have been lately taken at such extraordinarily increased rents will not be allowed to remain in the hands of the farmers, but will find their way to the pockets of the laird and the workman. Besides the great demand for railway labourers, the stream of emigration still continues to flow on from the Highlands.

Notices to Correspondents.

CONCRETE: *J L M.* The following recipes are taken from Ewart's "Agriculturist's Assistant:"—

"*Compost for barn and kitchen floors.*—After the ground on which the floor is intended to be made is levelled, let it be covered to the thickness of 3 or 4 inches with stones, broken small, and the same well rammed; upon which let there be run about 1½ inch above the stones, one part by measure of calcined ferruginous marl, and two of coarse sand and fine gravel, mixed to a thin gauge with water. Before this coating has become thoroughly set, lay upon it a coat of calcined marl, mixed with an equal part of fine sand 1 to 1½ inch thick, floated to an even surface. The addition of blood will render this compost harder. The calcined marl mentioned above is the Portland cement of commerce.

"*Concrete for weak foundations, and for the bottoms of cattle-boxes and dung-pits, when not sufficiently stiff and sound to be impervious to water:*—

Newly burned lime ground to a fine powder ..	2 measures
Calcined septaria (ferruginous marl)	1 measure
Gravel, broken stone or brick, or lime riddlings ..	6 measures

Mix the above with water to a liquid gauge, and let it be thrown into its position from a height of 10 or 12 feet, and when partially set let it be well beaten or rammed to render it solid.

"*Another concrete for the last two foregoing purposes, and also for garden walks:*—Equal parts of gravel, well screened, and clean river or pit sand. With five parts of the mixture of gravel and sand mix one part of Portland cement. Mix with water, and apply 2 inches thick."

FEEDING BOXES: *C E F.* Nine feet square is enough when cattle are fed in a moveable corner trough. It is not advisable to put two cattle in the same box, except in the case of very young animals, and 10 feet by 12 is then size enough.

GAS LIQUOR: *T B.* The present is the best possible season for applying it. Dilute it well either with water or by applying it during rain, or by adding it to the dry heap before applying it to the land. Three or four hundred gallons per acre may be well applied on Grass land in wet weather during the growing time of the year.

POOR WASTE LAND: *A.* You had better pare and burn rather than plough in order to get a crop of Turnips or Rape to feed off for a grain crop. It will cost you probably 30*s.* an acre to pare, burn, and spread the ashes. You must then plough shallow, burying the ashes; cross-plough deeper; sow some superphosphate of guano broad-cast; and harrow it in and drill the sand on the flat. After the Turnips are eaten off plough shallow or scarify before sowing the Wheat.

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*
Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
Fountains suitable for Conservatories, Lawns, &c.

(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30	feet high	..	£4	10
No. 2	,, 15	,,	,, 45	,,	..	5	10
No. 3	,, 28	,,	,, 45	,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25	feet high	..	£2	15
No. 13	,, 12	,,	,, 30	,,	..	3	5
No. 11	,, 16	,,	,, 40	,,	..	4	0
No. 12	,, 24	,,	,, 45	,,	..	5	0
No. 14	,, 30	,,	,, 45	,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*

READ'S SYRINGE, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

MIGNONETTE BOXES.

SUN-DIALS.

STATUES after Ancient and Modern Masters, as well as

Original GROUPS of FIGURES.

Great variety of ANIMALS, FOUNTAINS, and FOUNTAIN FIGURES of all sizes.

ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.

AUSTIN & SEELEY'S
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S
REGISTERED BUDDING'S LAWN MOWING MACHINES
FOR
PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

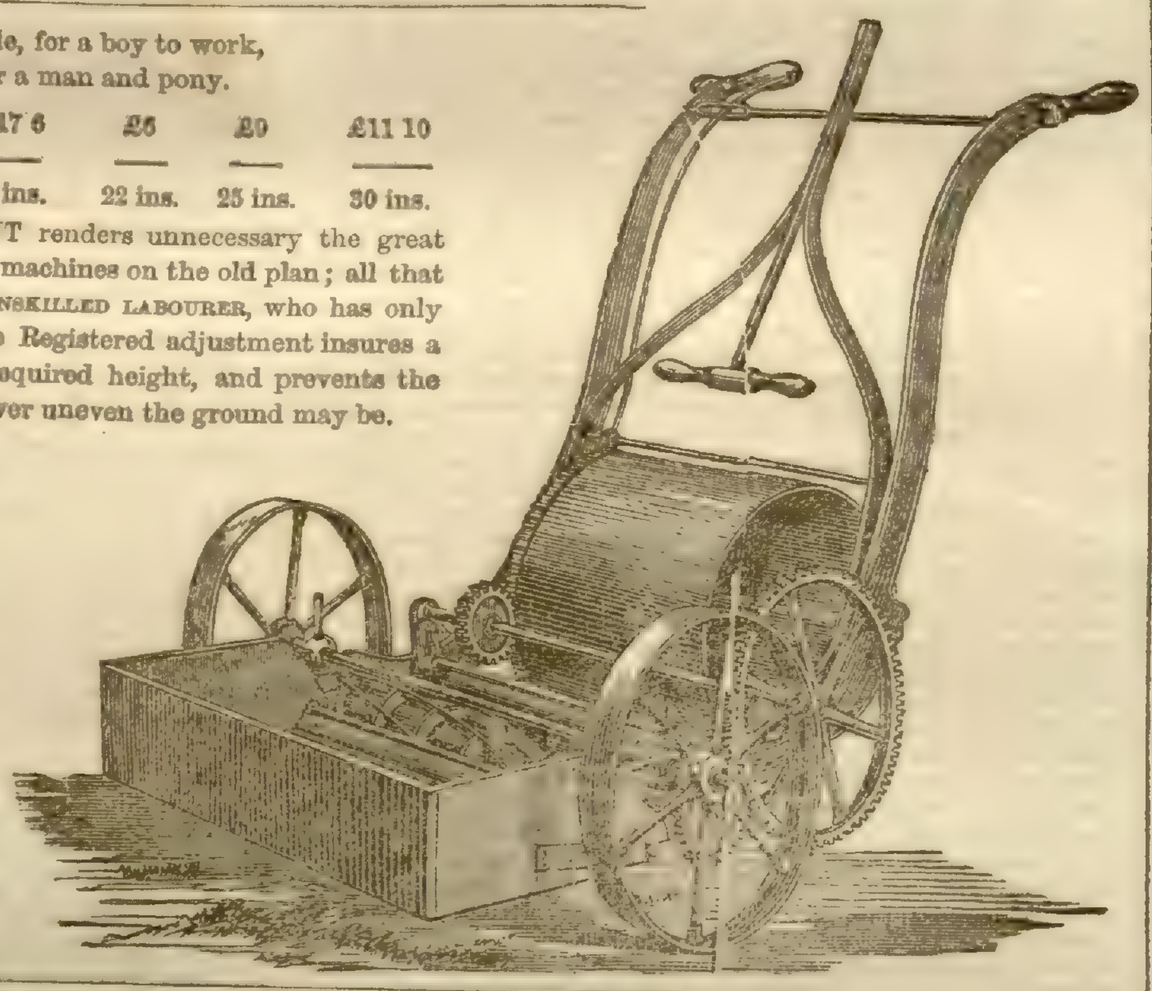
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

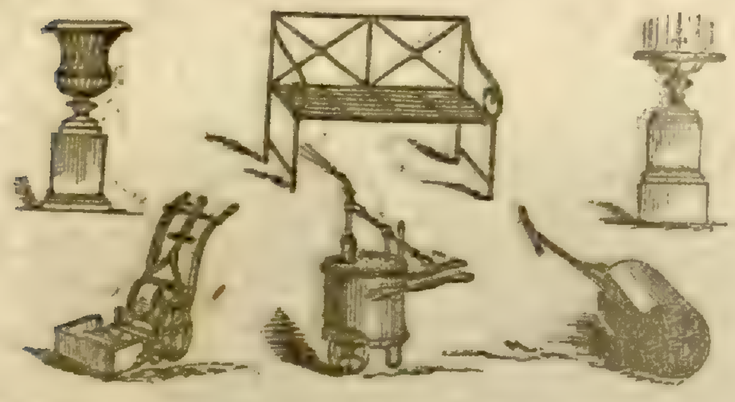
Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

GARDEN REQUISITES, &c.



COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

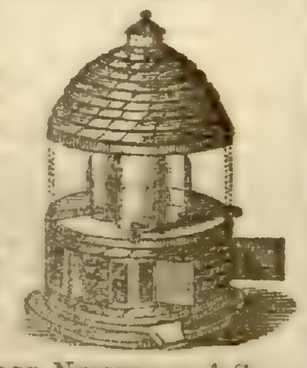
CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

BEE-HIVES.

PRIZE MEDAL AWARDED TO G. N. & SONS, FOR BEE-HIVE AND HONEY, AT THE PARIS EXPOSITION OF 1855.

NEIGHBOUR'S IMPROVED COTTAGE BEE-HIVE, as originally introduced by GEORGE NEIGHBOUR & SONS, with all the recent improvements, glasses, and thermometer, price 35s., securely packed for the country.



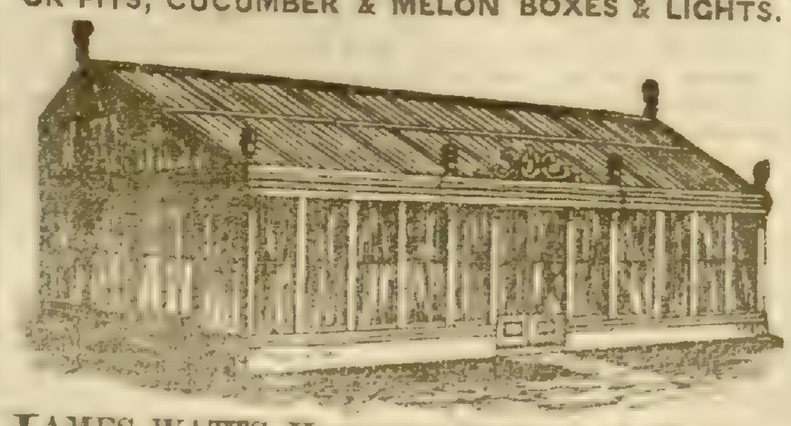
This unique Hive has met with universal commendation, and may be worked with safety, humanity, and profit by the most timid; its arrangements are so perfect that the Honey may be taken at any time of the gathering season without at all injuring the Bees.

Early applications addressed to GEORGE NEIGHBOUR & SONS, 127, High Holborn, or 149, Regent Street, London, will receive prompt attention.

Their newly-arranged Catalogue of other Improved Hives with drawings and prices, sent on receipt of two stamps.

AGENTS.—Liverpool: James Cuthbert, 12, Clayton Square, Manchester: W. Wilson, 50, King Street. Glasgow: Austin & M'Aslen, 186, Trongate. Dublin: J. Edmondson & Co, 61, Dame Street.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

TO BE SOLD, a bargain, a new WARNER'S PATENT, 2½-inch short barrel, cast-iron lift and force pump, with fittings complete, mounted on strong wheel barrow, and 150 feet of best Woven Anti-rot Hose Pipe, in 50 feet lengths, with Gutta Percha Joints, all new and in perfect repair.—For price and all particulars apply to WOOD & INGRAM, Huntingdon.

IMPROVED MOWING AND ROLLING MACHINE.

PATRONISED BY HER MAJESTY QUEEN VICTORIA, AND HIS MAJESTY THE EMPEROR OF THE FRENCH.

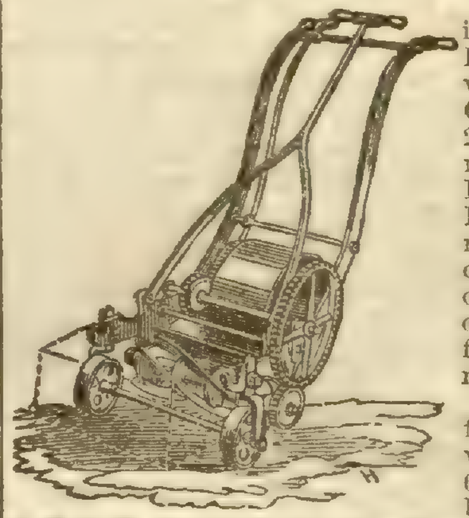
ALEXANDER SHANKS AND SON, Arbroath, Forfarshire, PATENTEES.—This Machine for Mowing and Rolling Lawns, Bowling Greens, Verges, &c., is now so well known that little need be said regarding its merits. The Machine is exceedingly durable, and consequently not liable to get out of order; the execution of the work is vastly superior to Mowing with the scythe, while at the same time a saving of 70 per cent. in labour is effected and the turf much improved.

The New Hand Machine with patented improvements, after having undergone a trial of nearly two seasons, has fully confirmed and established the opinion held out by the Patentees respecting it, viz., that it is the cheapest, most easily worked, most efficient, and complete Machine extant.

Sold by Mr. GARROOD, Crystal Palace, Sydenham, and by almost all first-class Nurserymen and Implement sellers in the country.—Illustrated Price Lists forwarded on application.

IMPROVED LAWN MOWING MACHINES,
MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.



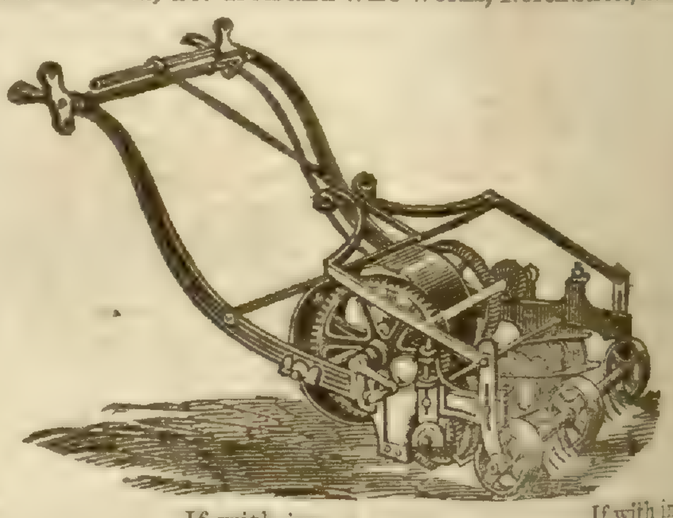
The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 5 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

BY ROYAL LETTERS PATENT.

THOMAS GREEN, PATENTEE and SOLE MANUFACTURER OF the IMPROVED MOWING or GRASS-CUTTING MACHINES, for Lawns, Pleasure Grounds, Verges, &c.; IRON-FOUNDER, WIRE-WORKER, and MANUFACTURER OF WROUGHT-IRON BEDSTEADS, &c. Iron and Wire Works, North Street, Leeds.



	To cut				If with improved Rake.
	,, 8 in.	£4	4	0	2*s.* 6*d.*
	,, 10 in.	4	14	6	2 6
	,, 12 in.	5	5	0	2 6
	,, 14 in.	5	15	0	2 6
	,, 16 in.	6	6	0	3 0
	,, 18 in.	6	16	6	3 6
For pony	,, 20 in.	£7	7	0	4*s.* [illegible]
	,, 22 in.	7	17	6	4 6
	,, 24 in.	8	8	0	5 0
	,, 30 in.	15	15	0	10 0
	,, 36 in.	18	18	0	12 0
	,, 42 in.	22	0	0	14 0

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra.

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The Patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges of any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake, or Guard, to work in front of the cutters of the machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters—a great drawback in all previous Mowing Machines. It can be set to rake and straighten the Grass, which cannot be done at all by any other machine or scythe.

T. G. calls particular attention to his small-sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the scythe or shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Five hundred of these Machines have been sold this season, and reference can be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

The Machines may be seen at the Works, also of Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

The above Machine obtained the First Prize at the Great Yorkshire Agricultural Show at Rotherham, August, 1856.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

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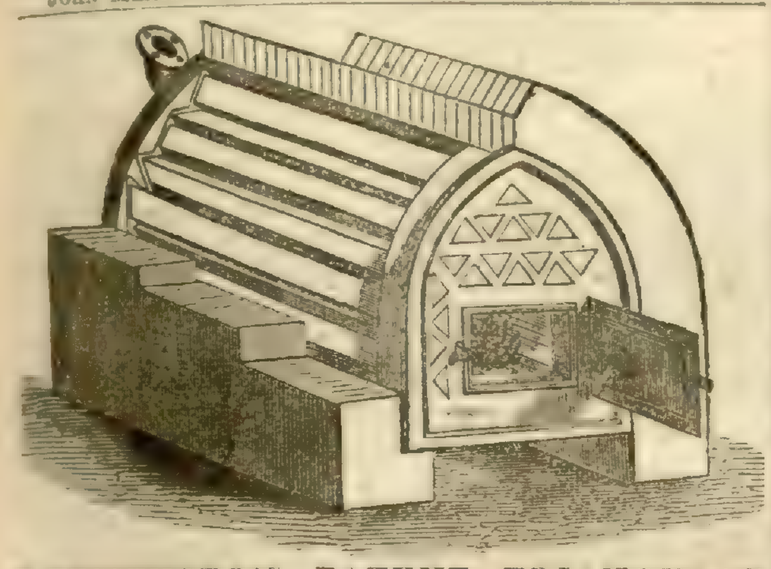

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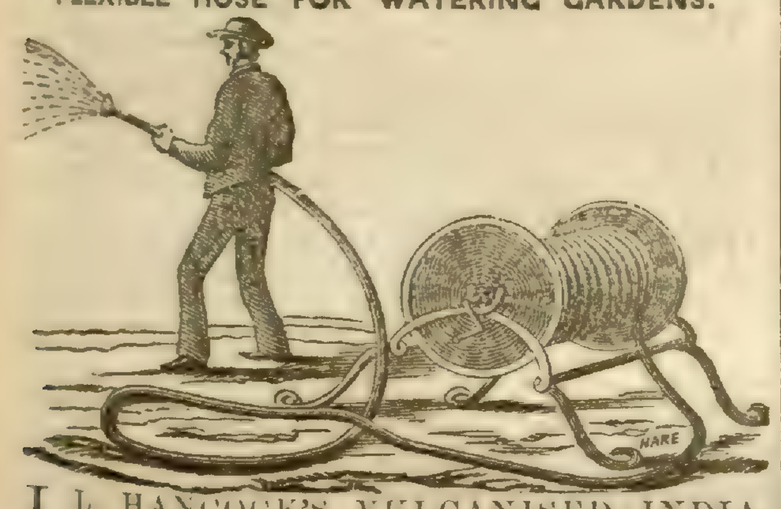

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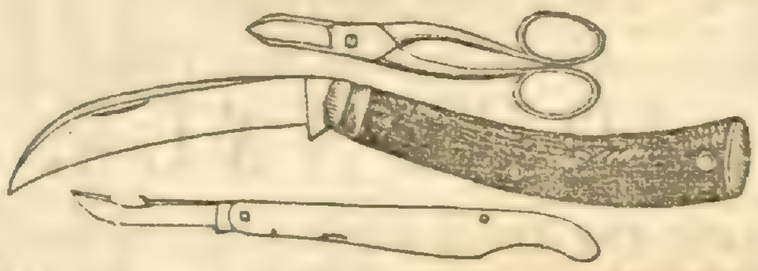

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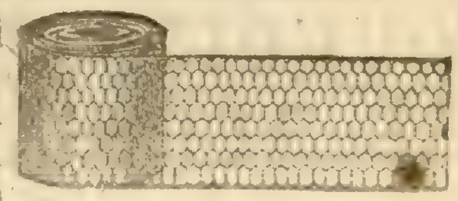

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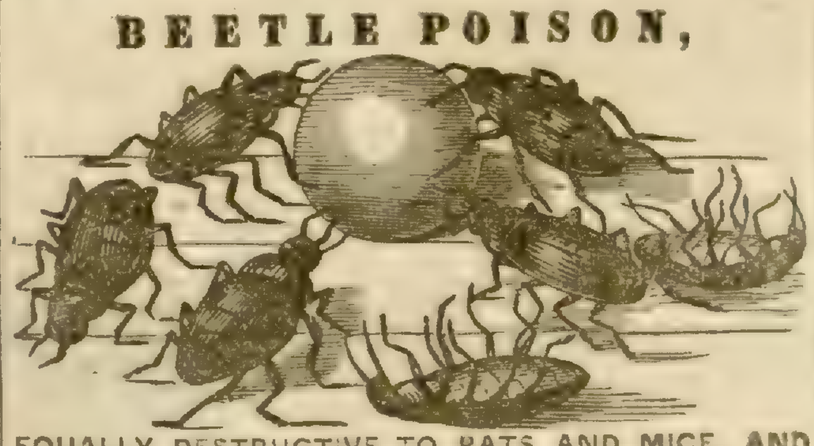

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Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden, in the said Co.—SATURDAY, June 20, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 26.—1857.] SATURDAY, JUNE 27. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The Next Meeting of this Corporation for the Exhibition of Flowers, Fruits, &c., a Ballot for Chamæcyparis thurifera, and the Election of Fellows, will be held on TUESDAY, July 7, at 3 P.M. Admission only by Fellow's personal introduction, Ivory Tickets, or Written Order.

21, Regent Street, S. W.

ROYAL BOTANIC SOCIETY; REGENT'S PARK.—The LAST EXHIBITION this Season of PLANTS, FLOWERS, and FRUIT will take place on WEDNESDAY next, July 1. Tickets to be obtained at the Gardens only by Orders from Fellows or Members of the Society, price 5*s*., or on the day of Exhibition, 7*s*. 6*d*. each.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre (W.C.)—The next Meeting of the Society will be held on WEDNESDAY, July 8, to which Members and Fruit Growers generally are invited to send specimens for examination of MELONS, STRAWBERRIES, CHERRIES, and such other FRUITS as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The chair will be taken at 2 o'clock.

SATURDAY, September 12, is the day appointed for the Exhibition of NEW GRAPES, for the best varieties of which the Society has offered Premiums.

Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; Annual Subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.
2, Randolph Road, Maida Hill, W.

IPSWICH HORTICULTURAL SOCIETY.—The SECOND EXHIBITION of the above Society will be held in the Arboretum, Ipswich, on FRIDAY, July 3. The splendid Band of the Royal Artillery is engaged for the occasion.

DANIEL LONG, Sec., St. Helen's Street, June 27.

THE HANOVERIAN BAND AND FLORAL FETE COMMITTEE have the pleasure to announce that the SECOND GRAND FLORAL FETE will take place at Sydney Gardens, Bath, on WEDNESDAY, September 9, on which occasion 120*l*. will be distributed in Prizes. Schedules and every information to be obtained from Mr. HENRY SMITH, Hon. Sec.

30, Old Bond Street, Bath.

THE GREAT NORTH OF ENGLAND DAHLIA SHOW.—The 18th ANNUAL EXHIBITION of this Society will be held at BRETTON WEST, on THURSDAY, September 10, when nearly 350*l*. will be awarded in Prizes. Prize Lists, &c., may be had on application to JOSEPH FIRTH, Secretary, Swithen, Barnsley, Yorkshire.

NATIONAL FLORICULTURAL SOCIETY.—AWARDS MADE AT THE GENERAL MEETING, JUNE 11.

FIRST CLASS CERTIFICATES.

Fancy Pelargonium Mrs. T[illegible]ner (Turner).
" " Acme ([illegible]ner).
Variegated Geranium Perfe[illegible]n (Turner).
Pelargonium Minnie (Foste[illegible]
" The Bride (Be[illegible]

CERTIFIC[illegible].

Pelargonium Rosy Gem (Turner).
" Impératrice (Turner).
" Etna (Turner).
Pansy Mrs. Hope (Downie & Laird).

LABEL OF COMMENDATION.

Heliotrope compactum (Cole).

AWARDS MADE AT GENERAL MEETING, JUNE 25.

FIRST CLASS CERTIFICATES.

Pink Miss Eaton (Maclean).
Achimenes Meteor (Parsons).

CERTIFICATES.

Pelargonium Richard Benyon (Hoyle).
Spotted Pelargonium Mazeppa (Turner).
" " Queen of Beauties (Turner).
Fancy Pelargonium Alice (Turner).
" " Queen of Lilacs (Turner).
Verbena Carlos (Smith).
Pink Eugénie (Maclean).
" Crystal Palace (Bragg).

JOHN EDWARDS, Sec.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21*s*. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, June 27.

J. AND J. FRASER beg to announce that their collection of ROSES is now in flower, and respectfully invite their patrons and the public generally to an inspection of the same. Trains leave the Bishopgate Station for Lea Bridge at 9.10 A.M., 9.30 A.M., 12.0 NOON, 12.45 P.M., 3.0 P.M., 3.30 P.M., 4.40 P.M., 5.20 P.M., 6.20 P.M., and 7.20 P.M.

The Nurseries, Lea Bridge Road, N. E., June 27.

HERTFORD NURSERIES.

E. P. FRANCIS' superb Collection of ROSES on the Manetti Stock is now in bloom, and will continue to flower through the season. Morning, evening, and cloudy days are best for viewing Roses.

ROSES.

JAMES MITCHELL respectfully informs the nobility and gentry that his unrivalled Collection of NEW ROSES is now in fine bloom.

The Nurseries, Piltdown, Maresfield, Sussex.

ROSES IN BLOOM.

H. LANE AND SON beg to announce to the public that their extensive and choice selection of ROSES is now in Bloom, and will continue so during the season. They also have a large Collection of Conifers, Rhododendrons, Shrubs, Fruit Trees in pots, and a General Nursery Stock, which cannot fail giving satisfaction. Berkhampstead is pleasantly situated on the London and North-Western Railway, 25 miles from London, and trains run up and down almost every hour.

The Nurseries, Great Berkhampstead, Herts.

ROSES.

T. RIVERS has much pleasure in informing his friends and the public that his ROSES, now in full bloom, are remarkably clear from blight and vigorous in growth. The large collection of Dwarfs on the Manetti stock is blooming in great perfection, and is particularly worthy of attention, as no other Rose stock is so well adapted for Dwarf Autumnal Roses. As a day may be spent among the Roses and Orchard Houses, the 8 and 10.57 A.M. trains to Harlow Station, Cambridge Line, about 1 mile from the Nursery, are recommended.—Nurseries, Sawbridgeworth, Herts.

ROSES.—THE COLLECTION OF ROSES at the Cheshunt Nurseries is just coming into bloom, will be in fullest beauty from the 20th inst. to the 11th July, a succession continuing till the end of autumn. Admirers of Roses are respectfully invited to visit the Nurseries, where every novelty that can be obtained is fairly submitted to trial.

Cheshunt is 13 miles N. of London. Trains of the Eastern Counties Railway from Shoreditch to Cheshunt Station, 1 mile from the Nurseries, run to and fro several times daily.

Nurseries, Cheshunt, Herts.

ROSES.

GEORGE CLARKE begs to invite his friends and the public generally to an inspection of his superb collection now in full flower, and extending over 10 acres of ground. Amongst the objects worthy of notice is an avenue of splendid CLIMBING ROSES, 500 yards long, and which has a remarkably fine effect. Several of the new Roses this season present considerable attraction, and G. C. would remind his patrons that the period of blooming is the best time for orders to be given, as then only can a proper selection be made in colour and variety.

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Streatham Place Nursery, Brixton Hill, near London.

G. BAKER begs to announce that his AMERICAN PLANTS are now in bloom, and may be seen on application at the Nursery, which is situate 1¼ mile from the Sunningdale Station, South-Western Railway. G. B. has also an extensive and choice collection at the Botanical Society's Gardens, Manchester. Catalogues may be had on application.

American Nursery, Bagshot, Surrey.

MR. SYRED, FLORIST, Red Hill, Surrey, has still several Thousands of his immense STOCK of BEDDING PLANTS, consisting of the usual kinds (all strong Plants, which he can dispose of at a very great reduction on the present prices.

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LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

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which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

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Exeter Nursery, Exeter.—Established 1720.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

VAN HOUTTE'S CONTINENTAL CALCEOLARIAS, in sealed packets, at 5*s*. each, to be had on July 1, from Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Applications post paid, with a Post-office order.

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GEORGE CLARKE begs to announce that he is prepared to distribute his splendid collection. The great satisfaction which this has hitherto given, coupled with the decided improvement made in them this season, enables him to offer it now with more than usual confidence. Packets warranted, price 2*s*. 6*d*. payable in postage stamps.

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JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, June 27.

LIST OF THE AWARD OF PRIZES
AT THE SECOND EXHIBITION OF THE
ROYAL BOTANIC SOCIETY OF LONDON,

HELD ON

THURSDAY, JUNE 18, 1857.

EXTRA GOLD MEDAL.

Mr. T. Whitbread, Gr. to H. Colyer, Esq., Dartford, for 16 Stove and Greenhouse Plants
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, Herts, for 20 Exotic Orchids

LARGE GOLD MEDAL.

Mr. Green, Gr. to Sir E. Antrobus, Bart., Cheam, Surrey, for 16 Stove and Greenhouse Plants
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

Mr. W. Taylor, Gr. to J. Coster, Esq., Streatham, for 16 Stove and Greenhouse Plants
Mr. William Cutbush, Nurseryman, Barnet, for 12 Stove and Greenhouse Plants
Mr. Dods, Gr. to Sir John Cathcart, Bart., Cooper's Hill, for 10 Stove and Greenhouse Plants
Mr. Green, Gr. to Sir E. Antrobus, for 10 Greenhouse Azaleas
Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, for 20 Exotic Orchids
Messrs. Veitch, for 16 Exotic Orchids
Mr. Clarke, Gr. to C. Webb, Esq., High Grounds, Hoddesdon, Herts, for 12 Exotic Orchids
Messrs. Lane & Son, Nurserymen, Berkhampstead, for 10 Roses in 13-inch pots

GOLD MEDAL.

Messrs. Fraser, Nurserymen, Lea Bridge Road, for 12 Stove and Greenhouse Plants
Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants
Mr. Epps, Nurseryman, Maidstone, for 10 Cape Heaths
Mr. Whitbread, Gr. to H. Colyer, Esq., for 8 Cape Heaths
Mr. B. Peed, Gr. to T. Tredwell, Esq., for 8 Greenhouse Azaleas
Messrs. Jackson & Son, for 10 Exotic Orchids
Mr. Carson, Gr. to W. F. G. Farmer, for 12 Exotic Orchids
Mr. C. Turner, Slough, for 12 Pelargoniums in 8-inch pots
Mr. Nye, Gr. to E. Foster, Esq., Clewer Manor, Windsor, for 10 Pelargoniums in 8-inch pots
Messrs. Paul & Son, Cheshunt, for 10 Roses in 13-inch pots

LARGE SILVER GILT MEDAL.

Mr. Epps, Nurseryman, Maidstone, Kent, for 12 Stove and Greenhouse Plants
Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 10 Stove and Greenhouse Plants
Mr. Carson, Gr. to W. F. G. Farmer, Esq., Cheam, Surrey, for 6 Stove and Greenhouse Plants
Mr. Green, Gr. to Sir Edward Antrobus, Bart., Cheam, for 6 Tall Cacti
Mr. Taylor, Gr. to J. Coster, Esq., for 6 Greenhouse Azaleas
Mr. Parker, Nurseryman, Holloway, for 16 Exotic Orchids
Mr. Morris, Gr. to Coles Child, Esq., for 12 Exotic Orchids
Mr. Bunney, Nurseryman, Stratford, for 6 Exotic Orchids
Mr. Bray, Gr. to Sir J. L. Goldsmid, Bart., Regent's Park, for 6 Fuchsias
Messrs. Fraser, for 12 Pelargoniums in 8-inch pots
Mr. Holder, Gr. to Rev. E. Coleridge, Eton College, for 10 Pelargoniums in 8-inch pots
Messrs. Francis, Nurserymen, Hertford, for 10 Roses in 13-inch pots
Mr. Terry, Gr. to Lady Pullar, Youngsbury, Herts, for 6 Roses in 13-inch pots

LARGE SILVER MEDAL.

Mr. O. Rhodes, Gr. to J. Philpott, Esq., Stamford Hill, for 6 Stove and Greenhouse Plants
Mr. Glendinning, Nurseryman, Chiswick, for 10 Cape Heaths
Mr. Williams, Gr. to Miss Traill, for 8 Cape Heaths
Mr. Taylor, Gr. to J. Coster, Esq., for 6 Cape Heaths
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, Brentford, for 6 Exotic Orchids
Messrs. Fraser, for 16 Fancy Pelargoniums in 8-inch pots

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Mr. Williams, Gr. to Miss Traill, Hayes Place, Kent, for 6 Stove and Greenhouse Plants
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Mr. James Harlock, Gr. to R. W. Nutter, Esq., Wanstead, Essex, for 6 Cape Heaths
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Mr. Green, Gr. to Sir E. Antrobus, Bart., for 6 Exotic Orchids
Messrs. Dobson & Son, Nurserymen, Isleworth, for 6 Calceolaria in 11 inch pots
Mr. Charles Turner, Royal Nursery, Slough, for 6 Calceolarias in 11-inch pots
Messrs. Dobson & Son, for 6 Fuchsias
Messrs. Dobson & Son, for 12 Pelargoniums in 8-inch pots
Mr. Windsor, Gr. to C. Cannon, Esq., Kiddapore Hall, Hampstead, for 10 Pelargoniums in 8-inch pots
Mr. C. Turner, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Bray, Gr. to Sir J. L. Goldsmidt, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Nye, Clewer Manor, for 6 Pelargoniums in 8-inch pots
Mr. C. Turner, for 6 Pelargoniums in 8-inch pots
Mr. Mortimer, Gr. to J. R. Scott, Esq., Crouch End, Hornsey, for 6 Roses in 13-inch pots
Messrs. Paul & Son, for 50 Cut Roses
Mr. Mitchell, Nurseryman, Maresfield, Sussex, for 50 Cut Roses
Miss Palmer, for 25 Cut Roses
Mr. Barnes, Gr. to Lady Rolle, Bicton, Devon, for 1 Providence Pine Apple

SILVER GILT MEDAL.

Mr. Alexander Dibbins, Gr. to J. Pulley, Esq., Roselands, Enfield, for 1 Queen Pine Apple
Mr. Thos. Young, Glamorgan, for 1 Pine Apple
Mr. Turnbull, Gr. to his Grace the Duke of Marlborough, Blenheim, Oxon, for 3 dishes of Grapes
Mr. Frost, Maidstone, for 12 lbs. of Grapes
Mr. Henderson, Coleorton Hall, for 12 lbs. of Grapes
Mr. Hall, Gr. to T. Garrard, Esq., Colebrook Lodge, Putney, for 1 dish of Black Hamburgh Grapes
Mr. Frost, Maidstone, for 1 dish of Black Hamburgh Grapes
Mr. Henderson, Coleorton, for 1 dish of Black Hamburgh Grapes
Mr. Allport, Doddington Park, for 1 dish of Black Prince Grapes
Mr. Bailey, Amersham, for 1 dish of White Muscadine Grapes
Mr. Wood, Great Marlow, for 1 dish of White Muscadine Grapes
Mr. Turnbull, Blenheim, for 1 dish of Muscats
Mr. Jas. Drewitt, Gr. to Mrs. Cubitt, The Denbies, Dorking, for 1 dish of Frontignac Grapes
Mr. Ruffet, Brocket Hall, for 1 dish of Peaches
Mr. Iveson, Syon House, for 1 dish of Peaches
Mr. Snow, Gr. to Earl de Grey, Silsoe, Beds, for 1 dish of Peaches
Mr. Hill, Keele Hall, for 1 dish of Nectarines
Mr. Chalmer, Gr. to Lord Southampton, Whittlebury Lodge, for 1 dish of Nectarines

SILVER MEDAL.

Mr. O. Rhodes, Gr. to J. Philpott, Esq., for 6 Cape Heaths
Messrs. Veitch, Nursery, Exeter and Chelsea, for Erides sp., a new Orchid
Messrs. Veitch for new plant Grevillea Drummondi
Mr. Baillie, Gr. to W. C. Carbonell, Esq., Harrow Road, for 12 Exotic Ferns
Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 6 Exotic Orchids
Mr. James, Gr. to W. F. Watson, Esq., Isleworth, for 6 Calceolarias in 11-inch pots
Mr. Hutt, Gr. to Miss Burdett Coutts, Holly Lodge, for 6 Fuchsias
Mr. Davidson, Gr. to G. Bishop, Esq., Southville, Regent's Park, for 6 Fuchsias
Mr. Gaines, for 12 Pelargoniums in 8-inch pots
Mr. Swannell, Gr. to J. Russell, Esq., Harrow-on-the-Hill, for 10 Pelargoniums in 8-inch pots
Miss Palmer, 46, Upper Portland Place, Marylebone, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Windsor, Kiddapore Hall, for 6 Fancy Pelargoniums in 8-inch pots
A. Rowland, Esq., Rosenthal, Lewisham, Kent, for 6 Roses in 13-inch pots
Mr. Francis, Hertford, for 50 Cut Roses
Mr. Terry, Gr. to Lady Pullar, for 25 Cut Roses
Mr. Francis, for Collection of Roses
Messrs. Lane & Son, for Collection of Fruit Trees in pots
Mr. Linden, Brussels, for a New Plant Cynophyllum magnificum
Mr. Oats, Gr. to Lord Leigh, Stone Leigh Abbey, Warwickshire, for 1 Providence Pine Apple
Mr. Barnes, Gr. to Lady Rolle, for 1 Queen Pine Apple
Mr. Thomas Young, Gr. to C. Bailey, Esq., Aberdare, Glamorgan, for 1 Queen Pine Apple
Mr. Rattray, Gr. to J. Back, Esq., Byfleet Lodge, for 1 Queen Pine Apple
Mr. Thomas Bailey, Amersham, for 1 Pine Apple
Mr. Henderson, Gr. to Sir G. H. Beaumont, Bart., Coleorton Hall, Ashby-de-la-Zouch, Leicestershire, for 3 dishes of Grapes
Mr. Smith, Gr. to A. W. Roberts, Esq., Roehampton, for 1 dish of Black Hamburgh Grapes
Mr. Hume, Gr. to R. Hanbury, Esq., The Poles, Ware, Herts, for 1 dish of Black Hamburgh Grapes
Mr. Hill, Keele Hall, for 1 dish of Black Hamburgh Grapes
Mr. Turnbull, Blenheim, for 1 dish of Black Prince Grapes
Mr. Wells, Gr. to Viscount Dillon, Ditchley Park, Oxon, for 1 dish of Black Prince Grapes
Mr. Tillyard, Heckfield, for 1 dish of White Muscadine Grapes
Mr. Monro, Market Gardener, Barnet, for 1 dish of White Muscadine Grapes
Mr. Goody, Market Gardener, for 1 dish of Muscat Grapes
Mr. Henderson, Coleorton, for 1 dish of Frontignac Grapes
Mr. Iveson, Gr., Syon House, for Vines in pots
Mr. Taylor, Barnet, for 1 dish of Peaches
Mr. James Nichol, Exeter, for 1 dish of Nectarines
Mr. Fleming, Trentham, for 1 dish of Nectarines
Mr. Tegg, Roehampton, for 1 dish of Nectarines

SMALL SILVER MEDAL.

Mr. Parker, Nurseryman, Holloway, for 2 new Orchids, Dendrobium sp.
Mr. Wm. Cutbush, Barnet, for a rare plant in bloom, Stylidium Bellerifolium
Mr. Fletcher, Gr. to J. F. Young, Esq., Kennington Lane, for 12 Exotic Ferns
Mr. Baillie, Gr. to Mr. W. C. Carbonell, Esq., for 12 British Ferns
Mr. Taylor, Gr. to J. Coster, Esq., for Correct Labels
Mr. Gaines, Nurseryman, Batterson, for 6 Calceolarias in 11-inch pots
Mr. Gaines, Batterson, for 6 Fuchsias
Mr. O. Rhodes, Gr. to J. Philpott, Esq., for 6 Fuchsias
Mr. Weir, Gr. to J. Hodgson, Esq., The Elms, Hampstead, for 10 Pelargoniums in 8-inch pots
Mr. George Keeble, Gr. to Mr. Davis, Spring Grove, for 6 Calceolarias in 11-inch pots
Mr. Gaines, for 6 Fancy Pelargoniums in 3-inch pots
Mr. Keeble, Spring Grove, for 6 Fancy Pelargoniums in 8-inch pots
Mr. Weir, The Elms, Hampstead, for 6 Fancy Pelargoniums in 8-inch pots

SMALL SILVER MEDAL.

Messrs. Dobson & Son, for 6 Pelargoniums in 8-inch pots
Mr. Holder, Eton College, for 6 Pelargoniums in 8-inch pots
Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon Court, for 12 Balsams
Mr. C. Turner, for 12 Pinks
Messrs. Downie & Laird, Edinburgh, for 36 Pansies
Mr. J. Baker, Woolwich, for 12 Pinks
Mr. James, Gr. to W. F. Watson, Esq., for 24 Pansies
Mr. Epps, Maidstone, for 50 Cut Roses
C. M. Worthington, Esq., Caversham, Oxon, for 25 Cut Roses
Mr. Taylor, Gr. to C. A. Hanbury, Esq., Barnet, for 25 Cut Roses
Mr. Francis, Hertford, for 24 Single Blooms of Roses
Mr. Wm. Cutbush, for 6 Aphelexis
Mr. Halley, Nurseryman, Blackheath, for 10 Lycopodiums
Mr. Hamp, Gr. to J. Thorne, Esq., for 24 Amaryllis
Messrs. E. & G. Henderson, Nurserymen, for Collection of Gloxinias
Mr. Parker, Holloway, for a Collection of Plants
Messrs. William Cutbush & Son, Highgate, for Rhododendron Jenkinsi
Mr. Thomas Bailey, Gr. to T. T. Drake, Esq., Shardiloes, Amersham, Bucks, for 1 Providence Pine Apple
Mr. Maher, Gr. to Sir R. W. Bulkeley, Bart, Baron Hill, Beaumaris, for 1 Queen Pine Apple
Mr. Davis, Gr. to Mr. B. Blakemore, Esq., Valinora House, Cardiff, for 1 Queen Pine Apple
Mr. James Nichol, Gr. to General Studd, Oxton House, Exeter, for 1 Queen Pine Apple
Mr. Bray, Gr. to J. B. Lousada, Esq., Peak House, Sidmouth, Devon, for 1 Queen Pine Apple
Mr. Davis, Market Gardener, Oak Hill, East Barnet, for 1 Pine Apple
Mr. Ruffet, Gr. to Viscount Palmerston, Brocket Hall, Herts, for 1 Green-flesh Melon
Mr. Tegg, Gr. to Baron Hambro, Roehampton, for 3 dishes of Grapes
Mr. Harrison, Market Gardener, Weybridge, Surrey, for 12 lbs. of Grapes
Mr. Hill, Gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, for 12 lbs. of Grapes
Mr. Wood, Gr. to C. R. Scot Murray, Esq., Danesfield, Great Marlow, Bucks, for 1 dish of Black Hamburgh Grapes
Mr. Maher, Anglesea, for 1 dish of Black Hamburgh Grapes
Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., Barnet, for 1 dish of Black Hamburgh Grapes
Mr. J. A. Watson, Ealing, for 1 dish of Black Hamburgh Grapes
Mr. Sparrow, Gr. to Lord Robert Grosvenor, Moor Park, for 1 dish of Black Hamburgh Grapes
Mr. Turner, Gr. to James Hill, Esq., Streatham Common, for 1 dish of Black Prince Grapes
Mr. Hill, Keele Hall, for 1 dish of Black Prince Grapes
Mr. Thomas, Whetstone, for 1 dish of White Muscadines
Mr. Williams, Hoddesden, for 1 dish of White Muscadines
Mr. Frost, Maidstone, for 1 dish of Muscats
Mr. Allport, Doddington, for 1 dish of Muscats
Mr. Tillyard, Heckfield, for 1 dish of Muscats
Mr. Tillyard, Heckfield, for 1 dish of Frontignac Grapes
Mr. Fleming, Trentham, for 1 dish of Frontignac Grapes
Mr. Dawson, Panshanger, for 1 dish of Peaches
Mr. Hill, Keele Hill, for 1 dish of Peaches
Mr. Tegg, Gr. to Arthur Pryer, Esq., Dover House, Roehampton, for 1 dish of Peaches
Mr. Ewing, Anglesea, for 1 dish of Nectarines
Mr. Sparrow, Moor Park, for 1 dish of Nectarines
Mr. Taylor, Market Gardener, Brentford Hill, Middlesex, for 1 dish of Black Cherries
Mr. Taylor, do., for 1 dish of White Cherries
Mr. Widdowson, Gr. to John Baines, Esq., Charleywood House, Rickmansworth, Herts, for 2 dishes of Strawberries
Mr. R. Smith, Market Gardener, Twickenham, Middlesex, for 4 dishes of Strawberries

BRONZE MEDAL.

Mr. James Harlock, Gr. to R. W. Nutter, Esq., for a New Plant Erica grandis
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesden, Herts, for 12 Exotic Ferns
Messrs. Jackson & Son, Kingston, Surrey, for 12 Exotic Ferns
Messrs. Jackson & Son, Kingston, for Correct Labels
Mr. J. Dedman, Gr. to G. Foster, Esq., The Holme, Regent's Park, for 6 Exotic Orchids
Mr. James H. Baker, Powis Street, Woolwich, for 24 Pinks
Mr. R. Anderson, Nurseryman, Teddington, for 36 Pansies
Mr. Holder, Eton College, for 24 Pansies
Mr. Terry, Gr. to Lady Pullar, for 24 Single Blooms of Roses
Mr. D. Clements, for 8 Cockscombs
Mr. Gaines, for 6 French Pelargoniums
Mr. Salter, Nurseryman, Hammersmith, for 36 Pæonias
Mr. Davis, Market Gardener, Starch Green, Hammersmith, for 1 Queen Pine Apple
Mr. Constantine, Gr. to C. Mills, Esq., Hillingdon, Uxbridge, for 1 Queen Pine Apple
Mr. Ewing, Gr. to C. F. Meyrick, Esq., Bodorgan, Anglesea, for 1 Green-flesh Melon
Mr. Clements, Gr. to J. Wells, Esq., Carpenters Park, Watford, for 1 Green-flesh Melon
Mr. Dawson, Gr. to Earl Cowper, Panshanger, Herts, for 1 Scarlet-flesh Melon
Mr. Hutt, Holly Lodge, for 1 dish of White Muscadine Grapes
Mr. Phipps, Gr. to the Earl of Carnarvon, Highclere Castle, Newbury, Berks, for 1 dish of White Muscadine Grapes
Mr. Miller, Eardiston Hall, for 2 dishes of Peaches
Mr. Snow, Silsoe, for 1 dish of Figs
Mr. Eastham, Gr. to G. Smith, Esq., for 1 dish of Black Cherries
Mr. Eastham, for 1 dish of White Cherries
Mr. Dawson, Panshanger, for 2 dishes of Strawberries
Mr. Turnbull, Blenheim, for 2 dishes of Strawberries

List of the Award of Prizes continued on next page.

AWARD OF PRIZES.—*Continued.*

CERTIFICATES.

Mr. Dunny, Nurseryman, Stratford, for 12 Exotic Ferns
Mr. J. Halley, Nurseryman, Blackheath, Kent, for 12 Exotic Ferns
Mr. Green, Gr. to Sir E. Antrobus, Bart., for Correct Labels
Mr. Wm. Cutbush, Barnet, for Correct Labels
Messrs. Dobson & Son, for 24 Pansies
Mr. Bragg, Nurseryman, Slough, for 36 Pansies
Mr. R. Shenton, Hendon, for 24 Pansies
Mr. Bailey, Gr. to Mrs. Butler, Haydon Hill, Bushey, Herts, for 24 Pansies
Mr. August, Beddington, for 24 Pansies
Mr. Wilkinson, Western Nurseries, Ealing, for 50 Cut Roses
Mr. Frost, Gr. to E. L. Betts, Esq., Preston Hall, Maidstone, for 25 Cut Roses
A. Rowland, Esq., Rosenthal, for 25 Cut Roses
Mr. Kemp, Gr. to J. Ruck, Esq., Sutton Court, for Hoya Bella
Mr. David Clements, Gr. to J. S. Wells, Esq., Carpenters Park, for 6 Gloxinias
Mr. Thomas, Gr. to J. Baxendale, Esq., Whetstone, for Rollisson's Unique
Mr. Charles Turner, for each of the following Seedling Pelargoniums:—Queen of Lilacs, Mrs. Turner, Rosy Gem, Ema, Mazeppa, and Perfection
Messrs. E. G. Henderson, for 1 basket of Empress Eugenie
Mr. Linden, Brussels, for each New Plant—Campylobotrys argyroneura, Boehmeria argenta, Aristolochia Leuconera, and Maranta fasciata
Mr. George Smith, Hornsey Road, for Fuchsia Prima Donna
Messrs. William Cutbush & Son, Highgate, for Variegated Geranium Lizzie
Mr. Charles Turner, Slough, for Seedling Pink Godfrey
Mr. Smith, Gr. to A. Anderson, Esq., Norwood, Surrey, for 1 Queen Pine Apple
Mr. C. Allan, Gr. to J. B. Gregg, Esq., Withington Hall, for 1 Green-flesh Melon
Mr. Gadd, Castle Gardens, Dorking, for 1 Green-flesh Melon
Mr. Frost, Maidstone, for 1 Green-flesh Melon
Mr. Thomas Bailey, Amersham, for 1 Green-flesh Melon
Mr. Beal, Gr. to A. Smith, Esq., Woodhall, Herts, for 1 Green-flesh Melon
Mr. Drewitt, Gr. to Mrs. Cubitt, Dorking, for 1 Green-flesh Melon
Mr. J. A. Watson, Gr., Vine Gardens, Ealing, Middlesex, for 12 lb. of Grapes
Mr. Tillyard, Gr. to Viscount Eversley, Heckfield, Hants, for 12 lb. of Grapes
Mr. Tillyard, for 1 dish of Black Hamburgh Grapes
Mr. C. Allan, for 1 dish of Black Hamburgh Grapes
Mr. Dawson, Panshanger, for 1 dish of Black Hamburgh Grapes
Mr. Dods, Cooper's Hill, for 1 dish of Black Hamburgh Grapes
Mr. Thomas, Whetstone, for 1 dish of Black Hamburgh Grapes
Mr. Hutt, Holly Lodge, Highgate, for 1 dish of Black Hamburgh Grapes
Mr. Phipps, Gr. to Earl Carnarvon, for 1 dish of Black Hamburgh Grapes
Mr. Taylor, Strentham, for 1 dish of Black Hamburgh Grapes
Mr. J. A. Watson, Ealing, for 1 dish of Peaches
Mr. Miller, Gr. to Sir William Smith, Bart., Eardiston Hall, Worcestershire, for 1 dish of Peaches
Mr. Fleming, Trentham, for 1 dish of Peaches
Mr. Wells, Ditchley Park, for 1 dish of Peaches
Mr. Hamp, Gr. to James Chuck, Esq., Ware, Herts, for 1 dish of Peaches
Mr. Constantine, Hillingdon, for 1 dish of Peaches
Mr. Samuel Evans, Gr. to C. N. Newdegate, Esq., M.P., Asbury Gardens, for 1 dish of Nectarines
Mr. Wells, Ditchley, for 1 dish of Nectarines
Mr. Hardy, Gr. to D. B. Chapman, Esq., Roehampton, for 1 dish of Nectarines
Mr. Williamson, Gr. to Lord Lonsdale, Whitehaven Castle, for 2 dishes of Peaches
Mr. Frost, Maidstone, for 1 dish of Figs
Mr. Iveson, Syon House, for 1 dish of Figs
Mr. Monro, Gr. to Mrs. Oddie, Colney House, St. Albans, for 2 dishes of Strawberries
Mr. Bailey, Amersham, for 1 dish of Strawberries
Mr. Turnbull, Blenheim, for 1 dish of Strawberries
Mr. Miller, Eardiston, for 1 box of Peaches
Mr. Fry, Gr. to Richard Underhill, Esq., Edgbaston, Birmingham, for 1 dish of "Sir Harry" Strawberries
Mr. Fleming, Trentham, for 1 Hybrid Melon

CUT ROSES, FIFTY VARIETIES.

MR. MITCHELL, Piltdown Nurseries, Maresfield, Exhibited the following ROSES at the Royal Botanic Society of London, June 18, which gained the first Prize:—

HYBRID PERPETUAL ROSES.—1, Alexandrine Bachmeteff; 2, Amandine; 3, Baron Larray; 4, Baronne Prevost; 5, Baronne Hallez; 6, Caroline de Sansalles; 7, Colonel de Rougemont; 8, Duchess of Norfolk; 9, Duchess of Sutherland; 10, Duc d'Elchingen; 11, Emperor Napoleon; 12, General Pelissier; 13, General Simpson; 14, General Jacqueminot; 15, General Castellane; 16, Géant des Batailles; 17, Jules Margottin; 18, L'Enfant du Mont Carmel; 19, Le Lion des Combats; 20, Louise Odier; 21, Lord Raglan; 22, La Reine; 23, Madame Ducher; 24, Madame Domage; 25, Madame Place; 26, Madame Rivers; 27, Madame Vidot; 28, Naomi; 22, Ornement des Jardins; 30, Pauline Lansezeur; 31, Paul Dupuy; 32, Prince Leon; 53, Pæonia; 34, Sir John Franklin; 35, Souvenir de la Reine d'Angleterre; 36, Souvenir de Leveson Gower; 37, Triomphe de l'Exposition; 38, Triomphe d'Avranches; 39, Triomphe de Paris; 40, William Jesse. [Malmaison.

BOURBON.—41, William Griffiths; 42, Souvenir de la

MOSS.—43, Baronne de Wassenaer; 44, Crested Moss.

HYBRID BOURBON.—45, Charles Lawson; 46, Paul Ricaut.

HYBRID CHINA.—47, Chénédolé. [d'un Ami.

TEA.—48, Gloire de Dijon; 49, Auguste Vacher; 50, Souvenir

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PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.
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Ample descriptions of this really distinct and desirable acquisition have appeared in former advertisements, but to those who may desire it full particulars will be sent on application.

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Garaway, Mayes, & Co., Messrs., Bristol
Glendinning, Mr., Chiswick, Middlesex
Gould, Mr. Jno., Rose Cottage Nursery, Redditch
Graham, Mr., Chichester, Sussex
Griffin, Mr., Bath
Henderson, Messrs. A. & Co., Pine-apple Place, Edgeware Road, London
Henderson, Messrs. E. G. & Son, Wellington Nursery, St. John's Wood, London
Hirst, Mr., Ashton-under Lyne
Jackman, Mr., Woking, Surrey
Keynes, Mr., Salisbury, Wilts
Kinghorn, Mr., Richmond, Surrey
Lane, Messrs. & Son, Berkhampstead, Herts
Lawson & Son, Messrs., Edinburgh
Lee, Messrs. J. & C., Hammersmith, near London
Low, Messrs. & Co., Clapton, near London
Meredith, Mr., Garston, near Liverpool
Niven, Mr. N., Garden Farm, Dublin
Noble, Mr., Bagshot, Surrey
Osborn & Son, Messrs., Fulham, near London
Paul & Son, Messrs., Cheshunt, Herts
Perkins, Mr., Northampton
Penyon, Messrs., Walham Green, Middlesex
Rivers, Messrs., Sawbridgeworth, Herts
Rollisson & Son, Messrs., Tooting, Surrey
Standish, Mr., Royal Nursery, Bagshot
Sutton, Messrs. & Sons, Reading, Berks
Turner, Mr. C., Royal Nursery, Slough
Veitch, Messrs. & Son, Exeter
Watson, Mr., Ealing, Middlesex
Wheeler, Mr., Warminster, Wilts
Wood, Messrs. & Son, Maresfield, Uckfield, Sussex

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ABIES KÆMPFERI
(The Golden Pine of the Chinese.)

This is unquestionably the most important Coniferous tree which has been introduced into this country since the Larch first made its appearance, and will beyond all doubt supersede it from the magnitude it attains, the value of its timber, its perfect hardiness, rapidity of growth, and its glorious vernal and autumnal foliation. On these points Mr. Fortune shall speak for himself, having seen forests of them in the North of China:—"In the spring and summer months the leaves and cones are remarkable on account of their green colour, and in the autumn the green changes to a golden yellow equally beautiful and striking. At the latter period a most marked effect is produced upon the Chinese landscape by these trees. Abies Kæmpferi will prove by far the most important of all my Chinese introductions. Like all northern Chinese plants which are deciduous, it is perfectly hardy in this country; it grows rapidly, forms excellent timber, and it will eventually produce a striking and beautiful effect upon our English landscape. The decided yellow hue which its leaves and cones present in autumn has no doubt suggested the name by which it is known amongst the Chinese, the Kin-le-sung or Golden Pine."—*Gardeners' Chronicle*, April 11, 1857.

Dr. Lindley, in describing this tree, see *Gardeners' Chronicle*, 1854, p. 256, says, "We have been able to ascertain that the plant is altogether unlike any Coniferous plant previously discovered. We are however unable to say whether it should be regarded as more a Larch than a Cedar, or more a Cedar than a Larch. This, however, is certain, that the plant is one of the most interesting which the Eastern Asiatic Flora has yet produced."

Abies Kæmpferi attains the height of 150 feet, perfectly straight, and is in fact the most valuable tree ever added to the economical arboriculture of this country. Mr. Fortune consigned the entire stock of this tree to me, and all I possess are seedlings. Plants in pots, 21s. each; a few strong plants 12 to 15 inches high, imported from the North of China, 63s. The usual discount to the trade.

LIMONIA TRIFOLIATA.

This is a singular, interesting, and very valuable plant, with trifoliate leaves and spines. It is quite hardy, having stood entirely unprotected in my nursery during the last winter without sustaining the least injury. It will form a novel and classical addition to the embellishment of our ornamental gardens, 21s. each. The usual trade discount.

CHUSAN PALM (the Hemp Palm of the Chinese).

In consequence of having received a second and larger supply of Seeds I can now offer Seedlings of last year at a very moderate price. This plant has stood during the past winter in no ways protected, and looks as green as those under glass. Price per plant, 5s. Discount to the trade.

ARALIA PAPYRIFERA
(The Chinese Rice Paper Plant).

This plant, independently of its being extremely interesting as a plant the pith of which produces the beautiful Chinese paper, is one of the finest of our foliaged plants, which are now so much sought after. I have plants raised from seed a year ago with leaves 2 feet across. Price per plant, 7s. 6d. Discount to the trade.

PINUS BUNGEANA (the Lace Bark Pine of China).

This is an extremely scarce Pine. It was introduced by Mr Fortune in 1846 to the Horticultural Society. These have furnished a few grafted plants. Those I have are from seed. It is quite hardy, 31s. each. Allowance to the trade.

FARFUGIUM GRANDE.

Variegated plants being now much in request, both for conservatory and flower garden decoration, Dr. Lindley in describing this plant in the first No. of the current vol., *Gard. Chron.*, says, "It has very large round angular heart-shaped evergreen leaves, more than 2 feet in circumference, of a peculiarly bright emerald green, copiously blotched with patches of clear yellow, having no apparent relation to the veins. These leaves stand on woolly stalks 12 to 15 inches long, and form a magnificent tuft of surpassing beauty." It is figured and described in the February No. of the "Florist" of the present year. Mr. Fortune discovered this magnificent plant in the garden of a mandarin in Northern China, where they place it in Chinese pots and decorate their gardens, producing a gorgeous effect. In this country it will form quite a new feature for vases and for flower garden decoration. It may be seen at this place in the same or rather improving beauty that it has exhibited for the last six months, and will be shown at the principal London exhibitions during the summer. It will not be sent out for some time, but orders are now being taken which will be executed with the best plants according to priority in ordering, 63s. each, with the usual discount to the trade.

R. GLENDINNING, Chiswick Nursery, London.

The Gardeners' Chronicle.

SATURDAY, JUNE 27, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 1—Royal Botanic..... 2 P.M.

THE present moment seems favourable, from more than one reason, for a *resumé* of the history of the Vine Mildew as regards its origin and treatment. Such a statement has indeed been made with much ability by one or two of our continental neighbours, but as the disease originated in this country and almost from its commencement received that treatment which has proved effectual, and one or two mistakes have crept into the French accounts, it is well that an English version of the case should also be given.

The mildew first made its appearance in the garden of Mr. JOHN SLATER, at Margate, in 1845,* and after a destructive course reappeared in 1846. EDWARD TUCKER, a man of a good deal of practical knowledge and of some powers of observation, was then his head gardener. The scientific institution at Margate was extremely active at the time, and through the zeal of its supporters a great deal of desire for accurate information was excited amongst its members, and Mr. G. H. HOFFMAN, one of its warmest friends, who was in constant

* Letter of E. TUCKER to M. GASCHET of Bordeaux, dated July 1, 1853, translated in Documents pour servir à l'étude de la Maladie de la Vigne publiés par la Société Linn. de Bordeaux, 1853.

communication with our correspondent, Mr. Berkeley, on the subject of vegetable parasites, and had an excellent microscope, encouraged and assisted Mr. Tucker in his researches. Under these circumstances Mr. Tucker acquired an accurate knowledge of the parasite, and as it was evidently closely allied to the mildew of the Peach for which dry sublimed sulphur dusted on the affected parts was the approved remedy,* it was almost a necessary consequence that he should turn his attention to sulphur in some shape or other, and after various failures with an aqueous solution of common salt and other matters, he found that sulphur was the only substance which really checked the disease. This was applied in various ways, but he finally gave the preference to a mixture of sulphur and limewater. In July, 1846, Mr. John Boys, an eminent solicitor of the same town, arrived very nearly at the same practical results, though without any accurate knowledge as to the nature of the parasite, and indeed with a decided opinion that the disease arose from unusual disturbances in the earth's electricity. He tried almost every form in which sulphur could be used, but his favourite treatment was dusting the pipes by which his conservatory was heated, after they had been moistened with a mixture of black sulphur and quick-lime. The disease was soon observed in other parts of Kent and in the neighbouring county of Sussex, attacking indiscriminately the Vines in the open air and under glass. Up to the end of 1846, however, not a single communication had been made to this journal on the subject, the inference from which is that the malady was quite local; nor indeed is there a single communication in 1847, with the exception of the one by Mr. Berkeley, which has so often been quoted. The first public notice, as far as we have been able to ascertain, was a short communication by Mr. Tucker himself in the "Gardeners' Journal," 1847, p. 212, not the *Gardeners' Chronicle* as stated in some French reports. In July of that year Mr. Berkeley examined the disease personally with Mr. Tucker and Mr. Hoffman, the result of which is reported in *Gardeners' Chronicle*, 1847, p. 779. The connection of *Oidium* and *Erysiphe* is there noted, but as no *Erysiphe* had ever been observed, the parasite was figured under the name of *Oidium Tuckeri* as a proper compliment to the person who first noticed the disease, who had taken so much pains to study it, and had arrived at such a satisfactory result as regards its treatment. To him beyond all doubt is due the merit of the first diligent research and judicious treatment, and he is the first person who published anything on the subject †. The first scientific notice was that by Mr. Berkeley in Nov., 1847, and the use of sulphur and lime water was at the same time recorded as successful in the hands of Mr. Tucker.‡ The disease now began to spread more widely, and in 1848 it was prevalent about London, and was observed in Baron Rothschild's garden at Suresne, near Paris. Complaints in consequence were abundant during the year, and Mr. John Kyle, of Leyton, was very successful in applying flowers of sulphur and water, and in dusting the leaves when wet with the same substance (*Gard. Chron.*, 1848, pp. 493, 523). No sulphur was however used at Paris, the chief remedy as it appears being Eau de Goudron, or water boiled with rosin.§ In 1849 the confidence in the use of sulphur was such that the disease was no longer feared in England, though very prevalent, as it was in most of the gardens about Paris. In the Comptes Rendus of March, 1849, the use of sulphur is mentioned, but without the slightest notice of what had appeared in this Journal in 1847 and 1848. The eyes of cultivators, both at home and abroad, were now pretty well opened to the use of sulphur on a small scale, when in 1849 Mr. Berkeley visited the Hop districts about Maidstone for the purpose of studying the diseases of Hops, and in consequence of what he saw recommended (*Gard. Chron.*, 1849, p. 466) sulphur to be employed on a large scale, for which purpose experiments were at once instituted by Mr. Erskine, the intelligent agent of Mr. Wykeham Martin, of Leeds Castle, who in common with others invented machines for the dispersion of the powder, all of which are however now superseded in Kent by a common flour dredger.‖ In the following year Dr. Plomley gave a lecture at Lenham on the subject, and the remedy is now used successfully over thousands of acres. The Vine mildew had not yet spread extensively into the more important Vine districts, but in 1850 sulphur and water was used by Duchartre in a Vineyard at Versailles with the same success as in England. The following year the mildew spread far and wide exciting the greatest fear in every direction, and the first communication in France to an Agricultural Body was then made by Dr. Montagne, who had been active from the first in diffusing correct information. Encouraged by the success which attended his suggestions in the Hop gardens and the practicability of the application of flowers of sulphur on a large scale, Mr. Berkeley proposed its use in the Vine districts (*Gard. Chron.*, 1851, p. 547), and under the auspices of M. Marès and others it is now applied with the greatest benefit to the extent of some thousands of tons. As in the case of Hops all sorts of objections have been made to its use, but they have proved utterly valueless, and there is every reason to believe that should the mildew continue it will be as much under the control of the cultivator in the field as in the Vinery.

In this same year, however, the official journal of the two Sicilies still recommends lime and water without any mention of sulphur, and even in the "Revue Horticole," 18 Juin, 1851, Léveillé is doubtful about the efficacy of sulphur, in the belief that as much is due to the liquid with which it is mixed as to the mineral (*Gard. Chron.*, 1851, p. 628, 644). Léveillé, however, was strongly prejudiced against the notion that the disease was at all dependent on the mildew, which he looked upon as a consequence and not a cause. In 1852 ("Revue Horticole," May) a method was strongly recommended which is now well known under the name of Grison's method, which differed but slightly from that of Mr. Tucker, and it was extensively employed by Dr. Turrell. A report of this will be found in *Gard. Chron.*, 1852, p. 419. In the following year another modification of Mr. Tucker's plan was proposed by Dr. A. P. Price, a native of Margate, which consisted in the application of a solution of pentasulphide of lime, which was eminently successful, and which is now employed largely in Portugal by Mr. Forrester, who had found crude sulphur injurious, and to this method he adds fumigation by the rapid passage of a stream of sulphurous acid from burning brimstone. We are still however in favour of the flowers of sulphur, and hope that Mr. Forrester will eventally confirm us in our good opinion of its universal applicability. It remains only to state that as far as we know Mr. Berkeley first pointed out the *rationale* of the effect of sulphur on mould in this journal 1856, p. 501, to which he has lately added, on the suggestion of Dr. Francis, that the efficacy of sublimed sulphur may depend partly on the sulphurous acid which adheres to its particles when dry.

Though the mildew was at first slow in its progress, after 1850 it spread with the utmost rapidity. It soon infested the greater part of France, Spain, Portugal, Italy, the Ionian Islands, Smyrna, the Southern German Vineyards, Algiers, Madeira, and even the Island of Bourbon. In America it uniformly spared the native Vines and their varieties, but appeared on imported Vines of European origin. We believe, however, that it has done but little damage, as we have seen no specimen of the Oidium from the United States. In the greater part of this wide tract sulphur has only partially been used, but where ignorance and prejudice have not precluded its application, the disease has been greatly modified. Reports of amelioration were prevalent in 1855, but in 1856 some Vineyards in Oporto gave only a nominal produce, and the improvement if real was only partial. In our own country it has disappeared in great measure from the persevering use of sulphur, and it is now an established fact that in almost every case the easiest and most economical and efficacious treatment is that of applying the sublimed mineral in a dry state.

The Vine growers have in this case reaped the advantage of the controversies which existed as to the origin of the Potato murrain. Every theory has failed except that which was called the fungal theory, and though, from the peculiar nature of the Potato parasite and certain attendant complications, no effectual remedy has been at present found for that malady, the certainty that the Vine disease was due to a fungus has made cultivators more ready to apply the known remedy for such affections. The upholders of the fungal theory in France were in the first instance silenced by ridicule, and the Vine growers have mainly to thank those observers who amidst evil report and good report have abided firmly by their original opinion. Had the anti-fungalists retained their sway in France, we believe that the cultivation of the Vine would ere this have been considered utterly hopeless.

* In *Gardeners' Chronicle*, 1846, p. 269, Mr. Berkeley speaks of sulphur as the general remedy against the white *Oidia*, or infant Erysiphe, without however much faith in its efficacy. Mildew at that time was thought to be almost incurable. In an earlier part of the volume an aqueous solution of saltpetre is recommended, and at p. 774 flowers of sulphur, a very old practice. The article at p. 269 must be what Dr. Plomley alludes to in his lecture on Hop Mildew, for there is nothing on the subject in the *Agricultural Gazette* of that year.

† Berenger in Il Coltivatore, Aug. 5, 1852, says that it appeared in Prussia in 1835, and Dupuis states that he observed it on the Rhone in 1834, and communicated the discovery to the Annals of the Agricultural Society of Lyons in 1839, but neither has any proof to show that the affection was the same.

‡ Mr. Berkeley had access afterwards to Mr. John Boys' Mss. suggesting other forms of sulphur as noticed in Journal of Hort. Soc., 1851, vol. 6, p. 293.

§ At a later period Baron Rothschild's gardener, M. Bergman, used sulphur sprinkled over hot-water pipes. Maladie de la Vigne par M. Londet. Paris, 1852.

‖ These sulphurators appeared many months before that of Gontier.

We are requested to state that at the next meeting of the Horticultural Society in Regent Street, on the 7th of July, the Chamæcyparis thurifera, for which there are so many applicants, will be drawn for. We believe the chances will be about two blanks to one prize.

APRICOTS IN ORCHARD HOUSES.

Although the strictures of my friend and your correspondent, "X. Y. Z." are not written in the spirit of a kind-hearted garden-loving person, they demand some attention from me as he uses my name freely. In his visit here he reminds me of a picture amateur with a peculiar twist in his temper, who in looking over a gallery of pictures will pass over all the gems and feel no gratification unless he can find a daub or two so as to be able to point out to his friends their defects. My Peaches, Nectarines, Plums, Cherries, Pears, Figs, and Vines are all most fruitful and flourishing, but my Apricots, with some exceptions to be mentioned, have failed in giving a crop this season. In 1853-4 and 5 Apricots in pots bore most abundantly here, even the smallest trees about a foot high were laden with fruit. In 1856, owing to my being cramped for room, my bearing Apricot trees were placed in one of my houses with hedges for walls; these were in full bloom on the morning of the 31st of March, when we had 14° of frost in the open air and in the house about 8°; this unusually severe frost destroyed a good portion of the bloom, but still there was a fair crop. This season my Apricots, I repeat, are, with some exceptions, a failure. At first I was inclined to impute this to the trees having become weak in constitution by the heavy crops of preceding years, but on looking over them I found the young and vigorous trees which had bloomed most perfectly had all dropped their blossoms without setting their fruit. What could be the cause of this?—why should the Apricots fail, and the Peaches and Nectarines standing in the same house set their fruit most abundantly? I confess that at first I could not solve this question, till I found in one of my hedge-houses in a distant part of the nursery, in a situation exposed to the full force of the north-east wind, which blew completely through it, some small trees of Apricots full of fruit. These trees from being in so cold a place have bloomed later than my old stock trees, which from being placed in the warmest and most unventilated border of my Peach house had bloomed earlier than usual, and during the mild moist weather we had (as I learn from my journal), from the 10th of March till the 22d of April, although the house was ventilated as usual the trees, owing to their situation, had not air enough, and the moist weather evidently prevented the pollen from acting. I have now, therefore, come to the conclusion that Apricots under glass require even more ventilation than I have recommended in page 16 of the "Orchard House," 4th edition, and that the portion of the house allotted to them should never be closed, night or day, while they are on bloom. It is just possible that a very severe wind frost may render it necessary to close the ventilators on the windward side of the house; but I have found that, although 4° or 5° of frost may injure *some* of the blossoms, it will not be nearly so destructive as a close atmosphere, under the influence of which *every* blossom, however well developed and apparently perfect and beautiful, will drop off. Some of my trees were last April most charming objects, being literally covered with blossoms, yet on some trees scarcely a fruit is to be seen. Success had made me too careless—a frequent occurrence in gardening matters. I have had great success in the culture of Apricots in pots, and have no fears for the future; and I firmly believe that Apricots will be grown under glass to an extent of which at present we have no idea; for planted in the borders of span-roofed houses like that of Mr. Ker's, formerly described, that is a house 14 or 16 feet wide, a path in the centre, and a border on each side nothing could do better. I have four trees of this description eight years old planted in the border of an orchard house; two of them have been biennially removed and two suffered to grow at will, and I can now plainly see by the fertile and healthy condition of the former how eligible is this mode of culture for establishments requiring larger quantities of fruit than can be given in pots or tubs. I have thought it only right and proper thus far to give your readers my experience in the culture of Apricots.

To the first remark of my courteous amiable friend "X. Y. Z." I can only say that I do annually all that I say *can* be done, and I firmly believe that I am merely a rough and humble pioneer in Orchard house culture; it can be and will be carried out to as great an extent as railways have been. The opposition it has met with, to compare small things with great, is something like what

is so well told in the early life of George Stephenson, with regard to the Stockton and Darlington railway. Its position now may be compared with the Manchester and Liverpool line before the "Rocket" ran its well-known race. Very soon this mode of culture will be like our iron ways spread over the whole face of the country, for the uncertainties of fruit culture, without the aid of glass, have become intolerable. To the third remark of my friend respecting the price of 5*s.* each for Peach trees in a bearing state, I do not think they can be thought by a person in a proper state of mind too dear. A tree grown for one or two years under glass, syringed and watered daily, pruned, and when infested by insects dressed and carefully attended to, is not dear at 5*s.* With respect to the number of trees which may be selected with blossom buds on them from a given number, something depends upon the season. The trees last year, although they grew well, did not perfect so many blossom buds as usual, owing to the very short time we had hot sunny weather. This season seems to be highly favourable to their growth and perfection, and I firmly believe that out of 10,000 fruit trees in pots, upwards of 8000 will be in autumn trees in a bearing state, *i. e.* full of fruit-buds. There are a few words to be said about trees bearing the first year, which I am glad to have an opportunity of placing before your readers, and the courteous passage in the note of "X. Y. Z." commencing "Those who buy 5*s.* trees" is a further inducement. In pages 14 and 15 of 4th edition of Orchard House, I have named October as the best month for potting trees in a bearing state, and I say that if potted as late as March no fruit must be expected the first season. The experience of last spring will enable me to give further information on the point in the 5th edition.

Towards the end of last February I had a considerable number of successional Peach trees in pots. They were mostly grafted plants full of blossom buds, and the prettiest little trees ever seen. I was proud of them, and anticipated the pleasure of having a number of trees in comparatively small pots to serve as ornaments to my dessert, so I had them shifted from 7-inch into 10-inch pots, taking care not to reduce the balls of earth round their roots to too great an extent. There were from 400 to 500 trees thus shifted, and placed in a good situation in one of my orchard houses; they bloomed beautifully within about three weeks after being potted but nearly every blossom dropped, for only about five trees have fruit on them. They were very young, and so I imputed the failure to a want of "vital force" in the trees, but in another house were some 40 or 50 trees stout and strong two and three years old, full of blossom buds but irregular in shape and unsaleable; these I had potted at the same time, their balls slightly reduced and all the usual care taken. They bloomed apparently in great perfection but not a fruit is on them, so I have now come to the conclusion that fruit trees to bear the first season, and more particularly Peach and Nectarine trees, require to be potted or planted in October or early in November, so that fresh feeding roots are formed before the blooming season comes on, the blossoms will not then lack support and will set their fruit. My old trees of Peaches and Nectarines have been in the same (13-inch) pots for seven years, the soil was taken out from the surface as I have directed in my little book and replaced with rich compost. About the same time the trees above alluded to were repotted, but no blossoms fell, and the crop of fruit as usual is fine and abundant. Taking however a lesson from the failure of my spring-potted trees, I beg to recommend to your orchard house readers to give the annual top-dressing in November rather than in February, for I feel convinced that taking out the earth and reducing some of the fibrous roots in the operation must to a certain extent weaken the tree, and prevent its blossoming with the vigour it would do if it were top-dressed in autumn and fresh roots formed and rooted into the compost.

It will thus be seen from what I have stated that trees even if full of blossom buds require some care, if required to bear the first season after repotting. I fear from recent experience that trees sent to long distances, and thrown about on railways so that their balls of earth are much shaken, will in general require a year to establish themselves into a bearing state; but I also know that "5*s.*" bearing trees will, when conveyed to their destination with care, and if potted in October, bear nice crops of fruit the first season after being purchased.

I much admire the refined and gentlemanly expression of "X. Y. Z."—"We amateurs must not believe all that is said in Mr. Rivers' book"—how courteous! Now I say that your readers may believe not only all that I say in my book, but also all that I have said here. Those who, like your correspondent, are loath to believe, must come and see. My Apricot trees, although a failure this season, are placed in a conspicuous situation, for I have nothing to conceal in my culture, and I always invite a friendly discussion if I happen to see visitors. *Thos. Rivers.*

VEGETABLE PATHOLOGY.—No. *CLXIV.

371.* CARCINODES (*Cherry Canker*).—Nothing is more common than, when grafts or buds are worked upon an ungenial stock, or one the rate of the increase of whose diameter is less than that of the scion, for the base of the latter to swell out and acquire a growth resembling somewhat in outer appearance that of a wart or exostosis. This depends partly on the diversity of their rates of growth, but partly also on the check which the sap receives at that point. These swellings are often remarkable in Cherry trees, and unfortunately their bark is very apt to become diseased, and death ensues. Were no other phenomenon attendant on the death of such trees, we might at once conclude that it was altogether due to the unfitness of the stocks which are in ordinary use; but the truth is that a lingering death has for years been partially destroying them before their complete and final destruction has taken place. The same trees which show the swelling at the juncture of the stock and bud, also exhibit frequently a greater or less quantity of similar swellings upon the branches, in consequence of which parts of the branches are failing every year. These swellings are always at the base of some lateral branch, and resemble in every respect when old the larger swelling of the trunk. The bark is equally rugged, cracked, and porous, the texture of the wood distorted, and their effect upon all that is above them is finally the same. They first appear when the branches are three or four years old; at least we have seen none of an earlier date. The first indication is a slight swelling at the very base of the young branch, apparently arising from some hindrance to the return of the sap to the mother branch. In consequence of this the base of the branch, and more especially the bark, is hypertrophied, exactly as if a ligature had been applied. The bark cracks and exposes the inner tissues, which however in the first instance soon get hardened by exposure to the atmosphere. That portion of the bark which is in contact with the alburnum and the alburnum itself become spongy and full of large cavities, the medullary rays are more developed than usual, and the course of the woody fascicles distorted. The bark in process of time cracks more and more; acari take possession of the fissures, other insects intrude, the tissues are exposed to wet and cold, and finally the supply of nutriment is completely cut off from below, and the branch perishes. Sometimes before this takes place, that part of the mother branch which is beyond the knot has gradually given way from the progress of the disease, though the swelling does not extend all round, and circulation is carried on for a time by the bark of the lower side of the branch, which remains smooth and even, for the branches whose bases swell appear to be uniformly those which are developed on the upper side of the mother branches in the direction of light. In the same Cherry holt some of the trees may show no indication of the disease, while the rest are in a dilapidated state, and none appear to be attacked till they are of some years' standing. The affection then seems clearly to be of the nature of disease, and not to arise from what may be called mere mechanical causes. In such trees it is not uncommon to find fruit of very different colour on different branches. While some attain a deep crimson, approaching to black, others, by a sort of chlorosis, as it should seem, are always of a pale hue resembling scarlet rather than crimson. The disease again appears to be in great measure constitutional, as it attacks particular individuals, which are subjected to precisely the same external conditions as those which escape, and like all constitutional maladies it is very difficult of cure. It is, however, probable that the check of the sap above is connected in the first instance with that at the trunk below; and if so, the most likely mode of palliating the evil is to be more careful in the selection of stocks. A wild Cherry of slow growth is not likely to agree with those varieties in which the wood is rapidly developed, though it may tend to make the bud more rapidly productive. I have in no case seen this affection attended by gumming, a circumstance which checks the rapidity of the disease. *M. J. B.*

Home Correspondence.

Altitudinal temperatures.—I am much pleased with your article in last week's Number on spring temperatures at various elevations, and though my experience and observations have scarcely the amount of exactness necessary for your purpose, I hasten to lay before you the impressions I have received from three years' careful observation. Apart from the differences of temperature resulting from every large increase of elevation above the sea, the laws of which are approximately known, and the differences of temperature resulting from variations of soil, it appears to me that the following points must be borne in mind:—1st. That frost accompanied with wind is most destructive to the blossoms of trees, &c., exposed to its direct action. 2nd. When frosts are accompanied with fog the damage is greatest on the low ground or wherever the fogs are most dense. The observations on which I found the first point are given in the proceedings of the Pomological Society for 1855. That wind *hastens* the effect of cold is well known, and when the frost is of short duration trees, &c., are more liable to be reduced to its minimum temperature or nearly so than if the air were still. The second point, that frosts accompanied by fog are most destructive on low ground or where the fogs are most dense, I would support by observations made last year and this. The blossoms of Pear trees in the lowest part of my property were destroyed last season by foggy frost to the extent of 80 per cent. at 10 feet from the surface, about 50 per cent. at 20 feet from the surface, and uninjured at 30 feet, (I quote from memory) and this season the frosts were of the same description, and the result as tested by examination of the ground as it rose from the brook, showed that the damage diminished gradually—the lowest being the most injured. The ground was divided for this comparison into belts by contour or level lines following the inequalities of the surface, each 5 feet above the other. Hessell and Beurré Diel Pears had all their blossoms destroyed in the valley, but set a portion of their fruit 70 feet higher up the hill; the damage to the Gooseberry and Currant crop was also far greatest on the low ground and diminished gradually with the ascent. I consider that these results are not due to the direct effect of radiation, that is, of the simple cooling which each portion of the surface of the ground sustains, but is its accumulated effect; the air cooled by the surface rolling from the high ground and filling up the valleys and hollows from whence it has no escape, and where it rises to a height determinable by the relative sizes of the uplands and lowlands. Where the valley is broad and the margin of upland narrow the height will be small, where the valley is narrow and the uplands broad the height will be great. Supposing these views to be correct, the observations at Brussels quoted by De Candolle may be reconciled with those of the Horticultural Society if the former were made on high ground in windy weather, and the latter on low ground in foggy weather. Perhaps even the presence of fog may not be necessary to the result, but simply such an amount of calm as would permit the cooled air to descend the hill sides and accumulate; this is a point I have not investigated and perhaps it is not important to horticulturists, as most of the great spring frosts are accompanied by wind or fog, and as the damage to vegetation is supposed to be greatest when moisture is present, the care necessary for avoiding the greater evil will protect us from the lesser. In support of the view of its being not the simple but the accumulated effect of radiation which causes the great damage to fruit blossom on low lands, I would submit that were it otherwise the effect should be nearly the same in valleys, on hill sides, and on elevated table lands, which we know is not the case. The prize essay on hoar frost in the Transactions of the Highland Agricultural Society, extracts from which are given in Stephens's Book of the Farm, throws much light on this and should be read by all interested in the subject. A comparison of observations like those of the Horticultural Society with a similar series on high open ground, above the influence of fogs or accumulations of cold air, would probably settle these points and enable us to decide where and how to choose sites for planting with some approach to confidence, as also where dwarf and where standard trees should be used.—*Richard Varden, Seaford Grange, Pershore.*

Cactus Fodder.—M. Millon, an Algerian colonist, according to a report by M. Payen to the Central Agricultural Society of France, has found in the thornless species of Cactus a valuable food for cattle in Algeria; because it supplies the want of green fodder during the season which, from the month of June forwards, burns and destroys every sort of herbaceous vegetation which cannot be continually watered or irrigated. Is not this hint worth consideration by settlers on certain tracts in Australia and on islands like Ascension? *E. S. D.*

Sulphuring Vineries.—I have this year a promise of some Grapes, which for three seasons past the mildew has entirely destroyed, attributable doubtless to the filthy state in which I found the place on taking possession. I had before applied sulphur in various ways, and this year I only mixed up such a quantity in water as would freely pass through a Read's hand syringe, and dashed it freely on the glass above the Vines. The sulphur adhered to the glass and dried on, but in windy weather is partially detached in fine powder, and falling on the leaves, keeps them under the continued influence of its effects, and certainly a cleaner and more healthy foliage cannot be desired. I may mention that a Black Hamburgh recently introduced began early to show symptoms of mildew, but entirely recovered, and has not since been unhealthy. I shall follow this plan earlier next year, and look forward to the same happy results; there is so little trouble in the application, and the effects are so continuous (since there is yet a good quantity of sulphur undetached from the glass), that I would advise Grape growers to do as I have done. I fancy that the plants on the stands below are less affected with red spider than in former seasons, arising perhaps from the sun's rays acting on the sulphur through the glass, and slightly vapourising it. *Thomas Ingle, M.D., The Villetta, Emsworth, Hants, June 24.*

Blue Hydrangeas.—I have heard, and I think from good authority, that any Hydrangea may be made to flower blue by being watered with water impregnated with iron. In this neighbourhood (Tonbridge Wells) there are many of that colour, and it is supposed from the water being so irony. I have also heard that red-hot iron being immersed in the watering pot will even have the effect. *A Subscriber.*

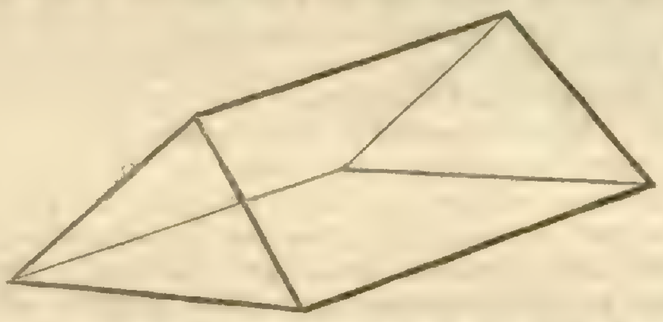
Orchard Houses.—As the communication of "X.Y.Z." of last week might tend to create groundless fears as to the success of the orchard-house system of cultivation, I think it right to state what my experience has been in this matter, and I may truly add that fewer things have afforded me greater satisfaction than Mr. Rivers's invention. I shall be happy to prove, by ocular demonstration, to any person the truth of what I am about to assert. My orchard house consists of between 60 and 70 little trees in pots, viz., Peaches, Nectarines, Apricots, and Plums, many of which set with from 6 to 10 dozen of fruit to a plant, particularly an Apricot with 10 dozen; they now on an average have each from two to three dozen of the finest fruit, and at least a fortnight earlier than the fruit trees out-of-doors. Of this number there have been only three or

four failures, and even these have some fruit on them. In addition to these I have between 20 and 30 Vines in pots, all with abundance of fruit, one with 16 bunches, averaging 1 lb. a bunch. Another Vine, which came from Mr. Rivers's last year in a pot, was planted in the earth; it now has four bunches, the whole of which will weigh 16 lbs. No one will believe this without seeing it; I therefore invite any number of persons to inspect the crops, a report of which they can give in the *Gardeners' Chronicle*. I state nothing but what I can prove. My trees never had a curled leaf, and never exhibited unhealthiness in any form, except when attacked one day with aphides, which one dusting with the powder invented for destroying this pest set right. The house was erected last year, so that this is only my first year's experience. I sent an intelligent gardener twice to Sawbridgeworth to learn the system, and inspected the crops there myself when ripe. I purchased nearly all my stock from Mr. Rivers, and I attribute my success in a great measure to the plants having excellent roots. The climate of the orchard house in spring is most beneficial to invalids, to whom the progress of the plants seems to afford great interest. Any person applying by letter to Mr. C. Powell, Hurst Green, Sussex, will receive an order to inspect the crops. *S.*—Apricots I am certain can be grown in orchard houses with the greatest success. Two years ago I erected two orchard houses here, the one was heated with hot-water pipes, and was worked at the same time as our early Peach house; the same boiler heating both. We planted it full of Peaches, Nectarines, Apricots, Plums, Cherries, Gooseberries, Red and White Currants, all of which bore heavy crops, but none more so than the Apricots, fruit of which gained the first prizes at the Royal Botanic and Watford exhibitions last year, besides maintaining a constant supply of fruit for dessert for nearly six weeks before they were ready to gather from the open wall. Last year they were ready to gather about ten days after the Peaches and Nectarines were ripe in the early house; this season they were started at the same time, and the Apricots were about five days later than the Peaches and Nectarines. On one tree I counted to-day 13½ dozen of fine fruit, a dish of which I intend exhibiting at the Royal Botanic Society's Exhibition next week. I do not remember either last year or this to have seen one Apricot drop from the trees while stoneing, as Peaches and Nectarines generally do. I did not find them do quite so well in the orchard house, which was not heated, and the flavour of a forced Apricot is very superior to that of one on the open wall. I have tried several sorts, but have found the Moor Park to be so much better than the others that I have forced none but itself. I think "X. Y. Z." has come to too hasty a conclusion in condemning the culture of so rich a fruit because he failed in it, and did not see quite so much fruit on Mr. Rivers's trees as he expected to find. *John Monro, Gr. to Mrs. Oddie, Colney House, St. Alban's.*

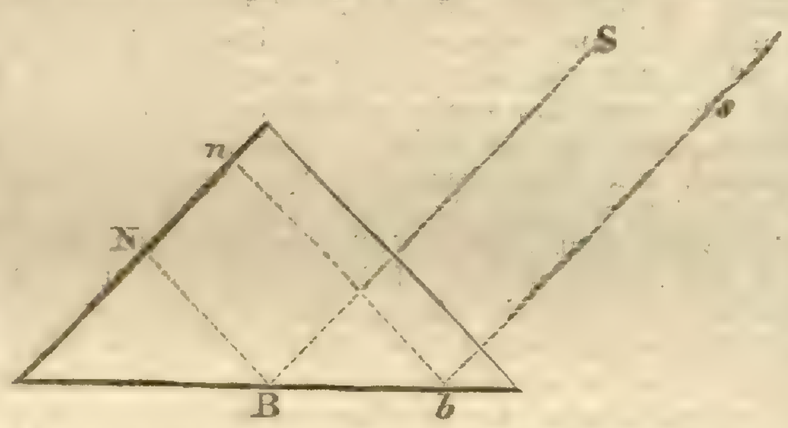
Training Wistaria sinensis over Trees.—In your second notice of Mr. Fortune's work "A Residence among the Chinese," you allude to the extreme beauty of the Wistaria (Glycine) sinensis when attached to trees in China. Mr. F. I observe is doubtful if it would succeed equally well in England, but hopes that the experiment may be tried in the warmer parts of Europe and in the United States of America; I sincerely echo that sentiment, adding and at home; and I trust that ere long such beautiful objects may be numberless, in England as well as abroad. I knew a specimen to be growing and flowering most vigorously firmly attached to a large Pear tree (near which it had been planted some years) in the Nursery of Mr. J. S. Haywood at Lower Wick, near Worcester, and I have little doubt if it be still thriving that it has nearly covered the tree and is in a fair way to become such a sight as Mr. F. so graphically describes. The specimen I name is (or was) by the road side, and may be seen by all passengers between Worcester and Malvern, and was when I last saw it about 20 feet high. I am sure Mr. Haywood will be glad to give any information about it at any time. I can specially recommend this experiment in the West of England, for in this neighbourhood are numerous fine specimens against walls and houses which flourish exceedingly, equal if not better than at Worcester. I have frequently recommended the Wistaria for covering unsightly trees, and have never heard that it did not succeed well where adopted. Perhaps it would not be cut so by the spring frosts on trees as against walls, for the one in question seldom budded so early as one a few yards from it on the south side of a house. I can only hope that all who have a suitable tree will be guided by Mr. Fortune and try the experiment. If they succeed, what a great gain! and should they not the outlay is very trifling. *Robert H. Poynter, Taunton, Somerset.*

Laburnum Sports.—Your correspondents "C. D." and Mr. Fitt speak of "a bud" giving birth to a Cytisus purpureus on a Purple Laburnum stem; from this I infer it had been inoculated in the ordinary way. In 1848 or 1849 I inoculated a lot of Laburnums with the purple variety; three specimens now remain widely apart in the nursery grounds. On one there are now 13 tufts of Cytisus purpureus on the purple branches, one of them terminating the limb, and on the two others six and nine similar tufts. Although yellow shoots have proceeded from the purple original, the Cytisus proceeds only from the Purple Laburnum in two instances; the purple and yellow bloom proceed from the same bud, and in several instances single bunches of yellow bloom appear on purple branches, which are heaped with rich blossoms. One such bunch comprised 13 racemes, but where an entire bunch of Yellow Laburnum appears, neither C. purpureus nor the purple variety is seen in any instance, but the bloom is more luxuriant, longer in the racemes, and of a pale canary colour. I have mentioned these facts before, but as yet have received no satisfactory explanation of them; something may, however, now emanate from the extra attention given to the subject. *F. E. Madden, Ballinasloe.*

Plan for increasing the effects of Solar Heat.—Permit me to bring under your notice an application of science to increase the effect of solar heat in the practice of horticulture by means of a cover suitable for hand-lights, frame-tops, roofs, and reflectors. The form is simple, being composed of two inclined sides or planes meeting in a continuous ridge at the top and terminated by vertical ends. The geometrical section is a right angled triangle, the lower arcs measuring 45°, and the upper 90°, or an approximation to that figure. For hand-lights, frame-tops, and the roofs of plant-houses,



the front or south side and the ends are intended to be glazed with transparent glass of the ordinary kind, but the north side, or back, is intended to be of opaque glass, or other suitable white and polished material to reflect rays of light and heat. Then according to the law of physics every such ray passing through the transparent side, in a direction perpendicular to its surface, would rise from the base at a corresponding angle in the opposite direction, and striking the opaque back or reflector would be again dejected, and thus wholly absorbed by the plants and soil. For forwarding ordinary esculents the use of the reflector exclusively, leaving the front and ends unenclosed, would frequently, it is presumed, be found sufficient. *Thomas Morris, Southfield Grange, Wandsworth, Surrey.* [The subjoined represents what we understand to be a section of the cover described. The side next S is transparent; the side N is opaque, with a reflecting internal surface; and it appears that Mr. Morris presumes the base B is also reflecting. Admitting this to be the case, a ray of light from S, falling upon the transparent side, would pass through it to B; then, the angle of reflection being equal to the angle of incidence, the ray would be reflected to N, where it would meet the opaque side at right angles, and would consequently be again reflected to B. All



other rays, as *s*, *b*, *n*, would of course be similarly reflected. A similar contrivance has been employed for placing over the rows of Peas, &c., early in the season, the side N being wood, but that was intended rather to prevent radiation, the wood being a slow conductor of heat compared with glass. It is not by any means clear that the sun's rays would be reflected from soil and vegetation as it would be if the base B were a perfectly reflecting surface, as above supposed. Dark soil would at once absorb the rays, so that little benefit beyond preventing the escape of radiation could be derived from the opaque side, N, and none except when the sun shines, and then ventilation, and not a reflector, is usually required. *R. T.*]

Early Strawberries in the Open Ground.—I see in your Paper of June 13th that Mr. Cuthill gathered his Black Prince on the 9th of June in the south of England, and I in the north gathered the same sort on the 12th, which I sell at 1*s.* per quart. I also gathered on the 19th splendid fruit, well coloured, and of good size and flavour, of the following sorts, viz., Triomphe (an American seedling), Marquise de Latour Maubourg (French), Princesse Royale (French), and Ne plus Ultra (Belgian); all the latter were grown upon strong cold soil and rather shaded, while the Black Prince was upon the warmest and best place, thus showing the Black Prince to be a week earlier only with the advantage of the earliest and best situation; the sorts came in about as they stand above. Sir Harry and Keens' Seedling will take about 10 days yet to ripen. *William J. Nicholson, Egglescliffe, near Yarm, Yorkshire.*

Lunar Influence.—The record of the weather at Chiswick, published weekly in your columns, affords an opportunity of testing to a certain extent the accuracy of some observations which I have made in this neighbourhood. I had noticed that changes in the weather more frequently occur about two days previous to the lunar change—not on the day itself, a "clearing up" of bad weather being the usual result; and also, though it may at first appear contradictory, that the showers which fall about the time of the moon's changes are often sharper than at other times, being accompanied not seldom with thunder and lightning. Now, a careful examination of the observations at Chiswick for the last seven years (embracing more than 90 lunations) goes far to confirm this. The same register also shows conclusively that the days on which there are frosts in winter and storms in summer, are far more numerous about the period of the changes of the moon than in the octants or half quarters, allowing of course a proportionate number of days to each. On an average of seven years they are found to be as six to four. On some future occasion I may endeavour to show how far the above results can be reconciled with the conclusions arrived at by M. Arago. *J. Park Harrison, Esher, Surrey.*

Societies.

Linnean, *May* 25 (Anniversary).—The President in the chair. The Secretary reported that since the last anniversary meeting 15 Fellows had been removed by death, and that 3 had withdrawn; on the other hand 31 Fellows, 2 Foreign Members, and 1 Associate had been elected. The finances of the Society were reported to be in a prosperous condition, the accounts showing an increased balance in favour of the Society on the year's account of 238*l.* 15*s.* 3*d.*, exclusive of the removal fund. At the ballot which ensued, G. Bentham, Esq., L. L. Dillwyn, Esq., M.P., A. Henfrey, Esq., Dr. Neumann, and J. Woods, Esq., were removed from the council; and the following Fellows were elected in their room, viz., Dr. Falconer, Dr. Hooker, R. Hudson, Esq., R. M'Andrew, Esq., and N. B. Ward, Esq. Professor Bell was re-elected President, Dr. Booth Treasurer, and J. J. Bennett, Esq., Secretary, and G. Busk, Esq., was elected Under-Secretary for the year ensuing. The President nominated R. Brown, Esq., Dr. Booth, Professor Owen, and W. W. Saunders, Esq., as Vice-Presidents. Resolutions requesting that the President's address and the obituary notices by the Secretary might be printed were unanimously adopted.

June 2.—Professor Bell, President, in the chair. F. Roper, Esq., was elected a Fellow. The Rev. Mr. Hugo exhibited specimens of the Galls which for the last few years have been so extensively produced on Oak trees in the West of England; some conversation followed on the subject of the Galls themselves, and of the Cynips producing them. N. B. Ward, Esq., exhibited a specimen of Hemitelia capensis R. Br., with the hymenophylloid appendages of its stipes, described formerly by Kaulfuss as a species of Trichomanes. Mr. Morson exhibited specimens of the fruit and seeds of St. Ignatius's Bean, obtained by him from Manilla, together with specimens of the pods of a species of Cassia, used in medicine, from New Grenada. The following papers were read:—1. "Note on the irregularity in the return of Swallows and other vernal migratory Birds, this season," by T. Foster, Esq. 2. "Additional remarks on the organ observed in the wings and halteres of Insects," by Dr. Hicks. 3. "On some peculiar structures in the antennæ of Insects," by Dr. Hicks.

June 16.—Professor Bell, President, in the chair. J. O. Westwood, Esq., exhibited specimens of the Wax Insect of Natal, and also of the Chinese Wax Insect. The following papers were read:—1. "Catalogue of the Hymenoptera collected in Borneo, Malacca, and Singapore by Mr. Wallace," by F. Smith, Esq.; communicated by W. W. Saunders, Esq. 2. "Note on the occurrence of Rotatoria in Vaucheria," by D. Oliver, Esq., Jun. Specimens of Vaucheria gathered by Mr. Oliver in the spring of 1856 at Prestwick Car near Newcastle-on-Tyne were found, on examination, to be upon several of their filaments urceolate cysts, tenanted by Rotatoria. 3. "On the growth and composition of the ovarium of Siphonodon, Griff.," by Dr. Hooker. In a learned memoir in the Calcutta Journal of Natural History on Siphonodon celastrineus, Mr. Griffith called the attention of botanists to this plant, as an instance of the occurrence of free axile placentation. This memoir had particularly attracted the notice of Dr. Hooker, as it appeared to him that if Griffith's views of the structure of this plant were correct, they afforded the strongest evidence yet adduced in favour of the theory which regards the placenta as terminating the axis, and not referrible to the carpellary leaf—a theory, however, to which his own experience was opposed. Specimens of the flowers of this tree, received from Dr. Thomson and from the same tree it was believed that had furnished Griffith materials, had enabled the author to undertake a careful examination of their structure, the results of which accompanied by drawings, formed the subject of the present paper. The author's conclusions were that Mr. Griffith had mistaken the true nature of the structures he had examined, considering the torus to be the style, and overlooking the true stigmata; and that the plant offered no evidence at variance with the recognised law of carpellary placentation. The details of the progressive development of the flower were followed by some remarks on placentation in general, especially as illustrated by abnormal growths, and the author concluded by remarking, that "if it be admitted that the parts of the flower are formed from whorls of leaves, even where appearances are against it and though it may be impossible to demonstrate it, and that this law admits of no exception, it seems natural to suppose that the law of the formation of ovules in one of these whorls should be regarded as no less absolute; and any explanation that does violence to nature should be accepted to account for

apparent exceptions, in preference to abandoning the general law and adopting a particular one for those exceptions. Under this point of view I should prefer agreeing with those botanists who consider all placentation as axial, and that carpellary insertion is to be explained by supposing axes to be produced upon the carpellary leaves, to concluding that nature resorts to two totally distinct and opposite principles in effecting the same purpose with the same organs." Mr. Miers suggested, as we understood, that the instances of axial placentation might probably be explained by regarding the ovules as being inserted on the petioles instead of the lamina of the carpellary leaves. 4. "On a monstrous development of Habenaria chlorantha," by Professor Henslow. 5. "On a monstrous development of the spike of Musa," by Sir R. H. Scomburgk; communicated by G. Bentham, Esq. 6. "On the general geographical distribution of the class Aves," by P. L. Sclater, Esq. The author, who had prepared an elaborate and instructive paper, speculates on distinct centres of creation, and proposes geographical divisions of the globe based on the present distribution of birds over the face of the earth.

ENTOMOLOGICAL: *June* 1.—W. W. Saunders, Esq., F.R.S., President, in the chair. Mr. F. Bond exhibited a beautiful series of the destructive, but fortunately rare moth Retinia Turionana, reared from the larvæ found in the shoots of Scotch Fir, in Black Park, Bucks; also the living caterpillars of two case-bearing moths of singular habits, belonging to the genus Coleophora, found on Oaks in Richmond Park. Mr. Janson exhibited a number of new or rare Coleoptera recently captured near London, including Bostrichus bispinus, found in twigs of the Traveller's Joy and Homalota confusa, taken in the nests of the dusky ant. Mr. Samuel Stevens exhibited Stenolophus elegans and other rare beetles, from Sheerness. The Rev. H. C. Stowell exhibited a fine dark variety of the Euphrosyne Fritillary butterfly. Mr. Stainton exhibited larvæ of the beautiful Hypercallia Christiernana, from Switzerland. Mr. Foxcroft sent from Scotland Dictyopterus Aurora, with the observation that the sexes differ in their antennæ; also Magdalis phlegmaticus, Ampedus tristis, &c. Mr. F. Smith exhibited some oval cocoons which he had received as those of the hornet, but which on examination proved to be the cells of a species of humble bee. Mr. Wilkinson stated that the tissue exhibited at the last meeting from America proved on examination to be a cotton fibre and not an animal texture. Some notes by Mr. Curly were read on the habits of Chelostoma florisomnis, which he had observed asleep, attached to the dead branches of Hawthorns, and sticking out at right angles from the branch, with the body quite stiff and straight. Mr. F. Smith exhibited a nest of a Brazilian wasp of the genus Polistes, some of the cells of which had been taken possession of by Trypoxylon fugax, which had stored them with spiders for her young. Mr. Newman read the description of a new British species of Helophilus found in the Isle of Dogs. Mr. Westwood made some remarks on the genus Acentria; he also called attention to the publication of the Proceedings of the Entomological Society of Holland, and to the continuation of Sepp's great work on the Netherlands Insects, of which the publication has been recently resumed. He also read the descriptions of some new exotic species of Callirhipis, communicated by Herr Dohrn. Mr. Moore read descriptions of six new species of Euploea, from the collection of the East India Company. The President announced that the annual excursion of the Society would take place on the 26th inst. to Reigate. Mr. F. Smith brought for distribution a number of specimens of British ants arranged in series.

COVENTRY AND WARWICKSHIRE HORTICULTURAL.—This Society held its first show of the season on the 16th inst. at Coventry, and taken as a whole it was highly successful. The weather was all that could have been wished, and the attendance of visitors was upwards of 5000. Among stove and greenhouse plants an admirable collection was shown by Mr. Oates, gr. to Lord Leigh, and from the same gardens were some fine bouquets and beautifully arranged baskets of flowering plants. Some very fine Peaches and Nectarines were shown, and a few good Grapes, together with one or two collections of vegetables. Novelties were scarce; there was nothing of importance beyond a new double Petunia of a lilac colour, larger than the Imperial; this was exhibited by Mr. Frost, florist, of Rugby. From Chatsworth was a fine collection of Orchids, among which were Saccolabium guttatum, Oncidium Papilio, Phalænopsis grandiflora, Cattleya Mossiæ, &c.; with these came Pines, Peaches, and Nectarines, and two large leaves of Victoria Regia were also shown from Chatsworth. From cottagers were vegetables of all kinds in season, such as might have made the exhibitors at the recent exhibition at Chiswick blush. At present the exhibitions of this society are held in a field. Let us hope, however, that some nobleman or gentleman may be found who has the cause of horticulture sufficiently at heart to induce him to devote his park or gardens to its use at least for one day; by doing so an additional charm would be lent to the existing excellent display. *J. W.*

Notices of Books.

Of the *Journal of the Linnean Society* the 5th part of Vol. II., just out, contains among other communications two important papers. One is upon the arrangement of Mammalian animals by Professor Owen; the other on the Campanulaceous and allied plants of India by Drs. Hooker and Thomson. In the latter a considerable number of new species is carefully described and a good many *aliases* reduced to their proper place. The observations upon structure embodied in these papers are of the highest scientific interest.

The March number of the *Flore des Serres*, not published till June 15, contains original figures of *Bryonia laciniosa*, a climbing annual, with insignificant flowers, and green berries striped with white, the size of marbles; a double Purple Scabious, very handsome and "grown like a Geranium, really a charming plant. It requires to be cut hard in, when it flowers profusely at the end of the year while flowers are scarce. The colour is that of black velvet with a fiery tinge." There are also figures of some new varieties of Tropæolum, of which the Belgians cultivate 20 or 30; of a very pretty little *Oxalis* (hardy) called *corniculata atropurpurea*; and of *Astilbe rubra*, a rose-coloured Himalayan plant, known in the gardens of this country,

Recent Exhibitions have shown that Mr. Parker, of Hornsey, has some capital plants for sale. In his Catalogue now before us are some of the best Orchids, Ferns, and Lycopods, in addition to the usual nursery stock; and as far as we have had an opportunity of judging they are very correctly named—the Ferns and Lycopods we believe upon the authority of Mr. Moore. The glorious Gleichenia flabellata, so universally admired at the late Chiswick show, occurs in this list, *but without price*.

Messrs. Henderson, of the Wellington Road Nursery, have brought out the first number of a work called *The Illustrated Bouquet*. It is in large quarto, extremely well got up, and contains five coloured plates; representing 1. The new magnificent double yellow Rose Isabella Grey; 2. Eight new varieties of Verbena; 3. Three Bouvardias, and Veronica decussata Devoniana; 4. Four handsome leaved Pelargoniums, and 5. Ten Gloxinias, the latter forming as well arranged a group we suppose as Mr. Andrews the artist could contrive to make out of such formal things. The whole are well drawn and carefully coloured, especially the Rose, the figure of which is really no exaggeration of the plant when in perfect vigour; the point to be determined is whether it will grow and flower thus under common circumstances; we judge from what is here said that it is at least as tender as other Tea Roses.

A Month at Kissingen (Longmans, 18mo) is a gossipping introduction to that famous seat of mineral springs, to which is added some useful information about the neighbourhood. Prefixed are some columns of formidable looking figures which however mean little more than that the Soolen-Sprudel owes its properties to the presence of common salt, muriate of magnesia, and sulphate of soda, while the others, which are weaker and not so warm, have less magnesia and more lime. In concluding her account of what she saw and did and how the waters agreed with her the authoress adds, "The wisest plan is, when the object of drinking the water is gained, to leave Kissingen as soon as convenient"—an opinion in which most of those who have been there will we think agree.

The Common Objects of the Sea Shore (Routledge, 1s.) is an account of such marine productions as everybody meets with when residing on the coast. The author, the Rev. J. G. Wood, writes agreeably and correctly, and the illustrations, of which there is a great many, have been skilfully prepared by Mr. G. B. Sowerby. So good a shilling's worth we have not seen for a long time, and we recommend it to all unlearned visitors to the coast. There is a larger and dearer and handsomer edition.

The *Tourist's Vade Mecum* (Lambert) is a little phrase book, in French and English, which may be recommended to those who are not well up in the former, and even to some others. It teaches how to ask and answer common questions in correct conversational French.

Garden Memoranda.

RIPLEY CASTLE, YORKSHIRE, THE SEAT OF THE REV. H. I. INGILBY.—This ancient castellated mansion is situated near the river Nidd, and close to the little town of Ripley, in the West Riding of Yorkshire. It is eight miles south of Ripon, four miles west of Knaresborough, and four miles north-west of Harrogate. The beautiful gardens and pleasure-grounds being open to the public on Fridays are much frequented during the season by visitors to Harrogate. The late Sir W. Amcotts Ingilby, who died in 1854, spent the greatest portion of his time at Ripley Castle, and took great interest in superintending and improving his property. The little town of Ripley having become dilapidated from age was rebuilt by him in 1828, and now presents a uniform and elegant appearance. The foundation stone of a new town hall was laid only a few days before his death. The entrance to the Castle is by an ancient lodge gate from the town of Ripley; there is a terrace to the west front, which commands a good view of the lakes, park, and country; also an upper and lower lake with waterfall, altogether about 30 acres in extent. On a small island in the lower lake are dead trunks of two fine old Oaks, which form very picturesque objects. The ground rises gently on either side of the lake, and is well wooded. A flight of steps from the terrace leads to the pleasure grounds, which are extensive, and are undergoing great improvements. The views from several parts of the grounds are truly enchanting.

The flower garden, which is about 2 acres in extent, is inclosed, and on the south side is the principal range of hot-houses, which must have cost a large sum when built. There are 10 hot-houses, and in the centre of these is a large architectural building which is used as a conservatory; it is however ill adapted for plants, as only a small portion of the roof is glass, but we understand that it is in contemplation to put a new span roof of glass on it. At the east end of the range is an aviary, an architectural building in the same style as the conservatory, and at the west end there is a similar building used as a billiard room. The whole looks exceedingly well from the entrance of the flower garden, and when the ribbons in front and all the flower beds are in full beauty, in August, the effect is all that could be desired.

Of the houses, one is used as a greenhouse, in which was a good assortment of the best Pelargoniums, Calceolarias, and Cinerarias, with some nice young Heaths, Epacrises, &c., all in good condition. No. 2 is a late Peach-house, with Vines up the rafters. Nos. 3 and 4 are fruiting Pine stoves, the plants in which were in the best possible health and vigour. At the back of one of these houses, Mr. Watson, who is gardener here, grows some excellent Cucumbers. These houses, being roomy, afford space for growing a great number of things. At the ends and along the kerbs we noticed some very good Ferns, also some good stove plants. We also observed a few good Orchids suspended in ornamental baskets from the roof. No. 5 is a Fig-house, in which there was a splendid crop of fruit, both on trees in pots and tubs, and on those planted out. Let us now enter the conservatory, or centre building, which divides the range; this contains a miscellaneous collection of plants, among which were Orange trees, Camellias, and Rhododendrons in flower. There were some good specimens of Indian Azaleas, which had been in fine bloom. There were also a good many finely-grown Cinerarias, some good Heaths and Epacrises, and among other things was a good specimen in full flowers of Erythrina Crista-galli. Among Ferns was a good specimen of Hymenophyllum Wilsoni. A broad walk from this building divides the flower garden into equal parts. At the north side of this house, Mr. Watson has made a piece of rock-work, which he has planted with the hardier sorts of British Ferns. Passing from the conservatory we enter a late Peach-house (No. 6) with Vines up the rafters. The Peach trees being trained to upright trellis work do not take up much space, consequently there was growing here a variety of other things, and among them Tomatoes, for which there is a great demand. Nos. 7 and 8 are succession Pine stoves, with Vines up the rafters. Every nook and corner of these houses were turned to some useful purpose—no space left unoccupied. No. 9 is an early Peach-house, in which was an excellent crop of Peaches and Nectarines, and the trees were in the highest state of health. Mr. Watson has not found the Stanwick Nectarine to come up to the character given it when grown under artificial heat. There are young Vines growing up the rafters of this house, all doing remarkably well. The whole of the Vines in all the houses here are being gradually renewed, one or two houses being done annually. The old Vine borders are nothing better than beds of stiff clay of great depth, with little or no drainage; on the new ones great labour is bestowed to have the drainage effective. At the outside of the border there is a main drain, into which runs a number of smaller drains at right angles with the building, over these is placed about a foot of rough stones, and on these the borders about 2½ feet in depth. Mr. Watson is no advocate for mixing much manure with the soil. He prefers making them of turfy loam, with some bones, and a little charcoal; and when the Vines require anything more, to give it them either in the shape of a top dressing or liquid manure. Nothing could possibly be doing better than the young Vines he has planted. No. 10 is an early Vinery, in which the Grapes were beginning to colour: the crop was a good one. Mr. W. had recently made a new border in the inside of this house, which he had planted with Black Hamburghs: they were doing exceedingly well. These he intends for early forcing. The roots of the old Vines being in an outside border of a cold, heavy, retentive nature, considerable difficulty has been experienced in getting them to fruit early. Up the end rafter of the Vinery is trained part of a Hamburgh Vine, on which the Grapes were colouring, while on another part of the same Vine trained under a low roof of a passage bunches were only showing.

French Beans are grown extensively through the winter and spring months. Strawberries are also forced extensively. Ingram's Prince of Wales, of which we saw some good fruit, is a favourite here. Chilies and Tomatoes are also extensively grown—Tomatoes particularly, of which 1 bushel is grown annually, both indoors and out. Outside of this range of houses there is a border 150 yards long by 8 yards wide; outside this there is a walk 18 feet wide the whole length. Then comes the flower garden.

Along this border in front of the houses Mr. Watson has a very effective ribbon as follows:—First row, Flower of the Day Geranium, with flowers pinched off—second, Tom Thumb Scarlet Geranium—third, Calceolaria amplexicaulis—fourth, Salvia patens. On either side of the walk which divides the flower garden, there are effective ribbons. The "bedding out" is well done here; they put out about 15,000 plants annually. The

kitchen garden immediately adjoins the flower garden. Close to the kitchen garden is a large frame ground, in which there is a great quantity of glass. Here we saw pits full of Potatoes ready for use, and Melons and Cucumbers in great abundance, also green Peas, fit for use, &c. We may add that both indoors and out everything was scrupulously clean and neat.

Miscellaneous.

Examinations by the Royal Dublin Society.—The Royal Dublin Society has resolved to hold public examinations at stated periods, in its House, Kildare Street, Dublin, with the view of affording to persons desirous of procuring Commercial, Manufacturing, or Agricultural Situations, an opportunity of obtaining authentic Testimonials of their qualifications; and it proposes to confer on deserving Candidates General and Special Certificates of Merit, according to certain Regulations of which the following are some of the principal. In order to obtain a General Certificate, Candidates will be required to answer in the first two and any one of the remaining General Courses, viz. 1. Writing and Composition; 2. Arithmetic; 3. Mensuration; 4. Geometry; 5. Algebra and Plane Trigonometry; 6. English History; 7. Geography. Candidates who shall have obtained the Society's General Certificate may, on sufficient answering, obtain Special Certificates of Merit in subjects connected with—Commercial Pursuits, Manufacturing Pursuits, Agricultural Pursuits, Horticultural Pursuits. Candidates for the Commercial Certificate will be examined in Book-keeping, English History, and Geography. Candidates for the Manufactures Certificate will be examined in Mensuration, Mechanics and Hydrostatics, and Chemistry. Candidates for the Agricultural Certificate will be examined in Chemistry, Animal Physiology and Zoology, Geology, and Theory and Practice of Agriculture. Candidates for the Horticultural Certificate will be examined in Mensuration, Botany, and Theory and Practice of Horticulture. Candidates in Chemistry will be examined as to the meaning and use of Chemical Symbols, in the Chemistry of the Metalloids and of the chief Metals, with reference particularly to the following Trades and Manufactures, viz., Metallurgy of Lead, Iron and Copper, Dyeing, Soap boiling, Bleaching, Tanning, Pottery, Brick making, Manufacture of Gas, of Sulphuric Acid, and of Soda Ash. The following books may be consulted:—Wilson's Chemistry, Gregory's Chemistry, Fownes' Chemistry, Elementary Chemistry, by Scoffern. In Physiology and Zoology, the general principles of Animal Physiology and Classification of Animals will form the chief subject of examination; and from Candidates for the Agricultural Certificate a practical knowledge of the most important facts concerning the Horse, Ox, Pig, and Sheep will be required. The following books may be consulted:—School Zoology, by Patterson, Agassiz and Gould's Physiology. In Botany, the examination will embrace only the leading principles of Vegetable Physiology and the Classification of Plants. From Candidates seeking the Horticultural Certificate a practical knowledge of the most usual Garden Plants will be required. The following books may be consulted:—Lindley's School Botany, Henslow's Principles of Botany, Outlines of Botany, by Balfour. In Geology, Candidates will be examined in the general principles of the science; their practical knowledge of Rock specimens and of the common Ores of the useful Metals will be tested: a knowledge of a few of the characteristic fossils will be required; and the examination will also embrace a few of the most important of the applications of Geology to Agriculture, Road Making, Quarrying and Mining Operations. The following books may be consulted:—Introductory Text-book to Geology, by Page, Advanced Text-book, Richardson's Geology and Palæontology. In Agriculture, Candidates will be examined as to their knowledge of the structure and constituents of Farm Plants, the nature and constitution of Soils, the nature and value of Farmyard and Artificial Manures. They will also be required to exhibit a general acquaintance with Farm Practice, such as the nature and use of Agricultural Implements and Machines, the Fencing, Draining, and Valuation of Land; the construction of Farm Buildings; the Culture and Rotation of Farm Crops; the Diseases of Cattle, and their Treatment, together with the general management of Live Stock. The following books may be consulted:—Johnston's Agricultural Chemistry, Morton's Cyclopædia of Agriculture, Stephens' Book of the Farm, Rham's Dictionary of the Farm, Agricultural Engineering. In Horticulture, Candidates will be examined in the Natural History of Edible Fruits and Culinary Vegetables, and their varieties; the principles of Vegetable Physiology, especially in their application to the several Horticultural operations of Grafting, Budding, Pruning, Transplanting, Hybridising, &c.; the construction and management of Hot-houses, Stores, &c.; the practice of Floriculture. The following books may be consulted:—Lindley's Theory and Practice of Horticulture, Book of the Garden, by M'Intosh, Loudon's Encyclopædia of Gardening, Niel's Fruit and Flower Garden. Prizes in Money will be awarded to the best answerers. The following classes of persons will not be permitted to attend the Society's Examinations for Certificates of Merit:—1. Persons under 15 years of age. 2. Persons who intend to return to school for the purpose of resuming their education. 3. Persons who either are or have been students of a College or University. 4. Certificated Masters of the Board of National Education, or of any other public educational body. The first examination, for General Certificates only, will be held in the Society's House, Kildare Street, Dublin, on Tuesday, 6th of October, 1857, and following days. Candidates will be required to give notice to the Assistant Secretary, on or before the 1st of September, 1857, of their intention to attend this examination. Printed forms of notice, to be filled up, can be had on application to the Assistant Secretary. The first examination for awarding Special Certificates will be held in the year 1858, of which due notice will be given.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—This house should now be gay with such things as Achimenes, Clerodendrons, Allamandas, Gardenias, Stephanotis, and other showy plants from the stove, for without the assistance of these it is hardly possible to produce a first-rate display at this season. And if the house can be kept rather close many of our most showy stove plants will be more at home here while in bloom than they would be in the stove, and the length of time which they retain their beauty renders it desirable to grow them largely for this purpose. To do these justice, however, the house should be cleared of Ericas and such plants as are soon injured by a close confined atmosphere, so as to be able to keep it closer and moister than would suit these, for very few of our stove plants will do any good in a temperature that is regulated for Ericas and such like plants. If the permanent occupants of the beds and the twiners, however, are such as require a free circulation of air, the house must not be kept so close as to injure them; but where Passifloras, Ipomœas, Mandevilla suaveolens, Tecomas, Bignonias, &c., are grown for covering the roof, and Orange trees and other things that enjoy a fair amount of warmth and moisture while making their wood occupy the beds, the hardier stove plants will form the most suitable decoration for the next three months. Go over the twiners frequently and regulate the growth before the shoots get entangled, but avoid keeping them tied too closely, for they are never seen to advantage unless they are allowed to hang in a natural and graceful manner.

FORCING DEPARTMENT.

Vineries.—Attend to keeping cool and moist where the fruit has been cut in order to preserve the foliage in a healthy state as long as possible. The laterals need not be kept very closely stopped after the fruit is cut, but they must not be allowed to shade or injure the principal leaves. If there is any appearance of red spider give the foliage a good washing with the engine directly the fruit is cleared off, and repeat this as long as there is a vestige of the enemy to be seen. Give prompt attention to the thinning of the fruit in succession houses, for like many other jobs this is most easily and expeditiously done when taken in time. Look well to the state of the borders where the fruit is swelling, and give a thorough soaking of tepid, good strong manure-water wherever the soil is found to be at all dry, and aim at having the borders in a healthy state as to moisture where the fruit is about colouring, for a healthy root action has more to do with the colouring of the fruit than many persons seem to suppose. Young Vines planted out this season should be encouraged to grow freely, and as the roots will be near the surface see that they are not allowed to suffer for the want of water, and in the event of hot drying weather a slight mulching over the roots would be useful. Do not keep the laterals too closely stopped, as the more leaves, &c., the Vines are allowed to make the more freely the roots will run in the border, and this deserves attention the first season. Peaches.—Spare no pains to maintain a moist state of the atmosphere where the fruit is swelling, syringing freely, and shut up early in the afternoon, but give air sufficiently early in the morning to prevent the least risk of scorching.

FLOWER GARDEN AND SHRUBBERIES.

Late sown annuals should be thinned out as soon as they are well above ground, for if left to grow too thickly they spoil one another, and never make half the display plants do that are allowed plenty of space and which are grown strongly from the first. Attend to staking such of the herbaceous plants as require it before they get blown about and injured, and do not huddle the stems together, as is too frequently done. The early flowering bulbs, as Tulips, Hyacinths, Turban Ranunculuses, &c., will now be ready for taking up, and should not be left in the ground after the decay of the foliage, as if wet weather occurs they will be making fresh roots, which weaken them for next season. On light dry soils American plants will be greatly benefited by a good soaking of water after flowering, and the finer specimens should be mulched to assist in keeping the roots moist during the growing season. Attend to the propagation of the better varieties of Pentstemons, which are exceedingly useful plants. Also see to having a good stock of the border Picotees and Carnations, which are invaluable for cutting. Cuttings of these if put in before the wood gets too hard root as freely as Pinks.

HARDY FRUIT AND KITCHEN GARDEN.

Proceed with nailing in the young wood of wall trees, and see that they are perfectly clear of insects. Also stop any gross shoots, and endeavour to secure a fair supply of bearing wood all over the tree. Gross shoots that were stopped early in the season should be divested of all the laterals except one, or if they can be spared removed altogether. Keep the breast wood on Pear and other wall or espalier trees closely stopped in and attend to thinning the fruit where the crop is too heavy for the strength of the tree. Look to preparing Strawberry runners for forcing next spring. If not already done a good breadth of Brussels Sprouts should be planted on very rich deep soil, for if not got in at once the crop will be but poor, and it is very desirable to secure a good supply of this most useful winter green. A fair supply of Savoys and Broccoli, &c., should also be planted at once. Continue to plant out Celery as ground can be spared, and keep it well supplied with water. Cauliflowers and other strong growing things will be greatly benefited by an occasional watering with manure water. Keep the hoe in action on dry days; cut Box edgings in showery weather; and endeavour to have all neat and clean.

COTTAGER'S GARDEN.

If Carrots have failed a small bed of the Early Horn may yet be sown. Continue to fill spare ground with various winter greens. York Cabbages may be sown for autumn use; they will do to plant in any small gaps that may exist among other crops. Stake up flowers, dub hedges, pipe Pinks, and lay Carnations. Cuttings of choice Roses may be made, choosing the early wood just getting firm.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending June 25, 1857, as observed at the Horticultural Gardens.

June.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 19	27	30.067	29.947	73	59	66.0	62½	58	E.	.62
Satur. 20	28	29.925	29.915	80	58	69.0	65	58	S.E.	.68
Sunday 21	●	29.937	29.917	79	55	67.0	65½	59	S.E.	.00
Mon. 22	1	30.166	30.100	78	52	65.0	66	60	W.	.00
Tues. 23	2	30.213	30.163	83	50	66.5	66	61	E.	.00
Wed. 24	3	30.294	30.224	81	44	62.5	67	61	E.	.00
Thurs. 25	4	30.346	30.341	84	43	63.5	66	61½	E.	.00
Average .		30.135	30.086	79.7	51.5	65.6	65.4	59.8		1.30

June 19—Fine; very fine; thunder, much lightning and heavy rain at night.
— 20—Cloudy and warm; sultry; sheet lightning; heavy rain.
— 21—Cloudy; hot sun at intervals; fine at night.
— 22—Uniformly overcast; close and warm; fine.
— 23—Foggy; slight haze; sultry; fine at night.
— 24—Slight haze; very hot; clear and fine.
— 25—Sultry; hot dry air; exceedingly fine.
Mean temperature of the week 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending July 4, 1857.

June and July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 28	72.9	50.1	61.5	11	0.65 in.	3	2	6	1	2	8	3	[illegible]
Mon. 29	72.9	49.5	61.2	7	0.20	2	4	3	1	1	13	5	[illegible]
Tues. 30	72.9	50.1	61.5	11	0.80	—	4	4	2	4	9	5	[illegible]
Wed. 1	71.9	52.2	62.0	15	1.18	1	3	5	—	4	10	6	[illegible]
Thurs. 2	73.2	52.1	62.7	12	0.22	1	4	2	—	5	10	7	[illegible]
Friday 3	74.8	52.0	63.4	13	0.78	1	5	2	1	3	10	8	[illegible]
Satur. 4	76.5	51.4	63.9	8	0.33	1	4	2	1	2	12	7	[illegible]

The highest temperature during the above period occurred on the 29th, 1826—therm. 91 deg.; and the lowest on the 30th, 1849—therm. 35 deg.

Notices to Correspondents.

Berberry Berries: *Chatteris.* The Mahonias are Berberries, and none of their berries are ever deleterious. Dealers can under no circumstances whatever be called amateurs. An amateur is he who amuses himself with gardening, and does not garden for the sake of profit, or as a trade.

Diseases: *H M.* The leaves of your Melons present two peculiarities, first, a great portion of the superficial cells have grown too rapidly for the cuticle, so that the surface is pierced with multitudes of minute apertures; and secondly, a small portion of the cells have acquired a red tint like that of ripening Currants. Both these circumstances tend to show that there is not that proportion between the dampness of the air above and the bottom-heat which there should be to insure health. We have observed neither of these appearances in ordinary Melon disease. *M. J. B.*

Insects: *C. M.* The beetles reared from the barked Oak are the Lyctus oblongus. Can you favour us with a small piece of the Oak and also a few of the maggots if any yet remain? *W.*

Laburnum: *W A.* Your new double salmon-coloured Laburnum is, we think, excessively ugly.

Mildewed Vines: *F Lamb.* You have the real Vine mildew, and must treat it with sulphur, in the manner that has been repeatedly explained by us and our correspondents. See also a letter from Dr. Ingle to-day in another column.

Monsters: *W Hopps.* The broad flat condition of your Chorozema ericifolium is what is called "fasciated." Such appearances are common in the Ash tree, the Dahlia, the common Laurel, and other fast growing plants. We suppose that your Chorozema must have been "driven on" very fast at some time or other.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Frome.* Both your Pines are Pinus Salzmanni; Pinus calabrica is a name we know nothing of; Pinus Caramania is an *alias* of P. Pallasiana, which yours is not. Instead of slender leaves that plant has the stiff leaves and large cones of a Pinaster.—*S, Derbyshire.* Cratægus prunifolia.—*F C.* Cotoneaster acuminata—*E P.* Some Allium, perhaps A triquetrum, but uncertain without leaves and bulb. Where is it from? the Crimea?—*Mary.* 1, Gymnadenia conopsea; 2, Samolus Valerandi; 3, Arenaria marina; 4, Chenopodium Botrys.—*T S P.* Saxifraga stellaris.—*Brentwood.* Tropæolum pentaphyllum.

Petunias: *Alpha.* Your double purple and white varieties are large, and very showy, and if constant, must prove acquisitions.

Skimmia Japonica: *M A L* will be obliged by some of our correspondents informing him whether this is perfectly hardy, or not, and if it will stand the sea breeze; also what soil suits it best.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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EDWARD PURSER, Secretary.

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THE DIRECTORS OF THE PATENT WOOL MANURE COMPANY (LIMITED), hereby give Notice that Mr Spencer W. Smith (late wholesale agent for the sale of their Manure in Kent and Sussex) has not for the last three months had any connection with this Company, and all persons are cautioned against purchasing Manure supposing it to be manufactured by the said Company, and Mr. Spencer W. Smith, and all persons who may have been appointed his sub-agents, are hereby cautioned not to sell Manure in the names of this Company, or use any prospectus, paper, envelopes, or other printed or written forms containing the name or title of the said Company, or to represent themselves to be connected therewith.—By order, C. H. TIDBURY, Secretary.

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Capital £100,000, in 5000 shares of 20*l.* each.
Deposit, 1*l.* per share.

This Company is formed for the purpose of promoting Flax Cultivation, by establishing, or aiding in the establishment of, Flax Mills in suitable localities to convert the Flax crop, as harvested by the farmer, into Linseed Oil, Oilcake, Flax fibre, and Tow, the average price of which by the ton is—Linseed Oil, about 40*l.*; Oilcake, about 10*l.*; good Flax-fibre, about 60*l.*; and cleaned Tow, about 25*l.* These valuable commodities are now for the most part furnished from abroad—a large portion should be furnished by home cultivation. But home cultivation will never flourish unless Flax Mills are established, because the English farmer will not go through the manufacturing processes necessary to this industry. He will not crush the seed into Oil and Oilcake, he will not steep the Straw, Grass it, turn it, dry it, scutch it, dress the fibre, and send it to Leeds and other distant markets for sale. These functions are all foreign to his habits, and must, therefore, be performed in England, if at all, by manufacturing millers. Even in the case of Wheat, the farmer hands over the manufacturing process—grinding—to the miller. In the case of Flax, a manufacturing miller is still more necessary, the operations being so numerous, and requiring so much practised skill. It is the object of the Flax Mills Company to supply this need. Impediments, seemingly insuperable, long prevented the introduction of the mill system. Two late inventions—one, fermenting the straw in warm water; the other, rolling and washing the fermented straw immediately on its removal from the steep—have removed them. A few mills have already sprung up; and all that is now wanted to establish the mill system permanently is, the example and stimulant which this Company seeks to supply. Its prospectus was published twice in the *Times*, at full length, in September last, as soon as limited liability was established; but as the time of year, the then rate of interest, and the high price of Wheat, were unfavourable circumstances, the Directors, from motives of economy, abstained from further advertising it at that time. Several noblemen, however, and landowners, feeling themselves safe under the new law, took shares at once, not as a speculation, but from a desire to aid in reviving a valuable industry, and paid the deposit. It is a satisfaction to the Directors to be able to inform them, that to this day, (June 13, 1857) no check has been drawn against those deposits, nor is any debt due. The Directors, being satisfied that circumstances are now more favourable, again announce the existence of the company, and hope that it will receive the support its importance demands, particularly from the landed interest. While not refusing large, they would prefer smaller subscriptions, their wish being to see all landowners and considerable farmers supporting the enterprise. The Directors do not intend to call up more than one-fourth of the capital till they have satisfied themselves, by actual experience, that their views are correct. Prospectuses and all necessary information will be furnished on application to the Secretary.

(By order) A. BEESTON, Secretary.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

WATERING GARDENS AN AMUSEMENT—NOT A LABOUR.

WATER YOUR GARDENS and MANURE YOUR LANDS with GUTTA PERCHA and INDIA-RUBBER TUBING. Half-inch gutta percha for gardens, medium 4*d.*, stout 4½*d* per foot. Brass hand branch, stopcock, and rose, 5*s.* 6*d.*—Apply for illustrated Price Lists to JAMES SHEATH & Co., Patent Gutta Percha and India-rubber Factory, 35, Old Street Road, E. C.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

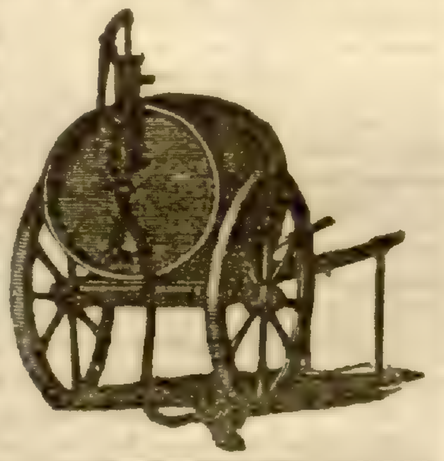
THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,



with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.*

1¾-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

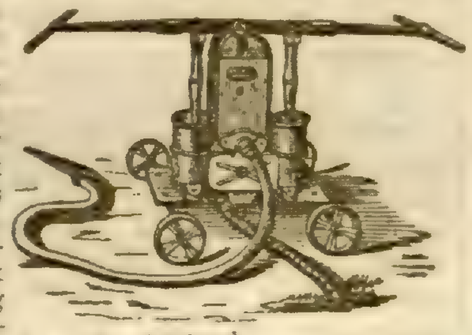
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

SOUTHDOWN RAMS.

MR. HENRY OVERMAN informs his friends and the public his Southdown Rams will be ready for SALE or LETTING at any time after the 7th July.

Weasenham, Rougham, Norfolk, June 27.

ROYAL AGRICULTURAL SHOW, SALISBURY.
No. 59 STALL, IMPLEMENT YARD.

ROYAL AGRICULTURAL SHOW, SALISBURY.—The Nobility, Gentry, and Public are invited to inspect Professor VARNELL'S MANGERS and STABLE FITTINGS, also the PATENT COLLAR BAR IRON HURDLES and FENCING, manufactured at the St. Pancras Iron Works, opposite the Old Church, Old St. Pancras Road.

SALISBURY MEETING.—THE COUNTRY MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND will be held at the City of SALISBURY, in the week commencing MONDAY, July 20, the THURSDAY in that week being the principal day of the Show.

ROYAL AGRICULTURAL IMPROVEMENT SOCIETY OF IRELAND.

The Annual CATTLE SHOW of this Society will take place at Waterford, on the 19th, 20th, and 21st of August next. The Implement Trials will commence on the 14th of August. The last day for receiving Entries will be the 25th of July.

Full particulars and entry forms can be had on application to EDWARD CROKER, Secretary.

42, Upper Sackville Street, Dublin.

CRYSTAL PALACE—SUMMER POULTRY SHOW.—A Grand Exhibition of POULTRY, PIGEONS, and RABBITS will take place at the Crystal Palace on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, the 8th, 10th, 11th, and 12th of August. Prize Lists and Certificates of Entry are now ready. All communications to be addressed to Mr. WM. HOUGHTON, Secretary to the Poultry Exhibition.

By Order. GEO. GROVE, Secretary.

CRYSTAL PALACE—SUMMER POULTRY SHOW.—The Entries close on SATURDAY, the 11th of July next. By Order. GEO. GROVE, Secretary.

Crystal Palace, June 27.

COLLEGE OF AGRICULTURE AND CHEMISTRY AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, JUNE 27, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 1—Agricultural Soc. of England .. Noon.

AN excursion through several of the midland and southern counties, together with our letters from many other districts of the country, enable us to state that there is everywhere a magnificent promise of all kinds of agricultural produce. The Wheat crop now everywhere in ear never, as a general rule, promised better; and though, with the Barley, it is beaten down in places by the thunder-storms of the past 10 days, both bid fair to yield well at harvest time.

As to green crops, Potatoes look uncommonly well; a bulky and healthy growth above ground must be taken for what it may yet be worth, as indicating a corresponding growth below. The Mangel Wurzel crop is now being generally thinned—the plants have come up satisfactorily.

Turnips are suffering severely from the fly, and the usual remedies are being advocated with the usual confidence, and tried, we must add, with the usual failure. Among these are the plans of dusting the young plants with lime *as soon as they appear*, and every morning afterwards before the dew has left them (two or three bushels per acre will suffice)—of sowing common Turnips with the Swedish, and both in abundance, the object being to save the latter by the preference which the fly exhibits for the former (this is Mr. POPPY's device)—and of catching the insect by drawing a beetle trap or fly-catcher over the rows. This beetle trap disturbs the fly, which leaps and is caught on an adhesive screen: we name it here as it is accompanied by testimonials to its efficiency; but we have little confidence in any expedient of the kind for saving the Turnip crop of a farm.

The work of haymaking is everywhere vigorously proceeding, and a heavy crop is being made under at present the most favourable circumstances.

IN continuation of our remarks at page 426 on TILLAGE OPERATIONS we may refer to the difference between practice and theory which those remarks present when compared with an actual inventory of cultivation which was published in these columns five years ago. No doubt in skilful hands tillage operations have all the efficiency which has been described; but how cumbersome a process these operations, in combination, exhibit in unskilful hands may be judged of from this inventory now before us of the tillage, crops, &c., on a Hampshire farm for which the outgoing tenant claimed compensation. The following is a list of some of the items:—

1. Ashley Ring, 15 acres; Rape and Grass.
   Ploughed once, six times harrowed, twice rolled.
2. Down Barnfield, 3 acres.
   Ploughed once, six times harrowed, twice rolled.
3. Roller Homefield, 6 acres,
   Ploughed once, eight times harrowed, three times rolled.
4. Lower Furlong, 9½ acres.
   Ploughed once, eight times harrowed, three times rolled.
5. Forest Coppice, 7 acres; Rape.
   Ploughed once, eight times harrowed, twice dragged, once hoed.
6. Part of Forest Coppice, 9 acres; Turnips.
   Ploughed once, eight times harrowed, twice dragged, once hoed.
7. Part of Forest Coppice, 7½ acres; Turnips.
   Ploughed once, 10 times dragged, four times harrowed after the plants were up, once hoed.
8. Part of Forest Coppice, 12½ acres; Turnips.
   Ploughed three times, four times dragged, six times harrowed, three times rolled, twice harrowed after the plants were up.

And so on! This is only a specimen of the 20 or more fields specified, whose cultivation is thus described in detail. The farm was, as might be expected, exceedingly out of condition, and the Turnip crop resulting from the management described was valued at about 1*l*. per acre.

It is plain that in this case the tenant was entirely unacquainted with the purposes capable of being served by the different implements of the farm. The harrow as employed by the Hampshire tenant, and indeed very generally we may say, is among the most inefficient and uneconomical agricultural implements we have. For we still use what we call our *drag*-harrow, an implement whose teeth find their way into the land simply by their weight and that of the framework which holds them together—and being slowly drawn with labour all the greater from the straight form and the number of these teeth—with an efficiency too greatly impaired by the trampling of the long team of cattle which alone can draw it forward—it is supposed to stir the soil to the bottom of the furrow slice and break up the land from the subsoil upwards. How it is capable of such an effect the number of harrowings needed in the instances we have quoted before the farmer was satisfied with the result may indicate.

Even when the work is carried on where skill and energy direct it, the tillage operations of the farm seem a cumbrous way of attaining the result desired, and one cannot help anticipating as probable the time when steam power shall be applied, as Mr. HOSKYNS has suggested, to work a rotatory cultivator which, like the circular saw upon the deal, shall make a sort of sawdust of the land at once. Meanwhile, and probably for a long time to come, the effects of agricultural improvers will be rather directed to the improvement than to the displacement of the operations of plough, harrow, grubber, roller and other tillage implements of the farm.

How much in some districts of the country they need improvement may be judged of by the inventory we have quoted, and how much they might seem to afford scope for such improvement will be seen if we just enumerate the processes which in a six years' rotation of crops the land may ordinarily be supposed to undergo.

In the six years' rotation Oats or Wheat is followed by Beans and that by Wheat: this Wheat stubble, in south and midland England at any rate, may, half of it, be broken up for Rye and Vetches followed by Turnips, and the other half be ploughed for Mangel Wurzel, Carrots, or the like—all these being followed by Barley in the fifth year, and Barley by Clover and Grass to be broken up again for Wheat.

Let us enumerate the processes to which the land will be subjected during this period. In the first year then we have for Wheat one ploughing of the Clover stubble—at least two double harrowings before the seed is drilled—one double harrowing after seed time: the land is then rolled, and perhaps horse-hoed and rolled again in spring.

In the autumn for the second year's crop the land is probably pared and dragged to pieces with the harrows, or scarified and harrowed and weeds gathered and burned; it is then (adopting the Scottish mode of cultivating Beans) ploughed before winter, harrowed down in early spring, worked with the grubber, and harrowed again, possibly again scarified and harrowed before it is fit to be ridged up to receive the manure—on which the Beans are sowed and covered with the plough—the land receives a light harrowing before the young plants appear—and it is horse-hoed twice in April and May, and the rows are moulded up with plough at the latest time the horses dare go through it.

In the autumn for the third year's crop it is scarified to level and mix the soil, and ploughed and harrowed and sown with Wheat and harrowed again. The spring culture of the Wheat crop after Beans is the same as was named before for the Wheat crop after Clover.

In the autumn of the third year that half of the stubble intended for Rye and Vetches is scarified and harrowed, and so far fallowed—the manure is carted over and spread and ploughed under—the land is harrowed, and then the seed is sown, Vetches being generally drilled and Rye more generally sown broadcast—the seed is harrowed in and left. After the crop has been cut in May and June it receives cultivation for the Turnip crop, including at least two ploughings and sundry harrowings and cultivatings before the soil is fit to be ridged up by the plough for the reception of the manure, when the drills again are split to cover the manure, and the seed is sown. The other half of the Wheat stubble receives what cultivation time allows in autumn; and if the land be stiff most of the cultivation for the Carrot and the Mangel Wurzel should be effected before winter. Cultivating with the scarifier, and harrowings to detach and kill the weeds, followed by manuring and a good deep ploughing to cover in the dung, should be given in the autumn; and the spring cultivation then may be confined to harrowings and scarifyings involving no upturning of a fresh surface to the land. This for Carrots. For the Mangel crop the manure should be laid on in drills after the ploughing, and covered in before the winter—involving for the spring cultivation merely a light harrowing, and re-earthing up the drills before the seed is planted. All these crops require several horse-hoeings during their growth.

For the fifth year—the Barley crop—a single ploughing either in the autumn, or of sheep to fold on the land in spring, followed by harrowing, is required—the seed is drilled and harrowed in—the Clover and the Grass seed, either then or afterwards, are also harrowed in and probably rolled. And this is the last tillage operation which the land receives until it is ploughed again for Wheat.

We have enumerated during this series of crops at least 12 ploughings and 2 dozen harrowings, besides sundry cultivatings or scarifyings and horse hoeings; and in addition, during all these years, the roller is used repeatedly in drought, or more directly as a tillage implement in breaking clods. A man and pair of horses have walked probably on the average 50 or 60 miles, in order to effect the annual tillage of every acre of the land. Well! this seems—to the unprofessional man at any rate—a very cumbrous and clumsy set of processes, even as conducted skilfully by the proper use of efficient implements. Of course if you use ploughs so that they shall not turn over sufficient depth of land, or if you use them to do the work of the grubber or the cultivator—if you use harrows where the scarifier would be more efficient, heavy tools drawn slowly and laboriously through the land instead of the grubber or the cultivator to stir it to its depth, followed by a harrow which shall rattle over its surface and so reduce the surface clods—if you use rollers, the most perfect implement of the four—of heavy draught, not merely because the cylinder is heavy but from the weight of a load above the cylinder resting on its axles and creating useless friction there—you cannot expect to execute economically and efficiently the tillage operations of the farm, even after the imperfect manner in which they are, as we have said, conducted at the best.

THE ROYAL AGRICULTURAL COLLEGE.

THE session brought to a close on Thursday, the 18th, has been of a very successful and satisfactory character, both as regards the number of students—which exceeded 100—and the diligence and attention shown in every department. The result of the examinations is not more gratifying to the authorities than creditable to the students. We give below the names of those who have particularly distinguished themselves:—

1st Class.—AGRICULTURE.

1. Hockin
2. Heritage, Norman } eq.
3. Duckworth, Edis, Robertson } eq.
4. Bakewell
5. Aitken
6. Rodick
7. Dawson
8. Tomlin
9. Fodon
10. Hawkesley
11. Hills
12. Horton.

CHEMISTRY *(Organic.)*

1. Norman
2. Hockin
3. Edis
4. Heritage, Hawkesley, Lloyd } eq.
5. Bakewell

CHEMISTRY *(Inorganic).*

1. Aitken
2. Spooner
3. Foden, Fowler } eq.
4. Tomlin
5. Hills
6. Sayce

VETERINARY.

First Division.

1. Hockin
2. Edis
3. Norman
4. Heritage
5. Bakewell, Rodick } eq.

Second Division.

1. Fowler
2. Tomlin, Marrack } eq.
3. Barratt, Foden } eq.
4. Carney
5. Horton

GEOLOGY.

1. Hockin
2. Edis, Norman } eq.
3. Aitken
4. Bakewell, Hawkesley } eq.
5. Heritage

Agronomic.

1. Foden, Fowler } eq.
2. Sayce
3. Jearrad, Horton } eq.

CIVIL ENGINEERING, SURVEYING, &c.

First Division.

1. Lloyd, Gardner } eq.
2. Cadle
3. Aitken
4. Heritage, Hockin, Mc Laughlin } eq.

Second Division.

1. Fowler, Marrack } eq.
2. Lewis
3. Foden
4. Nott
5. Nash
6. Adye

PRIZES FOR FARM ACCOUNTS.

1. F. Robertson 2. H. H. Oakes 3 Jearrad

Highly commended—Crump.

LABORATORY PRIZES.

Classes 1 & 2—1. Erichsen
Highly Commended—W. Phipps
Classes 3 & 4—1. Aitken
Classes 5 & 6—1. Lewis

PRIZES FOR GEOLOGICAL NOTE BOOKS.

1. Edis, Norman } eq.

Highly commended. H. H. Oakes, Caulfield, Aitken

In Agronomic.

1. Fowler

Highly commended—Foden

PRIZES FOR VETERINARY NOTE BOOKS.

1. Fowler
2. Sayce, Foden } eq.

HOSPITAL JOURNAL PRIZES.

1. Hockin 2. Edis 3. Oakes

THE COLLEGE DIPLOMA OR CERTIFICATE was awarded to

W. Hockin, of Bude, Cornwall
W. Norman, of Carlisle
Herbert Heritage, of London
A. Wellesley Edis, of Huntingdon

GLASNEVIN MODEL FARM

IN CONNECTION WITH THE ALBERT AGRICULTURAL TRAINING INSTITUTION.

ON my return from a tour through Belgium, which I need scarcely say afforded me great pleasure, and was deeply interesting in an agricultural point of view, my attention was directed to the notice contained in your Journal of the 16th ult. of the luxuriant crops of Italian Rye-grass on the Albert Farm. In compliance with the wish you have expressed that I should give you some information connected with the soil, &c., of that division of the farm on which the sample of the Grass left at the office of the *Agricultural Gazette* was grown, I now beg to submit the following particulars.

The farm, which is connected with the Albert National Agricultural Training Institution, lies about 3 miles north of the city of Dublin—its greatest elevation above the level of the sea is 172 feet, and it rests upon the mountain or carboniferous limestone formation. The surface soil is of a friable character; but the subsoil is a pretty retentive clay intermixed with limestone gravel, and, as you will perceive from the following analysis by Professor Hodges, it contains a considerable quantity of oxide of iron, the injurious influence of which, however, will be greatly lessened by thorough drainage, subsoiling, and liming.

SOIL OF THE ALBERT MODEL FARM.

Mechanical composition of the soil and subsoil. 100 parts of each respectively consist of:—

	Soil.	Subsoil.
By Process I.:—		
Clay and finely divided matters	24.71	28.32
Sand and small stones	75.29	71.68*
	100.00	100.00
By Process II.:—		
Organic matters	14.21	3.64 p. cent.
By Process III.:—		
Carbonate of lime	more than 5 and less than 20 per cent.	more than and less than 20 per cent.

Denomination according to the Table.

Chemical Composition.	Marly Garden Sandy Loam.	Marly Sandy Loam.
100 parts of each contained respectively:—		
Organic matters	14.21	3.64
Potash	0.36	0.07
Soda	0.18	0.04
Alumina	1.32	0.75
Oxide of iron	1.82	4.22
Lime	5.57	6.56
Magnesia	0.06	0.02
Sulphuric acid	0.22	0.19
Phosphoric acid	0.06	0.03
Chlorine	0.28	0.18
Silica	0.55	0.07
Carbonic acid	4.33	5.02
Insoluble siliceous matters ..	70.82	78.66
	99.78	99.45
Nitrogen per cent.	0.29	0.18
Water in the sample analysed..	22.30	14.20

Surface soil specific gravity, 2.25; subsoil specific gravity, 2.4[illegible]

Power of Retaining Moisture.—1000 parts of surface soil retained 688 parts; of subsoil, 484 parts of water.

Rapidity with which the Soil dries when exposed to the Air.—[illegible] the water which the specimens had imbibed in four hours the surface soil lost by evaporation 17.8; the sub-soil 30.6 per cent.*

* Consisting of coarse granules of blackish limestone, grey chert, and calcareous sand.

† Weight of dry soil	1000 grains.
,, saturated with moisture	1688 ,,
Difference	688
Exposed to the air for four hours.. ..	1566
Loss by evaporation	122

Then 688 : 122 : : 100 = 17.8 per cent.

The division of the farm on which the Italian Rye-grass is growing, and the first cutting of which on the 4th ult. weighed at the rate of 15 tons per statute acre, was rented by the Commissioners of National Education in 1850, and was shortly after thoroughdrained to a depth averaging from 3½ to 4 feet, and was subsequently deeply tilled. In 1855 this field, which is

are in the "three-course shift," was well tilled and manured for green crops, Mangels, and Swedes—and during the course of the season 84 bushels of lime were applied per statute acre. In February, 1856, seed Wheat, at the rate of 6 stones per acre, was sown in drills 12 inches apart with Garrett's corn drill, and in May following 3 bushels of imported Italian Rye-grass seed were sown per acre, and harrowed in with a light harrow and afterwards rolled.

The milch cows, which are and have been fed exclusively on the succulent Italian Rye-grass for the last eight weeks, are not only in very excellent condition, but are also yielding a good supply of milk. The following particulars of experiments which were recently and carefully carried out may not prove uninteresting to the readers of your Paper :—

1. Quantity of milk yielded by 12 cows on April 6, when fed on Mangels, steamed chaff, oilcake, Beanmeal and bran, 116½ quarts.

2. Quantity yielded by the same cows on May 4, when fed exclusively on Italian Rye-grass, 145¾ quarts.

Difference in favour of Italian Rye-grass, 29¼ quarts.

Butter produced from No. 1 feeding—
10 gallons of milk gave 3 lbs. 10 oz. ;
or 116½ quarts of milk gave 10½ lbs. butter.

Butter produced from No. 2 feeding—
10 gallons of milk gave 3 lbs. 5 oz. ;
or 145¾ quarts gave 12 lbs. 1 oz. butter.

The second crop of Italian Rye-grass is now nearly ready for being cut, and promises to give a weighty return. All the grain crops, and the Potatoes also, on the Albert Farm have at present an unusually fine and luxuriant appearance; and if the season continue propitious, the yield, I think, will be most abundant. The Carrots, Mangels, and Swedes, owing to the heavy and continuous rains in March and April, were later of being put in than is the usual practice on this farm.

I regret that you have not been able to favour the Albert Institution and Farm with a visit since the latter was enlarged and the new buildings were erected. The visitors are numerous, and you will see from accompanying extracts from the Visitors' Books that we have recently had some English gentlemen whose testimony is peculiarly gratifying, as it is uninfluenced by party or personal feelings (Messrs. Eddington & Trotter were two of the judges at the late cattle show of the Royal Dublin Society). *Thomas Kirkpatrick, Albert Agricultural Training Institution, Glasnevin, Dublin, June* 16.

P.S. The fall of rain during a year, as stated by Mr. Moore, Curator of the Royal Dublin Society's Botanic Garden, is about 26 inches; it varies from 20 to 28, but seldom more.

MR. CHADWICK ON SMALL AND NEGLECTED MECHANICAL POWERS,

APPLICABLE TO AGRICULTURE.

On a former occasion when I addressed the members of the Agricultural Society on the subject of liquified manure cultivation, the question turning on the amount of capital requisite for the apparatus, I expressed an opinion that some of those who had adopted my views as to the principles of culture had applied them by much more expensive means than were absolutely requisite, and that with less expensive apparatus for the particular purpose, might have achieved even higher results. I was then requested by my friend Mr. Slaney and by other members of the Council to make good my words, and bring before them particular instances of the cheaper means available, and I shall now endeavour to acquit myself of my promise by bringing before the Society examples of cheap but neglected mechanical powers available, not solely for those special operations in which I am most interested, but for all those general agricultural purposes, where labour-saving machines are needed.

In doing this I cannot but express a confident opinion that in the present state of agriculture, and for a long time to come, the importance of mechanical powers for its use over the length and breadth of the land will be as their cheapness, that is to say on their first outlay. I may say this without derogating from the advantages, in greater eventual cheapness of steam power, of the higher of engineering appliances, which no one more anxiously desires to see extended; but practically, if agricultural improvement be confined to them, it will for a long time be obviously confined to a very narrow basis. Thus whilst it is clear that land drainage, even rudely performed, repays its expenses in from three to six years, though the principles have been promulgated for nearly a quarter of a century, yet we have little more than a twentieth of the land drained that requires drainage. The application of steam power is probably, with all our stir and very gratifying show of extension, is, I fear, yet in lower proportion to the need and to the eventual extension of it. The application of the most cheap and simple means will, I apprehend, be of great use as leading to the extended application of the highest order of mechanical powers. Moreover, by means of simple and cheap powers, besides enabling the vast majority of cultivators who are, and perhaps must be, in the condition of small capitalists, the more readily to make some way in the application of improvements, well assured by trials, we may at the same time enlist a highly valuable class of experimentalists, men of education, professional men, clergymen, who have small portions of land on which they may exercise their taste and their desire for high cultivation, with to them no very serious amount of risk of capital.

Although one gentleman of this class has declared to me that he can prove from his books that the use of a steam engine for liquified manure cultivation will pay on 20 acres; although a second declares himself well satisfied with the use of steam engine on 20 acres, I must nevertheless express a confident opinion that steam power is in these instances, and others, sometimes applied where it is unnecessary or where it is not the cheapest or the most eligible mechanical power. In the course of some inquiries as to works, it was reported to me on competent practical testimony in Lancashire that steam power scarcely paid even there, where coal is so cheap, when less than four-horse power was required. If this be so for Lancashire or Glasgow, it will be so *a fortiori* for most agricultural districts; and how numerous are the services in agriculture on a medium or on a small scale where one-horse power or two-horse power will suffice, more particularly for pumping? In large towns, as in Glasgow, where coal and steam power is cheap, water power is found in many cases to be the cheapest or the most convenient for intermittent uses. Steam power is often only eligible where its use is required for six or eight hours at a time; but where the power is only required for one, two, or three hours at a time, hydraulic power applied by a machine acting on the principle of the Brahma press is found there to be the most convenient, and, on the whole, the cheapest, although it may be that for each hour or for long hours it may be the dearest. I have seen small hydraulic engines of one and two horse power working on this principle in Glasgow. Large cranes requiring considerable power are there also worked by hydraulic engines on the same principle. Steam engines have moreover the disadvantage of requiring much skill for their economical as well as safe management. Between one manager and another, even of the higher order of engines, there will be a difference as much as 30 or 40 per cent. of coal, and almost as much difference in the chances of accidents and general wear and tear. Moreover steam engines are apt to get out of order, and in case of accidents in remote districts where there are no engine makers at hand, the consequent delays and troubles are very serious. The steam cannot be got up at once, and the engine is unhandy for the use of frequent sudden opportunities; and if it be long unemployed, it proceeds rapidly in "eating its head off." These inconveniences, as well as the expenses attendant upon the steam engine, restrict its economical advantages to operations in a very large scale. The water-power machines to which I shall subsequently advert have the advantage of promptness of application, as they may usually be applied instantly on turning the water on and instantly turned off when the job of work is done, but the machines which are in my view the most important to the great majority of cultivators, are those which admit of the immediate application of the means which almost all possess, namely, of horses and cattle.

Dr. Cartwright's One Horse Power :—

A valuable and much neglected power is that of a single horse machine consisting simply of an endless rope put over two wheels or pulleys, which may be attached to the side of a barn or to two strong posts. It is worked most conveniently by a single horse running backwards and forwards. The arrangement was invented by the late Dr. Cartwright, the inventor of the power loom. The chief point of the contrivance is a clip which successfully seizes hold of the upper or the lower rope, as the horse to which it is attached moves backward and forward and produces continuous motion. The Society of Arts gave its gold medal to Dr. Cartwright for the invention, which he thus describes :—

"It must be obvious to any one," he says, "in the least conversant with the subject that many valuable machines requiring more than a man's power are prevented getting into general use by the heavy expense of erecting a horse mill to work them. A machine, the prime cost of which in many cases exceeds 10*l.* or 12*l.*, cannot be set in motion by means of a horse mill under five or six times that sum. To remedy this inconvenience I tried several methods to produce a rotary motion by making the animal that was to produce it traverse backwards and forwards in a straight line, instead of moving in a circle. After several less happy attempts, I had the good fortune to hit upon a method which, for simplicity and cheapness, can hardly be improved upon. It is this; a pulley being put upon the axis of the machine, an endless rope or cord is passed over it, which is carried out to any given distance over another pulley fixed to a post, or anything else that may be convenient. To this endless rope or cord the animal is attached by means of the apparatus which accompanies this paper, which is so contrived that as the animal traverses one way, the apparatus grasps that part of the cord which lies on the top of the pulley; when he turns back the apparatus grasps that part of the rope or cord which lies on the top of the pullies, thereby making the machine always to revolve in the same direction, notwithstanding the animal's motion is reversed. It may be objected to this mode that while the animal is turning time will be lost by the machine standing still. Upon the whole there is reason to believe that there is little or no actual loss, because while the animal is turning his labour ceases, and this momentary pause prepares him for a fresh exertion. This objection however is at once done away, by having a fly wheel on the axis of the machine which will keep up its velocity for a longer time than while the animal is turning round. It is needless to point out the great superiority of this mode of draft to that in which the animal walks in a circle. It may be calculated as nearly three to two. In many machines, threshing machines for instance, it is a great desideratum to have them portable. This, it is true, is already done, but not without expense and considerable inconvenience, the mill work required to give them motion being cumbrous and heavy, and requiring more care and skill to take them down and put them up again, than common farming servants have to bestow. The whole apparatus, in the way now proposed, a man may carry in his hand.

Now, let us consider of what applications a one-horse, that is to say a five-man power is capable. I make this statement on the authority of Messrs. Burgess and Key, the agricultural machine makers, who may be taken as quite competent to make good their words practically. It is given as the actual workings of a one-horse power, attached to suitable machinery:—It will thresh from 32 to 40 bushels of Wheat per day; will grind about a bushel and a half of flour *per hour;* will bruise about 15 bushels of Oats per hour; will cut from 16 to 18 trusses of hay per hour; will pump a column of 1100 gallons of water 160 feet high per hour. Dr. Cartwright's one horse power gives higher services than these. The machine was used for some time at Woolwich; I am told that a horse will learn the motion perfectly well in a day, and that it fully answered all the purposes of the invention. Mr. George Cottam, who brought it to my notice, says that he considers it to be the most simple and cheapest horse-power machine yet invented. I now proceed to ask attention to another horse power machine which appears to possess many advantages, and amongst others the one of being almost as portable as a steam engine and workable by two, or if needful no doubt by three horses.

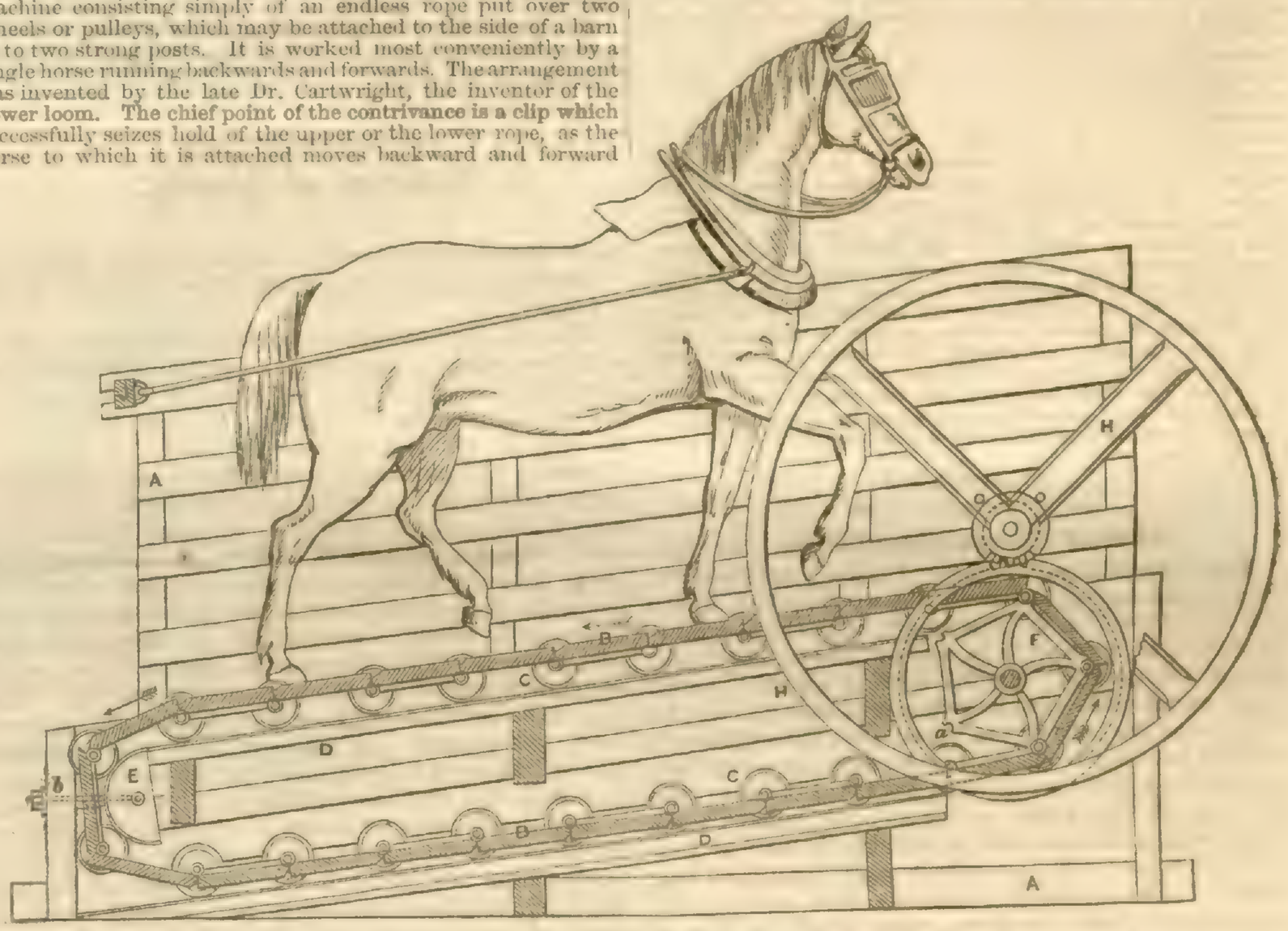


FIG. 1.

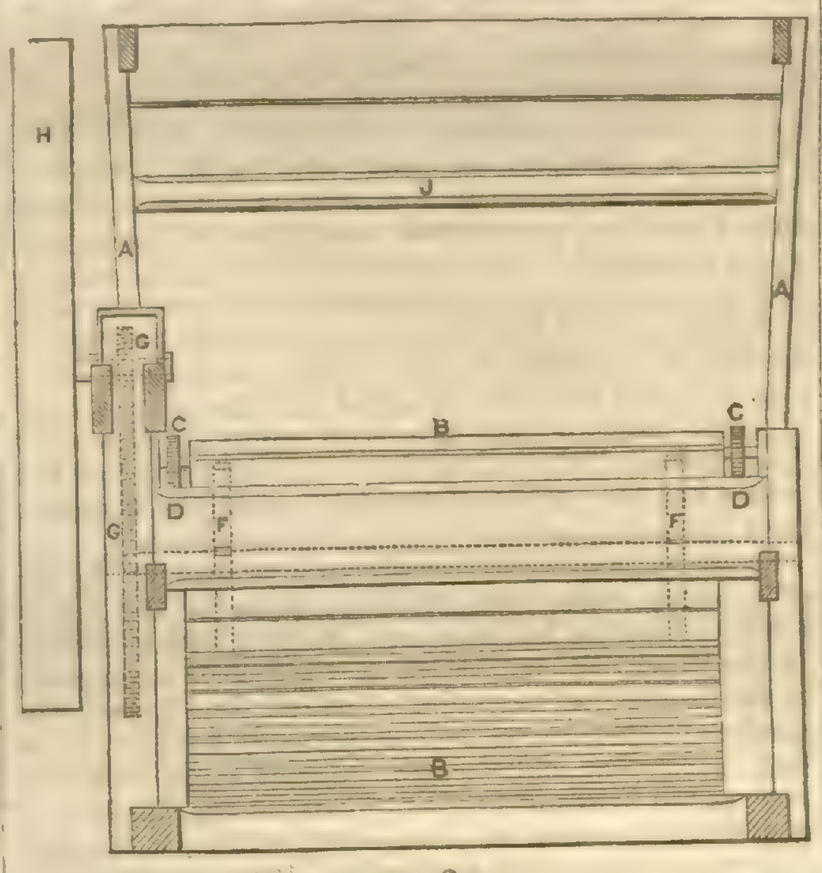


FIG. 2.

American Horse Powers :—

Our brethren in America have struggled with the difficulties of scarce and dear labour and high priced money. My friend Mr. Whitworth, our commissioner appointed to examine the machinery at the Great Exposition in New York, has expressed his general admiration of the cheapness, simplicity, and efficiency of the mechanical contrivances with which they have met those difficulties. To one of those contrivances, a horse-power machine, he has directed my attention, and it certainly appears to me to be commended as of extensive application. The machine consists of a moveable inclined platform* for one or two horses, on which the farmer may put his horses, and get a direct action to work any machinery for one, two, or three hours. It has the advantage over the gin as being cheaper of construction, and in being more compact, and in requiring less space; in being easily removable from place to place; in having for the time of its work greater power than any other in bringing to bear the weight of the horse in combination with its direct action. It is found that two men with a boy can, with the aid of a single horse, thresh at the rate of 75 to 100 bushels of Wheat, or 100 to 150 bushels of Oats in a day, or with a two-horse machine nearly double that quantity. To take care of the one-horse machine, and putting the labour of the two men and the boy at 5*s.* and the horse at 3*s.* a day, the expense of threshing will be from 1*d.* to 1¼*d.* or 1½*d.* per bushel. It is a machine however peculiarly fitted for intermittent uses. If a single horse machine is used, the horse must be changed every two or three hours, for during the period of work it is like walking up an incline at a good pace, and the labour is very efficient and fatiguing. The labour may be rendered more easy or more intense by lowering or raising the incline. But Mr. Whitworth was informed that its use was everywhere extending, and that it was superseding the old gin. It may be repaired by the village wheelwright, and may be very easily constructed. In America single-horse, or as I call them five-men, power machines are sold at 80 dollars each; two-horse, or 10-men, powers at 115 dollars each, and they ought to be made here at similar prices. Since I proposed to myself to bring this two-horse power under the notice of the Society on the authority of Mr. Whitworth, who deemed it sufficiently simple and economical as used for all sorts of purposes in America, it has been brought into some notice, with variations stated to be improvements, sufficient to justify their being patented. Of those variations I know nothing, and the patentee must justify his own claims. I only mention the machine as it was mentioned in the commissioner's report, and as used in America, being perfectly free to all persons. In respect to one use, I would observe that the liquified manure produced each day should be removed and deposited as its most convenient and safe receptacle to the land on one part or

* Figs. 1 and 2, above, give the side and end elevations of the horse-power referred to.

A, is the railing confining the horse.
B, the moveable incline on which it stands.
C C, the rollers which make it moveable.
D, the inner platform over which these rollers pass.
E, the fixed lower end of D.
F, the revolving upper end of D.
G G, the spur-wheel on F, working into a pinion on the shaft of H.

other of the farm each day, and for this service a one or two-horse power would be peculiarly applicable, as within an hour the manure of a considerable steading might be so distributed.

There are economies, the struggles of badly alimented, of poor and yet from its inefficiency, of expensive labour—of which most of the small farms of France with their wages of a franc and a franc and a half a day, with general average yield of only 13 bushels of Wheat an acre—are the theatre, even in some parts of Normandy, where an extreme but not unfair illustrative actual example is given of a wretched plough drawn by a woman, a cow, and a donkey, the husband, the small farmer, guiding the plough and completing the combination—the fruits of which after all the toil are only a meagre diet and black bread, and no meat, and a general fare which might move the pity even of a Dorsetshire or a Buckinghamshire labourer. There, on the other hand, are economies entirely arising out of an opposite and more wholesome and more hopeful condition; that is, of more efficient and more profitable manual labour where it is scarce and high priced, from the demand for it, of which the free states of America is perhaps the best theatre. There where the lowest farm helps cost a dollar a day—and I could wish that for the sake of the extension of machinery into agriculture as well as the working classes that it cost almost as much here—they will not allow the dogs to eat the meat of idleness. They consequently set Cæsar or Pompey, the house dog, to churning or to washing, by means of a machine called a dog-power machine on the same principle as that of the horse-power machine. Mr. Whitworth was informed that after these dog-power machines had been introduced, the Yankee dogs not relishing the work disappeared early on the churning days, and were shouted for but made no manner of response, and only re-appeared after some biped or other had been obliged to perform the labour. At length it was found necessary to look sharp after these dogs, and chain them up overnight to prevent their absconding. But, clever as most of our American brethren undoubtedly are in mechanics, they sometimes overlook moral powers which are necessary to the most complete action even of machines, and this neglect is seen on the largest scale in the south; they overlook the moral powers of the interest and the will in the work done; and the loss of labour in coercion, in the absence of those forces. Now, I venture to say that the interest and the will even of the dog might be enlisted in the work, if it were properly set about. If, for instance, at the termination of each spell of churning, a paunch or some acceptable refection were duly given to him, my friend, Mr. Broderip, who knows dogkind well, would be bail for him that there need be no trouble of seeking him, that he would not run away, but would be anxious and ready and zealous to perform the service required. In some instances they have used a sheep successfully to work the machine.

(To be continued.)

Home Correspondence.

Royal Agricultural Society.—I add my testimony to that of your correspondent on the worthlessness of the present information we receive of the Society's weekly proceedings. A report to be useful should be both immediate and substantial; but the existing reports if immediate are not substantial, and when substantial are very far from being immediate. In the one case the unfortunate country members of the Society receive a mere catalogue or inventory of the proceedings, and in the other we have to wait for the winter or the summer volume, when heavy essays take the place of such timely news as your own and other weekly periodicals might have given long before. The unlucky thousands who never enter the Society's rooms receive a mere bill of the fare off which their happier colleagues (6 or 8 or 10 in number as the case may be) have been dining; and when any one protests on their behalf, he is told that their interests are concerned in the maintenance of the present system! —the volume annually transmitted to them would have lost its value if its contents were to escape before their authorised appearance. A consideration—this—certainly of great force against the annual publication of Transactions—but of no force whatever against the earliest possible publication of useful agricultural information. Let the authorities of the Society endeavour simply to attain the greatest possible agricultural usefulness without regard to the membership or otherwise of the persons receiving the benefit, and without regard to the official dignity of the persons conferring the benefit. A frank and energetic effort simply to do the greatest possible good would not only win the confidence and co-operation of vigorous energetic men—whose present opinion of the association and its doings was given by your correspondent so heartily and truthfully last week—it would do more than anything else to extend the means and membership of the Society. *A Member and Subscriber.*

"*A good Chaffcutter.*"—You say in your last publication you would be glad to receive answers to certain questions, one of which asks for a description of the best roller, chaffcutter, and churn. My engineer. John Mansfield, registered in this year a chaffcutter of a first class kind. On the 6th of February last I had two gentlemen here from Suffolk or Norfolk, perhaps one from each of those counties, a Mr. Cooper and Mr. Ferguson, to look over my farm buildings, cattle and sheep sheds. In their presence I set the chaffcutter to work, by engine power. Half a ton of dry hard Wheat straw was cut, producing 175 heaped bushels, in 38 minutes, straw weighed and measured in their presence, they keeping the time. The chaffcutter, in an iron frame, stands in a small compass, with knives and wheels boxed off, on a floor at the foot of the threshing machine. The straw falls convenient to the steaming cistern. We cut three lengths when required—¼ of an inch for eating by cattle, sheep, and horses; ½ inch we don't use much; 1¼ inch we use for bedding. We used the short length in the presence of those gentlemen. They expressed their great satisfaction. Price 15*l.* It is a first-rate article, one of the same sort I have had in use 15 years; in that time there was no breakage, the only expense was occasionally changing the knives (three), new for old ones. I have attended many of the Royal Agricultural Society's meetings, and have never seen a straw-cutter worth half the price it is. *J. C. Etches, Harley Thorn, Newcastle, Staffordshire.* P.S. Next year he hopes to bring it out at the Chester meeting; it will be the first time the machine has ever been in a show-yard.

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, June 24: Mr. RAYMOND BARKER, V.P., in the chair.

Mr. Curtis favoured the Council with a letter on the subject of the ravages committed by insects on the Mangel crops of Mr. Paget, M.P., and referred the members to his detailed natural history of insects affecting that crop published in the Journal (vol. viii., p. 399).

Mr. Brotherton submitted to the inspection of the members several Flax-plants, as specimens of a mode of promoting the germination of the seeds and the growth of that plant, which, in his opinion, would prove advantageous to the developement of a larger amount of fibre of fine quality.—Mr. Scott remarked that the proposed plan of encasing and dibbling the Flax-seed would not tend to that economy of labour so much required in the management of that crop.

Mr. Lister Maw transmitted a malformation of fatty matter found in a sheep; which was referred to Prof. Simonds for his report.

Adjourned to July 1.

Notices of Books.

Carlo Minasi's Guide to his Patent Artificial Hatching Machine, &c., 16, Brecknock Place, Camden Road, London.

Minasi's Patent Hydro-Incubator consists of a centre and two wings. The central portion is formed of a strong zinc square case, about 2 inches to 4 in depth, the upper part being like a tray. The tray part is what the eggs are first laid upon for hatching, and the wings or outside compartments are, in reality, the miniature poultry-yards of the newly hatched chicks: this zinc case is water-tight all round, top and bottom; the lower surface is corrugated, and covered over with fine sand. In order to keep up the requisite heat a stream of hot water flows through the corrugated channels of the under part, which communicates its warmth to the part above it. This hot water is obtained from a small vessel, under which a lamp is constantly burning. The eggs to be hatched are then placed upon the layer of sand, and covered with glass or some other suitable article. In order to compensate for the watery evaporation from the eggs, and which, if allowed to proceed to any great extent without a counteracting process, would destroy the germ *in ovo*, a number of short tubes, passing from the under to the upper side of the case and reaching above the larger part alluded to, are so arranged that the moisture from the atmosphere can rise up from below and distribute itself over the whole surface of the eggs. The lamp is placed upon a very easily managed stand, so as to be lowered or raised by an end-screw in a moment. This lamp possesses certain improvements, effected by the inventor, in the combination of cotton and asbestos, to conduct the spirit to the burner, and which will enable it to burn naptha, without a wick, for six months consecutively, without any change of conducting material. In order to economise the heat from the lamp, the caloric is made to traverse a spiral flue, which detains a portion on the sides—a very small quantity only passing away through a pipe into the atmosphere. This heat from the sides of the flue acts upon the water, and by the Incubator having been manufactured so that one end is higher than the other, a continual circulation of the heated water is secured. The under side of the zinc case is corrugated, in order that the chicks which are reared in a chamber, of which it forms the upper part, may nestle against it. There is this further advantage with respect to the lamp, namely, that it is placed in a kind of small closet, closed by a wire gauze or perforated door, and can be locked up from the interference of any person but the holder of the key; accidents therefore from this source are wholly out of the question.

In the pamphlet this description is assisted by the use of woodcuts.—The two competing plans for the use of artificial heat in hatching are Minasi's and Cantelo's. In the latter the application of top heat is attempted; in the former heat is applied, as stated, from below. The results of either are we believe perfectly satisfactory, so that the simpler and cheaper machine must be looked upon as the better of the two. It is not the hatching of eggs but the rearing of young chickens that is the difficult thing to carry out artificially. It is easy enough to manufacture an artificial hen to 'sit,' but it is not so easy to provide an artificial substitute for the hen when she is acting the part of a nurse. The testimonials at the close of this little pamphlet certify various fortune—from 60 to 80 per cent. of the eggs producing chicks—which however are after a few days in general put with hens to be reared.

We add two or three additional extracts, commencing with one on the exit of the chick from the shell:—

"It is somewhat strange that the shell is generally broken at the thick part, the round end being lifted over much in the same way as a lid; when this is done the chick takes its head from the position it has been in since formation, stretches out its neck forward, but seems too weak to stand, and looks completely exhausted, but in a few minutes it recovers, gathers strength, and after having dragged itself on its legs a little while, it becomes able to stand on them, to bend the neck in various directions, and finally to hold up its head. The feathers at this period are only fine down, but as they separate, spread about and afford a covering to the little creature when it needs it.

"It must be borne in mind that when eggs are subjected in hatching to too high a temperature there is a danger of its being glued to the inside of the shell, because between its body and the membrane is the white of the egg, which being adhesive, becomes changed by too great a heat to a kind of cement, very likely to fasten the feathers to the shell. This, however, seldom happens until a pretty large chip-breach is made, and the membrane has also been rent, after which the work of breaking out ceases for a while. The air which now gets in hardens the glue round the opening more than the inside, and the poor chick on attempting to renew its efforts for liberty, can only peck at the same place where the shell has been already broken away, on account of its body being held fast by the glue. Its attempts pull the tender feathers and make it squeak; and from its efforts becoming more and more painful, it leaves off altogether and gives up the task in despair. Under such circumstances the chick, unless assisted, must die.

"The following indications may serve to point out such a condition. Whenever a considerable fracture of the shell and the membrane is observed to remain for five or six hours without getting larger, and at the same time the margin of the membrane is seen to be hard and dry, with perhaps some feathers adhering to it, the necessity then arises to liberate the chick by breaking the shell very gently with a key or some other similar instrument, and by cutting the membrane with the points of a pair of scissors. The operation, though painful to the chick, is not fatal, for if done cautiously and well, the bird is no sooner freed than it shows as much liveliness as any other of its age.

"In the case of a chick not having sufficient power to break through the shell, the indication will be a slight chip appearing and continuing for several hours without either being extended, or the membrane torn. Here it will be requisite to lend immediate assistance, as in the former case; and if the assistance come not too late, as soon as the chick is exposed to the air it will push out its head, stretch its neck, and endeavour to escape out of the shell."

"For the day after leaving the shell the chick is not likely to require any nourishment; after that the most suitable food would be porridge, that is oatmeal boiled to a very thick consistency, something like jelly; give it to the chick cold; indeed in many places this food forms a staple article for poultry diet. A little bread crumb, with some hard boiled egg minced up, may also be given in cases of delicacy in eating for a few days; when the chick has acquired sufficient strength to run about well, turn it 'out into the world' with the rest, and let it begin to 'earn its own living' which it will readily do, especially amongst a number of others.

"During the first week let them never be without food, for they grow so fast, indeed at Mushroom pace, that their stomachs should never be empty. Keep them warm and dry: damp lodging or runs will kill them. If you have a good hen-mother she will take care of them after five or six days; above all things always keep up a good supply of clean water in a vessel which they can drink out of without the risk of being drowned by its too great depth."

Amongst the practical publications of the present day will be found a very useful book, bearing the title of the *Complete Rate and Tax Calculator*,* by Mr. James Valentine Ward, Accountant, under the revision of Mr. Barnes, Poor-law Auditor of the Berkshire and Hampshire Audit District, and bearing on its title page the names of 16 other district auditors who have borne testimony to its usefulness. From its elaborate construction, and yet very simple references, the amount of any sums from ¼*d.* to 1000*l.*, at from ¼*d.* to 2*s.* 6*d.* in the pound, either in full or reduced one-fourth, one-third, or one-half is shown at a glance, and so calculated as to render each sum a collectable amount. As a highly improved general ready reckoner for business services it seems to be excellently arranged, and particularly suited to the purposes of overseers and collectors of rates, churchwardens, highway surveyors, and rate makers generally, assessors and collectors of income and other taxes, &c., whose labours it must greatly diminish while it ensures the correctness of their figures. In calculating sums and payments under the Rating of Tenements Act (13 & 14 Vict. 99), it must be a capital handbook both for assessors and payers, from the lucidity with which the fractional sums is shown. If an incorrect charge be made the error can be immediately detected.

Miscellaneous.

Comparative Merits of Corn and Cake.—A farmer, whom I knew, divided a field of Rape—half was fed off with sheep eating Barley, and half with sheep eating an equal value of oil-cake; the difference in the subsequent crop of Barley was 2 quarters more after the cake than after the Barley. This is consistent with chemical analysis, the cake containing nearly twice as much nitrogen and phosphate. Nobody will be ever ruined by using plenty of Rape-cake, either for feeding or for manure; you may always see the results in the following crop. I have used 100 tons; it contains quite as much manurial element as oil-cake, and costs much less

* Published by Messrs. Knight & Co., Fleet Street.

money. I never saw a sheep that would not eat it. I have fattened some thousands on it. When sheep are on Clover, giving them Rape-cake and locusts will make them fatten most rapidly, and the mutton is peculiarly rich and palatable. They are wonderfully fond of the locusts, and will, if you permit them, eat a large quantity. When they know the locusts are in the troughs, they will race to the fold to be first, not so when there is only Rape-cake. They are more fond of Linseed-cake than Rape-cake. As a general rule, I think 7 lbs. of Rape-cake, Linseed-cake, or Beans, will make 1 lb. of net mutton. If so, you get the manure for nothing, when a pound of mutton is worth as much as 7 lbs. of either Rape-cake, Linseed-cake, or Beans. This is cheaper manure than any you can buy at any price. 7 lbs. of Barley will make 1 lb. of pork. *Mr. Sheriff Mechi's Pamphlet.*

Calendar of Operations.

JUNE.

FARM NEAR HEXHAM.—Till the May day term the weather was very cold and backward, but since that date it has been all that farmers (proverbially grumblers) could desire—warm and even hot, with fine showers, under the genial influence of which the pastures and corn fields "shout for joy, they also sing." It has been the finest spring we remember, and crops of every kind have made very great progress, and now not only look well, but bid fair for an early harvest; and we trust that He who has so blessed the spring will also "crown the year with gladness." While the weather has been thus favourable for the corn and Grass, it has been no less so for the preparing for, and the sowing and growth of Turnips. We commenced sowing Swedes on the 14th proximo, and they are now ready for thinning; too soon to be convenient, as we are not yet ready for them. Our attempt at Mangel Wurzel growing has again proved a failure. Potatoes are looking remarkably vigorous, and are being hoed, and should they escape the disease we look for a large crop. Grass is very abundant, so much so that the grazing stock (both cattle and sheep), has so risen in price that they are not to be had at any price at all like leaving a profit. At Stagshaw Bank Fair on the 30th ult. there was a very poor show, and anything at all fresh was sold at extravagant prices, and frequently changed hands several times during the day. The high price of wool has induced several parties to sell at once; prices for good mixed lots about 1*s.* 6*d.* per lb.

Notices to Correspondents.

ENGLISH AND SCOTCH THRESHING MACHINES: *L M.* A trial between the two, one of Clayton's and one by a Scotch maker, was lately made at North Gyle and Meadowfield respectively, and the following report is given of it in the *North British Agriculturist*:—The trial was made with two stacks, one of Barley and another of Wheat, giving sheaf about to each machine during the carting of the stack. In each case, the whole grain being carefully weighed, the following was the result:—

BARLEY.

	Meadowfield. stone	lb.	North Gyle. stone	lb.	Difference in favour of North Gyle machine. stone	lb.	Per cent.
Best ..	81	9	89	3	7	8	
Seconds ..	2	8	3	7	0	13	
Total ..	84	3	92	10	8	7	being 10
WHEAT.							
Best ..	181	12	190	5	8	7	
Seconds ..	10	12	13	7	2	9	
Thirds ..	0	6	2	1	1	9	
Total ..	193	2	205	13	12	11	being 6½

While the difference was found in both the above cases to be decidedly in favour of the English machine, as regards quantity of grain, the straw from it also was much less broken than that from the other; the grain was found to be in no way injured by the rubbing process, and the light grain well taken out by Mr. Palmer's patent rotatory screen separator, and the dressing of the grain very complete. In a former trial with the same machines, with very fine well sheafed Wheat, which had got no weather, the English machine did not show such a decided superiority; but in cases where grain is badly sheafed, such as with mown or machine cut grain, or much injured with weather, and straw very brittle, as was the case in the above trial, we are of opinion that the English machine will generally give the above results.

THE SUNFLOWER: *J H* The agricultural uses of this plant are thus referred to in the *Maitland Mercury*:—"In some parts of the United States it is extensively cultivated, and turned to a very valuable account in a variety of ways. One acre of ground will produce from 40 to 50 bushels of seed—sometimes much more. Good seed will produce a gallon of oil to the bushel, and the oil has been sold at 1 dollar 50 cents. The seed being of a farinaceous oily quality is given as a cheap, substantial, and nourishing food for neat cattle, sheep, swine, and all sorts of poultry, and may be used either in the mealy state or that of cake after it has been expressed or manufactured into oil. The flower affords very superior pasture for bees. The large stems and roots may be used for lighting fires. The refuse from one acre after the oil has been extracted produced 1500 lbs. of oil-cakes; the stalks, when burnt for alkali, gave 10 cwts. of potash; or they may be bruised and steeped like Flax, and made into packthread and bags. A whitish brown paper is made from the heads after the seed is taken out. The plant thrives in an open situation on any soil, and, as it derives most of its nourishment from the atmosphere, having small roots, it serves rather to improve than exhaust the soil. The seed should be drilled into the ground, the distance from row to row 18 inches, and the plants should be thinned out to 36 inches from plant to plant. The number of plants at this distance would be about 14,500 per acre; at 18 inches from plant to plant 25,000 per acre. Keep clean from all sorts of weeds, and when the plants are well up work with a single-horse hoe plough between the rows, and with a hand-hoe close to the plants. Prune when small heads appear out of the sides of each leaf. The flowers appear in succession for a considerable period. Harvest in baskets as the heads ripen."

TOLLS: *S.* Locomotive engines for use in threshing corn are "implements of husbandry," and as such exempt from toll. A case "Strange *v.* Matthews" was tried last Friday before the Bath County Court, in which the plaintiff, as lessee of turnpike tolls, sought to recover the sum of 2*s.* for toll of a carriage on wheels, drawn by horses, and bearing a steam-engine, the engine being used for working a machine which, when put in action by the steam-engine, threshed corn, &c. The defendant contended that the engine was exempt from toll as an implement of husbandry, within the meaning of the 3d George IV., cap. 126, sec. 32. His Honour, in giving judgment, quoted Chief Justice Dallas, who, in deciding a similar question, said that an exemption in favour of agriculture ought to be liberally construed, and least of all should a restraint prevail where it was to narrow and repeal a provision which for the public benefit ought to be largely and beneficially construed.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.

THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

IMPROVED LAWN MOWING MACHINES,
MANUFACTURED AND SOLD BY
JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

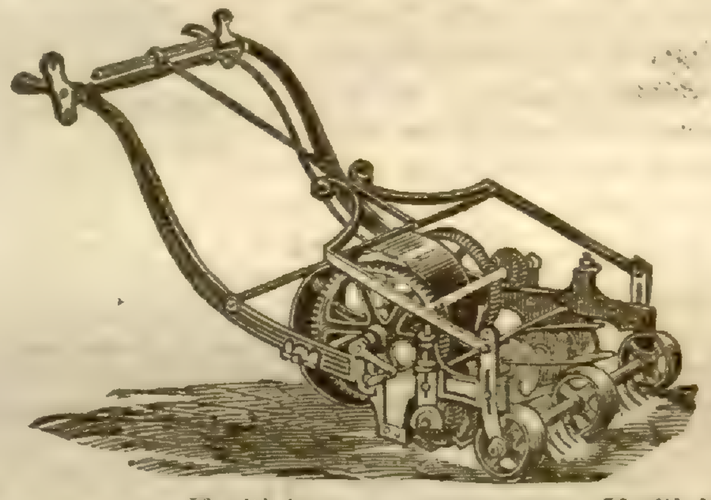
The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

BY ROYAL LETTERS PATENT.

THOMAS GREEN, PATENTEE and SOLE MANUFACTURER OF the IMPROVED MOWING or GRASS-CUTTING MACHINES, for Lawns, Pleasure Grounds, Verges, &c.; IRON-FOUNDER, WIRE-WORKER, and MANUFACTURER OF WROUGHT-IRON BEDSTEADS, &c. Iron and Wire Works, North Street, Leeds.



To cut				If with improved Rake.		To cut				If with improved Rake.	
,, 8 in.	£4	4	0	2*s.*	6*d.*	,, 20 in.	£7	7	0	4*s.*	0*d.*
,, 10 in.	4	14	6	2	6	,, 22 in.	7	17	6	4	6
,, 12 in.	5	5	0	2	6	,, 24 in.	8	8	0	5	0
,, 14 in.	5	15	0	2	6	For pony ,, 30 in.	15	15	0	10	0
,, 16 in.	6	6	0	3	0	,, 36 in.	18	18	0	12	0
,, 18 in.	6	16	6	3	6	,, 42 in.	22	0	0	14	0

If with box of requisites for cleaning, sharpening, &c., 5*s.* extra

The 24-inch Machine can be made stronger so as to suit either for hand, pony, or ass, at an additional cost of 20*s.* each. The box of requisites, &c., as before.

T. G. respectfully invites comparison and trial with any other pony or hand Grass-cutting or Rolling Machine now in use. In the first place he has reduced the weight and friction one-third, consequently saving a large amount of labour, at the same time keeping the blades and cutters much stronger than usual, so that the Machines are not likely to get out of order. The Patentee has put all the gearing inside the framework of the Machine, so that it can mow close to a wall, fence, or flower-bed without damaging the plants; it will mow verges any width, and close to the ends and corners of flower beds without change or alteration in the machine. It will also mow undulated ground or hill sides, and can be drawn or pushed separately or together. It has greater facilities in quick turning than any other machine now in use, can be readily raised or lowered to cut the Grass any height required.

The Patentee has introduced a Rake, or Guard, to work in front of the cutters of the machine, which can be set in a moment to any height required, and which is certain to remove any obstacle likely to break or injure the cutters—a great drawback in all previous Mowing Machines. It can be set to raise and straighten the Grass, which cannot be done at all by any other machine or scythe.

T. G. calls particular attention to his small-sized Machines, which will mow in intricate places where others will not, and also in parts where there is so much difficulty in cutting with the scythe or shears.

The Machines are made of the best material, are very superior in workmanship, and warranted to perform all that is said of them.

Five hundred of these Machines have been sold this season, and reference can be given to parties using them.

T. G. begs to call attention to his improved Box for collecting the Grass, and the simple mode of fixing it to the Machine.

The Machines may be seen at the Works, also of Mr. CHARLES GARROOD, Manager of the Agricultural Department, Crystal Palace, Sydenham.

The above Machine obtained the First Prize at the Great Yorkshire Agricultural Show at Rotherham, August, 1856..

AQUARIA.

JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5*s.* 0*d.*	12 inches diameter, each	4*s.* 6*d.*
13 ,, ,,	6 0	13 ,, ,,	5 0
14 ,, ,,	8 0	14 ,, ,,	5 6
15 ,, ,,	9 0	15 ,, ,,	6 6
16 ,, ,,	10 0	16 ,, ,,	7 0
17 ,, ,,	12 0	17 ,, ,,	8 0
18 ,, ,,	13 0	18 ,, ,,	10 0
19 ,, ,,	14 0	19 ,, ,,	11 6
20 ,, ,,	15 0	20 ,, ,,	12 6

Syphons, each .. .. 2*s.*

TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep	£3 10 0
26 inches long, 16 wide, 15 deep	3 0 0
20 inches long, 13 wide, 9½ deep	1 18 0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.

GLASS FERN SHADES AND STANDS.

6 inches diameter, each	2*s.* 6*d.*	12 inches diameter, each	8*s.* 6*d.*
7 ,, ,,	3 0	13 ,, ,,	11 0
8 ,, ,,	3 6	14 ,, ,,	14 0
9 ,, ,,	4 6	15 ,, ,,	18 6
10 ,, ,,	5 6	16 ,, ,,	23 6
11 ,, ,,	6 6		

CUCUMBER GLASSES.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 ,, ...	1 10	14 ,, ...	1 2
20 ,, ...	1 8	12 ,, ...	1 0
18 ,, ...	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.

Glass Milk Pans, 21*s.* per doz.; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the Trade.

Specimens will be exhibited at Chiswick Gardens on Wednesday and Thursday next.

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street W.

BRITISH SHEET GLASS FOR HORTICULTURAL PURPOSES.—Sizes from 7 by 5 to 9 by 7 at 11*s.* 6*d.* per 100 foot box; 9½ by 7½ and 10 by 8, at 12*s.* 6*d.* per box, in 21 oz. 1*s.* per box extra; larger sizes up to 22 by 14, 15 oz., at 16*s.*; and 21 oz. 25*s.* per 100 feet. Boxes charged 2*s.* each, and returnable at the same price if delivered free. Crystal White Glass, Crown and Sheet Glass in crates, Hartley's Patent Rough Plate, British and Patent Plate, &c.; White Lead, Oils, Turpentine, Colours, &c.—G. FARMILOE & SON, 118, St. John Street, West Smithfield, London.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ¼-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4 10
No. 2	,, 15 ,,	,, 45 ,,	..	5 10
No. 3	,, 28 ,,	,, 45 ,,	..	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2 15
No. 13	,, 12 ,,	,, 30 ,,	..	3 5
No. 11	,, 16 ,,	,, 40 ,,	..	4 0
No. 12	,, 24 ,,	,, 45 ,,	..	5 0
No. 14	,, 30 ,,	,, 45 ,,	..	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*

READ'S SYRINGE, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21*s.*** each, Large size, for Gardeners' use, **25*s.*** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

MIGNONETTE BOXES.

SUN-DIALS.

STATUES after Ancient and Modern Masters, as well as

Original GROUPS of FIGURES.

Great variety of ANIMALS, FOUNTAINS, and FOUNTAIN FIGURES of all sizes.

ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.

AUSTIN & SEELEY'S
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

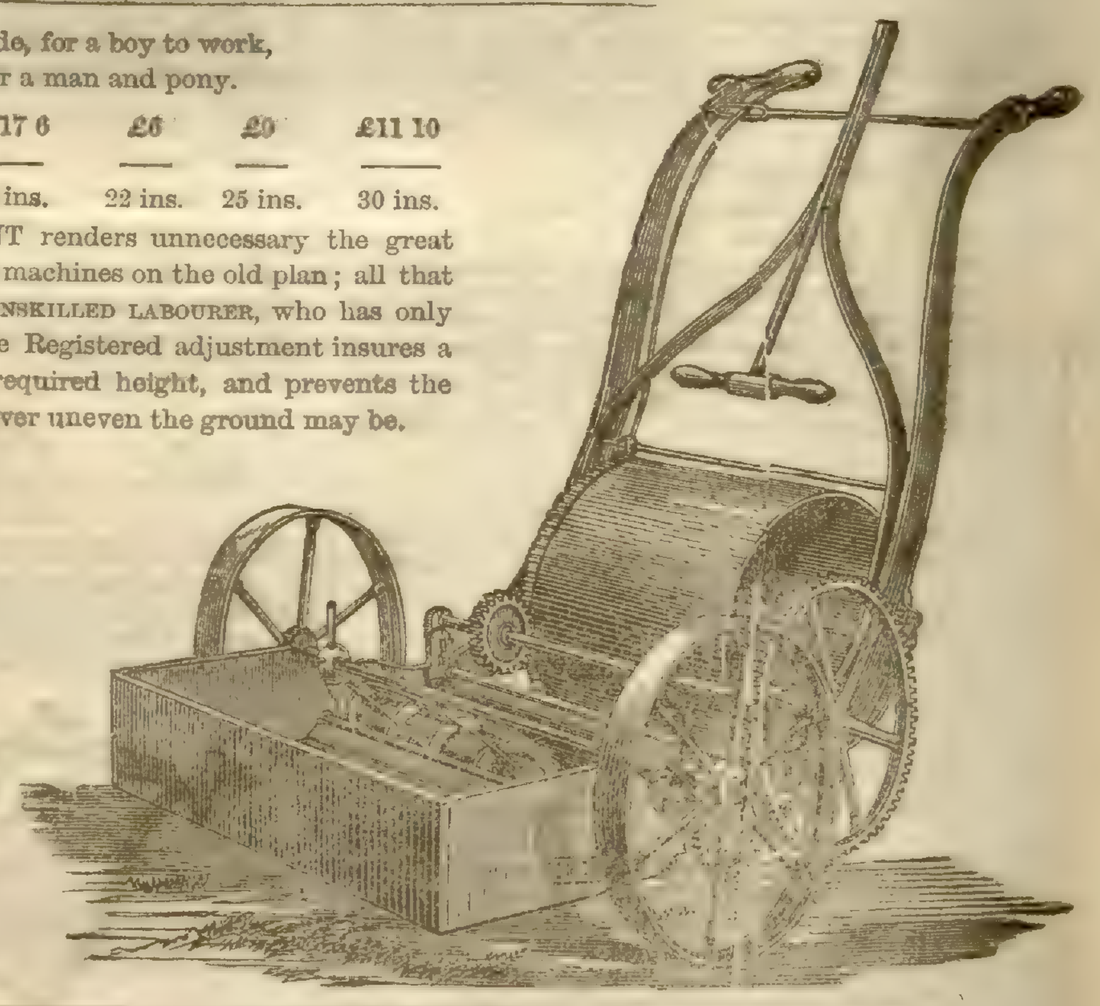
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

COTTAM & HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

IMPORTANT DISCOVERY.

THE ONLY DRAWBACK TO THE USE OF

PAGE & CO.'S BLIGHT COMPOSITION

servatories was its powerful smell. B. PAGE & Co. have the gratification to announce that they have perfected a process ing them to supply it free from that objection, at

4s. per Gallon, sufficient to make four. *Jars and Barrels at cost price.*

LONDON AGENTS:—

Henderson & Co., Pine-apple Place
Veitch & Son, Exotic Nursery, Chelsea
Chandler & Son, Wandsworth Road
Cutbush & Son, Highgate Nurseries
Hooper & Co., Covent Garden
Farmer, Mr., Chemist, Putney.

PROVINCIAL AGENTS:—

The principal Houses in the Trade, as recently published.

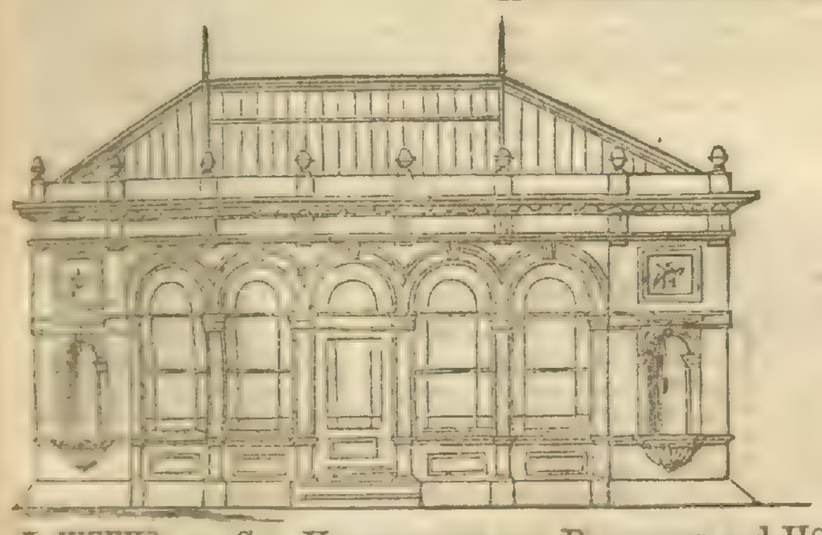
B. PAGE & CO., Seed Merchants and Growers,
OXFORD STREET AND ABOVE BAR, SOUTHAMPTON.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

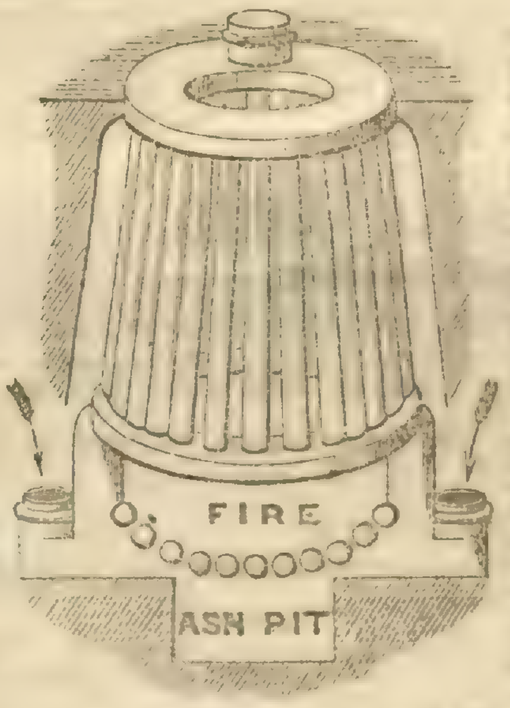
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND Co., HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

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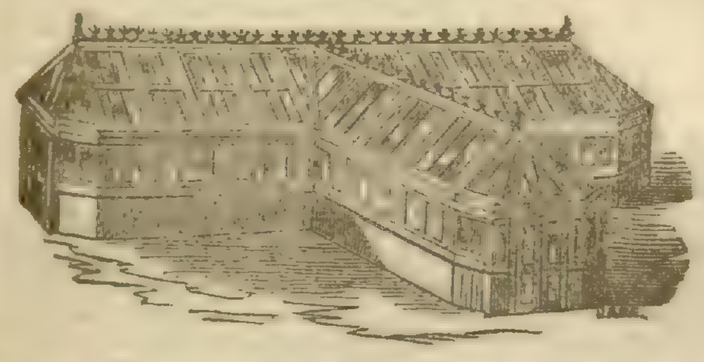

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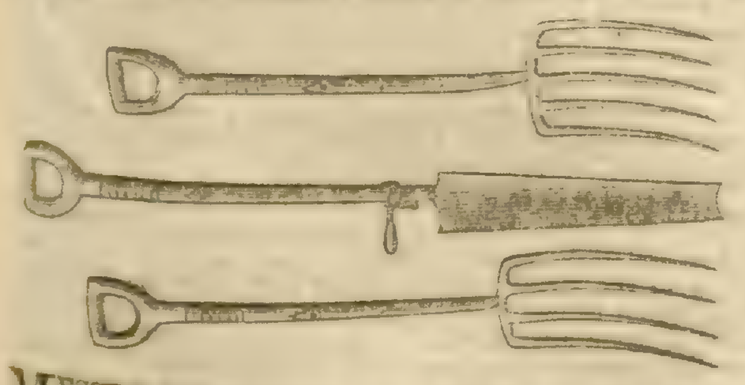

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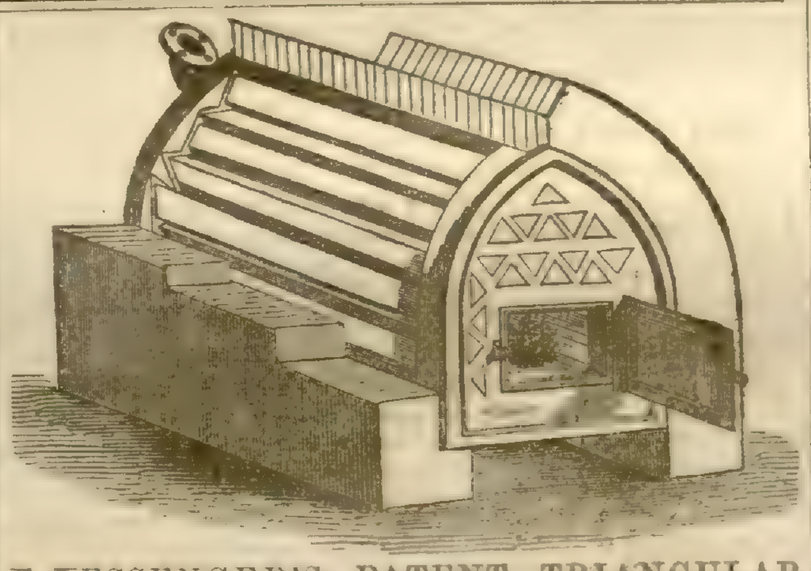

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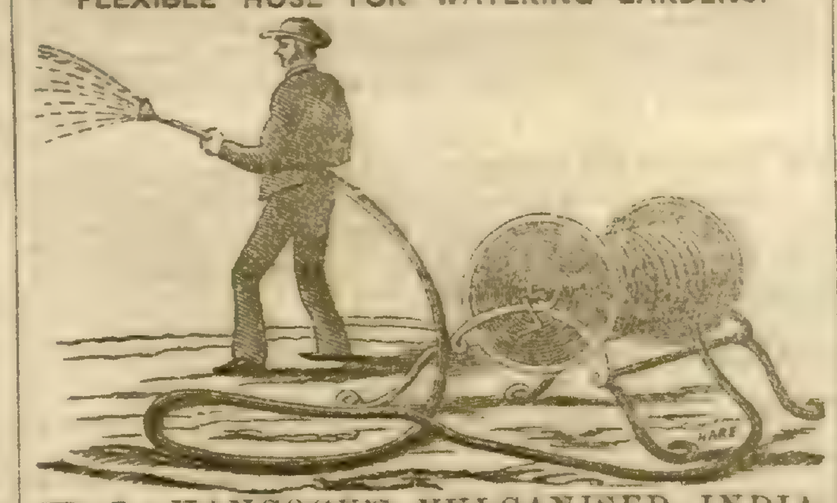

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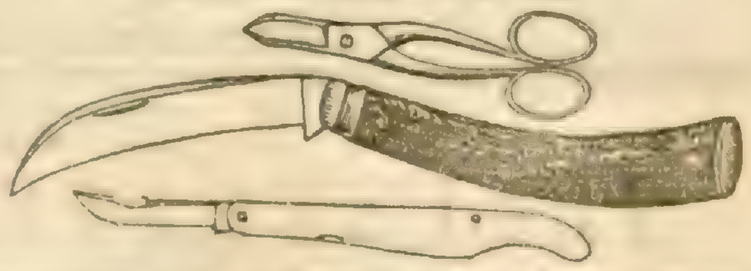

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"It is marvellously cheap, and will do everything which the lover of nature can wish it to accomplish either at home or in the open air."—*The Field*, June 6, 1857.

ACHROMATIC MICROSCOPES

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 27.—1857.] SATURDAY, JULY 4. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—The Next Meeting of this Society for the Exhibition of Flowers, Fruits, &c., a Ballot for Chamæcyparis thurifera, and the Election of Fellows, will be held on TUESDAY, July 7, at 3 P.M. Admission only by Fellow's personal introduction, Ivory Tickets, or Written Order.

21, Regent Street, S. W.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre (W.C.)—The next Meeting of the Society will be held on WEDNESDAY, July 8, to which Members and Fruit Growers generally are invited to send specimens for examination of MELONS, STRAWBERRIES, CHERRIES, and such other FRUITS as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The chair will be taken at 2 o'clock.

SATURDAY, September 12, is the day appointed for the Exhibition of NEW GRAPES, for the best varieties of which the Society has offered Premiums.

Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; Annual Subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

2, Randolph Road, Maida Hill, W.

WATFORD HORTICULTURAL AND FLORICULTURAL SOCIETY.—The EXHIBITION of this Society will be held in Cassiobury Park, by the kind permission of the Earl of Essex, on WEDNESDAY next, July 8, in a spacious and appropriate Tent provided for the purpose, which will be opened at 1 o'clock. The full Band of the 2d Life Guards, and also a carefully selected private Band of 25 performers under the direction of Mr. Graves, will play throughout the day.

Refreshments can be obtained in the Park. Tickets of admission can be had of either of the Honorary Secretaries, at the Stationers' in the town and neighbourhood, and on the morning of the Exhibition at the chief Entrance Lodge at Cassiobury Park.

C. F. HUMBERT, J. LONG, H. D. MARTIN } Hon. Secs.

DISS HORTICULTURAL SOCIETY.—At the Second Meeting of the above Society, to be held THURSDAY, July 9, there will be distributed (in addition to the Subscribers' Prizes for Bouquets, Roses, and other Flowers, Fruits, Vegetables, &c.), two Silver Cups and smaller prizes in money, for collections of Roses. Open to all England. Further particulars will appear in a subsequent advertisement.

H. TEMPLE FRERE, Burston, Diss, Hon. Sec.

THE GREAT NORTH OF ENGLAND DAHLIA SHOW.—The 18th ANNUAL EXHIBITION of this Society will be held at BRETTON-WEST, on THURSDAY, September 10, when nearly 350*l*. will be awarded in Prizes. Prize Lists, &c., may be had on application to JOSEPH FIRTH, Secretary, Swithen, Barnsley, Yorkshire.

FENVILLE HALL GARDENS.—These Gardens will be OPEN to the Public without tickets at 10 o'clock on MONDAYS, WEDNESDAYS, and FRIDAYS; and on SUNDAYS at 1 P.M. Owing to the injury caused to horses and cattle from stone jars and glass bottles being left about broken, in future no persons carrying such articles will be admitted. Lord STAMFORD wishes it particularly to be known that as the Gardens are thrown open freely to the public, no gratuities will be given to the gardeners or persons in attendance.

The Gardens will be closed at 7 P.M.

GRAND FÊTE AND CRICKET MATCH AT FENVILLE HALL.—On THURSDAY, FRIDAY, and SATURDAY, the 2d, 3d, and 4th of JULY, a grand CRICKET MATCH will be played; and on the evening of the 3d, weather permitting, the Gardens will be brilliantly illuminated, in addition to which there will be a display of Fireworks.

The Bands will play on the Cricket Ground during the Match, and on each day the public will be admitted to the Gardens.

THE SOUTH KENSINGTON MUSEUM is now OPEN to the Public daily from 10 till 4, and on MONDAY and THURSDAY Evenings from 7 till 10. Admission on Mondays, Tuesdays, and Saturdays Free; on Wednesdays, Thursdays, and Fridays 6*d*. each person.

By order of the Committee of Council on Education.

SOUTH KENSINGTON MUSEUM.—A Collection of Works of Art, consisting of Enamels, Carvings in Ivory, and Decorative Clocks and Watches, will be exhibited to the Public at this Museum until the 10th of July, 1857. These Works were contributed to the June Meeting of the Fine Arts Club, and the possessors have liberally consented to allow them to remain for public inspection during the above period.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (224 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—At a General Meeting of the Subscribers to this Institution, held on WEDNESDAY, July 1, for the purpose of Electing THREE PENSIONERS. The following was the result of the Ballot:—

CANDIDATES.

No.	Name.	Application.	Age.	Votes.
1	JOSEPH JEFFREY	Eighth	64	578
2	JOHN LAWSON	Seventh	80	595
3	JAMES SMITH	Seventh	72	104
4	FREDERICK L. BURNETT	Sixth	55	603
5	WILLIAM DUNGATE	Sixth	71	139
6	WILLIAM JACKSON	Fifth	68	382
7	ELIZABETH POPE	Fourth	71	387
8	WILLIAM PRIEST	Third	63	7
9	MICHAEL QUIGLEY	Third	63	290
10	SARAH AYRES	Second	73	117
11	WILLIAM CROUCHER	Second	67	18
12	MARTHA GARDINER	Second	72	313
13	JOHN MACKINTOSH	Second	67	48
14	WILLIAM BAILLIE	First	65	30
15	GEORGE DRURY	First	71	8
16	SUSANNA GULLETT	First	63	109

The meeting then declared John Lawson, of Warcop, near Appleby; Joseph Jeffrey, of Newport, Monmouth; and Fred. L. Burnett, of Brixton, as having the largest number of votes, duly elected pensioners of this charity.

EDW. R. CUTLER, Secretary.

July 4. 14, Tavistock Street, Covent Garden, W.C.

SHEPHERD'S LARGE EARLY MARROW CABBAGE, SOWN ABOUT 20TH JULY.

BAINBRIDGE AND HEWISON offer again (with confidence) the above first-rate Cabbage, which has been proved to be superior in its qualities to any other. They have a good supply of Seed, which may be had also of all the principal Seedsmen.—7, Bridge Street, York, July 4.

VAN HOUTTE'S CONTINENTAL CALCEOLARIAS, in sealed packets, at 5*s*. each, to be had on July 1, from Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London. Applications post paid, with a Post-office order.

NEW EXCELSIOR MARROW PEA.

WILLIAM KNIGHT, NURSERYMAN, &c., begs to inform the trade that his new EXCELSIOR PEA is now in perfection, and it may be seen at his nursery. It is a decided improvement on the well-known Ringwood Marrow, quite as early, greater cropper, longer pod, larger Pea, superior flavour, and greener in colour. It will be sent out at 5*s*. per quart in the autumn. Price to the trade on application. The names of the trade who order and will be able to supply it in the autumn will appear in a future advertisement.

High Street, Battle, Sussex.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1*s*., 2*s*. 6*d*., and 5*s*. packets. Discount to the Trade in quantities.

GRAPE VINES FROM EYES.—All the leading kinds may be now had, including the Stockwood Golden Hamburgh, fit for immediate planting.

R. GLENDINNING, Chiswick Nursery, London, W.

TO THE SEED TRADE.—A quantity of English grown RAPE SEED for present sowing. Samples and price on application to CHARLES SHARPE, Wisbeach.

INDIA RUBBER FOR SALE.—A fine Tree of FICUS ELASTICA, in fine condition, growing in a pot, 7 feet high from the pot, and forming a standard, to be sold cheap, at W. WARD'S, Florist, 6, Alpha Road, Regent's Park.

THE CELEBRATED REIGATE SILVER SAND, 15*s*. per ton, a less quantity 1*s*. 6*d*. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s*. 6*d*. each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

MILDEWED VINES, RED SPIDER, &c.—SULPHURATED WATER applied by READ'S PATENT HAND SYRINGE has been the most effectual remedy against this destructive Mildew, &c.

See *Gardeners' Chronicle* of Saturday last, June 27, page 453.

Manufactured only by the Patentee.

RICHARD READ, 35, REGENT CIRCUS, LONDON.

*** Descriptions sent post free.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s*. 6*d*. each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

SAMUEL C. HEMMING AND CO., MANUFACTURERS OF IRON BUILDINGS, with Improvements as to Construction, Ventilation, and Equalisation of Temperature. Iron Churches, Chapels, School-rooms, Farm Buildings, Stores, Ball and Concert Rooms, Theatres, Additions to Buildings, Verandahs, and Iron Roofing erected complete in any part of the Kingdom.—For particulars, apply only to 40, Broad Street Buildings, London.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d*. per yard, or 5*s*. per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. LAMBERT & SON, Short Street, New Cut, Lambeth, S.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d*.	11*d*.	1*s*. 1*d*.	1*s*. 3*d*.	1*s*. 5*d*.	1*s*. 7*d*.	1*s*. 9*d*.	2*s*.	2*s*. 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s*.	2*s*. 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.	3*s*. per yard.

The hose is Burnettized at an extra charge of 3*d*. per yard. Union Joints, Branch Pipes, and Jets are also supplied.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s*.), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d*. per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s*. per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

SIGMA'S NEW SYSTEM OF PLANTING GRAIN, 1*s*., at all Railway Stations. Persons intending to set or dibble their Wheat next autumn should communicate at once with the agent, Mr. C. POWELL. As the demand for Corn Planters is very great, and orders can only be executed in their turn, many persons may have to wait six or eight weeks; 5-row depositors, 3*l*. 3*s*., made to any size. SIGMA'S Draw Shave Steel Hoes, from 3*s*. 6*d*. A prospectus sent. Machines may be seen at Messrs. BURGESS & KEY'S, 95, Newgate Street; Messrs. LAWSON'S, 27, Great George Street, Westminster; Messrs. MEAD & POWELL, Railway Arcade, London Bridge Station. SIGMA'S Pamphlet, 3d Edition, 12 postage stamps. A packet of Aphis Powder for six postage stamps, sent to Mr. C. POWELL, Hurstgreen, Sussex.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s*. 6*d*. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. Allowance on large orders.

Manufactory, Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a copy of the Testimonials, will be sent on application to WALTER CARSON & SONS, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

NEWSPAPER

ROYAL BOTANIC SOCIETY OF LONDON.

AWARD OF PRIZES AT THE THIRD EXHIBITION OF FRUIT AND FLOWERS HELD ON WEDNESDAY, JULY 1, 1857.

EXTRA GOLD MEDAL.

Mr. Whitbread, Gr. to H. Colyer, Esq., Dartford, Kent, for 16 Stove and Greenhouse Plants
Mr. Keele, Gr. to J. Butler, Esq., Woolwich, for 20 Exotic Orchids

LARGE GOLD MEDAL.

Mr. Dods, Gr. to Sir J. Cathcart, Bart., Cooper's Hill, for 16 Stove and Greenhouse Plants
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, Herts, for 20 Exotic Orchids

MEDIUM GOLD MEDAL.

Mr. William Taylor, Gr. to J. Coster, Esq., Streatham, Surrey, for 16 Stove and Greenhouse Plants
Mr. Cutbush, Nurseryman, Barnet, Herts, for 12 Stove and Greenhouse Plants
Mr. B. Peed, Gr. to T. Tredwell, Esq., St. John's Lodge, Norwood, for 10 Stove and Greenhouse Plants
Mr. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, Herts, for 20 Exotic Orchids
Messrs. Veitch & Son, Exeter and Chelsea, for 16 Exotic Orchids
Mr. William Clarke, Gr. to C. Webb, Esq., High Grounds, Hoddesdon, Herts, for 12 Exotic Orchids

GOLD MEDAL.

Mr. Barter, Gr. to A. Bassett, Esq., Stamford Hill, for 10 Stove and Greenhouse Plants
Mr. T. Williams, for 8 Cape Heaths
Mr. Parker, Paradise Nursery, Holloway, for 20 Variegated Plants
Messrs. Jackson & Son, Kingston, Surrey, for 16 Exotic Orchids
Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 12 Exotic Orchids
Mr. Charles Turner, Royal Nursery, Slough, for 12 Pelargoniums in 8-inch pots
Mr. Holder, Gr. to the Rev. E. Coleridge, Eton College, for 10 Pelargoniums
Mr. George Fleming, Gr. to His Grace the Duke of Sutherland, Trentham, Staffordshire, for Miscellaneous Collection of Fruit

LARGE SILVER GILT MEDAL.

Mr. Green, Gr. to Sir Edward Antrobus, Bart., Lower Cheam, Surrey, for 16 Stove and Greenhouse Plants
Messrs. Fraser, Nurserymen, Lea Bridge Road, Essex, for 12 Stove and Greenhouse Plants.
Mr. R. Hart, Gr. to L. Abraham, Esq., Bath, for 10 Stove and Greenhouse Plants
Mr. Mortimer, Gr. to R. Scott, Esq., Crouch End, Hornsey, for 6 Tall Cacti
Mr. William Cutbush, Barnet, for 20 Variegated Plants
Mr. R. Parker, Holloway, for 16 Exotic Orchids
Mr. Carson, Cheam, for 6 Exotic Orchids
Mr. Bray, Gr. to Sir J. L. Goldsmidt, Bart., St. John's Lodge, Regent's Park, for 6 Fuchsias
Messrs. Fraser, for 12 Pelargoniums in 8-inch pots
Mr. Swannell, Gr. to J. Russell, Esq., Harrow-on-the-Hill, for 10 Pelargoniums
Mr. C. Turner, for 6 large Pelargoniums
Mr. Henderson, Gr. to Sir George Beaumont, Coleorton Hall, Ashby-de-la-Zouch, Leicester, for Miscellaneous Collection of Fruit
Mr. Henderson, Gr. to Sir George Beaumont, Bart., for 3 Dishes of Grapes

LARGE SILVER MEDAL.

Mr. Page, Gr. to Wm. Leaf, Esq., Park Hill, Streatham, for 6 Stove and Greenhouse Plants
Mr. Epps, Nurseryman, Maidstone, for 10 Cape Heaths
Mr. Whitbread, Dartford, for 8 Cape Heaths
Mr. B. Peed, Norwood, for 6 Cape Heaths
Mr. Dods, Cooper's Hill, for 6 Exotic Orchids
Mr. Charles Turner, for 6 Fancy Pelargoniums
Messrs. Fraser, for 6 Fancy Pelargoniums
Mr. Thomas Windsor, Hampstead, for 6 Pelargoniums
Mr. Charles Turner, for 6 Pelargoniums
Mr. Dawson, Gr. to Earl Cowper, Panshanger, for Miscellaneous Collection of Fruit

SILVER GILT MEDAL.

Mr. E. Hamp, Gr. to J. Thorne, Esq., Mawbey House, South Lambeth, for 10 Stove and Greenhouse Plants
Mr. S. Carson, Gr. to W. F. G. Farmer, Esq., Nonsuch Park, Cheam, Surrey, for 6 Stove and Greenhouse Plants
Messrs. Fraser, Nurserymen, for 6 Kalosanthes
Mr. Green, Gr. to Sir E. Antrobus, for 6 Tall Cacti
Mr. Rhodes, Stamford Hill, for 8 Cape Heaths
Mr. James Harlock, Gr. to R. W. Nutter, Esq., Wanstead, Essex, for 6 Cape Heaths
Messrs. Jackson, Nurserymen, Kingston, Surrey, for 20 Variegated Plants
Mr. Parker, Holloway, for 12 Exotic Ferns
Mr. Bunney, Stratford, for 6 Exotic Orchids
Mr. Cole, Nurseryman, St. Alban's, Herts, for 6 Calceolarias
Mr. Davidson, Gr. to G. Bishop, Esq., Regent's Park, for 6 Fuchsias
Mr. Bragg, Star Nursery, Slough, for 12 Pelargoniums in 8-inch pots
Mr. Thomas Windsor, Gr. to C. Cannon, Esq., Kiddapore Hall, Hampstead, for 10 Pelargoniums
Mr. Shrimpton, Gr. to A. Doxat, Esq., Putney Heath, for 6 Fancy Pelargoniums
Messrs. Fraser, for 6 large Pelargoniums
Mrs. Conway, Earl's Court Nursery, Old Brompton, for 6 Scarlet Pelargoniums
Mr. Bragg, Slough, for 6 Scarlet Pelargoniums
Mr. William Holder, for 6 Scarlet Pelargoniums
Mr. Smith, Nurseryman, Dulwich, Surrey, for 6 Scarlet Pelargoniums
Messrs. Paul, Nurserymen, Hertford, for 50 Cut Roses
Mr. Terry, Gr. to Lady Pullar, Youngsbury, Ware, Herts, for 25 Cut Roses

SILVER GILT MEDAL.

Mr. H. Wood, Gr. to C. R. S. Murray, Esq., Great Marlow, for 3 dishes of Grapes
Mr. Phipps, Gr. to the Earl of Carnarvon, for 3 dishes of Grapes
Mr. Hill, Gr. to R. Sneyd, Esq., Keele Hall, for 12 lbs. of Grapes
Mr. Henderson, Gr. to Sir G. Beaumont, for 1 dish of Black Hamburgh Grapes
Mr. Hill, Keele Hall, for 1 dish of Black Hamburgh Grapes
Mr. Laybank, Gr. to T. Maudsley, Esq., Norwood, for 1 dish of Muscats
Messrs. Mitchell, Brighton, for 1 dish of Grapes
Mr. J. Miller, Eardiston, for 1 dish of Peaches

SILVER MEDAL.

Mr. Epps, Nurseryman, Maidstone, Kent, for 12 Stove and Greenhouse Plants
Mr. Morris, Gr. to Coles Child, Esq., Bromley, Kent, for 10 Stove and Greenhouse Plants
Mr. Thomas Frost, Gr. to E. L. Betts, Esq., Preston Hall, Maidstone, Kent, for 6 Stove and Greenhouse Plants
Mr. R. Hart, Bath, for 8 Cape Heaths
Mr. Taylor, Streatham, for 6 Cape Heaths
Messrs. Veitch & Son, Nurserymen, Exeter and Chelsea, for Specimen Orchids
Mr. Parsons, Dansbury Park, Welwyn, Herts, for New Plant Achimenes Meteor
Mr. Arthur Young, Gr. to F. C. Hills, Esq., Denmark Hill, for 20 Variegated Plants
Mr. Baillie, Gr. to W. C. Carbonel, Esq., Harrow Road, for 12 Exotic Ferns
Mr. William Taylor, Streatham, for 6 Greenhouse Azaleas
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, for 6 Exotic Orchids
Mr. Page, Streatham, for 6 Exotic Orchids
Mr. Gaines, Battersea, for 6 Calceolarias
Mr. Hutt, Gr. to Miss Burdett Coutts, Highgate, for 6 Fuchsias
Mr. Gaines, Battersea, for 12 Pelargoniums in 8-inch pots
Mr. Wakefield, Gr. to Miss Palmer, 46, Portland Place, for 10 Pelargoniums
Mr. Gaines, for 6 Fancy Pelargoniums
Mr. Bray, Regent's Park, for 6 Pelargoniums
Mr. Holder, Eton College, for 6 large Pelargoniums
Messrs. Fraser, for 6 Pelargoniums
Messrs. Lane & Son, Nurserymen, Berkhampstead, for 50 Cut Roses
Mr. Wakefield, Portland Place, for 25 Cut Roses
Messrs. Lane & Son, for Collection of Fruit Trees
Mr. Parker, Holloway, for 10 Lycopodiums
Mr. Barnes, Gr. to Lady Rolle, Bicton Gardens, Devon, for 1 Providence Pine Apple
Mr. A. Brown, Gr. to Mr. Vivian, Singleton Abbey, Swansea, for 1 Queen Pine Apple
Mr. Bailey, Gr. to T. T. Drake, Esq., Shardeloes, Amersham, for 1 Pine Apple
Mr. Smith, Gr. to A. Anderson, Esq., Norwood, for 1 Pine Apple
Mr. Turnbull, Gr. to the Duke of Marlborough, Blenheim Palace, for 3 dishes of Grapes
Mr. H. Hawkins, Bramfield, for 1 dish Black Hamburgh Grapes
Mr. Fleming, Trentham, for 1 dish Black Hamburgh Grapes
Mr. Wm. Taylor, Streatham, for 1 dish of Black Prince Grapes
Mr. J. Croxford, Woodford, for 1 dish of Muscats
Mr. Turnbull, Trentham, for 1 dish of Muscats
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, for Vines in pots
Mr. Thomas Frost, Maidstone, for 1 dish of Peaches
Mr. Snow, Gr. to Earl De Grey, Silsoe, Beds., for 2 dishes of Peaches

SMALL SILVER MEDAL.

Mr. T. Williams, Gr. to Miss Traill, Hayes Place, Kent, for 6 Stove and Greenhouse Plants
Mr. Green, Cheam, for 6 Cape Heaths
Messrs. Jackson & Son, Nurserymen, Kingston, Surrey, for Specimen Orchid Chysis Limminghi
Mr. Thomas Ingram, Royal Gardens, Frogmore, for New Plant Gesneria oblongata splendens
Mr. Parsons, Welwyn, for New Plant Achimenes rosea magnifica
Mr. Matthews, Nurseryman, Clapham Rise, Surrey, for New Plant Lilium excelsum
Mr. Gedney, Gr. to Mrs. Ellis, Hoddesdon, Herts, for 12 Exotic Ferns
Mr. Baillie, Harrow Road, for 12 British Ferns
Mr. Taylor, Streatham, for Correct Labels
Mr. Gaines, Battersea, for 6 Fuchsias
Mr. James, Isleworth, for 6 Fancy Pelargoniums
Mr. Shrimpton, Putney Heath, for 6 large Pelargoniums
Mr. Charles Turner, for 24 Pinks
Mr. Bragg, for 36 Pansies
Mr. Parker, Gr. to Dr. M'Lean, Colchester, Essex, for 12 Pinks
Mr. Hale, Stoke, for 24 Pansies
Messrs. Francis, Nurserymen, Hertford, for 50 Cut Roses
Mr. G. Taylor, Gr. to C. A. Hanbury, Esq., Barnet, for 25 Cut Roses
Messrs. Paul & Son, for 24 single blooms of Roses
Mr. Bragg, for 6 continuous flowering Geraniums
Messrs. Veitch & Son, for Thujopsis dolabrata
Mr. Morris, Bromley, for 12 Lycopods
Messrs. Henderson, Wellington Road, for a Collection of Gloxinias
Mr. Cole, Nurseryman, St. Alban's, for a Collection of Mixed Calceolarias
Mr. Gaines, Battersea, for 9 French Pelargoniums
Mr. J. Monro, Gr. to Mrs. Oddie, Colney Hatch, for superior arrangement of a Miscellaneous Collection of Fruit
Mr. T. Dawson, Panshanger, for 1 Providence Pine Apple
Mr. Thomas Young, Gr. to C. Bailey, Esq., M.P., Aberdare, Glamorganshire, for 1 Queen Pine Apple
Mr. J. Temple, Gr. to J. Clarke, Esq., Dowlais House, Glamorganshire, for 1 Queen Pine Apple
Mr. Presto, Gr. to R. Bethell, Esq., Thackwood Park, Basingstoke, for 1 Queen Pine Apple
Mr. Davis, Market Gardener, Oak Hill, East Barnet, for 1 Pine Apple

SMALL SILVER MEDAL.

Mr. Robert Davis, Gr. to J. Dixon, Esq., Chelford, Congleton, Cheshire, for 1 Green-flesh Melon
Mr. Bousie, Gr. to Hon. H. Labouchere, Stoke Park, Slough, for 1 Green-flesh Melon
Mr. Gadd, Market Gardener, Dorking, Surrey, for 1 scarlet-flesh Melon
Messrs. Mitchell & Co., Kemp Town, Brighton, for 3 dishes of Grapes
Mr. Henderson, for 12 lbs. of Grapes
Mr. Bailey, Amersham, for 12 lbs. of Grapes
Mr. Phipps, Caernarvon, for 12 lbs. of Grapes
Mr. Orpwood, Gr. to S. Bird, Esq., for 12 lbs. of Black Hamburgh Grapes
Mr. Hanson, Gr. to J. Thornton, Esq., Beaver Hall, Southgate, for 1 dish of Black Hamburgh Grapes
Mr. J. Sparrow, Moor Park, for 1 dish of Black Prince Grapes
Mr. Turner, Gr. to J. Hill, Esq., Streatham, for 1 dish of Black Prince Grapes
Mr. H. Hawkins, Beamfield, for 1 dish of White Muscadine Grapes
Mr. Thomas Frost, Maidstone, for 1 dish of Muscats
Mr. Dodds, Cooper's Hill, for 1 dish of Muscats
Mr. Henderson, Gr. to Sir G. Beaumont, for 1 dish of Muscats
Mr. J. Embery, Gr. to — Moss, Esq., Chadwell Hall, Essex, for 1 dish of Muscats
Mr. Drewett, Gr. to Mrs. Culbitt, Denbies, Dorking, Surrey, for 1 dish of Frontignac Grapes
Mr. Hutt, Highgate, for Vines in Pots
Mr. Robbins, Gr. to W. P. Beach, Esq., Oakly Hall, Basingstoke, for Vines in pots
Mr. Tegg, Gr. to A. Pryor, Esq., Roehampton, for 1 dish of Peaches
Mr. Miller, Eardiston, for 2 dishes of Peaches
Mr. T. Dawson, Panshanger, for 2 dishes of Peaches
Mr, Hume, Poles Park, for 2 dishes of Peaches
Mr. J. Taylor, Brentford End, for 4 dishes of Strawberries
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, for Tropical Fruits
Mr. Miller, Eardiston, for Miscellaneous Fruits

BRONZE MEDAL.

Messrs. Jackson & Son, for Specimen Orchid Angulocaulon
Mr. Halley, Nurseryman, Blackheath, for 12 Exotic Ferns
Mr. Bunney, Stratford Nursery, Essex, for 12 Exotic Ferns
Mr. Morris, Bromley, for 12 British Ferns
Messrs. Jackson & Son, for Correct Labels
Messrs. Fraser, for Correct Labels
Mr. James, Gr. to W. F. Watson, Esq., Isleworth, for 6 Calceolarias
Mr. Harlock, Wanstead, for 6 Calceolarias
Mr. Higgs, Gr. to Mrs. Barchard, Putney Heath, for 6 Fancy
Mr. Weir, Gr. to J. Hodgson, Esq., The Elms, Hampstead, for 10 Pelargoniums
Mr. Bragg, for 24 Pinks
Mr. Robert Anderson, Florist, Teddington, for 36 Pansies
Mr. Hale, Stoke, Bucks, for 12 Pinks
Mr. James, Isleworth, for 24 Pansies
Mr. Epps, Maidstone, for 50 Cut Roses
Messrs. Lane & Son, for 24 Single Blooms of Roses
Mr. Hamp, Lambeth, for Collection of 12 Amaryllis
Mr. George Robinson, Gr. to E. R. Tunno, Esq., Warnham Park, Bishop's Waltham, for 1 Providence Pine Apple
Mr. H. Jackson, Gr. to G. Beaufort, Esq., South Lambeth, for 1 Providence Pine Apple
Mr. Joshua Williamson, Gr. to Lord Lonsdale, Whitehaven Castle, for 1 Queen Pine Apple
Mr. Davis, Gr. to T. W. Blakemore, Esq., Valindra House, Cardiff, for 1 Queen Pine Apple
Mr. Barnes, Bicton, for 1 Queen Pine Apple
Mr. Page, Streatham, for 1 Queen Pine Apple
Mr. Thomas Young, Aberdare, for 1 Pine Apple
Mr. Sparrow, Gr. to Lord Robert Grosvenor, Moor Park, Herts, for 1 Green-flesh Melon
Mr. A. Hawkins, Gr. to G. Brassy, Esq., Bramfield, Herts, for 1 Green-flesh Melon
Mr. Marsham, Gr. to E. Oates, Esq., Hanwell, for 1 Scarlet-flesh Melon
Mr. Harrison, Oatlands, for 12 lbs. of Grapes
Mr. J. Croxford, Gr. to E. Warner, Esq., Woodford, for 1 dish of Black Hamburgh Grapes
Mr. Thomas Frost, Preston Hall, for 1 dish of Black Hamburgh Grapes
Mr. James Gorton, Gr. to the Rev. T. D. Hendron, Freman Lodge, Ware, Herts, for 1 dish of Black Hamburgh Grapes
Mr. Bousie, Stoke Park, for 1 dish of Black Hamburgh Grapes
Mr. Hume, Gr. to B. Hanbury, Esq., Poles Park, for 1 dish of Black Hamburgh Grapes
Mr. Wood, Great Marlow, for 1 dish of Black Hamburgh Grapes
Mr. Bousie, Stoke Park, for 1 dish of White Muscadine Grapes
Mr. Wood, Great Marlow, for 1 dish of White Muscadine Grapes
Mr. Clarke, Gr. to C. Webb, Esq., Hoddesdon, for 1 dish of Muscats
Mr. Henderson, Gr. to Sir G. Beaumont, for 1 dish of Frontignac Grapes
Mr. H. Jackson, Lambeth, for Vines in pots
Mr. Smith, Roehampton, for Vines in pots
Mr. J. Monro, Gr. to Mrs. Oddie, Colney Hatch, for 1 dish of Peaches
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, for 2 dishes of Peaches
Mr. Ruffett, Gr. to Lord Palmerston, for 2 dishes of Peaches
Mr. J. Monro, Colney Hatch, for 1 dish of Apricots
Mr. Ingram, Gr. to J. J. Blandy, Esq., Reading, for 1 dish of Plums
Mr. Snow, Gr. to Earl de Grey, for 1 dish of Figs
Mr. Taylor, Market Gardener, Brentford End, Isleworth, for 1 dish of Black Cherries
Mr. Snow, Silsoe, for 1 dish of White Cherries
Mr. J. Taylor, Market Gardener, for 1 dish of White Cherries
Mr. Phipps, Gr. to the Earl of Caernarvon, for 4 dishes of Strawberries
Mr. J. Monro, Colney Hatch, for Tropical Fruit

List of the Award of Prizes continued on next page.

AWARD OF PRIZES.—*Continued.*

CERTIFICATE.

Mr. Epps, Maidstone, for Specimen Orchid and Acer Negundo fol. variegata
Mr. Gaines, Nurseryman, Batterses, for 12 Exotic Ferns
Mr. S. Woolley, Gr. to H. B. Ker, Esq., Cheshunt, Herts, for 12 Exotic Ferns
Mr. Green, Cheam, for Correct Labels
Mr. Epps, Maidstone, for Correct Labels
Mr. Green, Cheam, for 6 Exotic Orchids
Mr. Wakefield, for 6 Fancy Pelargoniums
Mr. Boner, Gr. to J. Burnet, Esq., Woodford, for 6 Fancy Pelargoniums
Messrs. Veitch & Son for each of the Seedling Pelargoniums Countess of Devon and Belvidera
Mr. Edward Butter, Railway Nursery, Watford, for 50 Cut Roses
Mr. Wilkinson, Nurseryman, The Roseries, Ealing, for 50 Cut Roses
Mr. Francis, Hertford, for 24 Single Blooms of Roses
Mr. Terry, Youngsbury, for 24 Single Blooms of Roses
Mr. George Smith, Florist, Hornsey Road, for Seedling Fuchsia Princess of Prussia
Mr. Parker, Holloway, for Specimen Begonia, and also for Anæctochilus Lowi
Mr. Watson, Florist, Hadley, Middlesex, for 1 basket Seedling Petunias
Mr. George Robinson, Warneford Park, for 1 Queen Pine Apple
Mr. Dods, Cooper's Hill, for 1 Queen Pine Apple
Mr. Rattray, Gr. to J. Back, Esq., Byfleet Lodge, Cobham, Surrey, for 1 Queen Pine Apple
Mr. Maher, Gr. to R. W. Buckley, Esq., Beaumaris, for 1 Queen Pine Apple
Mr. Smith, Gr. to A. Anderson, Esq., Norwood, for 1 Queen Pine Apple
Mr. D. M'Ewen, Petworth, for 1 Queen Pine Apple
Mr. Harrison, Gr., Oatlands Palace, Weybridge, for 1 Pine Apple
Mr. Whittaker, Gr. to Lord Crewe, Crewe Hall, Cheshire, for 1 Pine Apple
Mr. B. Peed, Norwood, for 1 Pine Apple
Mr. George Robinson, Warneford, for 1 Green-flesh Melon
Mr. Morris, Gr. to T. White, Esq., Wethersfield, for 1 Green-flesh Melon
Mr. Smith, Gr. to H. W. Robarts, Esq., Roehampton, for 1 Green-flesh Melon
Mr. E. Hamp, S. Lambeth, for 3 dishes of Grapes
Mr. Willis, Gr. to Viscount Dillon, Ditchley, Oxon, for 3 dishes of Grapes
Mr. H. Jackson, S. Lambeth, for 3 dishes of Grapes
Mr. Thomas Frisk, Maidstone, for 12 lbs. of Grapes
Mr. Alderson, Market Gardener, Langley Lane, for 12 lbs. of Grapes
Mr. Solomon, Peckham Rye, for 12 lbs. of Grapes
Mr. Watson, Ealing, for 12 lbs. of Grapes
Mr. Key, Market Gardener, Finchley, for 12 lbs. of Grapes
Mr. James Williamson, Whitehaven Castle, for 1 dish of Black Hamburgh Grapes
Mr. George Robinson, Warneford, for 1 dish of Black Hamburgh Grapes
Mr. G. Taylor, Barnet, for 1 dish of Black Hamburgh Grapes
Mr. J. Grey, Gr. to M. Drummond, Esq., Till House, Denham, Bucks, for 1 dish of Black Hamburgh Grapes
Mr. Watson, Ealing, for 1 dish of Black Hamburgh Grapes
Mr. H. Smith, Roehampton, for 1 dish of Black Hamburgh Grapes
Mr. James Williamson, Whitehaven Castle, for 1 dish of Black Prince Grapes
Mr. Miller, Gr. to Sir William Smith, Bart., Eardiston Hall, Worcestershire, for 1 dish of Black Prince Grapes
Mr. Phipps, Gr. to Earl of Caernarvon, for 1 dish White Muscadine Grapes
Mr. P. Frost, Gr. to Lady Granville, Dropmore, Bucks, for 1 dish of Muscats
Mr. Willis, Ditchley, Oxon, for 2 dishes of Peaches
Mr. Wilson, Gr. to J. Elger, Esq., Putney, Heath, for 2 dishes of Peaches
Mr. Watson, Ealing, for 2 dishes of Peaches
Mr. J. Monro, Colney Hatch, for 2 dishes of Peaches and Nectarines
Mr. Iveson, Gr. to his Grace the Duke of Northumberland, Syon House, for 1 dish of Figs
Mr. Ruffett, Gr. to Lord Palmerston, for 1 dish of Figs
Mr. Snow, Silsoe, for 1 dish of Black Cherries
Mr. D. Ferguson, Stowe, Bucks, for 1 dish of Black Cherries
Messrs. Mitchell, Brighton, for 1 dish of White Cherries
Mr. Marcham, Hanwell, for 2 dishes of Strawberries
Mr. Smith, Roehampton, for 2 dishes of Strawberries
Mr. Boner, Gr. to J. Burnet, Esq., Woodford, Essex, for 4 dishes of Strawberries

ROSES.

GEORGE CLARKE begs to invite his friends and the public generally to an inspection of his superb collection now in full flower, and extending over 10 acres of ground. Amongst the objects worthy of notice is an avenue of splendid CLIMBING ROSES, 500 yards long, and which has a remarkably fine effect. Several of the new Roses this season present considerable attraction, and G. C. would remind his patrons that the period of blooming is the best time for orders to be given, as then only can a proper selection be made in colour and variety.

All the newest Geraniums, Fuchsias, Azaleas, Ericas, Calceolarias, such as are exhibited at the principal Shows, Fruit Trees, Coniferæ, and every description of Nursery stock. The Nursery is four miles from London Bridge, and is situate on the nearest and most pleasant route from the West End to the Crystal Palace.

Streatham Place Nursery, Brixton Hill, near London.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting 5 May 27th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, July 4.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on them in the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, July 4.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

MIDSUMMER, 1857.

SUTTON AND SONS beg to announce that their New Crop of ITALIAN RYE-GRASS SEED is now harvesting, and being abundant this season, the New Seed will be sold at a very moderate price. August is the best month for sowing Italian Rye-Grass, as also for Trifolium incarnatum.

PERMANENT PASTURE GRASS SEEDS may be sown with safety until the end of August or first week of September; as also "SUTTON'S RENOVATING MIXTURE" of Fine Grass and Clover Seeds, for improving old Pastures. Price 9*d.* per lb.

The NEW TURNIP SEEDS now harvesting will be ready in a few days. The best sorts for winter and spring feeding are SUTTON'S Imperial Green Round, SUTTON'S Lincolnshire Red Globe, and Early Six Weeks. The Yellow Tankard Turnip, or Tankard Swede, is an excellent sort for sowing any time in July. N.B. The present Crops of Turnip Seeds being good, the prices will be low.

J. SUTTON & SONS, Royal Berks Seed Establishment, Reading.

TURNIP SEEDS, &c.

PETER LAWSON AND SON, SEEDSMEN to Her Majesty the Queen, &c., have this season very fine stocks of TURNIP and MANGEL WURZEL SEEDS, saved from repeatedly selected bulbs. Priced Lists sent free on application.

27, Great George Street, Westminster, S.W.

GRASS SEEDS

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh and London, have a very fine stock of NATURAL GRASS SEEDS this season, to which they invite the attention of noblemen and gentlemen who contemplate laying down land to PERMANENT PASTURE. A List, with prices attached, may be had free on application.

P. L. & SON have recently published a new edition of their PRACTICAL TREATISE ON THE CULTIVATED GRASSES, founded on a series of experiments extending over the past 25 years. It comprises a full description of all the Grasses, pointing out their qualities and their adaptability to various soils and situations. The Treatise also contains Tables specifying the various kinds and quantities of Seeds suitable for every description of soils.

Mixtures of the various kinds of Grasses selected by PETER LAWSON & SON, at prices varying from 15*s.* upwards per acre, according to the description of soil.

Orders may be addressed to their London House, 27, Great George Street, Westminster, S.W.

JOSEPH MAY AND CO. beg to offer the following SEEDS for the present and next months' sowing, which they can recommend with confidence:—

	Per oz.—*s.*	*d.*
Shilling's Queen Cabbage—very best for general purposes	1	0
Nonpareil do.	1	0
Enfield Market do.	1	0
Rosette Colewort	1	0
Hampshire Brown Cos Lettuce, white seeded	1	4
Hardy White Winter Cos	1	4

A Catalogue of Vegetable and Flower Seeds can be had, post free.—No. 1, Wellington Street, Strand.

TO SEEDSMEN AND OTHERS.

THE ASSIGNEE appointed under the Bankruptcy of HORATIO BUNTING, SEED GROWER, of the Lexden Road, Colchester, begs to inform the Seed Trade that he is now prepared to receive TENDERS for the purchase of a portion of the Bankrupt's Stock of Seeds (not compelled to accept the highest or any Tender).—For further particulars apply to E. T. HOMER, 58, North Hill, Colchester.

TO BEE KEEPERS.

SOW MELILOTUS LEUCANTHA for an abundant supply of rich honey. Sixpence per packet, free. Every kind of Bee Plants kept.—PERSAC & Co., Seedsmen & Florists, 253, High Street, Exeter.

VARIEGATED-FOLIAGED PETUNIA—VERBENAS OF 1857.

WILLIAM CUTBUSH AND SON beg to offer their VARIEGATED-FOLIAGED PETUNIA MRS. CUTBUSH, at 42*s.* per dozen, or 5*s.* each; also ENGLISH AND CONTINENTAL VERBENAS OF 1857, at 21*s.* per dozen.

A General Catalogue of Ferns, Soft-wooded, and other Plants free on application.—Highgate Nurseries, London, N.

CALCEOLARIAS.

GEORGE CLARKE begs to announce that he is prepared to distribute his splendid collection. The great satisfaction which this has hitherto given, coupled with the decided improvement made in them this season, enables him to offer it now with more than usual confidence. Packets warranted, price 2*s.* 6*d.* payable in postage stamps.

Streatham Place Nursery, Brixton Hill, S.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

TO NURSERYMEN, ROSE FANCIERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS most respectfully invite the Public to inspect their extensive and varied collection of ROSES now in bloom, which with their General NURSERY STOCK ranging over 20 acres, consisting of the leading and choicest varieties of Fruit and Forest Trees, Evergreens, Ornamental Trees, Deciduous Shrubs, and American Plants, are in the highest state of cultivation, and well worthy an inspection. N.B.—The Nursery is accessible by Railway in 20 minutes, from Fenchurch Street and Bishopsgate Street, from whence Trains leave nine times daily to Leytonstone Station, which adjoins the Nursery.

American Nursery, Leytonstone, July 4.

OBSERVE!—All who have Kitchen Gardens should sow, for early spring CABBAGES, CATTELL'S Early Reliance and CATTELL'S Early Barnes. These sorts may be safely sown as early as the middle of July without fear of running to seed the following spring.

From the hundreds of testimonials J. CATTELL has received from all parts of the United Kingdom, as well as from America, Australia, China, &c., and from trials J. C. has himself made in comparison with other kinds, he can with the greatest confidence say they are the best sorts known.

Seed of these Cabbages may be had by post, the Reliance in half-ounce packets and the Barnes in one ounce packets, for 12 penny stamps each packet.

Address JOHN CATTELL, Seedsman, Westerham, Kent.

ROSES IN BLOOM.

H. LANE AND SON beg to announce to the public that their extensive and choice selection of ROSES is now in Bloom, and will continue so during the season. They also have a large Collection of Conifers, Rhododendrons, Shrubs, Fruit Trees in pots, and a General Nursery Stock, which cannot fail giving satisfaction. Berkhampstead is pleasantly situated on the London and North-Western Railway, 25 miles from London, and trains run up and down almost every hour.

The Nurseries, Great Berkhampstead, Herts.

HERTFORD NURSERIES.

E. P. FRANCIS' superb Collection of ROSES on the Manetti Stock is now in bloom, and will continue to flower through the season. Morning, evening, and cloudy days are best for viewing Roses.

ROSES.—THE COLLECTION OF ROSES at the Cheshunt Nurseries is just coming into bloom, will be in fullest beauty from the 20th inst. to the 11th July, a succession continuing till the end of autumn. Admirers of Roses are respectfully invited to visit the Nurseries, where every novelty that can be obtained is fairly submitted to trial.

Cheshunt is 13 miles N. of London. Trains of the Eastern Counties Railway from Shoreditch to Cheshunt Station, 1 mile from the Nurseries, run to and fro several times daily.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

J. CHATER AND SON offer the above Seed, saved from their best flowers, as follows:—25 varieties, named in separate packets, the collection, 6*s.*; 15 ditto, 4*s.*; best mixed, 200 seeds, 1*s.* 6*d.*; 400, 2*s.* 6*d.*; also choice Sweet William Seed, 6*d.* per packet.—Nursery, Haverhill, July 4.

CABBAGE PLANTS.—Extra fine Drumheads; also the large Early Field Imperial; and the choicest Early Garden Plants, 3*s.* 6*d.* per 1000; a choice variety of Broccolis, Celeries, &c., 4*s.* 6*d.* per 1000, packed and delivered at Godalming Station Free.

THOMAS WELLAND, Surrey Gardens, Godalming, Surrey.

SWEDISH TURNIPS FOR LATE SOWING

CARRIAGE FREE.

RIVER'S STUBBLE SWEDE is a fine large yellow Swede, which may be sown any time in July, and will keep well till spring, either stored or in the field.

YELLOW TANKARD SWEDE.—This valuable hybrid has leaves similar to the common Turnip, but the root is similar to a fine Swede. May be sown even later than the preceding and keeps well. Price 7*s.* per gallon, or 50*s.* per bushel.

Royal Berks Seed Establishment, Reading.

CABBAGE FOR EARLY SPRING CUTTING.

THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. It may be sown any time in July without running to seed. Seed 1*s.* per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free.

Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JULY 4, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, July 7—Horticultural ..... 3 P.M.

THERE is in the horizon a speck that few people now regard, but which, if we fail to bestir ourselves, may become as troublesome as the little cloud that goes before a hurricane. It is already spreading, though not much, and it should be all men's business at once to stay its progress if it be impossible to disperse it.

Not the least among the follies of the French revolution were two brilliant schemes that sprung up, Mushroom like, from the brains of French *doctrinaires.* One consisted in changing the names of all the months of the year. It was unworthy of a scientific nation, resolved upon improving everything by making it spick and span new, any longer to tolerate such barbarous unmeaning names as January, February, March, and the rest of the Calendar; in their stead it was resolved to substitute such perfectly rational denominations as Pluviose, Ventose, Germinal, or "the rainy," "the windy," "the growing," and so on. Accordingly for many long years no scientific Frenchman condescended to employ the old words, and no unscientific Frenchman succeeded in comprehending his more learned teachers. Till at last the absurdity became too glaring, and it suddenly vanished with many another change, and January, February, and March reascended their ancient thrones.

The other ingenious scheme was to sweep clean away all the customary names of weights, measures, and money. Pounds, ounces, yards, pints, quarts, crowns, and pence were sent to the lamp-iron or the scaffold along with king, queen, and courtiers. One change was as necessary to the regeneration of France as the other. Louisd'ors and crown pieces, acres, yards, and inches, quarts and pints, smelt of the *corvée* and other rags of feudality. The whole must be changed. To leave weights, measures, and money as they were was to leave open the door through which liberty, equality, and fraternity might be turned out by tyrants and aristocrats. Ten was found to be a sacred number, oddly enough, considering the aversion of the French to the *dîme*, or church tenth which we call tithe; everything was to be a multiple of ten or divisible by ten, or reducible to ten, and every vulgar name of coin, weight, or measure, was to be instantly replaced by learned Greek words having ten for their root. To this the French nation, patient and long suffering, did in a manner seem to submit, and the worship of decimality was perma-

nently established by law in France. We say by law, and by force of authority; for in no other sense has it even now, after more than half a century, won a way for itself among the people. Scientific men with a kind of *esprit de corps* condescended indeed to enlist in the ranks of decimality, to the excessive annoyance and inconvenience of others; Government functionaries had no choice; in the law courts decimality was insisted upon by positive legal enactments, and after so many years a sort of decimal habit has feebly grown up among the uneducated classes. Nevertheless the nation, as a nation, has done its utmost to reject it. Neither the despotism of republicanism, nor the despotism of monarchy, nor the despotism of autocracy has ever forced it into the hearts of the French; and we entertain no doubt that, even now, were they free to choose, the whole decimal scheme would be scattered to the winds. In an instant the good old league and mile, and toise and metre, and pied and pouce, and ligne, would snuff out the detested *myriamètre*, and *kilomètre*, and *hectomètre*, and *decamètre*, and *decimètre*, and *centimètre*, and *millimètre*.

What, indeed, has really happened, has been forcibly stated by Sir CHARLES PASLEY in his recent pamphlet.* So far has decimality been from working well in France that "the new decimal metrical system, as applied to weights and measures, was almost equally inoperative; for, excepting in the collection of duties or other transactions, to which the Government was a party, and in all written agreements relating to wholesale commercial transactions, in which it was rendered imperative by law, the *Metres*, *Ares*, *Litres*, *Steres*, and *Grammes*, which are the units of that system, with their pedantic Latin and Greek prefixes, occasioned so much confusion, that they were never used at all after the Republic, the Consulate, and the first years of the Empire, being perfectly unintelligible to the people of France; so that at last the Imperial Government was compelled to yield to popular resistance; and with the aforesaid exception the decimal system was virtually abolished by a decree of the 12th February, 1812, establishing what was called the *usual or customary system* of weights and measures" with new standards. "These standards of the 'Usual' were rendered equally legal with those of the 'decimal system,' and all persons who sold goods by retail were obliged to provide themselves with both. The standards of the usual weights and measures had their value according to the decimal system also marked on each, and it was left optional for retail dealers to sell by either, which led to so much imposition that it was found necessary in 1816 to issue a royal decree of LOUIS XVIII., absolutely forbidding the use of decimals in shops, markets, or any other inferior departments of trade or retail business. Thus the people of France were obliged to make themselves masters of three different and incongruous systems of weights and measures—those of the Monarchy, those of the Republic, and those of the Empire; and it was not till the year 1837 that a law was enacted under King LOUIS PHILIPPE to abolish the Usual and inflexibly inforce the Decimal Metrical Standards after the 1st January, 1840—it being hoped by the promoters of this law, of whom the celebrated Marquis de la PLACE, in the Chamber of Peers, was the most strenuous, that the rising generation of France had by this time become so generally instructed in decimal arithmetic, that they would be able to understand and appreciate the latter. Should this have proved more successful than the former attempts to accomplish the same object, all I can say is that the French nation has been a long time in learning decimals; and meanwhile the confusion, or rather confusion worse confounded, of these changes, offers a warning to other nations of what ought to be avoided"

But in reality the French nation has not even yet discovered the use of decimals, as is notorious to those acquainted with its country districts. "By personal observation," writes Sir CHARLES PASLEY, "and inquiry in the shops and markets of France in the summer of 1854, I know that the same confusion still prevails, and that one may buy goods either by the decimal or by the usual weights and measures; and I know of no case in which the *mètre* has entirely supplanted the old measures, except for soundings as before-mentioned, and for cloth-measure, because it is a more convenient measure for cloth than the old French *Aune*, which was rather too long for that purpose." A statement which all travellers confirm.

How indeed could it be otherwise? What else can be expected when a nation is called upon to reject all its old habits of thinking and acting, to wipe out all its old familiar words, and to learn a new language for the most common things belonging to daily and hourly life; and this too for the sake of a new fangled scheme which Sir C. PASLEY, himself a distinguished military engineer, who has studied it carefully, declares to be, *as applied to navigation, architecture, and the mechanical arts, to commercial transactions, and the daily business of life*, one of the most injudicious that could have been adopted. And it is this enormous social nuisance which some of our own *doctrinaires* are doing their best to force upon the people of England, under the much abused name of reform.

Let us only imagine the consequences that must follow the introduction of such a scheme among ourselves. If a horse were to be sold he would not be measured by hands, but by meters, decimeters, and centimeters. A gardener would not hire his land by the acre or the rod, but by the hectar, ar, and centiar; and as for his Potatoes they would no longer go to market by the peck and bushel, but by the hectoliter, decaliter, liter, and deciliter; punnets would be extinguished by hectograms, pounds by decagrams, and stones by kilograms. If he wanted half a yard of canvas he would ask for five decimeters, and he must teach his labourers to measure their work no longer by the rod or perch, but by the centiar. As for wages either for himself or his workmen the good old £. *s.* *d.* would be unknown, and he must learn to convert them into mils, cents, and something else. That which would happen to our gardening friends would of course be the fate of everybody else; all rents, sales, purchases, and exchanges, all money, all weights, all measures of length, breadth and capacity, past, present, and to come, would be forced into new names, forms, and values; and our very milestones would have to talk in an unknown tongue. We should no longer be permitted to speak of miles and furlongs, but of myriameters and kilometers.

It is this, or something like it, with which we are threatened by the clever gentlemen who patronise our education and would improve our arithmetic. Undeterred by the warning which others' failures ought to give; regardless of the indescribable confusion into which every transaction in life would be inevitably thrown, they are quietly pressing forward their decimal delusions, and if unchecked will infallibly bring us into the same state as our neighbours. Not indeed that they would employ the same words, or produce exactly the same kind of confusion; they would probably retain some of our time-honoured words, only changing their meaning, in doing which they would, as it seems to us, make matters rather worse than better. We therefore most heartily join with those who are opposed to alterations in these matters; protesting against disguising change under the name of improvement, and indescribable social discord under that of universal harmony. We altogether object to becoming the victims of arithmetical theory, however great the deities at which we are to be sacrificed. We think Sir CHARLES PASLEY has done good service by offering an uncompromising opposition to the further progress of the decimal heresy, and we trust that his example will meet with strenuous support.

In saying this we are not to be understood as objecting to such changes as can be shown to be real improvements. There is trouble in having to deal with a multitude of local weights and measures, different in name but alike in value, or alike in name but different in value; though the trouble is by no means so much as is represented. There is no doubt that the abolition of the guinea and its awkward parts was a great improvement; so has been the introduction of the florin; so has *not* been the fourpenny piece; so would be the extinction of the half crown. Changes like these, the value of which all can perceive, effected very gradually, producing no disturbance, requiring no comparative calculations, will always meet with concurrence instead of opposition. But we doubt extremely the propriety of even Sir CHARLES PASLEY'S proposals. His alterations in the copper coinage, moderate as they are, it would we think be found impossible to work. And as regards the substitution of the French centigrade thermometrical scale for that of FAHRENHEIT, the introduction of cans and chopins among customary measures of capacity, of cents into the coinage, and the extinction of all such quantities as tons, quarters, barrels, &c. &c., the practical inconvenience of the plan would, as it seems to us, far outbalance any theoretical advantages to be expected from it.

* *Plan for simplifying and improving the measures, weights, and money of this country.* Dalton. Price sixpence.

WHEN the *resumé* which we gave last week of the history of the Vine Mildew was prepared, we were unable to obtain the number of the Journal in which Mr. TUCKER'S notice appeared. We have however at length procured a copy, and can fill up the gap which appears in all the accounts which have hitherto been published. The notice, signed Progressionist, is dated Sept. 22, 1847, and was published Oct. 2, 1847, whereas the first notice in our Journal did not appear till Nov. 27, 1847. The notice itself is very short, occupying about half a column. It states that a distinctive disease has existed amongst Grapes in Margate and its neighbourhood for the last two years; but under an aggravated form in 1847. That it arises from a fungus with oval spores, whose mycelium traverses the cellular tissue beneath the cuticle. That its effects are to produce swelling and cracking, accompanied by the emission of a very strong, disagreeable odour, and ending in the Grapes becoming an entire mass of rottenness. He says that he has seen the same fungus on Cineraria. The rest of the communication consists of speculations as to its origin. He imagines the atmosphere to teem with minute germs of vegetable life, for whose development a proper nidus only is necessary, and that two successive extremely dry and hot summers were eminently favourable to the deposition, birth, and maturity of this insidious atmospheric germ. Not a single word is said about its treatment, though we know that Mr. TUCKER was successful in checking the malady, as was also his neighbour Mr. BOYS. We think it right to publish the above statement in justice to Mr. TUCKER, whose intelligence and perseverance are well worth the imitation of his brother gardeners. We believe at the same time that we have stated with strict truth the precise share he had in the discovery of the nature of the disease.

Let us also add from the *Times*, that the French Society *d'Encouragement pour l'Industrie nationale* has reported to the French Government that the prize of 10,000f. offered by the French Government in conjunction with the Society is jointly due—1, to Mr. KYLE, an English horticulturist, who first applied sulphur to this purpose in 1848; 2, to M. DUCHARTRE, Professor of Agronomy at Versailles, who first introduced the method in France; 3, to M. GONTIER, a horticulturist at Montrouge, near Paris, who was the first to apply it on a large scale; and 4, to M. HENRY MARÈS, Secretary to the Society of Agriculture of the department of the Hérault, who by numerous experiments has proved the superiority of sulphur over all other agents previously tried and pointed out the surest and most economical way of applying it. Moreover that M. MARÈS has won the prize of 3000f. proposed by the Society for the best essay on the nature of the malady which has attacked the Vine for so many years. The report concludes with proposing prizes of encouragement of 1000f. each to MM. CAMILLE LEROY and KOPEZINSKI, and of 500f. each to MM. BERKELEY, CHANCEL, GAUDRY, HARDY, MONEY, and BONNEL, for their laudable efforts towards effecting the object in question. We may possibly offer some observations upon this subject on a future occasion.

THE rate of growth and actual dimensions of some of the CONIFEROUS PLANTS of recent introduction is not one of the least important questions in gardening. Occasionally statements relating to them have appeared in our columns, but they have chiefly concerned species that have been grown for these 30 years. As it would be interesting to know what the facts are regarding others, we place thus prominently what a correspondent, Mr. BUTLER, of the Widdicombe Nursery, near Bath, says about Abies Pinsapo, of which so much seed has been lately given away by the Horticultural Society. He says that at Fairfield, the seat of E. D. Pontifex, Esq., is a specimen 12 feet 6 inches high and 10 feet 6 inches through, and this he believes to be the most perfect specimen ever seen. He will we are sure excuse us if we at once negative the statement by mentioning that at Acton Green near London there exists a plant eight years planted, which is faultless in every respect, and which measures 13 feet 6 inches in height and 9 feet 8 inches through on an average, the specimen being feathered to the ground line.

Of another Conifer of remarkable growth, *Cupressus macrocarpa*, two specimens also exist at Acton Green, nine years planted, which are respectively 24 feet high by 9 feet 6 inches through, and 23 feet 6 inches high by 7 feet through.

And in the same place are a *Cupressus Goveniana*, nine years planted, 12 feet 10 inches high and 9 feet through, and a *Wellingtonia*, 5 feet high, 3 feet 8 inches through, and 8 inches round the stem. All these have been measured this 1st day of July, 1857. Are finer specimens to be found anywhere in Great Britain?

FINSBURY PARK.

MOST of our readers, we presume, know what it is to be forced into giving an invitation. People do not invite because they wish the invitation to be accepted, but because the invited is a friend's friend, or has come with a letter of introduction which they do not care to neglect, or has some claim or other on them which they feel bound to acknowledge. And if they have ever given invitations of this sort, they know the delightful sensation of relief when some kind chance brings them a refusal, and they can sit down to the double enjoyment of having acted handsomely and having escaped a bore. Now it very often happens that the Government is in this position, and especially at the period of the Session when the Civil Service Estimates are brought forward. Time after time the Government asks for money which it is extremely glad to be refused, and it rejoices as much as the rescued tax-payer himself over the fitful accesses of common sense which occasionally impel Parliament to reject extravagant grants. A very considerable portion of the deplorable increase of the Civil Service Estimates is to be set down to the door, not of the Ministers who propose it, but of one or two individual members who have taken up a hobby and force it on an apathetic House.

There is almost always some schemer, selfish or benevolent, outside the House, who first sets the wheel rolling. He gets the ear of a stray member who longs to distinguish himself, but who does not feel comfortable in any higher walk than that of asking a question, or recommending a few thousands to be spent on some pet local object that will benefit himself and his friends. For the first year or so, no one takes the slightest notice, probably, of the member and his prompter, but by degrees they catch here and there a chance supporter. Then comes the period of public meetings, deputations, and letters to the morning papers. At last the affair is ripe enough to be submitted to the notice of Parliament. The Government are then in a dilemma. If they suffer the private member to make the question his own, it may very likely happen that the House may be in an extravagant mood. The member and his friends support the motion—no one else knows or cares anything about it. The House consoles itself with reflecting that a few thousand pounds are but a drop in the ocean—the Ministry are beaten, and the money is granted. On the other hand the House may be inclined to economy and exercise an inconvenient discretion, and then if the Government itself proposes the grant, it has the mortification of having its estimates reduced against its will. But the latter is the more attractive alternative, because if the Government is beaten, it has the compensating satisfaction of lowering the expenditure, and thus in a small way gaining the good graces of economical reformers. It gives the invitation, for there seems nothing else to do but to give it; but it acquiesces very patiently in the refusal.

We think that we may venture to set down the proposed grant of 50,000*l.* for a park at Finsbury as an illustration of an extravagance forced on the Government which Ministers are glad not to have to commit. The House, by a majority of 91, decided on Tuesday night that the inhabitants of Finsbury, if they wished for a park, must make it for themselves. Why should they not? The advocates for the grant represented that it would be very pleasant for Finsbury to have a park, and that Finsbury would then be as well off as Westminster and Kensington, which, in the nature of things, it ought to be. To this there would be no reply if Finsbury was going to pay for what it wants. It is true that Battersea has received a park from the Legislature, and Mr. Duncombe was able to throw in the teeth of Mr. Williams, an opponent of the vote, the fact that 8000*l.* had been granted this year for the completion of a park which "the member for Lambeth had got for himself and the Battersea boys to disport themselves in." But because Battersea has been lucky enough to get money out of an easy House of Commons, that is no reason why money should be given to Finsbury. We are quite willing to admit that the claim of the one was as bad as that of the other. It is no more a national concern to provide for the recreation of Battersea than for that of Finsbury. Both are purely local objects; and if the localities choose to have a luxury, they must pay for it. Fresh air is a luxury well worth paying for, and it is not to be supposed that Finsbury cannot afford to buy its park. The estimated cost is 300,000*l.*, of which Finsbury is willing to pay 250,000*l.* But the representatives of the locality do not feel they should be doing justice to themselves and their constituents if they did not squeeze the odd 50,000*l.* out of the nation. They even venture to put it on this ground; and Lord Palmerston said that a deputation had urged on him the consideration that if they could but get a little trifle from Parliament to begin with, every one would be so much more comfortable, and set to work with so much better heart, that it would really be quite a pity not to encourage them with the sum asked for.

It was represented that Finsbury was part of the metropolis, and that to improve and adorn the metropolis was a national object. We are glad the question should be raised. We wish to have it decided what is meant by the metropolis which it is a national object to adorn. We have always insisted that the national money ought to be given freely to adorn London; but what does London, in this sense, mean? We adorn and improve London because it is the seat of our national institutions, because the Sovereign resides there, because the Parliament assembles there, because it is the centre of Government, because it is rich in historical traditions. We wish not only to have a capital great in extent, but a capital rich in works of art, a capital raising both in the minds of Englishmen and foreigners the idea of grandeur, order, magnificence, and taste. It is a great subject of pride to the humblest labourer in the remotest county that "Lunnon" is his capital, and the finer and handsomer it is, the greater and more legitimate is his pride. But Finsbury has nothing to do with this London of magnificence, of historical association, of courtly tradition, of governmental influence, of artistic interest. Finsbury is in no one's way. Foreigners are not taken to Finsbury. Country bumpkins are not proud of Finsbury. London, as the capital of England, would not be a bit better, or more imposing, or more splendid, because a patch of black Grass was rescued from the invasion of lath-and-plaster villas in one of the outlying suburbs. It may be said that it would enhance the pleasure of enjoying what is really London, in the sense in which a country cousin or a foreigner speaks of London, if we knew that the remoter regions of the vast city were well provided for. We cannot deny that it would, and it would enhance the pleasure still more if we could but think that we were standing in the capital of a country so great as to provide parks for all its most distant towns. On this principle, to produce the greatest effect we ought to begin the furthest off, and the dirty little fishing-towns at the top of Scotland would have the first claim for a grant. But we cannot afford to pay for comfortable reflections. We must confine our expenditure if we wish it to answer its purpose. We must not consent to pay for the water-supply of Acton or Hornsey, because we construct fountains in Trafalgar Square. There is a national and a non-national London We wish to see the national London beautified and improved, and to have an ungrudging outlay of national money applied to the purpose; but the non-national, the local London is no more to us—unless we happen to reside there—than Preston, or Leicester, or Nottingham. It must pay for its own park, as it pays for its own water or gas; and the national purse should be resolutely shut against its importunate demands, in order that it may be freely opened to the claims of what is really London. *Saturday Review.* Let us hope that this determination of the present Parliament not to vote imperial funds for any other than imperial objects will put an end to the jobs of which Victoria Park is so signal an example.

THE MANETTI ROSE STOCK.

HAPPENING to visit Folkstone and Sandgate a few days since, I was much struck with the beauty and flourishing state of the Roses in the peculiarly light sandy soil of the district. On inquiry I found they were all on the above stock, and also that Roses on the Dog Rose stock would scarcely exist; that many varieties, such as the different kinds of Moss Roses and others, even on their own roots grew badly and were short lived; whereas on the Manetti stock Roses of all kinds flourished and did well, but still better if removed every season in November. In the garden of Mr. Mickle, under this treatment, they were in a remarkably fine and healthy state. There is another peculiarity about this "well-abused" stock which your readers ought to know—the Roses budded or grafted on it should always be planted about 1 inch above the junction of the bud with the stock, so that the sap-conducting part of the stock is completely covered. If thus treated, Roses on the Manetti stock may be planted in the stiffest clay as well as in a blowing sand; but in the latter case the Folkstone method of annual removal seems good practice. In stiff clays, however, as I have experienced, when the stock is buried they live and grow for years in great luxuriance, for I have some pillar Roses from eight to 10 years old that seem as vigorous as Roses can be, and what is of great consequence, they have not for some years put forth a sucker. This brings to my mind a peculiarity I have observed in this stock; under certain circumstances the sort budded on it will entirely overpower its suckers, so that in a year or two the bud or graft gains the ascendancy completely and the suckers without being removed languish and die. This has occurred here in several instances with stocks planted out for stools for propagation; some of these had dormant buds in them which had not put forth their shoots with the usual crop of plants and were thus thrown on one side as stocks. Now the curious part of the matter was that immediately these stocks were planted out for stools, so deeply that the dormant buds became slightly covered with earth, they pushed forth most vigorously, and although the stocks at the same time put forth suckers which have not been removed, they have, as may be seen here, in most instances overpowered them, and now form vigorous plants of from three to five and six years old. To what a great extent in this respect it differs from the Dog Rose stock will be at once apparent to Rose-loving readers, for we all know that the Dog Rose carries on a fierce war with its bud or graft, and unless most carefully attended to would destroy it by its suckers in one season.

It will perhaps be remembered that at one time there was much opposition to the employment of this stock, originating I presume in ignorance of the peculiar and simple treatment it required in planting it, so as to cover the junction of the budded plant with the stock.

It does not form a proper stock for standards; there are some few strong growing Hybrid China Roses that seem to succeed on it as half standards, but after being worked and the side branches taken off the stems seem to dry up and become less annually. This is quite contrary to expectations that may be formed, for it makes strong shoots 6 to 7 feet in length in one season, and the second year if the side-branches are left on the stems become bulky and hopeful, but my standard stocks now four years old and with heads two years old, are becoming dry and rigid and less in girth than they were last year.

In America nearly all through the United States the Manetti stock is largely employed, and found to succeed admirably. One nurseryman at Rochester has 200,000 to be budded this summer, and as it may be planted deeply so as to prevent the severe frosts of winter killing the plants below the bud, it seems annually growing in favour. From a correspondent in Mississippi county, U.S., I learn that Roses on the Manetti stock grafted close to or even below the surface of the soil, so that when planted the junction was covered nearly 2 inches with earth, have succeeded admirably, even better than the same kinds on their own roots, and have withstood the late severe winters very well.

I hope to be pardoned this lengthy article about my favourite Rose stock. I have felt and do feel much interest in it for two reasons: firstly, it was on its introduction most magnificently abused; and secondly, because I had the pleasure of introducing it; for about the year 1832, one small rooted cutting of it 9 inches long was sent to me in a "bookseller's parcel" by Signor Crivelli of Como; from this small cutting have sprung the millions now in cultivation. *Thos. Rivers.*

Home Correspondence.

Sulphur to Vines.—Your correspondent last week advises flowers of sulphur mixed with water and applied with a Read's syringe. I think that if he would use it in a dry state, with a patent bellows made by M. Gaffée, No. 14, Rue de France, Fontainebleau, he would find the results far more effective. They are doubtless procurable in London; price at Fontainebleau from 4*s.* to 10*s.* I enclose you the printed particulars which I received with my instrument, simply observing that the one I bought is No. 3, price 4*f.* 50*c.* *H. St. Bertin.*

Aquaria.—Will you let me know what you consider the best practical book for the management of a fresh water aquarium? There are plenty of theories on the subject, which when put into practice are vain delusions. Perhaps some of your correspondents might be able to give tyros like myself some useful hints through the medium of your columns. *Ivanhoe.* [We believe the two best sets of directions are Stark's Marine Aquarium, a sixpenny pamphlet, published by Edmonston, of Edinburgh, and Sowerby's popular History of the Aquarium, a half-guinea book, published by Reeve, London.]

Violets.—Will you oblige me by stating what method should be pursued in the cultivation of Violets in pots to produce flowers instead of the seed pods which I enclose? My plants constantly bear the seed vessels without having flowered. *J. M. H., Gravesend.* [Yours is an instance of what is called dimorphism, that is to say, of a plant that usually bears large petals occasionally producing flowers without them. Such flowers are usually a late crop. Full instructions for Violet growing are to be found at p. 254 of our present year's volume.]

A Blight very similar to that on the Lime trees described at p. 429 has done much damage to the fruit trees of this neighbourhood; but I only observe one sort of caterpillar, which is of a dull green colour, ¾ inch long, with black head and mark on the tail. If you can identify the species from this description I shall feel much obliged. This is the second season of its appearance, and as it attacks nearly the same trees, I should be glad to know if any winter wash would destroy the eggs. Some patches of orchard are entirely leafless; there may be 10, 20, or 30 acres in a place where the trees are quite bare, with adjoining patches scarcely touched. The damaged trees are those most injured by the spring frosts, and for the most part are in low unsheltered spots. It appears as if the buds killed by frost afford shelter and protection to the young caterpillar, while the unfrosted buds by opening expose the young caterpillar before it is strong enough to brave the weather. This is only surmise. The Apple tree has suffered least, the Pear most, and with one or two exceptions the different sorts of each fruit are equally affected; the exceptions are Hessell among the Pears and Sturmer Pippins and Celina among the Apples, which are scarcely injured, though situated in the full course of the blight. [With so vague a description we can only surmise that the caterpillars in question may be those of the Geometra Vauaria, the moth of which appears at the beginning of autumn, or those of the winter moth Cheimatobia brumata, which appears in winter in the winged state. A glutinous wash over their patches of eggs would prevent the young caterpillars from making their exit.] After stripping the leaves off the trees they lowered themselves and preyed on the Gooseberry and Currant bushes below, doing much injury to them, especially to the fruit, which they preferred to the leaf. [We suppose the insects which attacked the Gooseberry and Currant bushes were the berry borer, a species different from those which injured the Apple and Pear trees.] As regards red spider, I dusted some of the Gooseberry bushes with sulphur as you recommended, and found a slight benefit. I was making arrangements for trying the wash of dissolved sulphur and lime when we found they were disappearing, and I am happy to say are now quite gone. [We believe the strong rain which has lately fallen was more beneficial in clearing off the red

spider than the sulphur and lime.] The copper-coloured beetle-fly, called here soldiers and sailors, were very numerous about the time, and my bailiff thinks they devoured the red spider. Is this probable, or may they have been engaged on some work of damage? [The soldiers and sailors (Telephorus sp.) are not injurious, they prey on other insects, and may have eaten some of the red spiders, but we rather think not.] Large numbers of the leaves are spotted with purple, as if partly eaten through; these drop off and leave the heart of the tree bare. The leaves were in other respects healthy and luxuriant. *R. Varden, Sleaford Grange, Pershore.* [Our correspondents who wish for explicit information should furnish us in all cases with specimens, both of the insects and plants, or leaves attacked. *J. O. W.*]

How Scolopendrium may be Propagated.—I have just raised four plants of Scolopendrium from the remains of the old fronds—which confirms Mr. Jackson's account in the *Gardeners' Chronicle* a short time ago. The plants were raised under every disadvantage, as I received the parent plant (quite a new variety) in December last, when two notches of the remains of old fronds were taken off and potted. In the spring, when I found that no fronds appeared, I tore off singly some of the remains of the fronds, placing them round the edge of a pot. The young fronds came up from the base of the stumps, where they had joined on to the caudex. *J. H. S.*

Sweet-scented Crab.—I have little doubt that the Sweet Crab, which your correspondent "F. N." smelt as so delightful years ago, is the Sweet-scented Crab of America. "I am informed," Michaux says, "the American woods are made odoriferous by it in the spring, and that it is the same as the Pyrus coronaria, known in English nurseries." I had some difficulty in obtaining plants; but now I can say its scent resembles Orris or the Violet. *E. W. S.* [We believe there is no difficulty in obtaining this Pyrus coronaria in or *through* any large nursery. It is a common North American tree, and handsome as well as sweet when in flower and fruit.]

Elms in the Champs Elysées.—I have just seen your Paper for the 20th of last month, and among other interesting matter I see notice taken of the way in which Elms have been barked in the Champs Elysées. I happened to be in Paris at the time when the workmen commenced operations upon the unfortunate trees, and taking a great interest in their fate I used to stand and watch the bark stripping, lamenting the ruthless way in which the operators handled their barking tools, for not only did they strip off the outer rind or rough bark, but in too many instances laid the wood of the tree bare, thus destroying the tree ultimately, if not already done. No one seemed to attend to the workmen, they therefore acted as they pleased, and on expostulating with them and pointing out that they were cutting too far into the wood, I was met with a shrug of the shoulder and a look expressive of their "knowing better than I did." I trust that your correspondents on this subject will from time to time give us some more information as to the fate of these unfortunate trees. *R. F. H. H., Dingwall.*

Tree Guards.—I have a piece of Grass close to my house, of about 12 acres in extent, in which are a great many ornamental trees of different sorts and of various ages. It is now pastured by sheep, and I observe that they rub themselves against the trunks of the trees and leave some of their wool behind them. Now I wish to know if this is likely to injure the trees, as it must be remembered that our sheep are smeared with a mixture of Archangel tar and grease, and if any injury is likely to result I should like to be informed of the quickest and cheapest mode of protecting them, for where there are such a large number of trees, expensive guards would be out of the question. *A. N. F. C.* [The mere rubbing will do no harm, unless the trees are *very* young.]

The Isabella Gray Rose.—As the history of this Rose has not been very accurately given in the advertisements, it may be perhaps interesting to your readers to know something more about it. Mr. Andrew Gray, who had been first foreman to Mr. Buist, of Philadelphia, left him some years since and settled at Charleston, S.C., about eight years ago; the Noisette Cloth of Gold seeded freely with him; from the seedlings raised he selected two, one he called Isabella, *alias* Miss Gray, after his eldest daughter, the other he called Jane Hardy, after his wife; the former has bloomed well in America, but is not equal to the Cloth of Gold in beauty. Jane Hardy does not bloom well; it is like the old double yellow Rose, its buds burst without opening. Isabella Gray was sent to England three years ago by Mr. Buist, who gave me the above information, but has not bloomed till this season. There is, therefore, but one Miss Gray or Isabella Gray Rose, which is likely to prove a very nice free blooming yellow Rose. The Cloth of Gold Rose was not raised in America, as stated in one of the advertisements, but at Angers, in France, about the year 1841. *T. Rivers, Herts*

Gardeners.—If a gardener comes to a gentleman's garden where there is no glass house of any description, but after a short time a greenhouse is erected, and the gardener gets some plants and cuttings from friends and other gardeners, is he entitled to take them away when he leaves? [No] and all the time he is in the gentleman's service he will be always exchanging cuttings and plants with gardeners and friends; is he entitled to take all these with him, all the plants and cuttings being brought up in the gentleman's greenhouse and in his pots? [No.] What time should a gardener be in his garden? My gardener comes in at 7 o'clock or a quarter before, looks to his fires (smoke flue principle), goes to his dinner at 12 o'clock, comes back at 1, shuts up his houses at 6 o'clock, leaves the garden, looks at the fires at 10 o'clock. [This is fair time.] *A Young Subscriber.* [We have given a plain answer to plain questions; but it is a very bad arrangement which makes such inquiries and answers necessary.]

Blue Hydrangeas.—All your correspondent has to do is to mix some iron-filings, or perhaps better still, iron scale from a blacksmith's forge in the earth he pots his Hydrangeas in to obtain the blue required. *H. St. Bertin.*

Apricots in Orchard Houses.—I read in the *Chronicle* of the 20th inst. the remarks of "X. Y. Z." respecting Apricots in pots, viz., that he thought they would not do well. They have always succeeded here, and this season better than ever. I give below a list of the trees I have in pots, the number of fruit now on the trees, and the number taken off in thinning:—

Name of Apricot.	Fruit left on.	Fruit taken off.
Kaisha	44	60
Ditto	36	not known
Blenheim	54	113
Peach Apricot	33	29
Ditto ditto	40	22
Moor Park	38	71

Without proper treatment such crops cannot be obtained. My Peaches and Nectarines are going on equally well. *J. Prior, Gr. to A. Crowley, Esq., Alton, June* 26. ——The passage nearly at foot of p. 453, col. *a*, should have been as below:—My old trees of Peaches and Nectarines have been in the same (13-inch) pots for seven years, the soil was taken out from the surface as I have directed in my little book, and replaced with rich compost (about the same time the trees above alluded to were repotted), no blossoms fell, and the crop of fruit as usual is fine and abundant. The . after "compost" is an error, as is the capital A in "about." *T. Rivers.*——I must say that I feel much more satisfied now I have read Mr. Rivers' account of the failure of his Apricots, although I consider his excuse of carelessness a very lame one, and one which he never ought to have been obliged to put forward. It rather amuses me to see him run off as usual into his favourite idea of people opposing the orchard house system, when immediately afterwards he talks about a stock of 10,000 trees, which no doubt he expects to dispose of in the autumn. This does not seem as if such structures were in ill repute, and as far as I myself am concerned he cannot place me in the opposition. Here have I been building a house (I am only a poor man and do my own gardening), visiting Sawbridgeworth, believing all I read in his book, acting up to it most strictly, trying all I could to persuade others to build, and then, because I complain that the trees which are stated to be bearing ones are not so, I am classed amongst the enemies to the system. If Mr. Rivers knew that the wood of last year's stock was not sufficiently ripened he ought to have made it known, and not have charged the full price; for although 5*s.* is a fair price for a bearing tree, it is an exorbitant charge for a barren one. Had I not believed that I should have a crop this season I should never have ventured to invest the sum I did, but should have been content with maiden trees. The failure of my crop has placed me also in a very awkward position, for an orchard house being a novelty mine has been anxiously watched, and I always stated I should have fruit to show this season; and now when my neighbours drop in to look round, I have one solitary Nectarine to exhibit as a reward for my year's trouble, and, to me, heavy expenditure. I own I am much annoyed. In justice to Mr. Rivers I must add that the Grapes turn out as well as I expected, and my Strawberries were splendid, and if in his next edition he would just tone down the picture and work in a little more shade, I feel assured that every one would feel much more satisfied, and he himself would stand even higher in general estimation than he does at present. In answer to your other correspondent I beg to say that I cannot be said to have failed in Apricot growing, because I only had about half a dozen weak blossoms on all my trees, and on one tree no bloom at all. Are there any Apricots in the Society's house this year? *X. Y. Z.* [Very few indeed.]

Societies.

ROYAL BOTANIC, REGENT'S PARK, *July* 1.—The Society's last *fête* of the season took place on this occasion under very unfavourable circumstances as respects weather, there having been a thunder storm in the morning, and heavy showers falling at intervals during the whole afternoon. The attendance was in consequence small. The exhibition itself was, on the whole, a good one for July. Stove and greenhouse plants were produced in abundance, and generally in good condition, especially the Allamandas, of which great numbers were present finely in bloom; and there was also a good supply of Orchids, Ferns, and Pelargoniums. Fruit was likewise plentiful and good.

Of collections of 16 Stove and Greenhouse Plants, the best, as usual, came from Mr. Whitbread, gr. to H. Colyer, Esq. It contained Dracophyllum gracile, Vincas, Allamandas, Coleonema rubrum, Rondeletias, Echites splendens, charmingly flowered and deservedly much admired; Ixora coccinea, the immense yellow Heath formerly noticed by us; Dipladenia crassinoda, a fine plant of the Willow-leaved Ixora, and some well flowered Heaths. Mr. Dods, gr. to Sir J. Cathcart, Bart., showed an excellent group, in which were beautiful specimens of Allamandas, a very high coloured Dipladenia, Erica jasminiflora alba, Franciscea acuminata, various Everlastings, two Vincas, a capital plant of the yellow Bedhania squarrosa, the Willow-leaved Ixora, Statice Holfordi, and a large yellow Heath. Mr. Taylor, gr. to J. Coster, Esq., showed 16 plants, among which were two Allamandas, two Dipladenias, two Heaths, one a handsome sort called Erica Paxtoni, Polygala acuminata, an Ixora, two Everlastings, Dracophyllum gracile, two Kalosanthes, the sweet scented Rhynchospermum jasminoides, and Rondeletia speciosa. Mr. Green, gr. to Sir E. Antrobus, Bart., who was next in point of merit, sent two Allamandas, a Stephanotis, Rondeletia speciosa, two extremely well grown Heaths, more especially one called tricolor coronata, the Java Ixora insufficiently advanced in bloom, a huge Epacris, and a small plant of the handsome deep purple Pleroma elegans, one of the most showy and useful of all Melastomads.

Groups of 12 Stove and Greenhouse Plants were contributed by Messrs. Cutbush, Fraser, and Epps. The first sent the noble Statice Holfordi, so often mentioned by us, still in good bloom; an Allamanda, Phænocoma proliferum, the charming Pleroma elegans, with flowers each as large as a 5*s.* piece; an Ixora and yellow Heath. Messrs. Fraser furnished a Clerodendron, an Allamanda, Stephanotis floribunda, Rhynchospermum jasminoides, Statice imbricata, a handsome kind; an Everlasting (Aphelexis), and red Kalosanth. Mr. Epps, who was disqualified through having too many Heaths in his group, sent two good Allamandas, a Kalosanthes, Rhynchospermum, Rondeletia, two Vincas, and Statice Holfordi.

Among collections of 10 Stove and Greenhouse Plants, the best came from Mr. Peed, of Norwood. It contained two Allamandas, Erica tricolor, Kalosanthes coccinea, the Java Ixora, and other well grown plants whose names have already appeared this year in our columns. Mr. Barter, who had the next best group, sent Ixora javanica, Allamandas, Phænocoma proliferum, Vincas, Pimeleas, Echites splendens, Dipladenia crassinoda, Kalosanthes miniata, and two Heaths. Another group of 10 plants was also shown in which the most remarkable plant by far was Meyenia erecta, a stately bush some 5 or 6 feet in height and covered with flowers, which were however scarcely so well coloured as they ought to have been. There can now be no doubt that this will prove a valuable addition to our greenhouse plants. This exhibitor had also a good Erica Vernoni, one of the best of the tricolor varieties of Cape Heath.

In collections of 6 Stove and Greenhouse Plants Mr. Rhodes, gr. to H. Philpotts, Esq., furnished Dracophyllum gracile, an Ixora, Pleroma elegans, a Pimelea, Tetratheca verticillata, and Masson's Heath. Messrs. Page, Carson, Frost, and Williams all showed in this class. Among plants which they furnished were good specimens of Allamandas, Burchellia capensis, Aphelexis, Rhynchospermums, Ixoras, Cape Heaths, more especially Erica Shannoni, a fine kind beautifully flowered, various Kalosanthes and Vincas.

Orchids were shown by the usual exhibitors of them. Of collections of 20 plants the best collection came from Mr. Keele, gr. to J. Butler, Esq., of Woolwich. It contained Anguloa Clowesi with 4 large yellow blossoms, Saccolabium retusum, two good Aerides odoratum, two varieties of Cattleya Mossiæ, one with much more orange in the lip than the other; Brassia verrucosa major, the White Butterfly plant (Phalænopsis), Dendrobium densiflorum, and one of the better sorts of the Bearded Lady's Slipper. Mr. Gedney, gr. to Mrs. Ellis, sent a fine group in which were four beautiful Aerides, Cypripedium barbatum, Calanthe veratrifolia, Cattleya Mossiæ, the singular looking Epidendrum verrucosum, Sobralia macrantha, Phalænopsis grandiflora, Oncidium Papilio, the White Phaius, and Odontoglossum citrosmum. Mr. Woolley, gr. to H. B. Ker, Esq., had two plants of Saccolabium guttatum, one with four spikes, each quite 18 inches in length; Vanda suavis and tricolor, the rare and singular Uropedium Lindeni, and the White Phaius.

In the Nurserymen's Class of 16 Orchids Messrs. Veitch showed an admirable group. It contained two plants of Saccolabium guttatum such as one rarely sees, one having no fewer than 16 spikes of flower on it. Associated with these were Aerides Lobbi, Schröderi, Larpentæ, odoratum, purpurascens, and Lindleyi, the last a beautiful variety; also two fine plants of Bearded Lady's Slipper, Vanda tricolor and suavis, Angræcum caudatum, the glorious Lælia purpurata, Saccolabium Blumei majus, and Odontoglossum grande and hastilabium. Messrs. Jackson, of Kingston, who had the next best group, again sent the beautiful Cattleya Wageneri, but not in quite so good condition this time as last; Oncidium Papilio, with four blooms; various Aerides and Saccolabiums, and Anguloa Clowesi. Mr. Parker sent Cypripedium barbatum, two plants of Cattleya granulosa, Dendrobium Pierardi, and two small plants of Miltonia.

A capital group of 12 Orchids came from Mr. Clarke, gr. to Mrs. Webb, of Hoddesdon. It contained beautiful plants of Phalænopsis grandiflora, Sobralia macrantha, Cattleya Mossiæ, Dendrobium tortile, Epidendrum macrochilum album, Saccolabium præmorsum, and the White Phaius. Mr. Morris, gr. to Coles Child, Esq., sent Cattleya Forbesi and Mossiæ alba, the latter a very fine kind, nearly pure white

except the lip, large and extremely showy. In the same group was also a fine specimen of Stanhopea oculata.

Collections of 6 Orchids were contributed by Mr. Cass, gr. to W. F. G. Farmer, Esq., Mr. Green, and others. In the first group we noticed well flowered plants of Bearded Lady's Slipper, the curious-tailed Dendrochilum filiforme, Cycnoches Loddigesi, Saccolabium Blumei with 3 fine spikes of bloom on it; Odontoglossum hastilabium, and the still somewhat scarce Dendrobium Dalhousieanum.

Of plants remarkable for fine foliage, there were one or two good collections. Of these the best came from Mr. Parker, of Hornsey Road. It contained some noble Dracænas, the variegated Arundo Donax, Yuccas with different coloured stripes, Cissus discolor, Sanseviera zeylanica, with mottled sword-shaped leaves; various kinds of Maranta, Puya Bonplandi, Dieffenbachia picta, one of the larger kinds of Pitcher plants, Palms, Aralias, Crotons, Rhopalas, and Philodendron pertusum. Mr. Cybush, of Barnet, also showed in this class handsome plants of Cissus discolor, Marantas, Caladiums, Tradescantia discolor lineata, Aspidistra lurida variegata, variegated Hydrangea, Dracænas, and Begonia Griffithi. Mr. Salter, of Hammersmith, showed a group of hardy variegated plants, which were deservedly much admired.

Cape Heaths were shown in good condition by Messrs. Epps, Williams, Whitbread, Rhodes, Hart, Peed, Harrock, Taylor, and Green. Among the different varieties were tricolor Wilsoni, and other sorts belonging to that class; metulæflora, denticulata moschata, depressa, venustissima grandiflora, Cavendishi, Bergiana, ampullacea, mutabilis, Massoni, perspicua nana, gemmifera, and tubiflora.

Tall Cacti were exhibited by Mr. Mortimer, gr. to Robert Scott, Esq., of Hornsey, and Mr. Green. The sorts, which were beautifully in bloom, did not differ much from those formerly shown by the same exhibitors.

Fuchsias were furnished in tolerable abundance. By far the best collection of them, however, came from Mr. Bray, gr. to Baron Goldsmid. Each plant, which was 7 and 8 feet in height, was clothed from top to bottom with flowers, which made a grand display. The only fault belonging to them was they were too much alike. Of other plants some were standards with parasol-shaped heads. Pyramidal grown plants seemed, however, to be most admired.

Roses (cut) were plentiful, and well selected, and as usual were much admired. Boxfuls of them came from Messrs. Paul, Lane, Francis, Epps, Rutter, Williams, Terry, Wakefield, and Taylor. Among the different varieties exhibited were Vicomtesse Decazes, very fine; Madame Willermorz, Jules Margottin, Gloire de Dijon, Prince Léon, Coupe d'Hébé, Lord Raglan, truly a brilliant acquisition which no collection can be complete without. The blooms shown in this instance were large and fine and of a glowing scarlet. Another Rose remarkable for high colour but by no means so double as Lord Raglan was General Jacqueminot, of which Mr. Francis had a charming boxful. Victor Trouillard, a deep velvety crimson, was furnished by Mr. Standish, and many were the gems of older date which every box contained. Among these may be mentioned William Griffiths and Madame Vidot; the last and Mrs. Rivers certainly rank first class among delicate pink Hybrid Perpetuals.

Of novelty there was again but little. Messrs. Veitch had Thujopsis dolabrata, an Aerides in the way of Lindleyi with an unusual amount of colour in it, and the white Ixora acuminata. Mr. Epps showed a variegated variety of Acer Negundo; Mr. Matthews (successor to the late Mr. Groom of Clapham) fine plants of the buff Lilium excelsum; Mr. Smith, of Hornsey, one of the best white corolla'd Fuchsias we have seen, the flowers being of good size, the white pure, and the blossoms apparently produced in abundance. It was named Princess of Prussia. Messrs. Jackson sent an Anguloa, with cream-coloured blossoms, and Chysis Limminghi, and Mr. Parsons had two handsome Hybrid Achimenes, in the raising of fine kinds of which from seed he has been most successful.

Ferns were again produced in excellent condition and in great variety, especially the collection from Mr. Parker. Few were however shown which are not fully noticed at p. 438. Many of the plants being large they served to fill up spare nooks and corners to much advantage. Mr. Parker also had a collection of Lycopods, which were scarcely less admired than his Ferns.

Of Gloxinias Messrs. E. G. Henderson showed a group, the names of the most striking among which will be found at p. 438.

Miscellaneous subjects consisted of Pinks, large and fine, from Mr. Turner and others; a few Pansies which unmistakably showed the ill-effects on them of the late hot weather; Balsams and cut bunches of the better varieties of Sweet William, the last from Mr. Parker. Messrs Fraser also showed a group of Kalosanths, apparently all one kind.

Pelargoniums, though good for July, were with one or two exceptions not so fine as they were in June. Messrs. Turner and Fraser, however, showed admirable plants both of fancy and ordinary kinds. Mr. Turner had beautiful plants of the new sorts Rose Raglan, Blonde, Diana, Viola, Dolabella, and Alfred. The last-named exhibitor also had some handsome variegated kinds, the best of which were Julia, Bijou, picturatum, Shottesham Pet, and Perfection, the last with a very white edge. The same exhibitor likewise showed a handsome kind called Princess Royal, a hybrid raised by Mr. Ingram of the Royal Gardens, Frogmore. It is in the way of the old Lucia rose, but in all respects a great improvement on that kind. Among Scarlet Geraniums we noticed nothing very new or striking. Of Seedlings of ordinary kinds a full report of most of them will be found at p. 438.

Calceolarias (shrubby) were not so good at this show as they were in June. Mr. Turner, however, sent a charming specimen of aurea floribunda, on the end of every shoot of which was a perfect bouquet of flowers. This is truly a first class variety, and well suited for pot culture.

Among Petunias were some with curiously variegated flowers, and Mr. Watson, of Cockfosters, showed his double purple sorts, which are large and very showy.

Miscellaneous collections of FRUIT were numerous. The best came from Mr. Fleming, gr. to the Duke of Sutherland at Trentham. It contained Hybrid Cashmere and Hybrid Trentham Melons, Black Hamburgh and Muscadine Grapes, Peaches and Nectarines, Ingram's Prince of Wales and Sir Harry Strawberries, May Duke Cherries, two Queen Pine Apples, and Figs. Mr. Henderson, gr. to Sir G. Beaumont, Bart., sent Keens' seedling Strawberry, Elruge Nectarine, Atkinson's and McEwen's Scarlet fleshed Melons, Muscat Grapes somewhat unripe, finely coloured Black Hamburgh Grapes, a Queen Pine Apple, Noblesse Peaches and Violette Hâtive Nectarines, and May Duke Cherries, small and apparently not quite ripe. Mr. Dawson, gr. to Lady Cooper, furnished Peaches and Nectarines, two Pine Apples, Black Hamburgh and Muscat Grapes, two dishes of Cherries, Figs, and Melons. Mr. Munro, gr. to Mrs. Oddie, showed a collection which we understand was disqualified because it had not a Pine in it. It was however awarded a prize for neatness of arrangement, the different kinds of fruit being in punnets plunged in Sphagnum in a box which contained the whole collection. The different fruits were unnamed, and therefore we are unable more particularly to refer to them.

Pine Apples were numerous, and some of them remarkable for size. With the exception of some from Bicton, however, none had been weighed, an oversight which we trust may be remedied next year. Mr. Barnes had two Queens, 5 lbs. each, beautifully shaped and finely ripened. Mr. Brown, gr. to Mrs. Vivian, had also an admirable Queen, as had also Messrs. Young, Williamson, and Robinson. The best Providences came from Mr. Barnes, who had fruit of this description weighing 10 lbs. each. One of them was, however, a little deformed, and the other was beginning to decay at the base. Messrs. Dawson, Robinson, and Jackson also showed good Providences. A good Enville came from Mr. Dalrymple, gr. at Pontypool Park. A Prickly Cayenne, weighing 6 lbs., was contributed by Mr. Bailey, Shardeloes. Good Pines of other sorts came from Messrs. Davies, Rattray, Beale, and Temple. The last sent from Dowlais some finely grown Queens.

Grapes, though plentiful, were not as a whole first-rate, only a few of the black sorts being sufficiently well coloured; and many white kinds were barely ripe. Of baskets of 12 lbs. each there were no fewer than 15. Of these the best came from Mr. Hill, gr. to R. Sneyd, Esq. Scarcely inferior was an exhibition from Mr. Phipps, gr. at Highclere. Messrs. Henderson, Orpwood, Harrison, and Frost, also showed in this class. Mr. M. Henderson had the best 3 dishes, his Black Hamburghs being extremely well coloured. Messrs. Wood and Phipps also showed well in this class, as did likewise Messrs. Turnbull, Mitchell, Hamp, and Jackson. Mr. M. Henderson and Mr. Hill had each a dish of beautiful Black Hamburghs, and scarcely inferior were bunches of the same variety from Mr. Hawkings, of Braunfield, Herts. Messrs. Fleming, Harrison, and Croxford had also fine fruit of this Grape. Black Prince came from Messrs. Turner, Sparrow, and Taylor. The best Sweetwater came from Mr. Hawkings, and Mr. Bousie, gr. to the Rt. Hon. H. Labouchere. Messrs. Wood and Phipps had also good fruit of this variety. Muscats generally wanted that fine golden tinge which is required to make them perfect. The best in this respect came from Mr. Laybank, of Norwood. Next in point of merit were some bunches from Messrs. Croxford, Turnbull, Frost, and Dods. Some good Frontignans came from Mr. Drewitt, gr. to Miss Cubitt, and Mr. M. Henderson.

Vines in pots were furnished by Mr. Iveson, gr. to the Duke of Northumberland at Syon; Mr. Hutt, gr. to Miss Coutts; Mr. Robinson, Mr. Jackson, and Mr. Smith. The sorts were for the most part Black Hamburgh.

Of Peaches, the best again came from Mr. Snow, gr. to Earl de Grey, who sent most beautiful specimens of Violette Hâtive and Grosse Mignonne. Scarcely inferior however were some from Mr. Hume, gr. to R. Hanbury, Esq., except that they were bruised, and in some respects not quite so perfect. Messrs. Miller, Ruffett, and Taylor also showed good Peaches, the sorts being French Mignonne, Gallande, Royal George, and Noblesse. Fine dishes of Peaches and Nectarines came from Messrs. Miller, Frost, Tegg, and Munro. Among these were admirable examples of Pitmaston Orange and Violette Hâtive Nectarines, and of Noblesse and Grosse Mignonne Peaches.

Cherries were furnished by Mr. Taylor, of Brentford, and Mr. Snow. The former had Black Circassian, and the latter Elton. Mr. Mitchell also had good Eltons, and Black kinds came from Mr. Bousie and Mr. Ingram.

The best Strawberries were contributed by Mr. Marcham and Mr. Smith of Twickenham. Mr. Taylor, Mr. Phipps, and Mr. Boner also showed good dishes. Among the sorts we noticed Victoria, Ingram's Prince of Wales, Myatt's Surprise, Keens' Seedling, Goliath, Elton, British Queen, Prince Arthur, and Hautbois.

Melons were plentiful. Among the best were the Windsor Prize, scarlet-flesh, from Mr. Gadd, of Dorking; the Exton green-fleshed, from Mr. Davies of Chelford, the Egyptian, green-fleshed, from Mr. Sparrow, Moor Park; Incomparable from Mr. Bousie, and a small green fleshed kind from Mr. Smith, Rochampton.

Mr. Munro, gr. to Mrs. Oddie, showed as he promised to do last week Moor Park Apricots from a tree in his orchard house. They were ripe, but small, a circumstance owing he stated to the tree having been permitted to carry too heavy a crop.

Of Plums we only saw one dish of Jefferson. Mr. Iveson, gr. to the Duke of Northumberland, showed fruit of Loquats, Gamboge, and two sorts of Citrus, viz., Aurantium and Medica.

Reviews.

Biographies of Distinguished Scientific Men. By François Arago; translated by Admiral Smyth, the Rev. Baden Powell, and Robert Grant, Esq. London, Longmans. 8vo, pp. 607.

This is a translation of nine *éloges*, pronounced by the great French astronomer, Arago, before the Academy of Sciences. Each *éloge* is a biography more or less complete of the person to whom it relates, and when we say that the persons whose lives and scientific writings are detailed and commented on are Bailly, Herschel, La Place, Fourier, Carnot, Malus, Fresnel, Thomas Young, and Watt, it will be at once perceived that such a work from such a pen must possess no small degree of importance as well for the general as for the scientific reader.

The most interesting biography upon the whole is perhaps Bailly's. This eminent and unfortunate man, whose name owing to his tragical end during the first revolution is familiar to all, was remarkable no less for high scientific attainments than for the diversity of his talents. Having failed in early life as a poet he turned his attention to mathematics, and soon showed great aptitude for such studies, and in particular for astronomy. His astronomical labours and gradual ascent in the ranks of scientific men are traced at considerable length, and his great work "The History of Astronomy" is reviewed with candour and admiration, and without any fear lest Bailly's merits as a writer and student of antiquity should suffer from his now exploded theory, that the modern Eastern nations are the descendants of a people who really understood astronomy in the modern sense of the word. But Bailly had other work besides the study of astronomy. He was one of that celebrated commission appointed in France in 1781 to examine into and report upon Mesmerism which was then turning the brains of Europe. In 1784 the report of the commissioners appeared. "Never," says M. Arago, "was a complex question reduced to its characteristic traits with more penetration and tact; never did more moderation preside at an examination, though personal passions seemed to render it impossible; never was a scientific subject treated in a more dignified and lucid style." Before this report Mesmerism fell never to rise again in the shape in which it was first propounded. "The animal magnetic fluid" was sought for in vain, but it was sought for with such care and by such a series of skilfully conducted experiments that it must have been detected had it existed elsewhere than in the imagination of Mesmer and his adorers. M. Arago goes into this subject at some length, and like a true philosopher whose greatest anxiety is to judge of every question according to the evidence for and against it, he concludes his remarks by acknowledging that although the report of the French Commissioners destroyed Mesmerism it cannot be appealed to as an authority against modern somnambulism, which was not even dreamed of when the report appeared.

The ability displayed by Bailly whilst on the Mesmer Commission led to his being employed to report on Slaughter-houses. Fifteen years of combat with prejudices, private interests and routine elapsed before the old intramural shambles were replaced by the present magnificent establishments for which Paris is so celebrated. In 1789 Bailly was unfortunately hurried into political life, and was elected Mayor of Paris. His administration as Mayor vindicated the rights of those whom he represented; his herculean efforts to provide Paris with food at a time of great scarcity, his struggles to prevent a collision between the upper and lower classes, his loyal conduct when called as a witness on the trial of the Queen, and the composure and courage with which he underwent the mockery of a trial, and the execution to which he was sentenced, are too well known to require notice. Nevertheless, M. Arago's account of this period of Bailly's life differs in some of its details from that of the generality of the historians of the French Revolution, and he defends the administration of his brother astronomer and academician with feeling, candour, and great ability.

The *éloge* of James Watt, the last of the present collection, is already well known in this country, and is deservedly prized for the clear and candid statement of the discoveries which have placed Watt first amongst those to whom the creation of the steam engine is due.

M. Arago's autobiography is placed at the commencement of the volume and is fully as valuable as the *éloges* which follow it. The translation of the work, having been entrusted to gentlemen conversant with the

labours of those whose biographies are written, leaves nothing to be desired, but it is we think to be regretted that they should not have thought it worth while to index the contents of a work which though apparently part of a series is complete in itself, and is published as such.

A continuation of Professor *Decaisne's* beautiful Jardin Fruitier is before us, but Part 4 is missing. Parts 3, 5, and 6 are wholly occupied by Pears; viz., Angelique de Bordeaux known in 1690, Bosc, Cuisse Madame, esteemed as early as 1675, De Janvry (1690), d'Adam (1675), Archiduc Charles, Guenette (1690), Carmelite (1670), Salviati (1675), Blanquet à longue queue described by Dalechamp in 1587, a circumstance which, with others, we recommend to our friend the Scottish Gardener, Besi de Héric (1652) also spelt Beside-Héry, Bezi Dhéri, Besidhéry, Besidery, Besi-Déry, Besi-d'Héri, Besi d'Hery, and Besy d'Héry; the St. Germain (1675), of which "Merlet and Duhamel distinguished two varieties, while some pomologists have increased the number to 14."

The Rev. T. Bowman, "Vice Principal of Bishop's College, Bristol," has produced a shilling's worth of *Questions on Physiological Geography* (Longmans). "In what country," asks the Reverend author, "are the Keeper Mountains, and what is their height? At what elevation is the antelope found? What is the height of the Mount Pedrotallagalla? What is the number of the Hottentots? What is the height of Mount Potrilla, and where is it? What is the number of the Birmans, Siamese, and Anamese? Where is Mount Cibao? In what range is Mount Kom? What does Australia produce? What river is 1500 miles long? What river is 1550 miles long?" If this is what fashion now calls education, we can only pray that we, our children, and our friends may be preserved from it. To torture students with such preposterous questions as these is to paralyse their faculties, not to develope them. And with answers to 999 inquiries of this description are children to be crammed. Alas, poor children! Alas, poor parents! It is wonderful that the world should not perceive that over education is tantamount to no education at all. Let us hope that some people at least will see from this example towards what the education phrenzy is hurrying men.

The Religion of the Heart (12mo, Black.) is a not very well written biography of the late John Bowdler, an English barrister, to which are added extracts from his writings, which were wholly religious.

In *Rain and Rivers* (8vo, Longmans) Col. Greenwood appears as a geologist, backing "Hutton and Playfair against Lyell and all comers." The object of the work is to show, 1, that Sir Charles Lyell in his geological speculations employs four contradictory theories of valley formation, "retrograding from sound to unsound doctrines;" 2, that the "igneous fusion" theory is absurd; 3, that fire forms continents, water transforms them; and 4, that man might have existed in the Silurian period *for what we know geologically*. It is not in our province to settle such disputes: we can only express a hope that the gallant author's geological sword is of a better temper than his pen, which to our eyes is very like a shillelagh.

The English Bread-Book for domestic use by Mrs. Acton (12mo, Longmans) is a treatise on the art of making home-made bread. The first part is occupied by a description of the evil consequences attendant upon the use of bad bread; wherein is included alumed bread, concerning which what we think very needless alarm is expressed; Mrs. Acton placing implicit confidence in the exaggerated statements that sanitary doctors alarm the world with. The second part contains the directions for making bread, baking it, and keeping it. Inasmuch as good home-made bread is better than bad bakers' bread, and as much cheap bakers' bread is unpalatable we have no doubt that the experienced authoress's advice will be eagerly sought by those who can persuade their cooks to follow their mistresses' directions, and who have the means of baking at home or who deal with bakers obliging enough to do so for them without spoiling the dough. The latter part of Mrs. Acton's volume is occupied by recipes for making various sorts of bread and bread preparations; from among which we select what is called

"*Excellent dairy bread, made without yeast.*—Some years since, when unfermented bread was first becoming known, I had it tried very successfully in the following manner; and I have since been told that an almost similar method of preparing it is common in many remote parts both of England and Ireland, where it is almost impossible to procure a constant supply of yeast. Blend well together a teaspoonful of pounded sugar and fifty grains of the purest carbonate of soda; mix a saltspoonful of salt with a pound of flour, and rub the soda and sugar through a hair sieve into it. Stir and mingle them well, and make them quickly into a firm but not hard dough, with sour butter-milk. Bake the loaf well in a thoroughly heated but not fierce oven. In a brick, or in a good iron oven, a few minutes less than an hour would be sufficient to bake a loaf of similar weight. The buttermilk should be kept till it is quite acid; but it must never be in the slightest degree rancid, or otherwise bad. All unfermented bread, it must be repeated, should be placed in the oven directly it is made, or it will be heavy."

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Shading should be used sparingly here, except on bright days, for during dull unsettled weather plants require all the light that conservatories afford, and are greatly benefited by an occasional gleam of sunshine. The beauty of most soft-wooded plants will be considerably prolonged by the use of weak manure water, which should be given frequently whenever it can be done. Indeed, such things as Achimenes, Clerodendrons, &c., may be had in full beauty from June to October through being liberally supplied with manure water, but this must not be given too strong at first. Keep the atmosphere as moist as can be done, but avoid damp on cold nights by leaving sufficient air to cause a gentle circulation, and spare no attention to keep the plants clear of insects. Stock for autumn and winter flowering will require careful attention to get it sufficiently forward. Chinese Primulas, especially the double varieties, if at all backward should be placed in a cold frame and shaded from the sun, where they will make rapid progress, particularly if the pots stand on a slight bottom heat. Cinerarias for early flowering should also be potted and started at once, choosing the strongest suckers, and placing them in a close shady frame till rooted. These are sometimes very subject to the attack of thrips at this season, but if they are kept cool and moist, and smoked occasionally, there is no danger of their being clean and growing vigorously. STOVE.—The stock here will now be growing very rapidly, and must be afforded sufficient space to allow of the perfect development of the foliage and the formation of compact handsome specimens. The atmosphere of this house can hardly be kept too moist, and the plants should be sprinkled over head morning and evening and every available surface kept moist.

FORCING DEPARTMENT.

PINERIES.—Such varieties as are at all liable to spoil at the bottom before the upper pips are coloured should now be kept as dry as possible immediately they show the least signs of colouring, keeping the atmosphere also as dry as can be done without injury to the rest of the stock. VINERIES.—Grapes intended to hang through the winter should be thinned very freely, and, if necessary, they should be gone over a second time, leaving them so that the berries, when fully swelled, will scarcely touch each other. A moderate crop only should be left on the Vines; for, to ensure success in keeping Grapes fresh and in good condition till next March, the Vines must be in first-rate health; be satisfied, therefore, with a moderate, or rather light crop, in the late house. Keep the atmosphere of houses where the fruit is colouring in active circulation, using gentle fires by day, with abundance of air, and leaving a little air on at night, to prevent damp. If red spider appears inclined to be troublesome, wash the pipes, &c., with a mixture of soot and lime, and if the colour is objectionable, add more soot. FIGS.—Trees that have been kept dry while ripening the first crop, and are now cleared of this, should be well watered at the root, and if there is any appearance of red spider, the leaves should be thoroughly washed with the engine. Give manure-water to trees showing a heavy second crop, and keep the atmosphere moist by frequently sprinkling the passages and borders, &c. Keep the shoots thin and regularly tied, so as to avoid confusion, and expose all parts of the tree equally to the light. Where the fruit is ripening attend to previous directions, and keep the atmosphere and borders as dry as can conveniently be done. Assist trees in pots by giving them a liberal supply of manure-water.

FLOWER GARDEN AND SHRUBBERIES.

Go over the beds frequently and keep the young shoots of Verbenas, &c., nicely regulated and pegged down until the ground is fairly covered, after which the shoots may be allowed to grow more at liberty. On poor dry soils two or three applications of weak manure water given at intervals of a few days, and when the ground is moist, will greatly assist in getting the beds covered without loss of time. Remove dead leaves and seed from Roses, and give the autumn flowering varieties plenty of manure water in order to keep them in vigorous health, and secure plenty of wood for blooming in autumn. Those budded on the Dog Rose must be kept clear of suckers, which, when allowed to grow, weaken the head, besides having an unsightly appearance. Budding should be proceeded with during cloudy weather. Mildew is sometimes very troublesome after this season, and no time should be lost in dusting the infested plant with sulphur, for the enemy will soon spread and destroy the foliage, and ruin the plants for blooming in autumn. Proceed with the propagation of herbaceous plants as expeditiously as possible, in order to get this work out of hand and the glasses, &c., at liberty. Take advantage of showery weather, give the walks and lawns a good rolling, and endeavour to keep the Grass short and neatly mown, for nothing looks worse than badly kept Grass.

HARDY FRUIT AND KITCHEN GARDEN.

The present showers will be very favourable for the growth of Strawberry runners, and a sufficient stock for forcing next season should be potted at once, and placed in a close shady frame until they get established, which will soon be the case. Prepare ground for fresh plantations by heavily manuring and trenching, or if ground cannot be obtained at once select the strongest runners and plant them on a shady border in rich soil, to be transplanted with balls early next month. Asparagus beds can hardly have too much manure-water from the stable or farm yard tank during the present month. On dry friable soils salt may be applied with advantage, but this should not be used on strong adhesive soils, as it keeps the ground wet in winter and decays the roots. Finish planting out the principal crop of Broccoli and winter Greens with as little delay as possible. Proceed with planting out Celery as ground can be spared, using plenty of manure, and keep it liberally supplied with water. Attend to staking late Peas, and keep the ground moist about those in a forward state, giving them a thorough soaking occasionally, which will be the best preventive of mildew. See to keeping up a supply of Salad, Spinach, &c., and sow a good bed of Cabbage for furnishing winter greens.

COTTAGERS' GARDENS.

Let every bit of spare ground be constantly broken up at this period, and filled with some kind of greens or Turnips. If the cottager is short of manure extra spade husbandry will in some degree compensate for the want of it. This is the cottager's chief capital, and is generally most efficient.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending July 2, 1857, as observed at the Horticultural Gardens.

June and July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain
Friday 26	4	30.331	30.192	85	46	65.5	66	61½	S.E.	
Satur. 27	5	30.133	29.997	88	46	66.5	66	61½	S.W.	
Sunday 28	6	29.892	29.700	92	58	75.0	67	62	S.W.	
Mon. 29	7	29.718	29.589	75	54	64.5	67	62	S.W.	
Tues. 30	8	29.610	29.526	74	47	60.5	66	62	S.W.	
Wed. 1	9	29.941	29.690	74	50	62.0	65½	61½	N.E.	
Thurs. 2	10	30.012	29.991	71	45	58.0	64	61	N.	
Average..		29.948	29.812	79.8	49.3	64.6	65.9	61.6		

June 26—Sultry; hot, with very dry air, fine at night.
— 27—Sultry; very hot; fine throughout.
— 28—A few light clouds; excessively hot; cloudy at night
— 29—Cloudy; rain at night.
— 30—Cloudy; slight shower; fine; lightning at night.
July 1—Very fine; rain and thunder in afternoon.
— 2—Overcast; fine throughout.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending July 11, 1857.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.
Sunday 5	78.0	51.3	64.7	11	0.59 in.	1	2	4	1	5	9	9
Mon. 6	76.7	52.2	64.6	13	0.45	—	3	1	4	5	9	[illegible]
Tues. 7	73.7	52.9	63.3	17	0.34	1	1	5	2	6	[illegible]	[illegible]
Wed. 8	73.7	50.9	62.3	17	0.48	—	1	5	2	1	11	[illegible]
Thurs. 9	74.0	50.5	62.2	14	0.57	3	1	2	—	3	8	[illegible]
Friday 10	74.5	51.4	62.9	11	0.48	2	2	1	1	3	11	3
Satur. 11	74.3	52.2	63.3	9	1.07	4	—	3	1	4	7	6

The highest temperature during the above period occurred on the 8th, 1859—therm. 97 deg.; and the lowest on the 9th, 1856—therm. 37 deg.

Notices to Correspondents.

ANTS: *W S W.* Strew some fresh guano in their runs. That you will find will speedily rid you of the nuisance.

ARDUINA BISPINOSA: *H St B.* It has not yet arrived at the age of puberty. Grow it fast while growing, and then give it a long rest, by exposing it to the hot autumn sun. It will then flower freely enough.

BULBS FOR AUSTRALIA: *A Constant Reader.* They are now ripe. Pack them immediately in perfectly dry pit-sand, in a stout chest, and dispatch them by first steamer.

DISEASES: *A Constant Reader.* Your Vines are certainly not affected with the Vine Mildew. We have little doubt that the leaves are failing under a hot sun, from the tissues being imperfectly developed owing to some bad condition of the roots, a circumstance which would also affect the stems. The unpleasant smell is perceptible enough in the specimens you have sent. Half the affections to which Vines are subject are due to the bad condition of the roots.—*J H.* All we can tell you about your Strawberry leaves is that there is no trace of mildew upon those you have sent, which is one step to the discovery of what is really the matter. The Vine leaf is studded beneath with those little warts which indicate a bad state of the roots and consequent bad supply of moisture, while the moisture of the air induces a development of the superficial tissues. In the former case the mischief probably dates back to the early part of the year, which in many localities was very unfavourable to Strawberry plants.—*J G.* Nothing is more common than the spotting of Geranium, which appears to arise in most cases from bad drainage alternating with drought. Yours only differ from the usual form in an attempt of the sound tissues to get rid of those which are effete by the formation of a thickened border round the spots, as is frequently the case with leaves affected by such Fungi as *Septoria* and *Depazea*. *M. J. B.*

GARDENERS: *Miss B.* We must refer you to our advertising columns.

HOLLIES: *C D C.* Gather the berries in the autumn when ripe. Throw them in a conical heap mixed with pit sand. In the beginning of April sow them 2 inches deep in beds. Some will come up in the first summer—some will probably wait till the second summer.

INSECTS: *J G D.* The insects which have attacked the Scotch Firs are the Sawfly (Lophyrus Rufus). If the caterpillars have not all spun themselves in their pupa cases the trees should be well shaken over sheets laid on the ground, and the larvæ destroyed. All loose dead leaves under the trees should be burnt, as the insects make their cocoons among them. The cocoons are little oval whitish-brown shells. *W.*

MONSTROUS PEA: *Truro.* The two pods belong to two different flowers that have grown together. Had they really belonged to but one flower they would have been indeed a curiosity.

NAMES OF PLANTS.—We have been so often obliged to resolutely decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, no more than four plants may be sent us at one time.—*T S P.* The Grass tied in a knot is the viviparous state of Poa alpina; the other is Carex flava.—*Templeogue.* Azalea viscosa. Melilotus officinalis.

MISC. *T N S.* Some losses are gains. Suppose a man pays a guinea a year to an institution and expects to have three or four guineas a year in return, the loss of such a man would be a gain. Suppose a man is wrongheaded, obstinate, ignorant and quarrelsome, any Society would be a gainer by his loss, let him contribute ever so much. Don't you think it would be a great gain to the House of Commons if they should lose the dreary muttering of your friend * * * *?

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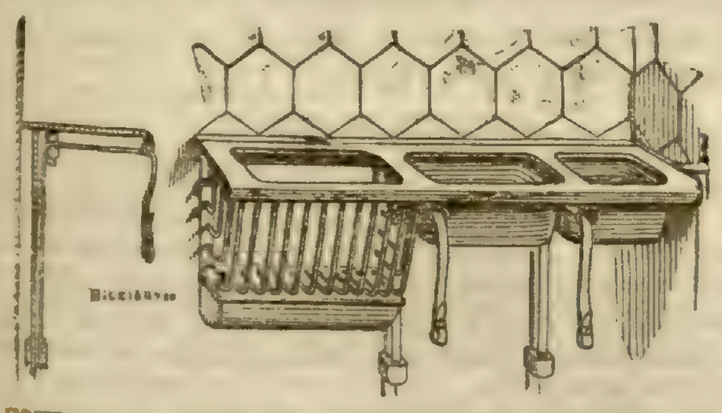

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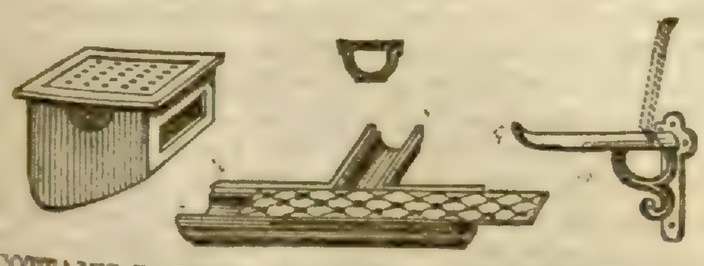

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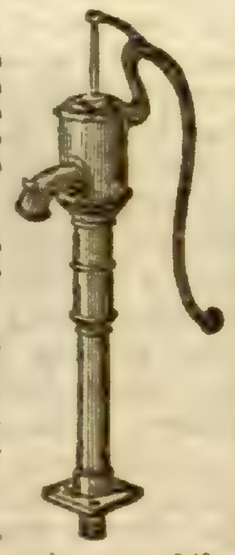
Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead,	1	10	0
2½ ,,	long 3 ,, 3 ,,	gutta percha,	1	14	0
3 ,,	ditto 3 ,, 6 ,,	or cast iron	2	8	0
3½ ,,	ditto 3 ,, 6 ,,	flanged pipe,	2	12	0
4 ,,	ditto 3 ,, 6 ,,	as required.	3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0



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Assistant to Chemical Professor—A. Sibson.

The next SESSION will begin early in August. Fees for Boarders:—Under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for Out-students is 40*l.* per annum.

The chief attention of the Students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry, Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering.

The Practical Instruction in Agriculture is given by the Professor on the Farm, where the Students have an opportunity of becoming acquainted with and taking part in the Manual Operations of Husbandry.

A well-appointed Laboratory is devoted to Instruction in Chemical Manipulation and Analysis, which are taught to each Class of Students in succession, under the Superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring; in the use of the Theodolite and other Instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

A Veterinary Hospital is fitted up for the reception of Diseased Animals of all descriptions, with Pharmacy, &c., attached, where the Students have opportunities of witnessing operations, *post mortem* demonstrations, and applied Therapeutics.

A good System of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural information in general.

Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy; Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

SOUTHDOWN RAMS.

MR. HENRY OVERMAN informs his friends and the public his Southdown Rams will be ready for SALE or LETTING at any time after the 7th July.

Weasenham, Rougham, Norfolk, July 4.

ROYAL AGRICULTURAL SHOW, SALISBURY. No. 59 STALL, IMPLEMENT YARD.

ROYAL AGRICULTURAL SHOW, SALISBURY.—The Nobility, Gentry, and Public are invited to inspect Professor VARNELL'S MANGERS and STABLE FITTINGS, also the PATENT COLLAR BAR IRON HURDLES and FENCING, manufactured at the St. Pancras Iron Works, opposite the Old Church, Old St. Pancras Road.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND, SALISBURY MEETING, July 20.—The Local Committee recommend Parties requiring LODGINGS during the Show to apply to Mr. J. H. DAWKINS, House Agent, High Street, Salisbury, who has opened a Register of Apartments on the following Terms: viz., Beds to be Let, at from 5*s.* to 10*s.* 6*d.* per night; Sitting-room Accommodation, with attendance, on the like terms per day.—By Order of the Local Committee, T. PAIN, CHAS. MARSH LEE, Hon. Secretaries.

SALISBURY MEETING.—THE COUNTRY MEETING OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND will be held at the City of SALISBURY, in the week commencing MONDAY, July 20, the THURSDAY in that week being the principal day of the Show.

CRYSTAL PALACE—SUMMER POULTRY SHOW.—A Grand Exhibition of POULTRY, PIGEONS, and RABBITS will take place at the Crystal Palace on SATURDAY, MONDAY, TUESDAY, and WEDNESDAY, the 8th, 10th, 11th, and 12th of August. Prize Lists and Certificates of Entry are now ready. All communications to be addressed to Mr. WM. HOUGHTON, Secretary to the Poultry Exhibition.

By Order. GEO. GROVE, Secretary.

CRYSTAL PALACE—SUMMER POULTRY SHOW.—The Entries close on SATURDAY, the 11th of July next. By Order. GEO. GROVE, Secretary.

Crystal Palace, July 4.

The Agricultural Gazette.
SATURDAY, JULY 4, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 8—Agricultural Soc. of England .. Noon.

THE conduct and the experience of the Society of Arts should be studied by those who manage the affairs of the Agricultural Society of England.

Not many years ago the life and vigour which now characterise the former of these institutions seemed to have almost died away. No public interest was felt in an association whose meetings were confined to formal gatherings—whose proceedings were reported only once a year in a volume scarcely ever read—and whose membership had dwindled till it was doubtful if the centenary of its foundation, which it has since passed in the midst of so many proofs of its usefulness, would find it in existence. But the management of the Society has fallen into more vigorous hands—its energies have been awakened and directed. And while no subject within the scope of its incorporation has been neglected, all those movements, more especially, in which public interest has existed, have found it among their leaders and promoters. Exhibitions of useful inventions and of works of art have grown under its furtherance into the Expositions of Hyde Park and of Manchester. And it has been by no mere fortunate coincidence between its movements and the public taste that its progress has been marked. Probably one of its most useful tasks has been that of re-

viving and invigorating the many hundred Mechanics' Institutes throughout the country, which were dying out till taken into union with itself. Under its instructions and with its aid they have now become so many active educational establishments—whose progress and success in this department of their labours is tested every year by examiners appointed by the central institution.

The more ordinary labours of its session are no exception to the general rule of that life and energy which it now possesses. The topics of discussion at its weekly meetings no longer arise incidentally or unannounced. The several subjects are advertised for many previous weeks, and members come together not for the mere chance of receiving information on they know not what—they come with a definite object in view, interested in a subject on which they are either prepared to speak or on which they know that those most competent to speak have already been invited. But the Society's rooms, large as they are, cannot hold a tithe of its members or its friends, and measures are therefore taken to maintain the interest of the absentees in its proceedings. The publication of these proceedings is not reserved till the end of the season for the sake of a volume of transactions useful only as a book of reference—it is provided for at once. A full report of every Wednesday night's proceedings appears at noon on Friday in a journal which every member of the Society receives, either then or on the following morning.

One word more:—it has not been by any exclusive regard to the interests of members that the membership of this Society has of late years multiplied, notwithstanding the doubled subscription now demanded. This has been effected by the obviousness and usefulness of its public services. It seeks publicity, and benefits by the publicity which it accordingly receives. Reporters are not denied admittance to its weekly meetings! No jealousy is felt, even of those weekly periodicals which might be supposed to compete with the weekly journal of the Society itself. We have often had to thank the Secretary for unread "proofs of papers," in order to their earlier appearance in our own columns. He knows perfectly that the true interests of a society at work are served by the earliest and widest publication of its labours and achievements. Nowhere, indeed, more than in this one point does the contrast more effectively appear between a society at work and a society asleep.

Now, there is a great deal of resemblance between the Society of Arts and the National Agricultural Society. Their constitutions are very much alike—the objects of both are multifarious, useful, and benevolent; their actual proceedings have been marked by many a useful aim directed, and many a useful end accomplished. The great difference between the two is vastly to the advantage of the latter. Its annual country meeting forces it periodically into the full activity of laborious public life, and so saves it from the fate which seemed likely to have overtaken the Society of Arts. But why is it not, in consequence of this, proportionally more active, more energetic, more successful throughout the year? Why are its meetings scanty gatherings—a few spectators of the proceedings of a still smaller number of official persons—instead of the interested public assembly, meeting for useful information on points to which public attention is directed, and knowing that to-morrow's post will sow that information broadcast wherever it is wanted? Why are its members reluctant purchasers of a nearly worthless privilege instead of colleagues as they ought to feel themselves in the provision and administration of 5000*l.* a year—and all anxious for the attainment of the great public good which such a fund should yield?

It is not too much to say that the great majority of the members of the English Agricultural Society are merely purchasers of the few privileges which as members they receive—they are not colleagues in any sense of the word—they are unconscious of any of that life which membership of a living body implies—they are mere spectators or recipients. But, take the case of the Society of Arts—its members are fellow workers—they are connected with one or other of the Institutes in union with it—they are kept in weekly knowledge of its proceedings—they attend and speak at its meetings—they are kept personally interested in the subjects of its discussions. Is any extra effort needed for the attainment of an object contemplated by the Council?—an appeal to them provides the extra funds required. A guarantee is thus provided for the retention in this country of objects of national interest—the cost of an unusual series of educational efforts is thus liquidated—extra premiums for successful candidates are thus provided. These extra efforts are themselves the real evidence of life—the success with which their cost is thus defrayed is a very inferior sort of proof. But where in the history of the English Agricultural Society are we to look for either class of testimony to such life? No extra effort has been made and no extra effort has been required. The routine of the Society's proceedings has been prescribed for nearly a quarter of a century, and as July comes round the invariable point in the circuit is annually and successfully regained.

Its conductors may be thankful for the publicity which, though it be but once a year, their charter forces them to court, for it makes them annually a useful body. Were it possible for them to retain their rule throughout the year, excluding all but members, and permitting only the official reporter, the Society would die within the second twelvemonth. No one would pay 20*s.* nominally for an annual volume—really for the maintenance of useless official routine. And on the other hand were it possible to induce them to convert their July exception into the rule of their proceedings—and court that publicity at their weekly meetings that they seek at their annual gathering, their exceptional experience then would also soon become the rule, and we should have them like the Society of Arts—overflowing every week with interest—reinvigorating our local farmers' clubs—taking the lead in agricultural education—systematising and directing their periodical discussions—determining the real and the useful in agriculture and employing their members in the task—and in short fearing nothing but that listlessness and inactivity to which prescription and routine are so liable to lead.

THE processes of TILLAGE when conducted skilfully may probably be described as follows. In the first place we use an implement by means of which we cut slice after slice from the depth and width of the land—slices 6 or 8 inches deep and 9 to 12 or 15 inches wide—laying them each against its predecessor, so that the old surface is buried and a new one is exposed. If the land has any surface growth upon it which you wish destroyed its surface may be pared in the first place, and perhaps burned; but apart from this the first step is to cut off in this way from the unmoved land a layer to be reduced to tilth. After this layer is detached our object is to break it into fragments, so that with the aid of rain it shall become a mass of incoherent moistened particles. This is effected by dragging through it a number of teeth so near to one another as thoroughly to break the successive furrow slices in which the plough has laid it, and yet not so near as to become clogged with either weeds or clods. This is better done by the cultivator than by the harrow—by a framework upon wheels from which a few teeth stretching downwards some 16 or 18 inches from the framework shall find their way under the soil by means of their form, rather than by a framework not on wheels resting on a number of short straight teeth which get into the land by their mere weight. A tillage implement on wheels, however, needs that the land on which it is to operate be somewhat smooth and level to begin with, or it will not work evenly as to depth upon the soil, and therefore it is well to use the harrow first—not the heavy implement which is sometimes seen in England drawn slowly across the field by oxen, but a lighter form worked rapidly and effecting merely that surface raking of the land which is desired. This must be done when the land is dry enough; if wet or even raw it will clog the surface of the land and increase the difficulty of attaining tilth. In this way then, those ridgelets or ribs left by the plough in turning over a succession of rectangular furrow slices are torn down and at once reduced to tilth, and a level surface is obtained over which the grubber or scarifier may be drawn across the ploughing.

The whole mass of moved earth is thus broken up, bringing, it may be, unbroken fragments to the surface, where they are in the position in which the harrow is able to deal with them. The cultivator is accordingly followed by the harrow, and this, it may be, by the roller, which breaks the clods which the others had failed to reduce. The land may then require another searching to its full depth by the teeth of the cultivator, or possibly a second ploughing across the direction of the former, and in that case it is followed by the harrow and by the roller, and possibly by the cultivator before it is reduced to the state of tilth required—after which in general the manure is put on and the seed is sown. Of course opportunity has been offered in the course of the process for gathering and removing weeds. The order of succession of these steps and the number of them too depends upon the original tenacity of the land, the condition it was in when first taken in hand, and also upon the weather during the intervals between the preliminary ploughing and the subsequent operations. It is in this latter particular that the skilful cultivator knows how to economise his labour. He lays up his land before the frost, so that it shall exert all its influence—greater than that of any tillage operations—with the most effect, and he so times all his operations after winter as that each shall produce the most effect.

This then is the somewhat cumbrous process by which in ordinary practice tilth is effected. The nature of the subject operated on is often such that a more compendious method is impossible. Time is a necessary element in the process, and tillage is effected by the successive dryings and wettings which rain and sunshine produce, and to the influence of which ploughing and harrowing expose the soil—rather than by the actual disintegration of the land which the tillage operations produce directly—and so an economical success is possible only when the operations are properly timed. Tillage operations will indeed have an effect the very reverse of tilth if performed on land in an unfit state. If ploughed and stirred when dry every particle of earth on being detached from its neighbours becomes, as Dr. MADDEN's pictures represent it, enveloped in air—if ploughed or stirred when wet, water becomes kneaded into it, and the result is the very opposite of that desired. It is in this order and succession of the several processes of cultivation that the skill of the practical man will show itself most obviously. And it is here that mere practice (master of the circumstances to which it is accustomed) will often fail with change of place. We once knew a Scottish farmer beaten on the clays of Worcestershire—though the means employed in procuring tilth are the same in Worcester as in Fifeshire. The ploughs, the harrows, rollers, scarifiers of the northern county are certainly equal in efficiency to those employed in Worcestershire, and yet the stranger failed where those accustomed to the place succeeded. The difference lay simply in the former, destitute of the necessary local experience, failing so to time the operations to the soil and weather as that the land should be stirred only in a fitting state, and at a time when the weather would not spoil the work.

We have seen too even in a light land district, during a season too of such alternate character as fitted it particularly for tillage operations, one man so timing all his processes as that the weather always suited him, while his neighbour, always a day too late, had it always against him. The one of course got in a crop of Mangel Wurzel and Swedes in good season, and had 30 tons per acre: the other at length managed to sow some common Turnips on the flat during the wet weather of last August, and had barely half a crop to feed off as a manuring for his Barley crop this year.

FINGER AND TOE IN TURNIPS.

WE are now approaching the season when this dire disease in the Turnip crop first makes its appearance. The disease of late years has been making rapid strides throughout the length and breadth of our land, extending its ravages to farms and fields hitherto considered safe from its attacks. Various are the hypotheses put forward as causes, and many the nostrums circulated as cures. Some are sure that to the extensive use of guano and other concentrated artificials can be traced the root of the evil—forgetting that in Turnip localities we had it in all its energy long before the first cargo left the Peruvian isles, or Liebig had circulated his discovery of dissolving bones. Others hold that a frequent repetition of the crop is a fertile source of the disease, and quote in proof of their theory an instance of part off a field being in Turnips and the other part in Mangel, and at the next recurrence of the root rotation the whole field was sown with Turnips, and the only portion free from disease was that previously under Mangel. To argue that any crop repeated at short intervals on the same ground is not hurtful would be to impugn the wisdom of that system of rotation of cropping, the extended adoption of which has been the primary cause of rendering our agriculture the first in the world. We acknowledge our belief that too frequent returns of the Turnip or cereal crops will eventually result in meagre and unsatisfactory yields; yet we entirely dissent from the idea that would place this as the first cause of Finger and Toe in Turnip. Probably it may assist in promoting the virulence of the disease about as much as depriving an animal, suffering under some chronic disorder, of food agreeable to his stomach. Our own experience has now been pretty extensive, and also our knowledge of the experience of others, and the inferences drawn there from are anything but in accord-

ance with the foregoing supposition. Indeed our practice leads us to believe that in nine cases out of ten soils where Turnips have probably never been grown at all, or at very remote periods, that on those soils of all others the crop is likely to be swept away by Finger and Toe. We could give numerous instances corroborative of this; but to go no further we will state what came under notice last season. We had a field sown with Swedes, which formerly had been parts of three. A portion at the bottom had been part of a permanent pasture, of which in running a new fence 2 acres had been taken off and laid to the field in question. An old wide and crooked fence had divided the other part of the field in two, which was also taken up, making the two with the portion of Grass into one. The 2 acres permanent Grass previous to being sown with Oats—before Turnips—had been pared and burned, and the crop of Oats was magnificent. The Turnip seed on the whole field brairded well, and for a short time the plants grew vigorously. After hoeing, the plot previously pasture, and also where the hedges had been, gave unmistakable signs of the disease being in progress. At the middle of the day here and there might be seen plants drooping under the power of the sun's rays, and for a brief period recovering their vigour with the cool and dews of evening. However, the existence of those first attacked was only limited, and before the month of September they had gone wholly off. Others that had got a stage further in growth before being attacked dwindled on until pulling time, but were not worth half the labour spent on them; the bulbs were either wholly rotten or deformed with malformations of all shapes, varied at long distances with an occasional sound bulb. The other parts of the field had been cultivated on a five-course rotation, involving a crop of Turnips every fifth year; and the crop on those portions was good, and on them an unsound root could not be detected. In fact any one could have pointed to a foot where the fresh portions of the land had been taken in, and whether ever those parts had been in roots before is questionable; at any rate not for the last 30 years. We could adduce many other cases equally as decisive as the above, and which warrants us in concluding that to something else than a frequency of cropping must the real source of the disease be attributed. We believe that it may be traced to injuries inflicted on the tender rootlets by the gnawings of a grub or worm during the early stages of growth of the plant. Any one who has a field attacked with a little careful inspection may prove the truth of what we write. On examination of the plants where the disease prevails it will be seen that the roots of many of them have been either wholly or partially eaten through; and on the edges of the incision will be found small protuberances, varying from the invisible to something larger than a No. 1 shot. Should the injury be near the extreme end of the root, the plant may and frequently does recover; but if near the top, or in two or more places, the effects are generally fatal, and with the growth of the top the knobs enlarge and produce all shapes of protuberance and malformation, partially or wholly terminating in rot. To know the disease physicians say is half the cure. The seat of disease, however, in the above case will not require any extra perceptive powers in the physiologist to discover, and we flatter ourselves the cure is equally simple. Our own, together with the recorded practice of many practical agriculturists, proves that the application of lime to soils infected with the disease is a sure and perfect remedy. We do not pretend to show in what manner lime acts, whether in the destruction of the grub or in counteracting the virulence of its bite. Such knowledge to the searching and inquiring mind would afford gratification. But to the practical man—the man who in reality must convert into £ s. d. his crop of roots against the rent day—the want of such knowledge will not materially deteriorate from the usefulness of the fact, that to secure his Turnips from finger and toe he has a sovereign remedy in quick lime. Apply and plough in in autumn from 6 to 8 tons per acre, and rare indeed will be the case where a perfect cure is not affected. We honestly desire our brother farmers troubled with the pest to give lime a trial. *Carabas.* [Your offer is accepted.]

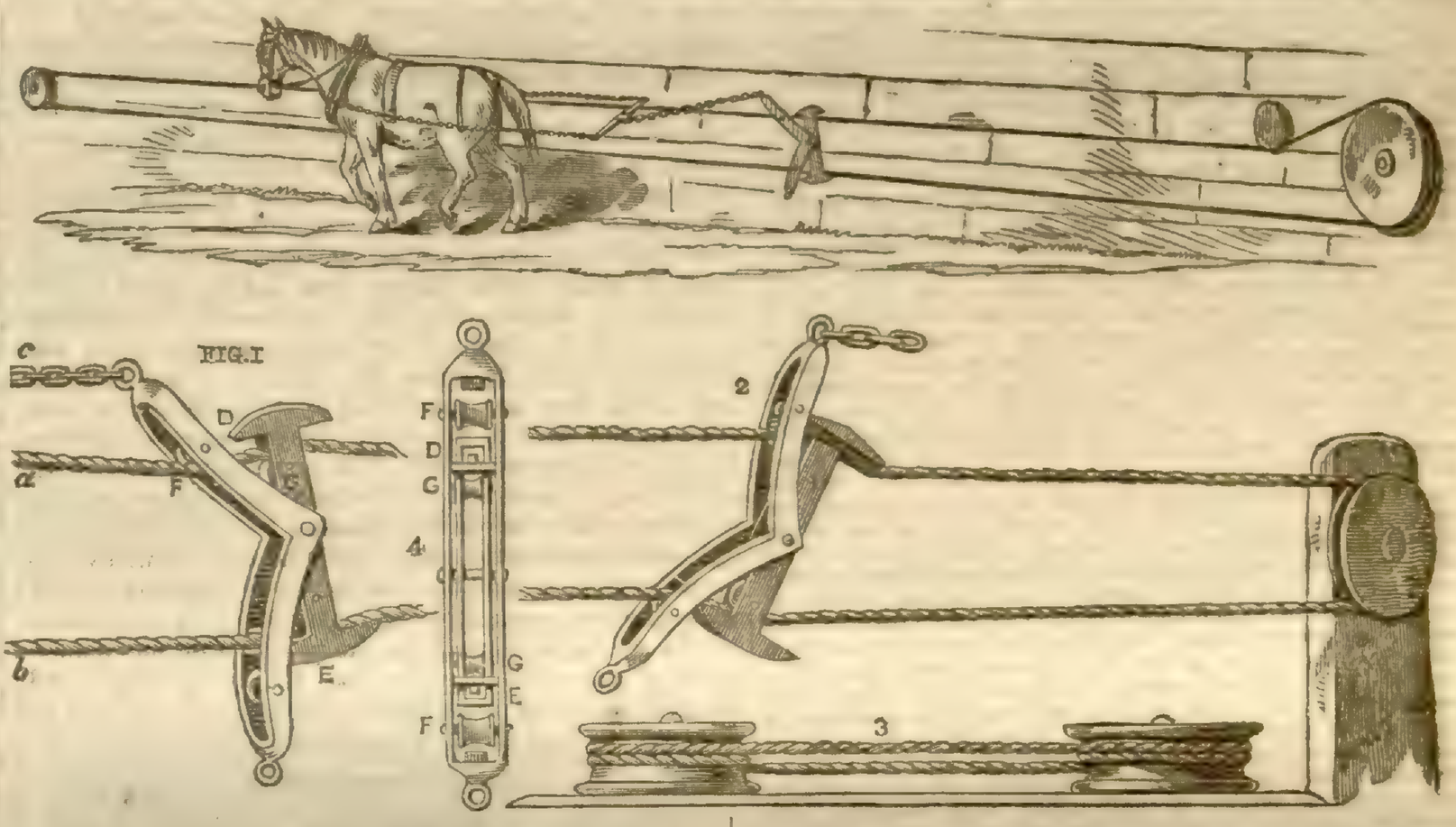
MR. CHADWICK ON SMALL AND NEGLECTED MECHANICAL POWERS,

APPLICABLE TO AGRICULTURE.

(*Continued from page* 460).

Dr. Cartwright's one-horse power, referred to at page 459, is more fully described as follows, with the aid of the woodcuts subjoined:—

In the figure the horse is working the machine by means of a revolving band, extended along the barn side by two pulleys, one of which is on the axis of the machine within; the apparatus which attaches the horse is shown larger on another revolving band *a b*, Fig. 1. The horse pulls the chain C, which opens the upper clip D, and bites the lower rope in the under clip E, and pulls it along with him (the friction of the upper rope being eased by two rollers, F and G), and when he returns, he pulls the chain C back, as shown in figure 2, which closes the upper clip on the rope, and pulls it along; the under clip opening lets the lower rope pass through on the rollers. The jaws of the clips are cut like a rasp to hold the rope fast. At figure 3 is shown the alternate tapering of the two pulleys, to let the band slide down while coiling on the pulley, as it is passed once or twice round to get securer hold, when both are wanted to work machinery. If a large pulley be used, a small one, as shown on the barn side, is placed near to render the cords parallel again, and keep the proper width for the instrument. If the pulleys are high, the horse may be attached to the under end, or if low, to the upper one. The near rope shows how the walk may be lengthened by fixing a pulley to a post in a line with the barn side. Figure 4 is a front view, showing the clips D and E and the rollers F F and G G. Dr. Cartwright adds, "There are two inconveniences in driving a machine by means of a cord and pulley, in the common way, especially if loaded with much work, which every one must have experienced; if the cord is not sufficiently tight it is liable to slip, and to give it the necessary degree of tightness, occasions such a load of friction upon the pivots of the pulleys as to add very materially to the labour. These inconveniences, however, may easily be got over by a very simple contrivance, which, as perhaps it is not universally known, I will describe. The width of the pulley upon the face should be about three diameters of the cord, and conical, and the higher side of the face should exceed the lower by about a semi-diameter of the cord, which must be laid on upon the higher side, and trussed once entirely round the pulley. It will thus embrace the pulley three times as much as it would have done if laid on in the common way. The consequence will be, that the cord may be comparatively slack, and will lay no more friction on the pivots of the pulleys than would be laid on pivots of the wheels in machines working by tooth and pinion." In a postscript he says, "The smith who made the apparatus, in consequence of its being a new thing, and requiring many little alterations before it was finished exactly to my mind, charged for it 20*s*. Now that there is an exact pattern to go by, it would no doubt be made for half the sum. The cord which I made use of was rather better than the third of an inch in diameter. My animal was a small ass."



Water Power:—

There is no power cheaper than falling water where it can conveniently be got for application; and with all the development of steam power, there is yet as the returns show a vast amount of water power used in our manufacturing districts. The old water wheel is cheaper than steam, where a stream can be got; but in the Tyrol, in Switzerland, in France, and in Italy there is a cheaper and more efficient way of applying water than those commonly in use in England—namely by the Turbine, that is to say by a spout of water, usually closed, directed upon a small horizontal wheel. In Italy, wheels made by the peasants with an axe are made instruments of considerable power. Mere threads of water—speaking comparatively—from hill sides, beginning from 10 feet fall and upwards—such threads as may be contained in pipes of from 2½ inches to 4 inches in diameter or more. The upper portions of the pipes may be of earthenware, and the whole where the column of water is not considerable. The platform horse power machine I have introduced to notice on the practical authority of Mr. Whitworth; Dr. Cartwright's horse power machine on the practical authority of Mr. Cottam; I beg leave to introduce the Turbines on the practical authority of Mr. Gaspar Horner, an engineer who I know has put up many in various parts of the world. He has sent out one to Syria, where it was to be fed from one of the mountain streams of the Lebanon, to drive a small silk mill. Such was the simplicity of the construction of this turbine, of a nice plan, that no mechanic was sent out to put it up. It was put up by the proprietor himself, with the aid of his Turkish labourers, and it continues to work perfectly satisfactorily. I am indebted to Mr. Horner for the drawings descriptive of the application of the turbine.

In illustration of its comparative economy to the steam-engine, he states—

"Let us suppose a locality where a perpendicular fall of 30 feet can be obtained with a small stream of water yielding 800 gallons per minute, the horse-power which the one species of turbine would give would be equal to 4½ horses, and the cost of such a machine would probably not exceed 40*l*. exclusive of the pipes, which will vary in extent according to the nature of the ground. The cost of the cheapest steam engines ranges from 20*l*. to 30*l*. per horse power, a steam-engine of the same power would therefore cost from 120*l*. to 130*l*. Supposing in another locality 100 feet of perpendicular fall to be obtainable with a volume of 300 gallons of water per minute, the effective power to be obtained by this machine would amount to 6½ horses, and the cost would be about 60*l*., exclusive of pipes as before. A steam-engine of the same power would come to 180*l*., or just double. For falls from 10 to 20 feet I propose a different description of small wheel, but equalling the other in simplicity of construction, and of even less cost. Similar wheels with a fall of 10 feet have been erected for saw mills, with one blade to cut through thick logs. I have seen such turbines in the Tyrol, and their working has been very satisfactory, whilst from their simplicity they may be constructed in the most inexpensive manner. As the turbines are all driven with considerable speed, which speed varies according to the height of the fall, they are particularly adapted to machinery which requires great velocity, such as threshing, winnowing, and chaff-cutting machines, or rotatory pumps, as the transmission may be effected by a single strap without the intervention of wheel work.

"There is a different description of turbine in use on the Continent for low falls of from 2 to 12 and 15 feet, on the principle of a screw placed upright into a cylinder and driven by the stream. When well constructed their useful effect exceeds that of undershot water wheels twofold, viz., where the latter would give an effective power of 10 horses, the former would yield 20. Their construction however is difficult and expensive, and I could hardly recommend their use for other than continuous manufacturing purposes. For localities therefore where the water power consists merely of a running stream or brook, with but a low fall, the thought of rendering it available with little previous outlay must be abandoned, and recourse be had to one of the other powers named, viz., wind, steam, or the horse.

"For the farmer with limited capital and a limited extent of ground, where the consideration of first cost is paramount, and the opportunities of gradually paying it off are less frequent, there we find that the little turbine for the same amount of power has the superiority. A high pressure engine with boiler about four horse power cannot be had under 110*l*. if new, and on wheels it will cost at least 150*l*., whereas a turbine of the same power might be put up for about 40*l*.; this however exclusive of pipes, the cost of pipes for leading water, which will vary according to the locality, and to their extent." Sir Watkin Williams Wynn informs me that he has erected a turbine to drive a saw-mill, and that it has worked perfectly satisfactorily for four or five years.

Windmills:—

It is now some years ago since I received a letter from the fen district, saying "that at last steam has fairly disappeared" In Holland the steam-engine has done that for large districts for 6000*l*. a year in clearing a lake about the area of the metropolis, which by windmills would have cost 10,000*l*. per annum. I have had occasion to recommend steam power as the most economical for the drainage of low lying districts, which it does at rates varying from 1*s*. 9*d*. to 5*s* per acre annual working expenses; but these are for large operations. In how many districts are there not low-lying swampy corners of fields below the level of a passing stream which need power to lift out the water to keep them clear, but for which steam or even horse-power cannot be afforded for the purpose? Our windmills are large, lumbering, expensive things, of powers far beyond what is needed for such work. But our American brethren—who will not let small power run by their doors in the stream below, nor in wind above without catching some of it—have met such cases by small, handy, economical windmills, of one of which I present a sketch. These are usually made in America, of from 2 to 5-horse power, that is to say, from 10 to 25 men power. These windmills may be erected by themselves, or put by the side of a barn as shown in the sketch. They pump from 2000 to 50,000 gallons of water in 24 hours, according to the height required to be raised. The arms are made from 6 to 20 feet long. It offends the thrift of the American farmer to see power running to waste, through large gaps, as in the old country mills, and he gives s wings to his larger windmills, and rejoices in a more productive result. But as in heavy gales he has sometimes power overmuch, he has a guage to let it off, whilst it enables him to make the most of light breezes. These mills can easily be taken to pieces and packed in small loads. I beg to call the attention of Messrs. Burgess and Key, and other agricultural machine makers in England, to the fact that in America good mills of this description are sold at from 100 to 400 dollars, or say from 20*l*. to 80*l*.; and that as iron work is cheapest in England, our agriculturists ought to have them at no higher prices.

Mr. Wilmot, the land steward in England to the Duke of Devonshire, makes the roof of his cattle shed serve as a water tank for the liquefaction of the solid manure, and the dilution of the urine of the cattle beneath, and prepares all for distribution by subterranean pipes of wood. With the water at the main outfall of his land drains and by means of a water ram he lifts a sufficient portion of it to fill the tank at the top of his cattle shed. This is an arrangement which a Yankee farmer would approve. In some cases it may be needful to raise water from wells. For such work the windmill will serve the best, and for the cases—where the agriculturist has no high land near him, no hill where he may catch the rain fall at the crest and pound it up, and for many other cases. The windmill will grind and do other work; but as it goes all night as well as all day without watching, when made of an improved construction, it does the best for pumping. The Count Gasparin highly approves of a windmill invented by M. Durand at Paris, with six wings nearly 4 yards long, which during six months of full wind raises 38,880 cubic metres of water, or what he considers enough to irrigate 39 hectares or 97 acres of land; but in the neighbourhood of Paris it raises an average of 140 cubic metres or 25,550 in the year, that is to say, enough for the irrigation say of 62 acres of land by the method of submersion, which is immensely more than is needed in my method of irrigation by the jet. The cost of this windmill is 50*l*., and with pumps, fittings, and fixtures, little more than 60*l*., and including the wear and tear and the interest on the outlay, its working expenses are about 8*l*. per annum. Taking 10,000 cubic metres (the metre cube is about one-third more than our cube yard) of water raised 20 metres high as the work to be done, he gives what are the best indications I have met with as the relative expense of various powers for its accomplishment,—namely; man-power at a wheel 124*l*. 2*s*. 8*d*.;—horse-power, working at a Noria, 34*l*. 16*s*. 8*d*.;—steam engine of 4-horse power, 28*l*. 6*s*.; of 40 horse power, 11*l*. 1*s*.;—windmill (Durand's) with variable wind, 13*l*.; with constant wind, 5*l*. 15*s*. For remote districts, many of which I contemplate, where the price of coal is perhaps as high as in the vicinity of Paris, these results would, I have no doubt, serve as tolerably good indications of the relative value of the different motive powers, but the case stated relates to a higher order of duty. These comparisons are for continuous services *above* 4-horse power; but my case is for services, mostly intermittent, below 4-horse power, I have then indicated the conditions where one and 2-horse powers are—for the small service and short time or intermittent uses—cheaper than steam, and where water powers and wind powers are cheaper than steam. I believe I have met a large proportion of the common conditions;—the conditions of hilly countries, where water may be impounded on heights—or where there are small water-falls—of flat countries where there are streams—and of flat and low countries where there are no streams and no outfalls;—for all of which by these, or by horse-power engines, labour-saving machines are available for the distribution of liquified manure and other general agricultural purposes at rates which will enable the active small farmer, or the small capitalists, and the high garden cultivator to follow the

arge farmer and large capitalist much more closely in the present state of things than may at first sight appear.

Economical Tanks, &c. :—

I must now say a few words on cheap receiving apparatus, cheap tanks, and on cheap distributing apparatus, cheap pipes. In respect to tanks, on some of the liquified manure farms I find that tanks have been made of enormous size and depth, requiring much power to lift the liquid again from the deep bottom—constructed on the wholly erroneous and mischievous hypothesis of the need of storing the contents for weeks and months. Now, I have already objected to the vast waste of manure arising from its decomposition, which commences in about four days, and I contend that whatever may be the quantity to be applied, there is no great difference in the actual labour of pumping and distribution, whether it be distributed as it is produced, or distributed after storage in great bulk. But there will be great difference in the fertilising effect, in the preservation of the manure by immediate applications, and there is moreover great danger to the cattle from the products of decomposition,* which escape from the most expensively constructed manure tanks. There is therefore no need for tanks larger than is requisite to hold at the most two or three days' manure, and the water requisite to liquify the dung and to dilute the urine, to the extent of extinguishing any strong smell at the time of application. The economy of the farm should be so arranged that every day, (except Sunday), the manure of the morning and of the previous day and night should be applied to some one part or other to growing plants, or to fallows, as part of the day's duty. By some friends in Scotland good and sufficient manure tanks have been made of boulder stones, well puddled with clay. They are made 3 or 4 feet deep and long, and so narrow that they may be covered with split Larches, over which sods of earth are sometimes put level with the field. Proper openings should be made for the constant reception of the dung and urine from the cattle-shed. Diluent water is led into one end, and at the other is introduced the suction pipe of the pump protected by a sieve. These tanks being shallow, the fibrous deposit can easily be taken out, to be used as compost. These tanks may be easily made, and easily altered and extended, as experience requires, without the aid of the mason or the bricklayer. In Switzerland they find tarred wood puddled with clay sufficient for the sustaining walls even of their concentrated and decomposing manure tanks. For very small purposes old oil casks put in the ground serve very well. In respect to fixed pipes, wood is used, and may be well used for works on a small scale, and for trial works, when iron founders and engineers are distant, and the work beneath the dignity of their attention. Where water or manure is required to be led to a distance without any considerable pressure, hard burnt drain tile pipes may be used, and I am assured by a good mechanic that wooden collars made of very dry wood, and turned so as to open conically to admit and to hold the butt joints of the pipes, will, when swollen with the moisture of the earth, hold them tightly and permanently. But what appears to be a very economical and ingenious method of making water pipes from concrete and cement was invented by Count Gasparin's brother, and it should be made known here. Having to bring water upwards of 3000 yards distant to supply the fountain for the poor small town of Orange, he sunk a trench about a yard deep. Over the bottom he spread a layer of concrete of between 3 and 4 inches thick. On the perfectly levelled surface of this concrete he laid a long hose or flexible pipe, filled with water to high tension, by means of a tube 2 yards high inserted into one end, and of course held vertically. He sanded the surface of the water pipe to prevent the adhesion of the hydraulic cement, which he then put over the distended tube. When the cement was set the water was let out, and the pipe, 36 yards long, withdrawn and a new length of cement pipe formed in the same manner. By this means he rapidly formed water pipes, for fountains, of 3 inches in diameter at 5*d.* per yard; and also pipes of from 6 to 8 inches in diameter at from 10*d.* to 1*s.* 8*d.* per yard. I have no doubt that with smooth cement and where glazed tubular pipes are not to be had, a skilful person to lay and joint them, much good house drainage and farm drainage work may be done in this manner, which affords facilities of making good curves and long lengths of smooth pipes free from bad and obstructive joints. On some trial works with common red earthenware pipes, to test their strength, they only broke with 80 and 90 lbs. of pressure the square inch. They were jointed with good Roman cement, and the joints stood whilst the body of the pipes gave way. I should be prepared to expect that well-made cement pipes would stand far higher pressures than is commonly supposed. Roman earthenware pipes so jointed or surrounded with concrete have stood for centuries. I have had specimens sent to me of Roman earthenware pipes, burnt hard to vitrification and well protected at the joints by good cement, which have stood several hundred feet of pressure for centuries. Vitruvius gives directions for laying down earthenware pipes for the distribution of water, with precautions against concussions under 100 feet of constant pressure. Mr. Rawlinson found in the Crimea the remains of considerable earthenware pipe water distribution for the supply of houses of the Greek towns. In England the art of water conduction in earthenware is deemed a lost art, and it being one of great economy I have not been able to rouse professional zeal to bestow much labour for its restoration. Nevertheless, it has been used successfully at 30 and 40, and one case was reported to me of 70 feet of pressure; but where greater efforts have been made and one part has burst, the whole has been abandoned. In France, however, they have led water in earthenware pipes under 170 feet of pressure; and French engineers conversant with such work have told me that in the present state of the manufacture of the pipes they expect their first work to break at some pinching point or other, at which point they put in a length of iron, and if that does not do another and another, until the whole stands, and the object is accomplished generally with a very large economy of the most expensive material. Where there is sufficient fall from the farm steading wooden V spouts, made like the common cheap wooden water spouts, may be used for the distribution of the liquified and diluted manure. For flexible pipes canvas for standing high pressures; it must be made of sail cloth of the first quality, 2 feet wide, and costing 2*s.* a yard. This may be cut into three lengths. The sailmaker's charge for sewing a good overlap joint is 2*d.* a yard. Give the village sadler or the village shoemaker 3*d.* per yard. Flaxen hose may be woven circular, as I am assured, at the price of sewing it. It should have three coats of tar inside and out, each coat being allowed to dry hard before the next is put on. With care to wash out the pipes each time of using them, and with occasional patching and mending they have been made to last six years. The village turner has turned wooden joints which have stood well.

A hose of this description is the most convenient instrument of distribution round a steading; I have seen it led through a canal, through a field of standing corn, through a ditch, over a hedge, up a hill, and over a garden wall for the distribution of sewer manure where certainly no water-carts could have carried it. With such appliances as I have described, which are, it is to be hoped, within the means of the smallest cultivators, the largest also may make those trials which yield them safe indications for the direction of extended works—and do at least what others have already done—ensure the application of the liquid manures now thrown away and a three and four-fold production from the solid manures of the farm yard. In addition to this special use, the applicability to general farm or garden operations of a five-man power by almost every one who possesses a horse, or a three-man power by every possessor of an ox—and so with the lesser animal powers, is I submit a subject of wide practical importance and interest.

* Dr. Mercer, of Edinburgh, in a paper on Epidemic Pleuro-pneumonia, after pointing out filthy cattle yards as the most common exciting causes of disease, says, "The improvements which the Poor-law Commissioners recommend to the legislature in the sanitary condition of the labouring population of Great Britain would prove equally beneficial if the adoption of them were rendered compulsory in respect to the labouring cattle of the country. The great benefits that have been obtained by the labouring poor by the improvement of the sanitary condition of their dwellings is a matter of surprise to all; and would such not unquestionably follow if the same means were used to improve the byres of our dairies, and the sheds of our cattle yards."

ERRATUM.—In the first portion of the address, for "farm of 20 acres," *read* "farms of 25 acres."

Home Correspondence.

Drainage Phraseology.—I think I detect the voice of the "Humble Inquirer." and hasten to reply to his questions. "Bottom water" was rightly described by Gisborne, and is accepted by draining engineers as meaning subterranean water, let it come from whence it may. It may have descended through the soil vertically, or it may have traversed the soil horizontally from a distance, if the surface be flat, in which case it would not be called "the water of pressure;" or it may have passed through the soil by hydrostatic power from adjacent hills much higher than the land in which it is found, in which case it would rightly be called the "water of pressure," owing to its disposition to rise to the surface in spite of drains, which would otherwise remove it. This is explained in Mr. Bailey Denton's pamphlet, "Land Drainage and Drainage Systems," p. 29, where he refers to instances in which low lands have not been thoroughly drained, although closely "gridironed," until the adjacent higher lands have also been drained, when the defects have instantly disappeared. The drainage of the Lyme Hall estate (about which your correspondent inquires, and of which about 5000 acres are drained) was executed by the General Land Drainage and Improvement Company, under the superintendence of Mr. Bailey Denton. It was commenced in 1852 and completed in 1856. In the report of the judges who awarded the prize for the drainage an error appears to the effect that a part was done on the "Keythorpe" system, which Mr. Denton denies, inasmuch as the works were far advanced before Mr. Trimmer's essay was published, or the 2 feet deep bush drainage of Lord Berners was signalised as a system. The drains at Lyme are all at least 4 feet deep, and most of them much deeper than 4 feet. It is indeed pleasing to observe that Mr. Trimmer is now offering his services to drain 4 feet deep—nothing less! but how he is going to make his furrows, when they are only 2 feet deep, serviceable for 4 feet drainage, he does not explain. Has he abandoned his oft-repeated opinion that clay is impenetrable? The experiments carried on at Hinxworth leave no room for doubting the permeability of clays, and it would be pleasing to know that Mr. Trimmer concedes the point, for if he does he will waste no more time in searching for banks of clay but he will soon point out some other and more practical application of the geological knowledge he possesses of the phenomena of superficial deposits than the use of ridges and furrows which we must spend the value of the land to discover, if found at all. *Draining Engineer.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *July* 1: Colonel Challoner, Trustee, in the chair. One Governor and 23 new members were elected.

PRESIDENT.—The Right Hon. the Speaker addressed to the Council the following letter, which on the motion of Mr. Raymond Barker, seconded by Mr. Milward, was ordered to be placed on the minutes:—

"House of Commons, June 5, 1857.

"Dear Sir,—I beg you will communicate to the Council my sincere acknowledgments for the resolution unanimously passed at the meeting of June 3, requesting me to withdraw the offer of resignation of the office of President, and conveying to me the cordial thanks of the Council for my exertions to promote the objects and welfare of the Society since the period of my appointment.

"It is a matter of infinite regret to me that I shall not be able to attend the show at Salisbury, and that anything should have occurred, however honourable to myself, which prevents my devoting a full measure of time and attention to the affairs of the Society during the period that I have the honour to hold the office of President.

"I am much gratified by the assurance that my conduct in that office has received the approval of the Council; and I beg to offer my respectful and grateful thanks to every member of the Council for the friendly and cordial support which I have at all times experienced at their hands.

"J. Hudson, Esq. "Believe me, yours faithfully,
(Signed) J. EVELYN DENISON."

The Council then resolved unanimously that his Grace the Duke of Richmond, as one of the past Presidents of the Society, should be requested to undertake the Presidential duties at the Salisbury Meeting.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the monthly report on the accounts; from which it appeared that the current cash-balance in the hands of the bankers on that date was 989*l.* Agreeably with the recommendations of the committee, Messrs. Everett & Pinckney, of Salisbury, were unanimously appointed the local bankers of the Society during the period of the ensuing country meeting.

PRIZE REPORTS.—Mr. Wren Hoskyns reported from the Journal Committee a recommendation, which the Council adopted, that prizes should be offered by the Society for Reports on the Farming of Shropshire and the Channel Islands.

STEAM-CULTIVATORS.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Jonas Webb, the Council decided that, in order to give a full and efficient trial of the steam-cultivators at Salisbury competing for the Society's undivided prize of 500*l.*, the offer made to them of 38 acres of suitable land for that purpose now under Clover, in the immediate neighbourhood of Salisbury, should be accepted on the terms proposed, namely at 190*l.* The mayor, at the request of the Council undertook the charge of seeing every preparation duly made, not only for the trials by which this class of implements will have the opportunity of being thoroughly tested, but also for the arrangements by which the public may have free admission to the ground, and be enabled most conveniently to witness the trials.

JUDGES.—Sir Archibald Macdonald, Bart., Chairman of the Judges' Selection and Recommendation Committees, presented reports recommending the judges respectively required in the departments of Live Stock and Implements, at the ensuing Salisbury meeting. These reports were unanimously adopted by the Council.

STEWARDS.—On the motion of the Mayor of Salisbury, seconded by Mr. Jonas, Mr. Philip Pinckney Cother, of Salisbury, was unanimously appointed the steward of poultry for the ensuing country meeting; and on the motion of Mr. Wren Hoskyns, seconded by Mr. Milward, Colonel Towneley, of Towneley Park, Lancashire, was unanimously appointed steward elect of implements for the same occasion.

DINNER.—On the motion of Mr. Milward, seconded by Mr. Simpson, the Council accepted the offer made to them by the Mayor and Corporation of Salisbury, of the Council Chamber in the city, for the purpose of a dinner on the Wednesday of the week of meeting; and gave power to the Salisbury Committee of the Society to carry out the requisite details.

WATER MEADOWS.—The Mayor of Salisbury reported that he had completed the arrangements referred to him by the Council, by which the farm-husbandry and plan of irrigation in the neighbourhood of Salisbury might be inspected by the members on the occasion of the ensuing country meeting. The Hon. Sidney Herbert had placed his Home Farm at the disposal of the Society, and Messrs. Rawlence and Squarey were prepared to offer every facility in their power for rendering the inspection of the Water-Meadows in their occupation interesting and instructive to the members, both personally on the meadows themselves, and afterwards by the delivery of a lecture by Mr. Squarey on the details of their construction, management, and advantages. It had been proposed that the visitors should meet at Wilton Park at twelve o'clock on the Tuesday, or such other day of the week as might be arranged and published in the programme.

SPECIAL COUNCIL.—The Council ordered, agreeably with the bye-laws, that a Special Meeting should be held on the following Wednesday at one o'clock, for the final settlement of all details connected with the Salisbury Meeting, in order that the programme might be completed and published.

Adjourned to the Weekly Meeting at 12 o'clock on July 8.

NORFOLK.—This Society held a very successful anniversary meeting last week at Swaffham, where large numbers of cattle and sheep and the largest exhibition of implements ever yet seen in the county (excepting the English Society's show at Norwich) received the awards of the Society's judges. We extract from the report of addresses on the occasion passages from the speeches of Mr. Ransome and Mr. Hamond. Mr. William Ransome said:—

A friend had told him when, some 15 or 18 years since, he advocated the use of steam on a Suffolk farm, that he who would advocate the introduction of steam was a traitor to the cause of agriculture. There was no one now who would not acknowledge that the use of steam, so far from damaging the farmer, had given him the opportunity of reducing his expenditure. With regard to the question of steam ploughing, various schemes had been propounded. One proposition was to propel the implement by winding it up by a fixed engine; another was to drag it behind an engine travelling before it. Mr. Fowler had worked with the heart of a lion, in endeavouring to carry out that which he believed to be the best plan. Mr. Boydell and those with whom he was associated—among whom was an eminent maker in Norfolk—had been equally active; and there was now a probability that the practicability of steam-power would be fairly and thoroughly tested. There had been a time when all the trials made only led to discouragement, but he hoped now before very long to see a large portion of the country ploughed by steam. He did not advocate the application of steam to agriculture on economical grounds only; but he held it would be especially valuable in securing a class of tillage by means of the great power which could be brought to bear, for which the power of horses was insufficient. He looked upon it as likely to introduce a large system of deeper culture. With reference to Mr. Keary's remarks, he believed the days for the introduction of novelties were, not unwisely, gone by. It would be far wiser and better for the implement-makers to bring into an economical and perfected form the implements now produced, than to seek merely to amuse their customers with novelties.

Mr. Anthony Hamond said:—To the implement makers the farmers were indebted for improvements which 10 years ago they never anticipated. There had that day been produced in the humble town of Swaffham such a show of implements as was not to be seen in the whole aggregate of the kingdom 14 or 15 years ago. Twelve or 14 years since he waded up to his neck through rubbish that he could not possibly put a name upon; the difficulty now was to see which was the best. And he believed the advance was to be attributed to the quiet, gentle system of the Royal Agricultural Society. That Society had endeavoured to calm down the excitement for novelty, for it was not novelty that was wanted, but good, sound, practical sense. Attacks had been made upon the Royal Agricultural Society by persons who liked to build up a reputation by a sort of busybodyism which did a great deal more harm than good, and was

always asking for novelty. Novelty, to a great extent, was a curse: it led men on to unnecessary expense, and often to error and disappointment, diverting them from that which would have been of permanent and practical good to them. There had been an attempt to draw a line between the practical farmer and the theoretical farmer; but in his opinion the pursuit of farming was a very high one, and he saw no reason why a farmer should not be a gentleman, and why a gentleman should not be a farmer. Was it a disadvantage that a man of education, a man who had devoted many years of his life to the study of elegant literature, should after his arrival at a certain time of life, turn his attention to the chief of all good—the finding cheap food for the population of the empire? Let them not, then, debase the association by calling out about the difference between theoretical and practical men. What was a practical man but a theoretical man who reduced his theory to practice? In the Royal Agricultural Society there were practical men, and men who knew nothing about the business in regard to which they pretended to know a great deal. So much the better. If there were not such men, how on earth should others have the opportunity of contradicting them (laughter)? Argument brought out truth and valuable facts, and there was nothing more conspicuous in the Royal Agricultural Society than their anxiety to hear sentiments freely expressed; and nothing could exceed the attention paid to a practical man who delivered his opinions. The quality of the animals exhibited during the day was certainly far above the common lot; and he believed some of them would go from the yard and win prizes against all England. To return to the question of practical men, he would ask, who were the great winners at the Royal Agricultural Society's meetings; they were Lord Walsingham, Lord Berners, and other lords. And how was it that these noblemen beat practical men? By giving to some intelligent men power to spend their money. From the newspapers one would fancy Lord Walsingham and Lord Berners passed the greater part of their time in pulling hairs out of their cows' tails or clipping their sheep. The principle which had been very much repudiated in Norfolk, with regard to the exhibition of animals, was a very correct one. If he had to get up a young lady for a show, he should put as much bustle on her as she required, (laughter). And so it was with sheep: the only difference being that as little "bustle" as possible was taken off them. Gentlemen should be left to bring up their animals as they pleased, and to look the best they could; for the tup-hirer was a fool who was deceived by a little millinery (laughter).

Calendar of Operations.

JUNE.

BERWICKSHIRE MERSE FARM, *June* 29.—The Turnip sowing season, now closed, was commenced about the usual time, May 12, and a large breadth of Swedes and Yellows was put in under favourable auspices, the clay lands working particularly well. In many cases a great push was made to "get over the ground, but the tell-tale Couch Grass soon showed the inexpediency of sacrificing quality to quantity. A heavy fall of rain on the 10th inst. put a stop to operations for a week, but was of great benefit to the young plant as well as to the crops in general. Swedes have come rapidly forward, and many are unable to get them thinned fast enough. Other varieties having encountered drier weather are partially destroyed by "fly," but to nothing like the extent of previous years. Last week was calm and scorching in the extreme, but a sudden fall of barometer and thermometer is this day followed by heavy rain and cold N.E. winds. Our winter Wheat was looking first rate, and nearly fully shot, but now the half of it is as flat as a lath. We may, however, hope that the unfilled state of the ear will allow it to rise again. Everything else will be much the better for this moisture; pastures especially were very dry; indeed, throughout the spring they have presented nothing but hard Rye-grass. Red Clover is very scarce—almost unknown. The Rye-grass, though late pastured, is a fairish crop for Rye-grass alone, and will soon be ready for the scythe. Potatoes, though not planted till the end of April, have a splendid appearance, and have been well hoed during the late favourable weather. Our small break of Mangel Wurzel is not so well planted as last year; it is a troublesome plant, but a small quantity is found very useful. Beans scarcely equal the average height, but show a profusion of blossom. Lambs have done well, at the expense, however, of their mothers, who are most unusually down in condition. Fat hoggs, having Swedes to May 1, ripened rapidly on saved pasture and came out in prime condition. The rejected ones, on the contrary, have done no good this month, as the Grass seems to have lost its feeding quality. Stackyards are pretty well cleared, and grain more inquired for. *J. T.*

Notices to Correspondents.

AGRICULTURAL SOCIETY OF GUERNSEY: *Hon. Sec.* We have your note but not the paragraph to which it refers.

CARCASES AS MANURE: *J C.* Cut them up into fragments with a sharp knife and lay them in layers with plenty of sandy mould in an ordinary shaped dung-heap. In a month or two turn them over, having put plenty of additional mould beside the heap to throw in with it as it is turned. The flesh will have rotted away, and the bones can be thrown out to be charred, broken, and reduced to superphosphate with one-third their weight of sulphuric acid.

DAMAGE DONE BY GAME: *A very Old Subscriber* asks for information from any of our numerous correspondents as to the fairest mode of making valuations between landlord and tenant for damage done by game. "Arrangements with tenants might be greatly simplified if something approaching to the tenant's clear profit on grain prepared for market could be ascertained. For instance, Wheat will fetch, in the next market town, 8 miles distant, 7*s.* 6*d.*, Barley 4*s.*, Oats 2*s.* 6*d.* per bushel. How much ought to be considered as clear profit on each kind of grain, or supposing that the valuers, on both sides, agree that 50 bushels of Wheat have been destroyed, market price 7*s.* 6*d.*, what would be a reasonable compensation to the tenant?"

LUCERNE: *Constant Subscriber.* If you can top dress it after the first cut with good rotten dung, and dig it or horse hoe it in between the rows, you cannot do better. If you have no farm dung spread 2 cwts. of Peruvian guano over it, out of a liquid manure-drill or water-cart.

REAPING: *W B.* If a reaping machine needs eight binders and clears 10 acres a day, then binding ought to cost from 2*s.* 6*d.* to 3*s.* an acre. But unless you can guarantee that the machine shall work continuously, and keep your hands constantly employed, it will be fairest to pay day wages, which should be in harvest time, working early and late, 3*s.* 6*d.* to 4*s.* a day for good hands.

RYE: *Cafe.* You may apply to any corn-factor in Mark Lane—Messrs. Booker & Co.

WHEATS: *Clay Farm.* For Brown's Barley you had better apply to Mr Lawson, of Edinburgh, as it was from him that the late Mr. Haxton received most of his information. For pure Fenton Wheat apply to Mr. G. Hope, of Fenton Barns, Drem, N. B., who discovered and propagated the sort. The Book on Farm Accounts, will, it is hoped, be ready this autumn.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

WARNERS' SWING WATER-BARROW
(TO HOLD THIRTY GALLONS)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*
Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
Fountains suitable for Conservatories, Lawns, &c.

(Fig. 1.) (Fig. 2.)

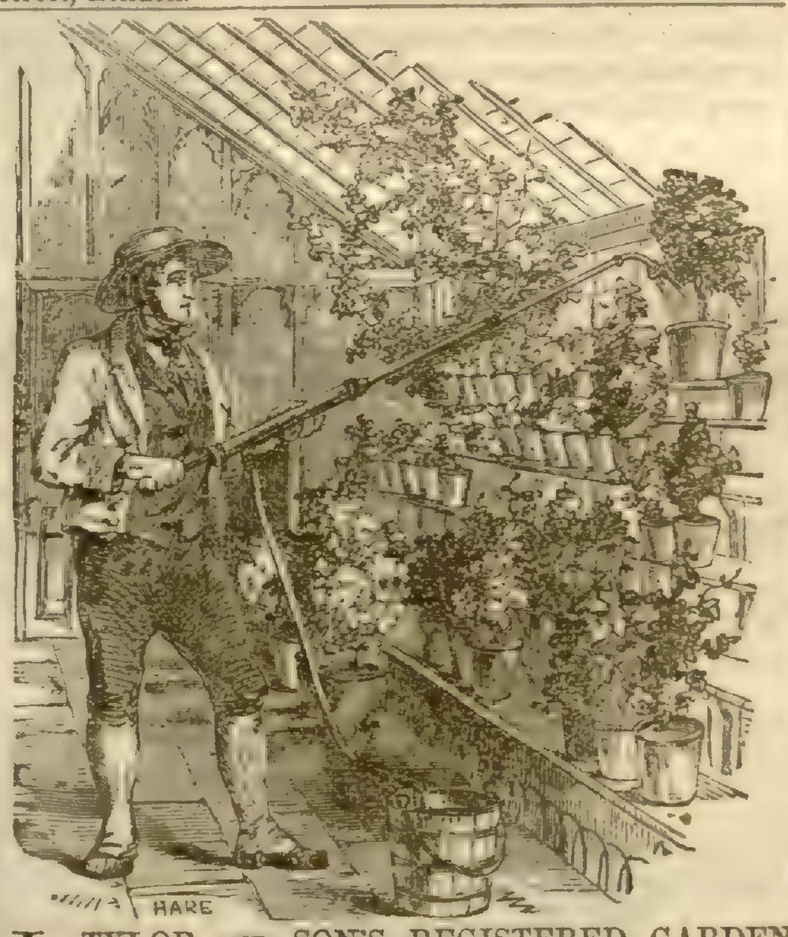
J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high ..	£4 10
No. 2	,, 15 ,,	,, 45 ,, ..	5 10
No. 3	,, 28 ,,	,, 45 ,, ..	6 18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high ..	£2 15
No. 13	,, 12 ,,	,, 30 ,, ..	3 5
No. 11	,, 16 ,,	,, 40 ,, ..	4 0
No. 12	,, 24 ,,	,, 45 ,, ..	5 0
No. 14	,, 30 ,,	,, 45 ,, ..	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.
No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*
READ'S SYRINGE, 19*s.*
J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.
N.B. Cost of carriage, &c., not included in these prices.
J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.



J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each, Large size, for Gardeners' use, **25s.** each.
Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*
By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.
J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.
N.B. These prices do not include carriage, package, or expense of delivery in the country.

AQUARIA.
JAMES PHILLIPS AND CO., 116, Bishopsgate Street Without, beg respectfully to submit their prices of Glass Aquaria of the shape suggested by Mr. Shirley Hibberd.

BEST ROUND AQUARIA, WITH EBONY STANDS.		COMMON SHAPE AQUARIA WITH EBONY STANDS.	
12 inches diameter, each	5*s.* 0*d.*	12 inches diameter, each	4*s.* 6*d.*
13 ,, ,,	6 0	13 ,, ,,	5 0
14 ,, ,,	8 0	14 ,, ,,	5 6
15 ,, ,,	9 0	15 ,, ,,	6 6
16 ,, ,,	10 0	16 ,, ,,	7 0
17 ,, ,,	12 0	17 ,, ,,	8 0
18 ,, ,,	13 0	18 ,, ,,	10 0
19 ,, ,,	14 0	19 ,, ,,	11 6
20 ,, ,,	15 0	20 ,, ,,	12 6

Syphons, each .. .. 2*s.*
TANK AQUARIUM, with Slate Bottom, Plate Glass Front and Ends, and Sheet Glass Tops.

30 inches long, 17 wide, 15 deep	£3 10 0
26 inches long, 16 wide, 15 deep	3 0 0
20 inches long, 13 wide, 9½ deep	1 18 0

The above are the dimensions of Slate Bottom. The pillars are iron, and the water cannot come in contact with the metal. Larger or smaller sizes in proportion.
GLASS FERN SHADES AND STANDS.

6 inches diameter, each	2*s.* 6*d.*	12 inches diameter, each	8*s.* 6*d.*
7 ,, ,,	3 0	13 ,, ,,	11 0
8 ,, ,,	3 6	14 ,, ,,	14 0
9 ,, ,,	4 6	15 ,, ,,	18 6
10 ,, ,,	5 6	16 ,, ,,	23 6
11 ,, ,,	6 6		

CUCUMBER GLASSES.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 ,, ...	1 10	14 ,, ...	1 2
20 ,, ...	1 8	12 ,, ...	1 0
18 ,, ...	1 6	Made to any length.	

Perforated Glass for Ventilation, from 1*s.* 6*d.* per foot.
Glass Tiles and Slates.
Glass Milk Pans, 21*s.* per doz.; Propagating and Bee Glasses, Lactometers, Lord Camoys' Milk Syphons, Wasp Traps, Plate, Crown, and Ornamental Glass, Shades for Ornaments, and every article in the Trade.
Specimens will be exhibited at Chiswick Gardens on Wednesday and Thursday next.
HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

PATENT WATERPROOF GLAZING, Ridge and Furrow Conservatories, Greenhouses, Vineries, Orchard Houses, &c., with the most improved form of construction and heating. Illustrated Prices on receipt of 4 stamps.
Address, ALFRED KENT, Horticultural Builder, Chichester.

GLASS FOR HORTICULTURAL PURPOSES.
E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.
BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.
HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.	Per foot.		Per 10 feet.
	Under 6	by 4	at 1½*d.*	is	£0 12 6
From 6 by 4	,, 7	,, 5	,, 2*d.*	,,	0 16 8
,, 7 ,, 5	,, 8	,, 6	,, 2¼*d.*	,,	0 18 9
,, 8 ,, 6	,, 10	,, 8	,, 2½*d.*	,,	1 0 10
,, 10 ,, 8	,, 12	,, 9	,, 2¾*d.*	,,	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3¼*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3½*d.* to 7½*d.* ,, ,, ,,
PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes, at reduced prices, by the 100 square feet.
GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.
Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.
PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.
GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to
JAMES HETLEY & Co., 35, Soho Square, London.

GLASS.
THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.
Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

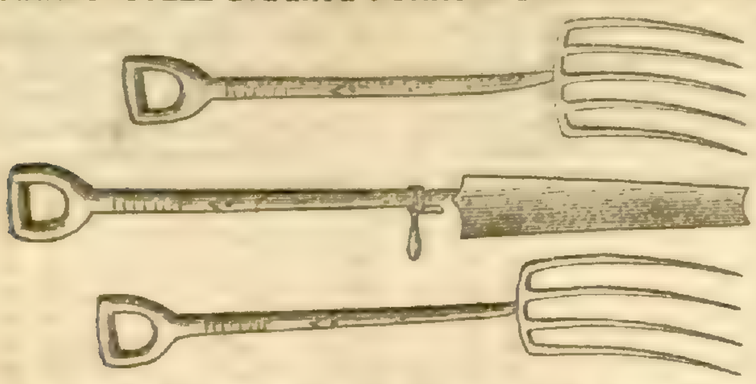
Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.
Glass for Orchard Houses as supplied to Mr. Rivers.
Hartley's Patent Rough Plate Glass, ⅛ to $\frac{3}{16}$ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.
Rough Plate and Sheet Glass Tiles to ½-inch in thickness.
A variety of other articles as per Horticultural List, which may be had on application.
Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.
Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.
All packages charged, but allowed for when returned.
Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d.* per square yard; 200 yds, 14*s.*; 500 yds., 30*s.*; 1000 yds., 50*s.* Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps. 95, Newgate Street, London.

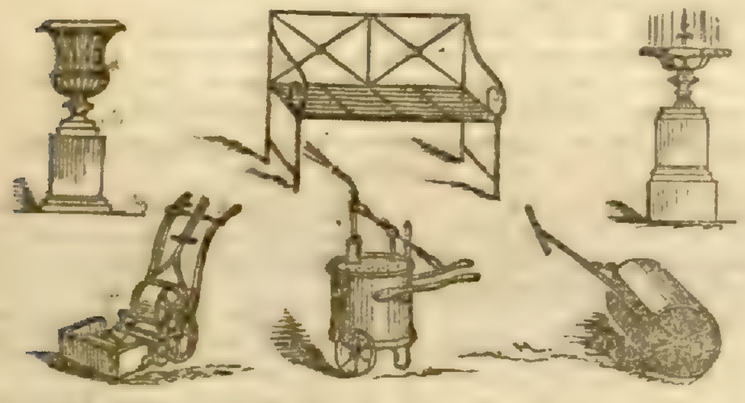
FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

GARDEN REQUISITES, &c.



COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

CHASE'S

BEETLE POISON,

EQUALLY DESTRUCTIVE TO RATS AND MICE, AND HARMLESS TO CATS AND DOGS.

A SAFE AND MOST EFFECTUAL DESTROYER OF BEETLES AND COCKROACHES.—One trial alone will prove its efficacy, and one box will destroy thousands. The great advantage in this preparation is, that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead. Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

Sold in boxes at 1s. each, or sent free to any part of the Kingdom for 20 Stamps, or a case containing one dozen boxes sent carriage free on receipt of a Post-office Order for 12s., by THOMAS CHASE, Chemist, 14, Holborn, opposite Furnival's Inn, London, and may be obtained through all Chemists and Medicine-vendors.

"Royal Exotic Nursery, King's Road, Chelsea, Jan. 4, 1856.

"Sir,—I have no hesitation in giving you a certificate to the effect that your 'Beetle Poison' is most effectual in destroying cockroaches. After trying many other things, I was induced, by the recommendation of the Rev. Edwin Sidney, (Cornard Parva Rectory, near Sudbury, Suffolk), to try your poison, and the very next morning after it was laid, many cockroaches were found dead; and such was the case for several succeeding mornings; but since then we scarcely or ever find one. I am, consequently, thoroughly satisfied that with perseverance in laying your poison, these pests may be entirely got rid of. I am, sir, your obedient servant, "J. VEITCH, jun.

"Mr. Chase, 14, Holborn."

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

MIGNONETTE BOXES.

SUN-DIALS.

STATUES after Ancient and Modern Masters, as well as

Original GROUPS of FIGURES.

Great variety of ANIMALS, FOUNTAINS, and FOUNTAIN FIGURES of all sizes.

ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.

AUSTIN & SEELEY'S
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

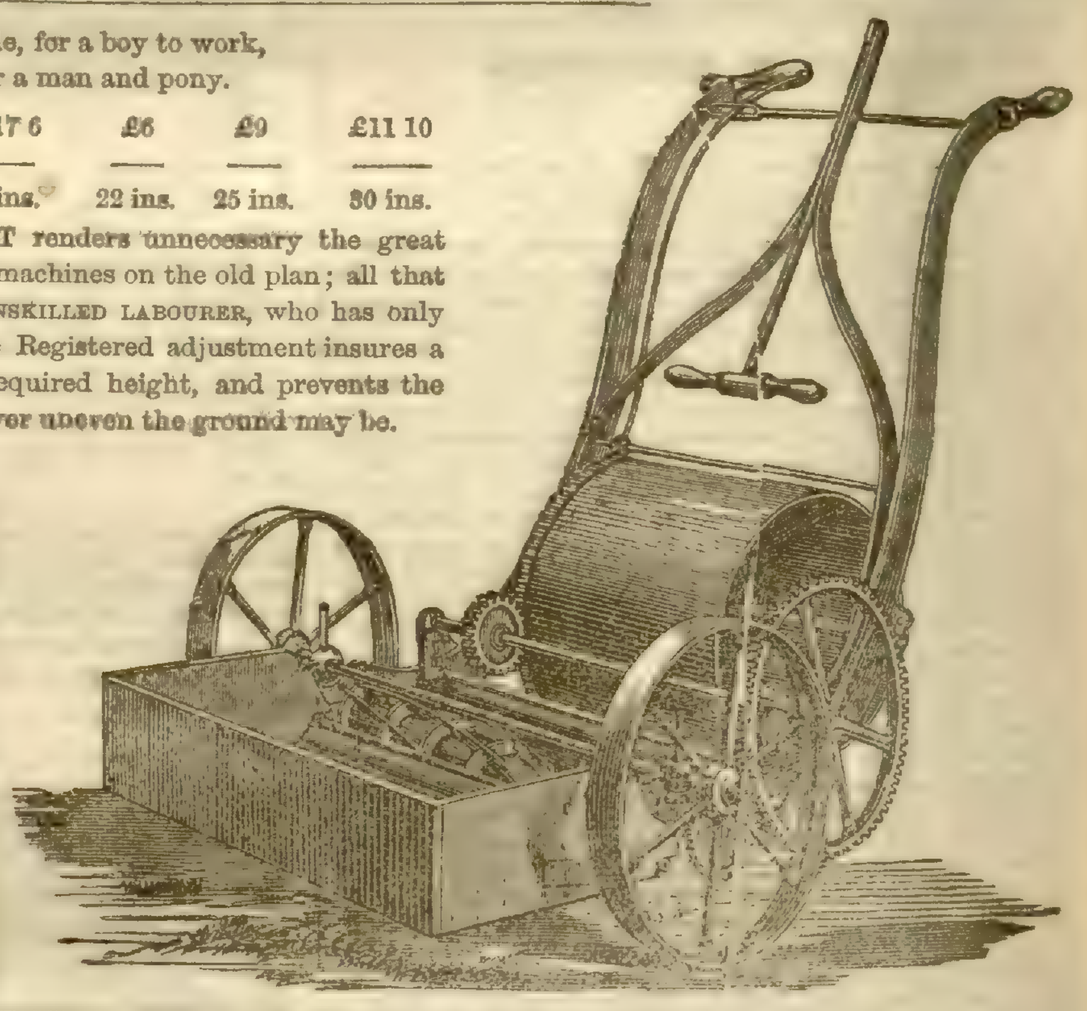
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

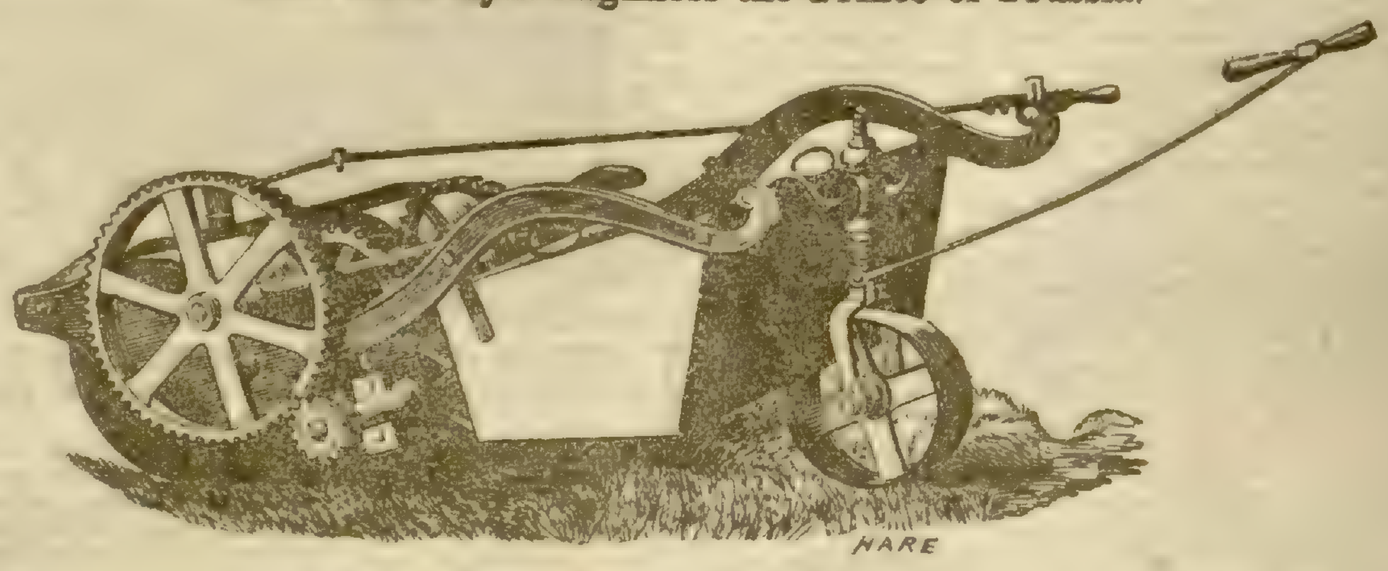
The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

SHANKS' PATENT MOWING AND ROLLING MACHINE.

Patronised by Her Majesty QUEEN VICTORIA, His Majesty the Emperor of the French, and His Royal Highness the Prince of Prussia.



A. SHANKS AND SON,

WHILE soliciting the attention of the Nobility, Gentry, and Gardeners to their HORSE AND PONY MOWING AND ROLLING MACHINES, the completeness and superiority of which are now fully established, at the same time respectfully solicit notice to their new HAND MACHINE, especially adapted for Mowing small Lawns, Verges around Flower Beds, &c. Some of the advantages arising from the use of the new Hand Machine are the following:—It can be used to cut a Verge without any change of wheels or rollers. It will cut close to the edge of Flower Beds and Verges. It is a Rolling as well as a Mowing Machine, and can be used with effect as a Lawn Roller when thrown out of gear. The whole working parts are so modified and arranged as to make it suitable for varieties of work, either on level ground or slopes. The Machine is drawn by means of a handle attached to the spindle, at the lower end of which is the front guiding pulley; this spindle is made to swivel, and a mere novice will at once perceive the advantages of this method not only in regard to the greater ease in working, but also, and more especially, the advantage of the swivel in turning. The method of regulating the Cut is very simple and efficient, it can be done in a few seconds by merely turning a screw without the aid of a Key for that purpose. The Machines are firmly and securely constructed, the cutting parts being made very strong, and consequently not liable to get out of order. The Machine can be managed and worked by a common labourer.

A. SHANKS & SON cannot give a better proof of the superior style in which the Machine executes its work, as well as of the ease by which it can be managed and its economy in the saving of labour, than by referring to the hundreds of places where it is at present in use.

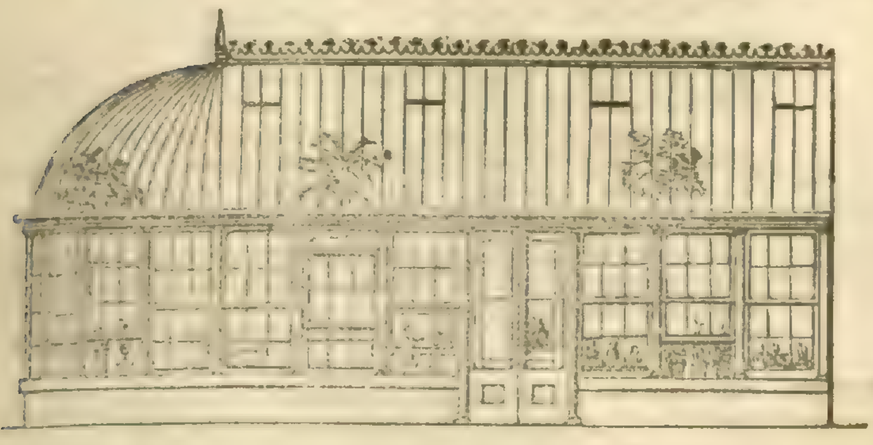
Price from 5*l.* upwards, Illustrated Price Lists forwarded on application.—Sold at the Crystal Palace, and by Messrs. DRAY, COTTAM & HALLEN, BURGESS & KEY, London; Mr. DODDS, 28, Leadenhall Street; Messrs. LEE, Hammersmith; VEITCH, Exeter and Chelsea; and by almost all first-class Nurserymen and Implement Sellers in the country.

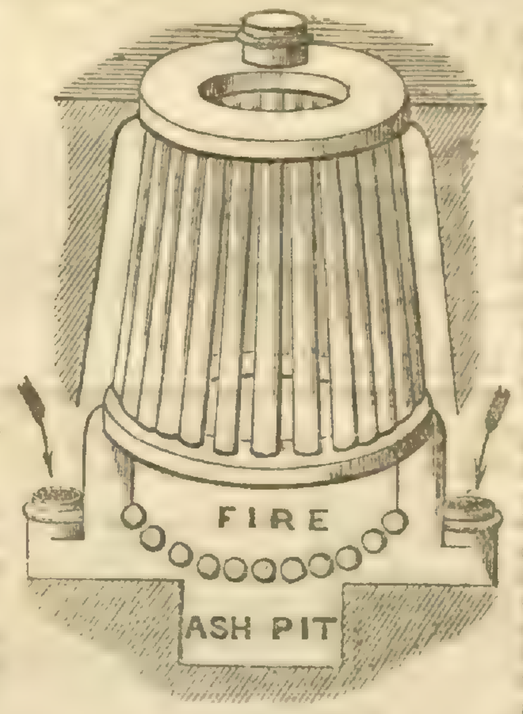
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

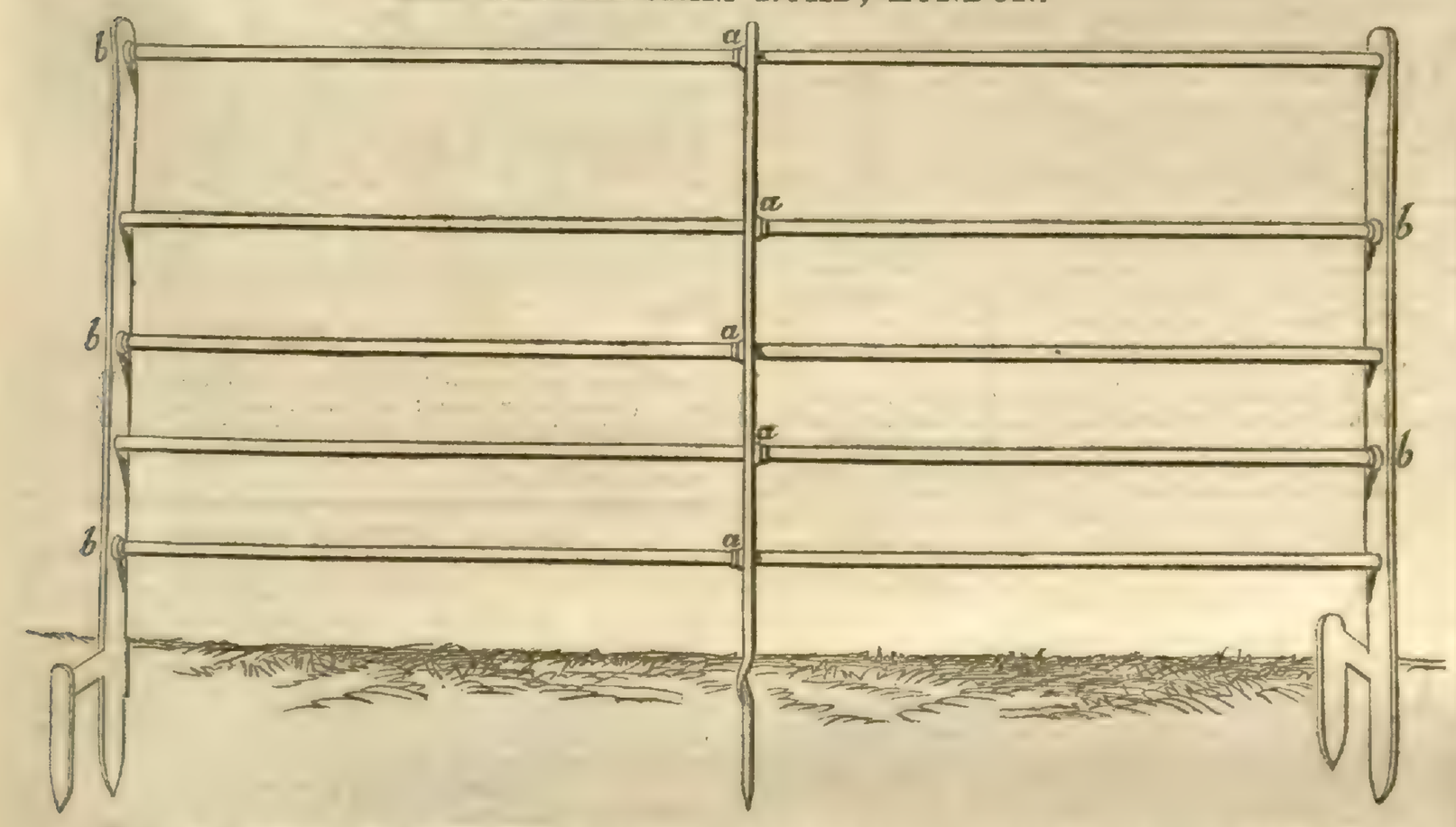
JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND Co., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

ADDRESS: The MANAGERS, ST. PANCRAS IRONWORKS, OLD ST. PANCRAS ROAD, LONDON.



IRON COLLAR BAR HURDLES.

By Her Majesty's Royal Letters Patent.

THE COLLAR BARS at *a a a* prevent the central upright getting out of position, and the Collars consequently reduce the Diagonal Strain, and give great additional strength and rigidity, and insure the Hurdle keeping its Shape. The Collars at *b b* also retain the outer uprights in proper position, and inclose the stability of the Hurdle.

These Hurdles are more than TWICE as STRONG and DURABLE as those constructed in the ordinary way, and yet with all these advantages they are NO MORE EXPENSIVE than the ordinary Hurdles.

The Construction of these Hurdles insures the quality of the IRON BEING GOOD, as they cannot be manufactured from Common or Cinder Iron. Their CHEAPNESS is owing to their being manufactured by NEWLY-INVENTED MACHINERY.

These Hurdles can be seen in process of Manufacture at the Works. Every description of Wrought, Cast, and Strained Wire Fencing and Gates, Plain and Ornamental. Lists upon application.

Address: The Managers, St. Pancras Ironworks, Old St. Pancras Road, London.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

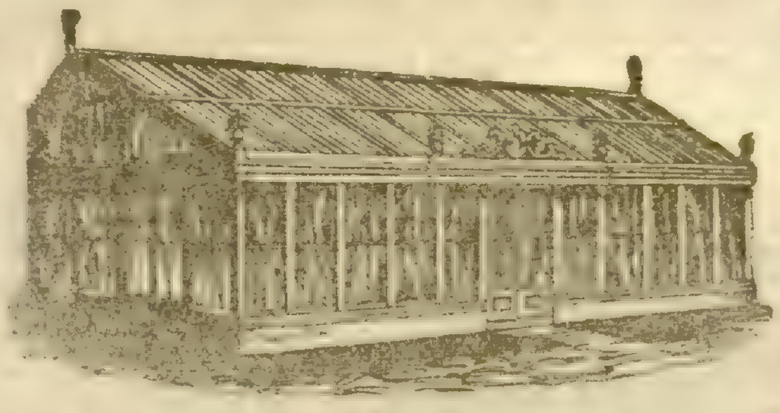
JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

BY ROYAL LETTERS PATENT.

GREEN'S LAWN MOWING MACHINES.—TRIAL at the London Horticultural Society's Gardens, Chiswick, June 5, 1857. Four competitors. First trial on level ground; Second ditto on undulated; Third ditto on intricate places, round trees, &c.; when GREEN'S Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to Dr. Royle, Secretary to the London Horticultural Society, 21, Regent Street; also Mr. McEwen, Superintendent, Chiswick, where the Machines may be seen at work; likewise Mr. Garrood, Manager of the Agricultural Department, Crystal Palace; and at the Manufactory, Leeds, Yorkshire, where illustrated Price Lists and references can be given.

GREEN'S Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

Rt. Honble J. Parker.
Duke of Leinster.
Viscount Campden.
Major Wemyss.
Sir Angus Campbell.
Countess of Harewood.
Earl of Harewood.
Hon. Geo. Lascelles.
Lord Ashtown.
Earl of Stamford and Warrington (twice).
Earl of Leicester.
Lord Suffield.
Sir Robert Sheffield.
Sir Wm. Hutton.
Duke of Devonshire, Chiswick House (twice).
London Horticultural Society, Chiswick.
Dr. Royle, Secretary to ditto.
J. P. Chorley, Esq., Editor of *Field*.
Lord Bridport.

THOMAS GREEN, Proprietor, Patent Mowing Machine Works, Leeds, Yorkshire.

T. G. begs respectfully to call attention to the superiority of his Pony Machines.

PAXTON WORKS, SHEFFIELD.

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by FISHER & SON, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

TO BE LET, by TENDER, a valuable FARM in Hampshire, consisting of 364 acres Arable, 86 acres Pasture, and 73 acres Water Meadows.—For particulars, &c., address A. B., Post Office, Stockbridge.

Sales by Auction.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, July 14th, at 1 o'clock precisely, a Collection of ORCHIDS, well grown and in good health, comprising—

Vanda suavis (Veitch)	Phalænopsis amabilis
,, cristata	,, grandiflora
Angræcum eburneum	Ærides cornutum
Saccolabium Blumei majus	,, Fieldingi
,, retusum	,, affine
,, guttatum	Cattleya elegans

Also an importation from Guatimala, received direct from G. U. Skinner, Esq., in the best possible condition, containing splendid masses of Barkeria spectabilis and Skinneri, Lycaste Skinneri, Odontoglossum grande and pulchellum, Cattleya Skinneri, &c.—May be viewed on the morning of Sale and Catalogues had.

ISLINGTON.

TO GENTLEMEN, NURSERYMEN, BUILDERS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction on the premises, Upper Street, Islington, on MONDAY, July 6, at 12 o'Clock, by order of Mr. Head, in consequence of the greater part of the ground being taken for building, the Greenhouse Plants, including Show and Fancy Pelargoniums, Scarlet Geraniums, Fuchsias, Cactus, &c.; also a newly erected Span roof Show-house, 22 feet 3 inches by 21 feet 10 inches; six Greenhouses, two Sheds, two 1-light Boxes, three Fern Cases, a capital Brick Cart, two Shop Fronts, four Glass French Casements, Pigeon house and Pigeons, Swing, &c.; together with a quantity of Flower-pots, Bricks, Paving, and Pantiles, a Portable Room on Wheels, and sundry effects.—May be viewed three days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex

HAMPEN ANNUAL RAM SALE—1857.

MR. JAMES VILLAR is instructed by T. BEALE BROWNE, Esq., to Sell by Auction on MONDAY, July 27, about 60 COTSWOLD SHEARLING RAMS, and Four or Five older SHEEP. As usual a few will be let for the season. Mr. BEALE BROWNE will be happy to see his numerous Friends and Sheep Breeders generally upon this occasion. The Auctioneer ventures to submit that the present Show will more than support the high position the Proprietor has gained as a Cotswold Breeder. Business will commence at 4 o'clock. This Flock took Twenty one Prizes last year; in Paris, in Ireland, at Chelmsford, Warwick, Worcester, Yorkshire, Monmouthshire, and Gloucestershire. Hampen is 8 miles from Cheltenham, and [illegible] from Andoversford.

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GLOXINIAS.—PRINCESS ROYAL, ROI DES BELGES, SIR HUGO, DONNA COLONNA, TARRAGONA, HELEN OF ORLEANS, MADAME PICOULINE, ELOISA, FULGENS, DIONYSIUS.

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On the Branch Line between Basingstoke and Salisbury the Regular Trains will be suspended from MONDAY, July 20, till SATURDAY, July 25, inclusive. And in place thereof Trains will leave Basingstoke for Salisbury, calling at all intermediate Stations between Basingstoke and Salisbury, at 6.30 and 10.20 A.M. and 4.20 P.M., returning at 8.20 A.M. and 2.40 and 7.20 P.M. each day.

The Special Express Trains from London will call at Basingstoke, and take up Passengers at 9.0, 9.25, 10.15, 11.0, 11.15, and 12 o'clock; and the 9 o'clock Train will call at Overton, but, with that exception, these Trains will not stop at any Station between Basingstoke and Salisbury. The last train from Salisbury each day will call at Andover.

The Return Trains each day from Salisbury will all stop to put down passengers at Basingstoke.

Waterloo Bridge Station, July, 1857. By Order.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, July 4, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 28.—1857.] SATURDAY, JULY 11. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON. MEETING, July 7.—The following are the awards:—

LARGE SILVER MEDAL—To Mr. Spencer, F.H.S., Bowood, for a collection of Pine Apples.

FIRST PRIZES—To Mr. Brown, Gr. to Mrs. Vivian, F.H.S., for a Queen Pine Apple, 5 lbs. 4 oz.; to Mr. Frost, Gr. to E. L. Betts, Esq., for a Queen Pine; to Mr. Davies, Gr. to Lord Bridport, F.H.S., for a Providence Pine, 7 lbs. 2 oz.; to Mr. Ivison, Gr. to the Duke of Northumberland, F.H.S., for Black Hamburgh Grapes in pots; to Mr. Macqualter, Gr. to Colonel Challoner, F.H.S., for Muscat of Alexandria Grapes; to Mr. Hill, Gr. to R. Sneyde, Esq., F.H.S., for Black Hamburgh Grapes; to Mr. Allport, Gr. to H. Akroyd, Esq., F.H.S., for Frontignan Grapes; to Mr. Spencer, F.H.S., for Cannon Hall Muscat and Black Hamburgh Grapes, and Downton Nectarines; to Mr. Snow, Gr. to Earl de Grey, F.H.S., for Violette Hâtive Peaches; to Mr. Ingram, F.H.S., Royal Gardens, Frogmore, for a collection of Cherries and Plums; to Mr. Lewis Solomon, F.H.S., Covent Garden, for Foreign fruit; to Messrs. Veitch, of Exeter and Chelsea, for a collection of Orchids; to Mr. Ingram, Gr. to J. J. Blandy, Esq., F.H.S., for Hæmanthus coccineus.

SECOND PRIZES—To Mr. Maher, Gr. to Sir R. W. Bulkeley, Bart., for two Queen Pines; to Mr. Macqualter, Gr. to Col. Challoner, F.H.S., for Peaches and Nectarines; to Mr. Spencer, F.H.S., for Peaches; to Mr. Taylor, Brentford End, for Cherries; to Mr. Pilcher, Gr. to S. Rucker, Esq., F.H.S., for Aerides nobile.

THIRD PRIZES—To Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S., for Peaches and Nectarines; to Mr. Errington, Gr. to Sir P. G. Egerton, Bart., F.H.S., M.P., for Royal George Peaches.

CERTIFICATES OF MERIT—To Mr. Ingram, Gr. to J. J. Blandy, Esq., F.H.S., for Plums and a Melon; to Mr. Yates, of Manchester, for Underhill's Sir Harry Strawberry; to Mr. Frost, Gr. to E. L. Betts, Esq., for Melons; to Mr. Spencer, F.H.S., for the same; to Mr. Browne, Gr. to Col. Biddulph, M.P., for the same; to Messrs. Veitch for a dark variety of Aerides maculosum; to Messrs. Waterer and Godfrey, Knap Hill, Woking, for Cupressus Lawsoniana.

GREAT WESTERN RAILWAY.—GREAT EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY AT SALISBURY, on the 21st, 22d, 23d, and 24th July. Return Tickets issued from any station to Salisbury on the 20th, 21st, 22d, 23d, and 24th July available for the return journey on any day up to the 25th July inclusive.—July 11.

SOUTH WESTERN RAILWAY.

GREAT EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY AT SALISBURY, on July 21, 22, 23, and 24. The following Arrangements will be made for the Conveyance of Passengers to and from Salisbury:—The ORDINARY RETURN TICKETS issued to Salisbury FROM ANY STATION, upon Monday, July 20, will be available to Return up to Saturday, July 25, inclusive. The CHEAP Return Tickets issued on Saturdays and Sundays from London will not be available for this extended period.

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FARES.	First Class.	Second Class.
Single Journey	18*s*. 0*d*.	12*s*. 6*d*.
Return Tickets, available to Return up to 25th July	31 0	21 0
Return Tickets, available to Travel every day from 20th till 25th July	6*l*.	4*l*.

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Return Trains from Salisbury on the evening of each day after 6.30 P.M.

BASINGSTOKE to SALISBURY.

On the Branch Line between Basingstoke and Salisbury the Regular Trains will be suspended from MONDAY, July 20, till SATURDAY, July 25, inclusive. And in place thereof Trains will leave Basingstoke for Salisbury, calling at all intermediate Stations between Basingstoke and Salisbury, at 6.30 and 10.20 A.M. and 4.20 P.M., returning at 8.20 A.M. and 2.40 and 7.20 P.M. each day.

The Special Express Trains from London will call at Basingstoke, and take up Passengers at 9.0, 9.25, 10.15, 11.0, 11.15, and 12 o'clock; and the 9 o'clock Train will call at Overton, but, with that exception, these Trains will not stop at any Station between Basingstoke and Salisbury. The last train from Salisbury each day will call at Andover.

The Return Trains each day from Salisbury will all stop to put down passengers at Basingstoke.

Waterloo Bridge Station, July, 1857. By Order.

THE HANOVERIAN BAND AND FLORAL FETE COMMITTEE have the pleasure to announce that the SECOND GRAND FLORAL FETE will take place at Sydney Gardens, Bath, on WEDNESDAY, September 9, on which occasion 120*l*. will be distributed in Prizes. Schedules and every information to be obtained from Mr. HENRY SMITH, Hon. Sec. 20, Old Bond Street, Bath.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—JOHN LAWSON begs to tender his most sincere and heartfelt thanks to those subscribers who kindly supported him on Wednesday, the 1st inst., at the Election of Pensioners on the funds, when by the united efforts of many kind friends he was placed on the Pension List of this excellent institution.—Warcop, near Appleby, July 11.

THE SOUTH KENSINGTON MUSEUM is now OPEN to the Public daily from 10 till 4, and on MONDAY and THURSDAY Evenings from 7 till 10. Admission on Mondays, Tuesdays, and Saturdays Free; on Wednesdays, Thursdays, and Fridays 6*d*. each person.

By order of the Committee of Council on Education.

AT THE SOUTH KENSINGTON MUSEUM the FREE Days are Mondays, Monday Evenings, Tuesdays, and Saturdays. The STUDENTS' Days are Wednesdays, Thursdays, Thursday Evenings, and Fridays, when the Public pay 6*d*. each. The hours are from 10 till 6 in the Day-time, and 7 till 10 in the Evenings.

By order of the Committee of Council on Education.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should be sown immediately after the hay is carried.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom. Price 9*d*. per lb., or 80*s*. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

THE QUICKEST TURNIP KNOWN.

SUTTON'S EARLY SIX WEEKS' TURNIP, good new Seed, 10*d*. per lb., 5*s*. per gallon, or 35*s*. per bushel. Carriage free except small parcels.

SUTTON & SONS, Seed Growers, Reading.

CABBAGE FOR EARLY SPRING CUTTING.

THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. It may be sown any time in July without running to seed. Seed 1*s*. per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free.

Royal Berks Seed Establishment, Reading.

FOR PRESENT SOWING.

	Per packet, post free.—*s*. *d*.
CALCEOLARIA SEED, from a splendid Collection	2 6
CINERARIA, from SUTTON's Lady Camoys and many others	1 0
PRIMULA SINENSIS FIMBRIATA, superb mixture	1 0
HOLLYHOCK, from a first-rate collection	1 0

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

IMPORTANT.

GRUNEBERG'S CHOICE CALCEOLARIAS, CINERARIAS, AND NEW QUEEN STOCKS.—These exquisite Collections are now ready in Sealed Packets at half-a-crown each.—JOHN WEEKS & Co., The Nursery, King's Road West, Chelsea, S.W.

CONQUEROR CABBAGE.

J. R. AND A. PEARSON have sufficient of their new variety of CABBAGE SEED to offer it to the Trade. Price on application. They believe it to be the best and earliest sort known. A packet sent on receipt of 12 postage stamps.

Chilwell Nurseries, near Nottingham.

TO BEE KEEPERS.

SOW MELILOTUS LEUCANTHA for an abundant supply of rich honey. Sixpence per packet, free. Every kind of Bee Plants kept.—PERSAC & Co., Seedsmen & Florists, 253, High Street, Exeter.

FOR BEES, BOUQUETS, CUT FLOWERS, ETC.,

SOW in JULY the lovely sweet-scented "MELILOTUS;" invaluable for furnishing a supply of Flowers from Spring to November. Sealed packets 1*s*. and 6*d*. each, free per post.—J. ROGERS, Horticulturist, Chelsea, S.W.

GRAPE VINES FROM EYES.—All the leading kinds may be now had, including the Stockwood Golden Hamburgh, fit for immediate planting.

R. GLENDINNING, Chiswick Nursery, London, W.

BECK'S NEW PELARGONIUMS, which are particularly fine this season, will be sent out by J. DOBSON & SON, Woodlands Nursery, Isleworth, W.

Catalogues will shortly be ready.

TO THE SEED TRADE.—A quantity of English grown RAPE SEED for present sowing. Samples and price on application to CHARLES SHARPE, Wisbeach.

WANTED, some real good FRINGED PRIMULA SEED, either mixed or separate colours; also first-rate CINERARIA.—Send price to A. B., Mr. Parish, Crosby Hall Chambers, Bishopsgate Street.

BLACK HAMBURGH GRAPES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

MUSCAT GRAPES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

LARGE PEACHES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7*s*. 6*d*. each.

N.B. Every order will be sent free in London till the end of August.—A. VERSCHAFFELT, Nurseryman, Ghent, Belgium.

NEW YELLOW ROSE—MISS ISABELLA GRAY.

A. PAUL AND SON have a large Stock of this new and interesting Rose, which was exhibited before the London Horticultural Society, and figured in the "Florist" for June. Strong plants, 7*s*. 6*d*. each, or 60*s*. per dozen.

Nurseries, Cheshunt, Herts.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

IMPORTANT TO FLOCK MASTERS.

M'DOUGALL'S ANTISEPTIC DISINFECTING HEALING FLUID—It is highly recommended, being the best wash for sheep ever yet thought of, as it not only heals diseases but completely stops the progress of infection, thereby rendering the cure certain.—London Agents, A. HERRIOT & Co., 2, Great Scotland Yard, Whitehall, S. W.

M'DOUGALL'S DISINFECTING POWDER.—This valuable and cheap disinfectant used in Stables, Cow-houses, Piggeries, Fowl-houses, and Kennels, completely removes all noxious smells, and gives a pure atmosphere. Manures treated with it are much improved, as the ammonia and phosphoric acid are preserved, and a compound formed well known to be of great value for Agricultural purposes.—A. HERRIOT & Co., London Agents, 2, Great Scotland Yard, Whitehall, S. W.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s*. 6*d*. each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

PEA RISELS SUPERSEDED BY THOMAS P. HAWKINS'S IMPROVED WIRE PEA TRAINING HURDLES, the cheapest article that can be used. GAME NETTING of every description.

Manufactory, 27, Dale End, Birmingham.

THOMPSON'S STRAWBERRY SUPPORTER, superior to any other for efficiency, durability, and facility of application, as it keeps the fruit off the ground, straw is not wanted, it is more out of the way of slugs, it sooner dries after wet, saves much fruit by the stalks not having to be touched when gathering, and by the fruit being more exposed to sun and air, it colours better all round, and consequently is improved in flavour.—Supplied by BURGESS & KEY, 95, Newgate Street. Price 2*s*. 6*d*. per dozen.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d*. per square yard; 200 yds. 14*s*; 500 yds., 30*s*.; 1000 yds., 50*s*. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

READ'S ENGINES.—PATENT WATERING ENGINES, PAIL MACHINES, CONSERVATORY PUMPS, and GREENHOUSE SYRINGES, with all the latest improvements.—Manufactured only by the Patentee, RICHARD READ, 35, Regent Circus, Piccadilly, London. Descriptions sent post free.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. LAMBERT & SON, Short Street, New Cut, Lambeth, S.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s*. 6*d*. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. Allowance on large orders.

Manufactory, Kennington Lane, Lambeth.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER AND HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantially built GREENHOUSES, fixed in any part of the kingdom, for cash, 42 ft. long by 13 ft., 90*l*.; 21 ft. by 13 ft., 50*l*.; 12 ft. by 10 ft., 30*l*. A first-rate Conservatory 30 ft. by 18 ft., 180*l*. A large assortment kept. Estimates for Heating, or any branch in wood or iron.

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

MIGNONETTE BOXES.

SUN-DIALS.

STATUES after Ancient and Modern Masters, as well as

Original GROUPS of FIGURES.

Great variety of ANIMALS, FOUNTAINS, and FOUNTAIN FIGURES of all sizes.

ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.

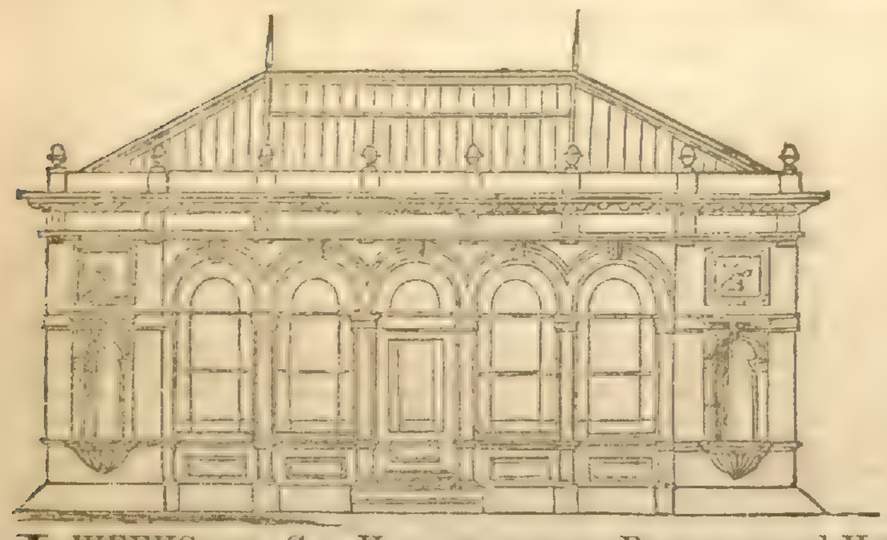
AUSTIN & SEELEY'S
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

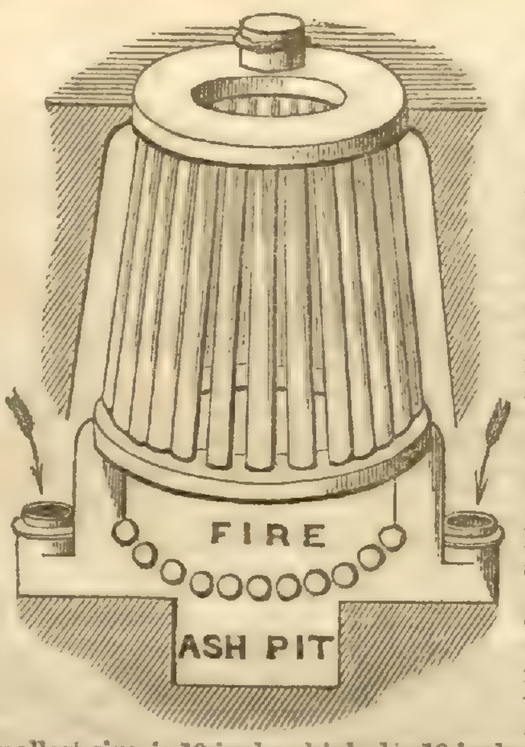
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

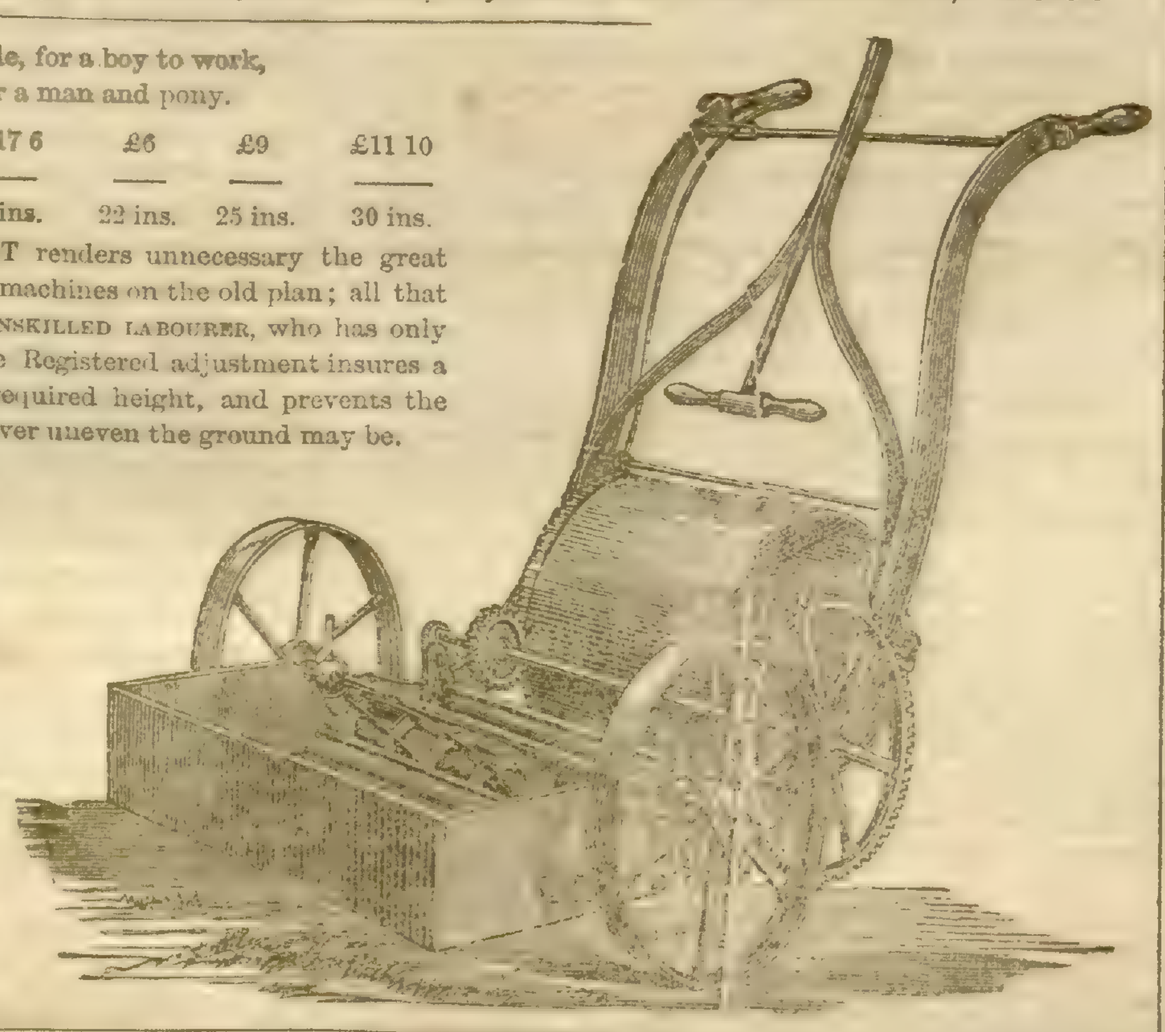
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.

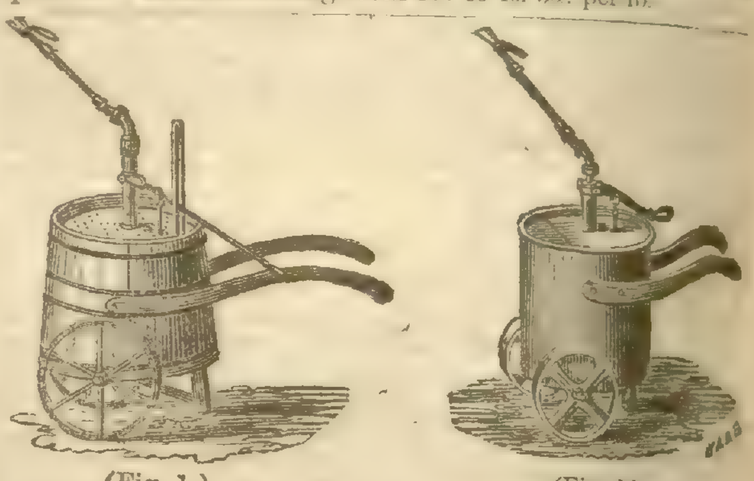


SAMUELSON, Britannia Works, Banbury.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, at 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, also Manufacturers of all sizes for raising Water from any depth, to any height, by Hand, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from [illegible] upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30	feet high	..	£4	10
No. 2	,, 15 ,,	,, 45	,,	..	5	10
No. 3	,, 28 ,,	,, 45	,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25	feet high	..	£2	15
No. 13	,, 12 ,,	,, 30	,,	..	3	5
No. 11	,, 16 ,,	,, 40	,,	..	4	0
No. 12	,, 24 ,,	,, 45	,,	..	5	0
No. 14	,, 30 ,,	,, 45	,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*

READ'S SYRINGE, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, &c.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed at the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

UNDERHILL'S "SIR HARRY" STRAWBERRY.

R. S. YATES begs to inform all who are interested in the growth of Good Fruit, that they may see and taste the above at St. Ann's Square; they can then judge whether they are in possession of the true variety or not. To those at a distance a sample will be forwarded on receipt of 24. 6d. in stamps, saying how they must be forwarded.

Plants, to any extent, warranted true, will be ready for delivery the first week in August, thereby securing them strong for next summer. Price, if not less than 100 taken, 20s.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, July 11.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

ROSES.

GEORGE CLARKE begs to invite his friends and the public generally to an inspection of his superb collection now in full flower, and extending over 10 acres of ground. Amongst the objects worthy of notice is an avenue of splendid CLIMBING ROSES, 500 yards long, and which has a remarkably fine effect. Several of the new Roses this season present considerable attraction, and G. C. would remind his patrons that the period of blooming is the best time for orders to be given, as then only can a proper selection be made in colour and variety.

All the newest Geraniums, Fuchsias, Azaleas, Ericas, Calceolarias, such as are exhibited at the principal Shows, Fruit Trees, Coniferæ, and every description of Nursery stock. The Nursery is four miles from London Bridge, and is situate on the nearest and most pleasant route from the West End to the Crystal Palace.

Streatham Place Nursery, Brixton Hill, near London.

OBSERVE!—All who have Kitchen Gardens should sow, for early spring CABBAGES, CATTELL'S Early Reliance and CATTELL'S Early Barnes. These sorts may be safely sown as early as the middle of July without fear of running to seed the following spring.

From the hundreds of testimonials J. CATTELL has received from all parts of the United Kingdom, as well as from America, Australia, China, &c., and from trials J. C. has himself made in comparison with other kinds, he can with the greatest confidence say they are the best sorts known.

Seed of these Cabbages may be had by post, the Reliance in half-ounce packets and the Barnes in one ounce packets, for 12 penny stamps each packet.

Address JOHN CATTELL, Seedsman, Westerham, Kent.

JOHN STANDISH begs to say that the Nursery formerly conducted by himself, and subsequently by the firm of STANDISH & NOBLE, is now carried on solely in his own name, and he takes this opportunity of acknowledging, and tendering his thanks for the very liberal patronage bestowed on the late firm, and hopes to receive a continuation of the same, which he will always endeavour to merit. He also begs to state that having good experience in Planting, and the management of Plantations, he will be happy to give advice on those subjects. And he also embraces the present occasion to say that he has engaged the assistance of a Landscape Gardener in good practice, to give advice in laying out new grounds and in contemplated Improvements, as well as in all subjects relating to Ornamental Gardening and Garden Architecture. Terms for Designs and Attendance may be had on application. Estimates given and Contracts taken.

The Nursery is about 2 miles from the Sunningdale Station, South Western Railway.—The Nursery, Bagshot, Surrey, July 11.

CHARLES NOBLE, having retired from the business lately carried on by the firm of STANDISH & NOBLE, has established his Nursery within 600 yards of the Sunningdale Station, South Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that his Catalogue is now published, and may be had on application. He respectfully invites an inspection of his stock, which will be found in the finest possible condition. He pledges himself to supply none but good articles, and reminds his patrons that five minutes' walk from the above station will bring them to his nursery.

Address, CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country. We exhibited a few Plants at the Horticultural Rooms on Tuesday, and we have no doubt Dr Lindley's opinion of it will be found in the report of that Meeting.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot	.. .. ..	0	15
Ditto	ditto, extra strong	1	1
Six ditto	ditto, smaller	3	3
Twelve ditto	ditto	5	0

Knap Hill Nursery, Woking, Surrey.—July 11.

SHEPHERD'S LARGE EARLY MARROW CABBAGE, SOWN ABOUT 20TH JULY.

BAINBRIDGE AND HEWISON offer again (with confidence) the above first-rate Cabbage, which has been proved to be superior in its qualities to any other. They have a good supply of Seed, which may be had also of all the principal Seedsmen.—7, Bridge Street, York, July 11.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, Edinburgh, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1s., 2s. 6d., and 5s. packets. Discount to the Trade in quantities.

VARIEGATED-FOLIAGED PETUNIA—VERBENAS OF 1857.

WILLIAM CUTBUSH AND SON beg to offer their VARIEGATED-FOLIAGED PETUNIA Mrs CUTBUSH, at 42s. per dozen, or 5s. each; also ENGLISH AND CONTINENTAL VERBENAS OF 1857, at 21s. per dozen.

A General Catalogue of Ferns, Soft wooded, and other Plants free on application.—Highgate Nurseries, London, N.

DOBSON'S EXTRA FINE CALCEOLARIA, CINERARIA AND PANSY SEED FOR PRESENT SOWING.

JOHN DOBSON AND SON have much pleasure in again offering Seed, saved from their unequalled collection of CALCEOLARIAS, which have been very successfully exhibited this season, having gained the 1st prize at the Crystal Palace Show on the 30th May, beating eight other collections. Also the 1st prize at the Regent's Park June 18. The Seed has always given the greatest satisfaction, and is warranted to be as good as it is possible to be procured. One quality of Seed (from the best flowers) is saved, but for the convenience of our customers we have different sized packets. Price per packet, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each.

CINERARIA SEED saved from the best varieties let out up to the present time, 1s. per packet.

PANSY, very choice mixed, 1s. All post free.

Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W. Orders forwarded to either address promptly attended to.

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JOHN HALLY, NURSERYMAN and FLORIST, Blackheath, having a stock of the undermentioned choice kinds of Exotic Ferns, begs to offer well established Plants at the annexed prices:—

	each—s. d.		each—s. d.
Gymnogramma Peruviana argyrophylla .. 5s. to	7 6	Nephrolepis acuta.. ..	3 6
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,, ,, Martensi ..	3 6	,, trapeziforme	5 0
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,, tartaria	2 6	Aspidium trifoliatum ..	2 6
Asplenium Belangeri ..	3 6	Anemidictyon phyllitides	2 6
Hemionitis cordata ..	3 6	Darea diversifolia	2 6
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,, Collina or Geranifolia	2 6		

CALCEOLARIAS.

GEORGE CLARKE begs to announce that he is prepared to distribute his splendid collection. The great satisfaction which this has hitherto given, coupled with the decided improvement made in them this season, enables him to offer it now with more than usual confidence. Packets warranted, price 2s. 6d. payable in postage stamps.

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WILLIAM BARNES again offers Seeds of the above kinds, the two former 2s. 6d., and the latter 1s. 6d. per packet: all saved from the most beautiful and rare kinds in cultivation. A remittance is expected from unknown correspondents.—WM. BARNES, Camden Nursery, Camberwell, S.

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J. CHATER AND SON offer the above Seed, saved from their best flowers, as follows:—25 varieties, named in separate packets, the collection, 6s.; 15 ditto, 4s.; best mixed, 200 seeds, 1s. 6d.; 400, 2s. 6d.; also choice Sweet William Seed, 6d. per packet.—Nursery, Haverhill, July 11.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

ROSES

THE SUBSCRIBER begs to inform Admirers of ROSES who may visit the Lake district that an extensive collection of all the most popular sorts are now in full bloom, and will continue so for some time. They may be seen daily, Sundays excepted.—JOHN GRIER, Waterhead Nursery, Ambleside, Westmorland, July 11.

JAMES CARTER AND CO. beg to offer new Seed, saved from the choicest varieties of the following:—

CALCEOLARIA | PRIMULA SINENSIS FIMBRIATA
CINERARIA | Price 1s. per packet.

238, High Holborn, London, W.C.

The Gardeners' Chronicle.

SATURDAY, JULY 11, 1857.

AMONGST the curious forms assumed by the POTATO-MURRAIN in 1845, one (of which we have now a specimen before us) was described in the following terms in a number of the *Cork Reporter* for that year. "One species of tuber has a mere cutaneous attack, another is honey-combed, and another is full of dark rings one within another. But we saw yesterday for the first time a tuber in which neither of these indications could be traced, but which was still unsound and worthless. The external part was wholly free from the infection. A shell was left white and pure, but the very heart was black and fetid, and it was only when it was cut that the existence of the injury could be perceived. We had an opportunity of seeing how rapidly the infection completes the destruction of the root—or rather how quickly this kind of rot devours all that is sound and good in the Potato. In the course of three or four hours, and even after cutting away the black bad heart, the two divisions of the root showed signs of decomposition. They first assumed a sable circular tinge, and the colour by degrees grew deep."

The specimen in our possession appears to have been boiled, and the black central part breaks with a shining fracture just like dry glue. The cells of which this is composed have their contents compacted into a solid lump traversed in every direction with delicate anastomosing mycelium and turning intensely blue when treated with a solution of chloride of zinc, iodide of potassium, and iodine. We have had no further opportunity of studying this particular form of the disease, which happily does not seem to be common, but a Potato just received from a correspondent who signs himself "H. A." has recalled the matter to our recollection in consequence of the perfect identity of the appearance presented under the microscope by the cells. In this case, however, instead of the centre being the point of attack, it is the cells immediately beneath the cuticle, whether containing in a sound state more or less fecula, which are affected to the depth of from one to two lines, insomuch that the sound part within looks as if it were inclosed in a case of Gutta Percha. In fact, so different did it look from a Potato, that a person to whom the specimen was shown pronounced it at a first glance to be one of those Truffles known by the name of Elaphomyces, which are sold for their supposed medical properties in Covent Garden Market, under the name of Lycoperdon Nuts. This coat was exceedingly tough and coriaceous, and was succeeded by a stratum of cells, exhibiting the well-known appearance of the dry rot (*trockenfäule*) beyond which the vascular bundles were gorged with dark matter, while the central part or medulla, which at first seemed healthy, a short time after it was divided exhibited in parts a sable tinge, like that described in the *Cork Reporter*. The cells of which the dense coat was composed were gorged with a firm mass, either completely changed or still exhibiting traces of starch granules, traversed with fungoid threads, and becoming intensely blue under iodine, while their walls when treated with iodine and sulphuric acid exhibited the reaction of cellulose, though the cell walls of the adjacent cuticular layer remained yellow. The appearance of the cells with their contents, which separated easily from the walls like so many cores in the two cases, though the symptoms were in some respects so different, was so exactly the same that the respective slices could not be distinguished under the microscope. The condition of the walls in the tough coat was just what SCHACHT describes as distinguishing the wet rot from the dry rot, nor can there be any reasonable doubt that the affection is the same, notwithstanding its dry condition, which has been induced probably by the disease affecting the external coat and not the central pith.

In one or two spots the Fungus had gained the mastery, and had burst through the cuticle in white patches producing perfect fruit. In this case the tough texture of the coat and its colour were slightly modified. Within 24 hours of the division of the specimen, tufts of mould were developed both from the dark tough tissues, its modified form, and that immediately beyond towards the centre. The Fungus on examination proved to be *Fusisporium Solani*, the species which constantly accompanied the dry rot described by MARTIUS. SCHACHT in his treatise lately published asserts that the dry and wet rot are merely modifications of one and the same disease. Certain it is that they frequently exist together in the same tuber, and in the present case a further modification, hitherto as it should seem unnoticed, has taken place. It may be worthy of remark in conclusion that the mycelium and perfect Fungi did not exhibit the reaction described by SCHACHT. Under sulphuric acid, or sulphuric acid with sugar, the colour instead of becoming a decided pink was still unaltered. A little experience however in the use of the ordinary chemical tests with vegetable structures does not lead one to expect uniformly the same results. Slight differences either in the condition of the specimen or in the proportion or strength of the tests used, will sometimes induce different results, which is the more mortifying in the case of mycelium within cells, as it is very easy to mistake for it folds in the cell walls, or sometimes the sections of the walls themselves. *M.J.B.*

OUR clever friend the Scottish Gardener who, as we formerly stated, has been so earnestly propping up the doctrine of DEGENERACY IN THE RACES OF CULTIVATED TREES, has closed his case, having held an untenable position with skill and resolution worthy of TODTLEBEN himself. Like that great engineer he knows the value of smokeballs and fougasses, sorties and false attacks, and when he can no longer stand to his guns he screens them

by a mantlet of the old ropes laid up in his dialectical arsenal. We have studied his papers most carefully, we have endeavoured to understand his arguments, we have given to the evidence he produces all the weight it will bear, and we can declare conscientiously that the result in our mind is entirely to confirm the opinion we have ventured to express that the whole theory of degeneracy is a mistake. We are not convinced to the contrary by even so great a discovery as that Strasburgh geese die "because their throats are cut."

Such being the case our readers will probably thank us for declining to continue an unprofitable discussion. Logicians may be amused by our Scottish friend's dexterity; but physiologists will scarcely become his disciples. With a remark or two then upon some miscellaneous points we dismiss the question, at least until some new champion of degeneracy, armed with practical knowledge, shall arise.

The Scottish Gardener now says, or seems to say, that disease and degeneracy are words having the same meaning. Undoubtedly degeneracy may be held to be a sort of disease; as when we see some imperial and royal races of mankind becoming impotent or idiotic in consequence of perpetual intermarriages. But to our mind a man is not degenerating when he has the gout, or his family because a child happens to be afflicted with cancer, or to be born blind, or to be scrofulous. To mix up such totally different matters is to render argument impossible. We may as well be told that all extinction of races is the result of degeneracy, and that the Dodo has vanished from New Zealand because it degenerated, not because the natives ate it up. Why the Irish elk ceased to exist we do not know, but it will hardly be contended that the animal was the victim of degeneracy. That a race indeed may disappear in consequence of hereditary disease, *intensified in each succeeding generation*, is consistent with facts notorious to everybody. And we cannot but wonder how any one should fail to see how the loss of certain kinds of fruit trees is perfectly explicable upon that principle.

The Ribston Pippin Apple has been taken as a proof (!) of the degeneracy in discussion. Let us see what the ascertained facts are with respect to that well known variety. The last number of the *Florist* tells its story. A seedling was raised about 1707, in the bad climate of Yorkshire. Its parent was some southern variety unknown. The seedling was turned out into the Park, and there it remained neglected till 1835, when it died at the age of 128 years. To what kind of neglect it had been exposed was sufficiently shown by its ruin, of which an authentic figure was given in the *Gardeners' Chronicle* for 1844, p. 812, and which we reproduce. From this tree, tender from the first, and thus treated, "in a very cold exposed situation," as Mr. ABBOTT, the present gardener at Ribston Park, now assures us, fruit after a time was gathered, and forthwith the excellence of its quality led to the tree being propagated. Now the tree could hardly have been less than ten years old when it began to bear, and probably was twice that age. During those years its constitution must have suffered considerably from bad climate, and it is not too much to assume that the seeds of disease were already sown in its system, when its propagation commenced. This disease was unchecked; on the contrary, our seasons must have constantly increased it, till at last healthy trees could only be found in a few warm sheltered places. This at least we can say, from our personal knowledge, that the trees of this variety in the county of Norfolk in the year 1815 although bearing plenty of fruit, especially when young, were universally and hopelessly cankered. The disease was intensified. But like the Golden Pippin, another victim of bad climate, even here the disease will disappear under favourable circumstances. Mr. ABBOTT informs the readers of the *Florist* that they now have *upon the walls* at Ribston trees which "would make the writers on the deterioration of that fruit quake for their darling theory were they to see them in all their luxuriant health and vigour."

In a word bad seasons, bad stocks, bad cultivation induce disease. Disease is propagated by grafting, &c., augments *cæteris paribus* with time, and is propagated in an exaggerated form. Exaggerated disease, circumstances still remaining as before, becomes virulent. Virulent disease ends in death. But *cæteris imparibus*, circumstances having changed, disease is mitigated, disappears, and the plant returns to its original health. Such is the history of the Ribston Pippin, but is not degeneracy.

The Scottish Gardener thinks that if this decay is true of the Ribston Pippin, it must be true of all other Apples, and he cannot understand how any, indeed a larger, portion "can have effected their passage unscathed." He surely must have forgotten that some kinds are tender and others hardy. The Skye terrier is happy where the Italian greyhound perishes; Apples and Pears differ among themselves in the same manner.

In concluding these remarks we cannot pass by unnoticed some statements made by our Scottish friend, which somewhat shake our faith in his practical knowledge. He says that "the only real difference between annual or biennial plants and shrubs or trees is that in the latter there is woody fibre," and he asks triumphantly whether "woody fibre is a material out of which to construct an eternity." Not that we know of. As to his novel distinction between biennials and trees, which is all his own, the ploughboy who has ever tried to bite a Turnip or Parsnip after it has run to seed must be rather surprised at our friend's statement, that is to say, if he happens to know what woody fibre is.

The Scottish Gardener further says that Purple Beeches when multiplied by grafting are notoriously deficient in vigour. Had he said that all Purple Beeches are deficient in vigour he would have astonished his readers. Yet, since all purple Beeches are propagated by grafting, to say the one thing is to say the other.

He very much objects to our assertion that "an orchard is but a wood under another name," seeing no doubt that to admit that proposition would be to abandon the ground he has so long and stoutly defended. He must feel that it is his Malakoff. And nothing is more true. We did not say that all orchards are woods, or that all woods are orchards, nor did we assert, as he seems to think, that all gardens are woods. What we did say is, that Oaks and other forest trees cultivated in a wood are perfectly analogous to fruit trees cultivated in an orchard. We have no more right to impute degeneracy to the one than to the other. Whenever Mr. BROWN assures us that the Oaks and Elms and Ash trees under his care are afflicted by degeneracy, we shall think it necessary to reconsider the evidence about Apple trees—but not till then.

"And now," to borrow the words of our northern friend, "we trust we are done with the subject as a controversy. We beg to thank him for his courtesy to us in the course of it, and we shall be very sorry if it shall appear that our less practised pen has not been guided by the same spirit."

PTERIS AQUILINA AN ESCULENT.

DR. HOOKER having incidentally suggested some time since that the British Pteris aquilina and the New Zealand P. esculenta were varieties of the same species, and the Rev. M. J. Berkeley having shown that the rhizome of the former was also esculent, so far as not to disagree with the latter in that respect, I have been induced to carry the inquiry one step further, viz., to endeavour to ascertain whether or no the young fronds of the British Fern, when in a very early stage of growth, might not prove useful as an esculent vegetable, in the same way as the young shoots of Asparagus or of other vegetables, when blanched.

This question may deserve especial attention, because the properties of Ferns (and they appear, from the accounts given of their medical uses, all to possess more or less the same qualities) are tonic, antibilious, and decidedly deobstruent; and therefore a Fern, if esculent, might be expected to be very serviceable as a change of diet to those labouring under dyspepsia and its consequences. And as we have no Fern, or other allied plants, in use as articles of food, an esculent vegetable taken from a class of plants so widely different from all those at present cultivated, might be expected to be not without its advantages.

The result of the inquiry, which has now extended to six weeks, is entirely in the affirmative, as far as that the young fronds, when completely blanched, are an agreeable esculent vegetable, parcels of them having been sent as a new unnamed vegetable to parties who have, all of them, in return sent written acknowledgments to that effect, stating also that it was equal or superior to others named by them.

The young fronds should be cut as soon as they first begin to appear at the surface of the ground, and as low down as may be; and when quite blanched, boiled for one hour; but if tinged with green, for an hour and a quarter, or an hour and a half, the leafy part in the latter instance being rejected; a quantity of salt being added to the water, sufficient to give the vegetable a slightly saline flavour.

They however retain, when at all green, a somewhat harsh herbaceous flavour, not unlike that of tea, which requires some such sauces as are used with Asparagus, to give them a palatable flavour. But this may be expected to disappear if the plant is cultivated, or even partially cultivated, in its native place of growth, as in some fronds which had become completely blanched through sand having been thrown over a mass of the plant, it was scarcely or not at all perceptible, although they had become 6 or 8 inches in height. The vegetable in this condition was considered preferable to garden Spinach, and also to have a more beneficial effect on the digestive organs. *Benjamin Clarke in Hooker's Journal of Botany.*

VEGETABLE PATHOLOGY.—No. CLXV.

272.* APOSTAXIS (*Discharge of Resinous fluids.*) A short account was given in ¶ 272 of an ulcered state of the trunks of Firs, accompanied by a large discharge of resin, arising from their growing in soil with an impervious bottom, so that they were alternately waterlogged and perfectly dry, without any possibility of sending out their roots in search of moisture or nutriment. We have now before us excellent specimens of a similar affection, by which several Larch plantations about Lochgilphead are attacked, but arising evidently from some other cause, for the soil in which the several plantations are situated is of very different characters. Some are on a brown loam with a subsoil of gravel, some on sandy peat above coarse gravel, others on good loamy soil, and some on the hills on schistose slate. All are affected equally, and there is no evidence to show that the subsoil is in the form of concrete or conglomerate, though this is sometimes the case where it is not suspected from the extreme rareness of gravel.* The evil, as it should seem from the specimens at my command, commenced about seven years ago, including the present season, but as the truncheons are rather short I cannot speak with strict accuracy. I believe however that in all those before me the disease commenced at the same time. The age indeed of the trunks in which it occurs is not always the same; in none, however, does the growth seem to have exceeded ten years, at least at that point where the ulcers occur. The base of these is occupied by a patch of dead bark but little distorted, which adheres closely to the wood which is much discoloured. New wood has been developed everywhere except upon the dead shield, and sometimes the new bark which has formed round it after three or four years has again perished. The disc, which is some inches broad, is covered with rosin, which in turn is clothed more or less completely with a black parasitic fungus, *Sporidesmium Lepraria*. The trees, those at least which have not died under the first attacks of the disease, are evidently growing very fast as the new annual rings are of considerable breadth, and unless some fresh attack takes place there is great probability that the sores will eventually be covered with a healthy growth and the evil will be no longer visible. In one case only there is a thick swelling all round the sore, the tissue in the other parts being scantily developed, so that the truncheon looks like the union of a graft and scion, in which there has been an unnatural development at the point of junction. As

* I can myself point out instances where there is a very thin stratum of concrete, preventing the passage of any moisture either from above or from beneath, where the presence of gravel is not suspected by cultivators from its great rarity in the district. This is a circumstance which is sometimes of material consequence in planting.

these plantations were at one time greatly infested by the woolly aphis, which destroyed many of the trees entirely, there is great reason to believe that all these sores are due to that cause only, which is strengthened by their origin dating from the same year, and by the fact that the soil is so different in the different plantations, that it can scarcely be in fault. It may be hoped therefore since the Aphis has done its worst that the plantations may recover their health. It is most unfortunate for the planter that the Larch, which, if well grown, is one of the most useful of trees, is so extremely liable to be diseased. The disease called pump-rot, from its causing the trunks to be hollowed out like pump tubes, arises probably in almost every case from drought succeeding excessive moisture. This kills the roots, which are then attacked by fungi, and the infection is carried rapidly into the middle of the trunk, which does not however prevent the development of new rings of growth, so that when felled a promising tree may present nothing save a hollow cylinder. The science of planting has not at present been sufficiently cultivated as regards the origin of those diseases to which trees are subject, but the attention which has for the last 12 years been paid to Vegetable Pathology is already begining to be repaid, and we may hope in consequence for a new era in cultivation, and more especially from the fact that the importance of the selection of healthy seed of all kinds and the wisdom of inspecting the plantations from whence plants are derived are daily attracting more notice. *M. J. B.*

Home Correspondence.

The Rose Isabella Gray.—Permit me to add a little to the history of this interesting Rose. It was introduced by me about three years ago, through my friend and correspondent Mr. Buist, one of the first practical horticulturists in the United States. The first consignment went to the bottom of the ocean; a second quickly followed, and was attended with better success. Last year I sent it to Mr. Rivers, but without recommending it, as it had not bloomed here, and hundreds were sent to other customers who were disposed to risk the issue. It appears to be hardy in constitution and of free growth (for description see Rose Catalogue, 1856-57, p. 19). On reading the report that there were two or three Miss Grays in circulation, I wrote to Mr. Buist, whose reply is now before me—"There is but one Miss Gray, and that is the one sent to you; you may call it Isabella Gray, Miss Gray, or Miss Isabella Gray, they are one and the same." Those who purchased it here last year may therefore rely on the correctness of the variety. *William Paul, Nurseries, Cheshunt, Herts.*

Tree Poisoning.—Be so kind as give me your advice on the following supposed case of tree poisoning. Our young trees being eaten up by roes and rabbits, I applied to the hard wooded a mixture of train oil and sulphur, which was quite successful and innocent. The same application to the Deodar Cedars and Austrian Pines seems to have killed nearly the whole of them. Is there any difference in the constitution of the different trees which would render this probable? *F.*

Acacia dealbata.—There has recently been in flower at Combe Royal, near Kingsbridge, South Devon, the seat of John Luscombe, Esq., F.H.S., one of the largest specimens of this beautiful Australian tree that can perhaps be found in the open air in the United Kingdom. It measured, at an early period of the spring, 42 feet in height, with a proportionate spread of branches, and its trunk is 4 feet in circumference. During the latter part of April and the beginning of May its flowers rendered it a mass of pale yellow. *A Devonian.*

New Kinds of Fish.—It has often struck me as singular that although new varieties of birds and animals are constantly introduced into England, our list of fishes should continue nearly if not quite the same as it has been for many years. In Sir Humphry Davy's Salmonia, third edition, 1832, the following observations occur:—"At Lintz, on the Danube, I could have given you a fish dinner of a different description, which you might have liked as a variety—the four kinds of perch, the spiegel carpfen, and the silurus glanis; all good fish, and which I am sorry we have not in England, where I doubt not they might be easily naturalised, and they would form an admirable addition to the table in inland counties. Since England has become Protestant, the cultivation of fresh-water fish has been much neglected. The burbot, or lotte, which already exists in some of the streams tributary to the Trent, and which is a most admirable fish, might be diffused without much difficulty, and nothing could be more easy than to naturalise the spiegel carpfen and silurus; and I see no reason why the perca, lucioperca, and zingel should not succeed in some of our clear lakes and ponds, which abound in coarse fish. The new Zoological Society will, I hope, attempt something of this kind," &c. &c. Now in Maunder's Natural History my attention was drawn to two of these varieties by the plates, and likewise to the golden tench, which would do admirably for pond or aquaria; but first the silurus glanis, which is found in the lakes of Switzerland, the Danube, the Wolga, and the Elbe, and other parts of Asia and Africa. It grows sometimes to the length of 6 or 8 feet, and to the weight of 300 lbs. The head broad and flat, the body thick and of lengthened form, the abdomen thick and short. Mr. Yarrell observes the silurus is represented as sluggish in its habits, a slow swimmer, and hides in the mud. The ova when deposited are green, and the young are excluded between the 16th and 19th days. The flesh of the silurus is white, fat, and agreeable to many persons as food, particularly the part near the tail, but on account of its being luscious, soft, and difficult to digest it is not recommended to those who have weak stomachs. It is often salted and the fat used as lard. The burbot is very highly esteemed for its superior delicacy, much resembles the eel, except that it is shorter and thicker. The head is broad and flat; eyes small and lateral; mouth wide, jaws armed with sharp teeth, and lower jaw with a considerable beard. The colour of the burbot varies, some being dusky, others dull green. It is found in several of the English rivers and lakes of the northern countries, said to arrive at its greatest perfection in the lake of Geneva, where it sometimes weighs 6 lbs., though in this country it seldom exceeds 2 lbs. or 3 lbs. And now for the tench. A most beautiful variety called the golden tench is found in some parts of Germany, differing from the common tench in being of the richest orange-yellow variegated with small black spots, while the fins are thin, transparent, and of a bright red colour; said to be of slow growth, to live on worms, water insects, &c., delighted with warmth, and are observed to swim in small shoals near the surface. How readily in these days of steamer and rail may any house in London in this particular line get consignments of all these fish and advertise them for sale, with a description of their habits and the particular localities for which each species is suitable. There cannot be the slightest doubt but that the owners of rivers, lakes, meres, &c., would gladly introduce the different varieties, thereby adding much to our sport and tables both. If the fish are not readily to be got in sufficient quantity their spawn may, and I have read somewhere that in many parts of India in the dry season large pools and lakes are evaporated, leaving nothing but hard mud. However, on return of the rains fish are observed in these very places, and it is supposed that the spawn remains dormant during the season of heat, and is brought to life by the renewed moisture. Now if it will go through so rough an ordeal as this, there can be no doubt it would well bear the transit to England from most parts of Europe without injury. It is generally believed that the greyling, that delicate fish, was introduced by the monks; if so, all those mentioned above would stand a much better chance as being more hardy. I am particularly obliged to "E. W. S." for his information regarding Pyrus coronaria; it is like recovering an old friend; and likewise to the *Gardeners' Chronicle* for stating that the trees can be so readily got. *F. N., Ludlow.*

Connexion of Thunder and Lightning with Lunar Changes.—In a late Number I ventured to assert that the register of the weather at Chiswick bore me out in saying that both frost, and thunder and lightning, are more common at the changes, or rather at some of the changes, of the moon than at the octants. The accompanying table will show at a glance what is the number of days on which thunder or lightning has been observed at Chiswick during the last seven years. The wide columns represent five days; the narrow ones 2, 3, or 4, as the case may be: the average being 2½, or nearly so:—

	☾	⅕	●	⅕	☽	⅕	○	⅕
1850	1		3	1	4		3	1
1851	1	1	1			2	1	1
1852	4	2	4	1	3	1		1
1853	4	1	4		2			
1854			4	1	3	1		
1855	2	1	3	1	2	1		
1856		1			2	1	5	
Total ..	12	6	19	4	16	6	9	3

In this table it will be noticed that there are two maximums—at new moon, and the first quarter. Of the 19 days on which thunder or lightning was observed about the time of new moon, 14 occurred within a day of the change. And of the 16 days on which storms were registered at the first quarter, no fewer than 11 occurred on the first or second day of the period, being the days nearest the new moon. At the last quarter the maximum is on the last day of the period, also apparently pointing to new moon. No thunder or lightning is recorded as occurring at the period of full moon during the years 1852, '3, '4, or '5, although the number of days on which the phenomenon was observed at new moon was about four in each of those years. In 1856 this was exactly reversed. Can the disappearance of the solar spots have had anything to do with it? Their return this year has been accompanied with renewed electric activity at the changes. The reader will observe that if the sum of the octant columns is compared with those of the 5-day periods, the former must be multiplied by 2. *J. Park Harrison, Ewhurst, Surrey.*

Growth of Conifers.—Subjoined is the height and breadth of an Abies Pinsapo growing in the Pinetum belonging to Mark Milbank, Esq., at Thorp Perrow, in the north of Yorkshire. This plant, which is feathered to the ground, is 12 feet high and over 10 feet broad to last year's growth. In the same grounds is growing a beautiful specimen of Abies Nordmanniana, nearly 11 feet high and 9 feet broad. This plant was brought from the garden of Prince Woronzow, in the Crimea, by the late Lord Alvanley's brother, and given to Lady Augusta Millbank for the Pinetum here. The appearance of the young growth is not unlike that of the Norfolk Island Pine, perfectly horizontal, but the branches are closer and the tree very compact. The severe weather of the last two winters has killed in the Pinetum here Pinus Ayacahuite, 16 ft. high; Pinus patula, 14 ft. high; and P. Sabiniana, 16 ft. high. *Thorp Perrow.*—In the spring of 1839 Mr. Barron, of Elvaston, raised from seed above 40 plants of A. Pinsapo; these plants have never been in pots. I mention this circumstance because I am sure that scarcely a Coniferous plant that has been in a pot when young ever grows afterwards as it should do. The soil in which these trees are now growing is not of superior quality, and yet they much exceed the sizes given in your columns of Saturday last. I send you the dimensions of one, many of them are about the same size, and all of them perfect specimens; height 16 feet 8 inches, diameter of branches 14 feet 6 inches. *James Phin.*—I have a specimen of Cupressus Lambertiana here planted in 1849 (then about 2 feet high from the nursery) now measuring 12 feet in height and 19 feet in breadth. About 3 years ago its leader was unfortunately cut off, since which it has made nothing in height, but it forms a most handsome tree notwithstanding. I have measured a shoot of a young plant of Pinus californica, about 2 or 3 years old, which it has made since April last, and find it 2 feet 4 inches. *N. J. Raven, Thornham, Lynn.*—The following are the dimensions of A. Pinsapo and Cupressus macrocarpa at Gunnersbury Park, the seat of Baron Rothschild. Both were transplanted 2 years ago last October; macrocarpa measures 26 feet in height and 18 feet through, A. Pinsapo 13 feet 9 inches in height and 11 feet 3 inches through. Both are perfect specimens, well feathered to the ground. We have two plants of Wellingtonia gigantea, which measure 3 feet 8 inches through and about the same in height. These are still in pots. *W. Forsyth.*

Violets bear seed-pods in bad situations where they cannot produce flowers. No doubt this was the case with your correspondent's plants, which must either have been unsuitably placed, badly managed, or potted at a wrong season. I find the single Russian either blooming or seeding the whole year round. As soon as the weather begins to get cool, about the end of September, this Violet commences blooming, and continues until the end of the following March, at which time it commences bearing seed-pods such as your correspondent names, until September. I never saw a perfect Violet bloom bear a seed-pod. The latter springs from the plant just as the blooms do, only they are void of petals. Even the semi-double varieties produce a sort of blighted seed-pod, containing perhaps two or three seeds. I don't think that Violet seed gathered and dried ever comes to much after sowing; it appears to be requisite for it to be sown immediately or buried in sand, or earth, &c. I am certain that Violet seed will only come up at one time of the year, and that is in March and April, or perhaps the beginning of May; and the seed, I think, would lay in the ground and not perish for an age, provided it was not brought to the surface. *Robert Shackell, Bath.*

Agave americana.—There is now coming into bloom at Cliff House, Salcombe, near Kingsbridge, South Devon, the residence of Mrs. Prideaux, one of the most magnificent specimens of this plant that has ever blossomed in this favoured locality. It is growing a very few feet above high water mark, on an esplanade formed about 23 years ago, the plant being then 6 or 7 years old. The saline influence of the sea appears to have had a peculiarly beneficial effect, as the leaves, which are about 9 feet high, embrace a circumference of 46 feet. The flower stem has already attained a height of 16 feet, and as no lateral shoots from which the blossoms depend have yet been thrown out, it is considered that the altitude when fully developed will exceed those that have already rendered Salcombe so famous for the growth of these peculiar plants. It is asserted by a resident at Salcombe, who has travelled much, that in its native clime he has never seen a finer specimen than the Salcombe Aloe of 1857. *A Devonian.*

Strawberry Supports.—I beg to send you a few of a simple contrivance, which may be named Strawberry supports. Those sent are made of No. 12 galvanised wire, strong enough for that size. The wire costs 4*d.* per lb., and 3 lbs. measure 100 feet, which would make upwards of 20 supporters (say 20, which will be giving 5 feet of wire to each), costing 1*s.* At this rate 30 lbs. costing 10*s.*, and measuring 1000 feet, would be enough for 200, the number I have in use at present. The tools wanted to make them are a saw file or cold chisel to cut the wire, a pair of pliers to turn the loops, and a hammer to straighten the legs. Those forwarded were taken promiscuously out of a lot that was made quickly; they may be made of any size; for those sent the length of wire to form the ring is about 18 inches, and for each of the three legs 13 inches (4 feet 9 inches). A small loop is made at one end of the wire for the legs taking up half-an-inch of its length, they are then straightened if necessary; the wire for the ring is then put through these three loops and two loops turned on it—the supporter is then made; the loops on the legs must be made loose enough to slip easily round the ring. The garden men can make them when the weather will not permit work to be done out of doors; one can be made in three or four minutes. In putting them to the Strawberries hold the ring horizontally in both hands, place the legs round it to hang in a triangular form, push two of them a little way into the soil, then the third; get the bunches put within the ring, at the same time pushing the legs a sufficient distance down, so that the ring may be just under the greater part of the fruit. When not in use they may be tied up in fifties and hung out of the way till wanted again. They require no paint, and I

should think would never wear out. When they get bent they can readily be straightened. I think they are a desideratum for pots of Strawberries, as they can be moved about when ripe without injury, and the leaves are not displaced in any way; they have likewise qualities superior to most others for the open ground; of course there is no straw required; I merely spread a little short Grass about the plants to prevent grit dashing up by heavy rains. The fruit dries sooner after wet, and I believe colours better, and is so far improved in flavour by being more exposed to sun and air (a few leaves are taken into the ring with fruit); the latter is more out of the way of slugs, which I think do not like to touch the wire. It frequently happens that when gathering the fruit the stalks get broken or injured so that the berries on them are worthless, but when the ring is round them they have no occasion to be moved as the fruit hangs in sight. I have also got a few made upon the same principle to support masses of herbaceous plants, such as Delphiniums, Phloxes, Campanulas, &c.; they are made of much stronger wire, 9, 12, and 15 inches in diameter, with ¼-inch iron legs 3 and 4 feet long; all painted green. —*George Thompson, Tadcaster.* [These are rings of wire with three legs or supports of the same material which move freely round them, and look very much like skewers.]

Is the Barbarossa Grape a good bearer?—I am induced to ask this question because I have not yet fruited it. In October 1854 I was planting a house with Black Hamburghs, and from the high character given the Barbarossa a strong plant of it was purchased and planted in the same border with the Hamburghs. These Vines reached the top of the house in the following year, 1855; in 1856 they each ripened about 12 bunches, excepting the Barbarossa, which grew well, but showed no signs of fruit. The Black Hamburghs in this house have now a fine crop upon them just swelling, but there is none upon the Barbarossa. In April, 1856, we were planting three Vineries, and I wanted one for very late fruit; I planted seven Barbarossa and four Black Hamburghs, &c. One, however, that should have been Barbarossa is some other sort, with 13 large bunches upon it; the Black Hamburghs have 14 bunches upon each of them, all in the same house, and planted in the same border. I may add that these Vines came from one of our most celebrated Grape growers. I also find that a grower for sale a few miles from here is cutting the Barbarossas out of his house because they do not bear. In looking over some gardens last autumn I saw this variety growing with a few monster bunches upon it, and I was assured that it was a first-rate Grape; but I did not hear anything about its bearing qualities. I should, therefore, like to know how it does with others before I root my plants up. *John Morris, Gardener to T. White, Esq., Manor House, Wethersfield, Essex.*

The Xanthorhœas.—It has often been a matter of surprise to me that these beautiful, interesting, and extraordinary plants are so rarely seen in English gardens, for, from the latitudes and situations in which most of them occur (for there are many varieties from giant to pigmy) I presume they are merely greenhouse plants of the easiest culture, and admirably adapted for the decoration of the conservatory in winter, and the lawn or terrace in summer. For these purposes few plants would yield so striking and foreign an effect by their large tufts of foliage on a pillar-like stem, surmounted by a tall, erect scape, so rigid as to be used by the Aborigines for spear-handles. They are unlike anything else, and peculiar, I believe, to Australia; all observing travellers in that country, whether botanists or merely admirers of plants, or neither, speak of them; indeed no Australian landscape is complete without its Xanthorhœa. We have now Gynerium argenteum and Arundinaria falcata "plenty as Blackberries," both beautiful plants when well cultivated; these are now seen everywhere, I hope soon to see the Xanthorhœas as general. I imagine it would prove remunerative to those nurserymen having business communications in those colonies, to import seeds or plants of some or all the varieties. *James Moly, Hawkchurch, near Axminster, Devon.*

Orange of the Auckland Islands.—In a familiar account of the Auckland Islands published in the *Times* in the year 1850, and of which I made a note at the time, Mr. Enderby, the projector of the southern whale fishery, mentions "a beautiful tree similar to a magnificent Orange, supposed to be unknown in England." Has this plant ever been introduced? The climate of the Auckland Islands so nearly resembles our own that it would doubtless be quite hardy. Like most of the vegetation of the Australian islands, the tree is probably evergreen, and from the description I infer that it would be a valuable acquisition. *R. W. C.* [The plant in question is no doubt Metrosideros umbellata, which Dr. Hooker describes as a tree 20 to 40 feet high, with flowers white at first but becoming crimson afterwards. It has not been introduced that we know of, but would be valuable if we could get it. It must, however, be observed, that although it may look like an Orange tree, it has no such fruit as the Orange, but a hard dry seed-vessel.]

Sikkim Rhododendrons.—I see by the *Chronicle* that many of the Sikkim Rhododendrons have bloomed this year, and it is gratifying to find that they are true to the character and delineation given by Dr. Hooker. R. Maddeni has just gone out of flower in my conservatory, and is indeed an exquisite thing, finer even than Sir W. Hooker's beautiful figure of it; it is also deliciously fragrant. What a superior species this will be to breed from, as the late period of its blooming will render it invaluable in the hands of the hybridist; fancy the huge, pure white, fleshy character of its flowers united to the hardy constitution of maximum album, or the fine varieties of that species. This is, in my opinion, superior to R. Edgworthi, with finer foliage, but whether it will prove more hardy time alone will show; Edgworthi will not succeed with me in the open ground, neither have I heard of its thriving without protection, except in Jersey, where, among the wondrous number of acclimatised exotics in Mr. Curtis's beautiful garden at Rozel, it flourishes with the strength of its congeners. R. ciliatum is hardy everywhere, but the early period of its flowering makes it a valuable conservatory plant. This species is not like the print, but is far superior, with a delicate perfume. On the other hand my plants of R. glaucum have proved inferior to the specimen figured. I am induced to ask if some of your readers can recommend any stove plants that will decorate the conservatory at this time of the year without sustaining injury from the lower temperature to which they are subjected. Among the few I cultivate in a hot pit I find Allamanda nereifolia and the single crimson Hibiscus available for this purpose, and a large-leaved plant from Chiswick, brilliant orange Compositæ, Mr. Skinner, seems perfectly at home—what is its name? [We do not recognise the plant.] Tecoma velutina has just been in flower, and is a good thing; the individual flowers are of fair size, of a bright golden yellow, and borne in a cluster of ten or twelve. *A Devonian.*

Manetti Rose Stock.—I entirely agree with most of Mr. Rivers' remarks on the excellence and peculiarities of this stock. But I as entirely disagree with him when he would confine what he designates the "Folkestone system of yearly removal" of Roses to such as are planted on light sandy soils. And how the father of root pruning can consistently advocate, or even sanction, any deviation from a principle so beneficial in its results, and so universal in its application, I am at a loss to understand. He may contend that replanting is carrying root pruning to extremes. But I shall show presently that this is by far the most efficient, and (where plants stand as close as Roses generally do) most economical method of performing that operation. That Mr. Rivers has Pillar Roses on this stock that have been left alone for years, and still of the most vigorous growth, I can verify; but this fact does not in the least affect the question, as these may be considered purely natural objects, and as such best left to themselves. To them the knife is seldom applied, and the roots and branches maintain their natural proportions. But for dwarf Roses to furnish beds or clumps, where the plants are objects of the highest artificial culture, the knife is most unsparingly applied, all equilibrium between the roots and branches entirely destroyed, and the necessity of its restoration renders root pruning indispensable. I think it will be granted that the treatment demanded in these cases must be widely different and the results of the different systems will be best understood by examining examples of each in autumn. In the bed or group of unremoved or stationary Roses, if at all in decent health, will be found plants producing strong, rampant, unsightly, ill-ripened shoots that have (along with an admixture of suckers) ever since the first bloom in June disfigured the groups, robbing the shoots destined to produce next season's bloom, and reducing them to so much worthless spray. Now Mr. Rivers and the advocates of the STATIONARY system may admire the shoots described as so many specimens of fine luxuriant growth—to me they can never be aught save so many unmistakable proofs of neglected culture. Compare this with a group that has been replanted annually, and the contrast is remarkable; here we find no such unprofitable expenditure of the energies of the plant as the production of the basket rods described; on the contrary, all has tended to perfect a mass of clean, healthy, compact, well-ripened shoots—a state of things indispensable to produce a profusion of well formed blossoms on any class of plants whatever. And after all—all this is attained by less trouble and expense than is generally bestowed on the stationary system. In beds or clumps (and to these my culture has been principally directed) what can be more expeditious or simple than to begin at an end or corner, turn over the soil 2 or 3 feet, carefully remove the Roses with the roots as entire as possible, manure the thoroughly broken up soil, remove all appearance of suckers or buds from the stock (and after the second year on the Manetti, as Mr. Rivers has observed, these will be few indeed); give the roots and branches what pruning may be required, plant deep, make what alteration in the disposition of your plants the habit or colour may suggest, and an operation upon which so much depends is complete. I need hardly add that the operator who is anxious to succeed will complete the operation as rapidly as doing it thoroughly will permit, and those who damage the plants by exposure through unnecessary delay have no right to expect, nor do they deserve success. *J. M., Folkestone.*

Blue Hydrangeas.—One says soil strongly impregnated with iron will produce these; another says steel filings will answer the same purpose; but from observation I think that neither is to be relied on. In the year 1849 I planted one in a dry corner of my garden which, until 1854, bore pink flowers; the following year they were tinged with blue, and last year they were quite blue. This year the plant has not borne flowers, in consequence of its not being sheltered last winter. The soil is a common garden soil, rather light and shallow, and on a hard gravel, about 12 inches thick; and beneath that is a poor sort of sand, which I think the roots have penetrated. The argument for soil impregnated with iron does not hold good, for in the neighbourhood of Dalton in Furness and Ulverston, where the earth is quite red and underneath full of iron ore, I do not observe one blue Hydrangea, although numbers are grown especially about Dalton. Now in cottage windows near Heath growing moors, quite away from iron ore, I have frequently observed them. In a window in this town I noticed one, and upon inquiring where the soil was from, I found that it was from some high ground adjoining a moor near them. In a garden in the front of a farm house about 20 miles from here there is a blue one, and I judge from a marl pit which is near that the roots must have struck into the marl; but this season I will examine and compare it with my own. *A Constant Reader.*

——Having been accustomed all my life to see the blue and pink Hydrangeas growing side by side without any reference to soil or culture in the island of Guernsey, I am not a little amused at the various letters which appear almost weekly in your columns respecting this beautiful shrub, all your correspondents being anxious to ascertain what method they shall adopt in order to turn their plants blue. In Guernsey, as I have just stated, I have repeatedly seen the blue and pink Hydrangeas growing together in the same border indiscriminately, no attention whatever being bestowed on their culture beyond their being pruned to keep them within bounds. Some people there, when I have asked if they could account for the difference in colour, have told me that the blue flowers turn pink as they fade; but this I do not believe. Others say the blue grow in the shade, but this, too, is only a fancy. The common name for the Hydrangea in Guernsey is Botany Bay. Why this name has been given I have never been able to ascertain. I am told that in the south of Devon the pink Hydrangea is seldom seen, but I do not know whether this refers to the whole of the county, my informant having resided on the south coast only. To the admirers of the Hydrangea I would recommend a visit to Guernsey, for its beauty and luxuriance there are perhaps unequalled. It is to be seen in every cottage garden, and attains a large size, particularly in favourable situations. *C. M. F.*

Large Oaks.—Having seen in your columns that some artist is about to sketch all the very large Oaks in England, I take the liberty of informing you that there is a very fine specimen in Holton Park, Oxon, which is known to be 800 or 1000 years old. Any information can be given respecting it if needed. *C. M. F.* [Our readers would certainly like to have the information thus hinted at.]

Weight of Beech Timber.—Not being able to reconcile the statements of Loudon and others with my own experience and that of men in my employ as to the weight of different kinds of timber, more particularly Beech, the discrepancy being great, I shall be glad to elicit any information you may be able to afford. Loudon, in his "Arboretum," states the weight of Beech to be, when green, 65 lbs. 13 oz. per cubic foot, and when quite dry 50 lbs. 3 oz. I find that the weight of the Beech growing on the Chiltern Hills in a green state varies from 90 lbs. to 110 lbs., the tops of the trees being lighter than the butts. I have lately had occasion to send a quantity of Beech by canal, and according to the amount charged, it averaged about 109 lbs. per cubic foot. *William Brown, Tring.*

Roses at Regent's Park.—As an amateur cultivator of the Rose, may I be permitted respectfully to offer some few remarks for the consideration of the Committee of the Royal Botanic Society. The present system, which requires the amateur to exhibit three trusses of each sort of Rose, appears to have the following disadvantages. It is indefinite. One set of judges may disqualify for the want of and another for the presence of the same number of blooms in a truss. Again, what certain guide for his arrangement has the competitor? Must the truss consist of two or more flowers and buds on the same stem, or is he at liberty to place single blooms together? If the former, he is debarred the use of his finest blooms, and the judges, to come to a fair decision, must disarrange every truss; if the latter, the number of flowers and buds required should be stated by the committee beforehand, and by them definitely determined. But why not require single blooms both from amateur and nurseryman? The present truss system may be good for the slovenly cultivator, for inferior blooms put together present a better appearance, but it is as surely bad for the more careful, the symmetry of perfect flowers being much injured by two or more blooms being squeezed up together in a bunch. Neither have the judges the same opportunity of coming to a fair decision as they have when every bloom stands dependant upon its own merits alone. Allow me in conclusion to state that I am not in the number either of the successful or unsuccessful competitors at the late exhibition, and that I hope some of your Rose-growing correspondents may be induced to give me their opinions upon this matter, whether amateur or professional. *V.*

Societies.

HORTICULTURAL, *July* 7.—Colonel Challoner in the chair. The following were elected Fellows:—

Visct. Dillon, 34, Hill Street, and Ditchley.
Lord Middleton, Wollaton Hall, Nottingham.
Lady Louisa Tenison, Kilronan Castle.
Mrs. Horsman, 1, Richmond Terrace.
Miss Anne Wilson, Shirley Common, Southampton.
Mrs. Speir, 1, Gloucester Terrace, Hyde Park.

Miss Talbot, 21, Grosvenor Square.
T. R. Fearnside, Esq., Chiswick Lodge.
G. G. Wells, Esq., Holme Wood, Stilton.
H. Wilson, 153, New Bond Street,
A. Elphinstone, Esq., Chewton Glen, Christchurch.
Capel Cure, Esq., 51, Grosvenor Street.
E. Breffit, Esq., Oak Lawn, The Glebe, Lee, Kent.
T. P. Walter Butt, Esq., Arle Court, Cheltenham.
Wentworth Buller, Esq., Street Raleigh, Devon.
R. Clements, Esq., Belmont House, Turnham Green.
John Butterworth, Esq., Manchester.
P. R. Hoare, Esq., Fleet Street, and Luscombe.
W. T. Longbourne, Esq., Jun., United Service Club.
Rickman Ross, Esq., Reigate Hill, Surrey.
Francis Nalder, Esq., Guildhall, and Reigate.
Rev. W. Ellis, Rose Hill, Hoddesdon.
Rev. H. Stretton, Rupert House, Turnham Green.
Rev. Chas. Gape, Hendon, Middlesex.
Mr. Sheriff Mechi, Tiptree Hall, Essex.
Mr. Deuch, Horticultural Builder, King's Road.
Mr. C. Godfrey, 42, Vincent Square.
Mr. Jas. Dickson, Seedsman, Chester.
Mr. Watson, Market Gardener, Ealing.
Mr. Gadd, Gardener, Bignor Park, Petworth,
Mr. M'Ewen, Superintendent, Chiswick Gardens.
Mr. W. Fletcher, Ottershaw Gardens, near Chertsey.
Mr. Cobb, Gardener, Walton House, Warwick.
Mr. Elphinstone, Gardener, Flixton Hall, Bungay.
Mr. Oates, Gardener, Stoneleigh Abbey, Kenilworth.
Mr. Page, Gardener, Worstead Park, Ipswich.
Mr. Lewis Solomon, Covent Garden.
Mr. Downie, Nurseryman, Edinburgh.

Of fruit there was a grand display, more especially of Pine Apples, of which Mr. Spencer, gr. to the Marquis of Lansdowne, at Bowood, had a magnificent collection. It contained four handsome Providences and six Queens, the lightest of which was 3 lbs. 9 oz., and the heaviest 4 lbs. 11 oz. These were all finely formed and beautifully ripened. A heavier Queen Pine than any of these, however, came from Mr. Brown, gr. to Mrs. Vivian, of Singleton Abbey, N. Wales. It weighed 5 lbs. 4 oz., and was in all respects a first class specimen of skilful Pine growing. Other Queen Pines, but not near so heavy, came from Mr. Maher, gr. to Sir R. W. Bulkeley, Bt., Baron Hill, Beaumaris, and from Mr. Frost, gr. to E. L. Betts, Esq., of Preston Hall, near Maidstone. Mr. Davies, gr. to Lord Bridport, sent two very good Providence Pines.

Two beautiful specimens of Black Hamburgh Vines in pots, loaded with Grapes large both in bunch and berry and as black as Sloes, came from Mr. Ivison, gr. to the Duke of Northumberland at Syon. This exhibition was tastefully arranged in the form of an arch over the centre table, and was, as it deserved to be, greatly admired. Of cut Grapes three magnificent bunches were shown by Mr. Hill, gr. to R. Sneyde, Esq., of Keele Hall, Staffordshire. Together they weighed 6¾ lbs. Along with them came leaves indicative of the vigorous condition of the Vines which produced them. One measured 19½ inches in diameter, and was not watery nor flimsy in texture; but firm and compact. From Mr. Spencer came remarkably good Cannon Hall Muscat and Black Hamburgh Grapes, and excellent Muscat of Alexandria were furnished by Mr. Macqualter, gr. to Colonel Challoner, at Portnal Park, Virginia Water. Extremely well grown Black Frontignans came from Mr. Allport, gr. to H. Akroyd, Esq., of Doddington Park, Nantwich. Mr. Shrimpton, gr. to A. J. Doxat, Esq., of Putney Heath, sent very good West's St. Peters, Black Hamburgh, and Muscadine, and three bunches of Muscats were shown by Mr. Dunsford, of Chingford, Essex.

Peaches and Nectarines were supplied in tolerable abundance. Of Peaches by far the best came from Mr. Snow, gr. to Earl de Grey, at Wrest Park, Beds. They were the Violette Hâtive, and in size and beauty were only equalled by a dish shown the other day by the same eminent grower at Regent's Park. Very good Bellegarde Peaches and Downton Nectarines (a kind now seldom seen) were shown by Mr. Spencer. Mr. Macqualter sent Bellegarde Peaches and Elruge Nectarines, all fine fruit; and some very good Royal George Peaches came from Mr. Errington, gr. to Sir P. G. Egerton, Bart., M.P., at Oulton Park, Cheshire. The last named variety of Peach and Violette Hâtive Nectarines were exhibited by Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading. Mr. Frost, gr. to E. L. Betts, Esq., of Preston Hall, near Maidstone, sent Noblesse Peaches and Violette Hâtive Nectarines; and Royal George Peaches, and Downton, Violette Hâtive, and Roman Nectarines were shown by Mr. Thomas, gr. to J. Baxendale, Esq., of Whetstone, Middlesex.

Of Cherries most beautiful fruit of the Elton, Downton, Black Eagle, Knight's Black Heart, Werder's Early Black, Black Tartarian, and Bigarreau, were contributed by Mr. Ingram from the Royal Gardens, Frogmore. Circassian and Florence came from Mr. Taylor, Market Gardener, Brentford End, and Mr. Spencer sent Bigarreau, Elton, and Circassian. The last named variety was furnished by Mr. Ingram, gr. to. J. J. Blandy, Esq.; and Mr. Browne, gr. to Col. Biddulph, M.P., had May Duke.

A remarkably fine collection of Plums was contributed by Mr. Ingram, from the Royal Gardens, Frogmore. The sorts were Victoria, Washington, Jefferson, Goliath, and Green Gage, all fruit of their respective kinds such as one rarely has the good fortune to see. Very good specimens of Jefferson and Denyer's Victoria also came from Mr. Ingram, gr. to J. J. Blandy, Esq., of Reading.

Of Strawberries a dish of Underhill's Sir Harry, considerably bruised by carriage, was shown by Mr. Yates, of Manchester. It is a large very dark-coloured sort, whose merits are now pretty generally known. The only fault with which it has been charged is its acidity; it was stated, however, that if the berries are not gathered until they are quite ripe, *i. e.*, nearly black, this disappears, and in that condition they are quite as good as Keens' Seedling, which is saying a good deal. "Trusses" of fruit in various stages of maturity were produced to show what an enormous bearer it is, and as regards size it is certainly first class. Mr. Ingram, of the Royal Gardens, Frogmore, showed a seedling which the judges did not consider good, and a dish of the old Stirling Castle Pine was exhibited by Mr. Browne, gr. to Col. Biddulph.

Brown Howick Figs were shown by Mr. Macqualter, gr. to the Chairman.

Melons were exhibited by Mr. Frost, Mr. Spencer, Mr. Ingram of Reading, and Mr. Browne. Among the sorts were Preston Hall Hybrid, Egyptian Green-fleshed, and Golden Perfection. It may be mentioned here that of three sorts from the Society's Garden the best was Tiley's Golden Drop, an excellent Melon with a cream-coloured flesh; the other kinds were Cassabar and Rogers's Hybrid Persian.

Foreign fruit was shown by Mr. Solomon, of Covent Garden. It consisted of very fine Figs, Apricots, Pears (apparently Citron des Carmes), and Tomatoes.

Of plants in flower there were comparatively few. Messrs. Veitch sent a collection of Orchids, chiefly Aerides, of which there were some fine kinds. Among the latter was a very dark variety of maculosum, which was shown as new, and which received a Certificate. A fine plant of Aerides nobile came from Mr. Pilcher, gr. to S. Rucker, Esq., Wandsworth. A seedling Pelargonium from the French spotted kinds came from Mr. Gaines, of Battersea, who also showed an interesting collection of Ferns. Mr. Ingram, of Reading, had a finely flowered specimen of Hæmanthus coccineus, and Mr. Cutbush, of Highgate, a white variegated Petunia. From Messrs. Waterer & Godfrey, of Knap Hill near Woking, were examples of Cupressus Lawsoniana, which Professor Lindley identified as the genuine species, and a most beautiful species it is, quite distinct from anything else we have in its way. It was mentioned however that Thujopsis borealis and other things of less commercial value had been substituted for it, and that therefore purchasers should take care to get the true kind. As regards its hardiness Messrs. Waterer state that it stood 25° of frost out-of-doors last winter.

An ingenious contrivance for gathering fruit was shown by Mr. T. M. Jones, of 6, Constitution Row, Gray's-inn Road. The following description of it by the inventor will convey some idea of its construction:—

"1. The first part of the invention is an instrument for gathering Apples, Pears, &c., by simply grasping the fruit and removing it without injury. It is formed of two jointed levers or jaws, the gripping part of each of which consists of a circular frame, on which is fastened a disc of India rubber. These jaws open and close, but have a tendency to remain open by the action of a spring. They are mounted on a rod of suitable length, and are removable at pleasure, and are worked by means of a wire which runs along a groove in the rod. At the other end of the rod is a pull-piece worked by the thumb, to which the wire is fixed, thus giving action to the India rubber jaws. To the pull-piece is fixed a ratchet, so that the India rubber jaws may be kept fixed at any point of pressure in grasping the fruit, which is then twisted or pulled off, and by merely pressing a small lever at the pull-piece the jaws open instantly, and the fruit is released.

"By means of this instrument Apples, Pears, and fruit of a more delicate kind are clasped by the closing of the India rubber jaws, and removed without the slightest blemish. Owing to the elasticity of the India rubber and the gentle or firm pressure which can be applied, the fruit can be taken off with the same ease and perhaps a more delicate touch than with the hand. It is obvious that it can be worked in any position, either vertically or horizontally, and where branches or other obstruction interpose, the fruit is so enveloped and protected by the India rubber and its frame as to be incapable of sustaining injury on being removed.

"The rod may be in parts, and may be lengthened at pleasure by means of sockets, and by simply removing the pull-piece, placing it in the same position at the end of the part added, and connecting the wires.

"2. The second part of the invention consists of a pair of shears, which are worked in combination with a net run on a moveable hoop, which when not worked rests flat on the rod, but when the clippers are put in motion the hoop is raised, and an open basket of network is formed to receive the fruit; the combined action is so adjusted that the shears will not sever the stem until the net is in a position to receive the fruit. The shears and hoop are fixed on a socket which can be mounted on the rod above described, and the same wire, action of pull-piece, and lengthening of the rod, as well as its position when worked, are applicable in all respects to this part as to the one above described. At the part to where the hoop is fixed there is a bend in the frame of the shears which, when the hoop is down, enables the person working it to introduce the shears to the stem more readily than if all were in a straight line, and at the same time the bend brings the cutting part of the shears more directly over the net when open, so that the fruit may drop into it. The advantage of this bend is apparent, especially where the rod is long and light.

"By means of this moveable hoop and net a number of the smaller description of the fruit can be gathered without lowering the instrument every time, and the hoop being flat on the rod forms comparatively no obstruction when moved between branches, &c. The hoop may be expanded or contracted at pleasure to meet the size of the fruit, its position, &c.

"3. The third part is a pair of shears similar in form to the last, with a double spring attached to the sides of the cutting parts, one of the springs moving with the upper part of the shears, so as to hold the stem of the fruit or flower when cut. There is a bend in this frame similar to that lastly described. This instrument is mounted on the rod and worked precisely as above. The stem of the fruit or flower is kept fixed by the ratchet until brought down."

From the Society's Garden came the following kinds of Gooseberries, viz., Overall, Green Prince, Providence, Gretna Green, Eagle, Goldfinder, Morton Hero, Tally-ho, Cossack, Nonpareil, General, and Lady Leicester. Of Currants there were Wilmot's red and white, Knight's large red, and Pitmaston prolific, all good sorts.

Various kinds of early Peas and Kidney Beans tried this year in the garden were also exhibited, along with the following report:—

PEAS.	Sown April 27th.	
1st Early—	Sebastopol .. .. Fit for use June 25th—about 8 weeks 3 days from the time of sowing	Cotterell.
	Eastling's Early Dwarf .. Fit for use June 25th.	Lawson.
	Sangster's No. 1. .. .. .. Fit for use June 28.	Lawson.
	Carter's Earliest .. .. .. Fit for use June 28.	Carter.
	Warner's Early Emperor .. Fit for use June 28.	Wrench.
2nd Early	Ditto (Later and stronger.) .. Fit for use July 1st.	Bass & Brown.
	Beck's Gem	Veitch.
	Ditto	Bass & Brown.
	Dancecroft Rival	Lawson.
	Early Warwick	Carter.
	Early Frame	Ditto.
	Early Charlton	Ditto.
Fit for use July 1st	Pois Michaux petit	Vilmorin.
	Taylor's Prolific	Lawson.
	Theolan's Favourite	Ditto.
	Early Nimble	Wrench.
	Alliance	Wrench.
	Ditto	Lawson.
	Ditto	Dancer.
	Ditto	Sutton.
	Climax	Wrench.
	Ditto	Dancer.
	Sown May 2d.	
3d Early—	Perfection Marrow	Veitch.
	Blue Perfection	Wrench.
	Perfection	Sutton.
	Eugenie..	Wrench.
	Ditto	Sutton.
Fit for use July 4th	Napoléon	Wrench.
	Harrison's Napoléon.. . ..	Sutton.
	Harrison's Glory	Veitch.
	Glory	Wrench.
	Bishop's Dwarf Longpod	Wrench.
	Ditto	Kernan
	Omer Pacha	Lawson.
	Ringwood Marrow	Lawson.
4th in succession—		
Fit for use July 6th	Shilling's Grotto	Lawson.
	Blue Prussian	Lawson.
	Early Conqueror	Lawson.
	Rising Sun	Flanagan.
	Early Surprise..	Wrench.
KIDNEY BEANS.	Planted May 5th.	
1st	Early Six-weeks	Lawson.
2d	Pale Dun	,,
3d	Liver-coloured	,,
4th	Newington Wonder	,,
5th	Mohawk	,,
6th	Fulmer's Early	,,
	China Speckled	,,
	Black Speckled	,,
	Red Speckled	,,
	Long-podded Negro	Kernan.

NOTE BY MR. M'EWEN.—The above memoranda will be valuable as showing the *earliest kinds*. The "Early Six weeks" takes about nine weeks ere fit for gathering out-of-doors. The "Newington Wonder" and the Fulmer's Early—great favourites for forcing—cannot now be considered the earliest. They may however prove to be more prolific, on which point we will report hereafter.

As had been announced by advertisement and otherwise, the lottery for the rare Chamæcyparis thurifera took place on this occasion. There were 121 applicants and 40 plants. Of the latter the following were the winners:—

1, Mr. A. Pontey; 2, R. Hutton, Esq.; 3, F. Sloane, Esq.; 4, Dr. Henderson; 5, John Harrison, Esq.; 6, Dr. Royle; 7, E. R. Tunno, Esq.; 8, Lady Rolle; 9, Henry Wilson, Esq.; 10, Sir J. Ramsden; 11, Mr. Jas. Fraser; 12, E. Rosher, Esq.; 13, Sir C. Lemon, Bart.; 14, Rev. F. Belfield; 15, J. B. Nicholls, Esq.; 16, Rev. J. E. Gray; 17, Col. Mason; 18, Mrs. Dorin; 19, Lady Bridport; 20, Earl of Digby; 21, E. A. Brande, Esq.; 22, Wm. Wilson, Esq.; 23, Adam Gladstone, Esq.; 24, Mr. A. Chandler; 25, Sir G. Carroll, Bart.; 26, H. T. Hope, Esq.; 27, Lord Walsingham; 28, Jos. Barker, Esq.; 29, Lord Farnham; 30, Col. Rushout; 31, Mr. Geo. Cunningham; 32, G. S. Wintle, Esq.; 33, Sir J. Cathcart, Bart.; 34, Charles Inman, Esq.; 35, W. J. Phelps, Esq.; 36, Mr. S. Hooker; 37, Mr. Jas. Backhouse; 38, W. Leveson Gower, Esq.; 39, R. F. Gower, Esq.; 40, J. J. Blandy, Esq.

The Chairman announced that some amendments in the proposed By-laws, in which the Council partly concurred, had been suggested by Mr. Godson, and therefore the By-laws would be further considered by the Council and again brought forward upon a future day.

The next meeting of the Society will be held October

13, at 2 P.M., for election of Fellows, and on Saturday, October 24, the great exhibition of Fruit will take place at Willis's Rooms, as already advertised.

Notices of Books.

Mr. Bentham's *Plantæ Hartwegianæ* are at length completed and form a volume of 393 8vo pages, containing the enumeration of 2230 species. It has an excellent Index, and forms the best guide yet published to Mexican, Peruvian, and Californian plants.

Fletcher's *England and her Colonies* (small 8vo, Longmans), is a sketch of what the author regards as individual rights and imperial duties in the great work of Colonisation. The writer is evidently a thinker, as will appear from the following extract:—

"The experience of England has been fortunate and ample, dating from of old, and it is three-fold from our having a triplex constitution. We cannot over-rate the grand schooling afforded for ages by the triunion of king, lords, commons. Self-government has been our practice: it is the essence of our constitutional theory: we all wish to make the former accord more completely with the latter. As the health of the body is maintained by exercise so is that of the body politic. Social functions must be actively exercised; for it is only by the customs of governing, by the habits of a vigorous first assertion, and of the subsequent maintenance, of rights, that we can become or remain free men. To achieve the rights we must be prepared to perform the duties. Legislative or administrative competency is an acquired power. When we know what is to be done, who is to do it, why and how it is to be done, then are we qualified to discharge every political function."

Popular Greenhouse Botany by Miss Catlow (square 12mo, Reeve) is an account of the greenhouse plants most in cultivation and of some not in cultivation at all. Twenty neatly drawn coloured plates illustrate it. Our opinion of works of this kind is well known and need not be repeated.

In his *Popular History of the Aquarium* (square 12mo, Reeve), Mr. G. B. Sowerby has given his experience in the management of such contrivances, and has collected a good deal of useful natural history information upon their inhabitants. It contains 20 good plates drawn by the author, and is one of the best volumes of its class.

Stark's directions for the *Marine Aquarium* (Edmonston) is a different sort of guide consisting of 30 very small pages, in which the author tells the reader what to do and how to do it, according to his personal experience.

Garden Memoranda.

Messrs. Osborn's, Fulham.—Although not so gay as in the beginning of June when the outdoor Azaleas and Rhododendrons are in bloom this nursery is at present well worth a visit. Near the entrance we noticed a compact and fine specimen of Libocedrus Doniana, about 3 feet in height and as much through, forming a truly beautiful bush. This survives the winter in the open border here; but unless it is under glass it is found to make no progress. Among other Conifers were Thuja Lobbi, about 3 feet in height; Cupressus McNabiana, and another handsome Cypress from Oregon resembling it, but still different from it in several important particulars. In the open border was an unusually large Abies Clanbraziliana; it must measure quite 4 feet in height, and as much through. Associated with this was Magnolia Thomsoni finely in blossom, literally loading the air with its fragrance; we also observed the twiggy Genista (G. virgata), a mass of yellow flowers, which last nearly a month in perfection. To this and shrubs of a similar free flowering character, sufficient attention is not paid; skilfully disposed and planted, they might be made to form effective and striking objects, whose value it would be difficult to overrate. Philadelphus speciosus, with white blossoms as large as a half-crown, also makes a pretty plant for a shrubbery border. Of pillar Roses we remarked several fine examples loaded from bottom to top with flowers and buds. Among them the old Russell Rose was considerably the earliest.

New Verbenas have been planted out in the open borders for trial. Among them the more striking were Sir Joseph Paxton, rosy crimson with a lemon centre; Lady Palmerston, pale blue with a white eye; Sims Reeves, purple with a white eye; Miss Trotter, scarlet with a white centre; Empress of France, pink with a crimson centre, large and showy; and Prince of Oude, deep purple with a white eye; to these may be added Impératrice Elizabeth, a small continental lilac coloured variety prettily striped with white. If strong enough this looks as if it would make a charming bed.

Of other border plants may be mentioned Delphinium formosum, a Norfolk variety of Larkspur in the way of Hendersoni, but dwarfer; we also saw some well-flowered Gladioli and Stocks, the latter the intermediate kind, which had been wintered in a cold frame and turned out after it had been ascertained whether the plants were double or not. Yellow and other Pansies were extremely gay even thus late in the season. On previous occasions we have reminded growers of bedding plants of the suitableness of the Pansy for spring and early summer decoration; we may now repeat that few plants make a gayer or more effective bed. To ensure success, however, the largest and most free blooming sorts alone should be chosen, of which the following are some of the best, viz.:—Duke of Norfolk, Sir P. Sidney, Disraeli, Ophir, Robert Burns, Euphemia, France Cycole, Mrs. Beck, Duke of Perth, and Climax.

In the different houses is a large assortment of Stove and Greenhouse Plants, including Ferns and Orchids. Rhynchospermum jasminoides planted out in the border of a cool house and trained up a pillar, was flowering most profusely and yielding an agreeable fragrance. Of Meyenia erecta Messrs. Osborn have a white variety, which, although not perhaps so handsome as the blue sort, will nevertheless doubtless be sought after for the sake of contrast. It appears to be equally free flowering with M. erecta. Dwarf Orange trees in pots occupied portions of some of the houses, and to the growth of young Vines an entire house has been devoted. They were plunged in tan in a warm moist atmosphere, and were making strong yet short-jointed wood.

Fruit trees out-of-doors in pots, and Peaches and Nectarines in open quarters are extremely clean and healthy this season. Black fly had attacked Cherries, but since the heavy rains we have had they have nearly all disappeared. On the whole, young stock of this description, for which this nursery is justly celebrated, never looked better.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—Some of the stove plants that have recently been brought into this house will require attention to prevent their being injured by damp during cloudy weather, and it will probably be necessary to use slight fires occasionally for the purpose of drying the atmosphere of the house. The propriety of this will, however, greatly depend upon circumstances; for in some well ventilated houses damp will hardly be troublesome, whereas in lofty houses with but little ventilation and the roof overgrown with twiners, it may be very troublesome. At this season, however, there is nothing to fear from cold, and air should be freely admitted on every favourable opportunity, using every care to keep the atmosphere as dry as possible, and keeping the plants clear of decaying flowers, &c. Considerable care will also be necessary in watering recently repotted specimens, whether of the soft or hard wooded class, as in the present state of the weather they will require very little and will be speedily injured by a careless supply. Continue to carefully regulate the growth of the twiners, but avoid tying them too close, and allow them to grow according to their natural habits as much as circumstances will admit.

FORCING DEPARTMENT.

Pineries.—Plants wished to show fruit at once, if backward in doing so, should, provided the growth has been well matured and checked, having been kept dry at the root for a time, have a good soaking of water, and be kept warm and moist. This treatment will induce an active root action, and if the plants have been properly treated they will seldom fail of showing fruit at once, but everything depends upon the growth being well matured and checked. Avoid syringing plants overhead that are in bloom, save on the mornings of bright days, and then but lightly, for syringing in the afternoon while the plants are in bloom is the principal cause of deformed fruit. Young stock will be growing very vigorously, and every care should be used to secure robust stocky plants; see that the plants are afforded sufficient room for the development of their foliage, and do not keep the atmosphere so warm and moist as to induce weakly growth; attend to repotting as this may be required by any of the stock, and see that all are well supplied with water at the root, whether in pots or planted out in the open bed, as any neglect in watering at the present season will probably result in the plants fruiting prematurely. Vineries.—Give every attention to preserving the foliage in houses where the fruit has been cut, until the wood is thoroughly ripened. If red spider is at all troublesome, give the Vines a good washing with the engine, but do not injure the foliage by dashing the water against it too powerfully. Give abundance of air, keeping the house as cool as can conveniently be done in bright weather. Maintain a moist atmosphere where the fruit is swelling, sprinkling the passages, borders, &c., frequently. Look sharply after insects here, particularly where plants are grown under the Vines, and if black thrips or red spider be detected wash the infected leaves carefully, and look over them occasionally afterwards until the pest is fairly got out. See that the borders are not allowed to become too dry, and give strong manure water to plants bearing a heavy crop. Vines in pots intended for very early forcing next season should be in a forward state by this time, in order to permit of getting the wood well ripened, and allow them a period of rest. Peaches.—Attend to former directions, using every means to keep clear of insects.

FLOWER GARDEN AND SHRUBBERIES.

Roses will be the great attraction here at present, and these should be frequently looked over, removing decaying flowers, &c., which if allowed to hang on the plants have a very unsightly appearance. Now is the best season for observing the effect of the arrangement of the colours, &c.; and if any alteration is deemed necessary, it should be carefully noted, which will greatly facilitate its execution at the proper season. Proceed with the propagation of favourite sorts which it may be desired to increase either by budding or cuttings. We prefer having the Hybrid Perpetuals, Teas, Chinas, and Bourbons on their own roots, and firm short-jointed shoots of these root very freely at this season. But to insure success they should be afforded a slight bottom-heat, carefully shaded, and not kept too warm until they emit roots. These will, however, root under a hand-glass on a shady border. Remove suckers from worked plants. Cut back the shoots of the autumn flowering varieties to the most promising eye as soon as all the flowers are expanded and begin to fade. If manure water cannot be conveniently given, stir the surface soil with a fork, and apply a good sprinkling of guano, the strength of which will be washed down to the roots, and will serve the same purpose as manure water.

HARDY FRUIT AND KITCHEN GARDEN.

Those who depend upon young plantations of Strawberries for fruit should get them planted while the ground is moist and the weather favourable. If planted at once and properly cared for until the plants get established, a fine crop of superior fruit may be expected next season. Where the plants are to stand only one year they should, however, be planted much thicker than is usually done, say four lines in a 5 feet bed, 29 inches between the plants in the lines, allowing a foot of an alley between the beds. See that plenty of plants for forcing next season is potted at once if not already done. As ground becomes vacant by the removal of early crops get it manured, dug, and planted with winter Greens, &c., without loss of time.

COTTAGERS' GARDENS.

The cottager who can afford ground for Celery and other salads must keep his eye on the kitchen garden portions of this Calendar. Little can be added here at present. Let every spare bit of ground be constantly broken up at this period, and filled with some kind of Greens or Turnip. If the cottager is short of manure, extra spade husbandry will in some measure compensate for the want of it.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending July 9, 1857, as observed at the Horticultural Gardens.

July.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday	3	11	30.012	29.972	70	55	62.5	64	60½	S.W.	[illegible]
Satur.	4	12	29.850	29.809	67	55	61.0	63	60	S.W.	.11
Sunday	5	13	29.815	29.622	70	56	63.0	63	60	S.W.	[illegible]
Mon.	6	14	29.735	29.638	67	45	56.0	63½	60	S.W.	.3
Tues.	7	○	29.957	29.890	65	42	53.5	62	59½	W.	[illegible]
Wed.	8	16	29.931	29.866	70	42	56.0	62	59	N.W.	[illegible]
Thurs.	9	17	29.906	29.868	71	40	55.5	62	59	W.	[illegible]
Average			29.886	29.809	58.2	47.8	58.2	62.8	59.7		.55

July 3—Overcast; fine; cloudy; rain.
— 4—Densely overcast; cloudy; rain at night.
— 5—Light clouds, and fine; rain; overcast and fine.
— 6—Fine; cloudy; heavy fall of rain in afternoon; overcast.
— 7—Fine throughout; cold at night.
— 8—Fine; very fine; cloudy; cold at night.
— 9—Fine; heavy clouds; very fine; clear and cold.
Mean temperature of the week 5½ deg. below the average.

RECORD OF THE WEATHER AT CHISWICK.

During the last 31 years, for the ensuing week, ending July 18, 1857.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 12	74.2	51.0	62.6	12	1.10 in.	1	2	4	—	3	11	5	[illegible]
Mon. 13	74.8	52.0	63.4	11	0.92	—	2	5	—	1	8	[illegible]	[illegible]
Tues. 14	75.5	52.0	63.7	13	0.64	—	1	3	2	4	10	10	1
Wed. 15	75.0	50.5	62.8	16	1.46	1	3	3	1	4	14	3	—
Thurs. 16	75.9	50.7	63.3	11	1.60	2	3	3	—	2	4	[illegible]	—
Friday 17	75.3	52.7	64.0	11	0.56	2	—	2	2	4	11	7	3
Satur. 18	73.9	51.2	62.5	15	1.22	—	—	1	—	5	13	5	4

The highest temperature during the above period occurred on the 14th, 1847—therm. 93½ deg.; and the lowest on the 18th, 1851—therm. 39 deg.

Notices to Correspondents.

Books: *Ormonde.* Dr. Lindley has actually in preparation his announced Trees of Great Britain, Nature-Printed. We understand that it will appear in monthly numbers before Christmas.

Conifers: *Silurus.* You are right. The confusion among these plants is quite disheartening. A few practical men who know them, and they are very few, are not botanists; and botanists, properly so called, have little practical experience among them. The matter will never be settled till some one possessing both qualities will take it in hand. But who is to pay? For ourselves, often as we have been urged, we can but answer that we are not justified in risking the loss, not only of time, but of money. If the country wants to gain the knowledge the country must pay for it. Let gentlemen hold out sufficient encouragement and the subject will be taken up willingly.—*H.* Pinus Salzmanni is a species inhabiting the S. of France. It is mentioned in Carrière's book. That yours is a specimen of that species we have no doubt. It has been mixed with Laricio, but is much more slender in the foliage. We observed some small differences in the leaves of the two specimens you sent, but they seemed unimportant. Pinus dumosa is an Indian plant, the same as Pinus Brunoniana of Wallich's Plantæ Asiaticæ, and an Abies in reality.

Dyeing Grasses: *Omega.* The way in which those in Covent Garden are coloured is we believe a secret. We should think however that any dyer could colour them for you.

Fruit-room: *Old Sub.* In building a fruit room means of securing free ventilation must be provided. Apples and Pears should be kept generally in the dark. Of course frost must be excluded.

Gardeners: *A R P W.* We really cannot undertake any such duty. When you come to London consult the nurserymen.

Names of Plants: *M and L.* We are not acquainted with your Cress in so young a state.—*J J T.* Ipomœa Quamoclit, very pretty. We believe the Chinese Cotton plant is an annual.—*S E C.* Phacelia ramosissima.—*W L.* Philadelphus grandiflorus.

Plantations: *J K.* You are too far off the sea to suffer. Very fine Ash trees prove that. All species of Cupressus, and most of the Pines, especially halepensis, brutia, austriaca, pyrenaica, and Pinaster, Cryptomeria, Junipers, Abies Pinsapo and cephalonica, are sure to thrive.

Errata in Royal Botanic Society's Advertisement.—Messrs. Smith are stated to have obtained a prize for six Scarlet Pelargoniums; it should have been for 12 Balsams. Read also Mr. Rhodes, gardener to — Philpott, Esq., Stamford Hill, obtained a Large Silver Medal for six Stove and Greenhouse Plants.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

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SALISBURY MEETING, 1857.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S FIRST PRIZE PORTABLE STEAM THRESHING ENGINE.—The Royal Agricultural Society of England, at their latest Award of Prizes, decreed the merit of the FIRST PRIZE to TUXFORD AND SONS' PORTABLE STEAM THRESHING ENGINE, the Judges at the same time declaring, in addition to its other excellencies, that the Straw Shaker and Barley-horning Apparatus of TUXFORD & SONS' Patent Combined Threshing Machine were perfect in their operations.—(*Vide the Journal of R. A. Society*, Vol. xvi., page 614.)

The superiority of TUXFORD & SONS' Patent Portable Ironhoused Steam Threshing Engines, with upright Cylinders and Improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well-merited reputation of standing at the head of their class.

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ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.

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President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.

PROFESSORS, &c.

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Zoology, Geology, and Botany—Jas. Buckman, F.G.S., F.L.S.
Veterinary Medicine and Surgery—G. T. Brown, M.R.C.V.S.
Surveying, Civil Engineering, and Mathematics—J. A. Jarman, C.E.
Professor of Agriculture and Farm Manager—J. Coleman.
Assistant to Chemical Professor—A. Sibson.

The next SESSION will begin early in August. Fees for Boarders:—Under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for Out-students is 40*l.* per annum.

The chief attention of the Students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry, Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering.

The Practical Instruction in Agriculture is given by the Professor on the Farm, where the Students have an opportunity of becoming acquainted with and taking part in the Manual Operations of Husbandry.

A well-appointed Laboratory is devoted to Instruction in Chemical Manipulation and Analysis, which are taught to each Class of Students in succession, under the Superintendence of the Professor of Chemistry and his Assistant.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—SALISBURY, 1857.

PROGRAMME.

TUESDAY, JULY 21, WEDNESDAY, JULY 22.—The Implement Yard open from 10 o'clock in the morning till 6 o'clock in the evening on Tuesday; and from 7 o'clock in the morning till 6 o'clock in the evening on Wednesday, at an admission charge of 2*s.* 6*d.* for each person. Machinery will be exhibited at work on each of those days at the following hours, or at such other hours as the Stewards may determine;—

I. Worked by Steam, or other (than Hand) Power.

Threshing Machines	From 11 till 1 o'clock.
Tile and Brick Machines ..	From 12 till 2 o'clock.
Saw and other Mills	From 1 till 3 o'clock.
Chaff Engines	From 2 till 4 o'clock.

II. Worked by Hand Power.

Chaffcutters	From 11 till 1 o'clock.
Tile Machines	From 12 till 2 o'clock.
Mills	From 1 till 3 o'clock.
Turnipcutters	From 2 till 4 o'clock.
Oilcake Breakers	From 2 till 4 o'clock.
Winnowing Machines, Barley Hummellers, &c.	From 2 till 4 o'clock.
Miscellaneous	From 2 till 4 o'clock.

WEDNESDAY, 22.—The Judges to inspect the Live Stock and Farm Poultry, and to award the Prizes. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards, of which Notice will be given) the Public to be admitted into the Cattle Yard and to the Exhibition of Farm Poultry, on the payment of 5*s.* each person, at the Special Entrance; Members of Council and Governors of the Society being admitted by Tickets to be purchased at the Finance Department of the Society at the Show Yard. At 8 o'clock in the evening the Cattle and Poultry Yards will be closed. Dinner in the Council Chamber, at 6 o'clock in the evening.

THURSDAY, 23.—The General Show Yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the Public from 6 o'clock in the morning till 6 in the evening; admission 2*s.* 6*d.* each person. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine.

FRIDAY, 24.—The General Show Yard open to the Public from 6 o'clock in the morning till 6 in the evening; admission 1*s.* each person. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine. General Meeting of the Members, in the Council Chamber, at 10 o'clock in the forenoon.

FARMING.—The Right Hon. Sidney Herbert, M.P., has placed his Home Farm, at Wilton, near Salisbury, at the disposal of the Society, for the Inspection of the Members, on Tuesday, July 21, at 12 o'clock; and Mr. Stephen Mills, of Elston House, 12 miles from Salisbury, has expressed his willingness to receive such of the Members at an inspection of his farms, and to explain to them personally the system of Wiltshire Light-land Farming, as may be furnished with Tickets from the Secretary of the Society.

IRRIGATION.—Messrs. Rawlence and Squarey have made arrangements for the Inspection of their Water Meadows, near Salisbury, by the Members of the Society, on Tuesday, July 21, at 12 o'clock; and for the reading of a Paper on their Construction and Management, by Mr. Squarey, in the Council Chamber, on the same evening, at 8 o'clock.

The Agricultural Gazette.

SATURDAY, JULY 11, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, July 15	Agricultural Soc. of England ..	Noon.
TUESDAY, — 21	Annual Meeting of the Agri. Society of England at Salisbury.	
WEDNESDAY, — 22		
THURSDAY, — 23		

THOSE who would study the present condition of agricultural mechanics in England cannot examine a more admirable series of illustrations of it than is now afforded by the agricultural department of the Crystal Palace at Sydenham. This collection is even more useful for such a purpose than those in the annual show-yard of the English Agricultural Society. It is only articles for which a ready sale exists that makers send to Sydenham. There are but few spectators—not a tithe of the number whom the importance and interest of the exhibition should attract. The implements are as much as possible classified, not according to their makers, but according to their several purposes and objects. And the intelligent and attentive manager of the department is at all times ready to offer explanations and information.

At the Salisbury meeting on the other hand, the several stalls will be crowded with spectators, many of them merely lookers on and obstructives therefore to the usefulness of such a show—the implements will be, excepting on the trial days, very much arranged in so many rival shops and warehouses, each of which professes to supply everything the farmer needs—and it is impossible for the warehouseman in every case to listen to the inquiries which, were his establishment less crowded, he would gladly meet.

We strongly advise those who mean to visit Salisbury for instruction first to spend a day's apprenticeship at Sydenham. They will there have an opportunity of leisurely comparing ploughs and harrows, horse hoes, rollers, cultivators, and paring ploughs, and other tillage implements—carts and waggons and carriages of all kinds—sowing machines for manures, for water, and for seed, broadcast and in rows—haymakers, reaping-machines, and Grass-cutters—threshing, winnowing, and hummelling machines—Turnip cutters and chaff cutters—corn and cake crushers and flour mills—churns, cheese presses, steaming apparatus—horse powers and steam engines—tile and brick machines—roofing material, buildings and internal fittings—fences, wire netting, &c. &c. Sixty or seventy of our chief implement manufacturers contribute specimens, and though there is no catalogue published—as indeed there could scarcely be, for the place is a shop as well as a museum, and its contents therefore are constantly varying—yet the general good arrangement, the freedom from interference, and the intelligence of the superintendent save all that loss of time which the want of a catalogue might occasion the spectator.

He will have ample opportunity of studying the structure of each implement in detail. Take for instance the case of the common plough—HOWARD, RANSOME, and many others contribute their best specimens, and all the niceties of curvature in their several mould boards, of methods of attaching sock and coulter, of arrangements for altering the position of the line of draught so as to increase or lessen the depth or width of the furrow slice can be carefully examined. Such contrivances as wheel or wheels for preserving uniformity in these respects, and as skim coulter and drag chain for burying the growth upon the former surface perfectly beneath the new one can also be compared. Differences more considerably affecting the general appearance of the implement, such as the means adopted for ensuring stiffness of the framework and for facilitating the regulation of the tool when at work can also be efficiently studied. And the student has ample opportunity for remarking how competition and machinery have together effected a reduction in price, which might be advantageously copied in other implements—for we must confess that ploughs equipped as in RANSOME'S and in HOWARD'S best instances seem to us remarkably cheap alongside many other implements which are now in almost as general employment.

But to take the case of another tillage implement: the visitor at Sydenham will see some eight or 10 different forms of roller—simple cylinders, divided cylinders—discs strung alongside of one another and revolving independently upon a single axis—discs revolving on an axis slightly cranked (JOHNSON'S, Leicester), so that each in its turn digs as it were into the land once in every revolution—discs on two parallel axes (GIBSON, COMINS), those on the one axis revolving in the intervals of those upon the other—discs alternately large and small, the larger having freer motion on the common axletree so as to admit of all together rolling on a common level surface—discs so close as to fill up the whole surface of the cylinder (CAMBRIDGE)—discs separated by intervening washers, so as to make separate tracks upon the ground—discs with unbroken edges, and discs toothed in every variety of manner, and impressing every sort of pattern on the soil.

Or let the student examine any other of the implements before him, steam-engines, threshing-machines, hummellers, winnowing-machines, chaff-cutters, corn-bruisers, or Turnip-cutters, he will in every case see side by side such a number of specimens of each furnished by different makers as will ensure that his attention shall be directed by their differences to every point in the structure of each to which that of their makers and their users has been directed before him. Take as a last instance

the case of the Turnip-cutter: he will see machines for cutting roots into slices, into finger-shaped pieces, into mere strips and ribbands, into saw-dust. The tools of PHILIPPS and of BENTALL for the last of these several purposes—the one with its oscillating bed, by which the roots are moved to and fro before the cylinder armed with saw teeth, which grates them down; the other with its characteristic spiral tooth-picker, by which teeth on a similar arrangement are preserved efficient for their purpose—the tools of BUSHE & BARTER and of MOODY for scraping roots into ribands—and those of GARDNER and many others for slicing them and cutting them into strips—all have their representatives, and of many of them there are specimens from different makers characterised by one or more distinctions believed to be improvements.

We may hereafter publish the completer illustration of the value of the Sydenham collection which a full descriptive catalogue would be; for the present it must suffice to have called the attention of our readers generally to its existence, and especially that of those who would be enabled to make the fullest use of the Salisbury meeting by a previous visit here.

DURING the current session of the Agricultural Society of England a great many interesting topics have been discussed at its weekly meetings. Of that we have duly informed our readers; and we should have been glad to have reported these discussions on the several occasions of their occurrence had we been permitted. But it is not permitted us to report the proceedings of the Society; an official statement of them is issued every week, and to that our own and other agricultural journals are confined.

It is, under these circumstances, of the greatest importance surely to the interests of the Society itself that the official report be as full and terse as possible—that it contain the largest quantity of information in the fewest possible words—that by means of it those members not present be placed as nearly as possible in the position of those who are. But how stand the facts of the case? Take the first two weekly meetings, two of the most useful and instructive as it has happened, during the past Spring, as an illustration. The official report of Feb. 11 proves it to have been a most interesting meeting, but that is all it tells us. "Mr. CAIRD, Prof. WAY, Mr. ALCOCK, M.P., Mr. FISHER HOBBS, Mr. CAVENDISH, Prof. SIMONDS, and the Rev. L. V. HARCOURT" discussed certain points of great agricultural importance on that occasion. The "points," nine in number, are enumerated—they are in themselves interesting, and the report tells us, what from the names of the speakers we might have anticipated, that they were "discussed with much interest:" but of the discussion itself we know nothing. Mr. CAIRD's introductory remarks on the guano question are given pretty fully—but of none of the other addresses have we a single word. And yet they related to such subjects as "the improper use of guano on imperfectly drained land"—"the improvements introduced into the manufacture of superphosphates"—"the frauds of middle men between importers of manures and local salesmen"—"the superiority of Ichaboe over Peruvian guano for certain crops"—"the form in which manure must be presented to the growing crops." Country members of the Society would like to know what Prof. WAY, what Mr. FISHER HOBBS, what Mr. CAIRD said on these important topics—but that knowledge, if indeed it now exists at all, is confined to the few fortunate men who heard them. And this is not the whole of the complaint: the meeting, we are informed, concluded with statements on a number of other interesting topics—among them, "the price of ploughing by horses under different circumstances compared with ploughing by steam apparatus." This is the very question of the day—190*l.* has just been voted for the hire of a 40-acre field in which to determine the award of a 500*l.* prize at Salisbury on this very point. Why was not a full report of the "statement" on this head published? Country members of the Society would have liked to have read this statement, as their few fortunate colleagues heard it—but the official report merely *names* the dish for those which had been served up to these.

February the 11th was no exceptional case—on the following Wednesday nine "points" are enumerated in the official report of that date. We are informed that after the perusal of certain communications discussion ensued on them and other topics: among them—(1) the best mode of applying liquid manure—(5) the economy of applying manure directly to the crop, and not diffusely to the soil—(7) the best means of facilitating the draught of drills on the land—(8) the Locust Bean—(9) the Norwich Rice cake. Was it not tantalising to the thousands who read the statement at the time to know that the whole force of an institution wielding 5000*l.* a year—the recognised centre of agricultural information—should have been devoted exclusively to the benefit of the few fortunate members who happened to be present at that meeting? Why have all the country members been shut out from the advantage of all the information which on February 18 was current in the Society's rooms on topics of such interest?

We might examine in like manner and with similar results the official reports of subsequent meetings; they are essentially catalogues of topics discussed, an enumeration of the subjects on which information was given—verbose to excess when it is a mere publication of correspondence that is required of us—meagre and almost useless when it is professedly a report of the information, advice, experience of the several speakers.

Let us not be understood to bring any personal charge of incompetency or neglect against the officer responsible for these reports. Doubtless his other duties are enough to preoccupy his time. Doubtless in his discharge of this particular duty he fulfils with accuracy the instructions of his employers. On the other hand let no one think that we have taken our illustrative instances of these reports unfairly: the two last yet given of these weekly meetings would justify our complaint as perfectly as the two first. The proceedings at these meetings are a very useful section of the Society's labours, and might be made much more so than they are; and the complaint is that for 99 per cent. of the membership of the Society its labours here are altogether fruitless.

And why, we ask, should not country members have as nearly as possible the advantages of the fortunate few who can attend these meetings? We say nothing now of the duties of a society claiming to be the Agricultural Society of *England*. It is not to the public claims on such an institution, but to the claims upon it of its own members, that we now direct attention. We have spoken of "country" members as if they were a mere section of the Society, but an agricultural society has no others; the few resident in town from February till August are a mere per centage of the general body. No doubt the management of the Society is properly confided to men who can conveniently attend its weekly London meetings, for in London only can the business of a national society be conducted, but what seems to be forgotten by these gentlemen is that the great body of the Society never enter the Society's rooms at all, and excepting the great country anniversaries can attend none of its meetings throughout the year. Why should the great body of the membership who furnish the whole means of the Hanover Square machinery be shut out from that advantage which the information reaching Hanover Square might give them? Nothing is plainer to us than that, in the interests of the Society itself, there is not a piece of useful agricultural information that reaches Hanover Square that should not at once be *published*, but in the meantime let us ask why it should not at any rate be at once made known to members? The weekly meetings, we are told, *are* open to members of the Society—but the rooms hold 50 people and the Society includes 5000; if the privilege of free admittance to these meetings be anything but mockery, let those members who cannot attend have a full report transmitted to them of what transpires, of what is read and said upon occasions when they have the right they cannot use, of seeing and of hearing.

MEMORANDA FOR THE AGRICULTURAL STUDENT.—No. VIII.

CULTIVATED PLANTS: 2. *Barley.*—We continue our short descriptions, and before discussing the details of the cultivation of the cereals will go through the commonly cultivated sorts of Barley.

—— The common English Barley possesses early maturity (ripening in 13 or 16 weeks after sowing), and adaptation to a greater variety of soils than any other variety of Barley at present cultivated. The colour of the growing plant is a lively light green, and when ripe the straw is of a clear glistening yellow from the top joint to the ear. The weight per bushel, upon average soil, varies from 50 to 54 lbs., according as the weather before ripening has been damp or dry; and the yield is from 32 to 40 bushels per acre. The straw generally obtains a height of about 3 feet, and the ear is about 3½ inches in length.

—— Chevalier Barley differs from the early English Barley in taking 10 to 14 days longer in ripening—a disadvantage; but it can be sown earlier, and thus, although longer on the ground, it is generally ready for being reaped quite as soon as the faster growing variety. The straw is much thicker, and as a necessary consequence stronger, and less liable to become lodged, properties which on soft forcing soils have much to recommend them. The colour of the straw is a deep orange yellow, and the grain, when well grown, is plump, and of a higher specific gravity than that usually attained by other varieties. The weight of a bushel under ordinary circumstances ranges from 52 to 56 lbs., and the yield may be fairly stated at from 36 to 40 bushels to the imperial acre.

—— Annat Barley owes its name and introduction to Mr. Gorrie, of Annat Cottage, Carse of Gowrie, S[illegible] similar in many respects to the Chevalier: the straw is fully more bulky, and its distinguishing c[illegible] appears to be the pinkish colour which the stem [illegible] under the ear assumes when ripening. The straw [illegible] remarkably well in wet weather, especially it [illegible] fairly burst out from the shot-leaf, but from its often [illegible] great length before this period of its growth, it is [illegible] laid, and when this occurs the ears neither shoot so [illegible] fill so well as those of the sorts previously described. T[illegible] per acre of Annat Barley is sometimes very great, [illegible] more capricious than in the case of common Barley.

—— Dunlop Barley is also not unlike the early [illegible] Barley. The chief differences are, earlier maturity by [illegible] week, shorter and more compact ears, taller straw, [illegible] newly brought from any district where it grows well [illegible] large return. It is decidedly more delicate than common [illegible] ley, so much so that it is apt to ripen, or rather wither, [illegible] maturely, especially when exposed to high winds or [illegible] rainy weather just before harvest.

—— Common Bere differs very considerably in its [illegible] appearance from two-rowed Barley. The ears are shorter [illegible] thicker, and the grains are arranged around the rachis in [illegible] and 2 double rows. The grains of Bere are smaller and [illegible] elongated than those of two-rowed Barley, and the awns are long, tough, and persistent, adhering with great tenacity [illegible] grains; so much so that the operation of threshing is [illegible] sufficient to detach them. Bere is cultivated principally in the Highlands of Scotland as a spring crop, and in Ireland as a winter crop.

3. *Oats* occupy one quarter of the arable land of Scotland, and about one-tenth of the arable land of England. The Oat crop is of greater interest to the Scottish farmer than the Wheat crop in the proportion in which 32,000,000 bushels of Oats are [illegible] more than 7,000,000 bushels of Wheat. The following are some of the more commonly cultivated sorts:—

— Potato Oats, according to Lawson, originated in 1788, in a field of Potatoes in Cumberland. The characteristics of the Oat when well grown are a fine compact ear, round, short, and very white seeds, having a thin husk, easily detached in the process of shelling; so much so that not unfrequently the mere act of threshing the grain has the effect of shelling a considerable number of the seeds. The straw is rather short, when compared with the sandy or late Angus varieties, but is generally of fair average length. When free from Tulip-root it grows very fast, tillers freely, and should therefore be [illegible] thinly sown. So remarkable is its habit of growth, that it is a common saying, if Potato Oats are as long as ordinary stubble when the ear makes its appearance the crop will come to a good bulk at harvest. When fully ripe, the seeds are so easily detached that the operation of reaping, however carefully performed, always causes a considerable loss; and in high winds all the top-pickles or best of the grain is sure to fall. The Potato Oat should, therefore, always be cut quick, and, as it ripens perfectly well in the sheaf, it may be cut a little green without injuring the quality of the grain. The grain weighs from 40 lbs. to 46 lbs. per bushel, and yields well when milled. When the weight per bushel falls below 40 lbs. it is a sure indication either that the soil is unsuited to the Potato Oats, or that proper attention has not been paid to change them frequently enough from a different and better locality. The disease to which this Oat is most liable, and which has contributed greatly to diminish its cultivation of late years, is a thickening of the base of the stem, familiarly known as Tulip-root, and an unhealthy development of the leaf, which greatly resembles in its colour and shape that of the common Sedge—hence called sedging in some localities. The best way to prevent the formation of Tulip-roots in Oats is to have the land in very high condition; and where this is not the case an application of guano or some other ammoniacal manure when sowing the seeds will have the desired effect.

—— Sandie or Sandy Oat.—This variety, according to Lawson, was discovered in 1824-5, on the farm of Milton of Nath, in the parish of Rhynie, Aberdeenshire, on a bank of recently thrown-up earth. It was carefully preserved by Mr. Pratt, and propagated from year to year, and now it is extensively cultivated in almost every district of Scotland. The Sandy Oat grows freely; it is tall and stiff in the straw, not easily lodged, nor liable when ripe to shed its seeds so readily as the first-named variety. The grain is smaller and not quite so rich in meal as the Potato Oat, but it weighs well in the bushel, and is liked by millers. It is not well adapted for feeding horses with, unless when bruised, as the smallness of the grain renders them liable to be swallowed whole. Sandy Oats are valuable for sowing on soft mossy soils, where the crop is apt to be laid, and no doubt they would answer well on the fen lands of England. It is also a better Oat for clay land than the Potato variety, as it is not apt to become sedge-rooted. When sown alongside of each other on good firm land the Potato Oat always surpasses the Sandy in quality and produce of grain, but on softer soils the latter is to be preferred on account of the greater stiffness of its straw, which makes excellent fodder. The Sandy Oat is also rather earlier than the Potato variety, but it assumes a deep yellow colour eight days before it is ripe, while the other is quite ready for being reaped a week before the green colour disappears.

—— Hopetoun Oat.—This Oat was first grown by Mr Patrick Sherriff, of Mungoswells, East Lothian, and introduced to general cultivation soon after 1830. When well grown it has a large spreading panicle (ear), large seeds of a brownish ring, having a red spot on the breast, by which it is easily known, even in sample, from other varieties. The straw is remarkably long, but by no means so stout as the thickness of the ear would indicate, and it makes coarse fodder. It does not shed its seeds so easily in high winds as the Potato Oat, but when laid it goes flat to the ground, and very great loss is sustained in reaping from the rippling of the ears, and the consequent shedding of the grain. It is rather thick in the husk, and does not meal so well as some of the other early sorts. Weight for weight it does not yield so much meal by nearly a stone per quarter as the Potato Oat. The grains are large, and when used for seed require to be sown about a bushel per acre; both therefore on this account, and also as the young plants do not tiller much, it is best adapted for sowing on light trap soils, but on clay it is apt, like the Potato Oat, to become sedge-rooted. To obviate a liability to fall it is customary to sow Sandie or Kildrummy Oats along with it. The proportions recommended for seed are very various. Mr. Finnie, of Swanston, whose experience on this point is detailed in the Transactions of the Highland Society of Scotland, recommends five parts of Hopetoun to one of Sandie or Kildrummy. Some farmers sow a half-and-half mixture, and others again prefer intermediate quantities; but in every case it is beneficial to sow the largest proportion of Hopetoun, and just as much of the Sandie or Kildrummy as will be most likely to keep the crop from lodging.

—— Early Angus Oat is quite as early as the Potato Oat, not so liable to shake, and rather shorter in the straw, which is of better texture, and makes good fodder. It is only suitable for good land in high condition. When sown in secondary soil it grows well until the ear is shed out, giving the promise of a heavy crop; but is very apt to thin out afterwards, and produce but an indifferent crop ultimately.

—— Berlie Oat.—There are two varieties of this Oat—the English and the Scotch. The former was brought from England to Aberdeenshire, about the year 1837; and the latter has been cultivated in that country for more than 50 years. The English Berlie Oat resembles the early Angus in the form of the ear and the shape of the seeds, which are less infested with awn and of a lighter colour. The glumes are also opener, and the seeds more generally double, but not more liable to shake. It is a good Oat for all descriptions of rich soils, and is not subject to Tulip-root. It stands well, produces a fine equally-ripened

[illegible] and is more prolific than most of the other early sorts. Mr. Douglas, of Athelstaneford, East Lothian, considers the Berlie next to the Potato Oat in produce, than which it is about a week earlier. The Scotch Berlie Oat is quite different from the English variety, being later in ripening, not easily shaken, and more adapted to light soils. The straw is of excellent quality, and makes good fodder; and the grain yields and brews well.

— Poland Oats are a week earlier than the Potato Oat, very hardy, with plenty of straw, but an inferior sample of grain. It is principally grown in Ayrshire, where it is said to produce excellent crops; but Mr. Lawson says that when tried in other parts of Scotland the yield has not been equal to that obtained in Ayrshire.

— Common White Tartarian Oat is very tall, straight, and [illegible], and not apt to lodge. The ear is bent to one side, but not [illegible] as the Black Tartarian, and is also more straggling. The grain is long, generally awned, and of a dull white colour; very productive, but light in the bushel. It is well suited for our climate, but requires a good soil either of black mould or peat.

— Black Tartarian Oat.—Pretty generally cultivated in districts where peaty and marshy soils abound. It carries the ear on one side only, is very early, long strawed, produces a large bush, and yields very abundantly. The grain when grown on proper soils is quite black, rather long, but not much awned or tailed. It produces a very superior quality of meal; but in consequence of the practical difficulty connected with the entire separation of the husk from the meal, the latter is frequently injured in appearance by the presence of black specks derived from the former. It is grown extensively for horse food; for which, from the length of the grain, it is well adapted. It is grown extensively in the fen districts and on the peat soils of Scotland, both in high and low lying districts. It is sometimes grown also on what is termed hard black land, where it produces very extraordinary crops, sometimes as much as 100 bushels per acre. The weight per bushel on fenny and peaty land runs from 35 lbs. to 28 lbs. per bushel, and on hard black land from 38 lbs. to 41 lbs. per bushel. The principal practical objections to growing black Oats are the inferiority of the straw for fodder. If a farmer can grow 60 bushels per acre of any of the finer varieties of white Oats (42 lbs. per bushel), it is better than with 66 bushels of black Oats (38 lbs. per bushel), taking only the produce of meal into account; and if the value of the straw for fodder be also calculated, the superiority of the former will be still more enhanced. Those who sow the Tartarian Oat on fenny or peaty soils regularly, as a part of their system of farming, should endeavour to get a change of seed every two years from hard land, otherwise their stock will rapidly degenerate both in quality and quantity.

[The above memoranda are for the most part from the pen of the late Mr. Haxton, of Drumnod, Fifeshire.]

ECONOMY IN BREAD.

THE high price of provisions of all kinds has induced various schemes of economy, none more important, or of wider application than in bread; and our French neighbours, being large bread eaters, have taken the lead in the more recent, and in some respects the best. Some of these schemes are for increasing the produce from a given weight of flour, by the addition of a small portion of Rice or Maize (a mixture of the two would probably improve both): others without addition, by skilful or scientific management. And the latest, just made public, gets not only more bread from the flour, but more flour from the corn; yet the discoverer makes the bread white, without alum or any objectionable ingredient. From 100 lbs. of corn he gets 86 lbs. of flour, which makes 110 lbs. of fine white bread. He has discovered that the brown colour does not come directly from the bran, but is generated from it during the fermentation and baking, by the presence of a substance which he calls "Cerealine," and which he has found means to neutralise. He therefore first sifts out the fine flour; then the coarse bran; and the intermediate portion (2ds and 3ds mixed) consisting chiefly of flour but with bran enough to make very brown bread by the usual process, he works with a little yeast and much water till the Cerealine is neutralised. He then washes the flour with the water through a fine sieve, leaving the fine bran behind; and getting out all the flour in the purest state, and the bread more palatable as well as white and thoroughly wholesome and nutritious; closely approaching, indeed, to perfection; the sooner it gets beyond the scientific journals the better. I hope in a few weeks, when it may have undergone further discussion, to send your readers practical instructions; and may conclude this with the old English method of increasing the produce of bread with bran water, before "Cerealine" was known, so that the bread was neither so white nor tempting as that of M. Mege Mouries just described. But the increase (152 lbs. instead of 125 lbs. from 100 lbs. of flour) renders it well worth attention in the present dearness of corn. Meanwhile those who wish to understand the theory and details of Mouries' process may find it in the "Chemist" Monthly Journal, by Watt, London, for May and June, 1857.

Bran Water in Bread.—In the "Weekly Entertainer" of March 18, 1800, is a letter of the Rev. Francis Haggitt, prebendary to the Bishop of Durham, in which he states that flour kneaded with bran water will produce a more substantial bread and a greater quantity of it than bread made in the common way. In the Rev. baker's experiment, he took 5 lbs. of bran, boiled it, and with the liquor strained from it kneaded 56 lbs. of flour; adding the usual quantity of yeast and salt. When the dough was sufficiently raised, it was weighed and divided into loaves; the weight before being put into the oven being 93 lbs. 13 oz., or 8 lbs. 10 oz., more than the same quantity of flour kneaded in the common way; it was then baked two hours, and some time after weighed 83 lbs. 8 oz.; showing a loss in baking of 10 lbs. 5 oz.; the same quantity of flour kneaded with common water, losing 15 lbs. 11 oz., and producing only 69 lbs. 8 oz. of bread. The gain by the bran water is thus 14 lbs. out of 70 lbs., or a clear increase of one fifth; while the bran, after being used in this way, is equally fit for many domestic purposes, and better for pigs and poultry than if given raw. This increase of 14 lbs. when only 5 lbs. of bran were boiled appears at first astonishing, but he accounts for it thus:—1. The water weighs half a pound a gallon more than common water. 2. Owing to its glutinous consistence it is less subject to evaporation by heat. 3. A greater quantity of it is necessary to make the dough, viz.:—3¾ gallons instead of 3 gallons. The 5 lbs. of bran weighed, after the liquor was strained off, and while wet, 17 lbs. To persons who are making their own bread these facts must prove interesting; and looking at the experiment in a chemical point of view there is no doubt the decoction of bran would have a very considerable effect on the flour.

Towards the end of 1853, a discovery was announced in Paris, by which upwards of 520 lbs. of good bread could be made from a sack of flour (280 lbs.); and for which a large reward was demanded. In April, 1854, the inventors were invited to Marylebone Workhouse, London, to put their discovery to the test. The following is a brief report of the experiments:—

"A very remarkable exhibition took place on Thursday last, at the Marylebone Workhouse, by Messrs. Morlan, Martin, & Journet, a French firm, who undertook to demonstrate before a committee of the Board of Guardians that, by a peculiar modification in the fermenting process, the amount of bread from a given weight of flour could be increased to at least 50 per cent. This singular method was invented by a French gentleman, a pupil of Orfila. Two sacks of flour were made use of, both under seal, and issued by the authorities of the workhouse. One of these was manipulated in the ordinary way, the other by the associated French manufacturers. The results were in the highest degree satisfactory. The first sack converted into bread by the usual method produced 90 loaves, weighing 360 lbs. The second bag of flour, placed in the hands of the French bakers, produced 134 loaves, weighing 520 lbs., giving an increase of very nearly 50 per cent., under circumstances very disadvantageous to the owners of the secret. The place, the oven, and apparatus were all new and strange to their workmen, who had many difficulties to contend with. It was admitted by the spectators that, in consequence of such drawbacks, there was a considerable waste of bread in the oven. There was a large attendance of scientific men, as well as bakers from the country and city, who witnessed the process with the keenest interest. All frankly and readily admitted that everything was above-board and fairly conducted, and that the result had exceeded their expectations. This marvellous increase in production does not arise from any weighty substance mixed with the dough, as no extraneous ingredient can be discovered in the loaf by the most rigid chemical analysis."

To this last assertion Professor Pepper, of the Polytechnic, demurred; and put a quantity of their bread to comparative analysis, of which his report is subjoined:—

"Laboratory, Royal Polytechnic Institution,
"April 15th, 1854.

"Having continued my experiments and microscopic examinations this week with the bread made by the new French process, as compared with the workhouse bread, both of which, it must be remembered, were made with the same flour, I am the more convinced that Rice is the material which confers the water-keeping property upon the bread made by the new process.

"1000 grains of each bread have been examined for gluten. The French contained 87¾ grains; the workhouse 96½ grains. Now, the increased weight of gluten in the former, found by working the 1000 respectively into 529 and 360, must have come from 'something added,' as of course the flour has not the power of increasing the gluten during its conversion into bread; and the following analysis, deduced from the quantity of water and gluten obtained, will approach the truth as near as the analyst can go:—

529 lbs. of French bread contain—		360 lbs. of Workhouse bread contain—	
Gluten	34	Gluten	34
Gluten (possibly from semolina added)	12	Starch, sugar, gum	174
Starch from Rice added	20	Water	152
Starch, sugar, gum	174		360
Water	280		
	529		

"The above analyses receive a further verification from the result of the following recipe sent to me anonymously from Brighton, and printed on a sheet of note paper:—

"'TO MAKE GOOD BREAD.—Tie up one pound and a half of the best American Rice in a thick linen bag, allowing it ample room to swell; boil it for three or four hours until it becomes a smooth paste; mix this while warm with 14 lbs. of best flour, adding the usual quantity of yeast and salt. Allow the dough to work a certain time near the fire, after which divide it into loaves, and it will be found to produce from 28 to 30 lbs. of excellent white bread.'

"With the assistance of Mr. Clapperton, baker, Mortimer Street, this recipe was tried, and produced 26 lbs. 13 ozs. of good bread, which, multiplied by 20, afford 536 lbs. 4 ozs. from the sack of flour, 20 times 14 being 280 lbs.; being 7 lbs. more than the French bakers.

"In making the bread with the boiled Rice, Mr. Clapperton says that flour must be dusted in, and most vigorously kneaded, and he will be happy to make any quantity for the curious, or those doubtful of the fact.

(Signed) "JOHN HENRY PEPPER,
"Professor of Chemistry, Royal Polytechnic Institution,
"F.C.S., A.C.E., &c.. &c."

This Ricy bread is very sweet, pleasant, and wholesome, and keeps moist longer than pure Wheat bread, and thus tempts us to eat more; but made up with East Indian Rice, or Maize-meal, both cheaper than American Rice (either may now be had for 1½*d.* per lb., in the present state of the market), it will make more bread, equally or more nutritious, and not so generally tempting to greater consumption. The East India Rice may be treated as the American; but the Maize-meal must be thrown into six times as much cold water, to float the husk (or bran), which must be skimmed off. In boiling them to the required paste (which should weigh 6 lbs. for each pound of Rice or Maize), they should not be set on the open fire, as that might burn them to the bottom; but on (or in) a boiler of water, so as to be heated only by the boiling water or steam.
I. Prideaux.

ON DIGGING AND TRENCHING.

MUCH of the tillage operations of agriculture may, under many circumstances, be performed with the spade or the fork with great advantage over the plough. Where labourers are plentiful, as in populous manufacturing districts, especially during a scarcity of demand for labour at other employments, tillage operations may be cheaper and certainly more effectively performed by the spade than by the usual implements for the purpose worked by horses; and the principal objections to the adoption of spade husbandry generally, are the great number of labourers that would have to be obtained; the difficulty of providing so great a number as would be required at some seasons of the year with employment at other times; and the greater amount of capital that would be required in the culture of the soil. Whilst, on the other hand, from the greater perfection of the operation of the spade to that of the plough, the cost of the former-named mode of culture would be found to be cheaper than the latter, if the quantity of produce be compared. At any rate, under many circumstances, the spade might more extensively supersede the plough both to individual advantage and to the benefit of the community. Under such circumstances as the breaking up of woodland, and land abounding with landfast stones, no other mode of cultivation than by the spade can be adopted.

The actual cost of digging will vary according to the quantity of work that can be performed in a given time, or rather the time that may be required in the performance of the work on a given extent of surface; and such variation will be influenced by the nature and state of the soil, and by the obstructions that may be encountered in the operation.

Thus, in SURFACE DIGGING to a depth from 9 to 12 inches on soil recently tilled, a statute acre will afford employment for one man, accustomed to work with a spade, from 14 to 21 days, according to the nature of the soil; whilst the same quantity of ground that has grown a root crop which has recently been carted off, or clover leys, will require from 18 to 24, or even sometimes 30 days.

BASTARD TRENCHING, that is, digging the surface to the depth above stated, and forking the subsoil without bringing it to the surface, which is in effect the same as subsoil ploughing, will require, where no obstructions exist to prevent the use of a broad implement for forking, from one and a half to double the labour of surface digging; but where the subsoil is *moorband*, or so hard as to require the use of a pick or single-pointed implement to loosen the subsoil, the amount of labour will be considerably greater—even as much sometimes as three times that required for surface digging a moderately free working soil.

FULL TRENCH, with two spits following each other to a depth of 18 inches—in which the first or surface spit is turned down in the bottom of the trench, and the second brought to the surface, as is generally practised by horticulturists—can seldom be performed, under the most favourable circumstances, than in proportion of 5 to 2 of the expense of surface digging in a free working soil; but in woodland, and ground encumbered with landfast stones, the operation of full trenching an acre may involve the labour of one man for from 10 to 30 weeks.

POINTING ground that has been previously dug without producing crop, may generally be done at about half the expense of surface digging.

For digging, and also for full trenching, a garden spade is the best implement; but for loosening the subsoil in bastard trenching, a fork is better than a spade. The best size of spade is 15 inches long by 10 inches wide; the fork should be about the same dimensions as the spade, have four prongs, and, in order to combine lightness and strength, it should be made entirely of steel. The handle of either implement should be about 30 inches in length, slightly cranked at the lower end, and be connected with the working part by long straps at both back and front.

The following is a table, constructed from the foregoing premises, of constant multipliers for ascertaining the cost, under different circumstances, of digging, trenching, and pointing, per square rod of 30¼ square yards, being 1-160th part of a statute acre:—

NATURE OF GROUND.	Digging 9 to 12 in. deep.	Bastard Trenching.	Trenching 18 inches deep.	Pointing.
Light free soil	·08333	..	..	·04166
Ordinary loam	·1	..	..	·05
Strong soil	·125	..	..	·0625
Compressed Turnip soil	·1125	..	.	·05625
Compact strong soil	·146	.	..	·073
Tender Clover lea	·154166	..	..	.
Tough Clover lea	·1875	..	..	..
Free subsoil	..	·15	·25	..
Compact subsoil	..	·25	·37	..
Moorband and stony subsoil	..	·4	·5	..
Subsoil with tree roots and landfast stones	..	..	·5 to ·625	..
Subsoil thickly encumbered with tree roots and landfast stones	..	..	·75 to 1·25	..

To use the foregoing Table.—Multiply the rate of wages per day in pence by the tabular number applicable to the case required, and the product will give the price of the work per square rod of 30¼ square yards, in pence and decimals of pence.

EXAMPLES.

Required the price per rod for surface digging ordinary loam, so that the workmen may earn 2*s.* 6*d.* per day.

2*s.* 6*d.* is 30 pence, the product of which multiplied by ·1, the tabular number required in the case, is 3·0*d.* per rod—the rate required.

Required the cost per rod of trenching a compact subsoil to a depth of 18 inches, so that the workmen may earn 2*s.* 9*d.* per day.

2*s.* 9*d.* is 33 pence, the product of which, multiplied

by ·37, the tabular number required in the case, is 12·21*d.* per rod—the rate required.

If the price be required for any other kind of measure than statute measure—plantation measure, for instance—refer to the table of the relative values of the different kinds of measures at page 64, in which it will be found that 1 plantation measure is equivalent to 1·61983 statute; then, by multiplying the result of the above rule by such equivalent, the price per statute rod is converted into the price per plantation rod. Thus, 12·21*d.* per statute rod—the answer of the last example given above—multiplied by 1·61983, is 19·7781243*d.*, or rather more than 1*s.* 7¾*d.* per square rod, plantation measure. *From Ewart's Agriculturist's Assistant.*

Home Correspondence.

The Royal Agricultural Society of England and their Prize System.—The high character maintained by the *Gardeners' Chronicle* with the agricultural world has induced an old subscriber to address the following remarks through its widely diffused columns to the members of the Royal and leading local agricultural societies throughout the country. A contest has been going on for a long time between the implement manufacturers and the Royal and local agricultural societies of this country, relative to the system of trials and awarding of prizes. By whom the contest has been urged on is probably known to few; why it has been urged on is apparent to many. Whether the Royal Agricultural Society of England acted wisely in deferring to the compact of implement makers which enforced triennial trials of implements, or whether the Bath and West of England Society have been injudicious in contending against the compact, time will shortly tell. Did the public know the heads which led the hands in getting together this antagonism to the long followed routine of the societies, then would be known the motive which prompted to action. If the active men of the compact are those who in other days won their renown and established the reputation of their respective houses without the hard struggling of rival competitorship, and who under the system of actual trial do not hold their ground against newer and younger blood, then is the system hitherto pursued by the Royal and other societies, although excellent in itself, injurious to them, and hence had arisen the active campaigning for revolutionising the old regulations of agricultural societies. Suppose that some implement lords, who under fair competition can lord it no longer, are the instigators of the movement, will not the same men shout loudest against the system of prizes, and through their clamour will there not be heard, "if we cannot get the first prizes let us down with prizes altogether, and in their place get substituted a system of classification in which our forlorn appearance will not be seen, and where our old reputation, although it may have been dubiously obtained, shall yet throw a halo around us, sheltered as we then shall be, although last in a class, by appearing on a par with the first man there?" Let the Royal Agricultural Society of England ponder over this, and let it beware of the trap laid for it. If general reasoning be correct, that which the Society should support, and which would be most beneficial for leading the public to a fair conclusion as to the best makers of the day, is the course most detrimental to those who would live on the past without hope for the future. *Observer, July* 1.

The best Mode of applying Guano.—Some of my neighbours who steer by the newest lights are asserting this year that top-dressings of guano are best applied in dry weather. "Never mind the sun," say they, "but avoid rain if you can." As the question is now a good deal discussed, will you kindly give me your opinion? Our Turnips here have been attacked by "cankers" (Norfolk for caterpillars), but fortunately we have a powerful rookery, and our black friends came in force and cleared them off in a day or two; had it not been for their intervention the whole crop in two fields was lost. I wish your misadvised correspondent Mr. Hardy had been here to see. *W. J.* [We would apply guano and all other manure containing easily soluble matter during rainy weather if possible. Their efficiency depends on their being dissolved and distributed throughout the soil.]

Cheap Horse-power.—I have been reading Mr. Chadwick's paper on the American horse-power, but I find he has omitted one material point which has interfered very much with the universal introduction of the machine, and against which I would wish to warn any one who might put one up for use; I mean the great injury to the horse in strains of the back sinews. I need hardly say that were such a machine to possess no counterbalancing disadvantage, no other form of horse-works would ever be made in America, as the advantage of having your horse or horses under cover, and so being able to do all threshing and other work when from bad weather no one can move out of doors (for grain is mostly stowed away in barns and sheds there), cannot be sufficiently estimated, but the old style of works, where the platform was much raised at the front, so as to take full advantage of the weight of the horse, was ruin to a horse. They were very much disliked in Canada in consequence. Now they make them much lower, but still they are awkward looking things, such as no man would put a favourite horse into, though doubtless there are many who use them who never consider the sufferings of the horse at all, and if he is used up within a certain time only work him the harder in the interim. The objection however to them is universal among farmers, as far as my experience goes, on that score alone. Now they say they make them much easier for horses, but I think somehow they must strain them. One thing is clear, and that is that if they make them level enough to ease the horse, the efficiency must be very much impaired, and certainly a horse does not seem comfortable in them. *A Canadian Farmer, Plymouth.*

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

WEEKLY COUNCIL, *July* 8.—Colonel CHALLONER, Trustee, in the Chair.

PACIFIC GUANO.—Professor Way transmitted a report on his chemical investigation of the samples of guano from islands in the Pacific, forwarded by Mr. Rowlandson to the Foreign Office, from which it appeared that the guano in question contained only one half per cent. of ammonia, and was, in Professor Way's opinion, of comparatively small value, entirely dissimilar to the produce of the Chincha Islands, and not worth the expense of importation into this country.

MADRID MEETING.—A letter was read from the Board of Trade announcing that an Agricultural Exhibition would take place this year at Madrid, and enclosing a list of the prizes offered; among which are those for English cattle, horses, sheep, and pigs, of pure or mixed breed.

Messrs. Cartwright, of Clarendon Terrace, Newington Green, submitted specimens of a manure constituted of animal gelatine and earthy matter; and Messrs. Chisnell & Son, of Colchester, transmitted a specimen of their Giant Rye.

SPECIAL COUNCIL, *July* 8.—Colonel Challoner, Trustee, in the chair, at which details connected with the arrangements of the ensuing Salisbury Meeting were taken into consideration, and instructions issued in reference to their completion.

The Council stands adjourned to a special meeting at Salisbury on Friday the 24th of July.

SUFFOLK.—At the anniversary meeting of this Society last week, the following interesting picture was given of the Differences between English and American Farming, by the Hon. H. F. French, one of the Vice-Presidents of the U. S. Agricultural Society. He said,—

"The fact is, that thousands of acres of the lands taken at the Government price of 5*s.* an acre have been planted 30 years with Indian Corn and Wheat without the crop perceptibly diminishing. They are bottom-lands, where probably rivers once flowed, and are called river-bottom lands. But even these soils may be exhausted in time. And we have found in New England, where we have been 200 years (a long time for America) that in our old fields the system of taking everything off and putting nothing in begins to fail. We find we must apply manure if we wish to get any crops, and we are looking anxiously round to see whether we can stay there, or whether we must go west and desert the works which we have been two hundred years in rearing. It is by a careful observation, I think, of the agriculture of this country that we must profit more than in any other respect. In passing over your grounds to-day I noticed at every step the difference between the old country and the new. Every one of the implements which I observed here marks this difference. Your implements are of perfect workmanship. I have been in the warehouse of my friend, Mr. Ransome, where many of them are made, and I see there is a great deal of fine workmanship in your implements, and that they are made far more expensively and durably than implements are with us. Why is this? Because you believe that you are perfect in your agriculture. But take your ploughs. Our ploughs are about as much like yours as they are like a spoon. I asked a gentleman what was the weight of one of your ploughs, and he replied 280 lbs. This was a plough for two horses; and a plough in my country, such as we work with three yoke of heavy oxen, equal to six horses, is of such a weight that one workman can walk off with it very comfortably. I have seen it done hundreds of times; and yet such a plough will not readily break. I do not know how your ploughs may act in your land, but they would be old iron in ours in about five minutes. It does seem to me that, with regard to agricultural implements, you gentlemen may learn something of America yet. I was glad to see M'Cormick's reaper upon the field. It looked American, and it appeared to indicate that you were looking a little that way, and seeing whether you might not learn something from us. No doubt your implements are better for your own soil, but I doubt whether they are better for ours. We are indebted to you for much. We are importing some of the best stock that we find in the country here. We send our agents, who come and take away the best bulls and sheep and everything else they can find. Plenty of Indian corn will raise a good animal as well as anything else under the sun; and if you will attend the agricultural show of our United States Agricultural Society at Louisville in Kentucky, you will find that we shall show as good short-horned stock, according to our notions of goodness, as ever you saw upon the earth. There are different ideas as to what constitutes a good cow. I was told this morning that a certain cow was a beautiful one, and I asked, 'Does she give a good deal of milk?' The answer was, 'Well, I don't know.' I asked, 'Will her stock give a good deal of milk?' 'Well, they may or they may not.' Now, I want a cow that will give milk; if she won't give milk she is good for nothing, and I don't care how short her horns are."

Reviews.

Chambers's Information for the People. Agriculture. We have received the first sheets of the re-issue of this work, than which, as it is sure to reach the hands of the largest number of readers, no work on its subject can be more important. It appears to be in the hands of many of our most intelligent agricultural writers. Mr. Robert Russell, of Kilwhiss, evidently guides the pen when it is treating of the chemistry of agriculture; Mr. Lockhart Morton has a good deal to say on the architectural part of the subject; Mr. Melvin, of Ratho, speaks of tillage implements, and Mr. John A. Clarke speaks of spade husbandry and Lois Weedon. We do not, from the portion of the work before us, gather very easily what the plan of its arrangement is intended to be. Many important topics are discussed and dismissed in a very few words, if indeed they are not intended to reappear before the close of the book: and they are singularly mixed up together. A general definition is followed by a chapter on the chemistry of agriculture, and that by passages, for they are hardly more, on the physiology and the meteorology of agriculture. The physical and the chemical conditions of the soil are then referred to. The climate of Great Britain is then described and then follow sections on cultivation, tillage implements, the operations of ploughing, sowing and drainage; on green crops, white crops, haymaking, horse rakes, reaping machines, and harvesting; on the economy of rotations, on farm buildings, on the cost of a farm, on leases and rents, on waste lands, and spade husbandry. This is the order in which the topics succeed each other so far as the pages have yet reached us. There is not any very obvious principle of arrangement apparent here. The following extracts will suffice to illustrate the very useful character of the text of the earlier part of the work.

The Physiology of Agriculture.—"The first great physiological distinction which may be drawn with respect to the capabilities of plants for drawing a supply of food from the atmosphere is, that annuals are much more dependent on a supply of carbonic acid and ammonia in the soil than perennials. Indeed, comparatively speaking, annuals exhaust, but perennials ameliorate the land. The more nearly that an annual approaches in its habits to a perennial, the less dependent it is upon a supply of carbonic acid and ammonia in the soil. So long as an annual plant puts forth fresh leaves, it is capable of drawing upon the food contained in the atmosphere, and is therefore less dependent on a supply furnished to its roots. Thus a Pea, which puts forth fresh leaves and blossoms, and even ripens fruit at the same time, can draw more largely from the atmosphere than the Wheat-plant, which puts forth no fresh leaves after it flowers, when the most of the leaves lose their vitality. The Wheat-plant being in a great measure devoid of foliaceous surface, must be liberally supplied by manure, and hence it has the character of being an exhausting crop." "As already stated, perennials as a general rule—particularly true with respect to the larger kinds—are less dependent on a supply of ammonia and carbonic acid in the soil than annuals. Viewing the physiological aspects of the question, the principle may be stated so as to embrace annual and perennial vegetation in the following terms: Plants are less dependent on a supply of carbonic acid and ammonia in the soil when their vegetative powers coexist, as they do in Grasses and Clovers, with their flowering and seed-forming processes. Perennials not only possess greater facilities of abstracting food from the atmosphere, but they have greater facilities of abstracting it from the soil. By forgetting this very obvious principle, great confusion has arisen among agricultural writers respecting the action of some manures. For example, much ingenious speculation has been indulged in to account for the well-known fact that phosphates have, as a general rule, a more beneficial action on the Turnip crop than on any other. This, however, admits of a simple and consistent explanation, when we reflect that the size of the seed of the Turnip is infinitely less in proportion to the space which the plant ultimately occupies, than is the case with any other plant. The seeds of Clover and Grasses are small, but as they are thickly sown over the ground, the individual plants do not require to run far in search of phosphates; and they have also more time to search for a supply. With the Turnip, it is different; it is sown at a season of the year when vegetation is stimulated by a high temperature. The small seed of the Turnip has no phosphates within itself to produce a large growth of leaves and rootlets; and thus, unless it have a liberal supply added as manure, it cannot grow with vigour or rapidity. For this reason, phosphates must often be added to the soil to produce a crop of Turnips, when these substances are by no means awanting, and not even deficient in quantity for growing other crops, which must absolutely obtain a supply as large, but whose facilities for obtaining it are much greater, so that they are less dependent on an artificial supply."

The Meteorology of Agriculture.—"There are good grounds for believing that the amount of ammonia in the air is directly as the quantity of moisture it contains. The supply is larger in hot and moist weather, than in cold and dry. This supposition is so far supported by the fact, that all plants are less dependent on a supply of ammonia in the soil in the warm season, than in the cold: in other words, it takes more manure to grow a plant in spring than in summer." "The theoretical dictum which has been put forward by English writers, 'phosphates for Turnips, and ammonia for corn,' has led to much misconception regarding the facts involved. If it be necessary to draw distinctions on this head with respect to the requirements of annual plants—always bearing in mind the qualifications we have made—it is pretty near the truth to say, 'ammonia for spring, and phosphates for summer.'"

Chemical Condition of the Soil.—"It is well known that Sainfoin and Lucerne will not thrive upon land, unless it contains a large quantity of calcareous matter. Now, the analysis of the ashes of these plants does not indicate that either of them requires more lime for building up its vegetable structure, than some others that thrive upon soils containing but a small quantity of calcareous matter." "Turnips, it is well known, are subject to finger-and-toe, a disease for which a liberal

application of lime to the soil will act as a preventive. That the lime in this case, however, does not act by merely affording lime as a constituent to the crop, is evident from the fact, that it does not cure finger-and-toe when applied, like other manures, at the time the crop is sown. It must be applied for a year or two previous, that it may have time to produce a certain chemical effect upon the land. The particular action in this case, we have been led to believe, consists in the lime directing or controlling the particular decomposition that all vegetable matter is undergoing in the soil."

Farm Memoranda.

FARNINGHAM, IN KENT.—[We abridge the following account of Mr. Dray's farm buildings from the *Mechanics' Magazine*.]—The homestead is a large rectangular structure, divided for about two-thirds of its length by partitions into three compartments, of which one is furnished with stalls for oxen, a second with stalls for horses, and the third with every kind of implement that can be desired for the preparation of the food of the cattle, such as corn-mills, bean-mills, root-slicers, chaff-cutters, &c., the whole of these being driven by a small steam-engine. The remaining third of the length of the building is appropriated to the storing of fodder and grain, and the stowing of carts, field implements, &c., the granary being separated from the remaining portion by an additional floor and partitions. The building is covered by a light three-span roof, with iron framing, and amply glazed to supply light; and in the sides of longitudinal turrets rising from each span there are louvres which, with arrangements for admitting air below, ensure perfect ventilation. The cattle stalls in the two compartments are in each arranged on either side of a central passage leading from end to end, and each stall is fitted with an iron manger, a rack, and a water trough, to which water is constantly laid on from a reservoir, into which it is pumped by the steam engine. Harness rooms are arranged at each end of the compartment containing the horses, and every requisite of stable furniture is supplied. On one side of the building, and external to it, is a low sloping roof which covers in a space for carts, waggons, and the more cumbrous farm implements; and on the opposite side is a similar roof covering the styes of the pigs. Gates lead from the storehouse end of the building to the straw yard on the one side, and a meadow on the other.

It is in this meadow that the new distillery for obtaining alcohol from Beetroot or Mangel Wurzel is built. In the first instance the outlay of capital on buildings and plant was considerable; then permission from the Excise was necessary, and prejudices had to be overcome. At length the Excise Commissioners gave permission for one distillery, and decided to wait for proofs of its satisfactory working before allowing the erecting of others. Mr. Dray thereupon erected his distillery at Farningham, and proceeded to work out the required results. The value of the spirituous yield of Beetroot by this process has been satisfactorily proved, but what renders it infinitely more valuable is, the fact that the pulp, or steamed slices of the root, which are removed from the cylinder after the alcohol has been extracted, forms a most valuable food. On a recent visit to Farningham, we saw some ewes and lambs which had been fed upon the pulp mixed with a small quantity of cut hay. The whole flock were in splendid condition; and so fattening is the pulp, that many ewes with two large lambs were quite fat enough for the butcher. On looking into the feeding troughs we saw hay only, the whole of the pulp having been eaten.

Miscellaneous.

The Value of Green and Root Crops.—There is nothing that puzzles an inexperienced agriculturist more than this question. If you graze and do not breed stock you will have occasionally to pay very high prices for your lean animals. At this moment (March, 1857) you cannot buy lean sheep under 7*s.* per stone of 8 lbs. (net dead weight), whilst the price of fat sheep is only 6*s.* per stone; so that probably those who purchase lean stock now will have to give away their root and green crops without return, except the manure, or at the end of 16 weeks sell the same sheep fat at no greater price than they now cost lean. In this instance the breeder has the advantage, at other times the reverse of this takes place. On the whole, perhaps, there is no better average plan than breeding a portion of your stock if the farm is suitable for it. Some years your root and green crops will realise in meat 7*l.* to 8*l.* per acre, at other times possibly not so much as a tithe of that sum. Turnips that cost 7*l.* or 8*l.* per acre are often let for feeding at 1*l.* per acre, the owner of the sheep giving them half a pound of oil-cake per day. I have known that many acres of roots and green crops have been given for the purpose of sheep feeding where farmers are deficient in capital. As a general rule, where much purchased food is used a considerable loss or charge is incurred for the manure, but still it is the best and cheapest way of obtaining it. If you are unfortunate in the health of your stock then the loss is serious indeed. A long experience has taught me that pigs lose less money than any other stock. Seeing that manure is so costly to produce, the waste of it is indeed an agricultural criminality. Animals that are fed on hay, Linseed-cake, and roots, seldom leave much price for the roots after paying for the hay and cake—leaving no margin for casualties, attendance, or shelter. *Mr. Sheriff Mechi's Pamphlet.*

Calendar of Operations.

JULY.

WEST SUSSEX: *July* 7.—We have now got hay making over, and have had one of the most favourable seasons for it. While the crop has been fair the seasonable showers have brought up the under Grass in the meadows; and now with a larger than usual quantity of old and a fair crop of new hay and all of good quality, we can look forward to the winter without fear. During the past week we have had the weather stormy at times; the rain fell heavily and has laid a good deal of the Wheat, but not so as to do it much harm, while it has given a vigorous start to the newly mown Clover fields and meadows. Turnip sowing is now nearly over and the earlier sown are hoed and grow vigorously; there has not been so much complaint of the fly this year as last, but still there are an average number of failures, and certain success is not to be obtained except by plenty of seed and manure so as to get a rapid growth. Mangel looks well where the plant is regular but we often fail to get it so it is evident that there is some peculiarity in it that we have not yet been able to understand, but we think in a fair season to have good seed sown in well worked and well manured land, 6 or 7 lbs. seed per acre, covered very slightly and rolled down firmly, is most likely to secure a plant. Spring corn looks well; Potatoes are also looking well; we have heard of symptoms of the disease but do not think there is much of it yet to be seen, and if we have not much more rain we may expect a good crop, although we had not the advantage of early planting, said to be so advantageous. All kinds of lean stock are still dear and in great demand, and are likely to continue so, food being so abundant, and little can be got by feeding, even with the high prices of beef and mutton. From present appearances we may expect harvest earlier than it was the past two years. Peas will be ready in about a fortnight, and they are a good crop. *G. S.*

Notices to Correspondents.

BLACK GRASS: *H B.* It is impossible to say if you will be liable to it. A well cleaned, horse-hoed Bean crop is a good fallow crop, and we should suppose you might sow Wheat safely enough on that ground after it. Drill it 10 or 12 inches apart, and you can easily keep it clean. June 17 is not an exceedingly early period either for Potatoes or for Wheat to be in bloom; but it is before the general experience this year.

BLOOD MANURE: *Old Subscriber.* We have to apologise for the delay of the reply. The process by which blood manure is made has been repeatedly stated in these columns. You mix about 2 of bones, 2 of blood, and 1 of sulphuric acid together, and the result is a blood manure. Calcined bones are more easily acted on by the acid than fresh ones, and are therefore better for the purpose. The blood and bones are mixed together first, and then the acid is added.

CATTLE MURRAIN: *A Farmer at St. Leonard's.* We do not at all think with you on the subject, and in any case cannot publish charges unsupported by evidence.

CATTLE POISONED BY LEAD: *X.* The *Aberdeen Free Press* says that Dr. Gordon, of Downiehills, has lost seven of his cattle, very fine one-year olds, by poisoning. An eighth was partially affected, but is now recovering. On examination, their stomachs were found to contain portions of white lead. The poison had been met with in some way while they were grazing in the field. It is suspected to have been in connection with manure, probably ash-pits taken from the town, although none of these have been used on the farm for about ten years past. It shows the great care that would require to be taken by parties using paint, or anything containing white lead, to have it disposed of in some other way than by throwing it into their ash-pits, when such are its results so long after.

EXTENSIVE FARMING: *S R.* As an instance we quote from a letter to the *Weekly Messenger* by Mr. Arnsby the following particulars in reference to Lincolnshire Wold farming:—"Mr. Richard Dawson occupied the lordship of Withcall, 4 miles from Louth, which lordship contained about 700 acres. He boarded and lodged in his house 34 ploughmen, with a suitable number of female servants; and he used yearly 1500 Lincolnshire ewes as breeding stock. In December, 1838, he sold his three years' wool to Messrs. Holdsworth for 5981*l.* 4*s.*, consisting of 11,767 fleeces and 3148 tods. On the 30th of May, 1840, Mr. Dawson paid Mr. Robert Norfolk, for bones for manure, and Linseed-cake, 2111*l.* 6*s.* 3*d.*, of which there were 12,000 bushels of bones, at 2*s.* 6*d.* per bushel, 1500*l.* In January, 1841, he paid Mr. Norfolk for bones for manure 1562*l.* 14*s.* 9*d.* The rent at this time was 2000*l.*, and the tithe 500*l.* per annum. Mr. Dawson and his father laid out yearly 1500*l.* in bones for manure, for 22 years in succession, besides large sums yearly for oilcake. I once counted, when Mr. Dawson, sen., was living, in a close of 352 acres of Clover or seeds, 1000 ewes, with a lamb to each ewe, making together 2000 sheep stock grazing, with young cattle and horses. This great close, or field, was part of an old rabbit warren of 1000 acres when Mr. Dawson, sen., entered upon the farm. Such rabbit warrens at that time were let at 2*s.* 6*d.* per acre. The money for wool yearly appears large, upon land a few years back a wilderness; but we must remember that Mr. Dawson grew yearly 600 acres of Turnips, and gave his feeding sheep oilcake and corn with the Turnips; so that Mr. Dawson was a great winter feeder of sheep. At the same time, he grew yearly 600 acres of Clover or seeds. Mr. Dawson and his father, who occupied the farm until he died, had proved that green crops were the mainstay of all good farming. Meat and wool were two great leading objects with the late Mr. Dawson. I need not add, that Mr. Dawson had a lease of his farm, but the famous North Lincolnshire tenant-right or custom would have protected him. Mr. Dawson, sen., said that the Lincolnshire heavy woolled sheep were the most profitable upon his poor land, as the light woolled sheep did not winter so well, and that he had provided it to his satisfaction.

GRASSES: *J H R.* 1, Dactylis glomerata; 3, Festuca loliacea; 2 and 4 to 7, Poa; 8, Anthoxanthum odoratum; 9, Alopecurus pratensis; 10, Cynosurus cristatus; 11, Arrhenotherum; 12, Aira pratensis.

PEA-STRAW: *Capel F Adey.* It is nutritious fodder, and would be readily eaten along with sound hay, chaff, and Mangel Wurzel by cows.—Mr. Chadwick has not that we are aware published a "work" on neglected mechanical powers. The paper by him which we have printed was read at one of the Royal Agricultural Society's meetings.

PRICES OF SHORT-HORNS IN AUSTRALIA: *J L S.* The following extract from a Melbourne paper will give the information you seek:—"An importation per *Rhea Sylvia* of some pure short-horns from the herds of Wm. Miles, Esq., of Leigh Court, near Bristol, realised high prices. "St. Patrick," a light roan bull, brought 600*l.*, and was purchased by Messrs. Mooney & Harney; "Bristol," a yearling bull, 190*l.*, also purchased by Mr. Mooney; "St. Vincent," yearling bull, 160*l.*, Lintoff & Co.; "Arctic," yearling bull, 135*l.*, Lintoff & Co. The realisation of such prices must prove highly gratifying and satisfactory to the breeders of pure stock in England, and is also a guarantee of future improvement in our grazing stock. A draught from the Glenroy herd (Mr. M'Dougall's) also brought respectable prices on the same day. A three months' old bull calf was sold for 60*l.*"

WINTER OATS: *J E M* must obtain seed which has been harvested from a winter-sown crop, and sow 3 bushels per acre in October.

WATERING GARDENS AN AMUSEMENT—NOT A LABOUR.

WATER YOUR GARDENS and MANURE YOUR LANDS with GUTTA-PERCHA and INDIA-RUBBER TUBING. Half-inch gutta percha for gardens, medium 4*d.*, stout 4½*d.* per foot. Brass hand branch, stop cock, and rose, 5*s.* 6*d.*—Apply for illustrated Price Lists to JAMES SHEATH & Co., Patent Gutta Percha and India-rubber Factory, 35, Old Street Road, E. C.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, Esq., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

SHADING FOR GREENHOUSES, HOTHOUSES, PITS, AND FRAMES, ETC.

SHAW'S TIFFANY.—A light, cheap, and durable Fabric. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard, or 5*s.* per piece. A sample will be sent free by post on application to WILLIAM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex, appointed Agents.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

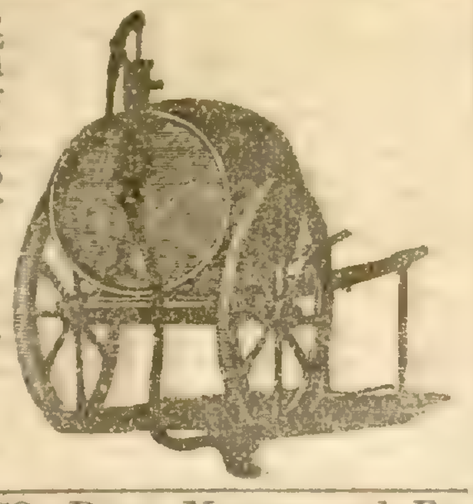
JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
" Hurst & M'Mullen, Seed Merchants, London.
" A. Henderson & Co., Pine Apple Place, London.
" Minier, Nash, & Co., Seed Merchants, London.
" Peter Lawson & Son, Seed Merchants, London and Edinburgh.
Mr. Charles Turner, Royal Nursery, Slough.
Messrs. W. Wood & Son, Maresfield, Sussex.
" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
Mr. F. Godwin, Market Hall, Sheffield.
Messrs. John Sutton & Sons, Seed Merchants, Reading.
" John Edmondson & Co., Seed Merchants, Dublin.
" B. Reid & Co., Nurserymen, Aberdeen.
Mr. J. H. Cottrell, Seedsman, High Street, Birmingham.
Messrs. Austin & McAslan, Nurserymen, Glasgow.
Mr. James Veitch, Jun., Exotic Nursery, Chelsea.
Messrs. James Dickson & Sons, Nurserymen, Chester.
" James Dickson, Sons, & Co., Nurserymen, Manchester.
" Mowbray & Lowe, Nurserymen, Wolverhampton.
Mr. George Baker, Nurseryman, Sunningdale, Bagshot.
Mr. R. Parker, Paradise Nursery, Holloway.
Messrs. W. Cutbush & Son, Highgate Nurseries, London.
" Garraway, Mayes, & Co., Nurserymen, Bristol.
Mr. Thomas McKenzie, Seedsman, Cork.
Mr. Edwin Hollamby, Nurseryman, Tunbridge Wells.
Mr. J. N. Ewing, Nurseryman, Norwich.
Mr. John Jeyes, Nurseryman, Northampton.
Mr. W. Cutbush, Nurseryman, Barnet.
Messrs. J. Blackburn & Son, Russia Mat Warehouse, 4, Wormwood Street, London.
Messrs. A. Martin & Son, Cottingham and Hull.
Mr. W. J. Epps, Maidstone.
Mr. John Holland, Florist, Middleton.
Mr. George Rogers, Nurseryman, Uttoxeter.
Mr. George Chivas, Seed Merchant, Chester.
Mr. W. H. Rogers, Seed Merchant, High Street, Southampton.
Messrs. Bass & Brown, Nurserymen, Sudbury.
Mr. W. H. Caparn, Seedsman, Newark.
Messrs. J. Morrison & Son, Nursery Seedsmen, Banff.
Mr. E. P. Dixon, Nurseryman, Hull.
Messrs. J. C. Wheeler & Son, Nurserymen, Gloucester.

J. S. & Co.'s "Tiffany" may also be procured from the undermentioned Nurserymen and Seedsmen:—

Messrs. Osborn & Sons, Fulham, Middlesex.
" Rollisson & Son, Tooting.
" A. Paul & Son, Cheshunt, Herts.
" Bainbridge & Hewison, York.
Mr. Caldwell, Knutsford.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s*.

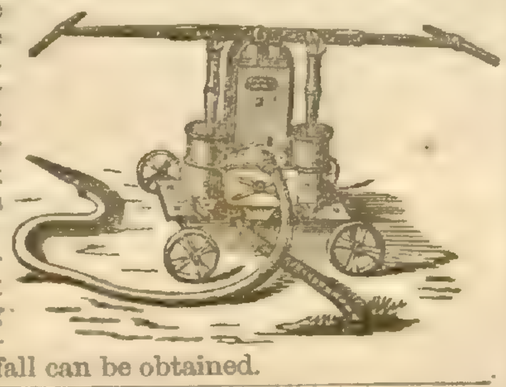
1½-inch Flexible Rubber and Canvas Suction for ditto, 2*s*. 9*d*. per foot.

1½ Gutta Percha Suction, 1*s*. 9*d*. per foot.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.

These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.



WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

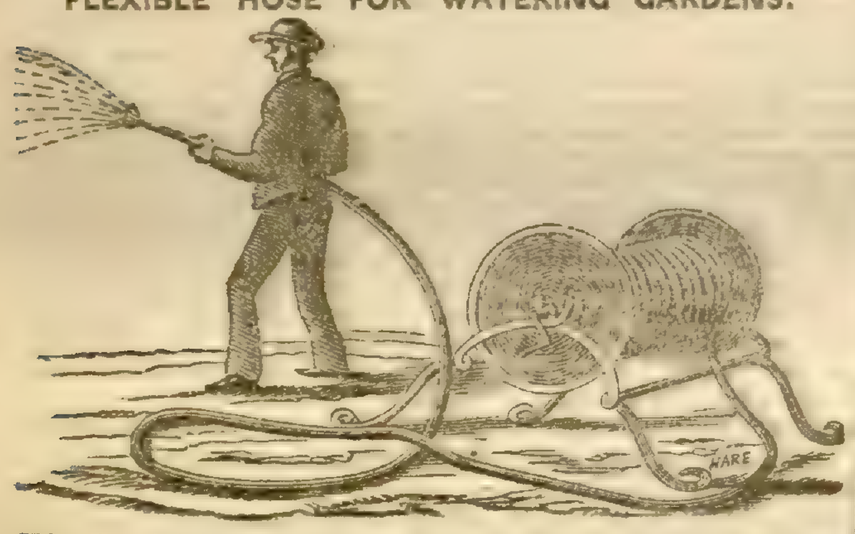
Diameter of Barrel.	Length of Barrel.		£ s. d.
2¼ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ ,,	long 3 ,, 3 ,,		1 14 0
3 ,,	ditto 3 ,, 6 ,,		2 8 0
3½ ,,	ditto 3 ,, 6 ,,		2 12 0
4 ,,	ditto 3 ,, 6 ,,		3 3 0
2½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

FLEXIBLE HOSE FOR WATERING GARDENS.



J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

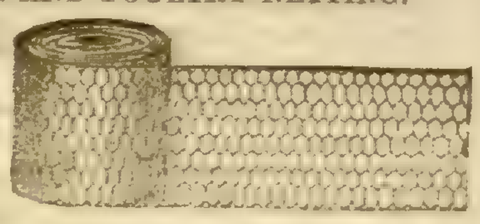
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d*. per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d*., 8*d*., and 11*d* per yard.

Galvanised, 24 ins. wide, 3 inch mesh, 4*d*., 5½*d*., and 7½*d*. per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s*. 6*d*. to 13*s*. 6*d*. each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

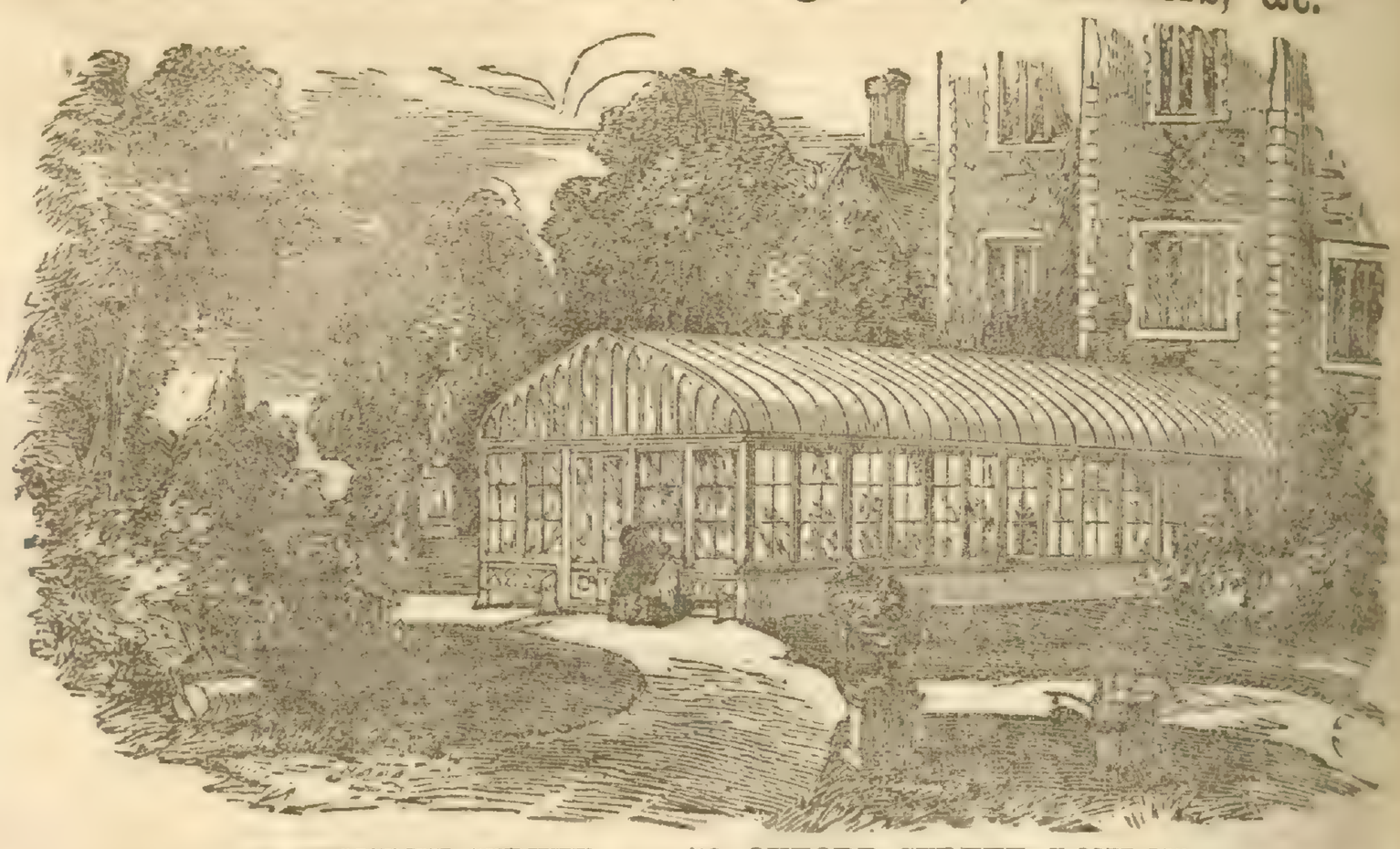
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d*. per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Borders
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

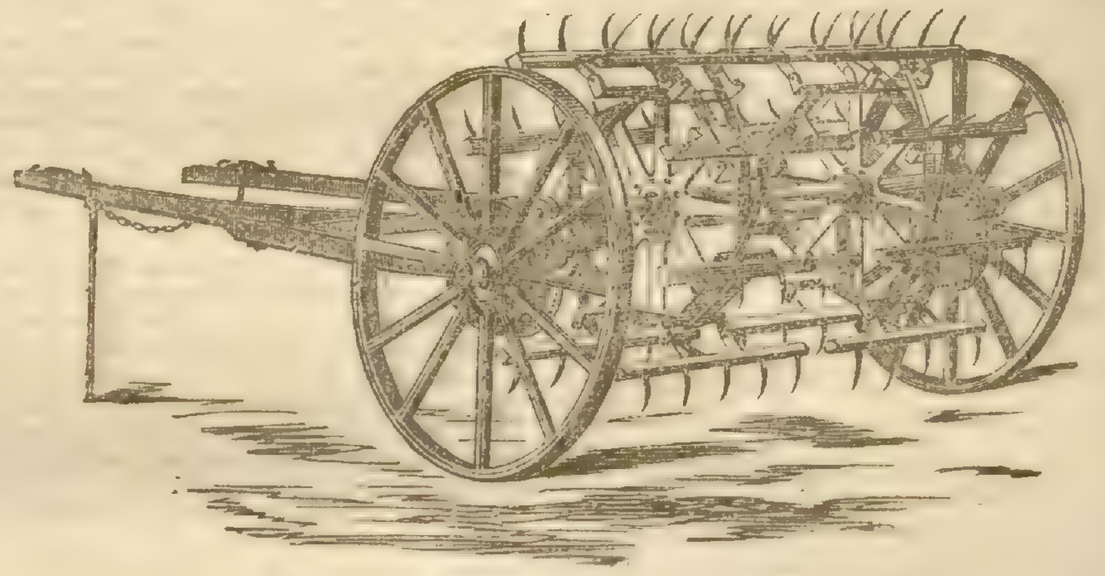
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

STAND No. 5.

ROYAL AGRICULTURAL SOCIETY AT SALISBURY,

JULY 22, 23, & 24.

B. SAMUELSON, BRITANNIA WORKS, BANBURY.



THE following MACHINES and IMPLEMENTS, Manufactured by B. SAMUELSON, may be seen at his STAND No. 5.

MACHINES FOR PREPARING FOOD FOR CATTLE, viz:—

Gardner's Patent double-action Turnip-cutter, with Mr. Samuelson's recently patented improvements enabling the same Machine to slice for cattle, cut pieces for sheep, pieces for lambs, thin riband pieces for mixing with chaff, and to pulp.

Samuelson's Patent Gardner's Single-action Turnip Cutters.
Bushe & Barter's Patent Turnip Graters
Moody's Patent Turnip Graters.
Phillips' Patent Root Pulper.
Patent Combined Turnip Grater and Chaff-cutting Machines.
Chaff-cutters from 3*l*. to 14*l*.
Mills for Crushing every description of Corn Seed.
Oil-cake Breakers for Hand and Machine Power.

FIELD IMPLEMENTS — HARROWS — Cartwright's Patent Self-cleaning.

Crosskill's Patent Clod-crusher.
Patterson's Patent do.
Cambridge's do. do.

HORSE-HOES—Huckvale's Patent Revolving Thinner, Hide Hoe, Field Rollers, &c.

HAYMAKING MACHINES.

HORSE RAKES, Marychurch's Patent Self-relieving.

Lawn Mowing Machines, Garden Rollers, &c.

Patent American Floating Ball Washing Machines, Mangle, Weighing Machines, Pumps, &c.

A HANDBOOK of the above, containing a full description with prices of the articles, may be obtained at the above Stand, or will be forwarded post free on application by

B. SAMUELSON, Britannia Works, Banbury.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l*. 5*s*.

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable ironmongers and Seedsmen in the Country.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

IMPORTANT TO SEEDSMEN, AGRICULTURISTS, BOTANISTS, AND OTHERS.—Safe and rapid Transmission of Seeds, Samples, Plants, Documents, Plans, Deeds, Law Papers, and articles for private use, &c., forwarded daily at 3 P.M. to all parts of the Continent with the Mails [illegible] by the

CONTINENTAL EXPRESS PARCELS AGENCY.

[illegible] proprietors are the sole correspondents of the Royal [illegible] Post Office, the Belgian Government Railway, and [illegible] Mail Packets between Dover and Ostend. Rates [illegible] and moderate, tables of which, with every information, [illegible] had on application to the Chief Office, 52, Gracechurch [illegible] London.—N.B. Parcels to be sent the same day must be [illegible] Office by 3 P.M.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior [illegible] &c.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

BY ROYAL LETTERS PATENT.

GREEN'S LAWN MOWING MACHINES.—TRIAL at the London Horticultural Society's Gardens, Chiswick, June 5, 1857. Four competitors. First trial on level [illegible]; Second ditto on undulated; Third ditto on intricate places, round trees, &c.; when GREEN'S Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to Dr. Royle, Secretary to the London Horticultural Society, 21, Regent Street; also Mr. McEwen, Superintendent, Chiswick, where the Machines may be seen at work; likewise Mr. [illegible], Manager of the Agricultural Department, Crystal Palace; and at the Manufactory, Leeds, Yorkshire, where Illustrated Price Lists and references can be given.

GREEN'S Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

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Duke of Leinster.
Viscount Campden.
Major Wemyss.
Sir Angus Campbell.
Countess of Harewood.
Earl of Harewood.
Hon. Geo. Lascelles.
Lord Ashtown.
Earl of Stamford and Warrington (twice).
Earl of Leicester.
Lord Suffield.
Sir Robert Sheffield.
Sir Wm. Hutton.
Duke of Devonshire, Chiswick House (twice).
London Horticultural Society, Chiswick.
Dr. Royle, Secretary to ditto.
J. P. Chorley, Esq., Editor of *Field*.
Lord Bridport.

THOMAS GREEN, Proprietor, Patent Mowing Machine Works Leeds, Yorkshire.

T. G. begs respectfully to call attention to the superiority of his Pony Machines.

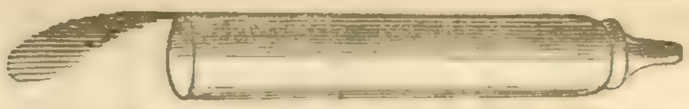
IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam [illegible] is mixed with it, and to every part of clean gravel add [illegible] sharp river sand. To five parts of such equal mixture [illegible] of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid [illegible] inches thick. Any labourer can mix and spread it. No [illegible] is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation forms a substitute paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer. Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

GREAT COMFORT TO INVALIDS.—Places in Great [illegible] rendered as comfortable as the best constructed Water Closets, by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can affix it to the seat in two hours. Price 1*l.* Also, hermetically-sealed inodorous Chamber Commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved portable Water Closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At PYPE & Co.'s Sanitarium, 46, Leicester Square.



CUCUMBER GLASSES.

24 inches long ..	.. 2*s.* 0*d.*	16 inches long ..	.. 1*s.* 4*d.*
22 ,, ..	.. 1 10	14 ,, ..	.. 1 2
20 ,, ..	.. 1 8	12 ,, ..	.. 1 0
18 ,, ..	.. 1 6	Made to any length.	

PROPAGATING GLASSES.

2 in. diameter	0*s.* 3½*d.* each	12 in. diameter	1*s.* 9*d.* each
3 ,,	0 4½ ,,	13 ,,	2 0 ,,
4 ,,	0 5½ ,,	14 ,,	2 6 ,,
5 ,,	0 6½ ,,	15 ,,	3 0 ,,
6 ,,	0 8 ,,	16 ,,	3 6 ,,
7 ,,	0 10 ,,	17 ,,	4 0 ,,
8 ,,	1 0 ,,	18 ,,	5 0 ,,
9 ,,	1 2 ,,	19 ,,	6 0 ,,
10 ,,	1 4 ,,	20 ,,	7 0 ,,
11 ,,	1 6 ,,		

GLASS PRESERVE JARS.—Per dozen.

	Without lid.	With lid.		Without lid.	With lid.
3 inches ..	4*s.* 6*d.*	6*s.* 6*d.*	7 in.	£0 12*s.* 0*d.*	£0 16*s.* 0*d.*
4 ,, ..	6 0	9 0	8 ,,	0 16 0	1 0 0
5 ,, ..	8 0	11 0	9 ,,	1 0 0	1 6 0
6 ,, ..	10 0	14 0	10 ,,	1 4 0	1 12 0

WASP TRAPS, 3*s.* 6*d.* per dozen,

JAMES PHILLIPS AND CO.,

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HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

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See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

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Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

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10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s.*	12 by 10 13 by 10 14 by 10 15 by 10	14*s.*
19 by 12 20 by 12	16*s.*	20 by 13 20 by 14	

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Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

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Bee ,,	Glass Milk Pans.

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All packages charged, but allowed for when returned.

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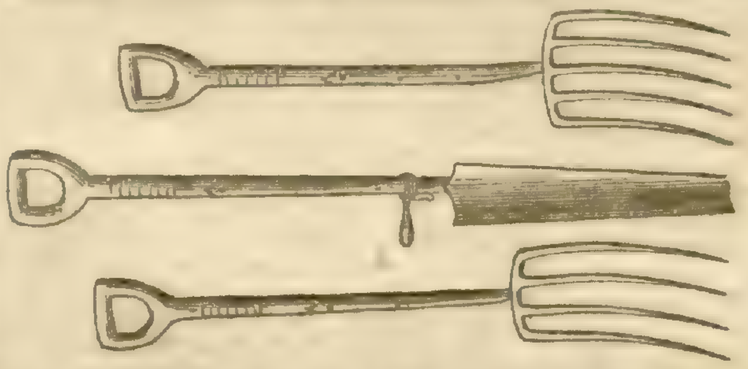

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Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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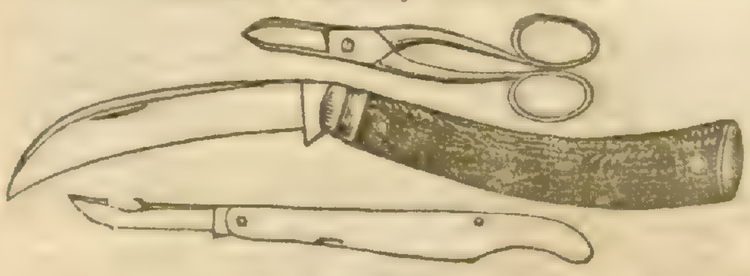

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

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London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

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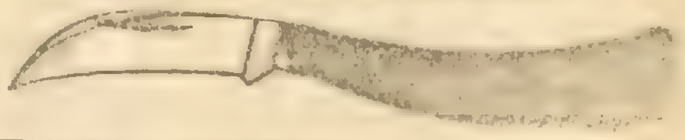
WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

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MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

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Manufactory, Queen's Cutlery Works, Sheffield.

TO BE LET, the SALT HILL NURSERY. Stock to be taken at a valuation.—Apply on the premises, Salt Hill, near Slough.

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TO BE LET, at Candlemas next, LAND, with suitable Buildings, including a Water Corn Mill, Lime Kilns, &c., in Farms of 200 to 500 acres, in a district admirably adapted for the raising and fattening of Stock. The Estate has undergone great improvements by draining, &c., during the last 16 years, and is generally in good condition. It offers attractive advantages to skilful agriculturists, preferring the Lake district. Distance from coal three to four miles.—Applications will be received by the Owner, HENRY GRAINGER, Esq., High Ireby, Grainge by Wigton, Cumberland; or by Mr. DANIEL BIRKETT, High Ireby, who will show the Farms and the intended more favourable apportionments of the land.

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TO BE SOLD, a bargain, a new WARNER'S PATENT, 2½-inch short barrel, cast-iron lift and force pump, with fittings complete, mounted on strong wood barrow, and 150 feet of best Woven Anti-rot Hose Pipe, in three lengths, with Gutta Percha Joints, all new and in perfect order.—For price and particulars apply to WOOD & INGRAM, Huntingdon.

MR. JONAS WEBB begs to inform his Friends and the Public that his THIRTY FIRST ANNUAL SHOW of Pure SOUTHDOWN RAMS will take place on THURSDAY, July 16, when the honour of their Company will be esteemed a favour. The Sheep will be Let or Sold as usual, and may remain on the farm until required by the purchasers. Conditions of the sheep letting may be obtained on application.

J. W. will forward Sheep half way, should the distance be further than 12 and not exceed 100 miles; and all sheep let at 20 guineas and upwards will be carriage paid by J. W. to any Railroad Station, and also on their return. Whittlesford Station, on the Eastern Counties Line, is two miles from Babraham. By permission all Trains, except the Express, will on that day stop at Whittlesford, where conveyances will be in readiness to meet them.—Church Farm, Babraham, near Cambridge.

Sales by Auction.

HAMPEN ANNUAL RAM SALE—1857.

MR. JAMES VILLAR is instructed by T. BEALE BROWNE, Esq., to Sell by Auction on MONDAY, July 27, about 60 COTSWOLD SHEARLING RAMS, and Four or Five older SHEEP. As usual a few will be let for the season. Mr. BEALE BROWNE will be happy to see his numerous Friends and Sheep Breeders generally upon this occasion. The Auctioneer ventures to submit that the present Show will more than support the high position the Proprietor has gained as a Cotswold Breeder. Business will commence at 4 o'clock. This Flock took Twenty-one Prizes last year; in Paris, in Ireland, at Chelmsford, Warwick, Worcester, Yorkshire, Monmouthshire, and Gloucestershire. Hampen is 8 miles from Cheltenham, and two from Andoversford.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, July 14th, at 1 o'clock precisely, a Collection of ORCHIDS, well grown and in good health, comprising—

Vanda suavis (Veitch)	Phalænopsis amabilis
,, cristata	,, grandiflora
Angræcum eburneum	Ærides cornutum
Saccolabium Blumei majus	,, Fieldingi
,, retusum	,, affine
,, guttatum	Cattleya elegans

Also an importation from Guatimala, received direct from G. U. Skinner, Esq., in the best possible condition, containing splendid masses of Barkeria spectabilis and Skinneri, Lycaste Skinneri, Odontoglossum grande and pulchellum, Cattleya Skinneri, &c.—May be viewed on the morning of Sale and Catalogues had.

E. G. HENDERSON & SON'S

ILLUSTRATED BOUQUET,

Price Ten Shillings and Sixpence, post free.

PART THE FIRST of this New Work is now ready, and contains FIGURES of the following NEW PLANTS, with information appended to each Illustration.

ROSE.—ISABELLA GREY.
VERONICA.—DECUSSATA DEVONIANA.
BOUVARDIAS.—HOGARTH, LAURA, and ORIANA.
GERANIUMS, with Ornamental Foliage.—CULFORD BEAUTY, LADY OF LORETTO, FONTAINEBLEAU, ROYAL STANDARD.
VERBENAS.—LADY PALMERSTON, LADY TURNER, LADY FREDERICK FITZROY, LADY ALBINIA FOSTER, QUEEN OF OUDE, PRINCE OF PRUSSIA, SOUVENIR DE L'EXPOSITION, MARIETTA.
GLOXINIAS.—PRINCESS ROYAL, ROI DES BELGES, SIR HUGO, DONNA COLONNA, TARRAGONA, HELEN OF ORLEANS, MADAME PICOULINE, ELOISA, FULGENS, DIONYSIUS.

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SAVED FROM THE BEST VARIETIES IN CULTIVATION.

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CINERARIA—Choice mixed, all colours, large packet, 5s.; small do., 2s. 6d.
" Crimson varieties, large do., 5s.; small do., 2s. 6d.
" Blue varieties, large do., 5s.; small do., 2s. 6d.
CINERARIA—Party coloured, such as white grounds tipped blue, rose, &c., large packet, 5s.; small do., 2s. 6d.
CALCEOLARIA—Extra choice, large do., 5s.; small do., 2s. 6d.

The NEW GOLDEN HAMBURGH GRAPE is now ready, price 21s. each.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

ADVERTISEMENTS FOR THE ROYAL AGRICULTURAL JOURNAL, intended for insertion in No. XXXIX, must be forwarded to the Printer without delay, accompanied with an Order for their Payment and Insertion, as no attention will be paid to them otherwise.—WILLIAM CLOWES & SONS, Printers, Duke Street, Stamford Street, Blackfriars.

THE QUARTERLY REVIEW, No. CCIII. ADVERTISEMENTS for the forthcoming Number must be forwarded to the Publisher by the 11th, and BILLS for insertion by the 13th inst.

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No. 29.—1857.] SATURDAY, JULY 18. {Price Fivepence. Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W.C.—The next Meeting of the Society will be held on THURSDAY, July 23, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The chair will be taken at 2 o'clock.

Gentlemen wishing to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

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The General Annual Meeting of the Society will be held on THURSDAY, August 6.

SATURDAY, September 12, is the day appointed for the Exhibition of NEW GRAPES, for the best varieties of which the Society has offered Premiums.

SLEAFORD HORTICULTURAL SOCIETY.—The ANNUAL EXHIBITION of this Society will be held in the Grounds of Mr. C Sharpe, on the Boston Road, on THURSDAY, July 23, when Prizes will be awarded to Members of the Society for FLOWERS, FRUITS, and VEGETABLES Exhibited, according to merit; also for Cottagers' Productions. And on this occasion, EXTRA PRIZES (open to all England) will be awarded for the best Collection of 12 STOVE and GREENHOUSE PLANTS, First Prize, 5*l*.; Second ditto, 2*l*. 10*s*. Best Collection of 12 VARIETIES of FRUITS, First Prize, 2*l*.; Second ditto, 1*l*. Best Stand of 24 ROSES, varieties, Single Blooms, First Prize, 2*l*.; Second ditto, 1*l*. All Articles intended to be Exhibited must be sent in as early as possible after 8 o'Clock A.M., and no Article will be admitted after 10 o'Clock.

The Doors will be opened from 1 to 3 o'Clock on payment of 2*s*.: and from 3 to 6 o'Clock on payment of 1*s*.; and at 5 o'Clock the Domestics and Servants of Members will be admitted Gratis for one hour, on producing Orders signed by their Masters. The Military Band of the Royal Nottinghamshire Yeomanry will be in attendance during the day, conducted by H. Newham. The Rules of the Society, with Schedules of Prizes, may be obtained on application to the Treasurer, or Hon. Secretary.

Sleaford, July 18.

READING HORTICULTURAL SOCIETY.—The Second Show will be held on THURSDAY, August 20, in Coley Park, Reading Schedules of the Prizes offered can be had of Mr. J. G. B. MARSHALL, Oxford Street, Reading.

CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY.—The Second Exhibition of the above Society will take place on WEDNESDAY, Sept. 16. In addition to the ordinary Prizes, an extra Prize will be given for 24 DAHLIAS, dissimilar blooms, open to all Competitors. Entry 5*s*. each.

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62, English Street, Carlisle, July 18.

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By Order of the Committee of Council on Education.

SCOTTISH ARBORICULTURAL SOCIETY.—The Society having offered PRIZES (open to all) for the best ESSAYS on each of the following Departments of Practical Forestry, intending Competitors are requested to lodge their Essays with the Secretary, not later than 1st of August:—

I. On the Reclamation of Neglected Plantations (Medal).
II. Planting on Moss Lands (Medal).
III. On the Dry-Rot and other Diseases in Larch and Spruce (Medal).
IV. Management of Coppice Woods and Cutting of Coppice Bark (Medal).
V. Entomology (Medal).
VI. Introduction and Cultivation of the Newer Coniferæ and other Forest Trees, with special reference to the Climate of Great Britain and Ireland (Medal).
VII. On the Best Method of Book-Keeping for Foresters, with Examples (Medal).

The Society also invite communications on any other subjects connected with Forestry, for which Prizes will be awarded in all cases where they are deemed worthy. For further information apply to the Secretary. JAMES ALEXANDER, Secretary.

1, Waterloo Place, Edinburgh, July 18.

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½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d*.	11*d*.	1*s*. 1*d*.	1*s*. 3*d*.	1*s*. 5*d*.	1*s*. 7*d*.	1*s*. 9*d*.	2*s*.	2*s*. 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s*.	2*s*. 3*d*.	2*s*. 6*d*.	2*s*. 9*d*.	3*s*. per yard.

The hose is Burnettized at an extra charge of 3*d*. per yard. Union Joints, Branch Pipes, and Jets are also supplied.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d*. per square yard; 200 yds. 14*s*.; 500 yds. 30*s*.; 1000 yds., 50*s*. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER AND HOT WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantially-built GREENHOUSES, fixed in any part of the kingdom, for cash, 42 ft. long by 13 ft., 90*l*.; 21 ft. by 13 ft., 50*l*.; 12 ft. by 10 ft., 30*l*. A first-rate Conservatory 30 ft. by 18 ft., 130*l*. A large assortment kept. Estimates for Heating, or any branch in wood or iron.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS
OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO., have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s*.), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d*. per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s*. per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

MIGNONETTE BOXES.

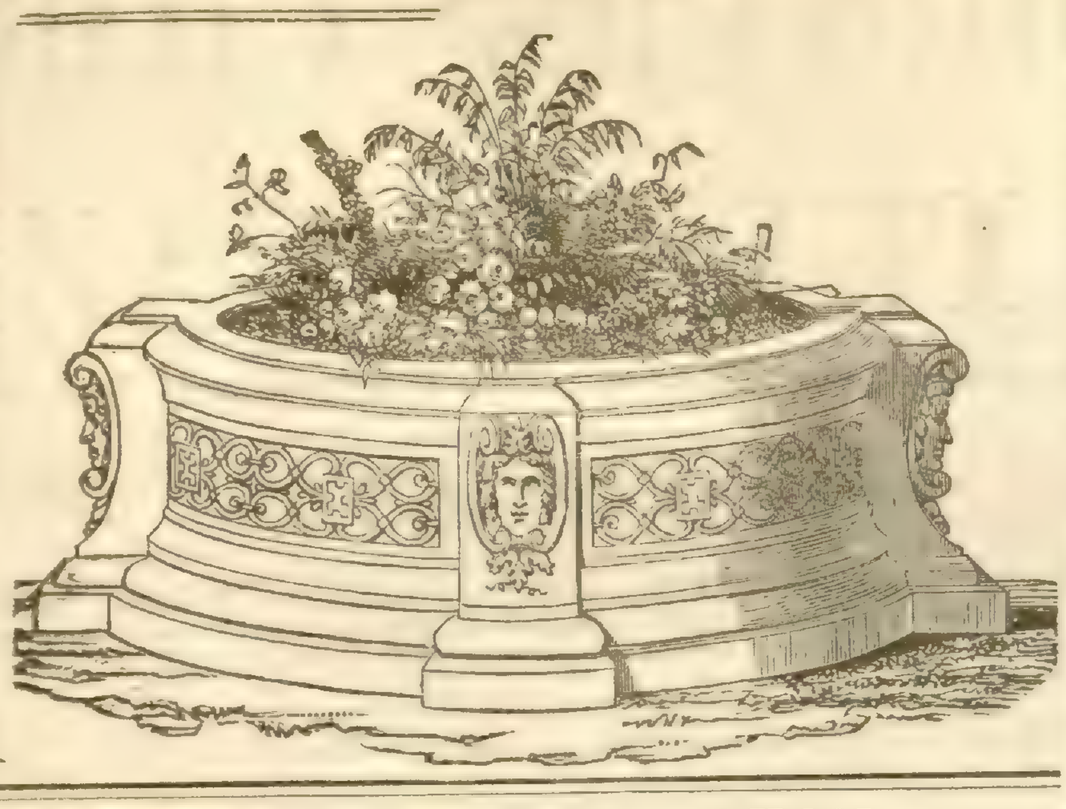
SUN-DIALS.

STATUES after Ancient and Modern Masters, as well as

Original GROUPS of FIGURES.

Great variety of ANIMALS FOUNTAINS, and FOUNTAIN FIGURES of all sizes.

ORNAMENTAL STANDS for AQUARIA, and other Designs suitable for Conservatories.



AUSTIN & SEELEY'S
ARTIFICIAL STONE WORKS,
KEPPEL ROW, NEW ROAD.

BRITANNIA WORKS, BANBURY, OXON.

B. SAMUELSON'S

REGISTERED BUDDING'S LAWN MOWING MACHINES

FOR

PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

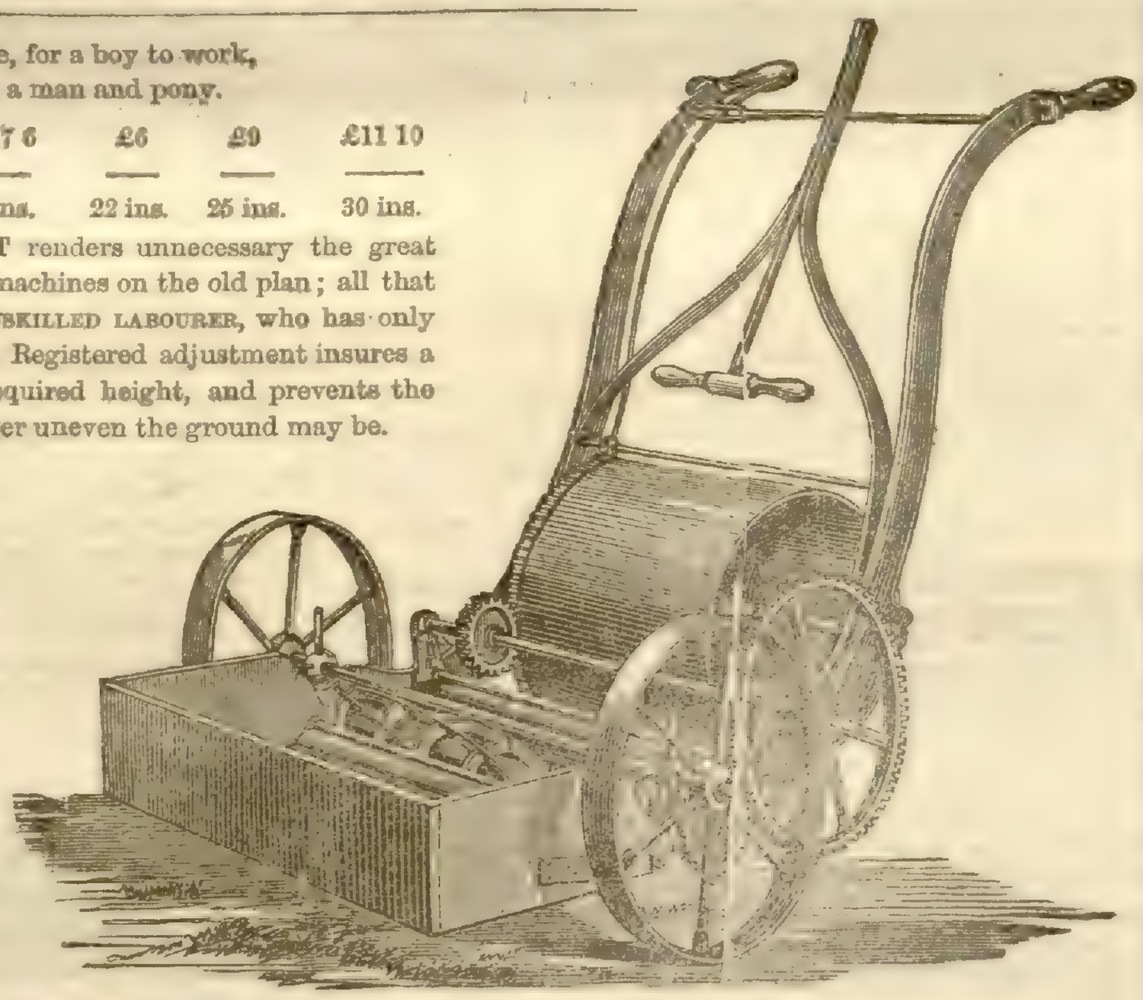
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

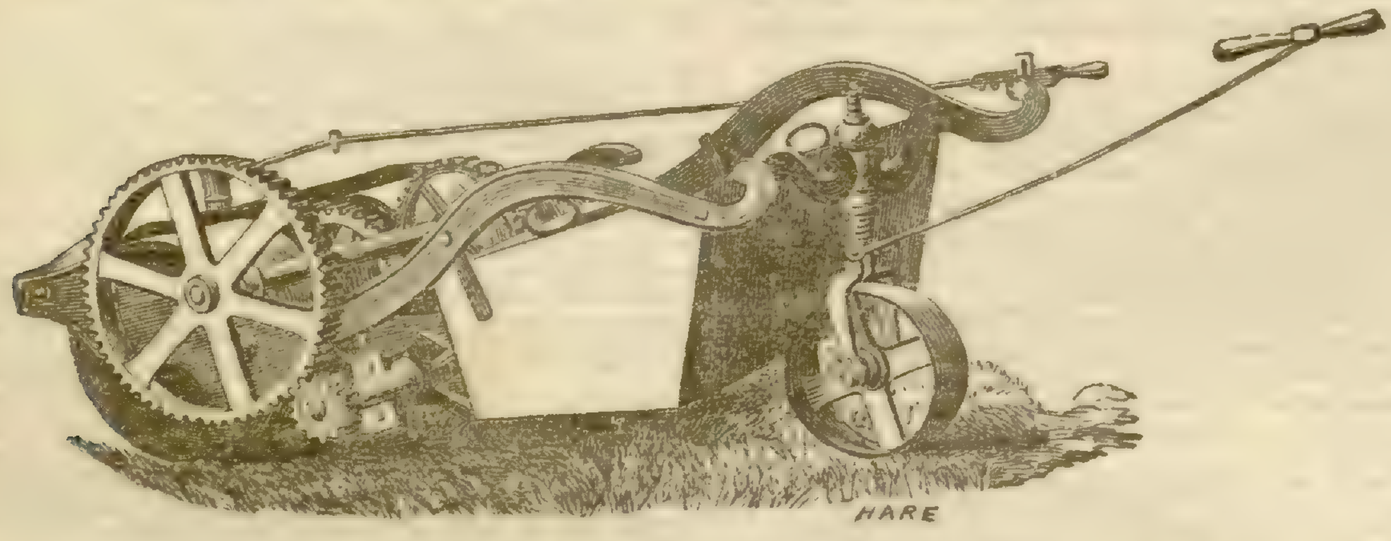
The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

SHANKS' PATENT MOWING AND ROLLING MACHINE.

Patronised by Her Majesty QUEEN VICTORIA, His Majesty the Emperor of the French, and His Royal Highness the Prince of Prussia.



A. SHANKS AND SON,

WHILE soliciting the attention of the Nobility, Gentry, and Gardeners to their HORSE AND PONY MOWING AND ROLLING MACHINES, the completeness and superiority of which are now fully established, at the same time respectfully solicit notice to their new HAND MACHINE, especially adapted for Mowing small Lawns, Verges around Flower Beds, &c. Some of the advantages arising from the use of the new Hand Machine are the following:—It can be used to cut a Verge without any change of wheels or rollers. It will cut close to the edge of Flower Beds and Verges. It is a Rolling as well as a Mowing Machine, and can be used with effect as a Lawn Roller when thrown out of gear. The whole working parts are so modified and arranged as to make it suitable for varieties of work, either on level ground or slopes. The Machine is drawn by means of a handle attached to the spindle, at the lower end of which is the front guiding pulley; this spindle is made to swivel, and a mere novice will at once perceive the advantages of this method not only in regard to the greater ease in working, but also, and more especially to the advantage of the swivel in turning. The method of regulating the Cut is very simple and efficient, it can be done in a few seconds by merely turning a screw without the aid of a Key for that purpose. The Machines are firmly and securely constructed, the cutting parts being made very strong, and consequently not liable to get out of order. The Machine can be managed and worked by a common labourer.

A. SHANKS & SON cannot give a better proof of the superior style in which the Machine executes its work, as well as of the ease by which it can be managed and its economy in the saving of labour, than by referring to the hundreds of places where it is at present in use.

Price from 5*l.* upwards, Illustrated Price Lists forwarded on application.—Sold at the Crystal Palace, and by Messrs. DRAY, COTTAM & HALLEN, BURGESS & KEY, London; Mr. DODDS, 28, Leadenhall Street; Messrs. LEE, Hammersmith; VEITCH, Exeter and Chelsea; and by almost all first-class Nurserymen and Implement Sellers in the country.

BY ROYAL LETTERS PATENT.

GREEN'S LAWN MOWING MACHINES.—TRIAL at the London Horticultural Society's Gardens, Chiswick, June 5, 1857. Four competitors. First trial on level ground; Second ditto on undulated; Third ditto on intricate places, round trees, &c.; when GREEN'S Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to Dr. Royle, Secretary to the London Horticultural Society, 21, Regent Street; also Mr. McEwen, Superintendent, Chiswick, where the Machines may be seen at work; likewise Mr. Garrood, Manager of the Agricultural Department, Crystal Palace; and at the Manufactory, Leeds, Yorkshire, where illustrated Price Lists and references can be given.

GREEN'S Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

Rt. Honble J. Parker.
Duke of Leinster.
Viscount Campden.
Major Wemyss.
Sir Angus Campbell.
Countess of Harewood.
Earl of Harewood.
Hon. Geo. Lascelles.
Lord Ashtown.
Earl of Stamford and Warrington (twice).
Earl of Leicester.
Lord Suffield.
Sir Robert Sheffield.
Sir Wm. Hutton.
Duke of Devonshire, Chiswick House (twice).
London Horticultural Society, Chiswick.
Dr. Royle, Secretary to ditto.
J. P. Chorley, Esq., Editor of *Field*.
Lord Bridport.
Sir George Goodman.
Sir T. W. Ramsden.
Sir John Scott.
Rev. Sir George Robinson.

THOMAS GREEN, Proprietor, Patent Mowing Machine Works, Leeds, Yorkshire.

T. G. begs respectfully to call attention to the superiority of his Pony Machines.

IMPROVED LAWN MOWING MACHINES,

MANUFACTURED AND SOLD BY

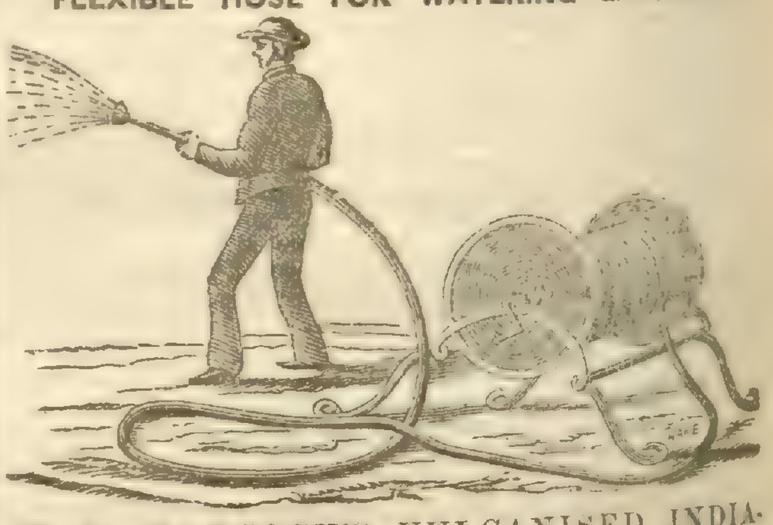
JAMES FERRABEE AND CO., PHŒNIX IRON WORKS, near Stroud, Gloucestershire.

The accompanying engraving represents FERRABEE'S Improved Machine, which will cut and collect the Grass on a Lawn containing 200 square yards in 25 minutes. It can be used on Lawns, Verges, and between Flower Beds, without removing any of its parts; can be worked with ease by one man; be either pushed or drawn, and will cut perfectly clean and level to any required height.

Mowing Machines were first made at the above works, where upwards of 6000 of various sizes have been manufactured; and J. F. & Co. possess hundreds of testimonials of their efficiency and durability. The Machines as at present made are unsurpassed by any, while the prices are lower. Price, carriage paid to any Railway Station in England or Wales, 4*l.* 5*s.*

London Agency: Manager of the Agricultural Implement Department, Baker Street Bazaar; and sold by all respectable Ironmongers and Seedsmen in the Country.

FLEXIBLE HOSE FOR WATERING GARDENS.



J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

GARDEN REQUISITES, &c.

COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.:—Garden Rollers, cast-iron Rick-Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Monarch, Clarissa, Cupid, Mrs. B. Stowe, Miss Trotter, Brightonia, Scarlet Gem, Magnet, Venus. 12 from any of the above 8s., free by post; less quantity than 12, 1s. each; 40 finest sorts of 1856, 4s. per dozen, free by post.

Address HENRY MAY, The Hope Nurseries, Bedale.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommend the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, July 18.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

JOSEPH MAY AND CO. beg to offer the following SEEDS for the present and next months' sowing, which they can recommend with confidence:—

	Per oz.—s.	d.
Shilling's Queen Cabbage—very best for general purposes	1	0
Enfield Market do	1	0
Rosette Colewort	1	0
Hampshire Brown Cos Lettuce, white seeded	1	4
Hardy White Winter Cos	1	4
Scarlet Horn Carrot	0	6
Red American Store Turnip	0	6

The above prices include postage.

No. 1, Wellington Street, Strand, London.

CHOICE FLOWER SEEDS FOR PRESENT SOWING, per post prepaid.

	Per pckt.—s.	d.
Cineraria, of the first quality	2	6
Calceolaria, from the handsomest spotted and blotched vars.	2	6
Mimulus, ditto ditto	2	6
Gloxinia, from 30 varieties	2	6
Fuchsia, from 50 new varieties	2	6
Pansy, saved from 100 of the best varieties, by name	2	6
Polyanthus, do. 50 do. "	2	6
Verbena, do. 50 do. "	2	6
Hollyhock, do. 60 of the most superb kinds, do.	2	6
Daisy, do. 50 of the new Belgian kinds, do.	1	6
Antirrhinum, do. 20 best named varieties	1	0
Anemone, from the most showy and brilliant kinds	1	0

The above are saved only from the very best named varieties of recent introduction, and may be relied upon with the fullest confidence. Postage stamps received in payment.

YOUELL & Co., Royal Nursery, Great Yarmouth.

EXOTIC FERNS.

JOHN HALLY, NURSERYMAN and FLORIST, Blackheath, having a stock of the undermentioned choice kinds of Exotic Ferns, begs to offer well established Plants at the annexed prices:—

	each—s.	d.
Gymnogramma Peruviana argyrophylla	5s. to 7	6
A few extra strong plants of ditto	10	6
" chrysophylla (true)	3	6
" " Martensi	3	6
" pulchella	5	0
" tomentosa	2	6
" tartaria	2	6
Asplenium Belangeri	3	6
Hemionitis cordata	3	6
" palmata	2	6
Doreopteris pedata	5	0
" Collina or Geranifolia	2	6
Nephrolepis acuta	3	6
Neottopteris vulgaris (Birds' nest) broad-leaved variety	5	0
Adiantum macrophyllum	3	6
" trapeziforme	5	0
" tenerum (extra strong)	5	0
" concinnum	3	6
Aspidium trifoliatum	2	6
Anemidictyon phyllitides	2	6
Darea diversifolia	2	6
Blechnum Corcovadense	2s. 6d. to 5	0
Cænopteris Cicutaria	2	6

CHARLES NOBLE, having retired from the business lately carried on by the firm of STANDISH & NOBLE, has established his Nursery within 600 yards of the Sunningdale Station, South Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that his Catalogue is now published, and may be had on application. He respectfully invites an inspection of his stock, which will be found in the finest possible condition. He pledges himself to supply none but good articles, and reminds his patrons that five minutes' walk from the above station will bring them to his nursery.

Address, CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country. We exhibited a few Plants at the Horticultural Rooms on Tuesday, and we have no doubt Dr. Lindley's opinion of it will be found in the report of that Meeting.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

	Each.—£	s.
For a single plant in 48-sized pot	0	15
Ditto ditto, extra strong	1	1
Six ditto ditto, smaller	3	3
Twelve ditto ditto	5	0

Knap Hill Nursery, Woking, Surrey.—July 18.

NEW YELLOW ROSE—MISS ISABELLA GRAY.

A. PAUL AND SON have a large Stock of this new and interesting Rose, which was exhibited before the London Horticultural Society, and figured in the "Florist" for June. Strong plants, 7s. 6d. each, or 60s. per dozen.

Nurseries, Cheshunt, Herts.

ROSES.

THE SUBSCRIBER begs to inform Admirers of ROSES who may visit the Lake district that an extensive collection of all the most popular sorts are now in full bloom, and will continue so for some time. They may be seen daily, Sundays excepted.—JOHN GRIER, Waterhead Nursery, Ambleside, Westmorland, July 18.

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7s. 6d. each.

N.B. Every order will be sent free in London till the end of August.—A. VERSCHAFFELT, Nurseryman, Ghent, Belgium.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.

WILLIAM BARNES again offers Seeds of the above kinds, the two former 2s. 6d., and the latter 1s. 6d. per packet; all saved from the most beautiful and rare kinds in cultivation. A remittance is expected from unknown correspondents.—WM. BARNES, Camden Nursery, Camberwell, S.

ANEMONE SEED.

JOHN HOADE AND SON, FLORISTS, Addlestone Nursery, Chertsey, Surrey, beg to offer their splendid Anemone Seed which has given so much satisfaction. A packet will be sent, with printed directions for sowing and after culture, on receipt of 13 stamps. J. H. & SON feel confident that all purchasers following their directions will be fully repaid for their outlay.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true, as exhibited last week at the Horticultural Rooms, Regent Street; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Son, Covent Garden, London. R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised; he can supply strong well rooted plants to any extent the first week in August, price 20s. per 100, or 4s. per dozen; also every other kind worth cultivation; and, if requested, both old and new varieties of questionable merit.—St. Ann's Square.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, Edinburgh, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1s., 2s. 6d., and 5s. packets. Discount to the Trade in quantities.

SHEPHERD'S LARGE EARLY MARROW CABBAGE, SOWN ABOUT 20TH JULY.

BAINBRIDGE AND HEWISON offer again (with confidence) the above first-rate Cabbage, which has been proved to be superior in its qualities to any other. They have a good supply of Seed, which may be had also of all the principal Seedsmen.—7, Bridge Street, York, July 18.

CONQUEROR CABBAGE.

J. R. AND A. PEARSON have sufficient of their new variety of CABBAGE SEED to offer it to the Trade. Price on application. They believe it to be the best and earliest sort known. A packet sent on receipt of 12 postage stamps.

Chilwell Nurseries, near Nottingham.

CABBAGE FOR EARLY SPRING CUTTING.

THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. It may be sown any time in July without running to seed. Seed 1s. per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free.

Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JULY 18, 1857.

THE way in which, and the places where Fungi sometimes grow, are among the most surprising facts in Natural History. The extreme rapidity indeed with which other Cryptogams are developed has often excited the surprise of observers. *Palmella prodigiosa* was developed in less than 24 hours under the eye of Dr. MONTAGNE in such quantities as to cover cooked provision with a dark blood red slime. The barrack bread (*pain de munition*) at Paris was a few years since perfectly uneatable 24 hours after it had been baked from the development of a red *Penicillium* within its substance, and other instances of the sudden appearance of moulds under circumstances equally surprising have been recorded by authors. A knowledge of these facts may be necessary in some cases of medical jurisprudence, but there are other facts of a similar character relating to species far higher in the scale of organisation, which are equally deserving of attention as regards the ends of justice. Every one who has watched the progress of a hotbed has observed that one or two species of *Coprini*, or in plain English Dunghill Toadstools, occur in great abundance within a day or two after the bed has been made, though there was no trace of them when the manure was packed together. These often appear before the soil has been laid upon the manure; and when the development of a good temperature has been first obtained, the fungi burst sometimes through the soil in a few hours, and even through pots containing seeds plunged into it before they have had time to vegetate, in such numbers as to be very annoying. *Coprini* are sometimes however developed with equal rapidity where no manure is applied. TARGIONI-TOZZETTI published an account at the beginning of this century of a species growing upon the bandages which had been applied in a case of compound fracture. About 1825, in a similar case which arose from a person being run over by a carriage, and which terminated fatally in St. George's Hospital, great stress was laid at the inquest upon the fact of fungi having been developed upon the bandages, with a view if possible to bring home a charge of neglect against the authorities in the hospital. We ourselves saw the case and were cognisant of the occurrence of fungi on the bandages, but nothing was brought forward at the inquest to show that such a circumstance might take place where the utmost care had been used. The matter, if we recollect rightly, was mystified, and a favourable verdict was reluctantly given, though we can certify from personal knowledge to the fact of there having been no neglect whatever, and that the occurrence of fungi was perfectly consistent with the verdict.

A case has within the last few days been again brought under our notice, in which to the great surprise of those who saw it, fungi were found growing out of the wood of a bed beneath a hair mattress on which a patient had been lying for eight days only. Every bit of the bed was new and clean before the patient was placed there, and yet a large quantity of the fungus was sprouting out in every direction. From the peculiar situation no pilei were developed, but the stems have all the appearance of belonging to some *Coprinus*. It is obviously necessary for the ends of justice that such facts should be familiarly known, as persons might very undeservedly suffer from the ignorance of judges and juries of such matters, as was indeed nearly being the case in the instance at St. George's Hospital quoted above. *M. J. B.*

SOME months since the Horticultural Society received from one of its members, F. J. SLOANE, Esq., of Florence, a considerable number of FRESH CAMELLIA SEEDS, saved from some of the finest sorts cultivated in the gardens of Italy, where this plant seeds abundantly in the open ground. The supply was furnished by fine healthy bushes of the single pink, *punctata*, and single white, *coccinea*, *marmorata*, *variegata*, *althæiflora*, *Wilbrahamiana*, *Welbanksiana*, *Donckelaari*, *tricolor Sieboldi*, *Pomponia diversiflora*, *magniflora*, *corallina*, *Waratah*, *Targionii*, &c. All these are capital breeders, and out of them many fine sorts have already come.

The seeds in question have now been raised in the Chiswick Garden, and it is the intention of the Council to give them in parcels of five to those Fellows whose subscriptions entitle them to plants. The distribution will take place next October; but since it is probable that the applicants will be more numerous than can be supplied, it is proposed, should that be the case, to have the plants dispersed by lot at the meeting on the 24th October. It is therefore necessary that all who desire to participate in the distribution should send in their names, and we would advise this to be done immediately, or it may possibly be forgotten among the many agreeable distractions of autumn. Applications will be registered as they are made, and that being done cannot well be overlooked.

WE have to thank the kindness of a Hampshire correspondent, "A. W.," for some fine specimens of the fruit of BERBERIS DULCIS, a hardy evergreen shrub that bears profusely near Shirley. The branches are loaded with berries of the deepest purple, many of which are fully half an inch in diameter. When quite ripe they are said richly to deserve the name the species bears, but it is difficult to prevent birds carrying them off before their sweetness is formed. Berries of BERBERIS DARWINI accompanied them, but we fear that no time or sunshine will convert their acid into sugar. In the meanwhile BERBERIS DULCIS may now be fairly placed among the smaller table fruits, along with Currants, Gooseberries, and their allies.

We have also received, as we were going to press, an abundant supply from Messrs. PAUL, of Cheshunt; but all the berries are still very sour.

ON THE NORTHERN LIMITS OF CULTIVATED PLANTS, ON PLAINS AND ON MOUNTAINS.

(From A. de Candolle's Géographie Botanique.)

CULTIVATED plants are exposed to all the physical conditions of climate, just as other plants are; but at the same time, the object which the agriculturist has in view, the intelligence with which he surmounts his difficulties, and above all, the amount of profit he realises from their cultivation, give rise to various and important modifications in the limits which they attain.

In discussing the limits of indigenous plants, it is understood that such must both live and propagate their kind; this is not necessarily the case with cultivated ones,

for if the object is only to obtain the flowers or fruit of a species, there is no occasion that it should ripen a great quantity of good seed; on the contrary, such varieties as bear little or no seed are sometimes preferable, for the seed is often produced at the expense of the quality of the fruit. Fodder-plants again may be cultivated to advantage far beyond the limits of their flowering or fruiting; the Maize for example presents two climatic limits in an agricultural point of view, one up to which it may be grown as a cereal, the other for fodder. Again, a species cultivated for ceremonial observances, or as a reminiscence of the history or origin of a nation, may never be required to attain its full development at all; thus the Date fruits only to the South of the Atlas, in Egypt and at Jericho, but it is cultivated in Italy and elsewhere because the leaves are used on Palm Sunday in Romish festivals, and the Arabs introduced it largely into Spain and Sicily as a memorial of the land of their birth. Plants cultivated for their beauty or curiosity have, so to speak, no limits, for the horticulturist fathers them, and sparing neither money, time, nor labour, propagates them indefinitely.

Human intelligence, which has effected prodigies for gardens, has also exercised immense influence over agriculture, although with less varied means at its disposal. Seeds are carefully preserved, sowed at a proper season, and at a proper depth—conditions almost the opposite of those to which they are exposed in a state of nature. If the seed do not ripen well, they reimport it from a more favourable climate. Those varieties only of each species which are best adapted to a locality and its climate are selected and propagated. The most favourable localities are chosen for each crop. The most delicate plants when young are protected by various means, and in less favourable climates even when fully grown they are sheltered. Thus the growers of South Russia bury the Vine shoots to protect them from the hard frosts, and elsewhere the Fig trees are similarly treated during winter. Civilised nations are thus always at issue with nature, they know how to push the limits of cultivation beyond natural conditions, and their intelligence, replacing routine, indicates when to abandon certain crops where they are no longer profitable.

Numberless considerations arising from the manners and customs of a people, their numbers, occupations, requirements, and means of transport, affect immediately and powerfully the limits of cultivation; and as alimentary plants are the least subject of any to be modified in the extent and amount of their cultivation by such causes, these are the best suited for our investigations. On the other hand the prodigious number of varieties in which alimentary plants occur, and the fact that they are seldom distinguished by travellers, render it difficult to compare one country with another in respect of the limits to which their cultivation is carried; on this account I shall omit Wheat and Potatoes from the table which I propose to give, showing the polar limits of some of the most important cultivated alimentary plants. I shall add the Vine and Date in order to compare southern woody species in this respect with northern herbaceous ones. My object is not to give the limits to which agriculture in general is carried, but to select a few plants in order to exhibit the effects of climate in limiting them. In this restricted point of view some cultivated species are better adapted for such purposes than wild plants, because their limits are better known and more easily verified.

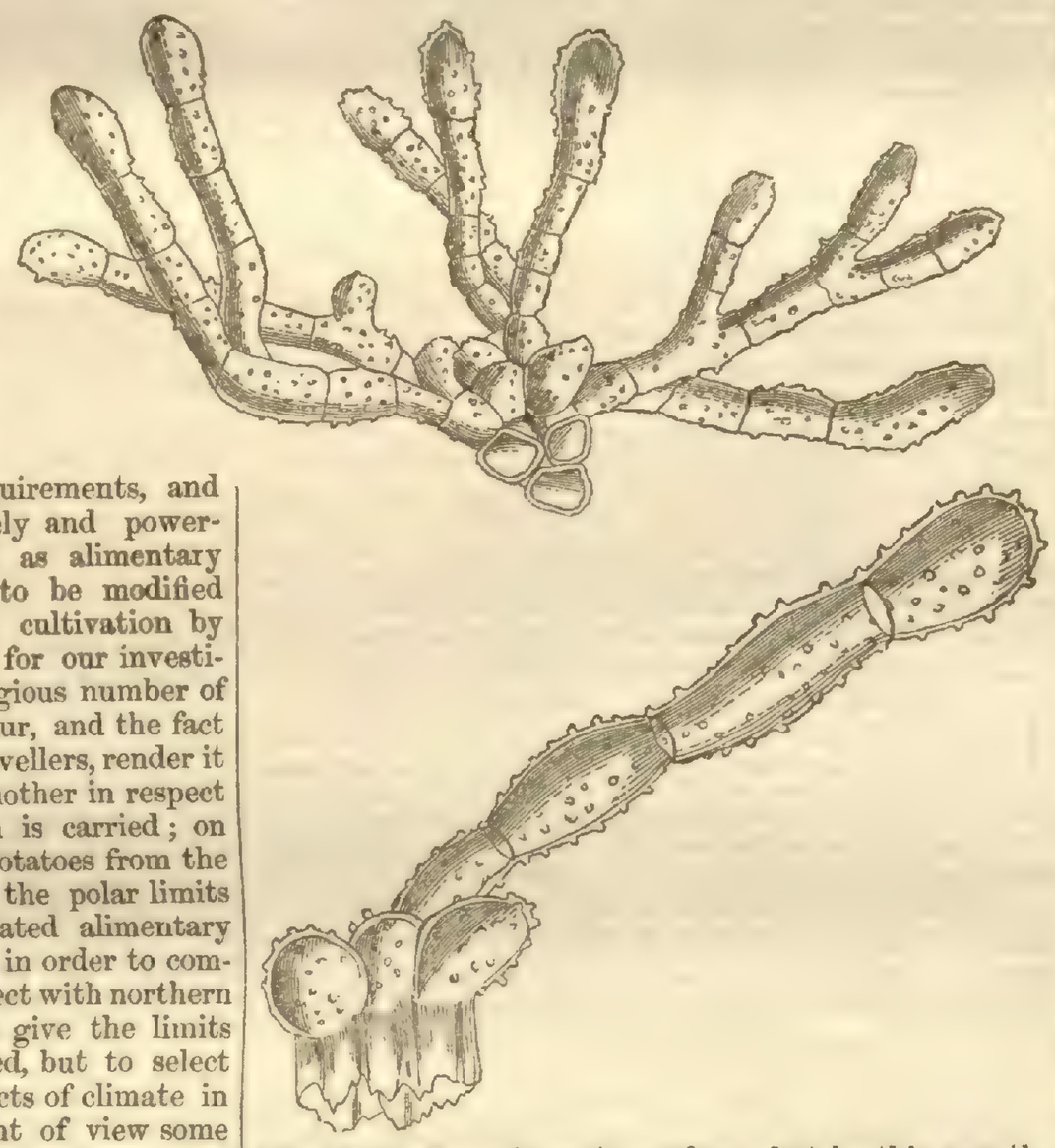
The plants selected are Barley, Maize, the Grape, Vine, and Date.

(To be continued.)

VEGETABLE PATHOLOGY.—No. CLXVI.

378.* HYPERTROPHIA (*Excessive development*). A very curious case of disease in the common Laburnum has lately been forwarded to us, which may be classed under the genus *Hypertrophia*. We have few or no details to help us in the description of the malady, which is however so strongly marked that it cannot fail to be easily recognised. The terminal shoots of the preceding year are apparently in their normal condition. At least no difference is observable either in external aspect or in structure, but some of the shoots, whether arising from a terminal or lateral bud, present a singular gouty appearance with a pale diseased cuticle. Sometimes the eyes of these shoots remain dormant, but occasionally they are all developed so as to make a fascicle of rods, which may be compared with the productions in the Silver Fir known under the name of witches' besoms. Most of these from their loose watery texture perish with the cold, but some which are less gouty, and in which the cuticle retains its usual green tint, live through the winter, and produce shoots which are often compressed and deformed, and are remarkable for the dense coat of silvery hairs with which they are covered. The difference in diameter between the diseased branch and that from which it springs is sometimes much more than a half, and the new shoot does not attain its full diameter at once. Even in the diseased shoots a second hypertrophy sometimes takes place, but confined principally if not entirely to the bark. In such cases there are generally traces of fungi, as of *Fusarium lateritium*, and some of those reduced forms of higher fungi which are referred by authors to the genera *Phoma*, *Sphæropsis*, &c. We are unable even to guess at the cause of this curious affection, much less to suggest any remedy.

To this head also may be referred those cases in which the cellular tissue bursts through the cuticle, or superior stratum, and acquires an abnormal development in the shape of tufts of threads, warts, solid tooth-like processes, or branched fascicles which resemble fungi of the genus Clavaria. Several instances have from time to time been recorded in this journal. One of the most simple cases is that which is so common in the carpels of Apples, the inner surface of which is often cracked, with white tufts projecting into the cavity, resembling closely some mould, for which they are sometimes taken by observers. The removal of the pressure of the walls of the carpel from the sarcocarp allows a freedom of development to the exposed cells, and in the most singular way at once destroys all cohesion of cell to cell. The cells in fact are developed into threads which spread in every direction, and are occasionally branched. It is moreover remarkable that they are rough with little points, though no such structure is observable in the compact tissue. (See woodcut reproduced from 1851, p. 819.) A somewhat similar though less striking appearance occurs on the leaves of Broccoli, in the shape of oblong white or at length brownish warts, the base of which consists of loosely packed cells with large intercellular cavities, while the outer surface presents short but perfectly free jointed threads, the walls of which are echinulate as in the Apple. A third case has occurred in diseased Grapes, in which from some unknown cause a cavity exists at the base of the berry. The greater part of the cellular tissue in these was in a state of incipient decomposition; the walls of the cavity, however, were forced into an abnormal growth resem-



bling that of a stigmatic surface; but in this case the free terminal cells were perfectly smooth without a trace of the roughness so remarkable in the case of the Apple and Broccoli just mentioned. It is not quite certain that the excrescences which often occur upon the pods of Peas, or the leaves of some *Melastomads*, &c., are precisely of the same category. In the case of the Melastomads they are certainly accompanied by Fungi, and all require further study. Notwithstanding some pains to arrive at a correct knowledge of their structure, I have never completely satisfied myself about them. The productions known under the name of *Erineum*, and which by many authors have been described as Fungi, are mere hypertrophies of the external cells of the leaves. In the Vine and many other plants the patches often occupy a considerable portion of the leaves but they do not seem to affect the health of the plants on which they are developed, and are principally interesting for the singular forms which the hypertrophied cells assume.

In our next article we shall record still stranger developments of tissue. Such developments, it should be observed, can only be expected in cavities free from the action of the external air, or in a very moist atmosphere. Where the air is dry, either a new cuticle is formed, or where decomposition does not ensue, a chemical change takes place, which renders the tissues impervious to moisture. *M. J. B.*

Home Correspondence.

Wearing out of Races—the Ribston Pippin.—I should like to ask the gardener at Ribston Park whether the old Ribston Pippin tree is really dead. The old trunk was finally destroyed, I believe, by the great storm in January, 1837; but the last time that I was at Ribston Park, which was about two years ago, there was a young tree growing in the same place, which I understood to be a sucker from the root of the old tree, and that it had borne Apples of the same kind. With respect to this fruit you have, I think, hardly done justice to your own argument, for there is scarcely a good garden in Yorkshire without one or two Ribston Pippin trees in perfect health, and bearing good crops of perfect fruit every year. These are generally on walls, but in the orchard at the parsonage of Foston le Clay, in the Vale of York (which was, I suppose, planted by Mr. Sidney Smith when he built the parsonage house), is a standard Ribston Pippin tree, which is one of the most healthy trees in the orchard, and which last year (a remarkably bad Apple year generally) bore a good crop of very fine fruit. I think it is certainly not worth arguing the question of the duration of species or varieties of plants. No reasonable man can believe that we have any evidence from experience to show that they wear out. Individuals constantly appear with such a weak constitution that they will not grow, or even live; a very handsome new Rose, the Gloire de France, is not a bad instance of a constitution of this kind: but respecting the general question, of the wearing out of species, or rather respecting the laws which regulate the succession of one species to another, the period during which the human race itself has existed on the earth (some 5000 or 6000 years) is probably but a small one in the life of a particular species, and, therefore, the experience of a few hundred years can be nothing from which to form an opinion at all. The evidence we have tends to show that many varieties, known to be produced by cultivation, are as permanent as species are, and we have no right to say that all species have not arisen from the working of the same laws which have produced those varieties; we are in fact utterly ignorant as yet upon this subject. *C. W. Strickland.*

Lucombe Oak.—As it is probable that few only of this hybrid Oak have yet been felled as timber trees, there may be some among your readers who may be interested in the details which I send you of one which I have been compelled reluctantly to fell this summer because it has given notice of decay. The tree is one of three only remaining out of 100 planted here in 1776. All the rest had disappeared more than 30 years ago.

Age	81 years
Total height from ground	66 feet
" timber	54 "
Diameter of trunk .. .. 4 feet 2 inches by	3 "
Circumference at 3 feet from ground ..	7 feet 10 ins.
Cubic contents of timber	103 feet
Yield of saleable bark	8¼ cwt,

There is nothing very remarkable in these details, because the climate and soil of Cornwall are unfavourable to rapid development of forest timber, and larger specimens of Lucombe Oak are known to be in vigour in other counties; but I was so much struck by the difference in the appearance of the timber and bark, when compared with those of the common English Oak, that I think their characteristics deserve notice, if they have not been already observed by more experienced foresters than myself. My surveyor Mr. Webb, who has had an experience of more than 30 years, describes the timber as much heavier, tougher, and harder to cut than that of our English Oak, whilst it is very much whiter, and has no appearance of sap. On comparing its yield with that of an English Oak of the same age and grown within a few yards of the Lucombe, I find the following result:—

1 square foot of dry bark of Lucombe, taken from the trunk, weighs	3 lbs.
1 square foot of dry bark of English Oak, taken from trunk	2 "
Piece of timber of Lucombe 16 inches long, 21 inches in girth	21 "
" " English Oak ..	18 "

The bark of this Lucombe has nothing of the Cork character ascribed to the species by Loudon, Arboretum, vol. iii., 1854, but is very "fatty," as tanners call it, *i.e.*, it contains a large proportion of tanning property, and having a much smoother surface than that of the English Oak, has much less waste. This remark applies equally to the bark of the smaller limbs. In justice to the timber I should observe that the English Oak, from which I took the specimen for comparison, was an unusually hearty one, and therefore likely to show favourably in this respect. I shall be interested to know whether this is an exceptional case, or whether the particular properties which here seem to be indicated as belonging to Lucombe Oak are really characteristic of the species. If so, it is very important that they should be known to all who are, like myself, ignorant on the subject. It remains to be seen whether the timber has durability in proportion to its apparent strength. This I propose to test immediately, by reserving the timber for my own use, and exposing it to variations of temperature and season. *J. J. R., Penrose, Helston.*

Seedling Fuchsias.—When I state that some few years since I raised annually from 1000 to 2000 seedling Fuchsias, I may perhaps be deemed capable of giving an opinion as to the merits of this class of plants. This season I have flowered all the vaunted issue of half guinea Fuchsias, and I think I need hardly observe to any grower of them that almost all are wanting both in character and quality, and certainly cannot compete with many of those we already possess; and I must say the puffing resorted to by certain parties, and the highly exaggerated coloured engravings annually sent out, ought to be strongly reprehended. I am confident that I have rejected large numbers (destroying or giving them away), very superior to the majority of those which now year by year are so shamelessly foisted upon us. Now, if any one wishes to possess novelties in this tribe and to grow them as even annuals, nothing

is easier: all that is required is to obtain four or the finest varieties light and dark and hybridise them carefully. Sow the seed when ripe and wait the forthcoming summer, and there is every prospect of possessing many pleasing and good sorts at very little trouble and less cost, and to me the waiting and watching in expectancy is a source of very great and pleasurable interest, very opposite to the feelings engendered on blooming much of the sad rubbish now sent out at prices which can only be deemed disreputable—the mildest term to designate this traffic which is becoming a serious evil and most disheartening to the amateur class; but such practices must in the end recoil on those resorting to them. *T. T.*

Barbarossa Grape.—Enough has already been said about the qualities of this Grape; but by way of encouragement to Mr. Morris (see p. 486) I will give him my experience of it. I bought a fine young Vine of it when it was first sent out, and planted it in a late house with Hamburghs. It grew strongly the first season; I expected it would have thrown a few bunches the following spring, but two seasons passed away without a bunch. The third year it produced one almost at every eye, and this year it broke with the same success. In the autumn of 1854 I planted a strong Vine of the same sort in a Muscat house. In 1856 it yielded two small bunches at the end of long tendrils, which were worthless. This season there were 16 large bunches upon it. Another Vine of the same sort was planted in this house in the spring of 1855 and made vigorous growth the same season. After two summers' growth I laid it on the flue while the Muscats were ripening, where it was nearly roasted; the foliage remained good to the end of autumn, and I thought that after thoroughly ripening the wood it would show fruit, but this season it broke without a bunch. After this trial I concluded that this variety would not fruit with me until the third season. I know of others in a similar condition, but this may not be the case in all soils. On a good sandy loam without dung I think they would produce fruit at an earlier age. No doubt Mr. Morris's Vines will yield plenty of fruit next season, and as a late keeping Grape it is really good, but requires more heat than is wanted for a Hamburgh. *Thorp Perrow.*—The Barbarossa must, I fear, be admitted to be a very shy bearer; in fact, this year it is a complete failure in this part (Warwickshire). This year I have one bunch from eight established Vines. Even where there are good borders, and everything suitable for this Vine, it will not then bear a crop every year, unless the bunches run very light. If we have a heavy crop one year, two years will elapse before we see another. This locality is the birthplace, as it were, of the Barbarossa. A gentleman here first introduced it; in fact, he brought it with him when travelling, and from him the stock has originated. He grew it several years before it was made public. It must, however, be remembered that other kinds have been partially a failure in many places this year, probably through the spring being wet; the roots on that account were dormant, which caused blindness. *W.*

Mildewed Grapes.—Seeing several accounts respecting mildew and the use of sulphur, I beg to state my experience, which goes to support that of others in favour of sulphur. I have one house subject to mildew during damp weather. Three times this summer it has been attacked, each time in wet mild weather. The ground-floor of the house is very low and damp, considerably lower than the border outside. I have found flowers of sulphur an excellent friend in each case. The first time the evil appeared it was on young luxuriant Vine leaves, on which it was stopped by sulphur. The second appearance was on the fruit. In 24 hours it made unparalleled progress; but luckily it was arrested by the same means. It appeared again the third time on the Vines, in patches. The last dressing however seems to have been quite effectual. I dressed the sulphur on the parts affected with a dredging box. I enclose a portion of a leaf out of the house I have just named. What are those pimples you will observe on the back of the leaves? *Warwickshire.* [They are the dried up remains of harmless small pale green excrescences with which the under sides of Vine leaves are often affected in warm damp ill ventilated houses.]

Swansea Copper Smoke a Remedy for the Potato Murrain.—You appear to think it likely that sulphur will be found a cure for the Potato disease. I think the fact that the murrain does not attack Potatoes grown in the Swansea copper smoke much strengthens that opinion, for the copper smoke contains a large quantity of sulphur, although it contains other materials. Land at Swansea, near the copper works, which was formerly barren and useless, now lets, I am informed, at 8*l.* per acre for the purpose of growing Potatoes. I know that the ground in the neighbourhood of the copper smoke is much valued for the purpose of growing Potatoes, and that large quantities are cultivated there. *D. S., Swansea.*

Californian Horse Chesnut.—I enclose a specimen of this tree, which is now in flower in my American garden. Has it bloomed elsewhere, and is it likely to realise the expectations formed of its beauty? I was not at home last summer when it blossomed for the first time, and my gardener informs me that the spikes of bloom were very much larger and finer. The tree was transplanted this spring, which accounts for the diminished size of leaves and flowers. *A Devonian.* [The specimen sent bears little resemblance to the plant when in health. Flowering just now it is very useful, so few shrubs now having any blossoms left.]

Esculent Ferns.—In reference to an article in a late Number on this subject, it may not be uninteresting to observe that in cases of famine the roots (rhizomes) of these plants have in former times been employed for food. In the English Chronicle for 1377 to 1461, published by the Camden Society in 1855, I find the following passage (p. 55):—"And the nexte yeer aftir, the xii yeer of Kyng Harri, was the grete frost," &c. * * * "And the nexte yeer aftir began the grete derthe of corn in this land, the whiche endurid ii yeer, so that a bushelle of Whete was sold for xl.*d.*, and the poer peple in dyvers partiez of the North cuntre eet breed maad of Farn rotes." *Thomas Bell, the Wakes, Selborne.*

Weight of Beech wood.—Your correspondent should have remembered that a cubic foot of water weighs about 62½ lbs.; therefore any instance approaching to the weight of 109 lbs., which he gives us for his timber, must have a density something like brick or stone. What is quoted from Loudon agrees very well with standard tables, and is no doubt correct. I venture to suggest what appears to me a solution of his perplexity. When he employs canal boats of a certain tonnage which are used to transport coal, he is really charged by space, and not by weight, and quite fairly so. Now, coal is one-third heavier than water, and Beech wood dry about $\frac{1}{8}$ lighter; and $\frac{5}{8} \times \frac{5}{4} \times 109 = 68$ lbs., which is not so far off the true weight of Beech wood; and if we make allowance further for the timber not packing so close as the coal, we shall come very near the mark, as given by the best authorities. *Ad Rosas.*

Societies.

EDINBURGH BOTANICAL, *May* 14.—Prof. Balfour, V.P., in the chair. Among donations was a specimen of Cider from Worcester, from Mr. A. Hepburn. Mr. Hepburn remarks:—Three hogsheads of Apples produce one hogshead of cider (pure). Two hogsheads of Pears produce one hogshead of perry (pure). The Apple thrives in greatest perfection on soils lying on the old red sandstone, in Hereford, Gloucester, and Devon shires. The cider produced on the lighter or sandy soils in Hereford is said to be more fiery than that produced on the stiffer or more clayey soils in that county. The finest cider is produced in the vale of Berkeley, Gloucester. I do not know the geological character of the soil. In pressing the Apples in a mill made of a large circular stone, revolving in a stone trough, care is taken to thoroughly crush the seeds. These contain an albuminous principle, which is considered in Hereford and Gloucester shires essential; hence the preference is given to small Crab-like varieties, producing many seeds for the proper preparation of cider. In Devonshire, this matter is overlooked. Since railways opened up Herefordshire, large quantities of Apples are sent to the Welsh mines and iron works, and to the midland counties, for culinary purposes. The uncooked fruit (Apples or Pears) is unfit for human food, leaving, when eaten, a harsh burning sensation in the mouth. Considerable quantities have of late been sent to Manchester to produce malic acid, said to be used in fixing dyes on cottons. Pears for perry attain the highest perfection in Worcestershire on the new red sandstone. Horses, cattle, sheep, and pigs devour them with the greatest relish. The following papers were read:—1. "Notice of Two Cases of Poisoning with the Seeds of Thevetia nereifolia, communicated, with remarks," by Dr. Maclagan. The history of these cases, which occurred in India, was furnished by Dr. Balfour. The symptoms were narcotico-irritant, the irritant character predominating, and the somnolence and other cerebral phenomena being, in Dr. Maclagan's opinion, probably as much those of exhaustion as of true narcotism. There was vomiting of a peculiar character. The letter narrating the cases contained portions of the plant sufficient to enable Dr. Maclagan to identify it as Thevetia nereifolia Juss. (Cerbera Thevetia L.) This plant, now naturalised in India, appears to have been introduced probably from South America. Dr. Maclagan had compared the Thevetia nereifolia of the Indian collections with the Cerbera peruviana of Mathew's catalogue, and had no doubt of the identity of these plants, which are given as synonymous in De Candolle's Prodromus. 2. "Account of the Insect which infests the Seeds of Picea nobilis." By A. Murray, Esq., F.R.S.E. This beautiful Silver Fir (the Picea nobilis) was first introduced into this country from the north-west of America, by Douglas, in 1831. In what state the seed sent by him arrived here I have been unable to ascertain with perfect accuracy. The fact that plants of an age corresponding to that period are exceedingly rare would seem to indicate either that the quantities imported by Douglas were less than we have reason to suppose, or that for some cause or other they had not been productive. On the other hand, Professor Lindley informs me that he never heard that Douglas's importations were in any way attacked by insects, and that the Horticultural Society of London raised what he sent home without anything of the kind being observed; and I am informed by my friend Mr. M'Nab that the cones sent by Douglas, which have been preserved as specimens, show every symptom of having been perfectly sound. No second importation of seed to this country was made in any quantity till Jeffrey sent home some packages in 1852. These proved all bad, and apparently had suffered from the ravages of an insect. Mr. Beardsley and my brother next sent home a quantity in 1854, along with the seeds of other Pine trees, some of which proved new. In an account of their expedition, and of the novelties discovered by them, which I had then the honour of reading to this Society, I noticed the fact that, in almost every cone of P. nobilis, the seeds were being eaten by a small caterpillar. My brother had found these caterpillars in the green as well as in the mature cone, their eggs evidently having been deposited in the kernel while the cone was yet soft, and easily penetrated. One or two subsequent importations of seed (the last a very large one, made last autumn on behalf of the Oregon Botanical Association) proved to be also to a greater or less extent infested by an insect. From these importations I have bred the insect, and find that it belongs to the genus Megastigmus, one of the Chalcidites, a family of the so-called Ichneumon flies. These flies have hitherto been supposed to be entirely parasitic; but the fact of immense numbers coming out of the cones without any intermixture of species would seem to render this unlikely, so far as regards this species, as it is highly improbable that all the larvæ could have been ichneumonised. Out of hundreds of insects which I have seen developed from the cones of Picea nobilis, I never saw any other species than this, except one small moth; and further, no trace of the skin of the sacrificed larvæ is to be found in the empty kernel from which the insect emerges, which would not have been the case had they fallen victims to Ichneumonidæ. There thus appears no reason to doubt that the larva in question is that of the Chalcis which afterwards appears, and it follows as a corollary, that it is simply an ordinary vegetable feeder; and that the whole species falling under this group are not parasitic. Similar exceptions to the general economy of a family have been found in other groups. For instance, till lately, the neighbouring family of Cynipidæ, or gall-flies, was always supposed to live exclusively in Gall-nuts or morbid excrescences on Oak-leaves, and other plants; Westwood, however, has satisfactorily shown that some of them, like the Chalcidites, are parasitic on other insects. I see no reason therefore why a similar aberration from the normal mode of life of the Chalcidites should not occur among them also. The description of the species is as follows. [*Note.*—Since this paper was read to the Society, I have seen the April Number of the "Zoologist," in which I find the species described by Mr. Parfitt under the name of Megastigmus Pini. I have therefore withdrawn my description, and cancelled the name which I had given it. Mr. Parfitt has described only the female, not having seen the male, which he seems to anticipate must be rare. I obtained specimens of both, which I have placed in the British Museum. The male is smaller than the female, and differs in having its upper surface entirely black.—A. M.] The immense quantities in which the insect has been found in the cones, at least in all the later importations, and the fact that the early stage in which the cone is attacked renders protection or prevention by man nearly impossible, is likely, I fear, to keep this Pine always comparatively scarce. Any hints as to its propagation, otherwise than by seed, will therefore probably be acceptable, and I shall accordingly mention a mode of propagating it by cuttings, which I have tried and found singularly successful, and which I believe has not yet been made known. In the month of June last year, when the young buds were pushing out their beautiful tender pea-green leaves, I nipped or tore off a number from a young worked plant, in order to bring it into better shape. In doing so a little of the old alburnum and bark, of course, adhered to these new fresh green portions, which were from half an inch to an inch in length, and with no great expectation of their doing anything, but rather as an experiment, I stuck them into the open border. To my gratification I found, on examination some time afterwards, that they had rooted. They did very well till the heats of August began to tell upon them, when the weakest gave way; but some stood and were taken up and potted on the approach of winter, and are now ready to come away with fresh vigour. I have no doubt that if the cuttings had been potted and taken care of instead of being left in the open border, not one of them would have failed. 3. "On the supposed influence of the Moon on Vegetation, in Peru." By Dr. Smith. The author alluded to the prevailing belief in Peru of the moon's influence on vegetation, and gave a *resumé* of the results arrived at by various scientific observers who had had opportunities of noticing the lunar influence in the tropics. He thought it not unreasonable that the lunar ray might have a peculiar chemical agency on the functions of plants and animals, as it appears to have on dead animal matter. While the moon was not regarded in Peru as influencing so much the changes of weather as in directly effecting increased growth, it must be borne in mind that the light afforded both by the sun and moon in Peru is much greater than in the British Islands,—so that, although we may reasonably repudiate any marked effect from the moonlight in these islands, the more intense lunar light of Peru may exercise a sensible power in plants. In noticing special instances in which this might be supposed to be shown, the author alluded particularly to the surprisingly rapid growth of Lucerne, which is extensively cultivated in Peru, and is evidently much favoured by light, whether of sun or sun and moon together. During the prevailing misty season on the coast (which is the time when the low and maritime sand hills are garnished in Grass and flowers to their summits) the growth of Lucerne in the plains and valleys is greatly stinted. In these wet months, as they are called,

though the rain very rarely forms into a light shower, or exceeds the limits of a dripping mist, the Clover or Lucerne does not attain to a flowering maturity; but no sooner do the vapours of the coast begin to break up, and the sun show itself in a brightening sky, than this useful plant, on which the horses and other cattle thrive admirably, receives a fresh impulse, yielding two or three luxuriant crops in succession. This remarkable vigour of vegetation, under the influence of a returning sun, argues on behalf of light, more than of heat, as the vivifying power, because the requisite degree of heat does not appear to be deficient at any season, where the thermometer of Fahrt. seldom sinks under 60° on the coast. Besides, in the temperate valleys of the Sierra or Andine heights, where the summer temperature of the air does not exceed the winter temperature of the coast, the Lucerne grows luxuriantly under a bright clear sky during the dry season, though there also its growth is checked in the cloudy and rainy months; and yet the sunny season of the mountains is subject to night chills, or even frost at certain elevations, whereas the wet months are not so. Light, therefore, seems the essential condition to the recurrence of the more luxuriant vegetation, as observed in the successive climates of the Andes from the headlands of the coast to the temperate agricultural elevations of 10,000 feet, where the Lucerne still attains a perfect growth in a clear but cool atmosphere of about 60° Fahrt. And then, as we descend into yet deeper valleys, at only 6000 or 7000 feet elevation, where the rains of the so-called wet season are only slight and transitory, and not to be compared to those that fall at twice this height, the sun is seen throughout the year, and, in the dry months, actually dazzles in reflected brilliancy from every stone and rock. In these favoured inland valleys there is a predominating sun all the year over; and, in the dry season especially, a profusion of sun by day, followed by a most luminous moonlight, with a calm clear sky. Here, then, so liberal a supply of light from sun, moon, and stars, appears to be singularly favourable to vegetation; and the Lucerne yields inland two crops to one on the coast, though the temperature of the air on the coast be in the shade 10° or 12° higher during the dry season than in the inland valleys under consideration, and this, too, on soil generally inferior to that of the coast now compared with it in strength of vegetation. The author concluded by some observations on the effect of light in promoting the discharge of oxygen from the leaf tissues of plants, showing that light, independently of heat, increased their vital actions. Prof. Piazzi Smyth, in remarking upon Dr. Smith's paper, made some observations on the amount of heat given by the moon, and shortly traced the history of this inquiry, detailing many experiments by himself and others, and alluding particularly to the researches of Sir John Herschell, Prof. J. D. Forbes, &c.

LINCOLN HORTICULTURAL.—The Lincoln Horticultural Society's first show for the season took place in the Temple Garden, a spot full of interesting historical associations, and admirably situated for meetings of the kind. Two spacious marquees were employed for the reception of the plants, fruit, and vegetables brought for exhibition. The day was charming, the company numerous and appreciative of the beautiful examples of horticultural skill brought together for the occasion. Lincolnshire has long enjoyed a deserved celebrity for agricultural skill and enterprise; its sister pursuit, Horticulture, appears to have engaged the attention of many influential and affluent persons resident in the county, who contributed as the result of their horticultural essays a large quantity of plants remarkable for effective and skilful cultivation. The 1st prize for 12 stove and greenhouse plants was taken by Mr. Moule, gr. to J. S. Marfleet, Esq. The 1st prize for 6 stove and greenhouse plants was also taken by Mr. Moule; these were all well grown and well bloomed plants worthy of any metropolitan exhibition. Amongst them was a fine Pimelea spectabilis and excellent plants of Franciscea acuminata, Epacris miniata splendens. The 2nd prize in six plants was awarded to Mr. Frisby, gr. to Charles Chaplin, Esq.; the 3d to Mr. Ford, gr. to Lord Monson; four collections of Cacti contributed greatly to the gaiety of the tent. Greenhouse Azaleas were exhibited by Mr. Macbey, gr. to R. Ellison, Esq.; these were well grown and capital plants; the same exhibitor carried off the first prize for Heaths, of which three collections were exhibited. Six collections of Calceolarias were shown; the 1st prize was given to Mr. Frisby, gr. to C. Chaplin, Esq., for six well managed plants. Four collections of variegated plants added to the interest and beauty of the exhibition. The 1st prize was taken by Mr. Frisby for Dracæna terminalis, Aphelandra Leopoldi, Hydrangea japonica variegata, and Mussænda frondosa. Six collections of Ferns, exotic and English, exhibited the increasing interest taken by cultivators in these elegant plants. One side of the long tent was taken up with Pelargoniums and Roses; a finer display was probably never witnessed at a provincial show. The 1st prize for Pelargoniums was taken by Mr. Macbey, gr. to R. Ellison, Esq., of Sudbrook Holme; 2d, by Mr. Frisby; 3d, by Mr. Leivesley, gr. to G. R. Jarvis, Esq. Several collections of Fancy Pelargoniums were exhibited. The 1st prize was awarded to Mr. Frisby for Alboni, Jenny Lind, and Queen Victoria; these were admirable examples of good cultivation, and presented a perfect blaze of bloom; a 2d prize was gained by Mr. Macbey. Roses in pots were creditable for a neighbourhood not naturally favourable for the cultivation of Roses; the 1st prize was given to Mr. Frisby. Four collections of Cinerarias presented masses of flower but unequal in quality to other productions. Several fine specimen plants received the commendation and awards of the judges; an Erica Cavendishi and a Pimelea were the most remarkable. Several stands of Cut Flowers were shown, and two baskets of Wild Flowers, contributed by lady botanists, excited much interest and notice. Tulips, Pansies, and Anemones exhibited the floricultural skill of many amateurs. Fruit was not abundantly exhibited; it consisted of some good Strawberries, Grapes, Cherries, Pines, Apples, and Pears. Vegetables occupied the greater part of a considerable tent. Asparagus was exceedingly good, as was the Broccoli. Two good collections of Vegetables were shown, and some immense Rhubarb.

Notices of Books.

The Life of George Stephenson, Railway Engineer. By Samuel Smiles. 8vo, Murray, pp. 517.

The singularly faithful portrait prefixed to this volume, even had it been without a name, would have been instantly recognised as that of a man great in the truest sense of the word. The full forehead, the firm mouth, the keen but gentle eye could only have belonged to a being of commanding intellect, inflexible purpose, quick perception, and kindly nature. And such were the attributes of the great George Stephenson, the father of locomotion on railways and of miners' safety lamps, of whom it may be truly said that aiming at nothing which was not useful to his fellow creatures, no difficulties deterred him, no time dismayed him, no success intoxicated him. At the end of a long life, begun in poverty, and for many a year passed in an almost superhuman struggle with difficulties, when triumphant success had crowned all his works, and when hero-worshippers had placed him on one of the highest pinnacles of fame, he retained the same simple manners and gentle demeanour that had distinguished George Stephenson the Brakesman of Killingworth Colliery.

Mr. Smiles's narrative is worthy his great subject. There are few biographies the style of which is so entirely free from all that a critic could object to. Plain, distinct, nervous, at home in every detail of railway engineering and intimately acquainted with the history of those prodigious inventions that are rapidly changing the universal framework of our social and political relations, the narrator always shows himself a master of his subject—not less alive to the bearing of the little incidents in the early life of the struggling hero than to the immeasurable importance of the results growing out of his matured conception and triumphant end. The volume is a biographical model.

George Stephenson was the son of respectable, careful, hardworking labourers, earning about 12*s.* a week. In the words of a neighbour, "they had little to come and go upon—they were honest folk, but sore haudden doon in the world." In the village of Wylam, near Newcastle-on-Tyne, on the 9th of June, 1781, in the only room his parents occupied, unplastered, clay-floored, with naked rafters overhead, he came into existence. His early days were passed as those of children in such circumstances usually are. Playing, birds-nesting, running on errands, minding the other children, carrying his father's dinner—such were his occupations as a boy. Schooling he had none, "the family was too poor, and food too dear, to admit of that." At eight years of age he was promoted to herd a neighbour's cows and to look after the gates on a tramway; for which he was rewarded with 2*d.* a day. Then it was that the lad's engineering tastes began to show themselves. Having little to do he amused himself with manufacturing whistles out of Reeds, Lilliputian water-mills, and clay steam-engines fitted with pipes of Hemlock stalks. From this employment he gradually rose to the rank of ploughboy at 4*d.* a day, stone picker at 6*d.*, till at last he reached the post of horse-driver with 8*d.* a day. Some of the old people still remember him as a "grit bare-legged laddie," full of fun and tricks. His next step was to become assistant fireman in the colliery, the first practical move towards becoming an engineman, on which he had set his heart. He was now 15, big and bony, and with no mean physical power. "At lifting heavy weights off the ground from between his feet,—by means of a bar of iron passed through them, the bar placed against his knees as a fulcrum, and then straightening the spine and lifting them sheer up,—Stephenson was very successful. On one occasion, they relate, he lifted as much as sixty stones weight in this way—a striking indication of his strength of bone and vigour of muscle."

At last his wages reached 12*s.* a week, when, to use his own words, he thought himself "a made man for life;" and then, being 18 years old he learnt to read, although he had very few leisure moments that he could call his own. "But the busiest man will find them if he watch for them; and if he be careful in turning these moments to useful account, he will prove them to be the very 'gold-dust of time,' as Young has so beautifully described them."

We must pass, however, from the incidents of this period of his life, charmingly described by Mr. Smiles, and proceed to other matters.

In 1799 he put himself to night school with a Scotch Dominie, one Andrew Robertson, paying 4*d.* a week; and now he learned arithmetic. In a wonderfully short time he had distanced all his fellow scholars, to the amazement of some of them who could not make it out; "he took to figures so wonderful," was their only explanation. BUT GEORGE'S SECRET WAS HIS PERSEVERANCE, says Mr. Smiles, and that is the secret of ninety-nine men in a hundred who succeed in life. But perseverance was not all; it was backed by pluck and spirit. It happened that Stephenson was driven by one Nelson, a colliery bully, and great bruiser, to fight him:—

"Great was the excitement at Black Callerton when it was known that George Stephenson had accepted Nelson's challenge. Everybody said that he would be killed. The villagers—the young men, and especially the boys of the place, with whom George was an especial favourite—all wished that he might beat Nelson, but they scarcely dared to say so. They came about him while he was at work in the engine-house, to inquire if it was really true that he was 'goin to feight Nelson?' 'Aye; never fear for me; I'll feight him.' And 'feight' him he did. For some days previous to the appointed day of battle, Nelson went entirely off work for the purpose of keeping himself fresh and strong; whereas Stephenson went on doing his daily work as usual, and appeared not in the least disconcerted by the prospect of the affair. So, on the evening appointed, after George had done his day's labour, he went into the Dolly Pit Field, where his already exulting rival was ready to meet him. George stript, and 'went in' like a practised pugilist—though it was his first and last battle. After a few rounds, George's wiry muscles and practised strength enabled him severely to punish his adversary, and to secure for himself an easy victory. This circumstance is related in illustration of Stephenson's personal pluck and courage; and it was thoroughly characteristic of the man. He was no pugilist, and the very reverse of quarrelsome. But he would not be put down by the bully of the colliery, and he fought him. There his pugilism ended; they afterwards shook hands, and continued good friends. In after life, Stephenson's mettle was often as hardly tried, though in a different way; and he did not fail to exhibit the same resolute courage in contending with the bullies of the railway world, as he had thus early shown in his encounter with Ned Nelson the fighting pitman of Black Callerton."

Such were the preparations of the great George Stephenson for that future contest in life out of which he came with such transcendent success.

Of his further career it is needless to speak except in general terms. By slow degrees his mechanical and engineering skill became manifest. Through shoemaking, pump curing, and engine working, he passed up to the construction of a locomotive, and the invention of a miner's safety lamp. Thence he advanced to improvements in locomotives, improved rails and chairs, steam springs, experiments in friction and gravity, and at length the construction of a railway at Hetton Colliery. The success of this operation soon led to the formation of a railway from Stockton to Darlington, and as an almost necessary consequence to that of a similar iron road from Liverpool to Manchester. In Mr. Smiles's pages will be found a most interesting narrative of the enormous difficulties which George Stephenson had to encounter, from canal proprietors who saw their own ruin in his success, from engineers who pronounced the plan impracticable, Chatmoss not being able under any circumstances to bear the weight of an iron road and its traffic, from gentlemen learned in the law who described his plan as "the most absurd scheme that ever entered into the head of man to conceive," and from honourable and right honourable gentlemen who had no scruple about preferring private to imperial interests. In spite of all this array of force George Stephenson's good engine "THE PERSEVERANCE" having forced its way and upset the hostile throngs, the "Rocket" locomotive passed safely across the alarming abysses of Chatmoss, and reached triumphantly the terminus in Manchester.

We know the rest. On the 12th of August, 1848, a career of unsurpassed energy and perseverance, ending in all the wealth and honour that success can bestow, was brought to its natural close. On that day, at his house near Chesterfield, in the sixty-seventh year of his age died the great George Stephenson. His own words addressed a few months before his decease to the Leeds Mechanics' Institute, as recorded by Mr. Smiles, shall fitly close this hasty sketch.

"Though crowned with honours, the architect of the railway system, and the constructor of some of the greatest works of his time, 'he stood before them,' he said, 'but as a humble mechanic. He had risen from a lower standing than the meanest person there; and all that he had been enabled to accomplish in the course of his life had been done through perseverance. He said this for the purpose of encouraging youthful mechanics to do as he had done—to persevere.' The words were simple but forcible, and pregnant with life and instruction for all men."

Of his horticultural pursuits, for he was a great gardener in his way, we may speak on some future occasion.

The Potato Disease: Statement to the Royal Agricultural Society of Berlin respecting the Potato Plant and its Diseases. [Bericht, &c.] By Hermann Schacht, Berlin, 4to, 1856. Pp. 30, tab. x.

This treatise is a very useful addition to our information respecting one or two of the principal diseases to which the Potato is subject. It commences with an

account of the anatomical structure of the different parts of the plant itself, and then proceeds to a consideration of the same parts as affected by disease. It is however principally to the scab and Potato murrain under its moist and dry forms that his attention has been directed. The true curl seems never to have come under his observation, and some other affections are passed over in complete silence. Notwithstanding the conviction of most naturalists at the present day that the Potato murrain is really a consequence of the attacks of the parasitic Fungus known under the name of *Botrytis infestans*, aided in many cases by *Fusisporium Solani*, he adheres to the old views of the presence of these fungi though so constant being merely accidental, and ascribes the disease to climatic conditions, without however at all solving the difficulties which that theory involves. He considers, moreover, the two forms of disease, known by the Germans under the name of wet and dry rot, which are so often present together in one and the same tuber, as mere modifications of a single malady. The form, it should be observed, which is attended by the *Fusisporium* was known in England long before the peculiar affection which is characterised by the destruction of the haulm by the *Botrytis*, and as this sometimes induced an extremely dry condition of the tubers, while on the other hand they sometimes form a wet putrefying mass, it may be true that the difference depends upon different chemical conditions, without confounding the true Potato murrain with the disease of Martius. When the tissues are in a state of moist decay the walls of the cells retain to a great extent their normal chemical nature. The application of iodine and sulphuric acid produces a blue tint which shows that they are still in great measure composed of cellulose, though other matters may have been absorbed into their substance as into a sponge. When the decay on the contrary is slow and the condition of the mass dry, Schacht has observed that the walls no longer show this reaction, but one approaching to the nature of cork, the effect of which is to make them less pervious to moisture, to prevent the escape of the starch grains, and to prevent the spreading of the malady. Besides which he has observed isolated groups of diseased cells invested with a layer of cells identical in structure and appearance with those which form the cuticle, a circumstance which takes place also in the common form of scab. These points are illustrated by excellent figures, to the faithfulness of which we can ourselves bear testimony. At the end of the treatise he describes the various forms assumed, as he believes, by the *Fusisporium*, which though apparently belonging to several different genera, he is probably right in referring to one species.

When the decay has once assumed the wet form, its progress is so rapid that if the tubers are to be used at all, they must be submitted to such a heat as will kill the fungi by which they are infested and prevent further decay. If the disease is not so virulent, though evidently tending to the moist form, Schacht assures us that it may be converted into the dry form, if the tubers are kept in a dry atmosphere. He states moreover that submission for a time to about 100° Fahrenheit does not destroy the vegetative powers of the tubers, and that though shrivelled they push their eyes well, and somewhat earlier than those which have not been dried. On the whole we consider this one of the most valuable treatises which have appeared on the subject, though we do not always see the justice of the conclusions at which the author has arrived.

Garden Memoranda.

SOUTHEND, DARLINGTON, THE SEAT OF JOSEPH PEASE, ESQ.—This place is close to the town of Darlington; it contains one of the best collections of well-grown plants in the north of England. Adjoining the house has recently been built a very handsome span-roofed conservatory which contains a number of good specimen plants. At a short distance from the house is a large clump of Rhododendrons, fine plants, and many of them the best sorts. Mr. Pope, the gardener, informed us that they suffered considerably from the severity of the weather of the last two or three winters. Of the houses several are devoted to the growth of plants; among Orchids we noticed several Stanhopeas in flower, also Saccolabiums, Dendrobiums, Oncidiums, Aerides, &c. Some nice Ferns and a few Pitcher plants are also grown here, together with a number of plants remarkable for fine foliage.

In the houses appropriated to Stove plants were some grand specimens of Allamandas, Ixoras, and numbers of other things. Behind a north wall we observed a quantity of fine Heaths and hard wooded greenhouse plants. Among the latter were some good specimens of Pimeleas. Mr. Pope grows all his finest and choicest Heaths in pits and frames. They were in the highest possible health and vigour, and many of them magnificent specimens.

In the Peach houses and Vineries were good crops. Peaches on open walls have set well; but Mr. Pope informed us they do not ripen well in unfavourable seasons. Wall fruit appears to be an average crop, and orchard fruit the same.

Numbers of Conifers have been planted in the Park. Many of the Deodars had their leading shoots killed in the winter of 1855-56. We noticed two nice specimens of Picea Nordmanniana — two good Deodars, one thriving plant of Araucaria imbricata, and several small plants of Wellingtonia gigantea. In planting Conifers, Mr. Pope mixes a good deal of peat with the ordinary soil of the Park; he finds that they thrive better when he uses peat, than without any. Between the approach and the town were numbers of fine Yews. Though the Park is not of great extent, still, through judicious planting and by keeping the gardens, hothouse, &c., well out of sight from the mansion and terrace the grounds appear to be of considerable extent; indeed, a stranger standing on the terraces and viewing the scenery before him, would little imagine he was so close to Darlington,

Mr, Pope showed us among other things large jars, in which he keeps his late Pears. When the Pears are gathered from the trees they are laid in the fruit room for a week or 10 days until they are quite dry. Each Pear is then wrapped in paper and placed in the jars. When there is not sufficient fruit of one sort to fill a jar, then a late kind is put at the bottom and an earlier sort at top; when the jars are filled, they are stopped up and sealed; the name of the sort or sorts is written on a label, which is fastened to the handle. They are then all placed in the fruit room, where they remain until used. Mr. Pope assured us that late kinds kept in this way, when used in March and April, were most excellent.

MR. SALTER'S, VERSAILLES NURSERY, HAMMERSMITH.—Those who have visited our metropolitan exhibitions for these last few years will have observed that a new feature has been added to them in the shape of groups of exotic plants with variegated leaves. These have attracted so much attention that no stove or greenhouse is now considered complete without them. There are however many lovers of flowers who have not the advantage of glass erections, and therefore cannot grow such things as Dracænas, Crotons, Coleus or Cissus. To them it may be some gratification to know that this class is not confined to the hothouse, but that there are great numbers of variegated plants, perfectly hardy and equally beautiful, in every way adapted either for garden or pot culture. Mr. Salter has an excellent collection of such plants which only require to be known to become favourites, and more generally useful perhaps than plants from hotter climates. The following list gives the names of some of the most distinct variegated herbaceous plants, and some of the purposes to which they may be applied in the decoration of the flower garden.

Plants adapted for bedding: Ageratum cœlestinum variegatum, variegated Alyssum, variegated Arabis alpina (for edging), Arabis lucida variegata (for do.), variegated Barbarea vulgaris, Cineraria maritima argentea, variegated Koniga (for edging), variegated Mint, and Salvia fulgens.

Plants for flower borders: Variegated Ægopodium Podagraria; Arundo Donax versicolor, this is generally exhibited among stove plants—it is however hardy, but requires a warm dry situation; variegated Artemisia vulgaris, Convallaria majalis, Epilobium hirsutum, Funkia albo-marginata, F. ovata, F. undulata, Hemerocallis fulva, Melissa officinalis and secunda, Mentha officinalis aurea, variegated Mentha sylvestris, Pulmonaria sibirica, Saponaria officinalis, Spiræa ulmaria, and Veronica spicata.

Plants for rockwork, all with variegated leaves: Ajuga reptans, Aira cærulea (Molinia cærulea), Carex, Dactylis glomerata, Festuca glauca, Galeobdolon luteum, Glechoma hederacea, Linaria Cymbalaria, Saxifraga umbrosa, Tussilago Farfara, Vinca major elegantissima, V. major reticulata, V. minor aurea, V. minor argentea.

Plants for pot culture: Ægopodium Podagraria, with variegated leaves, free growing, and handsome; variegated Ageratum cœlestinum, Arabis lucida, with very fine bright golden variegation; Arundo Donax versicolor, one of the very best variegated plants; Artemisia vulgaris, handsome in a pot; Arum maculatum, with veined leaves; Aspidistra lurida variegata, generally shown as a stove plant, but quite hardy and very fine for specimen plants; Centaurea candidissima, with ornamental silvery leaves, makes a first-rate specimen plant; Cineraria maritima: this, like the preceding, is covered with down, which looks like frosted silver, an elegant plant for rooms at night; Convallaria majalis: this is even finer as a pot plant than in the border; Dactylis glomerata fol. var., a handsome Grass; Festuca glauca, tinged with blue; Funkia albo-marginata, has a narrow white edge; F. ovata, bordered with white; F. undulata, with a broad white belt in the middle—all three make handsome pot plants; Melissa secunda, has leaves mottled with white, dwarf habit, and a profusion of pretty rosy flowers; Mentha rotundifolia, with white border; M. sylvestris, pretty, frequently three coloured; Polemonium cæruleum, a beautiful plant for pot culture; Pulmonaria sibirica, with very distinctly spotted leaves; Spiræa ulmaria variegata, Tussilago Farfara, very beautiful as a specimen plant.

Plants for baskets or hanging vases: Glechoma hederacea, exceedingly pretty for this purpose; Linaria Cymbalaria, a diminutive plant, but remarkably pretty; Vinca major elegantissima, one of the finest variegated plants in cultivation; V. major reticulata, exceedingly elegant, the leaves looking like network; V. minor aurea and V. minor argentea.

Of many of these plants pretty specimens were shown by Mr. Salter at Regent's Park, where they were much admired. We may add that the beautiful Chinese Farfugium grande when it shall have become more common will doubtless be a great favourite both for pot culture and for rockwork; among the latter its large yellow spotted leaves cannot fail to be both striking and effective.

Miscellaneous.

Uses of the Bamboo.—Different species of Bamboo abound in all tropical countries, and wherever they are found the natives apply them to a great variety of uses. Their strength, lightness, smoothness, straightness, roundness, and hollowness,—the facility and regularity with which they can be split,—their different sizes, the varied distance of their joints, the ease with which they can be cut, and with which holes can be made in them,—their hardness outside, their freedom from any taste or smell, their great abundance, and the facility with which they are propagated—all make them fitted for a hundred different purposes, to serve which other materials would require much labour and preparation. They are at once the most wonderful and the most beautiful production of the tropics, and the best gift of nature to uncivilized man. The Dyak houses are all raised on posts, and are often 200 or 300 feet long, and 40 or 50 wide. The floor is always formed of large Bamboos, which are split into four or five strips, so that each may be nearly flat, and these are firmly tied down with Rattan to the rafters beneath. This, when well made, is a delightful floor to walk upon barefooted, the rounded surfaces of the Bamboo being very smooth and agreeable to the feet, while at the same time affording a firm hold. But what is more important, they form, with a mat over them, an excellent bed,—the elasticity of the Bamboo, and the undulating nature of the surface, being far superior to a more rigid or flatter floor. Here at once we have a use which cannot be supplied so well by another material without a vast amount of labour, all Palm stems and other substitutes requiring much cutting and smoothing, and not being equal to Bamboo when finished. Some tribes however prefer a flat and close floor, and they make Bamboo-boards for the purpose, by splitting open a large Bamboo on one side only, and flattening it out, so as to form beautiful slabs, 18 inches wide and 6 feet long, with which they floor their houses. These, with constant rubbing and daily smoke, become dark and polished, so that their material can at first sight be hardly recognised. What labour is here saved to a savage with only his axe, who, if he wanted boards, must hew them out of the solid tree, and, with all his labour, could never produce a surface so smooth and beautiful as the Bamboo, thus treated, affords him. Again, if a temporary house or shed is wanted, either by the traveller in the jungle or by the native in his Paddy-fields, nothing is so convenient as the Bamboo, with which a house can be constructed with half the labour and in half the time than if any other material is used. One of the most striking uses to which Bamboo is applied by the Dyaks, is in climbing the loftiest forest-trees, either to gather fruit or to obtain wax. The honey-bee of Borneo very generally makes its nest on the branches of the "Tappang," a tree which towers above all others in the forest, and whose smooth cylindrical trunk rises 100 feet or more without a branch. Bees'-wax is one of the most valuable products of the forest, and the Dyaks climb these lofty trees at night to obtain it, by means of Bamboo pegs driven into the wood. These pegs are formed of thick old Bamboo split to about 2 inches wide. Each is cut above a joint, which forms a solid head to bear the blows of the mallet, and the point is flat and broad, cut away carefully to the silicious outer coating. To the head of each is strongly tied a strip of the tough rind of a water-plant. The climber carries 40 or 50 of these pegs in a basket by his side, and has a wooden mallet suspended round his neck; he has also prepared a number of strong, but slender Bamboos, each from 20 to 30 feet long. One of these he sticks firmly in the ground at the foot of the tree, and close to it; he then drives a peg as high as he can reach, and ties it firmly by the head to the Bamboo; climbing up upon this, he drives in and ties two other pegs, each about 3 feet from the one below it, passing his arm between the tree and the Bamboo, to hold the peg which he is driving in. He soon reaches the top of his pole, when another one is handed up to him, and being bound to the one below, he ascends in the same way another 20 feet. When his pegs are exhausted, a boy brings a fresh basketful up to him, and a long cord enables him to pull up the Bamboos as he requires them. This mode of ascent looks perilous, but is in reality perfectly sure. Split and shaved thin, Bamboo is the strongest material for baskets; conical fish-traps, henroops, and birdcages are made by splitting a piece up to the joint which forms the top, gradually-increasing circles of Rattan being inserted below; rough fruit-baskets are also rapidly made in this manner. Aqueducts are formed by large Bamboos split in half, supported on crossed poles of various heights. They are the Dyaks' only water-vessels, and are in fact superior to earthen vessels, being clean, light, and easily carried. A dozen water-Bamboos stand in the corner of every Dyak house. They also make excellent cooking utensils; vegetables and Rice are often boiled in them. They are used to preserve sugar, vinegar, honey, salted fruit or fish—in fact, they answer every purpose for which jars and bottles are used by us. In a small Bamboo case, prettily carved and ornamented, the Dyak carries his sirih and lime for Betel chewing, and his little long-bladed knife has a Bamboo sheath. His favourite pipe is a huge hubble-bubble, which he will construct in a few minutes by inserting a small piece of Bamboo for a bowl, at an

acute angle, into a large cylinder, about 6 inches from the bottom, which contains water through which the smoke passes. In many other small matters the Bamboo is of daily use, but enough has been here mentioned to show its value, as a substitute, in many cases for iron, and in enabling the natives to dispense with a variety of tools and utensils. *Wallace, in Hooker's Journal of Botany.*

Parchment Paper.—At a meeting of the Royal Institution, held on Friday, the 3rd of April, the subject of the discourse delivered by the Rev. J. Barlow, Vice-President and Secretary to the Institution, was "On some modifications of woody fibre and their applications," in the course of which an interesting description was given of the substance to which the name parchment paper has been applied. This substance is the invention of Mr. W. E. Gaine, C.E., by whom the process for its preparation has been patented. Mr. Barlow having described several of the applications of woody fibre, and particularly its application in the manufacture of paper, referred to the chemical and physical changes effected in paper and analogous fabrics by treating them with chemical agents. He contrasted with the pyroxylised textures of Kuhlmann and the gun-paper of Pelouze, the woven fabrics subject to Mercer's process, and the parchment paper, the invention of Mr. Gaine. By acting on cloth with chloride of zinc, tin, or calcium, with sulphuric and arsenic acid, and especially by the caustic alkalies in the cold (the temperature sometimes being lowered to —10° Fahr.), Mr. Mercer has obtained many important effects on the fineness and general appearance of cloth, and its susceptibility of dye. This subject was brought before the Royal Institution by Dr. Lyon Playfair, C.B.,* and it has since been closely investigated by Dr. Gladstone.† Mr. Mercer also experimented on the effect of acids on paper. It being known that sulphuric acid, under certain conditions, modified vegetable fibre, Mr. Gaine instituted a course of experiments to ascertain the exact strength of acid which would produce that effect on paper which he sought, as well as the time during which the paper should be subjected to its action. He succeeded in discovering that when paper is exposed to a mixture of two parts of concentrated sulphuric acid (*s. g.* 1.854, or thereabouts) with one part of water, for no longer time than is taken up in drawing it through the acid, it is immediately converted into a strong, tough, skin-like material. All traces of the sulphuric acid must be instantly removed by careful washing in water. If the strength of the acid much exceeds or falls short of these limits, the paper is either charred, or else converted into dextrine. The same conversion into dextrine also ensues if the paper be allowed to remain for many minutes in the sulphuric acid after the change in its texture has been effected. In a little more then than a second of time, a piece of porous and feeble unsized paper is thus converted into the parchment paper, a substance so strong, that a ring $\frac{7}{8}$ inch in width, and weighing no more than 23 grains, sustained 92 lbs.; a strip of parchment of the same dimensions supporting about 56 lbs. Though, like animal parchment, it absorbs water, water does not percolate through it. Though paper contracts in dimensions by this process of conversion into parchment paper, it receives no appreciable increase of weight, thus demonstrating that no sulphuric acid is either mechanically retained by it, or chemically combined with it. It has also been ascertained by analysis, that no trace of sulphur exists in the parchment paper. The fact of this paper retaining its chemical identity constitutes an important distinction between it and the gun papers of Pelouze and others. Unlike those substances, it is neither an electric, nor more combustible than unconverted paper of an equal size and weight, nor soluble in ether or potash. Unlike common paper, it is not disintegrated by water; unlike common parchment, it is not decomposed by heat and moisture. In this remarkable operation, the action of the sulphuric acid may be classed among the phenomena ascribed to catalysis (or contact action). It is, however, conceivable that this acid does at first combine with the woody fibre, with or without the elimination of oxygen and hydrogen, as water; and that this compound is subsequently decomposed by the action of water in mass, during the washing process, the sulphuric acid being again replaced by an equivalent of water; for, as has been before stated, the weight of the paper remains the same before and after its conversion. Mr. Warren De la Rue and Dr. Müller are engaged in researches on this subject, which will be hereafter published. *From the Pharmaceutical Journal.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Now that many of the Camellias, Azaleas, and other plants will be removed to their summer situations out of doors—painting or other repairs required by any of the plant houses will be more conveniently done than at any other season. Where houses are painted sufficiently often to keep the paint always good, which is the cheapest method in the end, there will be no difficulty in getting the wood dry, but where the wood is allowed to become nearly bare before repainting is thought of, the house should be kept dry inside, covering the outside with some waterproof material in the case of showers, and allowing a fortnight of bright warm weather to thoroughly dry the wood before the work is commenced. STOVE.—If there are sickly or bad rooted specimens here they must be frequently examined for red spider, otherwise they will become a nursery for this pest from which it will soon spread to adjoining plants. See that young growing stock is not allowed to suffer for want of pot room and attend carefully to watering, giving manure water to all plants in free growth that enjoy it. Gardenias, &c., which have been removed to the conservatory while in bloom, should be replaced in heat as soon as their beauty is over in order to allow of getting their growth ripened before the dull cloudy days of November set in. ORCHIDS: Although shading these must now be promptly and carefully attended to allow them as much light as they will bear without injury, using a very light screen and only when absolutely necessary; keep the foliage clear of insects and dust by frequent syringings or spongings as may be necessary.

FORCING DEPARTMENT.

PINERIES.—Air should now be given liberally to young stock in dung pits, in order to secure strong stocky growth. The plants should not, however, be exposed to drying winds by giving back and front air liberally on drying days, for this would not serve the end in view; but a moderate circulation should be secured at night, giving no more during the day than may be necessary to prevent the temperature getting too high. This, with careful attention to the state of the roots, keeping the bottom heat regular, the soil in a nice healthy state as to moisture, and giving a liberal supply of manure water to such as are well rooted, will be found much more conducive to strong stocky growth than exposing the plants too freely to hot drying winds, which would probably check and throw them into fruit prematurely. Use every means to afford plants swelling their fruit a thoroughly moist atmosphere, sprinkling passages, &c., frequently, and shutting up early on the afternoons of bright days, giving a gentle dewing with the syringe, and saturating the atmosphere by sprinkling every available surface; also give these plenty of clear strong manure water at the root until the fruit begins to change colour, when the soil should be kept rather dry, which will improve the flavour. VINERIES.—Attend to former directions as to thinning the fruit in houses intended to furnish a late supply, and see that the bunches are severely thinned, and also that the crop left is not too heavy in proportion to the strength of the Vines. Where the fruit is swelling, be careful to maintain a moist state of the atmosphere, and give every possible attention to the roots, keeping the border in a healthy state as to moisture, and if watering is found necessary, use good strong manure water. Give abundance of air where the fruit is colouring, and do not allow plants in pots to remain in the house to cause damp, which, despite every care in ventilating, is apt to settle on the berries and spoil the bloom. Where the fruit is ripe and expected to hang for some time, the atmosphere of the house should be kept as cool as possible; but a little fire heat will probably be necessary occasionally in order to keep the atmosphere dry. PEACHES.—Expose trees freely to the air from which the fruit has been gathered, keeping the ventilators open day and night, and spare no attention which may be necessary to preserve the foliage in a clean healthy state until the young wood is well matured. Where the fruit is ripening, shading the house on the forenoons of bright days will prolong the supply, and will not injure the flavour as much as would be the case with most other fruits. FIGS.—Trees swelling their second crop must be well attended to with water, giving sufficient to moisten the whole of the border thoroughly, if this has been allowed to become dry while the first crop was ripening. Use the syringe freely on the foliage, shutting up early in the afternoon, and sprinkle paths, &c., frequently, in order to keep the atmosphere moist.

FLOWER GARDEN AND SHRUBBERIES.

Trimming, staking, and pegging down must be well followed up at this period, provided high dress is required. See that extra strong stalks are applied to plants with heavy foliage and gross habits, such as Dahlias, Delphiniums, Asters, Phloxes, &c. Keep Roses free from insects, remove dead flowers at least two or three times a week, and get budding finished as soon as possible. Also get Carnations and Picotees layered without loss of time; these are exceedingly useful border flowers, being so much prized for cutting, therefore see that a good stock of them is prepared for next season.

HARDY FRUIT AND KITCHEN GARDEN.

Tomatoes must be regularly attended to, keeping the shoots thin and stopping them above a cluster of fruit, for if the plants are allowed to ramble and grow too freely there will be a poor chance of securing a good crop. Shallots if left in the ground after they are ripe are apt to mildew and rot in wet weather; they should therefore be pulled as soon as the tops begin to decay, and spread out in an airy place to dry before storing them away. Get herbs in flower cut and dried for winter use. Where a sufficient breadth of Celery is not yet planted out this must be attended to as speedily as possible, and must be well cared for with water, &c., until well established after planting, otherwise good sized heads need hardly be expected. Earth up former plantings and encourage rapid growth by occasional waterings with manure water. See that a good bed of some approved early variety of Cabbage is sown for spring use. Ply the hoe freely among all growing crops both for the destruction of weeds and for loosening the surface of the soil. Look over all trained fruit trees frequently for the purpose of stopping and shortening any gross shoots and keeping the growth nicely regulated, also get the young shoots of wall trees laid in where not already done.

COTTAGERS' GARDEN.

Let all spare ground from which Potatoes or other crops have been removed be followed up with winter Greens of some kind. Amongst these the most valuable are green Kale and early Ulm Savoy, which will be found very useful provided it is got in sufficiently early and on well manured ground. A sloping bank might also be sown with winter Spinach in the course of a week. If any spare ground remains uncropped after the middle of August it is by no means a bad plan to sow it with Rye and winter Vetches; they leave a sort of turf when cut over in April, which when dug down is exceedingly beneficial to succeeding crops.

* Proceedings of the Royal Institution, vol. v., p. 134 (1852).
† Journal of the Chemical Society, vol. v., p. 17 (1853).

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending July 16, 1857, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep	Wind	Rain.
Friday 10	18	30.014	29.907	76	53	64.5	62	59	W.	.01
Satur. 11	19	30.181	30.011	77	46	61.5	62½	59	W.	.00
Sunday 12	20	30.296	30.227	86	44	65.0	63	59½	S.	.00
Mon. 13	21	30.302	30.292	87	47	67.0	64	60	S.W.	.00
Tues. 14	☾	30.284	30.177	91	48	69.5	65	60½	S.	.01
Wed. 15	23	30.056	29.917	89	46	67.5	66	61	S.W.	.00
Thurs. 16	24	29.950	29.834	86	46	66.0	66	61	S.W.	.22
Average		30.154	30.052	84.5	47.1	65.8	64.1	60.0		.23

July 10—Fine; very fine throughout.
— 11—Very fine; hot sun; partially clouded; clear and fine.
— 12—Cloudless; very hot and dry; comparatively cold at night.
— 13—Clear; very fine; hot and dry; very fine.
— 14—Dry haze; excessively hot and dry; very fine.
— 15—Hot with slight haze; sultry; lightning; cloudy.
— 16—Fine; cloudy; exceedingly fine; rain at night.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending July 25, 1857.

July.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 19	71.7	51.4	61.5	18	0.60 in.	1	1	1	1	7	10	8	2
Mon. 20	71.6	51.2	61.4	17	0.47	1	1	2	—	1	15	9	2
Tues. 21	72.9	51.1	62.0	13	0.54	2	—	1	1	3	11	9	4
Wed. 22	73.2	52.0	62.6	15	1.37	3	3	2	1	4	11	6	1
Thurs. 23	74.0	53.2	63.6	14	0.70	1	3	5	2	3	7	5	5
Friday 24	72.7	52.2	62.5	10	1.16	—	7	4	2	3	10	3	2
Satur. 25	74.0	51.0	62.5	17	1.22	2	6	3	—	2	9	8	1

The highest temperature during the above period occurred on the 25th, 1844—therm. 92 deg.; and the lowest on the 23d, 1843, and 25th, 1856—therm. 40 deg.

Notices to Correspondents.

BOOKS: *W P.* Loudon's Arboretum and Fruticetum Britannicum.

CUCUMBER: *R Ashcroft.* It is a handsome sort; 19 inches long, 7¼ round, is not bad, although the neck is too slender. It is very nearly a Smyrna, and people don't like such smooth sorts—why we can't imagine.

INSECTS: *J M K.* The black caterpillar which you sent as having consumed your Turnip plants was so much crushed that we cannot make it out, but suppose it to be the nigger caterpillar of the sawfly. One of the best remedies is to turn a lot of young ducks into the field. The plants should also be well watered, and then dusted with lime and soot mixed together.—*K K.* The green caterpillars of the Oaks have turned to the little green Tortrix as we supposed. The proper time to beat the boughs is when the insects are in the caterpillar state. We believe the eggs are deposited on the young twigs and buds; they would not be easily found and destroyed. It would be useful to kill as many of the little moths as possible by beating the branches into a folding net like a bat fowling net. *W.*

LARKSPUR: *J H.* Your dwarf variety, which does not grow more than 13 inches high, if good in colour and a free flowerer is, we should think, worth propagating.‡

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time—*A H F C.* Cerasus Virginiana.—*Hebe.* Rhus Cotinus, the Venetian Sumach.—*J Kyle.* No doubt some sort of Eryngium.—*G S.* Cornus paniculata.—*C F.* 1, Intybellia purpurea; 2, Cerinthe minor; 3, Bartonia aurea; 4, Leptosiphon grandiflorus.—*Devonian.* We cannot find the leaf you refer to. It seems to have been omitted.—*E C.* 1, Myosotis cæspitosa, we suppose; 2, Apargia autumnalis; 3, Carduus acanthoides; 4, Nasturtium terrestre.

NETTLES. We have not time to hunt for the authority for the statement that the fibre of stinging Nettles has been used advantageously in Germany for paper making. There is no doubt of the fact.

PEAS: *J M.* It is what is called the purple-podded Pea, a variety once common enough but now superseded by better sorts.‡

PELARGONIUMS: *S H.* Your flower had fallen to pieces before it reached us. There is however we believe a scarlet Unique.‡

ROOT PRUNING: *Woodside.* You must not do this till after the fruit would have fallen off had there been any.

SILENE PSEUDO ATOCION: *J Backhouse.* This is probably named right. We dare say it will make a nice addition to hardy annuals.

STRAWBERRIES: *F G* will feel obliged by some of our correspondents informing him whether or not there are any of the following old kinds of Strawberries still existing in Great Britain, and if so, where they are to be had, viz:—Black Chili, Large blush Chili, True Chili, Pine Chili, Red Chili, Scarlet Chili, Bath Pine, Chinese, Mulberry, Surinam, Dutch, Old Black, Sweet Cone, Gibbs' Black Seedling, Knight's Scarlet-flushed, Cockscomb Scarlet, Autumnal Scarlet (Knight), American Alpine, Giant Alpine, Green Caucasian Strawberry, Williams' Green Pine, Brown Hautbois, Globe Hautbois, Long-fruited Muscatel, Russian, Swedish, Fragaria imbricola, Lindl.; Fragaria arguta, Lindl.

TREES FOR A SCREEN: *Cheadle.* Lime trees, Ontario Poplars, and Acer macrophylla, may possibly answer your purpose.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

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Mr NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

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NOTICE.—We beg to inform the Agriculturists of England, Ireland, and Scotland that we have already received about 100 orders for Reaping Machines for the approaching harvest, and therefore most earnestly urge the necessity of immediate decision, or it will be quite impossible to meet the demand.

A Book containing the most abundant evidence of the economy, simplicity, and perfect working of our "Patent Champion Reaping Machine" will be forwarded free on application.

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SALISBURY MEETING, 1857.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S FIRST PRIZE PORTABLE STEAM THRESHING ENGINE.—The Royal Agricultural Society of England, at their latest Award of Prizes, decreed the merit of the FIRST PRIZE to TUXFORD AND SONS' PORTABLE STEAM THRESHING ENGINE, the Judges at the same time declaring, in addition to its other excellencies, that the Straw Shaker and Barley-horning Apparatus of TUXFORD & SONS' Patent Combined Threshing Machine were perfect in their operations.—(*Vide the Journal of R. A. Society*, Vol. xvi., page 614.)

The superiority of TUXFORD & SONS' Patent Portable Ironhoused Steam Threshing Engines, with upright Cylinders and improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well-merited reputation of standing at the head of their class.

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ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—SALISBURY, 1857.

PROGRAMME.

TUESDAY, JULY 21, WEDNESDAY, JULY 22.—The Implement Yard open from 10 o'clock in the morning till 6 o'clock in the evening on Tuesday; and from 7 o'clock in the morning till 6 o'clock in the evening on Wednesday, at an admission charge of 2s. 6d. for each person. Machinery will be exhibited at work on each of those days at the following hours, or at such other hours as the Stewards may determine:—

I. Worked by Steam, or other (than Hand) Power.	
Threshing Machines	From 11 till 1 o'clock.
Tile and Brick Machines ..	From 12 till 2 o'clock.
Saw and other Mills	From 1 till 3 o'clock.
Chaff Engines	From 2 till 4 o'clock.
II. Worked by Hand Power.	
Chaffcutters	From 11 till 1 o'clock.
Tile Machines	From 12 till 2 o'clock.
Mills	From 1 till 3 o'clock.
Turnipcutters	From 2 till 4 o'clock.
Oilcake Breakers	From 2 till 4 o'clock.
Winnowing Machines, Barley Hummellers, &c.	From 2 till 4 o'clock.
Miscellaneous	From 2 till 4 o'clock.

WEDNESDAY, 22.—The Judges to inspect the Live Stock and Farm Poultry, and to award the Prizes. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine. At 1 o'clock (or as soon after as all the Judges shall have delivered in their awards, of which Notice will be given) the Public to be admitted into the Cattle Yard and to the Exhibition of Farm Poultry, on the payment of 5s. each person, at the Special Entrance; Members of Council and Governors of the Society being admitted by Tickets to be purchased at the Finance Department of the Society at the Show Yard. At 8 o'clock in the evening the Cattle and Poultry Yards will be closed. Dinner in the Council Chamber, at 6 o'clock in the evening.

THURSDAY, 23.—The General Show Yard of Cattle, Horses, Sheep, Pigs, Farm Poultry and Implements open to the Public from 6 o'clock in the morning till 6 in the evening; admission 2s. 6d. each person. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine.

FRIDAY, 24.—The General Show Yard open to the Public from 6 o'clock in the morning till 6 in the evening; admission 1s. each person. Public trials of the Steam Cultivators, on land in the neighbourhood of the city, during such hours as the Stewards may determine. General Meeting of the Members, in the Council Chamber, at 10 o'clock in the forenoon.

FARMING.—The Right Hon. Sidney Herbert, M.P., has placed his Home Farm, at Wilton, near Salisbury, at the disposal of the Society, for the Inspection of the Members, on Tuesday, July 21, at 12 o'clock; and Mr. Stephen Mills, of Elston House, 12 miles from Salisbury, has expressed his willingness to receive such of the Members at an inspection of his farms, and to explain to them personally the system of Wiltshire Light-land Farming, as may be furnished with Tickets from the Secretary of the Society.

IRRIGATION.—Messrs. Rawlence and Squarey have made arrangements for the Inspection of their Water Meadows, near Salisbury, by the Members of the Society, on Tuesday, July 21, at 12 o'clock; and for the reading of a Paper on their Construction and Management, by Mr. Squarey, in the Council Chamber, on the same evening, at 8 o'clock.

SOUTH WESTERN RAILWAY.

GREAT EXHIBITION OF THE ROYAL AGRICULTURAL SOCIETY AT SALISBURY, on July 21, 22, 23, and 24. The following Arrangements will be made for the Conveyance of Passengers to and from Salisbury:—The ORDINARY RETURN TICKETS issued to Salisbury FROM ANY STATION, upon Monday, July 20, will be available to Return up to Saturday, July 25, inclusive. The CHEAP Return Tickets issued on Saturdays and Sundays from London will not be available for this extended period.

LONDON AND SALISBURY.

SPECIAL EXPRESS TRAINS will run from Waterloo Bridge Station to Salisbury, on each of the above days, at 7.20, 8.0, 9.0, 10.0, and 10.45 A.M. Returning from Salisbury to London from 5.45 till 8.30 P.M. each day.

FARES.	First Class.	Second Class.
Single Journey	18s. 0d.	12s. 6d.
Return Tickets, available to Return up to 25th July	31 0	21 0
Return Tickets, available to Travel every day from 20th till 25th July	6l.	4l.

RETURN TICKETS issued on July 20, 21, 22, 23, or 24 to Salisbury from London or from any Station between London and Basingstoke inclusive, will be available to return up to Saturday, July 25, inclusive.

ROAD STATIONS between LONDON and BASINGSTOKE to SALISBURY.

The 6 A.M. Down Train will stop AT ALL STATIONS, and arrive at Salisbury about 10.10 A.M.

The Special Express Train leaving London at 7.20 A.M. will call at Kingston at 7.42, Weybridge at 7.56, Woking at 8.7, Farnborough at 8.25, and Winchfield at 8.36 A.M., and arrive at Salisbury about 10.10 A.M.

A Special Express Train leaving London at 9.30 A.M. will call at Kingston at 9.50, Woking at 10.18, Farnborough at 10.35, and Winchfield at 10.45 A.M., and arrive at Salisbury about 12 5 P.M.

Return Trains from Salisbury on the evening of each day after 6.30 P.M.

BASINGSTOKE to SALISBURY.

On the Branch Line between Basingstoke and Salisbury the Regular Trains will be suspended from MONDAY, July 20, till SATURDAY, July 25, inclusive. And in place thereof Trains will leave Basingstoke for Salisbury, calling at all intermediate Stations between Basingstoke and Salisbury, at 6.30 and 10.20 A.M. and 4 20 P.M., returning at 8.20 A.M. and 2.40 and 7.20 P.M. each day.

The Special Express Trains from London will call at Basingstoke, and take up Passengers at 9.0, 9.25, 10.15, 11.0, 11.15, and 12 o'clock; and the 9 o'clock Train will call at Overton, but, with that exception, these Trains will not stop at any Station between Basingstoke and Salisbury. The last train from Salisbury each day will call at Andover.

The Return Trains each day from Salisbury will all stop to put down passengers at Basingstoke.

Waterloo Bridge Station, July, 1857. By Order.

The Agricultural Gazette.
SATURDAY, JULY 18, 1857.

MEETINGS FOR THE ENSUING WEEK.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND AT SALISBURY.

MONDAY, July 20—Official trial of implements.
TUESDAY, — 21—Implement yard open at 10 A.M. Visit to the Home Farm, Wilton, at noon; also to the farms at Elston House, 12 miles from Salisbury; also to the Water-meadows of Messrs. Rawlence and Squarey. Lecture by Mr. Squarey on Irrigation in Council Chamber, 8 P.M.
WEDNESDAY, — 22—Implement-yard open at 7 A.M.; Cattle yard at 1 P.M. Dinner in Council Chamber at 6 P.M.
THURSDAY, — 23—Yards open at 6 A.M.
FRIDAY, — 24—Yards open at 6 A.M. General Meeting, 10 A.M.

THE English Agricultural Society holds its annual country meeting during the ensuing week at Salisbury.

So far as the implement department of the exhibition is concerned, the competition is restricted to steam cultivators, machines for sowing, hoeing, harvesting, and carriage. These machines are being tried to-day, and the trials will be continued on Monday and Tuesday next.

The propriety of restricting the competition to a limited class of implements each year has been much canvassed lately; and it has been condemned, without reason, as being in the interest of the great manufacturing firms and against that of the smaller implement makers. Those who condemn the alteration seem actuated merely by a jealousy of any change in a system under which men of comparatively limited business have risen to such eminence—a system which is supposed likely to have a similar influence on the fortunes of the less important firms of the present day. Those who approve of the change have given expression to their views in a very able pamphlet* lately published, of which we shall give a fuller notice hereafter. At present it must suffice to say that the reasons given for the more limited annual competition of agricultural implements seem to us conclusive. The programme of the Salisbury meeting is given above. Full reports will be given in our columns next week.

IF any proof be needed of the policy of complete publicity, as being for the interests of a society contemplating the public good and maintained by the subscription of the largest possible roll of members, it is to be found in the proceedings of the half-yearly meeting last week of the Highland and Agricultural Society. Three hundred and thirty-three additional members offered themselves on that occasion for election—a larger number of candidates than had ever before presented themselves at one time—and a correspondingly satisfactory testimony to the reputation which the Society has now attained within its district as a useful public body.

It has been urged that the true object of this and other associations is—the advantage and advancement exclusively of their members, so far as the particular topic to which the societies address themselves is concerned:—The agricultural improvement and benefit of the members of *agricultural* societies is the aim to which all their efforts should be directed and confined: let the members of these societies have as large and exclusive an ownership of privilege and profit in consequence of their membership as possible, and membership will become a desirable thing, and the roll of members will increase. This is a line of policy, resting on obvious grounds, to which many will declare their adherence. How far it has been the policy hitherto pursued by the English Society was discussed last week; it is, however, at any rate an intelligible course of action, and if pursued consistently and with energy, will doubtless attain a certain amount of success.

But there is another principle which, it is declared, should actuate a national society; and this consists in the simple desire to attain the greatest amount of usefulness, and a consequent effort to do the greatest amount of good, *careless of its incidence*—regardless, indeed, of its being received exclusively by members: and it is to the probabilities of this as compared with the other course of action that we would now direct attention.

One of the most ludicrous illustrations of the former of these principles in its influence on the usefulness of a society occurred to us a year or two ago on introducing a gentleman from Yorkshire to the secretary, at the meeting of a well known farmers' club. The topic under discussion was land drainage, and the landowner and agriculturist from Yorkshire wished to state his experience on the subject to the meeting; but he was informed that the "privilege" of speaking at these meetings was exclusively confined to members! Here was a society checkmated by its own rules! Its object undoubtedly was the agricultural instruction and information of its members. Agricultural instruction and information was about to be imparted to its members—but it was found that it had ruled away their power to receive it! And this is no accidental exception to the general effect of such a principle of action as this rule implied: it may be safely taken as illustrative of the general truth that any attempts at monopoly in cases of this kind, however selfish in their object, are suicidal in their tendency.

A share in the general good is a better possession than the exclusive attainment of a selfish object. Agriculturists have found this out on a wider arena and in a more general sense than any

* "The Manufacture of Agricultural Machinery Considered as a branch of National Industry." By a Manufacturer. E. STANFORD, 6, Charing Cross.

occupied or entertained by our national societies; but it still remains for them to benefit by a development of the same truth within the more limited area and circumstances to which these societies are confined.

Let the Agricultural Society of England, of Scotland, and of Ireland seek the agricultural improvement of *England*, of *Scotland*, and of *Ireland* respectively. There may be 3000, 4000, or 5000 men in each, *personally* interested in this improvement, whom they respectively unite and from whom their ability is derived; but the desire to confine their benefits to these 3000, 4000, and 5000 men is prompted by an entirely mistaken view, whether of their own interests or those of their protegés. Greater advantage will accrue to these from a general progress consequent on efforts generally made, than they will receive from special advantages marking them out amidst a general stagnation around them.

And if this more liberal policy be condemned—or if something more than *à priori* illustrations of its superiority be demanded—let the recent history of the Highland Society be considered in connection with it. To what has it of late years directed most of its energies and attention? Was the measure for the collection of national agricultural statistics (obtained by the force and importunity of its representations, and carried into successful execution by the energy of its secretary) contemplated with a view to the exclusive benefit of its members? Has its successful effort for the enlargement of its powers, in order to its interference in and regulation of the important subject of agricultural education, been induced by any desire for the exclusive benefit of its members? Its members have derived and will derive more benefit from the general good resulting from these measures, than any which a narrower and more exclusive policy could have obtained for them.

But we do not hesitate to say that it is no question of personal profit or advantage at all on which the membership of these societies hinges. It is—to come back to a former phrase—on the obviousness of their public utility that their prosperity depends. The present agricultural status of the Highland Society is evidence of this. An accession of 333 members to its body on one day is the result of its life and its activity having been made known and felt in every part of Scotland, and by every occupier of land in the country. Its efforts in behalf of agricultural statistics are an annual advertisement of its energy, and have done more than anything else to ensure the publicity and consequent activity and usefulness of its life.

We return, therefore, to all possible publicity as being the real breath of life to all societies whose prosperity hinges on public support. The English Agricultural Society is about to take its annual benefit in the form of a week of country air of this kind. There is not a newspaper in the country that will not immediately record its meeting. Many local and many London papers will announce, some of them day by day, the daily results of its inquiries, experiments, investigations, and general proceedings, gathered hurriedly, no doubt, and therefore to some extent imperfectly. It is plain to every one, however, that the Society *receives* and DOES more good by this immediate and complete publicity, with all the unavoidable though exceptional errors accompanying it in particular instances, than it receives or does by the official report sent down to members six or eight months hence, notwithstanding the fuller detail and greater accuracy which will then be possible.

But why should the Society depart during its week of useful life from the rule of its proceedings during the other 51 weeks of the year? Why does it allow reporters to spread abroad immediately its doings? "They will be sure to propagate mistakes—every little local paper will claim the same privileges allowed to the great daily journals—people who gabble on all occasions will be sure to monopolise the time of the Society for the sake of that lion's share of the public notice which reporters it is supposed will ensure for them—and the really useful and substantial men will be checked rather than encouraged by the certainty of publicity—besides it is not 'the public' but the members that the Society has to care for." Why do not these reasons, efficient at other times, actuate the Council now?

There may be some who, if it were possible, *would* maintain their consistency in this matter at all hazards; and official accuracy of report would be combined as hitherto with official poverty of report along with its official delay. It is well for the Society, however, that the thing is not possible—that such delay as has, for instance, attended the publication of Professor SIMONDS' report on the cattle murrain will not be suffered to interfere with the public demand for information on the proceedings next week at Salisbury. It is this annual publicity that saves the Society from gradual prostration and decay.

[The above allusion to the delay of the report on the cattle murrain will be understood on reference to the proceedings at the Highland Society's meeting given in another column. It appears that though the three national societies combined to share the cost of the veterinary expedition to Eastern Europe yet no information was received by the Highland Society as to the results of that expedition until the 8th of July, the day of their general meeting, and then only in an imperfect state, and in consequence of an urgent telegraphic despatch. The report in question remained over for appearance in the Journal of the English Agricultural Society! The members of the Highland Society were indeed informed that they had the privilege, for that occasion, of being present in the Society's rooms (Hanover Square, London, W.!) when Professor SIMONDS delivered his lecture and detailed his researches and experience.—Are there no short-hand reporters in the world? Then why was not a complete statement of Professor SIMONDS's address placed in the hands of the Secretary of the Highland Society in Edinburgh the morning after its delivery? An interval of 400 miles was a very material obstacle in the way of hearing the lecture—but not the slightest obstacle to its being received by the ensuing post.]

MR. CAIRD is soon to ask leave to introduce a Bill for the collection OF THE STATISTICS OF ENGLISH AGRICULTURE. However improbable it may be that such a Bill will pass during the present session of Parliament it is not at all likely that permission for its introduction will be refused; and it is worth while at such a time to restate once more the ground on which it is believed that a knowledge of the quantity of the produce of the country would be useful not only to the consumers of that produce, but to those whose produce it has been.

We must confess that we have never yet heard the subject mooted in a company of English farmers without some at any rate, and generally a majority of their number, protesting against the publication of such information, on the ground that it would be useful only to the corn dealers. *But are not farmers corndealers?* The grounds of this protest are, in fact, the very grounds on which the promoters of the measure most properly build their proposal. The farmer *is* a corndealer, and the knowledge which would, it is admitted, guide the transactions of the merchant, would therefore be of use to him.

But it is said such knowledge would be more especially useful to importers; it would, in a season of bare sufficiency of yield at home, induce them to flood the country with imported grain and so destroy that profit to the growers of home corn for which in such a case they naturally look. This assertion is of course based upon the fact which every one admits, that importations from abroad do very materially affect the price of home grown produce. But if so, is it not of the greatest moment that these importations be guided by intelligence and not by ignorance? It is begging the whole matter in dispute, to assume that ignorance will result in a diminished importation. Ignorance is extremely unlikely, we admit, to result in just the importation that is needed, but it is quite as likely, no one can deny, to exceed that quantity as it is to fall below it.

"Well then," it is replied, "it is just this state of uncertainty that we like—why should not farmers as other dealers make an occasional fortune by a lucky venture, or by unexpected changes in the market price?" Now this is a position which is altogether untenable, and that for two reasons: 1st, because those sudden changes in the market value of food on which alone it is built are obviously inconsistent with the general interest, and no section of the community can in the long run benefit by anything which injures the general body; or will be permitted to do so, if by so simple a means as the distribution of sound information it can be avoided; 2d, because the prizes thus advocated for the few, in the general game of corn dealing, are necessarily the result of a proportionate series of losses and of blanks falling to the lot of the many.

A sudden rise in price is the result of ignorance. Only a few sell, either because the ignorant many have already sold too freely, and there are but few remaining holders of the commodity, or because the ignorant many refuse to sell, and there are but an exceptional few among the holders of the commodity who know the true state of the case. In the one instance the many have been injured by the unnaturally low price which they have of their own free will brought upon themselves by an ignorantly too hurried disposal of their produce; in the other the many will be injured by the unnaturally low prices which will be forced upon them when they find that during a certain period of the year, owing to the ignorant retention of their produce and the consequent high prices, people have had to put up with a limited consumption, and an unusual quantity of produce has to be disposed of before the ensuing harvest. In the former case the high prices have been the reward either of clearsightedness, or more generally of mere lucky ness in the holders, and in the latter it is the reward of the greater intelligence which has induced a few to avoid the mistake of withholding corn from the market when there was abundance in the country.

Now it cannot be the wish of any one that mere listlessness and inactivity should be rewarded; but why should not the intelligence which is in some cases the cause of the prize that is attained be made general?

Let no one think that importers of corn act entirely in the dark—they do their best to obtain information of the harvest—and all we contend for is that the advantages which they by industry secure for themselves, certainly to the disadvantage of others less fortunate than themselves, should be made as general as possible. It is to the advantage of those who hold corn—no matter whether the contents of their warehouses came by railway or by ship—to have the fullest information of the supplies of food in the country. This is to the advantage of corndealers whether the corn they hold exists in barns or in warehouses. Let us have this information if it can be had. No doubt information with an official stamp upon it will do mischief and not good if it be not accurate, and we shall be glad to learn Mr. CAIRD's plan of gathering it. Meanwhile, that nothing can be worse than the plan by which the existing information, such as it is, is reached, is proved by the frequent alterations in market-price of corn, which in themselves are proofs that the existing information is inaccurate.

The fact regarding the produce of the country is no exception to the rule as regards fact of all other kinds whatever. It is on the very face of it a truth—the thing is axiomatic—that a knowledge of the facts relating to our business, whether those taught us by the chemist or the physiologist, the statist or the farmer, cannot fail of being useful to us. In any case we may be sure that whether we may choose to shut our eyes to them or not there those facts are—and there they are at work—operating mischievously to us if in our ignorance we run counter to them, or beneficially if we are enabled to make use of them. This contrast in our relations to the things around us which ignorance and knowledge respectively produce is everywhere observable. The obstacle, for so in the dark it seemed to be which many a traveller in the night has found standing in his way has, when the sun arose, proved to be a finger-post pointing out his further progress safely.

IT may be well to remind those of our readers interested in the meetings of the Royal Agricultural Improvement Society of Ireland and the Yorkshire Agricultural Society, that the days on which their respective lists and the power of entering articles on them for exhibition, will close, are respectively Saturday and Wednesday July 25 and 22.

ANSWERS TO AGRICULTURAL QUESTIONS.

I.—AGRICULTURAL EXPERIENCE.

[THE following series of replies to the questions published at p. 426 is from Mr. John Spriggs, of Hill Farm, Painswick, Gloucestershire.]

1. *Explain the greater efficiency of the deeper depth in soils of ordinary texture?*

The roots of plants are enabled to penetrate deeper in search of food owing to the superfluous water being drawn off instead of being stagnant and the soil becoming water-logged; and thus the influence of the atmosphere is felt to a greater depth, at once giving warmth to the soil, and assisting in the decomposition of manures, thereby rendering them available as food for the crops.

2. *To what is the increased fertility due that follows the burning of a clay soil?*

By burning, the soil is rendered more friable, porous, and at the same time more absorbent; much rubbish and many insects are destroyed, besides mineral substances in the soil that before were inert are rendered more soluble, and much is readily absorbed from the atmosphere; air and water have more direct influence; seeds are got in sooner and at an even depth, and come up more regularly, the surface seldom dry and crack through the summer, and the hoe is more advantageously applied.

3. *Explain the action of lime on the soil and its*

under what circumstances it is wrong to apply it with manure?

Lime has a strong affinity for any free acids that may be contained in the soil, some of the compounds thus formed are soluble in water, and thus become soon available as food for plants; it likewise causes a rapid decomposition of organic matter, and at once sets free ammonia. Lime also is to a considerable extent soluble in cold water, so that it renders many substances contained in the soil at once available as food for plants. At the same time that another ingredient is added which may be a food for a crop. But if we wish the effect of manure to be kept up for a length of time, it would be wrong to apply lime, owing to the rapid decomposition of organic matter and the liberation of ammonia caused by their coming in contact.

4. *How does the operation of tillage implements increase the fertility of the soil?*

1st, By pulverisation, *i.e.*, the soil is rendered more friable; 2d, the roots of one crop are buried to become food for another; 3d, weeds are destroyed to prevent impoverishment of the soil and the smothering of crops; and 4th, atmospheric influences are brought more into play.

5. *What is the reason of the decreasing fertility consequent on the continued cultivation of one crop on the same land?*

It is owing to a diminution of those constituents which have previously furnished food for that particular crop, or in other words, any crop continued for a length of time on the same ground exhausts it of those constituents which are rendered available as food for it, besides deteriorating the soil by its own excrement.

6. *State the explanations generally given of what is termed Clover sickness?*

Planting with Clover too often on the same ground, there being not a sufficiency of those materials which are required as food; and lightness of soil, the frost therefore acting with greater severity on the plant through the winter than it would do supposing the land was firmer.

7. *In what way does the use of a caustic wash to the seed hinder smut and bunt in the Wheat crop?*

It destroys any fungus in whatever state it may be that is attached to the seed, or that has entered into its organisation, and thus the plant is safe so long as its effects are felt.

8. *To what cause has the Finger and Toe disease in Turnips been attributed?*

It has been attributed to the Turnips being sown on fresh and not thoroughly prepared by tillage; to too frequent a repetition of the Turnip crop; to the effect of insects; to a deficiency of certain ingredients in the soil; to the use of artificial manures; to dry weather.

9. *How do shelter and warmth promote the fattening of cattle and sheep?*

There is a greater consumption of carbon in respiration to keep up the natural animal heat under external cold, and consequently carbon which might be assimilated to form fat and contribute to form flesh is wasted, whilst by giving an animal shelter he is always kept at a medium temperature, and no waste of fat and flesh occasioned by exposure is incurred.

10. *Why is the excrement of growing stock less valuable as manure than that of full grown fatting cattle?*

The food given to growing cattle is never of so fat producing a kind as is given to fatting beasts, consequently the manure is not so rich in those constituents which are so invigorating as food for plants. Again, a growing animal disposes of all the fat producing principles in its own body, whilst a fatting beast being kept warm with plenty of food rich in those principles which make good manure, is unable to assimilate and dispose in its system the whole of the nitrogenous matter which is formed.

II. FARM PRACTICE.

1. *Name and describe the best roller, chaffcutter, and churn.*

The best roller for general purposes is the plain iron cylinder. The best chaffcutter is in either Cornes' or Chandler's horse or hand power. I should prefer Cornes'. The best churn for general purposes the old common barrel churn.

2. *State the ordinary cost per acre of hand-hoeing Wheat, singling Turnips, mowing Clover, cutting Wheat, pulling and pitting Mangel Wurzel, and digging and harvesting Potatoes respectively.*

Wheat hoeing, 3s. 6d.; singling Turnips, 5s., if horse hoed 2s.; mowing Clover, 3s.; cutting Wheat, 10s.; pulling and pitting Mangel, 1s.; digging and harvesting Potatoes, 22s. These prices are all without beer.

3. *What are the hands, men and women, employed on an arable farm likely to be engaged in during the months of June and October respectively?*

June—Hoeing and singling Mangel Wurzel; getting in Potatoes and Turnips; making and getting in Clover. October—Setting Wheat and Vetches sown, pitting Mangel, mowing and hacking stubble.

4. *Calculate from given prices of the horse food under modes of stable management, the average daily cost of a pair of horses, and calculate from that the expense of ploughing, harrowing, and rolling per acre.*

1st, Winter feeding:—3 bushels Oats, 9s.; 1 cwt. Beans, 6s.; 1 cwt. Clover; 15s. per week, or 3s. 7d. per day.
2d, Summer feeding:—14 logs Vetches (good), 14s.; 2 bushels Beans, 12s.; per week 26s., or 3s. 8½d. per day.

A pair of horses will plough 1 acre per day, cost ..	4s.	3d.
A pair of horses will harrow 10 acres per day, cost	0	5
A pair of horses will roll 10 acres per day, cost ..	0	5

But suppose we allow that a horse only works on an average two days per week, and reckon for a man and tradesman's bills, it would stand somewhat as follows—26s. horse food, 10s. man, 4s. tradesman; 40s. per week. So that 1 acre ploughing would cost 8s., where a pair of horses would do, and the rolling and harrowing would = 40s. ÷ 50 = 9½d. on the same ground.

5. *State the cultivation for the year of an acre of light land after Oats, bearing a crop of Rye, followed by Swedish Turnips, and estimate the cost of its cultivation from Sept. to Sept.*

Scarifying, 9s.; cleaning, 2s.; ploughing, 10s.; harrowing and rolling, 2s.; seed and getting in, 15s. = 32s. No expense for seed with the Rye, and I shall allow that plenty of dung, equivalent to 40 loads, or near at hand, and then the charges are, ploughing, 3s.; cleaning, 2s.; ploughing, 10s.; harrowing and rolling, 5s.; dung hauling, 10s.; bouting, 9s.; seed, 3s.; drilling, 2s. 6d.; horse and hand hoeing, 10s. = 41s. 6d. Total, £4 13s. 6d.

6. *State the probable yield per acre on good land under good cultivation in south and midland England of Wheat, Barley, Oats, Beans, Mangel Wurzel, Swedes, and Potatoes?*

Midland England, 40 bushels Wheat, 50 bushels Barley, 64 bushels Oats, 40 bushels Beans, 25 tons Mangel Wurzel, and since disease 5 tons of Potatoes.

7. *What is the cost of a ton of Turnips? Justify your estimate by stating the particulars of the crop on which you found it.*

I shall suppose the Turnips to come after Vetches—and then there will be, scarifying, cleaning, ploughing, harrowing and rolling = 19s.; artificial manure and ashes, drilling and seed, horse and hand hoeing, pulling and cleaning = 64s., and 64s. + 19s. = 4l. 3s., the cost per acre. Now supposing 1 acre of Turnips = 15 tons, the price per acre will = 5s. 6d., independent of rent and taxes.

8. *Describe two or three of the best varieties of Wheat, Turnips, and Mangel Wurzel respectively.*

I cannot give a just description of the varieties I regard as best, for they differ so much on different soils, but the following I think as good as any, and will answer most purposes: Wheat—Browick Red, Talavera, White Scotch, April; Turnips—Lincolnshire Red Globe, Early Stone, Swedes, East Lothian, and Skirving's (improved); Mangel—Large Yellow Globe, Long Red.

(To be continued.)

ON THE COMPOSITION OF THE SO-CALLED GUANOS OF THE ATLANTIC ISLANDS.

By AUG. A. HAYES, M.D., Assayer to State of Massachusetts, U.S.A.

THE deposits formed on islands frequented by sea fowl, and exposed to tropical rains and winds, have within the last few years become an article of commerce in the United States, chiefly as a source of phosphate of lime. Unfrequented islands have consequently been stripped of their coverings, and large quantities of various compounds, containing phosphoric acid, have become well known to those chemists who have engaged in the analysis of them.

These guanos have generally been supposed to differ from the Peruvian guano, in the particular, that the ammonia salts have been washed out of them, leaving the earthy salts behind; but no evidence has been adduced proving that ammonia compounds have been formed during decomposition.

In the following description it is my intention to include under two heads all the varieties that have been abundantly found:—

1*st, Arenaceous Guano.*—This variety, where it has been freely exposed, is generally white, with some shade of yellowish brown. It is a somewhat coarse sand, resembling coral sand, and we find in it remains of bones of fish, those of other marine animals, and the shells of shell-fish, reduced to a coarse powder.

The deposit on the Aves Island is thus characterised, while that from the Cuba Keys, and other points, is more finely divided, and still contains humus of flesh. These seldom afford more than 60 parts of bone phosphate, from 100 pints of the dry sand; the remainder being nearly all carbonate of lime. Where the food of the fowls has been almost exclusively fish, and the droppings have been protected, we find a larger percentage of bone phosphate of lime.

2*d, Rock Guano.*—The mineral I have named rock guano is in the form generally of an irregular incrustation, from 1 inch to 2 feet in thickness, pale yellowish brown, or nearly white in colour, its fracture showing a deeper shade in bands, alternating with those of a lighter colour. Like compact calcareous concretions, the exposed surface presents rounded elevations, while within the mass is full of cavities and air passages. Its fracture, generally splintery, sometimes assumes a conchoidal form, and its hardness, greater than that of fluorspar, is next to that of feldspar; average sp. gr. 2.140.

Varieties are numerous, referable generally to a kind of secondary action, in which the matter of comminuted bones has mixed with beds of recent shells, and not only consolidating them, but decomposing the carbonate of lime in their structures, has converted it into phosphate of lime.

By far the most remarkable form of rock guano is of recent discovery. It is a rock much resembling some trachytes, having natural cleavage planes, which divide it into rhomboidal masses of various sizes. The recent fracture discloses grains disseminated, which partly resembling feldspar, might be mistaken for this mineral; with light dark-coloured sandy grains, coloured by iron oxides, cemented as it were by a yellowish green mineral, might at once be pronounced to be epidote.

I have been informed that the island from which this rock was brought has been surveyed, and was supposed to be of volcanic origin, in consequence of its basis rock being pronounced recent trachyte, while it is truly consolidated bones, of altered composition, the lime base replaced by iron and in part by oxide of manganese.

In stating the composition of rock guano, as no two specimens are alike, I purposely omit several constituents which occur in minute quantity, and keep in view the phosphate of lime and organic matter as the prominent constituents. The composition of the arenaceous guano—found on the same spot below the rock guano—on Monk's Island, is also given for comparison.

100 *Parts of Rock Guano.*		100 *Parts of Arenaceous Guano.*	
Moisture	0.80	Moisture	6.84
Dry organic acids, humus, &c.	11.00	Dry organic acids, humus, &c.	1.80
Sulphate of lime ..	7.90	Sulphate of lime ..	7.00
Bone phos. lime and magnesia	110.20	Bone phos. lime and magnesia	114.40
Sand	0.80	Sand	0.60
	130.70		130.64

The bone phosphate here stated is the proportion obtained by adding sufficient lime to combine with the phosphoric acid present. My own analysis of the vertebra of the halibut gave 86.8 parts of bone phosphate of lime in 100 parts of the gently-calcined ash, while so much of the fresh bone and tissues as afforded 100 of ash, after treatment with carbonate of ammonia, decomposed by acids, gave 92 parts. The food of fowls we know to consist of shell-fish in part, and consequently the bone phosphate originally present could not have contained so much as 86 parts of phosphate of lime; while the really existing phosphate in the rock guano produces more than 125 parts. This composition offers the clue to the explanation of the secondary origin of the guano as a rock presenting varied physical characters, and leads us to inquire into the chemical influences exerted, while the excrement of birds mixed with more or less of other animal remains undergoes decomposition at temperatures not below 85° Fahrenheit; both water and moisture being present as aids.

Experiments show that, under these conditions, putrefaction proceeds with the production of acids. The first effect observed on the recent droppings is the removal of the urates, and other soluble excretions which are ammonia producers, by rains. Then the crenic, humic, carbonic, stearic, and oleic acids begin to combine with lime as they form or are separated from the animal matter; and these lime salts being in turn carried off by rains, the phosphate of lime of the divided bones becomes less and less basic in composition. Halibut bones, even after they have been long boiled in pure water to remove animal tissues, give to sea-water lime salts abundantly as they decompose, and the quantity of fatty acid salts formed is very large. The salts of fatty acids are among the most permanent products of decomposition, and we find them in the composition of most of the remaining forms of the organic matter. The breaking-up of bone, in a limited quantity of water, proceeds until the presence of mono and bibasic phosphate, crenates, stearates, &c., establish a balance; but where rains are frequent, this limit is not reached, as the removal of the lime salts allows the phosphoric acid to be actually disengaged, and to act on carbonate of lime. Thousands of tons of both arenaceous and rock guano have been imported in which the phosphate of lime of the mass was bibasic; while the varieties which are formed by the conversion of beds of shells into phosphate of lime show that a higher state—even that of acid reaction—must have been attained in the mass.

In the composition of the rock guano, we see that the proportion of organic acids and salts is much larger than exists in the arenaceous guano from which it has been derived. The presence, to a greater or less amount, of this matter alters the physical characters of rock guano; and it often is almost entirely abstracted, apparently subsequently to consolidation. When the organic matter passes to the state of carbonic acid, the removal of the excess of lime by the ready solubility of the bicarbonate of lime formed may proceed rapidly, and we always observe in the older rock, thus deprived of organic matter, innumerable channels through which the solution has passed apparently.

The cementation of the sandy grains into rock is one of the most interesting features of this subject, as it throws light upon many similar operations constantly progressing. In point of size, the grains of the sandy guano vary from that of fragments of bone and vertebra to minutely-divided processes, in which infusoria shells abound mixed with the seeds of Grasses. The first stage of the change into rock is the aggregation of these grains to form a kind of sandstone, in which the individual particles are seen, and this aggregation may take place in the beds. In the guano rock this individuality is entirely lost to the eye, which detects nothing in the close-grained and compact banded mass, to indicate its origin. Mineralogically these bodies are diverse, and some specimens, containing converted shells, are puzzling problems to be solved with the knowledge already obtained.

Rock guano, wherever it has been observed, with one exception, occupies the highest part of the island surface, or covers the arenaceous form; we cannot, therefore, explain its aggregation by the usual effect of infiltration of earthy salts dissolved, but must give great weight to local phenomena of evaporation. The small islands on which it is found are swept by the constant currents of the trade-wind, and the evaporation of water from their surfaces exceeds in amount that received as rains; it being well known that none but saline water is found in the soil. When water holding saline matter in solution evaporates from the surface of the earth, pure water arises in vapour, while saline compounds remain at or near the surface. In accordance with this law, the solution formed by rains permeating a bed of decomposing bone remains of bird droppings, rises to the surface of the bed, and then becomes concentrated. Any acid ingredient would act on the grains it wets, while suspended matters would fill the interstices; and so long as capillarity existed, finely-divided and saline parts would thus increase at or near the surface, and be deposited in the porous portions, gradually filling the pores, and consolidating into mass the granular remains. Doubtless while one part of this process was proceeding, rains carried down a part, which subsequently was raised anew, until finally the surface rock, no longer pervious to rain, became cemented into the compact state it now presents by the conjoined forces acting. The exceptional case referred to, when remarking on the relative positions of the compact and sandy guanos, is that of the new discovery of the trachyte-like form of guano rock. So far as can be judged from the chemical

composition of this rock, which is hydrous, and its mineralogical characters and positions, it was originally formed in the way described above, when its place was the upper surface of the island. But its iron and manganese constituents, the existence of crystalline phosphates, as well as the silicate of alumina and iron, in the form of clay from volcanic rocks, lead to the opinion that it has been long submerged below the waters of the ocean, and there gained its close resemblance in its larger features to trachytes and basalts.

As the materials of the minerals here described have been at one time organised, and may now be considered strictly mineralised, the specimens present fine illustrations of the important action of minor chemical forces in changing the physical conditions of matter, by which the bones, once the food of fowls, have become converted into rock. On the other hand, we find, in the products of the decomposition of bones added to sea-water, the phosphoric and organic salts of lime essential to the continuance and multiplication of animal life there in its various exhibitions. *Edinburgh New Philosophical Journal.*

LODGING-HOUSES FOR LABOURERS.

FEELING a deep interest in the well-being of the labourer, a feeling nourished and strengthened by many years' experience of his wants and habits, I propose to submit a few remarks on that special phase of the labourer's life, the lodging-house, which has of late attracted public attention. Apart from the model lodging-houses in London, Glasgow, and other large towns, which, however well adapted for handicraftsmen and mechanics, do not find much favour with our country labourers, I find that Mr. Beckett Denison, in January, 1852, published in the *Mark Lane Express* the detailed workings of a lodging-house for single men in Leeds, which certainly exhibited very favourable results, though I suspect that the agricultural element formed but a small part of the success there shown. Last year I observed that a lodging-house was opened at Parndon, in Essex, which was built under Mr. Clark, the diocesan architect. Since then the Rev. John Bramston, of Witham, has opened a labourer's home at that place, which is fully described in the *Chelmsford Chronicle* of January 23 in the present year. I shall not so much urge the establishing lodging-houses upon philanthropic grounds, as on that of self-interest; and divesting it still further of the advantages which must and will arise from the improved habits, and consequently increased value of the labourer, I propose to show that even as a speculation and investment it is a safe one. A small barn or a good-sized cottage, if available, might be altered to answer the purpose; but I perfer now to describe a building which is specially designed for a "labourer's lodging-house." This plan takes up the common type of a cottage, either in a town or village, as containing two upper and two lower rooms, to which is added a ground-floor wing on either side, to contain three single beds. The dimensions correspond pretty closely with those usually found in cottages, but the arrangements are slightly varied, to meet the peculiar requirements of the case. The plan provides for the accommodation for six or eight single men as lodgers, under the care of a steady labourer and his wife, to whom they will pay a weekly sum for washing, mending, cooking, &c., in addition to the weekly rent of 1*s.* or 1*s.* 6*d.*, as shall be fixed by the proprietor. On entering the house, there is a closet on one side for such lighter tools and implements as a labourer will naturally keep in his own charge, and on the other side a similar closet for outer coats and garments, leggings, boots, &c. The room is lighted by a window on either side the front door, and is warmed by a cottage range with oven and boiler; a large closet fills up one side of the fireplace, and fixed and moveable seats, a plain strong table, a clock, and a few book-shelves complete the furnishing of the room. On either side is a door opening into a bed-room with boarded floor, well-lighted and ventilated, containing three single iron bedsteads, with plain but sufficient bedding, and a closet for clothes, apportioned to each lodger. The wash-house has a fireplace for wood, a sink and dresser, and a set of lockers for food, &c., one for each lodger. The wood and coal-house might be entered under the stairs, and part of it could be used by the master as a store-room for table-beer, Potatoes, and other articles, which he might supply to the lodgers. The front bed-room is exclusively for the master and mistress, and is sufficiently large to allow a small room to be enclosed from it for children if necessary. The back room contains two beds, and can be kept as the "sick-room," and when not so required can accommodate two additional lodgers or two mechanics or artificers, who would gladly prefer a lodging like that to the more expensive one at the public-house or beer-shop. In the yard are two open sheds, with washing sink, privy, &c.; these sheds may be used for recreation, bowls, smoking, or any occupation which the lodgers may choose for their leisure. A garden, not exceeding 20 perches in extent, should, if possible, be attached to the lodging-house; it would probably be cultivated by the lodgers, who would share in its produce in return for their labour. I shall not touch upon the rules and regulations, or system of management of a lodging-house, because these must vary according to circumstances; and the experience of those who have had the control of the few which are already established will, I am sure, be cheerfully imparted to others who may wish to advance with them in this desirable work. Having briefly enumerated the accommodations of our lodging-house, I will now speak of the most important part of my subject—the cost of erecting and furnishing the same, according to the plan and foregoing description. I have gone carefully into the details, and find that, from an average of prices in different districts—

	£	s.	d.
The building will cost about, including sinks, cisterns, stoves, &c.	170	0	0
To furnish the house with eight iron bedsteads and bedding, tables, chairs, forms and seats, shelves, clock, the necessary crockery and cooking utensils—everything, in short, except for the master's bed-room, will cost about	40	0	0
Making a total of	210	0	0

The annual expenses of the establishment may be estimated as—

Rent for the 20 perches of ground for the site of the house and garden	0	10	0
Interest at 8 per cent. on 170*l.*	13	12	0
Ditto at 10 per. cent. on 40*l.*	0	8	0
	£14	10	0
The annual income to be derived from eight lodgers and the master, at 1*s.* per week each, is	£23	8	0

This is assuming an extreme case, that every bed would be occupied for every week during the year; but we shall allow, I think, an ample margin if we anticipate that five beds out of the eight, besides the master's, will, after the first year, produce the weekly shilling, and this will make a rental of 15*l.*, and so provide for the annual expenses. In some cases 1*s.* 6*d.* per week may be readily charged; and if the home be a private one, as it were, and confined to the labourers on a farm or estate, no difficulty need be found in making it, not only self-supporting, but also, as it ought to be, sufficiently remunerative for the capital invested in it. *Mr. Cheffins, of Moorgate Street, at a late meeting of the London Farmers' Club.*

Mr. Cheffins read the rules of the Chipping Hill Lodging-house, established to provide comfortable lodgings for respectable single day labourers; namely, a separate bed for each lodger, and a common room for all. The main provisions were that no lodger could be admitted for a less period than one month; that the house should be locked up at, and that no admission should be obtained after, a quarter to 10 o'clock at night; that the charge to each lodger for bed, fire, and light should be a shilling a week, or 3*s.* 9*d.* a month, paid in advance; that drunkenness and disorderly conduct should be followed by immediate expulsion, and that no person be admitted as a lodger without the permission of the Rev. Mr. Bramston, or continue as a lodger if that permission were withdrawn.

Home Correspondence.

Finger and Toe Disease in Turnips.—The cause assigned by your correspondent "Carabas" in the last number of the *Agricultural Gazette* (p. 475) of the disease in Turnips called fingers and toes interested me, because in a paper on this disease which I read to the Holderness Agricultural Society in 1812, when filling its chair as President, and which was printed by the Society, I stated grounds for believing the disease to be produced by the attacks of the larvæ of insects on the roots, much as your correspondent says his own observations have convinced him is the fact. I write to express a hope that "Carabas" and other Turnip cultivators, where the disease prevails, will endeavour to ascertain by frequent examination of the roots of young plants beginning to show symptoms of disease what is the "grub or worm" which bites the root, and whether the small protuberances at the edges of the incisions observed by "Carabas" are inhabited by the grubs of any small beetles similar to those which produce the gall-like knobs of Cabbage plants, which however do not seem materially to affect their growth. Though lime may be a specific against the disease, it is highly desirable to trace out if possible its cause, and to ascertain if it be really owing to insect agency. *William Spence, London, July 7.*

Donkey Power.—In draught two donkeys are equal to a horse, the latter is equal to the power of five men, so the power of the donkey may be rated equal to two and a half men. When I see a one-horse cart, sometimes a waggon and team sent to the mill for a few bags of flour, to the railway station for a new plough, or to the Turnip fold with a few bags of cake or corn for the sheep, or a labourer covered with profuse perspiration after working at the Turnip cutter exposed to the cold blast of winter at the risk of future rheumatic attacks, then I think that farmers in general have unwisely overlooked the merits of the despised donkey. A donkey cart may be safely entrusted to a boy of comparatively tender years to go all sorts of messages and to do many odd jobs about even a large farm. It appears strange that our agricultural engineers should have overlooked the merits of Dr. Cartwright's horse power, and the machine itself, or a mere modification of the same as seen in the American Department in the Exhibition of 1851, and again as described at page 16 in that instructive shilling volume, "The Industry of the United States in Machinery, &c.," by Messrs. Whitworth and Wallis (Geo. Routledge and Co.). It is satisfactory to learn that at last Mr. Hartas, of Pickering, has been manufacturing the machine with great success, and the report of such an engineer as Mr. Amos is all that can be desired. If Mr. Hartas will construct a donkey power suitable for driving light circular saws, pumps, bruisers, Chaff and Turnip cutters, he will find great difficulty in supplying the demand; and it is quite possible that ere long some influential member of the Royal Agricultural Society will propose prizes for the best donkeys at their annual provincial meetings. *B. M. F.*

Societies.

HIGHLAND AND AGRICULTURAL, *July 8.*—At the yearly meeting.—333 new members were elected.

Agricultural Education.—The following report of the Council on Education, created by the supplementary charter recently obtained by the society, was read by Mr. Hall Maxwell:—

"The Council consider that, in organising the system of education, there are two leading points to be attended to: 1st, The offer of every proper encouragement and aid to induce and enable agricultural students to become candidates for the society's diploma; 2dly, The enforcement of such precautions to guard against the possibility of the honour created by the charter being abused, or the diploma conferred on insufficient grounds. The committee think a well-defined curriculum will serve as a guide to the agriculturist, both as regards the subjects of study and the order in which they are to be pursued; and that it will afford the best guarantee for an education worthy of the diploma. This education must be of a twofold character, scientific and practical—the one to be acquired in the class, the other on the farm; and the sufficiency of both should be tested 1st, by evidence of attendance for prescribed periods at the classes and on the farm; 2dly, by a rigid and searching examination after the required attendance has been completed, in addition to a perfect knowledge of the principles of husbandry and of the details of practical farming, a candidate should be conversant with those departments of the following branches of study which bear upon agriculture: 1. Chemistry, scientific and applied; 2. Natural History, including the principles of zoology and geology; 3. Botany; 4. Veterinary medicine and surgery; 5. Technology or industrial science in its bearings on agriculture; 6. Field engineering and surveying; 7. Mechanics and architecture, so far as regards a knowledge of their use and application to the operations and buildings of the farm; 8. Book-keeping and accounts. While candidates are not tied down to any particular college or seminary, they should be required to produce certificates of attendance for prescribed periods at the following classes in some educational institution, approved of and recognised by the examiners as sufficient:—Agriculture, chemistry, natural history, botany, and veterinary medicine and surgery. Acquirements in technology, field engineering and surveying, farm mechanics and architecture, and book-keeping, may be established by examination, without certificate of attendance, but students should nevertheless take advantage of whatever classes may be available for these branches. Students should not be restricted in their attendance to any particular part of the country or style of farming; but power should be given for the examinators to judge of the sufficiency of the certificates produced, and of the competency of the party examined. The whole course of study should embrace not less than two years—two at classes and two at the farm; and students should be strongly recommended to pass through the scientific departments first, so as to enter on the practical part with the advantages and the aids derivable from a proper course. When the scientific course is preferred in point of time, the student may be examined upon it before going to the farm. A student may take alternate years of the classes and of the farm, but it should not be permissible to devote to either less than an entire year at a time. No part of the course should commence until the student is 17 years of age, and consequently a diploma cannot be granted until he is 21. The following appears to be a suitable arrangement for the course:—1st year—Summer—Natural History, three months; Botany, three months. Winter—Agriculture, six months; Chemistry, six months; Veterinary Surgery, six months. 2d year—Summer—Natural History, three months; Applied Chemistry, three months. Winter—Agriculture, six months; Technology, six months; Agricultural Engineering, Architecture, and Surveying, six months. This arrangement is only suggested as providing a proper course of study and sequence of subjects, but the student need not be prohibited from adopting another order, provided he proves attendance for the prescribed periods at the specified classes. By adopting the arrangement indicated, he gains the convenience of being examined upon examination immediately at the close of his course, at the termination of a winter session; and he has the advantage of carrying to the agricultural class the knowledge of chemistry and natural history acquired in the first summer. It is recommended that two winters should be devoted to the agricultural class. The course has hitherto been limited to one; but the committee entertain a decided opinion that it might be beneficially extended; and, as Professor John Wilson has expressed his concurrence and readiness to co-operate, no difficulty is anticipated in affecting this. As a strict adherence to the rules set to these or any other regulations which may be made would probably have the effect of excluding candidates for a few years from their promulgation, power should be given to the Council during that period to grant the diploma to parties who should be found possessed of qualifications and acquirements of a high order, and whose education has been undoubtedly equivalent of the honour sought for. The Council have further, in the discharge of their duty, to report the nomination of the following Board of Examiners:—Science and Practice of Agriculture, Mechanics, and Architecture of the Farm—Professor John Wilson; John Finnie, Swanston; Robert Ross, Kilwhiss; John Wilson, Edington Mains. Botany—Professor Balfour. Chemistry.—Professor Thomas Anderson. Natural History—Professor Allman. Technology—Professor George Wilson. Veterinary Surgery—Professor [illegible]. Field Engineering and Surveying—John Miller of Leithen. Book-keeping and Accounts—Kenneth Mackenzie, accountant, and Peter M'Lagan, yr. of Pumpherston."

General Shows.—Mr. Hall Maxwell reported that the entries for the Glasgow Show had been completed, and that the gross number exceeded that of any previous occasion.

"The programme of proceedings would be as follows:—3d and 4th August—Admission and arrangement of implements; 5th August—Trial and exhibition of implements; [illegible] and exhibition of poultry and of dairy produce; admission of the public to the yard at 1 o'clock; meeting of committee in the Town Hall at 3 o'clock; address by Professor Anderson in the Trades' Hall at 7 o'clock; ball in the Galleries of Art. 6th August—Admission of stock to yard at 5 A.M.; admission of the public to the yard from [illegible] banquet in the City Hall at 5.30. Friday, 7th August—Inspection of prize stock and implements."

Veterinary College.—Mr. Hall Maxwell stated that the directors had pleasure in reporting the continued prosperity of this institution.

"The only matter for special report connected with the department was in reference to the recent mission of Professor Simonds of London, to investigate the Steppe murrain, so fatal have been prevalent on the Continent. As this step was recommended by the English and Irish societies, the directors were unwilling to refuse to bear one-third of the expense, but in correspondence they stated that they would 'guard themselves

the inference that they anticipate from it results of any [illegible] consequence, and they deem it only due to the eminent [illegible]ental veterinarians who have made murrain the subject [illegible]igation, to express a belief that their able publications [illegible] the information that can possibly be obtained by means [illegible] from this country.' The directors conceived that, [illegible] peculiar circumstances characterising Prof. Simonds' [illegible] his report would have been regarded as the joint [illegible] of the three societies, and dealt with according [illegible] arrangement. This, however, has not been [illegible] followed by the English society. On the [illegible] last month Professor Simonds rendered his report to a [illegible] of that body without the concert or approval of this [illegible] which a bare intimation was sent that the meeting [illegible] open to its members. On the 20th, however, a copy [illegible] within a week, and the secretary of the English [illegible] was made aware of the general meeting, and of the [illegible] of having the report submitted to it. Not having [illegible] received, it was yesterday telegraphed for, and a portion [illegible] consequently been forwarded to day in the proof types [illegible] English society's Journal, a number of which is due [illegible] time. It thus appears that while that body asked [illegible] from this one an obligation to bear a share of the [illegible] attending on Professor Simonds' mission, his report [illegible] dealt with as exclusively its own—1st, by making one [illegible] meetings the medium for bringing it out; 2dly, by [illegible] it for its Journal instead of taking the opinion of [illegible] other societies interested regarding the most fitting [illegible] publication."

Miscellaneous.

Irrigation in Warwickshire.—The neglect, or rather abandonment, of irrigation over the greater part of Warwickshire is easily explained, and by the mere mention of a circumstance that ought to have received some notice in any physical description of the county, as it would do at the first sight of any good map of it. Occupying the most central position in the kingdom, it forms, on the north-western side, a plateau of great elevation, the district around Birmingham being in fact known as the "watershed of England." Throughout the whole of that extensive portion of the county, reaching to within three miles of Warwick, innumerable petty streams take their origin; diverging in every direction towards brooks tributary to rivers that flow into opposite seas. An instance illustrative of this occurred in 1851, when the mere alteration of the outlet of a field which was re-drained for greater depth, sent the water on its course for the Trent and the Humber, which had previously found its way by the Avon and Severn, into the Bristol Channel! Irrigation is only valuable in proportion to the fertilising matters, mineral or otherwise, which the water has met with and dissolved in its *previous* course through other soils. The petty streams given birth to in a district of such altitude and character have not yet commenced the imbibing career that is to make them vehicles of enrichment to lower-lying pastures. The vestiges of deserted and bygone attempts at irrigation (not uncommon in the neighbourhood) convey two stories to the eye—one in their construction, another in their abandonment. The latter is the true one. *C. W. H., in the Journal of the English Agricultural Society.*

Calendar of Operations.

JULY.

WESTER ROSS, *July* 13.—The sowing of Turnips has been completed for some time, and the latest sowings are coming above ground. The Swedes have been singled, and are making fair progress; and being closely planted, are beginning to cover the nakedness of the field. The earlier sown common Turnips have not come away so regularly in many instances, neither have they made such rapid progress as they ordinarily do; but even for these the hoes are being called into requisition, and in a few days all will be bustle and hurry. We do hope that as there is now abundance of rain, this very important part of the crop will uninterruptedly hold on its way. There is a far larger proportion of the crop now laid than we had any anticipation of, even a few weeks ago. In the middle of June we had a few days uncommonly hot and very oppressive, in which all our crops grew up with great rapidity, and we believe that from this over hasty growth there is a "feckleeness" in the straw which very much disables it from standing erect under even very ordinary showers. There are, it is true, many very heavy fields in this neighbourhood, but we venture to say, that although there may be nearly as much laid corn as last year, when all is gathered into the stackyard it will not present the same bulky appearance it then did. We may fairly anticipate, however, that as the blooming season has been safely passed, and as the harvest will now with ordinary weather be pretty early, the return of sound grain will be more abundant than last year. A few of the more advanced fields may be reaped early in August, but general harvest cannot be earlier than towards the end of that month; and we do not think it too much to say that should the crop now on the ground be well matured and safely stacked, there will be laid up for the country's use somewhat beyond a full average crop. The weather has been very favourable for hay making, and it has been taken advantage of as this healthful and delightful work; but the ricks give no generous indication that the crop generally is a very light one. Perhaps this may be partly owing to the much-laid grain crop of last year. Pasture Grass has been very abundant this season, and all the more abundant for the delightfully high prices that have induced the farmers to let go nearly every disposable animal. Sheep farmers are rejoicing over the astounding prices fetched by their stock and their covering.

Notices to Correspondents.

AGRICULTURAL STATISTICS OF IRELAND: *L.* Tables of the produce of 1856 have just been published. They indicate an increase of 100,000 quarters of Wheat, a decrease of a million quarters of Oats, and of 340,000 quarters of Barley, besides a smaller decrease in all other grains. We shall give the figures in full as soon as we have room.

CONVERSION OF PASTURE: *R B.* If the soil is very light and sandy it is better to dig in the turf—*one* spit deep. If it is more loamy than sandy, pare and burn.—As regards your other question, we are, in our ignorance, unable to say either "yes," or "no," regarding the gentleman you name.

QUALITY OF AUSTRALIAN WHEAT: *R.* The samples in the Hyde Park Exhibition will be still in your memory, and we see from a Melbourne paper that at a recent show there Wheat was exhibited weighing 67 lbs. 2 oz. per bushel.

SMUT: *B E.* The remedy is—washing the seed in some caustic wash, as blue vitriol (1 lb. to a gallon of water for a sack of Wheat). Some Wheats are more delicate and liable to it than others. Reaping machines are no doubt to be had for hire in some districts.

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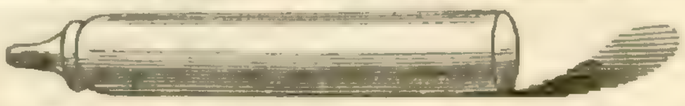

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7 ,,	0 10 ,,	17 ,,	4 0 ,,
8 ,,	1 0 ,,	18 ,,	5 0 ,,
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GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS FOR HORTICULTURAL PURPOSES.

E. AND W. H. JACKSON supply SHEET, PATENT ROLLED PLATE, and every description of Glass for Conservatories, Greenhouses, &c., of the best manufacture and at the lowest prices.

BRITISH AND PATENT PLATE, ORNAMENTAL, and all the superior qualities of Glass for gentlemen's mansions at very reduced terms.—Estimates and Lists of Prices forwarded on application at their Warehouse, 315, Oxford Street, W.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

WATERING GARDENS AN AMUSEMENT—NOT A LABOUR.

WATER YOUR GARDENS and MANURE YOUR LANDS with GUTTA PERCHA and INDIA-RUBBER TUBING. Half-inch gutta percha for gardens, medium 4*d.*, stout 4½*d* per foot. Brass hand branch, stopcock, and rose, 5*s.* 6*d.*—Apply for illustrated Price Lists to JAMES HEATH & Co., Patent Gutta Percha and India rubber Factory, 35, Old Street Road, E. C.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in mahogany case, with three powers, condenser, pincers, and two slides, will show the animalculæ in water, Price 18*s.* 6*d.*—Address JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

"It is marvellously cheap, and will do everything which the lover of nature can wish it to accomplish either at home or in the open air."—*The Field*, June 6, 1857.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

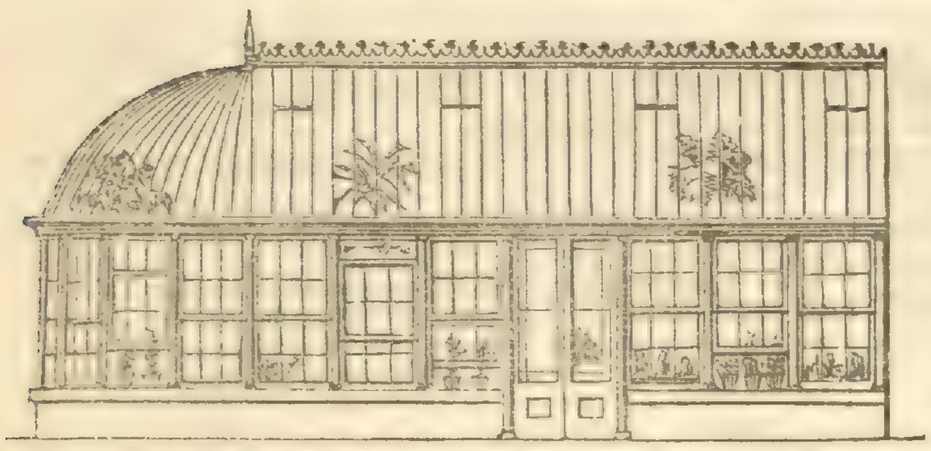
Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

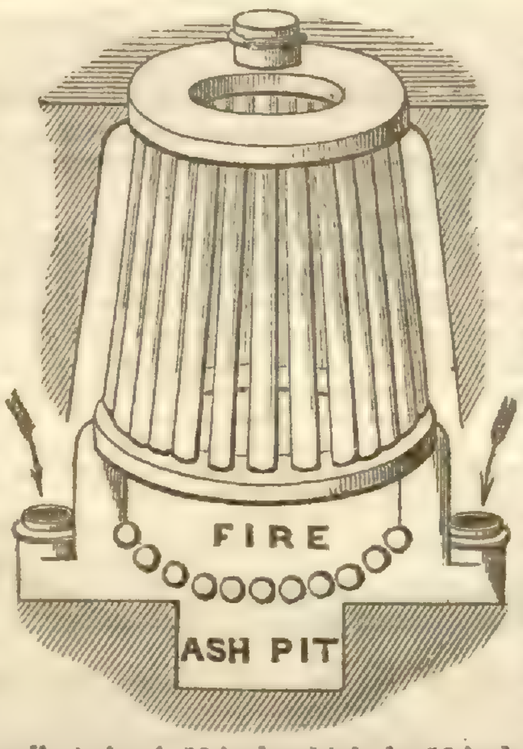
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS AND CO., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS, HOTHOUSES, GREENHOUSES, CONSERVATORIES, FORCING PITS, &c., of every shape and size, both Plain and Ornamental.

Also our IMPROVED PATENT TUBULAR BOILERS of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

JOHN WEEKS & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

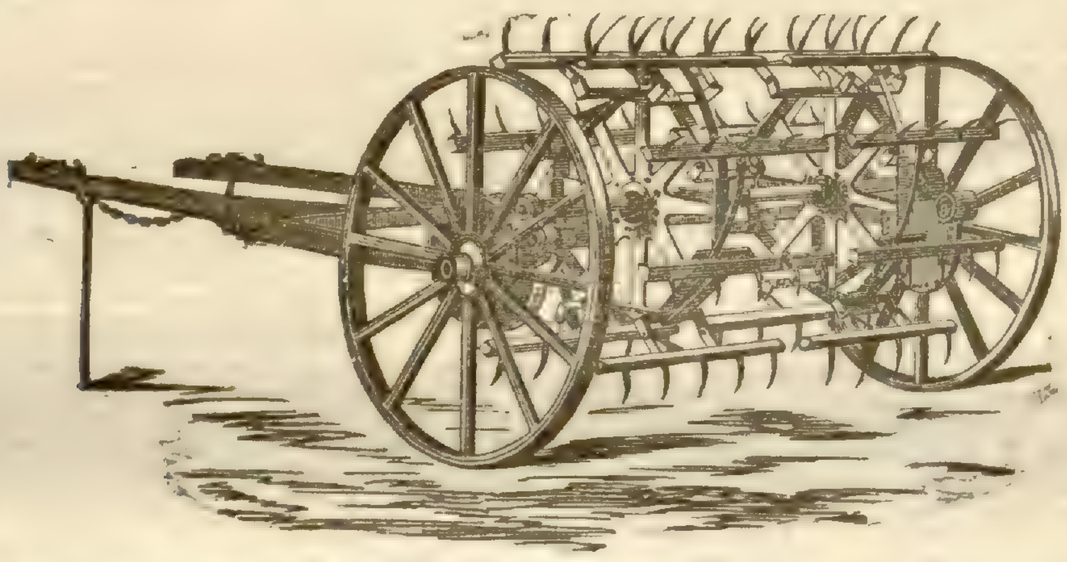
JOHN WEEKS & Co., King's Road, Chelsea, London.

STAND No. 5.

ROYAL AGRICULTURAL SOCIETY AT SALISBURY,

JULY 22, 23, & 24.

B. SAMUELSON, BRITANNIA WORKS, BANBURY.



THE following MACHINES and IMPLEMENTS, Manufactured by B. SAMUELSON, may be seen at his STAND No. 5.

MACHINES FOR PREPARING FOOD FOR CATTLE, viz:—
Gardner's Patent double-action Turnip-cutter, with Mr. Samuelson's recently patented improvements enabling the same Machine to slice for cattle, cut pieces for sheep, pieces for lambs, thin riband pieces for mixing with chaff, and to pulp.
Samuelson's Patent Gardner's Single-action Turnip Cutters.
Bushe & Barter's Patent Turnip Graters
Moody's Patent Turnip Graters.
Phillips' Patent Root Pulper.
Patent Combined Turnip Grater and Chaff-cutting Machines.
Chaff-cutters from 3*l.* to 14*l.*
Mills for Crushing every description of Corn Seed.
Oil-cake Breakers for Hand and Machine Power.

FIELD IMPLEMENTS — HARROWS — Cartwright's Patent Self-cleaning.
Crosskill's Patent Clod-crusher.
Patterson's Patent do.
Cambridge's do. do.

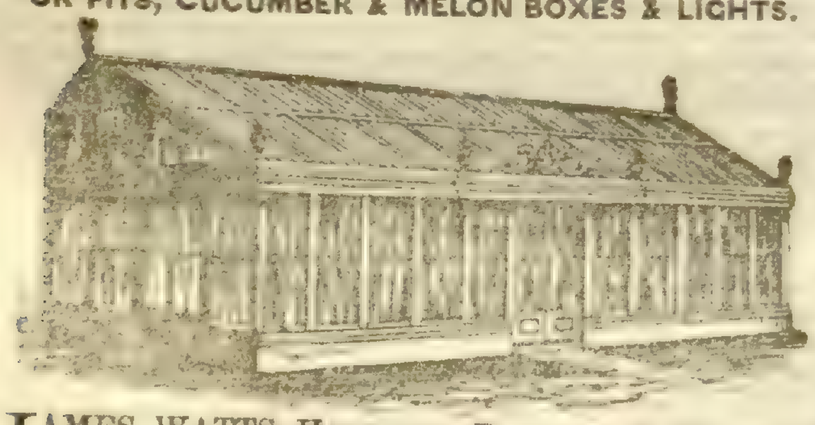
HORSE-HOES—Huckvale's Patent Revolving Thinner, Hill-side Hoe, Field Rollers, &c.
HAYMAKING MACHINES.

HORSE RAKES, Marychurch's Patent Self-relieving.
Lawn Mowing Machines, Garden Rollers, &c.
Patent American Floating Ball Washing Machines, Mangles, Weighing Machines, Pumps, &c.

A HANDBOOK of the above, containing a full description with prices of the articles, may be obtained at the above Stand, or will be forwarded post free on application by

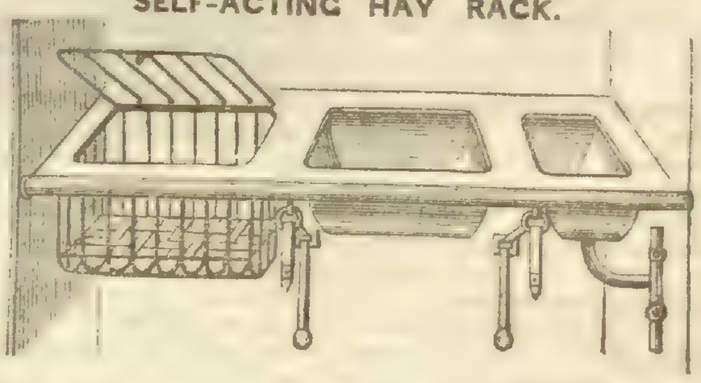
B. SAMUELSON, Britannia Works, Banbury.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.
Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

WARNERS' SWING WATER-BARROW (To HOLD THIRTY GALLONS)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*
Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.
Fountains suitable for Conservatories, Lawns, &c.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high		..	£4 15
No. 2	,, 15 ,,	,, 45	,,	..	5 17
No. 3	,, 28 ,,	,, 45	,,	..	6 15

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high		..	£2 15
No. 13	,, 12 ,,	,, 30	,,	..	3 5
No. 11	,, 16 ,,	,, 40	,,	..	4 6
No. 12	,, 24 ,,	,, 45	,,	..	5 [illegible]
No. 14	,, 30 ,,	,, 45	,,	..	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.
No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, 10*s.* 6*d.*

READ'S SYRINGE, 19*s.*

J. TYLOR & SON'S Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.
N.B. Cost of carriage, &c., not included in these prices.
J. TYLOR & SON'S Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump now offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible [illegible] to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull up stroke of the piston rendered perfectly easy, it having, indeed, nothing to do, the barrel being previously full of water. Being made self-supplying, a great saving of labour is effected, as the necessity of stopping to fill the Syringe at every instant is being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes have been entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action. The barrel is of galvanised iron, not painted, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 14 in. high.

1¼ inch Gutta Percha Suction Pipe, 2*s.* per foot.

1¼ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 6*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the Works, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel	Length of Barrel		£	s.	d.
3 in. short	1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
3½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
4½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
4½ „ short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
4½ in. long	ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

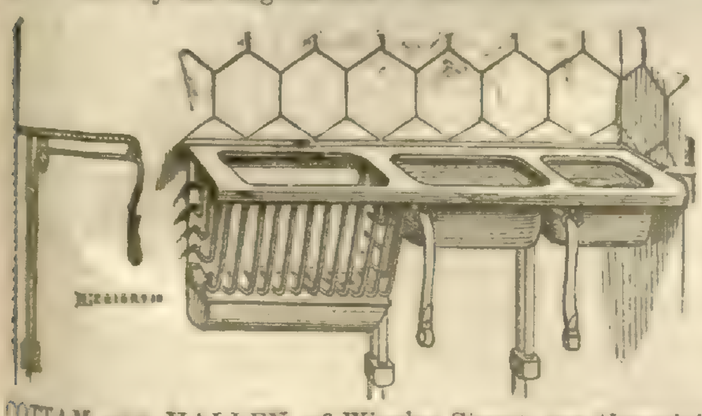
Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

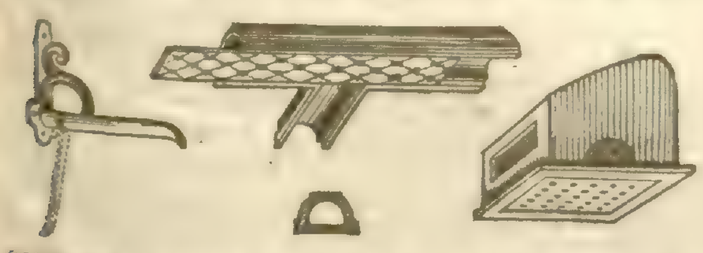
WHITEFRIARS STREET, FLEET STREET, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

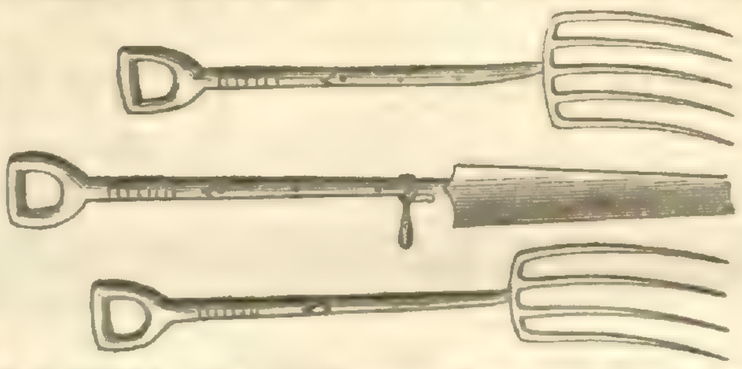
The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worten Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

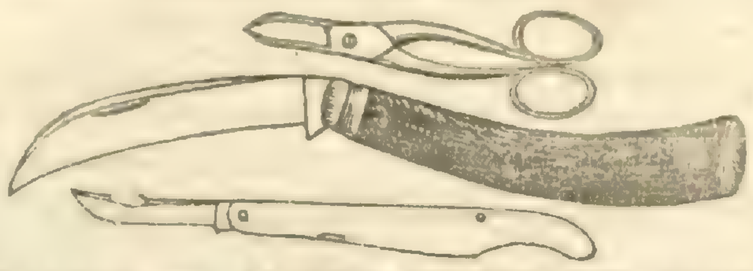


MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

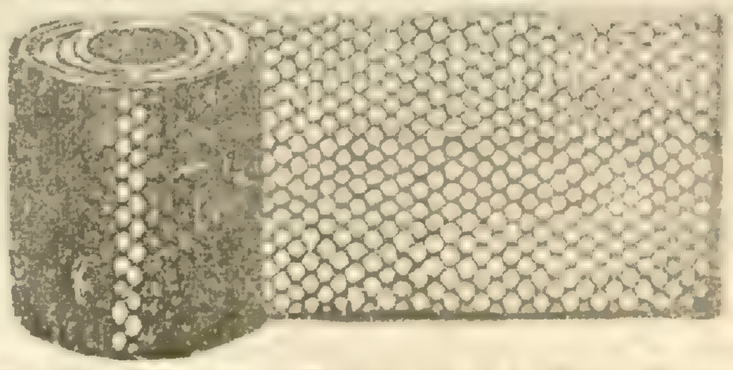
Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.



BARNARD AND BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide ..	..	5*d.* per yd.	4*d.* per yd.
2-inch „ strong do. ..	..	6 „	4¾ „
2-inch „ intermediate, do.	..	7 „	5½ „
2-inch „ extra strong, do.	..	9½ „	7½ „
1⅝-inch „ 24 inches wide ..	..	5½ „	4½ „
1⅝-inch „ strong, do. ..	..	6½ „	5¼ „
1⅝-inch „ intermediate, do.	..	7½ „	6 „
1⅝-inch „ extra strong, do.	..	10 „	8 „

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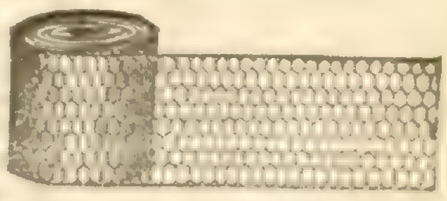

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COUNTY OF DURHAM, SOUTH SHIELDS, AND WESTOE FLOWER SHOW will be held SEPT. 16 and 17. First Prize, for 36 Dahlias of Dissimilar Blooms, a Silver Cup, value 5*l*.; Second Prize, 1*l*. 1*s*.; Third Prize, 15*s*.; Fourth Prize, 10*s*.

CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY.—The Second Exhibition of the above Society will take place on WEDNESDAY, Sept. 16. In addition to the ordinary Prizes, an extra Prize will be given for 24 DAHLIAS, dissimilar blooms, open to all Competitors. Entry 5*s*. each.

First Prize—A Silver Cup, value Five Guineas.
Second Prize—Two Guineas.
Third Prize—One Guinea.
Best Dahlia of any sort, number unlimited, 10*s*. 6*d*.

Schedules of Prizes and every information may be had by applying to the Secretary. JOHN PATTERSON, Sec.
62, English Street, Carlisle, July 25.

SOUTH KENSINGTON MUSEUM.—To accommodate the crowds attending this Museum in the Evenings, the Museum will be OPEN THREE EVENINGS A WEEK till further notice. The Admission will be Free on Monday and Tuesday Evenings, and by payment of 6*d*. on Wednesday Evenings. The hours are from 7 till 10.
By Order of the Committee of Council on Education.

SCOTTISH ARBORICULTURAL SOCIETY.—The Society having offered PRIZES (open to all) for the best ESSAYS on each of the following Departments of Practical Forestry, intending Competitors are requested to lodge their Essays with the Secretary, not later than 1st of August:—

I. On the Reclamation of Neglected Plantations (Medal).
II. Planting on Moss Lands (Medal).
III. On the Dry-Rot and other Diseases in Larch and Spruce (Medal).
IV. Management of Coppice Woods and Cutting of Coppice Bark (Medal).
V. Entomology (Medal).
VI. Introduction and Cultivation of the Newer Coniferæ and other Forest Trees, with special reference to the Climate of Great Britain and Ireland (Medal).
VII. On the Best Method of Book-Keeping for Foresters, with Examples (Medal).

The Society also invite communications on any other subjects connected with Forestry, for which Prizes will be awarded in all cases where they are deemed worthy. For further information apply to the Secretary. JAMES ALEXANDER,
3, Waterloo Place, Edinburgh, July 25. Secretary.

MR. LEAN, OXTED.—If Mr. LEAN, who was Gardener at Oxted some years since, will send his address to his old employer at 7, Westbourne Place, Eaton Square, S.W., he may hear of something to his advantage.

LANDED PROPERTY Bought and Sold on Commission: Valued for Purchase, Sale, or Letting: Drained or otherwise improved by Contract, by THOMAS SCOTT, Land Agent and Valuer, 18, Parliament Street, Westminster.
Several Farms for Sale and Letting by private treaty, within 8 miles of London.—July 25.

CHOICE FLOWER SEEDS.—New Seed, saved this season from the best varieties of the following, may be had post free.

	Per packet—*s*.	*d*.
HEARTSEASE, from named flowers	1	0
CINERARIA, from a fine collection, 1*s*. and ..	2	6
CALCEOLARIA, spotted, 1*s*. and	2	6
PRIMULA SINENSIS	1	0

With all kinds of Vegetable and Flower Seeds suitable for sowing at this season.
JOSEPH MAY & Co., Wellington Street, Strand.

CHOICE CALCEOLARIA SEED.—The Undersigned is now sending out Seed of his well-known varieties at 2*s*. 6*d*. per packet. Trade packets at 10*s*. each.
JOHN HENCHMAN, Edmonton, near London.

CHOICE CALCEOLARIA SEED, saved from first rate selected flowers, in packets, free per post 2*s*. 6*d*. each; in large packets, to the Trade 5*s*. each.—Address, T. CHARMES, Seedsman, 105, High Street, Exeter.

CHOICE CINERARIA SEED saved by E. RAPER from his superb Collection, 2*s*. 6*d*. per packet.
E. RAPER, Florist, Regent Street, Leamington.

FRUIT TREES IN POTS.

FRUIT TREES IN POTS, with a fine crop of Ripe Fruit (most beautiful), worthy of inspection, can be seen at H. LANE & SON'S, The Nurseries, Great Berkhamstead, Herts.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 Pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above will be issued early.*—Nursery, Foot's Cray, Kent, S.E.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should now be sown.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom. Price 9*d*. per lb., or 80*s*. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

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FOR HAYTHORN'S HEXAGON GARDEN NET, please direct to Mr. HAYTHORN, Nottingham.

TO NOBLEMEN.

PATTERNS, PRICES, AND TESTIMONIALS, of HAYTHORN'S HEXAGON GARDEN NET sent free by post, by Mr. HAYTHORN, Nottingham.

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WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

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½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
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Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
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THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s*. 6*d*. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. Allowance on large orders.
Manufactory, Kennington Lane, Lambeth.

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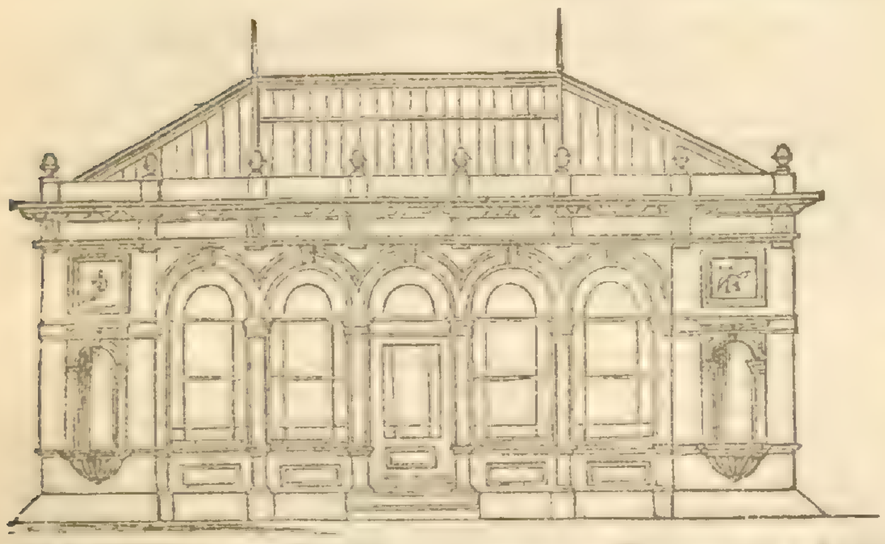

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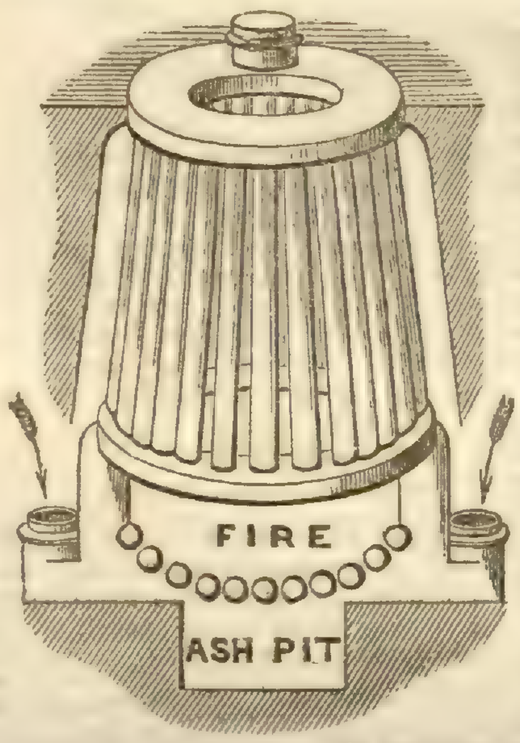

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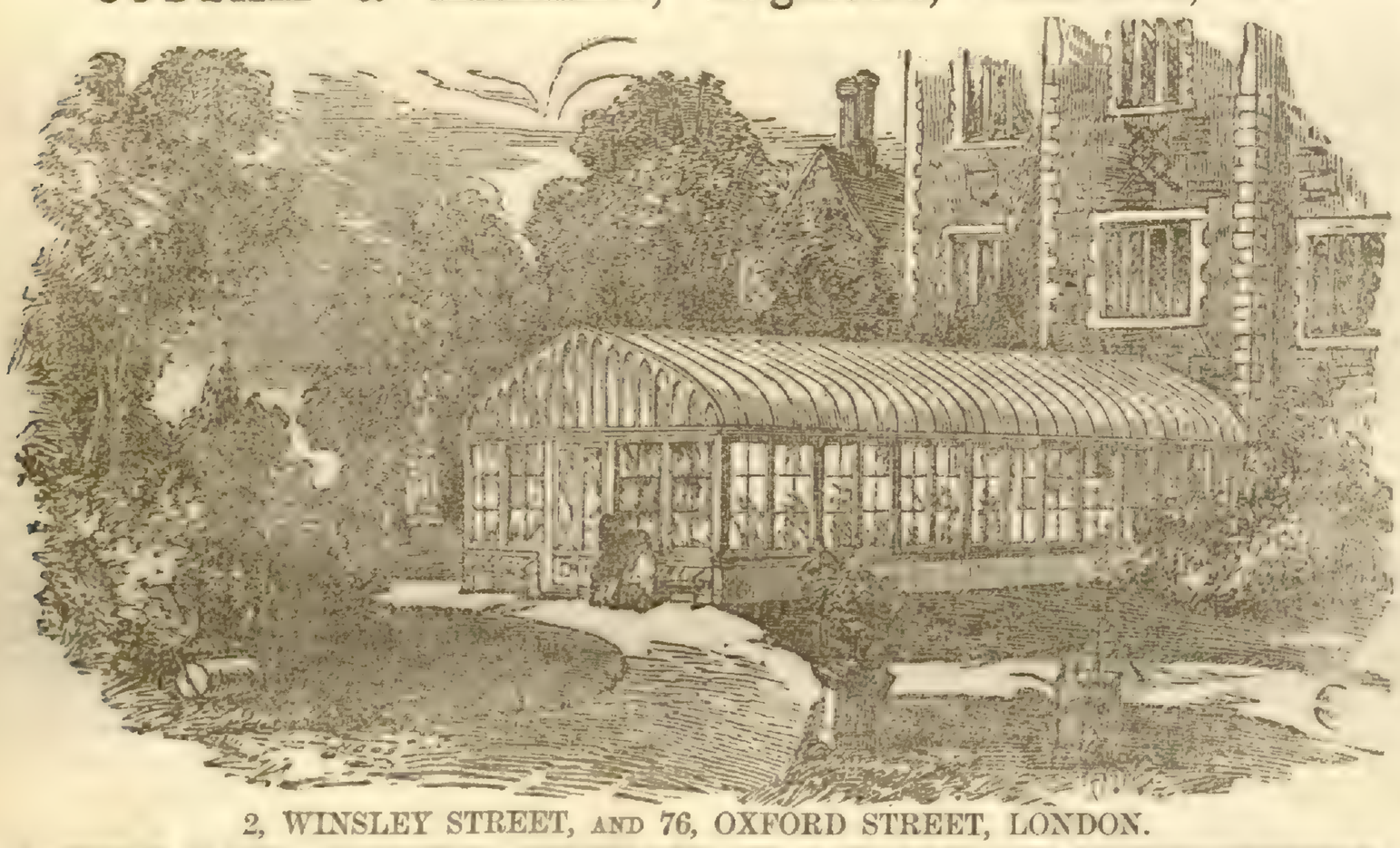

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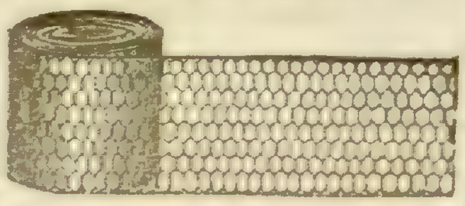

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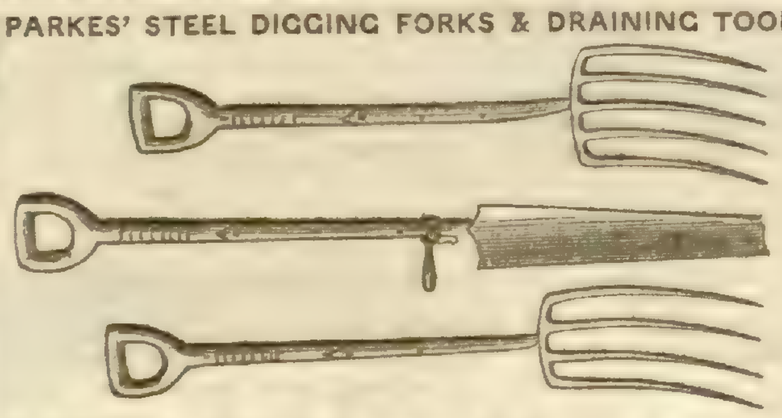

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Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, who also Manufacture of all kinds of raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	" 15 "	" 45 "	..	5	10
No. 3	" 28 "	" 45 "	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	" 12 "	" 30 "	..	3	5
No. 11	" 16 "	" 40 "	..	4	0
No. 12	" 24 "	" 45 "	..	5	0
No. 14	" 30 "	" 45 "	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

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J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s.** each.

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By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump now offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the exterior of the barrel, which is a well-known inconvenience attending on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. TYLOR & SONS, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expenses of delivery in the country.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, July 25.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

CHARLES NOBLE, having retired from the business lately carried on by the firm of STANDISH & NOBLE, has established his Nursery within 600 yards of the Sunningdale Station, South Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that his Catalogue is now published, and may be had on application. He respectfully invites an inspection of his stock, which will be found in the finest possible condition. He pledges himself to supply none but good articles, and reminds his patrons that five minutes' walk from the above station will bring them to his nursery.

Address, CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

DOBSON'S UNEQUALLED SEEDS FOR PRESENT SOWING.

CALCEOLARIA, splendid mixed; all hybridized. Our collection of 12 plants gained the First Prize at the Crystal Palace, beating eight other collections, and the First Prize at the Regent's Park June Show; we can recommend the seed with the greatest confidence. 1s. 6d., 2s. 6d., 3s. 6d., and 5s. per packet.

CINERARIA, fine mixed, 1s.

PANSY, from the best varieties, 1s., post free.

JOHN DOBSON & SON, Seedsmen, Woodlands Nursery, Isleworth, W., and High Street, Hounslow, W.

PELARGONIUMS.

J. DOBSON & SON beg to announce that their NEW DESCRIPTIVE CATALOGUE of Pelargoniums (including Beck's splendid New Varieties), Pansies, Cinerarias, Fuchsias, and Dutch Bulbs, will be published in a week or two, and may be had, post-free, on application. A few specimen plants of Pelargoniums, acknowledged favourites, to be disposed of to Amateurs for Exhibition, names and price on application. Woodlands Nursery, Isleworth, W.

CHOICE NEW FUCHSIAS, VERBENAS, AND PETUNIAS, OF 1857.

FUCHSIAS.—Albert Smith, Adonis, Antagonist, British Queen, Cœur de Lion, Cedo Nulli, Catherine Hayes, Etoile du Nord, Fairest of the Fair, Little Bopeep, Lord Palmerston, Marchioness, Marquis, Miss Bailey, Princess Royal, Royal Victoria, Star of the Night, Souvenir de Chiswick, the Fair Oriana, the Little Treasure, Tristram Shandy, the Silver Swan, and Una. The above 2s. 6d. to 3s. 6d. each, 6 for 12s., or 12 for 22s.

VERBENAS.—Attraction, Angelica Kaufmann, Brightonia, Cupid, Crimson King, Dazzle, Evening Star, Lady Palmerston, Lady Frederick Fitzroy, Lady Turner, Lady Albina Foster, Lord Lyons, Marmion, Mrs. A. Mildmay, Magnet, optima, Prince of Wales, Prince of Oude, Prince of Prussia, Queen of Oude, Rosy Gem, Sir Joseph Paxton, Sims Reeves, Scarlet Gem, Venus; also the following new continental varieties, Andromaque, Calypso, Evelina, Gaspard Dozin, Julie de Courcelle, Madame Turner, Madame Morel, Madame Casille, Phœbus, and Sire de Franc Boissy. Selections from the above Verbenas, 8s per dozen.

PETUNIAS.—Little Nell (Smith's), Rose of England (May's), Eugenie, Cygne de Cambrai; the four following are double—Gloire de Lyon, La Messange, La Perfection, and Polydore: 1s. 6d. each, or the set of 8 for 8s. Plants of any of the above collections free by post when the order amounts to 5s. and upwards.

HY. WALTON, Edge End, Marsden, near Burnley, Lancashire.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country. We exhibited a few Plants at the Horticultural Rooms on Tuesday, and we have no doubt Dr. Lindley's opinion of it will be found in the report of that Meeting.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

	Each.—£	s.
For a single plant in 48-sized pot	0	15
Ditto ditto, extra strong	1	1
Six ditto ditto, smaller	3	3
Twelve ditto ditto	5	0

Knap Hill Nursery, Woking, Surrey.—July 25.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

ROSES.

THE SUBSCRIBER begs to inform Admirers of ROSES who may visit the Lake district that an extensive collection of all the most popular sorts are now in full bloom, and will continue so for some time. They may be seen daily, Sundays excepted.—JOHN GRIER, Waterhead Nursery, Ambleside, Westmorland, July 25.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, Edinburgh, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1s., 2s. 6d., and 5s. packets. Discount to the Trade in quantities.

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7s. 6d. each.

N.B. Every order will be sent free in London till the end of August.—A. VERSCHAFFELT, Nurseryman, Ghent, Belgium.

STRAWBERRIES.—Underhill's SIR HARRY warranted true, for which was awarded a Certificate of Merit, as exhibited last week at the Horticultural Rooms, Regent Street; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Sons, Covent Garden, London. R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised; he can supply strong well rooted plants to any extent the first week in August, price 20s. per 100, or 4s. per dozen; also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.

St. Ann's Square, Manchester.

HUGH LOW & CO. have now ready for distribution their Catalogue of Plants, Trees, Shrubs, etc., for present Season. It extends to 71 pages, printed in small type in double columns, and will be found to contain very Complete Collections of Stove, Greenhouse, Orchidaceous, and Hardy Plants; Ferns both Hardy and Exotic, Camellias, Azaleas, Ericas, Conifers, Fruit Trees, and Florist's Flowers. Special attention is invited to the List of Seedling Coniferous Plants, as it contains a large number of rare kinds, probably more than have ever been before offered at any one time. In the List will be found Abies amabilis, A. bracteata, A. grandis, A. Pinsapo, Cupressus Lambertiana, C. macrocarpa, Pinus insignis, P. radiata, P. Fremontiana, P. macrocarpa, P. monticola, Wellingtonia gigantea, many of which can be offered by the hundred or thousand. The Catalogue will be sent post-free on application.—Clapton Nursery, London, N. E., July 25.

EXOTIC FERNS.

JOHN HALLY, NURSERYMAN and FLORIST, Blackheath, having a stock of the undermentioned choice kinds of Exotic Ferns, begs to offer well established Plants at the annexed prices:—

	each—s. d.
Gymnogramma Peruviana argyrophylla .. 5s. to	7 6
A few extra strong plants of ditto	10 6
,, chrysophylla (true) ..	3 6
,, ,, Martensi ..	3 6
,, pulchella	5 0
,, tomentosa	2 6
,, tartaria	2 6
Asplenium Belangeri ..	3 6
Hemionitis cordata ..	3 6
,, palmata ..	2 6
Doreopteris pedata ..	5 0
,, Collina or Geranifolia	2 6
Nephrolepis acuta.. ..	3 6
Neottopteris vulgaris (Birds' nest) broad-leaved variety	5 0
Adiantum macrophyllum	3 6
,, trapeziforme	5 0
,, tenerum (extra strong)	5 0
,, concinnum	3 6
Aspidium trifoliatum ..	2 6
Anemidictyon phyllitides	2 6
Darea diversifolia	2 6
Blechnum Corcovadense .. .. 2s. 6d. to	5 0
Cænopteris Cicutaria ..	2 6

SEED OF JOHN CATTELL'S very superior CALCEOLARIA, CINERARIA, GERANIUMS, &c., should be sown now to produce a fine show next season. They may be had in packets, post free, at the prices annexed. Post-office order or postage stamps to accompany all orders from unknown correspondents.

	s. d.
Calceolaria, extra fine, first quality	2 6
,, showy, second quality..	1 0
Cineraria, from all new varieties	2 6
,, from a first-rate collection	1 6
Geranium, from first rate florist varieties	1 0
,, from new French varieties	1 0
,, from Fancy do.	1 0
Mimulus, extra fine, mixed	0 6
Sweet William, extra fine, dark	0 6
,, ,, mixed	0 6
Viola suavis (this very sweet and hardy early Violet may be sown now in the open ground)..	0 6
12 varieties very showy hardy Annuals, for flowering in the greenhouse	2 6
25 do. do. for early flowering in the open ground ..	4 6
12 do. Half-hardy Annuals for early flowering	3 0

Very superior German Ten-week Stocks, of various classes, in assortments: separate, from 2s. to 6s. per assortment.

Do. do. mixed, 1s. to 1s. 6d. per packet.

Address, JOHN CATTELL, Westerham, Kent.

SUPERB DOUBLE HOLLYHOCKS.

SAFFRON WALDEN NURSERY.

WILLIAM CHATER begs to announce that his unrivalled collection of these fine flowers are now in bloom. Open to the inspection of all Visitors on every day excepting Sundays.—Saffron Walden, July 25.

CALCEOLARIA, CINERARIA, AND SWEET WILLIAM.

WILLIAM BARNES again offers Seeds of the above kinds, the two former 2s. 6d., and the latter 1s. 6d. per packet; all saved from the most beautiful and rare kinds in cultivation. A remittance is expected from unknown correspondents.—WM. BARNES, Camden Nursery, Camberwell, S.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—July 25.

HOLLYHOCKS AND ROSES.—The Hollyhocks at the Cheshunt Nurseries are now finely in bloom, and present a display of richness and beauty scarcely attainable in any other flower. These combined with the AUTUMNAL ROSES, of which some acres are in bloom, would amply repay a visit of inspection.

A. PAUL & SON, Nurseries, Cheshunt, Herts, one mile from Cheshunt Station, Eastern Counties Railway.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Monarch, Clarissa, Cupid, Mrs. B. Stowe, Miss Trotter, Brightonia, Scarlet Gem, Magnet, Venus. 12 from any of the above 8s., free by post; less quantity than 12, 1s. each; 40 finest sorts of 1856, 4s. per dozen, free by post.

Address HENRY MAY, The Hope Nurseries, Bedale.

CALCEOLARIA SEED.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his new CALCEOLARIA SEED will be ripe by the middle of August, from which time to the end of the month is the best time for sowing for an early spring bloom. The Seed, as usual, is saved from H. M.'s unrivalled collection. Price per packet, 2s. 6d.; or three for 5s. post free. Postage stamps in payment.

FINE ANNUAL—SILENE PSEUDO-ATOCION.

JAMES BLACKHOUSE AND SON intend to send out this beautiful Annual during the ensuing season, in packets at 1s. 6d. each. It blooms very early, and forms branching tufts 6 to 12 inches high, adorned with a profusion of vivid rose-coloured flowers, ¾ of an inch across. It will prove a welcome addition to the Flower Garden.—York Nurseries.

CABBAGE FOR EARLY SPRING CUTTING.

THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. It may be sown any time in July without running to seed. Seed 1s. per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free

Royal Berks Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, JULY 25, 1857.

A GARDENER IS WANTED to take charge of the garden and farm on the ISLAND OF ASCENSION. He must know something of stock—there being hundreds of sheep, as well as horned cattle and horses to look after. Wages 100*l.* a year, with rations and a house. He may be married. Apply immediately *by letter only* to Professor LINDLEY, 21, Regent Street, London, S.W.

DURING a short residence in Paris we had an opportunity of visiting the annual exhibition of the Société Impériale et Centrale d'Horticulture, which was held in the Palais d'Industrie, and opened to the public on payment of a franc for admission on the 21st of May. From that time to the 5th of June it continued to be a source of attraction, and was visited by most of the fashionables in Paris, as well as by many of those who usually frequent the gay and crowded promenades of the Champs Elysées. Although *fêtes* of this description, as at present conducted, are of far too quiet a character to suit the French taste, still it is gratifying to find they are not altogether overlooked or neglected. With a little exertion on the part of those at the head of affairs, we are inclined to think they might be made as popular as they are in London, and be productive of the same good results. On this occasion it was evident that great pains had been taken to render the exhibition attractive. The central portion of the Palace, comprising a space of about 200 yards in length and 50 yards in breadth, was made to resemble an English pleasure garden—laid out in the manner we have shown in the sketch in next page.

The whole was surrounded by a belt of evergreens, which in this instance was formed entirely of young Scots Fir trees of from 10 to 15 years' growth, planted so close together as to conceal the part underneath the galleries. The space thus enclosed was covered with—what is in France a very rare commodity—nicely mown turf, through which several winding broad gravel walks were carried for the purpose of enabling the visitors to inspect the various plants and flowers that were arranged in groups on both sides of them. Opposite the entrance was a fountain surmounted by a huge eagle, beneath which the water issued and fell over some rocks into a miniature lake below, the latter extended for some considerable distance along the

E. G. HENDERSON & SON'S

ILLUSTRATED BOUQUET,

Price Ten Shillings and Sixpence, post free.

CALCEOLARIA, CINERARIA, AND PRIMULA SEED,

SAVED FROM THE BEST VARIETIES IN CULTIVATION.

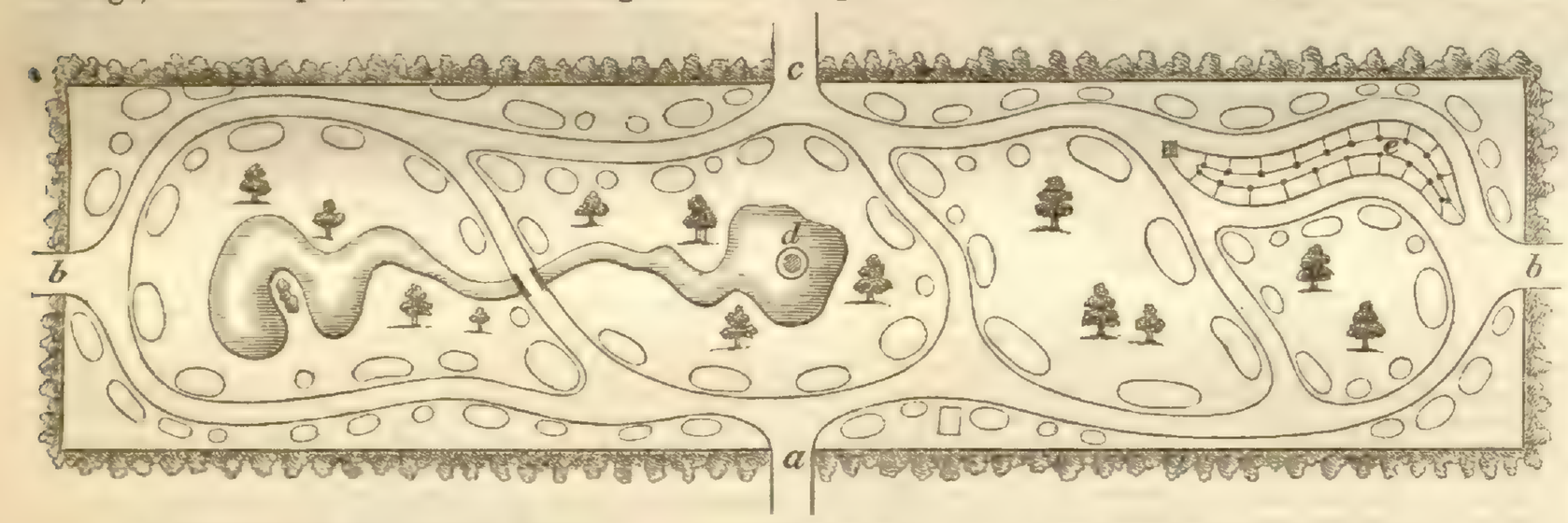
CINERARIA—Small packets, 2s. 6d.; large do., 5s.
CALCEOLARIA—Extra choice, small packets, 2s. 6d.; large do., 5s.
PRIMULA SINENSIS FIMBRIATA—Mixed or separate colours, white and crimson, 2s. 6d. per packet.
The NEW GOLDEN HAMBURGH GRAPE is now ready, price 21s. each.

VERONICA SYRIACA

Has been blooming to perfection for the last three weeks. Any admirers of Annuals would be gratified with the sight of a border 12 inches in width and 140 feet in extent, covered with the above pretty little Lobelia-like plant, the height of which does not average more than 4 inches. It forms one mass of flowers, and early in the morning and towards evening the flowers partially close. The Linum grandiflorum rubrum is now splendid; a bed 40 feet by 5 has been for some weeks in perfection, and promises to continue so most of the summer. Both the above Annuals were sown broadcast.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

centre of the supposed garden, and in one place was crossed by means of a rustic wooden bridge covered with Ivy, while here and there its banks were ornamented with such plants as *Phormium tenax*, and large masses of *Osmunda regalis*, one of the most beautiful of our British Ferns. Over the lawn were distributed various Coniferous plants, among which a pretty specimen of the graceful *Juniperus recurva* was an object of general admiration. Altogether the design, quite a novelty in its way, was extremely well executed, and the picture produced by means of the judicious grouping of the plants in flower had a pleasing effect and seemed to give great satisfaction. But with regard to the exhibition itself, we must confess we were much disappointed. Under an impression that the French were very ingenious and clever gardeners, we expected to have seen at this meeting some good examples of their taste and skill as cultivators. Instead of which there were only a very few things that would have been considered worthy of being "staged" at any horticultural exhibition in England. Among these may be mentioned a nice collection of prettily-trained Indian Azaleas from M. KUMMER, gardener to the Baron JAMES DE ROTHSCHILD. The show of fruit and vegetables was equally meagre. Of the former there were some small Pine Apples, Grapes, Cherries, and Strawberries, all in pots, with two or three samples of Figs, cut Grapes, and several large scarlet-fleshed Melons; the whole put together were far inferior to the beautiful collections of fruit that are daily to be seen in the windows of VEFOUR, or VEREY, the well-known restaurateurs in the Palais Royale. The vegetables comprised Cauliflowers, Cabbages, Lettuces, Leeks, Carrots, Potatoes, Turnips, Artichokes, and Beet-root, none of which were in any way remarkable for size, or worthy of notice as examples of good cultivation. The three first mentioned were planted in the ground so as to show them as if growing in their natural state, while the roots were arranged in separate groups over the space allotted for them, apparently without any attempt having been made at showing them to the best advantage. In this department one of the most interesting objects was *Dioscorea japonica*, of which there were some very fine specimens in all its stages of growth—from that of a tiny bulb to a root nearly 2 feet long, and somewhat larger than an ordinary sized Parsnip. There was also a box containing flour prepared from the roots of this plant, as pure and white in appearance as if it had been obtained from some of our best kinds of Wheat. As the climate and soil of many parts of France seem to be well adapted for the growth of this valuable root, we think it highly probable that at no distant period it will become of great importance for general cultivation as an article of food, and be as much esteemed for its nutritious qualities as the Potato. Behind the vegetables numerous fruit trees in pots were placed for the purpose of showing different modes of training them. A few were rather fanciful, but there were many very good examples of well trained trees that we thought might be advantageously copied by those interested in pot culture.



a Entrance from the Champs Elysées. *b b* Gates for exit. *c* Entrance to Refreshment Room.
d Fountain. *e* Vegetables, and trained fruit trees in pots.

New Plants.

202. SENECIO TAGETES.

S. (*Mexicanus*) volubilis, suffruticosus, glaber aut pubescens, caule striato, foliis petiolatis ovatis basi rotundatis denticulatis vix angulatis, cymis polycephalis, involucro pubescente, ligulis radii circiter 14 aurantiacis, achæniis pubescentibus, receptaculo alveolato.

A plant of this apparently beautiful new climber has been raised in the Chiswick Garden. It has slender furrowed half shrubby stems, leaves of an ovate form, slightly toothed, and about as large as those of Fuchsia globosa. The flowerheads grow in cymes 2 or 3 inches across, and have rays of what seems to be a brilliant orange or perhaps Marigold colour. This is however somewhat uncertain, the plant not having flowered, and the above description having been drawn up from dried specimens received from Mr. Skinner, who is the discoverer of the species. Large as the genus Senecio is we can find none to which this is referable. Its nearest approach seems to be to *S. volubilis* and *Bogotensis*. The Garden plant is smooth in nearly all its parts, and so are two of our wild specimens; but it also has a coarsely downy form.

ON THE NORTHERN LIMITS OF BARLEY CULTIVATION.

(From A. de Candolle's Géographie Botanique.)

The two alimentary plants whose cultivation is carried furthest towards the Pole are the Barley and the Potato; and of these the Barley is the most interesting, because of the antiquity of its culture and the paucity of its varieties, while its limits are both better defined and more constant. Barley may be sown both in autumn and in spring, but rarely at the former season, at least towards its polar limits. Thus at the Feroe Islands, in Sweden, and Lapland, the seed is planted as soon as ever the ground is ready for it in spring.

Barley cultivation has been unsuccessfully attempted in Iceland, in sheltered southern spots; though it would appear that its climate was not always so unfavourable as it now is. Thus there is a place called *Akra-fiel* (Field of (Wheat) in that island; and Wheat was cultivated in the 10th century according to the ancient Sagas in certain specified localities. It is not however surprising that the physical conditions should have changed in a country exposed to violent volcanic disturbances, and in immediate proximity to the polar ice. It is, indeed, possible that success may have attended the cultivation, if pursued with intelligence during a series of years and with well selected varieties of grain. Since 1815 better directed attempts have been made than during the last century, but there is no proof of greater success. M. Rudolph indeed draws the northern limit of Barley cultivation through Iceland, but the naturalists attached to the expedition of "La Recherche," who visited that island, pronounce the cultivation of Barley to be impossible, and add that the Potato grows no larger than a Nut.

It is well known that the Barley (*Hordeum hexastichon*) is cultivated in the Feroe Islands, even up to 100 metres above the level of the sea; it is sown in April and rarely advances to maturity, the seed being brought from Denmark. On the North-West extremity of the European continent Barley cultivation advances to the 70th parallel. Charles Martins says, that all cultivation ceases at Hammerfest (70° 40′ N.), Elvbaken (70° N.) being the extreme limit. At Alten (70° N.) Barley (*Hordeum vulgare*) is cultivated, and rarely elsewhere in that parallel; but lat. 66° must be descended to before the cultivation of cereals becomes general along the Norwegian coast.

In Swedish Lapland Barley, according to Wahlenberg, reaches lat. 69° 40′. At Enontekis (lat. 68° 30′) it only ripens once in three years according to Schouw; and M. Marmier says that when he was at Muonioniska (68° N.) the Barley ripened for the first time in seven years.

On Besser's authority the cultivation of Barley in Finland extends to 67° 30′, or one degree to the north of the polar circle.

In Russia the limits of cultivation are still further south, but the population is so scattered that it may not be carried so far north as is possible. Meyer in 1830 states that towards Archangel agriculture is scarcely pursued up to the 65th degree, since which time however it must have advanced, for according to Trautvetter (a good authority), Barley cultivation was carried on in 1851 at Mesen, lat. 65° 30′, north of Archangel, and proceeding eastward at Ishemskaia it passes 64½°, and towards the Ural 64¼°. At Mesen it is sown in the beginning of May and harvested in August.

In the north of Siberia the limits are less known, chiefly owing to the scanty population and want of experiment. According to Pallas and Georgi, Barley and Oats alone are cultivated at Samarof (lat. 70° 36′), and near Surgutt (lat. 61° 25′) the attempts had been obliged to be discontinued owing to the badness of the results.

At Bogosvolsk, a mining establishment in the Ural (lat. 59° 45′), at a considerable elevation, it was supposed to be impossible to cultivate cereals, or even Cabbages and Radishes; but the population is scanty and otherwise occupied, and probably sufficient attempts have not yet been made. At Beresow, on the Obi, lat. 63° 55′, Barley succeeds well. In central Siberia, near Yakoutsk, Barley is grown on the banks of the Wilvim, an affluent of the Lena (lat. 64°), and below 61° Cerealia are commonly cultivated.

On the eastern coast of Kamschatka, even as low as lat. 53° 1′, the climate allows of no cereals being grown, and at St. Peter's and St. Paul's, in localities sheltered from the sea winds, the cultivation is confined to Potatoes and some Legumes. This is however probably due to the wet coast winds, for in the interior of the peninsula Steller mentions that Barley is cultivated by the monks of a convent.

In Unalaschka very small Potatoes alone are grown, and on the N. W. coast of America the wet lands are opposed to any cultivation north of the Oregon, but data are wanting regarding the efforts made at the scattered establishments along that coast. According to Malte Brun (who gives no authority), Rye and Barley are grown at Sitka, lat. 57°; and in Bongard's memoirs on the vegetation of Sitcha, it is stated that Wheat will not thrive, and that the soil is not suited for cultivation.

In Labrador, at Anse-à-loup, lat. 49° 57′, Wheat will not ripen, but Potatos, Cabbages, Lettuces, Spinach, and early Turnips flourish. The Potatoe cultivation here would indicate this to be the northern limit of Barley also.

(To be continued.)

MEXICO AND ITS CONIFEROUS PLANTS.

[WE have received the following from Messrs. Roeszl & Company, of Napoles, near the city of Mexico, together with a catalogue of what they regard as new Conifers, discovered in that country by Mons. B. Roeszl, "formerly employed in the garden of Count Thun at Tetschen, and of Baron Charles v. Hugel in Vienna; afterwards head gardener to Count Powlikowsky at Medica in Gallicia, and to Count Leopold Podstatsky Lubhlenstein in Moravia, and then at the plant department in the Horticultural establishment of the Belgian Government." According to this catalogue no fewer than 86 new species have been discovered and are offered for sale in Europe. As we have seen no specimens whatever, we can say nothing about the exactness of this statement.]

My object in writing the following article is not by any means to describe the Conifers of Mexico, but to induce botanists and gardeners in Europe to change their opinion that these plants are not hardy. This opinion is no doubt based to a certain extent on experience, inasmuch as of all the species yet introduced into Europe, there are only the Abies religiosa and Pinus patula which can support the winters of England, Belgium, France, Southern Germany, &c. I should even have doubted whether the last named plant was hardy enough for this, had it not been for an article in the *Gardeners' Chronicle* for February, 1849, in which it is said to be so. I should have doubted, because the Pinus patula was found by M. Roeszl on the table land of Mexico, at an altitude certainly not exceeding 7000 or 8000 feet, although M. Hartweg found it in some places a little higher. [This statement by no means represents the facts concerning the Mexican Conifers. Pinus Lindleyana is as hardy as a Scotch Fir.]

Mexican Conifers are admitted to be extremely interesting in a scientific point of view, and very magnificent in houses of a sufficient size to hold them, but unfortunately they are of little other use in Europe owing to their tender nature, which wholly unfits them for planting in the open air. I know that this is more particularly true of the genus Pinus, but after all what do Europeans know of Mexican species of Pinus? They are only acquainted with a very few, 20 at the outside, and almost all of these grow at an elevation of from 3000 to 8000 feet. The species which grow on the gigantic mountains which enclose the valley of Mexico, on the Nevador de Toluca, in the Sierra, &c., have not only not been introduced into Europe, but are not even described in botanical works! I have searched in vain for them in the works on Conifers to which I have access, and more especially in the excellent "Traité général des Conifères," published in 1855 by M. Elie Abel Carrière; and I cannot find any notice whatever of plants possessing the character of the Taeda tribe, with ternate leaves and black violet cones, and which are to be found growing at the extreme limit of vegetation on the volcanoes Popocatepetl and Istacihuatl, at an elevation of 13,000 or 14,000 feet.

No trees, however, can be of greater importance in Europe than Pinus resinosa, scoparia, Istacihuatl, Standishi, Amecaensis, Papelini, and Aculcensis. These are of a gigantic size, 120 or 150 feet high, and even more; one which was blown down, and was not by a great deal one of the largest, measured 123 feet in length, and 16½ in circumference at its base. Straight as an arrow, and with a magnificent green, stiff, and very much tufted foliage, these trees are most desirable for ornament, and their hardy nature is not open to question. Their wood, moreover, is of very superior quality, and the resin of a single tree is estimated to be worth 8*l*. or 10*l*. Here the value of resin is about 12.50 francs per quintal.

The only species of the tribe of Strobus which is known in Europe is the Pinus Ayacahuite, which is found in the provinces of Chiapas and Oaxaca. It is said by M. Carrière to be hardy enough to bear the winters of some of the central departments of France, but I rather doubt it, as it grows in a warm soil. But there are plants of this kind which are everything that can be desired, whether for gardens or plantations. Take for example the magnificent species Popocatepetl and Veitchi which grown on the east slope of Popocatepetl at a height of 11,000 or 12,000 feet at least; the Don Pedrii and other nearly allied sorts which grow

near Tenancingo at a height of 7000 feet; and the Pinus Lindlevi and several others which grow on the Sierra, next Zacatlan, at a height of 7000 or 8000 feet. All these trees have an admirable general appearance, are of immense size, very branching, with glaucous leaves almost as beautiful as those of the Deodar and of Pinus excelsa. Their wood, moreover, is superior to that of other Pines; the Indians call it *palo fino* (fine wood), and they say it will bear exposure to heat and wet for several months without splitting, and that it is never attacked by the worm.

Besides these there are quantities of new species of the tribes Taeda, Pseudo-Strobus, and Pinea, nearly all growing on the highest mountains of Mexico and bearing cold of 50° or 60° Fahrenheit, in a climate where the days are very hot, even in winter, and at great elevation. This leaves no doubt that these trees would stand the winters of Central Europe.

M. B. Roeszl & Co. of Mexico are making collections of seeds of all the Mexican Conifers, and have already published a catalogue of them, with a view to sale. The catalogue includes a great number of new and perfectly hardy species of Pinus and a Tsuga, the first which has been found in this country. Let us hope that these gentlemen will succeed in rendering the cultivation of Mexican Conifers more common in Europe, and that no long time will elapse before they are admitted to be not only amongst the most beautiful of their class, but also of great utility and perfectly hardy. *C. Besserer.*

HOW A PRODIGIOUS COCKSCOMB WAS OBTAINED.

AT an October meeting of the Horticultural Society held some 37 years ago, the late Mr. T. A. Knight showed a Cockscomb whose flower measured 18 inches in width and 7 inches in height from the top of the stalk; it was thick and full and of a most intense colour. This, he stated, might be considered a fair sample of all that he grew the year in which it was shown, two of six having been larger, and two somewhat smaller. The way in which these plants were grown is thus described by Mr. Knight in the Transactions of the Society, Vol. iv., p. 321.

"I have treated them," he says, "precisely as I do my Pine Apple plants, having in some respects a similar object in view, for in both a single fruit stalk of great strength is requisite, the protrusion of which should be retarded as long as possible consistently with the rapid growth of the plant. The compost I employed was the most nutritive and stimulating that I could apply, consisting of one part of unfermented horse-dung, fresh from the stable and without litter, one part of burnt turf, one part of decayed leaves, and two parts of green turf, the latter being in lumps of about an inch in diameter, to keep the mass so hollow that the water might have free liberty to escape and the air to enter. Manure was also given in a liquid state by steeping pigeon dung in the water, which was given very freely. The plants were put, whilst very small, into pots of 4 inches diameter and 3 inches deep. As soon as their roots had reached the sides of the pots, and before they had come in any degree matted, they were transplanted into pots of a foot in diameter, and about 9 inches deep. Particular attention was paid to the state of the roots, for I have reason to think that the compression of them in the pot has under all circumstances a tendency to accelerate the flowering of plants.

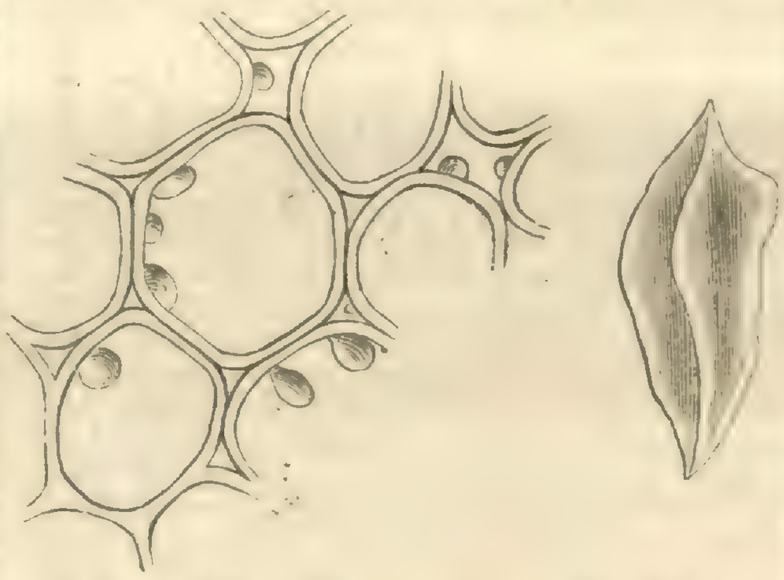
"Under this mode of treatment the plants become large and strong before they showed a disposition to blossom; they usually divide into many branches (as the Pine Apple plant will also do) which will greatly injure them if due attention be not paid to remove the side branches when very young. My plants were at all times so placed that their leaves reached within a few inches of the glass, and they were subjected to the same heat (from 70° to 100°) during the summer as my Pine Apple plants.

"The seeds of the plants which I raised in the present season (1820) were not sown till too late in the spring, and if I were to repeat the experiment I entertain no doubt of producing much larger flowers than the one under notice, for the variety I believe is of superior excellence. It affords seeds very sparingly."

[We reprint this paper in consequence of inquiries into the method of originating improved races. A figure of the wonderful Cockscomb, the production of which is thus described, now hangs in the Library of the Horticultural Society.]

VEGETABLE PATHOLOGY.—No. CLXVII.

378.** HYPERTROPHIA (*Excessive development*). A curious case of the preternatural development of parts of the medullary cellular mass in the stems of Broccoli is figured in *Gardeners' Chronicle*, 1853, p. 324, and is well represented in the annexed woodcut. At first sight, on a mere comparison of the figures, the case resembles in some measure that of those decayed Turnips in the cavity of which buds are developed into bleached leaves, somewhat after the fashion in which new tubers are occasionally produced within the cavities of decayed Potatoes. In such cases the buds break internally rather than externally, from the moist cavity presenting at the time a more congenial medium for their development than the dry external air. They "force themselves in fact backwards and inwards, as if in the direction of the source of food." See *Gardeners' Chronicle*, 1849, p. 150. The processes however within the decayed Broccoli stems of which I speak are entirely different in their origin. The decay attacking the medullary mass in vertical lines, the intermediate sound tissue is developed by a sort of hypertrophy into triangular winged processes of a pure pearly white resembling in form the Achænia of a *Tripteris*. These processes, though surrounded by decayed tissues and sometimes bathed in a watery fluid which gushes out on the division of the stem, have not in any part the slightest trace of that brown tint arising from the presence of humates and ulmates which is so common in vegetable disease. They seem indeed to arise from the same sort of reaction as that which in the animal world sometimes successfully gets rid of diseased structures which are in contact or connection with those which are still sound. These processes are at length perfectly isolated, but their connection above and below with the rest of the diseased tissue is at first clearly visible. As in most if not all hypertrophied organs the cells are loosely connected, and the intercellular passages very large, and both in these and in the cavities of the cells themselves pearl-like bodies project from the walls. In the Laurels of Madeira club-shaped bodies are developed from the bark, which have been described as a species of *Clavaria* under the name of *C. Lauri* by Brotero, in his Flora Lusitanica. I have, however, merely seen the specimens unconnected with the surrounding tissues, and can say nothing about their origin, though they are certainly no fungi. The most singular case of hypertrophy with which I am acquainted is one figured by Miquel in Linnæa, vol. xxvi., p. 285. The specimens occurred at Batta in Sumatra, both on the old and young shoots of large trees belonging as is supposed either to *Sterculia*, *Byttneria* or *Tilia*, but are smaller and more delicate when they arise from the last year's shoot. They spring uniformly from the axil of some leaf, in which there



are no remains of any bud. Below they are cylindrical, but soon divide and are repeatedly dichotomous, being convex below and deeply concave above, with forked or obliquely truncate tips. They are moreover clothed below with hairs resembling those on other parts of the plants, and have a distinct bark, liber, and alburnum, delicate medullary rays with dotted ducts in the interstices, and beyond the wood a distinct pith. It seems, in fact, to be an hypertrophy of the axis of the bud which divides in such a manner as to expose the pith throughout every ramification. Not a trace of insects has been at present observed on any of the specimens. The rough and almost spinose balls which occur on *Hopea Wightiana* appear to present another case of hypertrophy, and it is possible that some curious crisped expansions which resemble the genus *Sparassis* rather than *Clavaria* from their having scarcely any tendency to become blanched, and which were gathered by Dr. Hooker on a species of *Hydrangea* in Sikkim, may belong to the same category. The hypertrophies known under the name of galls, and which are confessedly the production of insects, are treated of in another place. *M. J. B.*

Home Correspondence.

New Double Canterbury Bell.—At the desire of the committee of the Lincoln Horticultural Society, and by the express recommendation of the gentlemen who acted as judges at their July show, I take the liberty of forwarding to you the enclosed blooms of a seedling Campanula, or double Canterbury Bell, which I originated, and there exhibited. It obtained from them the following favourable notice—"highly commended by the judges," who I understand were pleased to say they had not hitherto seen anything of the genus Campanulacea equal to or like it. Will you therefore have the goodness to favour me with your opinion as to its originality and desert? and should you deem it worthy of notice, I will gladly furnish you with any particulars as to the mode I pursued in bringing the plant to its present condition. Presuming on its originality, do you see any objection to its being named after me, "Campanula Bromeheadiana?" *W. Bromehead, Vicar of Bracebridge, near Lincoln.* [This is a very fine double blue Canterbury Bell. We have seen nothing so large before. Its proposed name should be preserved in honour of the raiser, who we trust will favour us with some account of the way in which he produced it.]

Purple Beeches from Seed.—Observing in your Journal of last week a discussion on the degeneracy of fruit trees, my attention was arrested by a paragraph, in which you state that all Purple Beeches are propagated by grafting. I am not surprised at this assertion, because I have been repeatedly told by experienced nurserymen that they cannot be propagated by seed. I have now growing in a nursery belonging to the Earl of Portsmouth (which I superintend) upwards of 60 seedlings of the purple kind; I could command a host of witnesses to attest this statement, "but as facts are stubborn things," I herewith enclose you one as a specimen and a fair example. *C. Taylor, Forester, Hurstbourne Park, Whitchurch, Hants, July* 15. [We are quite aware of the fact that what are called Purple Beeches are raised from seed; but all such that we have ever seen are Copper Beeches, a very inferior variety. Doubtless a chance seedling may be as purple as its parent, but that is very uncertain.]

Wellingtonia.—As we have little experience of Wellingtonia gigantea, I may tell you that having planted a lot out in the park, I was looking at them on the 1st of June; and measured one that seemed to be growing satisfactorily. It was 28 inches high. I measured it again Sunday se'nnight, and it was 40 inches; and again yesterday, and it was 43. *C. L., Sussex.*

Pigstye Hotbed.—Can any correspondent give me information respecting the fate of a scheme I remember 40 years ago in Germany for employing pigs to produce bottom-heat? The plan was to build a common chambered brick pit, glazed in the usual manner, and filled with earth placed over the vault of the chamber. In this vault, to which access was gained by a door at one end, pigs enough were kept to maintain warmth by the natural heat of their bodies. They said the pigs throve as well as the plants. *Ludwig.* [There is we think some account of the plan in the German Garten-Magazin about the year 1819 or 1820; but we have no information respecting it. What became of Mr. Lawford's Vacca-vinery, a scheme of the same kind?]

Washington Plums.—I observe that these were exhibited from her Majesty's Garden at the last meeting of the Horticultural Society. I have a large tree of that kind which appears to be in vigorous health, and bears every year an immense quantity of bloom and scarcely any fruit; not more than two or three ripen on the whole tree, and they are so delicious as to make me regret they are so few. Can you tell me how to make the tree more fruitful, or why after so much flower year after year there is so little fruit? *J. C. H. S.* [You do not give us the elements out of which an opinion can be formed. Probably the bloom is killed by cold.]

Sweet Williams.—I shall be glad if you can inform me if the double Sweet William which I send herewith is new? I believe it to come from some seed which I sowed two years ago, but as I got from a nursery at Nottingham about the same time, among a promiscuous lot of plants, one which from the name I guessed might be one of this tribe, I cannot be certain without making this inquiry. If new I should be obliged by your opinion of its points. It seems to me to be very good both as to form and colour. The heads I send are small for the convenience of package. [It is a very handsome double deep crimson fringed sort, unknown to us.] I also inclose a Campanula which I met with in a friend's garden a year or two ago, and afterwards saw growing wild in the fields at Chamouni and other places in Switzerland. Can you name it? I find it a very pretty and useful border flower growing from 1 to 2 feet in height, and after being cut down, the short autumnal growth remains green during the winter. The older roots are fleshy like a Dandelion. [This is Campanula rhomboidalis.] I take this opportunity of inclosing an abnormal growth of the common Plantago. I suppose it is only another illustration of the physiological relation which is known to exist between the leaf and the petal. [Yes. It is the viviparous state of Plantago major.] *C. J. Darbishire.*

Original Ribston Pippin Apple Tree.—In reply to your correspondent's rather obscure question in last week's *Gardeners' Chronicle* respecting this tree, the purport of which I take to be to ascertain if the tree we now have in the park is really a portion of the original tree or not—if such be his question, I beg to inform him that the present tree is really and truly a portion of the original, it having been a side shoot from the original stem put forth just below the surface of the soil, and not a sucker, as has been erroneously stated. If this reply does not meet your correspondent's question, I beg to refer him to the last number of the "Florist and Fruitist," where he will find the subject treated of more fully. *Thomas W. Abbott, Ribston Park, Wetherby, July* 20.

Seedling Fuchsias.—Allow me to observe that I do not recognise the justness of your correspondent's remarks in reference to very many of the seedling Fuchsias sent out some few years past. I admit that there are exceptions; but that all are as he would have us believe, absolutely worthless, compared with older varieties, I for one cannot accept. There must, I think, be some mistake in the matter. I do not profess to be a raiser of Fuchsias (although I have done so on a small scale), but I do consider that as a grower and an admirer of the plant in question, I am a tolerably good judge of their respective merits, and admitting that many are annually sent out of no real worth when compared with established favourites, there are those which, if judgment be used in their selection, cannot fail to please even the most fastidious. Does your correspondent not consider the productions of that once indefatigable hybridist, the late Mr. Story, to merit the high appreciation which the floral public has bestowed on them? What says he to the best of these, and those of Mr. Banks, of Deal; most of these have been figured in the "Florist" or elsewhere? Has he really thrown or given away sorts in every way superior to them? If he has, he can be no very good judge. I am no in-

terested party directly or indirectly; but I do not approve of invidious attacks made from behind the bush. *George Fry, Lee, Kent.*

Early Peas.—In reference to Mr. M'Ewen's report on Peas I think he must have a wrong sort in No. 1. I have grown it every year with the Emperor since the first season in which it came out, and I have always found it about eight days earlier; in fact it is always just done by the time the other comes in. I frequently sow from 15 to 20 sorts of Peas on the same day on purpose to test them. Last year I sowed 17 sorts, and for general purposes I think Fairbeard's Conqueror will stand high as a first early. Dixon's Favourite, which is about as early as the Frame, appears to be a good kind, producing as many as 12 Peas in a pod, which must ensure a good supply. *Richard Rilott, Donnington, near Spalding.*

The subject of Deep Wells has been sometimes discussed in your columns. I have a well 325 feet deep, and the 12-gallon bucket actually weighs 40 lbs. For many years I used a chain weighing 232 lbs; this, with the water, itself 96 lbs., amounts to 481 lbs. I have made an enormous saving of labour by using for the last half year Newall's patent wire rope. Now, will any one have the charity to say from experience whether there could not be a great saving in the weight of the bucket. Would zinc, or gutta percha, or leather serve? The bucket must be strong enough to withstand being occasionally dashed against the side of the well. Or must I stick to my old substantial oaken friend? *C. D.*

Proliferous Stock.—I send you a curious "freak of nature" in a double white Stock. At first sight it presents nothing remarkable, but having watched its development I do not remember to have seen such a curiosity before. Early in summer it bloomed in the ordinary way; when the outer petals began to die off the centre of the flowers commenced swelling, and gradually formed lateral spikes of bloom; at the base of each is visible the ring from whence the petals dropped. The plant grew in a cold heavy soil under a north wall. *James Ridly, Hawkchurch, near Axminster, Devon.* [This is a case of flowers attempting to grow into branches instead of stopping to form their seed pods.]

Papier maché Insects.—Can you give me any information upon an extraordinary appearance which was found the other morning upon a papier maché tray which was lying on a writing table in the drawing room? There appeared all round the under side of the lip of the saucer shaped tray from 20 to 30 nearly invisible filaments, ½ inch in length, with small white egglike specks at the extremities. They project like little bristles, vibrate with the least breath, yet adhere very firmly. The saucer is 4 inches diameter, highly glazed or japanned, is in constant use, and dusted every morning, *P. W. M., Shirley, Croydon.* [These are evidently the stalked eggs of a Hemerobius.]

Societies.

Caledonian Horticultural: *June* 27.—The following is a report of the prizes awarded on this occasion. Shrubby Greenhouse Plants: 1st, Mr. Lockhart, gr. to R. Dundas, Esq., with Tetratheca verticillata and Aphelexis humilis. Mr. Lockhart also received the prize for Cape Heaths, the kinds produced being E. spuria and Cavendishi. Two Pelargoniums: 1st, Mr. Reid, gr. to W. Wilson, Esq., with Zara and Star (Beck's); 2d, Mr. Stewart, gr. to the Marquis of Dalhousie, with Attraction and Forget-me-not. Four Pelargoniums in 6-inch pots: 1st, Mr. Forrest, gr. to Messrs. Swan, with Carlos, Lucy, Sanspareil, and Wonderful; 2d, Mr. Henderson, gr. to C. K. Sivewright, Esq., with Fair Helen, Petruchio, Carlos, and Seraskier. Two Fancy Pelargoniums: 1st, Mr. Stewart, with decora and Queen Victoria: 2d, Mr. Reid, with Carlotta Grisi and Annette; 3d, Mr. Forrest, with decora and Lady Downes. Four Fancy Pelargoniums in 6-inch pots: 1st, Mr. Henderson, with erubescens, formosissimum, Celestial, and Criterion; 2d, Mr. Forrest, with Madame Sontag, Madame Van de Meyer, Lady H. Campbell, and Annette. Two Dark Fuchsias in 8-inch pots: 1st, Mr. Walker, gr. to J. Mood, Esq., with Prince Albert and Omega; 2d, Mr. Henderson, with Countess of Burlington and Prince Albert. Two Light Fuchsias in 8-inch pots: 1st, Mr. Walker, with Queen of Hanover and Maid of Kent; 2d, Mr. Henderson, with Maid of Kent and Venus de Medici. In Roses, the 1st prize was gained by M. Buist, Esq., Tynninghame, whose stand contained the following, viz.: Géant des Batailles, Baronne Prevost, Jules Margottin, Louise Peyronny, Charles Lawson, Devoniensis, Abricoté, Paul Ricaut, Reine des Fleurs, Triomphe de Paris, Adam, and General Jacqueminot. A second premium was voted to Mr. Stewart, for Great Western, Mrs. Rivers, Lanei, Elize Sauvage, Blanchfleur, Charles Lawson, Smithi, Cabbage, Duchess de Montpensier, Devoniensis, General Kleber, and Madame Humboldt. Phloxes: 1st, Mr. M'Farlane, with Barnton, Miss Lewis, Masterpiece, Rival, and a seedling named Mrs. M'Call, in the way of Abdel Medschid Khan, from which it had been raised. Calceolarias: 1st, Mr. Stewart, with Falstaff, Sir Walter Scott, George Shelby, and a seedling. Several extra prizes were offered by the office-bearers, the first of which (two sovereigns) for the best collection of Stove and Greenhouse Plants, was awarded to Mr. Blair, gr. to G. C. Arbuthnot, Esq. His collection included Tetratheca verticillata, Leschenaultia formosa, Epacris miniata, Mahernia incisa, Erica breviflora, ventricosa superba, and tricolor dumosa, Statice Halfordi, Pimelea decussata, Hoya bella, Ixora coccinea, Oncidium flexuosum, Aphelexis macrantha purpurea, Æschynanthus speciosus, and Clerodendron Kæmpferi. Extra productions placed on the tables for exhibition only were as follows:—From the nursery of Messrs. Dicksons & Co. were Pelargoniums, Gloxinias, &c.; from Messrs. P. Lawson & Son, Calceolarias and Heaths; from Messrs. J. Dickson & Sons, Pelargoniums, including French fancy sorts, &c.; from Mr. R. M. Stark, rare Alpine plants and Ferns, including Cheilanthes alabamensis, Gymnogramma peruviana, Nothochlæna nivea, Todea pellucida, and other interesting species; from Mr. Douglas, several trays of Pelargoniums, Roses, Verbenas, &c.; from Messrs. Wright, Renwick, & Co., Dracæna nobilis, Sonerila margaritacea, &c.; from Messrs. Downie & Laird, spikes of Delphinium formosum, Calceolarias, Petunias, Phlox Addisoni, &c.; from Mr. C. Alexander, Pansies in pots, Delphinium Hendersoni, Linum grandiflorum rubrum, and new Shrubby Calceolarias; from Messrs. Cunningham, Fraser, & Co., boxes of Roses, including Souvenir d'un Ami; and from Mr. Handasyde, Roses, with herbaceous plants, and Irises. From the garden of C. K. Sivewright, Esq., fancy Pelargoniums and a plant of Erica Cavendishi; from Professor Syme, a beautifully flowered plant of Leptodactylon californicum; from Mr. Anderson, specimens of the Champion Peach and Black Hamburgh Grapes; from Mr. Pender, a neatly arranged collection of fruit and a dish of large Mushrooms; from Mr. Fraser, a specimen of Oncidium pulvinatum, Alpine plants, and Ferns; from Mr. Lockhart, Cissus discolor; from Mr. Stewart, Gloxinias; from Mr. Blair, Stanhopea oculata; from Mr. Buist, Roses; from Mr. Reid, a box of Pansies and fancy Pelargoniums; from Mr. Young, Stocks; from Mr. Duncan Kerr, a seedling Pansy; from Mr. Ferguson, Ranunculuses, Roses, &c.; and from Mr. Dunn, Stocks. Miss Barnetson, 26, Clarence Street, exhibited a neat group of wax fruit.

Edinburgh Botanical: *June* 11.—The President in the chair. The following papers were read, viz.:—1. "On the Identity of Achorion Schönleini and other vegetable Parasites, with Aspergillus glaucus," by Mr. John Lowe. The object of this communication was to show the relation which exists between the parasitic growth in Porrigo favosa and other skin diseases, and a common species of fungus, Aspergillus glaucus; and to establish the identity of a number of these forms which have hitherto been regarded as specifically distinct. After adverting to the difficulties experienced in conducting an investigation of this nature, the author proceeded to give a detail of the experiments which had been made with the view of producing the plant in a state of perfect fructification, and being thus enabled to ascertain its specific value. A quantity of favus crust having been procured from a case of Porrigo lupinosa, a portion was immersed in pure glycerine, another was placed on cheese, and a third in solution of raw sugar. The first of these did not germinate, but became disintegrated after about ten days. This was probably owing to the temperature of the fluid not being sufficiently high, as it is well-known that the yeast plant grows with facility in the same medium, at an elevated temperature, during the manufacture of Butyric acid. The cells placed on cheese also failed to germinate, and died in about the same time as those put into glycerine. Those immersed in the saccharine solution gave a different result. At the end of 48 hours the cells had become swollen and more oval than at first; on the day following they began to unite into moniliform chains forming a mycelium, the filaments of which after a time were observed to contain granules and nucules. At the end of about a month the perfect fructification of Aspergillus glaucus appeared. During the growth of the plant, the different stages of development were observed daily under the microscope, and the whole of the following species (so-called) were found accurately represented so far as appearance goes, by one or other of the forms produced. Microsporon furfur, Robin; Oidium albicans, Ch. R.; Torula guttata; Trichophyton tonsurans, Malmsten; T. ulcerum, Ch. R.; Microsporon Audouini, Ch. R.; M. Mentagrophytes, Ch. R.; Achorion Schönleini Remak.; Leptomitus, six species; with a considerable number of other epizootic forms. With regard to the majority of these, the author remarked that they could not be with certainty considered as identical with Aspergillus, but that there was every probability of such being the case; 1st, from the exact identity of form; and 2d, from the extreme unlikelihood of their being distinct species, as shown by their never or rarely producing fruit; proving them to be mere variations of some other fungus growing under unfavourable circumstances, and not arriving at a perfect development. With Achorion Schönleini the case is different. The following facts may be adduced in support of its alleged identity with Aspergillus:—1st. The sporules of the former, carefully watched during their growth, developed the perfect sporangia of the latter, which—2dly, is produced in a state of fructification in the air sacs of birds, showing the possibility of its growing on animal tissues. 3dly. The figure given by Dr. Bennett of a section of the scalp affected by Favus, exhibits the true fructification of an Aspergillus. The author concluded with some lengthened remarks on the circumstances under which this fungus is developed, and its distribution and properties. 2. "On the Properties of Lolium temulentum." By Mr. Lowe. After noticing the physiological effects which have been ascribed to the action of Darnel, the author remarked that there exists a great want of information as to the amount of the seed requisite to produce these results. From all that has been written on the subject, it would appear as if the virulence of the herb varied in different localities. A series of experiments was given in detail showing that Darnel grown in the Botanic Garden produced no effect when taken in doses of half an ounce. The observations of Professor Christison on the Œnanthe crocata show an analogous result, this plant being a virulent poison when grown in England, but innocuous in Scotland. A similar example is seen in the Cannabis indica, which only yields its gum-resin when grown in a hot climate. Further experiments are required with regard to Lolium. The difficulty experienced in obtaining the pure seed has prevented the above series from being extended further, but it is hoped that others will make further observations in different parts of Scotland. 3. "Further Observations on Dust Showers." By Mr. G. Lawson. After some preliminary observations, referring to the views adopted in his previous paper on this subject, Mr. Lawson laid before the Society a letter from Dr. J. O. M'William, R.N., in which that gentleman remarks:—"In your paper on dust showers you allude to the sand showers described by Humboldt and by Ehrenberg as occurring near the Cape de Verd Islands, when the decks of ships navigating the ocean became covered with sand. While I was at Boa Vista, the easternmost of the Cape de Verd group, during the months of April, May, June, and part of July 1846, I had ample opportunity of witnessing these phenomena. In my meteorological register, which includes observations three times in the 24 hours, of the barometer, thermometer, the dry and wetted bulb thermometer, the temperature of the sea, the force and direction of the wind, and the character of the clouds, I find that in April (1846) the atmosphere is recorded as hazy, and filled with sand, ten days; in May, eleven days; in June, five days; and during the first ten days of July, three days. As a general rule, when these sand fogs prevailed, the north-east trade winds were blowing with more than usual force; they sometimes lasted for three or four days without any intermission. At the period of their prevalence, the sand heaps which abound in this barren, parched, volcanic region, are drifted about from the windward to the leeward side of the island, filling the hollows in the plains, and, sometimes in the course of a few hours, obliterating all traces of pathways, and thus bewildering the newly arrived traveller. I was in the leeward side of the island when the first sand shower occurred, and the residents differed in opinion as to its source, some saying that it came from the beach and sand hills, on the windward side of the island; while others more correctly, as I consider, attributed its origin to the African Desert. I had soon an opportunity of ascertaining that they did not originate on the island itself, for I witnessed a sand shower of considerable density, over the sea to windward of the island, between which and the African coast no land intervened, and I therefore came to the conclusion that that coast was its source." 4. "Analogy between the serial arrangements of the Leaves of Plants, and Crystalline Forms." By Mr. W. Mitchell. Mr. Mitchell remarks, "Having some time ago had my attention drawn to the series expressing the special arrangements of the leaves of plants, and more recently to the former series as regulating the shapes of cones, I was led to inquire whether a similar relation might not be found to exist among crystalline forms. The result of my observations is, that the same law prevails in crystals as in plants." Mr. Mitchell examined crystals belonging to the cubic, pyramidal, rhombohedral, and prismatic systems, and found that, as in plants if $\frac{a}{b}, \frac{c}{d}, \frac{e}{f}$, represent any three consecutive terms of the series, such as ⅓, ⅖, ⅜, then $\frac{a+e}{b+f} = \frac{c}{d}$ will express their relation. He concludes "may we not infer, from the serial law here shown to be common to both, that a series of nodes in plants corresponds to a series of similar crystalline forms; and dissimilar appendages of the plant to dissimilar crystals? At least the subject seems worthy of consideration, and might lead to still closer analogies, illustrative of unity with diversity, which we already know to be a distinguishing characteristic of the works of God."

Notices of Books.

Memoirs of the late Rt. Hon. Sir Robert Peel. 2 vols. 8vo. Murray. Edited by Lord Mahon (now Earl Stanhope) and the Rt. Hon. E. Cardwell.

The exclusively political character of these interesting memoirs prevents our even referring to their very important contents, with the exception of what concerns the Potato disease, and the repeal of the corn laws, which was its natural consequence. In the second volume, Sir Robt. Peel himself describes the great calamity that visited nearly all Europe in 1845, commencing with a letter received by Sir James Graham from the Isle of Wight on the 11th August, 1846, and ending with a letter to Lord Aberdeen dated Aug. 19, 1847. The writer of the present memorandum feels bound, as one concerned in the non-political events of the time, to bear his testimony to two points: one is the entire absence of all exaggeration or onesidedness

in Sir Robert's statements of what occurred, and the second is what perhaps influenced that great statesman more than anything else, namely the conviction that he had not only to deal with the famine of 1845-6, but to guard against its probable recurrence in after years. On the 9th Nov., 1845, in the presence of some of the members of his Cabinet, Sir Robert, after receiving a report of the then state of the Potato crop of Ireland, inquired whether the reporter had any reason to expect its recurrence. The answer was that "in the absence of European experience we could only judge from that of other parts of the world; but that inasmuch as the disease had lasted fully four years in St. Helena and three years in the United States, it was to be anticipated that its symptoms would be manifested in all their intensity for the same length of time *at least* in these kingdoms." At this interview Sir Robert made no further remark; but the reporter could not but perceive that he regarded it as the most formidable part of the political danger—as indeed it was. That this fixed his resolution of repealing the Corn Laws at all hazards if he remained in power, or of quitting power if unable to repeal them, there cannot be the slightest doubt. He might have affronted a definite and temporary danger, but it would have been madness to struggle with one the duration and magnitude of which no one could foresee. The circumstance is obscurely alluded to at p. 313 of the 2d vol. of the Memoirs, and most undoubtedly had an immense weight in deciding the future course of events. How just the foreboding was after experience too clearly proved.

Tallangetta, or the Squatter's Home; a story of Australian Life. By W. Howitt. 2 vols., 8vo. Longmans.

To judge from the author's preface to these volumes the two principal points in Australian life are firstly, a firm belief in spirits and mediums with their rapping propensities; and secondly, in the transcendent merits of William Howitt. We are so treated to his own opinions about table-turning, and to the opinions of others about himself, that the art of puffing can go no further. After wading through the slough that must be passed to reach the main subject of the work we find ourselves in the midst of an English family which having got into difficulties at home had decided upon squatting in Australia. They ultimately settle at a place called Tallangetta, where they remain till the persecution which drove them forth undergoes a favourable change, when everybody becomes happy and comfortable, and the party returns to England. Forged papers, a lost marriage certificate, a wicked Mr. Martin who turns out to be a guardian angel, contribute to the plot of the story into which Mr. Howitt has interwoven his account of what we are required to believe is a true picture of Australian life. The reader has therefore to expect a story partly of fiction, partly of truth, and unfortunately has no means of distinguishing the one from the other. All that we can say is that in spite of faults we have in this work two volumes calculated to afford a few hours' amusement, but whether Mr. Howitt's highly coloured picture, with all its violent incidents, really represents Australian bush society we have no means of knowing. For ourselves we can only regard it as a clever melodrama with the antipodes for its scene.

In the *Orchideen-Sammlung* of G. W. Schiller (Hamburgh, Nestler) we have a most useful catalogue of cultivated Orchidaceous plants, carefully prepared by Professor Reichenbach, jun. Consul Schiller's collection of these plants is probably the richest in the world, consisting of no fewer than 1268 species or well marked varieties. Professor Reichenbach is one of the most competent men to determine and catalogue them. The list forms a very nice pocket volume, and our Orchid-loving friends would find it a useful companion to their own collections.

From Messrs. *Rollissons* we have received their new trade catalogue, from which it appears that their collection is rich in most of the plants now in request among horticulturists. Messrs. *Hugh Low & Co.* have also published a good catalogue of their extensive assortment of the best garden plants, whether old or new.

Messrs. Black have brought out a very nice *Guide to Warwickshire*, with some good maps and clever woodcuts of scenery and interiors.

Messrs. *Bostock and Riley's Translation of Pliny* (Bohn), formerly noticed favourably, is now completed in six volumes, to the last of which is added an extremely good index. We regard this as one of the most useful of the translations for which we have to thank the enterprise of the publisher.

Garden Memoranda.

MESSRS. WOOD & SON'S NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.—The extensive collection of Roses which this nursery is well known to possess is now in full bloom, and is well worth a visit. Many of the high coloured kinds have been planted in large masses and are extremely effective. Foremost among these is the glorious General Jacqueminot (H. P.), which, although perhaps wanting a little in doubleness, is nevertheless brilliant in the extreme, and retains its colour under bright sunlight even better than Géant des Batailles itself. A fact worth knowing in connection with this variety is that it comes much more double on the Manetti stock than on the Briar. Flowers of it in a small clump in front of Mr. Wood's house on the Manetti were this year as large and full as could possibly be desired. Whether or not however this will happen a second season remains to be seen. The Manetti, it may be mentioned, throws unusual vigour into the charming Tea Rose Gloire de Dijon. Of two plants of similar age and size turned out against a wall here on the same day, the plant worked on the Manetti is now three times as large as that on its own roots; it likewise produces blooms of immense size with much more salmon colour in them than is commonly found in flowers of this variety. The Manetti stock for some kinds of Roses is therefore a favourite here. Perhaps one of the most brilliant coloured and double of all Roses is Lord Raglan, a variety fast getting into favour. It is said to have been raised from seed saved from Géant des Batailles. Its blooms are very large and their colour quite dazzling. In vigour it far surpasses its parent. This variety cannot fail long to be a favourite, as it is in all respects a first-class Rose. Of varieties better known, but about which too much can hardly be said, may be mentioned Souvenir de Leveson Gower, crimson, very double, and possessing a beautiful Rose scent; Jules Margottin, a sort like Baronne Prevost but brighter in colour, very double, and one of the most profuse blooming of Roses; Auguste Mie, light pink; Madame de Cambacères; Madame Domage, a sort like Jules Margottin, but lighter, finely scented but somewhat inconstant; Madame Andry, large and globular; Louise Odier, a very hardy good kind; Prince Leon, double and beautiful in shape; Triomphe de Paris, purplish crimson. Of very dark Roses none beats Arthur de Sansalles, and for general effect we should not omit Sir Joseph Paxton and the Old Bourbon Queen, both of which when planted in masses are very striking. Of delicate pink Hybrid Perpetuals none surpass Mrs. Rivers and Madame Vidot, both of which are free flowering and truly beautiful.

Among really new Roses the best are Adelaide Fontaine, a sort in the way of Louise Peronny, but larger and quite as good in form; Belle Angevine, striped pale flesh, apparently an improvement on Panaché d'Orleans; Cardinal Patrizzi, rich deep velvety crimson, very dark; Louise Magnan, a good yellow tinged white, and Prince Imperial, a kind with dark rose-shaded flowers of great size. These are all Hybrid Perpetuals. Among Noisettes the best are Madame Massot, pale flesh and beautifully cupped, Madame Schulz, shaded yellow, and Triomphe de Rennes, yellow, very double and good.

General Simpson (H.P.) is a good Rose, darker in colour than Louise Odier, and the same may be said of General Pelissier, a variety in the way of William Jesse but larger and with more lilac in it. Duchess of Norfolk, which was described in a former notice of this place, is found to make a useful variety for pot culture.

The stock of young Roses turned out of pots this summer and planted out into open quarters is this year larger than ever it has been in any previous year, a fact sufficiently indicative of the degree of popularity the Queen of flowers still enjoys. These young plants were breaking freely into growth, and apparently were quite clear of mildew and insects. For the accommodation of young plants in pots, two spacious new Rose houses have been erected here; both well heated with hotwater pipes, and glazed with Hartley's patent rough plate glass. The latter in this case obviates the use of shading, and does not burn the leaves.

Among Conifers, of which Messrs. Wood have a few choice specimens, was a beautiful example of Libocedrus chilensis, bushy, quite hardy, and nearly 6 feet high. The best Cryptomeria here now measures nearly 30 feet in height, in addition to which were Cryptomeria gracilis and Lobbi, the latter the handsomest of the three. Picea Nordmanniana was making extraordinary growth, and we noticed a good example of Cephalotaxus Fortuni. Of Deodars, there was a strong growing variety called robusta, and another with white-tipped shoots, together with a grass-green variety known by the name of viridis. We also noticed Cupressus Lawsoniana and Thujopsis borealis.

Of Scarlet Horse Chesnuts we noticed many fine specimens, Standard Portugal Laurels, with clean stems and beautiful large heads; Golden, Variegated, and Striped Tree Ivy, the latter quite a shrub; Aucuba-leaved and other sorts of ornamental Ashes, Weeping Thorn, Weeping and Variegated Mountain Ashes, Camperdown Weeping Elm, a pretty variety; Weeping Larch, Fraxinus officinalis (the Wax Insect plant), and other equally interesting trees.

For Peach and Nectarine, Apricot, Plum, and Cherry trees the soil of this locality seemed very suitable, and of trained trees of these kinds we observed some fine specimens. We also noticed a variegated-leaved Apricot, which if it should turn out to be worthless as a fruit tree may nevertheless be useful for out-door decoration.

Tropæolum speciosum covering one side of a verandah at Mr. Wood's door deserves especial notice. It was literally one mass of scarlet flowers. Than this nothing could have been more suitable for the place it occupied, or have looked more showy or beautiful. Associated with it were Clematis Sieboldi and C. azurea grandiflora, also useful and free-flowering plants. The latter comes into flower early, and remains long in beauty.

Miscellaneous.

How to keep Pears from Wasps.—At the end of October and beginning of November wasps and bees, no longer having Plums and Grapes to devour, attacked my late Pears. Day after day I found a Fondante de Noël, or a Beurré Diel, or a Bonchrétien de Rans, or a Doyenné d'Hiver bored into. Rain got into the holes and not being able to escape, soon made the fruit rot, so that I expected to lose all my Pears. But one morning it occurred to me to put a pinch of plaster of Paris into the holes. The plaster absorbed the moisture, and soon formed a hard crust which held fast to the flesh and stopped all further access of water or air, so that not a single fruit decayed. *The Curé Duval in the Revue Horticole.*

The great George Stephenson a Gardener.—He also devoted much of his time at Tapton to horticultural pursuits, and carried on farming operations with considerable success. He lived the life of a country gentleman of ample means,—feeding stock, experimenting in manure, and attending the agricultural meetings of his neighbourhood. When he took part in their discussions, he brought the same practical and vigorous mind to bear upon the various questions of tillage, drainage, and farm economy, which he had formerly done in mechanical and engineering matters. At one of the meetings of the North Derbyshire Agricultural Society he favoured the assembled farmers with an explanation of his theory of vegetation. The practical conclusion to which it led him was, that the agriculturist ought to give as much light and heat to the soil as possible. At the same time he stated his opinion, that in some cold soils water contributed to promote vegetation, rather than to impede it as was generally believed; for the water, being exposed to the sun and atmosphere, became specifically warmer than the earth it covered, and when it afterwards irrigated the fields it conveyed this additional heat to the soil which it permeated. But his chief delight was in his pineries, greenhouses, and Melon frames; and he was now as eager to excel all other growers of fruits and vegetables in the neighbourhood as he had been to surpass the villagers of Killingworth in the production of gigantic Leeks and Cabbages thirty years before. At one agricultural meeting, he stated that he intended yet to grow Pine-Apples at Tapton as big as Pumpkins. The only man in the county to whom he would "knock under" was his friend Paxton, and he was so old in the service and so skilful that he could scarcely hope to beat him. He took much pride in his growth of Cucumbers. He raised them very fine and large, but he could not make them grow straight. Place them as he would, notwithstanding all his propping of them, and humouring them by modifying the application of heat and the admission of light for the purpose of effecting his object, they would still insist on growing crooked in their own way. At last he had a number of glass cylinders made, into which the growing Cucumbers were inserted, and then he succeeded in growing them perfectly straight. Carrying one of the new products into his house one day, and exhibiting it to a party of visitors, he told them of the expedient he had adopted, and added gleefully, "I think I have bothered them noo!"—*Smiles's Life of George Stephenson.*

Repulsion of Water from the Feathers of Waterfowl and Leaves of Plants.—Happening to reside in Bombay, in the neighbourhood of a number of small tanks or ponds abounding with the Lotus or sacred Bean of India, and with four different varieties of Water Lily, I was struck with the different appearances presented by these when immersed in water, or when water was sprinkled on them. The leaves of the Lily, like those of the Lotus, floated with considerable buoyancy on the surface, but never, like the Lotus, rose above it, on a tall independent stem. The Lily leaf is full of holes about the size of a pin's head, and serrated at the edges. Through these, when the leaf is pressed down, the water perforates freely. The upper surface of the leaf is smooth and shining, and water runs off it without wetting it, as it does off a piece of glass or greased surface. When placed under the water at an angle of about 45°, the leaf of the Lily seems to change colour; the dark purple leaf of the red Lily appears of a bright rich pink, the dark green or bluish-green of the white, pink and blue Lilies seem to become of a bright emerald-green; the intensity of these hues varying with the angle at which the immersed leaf is seen. When the Lotus leaf is placed under water it reflects light like a mirror, so that the image of any object, if presented to it at a proper angle, is seen by the spectator as distinctly as if the surface were one of polished metal. When water is thrown on the surface of a floating leaf, it flows off like a pool of quicksilver, reflecting light from the whole of its lower surface; and this holds good on all occasions. The repellent property of the leaf is on the upper side only, for the lower side is always wet, being only destroyed by severe rubbing. These peculiarities seem long to have been familiar to the natives, and have given rise to the Mahratta lines in reference to the virtuous man, which may be thus translated:—

> "He is not enslaved by any lust whatever;
> By the stain of passion he is not soiled,—
> As in the water, yet unwet by the water,
> Is the Lotus leaf."

On examining carefully into the cause of this I found the Lotus leaf covered with short microscopic papillæ, which entangle the air and establish an air-plate over the whole surface, with which in reality the water never mes in contact at all. Another peculiarity connected,

but not necessarily so, so far as I could discover, with this, was the singular respiratory pores of the Lotus. The leaves of the Lotus, when full-sized, are from 1 foot to 16 inches in diameter; on cutting off a leaf 6 inches broad, the stalk of which was less than the third of an inch in diameter, I was able to collect 33 cubic inches of air in an hour, when the vital energies of the plant must have been injured by its mutilation; at this rate a tank covered with Lotus leaves would produce daily an atmosphere 4 feet in depth throughout its whole surface. When the leaf is pushed slightly under water, a constant succession of air-bubbles seem to arise from it, at the rate of two or three a minute at each spiracle. The air-bubble diffuses itself as it is extricated, presenting a very broad base to the leaf and blunt low-crowned apex, and seems detached with difficulty. The air-plate all over the surface must thus become continually renewed and the arrangement kept perfect. Sensible respiration is not at all essential to the repelling power of leaves; the most beautiful manifestation of it I have met with is in the Pestia, a little floating water-plant abounding in our shallow tanks, and resembling common Endive. When pushed under the surface, it looks like a little mass of burning silver. The same appearance is presented on Cabbages, young Clover, and a vast variety of other leaves; it is the cause of the bright pearl-lustre of dew. The same phenomenon is manifested on the wings and backs of divers when they dash into the water. In this case it has been ascribed, most erroneously as I believe, to the presence of grease or oil in the feathers, and is, I have no doubt, due to the presence of an air-plate repelling the water, so that it never comes in contact with the feathers at all. The trimming process, so carefully performed by water fowl, is probably an application of oil or grease, with the object of separating or dressing the little fibres of the feathers so as to produce an arrangement fitted to entangle the air. The reflexion of light from the lower surface of the water is the proof of want of contact. A piece of polished marble or of glass, a waxed, oiled, or greased surface, readily throws off the water without remaining wetted; but no reflection is in this case observable. Might not the manufacturers of water-proof cloth or clothes take a hint on this point from the economy of nature? Could they manage to produce a surface such as would entangle and retain a film of air, no india-rubber varnish or other water-tight material would be required, while the texture would permit the free transmission of respiration or moisture from the body, which Mackintosh's and other similar contrivances obstruct.—*Dr. Buist, in Proceedings of the Royal Society.*

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Specimens that have matured their season's growth should now be more sparingly supplied with water at the root, in order to promote the ripening of the wood. Orange trees, and other plants known to be liable to attacks of red spider, must be frequently examined for this pest and well washed with the engine immediately it is perceived, taking care not to bruise or injure the foliage, and placing the affected plants so that every leaf may be reached. Go over the twiners frequently, and keep the shoots nicely regulated, cutting out where necessary to prevent their being too thick, and shortening any that hang down so low as to interfere with other things. Atttend promptly to the removal of decaying specimens before they become unsightly, and also see to having plenty coming forward with which to supply their places. Cold Pits.—The stock here will probably require rearrangement at this time, as some of the specimens having completed their season's growth will be better in a shady situation out doors, and their removal will allow of giving more space to those left. Young growing stock and late flowering plants that have yet to make their season's growth should receive the most careful attention, as if well treated they will make rapid and vigorous growth at this season, and nothing in the way of good soil, careful potting, or proper accommodation will compensate for the want of this. Indeed there is no possibility of securing free growth from hard-wooded plants in bright hot weather except by moderate shading and maintaining a moist atmosphere by sprinkling the plants overhead morning and evening, and air must be given liberally to keep the wood strong, avoiding as much as possible exposure to drying winds. Any of the specimens which require more pot room should be shifted as soon as possible, taking care to have the ball moist, and keeping them rather closer and the atmosphere moister than usual for a fortnight after potting. Get the young shoots tied before they begin to fall about and crowd and injure each other. Cut down Pelargoniums as soon as the wood is properly hardened, and keep them very sparingly supplied with water at the root until they start into growth, but sprinkle them overhead frequently, which will cause them to break more strongly. Get cuttings of favourite sorts rooted and attend to those that were rooted early in the season. Continue to pot Cinerarias as strong suckers can be obtained, placing them in a close part of a cold frame until they get established in their pots, but avoid placing them in heat, where they speedily become a prey to insects and mildew and never do any good.

FORCING DEPARTMENT.

Pinery.—Attend carefully to growing stock, keeping the bottom-heat regular, and the atmosphere warm and moist, and use every means to secure rapid vigorous growth. This will not be obtained, however, unless all is right at the root, therefore attend well to watering, and never allow any of the plants to become pot-bound. Give air moderately to young stock, and shut up early in the afternoon, giving the plants a gentle wipe with the syringe, and the house a good steaming by wetting every available surface. Continue to pot a few suckers as they can be obtained of sufficient strength, and do not allow too many to be produced by one plant, as they weaken each other. Indeed, we never allow a sucker to grow to any size that is not likely to be wanted for stock, and, unless in the case of any scarce sort, never more than two on a plant. Plants growing in beds of soil must be very carefully attended to with water, giving enough at each application to moisten the whole body of soil; for unless this is attended to, the bottom of the bed will sometimes get quite dry, while the surface is moist. Vineries.—The inside borders of houses intended to furnish a late supply of Grapes should be well soaked with manure water as soon as convenient, so as to allow of their becoming dry before the damp cloudy days of autumn set in, for damp will be most injurious then, and anything likely to cause it should be avoided. Muscats beginning to ripen should be assisted with fire heat, for it is hardly possible to ripen these properly at any season without artificial heat; and those for late use should be pushed on, so as to get them right by the end of next month at the latest; for those ripened later in the season are seldom of good quality, and we have always found them to hang better when ripened early in autumn than those that were ripened later in the season. Figs.—The second crop on the earliest trees will be fast advancing towards maturity; as soon as the fruit begins to ripen the atmosphere should be kept dry and rather cool, giving air freely every fine day, and using a little fire on wet cloudy days, to prevent damp and allow of a gentle circulation of air. Use every care to keep the foliage clean and healthy, and clear of insects, and do not crowd the young shoots. Melons.—Plants on which the fruit is ripening should be kept dry at the root, and freely exposed to air on fine days, avoiding moisture in the atmosphere as far as can be done without injury to the other plants. Do not allow the bottom heat to decline where the fruit is setting, which is a frequent cause of the young fruit dropping off. Keep a watchful eye on the foliage, and guard against red spider, which, if once allowed to establish itself, can hardly be removed without greatly injuring the tender foliage.

FLOWER GARDEN AND SHRUBBERIES.

Plants of a weakly habit of growth, as the varieties of the Verbena, Melindres, &c., may be assisted in dry weather by an occasional watering with manure-water; but for those that grow too strongly there is no help except thinning out and pegging down the shoots. In shortening back shoots that incline to extend beyond the edges of the beds avoid the least appearance of formality by thinning out the under shoots and keeping all parts of the bed of equal depth or thickness, or allowing the plants to as it were die away at the edges according to the arrangement. Climbers on walls must be attended to as they advance in growth, keeping the young shoots neatly laid in, &c. The climbing Roses will also require to be gone over occasionally for the purpose of cutting off decayed blooms, and any weakly old wood should be cut out at the same time to allow of laying in the strong young shoots, which will bloom much finer next season than the old wood would do. Phloxes and other herbaceous plants must be neatly tied up, avoiding huddling the shoots together as is sometimes done even about well kept places to save time. Any of the perpetual blooming Roses that have flowered very freely should be assisted by a liberal watering with manure water from the stable or farmyard tank, indeed too much of this can hardly be given to any of the autumn flowering varieties.

HARDY FRUIT AND KITCHEN GARDEN.

Select a bit of open light ground and prepare it for winter Spinach by giving it a heavy dressing of manure and trenching or digging it deep. This crop should be sown at once and in drills in beds allowing wide alleys, so as to be able to gather the crop without treading the ground, also provide ground for winter Onions, &c. Finish planting out Broccoli and winter Greens as speedily as ground can be obtained, for unless the autumn should prove very favourable those planted after this time will not attain much size. Get Endive planted out on very rich soil, also Lettuce to maintain the succession, and attend to other small salad herbs. See to securing a good supply of Parsley for winter use, which is always largely in demand. A good bed should be planted in some convenient place for protecting it during severe weather in winter. The soil should be of a light texture, deep, and thoroughly drained as a preventive against damp in winter. New plantations of Strawberries should be made at once, selecting the strongest young plants, and keeping them well supplied with water until they get established. Attend to Celery and all recently planted crops with water if the weather continues warm and dry.

COTTAGERS' CALENDAR.

As we stated last week now is an excellent time to sow a sloping bank or a highly raised bed with the prickly Spinach for the winter. This easily cultivated vegetable is underrated by the cottager. It is nevertheless a most useful thing, if only for furnishing a slight change occasionally. Pigs will at all times eat it greedily, and where a cow is kept it is one of the most wholesome things for her with which we are acquainted. [illegible] used when running to seed in March and April. Let the cottager persist in getting out Greens in every spare plot. Let Kidney or other early Potatoes be taken up earlier than usual for a double reason, better plant unripe seed than disease; the ground will moreover be available for Cabbages to supply the place of ost Potatoes.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending July 23, 1857, as observed at the Horticultural Garden.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind
Friday 17	25	30.117	30.014	80	51	65.5	65	61	S.W
Satur. 18	26	30.181	30.162	79	50	64.5	66	61	S.W
Sunday 19	27	30.147	29.969	86	48	67.0	65	61	S.W
Mon. 20	28	30.026	29.951	81	47	64.0	66	61	W
Tues. 21	●	30.070	30.003	77	58	67.5	65½	61	S.W
Wed. 22	1	29.980	29.910	78	56	67.0	65	61	S.W
Thurs. 23	2	29.972	29.934	81	57	69.0	66	61	S.W
Average..		30.070	29.992	80.3	52.4	66.3	65.5	61	

July 17—Clear; very fine throughout.
— 18—Very fine; overcast; fine.
— 19—Very fine; cloudy; very hot; fine at night.
— 20—Very fine; hot and sultry; fine; rain; cool.
— 21—Very fine; cloudy; fine at night.
— 22—Cloudy; hot sun at intervals; very fine; slight rain.
— 23—Fine; very fine; clear at night.

Mean temperature of the week 3¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 31 years, for the ensuing week, ending August 1, 1857.

July and August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N	N.E	E	S.E	S	S.W	W	N.W
Sunday 26	72.9	51.8	62.4	17	1.22 in.	2	1	4	2	4	10	7	2
Mon. 27	74.4	51.8	63.1	14	0.98	1	3	4	2	3	8	[illegible]	[illegible]
Tues. 28	76.0	53.3	64.7	15	0.32	2	2	2	3	1	13	[illegible]	[illegible]
Wed. 29	75.5	51.4	63.5	13	1.31	1	3	4	1	3	11	[illegible]	[illegible]
Thurs. 30	74.5	51.3	62.9	16	0.88	3	3	3	1	2	8	[illegible]	[illegible]
Friday 31	74.7	51.3	63.0	13	0.66	2	3	2	1	4	[illegible]	[illegible]	2
Satur. 1	75.8	51.9	63.9	16	1.23	1	2	6	2	3	10	6	[illegible]

The highest temperature during the above period occurred on the [illegible] 1846—therm. 92 deg.; and the lowest on the 28th, 1854—therm. 38 deg.

Notices to Correspondents.

Adair Strawberry: *R S Y* would feel obliged if any of our correspondents who are perfectly disinterested, and on whose judgment he can rely, would be good enough to furnish him with their opinion of this Strawberry.

A little Mouse: *Teddington.* We have certainly heard such foolish stories, but we cannot believe them to be true. At all events they are destitute of all foundation.

Books: *Iota.* Neill's Flower, Fruit, and Kitchen Garden seems most suitable to your friend's wants.

Brugmansia: *Dundalk.* The holes in the leaves of your Brugmansia are apparently the work of some caterpillar. By means of a little close observation you may possibly be enabled to discover the depredator.‡

Diseases: *E P.* The production on Vine leaves is not a fungus, but a disease of the hairs known under the name of *Erineum Vitis.* It does not appear to be at all injurious. *M. J. B.*

Eugenia Ugni: *Iota.* The fruit must, we imagine, be gathered and *ripe,* which it certainly will be by Oct. 24.

Grapes: *J S.* Your crop exhibits a very fine specimen of the too notorious Vine Mildew. The white powder is the real Oidium. For this year the crop is gone. Cut off all the bunches and then give the leaves and branches a thoroughly good sulphuring. If the powder does not disappear after a few days you must repeat the dose; and do the same hereafter whenever the least sign of the mischief can be detected on either leaves or branches.

Insects: *J E.* The insects which cut circular pieces out of your Rose leaves are the females of the leaf-cutter bee, Megachile centuncularis, which line their cells with the leaves, depositing pollen and an egg in each. *W.*

Melon Seeds: *L L D.* They are believed to be the better if two or three years old. They will grow at the age of 30.

Names of Fruits: *F.* Your Strawberry is the Grove End Scarlet.—*W B.* Your Peach is the Noblesse; the Nectarine is the Violette Hâtive.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*H M, Manchester.* Aristolochia labiosa, not at all like A. gigas; Epidendrum ambiguum. The Fern, which is not in fructification, is probably some Nothochlæna—*W B.* Vanda suavis.—*A D.* 1, Hydrocleys Commersoni; 2, Achillea serrata; 3, Oxalis violacea.—*J C.* 1, Lonicera Ledebourii; 2, Ceanothus occidentalis.—*V H.* Two of the slips of paper attached to the specimens having fallen off, we are obliged to name them without reference to the numbers. The Ferns were Leucostegia chærophylla, *J. Smith*; Phymatodes pustulata, *Pres*; and Anemia Raddiana, *Link.* We cannot name Pelargoniums from drawings of single flowers, or from drawings at all.—*Jack.* 1, Staphylea pinnata; bulbs cannot be named from their leaves.

Passiflora cinnabarina: *Northwood,* We do not think the fruit good to eat, but it will not poison you.

Peach Trees: *H.* They are doubtless affected with aphides; for which a good washing or two with Tobacco water, and then with clean water applied with force by means of a garden engine, will be found an efficient remedy.‡

Privet: 13 *years.* Transplant it at the end of September, taking care to soak the ground thoroughly with water immediately after.

Proliferous Rose: *Delve.* Similar instances of long branches growing out of the middle of Roses have been formerly figured in our columns. Your specimen is however the best we ever saw, the Rose around the intrusive branch being quite as perfect as if in a natural state.

Sigma's Aphis Powder. A correspondent in Ireland complains that he cannot kill his Aphides with this preparation, which moreover is "anything but impalpable." We are in the same predicament. Nevertheless, the testimonies to its efficacy come from persons above any suspicion; and the gentleman who signs himself Sigma is well known for his impeachable good faith; we therefore suppose that there is some cause of failure unconnected with the intrinsic quality of the preparation. Will it keep?

Stoneless Berberry: *Iota.* Probably your friend's plant was worked; a circumstance easily ascertained by examination. We have no reason to suppose that the seeds will disappear with age.

The Cannon Hall Muscat Grape: *Un jeune jardinier.* There is nothing necessary in the management of this different from what is required for other Muscats.

Wellingtonia: *Deodar.* At p. 644 of our volume for 1856, the "big tree" is reported to measure 95 feet in circumference and 300 feet in height.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Materials are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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EDWARD PURSER, Secretary.

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IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so.
W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

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THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

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For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

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DRUMMOND'S IMPROVED REAPING SCYTHE.—This well-known Scythe continues to give the greatest satisfaction, and is extensively used both at home and abroad.

An ordinary good hand at the Scythe can readily cut down from 1½ to 2 statute acres of corn per day, laying the swathe so as it can be easily gathered into well arranged sheaves. The Scythe is packed into small compass and may be sent any distance with perfect safety. When three or more are taken they will be forwarded carriage paid to the principal Railway Stations throughout the kingdom at 9*s.* 9*d.* each.

Orders from unknown correspondents cannot be attended to unless accompanied with a remittance.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.

SALISBURY MEETING, 1857.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S FIRST PRIZE PORTABLE STEAM THRESHING ENGINE.—The Royal Agricultural Society of England, at their latest Award of Prizes, decreed the merit of the FIRST PRIZE to TUXFORD AND SONS' PORTABLE STEAM THRESHING ENGINE, the Judges at the same time declaring, in addition to its other excellencies, that the Straw Shaker and Barley-horning Apparatus of TUXFORD & SONS' Patent Combined Threshing Machine were perfect in their operations.—(*Vide the Journal of R. A. Society*, Vol. xvi., page 614.)

The superiority of TUXFORD & SONS' Patent Portable Iron-housed Steam Threshing Engines, with upright Cylinders and Improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well-merited reputation of standing at the head of their class.

Illustrated Catalogues, with prices, forwarded free on application to the Manufacturers, TUXFORD & SONS, Engineers, Boston, Lincolnshire.

HIGHLAND AND AGRICULTURAL SOCIETY'S GLASGOW SHOW.

WEDNESDAY, August 5.—Trial of Implements at Dalmarnock Farm, at 7 A.M. Exhibition of Implements, Dairy Produce, and Poultry from 12 to 4. Lecture by Dr. Anderson at 7 P.M.

THURSDAY, August 6.—Exhibition of Stock, Implements, &c., from 11 to 4. Banquet in the City Hall, at 5.30 P.M.

FRIDAY, August 7.—Exhibition of Prize Stock at 10 A.M.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOWS AT YORK.

PROGRAMME.

TUESDAY, August 4.—Trial of Implements, Steam Ploughs, Reapers, &c., at 12 o'clock, Admission, 1*s.*

WEDNESDAY, August 5.—Implement and Cattle Yard open to the public. Admission, 2*s.* 6*d.*

THURSDAY, August 6.—GREAT SHOW DAY. Implement and Cattle Yard open at 8 o'clock, A.M. Admission, 1*s.*

Cheap Trains on all the lines of Railway.

JOHN HANNAM, Secretary.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1857.—The Annual Show of LIVE STOCK (including POULTRY), IMPLEMENTS, &c., will take place at Warrington, on THURSDAY, September 10. Prize Lists and Rules may be had by applying to the Secretary. Entries close on August 29. T. B. RYDER, Secretary.

2, Elliot Street, Liverpool, July 25.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth Great Annual Exhibition of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.* will be awarded.

Prize Lists and any other information may be obtained from the Secretary. THE ENTRIES CLOSE November 2 next.
JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham, July 25.

The Agricultural Gazette.

SATURDAY, JULY 25, 1857.

GOOD weather, great facilities of access, the high character of the annual exhibition of the English Agricultural Society, and the unusual interest attaching to the prize offered in connection with steam culture have combined to make the Salisbury meeting a very attractive one. And we may add to our record of the successful arrangements outside of the town that those of the mayor and authorities within the city for the reception and entertainment of their visitors have on no previous occasion been surpassed.

The week's proceedings have two principal aspects—those in which they stand respectively to the Society and to the general agricultural public. The Agricultural Society has drawn a larger number of exhibitors and implements together—a larger number of cattle, sheep, and pigs together—and we are inclined to think a larger body of spectators together than it has ever done before, and so far the meeting has been a great success. The interests of the general agricultural public also have been served: an opportunity has been offered for examining the water meadow management of a county which contains more land irrigated than any other county in the kingdom—the good and profitable cultivation of a well managed home farm, that of Lord PEMBROKE, under the skilful superintendence of his lordship's agent Mr. ROBSON, has been laid open to general inspection—the light land farming of Wiltshire has been exhibited to a large number of visitors on the invitation of one of the largest tenants in the West—and purchasers of implements and of breeding stock have had opportunities of selection such as happen only once a year, and never before on such a scale as this.

We believe that implement makers have had no reason to complain of custom, and as regards the other department of the exhibition, though no such prices were obtained this year in the stock yards as we had to quote at Chelmsford, yet many sales were effected in all classes of stock exhibited. The flatness which has been complained of at Salisbury may have been owing to the absence of French, Australian, and American buyers, but it was even more likely to be due to the quantity of stock present in what we may well call the market. Our report in other columns gives the unprecedented numbers of cattle, sheep, and pigs shown, and this is of itself enough to account for the comparative slowness with which sales were effected. Certainly recent information, whether from America, Australia, or from home, leads no one to suppose that well-bred stock is not worth as much as it has ever been. Mr. WEBB's sale at Babraham, where the highest average ever known (excepting that of 1856) was realised, and one sheep (it was 2d in its class at Salisbury) was let for 197 guineas: sales of stock reported from Australia—"St. Patrick," a six-year-old short-horn bull, bought at Sir CHARLES KNIGHTLEY's sale for 50*l.*, sold for 600 guineas: sales of cattle in America—those of Messrs. MORRIS & BECAR bought here at Tortworth and elsewhere, sold at an advance on the enormous prices given there: all this indicates no general fall in the value of well-bred stock. It is not to this nor to the quality of the stock exhibited during the last week that this comparative dullness of the Agricultural Society's "great market" must be attributed—the thing is no doubt owing simply to the collection of such an unprecedented number of first-class stock in the presence of a comparatively smaller number of purchasers.

It is in their character of a great market that both the implement and cattle yards are most influential on the agriculture of the country. The Agricultural Society does good service in furnishing the occasions by which so great a demand as exists for first-class agricultural implements and first-class live stock may be so effectually met as it is on the occasions of its annual meetings. Doubtless it has done more than merely furnish such occasions—doubtless it still does much more than this—in the live stock classes the award of its judges is still looked upon and striven for as a real test of merit—and in some of the implement classes, especially where any new object is proposed for attainment, a prize from the Society's hands bears an intrinsic value, apart from its influence as guiding purchasers, and is striven for accordingly. Nevertheless it is as bringing purchasers and exhibitors from all parts of the country together, that these annual gatherings are chiefly useful. And for these annual gatherings we are now indebted, after all, to an annual habit which has grown up under the superintendence of the Society, rather than to the annual recurrence of the prize list which it publishes.

It is not the offer of a prize that urges implement makers to rivalry—it is the custom which is sure to follow merit that is the real incentive, and the Agricultural Society having now reduced the amount of prizes offered, and restricted the attention of its judges to a limited section only of the class, without in the smallest degree diminishing the competition or the usefulness of its shows, may safely take the further step recommended in the pamphlet which we named last week, of offering merely honorary distinctions to competitors, at the same time doing its best to keep the real effect of these distinctions within their intended meaning by publishing not a mere award, but a report of the grounds on which the award is made.

It would be easy to show that at present the prize is generally much too little, is really much too great, is altogether insignificant, is anything in its effect but what it ought to be. Looking at the unprecedented competition this year in threshing machines and steam engines, a class of machines for which no prize at all has been this year offered, one might well conclude that the prizes are altogether useless and unneeded as incentives to competition—looking at the amount of prizes, 20*s.* or 2*l.*, won by firms like those of RANSOME, HOWARD, GARRETT, HORNSBY, the thing is simply ludicrous—looking at the nature of the awards, as where those of previous years are repeatedly and continually upset and reversed, their influence may be considered mischievous rather than good. The history of the reaping machine competition may be adduced in illustration of this point. Last year the trials at Chelmsford witnessed by thousands on, if we remember rightly, every day of the meeting, were adjourned to Mr. FISHER HOBBS' farm at Boxted Lodge, and a two or three days' trial on all kinds of crops—heavy crops and laid—on flat land and on ridged—led to a decision which pronounced CROSSKILL's the best for general harvest purposes, and DRAY's the best for cutting down a crop. This year on the Saturday preceding the show a few acres of a light crop of Rye were tried, and a few minutes of each machine led the judges to a decision, placing BURGESS & KEY first who had previously been last, and DRAY nowhere who had previously been first. Add to this that

on no other day during the week have the general public had any opportunity of seeing and judging for themselves of the operation of these rival reapers. Purchasers have thus, as it were, been shut up to concurrence in the award of the Society's judges, and those in whose favour it has been made have reaped a consequent reward compared with which the amount of the prize awarded is insignificance itself. We do not doubt, indeed we have reason to know, that the prize reaper is a first-class implement, but it is plain to any one who has seen all these reapers tried during many successive years, that the effect of the Society's award in this particular instance, especially under its circumstances this year, is out of all proportion to the real value of those differences in the competing implements which have called it forth.

We have not a doubt that every one of these rival reapers is efficient, and should be in general operation; and if one differs from another in any essential point, the real importance of its difference would have all the credit and influence which is its due given to it by a descriptive report drawn up by the judges, more effectually than by any mere classification, as first, second, or third in its class, without reasons assigned. So entirely wedded, however, does the Society seem, to its present arrangement, that when one of the judges on returning thanks at the Council dinner was about frankly to give his opinion on this and other points to the meeting, he was immediately silenced by the President, who desired that nothing should be uttered which ought properly to appear in the official report, and for that, if previous years be any guide, we must wait till Christmas time.

Let us not, however, at any greater length just now express the general complaint of the Society's arrangements in this and in the steam culture competition: notwithstanding all these faults the Salisbury meeting has been in all its essential purposes and ends an unprecedented success.

The fine weather of the last fortnight has hurried on the process of ripening with extraordinary rapidity, and we shall very soon from all quarters be receiving the annual report of scarcity of harvest labourers. Under these circumstances it is satisfactory to be able to announce the efficiency of reaping machines; which, where they have been adopted, will release hands for employment in less energetic districts.

Of the general prospects of the harvest we receive for the most part gratifying information. A healthy crop of Wheat everywhere, with an abundant quantity of straw, excepting on the stiff clay lands, is the usual account—illustrated in the county of Sussex perhaps as well as anywhere. For there the loamy and light rich lands along the edge of the chalk are contrasted with the clay district of the Weald. Along the whole line of the former district the crop is ripening off beautifully bright and clean, giving promise of an extraordinary yield, as travellers from the eastern end of the county to Portsmouth *en route* to Salisbury must have this week noticed.

The harvest is everywhere unusually and unexpectedly early too, as the rapid fall of prices in the corn market has shown, and as the following letter from a correspondent indicates:—

Mr. Caldecott writing from Holbrook Grange, near Rugby, on July 18, says as follows:—

"Perhaps the annexed extract from my farm register will be of some interest. The Oats and Wheat will be fit to cut in the course of a week, Barley in 12 days or a fortnight; in fact it will be the earliest harvest we have had for many years, and as far as this neighbourhood promises, the corn crops, though not heavy, have every appearance of yielding well. Green crops have suffered much from fly and drought.

	1854.	1855.	1856.	1857.
Wheat in ear ..	20th June	23d June	22d June	10th June
Barley in ear ..	23d June	1st July	28th June	23d June
Oats in ear ..	20th June	27th June	28th June	22d June
Wheat in flower ..	25th June	30th June	29th June	18th June
Begin cut Oats ..	10th Aug.	13th Aug.	7th Aug.	
" " Barley..	18th Aug.	23d Aug.	27th Aug.	
" " Wheat..	21st Aug.	14th Aug.	14th Aug.	
Finish harvest ..	4th Sept.	8th Sept.	6th Sept.	

GREAT MEETING AT SALISBURY
OF THE
ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Tuesday, *July* 21.—The nineteenth annual country meeting of our great national agricultural Society commenced, so far as the general body of those interested in its proceedings is concerned, this day. The official trial of implements under the superintendence of the judges has, indeed, been proceeding ever since Friday last. Drilling and sowing machines, manure distributors, horse hoes, reaping and mowing machines, the class set apart for examination on this occasion, have occupied the attention of eight or nine gentlemen selected by the Society for their practical knowledge of agricultural implements; and to-day Mr. Clarke, of Long Sutton, Mr. Druce, of Eynsham, and others are occupied with the trials of steam ploughs.

Nothing proves more clearly the high opinion entertained of the Society's award than the great expense to which exhibitors submit in order to obtain it. Residence for ten days in an overcrowded town for a large number of work-people and *employés*, and their conveyance to and fro, make exhibition at the Society's show a very costly thing. We do not doubt however its being also a profitable thing; and there is no lack of competition for either the official awards or those of the agricultural machine-buying public, who are after all the true judges of their own interests and of the merits of the rivals in the Society's showyard. The implement yard is indeed fuller than ever. The great firms do *not* swamp the little ones—there are as many of all ranks, whether in point of merit or of means, as have ever exhibited in the yard of the Society. Local machine-makers have made praiseworthy efforts to represent the ability of the district, and firms at a distance have not been deterred from competition by the cost of competition under such circumstances. The two most interesting features of their competition this year have been the reaping machine and steam cultivator trials. We may at once mention the success of Messrs. Burgess and Key with their M'Cormick cutter and spiral arrangement for delivery over their rivals Crosskill's Bell and Deane and Dray's Hussey. The prize reaper is this year improved by a revolving cone on the crop side of the apparatus which screws its way into the crop and bends the section of it to be cut, in the direction of the swathe in which it is to lie. It is only fair to add that the award of prizes to M'Cormick and to Bell, exhibiting a preference for side delivery of the corn over the plan of delivery behind in the track of the machine, is understood to have been accompanied by an opinion on the part of the judges that the merits of reapers are now so fully ascertained that the Society need not in future years subject them to competitive trial. This of course may be interpreted as implying that the superiority of the best reaper is fully ascertained, but we prefer to understand it as implying that all the competing machines are efficient implements, and that the award of preference exceeds in its value and effect what may be due to the superiority which one firm may by the Society's judges be believed to exhibit over others.

The trial of mowing machines for Grass and Clover began on the Friday afternoon in a piece of Red Clover which had been once mown, and the after-growth was rather light and thin. Only three machines were upon the ground—Lord Kinnaird's, the American Eagle machine, and a one-horse machine by a French exhibitor, Maziere. The first of these failed to cut close enough to the ground, and at times made very inferior work. It also suffered an accident which interfered with any chance of success. The French machine also had a difficulty in getting close to the ground, and it appeared to us that in studying great simplicity the inventor had overlooked the importance of steadiness and stiffness. The American machine, with the exception of one or two slight hindrances, performed its work in a very satisfactory manner, and certainly in that field without giving the horses more than a reasonable amount of work. After a time the machines were removed to a piece of meadow Grass, a heavy crop, and too old for a fair trial; indeed it would have tested the abilities of many ordinary men with the scythe. The difficulty was also increased by the presence of a number of grips or surface drains, which were not less than a foot deep and the same width. Here the American Eagle was alone able to do anything like fair work, and we think that considering the circumstances of the crop it did as well as could reasonably be expected. We are informed that it has been in full operation in America for four years, and that amongst other prizes it has received a 200*l.* prize from the Massachusetts Society, after a three days' trial against 13 other machines. The mode of giving motion to the cutters is new, being communicated from the exterior circumference of the main travelling and driving wheel by an arrangement known as a "cam movement," which gives great simplicity, and appears to have several advantages over the previous systems of tooth wheels, cranks, and connecting rods. The cutting is performed by two rows of blades, the upper ones being in motion and the lower fixed; both rows are made of the best cast steel, made very hard, and strengthened with a wrought-iron back. These double cutters render the machine much less liable to be clogged or choked than the old plan of cutters working against guards. They are so arranged that in case of accident any one of them can be speedily replaced by a new one. The price of this machine is 35*l.*, which however includes a platform and automaton arm for use in corn crops. The American exhibitor has made arrangements for its manufacture in this country by Mr. Henry Clayton, Atlas Works, Upper Park Place, Dorset Square, London. The 1st prize of 15*l.* was awarded to this implement.

Messrs. Dray & Co. had also a mowing machine which by some mistake was not brought to the field until the next day. It succeeded in doing some very fair work, especially in the Grass field, but seemed rather more liable to accidents and stoppages than was desirable.

The other chief feature of the meeting was the trial of steam ploughs; for the two words are still joined together. The implements which are to be "an economical substitute for the plough" consist of ploughs in frames two together, or six and eight together. Mr. Fowler's patented arrangement consists of three or four ploughs facing as many—each set being alternately in and out of the ground, thus acting as a turnwrest arrangement in laying the slices all one way—the mould boards throwing the slices to their right when going north and to their left when coming south; in other words, all one way.

Mr. Boydell's traction engine furnished with his self-acting railway mounted the hill with ease, drawing after it a large cistern on wheels, containing water and fuel enough for a day's work. Mr. Fowler's engines and Mr. Ransome's were laboriously dragged up to the trial ground. Mr. Williams's, in which a horse for steerage and the engine for power are combined, was got to the scene of its operations with tolerable facility. Mr. Collinson Hall's engine, which employs Boydell's arrangement—its own distinctive feature being the employment of a small boiler with steam at 300 lbs. pressure on the square inch—failed to make the extremely awkward turning at the foot of the hill, and ran up the bank and wrenched its steerage arrangement off, so that it was incapacitated for work until the Thursday.

The ground itself was a very flinty shallow soil, of course very hard after a July drought, but more especially awkward because the one side of it was not seen from the other. Those who employed two engines, as Mr. Williams does, and as Mr. Fowler in one of his arrangements does, were thus unable to see the one from the other, and the system of signals on which they depend for working their engines was thus impossible. Very great displeasure was expressed by the candidates for the Society's prize, we believe without exception, at the arrangements made for the trial of their several engines and cultivators. If the lands had been allotted lengthwise of the ground all the advantages of a long and straight furrow would have been secured—but, as it was, narrow sections of the breadth of the land were allotted; and the longest furrow possible being then the breadth of the trial ground, the ploughs were forced to be worked under circumstances in which it was not possible to see the engine at one end from the engine at the other.

The best plough, and they say the best ploughman, in the world first ploughed a ridge at each end of the land—and very excellent work they made—two horses and a man accomplishing work after the rate of two acres to 10 hours.

The several competitors were then set to work, being told that it was such work as *that* that they were to find an economical substitute for.

Mr. Boydell drew three sets of double ploughs behind his driving-wheel—each double plough being held by a man (unfortunately not a ploughman), and the work was not well done. It is right to add that some land was exceedingly well worked by Coleman's cultivator drawn by Boydell's engine.

Mr. Fowler, who did much the best work, employs a single engine with a moveable anchorage at the one end of the furrow—the draught chain travels round a wheel on this anchorage unwinding off one capstan on to the other, both being carried underneath the driving engine at the other end of the furrow. The wheel upon the anchorage, besides being a mere carriage for the draught rope, may be geared on to wheels within the anchorage itself, by which it can drag itself along the side land as much as is required for the gradual shifting of the ploughs as the work is completed. And in like manner the engine also is capable of moving itself along at the other side of the field. The anchorage is a heavy carriage on sharp discs for wheels, by which, sinking in the land as it is drawn along the side ridge, it presents to the lateral pull which it sustains when ploughing the resistance that is needed.

As to the implements exhibited in the yards, a small section of which only were tried this year at work, it must suffice at present to name one or two only which deserve notice by their novelty or their merit, leaving a more detailed reference till next week. The principle novelty of the show undoubtedly was the Eagle mowing machine, to which reference has been already made. It contained a number of very ingenious adaptations capable of useful transference to the ordinary machines for reaping corn, and among them a capability at the will of the driver of shifting up and down the position of the cutting apparatus to accommodate it to unevenness of the land. We may mention as an exceedingly ingenious novelty of a less important character—more horticultural indeed than agricultural in its uses—a force pump and syringe, consisting essentially of an india-rubber tube coiled inside an iron ring, against which a roller was made to rotate, and so drive forward the contents, whatever they might be, of this elastic tube. One end of this tube was connected with water, and the other with an air-vessel, from which the water thus driven forwards passed by a syringe in the usual way. It was exhibited by Messrs. Burgess and Key.

Among the most interesting of the machines in the classes subjected to trial before the judges was Chambers' manure distributor, to which Mr. Spooner's arrangement for a water drill was attached along with a seed box and barrel, so that water, manure, and seed were thrown down the tubes together. At the bottom of these tubes was a revolving box with three openings in its circumference, by which, accordingly, the whole

contents were delivered at intervals in the rows—thus constituting the machine a most effective drop-drill for water, seed, and manure. We hope next week to take our readers with us round the yard, pointing out in a more detailed manner the more important of the articles exhibited, which we are at present unable to do owing to the press of other matter.

The following is the award of the Judges of Implements.—JUDGES—Mr. C. Sewell Read, Mr. H. B. Caldwell, Mr. W. Chalcraft, Mr. J. J. Rowley, Mr. J. Clarke, Mr. Fielder King, Mr. Joseph Druce, Mr. Wm. Owen.

PRIZES.

Amount of Prize		Name.	Kind of Implement.
£15	0s	Henry Clayton (of Atlas Works, London) ..	Grass Mowing Machine
5	0	Wm. Dray & Co.	Ditto
4	0	Wm. Newzam Nicholson..	Hay-making Machines
3	0	Barrett, Exall, & Andrewes	Ditto
2	0	Smith & Ashby	Ditto
1	0	Henry Attwood Thompson	Ditto
3	0	James & Frederick Howard	Horse Rake
2	0	Ransomes & Sims	Ditto
2	0	Barnabas Urry	Ditto
1	0	Smith & Ashby	Ditto
1	0	William Langford Fisher..	Ditto
5	0	R. Garrett & Sons.. ..	Chambers' Broadcast Manure Distributor
5	0	Holmes & Sons	Manure Distributor (dry)
5	0	R. & J. Reeves	Ditto, ditto
2	0	Isaac James	Liquid Manure Distributor
5	0	R. Hornsby & Sons ..	Drill for general purposes
3	0	R. Garrett & Son	Ditto, ditto
7	0	Holmes & Sons	Corn and Seed Drill
2	0	R. Hornsby & Sons ..	Drill for small occupations
2	0	R. Garrett & Sons	Ditto, ditto
5	0	R. Hornsby & Sons ..	Drill for Ridge and Flat Work, for Turnips, &c.
2	0	R. Garrett & Sons.. ..	Ditto, ditto
4	0	R. Garrett & Sons.. ..	Liquid Drop Drill
10	0	Burgess & Key	Reaping Machine
6	0	A. Crosskill..	Ditto
4	0	Lord Kinnaird	Ditto
3	0	R. Garrett & Sons.. ..	Horse Hoe
2	0	William Smith	Ditto
1	10	Hugh Carson	Ditto
2	0	Priest & Woolnough ..	Ditto
1	10	E. H. Bentall	Ditto
2	0	T. Milford & Son	Light Waggon
2	0	John Kiddle	Ditto
2	0	A. Crosskill..	Ditto
2	0	John Gifford	Ditto
1	0	Isaac James	Ditto
1	0	George Milford	Ditto
2	0	William Busby	Light Cart.
2	0	William Ball	Ditto
2	0	T. Milford & Son	Ditto
2	0	James Woods	Ditto
1	0	A. Crosskill	Ditto
1	0	J. & F. Howard	Ditto
4	0	T. Milford & Son	Cranked Axle Cart
4	0	William Busby	Ditto
3	0	A. & T. Fry	Ditto
2	0	Alfred Crosskill	Ditto
2	0	J. & F. Howard	Ditto

Silver Medals were awarded to the following:—
Messrs. R. & J. Reeves, for a Economical Drill for dry Manure and Seeds.
Messrs. J. & F. Howard, for a Improved Drill Presser.
Mr. Thomas Pain, for a Paring Plough.
Mr. Samuel Rowsell for a American Iron-pointed Horse Rake
Messrs. Cottam & Cottam, for a Collar Bar for Iron Hurdles.
Messrs. Perreaux & Co., for an India Rubber Pump Valve.
Messrs. Hill & Smith, for a Wrought Iron Sheep Trough.
Mr. H. Carson, for a Cheese Press.
Messrs. Cockey & Son, for a Cheese-Making Apparatus.
Messrs. T. Milford & Son, for a Light Cart.

THE VISIT TO THE WILTON WATER MEADOWS AND MODEL FARM.—After looking at the steam ploughing we made our way to the Great Western Station, and taking the first train to Wilton, arrived at Mr. Rawlence's, in whose grounds the visiting party were directed to meet. Soon a number of gentlemen appeared, amongst whom we noticed the Right Honourable Sidney Herbert, to whom the water meadows we were about to inspect belong (*i. e.*, as the tenant of his brother the Earl of Pembroke), Lord Walsingham, Mr. Raymond Barker, Mr. Coombs, the father of modern irrigation, Mr. Squarey, M. Tréhonnais, and several foreigners of note, &c. These water meadows were constructed by the Pembroke family 200 years ago. They run along the river Nadder, and comprise about 100 acres divided into five fields. The divisions of the field are made by large conductors or mains, which run from the river to the catch drain which borders the opposite side of the field, and from these mains are drawn out conductors and feeders in regular series. The system pursued is that called bed-work irrigation. Mr. Coombs, who is quite *the* authority on this subject, gave explanations as we passed from field to field. From him we gathered that the drain which brings the water from the river should be of a size depending on the quantity of water wanted, it bottom, at the junction with the river, being as low as the bottom of the river, in order to carry away as much mud as possible. The stuff taken out of the conductor is to be employed in equalising its banks and filling up irregularities in the meadow. There are then, as necessary to this system, a dam, sluices to conductors, conductors, feeders, small drains, main drains, and stops in conductors and feeders.

The land by being thus intersected by drains, is thrown into a series of beds differing in width according to the tenacity or porosity of the subsoil—the tenacious soils requiring 30 feet, and the porous ones 40. A bed of 200 yards in length requires a feeder of 20 inches in width at its junction with the conductor, and it should taper gradually to the extremity, which should be 1 foot in width. The taper retards the motion of the water, for though motion is essential, it is desirable to avoid such a rapidity of fall as will disturb the soil. The small drains discharging into the mains are the reverse of the feeders, their tapering ends lying up the slope, and their wide ends open into the main, to accelerate the departure of the water. The depth of the small drains bears the same relation to the mains as that of the feeders to the conductors. Stops are used for the more equal distribution of water, and it is generally allowed that the necessity for this arises from the imperfect levelling of the work.

Though drainage is so essential to the perfect action of irrigation, we do not find it necessary here, because the soil, a peat, is too porous to admit of its being beneficial. Retentive soils are benefited by it, but on chalks, sands, and gravels it may be dispensed with. Attention was especially called to the fact that where there was a good fall for the water the Grass was invariably better and increased. Where the fall was 1 in 72 feet the Grass was scant and poor in comparison with what it was where the fall was 1 in 16.

With regard to the management, the following hints were dropped:—From November to March the water is turned upon the meadows as often as possible (generally four days in six); they are then laid dry for sheep, which are turned in the middle of March, and feed off successively one meadow after another, being a week or a fortnight in each, and as they are removed the meadow is laid in for Grass, and put under water two days in two or three weeks. The crop of hay is cut in the middle of June—the meadows coming in succession as they were fed—after which they are usually watered once and fed with dairy cows until November. We thus have three crops per annum. The first fed off, the special benefits of this being that it is ready when nothing else affords a bite, and that it affords a bite for 1000 couples per acre per day! The crop of hay averages 1½ ton, and the feed for the cows subsequently is most excellent and abundant, yielding a large supply of butter of a greater value than that made from the milk of dry meadow ground fed cows.

The supply of water is 2000 gallons per minute per acre. Much depends upon its quality. The water of the Nadder is particularly pure, soft, and sweet, and herein appears to lie its peculiar excellence. It wells from the oolite. The value of these water meadows as compared with the same land not so treated is wonderfully increased, always quadrupled. The system employed is the most expensive of its kind, costing seldom less than 10*l.* per acre, and often as much as 30*l.* or 40*l.*, but the first expense is the last; once laid out these meadows cost but 1*s.* 6*d.* per acre to keep them in repair. We made particular inquiries concerning the obstruction offered by the large, deep drains to the making and cartage of hay, and the danger that sheep were exposed to by them; but we received assurance that such difficulties and danger were very much exaggerated. One great fact had almost been lost sight of—after the hay crop not a sheep must be admitted. There is something in the state of the Grass at this juncture that invariably causes rot, and experience suggests that the best remedy is avoidance of the danger; cows are therefore substituted for sheep to consume the autumnal growth, and with the best results.

From the inspection of the water meadows we passed to view the buildings and crops upon the model farm near Wilton House, now in the occupation of the Right Hon. Mr. Herbert, and under the particular management of Mr. Robson, the agent for the Pembroke estates. They reflect great credit upon all parties concerned, and present an example worthy to be more extensively followed. Of the 200 gentlemen who visited them none could depart we think without having obtained information likely to be useful, either in the erection of buildings or the management of land.

When Mr. Herbert entered upon the farm some 11 years since he found it in a very foul, low condition, and at once commenced a course of improvement that has proved eminently successful, as his balance sheet upon the five years, beginning 1850 and ending 1855, will prove. We found the root crops looking particularly good. Reed's subsoil, adapted as a horse hoe, is much used. A little bit of land farmed on the Lois Weedon system for four years seems to answer capitally. The average yield is 40 bushels of Wheat. The buildings strike one as simple and efficient. With respect to the plan of feeding, we have the boxes always full and from 24 to 32 animals occupying them all the year round. These are 8 calves, 8 yearlings, 8 two-year olds, and 8 or 10 barren cows. At two years old they are ready for the butcher, and thus the rotation is kept up. The food consists of Barley meal and cake, in equal quantities, mixed with chaff, with Tares, &c., in summer, and roots pulped in winter. They are bedded with saw dust, and when the boxes become inconveniently full, they are emptied into a covered yard, where their contents are mixed with dissolved bones, ashes, and other refuse, for drilling. The class of stock is short-horn; in some cases the Alderney crossed with short-horn. We saw some remarkably fine animals, the result of this cross.

When our inspection was concluded, we were invited to cross the Home Park and partake of a lunch at Wilton House. The invitation was accepted by about 200 gentlemen, some of whose names we have mentioned. We entered the library and found there a princely spread, to which all were cordially welcomed without ceremony by Mr. Herbert. The appetites of the company being satisfied the Right Hon. Sidney Herbert rose to say that he had taken the present opportunity to disburden his mind of a balance sheet, not that he expected by so doing to obtain much repute, since the human tendency to believe such things had come to be very small, owing to certain notable reasons; still as he entertained a special regard for truth, and as the results of his balance sheet would contribute to the verification of certain disputed principles, he ventured to offer it to the meeting. After describing his arable farm as consisting of 186 acres, chalk upon gravel, he proceeded to say that without his water meadow it would be impossible to achieve any triumph—he might as well, in fact, try to eat bread without butter, as farm without water meadows. He drew attention to the fact, that whereas hay, green, and root crops are usually maintained to be a source of loss to the farmer, he had proved them a source of gain. He had commenced with one-third of his land under cereal crops, and two-thirds under hay, roots, and green crops, and had by this means so far improved it as to be able to determine upon sufficient grounds to increase his cereal crops to one-half without reducing the number of live stock kept. In 1846 the crops are estimated to have been 26 bushels of Wheat, 28 Barley, 32 to 36 Oats, and the farm was scarcely equal to the maintenance of 150 ewes, with the usual number of childer lambs. [We shall report the remainder of Mr. Herbert's address next week.]

M. Tréhonnais arose after the cheering had subsided and made a very happy and effective speech, in which he proposed Mr. Herbert's health, and conveyed the thanks of the meeting to that gentleman for his princely entertainment.

Mr. Raymond Barker arose on behalf of the Agricultural Society to support M. Tréhonnais' vote of thanks.

Mr. Herbert in responding considered the obligation as not theirs, but his. He thanked M. Tréhonnais, and expressed himself glad to see so many foreigners attending the meeting. He alluded to past rivalries that brought French and English face to face, and compared them with the grand one already inaugurated, which brought French and English side to side in a more formidable rivalship than they ever were before—a rivalry in the arts of peace, not in the arts of war.

The Marquis of Tweeddale paid a high tribute of praise to the Down Farming of Salisbury Plain, and compared it very flatteringly with the improvements that had taken place on Lincoln Heath. He concluded by proposing Mr. Robson's health, who acknowledged the honour in a modest, manly, and short reply. Mr. Squarey then followed with his paper upon irrigation; when this was finished the evening was far advanced, and the company dispersed pleased to have spent so pleasant a day.

WEDNESDAY, *July* 22.—The show-yard opened this morning and presented a great contrast to the unusual scantiness of the attendance yesterday. There is greater space allowed exhibitors for the trials of their machines at work, and a very large number of locomotive engines are employed in driving combined threshing and winnowing machines, and grinding, crushing mills, chaff-cutters, &c. &c. There has never been such a show of steam-engines, fixed and locomotive, at any previous meeting; 91 steam-engines in all are present in the yards and grounds of the Society, and to test them, or rather to be tested by them, are 26 threshing machines and 46 combined threshing and winnowing machines, besides steam ploughs or cultivators, and implements of all other classes in much greater numbers. We shall hereafter go through the list in greater detail, meanwhile we must be satisfied with our reference already to a few of the novelties exhibited.

The privilege of admission to the show yard on the Wednesday afternoon, immediately after the award of the judges, was purchased by no less than 1600 visitors, and a leisurely uncrowded examination of so magnificent a show was well worth the higher price charged on that day. With the exception of the horse classes, which, compared with the unusual show at Chelmsford, presented a somewhat diminished number, there was an extraordinary increase in all the classes of live stock exhibited, 1200 animals being shown in all against 900 of last year. Devons, Herefords, and Short-horns were all more numerous than they have been; the show of pigs has never been half so numerous; and the South-Down and other short-woolled breeds of Sheep have never been surpassed. The judges in the pig classes and in those of South-Down sheep have had an extraordinarily arduous task. The classes of sheep and horses being reported on below in detail, we shall confine our more general remarks here to the classes of cattle.

The first prize short-horn bull is the property of Mr. Stirling of Keir. He is a very large beautifully formed animal of roan colour. He was the 2d prize yearling bull at Carlisle; Master Butterfly, the prize bull at Chelmsford, being first on that occasion also. He was then the property of Mr. Fawkes, was shown successfully at the Yorkshire meeting of that year, and then sold for 200 guineas to his present owner, who has refused 1000 for him. He is descended from Lansdowne and Cramer, bulls bred and owned by the late Lord Ducie at Tortworth. Mr. Fawkes again takes the prize in the class of yearling bulls, as he has done now for three years in succession. Colonel Towneley is successful in the cow classes, taking both the prizes with animals which have been successful before at Chelmsford and at Paris. Mr. Fisher Hobbs, Mr. Douglass, of Drem, N.B., and Mr. Booth, are among the most praiseworthy and successful of the exhibitors. Mr. Marjoribanks takes the first prize in bull calves with the "Great Mogul," the 400 guinea calf sold at his sale in the spring.

The show of Herefords was extraordinarily great in number and good in quality, 5 bulls, 8 yearlings, and

5 calves competed in the male classes; 11 cows, 9 heifers, and no fewer than 19 yearlings competed in the female classes. Among the successful candidates are Messrs. Williams of Hay, Price of Leominster, and Lords Bateman, Berwick, and Radnor. The Devons are also, as might have been expected, present in unusual numbers—the old bulls are an extraordinarily good class—and the female classes are very numerous. We shall be able to give a fuller report of some of the animals hereafter.

The prizes offered for Channel Island cattle did not succeed in bringing a large number to the yard, and the show of Guernsey and Jersey bulls and cows included but 15 animals, one class, that of young bulls, being entirely unrepresented.

In pigs the judges had no fewer than 73 boars and 93 sows to compare, and there are besides 20 pens of sow pigs. The classification is into large and small breeds respectively, but the smaller sorts exhibited are increasing in size year by year, so that this description no longer obtains—neither does any other common description apply, for breeds of all colour are thus mixed up together, and it is difficult. we imagine, for judges unprejudiced in favour of one or other of the many sorts included here under a common term to be obtained. The prevailing kinds are the Cumberland white and the Essex black commonly known as Fisher Hobbs breed; and both appeared in great numbers. The prizes are awarded chiefly to the white breed, Mr. Watson, of Wigton, Cumberland, being especially successful. We were glad to see Mr. Fisher Hobbs himself again an exhibitor of the stock in which he has so long excelled.

The principal event of this day apart from the opening of the cattle yards was a visit from H.R.H. the Prince Consort, greatly to the enjoyment of the Salisbury authorities and people, and we doubt not to his own, for he spent two hours in a leisurely examination of the cattle yards and implements, and never witnessed a finer show of cattle on the many previous occasions when he has honoured the Society by his presence. In the evening the Council dinner took place; about 100 were present, and Mr. French, an American gentleman, the Hon. Sidney Herbert, and Mr. Estcourt were among the speakers.

THE SHOW OF HORSES.

The show of agricultural horses was decidedly inferior to that of Chelmsford. It is some years since we have seen so many inferior animals exhibited as at the late show at Salisbury. This is however scarcely to be regretted or complained of. It is peculiar to a district in which an exhibition of stock has not previously taken place. The preponderance of bad horses came from the neighbourhood of the show yard or the adjoining counties, and the comparison between them and many of the noble animals coming from all parts of England served the three-fold purpose of rendering the avocations of the judges somewhat easy, enabling the public to appreciate by comparison the great merits of many first-class animals, and affording to the owners of inferior animals a lesson of the utmost importance, although at the expense of the estimation in which they had previously held their own animals.

We find in Class I., stallions for agricultural purposes over 2 years old, no less than 36 animals entered, embracing Suffolk, Clydesdale, and other breeds. The prize was awarded to No. 281, a very fine grey horse belonging to Mr. Hildyard, and although a very large horse apparently an active one. He certainly appeared to have rather too much hair about his legs to please our eyes, and on the whole somewhat too much of the drayhorse character. Large horses were, however, somewhat fashionable, for the second prize was awarded to another grey which gained the first prize as a drayhorse at the Lincoln Meeting. This animal was, however, certainly a very fine animal, and if we are supposed to bear in mind, what is too frequently the case, that a large and superior horse is required to unite with a small and inferior mare, and thus to raise the size and quality of a breed of horses in a certain district, then, undoubtedly, size presents an advantage. We have no right, however, to suppose that a district abounds with undersized inferior mares; we rather ought to assume that a breeder of first-class horses, if he employs a first-rate horse, will also select a superior mare for his purpose. The second prize horse we find from the catalogue, though a grey, is a half Suffolk; showing, we think, that although, like the breeder of Leicesters or South-Downs, the Suffolk man cannot afford to cross with other breeds in his own district, yet out of a certain line where colour and purity of breed is less cared for, the Suffolk horse may with the utmost advantage be crossed with other breeds. In this class, amongst many indifferent horses, we observed some very fine animals both of the Midland Counties, the Suffolk, and the Clydesdale breeds: we would point out No. 275, a fine Clydesdale belonging to the President of the Society; also No. 287, a fine 4-year old Suffolk belonging to Mr. Barthrop, and a very fine horse of Mr. Biddle.

In Class II. 2-year olds, there were 22 entries, and some very good animals amongst them, and a much less proportion of bad horses than in the first class. Mr. S. Clayden's Suffolk colt Royal George was the winner of the first, and Mr. W. Wilson's Young Duke, that of the second, and both animals deserving the honour.

Class III. For mares and foals both prizes were awarded to Suffolks, one to Mr. S. Wolton, the other to Mr. S. Wrinch; the latter, though a winner of the second prize was, we must confess, our favourite, and appeared to be a very perfect animal, having size, symmetry, and activity. Whilst writing on this class we must express a strong opinion that if foals are exhibited they ought to be shown for prizes separate from the dam, as is the case in the Suffolk shows.

Class IV., for agricultural fillies, with 14 entries, brought forward some nice animals. The prize was given to No. 347, a promising chestnut filly, the property of Mr. Long of Amesbury; whilst the second was awarded to, we thought, a still superior animal of the Suffolk breed, belonging to Mr. S. Wrinch.

We next come to the dray horses, Class I., with only five entries, the prize being most properly given to a remarkably fine Oxfordshire brown horse (No. 361), combining in a massive form strength, symmetry, and activity. Mr. James's No. 359 was also a promising animal.

We must postpone the notice of the lighter horses until next week, merely observing that there were 38 animals exhibited in the four classes.

SHEEP.

All the classes are filled with a larger proportion of first-class animals than we have ever witnessed before. The Long-wools, South Downs, Short-wools are especially meritorious, and the Leicesters not behind the mark of former years.

LEICESTERS.—Mr. Sanday's shearling rams are beautifully formed, with good backs and loins, chines full out, plaits good, and wool rather heavy; he quite deserves the great share of honours which have been awarded him. Mr. Pawlett's shearling rams are somewhat smaller in frame, but very compactly made, and of fine character. Mr. Sanday's prize rams older than one year are very straight, broad, and with very good backs; their ears long and fine, and necks exceedingly good. Mr. Cresswell shows some most useful and valuable sheep. The ewes are very handsome, but somewhat small; most of them in very level lots.

SOUTH-DOWNS.—Perhaps an unparallelled show; but certainly amazingly large, and of extraordinary importance in respect of the universally high quality of the animals. Mr. Jonas Webb takes all the prizes for rams, and so is amply repaid for the barren result of his competition last year. It is a high testimony to the superiority of his rams, that when the judges were coming to their final decision, the six shearlings they selected as the best all turned out to be Mr. Webb's. The extraordinarily complete symmetry, the fine heads, bone, and hand of these sheep, their capacity for growth and good feeding without being too delicate, and the good quality of their fleeces, are sufficient to account for the large sums which were realised by the remainder of this flock of rams at the recent letting. But there are plenty of first-class rams in the yard. Mr. Rigden, Lord Walsingham, the Duke of Richmond exhibit animals as good as usual; Mr. Sainsbury has some very large and well-formed sheep, although inferior in several points to Mr. Webb's. Mr. Scott Hayward shows some exceedingly useful shearlings with good wool; and Mr. H. Overman's are worthy of the commendation received. Mr. Webb's rams of other ages are the best in their class; and those of Messsrs. Sainsbury, Overman, Rigden, and Scott Hayward, are especially valuable as specimens of profitable South-Downs. The Earl of Radnor's ewes are very delicate and beautiful; as also those of Mr. Pope. Some question has been raised as to the propriety of the adjudication in the class of ewes; but we think Mr. Overman fairly entitled to his prizes.

LONG-WOOLS.—A remarkably superior show; not a plain or second-rate animal in the pens. The prize shearling of Mr. Lane is of noble form, having a beautiful head, good neck and chine, broad chest, good loin and plait, and thick wool. His second-prize shearling is inferior in his shoulder, rump, and back not so well covered. Mr. Garne's shearlings are very large and handsome; and we name as very superior animals those of Messrs. Beale Browne, Tombs, Fletcher, Hewer, and Lane. Mr. Hardy and Mr. Garne are deservedly successful competitors in Class II., their rams being magnificent specimens of the Cotswold breed.

SHORT-WOOLLED SHEEP.—Whatever steps the Society may have taken unadvisedly, the offering of prizes for short-wools other than South-Down is a great success. No less than 128 entries in the new class prove that it was required, and the present meeting is in the centre of a great short-wool country. We cannot too much praise the rams of Mr. Adney, Mr. Humfrey, Mr. Spencer, the Earl of Portsmouth, Mr. Brown, and Mr. John Shittler. The Shropshire Downs appear to great advantage in this class, and are a very valuable breed—perhaps equal to any of the Downs in profitable qualities—and the Hampshire Downs (having also a special class to themselves) form one of the most interesting features of the Show. These sheep being the principal local breed, and growing daily into greater favour, a few words respecting it seem to be here required. This breed has resulted from a cross between the pure South-Down and the old horned white-faced sheep of Hampshire and Wiltshire. It was commenced in the early part of the present century; and now possesses the leading characters of the two parent breeds. In some of the best farmed districts of Wilts, Hants, and Berks, these sheep have gradually displaced the South-Downs, and have in themselves afforded a distinct breed for crossing with the longer woolled sheep. Their principal characteristics as compared with the South-Down were (until very lately) an increased size, more maturity, and a hardier constitution. The face and head were larger and coarser in their character; the frame heavier, the carcass long, roomy, though less symmetrical than that of the South-Down, and the wool of a less fine and also a longer staple. But the present improved Hampshire Down possesses both shape, quality of wool, aptitude to fatten, and early maturity, all the qualities for which the pure South-Down has been so long celebrated, combined with a hardier constitution. The lambs are usually dropped early and fed for the market as "lamb;" or if kept until the following spring, they weigh from 80 to 100 lbs., and command a good market.

Mr. W. Humfrey, Mr. Stephen King, Mr. Pain, Mr. Coles, Mr. Canning, and Mr. Waters take the prizes for exceedingly good animals, of which we especially admire the pens of lambs and the shearling ewes.

The following Table shows the number of Sheep at each of the late meetings, the influence of locality upon the number of entries of each breed, and the general increase of the Sheep Classes.

Meeting.	Leicesters.		South-Downs, &c.		Long-Wools.		Other Breeds, &c.				Total Sheep.
	Rams.	Pens of Ewes.	Rams.	Pens of Ewes.	Rams.	Pens of Ewes.	Rams.	Pens of Ram Lambs.	Pens of Ewes.	Short-Wools and Hampshire Downs.	
Lewes, 1852	55		88		15		25 Romney Marsh ..				183
Gloucester, 1853 ..	64		95		80		53 Shropshire.. ..				292
Lincoln, 1854	102		67		96		38 Lincoln				303
Carlisle, 1855	119		51		63		27 Mountain, &c. ..				330
Chelmsford, 1856 ..	60		105		52		2 Foreign				219
Salisbury, 1857 ..		56		90		69		135	16	34	448
		10		19		15					

The Number of Exhibitors is as follows:—

Place of Meeting.	Number of Counties represented.	Total Number of Exhibitors.	Number of Exhibitors from the District of the Show
Lewes, 1852	18	37	16
Gloucester, 1853 ..	18	63	42
Lincoln, 1854 .. .	16	75	34
Carlisle, 1855	28	78	20
Chelmsford, 1856 ..	15	39	4
Salisbury, 1857 ..	..	86	38

We append the award of the judges.

SHORT-HORNED CATTLE.

JUDGES: Thomas Trotter, John Wright, and William Bartholomew.

Class 1. Bulls under 4 years old.—30*l.* to William Stirling, M.P., of Keir, Dumblane, Perth; 15*l.* to J. H. Langton, of Sarsden House, Oxon.

Class 2. Yearling Bulls.—25*l.* to F. H. Fawkes, of Farnley Hall, Otley; 15*l.* to J. W. Brown, of Uffcott, Swindon.

Class 3. Bull Calves.—10*l.* to Stewart Majoribanks, of Bushey Grove, Watford; 5*l.* to Richard Booth, of Warlaby, Northallerton.

Class 4. Cows in Milk or in Calf.—20*l.* to Lieut.-Colonel Towneley, Burnley; 10*l.* to Lieut.-Colonel Towneley.

Class 5. Heifers in Milk or in Calf, under 4 years old.—15*l.* to James Douglass, of Athelford Farm, Haddington; 10*l.* to Richard Booth, of Warlaby, Northallerton.

Class 6. Yearling Heifers.—10*l.* to Lieut.-Colonel Towneley; 5*l.* to Richard Booth, of Warlaby, Northallerton.

HEREFORDS.

JUDGES: G. W. Baker, J. Tanner Davy, and W. Symonds.

Class 1. Bulls under 4 years old.—30*l.* to Edward Williams, of Lowess Court, near Hay Brecon; 15*l.* to Phillip Turner, of the Leen Pembridge, near Leominster.

Class 2. Yearling Bulls.—25*l.* to Edward Price, of Court House, Pembridge, near Leominster; 15*l.* to Richard Hill, of Golding Hall, near Shrewsbury.

Class 3. Bull Calves.—10*l.* to Lord Bateman, near Leominster.

Class 4. Cows in Milk or in Calf.—20*l.* to Lord Berwick, of Cronkhill, near Shrewsbury; 10*l.* to Mrs. Palmer, of Mulford, near Ilchester.

Class 5. Heifers in Milk or in Calf, not exceeding 3 years old.—15*l.* to Richard Hill, of Golding Hall, near Shrewsbury; 10*l.* to Phillip Turner, of the Leen, Pembridge.

Class 6. Yearling Heifers.—10*l.* to Earl of Radnor, Highworth; 5*l.* to Lord Berwick.

DEVON CATTLE.

Class 1. Bulls under 4 years old.—30*l.* to James Davy, of Flitton Barton, near South Molton; 15*l.* to John Bodley, of Stockley Pomeroy, near Crediton.

Class 2. Yearling Bulls.—25*l.* to James Wentworth Buller, M.P., of Downs, near Crediton; 15*l.* to John C. Halse, of Molland, near South Molton.

Class 3. Bull Calves.—10*l.* to James Quartly, of Molland House, South Molton. 5*l.* to H.R.H. the Prince Consort.

Class 4. Cows in Milk or in Calf.—20*l.* to James Quartly; 10*l.* to ditto.

Class 5. Heifers in Milk or in Calf, under 4 years old.—15*l.* to Edward Pope, of Great Toller near Dorchester; 10*l.* to James Hole, of Knowle House, near Dunster.

Class 6. Yearling Heifers.—10*l.* to James Quartly; 5*l.* to William Mullings Gibbs, of Bishops Lydeard, near Taunton.

CHANNEL ISLANDS' CATTLE.

Class 1. Bulls.—10*l.* to Alexander Elphinstone, of Chuten Glen, Christchurch.

Class 3. Cows in Milk.—5*l.* to H. C. Compton, of the Manor House, Lyndhurst.

Class 4. In calf Heifers, under 3 years old.—5*l.* to James Beckingham, of Dell Farm, Church Oakley, Hants.

Class 5. Yearling Heifers.—5*l.* to L. P. Maton, of Maddington, Devizes.

OTHER ESTABLISHED BREEDS,

(Not including the Short-horn, Hereford, Devon or Channel Islands' Breed.)

Class 3. Cows in Milk or in Calf.—10*l.* to Thomas R. B. Cartwright, of Aynho, near Brackley, Northampton.

Class 4. Heifers in Milk or in Calf, under 4 years old.—5*l.* to Rev. Morton Shaw, of Rougham Rectory, near Bury St. Edmunds.

HORSES.

JUDGES: William Dickinson, J. H. Bland, Samuel Watts, and John Booth.

AGRICULTURAL HORSES GENERALLY.

Class 1. Stallions for Agricultural Purposes, foaled on or before the 1st of January, 1855.—30*l.* to T. B. T. Hildyard, of Flintham Hall, near Newark; 20*l.* to William Baker & Son, of Bury Farm, Stapleford, Cambridge.

Class 2. Stallions for Agricultural Purposes, foaled in 1855.—20*l.* to Samuel Clayden, of Little Linton, Cambridgeshire; 10*l.* to William Wilson, of Baylham Hall, near Ipswich.

Class 3. Mares and Foals for Agricultural Purposes.—20*l.* to Samuel Wolton, jun., of Kesgrave, near Woodbridge; 10*l.* to Samuel Wrinch, of Great Holland, near Colchester.

Class 4. Two year-old Fillies, for Agricultural Purposes.—12*l.* to William Long, of Amesbury, Wiltshire; 10*l.* to Samuel Wrinch.

DRAY HORSES.

Class 1. Stallions foaled on or before the 1st of January, 1855.—15*l.* to William Buller, jun., of Hanwell Fields, near Banbury.

Class 2. Stallions foaled in the year 1855.—10*l.* to Lord St. John, of Melchbourne, near Higham Ferrers.

Class 3. Mares and Foals.—10*l.* to James Rawlence, of Bulbridge, Wilton, near Salisbury.

Class 4. Fillies foaled in the year 1855.—Prize withheld.

OTHER HORSES.

Class 1. Thoroughly bred Stallions for getting Hunters.—30*l.* to Thomas Groves, of Plompton Hall, near Knaresborough; 20*l.* to Thomas Manfield, of Thirkeby Bridge, near Thirsk.

Class 2. Stallions for getting Hackneys.—20*l.* to James Godwin, Allington, near Devizes.

Class 3. Brood Mares for Breeding Hunters.—20*l.* to Thomas Fraser Grove, of Seagry House, near Chippenham.

Class 4. Brood Mares for Breeding Hackneys.—15*l.* to John B. Starky, of Spye Park, near Chippenham, Wilts.

SHEEP.

JUDGES: Thomas Twitchell, Charles Stokes, and William Tindall.

LEICESTERS.

Class 1. Shearling Rams.—25*l.* to W. Sanday, of Holme Pierrepont, Nottingham; 15*l.* to ditto.

Class 2. Rams of any other age.—25*l*, to ditto; 15*l.* to ditto.

Class 3. Pens of 5 Shearling Ewes of the same flock.—20*l.* to ditto; 10*l.* to ditto.

SOUTH-DOWN, OR OTHER SHORT-WOOLLED SHEEP.

JUDGES: W. H. Beauford, E. Trumper, and H. Fookes.

Class 1. Shearling Rams.—25*l.* to Jonas Webb, of Babraham, near Cambridge; 15*l.* to Jonas Webb.

Class 2. Rams of any other Age.—25*l.* to Jonas Webb; 15*l.* to Jonas Webb.

Class 3. Pens of five Shearling Ewes of the same flock.—20*l.* to Henry Overman, of Weasenham, near Rougham; 10*l.* to ditto.

SHORT-WOOLLED SHEEP.

(Not qualified to compete as South-Downs.)

Class 1. Shearling Rams.—25*l.* to George Adney, of Harley, near Much Wenlock, Salop; 15*l.* to William Humfrey, of Oak, Ash Chaddleworth, near Wantage, Berks.

Class 2. Rams of any other Age.—25*l.* to Samuel Meire, of Castle Hill, Much Wenlock, Salop; 15*l.* to George Adney, of Harley, near Much Wenlock.

Class 3. Pens of five Shearling Ewes of the same Flock.—20*l.* to W. B. Canning, of Chisledon, near Swindon; 10*l.* to W. R. Shittler, of Bishopston, near Salisbury.

LONG-WOOLLED SHEEP.

(Not qualified to compete as Leicesters.)

JUDGES: Henry Beevor, John Clarke, and E. L. Franklin.

Classs 1. Shearling Rams.—25*l.* to William Lane, of Broadfield Farm, Northleach, Gloucester; 15*l.* to William Lane.

Class 2. Rams of any other age.—25*l* to Edward Handy, of Sierford, near Cheltenham, Gloucester; 15*l.* to William Garne, of Aldsworth, near Northleach.

Class 3. Pens of 5 Shearling Ewes of the same flock.—20*l.* to William Garne; 10*l.* to William Lane.

PIGS.

JUDGES: Henry Thurnall, J. Unthank, and B. Swaffield.

Class 1. Boars of a large breed.—10*l.* to John Harrison, jun., of Heaton Norris, near Stockport; 5*l.* to Joseph Tuley, of Truewell Farm, near Keighley, Yorkshire.

Class 2. Boars of a small breed.—10*l.* to George Mangles, of Givendale, near Ripon, Yorkshire; 5*l.* to Lieut.-Col. Charles Towneley, of Towneley Park.

Class 3. Breeding Sows of a large breed.—10*l.* to William Hewer, of Sevenhampton, near Highworth; 5*l.* to John Harrison, jun., Heaton Norris.

Class 4. Breeding Sows of a small breed.—10*l.* to H. Watson, of Bolton Park, near Wigton, Cumberland; 5*l.* to Thomas Crisp, of Butley Abbey, near Woodbridge, Suffolk.

Class 5. Pens of 3 Breeding Sow Pigs of a large breed, of the same litter, above 4 and under 8 months old.—10*l.* to George Bowes Morland, of Abingdon, Berks.

Class 6. Pens of 3 Breeding Sow Pigs of a small breed, of the same litter, above 4 and under 8 months old.—10*l.* to R. H. Watson, of Bolton Park.

SPECIAL PRIZES.

Given by the Local Committee at Salisbury.

HAMPSHIRE DOWN SHEEP.

JUDGES: George Brown, T. Ferris, and Joseph Blundell.

Class 1. Shearling Rams.—20*l.* to William Humfrey, of Oak Ash, near Wantage; 10*l.* to William Humfrey.

Class 2. Rams of any other age.—20*l.* to William Humfrey; 10*l.* to Stephen King, of Old Hayward Farm, near Hungerford.

Class 3. Pens of 5 Ram Lambs.—20*l.* to John T. F. Pain, of North Houghton Manor, near Stockbridge; 10*l.* to Robert Coles, of Middleton Farm, Norton Bavant, near Warminster.

Class 4. Pens of 5 Shearling Ewes.—20*l.* to W. Browne Canning, of Chiseldon, near Swindon, Wilts; 10*l.* to Edward Waters, of Stratford Sub Castle, near Salisbury.

SPECIAL PRIZE.

Offered by M. Dutrone, of Sarlabot, near Trousseauville-Dives, Canton of Dozulé, Department of Calvados, in France.

Best Polled Bull of any age.—The Gold Medal to G. D. Badham, of the Sparrow's Nest, near Ipswich.

THURSDAY, *July* 23.—We have to report an extraordinarily crowded yard, which, the admission being still 2*s.* 6*d.* a-head, must result in a large addition to the Society's funds. The cattle and live stock generally proved the most interesting side—and the pens of poultry attracted a great number of spectators. We may say of this that the Dorking breed came out in great force, much beyond any other section, and that Captain Hornby and other well-known breeders were among the successful exhibitors.

We must not omit mention of the stands of seeds aud plants by Messrs. Lawson and Messrs. Gibbs—both of them justly commended by the judges. Mr. Lawson's series of samples illustrative of the sorts of Wheat grown in this country was particularly instructive and good.

We have unfortunately no general meeting of members at dinner to report on this as on previous occasions. It is greatly to be lamented that the only occaion throughout the year when members of the Society can meet upon the great scale should have disappeared. There is nothing in membership of the Society now to distinguish one from the general body of spectators. It is indeed something by contribution of 1*l.* to aid so great a movement as once a year bears fruit at the country meetings of the English Agricultural Society, but the thing would be more satisfactory and lasting if membership consisted in something more than being like the thousands present at the meeting—mere spectators of so great a success as Salisbury has exhibited.

Home Correspondence.

Small Farms in Ireland.—Having thrown the cold wet clay lands, as indicated in a paper on this subject in the *Agricultural Gazette* of the 16th of May, into lands of draining breadths the next thing for consideration is a mode of cropping, not too widely departing from the customary tillage of the country, but that shall still carry on to an improved system of culture. Potatoes must ever be, till changes yet unthought of occur, the great groundwork of Irish culture, and will constitute our principal, nay almost our only worked fallow crop, and therefore may be considered the first of our series under any system we may adopt, and whether they break upon Grass or succeed a cereal. In the first case the common lazy bed is without question best adapted, but why *lazy* bed? It is a tillage the most laborious, and though so much sneered at is not without its good purposes; the manure is spread evenly and with great care, in a thin flake, over the whole ground and is thus placed in immediate and widely extended contact with two layers of earth so as to act upon a very considerably extended surface of inorganic elements, at the same time that the clay with which it is covered is for some weeks exposed to direct aerial action, then a second stratum of earth (the beds being previously hand weeded) is taken from the furrows to the full depth of the active soil, and, where this is not deep, some of the undersoil is also raised, thus increasing the depth of the active soil and exposing crude inorganic matters to renew its fertility and thus remains exposed to atmospheric influence till the digging of the crop and to all the entangling benefits of an umbrageous covering while the deep furrows themselves drink in whatever the fallings of the air, rain, and dew bring to them. But we have rather to do with a cereal stubble and though the plan I am about to recommend involves hand labour in the tillage of the Potato, it can be no objection to it on our small farms for the whole Potato tillage on them is of hand labour, the only horse labour being confined to ploughing the land into beds and taking out the manure. Well, then, while the drains are left open ploughing cannot take place; the beds, if beds are preferred, must be laid out by hand, all the better, for the plough in these wet clays with our uncertain and dripping climate cannot be used so profitably in the tillage of Potatoes, besides it is most generally badly done by the ill-trained horses and the untrained ploughmen. Although without draining a flat tillage may not be advisable, since the furrows of beds act as drains, yet with the open drains I have suggested so much drainage will be effected as to permit of a flat tillage; I would therefore, having first drawn out the manure, open furrows successively across the lands with the spade, each fresh opening furnishing earth for filling in the preceding one, depositing in each as opened the manure and the sets. In thus working I leave my rows two feet apart, which I find sufficient for the future working and I believe for a large production of crop, having very generally had, before the disease appeared, about 12 tons to the acre. I strike in the spade to about the depth of 9 inches, taking up what clay comes with the spade, say the moiety of that loosened which is thrown into the previously opened furrow, the other moiety being left, the ground between the rows remaining unstirred. When the plants are sufficiently up to mark the rows I dig or rather fork the hitherto unstirred spaces between the rows, breaking the clay and thus partially spreading it among the plants, seldom anything more is required as the plants very presently cover the ground and prevent the growth of weeds. The forking at this time takes place before the spreading out of the tuber cords and has the good effect of opening the soil to the admission of the oxygen of the air to act on the carbon of the manure. The labour is comparatively light to that of the lazy beds, and is consequently less expensive and quicker got over, and the ground is left in a cleaner state and, I believe, the crop will be found from a third to a fourth heavier. It has been recommended on good authority to plant whole good sized Potatoes 6 inches apart in rows at 4 feet distances. I doubt not in this way they would be very productive, but it is so little likely to find favour with our farmers that I hardly dare refer to it; yet, it may tend to remove some of the objections to it if I point out the possible advantage of planting rows of Drumhead Cabbage between the rows of Potatoes. Since the loss of the Potatoes by the disease, the value of Cabbage for feeding swine has been discovered, and it is now so much depended on as to be everywhere cultivated, not only in the garden, but—and the practice has become general—on the brows of the Potato ridges, and it is not considered that the Potato crop is deteriorated by it, and the Cabbages grow certainly very well in this way. I think it very probable in this way that a full crop of Potatoes as well as one of Cabbages may be obtained, Cabbages at 4 feet by 2 are known to produce a full crop. But as Cabbage is a perishable crop, Mangel Wurzel, Swedes, and Rape may be also introduced. This land thus partially drained would give Wheat. It is true that during the more general prevalence of mildew among Potatoes the Wheat suffered so much from it that its culture was very much abandoned in Ireland, but within the last two or three years confidence in it has been gradually restored and now there would be very little hesitation in growing it anywhere did not prejudice so generally exist in favour of Oats. The straw of Oats is also more in esteem both as fodder and litter, as for dung it breaks down more readily, but if winter green feeding of cattle were once pursued the straw of Wheat would surely find its value. The Wheat might be followed by Vetches, Italian Rye-grass, and Red Clover and Rye for spring and summer feeding in the house or yard; the Rye succeeded by Swedes, the Vetches by transplanted Rape, the following year a crop of Oats might be taken. A great difficulty generally prevails in the latter part of April and earlier part of May in feeding cattle; the growth of Grass on these cold lands is very late and until June there is but little vegetation on them but Italian Rye-grass on such land afforded me a cutting commencing April 18th when hay was 4*l.* or 5*l.* a ton. What a loss it is to throw away your manure on transplanted Rape and Rye and Vetches. Why not keep it for your Potatoes? This was a common wayside expression. No, my friends; they feed my cow, and she makes me for my Potatoes as much manure as I lay on the Rye, Vetches, and Rape. Did I content myself with scant Grass and straw I should have no milk in the winter. Now I have milk and also as much and better manure for my Potatoes, and my cow will in the summer show her winter feeding, and my two crops of grain will be as heavy as your three crops grown in succession. The Italian Rye-grass should not, to give an early bite, be fed off after the grain crop is removed and should be sown alone and the seed not spared, but then (when thickly sown) Clover must not be sown with it, as the Clover would be smothered by it. I prefer sowing them separately, the Clover will then succeed the Rye-grass. But wherefore write? The readers of the *Agricultural Gazette* will scarcely benefit by anything I say, and those who might benefit do not read. An example before their eyes is the one thing needful. When will that be shown them in our backward places where it is most wanted? *J. M. Goodiff.*

The Black Grub.—I do not remember to have noticed in your *Gazette* any mention of a destructive pest which has appeared partially in this neighbourhood. It is a small black grub, about ½ an inch long at its most active state, which sweeps over a field of 6-week old Swedes, leaving the plants much in the condition of Mulberry leaves when thoroughly stripped by a flock of hungry silkworms; the effects are most disastrous, and an otherwise promising crop is now being ploughed up of necessity. Can you suggest a remedy? I have omitted to add that a crop of ordinary Turnips in one of the fields which I have seen thus ravaged was in a most healthy and vigorous growing state. *A Chepstovian.*

Fingers and Toes in Turnips.—If I remember right I had a correspondence in or about the year 1811 on this subject with the very Mr. Spence (then of Drypool, Hull) who addresses you in your last Number. Whilst I was highly gratified to see his signature once again, I could not but be amused that after the lapse of nearly half a century we are no nearer the cause of fingers and toes, or anbury as we call it in Norfolk, than we were then. However desirable it may be to trace the origin of the mischief (with which I suspect, with Mr. Spence and your correspondent "Carabas," insects are mainly connected), I cannot but regard this as a minor consideration, in comparison with the fact that we are all, or may be, in possession of a remedy at once safe, simple, and effectual, namely, a coat of marl, clay, or, according to "Carabas," lime. What I told Mr. Spence in 1811 I can but repeat in 1857—whenever you come to a field of anburied Turnips in Norfolk, the only observation it excites is, "the land wants claying." It is forthwith clayed before the piece comes round for Turnips again, and the disease is seen no more, at least not for many years. So sure as effect follows cause, so sure is anbury cured by clay. But what is clay?—an indefinite term, I grant, meaning mere brick-earth in one county, an active calcareous substance in another; so of marl. The marl of Norfolk differs as widely from the marl of Lancashire as chalk from cheese; both, it is true, effervescing in acids, but the former immensely more than the latter. If therefore I am told "You are confusing us with a multitude of nostrums of very different qualities," my reply would be, "Get your vinegar cruet, and whatever will effervesce therein, that take; the greater the effervescence the less the quantity wanted." Thus 30 or 40 loads of the white

marl of Norfolk would be as effective as three or four times the quantity of the common clay of the same county, or as the red marl of Lancashire. I may here add that what is generally known as Norfolk clay is not to be confounded with the blue lias of Gloucestershire, or with the London clay. The small chalk nodules in the former will at once show that it is calcareous, but, to make sure, uncork your vinegar bottle; that is the safest test. I think I may say that whatever is calcareous will cure the anbury, and with this, methinks, I may wind up my remarks. *Samuel Taylor, Gloucester, July* 18.

Miscellaneous.

Mangel Wurzel for Horses.—I seldom give my horses any hay; they get 2 bushels per week of crushed Oats, plenty of fine cut and sifted Wheat-straw, or Oat-straw, and 20 to 30 lbs. of Mangel Wurzel per day; their condition is first-rate. The Mangel is a perfect substitute for hay, and keeps the horses in excellent health. The Mangel may be used immediately after being pulled, provided there is plenty of dry chaff with it. There is no reason why Mangel should not fatten horses as well as bullocks and sheep. I know a very extensive farmer in Suffolk who uses Mangel on a large scale for his horses, and finds it a great economy as compared with hay. The Mangels are cleaned from any soil, and thrown whole into the manger. *Mr. Sheriff Mechi's Pamphlet.*

Experiments on Turnips with different kinds of Manures.—In the present state of the guano market, the following experiments will, we trust, be useful to those who are at a loss as to the best substitutes to use for Peruvian guano. The whole of the field was manured with good farmyard dung, at the rate of 20 tons per imperial acre, and the following substances were applied at a cost of 26*s.* 6*d.* per imperial acre. All the different ridges, set apart for the experiments, were managed in the same way, and as there was considerable variety in the condition of the soil, we thought it better to make a series of experiments over the field, instead of one, equal portions of land being taken throughout, and the produce of adjoining ridges weighed:—

1st Ex.	Dissolved bones and Peruvian guano	gave 6 tons	2 cwt.
	Steamed bones and do.	„ 6 „	8 „
2d Ex.	Steamed bones and do.	„ 6 „	1 „
	Dissolved bones alone, . .	„ 6 „	7 „
3d Ex.	Dissolved bones alone, . .	„ 5 „	17¾ „
	Steamed bones alone, . .	„ 5 „	10¼ „
4th Ex.	Leone guano alone, . .	„ 4 „	7¼ „
	Leone and Peruvian guano, .	„ 5 „	12¼ „

The Turnips were Swedes, which were all sown between the 2d and 20th of May. They escaped the ravages of the fly, and were above an average crop. The principal fact to which we would direct attention in the above experiment is, that as a good crop was grown without any Peruvian guano, and considering the relative prices of it and of steamed and dissolved bones, this season we intend to dispense with the use of it entirely on a field of similar character to that experimented on last year, and we feel convinced that we will raise as good a crop at a cheaper rate. As a set off against this, we give the following report of a comparative trial of artificial manures at Borgue, as detailed in the *Dumfries and Galloway Standard*:—

Manures.	Quantity per Imperial acre.	Value.	Weight of Roots.	Weight of Tops.
	cwt. qr. lb.	£ s. d.	ton cwt. qr. lb.	ton cwt. qr. lb.
Peruvian Guano	5 0 6	2 16 10	20 12 2 3	2 0 5 7
Bolivian do.	5 0 6	2 13 0	19 15 1 22	1 12 1 25
Blood Manure	7 2 9	2 16 10	18 5 3 11	1 2 0 21
Dissolved Bones ..	7 2 9	2 16 10	17 15 0 8	2 0 2 10

The manures experimented upon were all the best of their kind. The land light, upon a clay slate, never grew Turnips before, and in very poor condition. The results may be depended upon as thoroughly accurate, "every Turnip being weighed," and sufficiently extensive for all practical purposes. *Quarterly Journal of Agriculture.*

Notices to Correspondents.

BUTTER: *J R.* Rancidity is due either to the cheesy part of the butter or to the oxygen of the air. The fatty part of the butter and the milk sugar present in it become, simply by contact with decaying curd, converted into butyric and other offensive acids. To preserve butter, therefore, the milk should be separated perfectly by washing in perfectly pure water. And as the tendency of the curd to decay, on which almost all the mischief depends, is checked or retarded by the presence of saturated solutions of salt, sugar, &c., about 1 of salt to 25 of butter should be thoroughly incorporated, so that there shall be no particles of the cheesy part of the butter which shall not be in contact with salt. If you exclude the air, the presence of a saturated solution of salt will not only preserve the cheesy matter from itself undergoing decay, but will render it also unable to induce decay in the sugar and the fat in contact with it (*See Johnston's Agricultural Chemistry.*)

GRASS: *N D & B.* It is a Dactylis (Cocksfoot).

PLEURO; *W Rose.* We have not found the recipe you refer to, but your letter is sent to Mr. Spooner.

POULTRY: *A C.* No fault can be found with your method of feeding the chickens; there are complaints, similar to yours, from all parts. We can only recommend change of food, and frequent change of situation for your fowls; nothing else can be done for them. If you do not regard expense, and are anxious to get a great deal of information respecting poultry houses, &c., we advise you to get "The Poultry Book," in which you will find most copious remarks—in fact, we consider that the chief fault of the book is its dwelling too much on one point. But if you wish *multum in parvo*, and a work that gives the desired information (on feeding and rearing poultry, as well as many useful instructions for building poultry houses) in very few words, and which can, moreover, be obtained for little money, then we strongly advise you to get "Fowls," by Baily.

WINTER OATS: *C A W.* We have not the address of your correspondent.

ORNAMENTAL GARDENING.

LARGE GROUND BASINS suitable for extensive Gardens.

VASES of every variety.

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B. SAMUELSON'S

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PLEASURE GROUNDS, LAWNS, BORDERS, BOWLING GREENS, ETC.

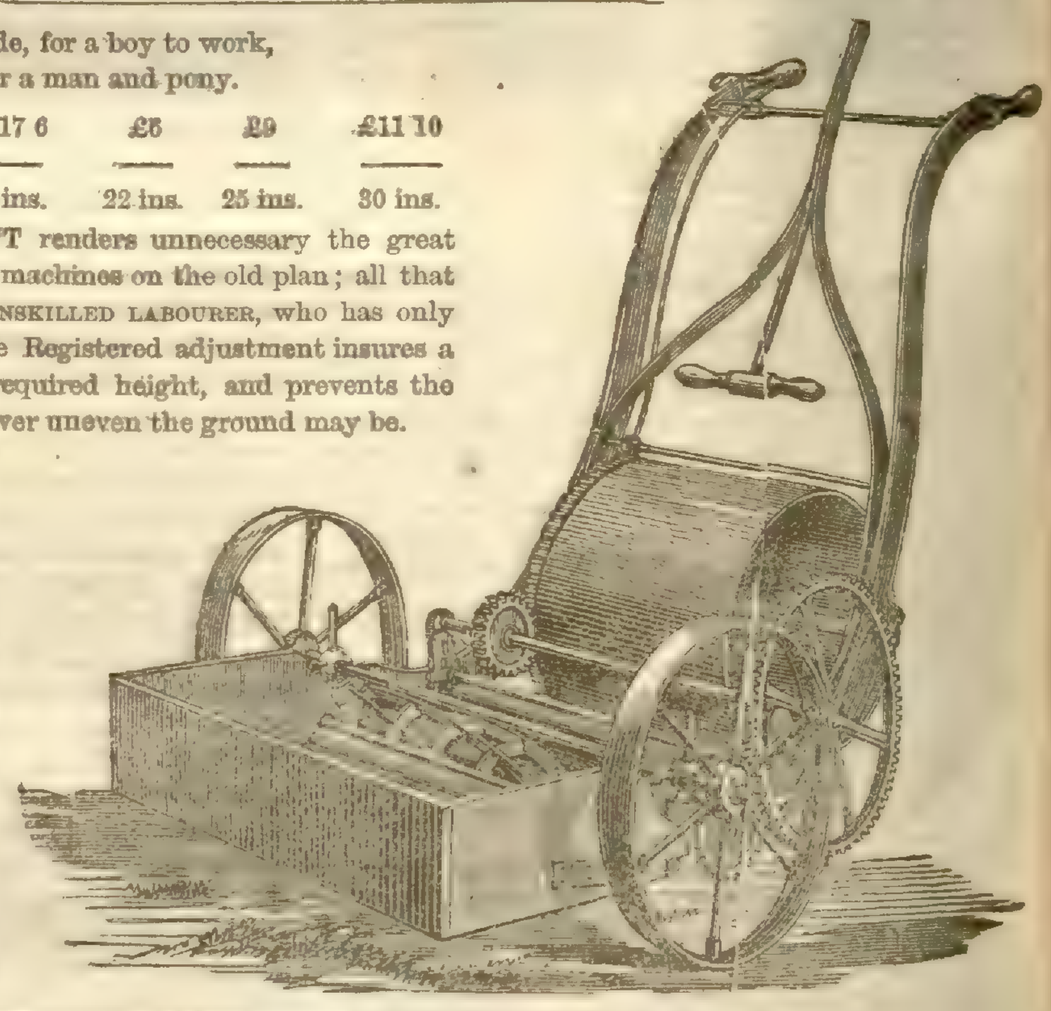
To cut from 9 inches wide, for a boy to work,
Up to 30 inches wide, for a man and pony.

Prices ..	£2 10	£5 10	£5 17 6	£6	£9	£11 10
Width cut	9 ins.	16 ins.	19 ins.	22 ins.	25 ins.	30 ins.

The REGISTERED IMPROVEMENT renders unnecessary the great care requisite in the handling of these machines on the old plan; all that is now required can be done BY ANY UNSKILLED LABOURER, who has only to push the machine before him. The Registered adjustment insures a clean and perfectly level cut of any required height, and prevents the knives from cutting into the soil, however uneven the ground may be.

Copies of testimonials will be forwarded, post free, on application to the Manufacturer.

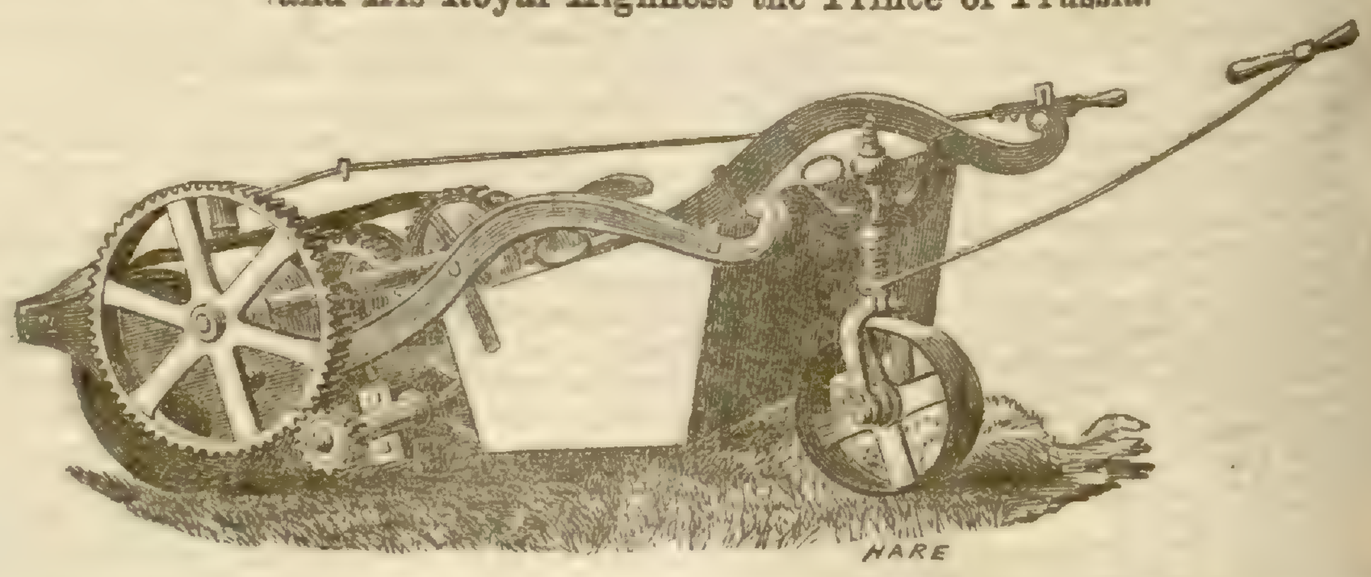
The above may also be procured at the principal Agricultural Implement Depôts in London; of Messrs. J. VEITCH & SON, Exotic Nurseries, Chelsea; of Mr. CHARLES GARROOD, Agricultural Department, and on the Lawns of the Crystal Palace, Sydenham; at the Baker Street Bazaar, Portman Square, London; and of all respectable Ironmongers and Seedsmen in the country.



SAMUELSON, Britannia Works, Banbury.

SHANKS' PATENT MOWING AND ROLLING MACHINE.

Patronised by Her Majesty QUEEN VICTORIA, His Majesty the Emperor of the French, and His Royal Highness the Prince of Prussia.



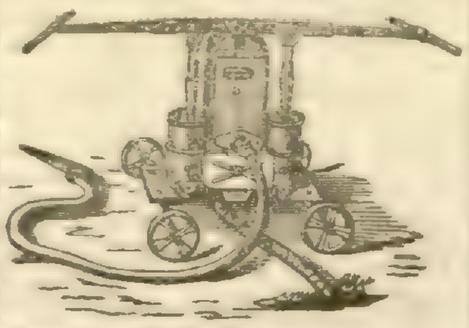
A. SHANKS AND SON,

WHILE soliciting the attention of the Nobility, Gentry, and Gardeners to their HORSE AND PONY MOWING AND ROLLING MACHINES, the completeness and superiority of which are now fully established, at the same time respectfully solicit notice to their new HAND MACHINE, especially adapted for Mowing small Lawns, Verges around Flower Beds, &c. Some of the advantages arising from the use of the new Hand Machine are the following:—It can be used to cut a Verge without any change of wheels or rollers. It will cut close to the edge of Flower Beds and Verges. It is a Rolling as well as a Mowing Machine, and can be used with effect as a Lawn Roller when thrown out of gear. The whole working parts are so modified and arranged as to make it suitable for varieties of work, either on level ground or slopes. The Machine is drawn by means of a handle attached to the spindle, at the lower end of which is the front guiding pulley; this spindle is made to swivel, and a mere novice will at once perceive the advantages of this method not only in regard to the greater ease in working, but also, and more especially, the advantage of the swivel in turning. The method of regulating the Cut is very simple and efficient, it can be done in a few seconds by merely turning a screw without the aid of a Key for that purpose. The Machines are firmly and securely constructed, the cutting parts being made very strong, and consequently not liable to get out of order. The Machine can be managed and worked by a common labourer.

A. SHANKS & SON cannot give a better proof of the superior style in which the Machine executes its work, as well as of the ease by which it can be managed and its economy in the saving of labour, than by referring to the hundreds of places where it is at present in use.

Price from 5*l.* upwards, Illustrated Price Lists forwarded on application.—Sold at the Crystal Palace, and by Messrs. DEAN, COTTAM & HALLEN, BURGESS & KEY, London; Mr. DODDS, 28, Leadenhall Street; Messrs. LEE, Hammersmith; VEITCH, Exeter and Chelsea; and by almost all first-class Nurserymen and Implement Sellers in the country.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London. HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1¼ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.

1¼-inch Flexible Rubber and Canvas Suction for ditto, 2s. 9d. per foot.

1¼ Gutta Percha Suction, 1s. 9d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

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The result of this method of manufacture is tight and long twists, perfect regularity in the size of all meshes, increased strength, and a durability hitherto unequalled. Warranted not to corrode.

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Flock Mattresses	,,	0	6	6	,,	0	18	0
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Sheets, per pair	,,	0	7	6	,,	2	6	0
Blankets, each	,,	0	3	0	,,	1	4	
Toilet Quilts	,,	0	4	0	,,	1	7	
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Portable Folding Bedsteads	,,	0	12	6	,,	4	15	
Patent Iron Bedsteads, with dove-tail joints	,,	0	15	0	,,	9	0	0
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TOURISTS AND TRAVELLERS exposed to the scorching rays of the Sun, and heated particles of dust, will find ROWLANDS KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discolorations fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of Sunburn, or Stings of Insects, its virtues have long been acknowledged. Price 4*s.* 6*d.* and 8*s.* 6*d.* per Bottle. The heat of Summer also frequently communicates a dryness to the hair, and a tendency to fall off, which may be completely obviated by the use of ROWLANDS' MACASSAR OIL, a delightfully fragrant and transparent preparation, and, as an invigorator and purifier of the Hair, beyond all precedent. ROWLANDS' ODONTO, OR PEARL DENTRIFICE, bestows on the Teeth a pearl-like whiteness, frees them from Tartar, and imparts to the gums a healthy firmness, and to the breath a grateful sweetness and purity. Price 2*s.* 9*d.* per Box.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

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TO BE LET, a small NURSERY, within 4 miles of the city.—For particulars, apply to Mr. GOODING, at the Peacock, Bethnal Green.

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TO BE DISPOSED OF, the GOODWILL in TRADE, with early possession, of the business of a Nurseryman and Florist, which has been established for a vast number of years, and is daily increasing in value and importance, owing to the gradual diminution of similar businesses in the locality. The premises occupy an area of nearly an acre and a half, and are in the highest possible state of cultivation, admirably drained, and with a bountiful supply of water. On the ground are erected seven Greenhouses, numerous pits and houses in good working order, also two Tenements with office, stabling, &c. Held by lease for a term of nearly 60 years, at a ground-rent of 25*l.* per annum. There is an extensive and peculiarly profitable trade now connected with the property, but it is assumed that if more capital were introduced a business second to none in or near the metropolis would be the consequence. Purchase money, including Stock, Implements, &c., will be between 3000*l.* and 4000*l.*—Further particulars can be obtained at the offices of Mr. J. J. ORGILL, Estate and House Agent, 551, Oxford Street, Corner of Tottenham Court Road, W.

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TO BE LET, in consequence of the death of the late occupant, A. J. Stewart, the SALT HILL NURSERY, with Greenhouses, Seed Shop, and a comfortable dwelling house on the Premises. The Stock, which includes a fine collection of Camellias, and a large variety of Ornamental Shrubs, &c., together with a Propagating House and two good Pits, to be taken at a valuation, which would not exceed 400*l.* The rent for the Nursery, Dwelling House, and a portion of the glass is very low and the place can be had on a good lease.—Application to MRS. STEWART, on the premises.

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TO BE LET OR DISPOSED OF, Four Acres of FREEHOLD LAND, admirably adapted for a Market Gardener or Nurseryman. The Land is about 300 yards from a Railway Station on the high road, and two hours from London, close to an increasing manufacturing town, containing 7000 population, without a Market Garden in or near it. There is an abundance of water, good soil, and an opening for Trade.—Further particulars (to principals only) G. W., 42, Fish Street Hill, London Bridge, E.C.

2000 IRON HURDLES in use by the Royal Agricultural Society at Salisbury, also the DINING PAVILION as hitherto used at the Annual Meetings of the Royal Agricultural Society of England, if not previously disposed of by private contract will, soon after the Meeting, be sold by Auction, together with some excellent RICK CLOTHS and a large quantity of useful BUILDING MATERIALS.—For further particulars apply to HENRY MANNING, at the Show Yard, Salisbury, or 251, High Holborn, London.

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MUSSCHIA WOLLASTONI.

MR. J. C. STEVENS is instructed to include in his Sale on TUESDAY next a Quantity of SEED of the above exceedingly handsome new and quick-growing Campanulaceous plant, bearing a panicle of numerous orange and purple flowers. The seed was saved last October, and the whole will be offered in one lot at a fixed sum, but will be divided into small parcels should there be no bidder for the stock. A drawing of the plant will be exhibited at the sale.—38, King Street, Covent Garden, July 25.

ORCHIDS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on TUESDAY, July 28, at 1 o'Clock precisely, a COLLECTION OF VERY SELECT ORCHIDS, including many rare species, such as

Vanda Lowi	Galeandra Devoniana
,, Batemani	Phalænopsis rosea
Ærides nobile	,, amabilis
,, Larpentæ	Huntleya fimbriata

&c. &c. &c.

May be viewed the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden.

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MR. J. C. STEVENS will include in the Sale on TUESDAY next an importation of ORCHIDS from the Brazils in good condition, including many plants of Lælia purpurata and other choice sorts.—38, King Street, Covent Garden.

HAMPEN ANNUAL RAM SALE—1857.

MR. JAMES VILLAR is instructed by T. BEALE BROWNE, Esq., to Sell by Auction on MONDAY, July 27, about 60 COTSWOLD SHEARLING RAMS, and Four or Five older SHEEP. As usual a few will be let for the season. Mr. BEALE BROWNE will be happy to see his numerous Friends and Sheep Breeders generally upon this occasion. The Auctioneer ventures to submit that the present Show will more than support the high position the Proprietor has gained as a Cotswold Breeder. Business will commence at 4 o'clock. This Flock took Twenty-one Prizes last year; in Paris, in Ireland, at Chelmsford, Warwick, Worcester, Yorkshire, Monmouthshire, and Gloucestershire. Hampen is 8 miles from Cheltenham, and two from Andoversford

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

WATERPROOF PATHS. BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

"TIFFANY," FOR SHADING CONSERVATORIES.—Manufactured by JOHN SHAW & Co., 40, Princess Street, Manchester.

TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

JOHN SHAW & Co. beg to inform their numerous correspondents that their "Tiffany," for shading Conservatories, &c., may be procured from the following Agents:—

Messrs. Charlwood & Cummins, Seed Merchants, London.
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" Francis and Arthur Dickson & Sons, Seed Merchants, Chester.
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" John Edmondson & Co., Seed Merchants, Dublin.
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Messrs. Osborn & Sons, Fulham, Middlesex.
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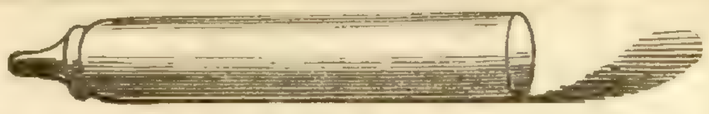

CUCUMBER GLASSES.

24 inches long	2*s.* 0*d.*	16 inches long	1*s.* 4*d.*
22 "	1 10	14 "	1 2
20 "	1 8	12 "	1 0
18 "	1 6	Made to any length.	

PROPAGATING GLASSES.

2 in. diameter	0*s.* 3½*d.* each	12 in. diameter	1*s.* 9*d.* each
3 "	0 4½ "	13 "	2 0 "
4 "	0 5½ "	14 "	2 6 "
5 "	0 6½ "	15 "	3 0 "
6 "	0 8 "	16 "	3 6 "
7 "	0 10 "	17 "	4 0 "
8 "	1 0 "	18 "	5 0 "
9 "	1 2 "	19 "	6 0 "
10 "	1 4 "	20 "	7 0 "
11 "	1 6 "		

GLASS PRESERVE JARS.—Per dozen.

	Without lid.	With lid.		Without lid.	With lid.
3 inches	4*s.* 6*d.*	6*s.* 6*d.*	7 in.	£0 12*s.* 0*d.*	£0 16*s.* 0*d.*
4 "	6 0	9 0	8 "	0 16 0	1 0 0
5 "	8 0	11 0	9 "	1 0 0	1 6 0
6 "	10 0	14 0	10 "	1 4 0	1 12 0

WASP TRAPS, 3*s.* 6*d.* per dozen,

JAMES PHILLIPS AND CO.,

116, Bishopsgate Street Without, E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

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6 by 4	10*s.* per 100 feet.	8 by 6	12*s.*
6½ by 4½		9 by 7	
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7½ by 5½		10 by 8	
10½ by 8½	14*s.*	12 by 10	14*s.*
11 by 9		13 by 10	
11½ by 9½		14 by 10	
12 by 9		15 by 10	
19 by 12	16*s.*	20 by 13	
20 by 12		20 by 14	

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Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands
Bee "	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

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BY ROYAL LETTERS PATENT.

GREEN'S LAWN MOWING MACHINES.—TRIAL at the London Horticultural Society's Gardens, Chiswick, June 5, 1857. Four competitors. First trial on level ground; Second ditto on undulated; Third ditto on intricate places, round trees, &c.; when GREEN'S Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to Dr. Royle, Secretary to the London Horticultural Society, 21, Regent Street; also Mr. McEwen, Superintendent, Chiswick, where the Machines may be seen at work; likewise Mr. Garrood, Manager of the Agricultural Department, Crystal Palace; and at the Manufactory, Leeds, Yorkshire, where illustrated Price Lists and references can be given.

GREEN'S Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

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Viscount Campden.	London Horticultural Society, Chiswick.
Major Wemyss.	Dr. Royle, Secretary to ditto.
Sir Angus Campbell.	J. P. Chorley, Esq., Editor of *Field*.
Countess of Harewood.	Lord Bridport.
Earl of Harewood.	Sir George Goodman.
Hon. Geo. Lascelles.	Sir T. W. Ramsden.
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Earl of Leicester.	
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T. G. begs respectfully to call attention to the superiority of his Pony Machines.

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Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

IRON HURDLES MADE BY MACHINERY

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles at a great saving of manual labour and reduction in price. They are made of superior Staffordshire iron, and will compare with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Boiler Apparatus, and Garden Implements. (The Paris Exhibition park entrance gates, and patent stable fittings at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

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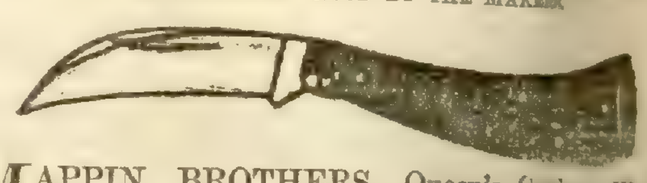
"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from you last year, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a fall of 300 feet on it, and have been able to get the liquid through the end of the Tubing by the pressure from the steam engine for upwards of 40 yards. I have 350 Scotch acres laid with tile pipes under ground, for the conveyance of liquid manure through my farm, and your Gutta Percha Tubing has given me every facility in spreading it over the surface of the land. I cannot think highly of the Gutta Percha Union Joint.—May 25, 1857."

Tubing of any length and size, with Jets, Union Joints, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.

WARRANTED GOOD BY THE MAKER.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

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MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

MICROSCOPES.

J. AMADIO'S BOTANICAL MICROSCOPES, packed in mahogany case, with three powers, condenser, pincers, and two slides, will show the animalculæ in water, Price 18*s.* 6*d.*—Address JOSEPH AMADIO, 7, Throgmorton Street. A large assortment of Achromatic Microscopes.

"It is marvellously cheap, and will do everything which the lover of nature can wish it to accomplish either at home or in the open air."—*The Field*, June 6, 1857.

ACHROMATIC MICROSCOPES

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet free. 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

GREAT COMFORT TO INVALIDS.—Places in Gardens rendered as comfortable as the best constructed Water Closets, by the PATENT HERMETICALLY-SEALED PAN, with its self-acting valve, preventing the return of air or effluvia. Any carpenter can affix it to the seat in two hours. Price 1*l.* Also, hermetically-sealed inodorous Chamber Commodes, 1*l.* 2*s.* and 2*l.* 4*s.*, and improved portable Water Closets, with pump, cistern, and self-acting valve. Apply for prospectus, with engravings, forwarded by enclosing two postage stamps.—At FYFE & Co.'s Sanitarium, 46, Leicester Square.

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METCALFE, BINGLEY, AND CO.'S New Patent and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search the mouth between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) 2*s.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* box; and of the New Bouquets.—Sole Establishment 130*b*, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Mrs. COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—SATURDAY, July 25, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 31.—1857.] SATURDAY, AUGUST 1. {Price Fivepence. STAMPED EDITION, 6*d*.

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BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre (W.C.)—The Annual Meeting of the Society will be held on THURSDAY, August 6, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The chair will be taken at 2 o'clock. Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from WILLIAM DAVIDSON, Assistant Secretary, 2, Randolph Road, Maida Hill (W.)

The following Meeting will be held on THURSDAY, Aug. 20; and SATURDAY, Sept. 12, is the day appointed for the exhibition of New Grapes, for the best varieties of which the Society has offered premiums.

COUNTY OF DURHAM, SOUTH SHIELDS, AND WESTOE FLOWER SHOW will be held SEPT. 16 and 17. First Prize, for 36 Dahlias of Dissimilar Blooms, a Silver Cup, value 5*l*.; Second Prize, 1*l*. 1*s*.; Third Prize, 15*s*.; Fourth Prize, 10*s*.

CUMBERLAND FLORAL AND HORTICULTURAL SOCIETY.—The Second Exhibition of the above Society will take place on WEDNESDAY, Sept. 16. In addition to the ordinary Prizes, an extra Prize will be given for 24 DAHLIAS, dissimilar blooms, open to all Competitors. Entry 5*s*. each.

First Prize—A Silver Cup, value Five Guineas.
Second Prize—Two Guineas.
Third Prize—One Guinea.
Best Dahlia of any sort, number unlimited, 10*s*. 6*d*.

Schedules of Prizes and every information may be had by applying to the Secretary. JOHN PATTERSON, Sec.
62, English Street, Carlisle, Aug. 1.

KENILWORTH CASTLE FLOWER SHOW, 1857.—The above grand Exhibition of FLOWERS, FRUIT, and VEGETABLES, open to all competitors, will be held by permission among the Ruins of Kenilworth Castle, on WEDNESDAY, August 26.—Schedules of Prizes, &c., may be had on application to J. CHEYNE, Secretary, Priory Gardens, Warwick.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

SUPERB DOUBLE HOLLYHOCKS.
SAFFRON WALDEN NURSERY.

WILLIAM CHATER begs to announce that his unrivalled collection of these fine flowers are now in bloom. Open to the inspection of all visitors on every day excepting Sundays.—Saffron Walden, Aug. 1.

NURSERIES, BARNET, HERTS, N.

W. CUTBUSH, JUN., begs most respectfully to acquaint his patrons and friends that his NEW PRICED AND DESCRIPTIVE CATALOGUE of Stove, Greenhouse, and Variegated Plants, Azaleas, Ericas, &c., is now ready, which contains all recent introductions of merit, and will be most happy to furnish the same, Post-free on application.

HOLLYHOCK SEED, ETC.

J. CHATER AND SON offer the above Seed:—Best mixed 200 seeds, 1*s*. 6*d*.; 400, 2*s*. 6*d*.; choice Sweet William, 6*d*.; also a few packets of choice Hybridised Cineraria Seed, 2*s*. per packet.

Hollyhock seed, if sown now, will produce early blooming plants next season.—Nursery, Haverhill, Aug. 1.

TO BEE KEEPERS.—Several Advertisements having appeared about a sweet-scented Melilotus for Bouquets, *it is a fraud on the public*. We still send out our invaluable MELILOTUS LEUCANTHA var., which will produce the richest supply of honey. Sixpence per packet, free.
E. PERSAC & Co., 253, High Street, Exeter.

PINE PLANTS for Sale, clean and healthy, 1*s*. 6*d*. to 10*s*. each.—Apply to Mr. NEWMAN, New Inn, Stedham, Midhurst, Sussex.

ORCHIDACEOUS PLANTS.

TO BE DISPOSED OF, by Private Contract, in good health, Aerides odor., large specimen, several smaller var species, Saccolabium ampullaceum, Stanhopea insignis and tigrina major, Oncidium Lanceanum and Cattleyas, Odontoglossa, Phaius Barkeria, and many others—50 in all; a Tree and other Ferns. Large Plants of Epidendrum speciosissimum and Jenkinsoni.—For further particulars apply to J. S., Great Marlow, Bucks.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS should now be sown.

These Seeds consist of PERENNIAL CLOVERS and FINE GRASSES for improving the bottom. Price 9*d*. per lb., or 80*s*. per CWT. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—SUTTON & SONS, Reading, Berks.

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SUTTON'S EARLY SIX WEEKS' TURNIP, good new Seed, 10*d*. per lb., 5*s*. per gallon, or 35*s*. per bushel. Carriage free except small parcels.
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THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. Seed 1*s*. per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free.
Royal Berks Seed Establishment, Reading.

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YOUELL AND CO. have now ready for sending out a fine stock of the best of the new large-flowering and POMPON varieties of the above, in strong plants for autumn blooming, at 9*s*. per dozen.—Royal Nursery, Great Yarmouth.

JAMES CARTER AND CO. beg to offer new Seed, saved from the choicest varieties of the following:—
CALCEOLARIA CINERARIA | PRIMULA SINENSIS FIMBRIATA
Price 1*s*. per packet.
238, High Holborn, London, W.C.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.
N.B. The trade may communicate by letter.
Tynemouth Vale, Bath.

CHOICE CINERARIA SEED, saved by E. RAPER from his superior Collection, 2*s*. 6*d*. per packet.
E. RAPER, Florist, Regent Street, Leamington.

CHOICE CALCEOLARIA SEED, saved from first rate selected flowers, in packets, free per post 2*s*. 6*d*. each; do. large packets, to the Trade 5*s*. each.—Address, T. CHARMES, Seedsman, 195, High Street, Exeter.

CHOICE CALCEOLARIA SEED.—The Undersigned is now sending out Seed of his well-known varieties at 2*s*. 6*d*. per packet. Trade packets at 10*s*. each.
JOHN HENCHMAN, Edmonton, near London.

CHOICE FLOWER SEEDS FOR PRESENT SOWING, free by post on receipt of postage stamps. Calceolaria, Cineraria, and Primula sinensis fimbriata, each in 1*s*. and 2*s*. 6*d*. packets.—BUTLER & M'CULLOCH, Seedsmen, opposite Southampton Street, Covent Garden Market, London.

BLACK HAMBURGH GRAPES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

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TO BE SOLD, two fine AMERICAN SLOES.—Inquire, A. R., Mr. Tray's Library, Darval's Row, Hammersmith.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. GLENNY, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 14, York Street, W. C.

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7*s*. 6*d*. each.

N.B. Every order will be sent free in London till the end of August.—A. VERSCHAFFELT, Nurseryman, Ghent, Belgium.

FERN CATALOGUE.

ROBERT SIM'S DESCRIPTIVE CATALOGUE (24 pages) of his Collection of BRITISH and FOREIGN FERNS can be had post free for six stamps. Gratis to all previous purchasers. *** *A Descriptive Supplement to the above wil be issued early.*—Nursery, Foot's Cray, Kent. S.E.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Aug. 1.

TO NURSERYMEN.

WANTED, by the Trade, for removal in the autumn, a few hundreds of small (2 to 3 years old), AUCUBA JAPONICA, ARBOR-VITÆ, Common and Variegated HOLLY, MAHONIA AQUIFOLIA, &c.—Address where any of the above can be seen, with prices, to CHAS. SOUTHBY (late FAIRBAIRN), Clapham, S.

HOLLYHOCKS AND ROSES.—The Hollyhocks at the Cheshunt Nurseries are now finely in bloom, and present a display of richness and beauty scarcely attainable in any other flower. These combined with the AUTUMNAL ROSES, of which some acres are in bloom, would amply repay a visit of inspection.

A. PAUL & SON, Nurseries, Cheshunt, Herts, one mile from Cheshunt Station, Eastern Counties Railway.

FINE ANNUAL—SILENE PSEUDO-ATOCION.

JAMES BACKHOUSE AND SON intend to send out this beautiful Annual during the ensuing season, in packets at 1*s*. 6*d*. each. It blooms very early, and forms branching tufts 6 to 12 inches high, adorned with a profusion of vivid rose coloured flowers, ¾ of an inch across. It will prove a welcome addition to the Flower Garden.—York Nurseries.

REIGATE SILVER SAND (sharp Grit and free from Iron) 16*s*. per ton, or 1*s*. 6*d*. per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s*. each; or on hire, 6*d*. each.—JOHN KENNARD, Swan Place, Old Kent Road, S.E.

THE CELEBRATED REIGATE SILVER SAND, 15*s*. per ton, a less quantity 1*s*. 6*d*. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s*. 6*d*. each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

GREAVES.—The Subscribers offer a few tons of hard GREAVES, at 5*l*. per ton, free on board. Orders accompanied by a remittance immediately attended to. Freight to London about 20*s*. per ton.
RICHARDSON & STRANGMAN, Waterford.

WATERING GARDENS AN AMUSEMENT—NOT A LABOUR.

WATER YOUR GARDENS and MANURE YOUR LANDS with GUTTA PERCHA and INDIA-RUBBER TUBING. Half-inch gutta percha for gardens, medium 4*d*., stout 4½*d*. per foot. Brass hand branch, stopcock, and rose, 5*s*. 6*d*.—Apply for illustrated Price Lists to JAMES SHEATH & Co., Patent Gutta Percha and India-rubber Factory, 35, Old Street Road, E. C.

TANNED NETTING for the Protection of Fruit Trees from Frost, Blight and Birds, also for the security of fresh sown Seeds, at 1*d*. per square yard; 200 yds, 14*s*.; 500 yds., 30*s*.; 1000 yds., 50*s*. Screen Canvas for Wall Fruit.—At EDGINGTON & Co.'s, Rick Cloth, Marquee, Flag and Tarpaulin Manufacturers, 17, Smithfield Bars, City, E.C.; and Old Kent Road, Southwark, S.E.

POULTRY ENCLOSURE of WIRE-WORK wanted complete.—Any one having 20 or 30 feet to dispose of, can state lowest price delivered in Leytonstone, Essex, to X. Y. Z., care of Nissen & Parker, 43, Mark Lane, City.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.
T. LAMBERT & SON, Short Street, New Cut, Lambeth, S.

TO PARTIES LAYING OUT PLEASURE GROUNDS.

TO BE SOLD CHEAP, several WIRE VASES on pedestals, equal to stone, and four stalk Birds and Figures, &c.; also a Slate Cistern over 200 gal.—Mr. STOOR, 12, St. Alban's Terrace, Lambeth.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s*. 6*d*. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. Allowance on large orders.
Manufactory, Kennington Lane, Lambeth.

GREENHOUSES.

HENRY FREEMAN, HOTHOUSE BUILDER AND HOT-WATER APPARATUS MANUFACTURER, Triangle, Hackney. Established 20 years. Good substantially-built GREENHOUSES, fixed in any part of the kingdom, for cash, 42 ft. long by 13 ft., 90*l*.; 21 ft. by 13 ft., 50*l*.; 12 ft. by 10 ft., 30*l*. A first-rate Conservatory 30 ft. by 18 ft., 130*l*. A large assortment kept. Estimates for Heating, or any branch in wood or iron.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 8*l*. 10*s*. each; 36-inch ditto, 8*l*. 10*s*. each.

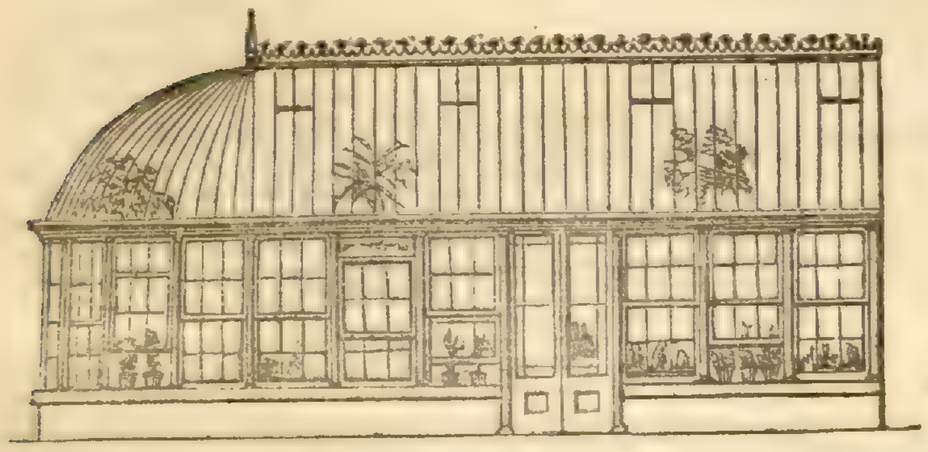
The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

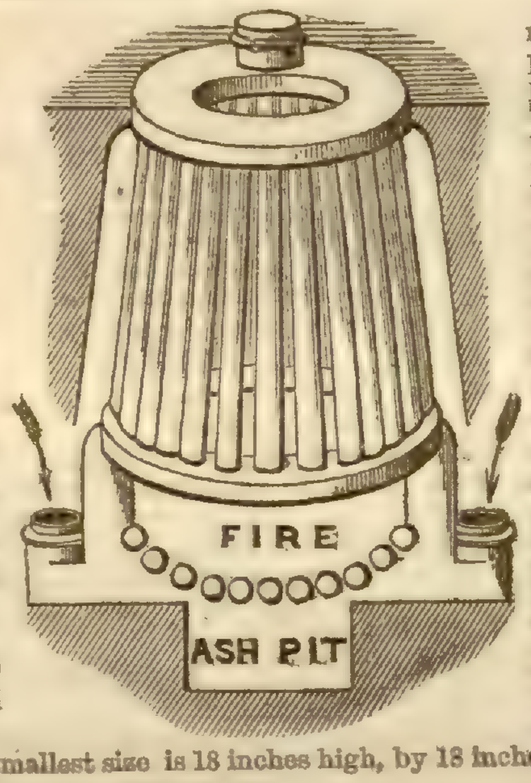
HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.





The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

John Weeks & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

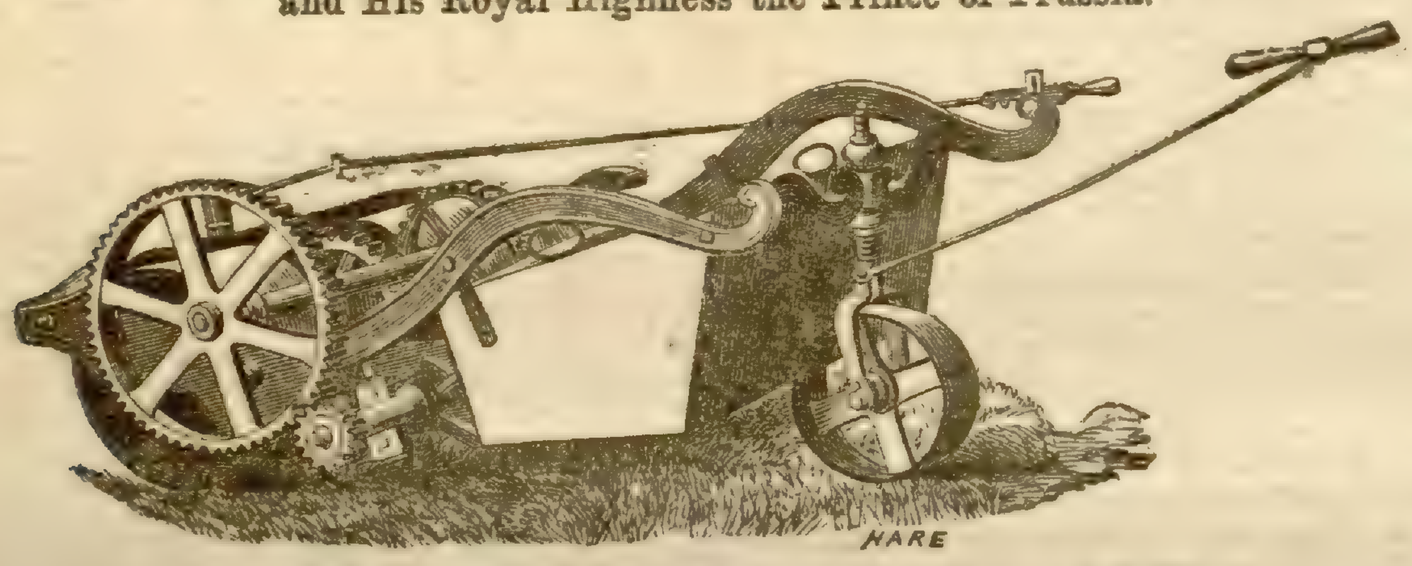
J. Weeks and Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., of every shape and size, both Plain and Ornamental.

Also our Improved Patent Tubular Boilers of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.

JOHN WEEKS & Co., King's Road, Chelsea, London.

SHANKS' PATENT MOWING AND ROLLING MACHINE.

Patronised by Her Majesty QUEEN VICTORIA, His Majesty the Emperor of the French, and His Royal Highness the Prince of Prussia.



A. SHANKS AND SON,

While soliciting the attention of the Nobility, Gentry, and Gardeners to their HORSE AND PONY MOWING AND ROLLING MACHINES, the completeness and superiority of which are now fully established, at the same time respectfully solicit notice to their new HAND MACHINE, especially adapted for Mowing small Lawns, Verges around Flower Beds, &c. Some of the advantages arising from the use of the new Hand Machine are the following:—It can be used to cut a Verge without any change of wheels or rollers. It will cut close to the edge of Flower Beds and Verges. It is a Rolling as well as a Mowing Machine, and can be used with effect as a Lawn Roller when thrown out of gear. The whole working parts are so modified and arranged as to make it suitable for varieties of work, either on level ground or slopes. The Machine is drawn by means of a handle attached to the spindle, at the lower end of which is the front guiding pulley; this spindle is made to swivel, and a mere novice will at once perceive the advantages of this method not only in regard to the greater ease in working, but also, and more especially to the advantage of the swivel in turning. The method of regulating the Cut is very simple and efficient, it can be done in a few seconds by merely turning a screw without the aid of a Key for that purpose. The Machines are firmly and securely constructed, the cutting parts being made very strong, and consequently not liable to get out of order. The Machine can be managed and worked by a common labourer.

A. Shanks & Son cannot give a better proof of the superior style in which the Machine executes its work, as well as of the ease by which it can be managed and its economy in the saving of labour, than by referring to the hundreds of places where it is at present in use.

Price from 5*l*. upwards, Illustrated Price Lists forwarded on application.—Sold at the Crystal Palace, and by Messrs. Dray, Cottam & Hallen, Burgess & Key, London; Mr. Dodds, 28, Leadenhall Street; Messrs. Lee, Hammersmith; Veitch, Exeter and Chelsea; and by almost all first-class Nurserymen and Implement Sellers in the country.

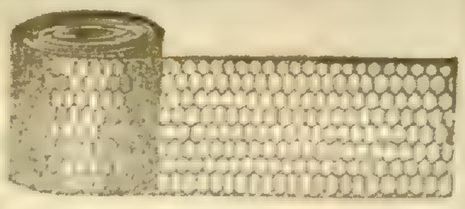
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d*. per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d*., 8*d*., and 11*d*. per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d*., 5½*d*., and 7½*d*. per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s*. 6*d*. to 13*s*. 6*d*. each.)

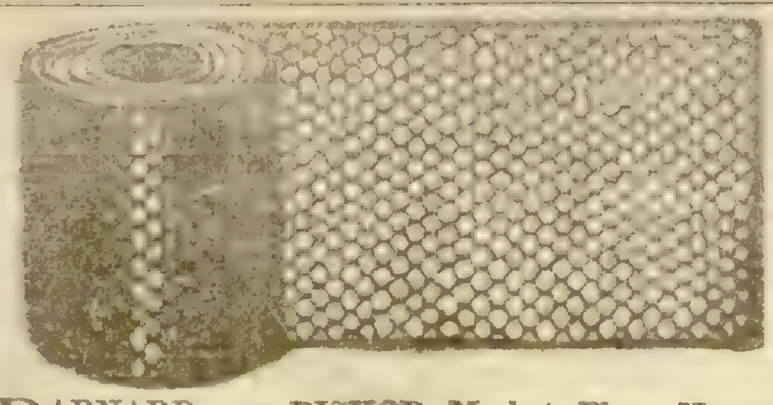
GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d*. per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.



BARNARD AND BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide ..	..	5*d*. per yd.	4*d*. per yd.
2-inch ,, strong do. ..	..	6 ,,	4¾ ,,
2-inch ,, intermediate, do.	..	7 ,,	5½ ,,
2-inch ,, extra strong, do.	..	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide ..	..	5½ ,,	4½ ,,
1⅝-inch ,, strong, do. ..	..	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do.	..	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d*. per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d*. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

WARNERS' SWING WATER-BARROW (To Hold Thirty Gallons) Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l*. 3*s*.

Brass Syringes, 9*s*. to 18*s*.

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

(Fig. 1.)

(Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws	30	feet high	..	£4	10
No. 2	,, 15 ,,	,,	45	,,	..	5	10
No. 3	,, 28 ,,	,,	45	,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws	25	feet high	..	£2	15
No. 13	,, 12 ,,	,,	30	,,	..	3	5
No. 11	,, 16 ,,	,,	40	,,	..	4	0
No. 12	,, 24 ,,	,,	45	,,	..	5	0
No. 14	,, 30 ,,	,,	45	,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s*. 3*d*.; No. 2, do., 12*s*.; No. 3, do., 10*s*. 6*d*.

Read's Syringe, 19*s*.

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, 21*s*. each. Large size, for Gardeners' use, 25*s*. each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction pipe to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self supplying, a great saving of labour is effected, as the necessity of stopping to fill the Syringe at every discharge is being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleaning in its action, as it is not possible for any water to get in the upper of the barrel, which is a well-known inconvenience accompanying on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground metal valves and fittings used for filling all other patent Syringes have been entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Celestial, Prince of Oude, Sir J. Paxton, Attraction, Lord Lyons, Monarch, Clarissa, Cupid, Mrs. B. Stowe, optima, Magnet, Venus, Scarlet Gem, Brightonia, Miss Trotter, Prince Edward, Mrs. A. Mildmay, Prince of Prussia, Lady Turner, Queen of Oude, Marmion, Dazzle, Lady A. Foster, Lady F. Fitzroy, Lady Palmerston, Angelica Kaufmann, Thomas Barnes, Stephen, Mademoiselle Casille, Andromaque, Calypso, Duchess de Palmella, Julie de Courcelle, Phœbus, Mrs. Turner, Madame Castellan, Cudjo, Gaspard Dozin, Henrietta Huet, Madam Moret, Surprise, Evelina, Admiral Dundas. Selections from any of the above 7s. per dozen, free by post.

HENRY MAY, The Hope Nurseries, Bedale, Yorkshire.

STRAWBERRIES.—Underhill's SIR HARRY warranted true, for which was awarded a Certificate of Merit, as exhibited last week at the Horticultural Rooms, Regent Street; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Sons, Covent Garden, London. R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised; he can supply strong well rooted plants to any extent the first week in August, price 20s. per 100, or 4s. per dozen; also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.

St. Ann's Square, Manchester.

CHARLES NOBLE, having retired from the business lately carried on by the firm of STANDISH & NOBLE, has established his Nursery within 600 yards of the Sunningdale Station, South Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

CHARLES NOBLE also begs to say that his Catalogue is now published, and may be had on application. He respectfully invites an inspection of his stock, which will be found in the finest possible condition. He pledges himself to supply none but good articles, and reminds his patrons that five minutes' walk from the above station will bring them to his nursery.

Address, CHARLES NOBLE, Nurseryman, Bagshot, Surrey.

HUGH LOW & CO. have now ready for distribution their Catalogue of Plants, Trees, Shrubs, etc., for present Season. It extends to 71 pages, printed in small type in double columns, and will be found to contain very Complete Collections of Stove, Greenhouse, Orchidaceous, and Hardy Plants; Ferns both Hardy and Exotic, Camellias, Azaleas, Ericas, Conifers, Fruit Trees, and Florist's Flowers. Special attention is invited to the List of Seedling Coniferous Plants, as it contains a large number of rare kinds, probably more than have ever been before offered at any one time. In the List will be found Abies amabilis, A. bracteata, A. grandis, A. Pinsapo, Cupressus Lambertiana, C. macrocarpa, Pinus insignis, P. radiata, P. Fremontiana, P. macrocarpa, P. monticola, Wellingtonia gigantea, many of which can be offered by the hundred or thousand. The Catalogue will be sent post-free on application.—Clapton Nursery, London, N. E., Aug. 1.

SEED OF JOHN CATTELL'S very superior CALCEOLARIA, CINERARIA, GERANIUMS, &c., should be sown now to produce a fine show next season. They may be had in packets, post free, at the prices annexed. Post-office order or postage stamps to accompany all orders from unknown correspondents.

	s.	d.
Calceolaria, extra fine, first quality	2	6
" showy, second quality..	1	0
Cineraria, from all new varieties	2	6
" from a first-rate collection	1	6
Geranium, from first-rate florist varieties	1	0
" from new French varieties	1	0
" from Fancy do.	1	0
Mimulus, extra fine, mixed	0	6
Sweet William, extra fine, dark	0	6
" " mixed	0	6
Viola suavis (this very sweet and hardy early Violet may be sown now in the open ground)..	0	6
12 varieties very showy hardy Annuals, for flowering in the greenhouse	2	6
25 do. do. for early flowering in the open ground ..	4	6
12 do. Half-hardy Annuals for early flowering	3	0

Very superior German Ten-week Stocks, of various classes, in assortments; separate, from 2s. to 6s. per assortment.
Do. do. mixed, 1s. to 1s. 6d. per packet.

Address, JOHN CATTELL, Westerham, Kent.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar: the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot		0	15
Ditto	ditto, extra strong	1	1
Six ditto	ditto, smaller	3	3
Twelve ditto	ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Aug. 1.

CHOICE NEW FUCHSIAS, VERBENAS, AND PETUNIAS, OF 1857.

FUCHSIAS.—Albert Smith, Adonis, Antagonist, British Queen, Cœur de Lion, Cedo Nulli, Catherine Hayes, Etoile du Nord, Fairest of the Fair, Little Bopeep, Lord Palmerston, Marchioness, Marquis, Miss Bailey, Princess Royal, Royal Victoria, Star of the Night, Souvenir de Chiswick, the Fair Oriana, the Little Treasure, Tristram Shandy, the Silver Swan, and Una. The above 2s. 6d. to 3s. 6d. each, 6 for 12s., or 12 for 22s.

VERBENAS.—Attraction, Angelica Kaufmann, Brightonia, Cupid, Crimson King, Dazzle, Evening Star, Lady Palmerston, Lady Frederick Fitzroy, Lady Turner, Lady Albina Foster, Lord Lyons, Marmion, Mrs. A. Mildmay, Magnet, optima, Prince of Wales, Prince of Oude, Prince of Prussia, Queen of Oude, Rosy Gem, Sir Joseph Paxton, Sims Reeves, Scarlet Gem, Venus; also the following new continental varieties, Andromaque, Calypso, Evelina, Gaspard Dozin, Julie de Courcelle, Madame Turner, Madame Morel, Madame Casille, Phœbus, and Sire de Franc Boissy. Selections from the above Verbenas, 8s per dozen.

PETUNIAS.—Little Nell (Smith's), Rose of England (May's), Eugenie, Cygne de Cambrai; the four following are double—Gloire de Lyon, La Messange, La Perfection, and Polydore: 1s. 6d. each, or the set of 8 for 8s. Plants of any of the above collections free by post when the order amounts to 5s. and upwards.

HY. WALTON, Edge End, Marsden, near Burnley, Lancashire.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, Aug. 1.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

DRIED PLANTS, FERNS, &c.—The following collections have been made by Mr. MASON in the Madeira Islands:—Dried Plants, about 500 species, named; many are new and interesting species, not contained in any list. Price 2l. per 100. A set of about 45 Dried Ferns. Price 1l. A collection of the Woods of Madeira, which are very interesting both commercially and botanically, consisting either of sections of the Trunks, or of Blocks, as preferred. They can be cut to any size or form desired. For list of species, *vide* Hooker's Journal of Botany, August 1857. This collection is strongly recommended by Sir William J. Hooker, Director of the Royal Gardens, Kew, and has been supplied to the British Museum and other Government Institutions. Price 5l. 5s. the set of 21 species, including excellent dried specimens of Flowers, Fruit, and Foliage. A Suite of 35 species of the Land Shells of the Madeiras, named, price 2l. 2s. A collection of about 300 species of Madeira Coleoptera, price 5l. Gorgonias and other Zoophytes, Echini, Starfish, &c., Crustacea in Spirits, and dried, Marine Shells, Seeds, &c.—Application to be made to NATHANIEL HASLOPE MASON, F.L.S., 3, Red Lion Square, London, W.C.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, Edinburgh, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1s., 2s. 6d., and 5s. packets. Discount to the Trade in quantities.

CALCEOLARIA SEED.

MR. HENRY MAJOR, Knosthorpe, near Leeds, begs to announce that his new CALCEOLARIA SEED will be ripe by the middle of August, from which time to the end of the month is the best time for sowing for an early spring bloom. The Seed, as usual, is saved from H. M.'s unrivalled collection. Price per packet, 2s. 6d.; or three for 5s. post free. Postage stamps in payment.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior CINERARIAS AND CALCEOLARIAS, which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence. Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

The Gardeners' Chronicle.

SATURDAY, AUGUST 1, 1857.

THE numerous applicants for the appointment of Gardener on the ISLAND OF ASCENSION are informed that their testimonials are all under consideration. Those who are likely to suit will be communicated with. Those who receive no communication will be so good as understand that they are not eligible.

WHAT is the HANDSOMEST FLOWERING HARDY SHRUB of July, after the Rose? Some may say the Fuchsia, but it is scarcely an ornament of July; others may point to the Scarlet Geranium, but it is tender; a third will possibly contend for the Berberis aquifolium; and we should acquiesce in the decision if flowers constituted the beauty of that glorious Evergreen; but it is a fruit, and not a flower of July. For ourselves we contend, without the least hesitation, for SPIRÆA CALLOSA.

"Spiræa callosa! what may that be?" cries some eager reader. "I never heard of such a plant. I know Spiræas, but they are not so very remarkable; Spiræa ariæfolia is now in flower, and it is pretty enough, but not at all striking; Spiræa Lindleyana is no doubt a finer thing, but it is tender and rather coarse, and white-flowered also; but what can Spiræa callosa be? I never saw it advertised; I don't see it in the nursery catalogues; I have not seen it in my late visits to the great nursery gardens near town. What can it be to be placed on such a pinnacle of fame?" That all this is true we have no doubt; for Spiræa callosa is not a novelty, nor an exhibition plant; nor a florist's flower. Its leaves are not speckled and spotted, nor its flowers as red as a Pæony's, or as big as a Dahlia's. But it is a gem for all that, when care is taken to cultivate it well.

Imagine a shrub about 4 feet high, and as much in diameter, most gracefully branching from the ground. Let its slender shoots be dull red, and its simple leaves a quiet green, such as the most fastidious artist would select for a contrast with brighter colours. Then let every branch burst out into spreading twigs loaded with tiny flowers arranged like those of a Laurustinus, but more loosely, the youngest dull red and as large as a pin, others more grown, with a vivid crimson centre, when the gay petals are preparing to burst their dingy calyx, and looking like rubies in a rusty setting. Such is the infancy of Spiræa callosa. More mature, the crimson petals begin to spread and reveal their still more rosy centres; and at last the ring of crimson stamens gradually unfolds and forms a glowing halo round the centre. Should the reader be able to receive all these things upon his mind's eye he will then begin to know what Spiræa callosa is like. Though each of these tiny flowers does not occupy the fifth part of an inch, yet their number most amply compensates for their smallness. Each truss is full 2 inches across, and every branchlet bears about 3 such trusses, of which that in the middle is full blown while the side ones are still closed up; and at least a month's supply of flowers of all ages is provided at the time when the bush first breaks into blossom.

Does not a plant like this deserve a niche in the temple of Flora Juliana?

Spiræa callosa is a native of Japan, whence it is said to have been introduced by Mr. FORTUNE, through Messrs. STANDISH & NOBLE. It derives its name from the presence of a small red callosity seated on the end of each of the numerous notches that border its leaves.

THE Horticultural Society has passed through the season of 1857 triumphantly. Crowded meetings in Regent Street, a most brilliant exhibition at Chiswick, the reorganisation of their garden, and the addition of nearly 200 new Fellows, representing an increase of income to the amount of about 600*l.* a-year, show how much those persons were deceived who thought that the Society was dead or dying of old age.

The sight of some unpublished resolutions enables us to add that the season of 1858 will witness a still greater display of energy. Strenuous efforts have been made to obtain new plants and seeds for the Fellows; a second lottery, this time for Camellias, is to take place in October, and it is probable that the whole system of special distribution will merge in a series of similar operations, the plan of drawing for the plants that may be distributable evidently being popular, and the fairest that can be employed when there are so many claimants. In February, March, and May of next season there are to be the usual meetings in Regent Street; in April a grand display of spring flowers and fruit will be made in some large building in London. On June 9 and 10 there will be the great Fêtes at Chiswick for the display of fruit and flowers, to which manufactured articles will again be added, and on July 6 there will be a very large and special exhibition of fruit, cut flowers—especially Roses, Ferns, &c.

In addition to this Professor LINDLEY will deliver two short courses of illustrated Lectures on Elementary Botany and Vegetable Physiology, especially with reference to horticulture, the first to take place in the Christmas holidays, and the second in the Midsummer holidays.

Special privileges will be given to Fellows on all these occasions, so as to make every possible return for their subscriptions. We hope next week to announce the particulars of some at least of these arrangements.

WE have now to add to the account last week given of the Great Paris Exhibition a few details concerning the plants themselves, which appeared to us by no means to deserve commendation, if regarded as examples of horticultural talent.

On each side of the passage that led to the refreshment rooms there was a large display of articles from the new possessions in Algeria, consisting of specimens of different kinds of wood, tobacco, Indian corn, and a great variety of very fine Oranges, with samples of various sorts of wine and liqueurs, &c. To many this part of the exhibition seemed to be more interesting than even the show of flowers.

As we could not obtain a schedule of the prizes, we are unable to say who were the fortunate exhibitors, or the amount of money awarded by this Society for the encouragement of horticulture; but we suspect it must have been very small, or else there would have been more competition, and a finer class of subjects exhibited. A large portion of those that were shown were only interesting to the botanist, and quite unfit for being mixed with the plants that are usually grown for floricultural exhibitions. Judging from what we saw at this great meeting, and in the different flower markets, we have no hesitation in saying that the French gardeners have yet much to learn;

and as cultivators they appear to be very far indeed behind those in England.*

The following is a list of some of the articles that were shown, with the names of the principal exhibitors :—

American Azaleas.—M. Bertin, Versailles; and MM. Paillet and Son.
Indian Azaleas.—M. Kummer, and M. Michel.
Amaryllis.—M. Aimé Turlure, Versailles.
Calceolarias.—M. Jacquin aîné.
Coniferous Plants.—M. Louis Leroy, of Angers, M. Croux, and MM. Jamin and Durand.
Heaths.—M. Briot, Directeur des Pépinières de Trianon; M. Lhomme, Gardener to the Faculty of Medicine at the Luxembourg.
Orchids.—M. Leon Le Guay.
Pansies.—M. Charpentier.
Palms, Cycadeæ, and Hothouse Ferns.—M.M. Luddeman and Chantin, the Prince Pierre Troubetzkoy, Nikolsky near Moscow.
Pæonia Moutan.—M. Guerin.
Pelargoniums.—M. Aubin, M. Alphonse Bufoy, and C. Rosseau.
Roses.—MM. Fontaine and Janin.
Rhododendrons.—M. Bertin.
Verbenas.—M. Roger, Chantilly.

M. Linden, Director of the Royal Gardens at Brussels, exhibited a large collection of Bromeliaceous and other stove plants. Among the former *Æchmea spectabilis* was the only one in flower; some of the other plants were remarkable for their foliage—especially *Putzeysia rosea*, a robust erect-growing shrub or tree, with opposite ternate leaves on long slender foot stalks;—*Aralia papyrifera* and *A. Sieboldi*, *Didymopanax Moretoni*, and the following kinds of *Oreopanax*, viz., *O. lanigerum*, *hypargyreum*, *speciosum*, and *Bonplandi*.

Besides the few exhibitors above mentioned, there were many others from whom large collections of herbaceous plants and annuals in pots had been received for the purpose of decoration. These were grouped alternately with the Palms, Ferns, and similar plants not in flower, and proved very serviceable in adding to the general effect, and rendering the exhibition as a whole far more attractive to the great mass of visitors than it otherwise would have been. Indeed, considering the sort of materials of which the exhibition was composed, we scarcely think they could have been more tastefully arranged, or shown to greater advantage. *Q.*

The *Banbury Guardian* contains a strong remonstrance from Mr. Ferguson, of Stowe, against the conduct of the visitors to that celebrated place. It seems that he is assailed by complaints about the want of attendance upon the persons who flock thither, all of whom expect to be waited on, but few of whom will pay for the accommodation; and he not unnaturally demands with no little indignation who is to pay the wages of the men employed in the duty. Even in the whole month of May when the place is thronged the collective liberality of the visitors produced no more than 1*l.* 5*s.* 6*d.*, leaving him a considerable loser, or as he says, "a round sum out of pocket."

Another ground of remonstrance from Mr. Ferguson we give in his own words. After announcing that in future no parties will be allowed to wander through the grounds without guides, he adds,—"Nor can I see that any sensible person can expect it, after so much valuable property has been so disgracefully, shamefully, and wantonly destroyed. The defacing of the temples—even taking the lead from their roofs—is notorious enough. Shells, minerals, the very names of the trees, have had their admirers of stolen property; and large quantities of old valuable stained glass have been taken out of the windows. Nor yet have fingers, toes, arms, legs, heads, and other nameless portions of statues, satiated their detestable appetites, but like the Black Leader we are told of, whom one would naturally suppose this class in right belongs to, must have the body—the whole bodies by wholesale." Until this disgraceful practice is put an end to, "and not till then, can the public expect noblemen and gentlemen to open their gates; for I am sorry to say that it does not at all rest with the poor man. I have myself detected a man in the dress of a gentleman, and another of the Established Church of Scotland, pilfering. When this is the case, what can be expected from those that have not had the benefit of education to guide them?"

It is monstrous that there should be occasion for a public appeal like this. Let us hope that Mr. Ferguson will take an opportunity of consigning the gentlemen he speaks of to the hands of the police, if there be any in Bucks. Perhaps the magistrates would then revive the good old punishment of the stocks. We have no doubt that a few cases of tailor-made gentlemen cooling their heels in wooden anklets at the gates of the park, for the edification of visitors, would have a very salutary effect, especially if their names, offence, and punishment were placarded in the grounds and published in the county papers.

* And yet we find the Revue Horticole describing the merits of the Exhibition in the following language:—"L'exposition qui vient de finir a été une des exhibitions les plus remarquables de l'horticulture française. Elle était surtout intéressante par la magnificence et la rareté des produits exposés."

FLOWER-POTS AND VASES—THEIR FORM AND COLOUR.

In a former communication I ventured to differ from the opinion expressed by your correspondent "Somerset" that red was the most suitable colour for flower-pots. Why I differed from him I shall now attempt to explain. Recapitulating what I have previously stated as my opinion that a flower-pot should be entirely subordinate to the plant placed in it, it follows that the colour should, like its form, be in no way intrusive. Now with a red flower-pot the opposite of this is the result; for no two colours can contrast better than the complementaries red and green; and thus mutually enhancing each other the pot becomes quite as conspicuous, and often more so than the plant occupying it.

It has ever appeared to me that the true theory of colour, as applied to flower-pots, should be to render them of a cool subdued tint, at once harmonising and contrasting with the green of the foliage, and be as well pleasing to the eye. A pale stone-colour or neutral tint would effect this. It would throw both foliage and flowers beautifully into relief, and be itself retiring and unobtrusive. If red is the most suitable colour for flower-pots, why not for vases? Yet no one would, I think, hesitate to choose between a stone-coloured vase and another of brick-red—the design of both being equal in point of taste. The fact is that from long use and from considerations of economy, we have become accustomed to red pots, and in a measure to be blind to their objectionable colour; for it is notoriously true that the eye by custom becomes wholly unaware of glaring defects, which a stranger vision would detect in a moment. But this ought not to be a sufficient argument to support "Somerset's" dogma (he gives no argument) that red pots are the best in colour.

To judge correctly of the fitness of design in a vase, one should know whether such vase is intended as an ornament in itself or simply as a receptacle for plants. A design which would be appropriate in one case might in the other be wholly out of place. A vase intended to have plants placed in it should be but little loaded with ornament. Its outline may be of the chastest and the material rich; but upon the former quality should rest its chief claims to attention as a garden ornament. On the other hand, where, as is often the case, a vase is to be itself the ornament—to derive no attraction from the flowers or foliage of plants—then the most elaborate tracery may be appropriately wedded to a classic outline.

The ornaments of a vase, like the projections and recesses of a building, are mainly instrumental in adding to its beauty by the infinite variety of light and shade and gradation of tints which they originate. Their absence in either case gives place to a poorness which nothing but an exquisite form or grandeur of dimensions can compensate for. Now, when a vase is filled with plants they afford all that can be required in the way of light and shade; but if the vase is highly ornamented they neutralise the effect which would otherwise be the result of employing a plain surface.

Let me give an example of the position I have assumed. Near one of the garden entrances at Chiswick † during the last *fête* was placed an elaborately ornamented vase, on a tall pedestal. In itself it was handsome, and if placed in a proper position (I mean near a building, or surrounded with architectural accessories in keeping with its style of ornament) it would be highly effective; but filled with trailing plants, its ornament was obscured and its beauty lost. As a plant receptacle it was, I think, in bad taste; though doubtless intended for one by its exhibitor. If any one would study examples of the best taste in the forms of vases (and what is there which he could not study of the best taste in gardening there?), let him spend an afternoon in the grounds in the Crystal Palace.

Repton once said or wrote that the scenery of a whole county was often disfigured by a few pounds of white paint. By adopting "Somerset's" theory, half the gardens in England might be similarly treated with sixpenny worth of red lead. *G. W. L.*

† I should be sorry to be considered as uttering one word of censure upon the admirable arrangement of the garden at Chiswick on the day in question. On the contrary, I was in common with every one besides charmed; nothing could excel the good taste of the superintendent as displayed in the garden, both in the general arrangement and in the minor accessories. I merely mention the fact above as exemplifying a minor point in a dry matter of taste.

ON THINNING PLANTATIONS.

By Mr. J. Rutherford, Forester to Sir J. Ramsden, Bart., Buckden, Skipton, Yorkshire.

In thinning plantations, regularity should be the aim, but certainly not the absolute rule; and it should be adhered to only in so far as it is subservient to leaving the best trees upon the ground, and those most likely to produce the greatest ultimate profit. Regularity may please the eye of the inexperienced, but will form no criterion of judicious thinning to the really sound practical man.

I shall therefore proceed at once to point out when and how plantation thinning ought to be performed. For the better elucidation of the subject, it may be as well perhaps to divide and consider it under the two heads—of mixed Fir and mixed hardwood plantations.

Mixed Fir plantations.—To state any particular age when trees ought to be thinned is impossible, as one plantation may be as needful of thinning at eight as another at 18 years. I know of no better criterion as to a plantation being in a fit state for thinning, if it be intended for timber, than that given in "The Forester:" "If, upon examination, the lower side branches of the trees have the appearance of having been considerably checked in their growth, and are actually becoming deadened in the extremities, from the want of freedom and air, and if the higher side branches of one tree are spreading widely, and actually encroaching about half their length upon those of another, it is high time thinning should be commenced." I would add, better be rather before than after this time.

As an instance of the impossibility of connecting age with readiness for thinning, in 1853 I had a Larch plantation thinned for the first time, which was only planted in 1848! Many of the trees (Larch) were upwards of 10 feet high, and, having been planted about 3½ feet apart, I need not add they were very close indeed at that height. This plantation has been thinned every season since, being entirely for ornament; and several of the trees are upwards of 18 feet in height, and only eight years old. Another plantation, not 400 yards distant, at an altitude of about 950 feet (the former is about 800 feet above sea level), contains Larch and Scots Fir not 3 feet high, though planted about 1840, 16 years ago. This great difference in the sizes of the trees in the different plantations is entirely attributable to the difference in the soil, the one being a fine loam, the other the worst description of peat. From the above remarks it will be seen how impossible it is to fix an age when trees of any sort ought to be thinned, and that the proper time for commencing such operations can only be determined by examination.

In thinning plantations generally, but those on exposed situations particularly, the outsides ought to be thinned first, and most severely. Many will consider this wild and ruinous doctrine, but I am satisfied that it is sound; and although a contrary practice is recommended and followed by many foresters, yet as this essay has to be one of practical experience, I recommend and always follow the thin-outside system. It does not matter what sort of trees the outside is composed of—the same rule holds good. Generally it would be better to thin the outside of a Fir plantation about two years before any other part, as at that time the trees on the outsides will be better rooted and branched in proportion to their height than they will afterwards become. When the branches are beginning to touch each other, or very slightly to encroach on one another, I would thin; and as this would leave the trees quite free from one another, there would be ample room for the formation or extension of root and branch, without both of which no tree can be expected to withstand the tempest or break the storm. As the outside often grows less rapidly than the inside of a plantation, it will not be always necessary to thin the outside a season or two previous to the inside, and if it is postponed until the general thinning takes place, great care must be taken not to overthin at the first thinning. If we only take a lesson on this subject from Nature—and the forester can have no better guide—we will find that she does not make a hedge of trees, if I may be allowed the expression, round her forest. We will find, on the contrary, a thin margin made up of single trees, individuals, branched to their base, with often a real Goliath in advance, defying alike the wind and the whirlwind; and to what, may I ask, is this Goliath indebted for his strength but to his isolated position and natural development? As we advance into Nature's forest, the trees become taller and cleaner in their bolls; and, but for the protection of the thin and strongly branched and rooted advance guard, would be levelled with the ground by the first tempest that crossed them. For the future welfare of the plantation thinning is often necessary before the trees are of any value, or have reached a size usually in demand. These early thinnings are however, in some localities, used with the branches for making dead hedges; and, if Larch, make a good and lasting fence. Woven in piles they make also good barriers against the encroachment of rivers, where the courses are rapid and, if as much money can be got for them for this purpose as will clear the expense of fetching out of the plantation, they are better put to such a use than left a confusion among the growing trees, or burnt.

Though, where plantations are extensive, thinning has to be proceeded with throughout the year, yet the best season for it is undoubtedly spring or summer. From the 1st of May to the 1st of August I would prefer, if time could be got during these three months to execute the work, because by so doing the thinned trees have the summer to make roots and branches, and become able to withstand the following autumn and winter winds. Where thinning is performed in autumn or winter, care must be exercised not to overthin, particularly in a damp, thin soil, as the wind, playing among the newly thinned trees, will in all likelihood make great destruction, for if it once gets a commencement made no one can tell where it will end. But if thinning is performed in early summer judiciously it

will be seldom that any damage will be sustained the following autumn or winter from winds.

Having decided that a plantation requires thinning for the first time, we will now consider how the work may be most efficiently done. Where many hands are employed it is seldom that they are all well acquainted with the theory of thinning, or with anything except felling of the trees marked for them. Could, however, a staff of working men who understand how to thin and how to handle an axe be got (and in old establishments there are plenty such), I am satisfied they would do the work more regularly than could be done by one man going before the workmen marking the trees. And remember, during its first thinning, a better place for the forester or his foreman is immediately behind them; and having cautioned them to leave any tree they have a doubt about, he may call a man back to take out such trees, if he think they ought to be taken away, when he will certainly be able to make more regular work than he could boring among branches growing into one another.

Where there is a large establishment kept up for the forester, and where the trees are marked for the cutters, it is always advisable to have as great a subdivision of labour as possible. To go about the work in a systematic manner, the following staff of workmen is, in my opinion, necessary:—A person of experience marking the trees, and for this purpose he can have no tool so good as a common hedge knife, such as is used for cutting the growth of one year—with such an instrument he will mark quicker than with any other I know of. Next in order should follow stout lads of about 15 or 16 years of age, with a tool of the above description, but stronger and shorter both in blade and handle;—these lads must clear away all the lower branches to the ground, and as high as the feller will reach with his axe when felling the tree. The fellers follow next, and, as the tree is already prepared for them, they get to work at once—it is of great importance in expediting the work having the bolls of the trees cleared of the branches for the fellers. Axes, when in proper order for cutting wood expeditiously, are too thin for cutting off the lower branches; and when the fellers have this work to do, they must either take a deal of time, and (particularly if the trees being pruned are Norway Spruce) exercise great care, or the edges of their axes will be twisted or broken, and rendered quite unfit for felling with anything like dispatch, and thus much of the most expensive men's time is lost in saving their axes, or at least in doing what might be quite as well done by other hands at not much over half the wages. To each feller there ought to be one boy, of from 12 to 15 years of age, pruning the felled trees; a smart boy, provided with a suitable tool (also a sort of hedge knife), will prune a tree as soon as a man. After the trees are pruned, they are ready for carrying out by another staff of workmen to the nearest road, or to the outside of the plantation, there to be assorted into lots according to their sizes or kinds; if Larches, and intended to be stripped of their bark, they must of course be laid in such lots as will be most suitable for the strippers. The only other necessary operation is the clearing of the branches, and this is best effected by a number of boys under the charge of a steady man. If the branches cannot be sold or used, which is frequently the case, let them be spread regularly over the whole ground, when the Grass will grow up through them, and they will soon be out of sight, and have quite rotted previous to a subsequent thinning; this is the least expensive way, and unless they be considered as an eyesore by the proprietor, it is a better plan than carrying them to the outsides or roads to be burned. If, however, a market can be found for them, let them be carried to the outsides and put up in lots, or made at once into faggots, which can generally be sold at a remunerating price in the vicinities of large towns. This may seem to some too fine a subdivision of labour to carry on such a simple matter as thinning plantations; but I have no hesitation in saying, that if foresters who are limited to a certain yearly or monthly expenditure will try the plan, they will find they can get through more work, and at much less expense, than by employing all full-grown men at high wages.

I have said, that could experienced workmen be got, they would thin more regularly than were the trees marked by the forester for the workmen; this, it must be remembered, refers to a first thinning, at the second and subsequent thinnings the case is different, and regularity must now be dispensed with, unless by following it the best trees can be left upon the ground. The trees in the plantation are now becoming distinctive individuals, and beginning to show symptoms of what they are likely to arrive at; it is now that a careful selection requires to be made, as the ultimate value of the crop of timber will be materially affected by the judgment displayed by the operator. This being the case, a person of experience should go before the workmen, and mark every tree that has to be taken away. No diseased or sickly tree should be left, though there should be several growing together—as it is far better to make a blank than have it filled with unhealthy trees; and where blanks are made in this way, or by the removal of small trees, the healthy and robust may be left closer together round the blank, than if all were good, and regularly disposed over the whole of the ground.

I have already remarked that the outsides of plantations should be more severely thinned than the inside; the same observation applies to all exposed parts of plantations. In woods of large extent there will be great variety of exposure, even having the same aspect; all those open places should be thinned, comparatively speaking, severely, while the sheltered portions may be thinned sparingly. Besides the exposure there is another reason why, in my opinion, the trees ought to be thinner on the ground, that is, the bare and open portions of a plantation are generally thinner of soil and less able to carry to timber size a large quantity of trees than are the lower and more sheltered portions which have a greater depth of soil. From the great difference in depth of soil, these sheltered situations will often be able to carry to mature age, and first-class timber size, more than double the quantity of trees per acre than the exposed parts can; but although the trees in the sheltered places, from being less thinned, will make cleaner, straighter, and finer, I don't say that they will make such hard and lasting timber as that grown on the exposed places.

It is in my opinion a very difficult matter to fix a distance apart for trees at different ages or sizes, so much is it influenced, as above indicated, by soil and exposure. On the open portions, and also on the outsides of a plantation, the branches, as I have said before, should be quite freed from one another after thinning has been performed; and, as a rule, I would say, for the first thirty-five years of its growth each tree should be allowed an area having a diameter from one-half to three-fourths the height of the tree itself, in some cases more, in others less, and always to be decided from local peculiarities. Should this plan be adopted with regard to the exposed places, the sheltered portions can be cropped to the utmost of their abilities without much danger of damage from high winds. At from one-fourth to one-eighth of their own height apart may be taken as a rule at all stages of their growth after the first two thinnings, according to the quality and quantity of soil and the nature of the situation, lessening the proportionate distance as the trees increase in size. Indeed, I have frequently seen Highland Pine, containing upwards of 40 cubic feet of timber, standing within as many inches of one another, and this, too, on land of very middling quality. A plantation of about 20 acres area is within my remembrance, and on land worth to farmers about 6*s.* 6*d.* an acre, which, when commenced to be cut for timber, at about 70 years of age—the trees being on an average worth 12*s.* or 13*s.* each—was so thick that the trees, when cut quite through at the ground, stood erect; and it was only by clearing away every tree that those of the size at that time particularly required could be got at all. In this plantation it was a frequent occurrence to find trees of the above value standing within a yard of one another; and I don't think the case at all a solitary one.

(To be continued.)

ON THE TEMPERATURE OF THE NORTHERN LIMITS OF BARLEY CULTIVATION.

(From A. de Candolle's Géographie Botanique.)

The conditions of Barley cultivation are interesting in a double point of view; it is of all cereals that which advances nearest the Pole, and it is the cereal upon which authors have been most precise in discussing the limits. Wahlenberg, for example, thus expresses himself. "At Upsal and in Lapland, near Enontekis, the mean temperature must rise to 46½° before Barley can be sown;" and again, "when the mean temperature of a country during three summer months is below 47°, the Barley will require a longer continuance of a temperature of 45° to 47°." A glance at the following table shows that the requirement of 47° summer heat is illusory, even in the countries Wahlenberg knew best. Humboldt again fixes on a mean of 52° to 54°, even when the mean temperature of the year descends to 28°; to which, also, exceptions will be found in the table.

Locality.	Mean Temperatures.								
	April.	May.	June.	July.	August.	Sept.	Oct.	Summer.	May to Sept.
1. *Beyond the Limits.*									
Labrador, 56°54 ..	27	37	43	50½	51	44½	33	48½	45½
Iceland, 64°15 ...	36½	44½	51½	56½	52½	46½	37	53½	50
North Cape, 71°10	..	31½	39	42	44	29	..	42	38
? Bogoslovsk, 59°45	29½	46½	59½	66	57½	44	32	61	54½
2. *On the Limits, or a little below it* (—)									
—Feroe, 62°3 ..	42	45½	52.5	55	54	51½	46½	54	51½
Alten, 70°	29½	40½	46½	53	51	42	31½	50	..
Enontekis, 68°30.. (Elev. 1427 feet)	26½	36½	49.5	59½	56	41½	27½	55	48½
—Uleo, 65°0 ..	26	41	55	61½	56½	46½	39	58	52
—Archangel, 64°32	33½	45	54½	60	56½	48	35½	57	52½
—Yakoutzk, 62°2 .	17	37	58.5	60	58½	44	16½	62	53

M. Kupffer, a Russian writer, dwells upon the importance of a high temperature to cerealia in spring and autumn, seed time and harvest. He says that "Yakoutsk and Bogoslovsk are beyond the limits, though the summer of one is hotter than, and of the other as hot as that of Moscow, because their autumn temperature is so low, a September mean of 48° and August mean of 60° being essential," but according to our table both these conditions are wanting at the Feroe Islands, Alten, Uleo, and Yakoutsk.

M. Ch. Martins has adopted Kupffer's view for the Feroe Islands; he says it is evidently the atmospheric conditions of spring and autumn that impede the ripening of cerealia, during the spring retarding the growth of the culm, and in autumn the development of starch in the seeds, which remain full of a sugary fluid.

The above passages prove how uncertain the method of mean temperatures is. The coincidence of a successful crop with a certain mean temperature of summer, or of September, or of any other month, is always a chance, and the rules deduced from it always liable to be disturbed. Authors have felt the necessity of combining duration of heat with mean heat, in other words of obtaining sums of temperatures. Reaumur indicated this upwards of a century ago; but the badly directed attempts of Adamson and other botanists did much to discredit such a method. To Boussingault is due the merit of introducing the simple and exact method I have with some modification so often employed.

According to the approximate calculations of M. Boussingault, Barley cultivation extends over a period of 92 to 168 days, and as the mean temperatures during these very different periods vary from 66° to 52°, the total heat received in the shade varies from 3105° to 3240°. This smallness of the difference between these figures is remarkable when it is considered how different the climates are, how vague the dates of sowing and harvesting, &c.

Let us now examine how far the results of the sums of temperatures at the Polar limits of the Barley accord with this:—

Locality.	Latitude.	Length of Longest Day.	Sums of Temperatures. From 41° and upwards.	Sums of Temperatures. From 46½° and upwards.
1. *Beyond the limit.*				
Reykiavig	64°15′	20½ hrs.	2815°	2484°
? Bogoslovsk	59°45′	18½ hrs.	3308°	3136°
2. *On or near the limit.*				
Feroe Islands	62°2′	19½ hrs.	4034°	3186°
Alten	70°0′	2 mths.	2250°	1737°
Enontekis	68°30′	1½ mth.	2349°	2097°
Uleo	65°0′	21½ hrs.	3042°	2727°
Archangel	64°32′	21 hrs.	2754°	2574°
Yakoutsk	62°2′	19½ hrs.	3114°	2934°

This table exhibits discrepancies which appear to be unfavourable to the method employed. As however this method depends upon physiological principles, and as amongst these light exercises great influence, it is necessary to scrutinise this agent more narrowly.

Between Iceland and the Feroe Islands the results are conformable to the theory. Whether we assume 41° or 46½° as the necessary minimum, the sums are too great for the Island of Feroe. The one hour additional length of the day in Iceland does not counterbalance the diminution of temperature in the shade. Under any circumstances the Feroe temperatures are rather higher than they should be, either because of the errors which M. Martins has vainly tried to correct, or because Barley being capable of cultivation at a considerable elevation in those islands, its true northern limit is to the northward of that locality.

Alten again presents exceptional results, but M. Martins observes that the cultivation of Barley there is quite a local phenomenon, and that the 66th degree must be descended to on the Norwegian coast before continuous cultivation is met with. The summer days are further of great duration, and there are comparatively few cloudy days.

Uleo and Enontekis present lower temperatures than what would appear to be necessary in more western localities; but this arises from the increased light due to the climate being less maritime, and to the elevation of Enontekis.

Bogoslovsk remains, and there it would appear that the observations are not based upon sufficient experiment.

Upon the whole the following would appear to be an approximation of the sum of degrees above the mean of 41° which are necessary to the ripening of Barley in latitudes where the days are very long.

Between 59° and 60°	3312°
Below 62°	3184°
Between 64½° and 65°	2628°
Below 68½°	2340°
Below 70°	2250°

HUMEA ELEGANS.

For purposes of general out-door decoration or for planting round or near fountains or other ornamental water, this plant stands unrivalled. Its gracefully drooping tresses of silky brownish orange coloured flowers, which glitter in the sun when moved by the breeze, give it a charm beyond description. It is not therefore to be wondered at that it should find favour with the many, or that inquiry should be made as to the best mode of growing it.

Although introduced from New South Wales nearly 60 years ago it is only of late that this fine biennial has been employed to any great extent for out-door decoration. Whether, however, as forming a background to long flower borders, as a single specimen let into the lawn, or occupying the centre of a bed or vase, it is most charming, and not one of the least of its qualifications is that it may be had in beauty from May till November.

In the month of June sow the seed in a pan of light soil, and place it in a warm frame until the plants are in rough leaf, then remove them to a cool frame where they can have plenty of air, and slight shading during hot sunshine for a fortnight, when they will be ready to pot off singly into thumb pots, using light rich soil, and plunging the pots to the rim in sand or sawdust in a cool frame. Keep them close and shaded until sufficiently established, when they may

be gradually exposed to sun and air; after that they will only require to be covered with a sash during cold or wet weather. Shift into larger pots throughout the autumn and following spring, as they require it, taking care never to let them become pot-bound, as their beauty is much lessened by being in any way stinted either in pot room, moisture, or richness of soil. By means of liberal treatment they will retain their foliage in a healthy green state until finally destroyed by frost. During winter a low temperature, plenty of air, and being kept near the glass, suits those intended for planting out better than heat and a close atmosphere. Give plenty of water before turning them out of the pots, and also for a week or two after planting, until they are fairly established in the soil, which should be turfy loam mixed with well decayed manure or leaf soil.

When kept under glass to flower in pots for in-door decoration they are not half so beautiful as when exposed to the open air; their colour in doors being a kind of greenish pink, gives the plants a sickly appearance. Slightly fumigating them during the spring months will keep them free from insects, which are apt to infest them, especially the under-sides of their leaves. *M.*

Home Correspondence.

Exhibitors' discontent.—You are much mistaken if you fancy grumblers to live only on your side the Channel. We have plenty here. The other day there was a horticultural show at Caen—a small affair—at which however a good many nice plants were brought together. Among them was a lot from a M. Massé; consisting of 80 sorts of Ilex, 16 of Box, with various Conifers, Sikkim Rhododendrons, and other new plants. The reporter in the Revue Horticole declares that they were symmetrically arranged, extremely well labelled, and he complains that nevertheless they obtained nothing more than a little Silver Medal by way of encouragement. This was regarded as what we call "too bad," and much grumbling resulted therefrom. *Dinant.* [We should be curious to know how 80 sorts of Ilex were made up, or 16 sorts of Box. Perhaps the judges could not appreciate M. Massé's distinctions.]

Sweet-scented Jasmine.—I shall be extremely obliged by having your opinion upon the enclosed Jasmine. It was given to me about this time last year, having come from Nice a small plant. I have taken particular care of it, and succeeded in flowering it well. The scent is most delicious, like that of the old white Jasmine, only more powerful. My hand retained the scent of this one flower in carrying it from the stove. *A. M. R.* [This is the Catalonian Jasmine, *Jasminum grandiflorum*, a very old inhabitant of our gardens.]

Culture of the Citrouille.—In the middle of April make a hole in the ground and fill it with three or four spadefuls of manure, replace the soil and sow the seeds about two inches deep, edgeways, as they are apt to rot if laid flat. Protect the young plants from frost by covering them with a mat or bell glass, and water in dry weather; this is really all the attention necessary. Of course the seeds may be sown earlier in a hot-bed, and the young plants thus forwarded afterwards planted out. The habit of the plant is to push roots under almost every leaf, which besides collecting food secures the shoots in the position in which they are trained and prevents their being blown about in exposed situations. This useful fruit is ripe in September and keeps good all the winter; it may be eaten mashed like Potatoes or Turnips, and is superior to Carrots or anything else for thickening and enriching soups. The pulp boiled and well drained, flavoured with Lemons, makes excellent tarts, pies, &c. The young shoots are equal to the best Asparagus, and the roasted seeds are a nice addition to the dessert, so that every part of the plant is eminently useful. *An Old Subscriber.*

Ixora javanica.—The following account of a plant of this Ixora may perhaps induce all who have a collection of stove plants to try their uttermost to flower it. This species is only flowered well by one or two exhibitors; many certainly show it, but in a condition very different from what it should be both as regards colour and size of truss. I have a plant of it now in blossom two years old which measures 4 feet 6 inches in height, 4 feet 6 inches in diameter, and it has now on it 85 fine trusses measuring from 5 to 6 inches in diameter; these cover the whole plant, making it really a beautiful specimen. In my opinion one good truss is better than a dozen small ones. *W. May, Hawkesyard Gardens.*

Melon Growing.—Will you oblige me by giving your opinion on the following case:—I have a Melon pit with a double span roof heated with hot water and glazed with thick rough plate glass. My gardener fails to produce fruit in it. I do not mean that he gets no fruit at all, but the Melons are few in number and small in size. He attributes his failure sometimes to the rough plate and at other times to the hot-water pipes, and urges that by the old system of heating with stable litter and common bright glass he never failed. Can there be anything substantial in these objections of his? *P., Cheadle.* [Nothing whatever, unless it is something you do not mention.]

Peas.—My first crop of Peas was sown on February 18th, and the first dish was gathered from them on May 30th: these were sown in pots and planted out entire on March 20th. My second sowing, or those put in to succeed the first, was made in the open ground on a south border also on February 18th, and they came in 10 days after the first lot in pots—the sort sown was "Sangster's No. 1," an earlier than which I am not acquainted with. I have confined myself to three sorts, viz., Sangster's No. 1, Champion of England, and British Queen; these have afforded a daily succession since my first gathering. Sowing Peas in November is by me wholly repudiated; in fact, my experience compels me to believe that it is by far the wisest plan to leave the ground in a rough condition, exposed to the influence and action of the wintry atmosphere, and sow and plant when life, so to speak, is infused into the soil. This is much better in my opinion than having ground unnecessarily occupied by a crop that may in all probability prove not worth the seed sown on it. *George Fry, Manor House, Lee, Kent.*

A Wellingtonia gigantea planted in the park here, on May 2d, 1856, has already doubled its height this season. Before making this year's growth it was 23 inches high and 28 inches in diameter, with a circumference of stem at the ground of 3⅝ inches; this day (July 28) it is 46 inches high, and 42 inches in diameter, with a circumference of stem of 6⅜ inches. *Charles Ross, Gardener, Fairlawn Park, Tonbridge.*

Pegging down Plants.—Having seen many nice beds of plants spoiled for want of pegging down, as gardeners call it, and as there are many places where there is not time to make pegs, perhaps some of your readers may be glad to know a way by which plants may be made fast to the ground without them. My plan is to take some bast, cut it into bits about 8 inches long, put it round the plant or shoot in the place where I want it to be fastened to the ground; then place the two ends together and press them into the ground with a little dibber made flat at the point. When the ground is damp is the best time for performing the operation. *Nathan Cole, Gardener to Mrs. Silver, Abbey Road, St. John's Wood.*

Societies.

Entomological, *July* 6.—Wm. W. Saunders, Esq., F.R.S., President, in the chair. Mr. Samuel Stevens exhibited various rare and interesting Coleoptera from the North of Natal, including the fine Moluris Barthelemyi; also a living specimen of the black Trichius (T. variabilis), which he had reared from a larva which had remained in that state for three years, feeding on the wood of an Oak tree. Mr. Douglas exhibited Stenolophus elegans, Trinodes hirtus, and the larva of Tiresias serra from Richmond Park. Mr. Janson exhibited a number of new and rare British Coleoptera of small size recently captured, including the Scolytus rugulosus of Koch, not previously known as a native species, which had been found in great numbers by Mr. Groves in the dead stems of a Pear tree, and which differs in its habits from the common Elm-destroying Scolytus, the larva when full grown burrowing into the solid wood of the tree to assume the perfect state; specimens of the insect were brought for distribution by Mr. Groves. Various interesting Coleoptera were sent for exhibition by Mr. Foxcroft from Scotland, including Lycus Aurora, of which a notice of the habits was also given. Mr. Westwood mentioned a remarkable modification of habit in a specimen of the solitary wasp, Odynerus Antilope, which had selected the cells of an old piece of honey-comb as the receptacle of its nest, instead of making a burrow of its own, as was the usual habit of the species. Mr. Westwood also exhibited leaves of a species of Bauhinia brought from Africa by Dr. Livingstone, which were coated with the secretion of a species of Psylla, which, from its saccharine quality, was collected by the natives and eaten. Mr. Reading, of Plymouth, exhibited a living specimen of the beautiful Carabus intricatus, which he had kept alive for two months, feeding it upon Lepidopterous larvæ. Mr. Robinson exhibited a series of species of Cryptocephalus recently taken in Kent. Mr. Pascoe gave an account of the Entomological and Botanical Congress recently held at Montpelier, which was attended by about 500 members. He also mentioned the return of M. Deyrolle from an entomological excursion to Senegal, and gave an account of the new French work "Archives Entomologiques," by Mr. Thomson. On the motion of Mr. Douglas a vote of thanks was presented to the President for his entertainment to the members at the annual excursion of the Society.

Brechin Horticultural, *July* 21.—The quality of the fruits shown on this occasion, as well as the variety of them, far surpassed any ever produced before in this district. The display of Strawberries, especially, was magnificent. The following are the awards of the judges:—Cherries: Best Knight's Early Black, Mr. Muirden, Craigo; May Duke, Mr. Young, gr. to Sir J. Ramsay, Bart.; Lundy Gean, Mr. R. Oakenhead. Currants: Best Bangup, Black, Mr. Hampton; Black Grape, Mr. Eddie, gr. to Mrs. Ogilvy; Common Black, W. Ruxton, Esq.; Black Naples, P. Guthrie, Esq.; Greenfruited Black, Mr. R. Oakenhead; Red Dutch, W. Ruxton, Esq.; Red Woolly-leaved, Mr. J. Garnham; White Dutch, James Mustard, Esq. Gooseberries: Best Golden Lion, J. Mustard, Esq.; Gascoigne Green, G. Wallace, Esq. Raspberries: Best Antwerp Red, Mr. Paul, gr. to Colonel Swinburn; White, J. Mustard, Esq. Strawberries: Best British Queen, P. Guthrie, Esq.; Chili, Mr. P. Milne, gr. to J. I. Chalmers, Esq., of Aldbar; Comtesse Chambra, Mr. Muirden; Comte de Paris, Mr. C. Young; Elton, Mr. Millam; Myatt's Eliza, Mr. J. Low; Myatt's Globe, Mr. W. Eddie; Grovend, Scarlet, Mr. G. Young; Hooper's Seedling, Mr. Campbell, gr. to Major R. Tailyour; Keens' Seedling, Mr. R. Oakenhead; Lundy Castle, Mr. Murray; Myatt's Seedling, Mr. T. Hall; Perpetual Crements, (?) Mr. Muirden; Princess Royal, Mr. Muirden; Roseberry, Mr. Milne; Royal Pine, Mr. T. Hall; Tom's Seedling, Mr. Paul; Trollope's Victoria, Mr. G. Young. Cucumbers: Best Manchester Prizefighter, Mr. Paul; Prizefighter, W. Ruxton, Esq. Messrs. Dickson & Turnbull exhibited fruit of the following Strawberries, viz., Sir Harry, British Queen, Princess Alice Maude, Keens' Seedling, Black Prince, Eleanor, Royal Pine, Prince of Wales, Admiral Dundas, Trollope's Victoria, Scarlet Nonpareil, Myatt's Eliza, Hooper's Seedling, Comte de Paris.

Notices of Books.

How to Work with the Microscope. By L. S. Beale, M.B., F.R.S. Small 8vo, pp. 124. Churchill.

This book was wanted. So many persons are now using, or at least looking through, a compound microscope without having any clear idea of the qualities indispensable to good observation, that some ground exists for fear lest this admirable instrument may not lead far more to error than to truth. There is no doubt that in unskilful hands the microscope is often a delusion and a snare. It will show anything or nothing. Convexities seem concavities, folds and plaits appear to be partitions, air bubbles and oil drops structure, reflection organisation, and impurities in the surrounding medium peculiarities in the thing observed. We have ourselves known painstaking young men mistaking a hair from their own heads for a new form of vegetable tissue, crystals for holes, a drop of milk from a Euphorbia for a swarm of animalcules; and the same observers have nevertheless been unable to make out the concentric circles in a starch grain, or to discover the pits in cell walls even when the latter had been perfectly prepared for examination. What is worse than this, so great is the faith of some persons, that they can always fancy that they see whatever books tell them they should see. In short to inexperienced observers the optician's marvellous skill is but an *ignus fatuus*. Nothing can be more true than Professor Beale's remarks upon this subject.

"The eye of the observer requires much careful education before he is able to appreciate fully the character of the structure which he is examining. If, upon examination, a specimen does not appear to him to justify the description or delineation which some observer has given of a similar structure, he must not too hastily infer that the author has been recording the results of his imagination, rather than observed facts. We must remember that the conclusions which have been arrived at are probably the result of a very long and patient investigation, deduced from examining a specimen under very different circumstances, after the application, perhaps, of various chemical reagents, and after ascertaining the effect of different refractive media. From the remarks which I made in my fifth lecture you will have formed some idea of the many different operations which are necessary to demonstrate conclusively the anatomy of a single tissue. You must not, therefore, be too hasty in deciding upon the nature of an object in the microscope; neither must you infer that what you have not been able to see does not therefore exist.

"Some fall into an error of the very opposite description, not less detrimental to forming habits of correct observation. Led away by their imagination, they think they see everything which has been delineated or which they have heard described: the observations of authors are confirmed in expressions closely resembling the original and thus, in point of fact, their own testimony is brought forward, though not directly by themselves, a second time in favour of their original doctrines without any real confirmation of the accuracy of their views being advanced. In this manner errors have been propagated and strengthened to an extent almost incredible, and years of laborious investigation have been spent in overthrowing statements which had never resulted from actual observation in the first instance."

How then are observers to be secured against error? The answer is obvious, by experience and experience only. A man can no more learn how to use his eyes by reading books, than how to make his shoes. The art of seeing correctly is one of the most difficult. Ignorant people confound it with looking, than which nothing can be so different. We look as soon we are born; we only begin to see when the eye has been trained; and the power of vision depends upon the amount and nature of the training. He who uses the microscope for the first time merely knows how to look, as regards that instrument; it is only after some practice that he begins to see with it. Time and patience in this as in other things will of themselves do what is necessary; but life is not long enough for self-instruction in everything, and hence such books as Schacht's translated by Mr. Frederick Currey, and this of Professor Beale are of the utmost value.

In the little volume before us the student is told how to select his instrument, how to manage it, how to draw with it, the tools that are needed, and the manner of using them; how to prepare objects for examination and how to preserve them; and he also has ample information concerning the behaviour of the reagents which are as indispensable as the instrument itself in microscopical researches. Why they are required Dr. Beale states as well as possible:—

"Various insoluble saline materials not unfrequently

prevent us from seeing the anatomical elements of which a tissue is composed. A knowledge of the nature of these often enables us very easily to remove them. Supposing, for instance, the saline matter consists of carbonates or phosphates of lime or magnesia, we have only to add a drop of dilute acid which dissolves them completely.

"The action of acids and alkalies is often very valuable in rendering structures transparent, which are too opaque for examination in the ordinary state. If I take a portion of this tendon, composed of white fibrous tissue which is very opaque in its ordinary state, and immerse it in acetic acid, or in a dilute solution of potash or soda, it soon becomes clear and transparent, and if the operation be conducted with certain precautions, many of its original characters may be brought back by subsequently neutralising the acid or alkali.

"The cell wall which in this diagram is represented as being too opaque to enable us to see the nucleus in the interior of the cell, in the adjacent one is represented as perfectly transparent with the nucleus well defined in its interior, a change which may be easily effected by either of the reagents which I just now alluded to. Albuminous textures generally may often be rendered very transparent by the action of acetic acid, or by the addition of a drop of dilute caustic potash or soda.

"The consistence of many tissues is so soft that it is absolutely impossible to obtain a thin section; while, by tearing off a small piece, the relation of the component parts is usually so much altered, as to render the specimen useless for the purpose of examination. In this case our only chance is to harden the texture by some reagent in such a manner that, although its microscopical characters are not altered, a thin section may be readily obtained.

"It is even possible in some instances to render a soft tissue sufficiently hard to enable us to cut very thin sections, which may afterwards be restored to their former consistence by the complete removal of the hardening solution." And so on.

It is needless to say more in recommending this work to our readers. It is only second in importance to the author's lectures themselves, of which it is a report—less the demonstrative part. The fault of the volume is that it deals almost entirely with animal tissues, almost to the exclusion of those in the vegetable kingdom.

Garden Memoranda.

Horticultural Society's Garden, Turnham Green.—Since we last visited this establishment some important changes have been effected in it. The Great Conservatory, as is now pretty well known, has been emptied of its plants and is about to be devoted to the growth of Grape Vines. For these a border 4 feet wide has been made all round the outside of the house. It is bottomed with brickbat over which a e laid 9 inches in depth of rough gravel for drainage, over that again are laid turves broken a little with the grassy side downwards, and on these is put the soil in which the Vines are to be planted. This consists of good sound loam mixed with burned turf which has been well soaked with liquid manure. It may perhaps be well to state that Mr. M'Ewen is of opinion that Vine borders should never be made wider than 4 feet at first. His plan is to widen them in proportion to the growth of the Vines and the outward extension of their roots. The latter have thus fresh soil applied to them at a time when they most require it, whereas if the border was made its full width at once, the soil on that side of it farthest from the house would be comparatively worthless for the support of the Vines long before the roots had reached it. The advantage of making borders piecemeal will therefore be apparent. Vines have already been planted outside the house, and preparations are being made for having them inside also. Those outside are planted permanently about 5 feet apart, and are introduced into the house through holes made in the wall as close to the ground as possible. The sorts employed are chiefly the common Black Hamburgh; but other varieties of Hamburgh, such as Millhill, Pope, Victoria, and Wilmots, have also been put in by way of experiment. From this house in about four years' time Mr. M'Ewen fully expects to reap a profitable return. At present there is in it but little in the shape of pot plants or trees; it is we understand to be kept for another year at least in readiness for purposes of exhibition. It is however intended to give it a certain amount of interest by bringing fruit trees in pots from other houses into it after they have begun to ripen their fruit.

With the exception of two stoves, the curvilinear and the old Pine stove, the little greenhouse near the latter, and the greenhouse near the old Orchid house, most of the glass structures in the garden are now chiefly devoted to fruit culture. The old Orchid house is filled with Vines; Peaches and Nectarines in pots ripening their fruit are placed along the back of the greenhouse contiguous to it, and in Mr. Fortune's Pæony pits in front are planted Peaches and Nectarines. The plan of planting out small fruit trees of these and other kinds Mr. M'Ewen has found by experience to be better than keeping them in pots.

On the roof of the curvilinear stove Cucumbers are being grown instead of climbing plants; the latter are removed by degrees in order to make way for the former. For roof culture or trellises Mr. M'Ewen has found Great Britain do finely, whilst in frames it is a poor thing; and out of 24 sorts which he has tried none excels Cuthill's Black and White Spines for general supply.

The small house in what used to be called the "private square" is now occupied with different varieties of Muscat Grapes which have been planted there with the view of proving their respective merits. In the two Vineries in the "old experimental ground" there are at present fair crops, and Grapes seem to succeed better than anything else in Mr. Ewing's glass walls. One side of this is devoted to the growth of Standard Peach and Nectarine trees whose ultimate destination is to be we believe the Great Conservatory, in which they are to be planted along the sides of the pathways. The narrow borders of the Rose house immediately within the walls are also filled with fruit trees planted out. The Orchard house itself now contains some fine trees, some of which are planted out. Plums are doing well; on one small tree of the Jefferson are upwards of three dozen fine Plums. All trees in pots on which there is no fruit have been moved out of doors, and are plunged widely apart in the gravelled compartment where the boilers and other heating apparatuses were exhibited. Great numbers of Strawberries in pots for forcing are also placed here. These it is expected will fruit well in the conservatory next spring.

Banks or terraces are intended to be formed along the north side of the kitchen garden in such a manner that the slopes shall face south. On these are to be grown early vegetables. The worthless material taken out of the Vine border that has just been made round the conservatory is to be used as a foundation for these banks, which are also to be formed on a portion of a belt in the orchard parallel with the Peach wall. These are however not for early vegetables, but for training fruit trees on, and being, as has been stated, parallel with and only a few yards in advance of the Peach wall, a comparison of the periods of the respective ripening of fruit on the two can be made.

The different quarters of the kitchen garden are as full as they possibly can be of vegetables under trial. Some account of that with early Peas has already been given in our columns. Among medium late kinds may be mentioned Dickson's Favourite and Paradise Prolific; of late sorts the following are good, viz., King of the Marrows, Ward's Incomparable, and Flack's Victory, a dwarf kind; Waterloo Marrow is a good sort, but for fine colour it is inferior to Ne Plus Ultra; Lord Raglan and Woodford Marrow are both dwarf kinds and good in colour, but for flavour and cropping few will be found to beat Hair's Dwarf Mammoth.

Among Beans Johnstone's Wonderful is earliest. The Great Britain, Victoria, and Queen of England are good tall sorts and very similar; Dwarf Cluster and New Royal Cluster are extremely dwarf kinds, neither of them rising more than 8 inches above the ground. The two are however so much alike that they may be considered identical. Marshall's Prolific still maintains its good character. Among Kidney Beans the Six Weeks is the earliest; as a later kind and a useful successional fruiter the Black Speckled appears well worth attention.

Several kinds of Potatoes are under trial; but as yet little can be said about them. Lawson's Protestant is a most luxuriant variety. A sort called Myatt's Prolific Ashleaf is found to be a better cropper than the old Ashleaf, and among early kinds tried here is one of the best. Early Handsworth is earlier, but it is not so good a cropper as the last. Among Kidney sorts Thomas's Potato promises to be a very useful variety which deserves to be better known than it is at present. Newton's Kidney is small and of doubtful quality.

Cabbages, Cauliflower, Broccoli, and Celery are also all under trial; on the merits of these, however, as well as those of other things not mentioned here, we may have something to say hereafter.

In the orchard every bit of ground among the fruit trees in belts and elsewhere is closely cropped with Coleworts and other Winter Greens. In the open spaces between the young espalier trees and elsewhere are Onions, Mangel, Broccoli, Potatoes, and Savoys, all of which are intended for market. On one side of this ground a collection of early Peas has been sown to prove which sort is best for a late crop. As yet, however, it would be premature to offer an opinion respecting them. The Peach border is wholly covered with Kidney Beans.

Fruit of most kinds is this year a good crop. Several new kinds of Apples and Pears are in bearing this year; an opportunity will therefore be afforded of proving the merits or demerits of at least some of them. The dwarf trees in the belts which, owing to the severe cutting they annually receive to keep them within bounds, have never borne much fruit, are intended to be lifted and rearranged, and in all probability put in a single row instead of a double one as at present. By this means it is hoped they may be brought into a better bearing state. Pears on walls are a capital crop. All the inferior fruit had been thinned out early in the season, a plan which enables that left to be larger and finer than it otherwise would be. The Grassy plot near the top of the orchard, where vans are stowed away on exhibition days, is being pared and burned. When thrown into a heap and saturated with liquid manure this is found to be an excellent fertiliser. The ground, too, looks all the better for being cleared of its weeds and rubbish.

The ornamental department of the garden, it may be mentioned, is in good order. The beds on the east side of the arboretum, notwithstanding the dry weather we have had, are getting well furnished with flower; the different masses of Verbenas there are already very gay. These, however, of themselves would make but little show in so large a place as this. Hollyhocks (for which the Society is indebted to Messrs. Chater and Paul) have therefore been introduced here and there with grand effect into the beds along the sides of the walk leading from the Duke's Gate to the large iron tent. These and Dahlias (kindly presented by Messrs. Turner and Keynes) also form a good background to the fine specimens of Cypresses and other Conifers with which this part of the garden is stocked; the little borders in the neighbourhood of the entrance gate are also full of flowering plants, thus rendering this one of the most dressy portions of the garden. Of Seeley's vases, some of which well filled with Geraniums and other flowering plants still occupy places in the centre of the walk here, we have previously spoken in favourable terms. Passing on towards the Council room we find the borders of the walk in front of that building as gay as they can well be with Verbenas, mixed with Mangles' Variegated and other Geraniums. These have replaced the annuals which were sown there for early decoration. The little flower garden, too, in front of the old Orchid house is at present very attractive. One Calceolaria used for bedding here is especially worthy of notice on account of its dwarfness and the profuse way in which it produces its flowers. The latter are golden yellow, and though the plants are not above 8 inches high every branch is literally loaded with them. It is a seedling sent by Mr. North, to which no name has yet been given. While speaking of bedding plants let us not forget Verbena Miss Trotter, which is good, and a bed of the old Verbena Melindres major; than the latter nothing could look prettier. This sort has also the advantage of not requiring any pegging down; on the contrary every shoot roots into the soil like Ivy to a wall. Among Messrs. E. G. Henderson's scented Geraniums Pretty Poll and Bridal Ring deserve notice.

Of the American Garden, now a very pretty place, we have spoken favourably in previous reports. We may now state however that the Rhododendrons, notwithstanding their having been so recently transplanted, are well set with flower buds. We understand that some alterations, so as to better connect this garden with the rest of the ornamental ground, are in contemplation.

It may be mentioned in conclusion that the large Red Cedar transplanted the other day by Mr. M'Glashan's machine is apparently dead. This is however, not a matter of surprise, for to show the power of the machine, the tree was allowed to dangle in the air on it for two days, thus subjecting its roots to an undue amount of exposure. A Cryptomeria some 12 feet in height however, moved by his small machine, has succeeded admirably; it exhibits in fact no symptom of ever having been transplanted at all. Of the 1*l.* machines which are in use at the Gardens Mr. M'Ewen speaks in high terms.

Miscellaneous.

Habits of the Seal.—The seal is endowed with a remarkably powerful brain development, and is gifted with an amount of sagacity which entitles him to take high rank even among domestic animals. He is easily tamed, and evinces a degree of attachment in domestication second only to man's most faithful friend, the dog. This is noticed by Pliny; and Cuvier describes one displaying much intelligence, and performing many tricks. Thus, when desired to raise himself on his extremity, and to take a staff between his flippers, like a sentinel, he obeyed the word of command;—he would also lie down on his right side, or on his left, as directed, or tumble head over heels. He gave a flipper as a dog gives a paw, and protruded his lips for a kiss. This attachment to their masters, and particularly to those who are in the habit of feeding them, may have been observed by the pleasing instance of the late seal in the Regent's Park Zoological Gardens, which, as many of our readers may have remarked, evinced a remarkable degree of activity and sense when the keeper was in sight. But probably the most convincing, as it certainly is the most affecting story of the domestic nature and attachment of the *Phoca vitulina*, or common seal, is the following story, which is well authenticated:—"A young seal was domesticated in the house of a farmer near the sea shore in Ireland. It grew apace; its habits were innocent and gentle; it played with the children, was familiar with the servants, and attached to the house and family. In summer its delight was to bask in the sun; in winter, to lie before the fire; or, if permitted, to creep into a large oven—the common appendage to an Irish kitchen. A particular disease attacked the black cattle, many of which died. An old hag persuaded the credulous owner that the mortality among his cattle was owing to his retaining about his house an unclean beast—the harmless and amusing seal—and that it should be got rid of. The superstitious man caused the poor creature to be carried in a boat beyond Clare Island, and thrown into the sea. The next morning the seal was found quietly sleeping in the oven. He had crept through an open window and taken possession of his favourite retreat. The cattle continued to die; the seal was again committed to the deep at a greater distance. On the second evening, as the servant was raking the kitchen fire, she heard a scratching at the door; she opened it, and in came the seal. It uttered a peculiar cry, expressive of delight, at finding itself once more at home; and, stretching itself on the hearth, fell into a sound sleep. The old hag was again consulted. She said it would be unlucky to kill the animal, but advised that its eyes should be put out, and hen thrown into the sea. The deluded wretch

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listened to the barbarous suggestion, and the innocent creature was deprived of its sight; and a third time, writhing in agony, was carried beyond Clare Island, and thrown into the sea. On the eighth night after the harmless seal had been devoted to the Atlantic, it blew a tremendous gale. In the pauses of the storm a wailing noise was at times faintly heard at the door, which the servant concluded to be the *banshee* (the harbinger of death in a family). The next morning, when the door was opened, the seal was found lying dead upon the threshold." *Weld's Vacations in Ireland.*

Ancient Management of the Horse.—1. We shall now show how a man may groom a horse with least danger to himself, and most benefit to the animal. If, when he cleans him he looks the same way as the horse, there is danger that he may be struck in the face with his knee or his hoof. 2. But if he looks in the opposite direction to the horse when he cleans him, keeping himself out of the reach of his leg, and rubs gradually down by the shoulder, he will thus receive no injury, and may clean the frog of the horse's foot by turning up the hoof. In like manner let him clean the hind legs. 7. That the groom may put on the bridle properly, let him first approach the horse on the left side, and then throwing the reins over the horse's head, let him suffer them to rest on the point of the shoulder; and next let him take the head-piece in his right hand, and apply the bit with his left. 8. If the horse take the bit into his mouth, the man has nothing to do but put on the head-piece; but if the horse will not open his mouth, the man must hold the bit to his teeth and insert the middle finger of his left hand between the horse's bars; for most horses, when this is done, open their mouths; should the horse, however, not even then receive the bit let him press the lip against the dog-tooth or tusk, and there are very few horses that, on feeling this, will not admit it. 9. Let the groom also be instructed in the following points. First, never to lead the horse by the bridle, for this practice makes horses harder on one side of the mouth than on the other; and, next, to keep the bit from pressing on his jaws as much as possible; for if the bit rubs on them too much it renders the mouth callous, so that it loses all feeling; though, on the other hand, if it is allowed to fall down too much towards the front of the mouth, it gives the horse an opportunity of seizing the bit between his teeth and refusing to obey it. 10. It is proper, however, that a horse should not be irritated by these matters when he has work to do; for so important is it that a horse should take the bit readily that one who does not take it is altogether useless. 11. But if he is accustomed to be bitted, not only when he is going to work but when he is taken to his food, and when he is brought home to his stable after being ridden, it will not be at all surprising if he seize the bit of his own accord when it is held towards him. 13. But never to approach a horse in a fit of anger is the one great precept and maxim of conduct in regard to the treatment of a horse; for anger is destitute of forethought, and consequently often does that of which the agent must necessarily repent. 14. When a horse is shy of any object, and reluctant to approach it, the rider must try to make him feel that there is nothing terrible in it, especially to a horse of spirit; but if he cannot succeed, the rider must himself touch that which appears so alarming, and lead the horse up gently to it. 15. As to those who force horses forward with blows in such a case, they only inspire them with greater terror; for they imagine, when they suffer any pain at such a time, that what they look upon with alarm is in some way the cause of it. 16. When the groom brings the horse to the rider, we have no objection that he should know how to make the horse stoop, so that it may be easy to mount him; yet we think every rider ought to take care to be able to mount, even if the horse does not bend to him; for sometimes a different horse will present himself, and the same horse will not always be equally obedient. *Xenophon's Minor Works, Bohn's Edition.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—Now that there is a profusion of flowers out of doors it will not be possible to maintain the interest of this house except by keeping it furnished with handsome specimens of showy plants in first-rate condition, and with proper convenience this is no difficult matter at this season. Nothing, therefore, should be brought here at present that is not a fair specimen and well bloomed, nor should a single plant be allowed to remain a day here after it begins to get shabby, for it seems a waste of means, and certainly betrays bad management somewhere to occupy glass structures with plants of inferior interest to such as are plentiful in the open air. It is not desirable in our opinion, however, to crowd the house with flowering plants, but the aim should rather be to have a moderate number of handsome specimens effectively arranged, which while flowers are so plentiful out of doors will be vastly more interesting and pleasing than a larger amount of floral display from plants of no individual interest or merit. This kind of display may be agreeable enough at a season when flowers are scarce, but it is useless to hope to maintain the interest of a house at this season by this kind of management. A thin arrangement of the pot specimens will also be advisable on account of the permanent occupants of the beds or borders, which at this season should be allowed plenty of space in order to secure strong well-ripened wood, for unless this is obtained they will not bloom finely. Stove.—Such of the inmates here as are intended for the decoration of the conservatory in autumn and early winter should be carefully looked over, shifting such as are likely to want more pot room without unnecessary loss of time, so as to get the pots well filled with roots before their flowering season. Also keep the shoots tied out rather thinly, and expose the plants to as much sunshine as they will bear without scorching their foliage, in order to promote stocky growth. Give clear weak liquid manure-water to young growing specimens, and repot any of these that are intended to have another shift this season, so as to get the pots well filled with roots before winter. Maintain a moist growing atmosphere, and ply the syringe vigorously upon any plant at all infested with red spider. Orchids.—The growing season is far advanced, therefore encourage any backward plants with plenty of heat and moisture while this can be safely done. See that plants growing on blocks and in baskets are properly supplied with moisture at the root, and to prevent any mistake handle every plant at least once a week, and immerse those found to be dry in tepid water until the material about their roots is well soaked. Syringe lightly morning and evening, and sprinkle the floors, &c., frequently, so as to keep the atmosphere thoroughly moist.

FORCING DEPARTMENT.

Pineries.—Plants intended to furnish the winter and spring supply of fruit must be treated with considerable care and judgment, in order to insure their showing at the proper time, or rather to do all that can be done to insure this, for the most experienced growers cannot always succeed in getting plants to fruit at the desired time. Attend to previous directions on this point, and continue to select the most promising plants, keeping them dry at the root, and fully exposed to light so as to check their growth, and induce a comparative state of rest for a few weeks. And those that have well-matured their growth, if wanted to fruit at once, should be kept close and warm, affording them a brisk bottom-heat, and properly moistening the soil about the roots. Those intended to supply ripe fruit late in spring, if not considered sufficiently strong, may be encouraged to grow freely for some time yet, as if these can be got to show in November they will be sufficiently early. Attend carefully to plants swelling their fruit, giving plenty of manure water at the root, and keeping the atmosphere warm and moist. Attend to the watering of recently potted stock, as if too much is given the fresh soil is apt to become sodden, and if too little the old ball becomes so dry that it is not easy to get it properly moist again, and in either case the check which the roots sustain frequently throws the plants into fruit prematurely. Get all succession stock requiring more pot room shifted as soon as circumstances will allow, in order that they may be well established in their pots before winter. Vineries.—Should the weather become cloudy or wet it will be unfavourable for Grapes that are ripe and expected to hang in good condition for a long time, and where the borders are of a strong adhesive nature it will be advisable to cover with something to throw off heavy falls of rain; but where the soil is of a light nature, and such that the water will drain through it freely, this will be unnecessary. Use gentle fires where the fruit is colouring with a moderate circulation of air, and on fine days too much air can hardly be given at this stage. In dull weather fire heat will also be necessary where fruit is swelling. The wood will probably be well ripened in the early house, and the foliage turning brown, and in this case it will be desirable here also to prevent the border getting saturated with wet. If this house requires painting or any other repairs, this should be attended to while the house can be thrown open, and such work done more conveniently and much better than at any other season. Peaches.—The wood will probably be ripe in the early house by this time. Give therefore all the air possible. Give trees from which the fruit has just been gathered a good washing with the engine to clear the foliage of dust, &c. Melons.—Plants in dung frames will require considerable attention. Keep the bottom heat as regular as possible, and endeavour to secure sufficient warmth from the linings to allow of giving a little air to prevent damp. Water very cautiously, and only when a fresh supply is absolutely necessary, and then give enough to moisten the whole mass of soil.

FLOWER GARDEN AND SHRUBBERIES.

Now that the effect of the present arrangement of the colours in the beds can be fairly seen there is an excellent opportunity for noticing any mistakes, and determining upon the arrangement for next season, and this should be done without delay. When it is decided what each bed is to be occupied with next season, a plan of the garden should be made, writing the names of the plants on the beds according to the arrangement decided upon. This will be of the greatest service in showing at any time what quantity of each kind of plant has to be propagated, and unless some method of this kind is adopted, it is not unusual to find at planting out time that there is a scarcity of some things, and too many of others; whereas, those who have their plan to refer to can tell at a glance the exact number required of everything, and avoid mistakes in getting up too many of one thing, and too few of another, and all the anxiety and confusion of working without a well defined object in view. Dahlias are growing very rapidly and will require to be gone over frequently to keep the side branches securely tied in, for when left untied they are readily broken off by a thunderstorm. Hollyhocks must also be securely tied to their stakes. Continue to remove dead flowers from Roses, and give plenty of manure-water to the autumn blooming varieties. Plant out rooted cuttings of Pansies, &c., in nursery beds in a shady situation, keeping them well watered if the weather proves dry until they get established. Finish budding Roses, if not already done, and also get border Carnations, Picotees, and Cloves layered without further loss of time. That the latter few flowers are more prized.

HARDY FRUIT AND KITCHEN GARDEN.

The main breadth of Spinach for furnishing the winter supply should be sown at once, also prepare ground for Winter Onions. Get a good breadth of Lettuce and Endive planted out for the autumn supply, and sow some hardy sort of Lettuce for planting out against south walls, or in frames to come in after the frost cuts off the outdoor supply. Dig down exhausted plantations of Strawberries and get the ground planted with winter stuff if there is not already sufficient of this planted, and make a further sowing of Turnips, if these are likely to be scarce before the winter is over. Attend to cutting and drying herbs as they are ready, and do not allow Shallots to remain in the ground after the tops die down, as in the event of wet weather they will make fresh roots, which prevent their keeping. Get a good breadth of Cabbage planted thickly in rich ground to furnish winter greens.

COTTAGERS' CALENDAR.

Little can be added here which at present is not contained in the kitchen garden portion. Let the cottager still persist in filling up every blank. When the Onions are cleared off let the ground be filled with early Dutch Turnips or some strong winter greens. Keep an eye continually to the kitchen garden portion of the Calendar.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending July 30, 1857, as observed at the Horticultural Gardens.

July.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 24	3	29.960	29.809	80	57	68.5	65½	61½	S.W.	[illegible]
Satur. 25	4	29.948	29.754	75	37	56.0	66	62	W.	[illegible]
Sunday 26	5	29.942	29.955	77	48	62.5	64½	61½	S.W.	[illegible]
Mon. 27	6	29.944	29.864	76	59	67.5	64	61	S.W	[illegible]
Tues. 28	☽	30.090	29.830	77	41	59.0	65	61	N.W	[illegible]
Wed. 29	8	30.151	30.114	80	44	62.0	64	61	S.W	[illegible]
Thurs. 30	9	30.031	29.974	77	61	69.0	64	61	S.W.	[illegible]
Average..		30.159	29.900	77.4	49.5	63.4	64.7	61.3		[illegible]

July 24—Quite cloudless; very fine; hot and sultry; very fine.
— 25—Densely clouded; cloudy and fine, remarkably cold, comparatively, at night.
— 26—Fine; cloudy and fine.
— 27—Fine, with brisk S.W. wind; cloudy; rain.
— 28—Thunder and heavy rain; fine.
— 29—Slight haze; very fine; clear at night.
— 30—Fine; very fine throughout; cloudy.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending August 8, 1857.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 2	75.6	53.3	64.5	15	1.03 in.	1	4	3	—	7	9	4	3
Mon. 3	74.1	51.5	62.8	16	0.50	3	4	3	2	3	11	4	[illegible]
Tues. 4	75.0	51.8	63.4	16	0.85	2	3	3	3	3	12	4	[illegible]
Wed. 5	73.4	52.2	62.8	14	0.43	1	4	4	2	4	10	3	3
Thurs. 6	72.4	51.7	62.1	13	0.58	—	6	3	1	3	7	[illegible]	[illegible]
Friday 7	74.7	50.8	62.7	10	0.57	1	4	2	—	5	17	2	—
Satur. 8	75.3	49.9	62.6	12	0.50	2	5	2	—	4	13	3	—

The highest temperature during the above period occurred on the 2[illegible] 1856—therm. 92 deg.; and the lowest on the 6th, 1833—therm. 36 deg.

Notices to Correspondents.

Belgian Pears: *Winter Nelis.* Next week.

Berberis dulcis: *Laura.* It has no resemblance to the "Berberry flowering Holly," by which we suppose you to mean *B. aquifolium.* The fruit of the latter is quite harmless and is sometimes made into jelly.

Books: *B Stroud.* Brown's Forester.—*J Gladwin.* We are not aware that Messrs. Roeszl's Catalogue can be procured anywhere on this side of Mexico.

Double Canterbury Bell: *WC.* We see little difference between yours and that mentioned last week, except that yours is not quite so fine in size.

Names of Plants.—We have been so often obliged to relucantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*F.* Collomia grandiflora. Francoa appendiculata is the same as F. sonchifolia. We have no idea where they can be had unless in some Botanic Garden. It has very pretty rose-coloured flowers.—*G R.* Some tropical Phaseolus, too tender to be worth growing except as a curiosity. If you desire to know its exact name we must trouble you for perfectly fresh specimens of the leaves, flowers, stem, and half-grown fruit; and you must tell us whether it is annual or not.—*R B M.* Galeopsis Ladanum, Sium angustifolium, Heloscidium [illegible] diflorum.—*Tarling.* Quercus nigra, Juniperus squamosa, Cephalotaxus Fortuni.—*William.* 1, Rhamnus catharticus; 2, R. hirsutus; 3, Rubus suberectus; 4, Rubus cæsius; 5, *An old Sub.* There is no such plant as Acacia Mimosa. The Verbena is pronounced by an Expert to be Imperatrice Elizabeth.—*A Devonian.* We believe the "Brilliant Orange Composita" from Mr. Skinner is lost in the Horticultural Garden. From the leaf it seems near Polymnia. The winter here kills it.—*S N.* Epilobium latifolium.—*A D.* 1, Struthiopteris germanica, *Willd.*; 2, Sitolobium adiantoides, *J. Sm.*; 3, Hypolepis tenuifolia, *Bernh.*; 4, Cibotium Barometz, *J. Sm.*

Schomburgkia Lyonsi: *J C L.* This is now ascertained to be a Jamaica plant. We have never heard of it in the trade.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

NOTICE.—We beg to inform the Agriculturists of England, Ireland, and Scotland that we have already received about 100 orders for Reaping Machines for the approaching harvest, and therefore most earnestly urge the necessity of immediate decision, or it will be quite impossible to meet the demand.

A Book containing the most abundant evidence of the economy, simplicity, and perfect working of our "Patent Champion Reaping Machine" will be forwarded free on application.

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THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHE.—This well-known Scythe continues to give the greatest satisfaction, and is extensively used both at home and abroad.

An ordinary good hand at the Scythe can readily cut down from 1½ to 2 statute acres of corn per day, laying the swathe so as it can be easily gathered into well arranged sheaves. The Scythe is packed into small compass and may be sent any distance with perfect safety. When three or more are taken they will be forwarded carriage paid to the principal Railway Stations throughout the kingdom at 9*s.* 9*d.* each.

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EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

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DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

YORKSHIRE AGRICULTURAL SOCIETY.—GREAT SHOWS AT YORK.

PROGRAMME.

TUESDAY, August 4.—Trial of Implements, Steam Ploughs, Reapers, &c., at 12 o'clock, Admission, 1*s.*

WEDNESDAY, August 5.—Implement and Cattle Yard open to the public. Admission, 2*s.* 6*d.*

THURSDAY, August 6.—GREAT SHOW DAY. Implement and Cattle Yard open at 8 o'clock, A.M. Admission, 1*s.*

Cheap Trains on all the lines of Railway.

JOHN HANNAM, Secretary.

The Agricultural Gazette.

SATURDAY, AUGUST 1, 1857.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, August	4	Yorkshire Agricultural Society at York.
WEDNESDAY, —	5	
THURSDAY, —	6	
WEDNESDAY, —	5	Highland Society at Glasgow.
THURSDAY, —	6	
WEDNESDAY, —	12	Irish Agricultural Show at Waterford.
THURSDAY, —	13	

THE reports in another page are a small portion of the correspondence which reaches us on the prospects of the harvest. We shall continue to publish notices of this kind for a week or two to come—delaying our usual tabulated report till a later period of the harvest, when opinions can be given with greater confidence. At present we only add that, with the exception of the Oat, our grain crops generally bid fair to yield satisfactorily. Wheat seems to be generally good, though if anything less in extent than last year; while Barley, also looking well, is sown over a somewhat larger extent.

The harvest is now general all through the southern and midland counties, and a good deal of Wheat is already carried.

AT the General Meeting of the Agricultural Society held at the close of the Salisbury week, after the usual complimentary votes of thanks to those members, authorities, and railway companies to whom the Society had been indebted, Mr. S. SIDNEY called attention to some of those points connected with the management of the Society to which we have already referred in past numbers of this Journal.

He asserted the dissatisfaction which existed among tenant farmers at the management of the Council. He warned them that they had already met with a failure in the annual dinner, and others would follow. Instead of the large and magnificent attendance they had at the dinner last year, they had but a very poor attendance this year. He did not believe this was wholly owing to the raising the price of the tickets, but to a feeling prevailing amongst the farmers that it was an attempt to narrow the management of the Society, and make it even still more a family party than it was at present. Again he would tell them they must not be dazzled by the success of one show. What was now the state of their funds? They had been in existence 19 years, and had had 5000 members; yet they ought to have double the number. Why was it that the Society was not so well supported as it ought to be? In the first place it wanted publicity. Their arrangements were kept too quiet. It was true that they knew the Society had a meeting on the second Wednesday in each month, when perhaps a paper was read of interest, but that was uncertain; and if they went, they might hear a paper of no interest whatever. They ought to let it be known what would be read, and invite the attendance of the members of the press. Then as to the "Journal;" what could be the good of telling them in 1857 what took place in 1856? Another, though older Society — the Society of Arts — found itself in a declining position two years ago, when some gentlemen took it in hand, and established a weekly journal. It was true some gentlemen might object to what took place at those meetings being reported. If the papers brought before them were good, every time a notice of them was published it would bring to them an accession of numbers; and if they were bad, they might depend upon it the reporters would not notice them. Another thing required was an infusion of a greater number of practical farmers on the Council of the Society, the feeling being that it now comprised too many gentlemen and too few working men. Again, with the number of implements entered for trial, it was impossible they could be properly tried unless they had a paid field-steward to superintend the arrangements, as they could not expect gentlemen, however zealous they might be, to give their time and attention to all the details so well as a regular field-steward could do.

In the subsequent discussion many of these points were admitted as affording just ground of complaint; and we earnestly trust that another year will see faults rectified which have been pointed out, and the Society more satisfactorily prospering under those influences which have been brought to bear upon it.

WE referred at p. 294 to two classes of operations useful in the improvement of old pastures. The first includes a number of cultivative processes, each to be chosen as the circumstances of the case may require, but all to be carried out in succession if a good pasture is to be preserved in a sound and efficient condition. Many of these operations of course should be applied in the degree in which we have robbed the meadow, just as they are to arable land; *rolling* will preserve that evenness of surface which is ever interfered with to a greater or less extent by the action of frost, worms, and ants; *harrowing* will get rid of a mere mat of dead fibres which too frequently operate as the nidus of Funguses and Mosses which would tend to prevent the germination of new Grass buds in the early spring.

Grass seeds require to be sown from time to time wherever the Grass has been cut late or overripe, as much of the root will often die away in consequence, and this may frequently be made a means of introducing a greater amount of good sorts than existed before. As respects cutting of hay, this we would do even oftener than most people deem proper, as by our other processes we should endeavour to make up for it, and this indeed as well as the increase of herbage in general we should look for as due to us for an attention to management, just as improved tillage enables us without detriment to the soil to take two good crops of Wheat where formerly we could only raise one middling one.

As to depasturing we cannot urge too strongly upon the farmer the mistake that is so prevalent, namely, that feeding cattle in the field *makes* manure. The practice acts indeed by converting the eaten Grasses into a manuring substance, but if we put upon land as many cattle as it will carry we do not increase the amount of fertilising substance therein contained: and indeed if we kept fields constantly in pasture and never took a crop of hay they must suffer by the continual removal of stock from them, a process which can only be arrested by an occasional dressing of manure. Depasturing, however, is of great use, as from the evenness of its action it is a cultivative process keeping all smooth and short, without which some of the coarser Grasses would gain the ascendancy and the final result would be a jungle method of growth in which large rough tufts would show here and there, presenting more the form of covert for game than that of our smooth green cultivated meadows.

Whenever we find a meadow producing bad herbage where the operations just mentioned have been fairly tried, we may know that there is something wrong which can only be corrected by one or other of the means which we have put down as

ndirect—indirect, however, only inasmuch as they do not act merely by a direct increase of the crop.

Those who have narrowly watched pastures will have seen that the wet pasture has a number of plants growing with its herbage that are never found in the drier ones. Of these the *Ranunculus acris*, upright Crowfoot; *Scabiosa succisa*,* Devil's bit Scabious; *Petasites vulgaris*, Butter-bur, and different Sedges may be adduced as examples, and as it is a law of nature that every place should be occupied with a vegetation suitable to it, so any change herein produces in obedience to this law a corresponding change of herbage. Hence, then, upon this principle draining always rids the land of plants loving stagnant moisture, and its indirect action as an ameliorator of meadow is to get rid of weeds of a certain class and prepare the land for an occupation of their space by plants of a good kind.

Irrigation when it can be practised is—though acting indirectly—the most direct means of getting rid of all extraneous plants from Grass herbage, and the most direct encourager of the growth of Grass solely that we possess; in illustration of which we quote the subjoined table from the Journal of the Royal Agricultural Society, vol. xv., part 2.

Table 1, Showing the Change of Herbs (not Grasses) under Irrigation.

Botanical Names.	Common Names.	Proportionals. Before Irrigation.	After two years' Irrigation.	After four years' Irrigation.
Ranunculus acris	Upright Meadow Crowfoot	1	3	1
,, bulbosus	Bulbous Crowfoot ..	3	1	—
Plantago lanceolata	Narrow-leaved Plaintain ..	3	1	1
,, media ..	Broad-leaved Plaintain ..	3	—	—
Trifolium repens ..	Dutch Clover	2	—	—
,, pratense..	Broad Clover	1	2	2
Anthriscus vulgaris	Common beaked Parley	1	2	1

Here then we see a marked decrease in bad plants and a corresponding increase in good to be distinctly traced in two years, and in four years this decrease is still more rapidly progressing, and we are enabled to state as the result of some seven years' watching that now the irrigated meadow presents scarcely a trace of the plants belonging to this table, but all or nearly all are replaced by most excellent Grasses.

The following table represents the changes which took place in 12 species of the meadow Grasses in the same time. This field trebled in value in four years and is now worth 5*l.* an acre, its increased value being due not only to the fact of its growing Grass and nothing else, but to its growing only the best kinds of Grasses; for irrigation acts indirectly by killing weeds and innutritious Grasses.

Table 2, Representing the Changes of Grasses under Irrigation.

Botanical Names.	Common Names.	Proportionals. Before Irrigation.	After two years' Irrigation.	After four years' Irrigation.
Alopecurus pratensis ..	Meadow Fox-tail Grass ..	1	2	4
Poa pratensis ..	Field Meadow Grass	2	3	4
,, trivialis	Rough Meadow Grass	1	2	1
Briza media	Quaking Grass ..	2	—	—
Cynosurus cristatus ..	Crested Dog's-tail Grass ..	2	1	—
Aira cæspitosa ..	Hassock Grass ..	1	—	—
Agrostis stolonifera .	Marsh Bent Grass ..	1	2	3
Dactylis glomerata ..	Cock's-foot Grass ..	1	2	3
Avena flavescens ..	Yellow Oat Grass ..	2	3	3
,, pubescens ..	Soft Oat Grass ..	1	1	1
Hordeum pratense	Meadow Barley Grass ..	1	2	2
Lolium perenne ..	Perennial Rye-grass	2	4	6

These tables will at a glance show the practical bearing of irrigation as an indirect means of getting rid of extraneous meadow plants, and at the same time its direct advantage in encouraging the growth of Grasses.

Thus, then, we see how a great number of weeds can be got rid of by indirect means. There are, however, some which pertinaciously keep possession of the soil under all ordinary circumstances, even where these indirect processes are applicable; and these must be separately attacked some by one means and some by another, and to cope with them we must to a great extent be observers of their natural history. There are, however, certain principles of action which all can understand; but their discussion here would make our article too long, and we therefore propose discussing this question in a future Number.

* This plant and the Plantago lanceolata are indifferently called "Fire-weed," because their thick leaves retain moisture so long as to cause the firing of ricks, and it is a well-known fact that hay from damp meadows is much more liable to fire than that from well drained ones.

WILTON HOME FARM.

[The following is a continuation of the report read by the Right Hon. S. Herbert, at the gathering near Salisbury last week, when the Water meadows and Home Farm, under the management of Mr. Robson, were laid open to the members of the English Agricultural Society.]

Since 1850 the stock kept has been per annum:—

Horses.	Breeding Ewes.	Childer Lambs.	Calves.	Yearlings.	Two-year olds.	Barren Cows.
9*	261	101	6 to 7	6 to 7	6 to 7	8 to 9

* It must be here remarked that three out of these nine horses are kept for doing work in the park or about the estate.

Corn Crops produced in 5 years from 1850 to 1855.

	Acres.	Quantity of Straw. ton.	cwt.	No. of Bushels per acre.	Weight per Bushel. lbs.
Wheat	112	1	18	34	60
Barley	108	1	4	45	49
Oats	88	1	9	57	40
Beans	6	1	17	56	65

Hay, Root, and Green Crops from 1850 to 1855.

	Clover and Hay. tons.	cwt.	Swedes. tons.	Mangels. tons.	Common Turnips. tons.
Prime	2	16	26	23	15
Seconds	1	16	12	15	9
Thirds	1	5	..	..	..

In reference to this table Mr. Herbert explained the small weights attached to the Turnip crops to arise from the fact that Turnips are usually fed very early, long before they arrive at maturity.

Upon this followed the statement of the entire expenses and receipts for the five years mentioned, which is in fact the balance sheet.

Balance Sheet for the Five Years commencing Michaelmas, 1850, and ending Michaelmas, 1855.

Statement of Expenses.

	Expenses in Five Years. £	s.	d.	Expenses per Annum. £	s.	d.	Expenses per Acre on the 186 Acres of Arable Land. £	s.	d.
By Valuation, Michaelmas, 1850	3012	0	10	602	8	2	3	4	9¼
,, Manual labour ..	1979	9	10½	395	17	11½	2	2	9
,, Manure purchased ..	495	17	3½	99	3	5½	0	10	8
,, Seed corn	561	9	9	112	5	11¼	0	12	6¾
,, Repairs of implements, blacksmith's work, &c.	250	18	5	50	3	7½	*0	5	4¾
,, Stock purchased ..	582	16	11½	116	11	4½	0	12	6¼
,, Feeding stuff for cattle and sheep ..	3340	8	9½	668	1	3¾	3	11	9½
,, Horse-corn and meal	1067	13	2	213	10	8	1	2	11¼
,, Sundries	42	18	1	8	11	7¼	0	0	11¼
,, Rent and taxes ..	1500	0	0	300	0	0	1	12	3
,, Balance in favour of the farm being 5*l.* 9*s.* 2*d.* per cent. per annum on 2600*l.*, or 10*l.* per acre on the whole area (or 14*l.* on arable), the average capital employed. And this per centage is irrespective of horses, implements, and other dead stock, made in the inventory at Michaelmas	700	9	2¾	141	17	8½	0	15	3
	13,543	2	5	2708	11	9¾	14	11	2

* Including Park Team; or 3*s.* 7¼*d.* exclusive.

Statement of Receipts.

	Receipts in 5 Years. £	s.	d.	Receipts per Annum. £	s.	d.	Receipts per Acre on the 186 Acres of Arable. £	s.	d.
By grain	1578	7	5½	315	13	5¾	1	13	11
,, Consumed on the farm	1575	15	0½	315	3	0¼	1	13	10
,, Hay, roots, and green crops sold	155	18	6½	31	3	8	0	3	4½
,, Stock sold	5585	14	8½	1117	2	4	6	0	1½
,, Hire of horses and implements, being the cost price for horse corn, forage, repairing implements, together with proportionate share for depreciation of team and interest of money..	888	6	6	177	13	3½	0	19	1¼
,, Valuation of stock and crop at Michaelmas, 1855	3739	0	2	751	16	0¼	4	0	10
	13,543	2	5	2708	11	9¾	14	11	2

The value of unexhausted improvements and increased fertility of the farm being considered as a full equivalent to the expenditure in putting the farm into tenantable condition between 1846, when taken in hand, and Michaelmas, 1850, when this account commenced. The result of this account under the circumstances of the great outlay in feeding stuffs, and the small proportion of grain crops grown and sold should however be considered, but as the first term of the lease per 14 or 21 years, in which the cost of cultivation would necessarily be more expensive than the latter portion of the lease.

After this balance-sheet, the reading of which elicited considerable applause, Mr. Herbert read several analyses and synopses, all of great importance, and from which we quote the following:—

Summary of Cattle Account shows the Receipts to have been on the Area of the Arable portion of the Farm—

	Return per acre inclusive of purchased food. £.	s.	d.	Return per acre exclusive of purchased food. £.	s.	d.
Sheep	2	18	9	1	12	9½
Cattle	1	6	7	0	10	2¾
Swine	1	3	6	0	0	6¾
Poultry	0	1	10	0	0	5
	£5	10	8	£2	4	2¾

or 8*l.* 7*s.* 4*d.* gross, and 3*l.* 4*s.* 6*d.* net per acre on the two-thirds arable, or hay, root, and green crops, exclusive of the value of forage consumed by the six horses belonging to the farm, and three kept for the use of the park and demesne grounds.

The dead weight sold off per annum have averaged—

	Dead weight sold off per acre on 186 of arable. lbs.	Ditto per acre on whole area of farm. lbs.
In Mutton	$90\frac{5}{10}$	$64\frac{8}{10}$
,, Wool	$6\frac{6}{10}$	$4\frac{7}{10}$
,, Beef	$64\frac{1}{10}$	$45\frac{7}{10}$
,, Pork	$58\frac{8}{10}$	$41\frac{9}{10}$
,, Poultry	$2\frac{5}{10}$	$1\frac{8}{10}$
	$222\frac{1}{2}$	$158\frac{7}{10}$

Mr. Herbert then finished with a grand general summary, in these words:—"The farm with one-third of the area of land in arable, and two-thirds in hay, roots, and green crops, has for five years by the sale of fattened stock instead of store, under unfavourable circumstances, increased the yield in Wheat per acre from 20 to 34 bushels, Barley 28 to 45, Oats 32 to 56; and has paid a full rent and 5*l.* 9*s.* 2*d.* per cent. per annum interest on capital employed with prices averaging, Wheat, 6*s.* 10*d.*; Barley, 3*s.* 11*d.*; Oats, 2*s.* 10*d.* per bushel; Mutton, 7*d.*; Beef, 6¼*d.*; Pork, 5¼*d.* per lb. The rate of interest realised is acknowledged to be an insufficient remuneration for a tenant's skill in management, risk, and interest in money; but considering the improved condition of the farm and the security in the occupation or holding, a fair prospect remains for the security of the undertaking."

APPEARANCE OF THE CROPS.

[We propose during the next two weeks to give short reports from correspondents in the several counties, and to give our usual annual report in a tabulated form towards the end of the month, when opinions will be more trustworthy.]

Bedfordshire.—I consider the crops in this neighbourhood about an average. The quantity of straw is small, but I think it will yield an average of very fine corn. Last year it was more than an average. On the gravel soils harvest is now general. In about another week harvest will be general upon the clays. *William Lavender, Biddenham.*

Berkshire.—The acreage of Wheat is about as usual. The harvest will be general Monday the 3d August. The yield will be good to the amount of straw, which is an average; Barley is going off prematurely ripe. Oats a moderate crop. *T. Chandler, Aldbourn, Hungerford.*—The harvest prospects in this neighbourhood encourage a hope of having somewhat above an average crop of Wheat (extent about as last year). Barley will be an average—scarcely so with Oats. Beans and Peas good, so are the green crops. Potatoes are slightly infected with the disease. Harvest will be general August 3. *John Adams, Thatcham, Newbury.*

Cambridgeshire.—We have an average acreage of Wheat; the crop is good and ripening kind; although not so much land as last year I should estimate the yield at fully as much. Harvest is commencing on all forward lands the early part of this week, and by next Monday (Aug. 3) will be general. *Alfred S. Ruston, Chatteris.*—The Wheat in this neighbourhood is very good as to yield and quantity; the Barley an average crop, as are Oats; the Beans are rather under, and the Peas about an average crop; the Turnips and Mangel are looking healthy, and the Potatoes at present look remarkably well and without blight. The breadth of Wheat sown is rather beyond an average acreage. The harvest was generally begun on Monday last. *Page Howard, Grandchester.*

Devonshire.—There does not appear to me to be any larger breadth of Wheat hereabouts than last year, indeed the extent of Wheat is so small as to be of no consequence to the general crop of the kingdom. Crops of all kinds seem good, and the prospects promising; but we are so subject to the effects of blight near the time of harvest, which does not seem likely to be for three weeks to come, that I do not feel justified in saying what the yield is likely to be yet. *John Benson, Tavistock.*

Dorsetshire.—The present appearance of the crops of Wheat, Barley, Oats, Peas, and green crops is good. Harvest will be general Aug. 3. ———, *Corfe Castle.*

Essex.—The Wheat is more than an average crop. The Barley on the chalky clays and rich loams is quite an average crop; but upon the gravel it is very deficient. The Oats generally are very moderate; Beans and Peas are not a crop, the late Beans being so much infested with lice. The Mangels, Swedes, and White Turnips are well planted, and promise well to be a good crop. They are suffering from want of rain. The hay is well secured and an average crop. I began harvest on July 22; it was general the latter part of the week. The breadth of Wheat sown this year is smaller than last. The yield will be in my opinion 4 bushels per acre more this year than last. *Wm. Hutley, Witham, July 27.*—The cutting of Wheat may be considered general, and some quantities of Peas and Oats were carted last week. We only want about three weeks fine weather to secure an abundant crop. Wheat—Good, free from blight, and quality excellent; a good breadth sown, but the acreage not so large as last year. Barley—Good, but much laid at places; not a large acreage. Oats—Not good; very short in the straw, but corny. Peas—Good. Beans—General good; but at places blighted. Mangel Wurzel—Excellent. Turnips—Good. *W. Fisher Hobbs, Boxted Lodge, July 27.*

Gloucestershire.—The Wheat is generally above an average a full breadth sown, but not quite such a large proportion as

[illegible] year, the high price of Barley having encouraged its [illegible] some of the late Barleys are short and rather light, [illegible] early sown is an average crop. Oats are generally [illegible] Beans are good. In about 10 days harvest will [illegible] commenced. *John Coleman.*—Harvest here will be [illegible] by August 3. The autumn-planted [illegible] are good; spring Wheat light; altogether an average [illegible] the bulk of straw being less than usual; [illegible] breadth planted than last year. Barley and Beans [illegible] average. Mangel good. Swedes, Turnips, and [illegible] suffering greatly for want of rain; the plant, however, [illegible] sufficient for a crop with a change of weather. *C. Randell,* [illegible]

Hants.—Wheat harvest will be general by the middle of the [illegible] Romsey. The crop appears a full average in [illegible] and yield. The ear is more perfectly filled than for [illegible] years past, although the crop is thin on the ground in [illegible] places. Barley uneven and under an average. Oats the [illegible] Winter Beans good. Spring Beans very partial, not [illegible] a crop, and Peas are the same. Of roots of every sort the [illegible] singularly deficient, the long continued drought has left [illegible] and Turnips at the mercy of their numerous enemies—[illegible] the grub, wireworm, earwig, and Black Palmer are all in [illegible] attacking them, so that many farmers have drilled twice [illegible] and at this moment have no prospect of crops; what [illegible] will be on large stock farmers it is difficult to say. [illegible] price of sheep is already much influenced by the present [illegible] prospective scarcity of food, and all of us are looking with anxiety as to a supply of winter food. *J. W. Clark, Romsey.*

Huntingdonshire.—The Wheat very good, Barley a fair crop; Beans and Peas moderate crops; Oats below an average crop. Root crops generally want rain. Harvest general on the 30th. Wheat and Barley under cultivation about the same as last year. *Robert Beart, Godmanchester.*

Kent.—The Wheat harvest is nearly or quite three weeks [illegible] than last year, this being the general day to commence, although there are many fields in shock. The crop of Wheat in [illegible] may have been equal to the present one, otherwise we have not had so great a crop since 1822. If the Wheat crop is secured in good condition I have no doubt each quarter of Wheat will produce 50 lbs. of flour more than last year. The crop is full one-third more than last year, and probably double. Wheat is not so great a breadth as last year, the high price of Barley has induced many farmers to sow more. Barley may be two-thirds of a crop. Peas very bad; Beans an average, Oats [illegible]. The Potato blight is extending itself. *Robert Matson, Wingham.*

Lincolnshire.—The prospects of the harvest here are as good as can fairly be desired, and the probability of yield good, and as compared with last year both in weight and quality certainly superior. The extent under Wheat about the same. The time of general harvest about the 12th of August, an early harvest for this district. *John Clarke, Long Sutton.*—On high land in this neighbourhood the harvest generally commences this week: Oats and Peas have been cut in many places ten days ago: in the Fen we may expect harvest to be general the second week in August. Wheat on high land is good in quality and will weigh well, but much thinner in plant than was expected, therefore will not produce more than an average yield. In the Fens, however, we hear of unusually heavy crops and most of them standing, the yield therefore will no doubt prove more than an average: Oats and Barley are thin and short and will be defective; Beans and Peas are a good crop; Potatoes will not be abundant; Swede Turnips a failure; white Turnips and coleseed better; Wheat sown about the usual breadth, rather less than last year. *John Whitwell, Peterborough.*—Wheat light in milk, but well filled in the ear. Barley and Oats both light; a greater extent of Barley under crop this year than last, consequently a proportionate less quantity of Wheat. Harvest will partially commence next Monday, August 3d, but it will be the following Monday before it will be general. *F. Sowerby, Great Grimsby.*—In the Fen district the Wheat crop is very good, promising good samples and of full average extent. General harvest August 3d. Oats very poor; Peas good; Beans scarcely average; Mangels superior; Coleseed average. *Thomas Aitken.*

Middlesex.—In reply to yours of the 25th instant, I consider the prospect of the yield of Wheat very good, and the extent [illegible] average. The Barley not so good in general, and on the light land very deficient; and the Oats not very good. Harvest will be general this week in our neighbourhood. *Charles Webster.*

Notts.—I believe there will not be any very heavy crops in our vicinity, and that upon the whole the yield will not be more, if it amounts to as much as a fair average. In straw it will be very deficient. I am not able to speak to the quantity of Wheat sown this season. As to season, I expect that most persons will begin in earnest during the week commencing August 10, although a good deal will be cut before that date. —. *Mansfield.*

Suffolk.—There will this year be a short yield on light land, and a fair average on good and heavy land; the quality of the Wheat is good, but the Barley is small in the kernel, owing to its ripening too fast in consequence of the great heat and scarcity of rain during the last two months. The harvest in this neighbourhood is now fairly commenced earlier than it was last year. The crops however are not generally so abundant by an average we should say of at least 15 per cent. *Garrett & Sons, Saxmundham, July 27.*

Sussex.—Reaping commenced in this neighbourhood last week and is now general; the crops are very superior to last year, promising to be over an average yield; extent under Wheat about as usual. *H. Scott Hayward, Willingdon.*

Warwickshire.—The quantity of Wheat sown in this district is a good average, but not more; it is generally very kind and likely to yield well to the straw, but thin crops much predominate; yet I think there is a good average crop. Barley is very variable; all the early sown crops are the best; upon the best Barley soils sown at the usual time they are light; this crop is, we doubt, under an average. Beans have been doing well some time: the rain in June came too late for them in this district; they are getting prematurely ripe—crop much under an average. Potatoes are showing the blight in different places; the early kinds on some lands are a quantity of them diseased now. Reaping Wheat will be general on Monday, August 3. The early Barley is fit to cut now, but some will not be ready before September. *William Gibbs, Stratford-on-Avon.*

Wilts.—The hay—what is secured and now making—is quite an average crop, not so large as last year, but made and stacked in first-rate condition. Regarding the extent of acreage and growth of Wheat in this part of the country, I do not think there is much more Barley planted in lieu of Wheat than there was last year, and the average yield will prove above the general average crop. Some farmers are about to commence in the early part of the week, and by Monday week I think the Wheat and early Barley harvest will become general throughout all parts of Wiltshire and Gloucestershire except upon the latest soils. All the early planted Barley crops promise well both as to quantity and quality; the later sown is tolerably heavy in crop, but uneven. The Oat crops are generally considered to be the most uneven crop planted, and with the least prospects of a good yield. The growing Beans and Pulse appear to be promising for a general crop, and although shorter in the stalks than usual seem to be tolerably well filled up with corn pods, so that in all probability the yield of Pulse will prove to be an average crop. The Mangel crop has every prospect of returning a good yield. The Potato crop, which is rather extensively cultivated around many villages and small country towns in this and adjoining counties, is, I think, the most precarious and uncertain crop planted. The blight or Potato disease, or whatever it may be, appears to have attacked certain spots in every garden and Potato plantation I have seen, some more or less, according to the locality and condition of the crop struck. The early planted seems to yield well and to be coming to full maturity, but should the blight go on and strike the later description of common Potatoes, the storing crop will be small compared to the breadth of land planted. Since the general adoption of the liquid manure drill the growth of Turnip crops has been much more certain and profitable than before its invention; and this does the greatest credit to the inventor, Mr. Chandler, of Aldbourn, for with good large crops of roots the farmer is better enabled to produce much larger crops of grain and Pulse than formerly. *John Arkell, Kingsdown, near Swindon.*—The prospect of the crops is very favourable; Wheat is very good, more than an average crop. Reaping will commence about this day week, will be general in a fortnight. Barley good, some instances very forward. Oats not so good, in many instances the most failing of any crop. Beans, short, but well podded, and will I think be a good crop. Peas good, hay a fair crop, put together well; Turnips much annoyed by the fly; as regards the early ones, Winter Turnips I think will be good. Swedes backward, but very promising. *Geo. Brown, Avebury.*

Yorkshire.—Of Wheat the usual quantity has been sown; the crop is thin on the ground, and though well headed, rather below an average. Barley and Oats—An average crop, large breadth sown. Beans—On dry lands very short of straw; on clay soils, still worse. Turnips—Very promising. Potatoes—Still show no signs of disease. Harvest will begin here about the 10th of August, and be general about the 17th. *John Hannam, Wetherby.*

A LECTURE ON THE WATER MEADOW.

[The following is an abstract of the lecture on this subject given at Wilton, during the Salisbury week, by Elias Squarey, Esq., of Odstock.]

The streams, which become the sources of so much fertility in South Wilts, take their rise at the base of the chalk hills, in the green sand formation, which in the neighbourhood of Salisbury everywhere underlies the chalk. For the most part these streams are not immediately affected by long droughts, but pour uniform volumes of water from November to April, when the supply gradually decreases until the autumn. There is nothing remarkable in the analysis of the water of these streams. The soils of which the meadows of South Wilts chiefly consist are an alluvium, alternating occasionally with strata of gravel, clay, and frequently peat. The most favourable deposit is that where the alluvial soil is at once deep and dry. Mr. J. Combes, of Chicksgrove, near Tisbury (who might be regarded as the authority upon all matters connected with irrigation in the south of England), has given the following practical and valuable information on the subject:—

"The water meadows in South Wilts lie generally in the valleys at the basis of the chalk hills; their soil varies very much, some being alluvial, some gravel, some peat, and some clay. The land is for the most part too level to be irrigated by the catchwork system which is adopted in some other counties, consequently the water-meadows are mostly irrigated by what is technically called the ridge and furrow system, or more commonly bed work. Their extent has been variously estimated, but I think it may be fairly stated at 9000 acres. Their cost of formation at the present value of money may be said to average 12*l.* per acre. Their cost for repairs of hatchwork, bridges, &c., is about 6*l.* per cent. per annum on that sum. When new water-meadows are to be made, the first thing to be done, where water is in the subsoil, is to get the land made dry. Except this be done, no good water-meadow can be made. In the draining of land for water-meadow, care must be taken to put the underground drains in such a position as will least interfere with the irrigation works, otherwise the water used for that purpose will, by running down, carry with it earthy matter, and choke up the under-drains. Of course a great deal depends on the nature of the soil, the quantity and quality of the water, and the evenness of the land, as to the method best adapted for their formation. A dry soil will require less declivity in the beds, and less water than will be necessary in a wet clayey soil. In this latter description of land, the gradients of the beds must be much greater and their breadths less than those necessary in any other kind of soil. But experience has proved that water used for irrigation must in all cases have rather a quick run over the land, otherwise, instead of proving beneficial, it will retard the growth, and deteriorate the quality of the Grass. This will be obvious to any one going over a water-meadow in the month of April, as he will then see that in certain spots, where the land lies too flat, there is not a quarter as much Grass as where the land is thrown up into proper beds. Many of the old water meadows which I have before mentioned were originally formed too flat, in consequence of which, many of them have within the last half century been reformed, and of those remaining unaltered at least two-thirds would pay good interest for the cost of being newly made. The gradients of the beds in these old meadows vary much, some of them being one in 16, whilst others are no more than one in 72. The average quantity of water used for irrigating these meadows is about 2000 gallons per minute per acre. I shall next briefly state what appears to me the best method of management. Water-meadows should be fed off rather bare by the first week in October. The water-carriers, feeders, floaters, and drains should be then properly cleansed out, and all the breaches at the hatch-work and other places made good, and the rats' holes stopped in order for watering. The watering should commence the first week in November, by which time there will be a crop of young Grass about 2 inches high. It is very desirable to have the young Grass when the watering begins, that the water may percolate through the Grasses so as not to flood them, otherwise they will, if flooded for any length of time, be stifled and become thin. The meadows should always be in readiness to receive the first fresh of the river from the autumnal rains, as this water is, especially after a dry summer, rich with alluvial matter. Many meadows are very much injured by being fed too late in the season, and by the treading of cattle; it should always be borne in mind that one mouthful of water-meadow Grass in April is worth five or six of the same when fed in November. In general, the more the land is watered in November and December the better; but should the weather be very mild during this time, the meadows may have a few days' drying. In January the water should remain on the land about five days in six, unless the frost be so intense as to cover the meadow with ice, which is sometimes the case, then the water should be all turned off the land until a thaw takes place; the young Grass will be protected by the ice and even grow under it. In February three days in four will be enough for watering. In March the irrigation should be two days in four until the water is turned out to make the land dry for feeding the Grass, which will generally be fit about the last week. As soon as the sheep have fed off a portion of the meadow, or about the middle of April, the water should be again turned over that portion, but care must be taken not to allow it to remain long on the land until the Grass be grown high enough to keep above the water; during the remainder of this month and the following months of May and June, two days in a week will be enough for watering. In general the Grass will be fit to cut for hay by the middle of June. In July and August, or until the second hay crop be fit to cut, the water should be used sparingly, one day in six will be quite sufficient. In September and October water-meadows should be kept perfectly dry. The above rules apply to meadows that have a plentiful supply of water, but on those meadows that are short of water, which are by far the greater part, some of them requiring to be watered in five or six portions, technically called sterns, the whole of the water should remain on each stern for about five days at a time in winter, and two days at a time in summer, so that all the meadow may be watered in about 20 or 30 days in winter, and eight or 10 in summer. A good flow of water, or what is called thick watering, is always to be preferred to thin watering, especially during the summer months; for a very thin watering for a week or more together at summer time, especially on a clay soil, is oftentimes injurious. I may here remark that night watering is preferable to watering by day, and the water will do more good in shady than in sunny weather. The water of the streams in this part of the country runs from the chalk, the upper green sand, and the upper oolite formations. That best adapted for irrigation is pure spring water. The water which produces the richest vegetation I have ever seen is from the oolite formation in the vale of Wardour, it has been analysed and was found to be remarkable for its purity; its soluble contents were the chlorides of sodium, calcium, and magnesium, in very small proportions; it presented no trace of any other metallic salts, and was in all other respects an unusually fine specimen of natural water; its saline contents were barely sufficient to give an opaline appearance to a solution of soap, and it was singularly free from the quality of hardness. The temperature of this water is 3° lower, in the months of May and June, than the river water adjoining. Though both are used for irrigation in the same meadow, their effects are wonderfully different; the river water, although warmer, does not produce half so much Grass as the spring water, and certain weeds which the land is subject to, such as the Cow Parsnip and others, are entirely destroyed on the part watered by the spring, whilst on the part close alongside, watered by the river water, these weeds grow very luxuriantly. Where water of this description can be adopted it may be used much more sparingly, and the meadow may have less gradients and wider beds than a meadow watered by river water. But river water, although not quite so forcing, will produce good Grass, and the land irrigated thereby will be enriched by the alluvial matter contained in the water, which, every time it becomes in a turbid state, will, by the filtration by the Grasses, leave a deposit of mud on the land, perhaps to the thickness of a sheet of writing-paper; this, by repetition, will in the course of time greatly enrich the soil, especially that which is of a gravelly or peaty nature. It is a pity that the alluvium in our rivers should be suffered to run into the sea, thereby choking up our bays and harbours, when it would so much enrich the land in the valleys through which the rivers pass. I may here remark that all water is very good for irrigation wherein certain aquatic plants grow, such as Brooklime, Watercresses, and Water Millfoil, and where stones and other substances in the stream are thickly covered with Lichen. Some of the best descriptions of Grasses for water meadows are—Anthoxanthum odoratum or sweet scented Vernal Grass, Festuca pratensis or Meadow Fescue Grass, Phleum pratense or Timothy Grass, Lolium perenne or Rye-grass, Agrostis stolonifera or Fiorin Grass. All these are found in the best of the Wiltshire water-meadows, especially the Timothy and Fiorin Grasses. I should recommend in all new water-meadows a mixture of Italian Rye grass. I will now state what may be considered the average produce of the water meadows in South Wilts. In doing so I will take a meadow of 20 acres, depastured in spring by sheep. The spring feed of this meadow as fed in April will keep 400 couples of sheep 25 days, during which time these 400 couples will fold 10 acres of arable land, and it will after this yield in the first and second cuttings of Grass about 40 tons of hay. As I have said this may be considered the average produce of these water-meadows. But in order to see the capabilities of some of the best description, I will here state the annual average produce of some of them. In showing this, I will again take a 20-acre meadow, the spring Grass of which, when fed by sheep from about the last week in March till the middle of May, will keep 400 couples seven weeks. During this time these couples will fold in the arable land from 15 to 20 acres. This meadow will then in two cuttings give at least 60 tons of hay. In this case there is annually put on the arable land 15 acres of spring folding and 60 tons or more of hay, thus enabling the farmer to dispense with the growing of about 20 acres of Turnips and about 25 acres of field Grass, or to increase the number of his sheep stock on a farm of 400 or 500 acres at least 12 per cent. I have myself, on a meadow of 13a. 3r. 26p., kept on the spring Grass, in April and May, 277 couples 33 days, and 11 cows 26 days, with a little less than 10 lbs. of hay per day per cow, after which there was cut from the same meadow at least 2 tons of hay per acre, the aftermath being fed by cows and horses. I have also mown part of a water meadow 29 times in six consecutive years, the produce of which average I annually during the six years a little more than 40 tons of Grass per acre—one year it produced more than 47 tons. In some seasons, when there is a failure of the Turnip crop, the spring feed of water meadows is exceedingly valuable, I have known it frequently let for 7*l.* or 8*l.* per acre, and in one instance I knew the spring feed of a water meadow of 6½ acres let for 80*l.*, or a little more than 13*l.* per acre."

The application of water meadows to dairy purposes obtains to a very large extent in the neighbourhood of Salisbury. There are, indeed, large areas specially applied to this purpose. In the meadows surrounding Salisbury, the cows, if they have calved, are turned into the meadows about the last week in March, or first week in April—at first, for a few hours at a time only. The Grass produces a plentiful supply of milk, but it is necessary that cows should have some hay at night to counteract the otherwise too purgative effect of the Grass. During the feeding of the meadows by cows, butter and the fatting of calves are the staple productions; as the season advances, however, good cheese is manufactured from them. If there is insufficient dry pasture to take the dairy cows during the growth of the hay crop on the meadow, one of the meadows is alternately fed instead of being mowed. It is, in this neighbourhood, unusual for meadows to be mowed more than once in the year, and for the most part the Grass, after the hay-crop, is consumed by cows and horses—a course generally considered compulsory, in consequence of the almost certain production of the rot, or flake, in the liver of sheep fed in any water-meadow after Midsummer. The value of the meadows in relation to arable land would be much increased if this result could in any way be mitigated or avoided. Mr. Combes' experience as to the frequent mowing of water-meadows during the spring, summer, and autumn teaches conclusively that where a plentiful supply of water is obtainable no decrease in the future crops is observed. The advantage may, however, be doubted where the supply of water is insufficient. The cost of cleansing the carriers, floaters, and drains, and watering the meadows amounted to about 5*s.* per acre. The mode in which water-meadows influence the system of arable farming was next touched on, Mr. Squarey confining the attention of his hearers to the principles which govern the management of farms upon the chalk. [To this we shall refer next week].

Home Correspondence.

Teetotalism in the Harvest Field.—Permit me to inquire whether any of your readers ever tried the effect of persuading his men in harvest time to forego the use of their usual drinks, and adopt instead cocoa, milk,

tea, ginger beer, oatmeal and water, or coffee. I have done this, and a considerable number of persons scattered in various directions up and down the land have done it also, and I believe in almost every case not only with some advantage to themselves but to the entire satisfaction of the men employed. I say "some advantage," because candidly I do not believe it is of so much benefit to the master as to the men; it gives him rather more trouble, particularly at the commencement, and as there is a little saving in point of expense, I think the men ought to have the difference. But I am writing for men who think of the benefit of their servants and not merely of their own. I have been and am now engaged in making some limited inquiry as to the progress of opinion and practice in this matter, the results of which I shall be glad to lay before your readers at some future time; at present they are not in a state for publication. However, their united testimony amounts to this, that although the men were almost in every case prejudiced against such innovations, they have almost invariably come to acknowledge that they could do their work better, with less fatigue, heat and thirst, with a more constant appetite for their food, more sound and quiet sleep at night, and more freshness and buoyancy in the morning. In my own practice I have adopted coffee, which can on a large scale be made very good, with milk and sugar, for something less than 6*d.* per gallon; but all the other beverages named are used more or less, and I know of one instance in which a very small quantity of vinegar diluted largely with water is preferred by the consumer to anything else, as keeping the mouth more clean and comfortable than any other drink whatever. The great point on which most of us err is in mistaking stimulation for strength; a pint of ale produces a temporary effect, which, however, terminates in reaction, and the man is no further on than he was before. Nothing but substantial and nutritious food can effectively repair the waste of the system, and the value of the beverages I suggest as substitutes depends on their effect in keeping the mouth cool, allaying thirst, and compensating for the moisture expended in perspiration. If further proof of this be needed in addition to the instances previously referred to, I need only point to the practice of our Scotch and Irish neighbours in the harvest field, where the use of "strong" fluids as practised amongst us is entirely unknown. It is to be regretted that the Irish reapers are seldom so well dieted before commencing harvest as to be in good "working condition." If they were, our best men would be fully occupied in working side by side with them through the harvest. In conclusion I wish I could secure the careful consideration of my brother farmers and their men to this plan. I can assure them it is worth a fair and impartial trial. I again repeat my intention of making you acquainted at a future time with the existing facts of the case as fully as your space will permit, and thank you for the portion you have now accorded to me. If any of your readers are able to give me any information on this subject, or should any of them desire to learn anything more about it, I shall be glad to hear from them, and you will perhaps be so good as to forward any letters. *Y. H. N.*

Turnip Hoeing.—Root cropping has been termed, and we believe justly so, the foundation of all good husbandry. To grow roots on the many varieties of soil successfully, requires on the part of the cultivator not only an intimate acquaintance theoretically with their different capabilities; he also must be thoroughly up in all the details of practice. To go over and explain all the necessary practical minutiæ would almost at any time be pertinent matter in the columns of a leading Agricultural Journal, and a general review of the system may at some future time afford matter for our pen; but at present we will confine our remarks to the operation of "Turnip hoeing," hoping what we write will yet be in season. In thinning Turnips three different methods are practised in different parts of the country. Thinning with the hoe is the general practice in Northumberland and Scotland; thinning with the hand and also with horse power is more immediately confined to the southern and midland counties of England. To thin with the hoe, as done in the northern part of the kingdom, is to thin and clean at one operation. A woman working 10 hours per day can in average cases accomplish an acre in three to four days, and at an expense per acre of from 1*s.* 6*d.* to 3*s.* 4*d.* Our experience with thinning by the hand has been limited, but we have always found that a woman could thin and clean with the hoe fully as much as another could thin with the hand; and that fully as good results can be attained with once hoeing as with thinning first and hoeing after. We may calculate on saving 2*s.* 6*d.* per acre by hoe thinning. To hoe on the flat, *i. e.* when the Turnips have been sown on the flat, some convert Garrett's horse hoe into a Turnip thinner, driving across the rows at right angles, and with the knives so adjusted as to cut out the requisite breadth and leave a small space between for the plants, and which are afterwards singled out by hand. The cost by this method we cannot exactly state, as we have never had occasion to resort to what we consider a very unsatisfactory proceeding. But supposing a man and horse with a boy to lead the horse get over 10 acres per day, and at a cost of 6*s.*, and reckoning 1*s.* per acre for singling out afterwards, makes the whole something under 1*s.* 8*d.* per acre. But do not let us deceive ourselves with false economy, "penny wise" is sometimes "pound foolish." In good and bad hand hoeing a difference of two tons per acre sometimes results, it being of the utmost importance that the larger and healthful plants be left, even should they be beyond, or within the distance fixed on for leaving. But drive a Garrett over your young plants and he will not turn a hair's-breadth out of his line to save you a dozen of the best of them. Hence we argue that instead of a saving there is a loss of something like 2*s.* per acre, and this reckoning every item extremely favourable to the horse hoe. The fact is, in too many instances the value of judicious and good hoeing is not appreciated as it ought to be. In our younger days when our vocation was to overlook the hoers, we have frequently noted the difference between a careful hoer and a careless one, and in different parts of the field marked their several rows to see the difference, if any, at pulling time; and certainly the information therefrom derived amply repaid any little attention spent for the purpose. In one instance we had two rows which had been marked as well and ill hoed taken up separately and weighed, and calculating from that portion an acre of one would have exceeded the other by 3½ tons. In many others we have tested a difference ranging from 1½ to 3 tons was always obtained. Little matters like these may to many seem trifling, yet on the whole we may generally form a fair estimate of a man if we know how he manages his trifles. And after all, to a person growing say 100 acres of roots annually it can be no trifle if by a little attention he can produce 200 tons from the same acreage more than his wont. It would be equal to having 10 acres more under crop. Huckvale's Patent Turnip hoe accomplishes on the ridge what Garrett's does on the flat, and is quite as open to the foregoing objections as the latter, and under no circumstances would we use either of them, excepting it was not possible to get our roots hand-hoed. —*Carabas.*

Economy in Bread: Maize Bread.—Maize may be considered as nourishing as Wheat, but will not rise like Wheat into light bread; and Maize flour raised with Wheat flour is neither so pleasant in texture or flavour as Wheat bread alone. The Maize requires first to be boiled to pulp, like Rice, and so made up with the Wheat flour into dough. The following recipe has been much recommended:—Maize Bread.—To 1¼ lb. of Maize meal add a gallon of cold water (soft), and stir it up well; let it settle, and skim off the husk which floats on the top. It should then be boiled for three or four hours, if possible by steam, or the pan inserted in another containing water, boiling, which will prevent its burning to the bottom; and covered to prevent drying away. If the meal be good, it will have absorbed all the water that has not evaporated, and have become a thick porridge; the produce of the southern states of America will take one-fourth more water than the produce of Europe. This may be made up into dough with 14 lbs. Wheat flour as the Rice in our last—yeast and salt added—and divided into loaves as usual. This has been tried here, but did not please so well as that with Carolina Rice. On the other hand, the Americans themselves are very fond of "Mush," a sort of Maize porridge, made as follows:—"Mush, American.—This is made in different ways; but the easiest mode is that which resembles the making of starch or Arrow-root. Put 5 pints of water over the fire, in a pot or skillet; then take 1 lb. of Indian meal, well sifted from the bran, and mix with a little cold water so as to make a thick batter—add salt. As soon as the water boils, add the batter, stir it well, and keep it stirred and boiling for at least 20 minutes. It should be about the consistence of hasty pudding, porridge, or stir-about; and may indeed be made in the same way. Take it up and eat it with milk, butter, sugar, or treacle. This is the most manageable and convenient of all the preparations of Maize: it is used daily in a large number of American families, and considered a most wholesome diet. What is not used at one meal is cut into slices and fried or heated upon the gridiron at the next meal, and eaten with butter or treacle." This worked up into dough with flour would be much like the Maize bread given above, requiring, of course, more water to work in the Wheat flour. And the proportion of Maize may be much increased for those who like it. I have a statement of 38 lbs. of bread from 14 lbs. of flour with 7 lbs. of Maize. But for those who object to the Maize flavour it is to be corrected with Rice. Maize bread with Rice, and the compound of the two with M. Mège-Mouries' improvement, to obtain the maximum excellent loaf at the minimum cost, the object of all these letters, are intended to form the subject of our next. *I. Prideaux.*

The Short-horns at Salisbury.—I hope in your review of the Salisbury Royal Agricultural Show you will not pass the short-horns over in silence, as I am strongly of opinion that the prizes were not awarded as they should have been. I will not go so far as to say which animal should have had the prize, but this I will say, that several received prizes which they did not deserve. The 2d prize in Class IV. was awarded to No. 73; the cow shown by Mr. Langston, No. 76, and those shown by Mr. Stratton, Nos. 61 and 62, were all better cows than Vestris. Colonel Towneley was decidedly entitled to the 1st prize but not the 2d prize. In Class V., if Mr. Stratton was not entitled to the 1st prize with No. 78, he most decidedly was to the 2d prize, instead of which the 1st prize was awarded to No. 80, a very nice heifer, but not so level nor so good as Mr. Stratton's No. 78. Mr. Booth's heifer had size only to place her either before Mr. Stratton's or Mr. Brown's, Nos. 78 and 79. She wanted depth of ribs, and was generally a plain animal. In Class VI. Colonel Towneley deservedly won the 1st prize; but the 2d prize was awarded to an animal, No. 109, very plain; this must have been a mistake, for there were two animals at least shown in this Class—two being Mr. Stratton, two to Colonel Towneley, and Mr. Hobbs No. 108. I do not send these remarks from any invidictive motive, but to ascertain if the same complaint was observable by others. *James Clark, Spye Park, Chippenham.*

Societies.

GREAT MEETING AT SALISBURY OF THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND

We give elsewhere the report of the Wilton Home Farm and Mr. Squarey's lecture on Water Meadows. Further contributions to our report will appear hereafter, meanwhile we proceed with our report of horses and add a table illustrative of the progress indicated in the show of sheep.

THE SHOW OF HORSES.

Proceeding with our report we come to Class 1, thorough-bred stallions for getting hunters, of which there were 15 entered. Why this class should be confined to thorough-breds we cannot tell. We are aware that some horsemen contend that thorough-bred horses only should be the sires of hunters; such horsemen, however, are almost invariably light or moderate weights. Let us pause for a moment to consider the effect if such a rule were it to be universally acted on. We commence breeding hunters from a thorough-bred horse and a strong active mare with little or no breeding; the progeny if colts are castrated, if fillies are in time used for breeding. We pursue this system for four generations and then we have an animal 15 parts out of 16 thorough-bred. We must thus give up breeding from our best mares, or otherwise run the risk of having in the course of time thorough-bred horses only for hunters; whereas on the other hand, by occasionally using half or three parts bred stallions we may continue to employ well-bred mares of proved excellence without diminishing the breed, size, or stamina of the offspring. The horse that will invariably be preferred as a thorough-bred stallion for getting hunters will be an animal of good height, size, and compactness, and one that if he has raced has proved himself stout for long distances. Such animals will always be produced by our system of breeding for the turf, and when not the sires of winners devoted to the purpose of getting hunters, and no amount of prizes that the Royal Agricultural Society may offer will increase the number of such horses any more than the abstinence of such prizes will cause their number to be less. Not so, however, with half-bred stallions. The high price procured for a first-rate hunter, and the preference given to geldings, causes nearly all our half, or rather three-quarter-bred, horses to be castrated. The half-bred stallion has no rank or position, and requires the stimulus of prizes at agricultural shows to afford that encouragement which the racing stud offers to the thorough-bred. With these observations, by the way, we proceed to notice the prize horse "Hobbie Noble," No. 375, a magnificent animal well deserving his honours. His biography informs us that the sum of 6000 guineas was once refused for him, and we are not surprised at the great expectations that were once entertained of such an animal. Almost the only exception that could be taken to him is his fore legs, which are rather too small for his body, and those who intend breeding from him should take care to select mares with particularly good and strong fore legs, in the well-grounded hope that the dam would give her fore legs to the offspring and the sire his great thighs, loins and hind-quarters. The second prize was given to No. 382, a 5-year old bay horse, called "Spencer," by Cotherstone, an animal showing a good deal of substance for a thorough-bred. We noticed in this class two very nice horses belonging to Mr. Stephen Kirby, No. 378 and 379; also 383, belonging to Mr. Webb and 384 Circassian, all possessing much merit. We must not omit to notice a pure bred Arab, "Long Trump," No. 371, belonging to Mr, Elphinstone, an animal upwards of 15 hands (which is a good height for an Arab), and with remarkably good fore legs, such as indeed as very few of our thorough-breds can boast of.

In the next class, stallions for getting hackneys, there were a fewer number shown than in the previous class. The prize was very properly given to "Hotspur," No. 392, belonging to Mr. James Godwin, a horse, though not quite thorough-bred, yet good enough to run second for the Derby, and though with rather less muscle and less length than Hobbie Noble, yet in every other respect closely bordering on perfection. Valuable as hacks must scarcely fail to be, got by such a horse, we imagine he is and will be the sire of more hunters than hacks. In this class we find two Arab stallions belonging to the same owner as the Arab in the other class. One of the horses, a chesnut cob, No. 388, is certainly the most compact Arab we ever remember seeing, and must be most valuable for getting supreme ponies and galloways. Such an animal would effect a considerable improvement in the breed of New Forest and Welsh ponies—as with the powerful loins and quarters and capital fore legs we should at least retain substance whilst imparting breed, as well as the remarkable bottom these Arabs possess. It was found in the late campaign in the East that no horses had the power of endurance as the Arab. The other Arab called "Annexation," No. 389, we find was rather a celebrated horse in India, where we find from referen

in a sporting magazine of India he distinguished himself at the Bombay Races by winning races of 2 miles carrying from 8 to upwards of 9 stone, and doing this distance in less than four minutes, a speed closely bordering on that of our great races. He won four such races at one meeting, and two within half an hour of each other. To those who think that the fore legs as well as the stamina of our horses can be improved by a cross of the Arab, the use of such an animal must be an acquisition. We must not pass over this class without noticing a remarkably handsome poney No. 384 called "Francesco" and belonging to Mr. W. B. Webster—No. 390, "Rifleman," as well as 396, "Careless," as well as 394, "St. Spiro," were also worthy of notice.

In Class III, mares for breeding hunters, there were only eight shown, and there was but a moderate amount of merit. The prize was given to No. 400, whilst 399 and 401 were also worthy of notice.

Class IV, mares for breeding hackneys, only contained four animals, the prize being given to a good old mare "Caper" No. 408—whilst Nos. 406 and 407 both possessed merit.

In taking leave of the Show we must bear testimony to the excellence of the exhibition as a whole as well as to the goodness of the arrangements by which it was rendered so successful. The railway arrangements were also extremely well managed, and afforded a striking contrast to the bad management which distinguished the Eastern Counties Railway at Chelmsford last year, and which so greatly interfered with the comfort of those who attended the meeting. Having passed our meed of praise, we can with better grace make the following suggestions for forthcoming meetings:—A better supply of refreshments should be kept on the gound, and more space afforded. Seats should also be afforded, particularly for ladies; and if a military band were to play a portion of the day it would add to the attractions of the meeting, and afford amusement to those who sought rest.—A cold *déjeûner* for 500 persons at 10*s.* each might be given in a tent on the ground at a trifling additional expense, and would prove very attractive. Members of the Society should have the privilege of leaving the yard and returning without a second payment by merely showing their last receipt, which privilege would cost the Society *nil*, and afford the members the opportunity of seeing the field trials conveniently. The public trials of implements should be more numerous, and previously announced, and should also be freely afforded to those who had paid for their admission to the show-yard. With these suggestions for the consideration of the Council of the Society, we congratulate it on the termination of a very successful show.

THE SHOW OF SHEEP.

We add to our statement last week the following tabular form of the measurements of some of the prize rams, which after several years' omission, we again resume.

	Months old.	Girth. Ft.	Ins.	Length. Ft.	Ins.	Height. Ft.	Ins.
LEICESTERS, LEWES, 1852.							
Class I. 1st prize	16	4	7	3	6	2	6
2d prize	16	4	6¾	3	8	2	6¾
Class II. 1st prize	40	5	2¾	3	7½	2	3¾
2d prize	28	4	10½	3	6	2	4¾
SOUTH DOWNS.							
Class I. 1st prize	17	4	3¼	3	8¼	2	2¾
2d prize	16	4	4	3	8¾	2	4½
Class II. 1st prize	40	4	8¼	3	10½	2	3¼
2d prize	29	4	6	3	10½	2	3½
LONG WOOLS.							
Class I. 1st prize	16	5	6	3	11	2	7
2d prize	16	5	3¼	4	1½	2	8
Class II. 1st prize	40	5	11	4	6½	2	9
2d prize	40	5	11	4	3¾	2	3¼

	Months old.	Girth. Ft.	Ins.	Length. Ft.	Ins.	Height. Ft.	Ins.
LINCOLN, 1854.							
Class I. 1st prize	15	4	10	3	0½		
2d prize	15	4	11½	3	7		
Class II. 1st prize	28	5	4	3	7	2	7¼
2d prize	30	5	3¼	3	9		
Class III. 1st prize	16	4	4½	2	8½		
2d prize	16½	4	4½	2	9½		
Class IV. 1st prize	29	4	10½	2	11	2	5
2d prize	28	4	7	2	7	2	5
Class V. 1st prize	28	5	3	..		..	
2d prize	40	5	2	..		..	
Class VI. 1st prize	28	6	11½	..		..	
2d prize	40	6	6	..		..	

	Months old.	Girth. Ft.	Ins.
SALISBURY, 1857.			
Class I. 1st prize	15¼	4	4½
2d prize	16	4	3¼
Class II. 1st prize	28	4	11
2d prize	28	5	0
Class III. 1st prize	16	5	1½
2d prize	16	5	3
Class IV. 1st prize	39¼	6	0
2d prize	40	5	8

REAPING MACHINE TRIALS.

The following is the report of the judges of reaping machines:—

"The trial of reaping machines commenced at Salisbury on the evening of Saturday, July 18, in a field of Rye—a very moderate crop and very foul. The different portions of ground were marked out by the stewards, and the lines dividing the portions were cut out by Mr. Crosskill's machine in a most efficient manner; for this work it has a decided superiority over the other machines exhibited, but which superiority was counterbalanced by the very easy and excellent work of Messrs. Burgess and Key's machine, which was brought out with the new addition of a spiral screw on the side of the machine next the standing corn, which caused all the corn it touched to be brought onwards and thus conducted it to the platform, so that the swathe was laid in a most regular form and perfected the side delivery. The horses walked a moderate pace, and the only person attending the machine was the driver of the horses. To this machine the judges unanimously allotted the first prize. The other machine of Messrs. Burgess and Key we highly commend for highly efficient work.

"Mr. Crosskill's work was well done, but the swathe was not so well laid, nor so good and even a stubble left as by Messrs. Burgess's, and this, we believe, was caused by its not being well adapted to cut across furrows and make perfect work; and the scattered straws left on the swathe, we think, were owing to a fault in the construction of the endless band for the side delivery. This machine has two men to work it, but cuts fast, though the power required is more than that which is consumed by Messrs. Burgess & Key's machine. We therefore give it the second prize.

"The third prize we allotted to the machine exhibited by Lord Kinnaird, which worked well, but we thought the horses were driven too fast for farm horses, and the machine, although cheaper than those spoken of above, was not to be compared to them for workmanship. The driver was the only attendant necessarily required.

"Dray's (Palmer's) machine reaped beautifully, laying the sheaves ready for tying, and not requiring instant tying, as it delivered them on one side; but the price charged for it was by far too much for us to recommend to farmers—but we highly commend it. Two men attended this machine.

"Dray's (Hussey's) machine worked as it has done for two or three years past, but the sheaves must be instantly tied to prepare the way for its returning. Two men are requisite.

"We must here observe that the three machines to which we have awarded prizes are capable of cutting all sorts of corn, while those of Messrs. Dray are only, strictly speaking, 'reaping machines,' and while the present system, so largely practised by farmers, of growing seeds with their Barley crops continues, on those farms Messrs. Dray's machines are not of general utility; but we allow that where the reaping of Wheat only is an object, and if cut when fit for immediate tying, Messrs. Drays' are excellent machines, and their Hussey is cheap in comparison of all the others.

"On referring to the report of the trials at Leigh Court in 1853, we feel perfectly justified in reversing the decision arrived at last year at Boxstead Lodge, where there was evidently a great fault in the construction of the machine shown there by Messrs. Burgess & Key (and which fault lost them the first prize); but it is now rectified by the addition of the spiral screw. We quite agree with the distinction made at Boxstead between mowing and reaping machines. We wish, therefore, that the public should fully understand that, for general harvest purposes, we most highly approve of those machines to which we have now given prizes—each having a side delivery—and commend the machines of Messrs Dray for reaping only.

"We conclude by saying that we think any further remarks needless; for to give every description of the above machines would be only to repeat the excellent report of the judges who attended at Leigh Court.—(Signed) H. B. CALDWELL, W. OWEN, F. KEY, J. DRUCE, T. T. ROWLEY, W. CHALCRAFT, C. L. READ, J. CLARKE."

On this we have to add that we have received from Messrs. Dray a remonstrance, urging what we have already done ourselves, that whatever may be the real relative merits of the rival reapers, they were much more likely to be brought out by such a prolonged trial as was given them at Boxstead Lodge last year, than by so meagre a trial as they received at Salisbury.

The attendance on the several days of the show week was unprecedentedly large. On Tuesday 969 entered the yards, on Wednesday 2620, 1600 of whom paid 5*s.* for entry to the cattle yard; on Thursday 14,004, and on Friday 18,430. The sum received for admission exceeded 3300*l.*

Calendar of Operations.

JULY.

BORDER OF THE FENS, *July* 25.—Once more we are brought to the verge of harvest with the prospect of at least an average crop of Wheat, which, with anything like favourable weather during the next month, promises to be of unusually good quality. It will be ready for the sickle a fortnight earlier than last year, and although the hay harvest was also early, yet the interval has been so short as to have scarcely enabled us to be so fully prepared as we ought to have been for the now expected busy season. Swede Turnips have been partly hoed and singled out, but 6 or 7 acres were so long delayed by the dry weather in coming up that they yet want a good deal of attention; more than that quantity have been destroyed by the fly, and we had to resow with Coleseed and Mustard. Ten acres of Mangels have been weeded, thinned, and filled up, and we have moreover ploughed up a thin piece of Clover after taking the crop, scuffled and manured it, and sown it with Coleseed and Mustard, to be fed off early if we succeed in getting a plant; in any case it will be in good condition for a Wheat crop. One of our July duties is to effect a proper distribution of the flock, to separate the lambs from their mothers, at which time they are dipped in a wash containing a proper proportion of arsenic, sulphur, and soft soap, to kill the ticks and keep off the flies; they are then placed on a piece of the best Grass land, or on a Clover eddish, the ewes going to a bare pasture for a week or two, when old and defective sheep are culled out to be brought forward as fast as possible for the butcher, their place being supplied by the ewe hoggs reserved for keeping up the breeding stock. Sheep are too often left in summer without water, and this year, as the ground is very parched and the dews have not been heavy, where there has been no shelter or access to drink sheep have suffered much from thirst, and have thereby become very unsettled; where no ponds exist, water should be conveyed during very hot weather, and given to them in stone or iron troughs once a day. Other summer jobs are thatching Clover and hay stacks, repairing harness, cleaning out ponds, mowing dike sides, destroying Thistles, Nettles, &c., previous to seeding; clearing and mending fences, turning up Tare land, handling and bitting young horses, painting, brewing, &c.; in fact, no matter what size the farm or what soil is cultivated, there is always plenty to do, and it is to the interest of the farmer to keep a full complement of labourers before harvest, as he is then more likely to ensure a good company to begin cutting, and go on securing the corn as it ripens. *J. W., Peterborough.*

Notices to Correspondents.

BOGS: *Cor.* The reclamation of bogs has been written upon by the Rev. W. Hickey, Mulrankin, Wexford.

BOOKS: A large quarto volume by Mr. Sturforth, published in Edinburgh, furnishes a number of useful plans. Mr. Cowan, of 40, Parliament Street, Westminster, is, we see, about to publish on the subject—and Morton's Agricultural Cyclopædia contains a number of capital plans by Mr. Newlands, one of the first agricultural architects of the day.

CLOVER DODDER: *Mr. Hall.* It is a Cuscuta. The Clover Dodder is parasitic. The patches where it appears should be pared and burned.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

GLASS SLATES.

With Drilled Holes.	Size.	Rough Plate. ⅛ in. thick s. d.	¼ in. thick s. d.	⅜ in. thick s. d.	Sheet. 16 oz. £ d.	21 oz. s. d.	26 oz. s. d.	32 oz. s. d.
Duchess	24 by 12	1 3	1 6	1 9	0 9	1 1	1 4	1 8
Small Imperials	20 ,, 14	1 2	1 5	1 8	0 8	1 0	1 3	1 7
Small Duchess	22 ,, 12	1 2	1 5	1 8	0 8	1 0	1 3	1 6
Countess	20 ,, 10	0 11	1 1	1 3	0 7	0 10	1 0	1 2
Viscountess ..	18 ,, 10	0 10	1 0	1 1	0 6	0 9	0 11	1 1
Large Ladies ..	16 ,, 10	0 9	0 11	1 0	0 6	0 8	0 10	1 0
Ladies	16 ,, 8	0 8	0 9	0 10	0 5½	0 7	0 8	0 10
Doubles	13 ,, 7	0 6	0 7	0 8	0 5	0 6	0 7	0 8

GLASS TILES.

ROUGH PLATE.	s. d.		SHEET.	s. d.	
⅛ in. thick	0 10	each	16 oz.	0 6	each
3/16 in. ,,	0 11	,,	21 oz.	0 8	,,
¼ in. ,,	1 0	,,	26 oz.	0 10	,,
⅜ in. ,,	1 6	,,	32 oz.	1 0	,,
½ in. ,,	2 0	,,			

GLASS SLATES and TILES are now in general use for lighting Lofts, Barn, Granary, and other Outhouse Roofs, and are, in many cases, a saving of time, trouble, and expense.

JAMES PHILLIPS & Co., Horticultural Glass Warehouse, 116, Bishopsgate Street Without, E.C.

THE EAST LONDON PLATE AND SHEET GLASS WAREHOUSE, 45, Leman Street, Goodman's Fields. The best place in England for Strong Glass of every description. Owing to the immense stock of PLATE, SHEET, and CROWN Glass always on hand, B. Moss & Co. are enabled to sell cheaper than any other house.

Glasses, cut to the different sizes for Photographic purposes, always ready in stock.

100 feet Boxes, strong, small sizes, 6*s.*, box included. Estimates given and Shop Fronts glazed at the shortest possible notice, &c., &c.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.		Per foot.		Per 10 feet.
	Under 6	by 4	at 1½*d.*	is	£0	12 6
From 6 by 4	,, 7	,, 5	,, 2*d.*	,,	0	16 8
,, 7 ,, 5	,, 8	,, 6	,, 2¼*d.*	,,	0	18 9
,, 8 ,, 6	,, 10	,, 8	,, 2½*d.*	,,	1	0 10
,, 10 ,, 8	,, 12	,, 9	,, 2¾*d.*	,,	1	2 11

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3½*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3¾*d.* to 7½*d.* ,, ,, ,,

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes, at reduced prices, by the 100 square feet

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

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THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4	10*s.* per 100 feet.	8 by 6	12*s.*
6½ by 4½		9 by 7	
7 by 5		9½ by 7½	
7½ by 5½		10 by 8	
10½ by 8½	14*s.*	12 by 10	14*s.*
11 by 9		13 by 10	
11½ by 9½		14 by 10	
12 by 9		15 by 10	
19 by 12	16*s.*	20 by 13	
20 by 12		20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
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Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

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A variety of other articles as per Horticultural List, which may be had on application.

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Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

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WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ „	long 3 „ 3 „		1 14 0
3 „	ditto 3 „ 6 „		2 8 0
3½ „	ditto 3 „ 6 „		2 12 0
4 „	ditto 3 „ 6 „		3 3 0
½ „	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14 0
2½ in.	long ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Wel Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

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BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

LIQUID MANURE.

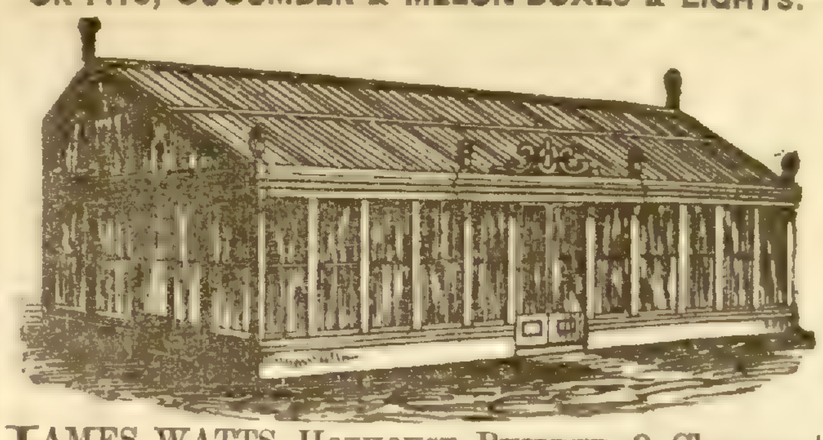
PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

PRIZES:—

A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856.

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



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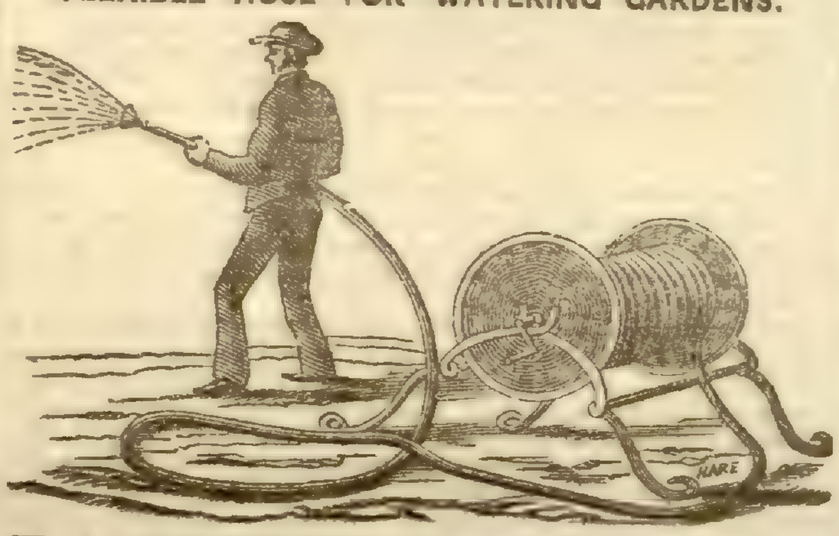
Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

FLEXIBLE HOSE FOR WATERING GARDENS.



J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PROTECT YOUR CROPS AND GARDENS WITH

STANDING'S UNRIVALLED DIAMOND GALVANISED WIRE NETTING, unequalled by any other in the world. Manufactured by powerful Weaving Machinery, adapted solely and expressly for the purpose.

The result of this method of manufacture is tight and long twists, perfect regularity in the size of all meshes, increased strength, and a durability hitherto unequalled. Warranted not to corrode.

To be had wholesale from KEMP, LEDDELL, & Co., 41, London Wall, London; at the Works, Lune Street, Fishergate, Preston, Lancashire; and from all Factors and Merchants. Retail from all respectable Ironmongers and Seedsmen in the kingdom.

Manufactured only by T. STANDING, Pheasantry, Pigeon-House, and Aviary builder. Pheasantries of the most unique and elegant design.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

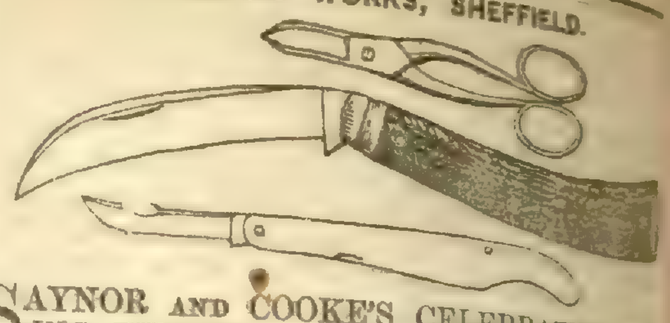
MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

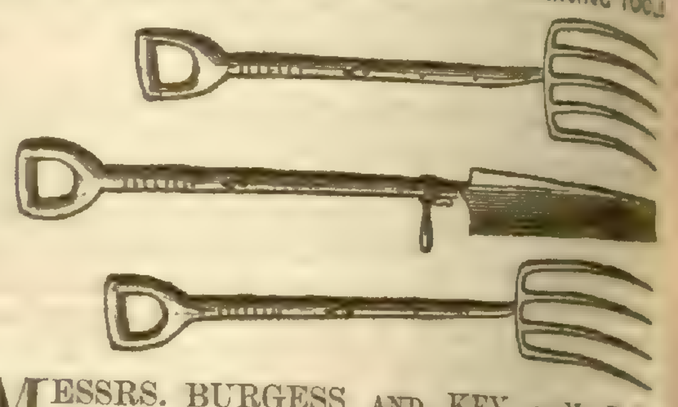
Manufactory, Queen's Cutlery Works, Sheffield.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE PRUNING SCISSORS, &c., as tested, recommended and reported upon in the *Gardeners' Chronicle* by Dr Lindley (No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the Paris and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to cut through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all other of Horticultural Tools.—Established 1738.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

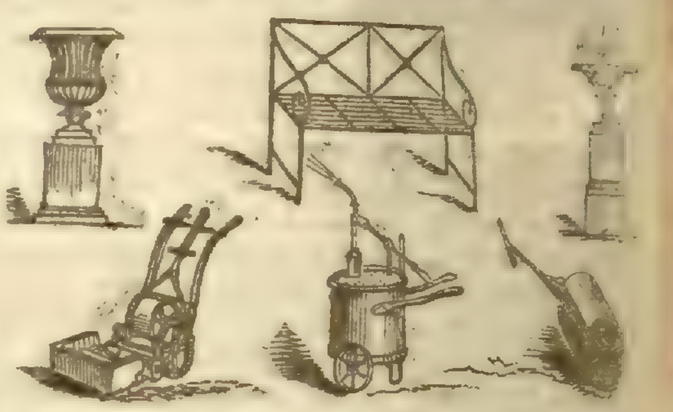


MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

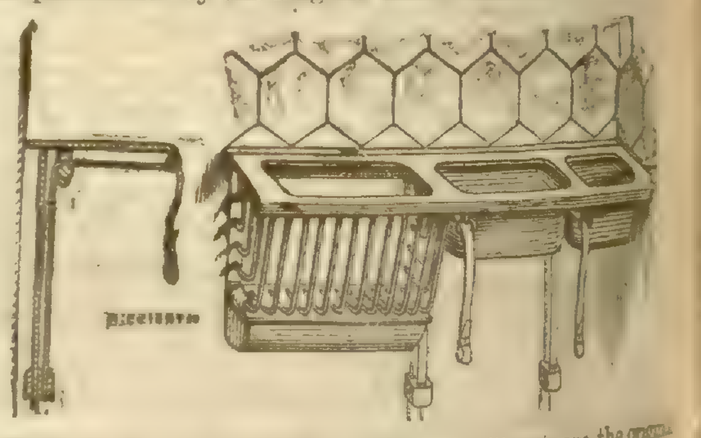
95, Newgate Street, London.

GARDEN REQUISITES, &c.



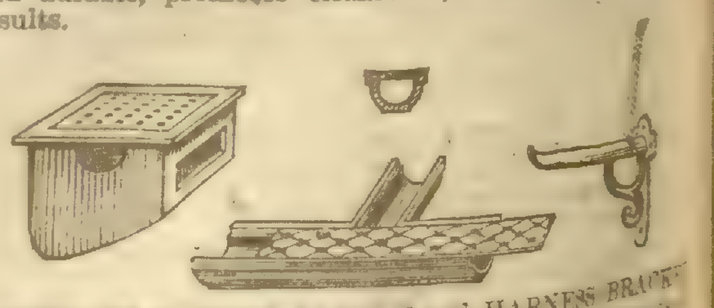
COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, at very low prices, viz.:—Garden Rollers, cast-iron Rice-Stands, Garden Engines, Mowing Machines, Garden Chairs, and Garden Tools of all kinds, Garden Vases and Pedestals, a large assortment of Horticultural and Agricultural Implements, ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, in plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fitted complete with hot-water apparatus in any part of the kingdom. Show-rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, forming one complete and useful fixture, having Cottam's patent noiseless halter guide and collar rein attached, and a chain which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with patented moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, or enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, on application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS and SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

BY ROYAL LETTERS PATENT.

GREEN'S LAWN MOWING MACHINES.—Trial at the London Horticultural Society's Gardens, Chiswick, June 5, 1857. Four competitors. First trial on level ground; Second ditto on undulated; Third ditto on intricate places, round trees, &c.; when Green's Patent was unanimously declared by the appointed Judges to be the best in each trial. Every information may be obtained on application to Dr. Royle, Secretary to the London Horticultural Society, 21, Regent Street; also Mr. McEwen, Superintendent, Chiswick, where the Machines may be seen at work; likewise Mr. Garrood, Manager of the Agricultural Department, Crystal Palace; and at the Manufactory, Leeds, Yorkshire, where illustrated Price Lists and references can be given.

Green's Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

Rt. Honble J. Parker.
Duke of Leinster.
Viscount Campden.
Major Wemyss.
Sir Angus Campbell.
Countess of Harewood.
Earl of Harewood.
Hon. Geo. Lascelles.
Lord Ashtown.
Earl of Stamford and Warrington (twice).
Earl of Leicester.
Lord Suffield.
Sir Robert Sheffield.
Sir Wm. Hutton.
Duke of Devonshire, Chiswick House (twice).
London Horticultural Society, Chiswick.
Dr. Royle, Secretary to ditto.
J. P. Chorley, Esq., Editor of *Field*.
Lord Bridport.
Sir George Goodman.
Sir T. W. Ramsden.
Sir John Scott.
Rev. Sir George Robinson.

Thomas Green, Proprietor, Patent Mowing Machine Works, Leeds, Yorkshire. T. G. begs respectfully to call attention to the superiority of his Pony Machines.

London Agents:—Messrs. Cottam & Hallen, 2, Winsley Street, and 76, Oxford Street; Messrs. Burgess & Key, Newgate Street.

HEAL and SON'S NEW ILLUSTRATED CATALOGUE contains designs and prices of 150 different articles of BEDROOM FURNITURE, as well as of 100 Bedsteads, and prices of every description of Bedding. Sent free by post.—Heal & Son, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

BEDSTEADS, BATHS, AND LAMPS.—William S. Burton has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	12s. 0d.	to £20 0s.	each.
Shower Baths, from	8 0	„ 6 0	„
Lamps (Moderateur), from ..	6 0	„ 7 7	„

(All other kinds at the same rate.)

Pure Colza Oil .. .. 5s. per gallon.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by William S. Burton, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per dozen	38s.	48s.	60s.
Dessert ditto and ditto „	30s.	35s.	42s.
Tea ditto .. .. „	18s.	24s.	30s.

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of replating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, full size, per doz.	12s.	28s.	30s.
Dessert ditto and ditto „	10s.	21s.	25s.
Tea ditto .. .. „	5s.	11s.	12s.

In these Premises, formed of Eight Houses, is on show the most magnificent STOCK of GENERAL HOUSE IRONMONGERY, with Cutlery, Nickel Silver, Plated Goods, Baths, Brushes, Turnery, Clocks, Candelabra, Lamps, Gaseliers, Iron and Brass Bedsteads, Bedding, and Bed Hangings, so arranged in Sixteen Large Show Rooms as to afford to parties furnishing facilities in the selection of goods that cannot be hoped for elsewhere. Illustrated Catalogues sent (per post) free.

39, Oxford Street, W.; 1, 1a, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—Established 1820.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, and CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of Metcalfe's celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130n, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss Coupelle, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

TOURISTS AND TRAVELLERS exposed to the scorching rays of the Sun, and heated particles of dust, will find ROWLANDS' KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discolorations fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of Sunburn, or Stings of Insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per Bottle. The heat of Summer also frequently communicates a dryness to the hair, and a tendency to fall off, which may be completely obviated by the use of ROWLANDS' MACASSAR OIL, a delightfully fragrant and transparent preparation, and, as an invigorator and purifier of the Hair, beyond all precedent. ROWLANDS' ODONTO, or pearl dentrifice, bestows on the Teeth a pearl-like whiteness, frees them from Tartar, and imports to the gums a healthy firmness, and to the breath a grateful sweetness and purity. Price 2s. 9d. per Box.—Sold by A. Rowland & Sons, 20, Hatton Garden, London, and by Chemists and Perfumers.

TO THE NERVOUS AND DEBILITATED.

CHARLES WATSON, M.D. (Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted, "The first man of the day in these complaints."—*Medical Review*, July 1856. "The true guide to those who desire a speedy and private cure."—*University Mag.*

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. Johnstone, 1, Park Terrace, Heavitree, Exeter, Devonshire.

HOLLOWAY'S PILLS INVALUABLE FOR THE CURE of INDIGESTION and DISORDERED STOMACH.—There are few remedies advocated by the Faculty that are really serviceable in curing indigestion and disordered stomachs, which causes a martyrdom to many of the population in every country; the only remedy for the extinction of this malady which can be safely recommended to both sexes and all ages is Holloway's Pills. These are a certain cure and a blessing to old and young, restoring health and energy after all medical aid has been tried in vain.—Sold by all Medicine Vendors throughout the World; at Professor Holloway's Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. Stampa, Constantinople; A. Guidicy, Smyrna; and E. Muir, Malta.

PERSIAN INSECT-DESTROYING POWDER.—This Powder is quite harmless to animal life, but is unrivalled in destroying Fleas, Bugs, Emmets, Flies, Cockroaches, Beetles, Mosquitoes, and every other species of insect infesting Dogs, Cats, and other animals. It protects Furs, Clothes, &c., from the ravages of Moths.—Sold in packets, 1s. each; or sent through the Post for 14 Stamps. Imported by Thomas Keating, 79, St. Paul's Churchyard.

CHASE'S

BEETLE POISON,

EQUALLY DESTRUCTIVE TO RATS AND MICE, AND HARMLESS TO CATS AND DOGS.

A SAFE and most EFFECTUAL DESTROYER of BEETLES and COCKROACHES.—One trial alone will prove its efficacy, and one box will destroy thousands. The great advantage in this preparation is, that it does not leave their bodies to decay and corrupt the air, but completely dries up and destroys them, so that nothing is left to cause an unpleasant odour when dead. Directions for use: Place four or five of the Balls each night where the Beetles mostly resort.

Sold in boxes at 1s. each, or sent free to any part of the Kingdom for 20 Stamps, or a case containing one dozen boxes sent carriage free on receipt of a Post-office Order for 12s., by Thomas Chase, Chemist, 14, Holborn, opposite Furnival's Inn, London, and may be obtained through all Chemists and Medicine-vendors.

"Royal Exotic Nursery, King's Road, Chelsea, Jan. 4, 1856.

"Sir,—I have no hesitation in giving you a certificate to the effect that your 'Beetle Poison' is most effectual in destroying cockroaches. After trying many other things, I was induced, by the recommendation of the Rev. Edwin Sidney, Cornard Parva Rectory, near Sudbury, Suffolk, to try your poison, and the very next morning after it was laid, many cockroaches were found dead; and such was the case for several succeeding mornings; but since then we scarcely or ever find one. I am, consequently, thoroughly satisfied that with perseverance in laying your poison, these pests may be entirely got rid of. I am, sir, your obedient servant, "J. Veitch, jun.

"Mr. Chase, 14, Holborn."

MICROSCOPES.

JOSEPH AMADIO'S Improved Compound MICROSCOPE, 2l. 2s.; Students', 3l. 13s. 6d.

"Both these are from Amadio, of Throgmorton Street, and are excellent of their kind, the more expensive ones especially."—*Household Words*, No. 345.

A large Assortment of ACHROMATIC MICROSCOPES.

ACHROMATIC MICROSCOPES.

SMITH and BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

HOW TO BREW SPLENDID ALE AT 7d. PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1s. 9d. per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny postage stamps. Sent, post free, to any address.—Direct to Fisher & Son, publishers, Kingsland, London. Established 1847.

SCHWEPPE'S MALVERN SELTZER WATER, Manufactured by J. Schweppe & Co. (the sole lessees), from the Pure Water of the Holy Well, possesses all the celebrated properties of the Nassau Spring. SCHWEPPE'S SODA, MAGNESIA, POTASS WATERS, and LEMONADE, are manufactured as usual. Every Bottle is protected by a special label.—London, Liverpool, Bristol, and Derby.

GLENFIELD PATENT STARCH USED IN THE ROYAL LAUNDRY, And pronounced by HER MAJESTY'S LAUNDRESS to be THE FINEST STARCH SHE EVER USED. Sold by all Chandlers, Grocers, &c., &c.

GREAT COMFORT TO INVALIDS.—Places in Gardens rendered as comfortable as the best constructed Water Closets, by the PATENT HERMETICALLY SEALED PAN, with its self-acting valve, preventing the return of cold air or effluvia. Any carpenter can affix it to the seat in two hours. Price 1l. Also, hermetically-sealed inodorous Chamber Commodes, 1l. 2s. and 2l. 4s., and improved portable Water Closets, with pump, cistern, and self-acting valve. A prospectus, with engravings, forwarded by enclosing two postage stamps.—At Fyfe & Co.'s Sanitarium, 46, Leicester Square.

PARR'S LIFE PILLS stimulate and improve the working of all the important functions of the body, and thus help to insure good health from youth to old age.

Those who use Parr's Pills judiciously have seldom occasion to resort to doctors, or to take any other medicine.

It will be true economy always to have in the house a box of Parr's Life Pills.

Sold by all respectable Chemists and Medicine Vendors in Town and Country.

In boxes, price 1s. 1½d. and 2s. 9d.; and in family packets, 11s. each. The English Government stamp is affixed to each box of the genuine Medicine.

DR. DE JONGH'S

LIGHT-BROWN COD LIVER OIL has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for consumption, bronchitis, asthma, gout, rheumatism, sciatica, diabetes, diseases of the skin, neuralgia, rickets, infantile wasting, general debility, and all scrofulous affections.

Its leading distinctive characteristics are:

COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES.
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS AND CONSEQUENT ECONOMY.

FROM "THE LANCET."

"The composition of genuine Cod Liver Oil is not so simple as might be supposed. Dr. de Jongh gives the preference to the Light-Brown Oil over the Pale Oil, which contains scarcely any volatile fatty acid, a smaller quantity of iodine, phosphoric acid, and the elements of bile, and upon which ingredients the efficacy of Cod Liver Oil, no doubt, partly depends. Some of the deficiencies of the Pale Oil are attributable to the method of its preparation, and especially to its filtration through charcoal. In the Preference of the Light Brown over the Pale Oil we fully concur. We have carefully tested a specimen of Dr. de Jongh's Light-Brown Cod Liver Oil. We find it to be genuine, and rich in iodine and the elements of bile."

Sold only in Imperial Half-pints, 2s. 6d.; pints, 4s. 9d.; quarts, 9s.; capsuled and labelled with Dr. de Jongh's stamp and signature, without which none can possibly be genuine, by many respectable Chemists throughout the United Kingdom.

WHOLESALE AND RETAIL DEPOT,
ANSAR, HARFORD, AND CO., 77, STRAND, LONDON, W.C.,
DR. DE JONGH'S SOLE BRITISH CONSIGNEES.

Caution.—Proposed substitutions of other kinds of Cod Liver Oil should be strenuously resisted, as they proceed from interested motives, and will result in disappointment to the purchaser.

TO BE LET OR SOLD, A CEMENT QUARRY, near Highbridge Station.—References to Mr. Henry Smith, Pawlett, Bridgewater.

TO BE LET a Small NURSERY, within four miles of the City.—For particulars apply to Mr. Gooding, at the Peacock, Bethnal Green.

TO MARKET GARDENERS, NURSERYMEN, & OTHERS.

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ARRANGEMENTS FOR 1858.

Fuller particulars will be announced hereafter.

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Tuesday, Feb. 2, at 2 P.M.	Ordinary Meeting in Regent Street, for the Exhibition of Flowers and Fruit; Election of Fellows, &c.
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Tuesday, April 6 ..	Grand London Meeting for the Exhibition of Spring Flowers and Fruit; the Election of Fellows, &c.
Saturday, May 1..	ANNIVERSARY, at 1 P.M.
Tuesday, May 4, at 3 P.M.	Ordinary Meeting in Regent Street, for the Exhibition of Flowers and Fruit; Election of Fellows, &c.
Wednesday, June 9; Thursday „ 10	Grand Meeting in the Chiswick Gardens, for the Exhibition of Flowers, Fruit, and Horticultural Manufactures.
Tuesday, July 6 ..	Grand Exhibition of Fruit, Cut Flowers, Roses, Ferns, &c. &c.
Thursday, July 8; Saturday „ 10; Tuesday „ 13; Thursday „ 15; Saturday „ 17	Lectures on Botany applied to Horticulture. Illustrated by Drawings and Living Specimens. By Prof. Lindley, at 3 P.M.

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USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, Oxford Street, London, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

"TIFFANY" FOR SHADING CONSERVATORIES,

Manufactured by

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 5*d*. per yard or 5*s*. per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

TO THE GENTRY, ARTISTIC GARDENERS, &C.

SWISS AND RUSTIC WORK, a great variety always on view. Thatched Summer Houses, Pagoda Roof Zinc ditto; Yew, Oak, and Swiss Tables, Oak Benches, Yew Seats and Stools, Flower Tubs, Vases, and Baskets, ready for delivery, always on view at Trotman's Manufactory, 12, Alfred Terrace, Upper Holloway.

N.B.—On account of extensive alterations in the premises, a liberal allowance will be made to present purchasers.

2000 IRON HURDLES TO BE SOLD.—Apply to H. Manning, 251, High Holborn, London; or the Royal Agricultural Society's Show Yard, Salisbury.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s*. 6*d*. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. A liberal Allowance to the Trade, &c. Manufactory, Kennington Lane, Lambeth.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

GREENHOUSES.

HENRY FREEMAN, Hothouse Builder and Hot Water Apparatus Manufacturer, Triangle, Hackney. Established 20 years. Good substantially-built GREENHOUSES, fixed in any part of the kingdom, for cash, 42 ft. long by 13 ft., 90*l*.; 21 ft. by 13 ft., 50*l*.; 12 ft. by 10 ft., 30*l*. A first-rate Conservatory 30 ft. by 18 ft., 130*l*. A large assortment kept. Estimates for Heating, or any branch in wood or iron.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24 inch Wrought-Iron is 6*l*. 10*s*. each; 36-inch ditto, 8*l*. 10*s*. each.

The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

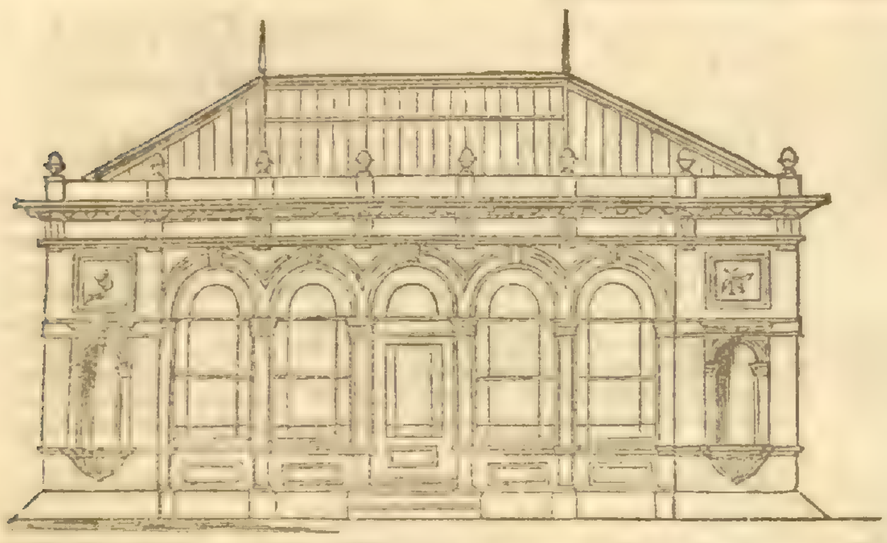
NEWSPAPER

HORTICULTURE IN ALL ITS BRANCHES.

BY APPOINTMENT.

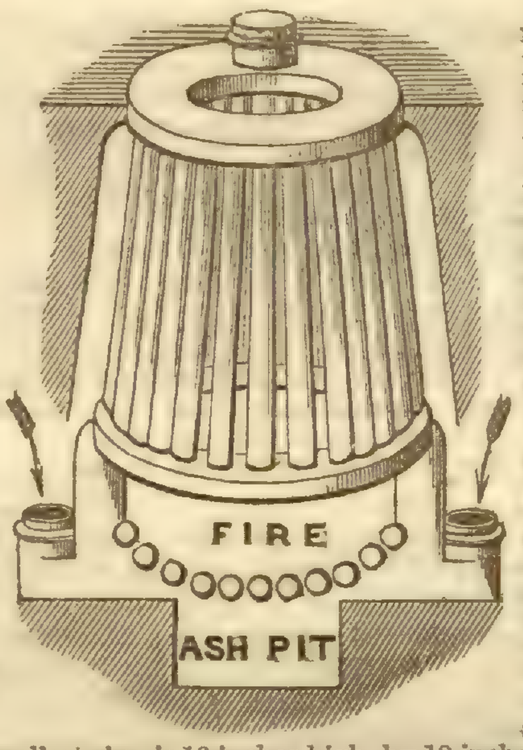
JOHN WEEKS, F.H.S., & CO.,

KING'S ROAD, CHELSEA.



J. WEEKS and Co., Horticultural Builders and Hot-Water Apparatus Manufacturers, Hothouses, Greenhouses, Conservatories, Forcing Pits, &c., of every shape and size, both Plain and Ornamental.

Also our Improved Patent Tubular Boilers of all sizes. A large stock on hand. See our Illustrated Catalogues on Horticultural Building and Heating by Hot Water.



The accompanying sketch represents our improved Upright Tubular Boiler, with hollow furnace bars. The large surface which this Boiler exposes to the immediate action of the fire renders it of extraordinary power.

John Weeks & Co. Manufacture *these* Boilers of all sizes. The largest size measures 5 ft. 6 in. high by 3 ft. 6 in. diameter, and exposes to the immediate action of the fire a surface of 340 superficial feet. The smallest size is 18 inches high, by 18 inches in diameter.

JOHN WEEKS & Co., King's Road, Chelsea, London.

COTTAM & HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, and 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	" Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	" Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

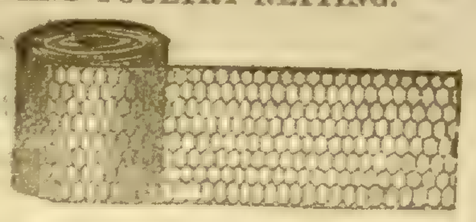
H. J. MORTON and CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. Lambert & Son, Short Street, New Cut, Lambeth, S.

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

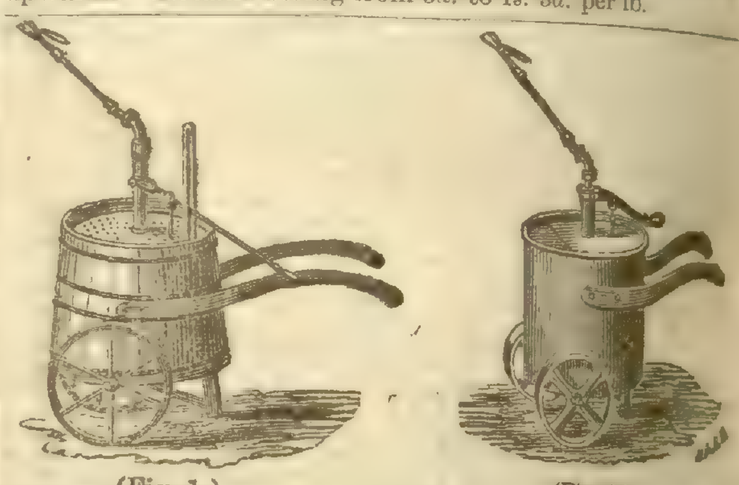
All Communications to be addressed to the Manufactory, and will have strict attention.

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

JOHN WARNER and SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with Warner's Registered Spreader, is strongly recommended, for durability and low price, at 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.



(Fig. 1.) (Fig. 2.)

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4 10
No. 2	" 15 "	" 45 "	..	5 10
No. 3	" 28 "	" 45 "	..	6 18

J. TYLOR and SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2 15
No. 13	" 12 "	" 30 "	..	3 5
No. 11	" 16 "	" 40 "	..	4 0
No. 12	" 24 "	" 45 "	..	5 0
No. 14	" 30 "	" 45 "	..	5 18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*

Read's Syringe, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR and SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, **21s.** each. Large size, for Gardeners' use, **25s** each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves.

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump now offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, in lieu, to work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

NURSERIES, BARNET, HERTS, N.

W. CUTBUSH, Jun., begs most respectfully to acquaint his patrons and friends that his NEW PRICED and DESCRIPTIVE CATALOGUE of Stove, Greenhouse, and Variegated Plants, Azaleas, Ericas, &c., is now ready, which contains all recent introductions of merit, and will be most happy to furnish the same, Post-free on application.

DOBSON'S EXTRA FINE SEEDS, FOR PRESENT SOWING.

CALCEOLARIA, splendid mixed, all hybridised. Our collection of 12 plants gained the First Prize at the Crystal Palace, beating eight other collections, and the First Prize at the Regent's Park June show. The Seed now offered can be recommended with the greatest confidence. Price per Packet, 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each. No second quality.

CINERARIA, very fine mixed, 1s.

PANSY, from the best Named Sorts, 1s. All Post-free.

John Dobson & Son, Seedsmen, Woodlands Nursery, Isleworth, W., and High Street, Hounslow, W.

BULBS.—A CATALOGUE OF BULBS is just published by A. Van Geert, Nurseryman, Ghent, which may be obtained on application of his agent, Mr. R. Silberrad, 3, Harp Lane, Tower Street, London.

CAMELLIAS AND INDIAN AZALEAS.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform the public that his Camellias and Indian Azaleas are extremely well set with flower buds this season, and can be supplied at the following reasonable prices:—

CAMELLIAS with flower buds in best named varieties, 1 to 1½ foot high, 6l. per hundred; a collection ditto of 100 different varieties, mostly with flower buds, 1 foot high, 5l.

INDIAN AZALEAS, the best varieties, with flower buds, 4l. 2s. 3l. per hundred, and upwards.

CAMELLIA STOCKS, 30s. per hundred.

INDIAN AZALEAS for grafting, 25s. per hundred.

YOUNG'S SUPERB SCARLET BROMPTON STOCK.

CHARLES ALEXANDER, 30, West Register Street, Edinburgh, can confidently recommend this Stock as the best in cultivation; has been grown round Edinburgh for several years; hardy as Scotch Kale, six to nine doubles out of the dozen warranted. When grown in beds the effect is splendid; sown now will flower in May and June next season. 1s., 2s. 6d., and 5s. packets. Discount to the Trade in quantities.

NEW AZALEA INDICA.

ROSY CIRCLE (Ivery's).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. Ivery & Son feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.

Dorking Nursery, Aug. 8.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

PERMANENT PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS for the future. All orders (not less than 20) to be accompanied with a Post-office order on Birmingham.

20, 10s. | 40, 18s. | 60, 1l. 6s. | 80, 1l. 14s. | 100, 1l. 18s.

Plants in pots, not less than 10, 1s. 3d. each, will be ready after September, package included.

Mr. Underhill's "Treatise on the Cultivation of the Strawberry," price 1s., may be had through the Post.

Address Mr. Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

STRAWBERRIES.—Underhill's SIR HARRY warranted true, for which was awarded a Certificate of Merit, as exhibited last week at the Horticultural Rooms, Regent Street; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Sons, Covent Garden, London. R. S. Yates having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised; he can supply strong well rooted plants to any extent the first week in August, price 20s. per 100, or 4s. per dozen; also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.

St. Ann's Square, Manchester.

CHARLES NOBLE, having retired from the business lately carried on by the firm of Standish & Noble, has established his Nursery within 600 yards of the Sunningdale Station, South Western Railway. He takes this opportunity of returning thanks for the very liberal favours bestowed upon the late firm, and hopes by strict attention to merit and receive a share of such patronage in future.

Charles Noble also begs to say that his Catalogue is now published, and may be had on application. He respectfully invites an inspection of his stock, which will be found in the finest possible condition. He pledges himself to supply none but good articles, and reminds his patrons that five minutes' walk from the above station will bring them to his nursery.

Address, Charles Noble, Nurseryman, Bagshot, Surrey.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Celestial, Prince of Oude, Sir J. Paxton, Attraction, Lord Lyons, Monarch, Clarissa, Grand, Mrs B. Stowe, optima, Magnet, Venus, Scarlet Gem, Perfection, Miss Trotter, Prince Edward, Mrs. A. Mildmay, Prince of Prussia, Lady Turner, Queen of Oude, Marmion, Lady A. Foster, Lady F. Fitzroy, Lady Palmerston, Angelica Kaufmann, Thomas Barnes, Stephen, Mademoiselle Andromaque, Calypso, Duchess de Palmella, Julie de Comeria, Phœbus, Mrs. Turner, Madame Castellan, Cudjo, Gerard Dozin, Henrietta Huet, Madam Moret, Surprise, Admiral Dundas. Selections from any of the above 7s. per dozen, free by post.

Henry May, The Hope Nurseries, Bedale, Yorkshire.

HUGH LOW & CO. have now ready for distribution their Catalogue of Plants, Trees, Shrubs, etc., for present Season. It extends to 71 pages, printed in small type in double columns, and will be found to contain very Complete Collections of Stove, Greenhouse, Orchidaceous, and Hardy Plants, Ferns both Hardy and Exotic, Camellias, Azaleas, Roses, Conifers, Fruit Trees, and Florist's Flowers. Special attention is invited to the List of Seedling Coniferous Plants, as it contains a large number of rare kinds, probably more than have ever been before offered at any one time. In the List will be found Abies amabilis, A. bracteata, A. grandis, A. Pinsapo, Cupressus Lambertiana, C. macrocarpa, Pinus insignis, P. radiata, P. Fremontiana, P. macrocarpa, P. monticola, Wellingtonia gigantea, many of which can be offered by the hundred or thousand. The Catalogue will be sent post-free on application.—Clapton Nursery, London, N. E., Aug. 8.

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7s. 6d. each.

N.B. Every order will be sent free in London till the end of August.—A. Verschaffelt, Nurseryman, Ghent, Belgium.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10s. per 100; and GOLIATH, 3s. 6d. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

STRAWBERRY PLANTS.

WOOD AND INGRAM beg to offer well established Runners of the following kinds at prices annexed. A remittance expected from strangers.

Per hundred—	s.	d.	Per hundred—	s.	d.
Underhill's Sir Harry ..	20	0	Cole's Prolific	3	6
Rivers's Eliza	3	6	Bicton Pine	3	6
Trollope's Victoria ..	3	6	Princess Alice	3	0
Black Prince	3	0	Swainston Seedling ..	3	0
Prince of Wales (Ingram's)	5	0	Stirling Castle Pine ..	3	6
Keens' Seedling	2	6	Kitley's Goliah	3	0
Elton Pine	2	6	British Queen (true) ..	3	6
			Myatt's Eleanor	3	0

Huntingdon Nurseries.

CALCEOLARIA, CINERARIA, AND PRIMULA.—Seed from the above, saved from the best varieties in cultivation

CALCEOLARIA, small packets, 2s. 6d., large do.	5s.	0d.
CINERARIA, ,, 2s. 6d., ,,	5	0
PRIMULA SINENSIS FIMBRIATA, mixed or separate colours, per packet	2	6

The new Golden Hamburgh Grape is now ready, price 21s. each.

Wellington Nursery, St. John's Wood, London, N.W.

SELECT SEEDS FOR PRESENT SOWING.

WILLIAM KNIGHT, Florist, &c., begs to offer the following select seeds saved from the best varieties, post free:—

per packet.	s.	d.
Calceolaria, from best new spotted varieties ..	1	0
Cineraria, from a choice collection	1	0
Pansy, from 100 finest show varieties	1	0
Polyanthus, from extra fine varieties	0	6
Hollyhock, from finest show flowers	1	0
Sweet William, from a choice variety	0	6

67, High Street, Battle, Sussex.

SEEDS SUITABLE FOR PRESENT SOWING.

		s.	d.
Cabbage, Incomparable, early . ..	per paper	0	6
Cauliflower, Walcheren	,,	1	0
Lettuce, Imperial Bath Cos, black seed ..	,,	0	6
,, Hardy Green, fine sort	,,	0	6
Onion, large Madeira	,,	0	6
,, Lisbon, true imported	,,	0	6
Spinach, Winter, new Gigantic	per pint	1	0
Turnip, Early Snowball, true	per paper	0	6
Aquilegias, or new Double Columbines, 6 varieties ..		2	0
Calceolaria, from splendid show flowers ..	per paper	2	6
Cineraria, do. do. ..	,,	2	6
Hollyhocks, 8 double and beautiful varieties . ..		2	0
Pansy, saved from Thomson's best flowers	per paper	2	6
Piccotee, from named show flowers ..	,,	1	0
Stocks, Intermediate, 6 splendid double varieties ..		2	0
,, Perpetual or Emperor, 6 large and splendid vars.		2	0

The whole of the above sent carriage free for 20s., or each article at the price quoted.

Sold by Wm Denyer, Seedsman and Florist, 82, Gracechurch Street, London, E.C.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

	Each.—	£	s.
For a single plant in 48-sized pot ..	.. ..	0	15
Ditto ditto, extra strong	.. ..	1	1
Six ditto ditto, smaller ..	.. ..	3	3
Twelve ditto ditto ..	.. ..	5	0

Knap Hill Nursery, Woking, Surrey.—Aug. 8.

CUTHILL'S STRAWBERRY PLANTS, 1857 and 1858, on and after August 24.

CUTHILL'S EARLY BLACK PRINCE, best for Forcing, Preserving, &c., per 100, 5s., selected, 7s. 6d.

CUTHILL'S PRINCESS ROYAL OF ENGLAND, early, rich colour, very hardy, good size, very superior flavour, excellent early forcer, great bearer, per 100 15s., 50 10s., 25 6s. Plants allowed to the Trade only. See the *Illustrated London News* of July 12, 1856, and of June 20, 1857. The Rev. F. H. Bacon writes from the Table Land, in Derbyshire, 550 feet above the level of the sea, (where even Cabbages refuse to grow) that Cuthill's Princess Royal of England was the earliest, best bearer, and decidedly superior in flavour, far exceeding all others, and leaving even the hardy Black Prince, its near relative, behind. Mr. Fleming, at the Duke of Sutherland's, also writes that he intends to force it largely next year. Also Mr. M'Ewen, Horticultural Society.

CUTHILL'S PRINCE OF WALES, rich colour, fine shape, good size, tremendous bearer, first rate for Table and Preserving, keeps in bearing longer than Elton. Price per 100, 10s.; 50, 6s.

CUTHILL'S EARLY FORCING BLACK SPINE CUCUMBER, 1s. per packet.

CUTHILL'S NEW LONG WHITE SPINE, great bearer, fine form, 2s. 6d. per packet.

"Out of 24 sorts grown this year by the Horticultural Society of London, these two were the best."—See the *Gardeners' Chronicle*, August 1st.

CUTHILL'S HIGHLAND MARY CUCUMBER, the best of all for Winter Forcing, 12 inches long, 2s. 6d. per packet.

GREEN'S LADY ANTROBUS WINTER CUCUMBER, 2s. 6d. per packet.

J. Cuthill's Pamphlet containing the Belgian Prize Essay on the Potato, the Strawberry, Asparagus, Sea Kale, Cucumber, Herbs, &c., 2s.

J. Cuthill's Market Gardening Round London, containing all things grown by them, Mushrooms, &c. 1s. 6d.

J. Cuthill's Pamphlet on the Vine Disease, also an easy plan for the total Destruction of Woodlice in Cucumber pits, Mushroom houses, &c., price 1s.

Payable on Camberwell, James Cuthill, Camberwell, London.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, grown in quantities for the Trade, can be had free on application, enclosing one stamp.

Nursery, Foot's Cray, Kent, S.E.

A COLLECTION OF HOTHOUSE FERNS, containing 27 kinds, with many varieties. Several are large specimens. They are perfectly clean and healthy, and well worth the attention of any person forming a collection. Further particulars may be had from W. W., Post Office, Hythe, Kent.

SUPERB DOUBLE HOLLYHOCKS.

Saffron Walden Nursery.

WILLIAM CHATER begs to announce that his unrivalled collection of these fine flowers are now in bloom. Open to the inspection of all Visitors on every day excepting Sundays.—Saffron Walden, Aug. 8.

HOLLYHOCK SEED, ETC.

J. CHATER AND SON offer the above Seed:—Best mixed 200 seeds, 1s. 6d.; 400, 2s. 6d.; choice Sweet William, 6d.; also a few packets of choice Hybridised Cineraria Seed, 2s. per packet.

Hollyhock seed, if sown now, will produce early blooming plants next season.—Nursery, Haverhill, Aug. 8.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Aug. 8.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7s. 6d. per bushel, for ready money only.—New Park, Lymington, Hants.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, George Gibbs & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre)	30s. per acre.
Gibbs's fine mixed Lawn Grass	1s. 3d. per lb.

Directions for sowing accompany the seeds.

George Gibbs & Co., 26, Down Street, Piccadilly, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE GRASS, 7s. 6d. per bushel; DWARF ESSEX RAPE, 14s.; WHITE MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; EARLY RACER TARES, 10s. per bushel; DRUMHEAD CABBAGE, 4s. per lb.; EARLY SIX-WEEKS TURNIP, 1s. per lb.

George Gibbs & Co., 26, Down Street, Piccadilly, W.

PERMANENT PASTURE GRASS SEEDS.

SUTTON AND SONS, Seed Growers, Reading, have a fine stock of fresh natural Grass Seeds, for Permanent Pasture. August is a good season for sowing. Goods delivered carriage free by railway. Prices moderate. Terms cash.—Royal Berkshire Seed Establishment, August 8.

NEW ITALIAN RYE-GRASS SEED.

SUTTON AND SONS, Seed Growers, Reading, can supply fine new Seeds at reduced prices—the crop of new Seed being good. Goods delivered carriage free by railway. Terms cash.—Royal Berkshire Seed Establishment, August 8.

TRIFOLIUM INCARNATUM (Italian Crimson Clover).—The present crop of Seed being large, New Seed may now be obtained at reduced price on application to Sutton & Sons, Seed Growers, Reading.

This should be sown in August upon the corn stubble without ploughing. Quantity required per acre, 24 lbs.

The Gardeners' Chronicle.

SATURDAY, AUGUST 8, 1857.

The weather of 1857 up to the present time has been in some respects very remarkable. That it has been highly favourable for grain crops is proved by the accounts daily received from all parts of the country. But as regards the Potato crop, the long continued dry weather, although accompanied, too, with excess of sunshine, has been very far from preventing the appearance of disease. Fruits are tolerably abundant in some parts, but in others partial, owing to severe late spring frosts, which totally destroyed many of the boldest flower-buds; those in fact which, under favourable circumstances, invariably produce the finest fruits. Subsequently, in dry soils, the trees have suffered considerably from drought.

The year 1856 left us upwards of an inch deficient of the annual amount of moisture. This, however, was partly supplied in January, the depth of rain in that month being nearly half an inch above the average. In February and March very little fell. In April there was a fair supply. May gave less than half the usual amount. But in June the quantity was fully an average, and has proved sufficient for the wants of the grain crops. Moreover what fell was so distributed as to produce the greatest possible benefit. In the month in question the air was generally excessively dry, and had the rain fallen in small quantities at nearly regular intervals throughout the month, although the quantity had been the same, nevertheless the whole would certainly have been evaporated without reaching, at any time, 2 or 3 inches below the surface. Instead of this, however, it fell to the depth of 1¼ inch in two days, the 19th and 20th. This was sufficient to reach the lowest roots of many kinds of vegetation, comprising those of grain crops, and others of an annual or biennial nature, and to afford a store of moisture for a considerable period. Such must have been the case in all well cultivated ground, or where by trenching or subsoiling the deep mass of loosened

materials was sufficient to absorb, or otherwise detain a large quantity of water. It was very different, however, with land resting on a hard unbroken subsoil, impervious to water at the depth of a few inches below the surface; that depth of soil would have been saturated with half the quantity of rain which fell in the two days above mentioned; the other portion or whatever quantity might fall after saturation had taken place, must either have run off by the surface, if sloping, or, if level, have been in a few days evaporated, and in either case lost as a store of moisture for future supply. To all but shallow, and therefore imperfectly cultivated land, the heavy fall of rain on the 19th and 20th June was the most important supply in the whole season. It was equal to 131 tons of water per acre, or in other terms about 184 gallons per rod.

The following table shows the monthly depth of rain which has fallen in the present year comparatively with that of the average for 30 years:—

	Average amount.	Amount 1857.	Difference. Above the average.	Difference. Below the average.
	Inches.	Inches.	Inches.	Inches.
January	1.69	2.09	0.40	..
February	1.51	0.31	..	1.20
March	1.33	0.73	..	0.59
April	1.56	1.77	0.21	..
May	1.93	0.87	..	1.06
June	1.84	1.91	0.07	..
July	2.52	1.20	..	1.32
	12.38	8.88	..	3.50

It is generally the case that with a prevalence of south-west winds we have a low state of the barometer, and much rain. In February of the present year it was the reverse. For 20 days the wind was from south-west, yet the barometer averaged high throughout the month, whilst the amount of rain, as will be seen by the above table, was exceedingly limited. Again, in July the wind was for 19 days from south-west, yet the amount of rain in that month was less than half the usual quantity.

With regard to temperature, the mean of that of January was nearly 3° below the average, February 1° below, March 1° above, April nearly 1° below, May nearly equal, June 1¾° above; and it would scarcely be supposed that, notwithstanding the occasional very hot weather, the mean of July was only about half a degree above the average. But the mean of this, like that of all the preceding months of this year, was kept down by a general low night temperature, as will be seen from the following tables, in which the differences above the average for 30 years are marked +, and those below —.

	January.	February.	March.	April.	May.	June.	July.
Average mean maximum ..	42.63	45.59	50.61	57.61	64.44	71.62	74.37
Mean maximum, 1857 ..	42.26	47.50	51.32	56.56	66.87	77.03	77.51
Difference..	—0.37	+1.91	+0.71	—1.05	+2.43	+5.41	+3.14
Average mean minimum ..	31.37	32.05	33.36	36.62	42.44	48.89	51.74
Mean minimum, 1857 ..	28.90	27.21	32.58	34.86	39.29	47.27	49.55
Difference..	—2.47	—4.84	—0.78	—1.76	—3.15	—1.62	—2.19

Thus it will be observed, that whilst the mean maximum was only below the average in two of the above months, namely January and April, the mean minimum was in every month below the average. When this is the case in any month or series of months in which the mean temperature is equal to the average or above it, there is always a great amount of heat from direct solar rays; but when the same mean temperature is maintained with a night temperature above the average minimum, the weather is dull and comparatively sunless. Having the same amount of heat, crops may grow as luxuriantly in the latter case as in the former, or more so; but their growth will not be so substantial, owing to their being exposed to a less amount of light. By the mean temperature and by the mean maximum, according as it is higher or lower than usual, the greater or less nutritive value of crops may be in any year fairly estimated.

In comparing the average higher day temperature of June and July with those of the corresponding months since 1826, it is found that the mean maximum of last June, 77°.03, has only been exceeded in two instances, that of June 1842, mean max., 77°.33, and June 1846, mean max., 81°.13. The mean maximum of last July, 77°.51, has been more frequently exceeded, that of July 1826 being 78°.2; 1835, 78°.06; 1846, 77°.61; 1847, 78°.82; and 1852, 81°.16, the latter being the highest of any month in the above period. Although such has been the case, yet it is to be observed that in no two consecutive months has the mean maximum averaged so high as June and July of the present year; for instance, although in July 1852 it was 81°.16, in June of that year it was only 67°.23. It therefore appears that for the last 30 years, at least, there has not been such a long-continued high day temperature as that experienced this summer. At Paris, from 30 years' observations, taken at the Observatory, it appears the mean maximum of June is 72°.1, and of July 74°. The temperature at night has not, however, been high in a corresponding degree. The nights of June 1826 averaged about 10° warmer than those last June, although the days were not so hot by 3°.

With regard to the extremes of temperature since the commencement of the present year, the lowest occurred on the 31st of January, when the ordinary thermometer fell to 8°, and the radiating one within 4° of zero. In February and March the temperature was not at any time remarkably low; but so late as the 28th of April the thermometer indicated as low as 23°, and the same even on the night of the 4th or morning of the 5th of May. This had the effect of destroying most of the blossoms of dwarf fruit trees, whilst those on standards were safe to a considerable extent. This was owing to the cold being less intense at from 18 to 30 feet above the surface of the ground. At the height of 24 feet, the lowest indication on the morning of the 5th was 28°, being no less than 5° warmer than that at the surface. Now, on a difference of 5° the destruction or the safety of a crop will often depend, especially if the vegetation of the trees is previously excited by warm weather. At all events it appears from the above, and from other experiments that have been made, that as late frosts are of such usual occurrence in this country it will be advisable to rear more standard fruit trees and fewer dwarfs. In May, 1855, the frost was still more severe than in the present year, for the thermometer was then as low as 20° on the 2d, and 21° on the 8th. On eight nights of last May the thermometer was at or below the freezing point; and so it was on the 12th and 13th of June. And, what is most remarkable and unusual in English summers, on the night of the 25th of July the ordinary thermometer fell to 37°, being 20° colder than in the previous night; the radiating thermometer at the same time was only a degree above freezing.

The highest temperature occurred this year on the 28th of June, thermometer in the shade 92°, and 14th of July, thermometer 91°. The former has been stated by some to be the highest that has ever been experienced in the shade in June; but such is not the case, for on the 29th June 1826 the temperature in the shade was 93°.

Herr Lasch has published his account of the different forms of Oak observed by him in some German forests. The learned gentleman substitutes the name *germanica* for *pedunculata*, and recognises four other species, viz. *Robur*, *sub-Robori-germanica*, *Robori-germanica*, and *subgermanico-robur*. Among these five species he distributes sixty-three varieties, each bearing its own Latin name. We would suggest to Mr. Lasch that he should rather direct his attention to Anthropology. Since his taste leads him in the direction of differences without distinctions, a regiment of soldiers would afford him excellent means of displaying his ingenuity. He might form five species out of the men with black hair straight, black hair curly, brown hair straight, brown hair curly, and flaxen hair. Their names might be (*Homo*) *recto-nigro-crinitus*, *crispo-nigro-crinitus*, *recto-fusco-crinitus*, *crispo-fusco-crinitus*, and *stupeo-crinitus*. Setting out from these solid distinctions he might next obtain a large series of highly scientific combinations by taking into account hook-noses, straight noses, and pug-noses, thick lips and thin lips, whiskers and no whiskers, short chins and long chins, even teeth and broken teeth, and so on. The latter indeed, considering the zoological importance attached to the organs of dentition, might be considered in all their varying forms, and there is no knowing what might grow out of that. By such a purely scientific process Homo might be made the subject of a very highly elaborate classification, and we recommend the idea to the profound consideration of Herr Lasch and his scholars, in this or whatever other country they may flourish.

We learn that the Horticultural Society has just received from the East India Company through Dr. Royle a small quantity of seed of the Hardy Bamboo (a very interesting plant), Cupressus torulosa, Pinus excelsa, and Abies Deodara. Packets are now ready to be sent to all Fellows who may apply.

New Plants.

We find in the *Illustrazione delle Piante rare dell' orto Botanico di Padova*, of Prof. Visiani, an account of the following three Conifers, which he considers to be new; and of which he gives figures. We are not in possession of authentic specimens of the plants, and can therefore offer no opinion upon their distinctness; but as one at least has already found its way into gardens, it is desirable that the peculiarities ascribed to them by their learned author should receive immediate publicity.

203. Pinus Parolinii, *Visiani*.

"P. foliis geminis rigidiusculis, margine cartilagineo-[illegible] scabris, vaginis rugosis longiusculis, strobilis ovat[illegible] basi truncatis, oppositis verticillatisque, subsessilibus [illegible] erectisve, folio paullo brevioribus, squamarum [illegible] latere superiore convexa, argute carinata, nitida, [illegible] depresso radiatim rimoso; junioribus ovatis, pe[illegible] erectis, squamarum dorso recurve mucronatis, se[illegible] trapezioidea nuculam ter superante ejusque basim [illegible] anguste marginante."

Said to be found wild on the slopes and valleys of Mount Ida in Bithynia, where it alone forms the forests. A tree of it in the garden of Count Pa[illegible] at Bassano, 34 years old, is 15 yards high. Distinguished from *Pinus Pallasiana* by its umbrella-shaped head, and some peculiarities in the cones; and from *P. halepensis* also by the umbrella-shaped head, leaves rather stronger and longer, nearly sessile cones, &c. Other differences are pointed out between it and *P. maritima*, whatever that may be; if our Pinaster is meant by the name then the more slender leaves would appear to distinguish it. Is this anything more than Pinus Salzmanni?

204. Juniperus Bonatiana, *Visiani*.

"J. arborea glaucescens, ramis patentissimis, foliis [illegible] decussato-imbricatis, adpressis, ovata-rhombeis, apice [illegible] boso-trigonis acutiusculis, dorso glandula oblonga impressa notatis ecarinatis, junioribus acuminatis pungentibus erectis patulis, ramulis tetraquetris, fructiferis strictis brevissimis, galbulis pedunculatis globosis tuberculatis."

"Grown in the Garden at Padua, where it fruits in May and June. Berries blackish blue with four or five tubercles. Near *J. Sabinoides*, *turbinata*, and *thurifera*: but differs in the whole plant being Grass green, with obovate berries slightly protracted at the base." But in another place Prof. Visiani says the berries are green and *glaucous*, and he so figures them.

205. Juniperus Cabianœ, *Visiani*.

"J. arborescens, viridis, ramis erecto-patulis, foliis [illegible] omnibus decussato-imbricatis adpressis ovato-rhombeis [illegible] dorsi convexi medio glandula oblonga impressis, [illegible] ramulis tetraquetris, fructiferis strictis brevissimis, [illegible] pedunculatis subglobosis, apice retusis sublobatisque [illegible] lævibus, demum nigro-cœruleis."

"Cultivated in the garden of Signor Cabianca, at Longa, in the province of Vicenza, where it was received from Belgium under the name of *J. phœnicea*, which it resembles, but from which it differs in having [illegible] leaves, 4-cornered branches, and a truncated or emarginate, or 2-3-lobed berry, whose colour [illegible] dull grey, not bright shining brown (*zizyphina* as [illegible] *J. phœnicea*." It should be compared with *Juniperus sinensis*.

ON THINNING PLANTATIONS.

By Mr. J. Rutherford, Forester to Sir J. Ramsden, Bart. Buckden, Skipton, Yorkshire.

(*Concluded from page 533*).

The Thinning of Mixed Hardwood, though in many respects similar to that of Fir plantations, is, in detail, of a different character. Before hardwood is ready for a regular course of thinning, it should all be gone through, pruned, and relieved from branches of Fir planted as nurses. The pruner should have along with him a hedge knife, and cut away all the branches of the nurses that overhang, or are likely to overhang, the hardwood plants during the following summer's growth. This pruning and relieving should take place during the June and July of the second year, before the plantation is expected to require a regular thinning. A whole summer's growth should at least intervene between the two operations; and if the hardwood plants have been properly attended to in the rows or lines, and pruned about the second year after planting, no pruning should have been required at this time.

It is a very general practice immediately after the first thinning, and indeed at every thinning, to prune the hardwood, but this is unnatural, and exceedingly injurious to the trees, and ought never to be practised. Thinning is, in effect, a lowering of the temperature of the plantation, and, to a certain extent, a check to its growth; and to deprive the hardwood plants of their branches at the same time they are exposed to thinning, is a system that only requires a little reflection to be abandoned.

At the first thinning, taking away the nurses on the windy side of the hardwood plant will frequently be all that is required at this time to be done. The plants may be supposed to be ten or twelve years of age, and the nurses also will require a partial thinning; this, however, ought to be done very sparingly, leaving, particularly if Larch, rather close than otherwise, as they will be more valuable when they ought to be cut altogether than they would be were they now thinned and branchy. Larch and Scots Fir are valuable as stobs for paling; and even before they are fit for this purpose, are in demand for fixing for fold sheep on Turnips, and poles for the flower garden—for props for coal works also they are valuable.

portion to their length at a given diameter; and this sort of tree can only be grown when kept close upon the ground. Where Norway Spruce is used for nurses, or where ornament as well as—or rather instead of—profit is desired, the nurses ought to be thinned more severely, so as to allow them to become branchy to their bottom. This will increase the shelter, perhaps improve the appearance, but will at the same time certainly diminish the profits.

The same system of proceeding with thinning operations as advised for Larch and Fir plantations should be followed in hardwood, taking particular care at every thinning that the hardwood trees are not in any way damaged by the falling of the nurses upon them, or by the removal of the felled trees. Great damage is often done by the removal of thinnings where they are of considerable size, and where a horse is introduced to drag them to the nearest roads. Carters are proverbially careless and reckless, particularly in plantations, and when dragging out felled wood think only of the growing as retarders of their progress; but as it is scarcely possible to avoid damaging the growing where a horse is used to drag away the felled trees, it is the better, though more expensive plan, to have them all carried out by men, and if possible not allow a horse of any description to enter the plantation for that purpose at all.

In the course of two or three years after the first thinning, the plantation ought to be again gone through. Perhaps two or more of the nurses may require to be taken away, at any rate all should that lash or overhang the hardwood plant, so that it may be left untouched by any of the nurses after the thinning has been performed. We shall suppose that the plantation is now 12 or 15 years of age, and growing rapidly. Every two or three subsequent years it ought to be again examined and thinned, as there is no doubt that a healthy growing plantation will be ready for thinning after the lapse of say three years; and these periodical thinnings should be performed until all the trees planted as nurses have been taken away, which may be when the plantation is from 25 to 30 years of age. One thing, however, I would direct attention to, and that is, the erroneous determination of many owners or managers of plantations to have hardwood, Oak particularly, at whatever sacrifice. Grant that well-managed hardwood, on a suitable soil, will yield a greater profit than Fir, and that Oak is the most valuable of hardwood trees, yet what could be more worthless, or less deserving a place in a hardwood plantation, so called, than an Oak plant that gives no indication whatever of ever becoming a tree even in a plantation of 25 or 30 years of age. I have seen good Larches mercilessly cut down—trees certain to become very valuable timber, and upwards of 25 feet in height—that an Oak not much over as many inches might be left. This was, of course, in a plantation that had not been properly managed previously, and the then management was, I should think, worse; for one more ruinous could not have been adopted. The Larch could have bought the horse before the Oak could the halter. Where such useless Oak or other hardwood exist, cut them out, and leave a Larch to fill their place more profitably; and even where ornament, not profit, is the object, a few good Larch, Scots Fir, or Norway Spruce, if they do not enhance, will certainly not detract from the beauty of the landscape.

At about 30 or 35 years of age the hardwood trees will be getting too close on one another, and will require thinning; and as ere this time it will have been decided which sort of hardwood is to be the permanent crop, the operation must be proceeded with accordingly. In fact, from the very first thinning the sort likely to become ultimately the sole possessors of the soil should be favoured every time the plantation is thinned; and as pruning will of course have been regularly attended to up to this age, very little should afterwards be required. In deciding what sort of hardwood is to be left on the ground, soil and locality are the principal subjects requiring consideration; and if the soil is one suitable for Oak, and likely to carry it to valuable timber size, and if there is a ready market for all sorts of timber, no crop will equal it in ultimate value. The sorts of hardwood most generally grown are Oak, Ash, and Elm; and if they have been properly arranged at the time of planting the Ash should be the first that requires to be taken away. Ash comes sooner to valuable size than any other species of hardwood, and at the age the plantation is now supposed to be, should be fit for cart-wright and coach-building purposes. This thinning should proceed gradually, until the plantation is about 60 years old, taking care, where an Oak gives any indication of unsoundness, or of not attaining to profitable dimensions, to leave a good Elm or Ash instead. To make the crop of the greatest possible value should be the aim; and regularity, as well as unity of species, as I have said, will often have to be sacrificed ere this can be accomplished.

At 60 years of age a well-managed plantation, on a suitable soil, may have between 60 and 70 trees per acre; and it is often necessary to thin again even after this age, and reduce the quantity, that each tree may have an area of from 90 to 100 square yards. With this surface, and on a suitable soil and situation, they should develop themselves so as to have an average of 40 cubic feet, which, at 3*s.* a foot, would give 120*s.* a tree, or something like 300*l.* as the value of one acre of woodland under a crop of Oak judiciously thinned and otherwise skilfully managed since the laying of it out. *Condensed from Transactions of the Scottish Arboricultural Society.*

VEGETABLE PATHOLOGY.—No. CLXVIII.

382*. Exostosis (*Cypress Knees*). We have already entered on the subject of the curious bodies known under the name of knaurs, which occur on the trunks of Beech and other trees. Scarcely less curious are the productions which are so common in the swamps of North America at the base of the trunks or rather on the roots of the deciduous Cypress (*Taxodium distichum*), and which appear on the tree in our own country in very wet situations, as on one planted at Sion, in ground which is never dry, by the side of a piece of water. These bodies grow from the roots, whether superficial or immersed, and while at Sion they attain a height of 1 foot on the surface, or twice as much where immersed, they reach a far larger size in the southern provinces of the United States. Dupratz, for instance, has seen one in Louisiana 10 feet high, with a thickness at the base of more than 2½ feet. A fine specimen may be seen in the museum at Kew, which was sent by Asa Gray, and of which we give a figure from a sketch by Mr. Fitch.

These bodies never show a trace of any external buds, and in very swampy situations they soon become hollow from decay, and in that state are used in America for beehives. Indeed, in a very small specimen from Sion now before us, which is about half an inch high and broad, there is a distinct black decayed pith running to within a line of the apex. Anomalous as these projections, resembling enormous sugar loaves, seem when fully grown, their formation may be traced from the earliest stage of growth, originating from a latent undeveloped bud. At Sion they may be seen of very various size, and on the trunks of trees far removed from water, little knaurs may sometimes be observed of precisely the same nature as the Cypress knees, but acquiring by slow degrees scarcely more than an inch in diameter. The more rapid growth of the knees after a certain time, for they do not appear to make any marked increase at first, is attributable, doubtless, to the constant supply of moisture, which has the effect at the same time of causing the bases of such trees as grow in the swamps themselves to swell out to enormous dimensions, and in such situations, like the knees, they are very apt to become hollow. The trees attain sometimes a diameter of 13 feet or more at the base, while the trunk above the water is not above one-third as thick; and in consequence when they are felled, as the lower part is absolutely worthless, scaffolds are raised to enable the negroes to get at the sound part. It may be remarked in conclusion, that the tips of the branches from some unknown cause swell out into little bodies of a brilliant salmon colour, with loose peltate scales resembling the cones or galbuli of *Taxodium sempervirens*, but not those of the deciduous species. These bodies have been described by Schweinitz as a kind of *Cantharellus*, and he is not the only botanist who has fallen into such an error.

382**. A very curious kind of knaur was sent to Dr. Lindley from Guatemala by Mr. Skinner, and is figured in this Journal, 1856, p. 452. It is remarkable for its globular deeply umbilicate head, springing abruptly, with a deep depression beneath, from a stout cylindrical stem, and displaying in every part a distinct spiral arrangement of the woody fibres. It seems in fact to be a branch converted into a gnaur, and differs rather in form than in essence from the Cypress knees. No information was received as to the affinities of the tree on which it grew. Ordinary knaurs are remarkable for the complication of the arrangement of the woody fibre with which their surface is marked when free from the bark, and in the little Cypress knee mentioned above there are no less than six different centres of growth, a circumstance which helps to prove the identity of their mode of origin. *M. J. B.*

ON THE POLAR LIMITS OF MAIZE CULTIVATION.

(From A. de Candolle's Géographie Botanique.)

In America, where Maize cultivation dates from a much higher antiquity than in Europe, the limits of its cultivation have been advanced as far as possible.

In South America Maize is cultivated as far south as lat. 40°, in Chili, corresponding with the position of Valdivia. In North America it is grown in Canada, and Franklin found it cultivated at Cumberland Fort (lat. 54°), in the centre of the continent, by the Hudson's Bay Company's officers.

In Western Europe Maize is grown in the Azores, and might be further north in the same longitude if that Archipelago had extended towards Ireland.

In continental Europe the cultivation of Maize has spread in proportion as the knowledge of the best varieties increased. To the westward its limits are tolerably fixed, for the population is large, intelligent, and has during the last half century made every effort to introduce it. The fact of Maize being grown for fodder, even where it will not succeed as a Cereal, has further led to its trial up to the very limits of its growth.

Towards the end of the last century Arthur Young defined the limits of Maize ripening by a line drawn from the mouth of the Gironde through Bourges and Strasbourg. Since then its limits have advanced, for a distance of 30 leagues parallel to that line. It has approached the mouth of the Loire, for it is cultivated abundantly in the department of Maine-et-Loire, on the banks of the river. Its limits on the shores of the ocean may be fixed at lat. 47°; thence the line passes between La Flèche and Le Mans, under the 47¾° to Paris (48° 50′), which is its northern limit. From Paris the limit passes eastward through Nassau; it is cultivated generally between Heidelberg and Frankfort, and in the district of Wetterau, in the centre of which stands Frankfort-on-the-Maine.

To the north-eastward the elevation of the land forms an obstacle, but it reappears on the banks of the Dniester in Gallicia, four miles from Zalescygki, and in all the district of Balta; but it is not cultivated at Cracow, nor does it ripen at Lemberg; the limit being Bukowina in lat. 49°.

According to M. Gorloff it is grown at Poltava and Kharkoff in South Russia (lat. 50°), but Schouw fixes its limit at 48°—49°. Maize is cultivated in the gardens only at Kiew (50½° south) and only in the fields in the south of the district of that name, in South Podolia, Bessarabia and Cherson. Probably Maize advances further north in eastern Russia, owing to the summer heat.

Maize is less cultivated in Asia. Bunge states that he did not meet with it anywhere to the north of Pekin, though the Vine is cultivated. In British India Roxburgh says that it is cultivated in various parts of the continent in gardens, and only as a delicacy, but nowhere within his experience as an extensive crop. It is hence evident that its limits have not been ascertained in India, and its recent introduction into the mainland of India and rarity there are the strongest proofs to my mind of its American origin. In conclusion the limits of its general cultivation as a cereal may be considered to be—

South Chili		40°S.
Interior of North America		54°N.
Europe:	Vendée	47.50
	Paris	48.50
	Coblentz	50.20
	Bukovina	49.0
	Kharkoff	50.0

Beyond these limits, which are ascertained with precision in Europe only, there is a zone of 25 to 50 leagues, over parts of which Maize cultivation has been attempted with various results, depending on the soil, exposure, and variety grown. Beyond this, again, Maize may still be grown, but only as a fodder Grass.

TRADE MEMORANDA.

Thomas Howarth, of Portugal Street, Oldham Road, Manchester.

George Dickens, of Commercial Street, Manchester.

Home Correspondence.

Sigma's Aphis Powder.—I have been lately trying this powder on Peach trees on walls. The result of my experiment is satisfactory, so much so that I regret I did not obtain a supply in time for the first incursion of the blight in the spring. If I had made such timely application of it I should, I believe, have saved some valuable trees which are nearly destroyed by the Aphides, notwithstanding the free and reiterated application of the syringe. We are in this part of Kent in a most provoking contiguity to the Hop gardens, many of which are this year disastrously infected with the Aphis blight; hence the necessity for some more than ordinary safeguard against this pest. I think I am not wrong in repeating that we shall find such in "Sigma's Aphis powder." I would make one remark on the application of the powder. It must come into complete contact with the Aphides, or no sufficient results can be expected. I suspect that the disappointment expressed by some of the correspondents of the *Chronicle* has arisen from not attending to this. Before I applied for some of the powder to the agent at Hurst Green, I did not know Sigma's real name or whereabouts; I have since been favoured with a sight of his orchard houses, both early, for forced fruit and late. For beauty, vigour, healthiness, and fruitfulness, I never saw the like of his trees. I have not myself been so fortunate as to succeed with fruit trees in pots, on Mr. Rivers's plan; but, notwithstanding my own shortcomings, I have always held against the dictum of I know not how many gardeners that fruit trees might be so cultivated to perfection. The condition of "Sigma's" orchard houses justifies my confidence. *J. W. F., Tunbridge Wells.*

Chamæcyparis thurifera.—Having been so fortunate as to have presented to me one of the beautiful little Chamæcyparis plants distributed by the Society, and having a friend who has been equally favoured, may I beg to be informed what is the best method of treating

them? Will they bear the winter without protection? If so, should they be at once planted in the open ground, or should the planting be delayed for a while, and if planted out what kind of soil and aspect will suit them best? Being ignorant of their precise character, and anxious to make the best use of our good fortune in obtaining them, we trust you will excuse our thus troubling you. One of them is to inhabit this county (South Hants), the other Warwickshire. *A. W., Shirley.* [All that is known of this rare plant will be found stated at page 772 of our last year's volume, to which we have nothing to add. There is no reason why it should not be hardy, for Orizaba is a snow-capped mountain and the plant belongs to a hardy race. We should plant them now in some open space, in good sandy loam (nothing else), and shelter them carefully from severe frost during the succeeding winter. As soon as spring frosts are over we should withdraw protection, and after that let them take their chance.]

Double Blue Canterbury Bell.—I have much pleasure in forwarding you the following particulars of the method whereby I succeeded in bringing the Campanula (of which you inserted a notice in a late Number of your *Gardeners' Chronicle*) to its present condition. It is now some years since I first observed that the uppermost bloom of the common Canterbury Bell was frequently of an extraordinary size and shape, being something like a compound of two or three of the usual flowers united, but showing one wide expanded petal. It occurred to me that it might be worth while to try whether a new variety, or, at all events, an improvement upon the old one might not be obtained from one of these (as I call them) monster blooms. At any rate I determined to try the experiment, and put my idea to the test. 1st year. Accordingly I selected one of the finest plants in my garden, and inoculated one of these large topmost blossoms with pollen from another plant and flower of similar character. I then removed every other seed-pod, so as to throw the whole concentrated strength of the plant into this hybridised bloom. The seed I preserved and sowed. 2d year. From this seed I obtained a plant exhibiting semi-double blossoms, but on the same plant I marked a few flowers which showed likewise some little leaflets at the bottom of the bell curling round the stamen. These I kept for seed, again removing all the other seed receptacles. 3d year. The plants now bore a very marked improvement, bearing flowers with four or more sets of petals. I continued the same course as before, and the 4th year gave me the plant which I sent to the Lincoln flower show, and from which the blooms were cut which I had the honour of forwarding to you. I sent specimen flowers to Lincoln of all the four stages here enumerated, that the gradual improvement in the blossoms might be observed. The habit of the plant is tolerably vigorous, inclined to branching, as well as pyramidal, more dwarfed than the common Canterbury Bell, not exceeding 18 inches in height, and a free grower. The plant I exhibited had nearly 50 blooms on it at a time. P.S. Shall I be imposing too heavy a task on your kindness by requesting you to look at the inclosed blooms of a white variety, with which I am pursuing the mode already described? I propose to name it Campanula Kenningtonia. It is now in the third year of treatment. *Wm. Bromehead, The Vicarage, Bracebridge, near Lincoln.* [The white also promises extremely well.]

Colour of Flower Pots.—In answer to "G. W. L." I repeat that what we call red is the best colour for pots not ornamental. If any one makes his opponent say what he does not and then answers him, he will always have his own way. A garden pot and an ornamental vase (with or without flowers) are two very different things. There surely must be some reason why red-brown is always preferred to vulgar white, or dirty yellow, the only subdued easily (*i.e.*, cheaply) procurable colours. With regard to no arguments being given for red, I referred to Chevreuil as the best expounder of such matters. I will re eat some arguments I did give for red being the best colour for flower pots, they are these—in a house where pots are placed you have an immense mass of white wall, &c., and a greater mass of green leaf; the colours of the flowers do not affect the mass of white and green appreciably. Now a large mass of white is always very subduing, therefore you do not want to subdue your complementaries green and red, but to heighten their effect, which of course your flowers do. I repeat the green is so overpowering that red, a brownish red, or subdued yellowish red will and always has been the colour preferred. If "G. W. L." had travelled out of the cold north he would find red vases, horrible to say, in Genoa, Florence, Pisa, Rome, Naples, everywhere in Italy, where marble is so very common, and not so common in France only because the frost breaks them! *Somerset.*

Spiræa callosa.—This is truly a gem, and I have often been surprised at not seeing it grown more extensively. Four years ago I purchased a plant of it, from which I saved seeds. When the latter vegetated, which they did freely, I planted the seedlings out in a nursery row, where last year and at present they form a hedge of the greatest beauty. I also find it useful for cutting from, the flowers last long good in water. *R. E.*

Weight of Beech Timber.—I am obliged to "Ad Rosas" for his suggestion at p. 501, but his solution of the matter is not satisfactory. I have been enlightened to this extent, that the Beech of the Chiltern Hills is harder and heavier than that growing in many other parts of the country; that green Beech will weigh 100 lbs. and upwards per cubic foot (in the round); that a cube foot of 12 inches square every way contains, as most people know, 1728 cubic inches, but a foot cube of round timber measured in the usual way, by taking the length and quarter girth, contains 2200 cubic inches, which explains to some extent the difference in weight, although there is still a great discrepancy. I have recently had a cubic foot of small Beech weighed (in the round), which has been felled and exposed the last seven months, and this weighs between 83 and 84 lbs. *William Brown, Tring.*

Apple of the Dead Sea (so called).—Is it a Solanum? I have flourishing plants of it raised in a stove from seed brought to England last spring. As blue is a rare colour in stove plants, it is an acquisition. Any particulars about it will oblige. *Belladonna.* [We suppose the plant referred to is the Solanum Sodomæum, a kind of Egg plant; it is necessary, however, that we should see a specimen with leaves and flowers before we can answer properly our correspondent's inquiry. It will also be desirable, if specimens are forwarded, that the exact place where the seed was collected should be stated.]

Wellingtonia.—Observing the measurement of several plants of this recorded in your columns, I have this morning measured one planted in my open park, and find the dimensions to be as recorded in the following Table, the details of which I have collected from recent Numbers of your Journal.

Locality.	Planted.	Measured.	Height.		Breadth.		Circumference.
			ft.	in.	ft.	in.	In.
1. Acton Green near London	..	July 1, 1857	5	0	3	8	8
2. Hillersdon, East Devon	Jan. 2, 1856	Aug. 3, 1857	4	6½	5	1½	6½
3. Fairlawn Park, Tunbridge ..	May 2, 1856	July 28, 1857	3	10	3	6	6⅜
4. Gunnersbury Park, near London ..	In pot	..	3	8	3	8	..

—*W. C. G., Hillersdon, Devon.*

Manuring Timber Trees.—Will any of your correspondents be good enough to inform me where I can find a chemical analysis of the timber of Oak, Elm, and Larch trees, with the view of ascertaining what special manure would be most efficacious if applied to them when planted in situations where it is desired that their growth should be very rapid, and on ground where it may be difficult to cart the ordinary farm-yard manure, or what manure from experience may be considered the best for such a purpose. *D. B.*

Notices of Books.

A Glance at the East by a retired Bengal Civilian (Booth), is a pamphlet severely criticising our present method of governing India, and pointing out what the writer considers a better. At a crisis like the present every one will wish to hear the opinion of those whose personal experience entitles them to form one. That the author of the pamphlet before us belongs to that class the following extract clearly shows. After pointing out upon what principle competition for employment should be conducted he proceeds thus:—

"The persons competing, their eligibility once determined, should, prior to examination, select their Presidency, and compete for it in the languages of that Presidency. This essential, instead of the ancient, and to the Indians unknown tongues, being disposed of, proceed to English composition and literature, general history, and that of India in particular; then take up the laws of the Presidency selected, and mathematics. We shall, by this process, have practical and efficient men; for such attainments as French, German, Italian, or Russian, there should be but a small premium. A good practical knowledge, however, of geology, mineralogy, chemistry, botany, surveying, and engineering, would form a capital finish to the other important acquirements, as they could be brought to bear in India, greatly to the benefit of the people and country, where these sciences are, comparatively speaking, unknown. If a young man be a fair linguist, can compose well in English, is a fair mathematician, historian, geologist, or chemist, little need be thought of his attainments in the classics of ancient Greece and Rome: they may safely be dispensed with in India. Care should be taken not to send men there who are too old. Nineteen should be the maximum age; they should go out at an age which will give a chance for their being able to live to retire, be made to come to England after every six years for a year, to renovate their ideas and constitution, without losing their appointments, and greater liberality should be shown to the sick. The East India College at Haileybury ought on no account to be dispensed with; there is a great good to be obtained for India by its retention: by a residence in it, its future rulers become acquainted with each other, and bonds of friendship and union are cemented, which work well, not only for themselves in a foreign land, but for the people and the service in which they are engaged. Such feelings cannot by any other process be engendered. The author has seen, known, and felt this, and it is with no idea that education is superior there to that of other numerous institutions, that he now advocates that the College at Haileybury should not be doomed.

"The same liberality should be exercised towards the military; the pay of ensigns and lieutenants should be increased. When the best men in the country are selected by competition, they should have good pay or the best men will not compete. What the impression on the minds of those officers in India will be, when they see the neglect of their rulers, have seen their brother officers with their families mercilessly butchered, and who are themselves in daily peril, and what that others about to enter the same service, remains to be developed. The penny-wise-and-pound-foolish system that now exists of the Government endeavouring to do everything single-handed is much to be lamented. Instead of encouraging British capital and industry to carry out our public works, our canals and embankments, &c., we go on borrowing millions, in order to defend ourselves with our military officers; and at the same time show our bad faith to the natives by raising them on higher rates of interest, without providing for the losses of those who are immediate sufferers. This we have permitted the 4 per cent. holders of Government securities to go with their paper to the wall, while we have borrowed at 5 per cent. from others; and to-morrow we shall perpetrate a similar enormity to the 5 per cent. holder, by again borrowing at 6 or 7 per cent., as our necessities may influence the money market. Why not have the honesty at once to say to the 4 per cent. holder, "We want money; and to induce you to lend we will raise the interest of the securities now held by you to the same standard as the new loan?" Thus the good faith of the Government would be apparent, and the money market secured to us at a fair rate of interest, which the present holders would be too glad to obtain and pay for by taking more securities; whereas now our bad faith is so apparent, that holders of money will hesitate to risk it, seeing that, any day, a new loan may cause a depreciation of their securities to a considerable amount. It is never too late to mend. Those superfluous occupants of office whom it is desirable to remove should be at once pensioned off. British energy and British capital should be called into play, and cotton, wool, and leather, grain, steam navigation, emigration, mining, railroad, and other companies, encouraged. Let India be no longer a *mare clausum*, and our possessions there will be infinitely safer. The people so governed and so looked after will be much better off; they will be employed in thousands of new ways: while they grow rich by the influx of British capital and energy, the Government will grow strong; and the association with British ideas and feelings will gradually cause the spirit of mutiny, rebellion, and fanaticism which now evidently prevails, to cease to exist."

But surely for the present this is mere trifling with the momentous question. The bullet, the sabre, and the gallows must first do their work, and then we may think of the words of a retired Bengal Civilian. Then too, and not sooner, may great governmental questions be taken into consideration. Such is the opinion of the people of England. Before reform we must have Amazians in command.

The Romany Rye (Murray) is a two-volume story in which Mr. Borrow, the celebrated author of the Bible in Spain, vehemently attacks in his own peculiar style Roman Catholics, and a very considerable number of other people. The subject is so entirely beyond the scope of our columns that we can only announce the appearance of the work for the information of those who think that the amenities of the prize fight or of Donnybrook should be introduced into written discussion.

Mr. Bohn has issued an edition of *Bolley's Manual of Technical Analysis*, a German work of considerable reputation. It is intended as a "guide for the testing and valuation of the various natural and artificial substances employed in the arts and domestic economy." It is however not to be regarded as a mere translation of the original; on the contrary, Dr. Paul, the editor, states that several chapters have been entirely re-written while much new matter has been introduced into others. The plan of the work is good, the arrangement of the matter convenient, and the directions for testing the substances to be examined as clear and concise as is possible in so difficult an operation. We must however except from approval the woodcuts professing to illustrate the appearance of textile materials, which are very coarse exaggerations, more calculated to mislead than inform. We should hope they will be omitted in the next edition. Let us add that the intrinsic value of the volume is much increased by a copious index.

The visitors to Manchester should not fail to provide themselves with the *Walk through the Art-Treasures Exhibition, under the guidance of Dr. Waagen* (Murray, 12mo). It relates wholly to works of art, and is in fact a catalogue of them, with short notes by the author, so that those who have no opinions of their own will know what those are which are entertained by one of the most eminent of living critics.

M. de Lesseps has published a new pamphlet on the *Suez Ship Canal* (Weale) with sketches of the ground, and Mr. D. A. Lange has seconded him in a couple of letters (Richardson). Since the enterprise in question is to be looked at from a political rather than an engineering point of view, we prefer to the opinion of the ingenious projector that of Lord Palmerston, who has not only declared himself wholly opposed to the enterprise but has warned the public not to burn their fingers in it. How much that warning was needed will be seen from the following passages in the speech of Mr. Fowler, an experienced Egyptian merchant, who had the courage to tell a late meeting at the London Tavern some dis-

agreeable truths which it is very important should be known.

"*I have resided many years in Alexandria, and I know the country and people well, and therefore the observations I am about to offer are the result of my own personal experience.*"

"It is stated in one of the Reports which have been issued under the approval of M. de Lesseps, that in the event of this great work being carried out, the Viceroy of Egypt will supply the labourers necessary for carrying on the works, and that these labourers are to be supplied from the fellahs of Egypt."

"I should say, that in order to carry on the work, no fewer than 100,000 labourers will be required; and where is that immense number of labourers to be found who will be ready and willing to be employed on the works? Why, of course, they must be drawn from Egypt."

"These poor people are now employed in their own domestic pursuits, and in cultivating their little farms along the banks of the Nile, and where there are not now anything like a sufficient number of labourers for that purpose; and yet it is proposed to force 100,000 of them to become labourers upon this work which, in fact, has no relation in reality with Egypt."

"This country was the first to come forward and liberate the slaves of the West Indies at a cost of millions, and therefore let me ask, will England lend its sanction to the enforcement of slave labour in Egypt, after having paid 20,000,000*l.* sterling for the liberation of slaves in the West Indies? I repeat that if this undertaking is to be carried out as now proposed, it can only be accomplished by Englishmen becoming parties to enforcement of slave labour in Egypt for the next 20 years."

"It appears to me to be a work about as feasible as the building of a pyramid; and then, as to the cost of it, I do believe that instead of its being completed for 8,000,000*l.* of money, it will cost at least three times that sum; and that so far from it being completed in seven or eight years, I feel perfectly convinced that it will not be completed in 20 or 30 years."

In reply to the advocates of the scheme Mr. Fowler further said—

"This proposed canal will not run through any part of Egypt: on the contrary, it is nearly 70 or 80 miles from Egypt, or at least from the cultivated parts of that country, and therefore it cannot be as beneficial to that country as a railway running right through the centre of it. But this canal is, in fact, to pass through a desert, and will be no benefit whatever to any other place. It has been stated that the Viceroy will advance out of his own private resources the sum of 1,200,000*l.* towards the construction of this canal, and that he will undertake to supply the labourers at the rate of 10*d.* a-day each. Now, I say that the Viceroy will pay himself back this advance out of the earnings of the fellah; and that, so far from receiving 10*d.* a-day, they will not actually receive more than 1*d.*; and as to the mode of employing those labourers, I appeal to any gentleman in this room who knows anything of Egypt, and I ask him, is it not the fact that these poor miserable creatures, these 'fellahs,' are dragged away from their homes, and are compelled to work like slaves, and to eke out a most miserable existence? I have known many of them to go a whole day without a morsel of food of any kind. I am now speaking from an experience of 10 years' residence in Egypt; although, during that time, it has not been my good fortune to mix with the high and mighty, as M. de Lesseps has, yet my avocations in that country have been such as to enable me to acquire some knowledge of the people, out of their manners and habits, and particularly of the fellahs; and I say, from what I have seen, that if this undertaking be carried out by means of the labour of the fellahs, their condition will be worse than that of the slaves of the West Indies ever was."

Such are the views of a gentleman *having no interest* in the matter one way or another.

Part IV. of Dr. Hooker's *Flora of Tasmania* (4to, Reeve) has been published. It contains the Van Diemen's Land orders from Ericeæ to Proteaceæ, reaching the 320 page and 80th plate. We observe that no fewer than 40 species of Epacrids are described, among which is a new genus, Archeria; Tasmania thus produces about one-eighth of the whole order. The learned author agrees in opinion with those who reduce the great Bindweed of Tasmania to our own common species, notwithstanding its somewhat different appearance when growing, and he adds that the roots are eaten by the New Zealanders. The plates contain beautiful figures of the species of Gaultheria, which we recommend to the growers of "Alpine plants." Our gardens seem to possess already such of the Epacrids as have any horticultural value.

The Land of Silence and the Land of Darkness (Longmans, 12mo). Under this quaint title the Rev. G. B. Johns has published a highly interesting statement of his experience with the deaf and dumb.

Captain Richardson has given his *Fourteen Years' Experience of Cold Water, its uses and abuses* (small 8vo, Longmans, pp. 175). The object of the author is to teach people how to manage themselves.

The Official General Guide to the Crystal Palace, &c. (Bradbury & Evans), is a new edition by Mr. Shenton of Phillips' original Guidebook. It is well arranged, and therefore easy to consult, and it contains very complete information concerning the manner in which visitors may reach the grounds, as well as how they can best view the contents after their arrival. There is also a useful map of the neighbouring roads.

We have received the Trade Catalogues of *Mr. Glendinning, of Turnham Green*, and *Mr. W. Cutbush, Jun., of Barnet*. Both deserve to be consulted by buyers of good plants. That of Mr. Glendinning is more especially important as containing all the fine new things lately obtained by Mr. Fortune, as whose agent Mr. Glendinning acts. Among the Conifers we also observe that Thujopsis borealis is called, without any doubt, Chamæcyparis *Knootkatensis*, by which is doubtless meant *nutkaënsis*. This seems to have been adopted from our remarks at p. 772 of our last year's volume; but cannot at present be regarded as anything better than a guess. The plant to which Thujopsis borealis is thus referred comes from the North-east of Asia, where it was first found by Menzies when in Nootka Sound; Dr. Scouler afterwards sent dried specimens from Observatory Inlet; and Bongard, who saw it in Sitcha, published an account of it under the name of *Thuja excelsa*. We have ourselves, as we formerly stated, sometimes suspected that this Eastern Asiatic species might be the garden Thujopsis borealis; but the excellent authentic dried specimens in our herbarium from Menzies himself, the original discoverer of *Chamacyparis nutkaënsis*, are so dissimilar that we have not ventured upon identifying them with the garden plant, even after allowing for the differences that exist between young Conifers and old ones.

Garden Memoranda.

Ribston Park, Yorkshire, the Seat of Jos. Dent, Esq.—This interesting place is situated on the river Nidd, and is entered from the high road between Wetherby and Boroughbridge. It is open to the public on Tuesday. This, as is now generally known, is the place where the celebrated Ribston Pippin Apple was first cultivated in this country; I say cultivated, because I am inclined to believe that the original tree at Ribston was a grafted one, and not a seedling. In the *Chronicle* of Dec. 7, 1844, there is a notice of the original tree, the writer of which, Mr. Craig, states his reasons for considering that the tree had been grafted. In 1855 I myself saw a root sucker growing from the present tree, the appearance of which was anything but indicative of the character of the Ribston Pippin. [This is a mistake. "It has been doubted by some whether the tree at Ribston Hall was an original from the seed. The fact of its not being a grafted tree has been satisfactorily ascertained by Sir Henry Goodricke, the present proprietor, by causing suckers from its root to be planted out, which have set the matter at rest that it was not a grafted tree. One of these suckers has produced fruit in the Horticultural Garden at Chiswick." *G. Lindley, Guide to the Orchard and Kitchen Garden, p.* 81 (1831).]

It is to be regretted that this point has not been satisfactorily settled long ere this time; few visit this place that do not inquire, and very naturally, for the site of the original Ribston tree. This is a few hundred yards from the mansion, in rather an exposed part of the park. The tree which occupies the site at present is said to be a side shoot from the original; it has no fruit on it this year, and some of last year's shoots are dead, in short, its general appearance is anything but flourishing. In the kitchen garden, which is about 200 yards from the Ribston tree, are several Ribston Apple trees, all of which are in the greatest possible vigour. Several young Espaliers are particularly healthy. The situation of the original tree in the park is cold and exposed, whilst the kitchen garden is as sheltered as it can possibly be. This, with the better soil of the garden, must be the cause of the young Ribston trees doing so well.

The fruit crops in general are good in the gardens here. Apples are very plentiful, as are also Pears and Plums; Peaches and Nectarines are about an average crop. Mr. Abbott, the gardener here, never protects his trees; he relies more on having well-ripened wood and dry borders for good crops than on temporary protections in spring. There are two ranges of forcing houses in the gardens, in which is annually produced as good fruit as any in the kingdom. Peaches and Nectarines were very fine, as were also Grapes. The Hamburghs in one early Vinery were very superior, many of the bunches weighing quite 4 lbs., with berries large and well coloured. Nearly all the Vines have been planted somewhere about 30 years. Great labour was bestowed in the formation of the borders, and under the present gardener's management the Vines will continue for many years to bear heavy crops. Grapes are here all the year round.

From a gate at the west side of the garden is a walk that leads to a building called the "Abbey." On either side of this walk are great numbers of the finest Roses, which in the first week in July were most beautiful. Conspicuous among good old favourites were Mrs. Bosanquet, Coupe d'Hébé, Paul Ricaut, Duchess of Sutherland, Baron Prevost, Sidonie, Narcisse, Charles Duval, Géant des Batailles, Madame Lamoricière, La Reine, William Jesse, General Jacqueminot, and Chenédolé; some Persian Yellows on the Briar were really splendid. About midway up this walk there runs out of it at right angles a Grass walk, on either side of which are some very good ribbons. The first row next the turf is Mangles's Variegated Geranium; 2d row, dwarf blue bedding Aster; 3d, a line of yellow Calceolarias; 4th, Frogmore Scarlet Geraniums; and 5th, blue Ageratum; these are backed up with Salvias, Dahlias, &c., the whole producing a very pleasing effect.

Mr. Abbott has this season planted out a lot of Ferns; the place chosen for them is an old quarry, which of late years has been decorated with rock plants—the Ferns are doing beautifully. Mr. A. purposes taking them up and potting them again for winter; amongst them we noticed Adiantum trapeziforme, A. formosum, A. cuneatum, Polypodium aureum, Pteris longifolia, and P. serrulata.

After passing through a large conservatory and two plant houses, which were very gay, I entered the pleasure grounds. These are extensive, and in good keeping. Evergreen trees and shrubs do exceedingly well; immense numbers of handsome Yews may be met with in the grounds, some fine Deodars, and an Abies Pinsapo, 14 feet high; there is also a good Pinus excelsa and many others.

The flower garden is on the south side of the mansion, and is in its way quite a gem. The beds were one mass of bloom even in the beginning of July, which is early for Yorkshire; indeed they could not possibly be fuller of flower; considerable labour had evidently been bestowed on them to get them thus attractive at so early a period of the season. Mr. Abbott has some good things in the bedding way. Among Verbenas was a seedling which for massing is certainly unsurpassed in its class; the colour is a deep purple lilac tint, it is good in habit, and a profuse bloomer. Several beds of it were remarkably effective.

Scarlet Geraniums in vases were exceedingly fine. Mr. A. gets them into good bloom before he puts them into the vases. A fine Purple Beech stands too near the terrace walk, but it would not answer to remove it. *M. S.*

Miscellaneous.

The Coast of Kerry whence the Atlantic Telegraph Cable starts.—But we are standing on Dunmore Head. The ponies have been led by gossoons to pick the Grass on the mountain slopes, and we are free to wander on our feet, which we prefer here even to those of the sure-footed Kerry hobbies. I have perched myself on a ledge from whence a stone falls plump into the Atlantic, full seven hundred feet below. I believe there is not a single rock that will afford clinging-room more to the west in our quarter of the globe. So, if other ambitious aspirants are standing on the highest mountain in Europe, my brains and climbing-powers have enabled me to reach its most western point. Curious yearning is this to attain almost inaccessible and often dangerous places. You cannot see a lofty mountain without a strong desire to tread the summit, although the chances are that you will be rewarded by a mist view. You are near a precipice, and you are led by a will, not your own, to fathom its depths. Even more perhaps: you are tempted—and Heavens what a temptation it is!—to take a leap into eternity. Never was this devilish feeling stronger on me than when I stood on Dunmore Head. And it grew in intensity. So, as a safeguard, I lay down on the ledge face and grasped a projecting rock. Then with calm feelings I looked below—saw the mighty precipices and rock islands warring with the waters which swelled, and raged, and clothed them with foam; heard too the roar of the restless waves as they lash the Thunder Rock * far seaward, which, like a noble spirit in adversity, re-appeared when the raging waters had passed over it apparently unchanged. Yet, no—unaltered to the eye, but not indeed unchanged. For, as the drip from the gentle fountain wears the stone—so, but to a much greater degree, do the waters of the Atlantic wear the coasts exposed to that vast and restless ocean. South of Dunmore Head you will catch a misty glimpse of Valentia, and if the atmosphere be very clear, you may see the Skelligs, which encounter the fury of Atlantic storms before they break on the Kerry coast. When you have photographed the scene from Dunmore Head well on your memory, descend from your lofty eyrie, and explore the neighbouring cliffs. Boys will conduct you by bird-nesting paths to the base of some of them. Be careful, however, for the rocks are very slippery from their sea-weed coating, especially when the tide has recently ebbed.—*Weld's Vacations in Ireland.*

Large Gooseberries.—Mr. May, seedsman, 1, Wellington Street, Strand, has sent us berries of some Seedlings whose girths were as follows:—1, 4⅞ inches; 2, 4¼ inches; 3, 4½ inches. They were round red sorts, the heaviest weighing 1½ oz.

Vegetation of Namaqualand, South Africa.—Before my return from Namaqualand I was attacked by the fever, which completely prostrated me for more than a month, and my collection of plants was destroyed and lost. I only saw one Fern, a Ceterach. It is a most dreary, desert country, almost entirely destitute of water and vegetation in summer; a few stunted trees (chiefly Willows, Eucleas, and Tamarisks) grow in the middle of what are called the river-beds,—not on the banks, as in other countries. But Namaqualand possesses only traditionary streams (except of course the Orange River): few are known to have run more than two or three times in a lifetime: so the trees have only a slight chance of existence even in the middle of the sandy bed. I have seen flowers apparently in full bloom, bright and fresh, yet when I have touched them they have fallen to powder! These must have had a sun-stroke, and been killed before they had time to fade—a kind of floral apoplexy. Perhaps the sun emerged suddenly from be-

* One of the Blasquets.

hind a thunder cloud, and killed them. Many green bushes were in the same dry powdery state. The thermometer rose to 140° in one minute on my placing it on the ground. *Dr. Atherstone in Hooker's Journal of Botany.*

Grafting with Fruit Spurs.—I put six of these grafts on a strong Apple tree. All failed. But out of 25 put on different Pear trees only two missed. Each was treated in the same way and at the same time. Why then the difference? The weather was so bad this year that it is no wonder that out of my 23 spurs 16 gave nothing but flowers. Seven however escaped, and produced excellent fruit, viz., one spur of the Soldat Laboureur had one fruit; three spurs of the Nouveau Poiteau bore 12 enormous Pears; and three spurs of the Triomphe de Jodoigne had seven Pears large and perfect in form. The Nouveau Poiteau was worked on a Passe Colmar, and the Triomphe de Jodoigne on a Duchesse d'Angoulême; and I had moreover a good crop from both stocks; in fact three Pears from my Duchesse weighed 1320 grammes (about 2 lbs. 14 oz. avoirdupois). *The Curé Duval, in Revue Horticole.*

Gladiolus imbricatus, a new British Plant.—Mr. Borrer has sent to me specimens of this, found by the Rev. W. H. Lucas in the New Forest, Hampshire, in 1856. Mr. Borrer says, "I saw the plant in two places (in June, 1857), about two miles apart, and each of them at least a mile from any house. One is on the road from Lyndhurst to Balderwood, where it grows in some quantity on both sides of the road; the other in the heart of the forest, S.E. from the turnpike, two miles from Lyndhurst on the Christchurch road. Here it abounds for about a quarter of a mile, with short intervals. In both places it grows scattered on dry ground amongst Pteris, which overtops it before it comes into flower." "The situation is such in both places, that I should suppose no one would suspect the plant is other than indigenous; as truly as its companion Habenaria bifolia." This seems to be a very interesting addition to our British Flora, which must have escaped notice from its being very much hidden in the masses of brakes. *Babington, in Annals of Natural History.*

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Examine the stock of pot plants here, in order to see that none are suffering from want of pot room or other attention necessary to assist them in making young wood for flowering next season. Also see that proper care is bestowed on late growing plants in borders, for while in active growth more water will be necessary, and insects will be more troublesome than in the case of plants at rest. Look after Luculias, and keep them clear of their great enemy, black thrips; give them plenty of water at the root, and an occasional supply of clean weak manure water may be given to old plants that may not be growing freely until they have made plenty of wood to ensure a good display of flower. Manure water must not, however, be given to young specimens in vigorous health, as in that case it would only induce too gross a growth, a condition in which they seldom flower profusely. In order to secure fine heads of bloom from this plant it should be allowed a few weeks of comparative rest, after say about the middle of next month, keeping the roots rather dry, and exposing the plants as freely to air as can be done without injury to the foliage or the health of their neighbours. Brugmansia sanguinea is also a useful plant for winter and early spring flowering when managed so as to have it pruned, rested, and starting into growth about this time. See that large specimens are not allowed to get too dry at the root after they have set their buds, for shedding of the latter is often due to this cause. Young vigorous plants, however, frequently require to be watered rather sparingly at this period, to prevent their making a second growth. Cinerarias for early flowering should now be growing freely, and should be shifted when necessary, for if they are to form large specimens for flowering in winter they must not be permitted to sustain any check. Remove suckers whenever they can be obtained, and pot them for spring flowering. Calceolarias will now be beginning to demand attention. Get cuttings of favourite sorts rooted as soon as possible. Seed may also now be sown in pans placed on a gentle hot-bed.

FORCING DEPARTMENT.

Pineries.—Those who intend commencing the culture of Pines on the open bed system cannot begin at a more favourable season than the present. The bed should be from 18 inches to 2 feet deep, and should consist principally of good rich mellow turfy loam, well broken up, and carefully intermixed with a liberal sprinkling of clean sand, and a small proportion of leaf soil or good rich fibry peat; for when rough turfy soil is used and the bed is ever, from any cause, allowed to get thoroughly dry it is very difficult to moisten it again, as the water passes off through the lumps without penetrating them. But if the loam is well broken up and mixed with some leaf soil, or peat and sand, it will be found to take water freely enough, and the roots will be almost as much under command as when the plants are grown in pots. Persons commencing this method of growing Pines should also endeavour to avoid planting out pot-bound plants, for these, whether young or old, seldom strike freely into the fresh soil, and are very apt to fruit prematurely; but if such plants must be turned out, then care should be used to make the soil firm about the balls, so as to prevent the water passing off without moistening the balls. Vineries.—Every possible attention must be afforded young Vines planted this spring where strong rods are expected. Let a vigorous root action be secured, and endeavour to get the wood well ripened. Give air freely and early on fine days, so as to avoid any risk of scorching the foliage, but shut up early in the afternoon, sprinkling the floors, &c., so as to cause a genial moisture in the atmosphere, which will be of great service in strengthening the Vines. If plants are grown in the house, see that they are not infested with black thrips, and on no account be induced to regulate the temperature, &c., of the house for the plants, but remove these to other quarters, or make them succumb to the treatment most suitable for the Vines. Keep a sharp look-out for the appearance of red spider in houses where the fruit is ripening, and coat the pipes or flues with sulphur on the first appearance of this enemy. Indeed it is well to do this occasionally by way of a preventive, which, in this case as in most others, is vastly preferable to a cure. Vines in pots intended for early forcing will require attention to get the wood properly ripened, and this should be effected by exposing them freely to light and air. On this will greatly depend their productiveness next year.

FLOWER GARDEN AND SHRUBBERIES.

Propagation of stock for next season must now soon be commenced and carried on with expedition so as to secure strong well-established plants before winter, and without the necessity of keeping them so close or warm as to induce weakly and watery growth. It cannot be too often repeated that to be able to winter bedding stock safely with ordinary care, the cuttings should be put in sufficiently early in the autumn to allow of having them well established and fit to be exposed to the open air by the end of next month. Begin with such as are found to be the most tedious to propagate and prepare for winter. Hollyhocks are general favourites, but they do not afford cuttings freely, and are in general not over plentiful about most places. These should therefore be examined often in search of any cuttings which they may afford, as those rooted about this time will make strong plants for next season. Attend to the tying up of these and Dahlias, and go over the masses of Verbenas, &c., frequently, for the purpose of regulating the growth, so as to keep it orderly and neat. Sow Ten-week or Intermediate Stocks for spring flowering; transplant Brompton and Queen's Stocks, and if the situations in which they are to flower are not at liberty prick them out in nursery beds, allowing them plenty of room to prevent weakly growth.

HARDY FRUIT AND KITCHEN GARDEN.

Winter Onions may now be sown; also Cauliflowers for the early crop next season, a small bed of pickling Cabbage, Brown Cos, and some hardier sorts of Lettuce to stand the winter. The tops of the main crops of Onions had better be laid down if they are inclined to be too rank, going over the bed with a wooden-headed rake and pressing the tops down sufficiently to check further growth. Plant out a good breadth of Endive on well enriched soil of a light dry nature. Also see to providing a good supply of Lettuce, &c., for autumn use. Attend to Celery, keeping it well supplied with water in dry weather, giving it as much manure water as can be spared for it, and keep the early crop rather closely earthed up. Vacant ground, or that which can be cleared of early crops, may be still planted with winter stuff, first giving it a good dressing of manure and a good deep digging. Stir the surface of the soil among growing crops. This has a highly beneficial effect. Cut Box edgings, and keep every corner clean and neat.

COTTAGERS' GARDEN.

Let Scarlet Runners be topped once more, and late Peas if overrunning their sticks "be dubbed" at top. A few Cabbage plants got in now will be found useful. Green Kale may still be got in where blanks exist, and a few Dutch Turnips might be sown; a little of the Bath Cos Lettuce, a little of the American Cress, and a few Turnip Radishes. If a cow is kept it is an excellent plan to sow Rye and winter Vetches on spare ground intended for green crops next year. This at cutting will leave a fibre in the ground almost amounting to turf, and moreover will help in a great measure to keep down weeds.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Aug. 6, 1857, as observed at the Horticultural Gardens.

July and August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 31	10	30.051	30.008	82	52	67.0	64	61	S.W.	.00
Satur. 1	11	30.0[illegible]4	29.955	78	59	68.5	65	61	S.W.	.00
Sunday 2	12	30.082	30.056	80	44	62.0	65½	61	S.W.	.00
Mon. 3	13	30.016	29.902	[illegible]0	51	70.[illegible]	66	62	S	.00
Tues. 4	14	29.904	29.880	88	52	70.0	67	62½	S.W.	.00
Wed. 5	○	29.871	29.761	77	54	65.5	66	62	S.W.	.98
Thurs. 6	16	29.798	29.610	78	51	64.5	66	62½	S.W.	.30
Average		29.955	29.881	81.8	51.8	66.8	65.6	61.7		1.18

July 31—Very fine throughout.
August 1—Overcast; cloudy and fine; cool at night.
— 2—Very fine throughout.
— 3—Very fine; excessively hot and dry; cloudy; fine.
— 4—Very fine; hot and dry; fine at night.
— 5—Overcast; sultry; cloudy; thunder; heavy rain at night.
— 6—Hazy; very fine; rain at night.
Mean temperature of the week 3½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending August 15, 1857.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 9	75.0	50.7	62.9	11	0.40 in.	1	5	1	—	5	[illegible]	[illegible]	—
Mon. 10	75.4	52.5	64.0	13	1.06	1	3	2	1	[illegible]	[illegible]	[illegible]	[illegible]
Tues. 11	75.3	52.0	63.7	15	0.78	1	—	2	1	3	13	[illegible]	[illegible]
Wed. 12	74.3	51.0	62.7	11	0.47	2	2	1	1	5	[illegible]	[illegible]	[illegible]
Thurs. 13	73.4	50.1	61.8	15	1.14	1	3	2	2	5	[illegible]	[illegible]	[illegible]
Friday 14	72.0	51.2	61.6	10	0.68	—	6	6	1	[illegible]	[illegible]	[illegible]	[illegible]
Satur. 15	72.9	50.0	61.5	11	0.61	4	4	4	1	3	6	4	[illegible]

The highest temperature during the above period occurred on the 17th, 1842—therm. 93 deg.; and the lowest on the 13th, 1839—therm. 32 deg.

Notices to Correspondents.

Aquaria: *S S S.* We strongly recommend Mr. G. B. Sowerby's work (published by Lovell Reeve) for copious and accurate information upon all the points mentioned in your letter.

Books: *S S S.* We have not one word to say in favour of the book, which is an example of the unscrupulous way in which paste and scissors are used. Whether the author (?) should be proceeded against for piracy is a question for the publishers to consider, not for us.

Campanula patula.—If any of our correspondents have seeds or young plants of this, the undersigned would be greatly obliged by their transmission of some, and happy to reciprocate if it lies in his power. All reasonable postal or other charges out of pocket, he will, of course, expect to be allowed to repay. *G E Frere, Roydon Hall, near Diss.*

Convallaria bifolia: *Diss.* This is perfectly hardy as an out-door plant in Norfolk.

Critical Species: *Trinity.* The plants thus denominated are for the most part not species at all, but varieties of some Protean plant with which some of our botanical friends delight to perplex themselves—and their readers.

Cucumbers: *Jas. Gillespie.* It was a very handsome fruit, straight, with a short neck, 21 inches long, and 6½ inches round in the widest place.

Diseases: *T F R.* The affection is certainly not general. The twigs which you have sent are covered with the green pulverulent Alga, known under the name of Chlorococcum, which indicates a damp situation, and from facts which have fallen under our notice we conceive that, from the peculiar situation, the buds were partially affected by frost in the spring, so that the leaves were unhealthy when developed, and unable to withstand the late drought. One of the buds has never expanded at all, and is in the condition of many on a Beurré Rance in our garden which was undoubtedly affected by frost. The Beurré Diel was not affected in the slightest degree in the same garden.—*A Young Melon Grower.* The spots are very common, and are not injurious where the rest of the leaf is healthy. It is difficult to say from what they arise, but probably from decomposition due to drops of water which have settled on the leaves. They are certainly not due either to a fungus or insect. *M J B.*

Francoa appendiculata: *S P, Henbury,* is so good as to send specimens of the true plant of this name, purchased at Harris's Garden, Stokes Croft, Bristol, where our correspondent "F" can buy it. Or if he will send his address to J. C. Lyons, Esq., Mullingar, that gentleman is so obliging as to offer to give him some seeds.

Fruit Trees: *Cherwell.* In a light sandy loam the fibrous roots of the English Paradise ought to spread rapidly; and when it is rich enough to grow good crops of vegetables, the roots of trees will find plenty of nourishment. The trees that at present do not succeed are probably on the free stock. The English Paradise affords a better chance, and we should think cannot fail to answer, provided it is worked with sorts adapted for the climate. The same may be said of the Quince if there is moisture enough below. We have observed that, apart from climate, fruit trees suffer from three causes—1, want of moisture; 2, excess of moisture; 3, too much [illegible] in the soil. The first can be remedied in a great measure by deep trenching; the second by draining. We knew an orchard where the trees came to a stand still, or rather they were becoming less and less every year, and bore much Lichens. A few pounds were laid out in laying drain pipes, the roots of the trees then penetrated a sort of pan which, with stagnant water below it, they could not do before, and the trees made shoots 3 feet in length in a season. The injury evil can be mitigated, at least, by turning up the subsoil and exposing it to the weather. In a part of the orchard here where the soil consisted of a black sandy loam resting on ferruginous sand Apple trees did not thrive. The ground was trenched 3 feet deep—the red sandy soil at top, the black [illegible] surface soil at the bottom. The trees have since made shoots in some cases 5 to 6 feet in a season. In ground well prepared, Apple trees on the English Paradise stock we think must succeed, and so must Pears on Quince; but in well trenched and well drained soil we should plant part on Quince and part on the Pear stock.

Grapes: *Henry.* We are sorry to say that we do not understand your note. What is the cave of a house? The best keeping Grapes are West's St. Peters and any Muscat, but we doubt whether either would ripen in an orchard house. Barbarossa is quite unsuited to such a building.

Names of Plants.—We have been so often obliged to reiterate tantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited [illegible] this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*L r H.* Undoubtedly one of the many varieties of Dendrobium nobile.—*Cardyan.* Polystachya cultrata; Silene laciniata; and what seems to be Ostrya virginica, much shriveled and without fruit.—*St. Aubyn.* La belle Courtisanne was the name of a famous Rose otherwise called (accidentally no doubt) La Reine de Dannemarck.—*Christian.* Some Abutilon, perhaps indicum, or some such trashy species.—*Geo.* There most certainly is only one species of Hop.—*Mary.* Sedum album.—*C B.* Catalpa syringifolia.—*C M.* Glycyrrhiza lepidota, a kind of wild Liquorice peculiar to North America.—*N.* 1, Rhus Toxicodendron, a dangerous plant; 2, Viburnum Lentago; 3, Cerasus virginiana.—*W M.* The pretty plant which grows very abundantly on the hills and mountains in Mearns, Scotland, is the uncommon Trientalis europæa.

Nurserymen: *A B C.* Consult Edwards's Almanack.

Passiflora maliformis: *Old Sub.* This is a handsome showy Creeper, but not easily procured in this country. The colours of the blossom are greenish, with white rays beautifully speckled with crimson. It is one of the plants which [illegible] fruit is eaten in the West Indies under the name of Grenadillas; we don't recollect whether Sweet Calabash is not one of its colonial names.

Pears for a Wall Under Glass.—Beurré Diel, Glou Morceau, Passe Colmar, Winter Nelis, Easter Beurré, Beurré Rance. The Breda Apricot is one of the hardiest [illegible]

Servants' Duties: *J W.* These should always be settled amicably, or by reference to the master. It is evident that if the housekeeper and gardener quarrel, then the gardener ought to dish up the fruit for dessert.

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No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

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From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first rate paving for BARNS, CATTLE SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

SALISBURY MEETING, 1857.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S FIRST PRIZE PORTABLE STEAM THRESHING ENGINE.—The Royal Agricultural Society of England, at their latest Award of Prizes, decreed the merit of the FIRST PRIZE to TUXFORD AND SONS' PORTABLE STEAM THRESHING ENGINE, the Judges at the same time declaring, in addition to its other excellencies, that the Straw Shaker and Barley-horning Apparatus of TUXFORD & SONS' Patent Combined Threshing Machine were perfect in their operations.—(*Vide the Journal of R. A. Society*, Vol. xvi., page 614.)

The superiority of TUXFORD & SONS' Patent Portable Iron-housed Steam Threshing Engines, with upright Cylinders and Improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well-merited reputation of standing at the head of their class.

Illustrated Catalogues, with prices, forwarded free on application to the Manufacturers, TUXFORD & SONS, Engineers, Boston, Lincolnshire.

THE HARVEST.

DRUMMOND'S IMPROVED REAPING SCYTHE.—This well-known Scythe continues to give the greatest satisfaction, and is extensively used both at home and abroad.

An ordinary good hand at the Scythe can readily cut down from 1½ to 2 statute acres of corn per day, laying the swathe so as it can be easily gathered into well arranged sheaves. The Scythe is packed into small compass and may be sent any distance with perfect safety. When three or more are taken they will be forwarded carriage paid to the principal Railway Stations throughout the kingdom at 9*s.* 9*d.* each.

Orders from unknown correspondents cannot be attended to unless accompanied with a remittance.

W. DRUMMOND & SONS, Seed and Implement Warehouse, Stirling, N.B.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1857.—The Annual Show of LIVE STOCK (including POULTRY), IMPLEMENTS, &c., will take place at Warrington, on THURSDAY, September 10. Prize Lists and Rules may be had by applying to the Secretary. Entries close on the 29th inst. T. B. RYDER, Sec.

2, Elliot Street, Liverpool, Aug. 8.

The Agricultural Gazette.

SATURDAY, AUGUST 8, 1857.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

TUESDAY, August 18 }
WEDNESDAY, — 19 } Agri. Improvement Society at Waterford.
THURSDAY, — 20 }

THE Bill for making provision for the collection of Agricultural Statistics, introduced by Mr. CAIRD, which he no doubt hopes in the next session of Parliament to pass into law, provides as follows: It places the burden of all the labour it involves on the Registrar-General. It directs the overseer of the poor of every parish to transmit to him an accurate extract of the last rate made for the relief of the poor in that parish, naming the occupiers of land within the parish, and the extent of their respective tenancies. The Registrar-General employs collectors and receivers of returns from these occupiers. He also appoints inspectors, who shall make district visits from time to time, and shall be empowered to test the accuracy of returns, and to make such further investigation and perform such other duties as the Registrar-General or the Board of Trade may deem necessary or expedient, and such inspectors shall be removable by the Registrar-General.

Occupiers are to fill up the returns supplied to them by inserting the particulars specified as required, and they are to transmit these returns properly signed either to district collectors or directly through the post to the Registrar-General. In case of omission to do this the farm may be entered and inspected for the purpose of obtaining the particulars required.

The other clauses of the bill impose penalties on publication of the particulars thus disclosed by individual occupiers, or on any failure of the overseers of parishes to provide the information required of them. The following is a copy of the schedule to be filled up by all occupiers of land of more than 2 acres in extent:—

Return to be made by Occupiers of Land as at 1st June, 18 , being a true Return for Land in the Occupation of ——

	Statute Acres.
UNDER TILLAGE:—	
Wheat	
Barley or Bere	
Oats	
Other corn crops	
Beans and Peas	
Potatoes	
Turnips and fallow for Turnips	
Mangel	
Other green crops	
Bare fallow	
Tillage crops not above-mentioned	
UNDER GRASS:—	
Clover, Lucerne, and other artificial Grasses	
Pasture	
Meadows	
Sheep walks and downs	
Total under each kind of crop of the farm or holding	

Dated 18 .
Signature of Occupier, ——

Nothing can be simpler than the arrangements proposed, or less calculated to offend prejudices of any kind. The object aimed at is the publication at harvest time of the extent under the several crops throughout the country, thereby giving some certainty to the estimates then current of the produce of the year, by which the market price of that produce is affected.

WE have already made known the process patented by the Rev. W. R. BOWDITCH, of Wakefield, for purifying coal gas; and the fact that the clay used in that process becomes impregnated with a number of substances available as manure.

It contains ready-formed ammonia in considerable quantity. A portion of this ammonia exists in the form of volatile salts, but by far the larger portion in that of non-volatile salts. It also contains much nitrogen variously combined with other substances, which, by eventual decomposition in the soil, will form carbonate and sulphate of ammonia. This portion of nitrogen becomes active only after some time, and therefore the crops thus manured are *sustained* in their later periods of growth as well as *stimulated* in their infancy. It further contains a quantity of sulphur, carbon, and phosphorus in forms of combination, which experience has shown are valuable as plant food.

We now add that the experience of the current season corroborates that of previous years on the fertilising character of the new substance; and we direct the attention of our readers to the testimony on this subject borne in a circular to which we give insertion in another column, which invites agriculturists to an examination of the crops to which it has been applied in the neighbourhood of Wakefield.

A CONTROVERSY has been proceeding in the columns of the Journal of the Society of Arts chiefly on the question whether sewage manure in the liquid form is applicable to the growth of corn crops. Mr. CHADWICK and Mr. MECHI assert the affirmative, and Mr. SIDNEY the negative. The first question, relating to the influence of the matters thus applied on crops grown directly as human food, is argued by Mr. CHADWICK on the testimony of HERMSTAEDT, ARTHUR YOUNG, CUTHBERT JOHNSON, and Count GASPARIN. The second question, relating to the liquid form in which these substances are applied, is argued on the testimony of Mr. PUSEY and of others as

regards the water drill in comparison with the dry drill.

"Count GASPARIN states that, at Cavaillon (Vaucluse), irrigation is applied on a large scale to the culture of Wheat. He states that the agriculturists there apply four waterings to it—one to the land before sowing the seed, which is in October, a second in April, a third whilst the plant is in blossom, and the fourth some days afterwards. The yield is from 40 to 46 bushels an acre—the general average yield throughout France being not more than 13 bushels the acre. He adds, 'irrigation for Wheat is applicable to all soils which, by their construction, or by deep culture, are permeable to water, and do not retain it near the roots.'"

And the following is the description of a crop of Wheat grown by a Mr. ATTEY, who had applied liquid town sewage to it during its growth:—

"'The Wheat crop is very good, and nearly all cut; I did not decide on the valuation, wishing to report and have your opinion. I am of opinion there is at least one sack of Wheat and one load of straw per acre extra crop on 2 acres of land.'"

The rejoinder to this is from the pen of Mr. SIDNEY, who had visited the farm of Mr. WALKER near Rugby, where the liquid manure had been applied with as much success as anywhere. He says:—

"As regards the application of liquid sewage to cereals, I certainly understood Mr. WALKER, when I visited him in December, that in the only 10 acres of corn crops to which, out of nearly 500 acres, pipes for liquid sewage were applied, the results had not been successful. On my second visit in March, in the absence of Mr. WALKER, I put the question to his late manager and present tenant, Mr. BERRY CONGREVE, a most respectable, intelligent, and experienced agriculturist, who has throughout entirely managed the Newbold's farm, and he distinctly informed me 'that as an experiment, Wheat was grown on 10 acres (Newbold's being a grazing farm), with liquid sewage, and the result was an annual *diminution of crops*, which were throughout below average.'

"This result was to be expected by any one who knew that dry climates and dry seasons produce the greatest Wheat crops."

Mr. SIDNEY then calls out another opponent by asserting that Mr. MECHI's best crops grown by irrigation are not superior to those of his neighbours manured in the ordinary way.

"Cultivating soil of the same and inferior quality in the same climate, they were not equal, for an average of three or five years, to the produce of Mr. FISHER HOBBES, or Mr. HUTLEY, in Essex, or Mr. HUDSON, of Castle Acre, on the poor land of Norfolk. And this can easily be tested, as two at least of these gentlemen keep exact accounts.

"But if Mr. MECHI's crop was equal to his neighbour's it was not grown with weak sewage liquid, or even with the pungent contents of his own liquid manure tubes, but, according to his own statement, with the addition of liberal applications of guano and salt, after the example set him, as to Wheat, by Mr. FISHER HOBBES, and as to roots by Mr. HUTLEY, who in Mr. NESBITT'S, the agricultural chemist's words, when addressing the Central Farmers' Club in the presence of Mr. MECHI, "without science beat Mr. MECHI with science.' Since Mr. NESBITT'S speech, one of my friends, on digging up with his umbrella a specimen of Mr. MECHI'S improved Mangel Wurzel crops, found a good dose of LAWES' solid superphosphate sticking to the roots. Mr. MECHI grew very bad crops while he adopted the liquid plan, but having since imitated the best farmers in Bedfordshire, Norfolk, and Essex, now grows very fair crops."

Thereupon Mr. MECHI replies:—

"If Mr. SIDNEY'S other facts are as incorrectly stated as those with which he has connected my name, his communication can have little value. He states that my crops are not better than those of my neighbours, quoting as my neighbours farmers who live in a rich valley six miles from my farm."

"Athough on a poor heath my crops will bear a comparison with those of the rich valley lands, and I confirm Mr. CHADWICK'S statement that it is greatly owing to the application of liquified manure. All the solid manure that falls from bullocks and pigs through the spars is applied in a fluid form, being largely diluted, and had I another great tank not a particle should go in a solid form. To doubt the value of liquid manure is to ignore 13-14ths of all manure. Professor WAY stated that human excreta were in the proportion 3½ lbs. fluid to ¼ lb. of solid—the former containing nearly all the ammonia and soluble phosphates. The same proportion will hold good for animals. Mr. SIDNEY'S statement that my Mangel had benefited by superphosphate is a great mistake;—true it was applied—but on my clay lands it failed to give any addition to the crops. I suppose the land already contained enough.

"Some idea may be formed of the value of liquified manure applied with large quantities of water to pasture, from the fact that 5 acres of Grass opposite my house almost starved a couple of cows which would scarcely eat it. Now, since irrigation, the same animals and many others derive rich nourishment from the same soil—a new class of Grasses has sprung up, and the milk, cream, and butter, are rich and abundant."

The perusal of the whole correspondence leads us to the conclusion that whatever may be the value of liquid manure for other crops, its proper use is on the Grass crops, whether of our meadow or our arable lands, where it has been proved unquestionably useful, and where its application does not interfere with those processes of cultivation to which corn and other green crops are subjected during their growth.

HINXWORTH DRAINAGE.

SCHEDULE OF COST.

Nos.	Acres Drained.	No. of Rods.	Cost of Labour.	Number of Pipes used.	Cost of Pipes.	Cost of Haulage.	Apportioned List of Outlets and Brook Deepening, &c. &c.	Total Cost.
	a. r. p.		£ s. d.		£ s. d.	£ s. d.	£ s. d.	£ s. d.
2	3 2 10	186	8 5 8	3255	3 14 11	1 9 0	1 7 6	14 17 1
3	6 2 20	293	12 13 0	5195	5 19 5	2 13 1	2 9 1	23 14 7
5	18 1 1	1548	49 9 2	27,315	31 10 1	12 6 0	6 11 8	99 16 11
6	25 3 0	2415	79 12 8	42,280	48 12 8	21 0 7	9 19 4	159 4 10
7	13 2 14	820	33 5 0	14,340	16 9 3	6 18 8	4 18 1	61 11 0
8	3 2 18	247	9 16 0	4380	5 0 3	1 18 11	1 7 3	18 2 5
9	7 0 27	483	23 18 6	8470	9 15 2	3 17 4	2 10 7	45 1 7
10	4 3 22	389	13 18 11	6801	7 19 7	3 19 11	1 14 9	27 18 2
11	11 0 23	692	24 6 6	12,110	13 18 8	5 10 2	3 18 6	48 2 10
12	13 1 13	1022	34 14 10	17,885	20 11 1	8 13 3	4 16 8	68 15 10
13	19 1 13	1596	48 13 11	27,930	32 3 9	13 12 0	6 19 8	101 11 4
14	16 0 13	1540	51 10 4	26,950	31 0 10	13 3 0	4 16 9	100 12 11
16	19 3 8	1878	51 16 5	32,890	38 19 10	15 18 5	7 4 8	113 19 4
18	20 1 21	218	19 18 5	3815	6 10 6	2 7 3	7 7 5	36 4 0
19	12 1 39	173	14 6 5	3025	5 2 10	1 19 11	4 10 3	25 19 5
20	12 2 31	215	13 14 11	3780	6 9 2	2 16 0	4 12 10	27 12 11
21	25 2 25	247	24 3 5	4335	7 7 8	2 17 10	9 16 9	44 5 8
22	18 0 10	573	26 9 10	10,025	17 0 10	6 11 9	6 11 6	56 13 11
23	7 3 17	447	15 8 5	7835	9 1 2	3 12 10	2 17 6	30 19 11
24	6 2 31	617	20 12 9	10,630	12 4 7	5 10 0	2 10 3	40 17 7
pt. 30	2 1 10	86	5 11 6	1 05	1 18 10	0 12 6	0 18 0	9 0 10
31	14 3 39	1541	48 0 0	26,950	30 19 10	12 19 11	5 10 6	97 10 3
32	14 3 4	1454	43 19 6	25,445	29 5 6	12 12 2	5 7 7	91 4 9
34	10 3 14	1076	33 11 1	18,880	21 12 8	9 10 8	3 16 5	68 12 10
35	9 3 18	876	39 3 10	15,380	17 13 0	7 18 11	3 11 1	68 6 10
36	26 2 24	2590	78 7 9	45,325	52 2 3	22 13 2	9 12 3	162 15 5
37	14 1 8	751	37 16 6	13,155	15 12 4	6 15 1	5 3 11	65 7 10
38	13 1 36	440	23 12 9	7700	8 17 0	4 10 1	4 17 6	46 17 4
39	15 1 33	481	42 6 5	8220	14 17 3	4 15 6	5 9 2	67 8 4
40	16 3 25	332	22 4 1	5810	9 18 10	3 12 0	5 19 3	41 14 2
41	16 0 35	697	29 18 6	12,195	14 0 6	6 19 9	5 14 2	56 12 11
42	16 3 21	1533	46 6 10	26,825	30 17 2	13 3 0	5 19 4	96 6 4
43	15 3 29	1637	49 3 7	28,650	32 18 10	14 0 5	5 14 2	102 2 0
44—45	14 0 0	1261	41 6 6	22,065	25 7 4	10 15 0	5 6 6	82 15 4
47	4 1 0	111	6 8 8	1950	2 14 11	0 18 1	1 11 8	11 13 4
58	2 2 14	60	6 19 2	1050	1 15 9	0 15 1	0 10 10	10 9 10
61	9 3 6	158	10 15 10	2765	4 14 8	1 19 5	3 12 2	21 2 1
63	21 1 37	280	26 5 9	4890	8 10 10	2 17 9	7 19 6	45 13 10
64	24 2 5	322	38 9 5	5635	9 12 2	3 16 4	9 2 7	61 10 6
65	17 1 16	142	14 15 0	2495	4 5 8	1 10 1	6 6 6	26 17 3
69	9 0 36	53	6 13 5	933	1 13 10	0 10 3	3 8 8	12 6 7
60 & 70	7 1 29	103	12 0 0	1802	3 10 9	1 5 2	2 16 4	19 12 9
66 & 68	22 0 5	402	36 14 11	7095	11 19 2	4 4 5	3 4 2	61 2 8
72	23 2 35	361	23 14 4	6320	10 14 5	3 14 3	3 14 6	46 17 11
73	24 1 23	416	35 17 4	7280	12 7 10	4 13 6	9 1 6	62 0 2
75	17 0 13	285	21 12 0	4995	8 9 10	3 7 3	6 6 8	39 15 9
76	20 2 7	358	20 19 4	6325	10 15 2	3 16 6	7 13 10	43 4 10
	672 0 7	33,525	1399 16 7	586,586	726 18 2	301 12 5	246 2 8	2674 9 10

APPEARANCE OF THE CROPS.

BEDFORDSHIRE.—The Wheat on all our light Turnip soils is light but with a good ear, and looks like yielding better than one would expect from the straw; the Barley also on these soils will be light but of good quality. On our well drained and well cultivated clays all crops are very good. I believe the extent of Wheat is not nearly so great as last year. The harvest will be general this week. ——, *Bedford.*

BERKS.—The Wheat crops in Berkshire and the adjoining parts of Oxfordshire and Hants are certainly far above average—indeed remarkably fine. Harvest general now and a week hence in some parts. Some few have carried. Barley is a good average. Oats are rather below average. The extent of land under Wheat is fully equal to last year. *John Sutton & Sons, Reading.*—The Wheat crop is above average and likely to yield very well; other crops are good, but rather short of straw. Harvest is general with us now; the extent of Wheat about an average. *Edward Evans, Bromley Court, Windsor.*

BERWICKSHIRE.—The grain crops in this neighbourhood wear a very promising aspect. If the progress is as good until harvest as it has been during the past fortnight we are likely to have all our crops fully an average in bulk and in productiveness, and of superior quality. We have evidently less straw than last year; but the crops have a clean, firm appearance, which leads me to expect that the yield will prove satisfactory. My impression is that the acreage under Wheat is rather less than last year, and that an undue proportion of what there is was spring sown. Harvest seems likely to begin about 20th August. *J. Wilson, Edington Mains, Ayton.*

BUCKS.—Harvest will be general by the 1st of August. Wheat comes to hand healthy and sound, about an average in breadth and above an average in quality and yield. Oats are good, Beans very good, early sown Barley very bulky, Turnips late and in want of rain, Potatoes sound at present. *Alex. Fraser, Claydon.*

CHESHIRE.—Wheat has a very healthy appearance generally, and what I have examined minutely I find to be very perfect in the grain, and indicating a good yield; on some of the cold lands the crop is thin, and on the lighter description of land, especially when highly farmed, the crops were partially laid by very heavy rain on the night of the 24th ult., but owing to the advanced state of the grain, and the favourable weather since, I trust the injury will not be material. Barley is very promising, and on our best land will be one of our earliest crops. Oats also are very good, excepting on the coldest lands, and where from the luxuriance of the straw or high cultivation laid they went down early. Peas and Beans are both healthy crops and very well podded, where drilled and kept free from weeds. Judging from present appearances I think Wheat harvest will commence about the 14th of August, and will be general by the 20th. The extent of Wheat is about an average of the last five years. Mangel Wurzel are very fine where of a pure kind, and also Swedes, excepting in some localities where they have been attacked by the black caterpillar and the disease known as "finger and toe." Potatoes are fine crops, and but little indication of disease has yet shown itself. *William Paley, Chester.*

DORSETSHIRE.—Of Wheat about the same quantity of land was sown as during the last year; in places "laid," but every appearance of a good yield. Harvest will be general in the first week of August. Barley: more prospect of quantity than quality. Other crops quite up to the average. *W. P., Bridport.*

ESSEX.—The crops on my farms and in this neighbourhood are excellent—better than ever I saw them taken as a whole—the subsoil a good marl; we could stand the dry weather. The widths are about as usual, rather more of Barley and less Oats. *Collinson Hall, Narestock, Romford.*—The Wheat crop throughout Essex will be an abundant one, and the sample unusually fine if this splendid weather continues another fortnight: little or no blight is apparent this year, the straw is bright in colour, stands upright, and the ear is well set, and almost free from blight of any kind; the quantity of straw is greater than was expected before cutting, and the whole county, with the exception of the thin gravelly soils, will reap a bountiful harvest. Barley is variable, and all the late sown will be light; it will fall rather below an average yield, but the malting quality will probably be very good. Oats are a deficient crop, but the quality fine. Peas and Beans barely an average crop. The long-continued drought in addition to attacks by aphis has greatly diminished the crop, as our anticipations had led us to calculate would follow. Turnips, both Swede and common, have planted well, and are not much affected at present by drought, except as regards the earliest pieces. The Mangel Wurzel which were sown early are unusually fine; but the latest pieces grow slowly and suffer from lack of moisture. The second crop of Clover will be very deficient, and the pastures are parched and dry; feed never was more scarce than at the present moment. *R. Baker, Chelmsford.*

FORFAR.—In regard to Wheat, Oats, and Barley, as compared with last year, there was a less extent of Wheat grown, a greater number of inferior fields, and much about the same earliness. Oats an inferior crop and later. Barley a greater breadth sown, a better crop, and a week earlier. *Robert Colville, East Newton, Chance Inn.*

GLOUCESTERSHIRE.—As to Wheat, reaping is just about to commence with a fine average crop. I should say as to acreage a fifth less than last year. Barley early sown, good; ripe in about two days, with a fourth of acreage more than last year; late sown middling, but this night's rain will much improve it. *Jas. Kearsey, Tarlton, Cirencester, July 28.*

LANCASHIRE.—We shall have very little harvest for the next three weeks. The Wheat crop is good. Oats are short in the straw, and Barley on all except very good soils is a very light crop. The high price which Barley sold at last year has induced farmers to sow a greater breadth of it this year, consequently there is less Wheat in this neighbourhood. The Turnip crop has not grown so well as usual. The young plants seem much injured with the fly, and in many fields there are large patches cleared away by a black caterpillar. Potatoes are looking very well. The hay crop has been well secured. *Geo. Drury, Holker, Milnthorpe.*

LINCOLNSHIRE.—On account of the late fine warm weather the crops are ripening very favourably, and I think will yield well in proportion to the straw, which is short. The proportion of land sown with each of the cereals is about as usual. The Wheat crops are generally thin on the ground, and will be found to come up light, but the ear is large and filling remarkably well, so that we think there will be an average yield of Wheat. Barley is rather below an average, and is ripening irregularly on account of the dry seed bed, some of it not growing until rain came. Good samples of Barley, we think, will be very scarce and dear. Oats are very inferior, and considerably below an average crop. The crops of Grass are about an average. Potatoes are slightly affected by the disease, but as there are considerably more Apples on them than we have ever seen since the disease attacked them, we hope they will be better than usual. The first sown Turnips have been very much injured by the fly, but the greater portion of Turnips are looking well. Peas and Beans, where the fly has not attacked them, look like being an average crop. There is every prospect of sheep being very dear. Harvest will be general here by the 10th August. *Edward Darby, Gedham, Horncastle.*

NORTHAMPTON.—The Wheat is a full average crop, and more than the usual extent growing. Barley less and the worst crop we have grown for years. Oats very light. Beans good. A general harvest August 1. Root crops at present very indifferent. *Wm. Gray, Courteen Hall.*

OXFORD.—The harvest in the neighbourhood is now general. The Wheat falls well, and appears to be of a fair quality; the

yield about an average, as far as one is able to judge. The early Barley is cut, but has ripened prematurely; the yield will, I have no doubt, prove an average. The Oat is a very poor crop. Beans are well podded. Turnip crop indifferent. Mangel Wurzel good. Potatoes small, but good in quality, and symptoms of disease in many places. The quantity of Wheat planted less than last year. *Sam. Druce, Jun., Bynsham.*

SUFFOLK.—The grain crops of all sorts in this immediate neighbourhood are good—about the same quantity of Wheat grown. Next week the harvest will be general; many have already commenced. *George Fenn, Beccles, July 29.*

SUSSEX.—Wheat harvest was general on the 27th July. The usual extent has been sown, and it is an over average crop. Barley is very good. Oats are short in the straw in places, but generally a heavy crop. *H. E. Sadler, Chichester.*

WESTMORLAND.—Wheat appears everywhere to be a full crop, and having had a favourable season for flowering, I anticipate, if blessed with fine weather, a good yield and high quality. Barley is a heavy crop, and a much larger acreage under this grain than last year. Oats, from the continued dry weather, will not be a bulky, yet I think something like an average produce; this grain is extensively cultivated in these northern counties, and the samples nowhere exceeded either in weight or value. From present appearances the harvest along the Vale of Eden will be ready by the 17th August, the state of the weather however may either advance or retard the commencement of cutting, as well as the yield; but under favourable circumstances we expect an increased produce over last year. Potatoes are generally a fair crop, but a much less breadth of this esculent has been planted than for the last few years, arising, no doubt, from the great loss through disease, which caused an abstraction of nearly half the produce last season. Turnips are not good excepting in the most favoured situations and best soil, and although they have progressed latterly, are still a fortnight later than the average of seasons, and cannot under the most favourable circumstances attain a large weight. Hay has been well got, and about an average bulk. *John Crosby, Kirkby Thore.*

UPPER DISTRICT OF WIGTOWNSHIRE.—All kinds of white crop look well except on very light land, which was affected by the lengthened period of dry weather. The straw in general will not be as bulky, but the yield may be as good as last year, but much will depend on the weather between this and harvest; I think the breadth under Wheat is considerably less than last year. We have had very wet weather for the last 10 days, which is against the Wheat. Turnips, though a little late, look generally well; a good deal of ravage has been committed on them by the crows and black caterpillar; they are growing very fast at present. Very much depends on the weather as to the commencement of harvest. There will not be very much ready before the end of August. *A. H. M'Clean, near Stranraer.*

WILTSHIRE.—In answer to your letter respecting the crops in our neighbourhood, my opinion is the Wheat is looking extremely well, and above an average crop. Barley and Oats about an average crop; Peas and Beans much the same; hay crops a good average; Turnips tolerably good; Potatoes are blighted much more and earlier than they have been for the last two or three years. I think the harvest will become general by the 6th of August. *J. R. Maskelyne, Calne.*

WORCESTER.—There is so great a disproportion in the crops of grain this year that it is almost impossible to describe them as we have been wont to do. On the well-cultivated farms the crops of grain of all descriptions are a full average, with an abundance of straw, but on farms that have been cropped hard the last year or two the deficiency is very apparent. This deficiency is in a great measure to be attributed to the high price of guano and the difficulty of procuring it, and the failure of the artificial manures which it was hoped would do as a substitute. Wheat cutting commenced Monday last, and it will be general the beginning of next week. Some of the early Barley and Oats are cut, and most of the early Peas. The Wheat was never finer in the ear and with propitious weather for harvesting it, the quality will be very superior. The same may be said of Barley, Beans, early Peas and Vetches, but the Oats are an exception, the long continued dry weather having materially injured this crop. There is about the usual breadth of Wheat planted this season, very little mildew in the corn excepting the late Peas, and very little beaten down, so that it will all ripen quickly and it will be a very early harvest. *Henry Hudson, The Elms, near Pershore.*

ANSWERS TO AGRICULTURAL QUESTIONS.

(*Continued from page* 507).

9. *Name four of the commonest rotations of cropping adopted in England and Scotland on light and clayey land.*

ENGLAND.		SCOTLAND.	
1. Swedes, Barley, Clover, Wheat	Light soil. Vetches come in with Turnip crop.	3. Oats, Turnips, Barley, Grass	Light soil.
2. Fallow, Wheat, Beans, Wheat, Clover	Clay land.	4. Oats, Beans, Wheat, Turnips, Barley, Grass	Clay.

Rotation of cropping is now varied so much by individuals according to circumstances (assisted by improved implements and artificial manures), that I can hardly name any system that is strictly adhered to.

10. *Estimate the value of an acre's produce per annum under the four and six-field course of cropping, stating the amount and value of the several crops per acre.*

Four-course: Turnips, Barley, Clover, Wheat.
Six-course: Turnips, Barley, Clover, Clover grazed, Wheat, Oats.

	£	s.	d.
1. Turnips, 20 tons per acre, at 6*s.* per ton ..	£6	0	0
2. Barley, 40 bushels, at 4*s.* per bushel	8	0	0
3. Clover, 1st and 2d cut, 2½ tons, at 3*l.* per ton ..	7	10	0
4. Wheat 35 bushels, at 6*s.* 6*d.* per bushel.. ..	11	7	6
Profit of Wheat and Barley straw per acre	1	12	0
	£34	9	6

34*l.* 9*s.* 6*d.* ÷ 4 = 8*l.* 12*s.* 4½*d.* per annum on the 4-course system.

	£	s.	d.
1. Turnips as under the four-course	£6	0	0
2. Barley, as do.	8	0	0
3. Clover as do.	7	10	0
4. Clover grazed..	2	10	0
5. Wheat as under four course	11	7	6
6. Oats, 40 bushels, at 2*s.* 9*d.* per bushel	5	10	0
Profit on Wheat, Barley, and Oat straw	2	12	0
	£43	9	6

43*l.* 9*s.* 6*d.* ÷ 6 = 7*l.* 4*s.* 11*d.* per annum on the six-course system.

11. *Name the crops in their order from which on arable land a succession of cattle food can be obtained all the year round.*

Rye and Clover, April and May; Vetches and Clover until beginning of October; Clover lea with Turnips, Swedes, and Mangel through the winter months. There are also several other green crops that are grown by some, but I think them inferior to those mentioned.

12. *State the quantity and kinds of the daily food of a cow in milk and of a fatting ox respectively, under liberal treatment, during autumn and winter.*

Cow in milk.	Fatting ox.
56 lbs. Mangel	4 lbs. Beans or Barley-meal
14 lbs. hay	4 lbs oilcake
	16 lbs. hay
	28 lbs. Swede and Mangel.

13. *State the distinctive characters of two of our best long-woolled breeds of sheep and of the Southdowns respectively.*

The two best breeds of long wools are the Leicesters and Cotswolds, and their distinctive characters are as follows:—Leicesters, white-faced, fine head, long ears, coats long and white, large symmetrical shape, good scrags, broad and long in the back, come to good weights in a short time if kept sheltered and warm, as they are not of a hardy constitution. Cotswolds.—Rather speckled in the face and legs, coats long and lashy, broad and long in back, good scrag and rump, fine bone, very hardy, and attain to heavy weights in a short time. Southdowns.—Black face and legs, coats short and fine, of a small size, short legged, meat of first-rate quality, early lambers, and small feeders.

15. *Describe the three best breeds of cattle, and give the history of the shorthorns.*

The three best breeds are the Herefords, Devons, and Shorthorns. Herefords are red cattle with white faces, and a deal of white on the under parts, rather short legged, good dewlap, middle horned, of good symmetrical shape, come early to the butcher, of good weights as they are inclined to fat rapidly and early, not over good milkers.—The Devon cattle are of a light make, very active, of a red colour, good milkers, yielding a rich milk. The skin is of a medium texture, sometimes smooth and glossy, sometimes curling, with a small fine head.—Shorthorns; a breed of regular symmetrical animals, produce a great quantity of milk, come early to maturity, meat of the highest excellence, and attain a good size in quick time. The breed from which such improvements have sprung were first brought under notice in the Durham and York counties, and on the banks of the Tees commenced the improvement of the breed, but to Mr. Collings is to be attributed the credit (by his judicious crossing) for the stamp of the magnificent animals that now grace our agricultural exhibitions.

III.—ESTIMATE.

1. *Estimate under the heads of rent and taxes, seed, manure, labour, purchased cattle food, and loss by depreciation of live and dead stock the annual expenditure on* 100 *acres of good arable land.*

Rent and taxes.—Rent 35*s.* per acre; taxes and rates, 9*s.* per acre ..				220	0	0
Seed.—Wheat, 25 acres	14	0	0			
Barley, 25 acres	18	15	0			
Clover, 25 acres	10	0	0			
Vetches, 10 acres	10	0	0			
Mangel, 5 acres	1	0	0			
Swedes and Turnips, 20 acres	2	0	0			
				55	15	0
Manure.—There should be enough made to answer all purposes, but I allow 3 cwt. superphosphate per acre to the root crop				26	5	0
Labour.—Waggoner and strong boy..	52	0	0			
Shepherd and boy	46	16	0			
Cowman	31	4	0			
2 ordinary men	52	0	0			
4 women, 20 weeks	20	0	0			
Hind labour..	27	17	6			
				229	17	6
Purchased cattle food, 50*l.* for horses, and 40*l.* for cattle and sheep				90	0	0
Loss by depreciation of live and dead stock, say..				*40	0	0
				661	17	6

2. *Estimate under the heads of Wheat, Barley, and increased value of live stock the annual returns from a farm of* 100 *acres of good arable land cultivated on the Norfolk rotation?*

	£	s.	d.
25 acres Wheat, 35 bushels per acre, at 7*s.* per bushel	306	5	0
25 acres Barley, 40 bushels per acre, at 4*s.* 6*d.* per bushel	225	0	0
Sheep, increased value	150	0	0
Cattle, increased value, 12 stores and 6 fatting ..	78	0	0
Pigs, increased value	40	0	0
	799	5	0

3. *What will be the amount of your expenditure after harvest in rent, purchase of live stock, and manure respectively, on* 100 *acres of good arable land cultivated on the Norfolk system, and when must these several demands be met?*

I take this question to mean the expenses after harvest till the end of the year, which will be as follows:—

	£	s.	d.
Michaelmas rent, due September 29	87	10	0
Rates due, Michaelmas and Christmas	22	10	0
Sheep to be purchased, September or beginning of October	150	0	0
Cattle to be purchased in September, 12 stores at 7*l.*	84	0	0
Dec. Manure to be applied according to circumstances	20	0	0
	364	0	0

4. *What kinds and quantity of stock must you purchase to consume* 20 *acres of Swedes and* 30 *acres of Mangel Wurzel during winter, the stock already on the farm being a flock of* 200 *ewes to lamb in February and early in March?*

I shall suppose the crop 25 tons per acre.
150 sheep to fat will consume the 20 acres of Swedes.
200 ewes will consume 12 acres of Mangel.
40 store pigs all through the season, 5 acres of Mangel.
40 head of cattle will be required to consume the remainder, say 10 cows, 6 acres of Mangel; and 10 fatting, and 20, 7 acres of Mangel and clearings.

5. *How many hands will you under ordinary circumstances require to get in* 150 *acres of Wheat, Barley, and Oats—*50 *acres of each within the harvest month? and how many of these would you save by using Dray's reaping machine?*

I should engage 8 men to reap 20 acres of Wheat, 1st week.
" 4 men to mow 40 acres of Barley and Oats, 1st week.
I should engage 8 women to make and dry the 40 acres, 1st week.
" 6 men to reap 15 acres of Wheat, 2d week.
" 2 men to mow 20 acres of Barley and Oats, 2d week.
" 6 men to reap 15 acres of Wheat, 3d week.
" 4 men to mow 40 acres of Barley and Oats, 3d week,
and with waggoner and shepherd and two boys I should expect all to be got up in the month, which equals 14 men, 8 women, and 2 boys, and by using Dray's reaping machine I should save the 8 reapers.

* I have reckoned the loss in the wear of implements under this head.

THE KEYTHORPE SYSTEM OF DRAINING LAND.

IT is rather unreasonable for your correspondent "A Humble Inquirer," to expect the draining engineers to find him in understanding even if their writings are sometimes rather obscure. We must presume they themselves understand what they write and that ought to satisfy us. For these reasons I do not make some inquiries myself respecting some problems which I should like to see solved, and I am sure "A Humble Inquirer" ought to be much obliged to the "Draining Engineer" for his great readiness in replying to his queries and favouring us with the name of the gentleman who drained the Lyne estate on the "Keythorpe system." For my part I flatter myself I have solved the great problem in land draining. It is simply this, that there are two Mr. Dentons both having the same Christian name, and I think I have the pleasure of knowing both of them. The one writes against the Keythorpe system, the other has the good sense to disregard what the first writes, and drains land on the Keythorpe system whenever it suits his purpose to do so. One of these Mr. Dentons adheres to a minimum depth of 4 feet, the other drains at 3½ feet, (letter to Lord Berners, p. 21, line 9) in homogeneous clays which are so retentive of water that water runs faster through them, as proved by the Hinxworth tables, than through a porous soil! One Mr. Denton lays his drains invariably along the line of greatest descent, the other crosses the fall with his drains at all angles. I say this on the authority of the report of the gentleman who inspected the draining at Lyne—to which the prize was awarded by the Liverpool and Manchester Agricultural Society. But though I do not ask any questions on the subjects of bottom water, the laws of gravitation, water of pressure, and so forth, there are some questions respecting the Lyne drainage which I should very much like to see elucidated. For instance, the inspectors who awarded the premium say it was for draining done in the year ending May 12, 1856. By the rules of grammatical construction, that means done between May 12, 1855, and May 12, 1856. The "Draining Engineer," on the contrary, says it was completed in 1856 but begun in 1852, "long before the publication of the Keythorpe system." The date of publication of that system in the Journal of the Royal Agricultural Society is Nov. 1, 1852.

Again, the report of the inspectors says that "the drains on the level or gently undulating surface run parallel to each other, and up the incline of the surface. In the more hilly parts," they add, "the Keythorpe system has been more adopted than the parallel, the branch drains running in various directions as to the incline; in few cases directly up the incline, the direction being ruled by circumstances and the inclination of the surface." The inspectors further observe, "the above remarks refer to the inclosed land. On a considerable portion of the uninclosed moorland and on which the inclination of the surface is steep, the drains are parallel and directly up the incline." Now this is the point which I think requires explanation, namely, why parallel drains were used on the level land, drains at irregular intervals and not running up the fall on the steeper lands, and parallel drains running up the incline on the uninclosed steep land. Can it be that these last were done before the publication of the Keythorpe system in Nov., 1852, the drains at irregular intervals and crossing the fall in various directions having been done after it?

Again, it is stated that the cost has been from 3*l.* 15*s.* to 7*l.* the acre. What, I would ask, has been the average cost of the whole per acre? Or, what is the same thing, the total cost of draining the 2439 acres?

The inspectors further state that the average number of rods to the acre is 50. This is less than the average number of rods to the acre at Keythorpe. It perhaps explains the reason why, while praising generally the manner in which the work has been executed, the inspectors feel compelled to add, that on the clay soils and subsoils they consider the drains were too far distant to make the drainage perfect or the land uniformly dry. The soil is said to vary from a light sandy loam and bog to a stiff clay loam, with a subsoil varying from sand, gravel, and rock to a dense impervious clay. They add, that where the subsoil was of a porous nature there was little doubt of the proper effect on the whole surface. They do not seem to have discovered the Hinxworth secret, that water runs faster through a clay than through a porous soil.

Respecting the "Hinxworth Tables" I have not the slightest doubt that at Hinxworth the water ran off the clay. That it ran through the pores of the clay I should require much stronger evidence than that furnished by the two months of published experiment at Hinxworth. I know at least three ways in which it might have found its way into the drains without accepting that astounding conclusion that water passes more rapidly through retentive than through a porous soil.

As to the cost of the Keythorpe trial holes the "Draining Engineer" may make his mind perfectly

easy on that point. It will not consume the fee simple of the land, though till they have discovered the secret it may not be so profitable to draining engineers as the slap-dash system.

Respecting his doubts how when the furrows are only "2 feet deep they can be made serviceable for 4-feet drains," that may easily be seen by reference to the diagrams exhibiting actual sections of these furrows to which you lately referred.

With respect to the "Draining Engineer's" tirade against Lord Berners, and what he is pleased to call his lordship's "2-feet bush drains," I can only refer this explosion to pique at not having been invited to those "pleasant gatherings of practical men under the hospitable roof of his lordship," of which even the Mr. Denton who writes against the Keythorpe system speaks with such pleasure. If any errors were committed at Keythorpe his lordship's draining has been on the whole eminently successful. It must be remembered in excuse for any errors, if such there were, that the system was there worked out experimentally, and the furrows were rendered available to draining in almost unconsciousness of their existence. If errors there were—if experimenting was carried on after it might have ceased—that is no argument against the system apart from those errors, which their very exhibition teaches us to avoid in other cases. With all his experience has the "Draining Engineer" himself committed no errors in his draining? I should like to know what would be said on this subject if we were to consult all those where he has drained, whom the Mr. Denton who writes against the Keythorpe system stigmatises in his letter to Lord Berners as "impatient farmers" and "ignorant bailiffs." And now, sir, with these remarks I take a final leave of all controversy on this subject. It is a great triumph for me that there is one Mr. Bailey Denton draining on the Keythorpe system, and I trust that he will speedily make a convert of the other. It will be a great triumph for me if on the lands still requiring to be drained, according to the calculations of the latter gentleman, I shall have been the means of saving a useless expenditure of millions of money. At the same time I am quite aware it must be very disagreeable to gentlemen who have drained their estates at an expense of 5*l.* per acre to know that they might have done it for two-thirds or one-half of that sum if they, their agents, or the draining engineers whom they employed had condescended to study the structure of the soils, subsoils, and substrata to be drained, if they had studied the manner in which water is distributed through the soil, instead of wasting money by draining on assumption and bowing to authorities. *J. Trimmer.*

Home Correspondence.

Cottage Roof.—I wish to build a cottage for a shepherd on a very elevated part of my land, where slates or thatch would soon be carried away by the wind, and I would feel obliged if any of your correspondents would state in your Paper the merits of a brick or stone arch roof—its cost and advantages, compared with slates or thatch—the mode of constructing it to compensate the thrust of the arch—and how it is tied or bound to the main walls. The intended size of the cottage is about 20 feet long by 12 feet wide, and about 10 feet high from ground to eaves. Is there any better and cheaper roof to be recommended?—it would be of advantage if the roof were flat, to enable the shepherd to walk on it as a look out. *M. R.* [What do you say to a felt roof, which properly nailed down to timber is proof against wind? We know of nearly flat roofs consisting essentially of cement covered with paper and dressed occasionally with tar.]

Sigma's Hoe.—I write a few lines to tell you that I am very much pleased with the new hoe. It is not so well calculated for very rough field work as for thoroughly surface hoeing all drilled crops—Turnips, Parsnips, Carrots, &c. From its backward and forward movement, it does its work more quickly and in my opinion far better than either the Dutch or the drawing hoe, hollowing the ground, and completely destroying the roots of all surface weeds. I have also found it useful for scraping and clearing wide gravel drives and paths of Moss and small weeds; in fact, it is become quite a favourite tool here. I have had no experience in the very large hoe of the same description. *S. J. H.*

Societies.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.

Monthly Council, *Aug.* 5.—Colonel Challoner, Trustee, in the chair. Twenty-three new members were elected.

Finances.—Mr. Raymond Barker, chairman of the Finance Committee, presented the monthly report on the accounts, from which it appeared that the current cash balance in the hands of the bankers was 978*l.*; he also laid on the table the usual quarterly statements of account connected with the several financial branches of income and expenditure, and assets and liabilities, for the information of the members. The Council ordered that all claims on account of the Salisbury meeting should be examined and discharged in the usual course.

Conditions for Steam-Engines.—Mr. Shuttleworth and Mr. Howard having called the attention of the Council to the importance of a revision of the conditions affecting the construction of steam-engines and other machinery to be exhibited for prizes at the country meeting of next year, it was moved by Mr. Brandreth Gibbs, seconded by Mr. Caldwell, and carried unanimously, That the Implement Committee be desired to invite the respective opinions of all the implement-makers who have exhibited at the Society's Shows during the previous three years, as well as those of the Engineering-Judges and Consulting-Engineer. Colonel Challoner, as Chairman of the Implement Committee, gave instructions that a meeting of that Committee should be held on Tuesday the 3d of November next, at 1 o'clock, for the purpose of receiving those opinions, and of reporting the recommendations of the Committee to the Council on the following day.

Chester Meeting.—The Local Prize Committees of the Society and the authorities of Chester having reported their concurrence in the arrangements to be made for the competition of local prizes at that city next year, amounting to upwards of 1500*l.*, the Council authorised the secretary to enter into the usual agreement with the mayor agreeably with the charter and bye-laws of the Society.

Communications were received from the Minister of Agriculture of France, M. Barral, M. Victor Borie, the Agricultural Societies of Belgium and Nassau, the Highland Society, Mr. Vallentine, Mr. Leybourne Popham, and Mr. Sturgess.

The Council adjourned over the Autumn Recess to the first Wednesday in November, granting to the Secretary and the clerks of the Society the usual vacations within that period.

Yorkshire Agricultural.—*York, Aug.* 6. The Yorkshire Society, which is contemporary in its origin with the Agricultural Society of England, has during the past week held its anniversary meeting in this city. In 1848 its meeting was merged in that of the National Society, which was that year held here. Since then it been again held here in 1853, and after meetings at Ripon, Malton, and Rotherham, the Society has once more assembled in the old city and county town. Comparing this meeting with those which have preceded it, we find a rapid increase in the quantity as well as quality of the show. In 1838, '42, '53, the number of entries for exhibition was successively 301, 384, and 784; this year it is 843. And taking the entries of stock alone, this is still more notably the best year which the Society has seen. Thus, at York in 1853 the entries of cattle, sheep, pigs, and horses were respectively 102, 88, 103, and 192; this year they are 117, 124, 100, and 283. The show of horses is in fact unprecedentedly large. The entries of implements also have increased from 650 four years ago to 983 at present. Adding the poultry to the other items, we have this year a total of 1826 to compare with numbers varying from 1100 to 1500 in the past five years.

The weather on the first two days was exceedingly propitious, but to-day the rain has been pouring pitilessly on the thousands who have been wading through the mud in the yards. The trials of implements were conducted under favourable circumstances. A sum of 30*l.* has been awarded to Mr. Boydell for his traction engine, the trial of which however was unfortunately brought to a sudden termination by breakage; 15*l.* has been given as a prize to Palmer's union reaper with its radiating rollers for effecting a side delivery of the corn as it is cut, though here also there was a very imperfect trial, neither Crosskill's Bell, or Burgess and Key's M'Cormick being on the ground.

The following is the award of the judges of implements:—

AWARDS FOR IMPLEMENTS.

Names.	Article.	Amount of Prize.
E. & T. Humphries (Pershore)	Combined Threshing Machine	£15 0s.
Davy & Brothers (Sheffield)	Ditto	Commended
Roby & Co. (Lincoln)	Ditto	Commended
Davy & Brothers (Sheffield)	Ditto	Highly commended
E. H. Bentall (Malden)..	Turnip Pulper	3 0
W. Dove (York)	Small Tools	5 0
J. Palmer (Stockton) ..	Corn Screen	5 0
R. & T. Reeves (Westbury)	Dry Manure Drill ..	10 0
J. Coultas (Grantham)..	General purpose Drill ..	5 0
W. Smith (Kettering) ..	Steerage Horse Hoe ..	2 0
G. Pickering (Beverley)	Horse Rake	1 0
J. Barker (York) ..	Harrows	5 0
W. Flint (Acomb) ..	Sawing Machine.. ..	1 0
R. & J. Reeves (Westbury)	Turnip Drill	5 0
J. Paterson (Beverley) ..	Mill for crushing and grinding	3 0
D. Harland (Pocklington)	One-horse Cart	5 0
W. Dove (York)	Ploughs	10 0
W. Busby (Bedale) ..	Waggon	5 0
Boydell	Best application of machinery impelled by steam power to the cultivation of the soil ..	30 0
G. Meynell	Useful and cheap Plough	2 0
R. Coleman (Chelmsford)	Hanson's Potato Digger	Silver Medal
W. Walker (York) ..	Cooking Ranges, &c. ..	Silver Medal
Sawney (Beverley) ..	Winnowing Machine ..	5 0
Cornes (Cheshire) ..	Chaffcutter (Power) ..	5 0
Sawney (Beverley) ..	Ditto (Hand) ..	2 0
Cambridge (Bristol) ..	Steam Engine	2 0
John Palmer (Stockton)	Palmer's Reaping Machine	15 0
Barratt (Wakefield) ..	Agricultural Seeds ..	3 0
Ditto	Agricultural Plants ..	4 0

With reference to the show of live stock, we have at present only space for the award of the premiums. There is always a good show of horses and of short-horn cattle at the Yorkshire meeting, and this year in both of these departments, and especially in that of horses, were the entries extraordinarily numerous. In short-horns the 1st prize for bulls was awarded to "Gloucester," bred by the late Earl of Ducie, and sold a calf to Lord Feversham at the Tortworth sale. Mr. Fawkes was successful in the class of yearling bulls, as he had been at Salisbury; and for the best bull calf the 1st prize was won by Mr. Booth; the second only being given to *Great Mogul*, which won the first prize in its class at Salisbury. There was a large show of Leicester sheep, and a comparatively much poorer one of other long-woolled breeds and South Downs. The pigs were a very large and excellent show.

The following is the award of the Judges of cattle, sheep, and horses:—

SHORT-HORN CATTLE.

Best Bull of any Age.—25*l.* to Lord Feversham, for Gloucester; 10*l.* to T. Wetterell, for Lord Scarboro.

Yearling Bull.—20*l.* to F. H. Fawkes, for Sir Edmund Lyons; 10*l.* to Sir C. R. Tempest, Bart, for Emperor Napoleon.

Bull Calf upwards of 5 Months Old.—10*l.* to R. Booth, Killerby, for Lord of the Valley; 5*l.* to S. Majoribanks, for Great Mogul.

Cow of any Age in Calf or Milk.—15*l.* to Lieut.-Colonel Towneley, for Roan Duchess 2nd; 5*l.* to T. Wetterell, for Moss Rose.

Three-year Old Cow, in Calf or Milk, and having had a Calf.—10*l.* to R. Booth, for Nectarine Blossom.

Two-year Old Heifer, in Calf.—10*l.* to R. Booth, for Queen of the May; 5*l.* to H. W. Ripley, for Grizelda.

Yearling Heifer.—10*l.* to Lieut.-Colonel Towneley, for The Rose of Towneley; 5*l.* to R. Booth, for Queen Mab.

Heifer Calf, upwards of 5 months Old.—5*l.* to R. Booth, for Queen of the Isles; 3*l.* to Lord Feversham, for Symphony.

Fat Ox of any Age, no first prize awarded.—5*l.* to Lieut.-Colonel Towneley.

Fat Cow of any age.—5*l.* to Lieut.-Colonel Towneley, for Victoria.

CATTLE OF ANY BREED.

Cow for Dairy Purposes.—5*l.* to J. Outhwaite, Catterick; 2*l.* to W. Stead, Owleston.

EXTRA STOCK.

1st, to S. Wiley, Brandsby, for a Heifer; 2d, to Lieut.-Colonel Towneley, for Red Butterfly.

LEICESTER OR LONG-WOOLLED SHEEP.

Shearling Ram.—15*l.* to G. Walmsley, Bridlington; 5*l.* to J. Borton.

Ram of any age.—10*l.* to J. Borton, Malton; 5*l.* to S. Wiley.

Pen of 5 Ewes.—5*l.* to W. Taylor, Malton; 3*l.* to F. Holiday, Malton.

Pen of 5 Shearling Wethers.—5*l.* to J. Hopper, Pickering.

Pen of 5 Shearling Gimmers.—10*l.* to S. Wiley; 5*l.* to W. Abraham, Ulceby.

SOUTH-DOWN SHEEP.

Ram of any age.—10*l.* to T. Marris, Ulceby.

Pen of 5 Shearling Gimmers.—5*l.* No merit.

WEST-DOWN SHEEP.

Ram of any age.—10*l.* to Lord Wenlock.

Pen of 5 Shearling Gimmers.—5*l.* to Lord Wenlock.

COTSWOLD SHEEP.

Ram of any age—10*l.* to T. B. Browne, Hampen.

Pen of 5 Shearling Gimmers.—5*l.* No merit.

PIGS.

Boar, large breed.—5*l.* to J. Tully, Keighley; 2*l.* to M. Gavins, Leeds.

Sow, large breed, in pig or milk.—5*l.* to J. Tully; 2*l.* to J. Palmer, Shipton.

Boar, small breed.—5*l.* to G. Mangles, Ripon; 2*l.* to Viscount Galway.

Sow, small breed, in pig or milk.—5*l.* to G. Mangles; 2*l.* to Viscount Galway.

Sow of any breed, in pig or milk.—5*l.* to J. W. Metcalfe, Acomb; 2*l.* to C. Haley, Leeds.

Boar of any breed.—5*l.* to M. Oddy, Spofforth; 2*l.* to W. Field, Bradford.

Three Store Pigs, of any breed, and of the same litter, from 4 to 9 months old.—5*l.* to G. Mangles; 2*l.* to S. Wiley.

Boar, large breed, under 12 months old.—3*l.* to T. Britton, York.

Sow, large breed, under 12 months old.—3*l.* to J. Palmer, Thorlby.

Boar, small breed, under 12 months old.—3*l.* to S. Wiley.

Sow, small breed, under 12 months old.—3*l.* to W. B. Wainman, Crosskill.

HORSES.

Stallion for Hunters.—10*l.* to Mr. J. Batty, Ripon, for Dagobert; 5*l.* to Mr. J. Manfield, Thirsk, for Spencer.

Stallion for Coach Horses.—10*l.* to Mr. D. Holliday, Hull, for Napier; 5*l.* to Mr. T. Watson, Whitby.

Stallion for Roadsters.—10*l.* to Mr. P. Ramsdale, Market Weighton, for Wildfire; 5*l.* to Mr. J. England, Tilsden, for Young Merrylegs.

Stallion for Agricultural Purposes.—10*l.* to Mr. R. Emsley, Clayton, for Lord of the Manor; 5*l.* to Mr. J. Robinson, Grove Inn, for Young Napoleon.

Mare and Foal for Hunting.—5*l.* to Mr. J. B. Booth, Killerby, for Marigold.

Mare and Foal for Coaching.—5*l.* to Mr. J. Cattle, Malton.

Roadster Mare and Foal.—5*l.* to Mr. P. Triffit, Hayton.

Mare and Foal for Agricultural Purposes.—5*l.* to the Earl of Carlisle for Black Bess.

Three year-old Hunting Gelding.—5*l.* to Mr. J. B. Booth for Vaulter.

Three-year old Hunting Filly.—5*l.* to Mr. A. Christie, York, for Bonnie Scotland.

Three year-old Coaching Gelding.—5*l.* to Mr. Johnson, Cayton.

Three-year-old Hackney Gelding or Filly.—5*l.* to Mr. J. Lee, Thirsk.

Three year-old Gelding or Filly for Agricultural Purposes.—5*l.* to Mr. T. Dawson, Driffield.

Two year-old Coaching Gelding.—5*l.* to Mr. B. Johnson.

Two-year-old Coaching Filly.—5*l.* to Mr. J. Wells, Howden.

Two year-old Agricultural Gelding or Filly.—5*l.* to Mr. J. Walker, Sand Hutton.

Yearling Gelding or Filly for Agricultural Purposes.—5*l.* to T. Ripton, Pallathorpe.

Pair of Horses, of either sex, for Agricultural purposes, worked during the season.—10*l.* to Mr. J. Styan, Shipton.

Hackney Gelding or Mare, not less than 4 years old, not exceeding 6.—5*l.* to Mr. L. Hodgson, Highthorne.

Four-year old Hunter, Gelding or Mare.—10*l.* to Mr. L. Hodgson, Highthorne.

EXTRA STOCK HORSES.

First-class Medal—Mr. Groves, for Conqueror; 2d do., Mr. L. Hodgson, Highthorne.

SPECIAL PRIZES.

Given by Lord Greenock, President of the Society.

Collection of Agricultural Seeds.—A gold Medal, value 8*l.*, to Wm. Barratt, St. John's, Wakefield.

Collection of Agricultural Plants.—A gold Medal, value 8*l.*, to Wm. Barratt, Wakefield.

Given by Lord Wenlock.

Five-year-old Hunter, Mare or Gelding, to possess not less than three crosses of blood.—20*l.* to Mr. Booth, Killerby; 2d, 5*l.* to Mr. Coulson, Gatherley.

The Council dinner of the Society took place yester-

day. We quote the following passage from one of the addresses given:—

Mr. H. S. Thompson, of Kirby Hall, directed attention to the high price of food, and the comparative scarcity of cattle in this country, and stated what he thought would be to the advantage of the consumers as well as the farmers. He alluded to the fact that sufficient attention was not paid to the improvement of Grass land. He advised farmers to keep their manure for arable land, but to use hand tillage for Grass, to the extent of 1 cwt. of guano and 1 cwt. of nitrate of soda to the acre. In the third year after this application, land that was previously only fit to keep animals in a growing state would now fatten them, and the land would be as different in quality as Grass land could be. Mr. Horsfall, of Burley, near Otley, had caused strong wet land, with rushes growing upon it, to produce what was worth 16*l.* per acre, whilst the average produce of the Grass land of this county would be worth only about 4*l.* per acre, but rather below than above that sum. That which was not worth 4*l.* per acre might be made to be worth 8*l.* If they adopted the plan he had suggested judiciously, none of them would be disappointed in the result.

The President for the ensuing year is Lord Bolton, and the annual meeting is to be held in Northallerton.

Farmers' Clubs

GALASHIELS: *"Is it profitable to apply portable manures as top-dressing for cereal crops?"* This subject was recently discussed at the quarterly meeting of this Club.

Mr. James Sanderson, Meigle, said—"The fact that the farmers of Great Britain expend annually upon them nearly 4,000,000*l.* is sufficient evidence of the high estimation in which they are held for their fertilising properties. For several years after bones and guano were introduced, they were almost exclusively applied to the Turnip crop. The wonderful results consequent on their application to this crop induced several enthusiasts in farming to test their efficacy on white crops. The experiment was regarded as successful, obtained wide publicity, and this led to the almost general practice—at least in some districts—of top-dressing; so much so, indeed, that it is not rare to find farmers who expend annually on top-dressings alone a sum equal to their rental. At such a time, then, as the present, when the demand for portable manures is so great, and their prices so extremely high; and moreover, when expense is regarded as synonimous with 'high farming,' it is one of the most important questions in connexion with rural economy to consider whether the practice of surface manuring cereal crops is a judicious and profitable system or not. I shall limit my remarks to the more prominent and practical features of the question. And, first, I shall notice some of the evils consequent on top-dressings, one of the greatest of which is the tendency of the crops to lodge to which they are applied. This evil will no doubt vary, as the constituents of the different manures vary that are used, and as the soil varies to which they are applied. Thus, for example, superphosphate of lime is less liable to lodge crops than guano or nitrate of soda, although these manures induce, in a greater or less degree, the evil to which I have referred, yet one and all of them have a tendency to force on too rapid growth in the earlier stages of the plant, which creates an over-juicy and succulent stem, and the result is that the crop is prematurely laid. It has been said, and I believe is generally admitted, that, by applying salt with top-dressings to white crops, the straw will be stiffened, and thereby the tendency of the crops to lodge counteracted. I have found, however, after repeated trials, that salt only stiffens the straw by shortening it; and although it does retard the too rapid action of ammonia, when applied with guano, yet it in a great measure neutralises the effect which top-dressing is intended to promote, viz.—a bulky crop. The tendency of crops to lodge from surface manuring will also vary on different soils. Soils of a somewhat light and porous description, such as the soil in this district—as, indeed, almost all the soils are which rest on the greywacke formation—are, from the absence of clay and silicious constituents, pre-disposed to lodge crops; therefore the use of portable manures would only augment the evil, and thereby render the crop less valuable. Clay soils, again, produce stiff-strawed crops, and therefore the evil consequent on top-dressings is less on this than on any other description of soil. As clayey soil, however, retains manure longer and suffers less deterioration from cropping than other soils, so, under a proper system of management they have less need of extraneous manures. The losses, too, frequently sustained from surface manuring in wet seasons are an unsurmountable objection to the practice. Where topdressing was applied last season on rich soils, the result was an almost total loss of manure and crop, and even on moderately conditioned soils I could cite several cases where they caused a loss of 2*l.* per acre. In an able leader on 'Surface Manuring,' in a recent number of the *North British Agriculturist*, it is said:—'Doubtless in many instances loss was sustained last season from top-dressing the Wheat crop, but this is the strongest evidence possible in favour of the practice of top-dressing. Crops do not suffer from over luxuriance in any country. Such seasons as last are exceptional, and without forgetting the lesson it taught, it shows in a strong point of view the beneficial influence which the surface application of manures has upon the cultivated plants.' I do not, however, concur with these remarks, for I think you will all admit that in this district—where the soil contains a large quantity of vegetable matter, from the greater portion of it having been recently reclaimed—there is more frequently greater loss sustained from over luxuriant than poor crops. Nor can I see how 'the loss sustained last season from top-dressing is the strongest evidence in its favour,' or how it shows its 'beneficial influence.' On the contrary, does the result of such seasons as the past (as well as the objections I have already taken to surface manuring) not prove that the surface mode of applying manures is not the proper one,—that manures ought to be thoroughly mixed with the soil, so that they may be gradually absorbed by the spongioles of the plant? It seemed indeed that Nature has so suited this soil and climate, that cereal crops throughout all their stages should be gradually developed, and not be too rapidly matured. Were the sun ever to pour his rays on the ears of crops, we would only reap whitened husks without any farinaceous matter; but nature provides dew and shade to allow crops to acquire nutritive qualities, as well as sunshine to mature them. As it is in the ripening, so it is in the earlier stages of the plant; the stem must not be too rapidly forced, but must acquire strength and muscle with its growth, so as to enable it to support the superincumbent grain. Top-dressings also produce little or no effect when the weather continues dry and parching, after they are applied; as thereby they are not rendered soluble, and therefore not available food for plants. There are likewise some localities, from their climatic conditions, more unfavourable for this kind of manuring than others—such as the western counties of Scotland, or even in inland districts that skirt mountain ranges, where torrents of rain frequently fall and destroy the crops. Such are only some of the contingencies which arise from natural causes, and which often, independently of any other reason, make top-dressings a greater loss than a benefit. There are no doubt certain conditions of the soil which would make their application profitable in any season—such as poor soils, soils deficient in organic or mineral ingredients, or when applied to the first crop on soils newly reclaimed. There is indeed no condition of the soil in which guano produces such wonderful results as in this case. Even last season, by applying 1½ cwt. Peruvian guano per acre to the first crop without lime, I found that a portion of a field of Oats which was guanoed yielded 3 bolls per acre more than a part which received no guano. The first of these cases, however—viz., poor conditioned soils—is, or rather ought to be exceptional, while the latter is no criterion whereby to judge of a general rule. I have hitherto chiefly confined my remarks to the natural causes which operate against special manures. Great, however, though the evils be consequent on these, I believe that the system of top-dressing is the result, or more probably the cause of, still greater. It is an incontrovertible fact, that the importance which farmers attach to artificial manures has made them undervalue, and has induced a carelessness in the preserving, and in the management of the best of all fertilisers—viz., farm-yard manure. Special manures are no doubt most valuable as auxiliaries to those made in the farm-yard; and even when applied alone to the Turnip-crop, on soils rich in vegetable matter, they produce most beneficial results; but when the farmer neglects the former, and hangs the fertility of his crops upon the latter, they will be productive of more harm than good; and for this reason I believe that the system of top-dressing, which has been vaunted as high farming, is a retrograde rather than a progressive system. You will all admit that the more frequently top-dressings are applied, they have diminished efficacy, and the more rapidly is the soil exhausted. It is not so, however, with farm-yard manure. Every additional application imparts additional fertility; while apart from its fertilising properties, it exerts a mechanical influence on the soil, by rendering it less adhesive and friable. A celebrated agricultural chemist says—'It is sometimes said that farm-yard manure possesses an advantage over artificial manure in its lasting qualities. This is a fallacy. The lasting qualities of farm-yard manures are, in a commercial sense, not an advantage, for it is getting back your money by instalments, instead of getting it all at once.' Now, however plausible this may appear in theory and in a 'commercial sense,' it is, I submit, not verified in practice; for if a farmer, by a liberal application of farm-yard and artificial manures to his Turnip crops, restores the soil to a high state of fertility, he makes it undergo such chemical and mechanical changes as enable it to derive manure through other sources than his own pocket; and he has also the satisfaction of knowing that he has productive resources in the soil, which will throughout a rotation produce abundant crops. On the other hand the farmer who solely depends on surface manuring must ever be applying manure, yet never enriching the soil, while at the same time he is forced to submit to the contingencies that may arise—such as dear manures, unfavourable seasons, &c. There is, most certainly, no one who would apply manures to highly-conditioned soil, and the fact that it is on the poorest soils that farmers most readily apply special manures, is virtually a condemnation of the system they practise. It is the proper manuring, then, of the Turnip crop, and not top-dressing, that imparts the most permanent fertility to the soil. The latter, indeed, is only an artificial system, while that is the highest and most profitable system of farming, which (as I have already said) by a liberal application of farm-yard and artificial manures to the Turnip crop—the successful cultivation of which may be regarded as the basis of successful farming—thus precludes the necessity of applying portable manures to cereal crops."

Mr. George Dun said he had some diffidence in speaking on this subject, but he was rather in favour of top-dressing. There were few, indeed no cases, in his experience that it did any hurt, and in most cases it did a great deal of good. If ever it did harm it was only when injudiciously applied. Its effect was to accelerate the bringing forward of the crops, and also their ripening. It was of great advantage in new cropped land, and he was aware of instances where, without it, there would have been no crop at all. He had seen top-dressing do good, even after a green crop. On the question of the chairman, he said he meant by "judiciously" applying it, to put it upon the bare places of the land, not in the rich hollows. Where land was full of vegetable matter it did not require it.

Mr. A. Thomson said he could not arrive at the conclusions of Mr. Sanderson. There might be cases where top-dressing was disadvantageous, but these were exceptions. His own practical experience was not large, but he remembered twenty years ago being in the employment of a farmer in the neighbourhood of Edinburgh, who applied farm-yard manure extensively, but who also used to frequently top-dress. The consequence was that land so treated yielded fully a third more. Young Grass and hay in particular were most abundant; and the second year the crop was almost as good as the first. (Mr. Thomson, in answer to Mr. Sanderson, afterwards explained that the dressing used was refuse from the gunpowder works, at Powder Mills.) Mr. Sanderson said that there is no need of applying top-dressing to land which is already full of nutritive elements. This was very true, and just as obvious as that a man after eating a full dinner could not be compelled to swallow any more than he could contain. But this was not the condition of the majority of soils. In most cases the soil required a stimulant, which brings a larger crop, and brings it sooner to maturity.

It was resolved "That it is the opinion of this club that with the exception of poor soils—soils deficient in organic matter, and soils newly reclaimed—it is not profitable to apply portable manures to cereal crops."

Reviews.

Corn Rents. By Peter Cowan, Land-agent and Surveyor. E. Stanford, 6, Charing Cross.

This is a pamphlet advocating the policy of a rent calculated on the principle that a landlord should share with the tenant in the effect which variations of market prices of farm produce have on the value of land; though he ought not to share in such an increase or diminution of the value of his land as may be due to the management or mismanagement of his tenant during the period of his assured tenancy. Mr. Cowan's case is not confined to *à priori* argument; he gives instances in which corn rents have proved fairer to both parties than a money rent could be.

The following cases are not imaginary ones, but are specimens of many which have occurred within the knowledge of the writer, and they are strikingly illustrative of the advantages of a corn-rent under a system of free-trade.

The commencement of the year 1851 saw the landed interest of this country in a very desponding state, Wheat averaging 36*s.* per quarter—tenants clamorous for large reductions of rent and landlords obliged, in many instances, to comply. In the early part of the year named, a tenant who had held his farm for a long period at 224*l.* per annum waited upon his landlord with a view of effecting a considerable reduction of rent, or failing this, of giving notice to quit at the following Michaelmas. It was agreed, that as the farm had been worth 224*l.*, with Wheat at 56*s.* per quarter it was still worth 160*l.*, with Wheat at 40*s.* per quarter; and ultimately an arrangement was entered into, guaranteeing the tenant the undisturbed possession of the farm for 14 years, at a rent of 160*l.*! It will be seen that a properly adjusted corn rent would now (1856) indicate the renting value of the same farm to be 240*l.*, and should present prices continue, the landlord by inconsiderately and unadvisedly taking the step he did, will have deprived himself of 80*l.* per year, for 12 years!

"The second case is only one degree better than the first, the difference was this:—It was agreed between the landlord and his tenant in 1851, that the tenant's occupation was worth 160*l.*, with Wheat at 40*s.* per quarter; it was also agreed, that if the price of Wheat advanced 6*d.* per bushel, an advance of 10 per cent. was to take place in the rent, or it was to be reduced 10 per cent., if the price of Wheat fell 6*d.* per bushel.

"Such an agreement as this decrees justice to neither party, for by it, though Wheat should reach an advance of 5½*d.* per bushel, or 3*s.* 8*d.* per quarter beyond the 40*s.*, the landlord has no claim to additional rent; or if it reach an advance of 11½*d.* per bushel, or 7*s.* 8*d.* per quarter, the landlord can then only claim on the advance of 6*d.* or 10 per cent., although the rise just touches 20 per cent. On the other hand, when prices reach a high average, such an agreement is calculated to effect a tenant's ruin by obliging him to pay an exorbitant rent out of short produce; 72*s.* per quarter, as prices have been, would make the rent 288*l.* per year, being 40*l.* per year more than the value.

"The third case is that of a regular and fair corn rent, based upon correct principles; a fixed money-rent of 224*l.* converted to a fluctuating corn rent. This arrangement was made in 1851 also. It was agreed between the parties that the sum of 224*l.* represented so many quarters of Wheat, so many quarters of Barley, and so many quarters of Oats, with a fixed sum for the pasture land; the result has been that since Michaelmas, 1853, the landlord has received from the tenant without a grumble the sum of 248*l.* per annum, being rather more than 10 per cent. above the standard rent."

Mr. Cowan objects to the tithe averages being taken as the regulating prices of a produce rent, and his illustrations on this point prove, we think, the disadvantages which farmers suffer under the present system of determining the rent charge payable in lieu of tithe. But he is especially forcible and clear in his condemnation of the present system of collecting and determining the current market price of corn. On this subject we extract the following passage:—

"Complaints loud and deep have of late years been made upon the unfair mode of collecting the prices and striking the averages of corn. Having for many years had the management of landed property, the rents of which are governed by the average prices of grain (corn rents), my attention has necessarily been much directed to the subject of those averages, and my decided opinion is that the only approach to correctness, both in a statistical point of view as enabling the Government to ascertain the quantity of grain annually grown, as well as the price it sells for, is to make it imperative on the grower, and on him only, to furnish returns of his transactions in these respects, but at the same time taking especial care to give him the least possible trouble in the matter, and while requiring his assistance and co-operation to give effect to a certain arrangement, to make the means of doing so simple, unobjectionable on his part, and of easy performance by him.

"For this purpose, on market days, I would station near to the entrance of every corn market of the 290 towns named in the Act, a clerk for the time being, whose business it should be to note down in a book prepared for the purpose all such names, residences, quantities, and prices as he might then and there be furnished with. Every farmer, or his servant, on entering the market, should report to the clerk orally the quantity of corn he had brought into town to sell, or if not brought in, how much he was then prepared to sell by sample. Of course it would be necessary for some time, at first, that each grower when giving in his quantity, should at the same time give his name and residence, or if a servant his master's name and residence, but the necessity for so doing would soon cease, as the person acting as clerk would in a short time become acquainted with the growers, and would only require from them a statement of quantity and price. As each farmer, or his servant, finished his business and was retiring from the market, he should announce to the clerk, orally as before, the quantity of corn he had sold and at what price—and the prices and quantities so reported as sold should then be placed opposite the names of the respective sellers in the clerk's book. If the farmer, during the current week, or in the interval since he last attended the market, had sold any corn at home, he could when in the market report such sales, with the prices, to the clerk. In some instances standing crops of corn, when nearly ripe, are sold on the ground; in others, unthreshed corn is sold in stack, both sales being by auction generally, though sometimes by valuation. In these cases, it should be incumbent on the farmer being the grower to furnish as before to the registrar of corn returns, or his clerk, the estimated quantity thus sold, and the estimated price per quarter it produced. If the farmer was so minded, he could report such sales orally to the clerk on the following market day. Notice boards should be placed in conspicuous parts of every market, reminding the growers of what the law required at their hands, and stating the penalties for neglect. By these means I am persuaded

that the quantity of grain annually grown in England and Wales, and the prices received by the grower—the only prices which ought to be recorded—would be ascertained, and in order afterwards to deduce a correct average price per quarter from the various prices per quarter entered on the clerk's book, the total money-value of the sales made should be divided by the relative number of quarters sold, and producing such amount of money to be so divided."

Miscellaneous.

Kooria Mooria Bay Islands.—In the year 1852 I accompanied Captain Ord on a voyage to the East Indies as chief officer of the Margaret. In November that year we made Kooria Mooria Bay, and Captain Ord, after landing, having discovered there were deposits of guano, suggested that I should remain in the Island of Jibleea to explore it, and he would call for me on his return. I consented to do so, taking two ship's apprentices for company, also being well armed and provisioned. I do not remember the exact dates, but in the month of November I landed and remained there, occasionally anxious about my return, until the latter end of the February following, when I took my departure in a bungalow, despatched by Captain Ord from Bombay. The weather during the three months and three days I remained there was exceedingly warm, and one or two showers of rain fell, but of so slight a nature that there was no appearance of wet a few seconds after they had fallen. The whole of my time was occupied in exploring the island, and from the result of a minute examination I am satisfied the quantity of guano there will prove very large. A casual observer would pass unnoticed many spots (which sound quite hollow) where the deposits are to a considerable extent covered by a crust (which I am told is composed of phosphate of lime) of the depth of 4 to 8 inches, which, in my opinion, is sufficient to protect the guano below from any rain that falls there. On turning this crust over I found a deposit of dark brown guano, varying from 3 to 6 feet, all full of ammonia, under which there appeared a white deposit the nature of which I do not know. Three plains—one about 500 yards long by 200 to 300 yards wide, another 200 to 300 yards long and the same in breadth, the third near the beach about 400 yards long by 50 broad—were all covered with guano, which appeared to me of good quality. The hills also, as well as the plains, are covered with deposits to a greater or a less extent; but as I had only my cutlass to sound, I could not estimate the depth at more than about 4 feet; but I have every reason to believe it is considerably deeper, in fact it would not surprise me if the greater portion of these hills are solid masses of guano. But I attach greater importance, as regards quality at least, to the deposits in the caves. These are very choice, being well protected from all weather; but here again, unless examined minutely, these caves would be passed unnoticed. I explored at least 40 of these caves. I think the number exceeded this, but I wish to be within the fact. Many of them open out from one to the other, and each will contain large quantities, being so full that I was compelled to creep in on hands and knees. I have no doubt there will be many more, but without assistance I could not explore further. The ammonia is very strong, and there are no stones mixed with this. I have no doubt the other two islands have a corresponding quantity, as there were many birds there; but this is only surmise. *P. A. Stanbury, in the Times.*

Calendar of Operations.

AUGUST.

Farm, near Hexham, *July* 31.—After a few very hot days in the beginning of this month we were favoured with frequent refreshing showers, which were much wanted by the green crops and spring corn. Turnips sown in the latter end of June, in consequence of the great heat, brairded very unequally; but otherwise this crop continued to look well until the 6th, when on several farms a black caterpillar appeared in immense numbers, principally on the Swedes, and continued their ravages, in spite of every means used to destroy them, till several acres were eaten down to the ground. Winter Tares cut up well, and were cleared off in time for a late crop of white Turnips; winter Beans are an excellent crop, with plenty of straw. White crops in general promise a good yield, the showers in the beginning of the month having ensured a sufficiency of straw, though some pieces of spring Wheat stand thin on the ground, and late sown Barley in some cases is patchy and unequal. Should favourable weather continue harvest will commence in some early spots in a week or 10 days, though not to any great extent. Pastures are very much dried up, and unless rain comes soon many farmers will be short of keep for their lambs, &c., as from the deficiency of Clover in the hay fields, the foggage generally is of little value. The hay crop was secured in good condition. We hear no complaints as yet of the appearance of disease in the Potato crop, though on dry soils this crop also would be much benefited by a supply of moisture. *W. C. T.*

Notices to Correspondents.

Highland Society's Meeting at Glasgow.—We shall give an account of it in our next. We understand that the entries have exceeded those of previous years, notwithstanding that, being held in the same week with the Yorkshire Agricultural Society, it has had only a share of the stock that would otherwise have been shown. It is unfortunate that the Societies could not have arranged their meetings in successive weeks.

Pleuro-Pneumonia: *W. Rose.* It has been treated fully in the pages of the R. A. S. Journal by Professor Simonds and others, and also noticed from time to time in this *Gazette.* The great secret of successful treatment is to take the complaint in its earliest stage—counter-irritation, oily laxatives, febrifuge medicine, followed by tonics, have proved successful; but if the animal is three parts fat we recommend the butcher's knife. We have no faith in nostrums. *W C S.*

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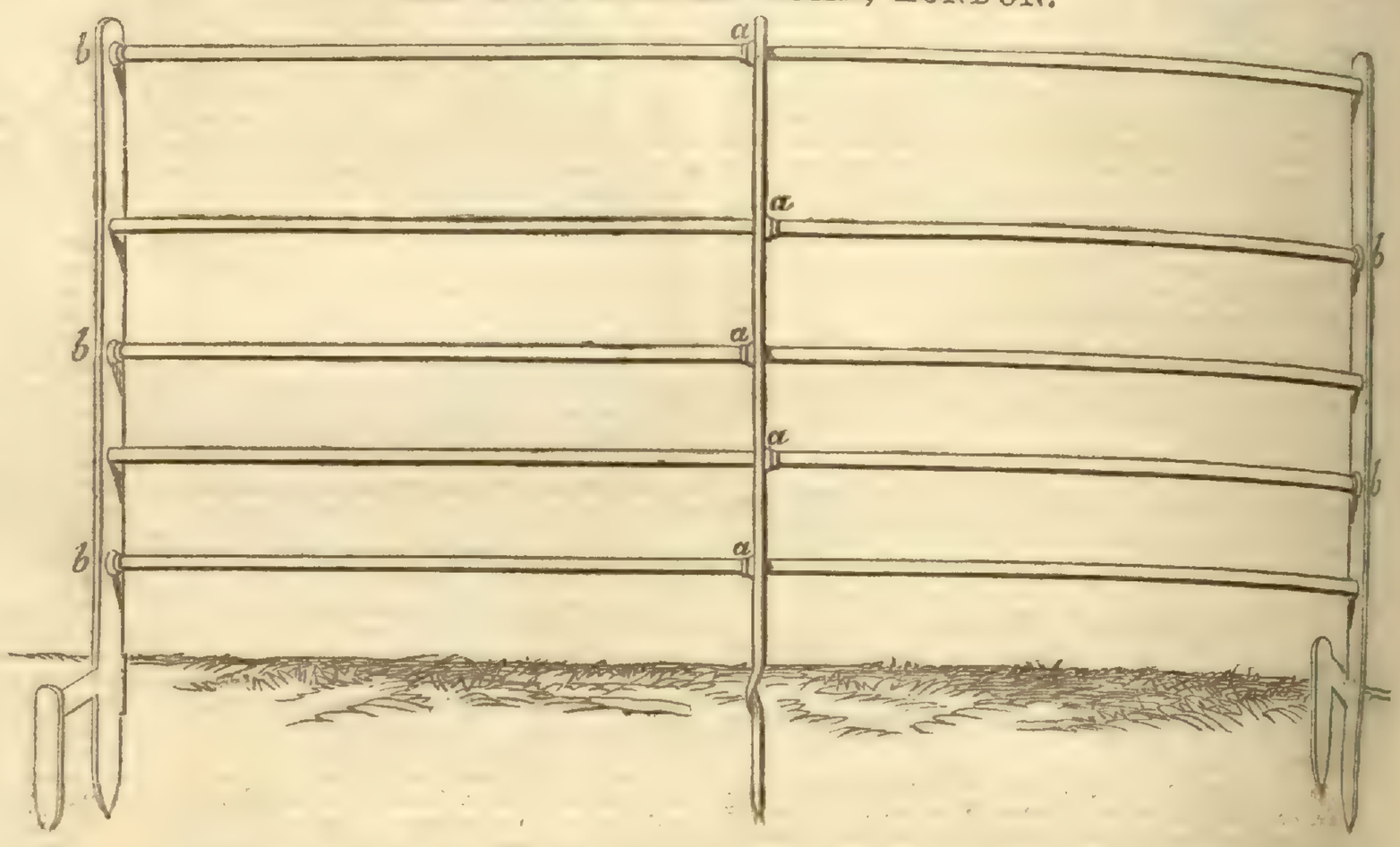

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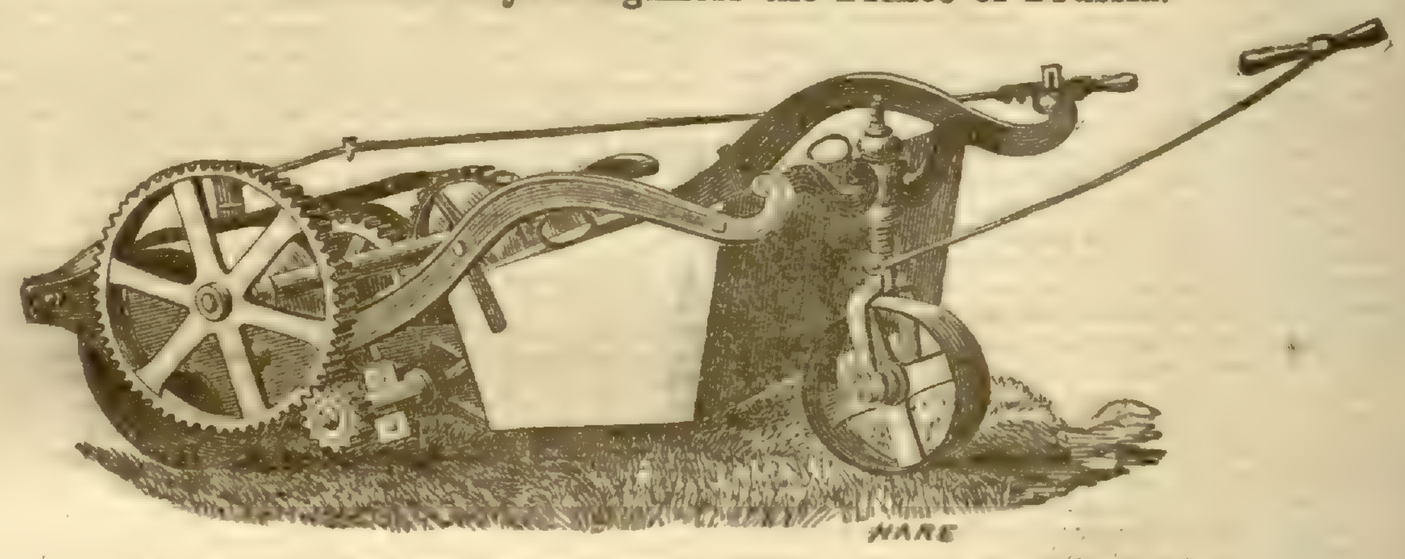

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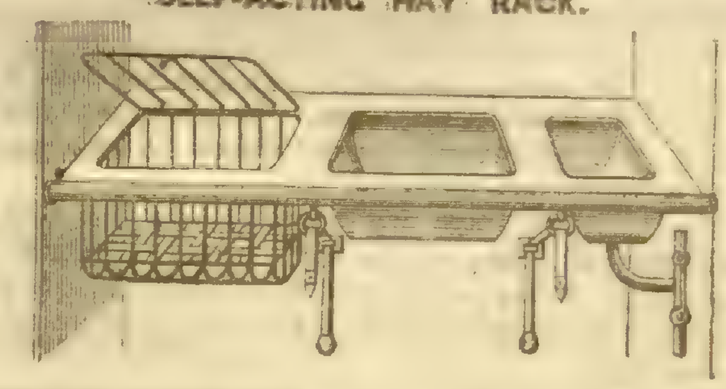

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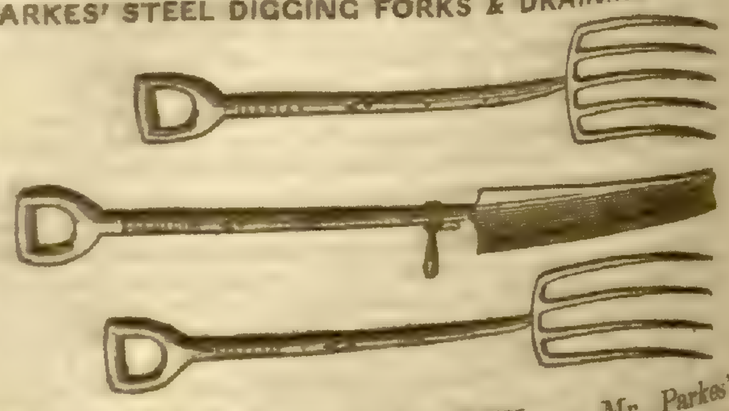

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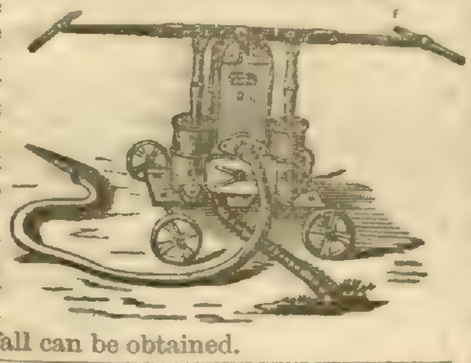

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DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED List of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Wire Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.
London Agents for Lingham's Permanent Labels, price 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument), London Bridge, E.C. Established, A.D. 1700.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
Kensal Green, Harrow Road, London.
JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.
Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot Water Apparatus in a most economical and efficient manner.
J. T. & Son have great pleasure in referring to numerous of the nobility and gentry by whom they are extensively employed.

GLASS FOR CONSERVATORIES, ETC.
HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.
Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES to James Hetley & Co., 35, Soho Square, London.
See *Gardeners' Chronicle* first Saturday in each month.

THE EAST LONDON PLATE AND SHEET GLASS WAREHOUSE, 45, Leman Street, Goodman's Fields. The best place in England for Strong Glass of every description. Owing to the immense stock of PLATE, SHEET, and CROWN Glass always on hand, B. Moss & Co. are enabled to sell cheaper than any other house.
Glasses, cut to the different sizes for Photographic purposes, always ready in stock.
100 feet Boxes, strong, small sizes, 6*s.*, box included. Estimates given and Shop Fronts glazed at the shortest possible notice, &c., &c.

GLASS SLATES.

With Drilled Holes.	Size.	Rough Plate. ¼ in. thick.	Rough Plate. 3/16 in. thick.	Rough Plate. ¼ in. thick.	Sheet. 16 oz.	Sheet. 21 oz.	Sheet. 26 oz.	Sheet. 32 oz.
		s. d.	s. d.	s. d.	s. d.	s. d.	s.	s.
Duchess	.. 24 by 12	1 3	1 6	1 9	0 9	1 1	[illegible]	[illegible]
Small Imperials	.. 20 ,, 14	1 2	1 5	1 8	0 8	1 0	1 1	[illegible]
Small Duchess	.. 22 ,, 12	1 2	1 5	1 8	0 8	1 0	1 1	[illegible]
Countess	.. 20 ,, 10	0 11	1 1	1 3	0 7	0 10	1 1	[illegible]
Viscountess ..	.. 18 ,, 10	0 10	1 0	1 1	0 6	0 9	[illegible]	[illegible]
Large Ladies ..	.. 16 ,, 10	0 9	0 11	1 0	0 6	0 8	0 10	[illegible]
Ladies	.. 16 ,, 8	0 8	0 9	0 10	0 5½	0 7	0 8	[illegible]
Doubles	.. 13 ,, 7	0 6	0 7	0 8	0 5	0 6	0 7	[illegible]

GLASS TILES.

Rough Plate.	s. d.	Sheet.	s. d.
⅛ in. thick ..	0 10 each	16 oz.	0 6 each
3/16 in. ,, ..	0 11 ,,	21 oz.	0 8 ,,
¼ in. ,, ..	1 0 ,,	26 oz.	0 10 ,,
⅜ in. ,, ..	1 6 ,,	32 oz.	1 0 ,,
½ in. ,, ..	2 0 ,,		

GLASS SLATES and TILES are now in general use for Lofts, Barn, Granary, and other Outhouse Roofs, and in many cases, a saving of time, trouble, and expense.
James Phillips & Co., Horticultural Glass Warehouse, 10, Bishopsgate Street Without, E.C.

GLASS.
THOMAS MILLINGTON'S reduced Tariff SHEET and HORTICULTURAL GLASS.
Above 15 by 10, and not exceeding 18 by 12, 1*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 1*s.* 3*d.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*
19 by 12, 20 by 12	16*s.*
8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
20 by 13, 20 by 14	20*s.* and 40*s.* per box

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per box.
Glass for Orchard Houses as supplied to Mr. Rivers, Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Small Glass Milk Pans
Bee ,,	

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. diameter.
Rough Plate and Sheet Glass Tiles to ½-inch in thickness. A variety of other articles as per Horticultural List, which may be had on application.
Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue and other Coloured and Ornamental Glass.
Genuine White Lead, Colours, Paints, and Oils of the best Wholesale, Retail, and for Exportation.
All packages charged, but allowed for when returned.
Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office, Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden, in the said Co.—Saturday, August 8, 1857.

EVERYTHING DELIGHTFUL IN THIS TASTEFUL VOLUME.

Now ready, Second Edition, much enlarged, elegantly bound and additionally Illustrated, price 14*s.*,

RUSTIC ADORNMENTS FOR HOMES OF TASTE.

BY SHIRLEY HIBBERD.

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PLEASURE GARDEN	FLORAL ORNAMENTS	GARDEN SEATS, and
WATER SCENERY	BEE HOUSE	EMBELLISHMENTS of the GARDEN.
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"Nothing could be more seasonable than this elegant book."—*Cottage Gardener.*
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 33.—1857.] SATURDAY, AUGUST 15. {Price Fivepence. STAMPED EDITION, 6d.

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HORTICULTURAL SOCIETY OF LONDON, 21, REGENT STREET, S.W.—This Society has just received from the East India Company, through Dr. ROYLE, a small quantity of Seed of the Hardy Bamboo (a very interesting plant), Cupressus torulosa, Pinus excelsa, and Abies Deodara. Packets are now ready to be sent to all Fellows who may apply.

CRYSTAL PALACE FLOWER SHOW.—The SECOND FLOWER SHOW of the present Season will be held on WEDNESDAY, THURSDAY, and FRIDAY, September 9, 10, and 11. Schedules of Prizes are now ready, and may be had on application.

By Order, GEORGE GROVE, Secretary.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre (W.C.).—The next Meeting of the Society will be held on THURSDAY, August 20, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and seedlings for opinion. The carriage of parcels is paid by the Society. The chair will be taken at 2 o'clock. Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10s.; annual subscription, 10s. Copies of the Rules and further information can be obtained from WILLIAM DAVIDSON, Assistant Secretary, 2, Randolph Road, Maida Hill (W.)

The following meeting, SATURDAY, September 12, is the day appointed for the exhibition of NEW GRAPES, for the Cut varieties of which the Society has offered premiums.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The THIRD and LAST Grand Floral and Horticultural Fête of the Season will take place in the Society's Gardens, Old Trafford, on WEDNESDAY and THURSDAY, August 26 and 27. Military Bands will be in attendance each day. Admission Tickets, if purchased before the 26th, 2s. 6d. each on that day, and at the gates, 3s. 6d. each (these tickets are available both days, but are not transferable). Admission on the 27th, 1s. each. For Tickets, &c., apply at the Society's Rooms, 3, St. Peter's Square.

By Order, JOHN SHAW, Sec.

SWINDON AND NORTH WILTS HORTICULTURAL SOCIETY. Under the patronage of Sotheron Estcourt, Esq., M.P.; Walter Long, Esq., M.P.; John Neeld, Esq., M.P.; Ambrose Lethbridge Goddard, Esq., M.P.; Henry Calley, Esq.—The FIRST EXHIBITION of the above Society will, by the kind permission of A. L. Goddard, Esq., M.P., be held at the Lawn, Swindon, on THURSDAY, September 10, when Prizes amounting to 50*l.* will be awarded to the successful competitors. To be competed for by Gardeners generally, Class 1; Gentlemen's Gardeners, Class 2; Amateurs, Class 3; Cottagers, Class 4. Verbenas, six varieties, three trusses each, 10s., 7s., 5s. Further particulars, with List of Extra Prizes, &c. A copy of the Rules, with all information, to be obtained from Mr. JOSEPH S. SMITH, Hon. Sec., Victoria Street, Swindon.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Grand Autumn Exhibition in the above splendid Rooms and Grounds on WEDNESDAY and THURSDAY, September 16 and 17, at which prizes are offered on the same liberal scale as on former years, Schedules of which are now ready, and can be obtained on application to E. SPARY, Queen's Graperies; or E. CARPENTER, 96, St. James's Street, Brighton.

THOS. ATTREE, Esq., Chairman of Committee.
E. SPARY, General Superintendent of Exhibitions.
E. CARPENTER, Secretary.

READING DAHLIA SHOW will be held on THURSDAY, August 20, in Coley Park, Reading. First Prize for 24 Dahlias, 4*l.* First Prize for 12 Dahlias (Amateurs), 2*l.*—Schedules may be had of Mr. J. G. B. MARSHALL, 73, Oxford Street, Reading.

JOSEPH MEREDITH, GARDEN ARCHITECT and HOTHOUSE ENGINEER, Vine Cottage, Garston, near Liverpool. Heating Apparatus fitted up on the most approved principle. First class references may be had.

FRANCIS SHARON, LANDSCAPE GARDENER and AGRICULTURAL ENGINEER, begs to inform the Nobility and Landed Proprietors generally that he is prepared to take every description of Landscape Work, Road Making, Land Draining, Agricultural Erections, &c., by Contract, or furnish Plans and Estimates of Costs, with Superintendence of Works at a Commission.—Park Road, Clapham, Surrey.

CHOICE SEEDS FOR PRESENT SOWING.—

	Per Paper.
CALCEOLARIA, finest spotted varieties, 1s. 6d. to	2s. 6d.
CINERARIA, fine	1 0
PANSY, fine	1 0
HOLLYHOCK, fine mixed	1 0
WHEELER'S IMPERIAL CABBAGE	1 0

The above Seeds are confidently recommended as first-rate, and are now ready to be sent out post free by

GEORGE WHEELER, Nurseryman, Warminster, Wilts.

NEW ITALIAN RYE-GRASS SEED.

SUTTON AND SONS, SEED GROWERS, Reading, can supply fine new Seeds at reduced prices—the crop of new Seed being good. Goods delivered carriage free by railway. Terms cash.—Royal Berkshire Seed Establishment, August 15.

SUTTON'S EARLY SIX WEEKS' TURNIP may be sown until the end of August with certainty of a good crop, price 5s. per gallon; 35s. bushel.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

CABBAGE FOR EARLY SPRING CUTTING.

THE EARLIEST CABBAGE IS SUTTON'S IMPERIAL, which is also of delicious flavour and good size. Seed 1s. per ounce post free, or cheaper by the pound.

Choice Cauliflower, Lettuce, and other Seeds for autumn sowing, as see List, which may be had post free.

Royal Berks Seed Establishment, Reading.

CATTLE CABBAGE SHOULD NOW BE SOWN.

SUTTON'S EARLY CATTLE CABBAGE and the large DRUMHEAD are the best sorts. Price of new Seed 4s. per lb. All goods carriage free, except parcels under 20s. value.

SUTTON & SONS, Royal Berks Seed Establishment, Reading.

TRIFOLIUM INCARNATUM (ITALIAN CRIMSON CLOVER).—The present crop of Seed being large, New Seed may now be obtained at reduced price on application to SUTTON & SONS, Seed Growers, Reading.

This should be sown in August upon the corn stubble without ploughing. Quantity required per acre, 24 lbs.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7s. 6d. per bushel, for ready money only.—New Park, Lymington, Hants.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, GEORGE GIBBS & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.
GIBBS's fine mixed Lawn Grass .. .. .. 1s. 3d. per lb.

Directions for sowing accompany the seeds.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE-GRASS, 7s. 6d. per bushel; Dwarf ESSEX RAPE, 14s.; White MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; Early Racer TARES, 10s. per bushel; Drumhead CABBAGE, 4s. per lb.; EARLY SIX-WEEKS' TURNIP, 1s. per lb.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW AZALEA INDICA.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, intends sending out in September next his new AZALEA INDICA "Baronde Vrière," figured in VERSCHAFFELT'S "Illustration Horticole." Good Plants, 7s. 6d. each; strong ditto, 16s. each.

The NEW CATALOGUE, No. 64, is now ready, and can be obtained gratis at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

YOUELL AND CO'S GENERAL PRICED CATALOGUE is now published, and may be had post free on application.—Royal Nursery, Great Yarmouth, August 15.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER AND CO.'S COMPREHENSIVE CATALOGUE of DUTCH and CAPE BULBS will be published on the 1st of September next, forwarded free of charge and post paid to all parts of the world upon application.

238, High Holborn, London, W.C.

DUTCH FLOWER ROOTS.

JOSEPH MAY AND CO. beg most respectfully to announce that their CATALOGUE OF DUTCH FLOWER ROOTS, including a brief list of some of the most showy HERBACEOUS PLANTS, is just published, and may be had post free on application.

1, Wellington Street, Strand, near Waterloo Bridge.

HUGH LOW AND CO. have now ready for distribution their CATALOGUE OF DUTCH BULBS, which will be sent post free on application.

Clapton Nursery, London, N.E., Aug. 15.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to state that their DESCRIPTIVE CATALOGUE OF HYACINTHS, &c., can be obtained free on application.

Highgate Nurseries, London, N.

BULBS.—A CATALOGUE OF BULBS is just published by A. VAN GEERT, Nurseryman, Ghent, which may be obtained on application of his agent, Mr. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

HARDY FERNS.

WILLIAM HUSSEY begs to offer the under-named FERNS, viz.:—Asplenium germanicum or alternifolium, 3s. 6d. each, or 40s. per dozen; Lastræa uliginosa and cristata, 9s. per dozen; Osmunda regalis, 9s. per dozen.

Horticultural Gardens, Norwich.

CHOICE CINERARIA AND CALCEOLARIA SEED.

W. DINGLEY AND SON having procured Seed saved from the specimens of the above Flowers which gained the leading Prizes at the May Exhibition of the Handsworth and Lozels Society, are now offering each in sealed packets at 1s. 6d. per packet, or one packet of both post free for 30 stamps.—Address W. DINGLEY & SON, Seed Merchants, 20, High Street, Birmingham.

JAMES CARTER AND CO. beg to offer new Seed, saved from the choicest varieties of the following:—

CALCEOLARIA CINERARIA | PRIMULA SINENSIS FIMBRIATA

Price 1s. per packet.

238, High Holborn, London, W.C.

CUTHILL'S STRAWBERRY PLANTS.—To be sent out on and after August 24, Mr CUTHILL'S three celebrated sorts. See *Gardeners' Chronicle* of last week, over the Leader.—JAMES CUTHILL, Camberwell, London.

CHOICE CINERARIA AND CALCEOLARIA SEEDS.

LUCOMBE, PINCE, AND CO. have now ready for sending out Seeds of their very superior

CINERARIAS AND CALCEOLARIAS,

which have been saved with great care from the finest varieties. The great satisfaction which their Cinerarias and Calceolarias have given for several successive years enables them to recommend their Seed of the present season with much confidence.

Packets sealed and warranted, at 2s. 6d. each free by post.

Exeter Nursery, Exeter.—Established 1720.

SUPERB DOUBLE HOLLYHOCKS.

SAFFRON WALDEN NURSERY.

WILLIAM CHATER begs to announce that his unrivalled collection of these fine flowers are now in bloom. Open to the inspection of all Visitors on every day excepting Sundays.—Saffron Walden, Aug. 15.

HOLLYHOCK SEED, ETC.

J. CHATER AND SON offer the above Seed:—Best mixed 200 seeds, 1s. 6d.; 400, 2s. 6d.; choice Sweet William, 6d.; also a few packets of choice Hybridised Cineraria Seed, 2s. per packet.

Hollyhock seed, if sown now, will produce early blooming plants next season.—Nursery, Haverhill, Aug. 15.

NURSERIES, BARNET, HERTS, N.

W. CUTBUSH, JUN., begs most respectfully to acquaint his patrons and friends that his NEW PRICED AND DESCRIPTIVE CATALOGUE of Stove, Greenhouse, and Variegated Plants, Azaleas, Ericas, &c., is now ready, which contains all recent introductions of merit, and will be most happy to furnish the same, Post-free on application.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, August 15.

SPIRÆA CALLOSA, see Dr. LINDLEY'S Leading Article, August 1. Can be supplied in the autumn at 18s. to 30s. per dozen, by CHARLES NOBLE, the Nursery, Bagshot.

SPLENDID HYBRIDISED CALCEOLARIA SEED, now sending out in packets at 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each, finest quality only. Also CINERARIA, very choice, 1s. per packet.

JOHN DOBSON & SON, Woodlands Nursery, Isleworth, W., and High Street, Hounslow, W.

CALCEOLARIA SEED, 1s. per packet, saved from those beautiful prized varieties shown at the Crystal Palace, by R. PRIOR, Gardener, 15, St. George's Place, Brixton, Surrey.

CHOICE CALCEOLARIA SEED, saved from first rate selected flowers, in packets, free per post 2s. 6d. each; do. large packets, to the Trade 5s. each.—Address, T. CHARMES, Seedsman, 195, High Street, Exeter.

CHOICE FLOWER SEEDS FOR PRESENT SOWING, free by post on receipt of postage stamps. Calceolaria, Cineraria, and Primula sinensis fimbriata, each in 1s. and 2s. 6d. packets.—BUTLER & M'CULLOCH, Seedsmen, opposite Southampton Street, Covent Garden Market, London.

SALVIA TRICOLOR (figured in Verschaffelt's Illustration Horticole).—This lovely and beautiful Salvia is now ready for sale, and will be sent out beginning of next month (August 1857). Fine and good plants, 7s. 6d. each.

N.B. Every order will be sent free in London till the end of August.—A. VERSCHAFFELT, Nurseryman, Ghent, Belgium.

BLACK HAMBURGH GRAPES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

MUSCAT GRAPES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

LARGE PEACHES WANTED.—Apply to GEORGE TAYLOR, Jun., Choice Fruit Salesman, St. John's Market, Liverpool. (Must be first class quality.)

PINE PLANTS.—Fruiting large and small Succession for sale.—J. LANCASTER, Edward Street, Deptford.

TARRAGON ROOTS.

TO BE SOLD CHEAP, 2000 large ROOTS of TARRAGON.—J. MAY & Co., 1, Wellington Street, Strand.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

TO BE DISPOSED OF, about 500 New and Select STOVE PLANTS and FERNS in good condition.—Address Messrs. GOUBERT & Co., Kilburn Gate, Edgware Road, London.

TO NURSERYMEN.

WANTED, one or two dozen common ACACIA TREES, to match, to fill up deficiencies in an avenue. The trees to be 14 feet high, 10 feet being a straight stem, from 1½ to 3 inches diameter. Any less number will be taken, down to a single tree, if of the above dimensions. Four or 20 Lime or Plane trees would also be taken with the above.—Apply to Mr. PHENE, Architect, 34, Oakley Street, Chelsea.

NEWSPAPER

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Aug. 18.

SPLENDID NEW VERBENAS, 1857.—Prince of Wales, Dred, Sims Reeves, Crimson King, Lady Palmerston, Evening Star, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Cupid, Miss Trotter, Monarch, Clarissa, Mrs. B. Stowe, Magnet, Venus, Scarlet Gem, Brightonia, Julie de Courcelle, Calypso, Stephen, Mademoiselle Casille, Andromaque, Phœbus, Evelina, Madame Castellan, nigricans, Henrietta Huet. Selections from the above 7*s.* per dozen, free by post.

Address, Henry May, The Hope Nurseries, near Bedale.

NEW FUCHSIAS AND VERBENAS OF 1857. FUCHSIAS.—Little Bo-peep, the Little Treasure, Miss Bailey, Fairest of the Fair, Una, Souvenir de Chiswick, Adonis, Etoile du Nord, Marquis, Princess Royal, Marchioness, the Silver Swan, Royal Victoria, Cœur de Lion, Tristram Shandy, Daniel Lambert, Albert Smith, Fair Oriana, Star of the Night. The above 18*s.* per dozen free by post.

VERBENAS.—Those sent out by Henderson, Turner, Smith, and several first rate Continental vars., 6*s.* per doz. free by post.

J. Courcha, Florist, Wellington Row, Hart Lane, Bethnal Green Road, London.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. Glenny, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 14, York Street, W. C.

REIGATE SILVER SAND (sharp Grit and free from Iron) 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—John Kennard, Swan Place, Old Kent Road, S.E.

THE CELEBRATED REIGATE SILVER SAND, 15*s.* per ton, a less quantity 1*s.* 6*d.* per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s.* 6*d.* each. The above Sand is warranted. Orders immediately executed.—Address to John G. Bryan, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. May & Co., Seedsmen, Wellington Street, Strand.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr Boucherie's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

William Howden, Secretary.

26, Great George Street, Westminster.

M'DOUGALL'S DISINFECTING POWDER.—This valuable and cheap disinfectant used in Stables, Cow-houses, Piggeries, Fowl-houses, and Kennels, completely removes all noxious smells, and gives a pure atmosphere. Manures treated with it are much improved, as the ammonia and phosphoric acid are preserved, and a compound formed well known to be of great value for Agricultural purposes.—A. Herriot & Co., London Agents, 2, Great Scotland Yard, Whitehall, S.W.

TO THE GENTRY, ARTISTIC GARDENERS, &C.

SWISS AND RUSTIC WORK, a great variety always on view. Thatched Summer Houses, Pagoda Roof Zinc ditto; Yew, Oak, and Swiss Tables, Oak Benches, Yew Seats and Stools, Flower Tubs, Vases, and Baskets, ready for delivery, always on view at TROTMAN'S Manufactory, 12, Alfred Terrace, Upper Holloway.

N.B.—On account of extensive alterations in the premises, a liberal allowance will be made to present purchasers.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS
of every Description for the Amateur or Practical Gardener, and of Warranted Quality.

DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

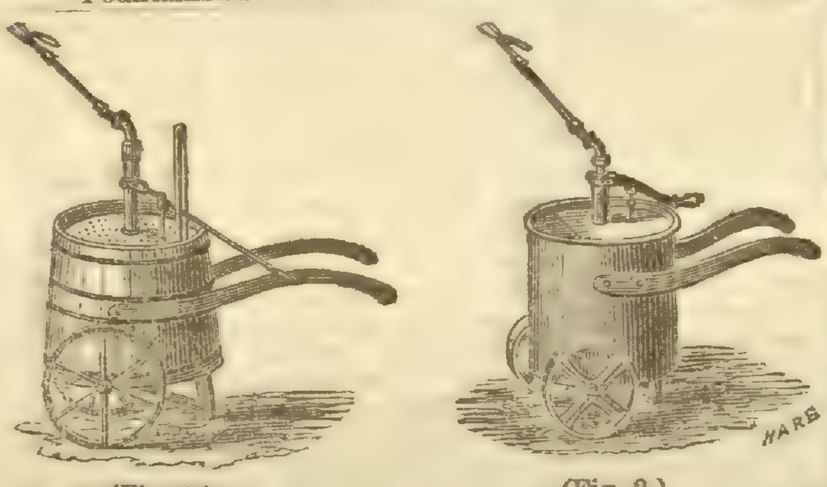
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.



(Fig. 1.) (Fig. 2.)

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 1.), in best well painted Oak tub, fitted with improved Pump.

No. 1	holds 10 gallons,	throws 30 feet high	..	£4	10
No. 2	,, 15 ,,	,, 45 ,,	..	5	10
No. 3	,, 28 ,,	,, 45 ,,	..	6	18

J. TYLOR AND SON'S BARROW GARDEN ENGINE (Fig. 2.), in strong tinned iron tub, well painted inside and outside, with improved Pump.

No. 10	holds 8 gallons,	throws 25 feet high	..	£2	15
No. 13	,, 12 ,,	,, 30 ,,	..	3	5
No. 11	,, 16 ,,	,, 40 ,,	..	4	0
No. 12	,, 24 ,,	,, 45 ,,	..	5	0
No. 14	,, 30 ,,	,, 45 ,,	..	5	18

A large assortment of every description of Garden Syringes, Pail Engines, Conservatory Pumps, &c., kept in Stock.

No. 1. Plain Syringe, 14*s.* 3*d.*; No. 2, do., 12*s.*; No. 3, do., 10*s.* 6*d.*

Read's Syringe, 19*s.*

J. Tylor & Son's Horticultural Apparatus may be obtained at these prices from any respectable Ironmonger or Seedsman in town or country, through whom alone they will be supplied, and of whom Drawings and Prices may be had.

N.B. Cost of carriage, &c., not included in these prices.

J. Tylor & Son's Manufactory, Warwick Lane, Newgate Street, London.

J. TYLOR AND SON'S REGISTERED GARDEN SYRINGE.—Small size, for Amateur use, 21*s.* each, Large size, for Gardeners' use, 25*s.* each.

Extra for Telescope Tube as shown in engraving for watering plants on stands at a height of 8 feet, so that any quantity of water can be deposited in the pot without wetting the leaves, 10*s.*

By a simple arrangement this Syringe is rendered more effective than any portable Conservatory or Garden Pump ever offered to the public. It is equally adapted for Garden or Conservatory use, and is capable of discharging twice as much water in a given time as any other Syringe now in use. The arrangement consists in attaching a small flexible suction tube to the barrel of the Syringe, through which it is filled with water at every discharge of the previous contents. By this means the Syringe is always charged, and the pull-up stroke of the piston rendered perfectly easy, it having, indeed, no work to do, the barrel being previously full of water. Being thus made self-supplying, a great saving of labour is effected; and the necessity of stopping to fill the Syringe at every discharge being done away with, the direction of the water can be maintained for any length of time. It is perfectly cleanly in its action, as it is not possible for any water to get on the outside of the barrel, which is a well-known inconvenience attendant on the use of every other Syringe. Its construction is perfectly simple, and cannot get out of order; the ground in ball valves and fittings used for filling all other patent Syringes being entirely superseded. To be had of any respectable Ironmonger or Seedsman in town or country.

J. Tylor & Sons, Manufacturers of Horticultural Apparatus, Warwick Lane, Newgate Street, London.

N.B. These prices do not include carriage, package, or expense of delivery in the country.

GLASS.

JAMES PHILLIPS AND CO. beg to submit their REDUCED PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

	s.	d.	
6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ / 8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½	11	6	per 100 feet.
10 by 8 and 10½ by 8¼ ..	12	6	,,
Larger sizes from 12 by 9 to 15 by 10 ..	14	0	,,
Above 15 ,, 10 ,, 24 ,, 18 ..	16	0	,,

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. / 20 ,, 13 ,, 20 ,, 15 ..	18	0	,,

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 40*s.* and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.
Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	10	6	per box
7 ,, 5 ,, 7½ ,, 5½	12	0	,,
8 ,, 6 ,, 8½ ,, 6½	13	6	,,
9 ,, 7 ,, 9½ ,, 7½ & 10 by 8	15	0	,,

HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 3*d.* to 5*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

THE EAST LONDON PLATE AND SHEET GLASS WAREHOUSE, 45, Leman Street, Goodman's Fields. The best place in England for Strong Glass of every description. Owing to the immense stock of PLATE, SHEET, and CROWN Glass always on hand, B. Moss & Co. are enabled to sell cheaper than any other house.

Glasses, cut to the different sizes for Photographic purposes, always ready in stock.

100 feet Boxes, strong, small sizes, 6*s.*, box included. Estimates given and Shop Fronts glazed at the shortest possible notice, &c., &c.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. | Fern Shades and Stands.
Bee ,, | Glass Milk Pans

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOMHEADS for all Horticultural Purposes, Mansions, Stables, Scavengers, and common use. Also for Carlows.

W. Henderson begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth not holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction, and the many advantages the invention possesses, need only be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin ..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. Henderson, Inventor of the Patent Improved Broomheads, Dunkeld.

ACHROMATIC MICROSCOPES

SMITH AND BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

E. G. HENDERSON AND SON'S
BULB CATALOGUE & REVISED HERBACEOUS LIST

IS NOW READY, and presents an excellent opportunity to Amateurs of making a selection from the choicest DUTCH HYACINTHS, and other Bulbs. Great care has been exercised in the compilation of the Lists for the present season, and only such varieties have been inserted as they could after repeated trials with confidence recommend.

A TREATISE ON THE CULTURE AND TREATMENT OF THE HYACINTH has been also added, and copious Notes relative to the Management of other Bulbs, &c. Forwarded post free on application.

CALCEOLARIA, CINERARIA, and PRIMULA SEED, of the above, saved from the best varieties, in 2s. 6d. and 5s Packets.

THE NEW GOLDEN HAMBURGH and BOWOOD MUSCAT GRAPES are now ready, price 21s. each.

PART II. of "ILLUSTRATED BOUQUET" will be published in September.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W., LONDON.

SPIRÆA CALLOSA, fine Plants, 2s. 6d. each; packets of the Seed, 2s. 6d.
DILLISTONE & Co., Sturmer Nurseries.

ALL THE BEST AND POPULAR STRAWBERRIES can now be had in fine well rooted Runners, at reasonable prices.—Sturmer Nurseries, August 15.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10s. per 100; and GOLIATH, 3s. 6d. per 100, or per post per dozen, 30 stamps. Plants are now ready
N.B. The trade may communicate by letter.
Lyncombe Vale, Bath

STRAWBERRY PLANTS.

WOOD AND INGRAM beg to offer well established Runners of the following kinds at prices annexed. A remittance expected from strangers.

	Per hundred—s.	d.		Per hundred—s.	d.
Underhill's Sir Harry ..	20	0	Cole's Prolific	3	6
Rivers's Eliza	3	6	Bicton Pine	3	6
Trollope's Victoria ..	3	6	Princess Alice	3	0
Black Prince	3	0	Swainston Seedling ..	3	0
Prince of Wales (Ingram's)	5	0	Stirling Castle Pine ..	3	6
			Kitley's Goliah	3	0
Keens' Seedling	2	6	British Queen (true) ..	3	6
Elton Pine	2	6	Myatt's Eleanor	3	0

Huntingdon Nurseries.

EARLY STRAWBERRIES.

WILLIAM JAMES NICHOLSON has much pleasure in offering plants of the following, as being equal to the earliest of the older Strawberries in time of ripening, and much superior in flavour and size:—Princesse Royale, the earliest and best French forcing variety, large size, fine colour, and good bearer, flavour rather acid, fruit ripe June 13, 1857, 10s. per 100.—Marquise de Latour-Maubourg, very fine flavoured handsome fruit, ripe June 13, 20s. per 100.—Ne Plus Ultra, a very large and beautiful variety, very dark colour, of vigorous habit and an abundant bearer, should be in every collection, ripe June 20, 30s per 100.—La Reine, exquisite flavour, colour nearly white, middle size, and good bearer, ripe June 20, 10s. per 100.—Comtesse de Marnes, a very early forcer, good in flavour and bearing, ripe June 20, 5s. per 100.—Comte de Paris and Cremont, each 5s. per 100.—Sir Harry, 20s. per 100.—Ingram's Prince Alfred, 20s. per 100, and a great number of others, including Alpines, from 5s. to 10s per 100.

A Post-office Order on Yarm is expected with every order.
Egglescliffe, near Yarm, Yorkshire.

HUGH LOW & CO. have now ready for distribution their Catalogue of Plants, Trees, Shrubs, etc., for present Season. It extends to 71 pages, printed in small type in double columns, and will be found to contain very Complete Collections of Stove, Greenhouse, Orchidaceous, and Hardy Plants: Ferns both Hardy and Exotic, Camellias, Azaleas, Ericas, Conifers, Fruit Trees, and Florist's Flowers. Special attention is invited to the List of Seedling Coniferous Plants, as it contains a large number of rare kinds, probably more than have ever been before offered at any one time. In the List will be found Abies amabilis, A. bracteata, A. grandis, A. Pinsapo, Cupressus Lambertiana, C. macrocarpa, Pinus insignis, P. radiata, P. Fremontiana, P. macrocarpa, P. monticola, Wellingtonia gigantea, many of which can be offered by the hundred or thousand. The Catalogue will be sent post-free on application.—Clapton Nursery, London, N. E., Aug. 15.

VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg to call the attention of the Public to their large Stock of fine healthy VINES in pots from eyes, 6 to 8 feet long, and strong in proportion, including all the leading varieties. Having a few years since built a large experimental Vinery, which is now in full fruit, they have had the opportunity of proving the different varieties, which accordingly enables them to warrant their plants true to name. Amongst others L., P., & Co. would very strongly recommend the following, especially the "Bidwell's Seedling," a fine Vine of which may now be seen in full bearing in their Vinery:—

Alicant	Gromier du Cancal
Bidwell's Seedling	Golden Hamburgh
Black Hamburgh	Joslyn's St. Alban's
Black Prince	Muscat of Alexandria
Black West's St. Peter's	Mill Hill Hamburgh
Black Barbarossa	New White Dutch Sweetwater
Cannon Hall Muscat	Richmond Villa Hamburgh
Esperione	Raisin de Calabre
Frontignac, White	Tottenham Park Muscat
,, Black	Welbeck Tripoli, &c.
,, Grizzly	

Exeter Nursery, Exeter.—Established 1720.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasii, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot ..	.. ..	0	15
Ditto ditto, extra strong	.. ..	1	1
Six ditto ditto, smaller	.. ..	3	3
Twelve ditto ditto	.. ..	5	0

Knap Hill Nursery, Woking, Surrey.—Aug. 15.

DUTCH FLOWER ROOTS.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of HYACINTHS and other BULBOUS ROOTS is now ready, and can be had post free on application. This Catalogue gives descriptions of the colours and habit of each variety, also Brief Hints for the proper Culture of the Hyacinth.

A CATALOGUE of CHARLES TURNER'S Superb Collection of TULIPS is now ready, in which will be found a great reduction of price of many of the varieties, and will be sent post free on application.

The AUTUMN CATALOGUE of PELARGONIUMS, &c., is now ready, and contains descriptions of Hoyle's, Turner's, and Foster's new varieties. Sent post free on application.
Royal Nursery, Slough.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

NEW AZALEA INDICA.

ROSY CIRCLE (IVERY'S).—Plants of this very fine distinct variety are now ready for delivery at 21s. each, with the usual allowance to the trade. It was awarded a first-class Certificate at the National Floricultural Society's meeting on May 17th, 1855, the only time it has been exhibited. For description see Catalogue, which also contains a Descriptive List of all the most approved kinds; sent post free upon application. J. IVERY & SON feel great pleasure in recommending the above named variety to all growers of this popular class of flowers, as they feel assured it will give great satisfaction.
Dorking Nursery, Aug. 15.

The Gardeners' Chronicle.
SATURDAY, AUGUST 15, 1857.

IF there is any one thing concerning the truth of which gardeners have a most entire conviction it is the tendency of MELONS and CUCUMBERS to mule with Gourds. It would be difficult indeed to find a man disposed to believe that Melon seed can be genuine if saved in a place where the pollen of a Gourd can find access. For our own part we confess to having entertained a belief of the kind; and we could almost say that cases of Melons muled by Gourds have come under our own observation. That Melons often seem to have been thus spoiled is undeniable.—It would however appear from some very careful and trustworthy experiments of Monsieur NAUDIN that this may be a mistake.

This gentleman, who is one of the aid-naturalists in the Garden of Plants at Paris, and a botanist of great reputation, has occupied himself of late years with an experimental examination of certain cultivated Gourds, mainly with a view to ascertain the number of their species, and to what species the numerous cultivated kinds are referable. In the year 1856 alone he and Prof. DECAISNE studied above twelve hundred live specimens, collected from France, Spain, Italy, the North of Africa, Egypt, the Levant, the West Indies, and South America; so that his means of forming a solid conclusion have been more considerable than any former observer has enjoyed. The classification of species and varieties thus arrived at is in itself extremely interesting, but for the present we confine ourselves to the physiological results.

With respect to the great Gourds or Pumpkins, *Cucurbita maxima*, M. NAUDIN says that they all cross with each other and with such astonishing facility that if means are not taken to keep them apart from year to year it soon becomes impossible to recognise them. He thinks moreover that their races were in the first instance produced by mere local causes, and that they may in many cases again change their appearance for the same reason; but he remarks that the peculiarities of the species remain unaffected. That the same tendency exists among other species is also admitted; but when we come to study the effect of one species upon another species the facts altogether change: as will appear from what follows.

Eight attempts were made to cross the Pumpkin with *Cucurbita perennis*, *Pepo*, *melanosperma* or *moschata*; in one case only did the fruit swell, and that was under the influence of *C. perennis*. But the flower had certainly been self-fertilised, and therefore the experiment went for nothing.

Thirty-two crosses of *C. Pepo* (the common Gourd) were attempted, out of which two only took, and in these although the fruit swelled and ripened it contained no perfect seed.

Three trials were made of *C. moschata* by varieties of *C. Pepo*; all failed.

In the case of *C. melanosperma*, with which 13 attempts were made, in two of them the fruit swelled, without producing perfect seed; the others wholly failed.

Same result with *C. perennis* crossed by *C. maxima*; 13 flowers were operated on, but in none would the fruit form.

We give M. NAUDIN's conclusions in his own words. "It will be seen," he says, "that the experiments do not favour the hypothesis that in the genus Gourd hybrids can be produced by crossing one with the other. Nevertheless, although there is a great probability that the opinion is erroneous, I affirm nothing positively; fresh experiments are required before the question can be finally settled. At the same time this fact is established that, under the influence of the pollen of another species fruits will sometimes form as well as if they had been fertilised legitimately, but will have no power to form seeds containing an embryo. This looks as if, in the race of Gourds, the energy of the pollen was not wholly expended upon the ovules, but was also directed to the vivification of the ovary. This would explain the necessity of a great number of pollen grains for fertilising ovaries even when the number of their ovules is comparatively small. And if this be so there must be a sort of double fertilisation, firstly that of the ovary, secondly that of the ovules, the first not being necessarily followed by the second."

"As to the notion of gardeners that Melons degenerate and become Gourds when they are grown near the latter, it is to be remarked that the degeneracy is said to occur, not among the fruit of a second generation, that is to say among hybrid fruits, but directly among the first generation, those that is to say which are supposed to have been affected by the Gourd pollen. Strange as is this opinion, and notwithstanding its improbability, we are not authorised to give it a direct denial. What is certain, in my mind at least, is that in the family in question, ovaries will swell into fruits under the influence of foreign pollen, although they will not form good seeds. Nor is there any proof that this may not happen with the Melon stimulated by the pollen of a Gourd. What is really more doubtful is whether the quality of the fruit would be also affected. This is a subject for future experiment."

Upon this we would remark that as far as we know English gardeners do not generally fear immediate evil from the crossing of a Melon by a Gourd, but only that kind of future evil which arises from the seeds being hybridised. There are, however, a few cases on record in which a change in fruit is said to have taken place immediately after contact with another kind of pollen; but that some of the alleged cases are apocryphal and that others are susceptible of a different explanation we think must be admitted. BRADLEY, a horticultural dreamer, placed implicit faith in these immediate changes; and in the 5th vol. of the Horticultural Transactions is a record of some such cases. A netted Succade Melon is reported to have been spoiled by a worthless neighbour, a Ribston Pippin by a Codlin, a Holland Pippin by a Winter Calville, a French Crab by a Ribston Pippin, an Amaryllis vittata by another species, a blue Pea by a white one. But surely such changes, if they really took place, must be of daily occurrence and familiar to every one; which at all events is not the case. The great ANDREW KNIGHT knew nothing about them; on the contrary he held an entirely opposite opinion, remarking that inasmuch as "the seed coats and fruit of some species of plants acquire nearly if not wholly their perfect growth when the pollen has been entirely withheld, or when from other causes it has not operated—it has been inferred that neither the external cover of the seeds nor the form, taste, or flavour of fruits are affected by the influence of the pollen of a plant of a different variety or species." And this seems to be confirmed by M. NAUDIN's experiments. Is it possible to be otherwise?

CAN SCALE and RED SPIDER be killed? That is indeed an important question.

The earliest successful application to the Vine disease was a solution of equal parts of lime and sulphur in hot water, constituting an impure sulphuret of lime, or rather, according to GREGORY, a mixture containing hyposulphite of lime and

persulphuret of calcium. A large quantity of sulphuretted hydrogen is given off from this mixture, and ultimately a white or yellowish pellicle smelling strongly of sulphur is deposited wherever the liquid falls, which gives some permanence to the remedy beyond the present moment of the application. It is not however with regard to the Vine mildew that the subject is again brought before our readers. This solution has been found a most admirable application in those cases of scabies where the disease has not passed into the pustular form, and is now used almost to the exclusion of other remedies in one of our principal hospitals.

As a great deal of the virulence of the human disease depends upon the presence of a little Acarus, and the cure is effected in great measure by the destruction of this insect, it is highly probable that the solution may deserve more attention than it has received at present as an application against scale and red spider, two of the most obstinate affections in our stoves and frames. For this purpose it will require to be used of tolerable strength, though the precise strength which plants can bear without injury must be determined by experiment. The solution as applied to scabies is formed with 4 ounces of quicklime and the same quantity of flowers of sulphur boiled for a quarter of an hour in a gallon of water. This when decanted forms a clear amber-coloured solution, and in scabies is so rapidly efficacious that a single application only is necessary. In scale the solution might be applied with a brush, and would require probably but a slight admixture of water, if any. In the case of red spider the solution somewhat attenuated, but not we think to any considerable degree, must be applied with a garden syringe, care being taken to reach the under surface of the leaves as much as possible. The only inconvenience which would be likely to arise from its use is the discoloration of any paint that might be in the house from the action of sulphuretted hydrogen, but in many cases, as in Cucumber or Melon frames, this would be a point of no consideration. *M. J. B.*

It is not our intention to make many remarks upon the two reports relating to the Crystal Palace which have just appeared.* But there are some points upon which comment seems to be desirable, since they relate to matters of horticultural as well as public interest.

It seems that the receipts at Sydenham continue to be so insufficient that the Directors have been driven to the expedient of proposing to raise the large sum of 250,000*l.* "by debentures forming a primary charge of 6 per cent. in perpetuity upon the Company," a measure which only extreme necessity could justify. It appears that the shareholders, before assenting to the proposal, resolved to have a report of their own upon the Directors' report; and therefore nominated a committee of 21 shareholders to examine the accounts and statements of their board. The result of their inquiry and the official comments upon it are the documents before us.

The Committee of Shareholders "find, that as the external and internal Gardens are now finished, the superintendence of both should be performed by one and the same person, who should devote his whole time and attention to the same. They find there are at present 146 Gardeners employed; from their own personal and repeated observations and inquiries they believe that a large reduction in the number of workmen in the Gardens may be safely effected, if placed under the constant supervision and control of a responsible head. At present it is evident to each member of your Committee that the large number of men employed in the exterior gardens are without effective supervision."

We find, however, from the Directors' reply that this statement is inaccurate in its most essential point. Instead of 146 Gardeners being employed, the whole number is only 89, and "the winter establishment is considerably below the summer one." Nor indeed can the number 146 be made up even when police, watchers, and temporary labourers are reckoned; for the total number even then, say the Directors, is only 121 instead of 146, a rather material error. The number being really 89 instead of 141, that is to say about "one man to two acres of ground, a great part of which is in the highest state of cultivation, and with extensive forcing houses attached to it" (we quote Mr. Ferguson's words), it does seem to us that the complaint of the Committee as to labour being excessive is most unreasonable, and could only proceed from gentlemen totally unacquainted with gardening operations. The common allowance of labour in such a garden is a man to an acre, and it appears that the Crystal Palace employs but half a man.

As to placing the whole horticultural department under one head we should ourselves incline to the same view were the Crystal Palace Garden like other places to which the name of Garden is given. But in reality it is so large, and the out-door and indoor duties are so distinct that we cannot but think the proposal objectionable. The Committee themselves in another part of their report complain of the loss and inconvenience said to arise from the same superintendent having to do duty in two different places. They say—"There is no effective control over the workmen under ground. The foreman of the workmen stated that he was constantly called away from below to attend to his duties among the workmen upstairs, and during his absence there was no control over the men." If so much evil arises from a superintendent being sometimes upstairs and sometimes down-stairs, there would surely be far more loss if the duties of the superintendent were made to lie at the two extremities of such a place as the Crystal Palace Grounds. We strongly advise the shareholders to refuse assent to this proposition. If acceded to it will end in there being no superintendence at all.

With regard to the Flower Shows the Committee say, "It appears that (in this year) three Flower Shows were held under the superintendence of Mr. Eyles, and prizes to the amount of 2289*l.* were distributed. The expenses of fittings, &c., amounted to 335*l.*, incidental expenses 464*l.*, and refreshments 145*l.*, making a total cost of 3234*l.* The cash receipts were 3716*l.*, making a difference in favour of the Company of 482*l.* odd, and the carriages and stands are available for future occasions; but inasmuch as the Flower Shows were, no doubt, a great inducement to many to purchase Season tickets, no account should be taken of the loss of the ordinary admissions upon the days set apart for these shows."

We are not surprised at the statement. It has always appeared to us impossible that profit should attend arrangements of this kind on so costly a scale as those at Sydenham. A thousand guineas a day, and upwards, for mere prizes for flowers and fruit, exhibit a spirit of reckless speculation which could only end in loss. According to the Committee some four or five hundred pounds' worth of profit have been nevertheless derived from them. It may be so. Since we have no details of expenditure to examine we have no right to question the statement, unless it be on the ground that when a Committee is found to be generally inaccurate in their figures, as Mr. Ferguson asserts the Committee in question to be, we may be permitted to doubt their exactness on one side of the account as well as on the other. We should be much surprised if the supposed gain of 500*l.* by the Flower Shows did not, when critically examined, prove to be also a loss. This at least is we think certain, that they will soon become one, if the present scale of prizes and other heads of outlay is maintained.

In these remarks we have confined ourselves strictly to the Gardens. Whether the statements made by the Committee are more entitled to attention when speaking of other points we have no means of judging, except from Mr. Ferguson's reply, which seems to be satisfactory as regards the matters introduced into it. One thing however we hold to be certain, and that is, that a parsimonious direction will not fill the Company's exchequer. The Crystal Palace is one of those grand conceptions which inevitably involve an enormous annual outlay. Time may unhappily show that such an outlay will be fatal to it; that it will perish in the absence of a large expenditure very little time will be needed to prove. It must be fed liberally or it will surely die; to starve it will only be to accelerate its dissolution. Unless indeed it can be converted into a vast pic-nic establishment as the *Times* proposes; not a bad idea coupled with other things—but not to be thought of as the whole means of existence.

*1. Report of Committee of Shareholders; dated July 30, 1857.

2. Mr. Ferguson's report thereupon (on the part of the Directors); dated Aug. 5, 1857.

THE GARDEN OF THE TUILERIES.

The French style of gardening has many admirers, and for some situations it is perhaps the best and most appropriate that could possibly be adopted; but at the same time we must confess there is a certain quaintness about it, as well as a degree of stiffness and formality, that is not exactly suited to our taste. Even the celebrated garden of the Tuileries, which we have heard so frequently extolled for its magnificent appearance, failed to strike us as being in any way very remarkable, except as offering a fine example of that peculiar style which is characterised by its statues and fountains, its narrow flower borders, and its clipped alleys and avenues of forest trees. Considering that it was designed and laid out in 1665 by Le Notre, the most distinguished artist of his day, and is understood to have undergone but little alteration since that time, we venture to think a few remarks upon its present condition as it strikes the eye of an English gardener, may not be unacceptable to some of the readers of the *Gardeners' Chronicle.*

This garden is so situated as to be an ornament to the Palace, and a delightful place of recreation to the public. Being open daily throughout the year, and easy of access to the residents on both sides of the Seine, it is much frequented by all classes, and is generally regarded not only as an agreeable promenade, but as one of the most fashionable in Paris. It is in the form of a parallelogram, extending westward from the Palace to the Place de la Concorde, and occupies a space of about 50 acres. Of this we should think nearly three fifths, or what is called the Grove, are covered with Elm, Plane, Lime, and Horse Chesnut trees. The parterres and flower borders may be about another fifth, and the remainder is taken up by terraces, avenues, and walks, &c. Entering from the Rue de Rivoli on the north, at the distance of 60 or 70 yards from the Palace, a broad walk leads across to an entrance on the opposite side near the Pont Royale. Another broad walk runs from the central gate of the Palace through the middle of the garden to the western entrance on the Place de la Concorde, and being in a line with the Avenue des Champs Elysées, gives a view for two miles in this direction that for interest and beauty is scarcely to be surpassed. In front we have the fine avenue of Horse Chesnuts, with fountain beyond—in the middle distance stands the obelisk—and in the back ground the magnificent Triumphal Arch de l'Etoile crowns the whole and completes the picture. To these two walks all the other walks and alleys are parallel. On the north and south are two terraces. The former is only a few feet above the level of the Rue de Rivoli, from which it is separated by a lofty iron railing gilt at the top. The south terrace overlooks the Seine. It is wider and of considerable height, and commands some beautiful views up and down the reaches of the river. During summer it is open to the public, but throughout the winter and spring months it is closed, and kept expressly for the private use of the Emperor and other residents in the Palace. At the west end a large Orangery has lately been erected for the purpose of preserving in winter the many fine old specimens of Pomegranate and Orange trees which are distributed over the garden in summer. Whatever merit the building may possess in the way of utility, it certainly has nothing in point of beauty or originality of design to recommend it; and we think it could only have been through some mistake that this unsightly structure came to be placed in such a situation. The western terrace is a continuation of that on the south, and being on the same level. The entrance in the centre separates it into two divisions, from each of which excellent views are obtained over the Place de la Concorde and the Champs Elysées. In the former many objects attract our attention; but none are more conspicuous than the obelisk of Luxor, composed of a single block of the finest syenite, 72 feet in height, and said to have stood in front of the great temple at Thebes 1500 years before Christ. It is regarded as one of the most interesting relics of ancient Egypt. Near to this venerable monument of antiquity are two noble fountains, one of which is dedicated to maritime, the other to fluvial navigation. Both are similar in design, and have a very beautiful effect. Along the terraces are planted a double row of Lime trees, 12 or 14 feet apart, which form avenues that are much frequented during the hottest days in summer for their agreeable shade. These trees are annually subjected to what may be termed "heading treatment," the lower branches on both sides being trimmed to the height of about 15 feet, while such of the upper ones as spread across the avenue and are likely to mar the appearance of its arched outline are shortened back, or removed altogether. This operation is performed early in the spring, and is effected by means of a sharp light pruning-hook fixed on a long handle, which the French workmen manage with great dexterity while standing on one of two ladders placed against each other in the form of the letter A, and secured into a frame having four small wheels, which an assistant moves backwards or forwards as required.

This annual pruning is given to all the trees in the several alleys through the Grove, as well as to those on either side of the broad avenue. Being much taller than the stunted trees on the terraces, the trimming is carried up to a far greater height, averaging we should think to nearly 30 feet.

With regard to the Grove itself, there are some trees in it that have attained a considerable size, but these having been originally planted in rows about 12 feet apart, by far the greater number of them are nothing else than long naked poles without any other recommendation than what is furnished by their tops forming a dense mass of foliage that effectually shade the thousands who congregate under it for exercise or relaxation. Where vacancies have occurred young trees like fishing rods have been planted to fill them up, but with a better chance of success than might be anticipated. Instances of this kind are, in our opinion, but so many proofs that the parties who directed such work to be done were very deficient in their knowledge of arboriculture, however well informed on other subjects.

In each division of the Grove is an inclosure in the form of a parallelogram with semicircular ends, one

which is of white marble having a beautiful statue of the same material in the centre, while the ground in front is laid out in long narrow walks, with beds of Grass and flower borders alternately. The latter have a row of standard Roses up the middle, and are first filled with Tulips and Hyacinths for flowering in spring. After their beauty is gone the roots are all taken up and the ground replanted with groups of Scarlet Geraniums, yellow Calceolarias, and the white Artemisie (?) a weedy-looking plant, but an especial favourite of the French. The combination of these three colours is very effective, and throughout the season the beds have a gay appearance. Both inclosures are stated to have been made in 1793 after designs by the notorious Robespierre.

The parterres and ornamental portion of the garden formerly extended from the Grove close to the Palace, and the public having access to the whole used to pass so near as to be able to look in at the windows. For years the inconvenience that resulted from this state of things was permitted to continue. Even the great Napoleon with all his power was unable to effect the alteration which Louis Philippe accomplished soon after he was called to the throne in 1830, and which every one will admit to be a great improvement, in so far as the comfort and privacy of the occupants of the Palace are concerned. This consisted in the formation of the two parterres immediately in front of the Palace, and the construction of a deep fosse across the garden for the purpose of inclosing them, and excluding the public. On the top of the fosse is a netted iron railing, while along the bottom a hedge of Lilac has been planted, and allowed to grow so high as to conceal the wall of the fence and the railing from being seen from the Palace. The parterre is laid out in a very plain manner, being, in fact, nothing more than a long piece of Grass surrounded by a couple of narrow flower-borders, with a broad walk between them. Various statues and vases are placed at certain distances over the Grass, but as there are no flower beds nor any ornamental shrubs to produce variety, except standard Roses, Althæa frutex, and Persian Lilacs, the whole, although neatly kept, has rather a naked appearance.

The part of the garden laid out in the style of Louis XIV., which the public so much enjoy, looks fuller and has a better effect, owing to the numerous fine Orange trees and groups of statues that are dispersed over it. In the centre there is a large circular fountain, and in each division a smaller one with broad walks around them, from which others diverge to some that run across the garden. The spaces between these being inclosed with netted iron railing are laid out in a similar manner to the parterre in front of the Palace—the only difference being that, instead of having two borders edged with Box round the outside of the Grass or lawn, there is but one, with a narrow path on each side of it.

The variety of plants with which the borders are filled is not large, nor is the selection by any means what we should have anticipated, considering how favourable the climate of Paris is for the growth of such as delight in a dry, clear, atmosphere. Most of those we esteem in England as the brightest ornaments of the flower-garden are scarcely known, or at all events they are not to be found in the flower borders of the Tuileries. The French gardeners, however, are entitled to praise for the taste they display in arranging the few plants they cultivate, so that their colours may produce the most pleasing effect on the eye when contrasted with one another. The plan they pursue is worthy of notice, and readily accounts for the even tone of colour which is observable in every border throughout the garden. After the whole has been neatly dug in spring, each bed is marked off into five rows across. These again are marked off lengthways 2 feet apart. The two outside rows are both filled with the same sort of plants, and this season (1857) consisted of the following:—1, Geranium Lucia rosea; 2, Dwarf Rose; 3, Geranium Lucia rosea; 4, Yellow Alyssum; 5, Dwarf Phlox; 6, Double White Rocket; 7, Tom Thumb Geranium; 8, Dwarf Phlox; 9, Double Stock; 10, Yellow Alyssum; 11, Tom Thumb Geranium; 12, Sweet William; 13, Perennial Flax; 14, Dwarf Veronica; 15, Perennial Flax; 16, Sweet William; 17, Geranium Lucia rosea as before. The second rows from the edge are both planted with the same sort of plants, but different from those in the first and intermediate with them. They are 1, Veronica Andersoni; 2, Veronica Andersoni; 3, Artemisie (?); 4, Scarlet Geranium; 5, Scarlet Geranium; 6, Blue Ageratum; 7, Fuchsia; 8, Fuchsia; 9, Artemisie; 10, Lobelia splendens; 11, Heliotrope; 12, Shrubby Calceolaria; 13, Shrubby Calceolaria. These are again repeated, but the order reversed. The middle row has another set of plants immediately opposite to those in the first row. They are—1, Dwarf Rose; 2, Persian Lilac; 3, Pæonia officinalis, taken up after flowering and replaced by a Geranium; 4, large blue Cynoglossum; 5, Standard Rose, with Gladioli round it; 6, Double Wallflower, afterwards replaced by a Geranium; 7, Phlox; 8, Standard Honeysuckle; 9, Delphinium; 10, Double Wallflower, replaced by a Geranium; 11, Standard Rose, with Gladioli round it; 12, Hollyhock; 13, Phlox; 14, Althæa frutex. The above repeated, but the order reversed.

Now if we take 1, 2, 3, 4, 5, and 6 in the preceding lists and arrange their respective colours in the same manner as the plants stand in the borders, we shall be able to form some idea of their appearance, and at the same time have a good example of the method by which a beautiful effect may be produced with a few comparatively common plants, when arranged in accordance with the rules that are understood to govern the harmony of colouring. In this instance the contrast would be as follows, viz.:—

Pale rose		Rose		Pale rose
	Blue		Blue	
Rose		Lilac		Rose
	Blue		Blue	
Pale rose		Rose		Pale rose
	White		White	
Yellow		Blue		Yellow
	Scarlet		Scarlet	
Lilac		Rose		Lilac
	Scarlet		Scarlet	
White		Deep brown		White

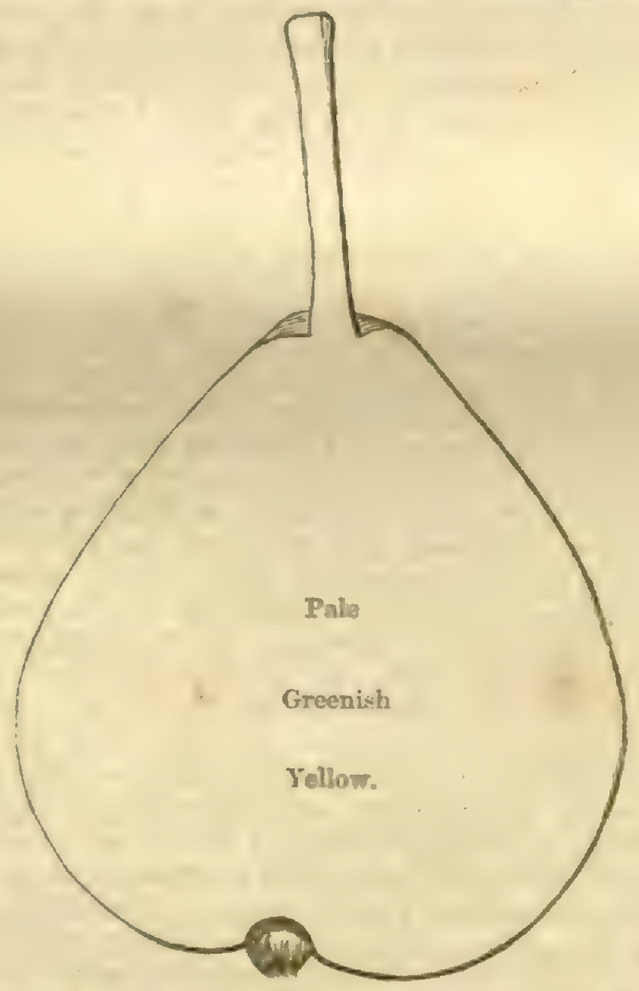
As the whole of the plants, with the exception of the shrubs, are taken up on the approach of winter, and renewed every season, the above arrangement will vary a little according to the scarcity or abundance of the stock of each kind that may be in the nursery and reserve gardens. The latter are of considerable extent and occupy the greater part of the raised terraces on each side of the entrance from the Place de la Concorde.

If taste and a knowledge of colours are observable in the distribution of the plants in the flower borders, we may also perceive a certain degree of skill in the peculiar method which is here practised of pruning and managing the Persian Lilacs and the few other shrubs that are cultivated. The Roses and Honeysuckles are annually headed back and pruned very close to the stem. The Lilacs are nice bushy half standards, having their branches so thinned and regulated that none either cross or interfere with each other, nor extend beyond a certain distance from the stem. In the winter-pruning all the young twigs are removed except the one at the end of the branch that is left for flowering, and towards the end of April and beginning of May they have a splendid appearance. Immediately the flowers decay, the twigs that bore them are pruned back and the branch made to send out a fresh shoot for flowering the following season; by this mode of treatment the bunches of flowers, although by no means so numerous, are very much larger and finer than any we are accustomed to see in England.

We ought not to close our remarks on this garden without noticing that it is abundantly supplied with water, every parterre having a pipe to which a hose can be attached and the Grass and borders watered as often as it may be deemed necessary. *Q.*

POIRE PÊCHE (Espéren.)

We have been favoured with specimens of this Pear by M. de Jonghe, of Brussels. The variety was raised from seed by Major Espéren in 1835 or '36, and bore for the first time in 1845. The accompanying figure represents the form of the fruit. The flesh is yellowish



white, very melting, with abundance of rich sugary refreshing juice. In ordinary seasons its period of maturity in this country will probably be near the end of August. The tree is vigorous, productive, and grafted trees soon come into bearing. The shoots are of a clear yellowish colour, like those of the Passe Colmar; the leaves ovate, slightly acuminate.

Many of the early Pears now in cultivation are dry and musky, and on the whole so worthless that the trees ought to be destroyed and replaced by superior kinds, of which one may be the Poire Pêche. It is hardy and bears well as a standard.||

IMPORTANT CASE AS TO RIGHTS OF WAY.

The following case relative to the dedication to the public of a private road is of more than local interest, and deserves the attention of landed proprietors.

The case, *Hutton* v. *the Wandsworth District Board of Works*, was tried the other day at Croydon, before the Lord Chief Baron and a special jury; being the question to settle which the action was brought whether a long road, called Putney Park Lane, connecting Putney Heath and Barnes Common, was a private or a public road.

Mr. Bovill, Q.C., Mr. Lush, Q.C., and Mr. Denman appeared for the plaintiff, who insisted that the road was private, and Sir F. Thesiger, Mr. Edwin James, Q.C., Mr. C. Pollock, and Mr. Honyman appeared for the defendants, who insisted that the road was public.

The witnesses examined were very numerous, and they and the documentary and other evidence adduced on either side established the following facts. The property through which the road ran formerly belonged to Lord Spencer. The Spencer family had from time to time sold portions of the property adjoining the lane, and had granted a right of way along it to the purchasers, who in fact had no other access to their property than the road in question. At each end of the lane there had been for upwards of 50 years a painted board, intimating that there was no thoroughfare for carts and waggons, and for about 30 years there had also been a gate at each end of the lane. It was admitted that there was a public footpath through the lane, and that the owners of the property adjoining and all persons having business there used the lane as occasion required. An old map, dated 1617, was produced, and showed that the lane in question did not then exist. The parish had never repaired the road, and the plaintiff and his predecessors had frequently warned the drivers of heavy carts and waggons that they were trespassing, and occasionally they had been turned back and not allowed to proceed. Lastly the Board of Inspectors for lighting had a year or two ago requested the plaintiff's permission to lay down pipes in order to light the lane, and permission had been granted.

All this evidence was in favour of the plaintiff. On the other hand the witnesses produced by the defendants swore that the gates were never locked, and that they were only intended to prevent cattle straying from the commons, and further that all sorts of vehicles had from time to time passed along the road. A builder stated that his own brick carts had frequently passed through without interruption. Another man had never heard of any cart or waggon having been stopped. Another man driving carts loaded with bricks, lime and other things had been stopped, but had passed through, and had continued to do the like for some time afterwards. Another man said that he had for years taken heavy carts through the lane. Mr. Green, head gardener to Sir E. Antrobus, deposed that he had many times driven down the lane when going to the Chiswick flower shows with vans filled with flowers.

The Lord Chief Baron, in the course of his summing up, said the jury had to consider whether there was a real honest and true dedication to the public. His opinion was that the notice board was a license to light carriages, and an evidence that the roadway was really not dedicated. If it had been an ancient public way, the parochial authorities would certainly long before 1857 have been called upon to repair it. He would, without troubling them further, leave it to them to say whether any dedication had been made out. If there was any evidence to show that there had been any dedication by Lord Spencer, they would return a verdict for the defendants, but if not, their verdict should be for the plaintiff. The jury, without hesitation, returned a verdict for the plaintiff.

BALSAMS.

On previous occasions we have spoken favourably of the beautiful Balsams grown by Messrs. Smith, of Dulwich; charming varieties of all shades of colour, red, white, and mottled, and of unusual size are annually grown by them, and this year forms no exception, for a collection shown the other day by these eminent cultivators of them was pronounced by all who saw them to be in every respect perfect. Some further account of their mode of growing them may, therefore, not be uninteresting.

In sowing they prefer the method of putting one seed in a 3-inch pot, especially if the object aimed at is to exhibit at shows. This should be done about the beginning of March for flowering in June or July. Place them on a gentle hot-bed as near the glass as possible, and the latter should face the south, in order that the plants may be well exposed to light. Let all superfluous moisture escape at the top of the frame by opening it from a quarter to half an inch on bright sunny days if the wind be not too cold or strong. A little more air may, however, be given as soon as the plants have begun to form their first leaves. When the latter have arrived at their full size, the plants should be shifted into larger pots. If plenty of convenience exists, warm greenhouses or intermediate houses with a tan or hot-water pit should be chosen for them, and if it is intended to grow the plants to a large size they may be shifted into 6-inch pots at once and plunged half-way in a bottom-heat of from 50° to 55°. Thus situated the roots will soon appear at the sides of the pots, and before they have turned half way round the ball the plants should be again shifted for the last time into 8, 9, or 12-inch pots according to the size to which it may be desired to grow them. Up to this stage size of plant has been the object kept in view; those who have not the above-named conveniences must be content to sow a fortnight later, still however following the plan just described. In the latter case the first shift ought to be into 5-inch pots, and if the help of a hotbed can be obtained the plants may be plunged in it, taking care, however, not to let the heat get over-strong. A plan frequently adopted by the Messrs. Smith is to plant in a pit heated at night from 60° to 65° by means of hot-water pipes, allowing an increase on bright days of

10 additional degrees. Let the plants again be shifted into 8-inch pots as before, for the last time.

The raising and shifting being now finished, attention must be paid to protecting the plants from sudden chills either from cold air or from falling off of bottom-heat; for if once stunted by cold, first class plants and flowers cannot be expected. Plenty of light and air, judiciously given, is indispensable, and care must also be taken to afford abundance of room; to do them justice they should as a rule stand as far apart as they are high.

Having stated the method of raising, potting, and general management the next thing is the kind of compost to be used, a point indeed which should have been adverted to before. This should be the top spit from a meadow of rich light loam a year old, cut about 4 inches in thickness. If this is not to be obtained take the same quantity of fresh soil, and after paring off the turf from the loam, char the former so as to reduce it to a state fit for breaking up and mixing with the loam. Add to this an equal quantity of manure from a spent hotbed, which if turned over to sweeten and dry before mixing so much the better. This compost should then be thrown together and well chopped and turned (not sifted), so that incorporation may be as complete as possible. In potting always endeavour to sink the plants low enough for the soil to reach the first leaves. If that cannot be done at the first, it should be at the second shift; this is necessary in order to obtain firmness in the pot, and also fresh surface of stem from whence to obtain more roots. The pots should be drained efficiently every time the plants are shifted, and over the drainage should be placed 1 or 2 inches of fresh manure from the stable. This will be found very useful to the plants as they advance in growth. As regards manure-water the larger the plants are required to be, so in proportion should this be used; but its application must be left to the discretion of the grower, who will be the best judge how often or how strong it ought to be given; for unskilfully administered it is sometimes productive of much mischief. In general Messrs. Smith have found the compost above recommended and pure water to answer every purpose.

Good Balsams may also be obtained by sowing in the first, or even as late as the third week in April on a slight or nearly spent hot-bed, transferring the plants at once to 8-inch pots and placing them in a cold pit about the middle or end of May. These may be expected to bloom in August or September, and will be found to well repay any trouble which may have been bestowed on them by an excellent display of finely coloured blossoms. *M.*

VEGETABLE PATHOLOGY. No. CLXIX.

375.* Caries (*Decay*).—It was mentioned under the Chlorosis of Orchids (No. LXXI.) that another somewhat similar affection occurs in these plants, but distinguished by certain peculiarities. The cells while still pallid, instead of being nearly empty, contain chlorophyll grains, their walls soon become decomposed, assuming a dark brown hue, and the contents are traversed in every direction with branched mycelium, while large masses of a brown waxy matter are visible in many of the cavities. This affection has been observed in the genera *Aerides* and *Saccolabium*. Like the Chlorosis it is often fatal, and neither the cause nor remedy have at present been ascertained. In certain stages of growth it resembles the Chlorosis very closely, and is then distinguished by the presence of chlorophyll grains and the want of folds on the cell walls.

457.* Albefactio (*Blanching*).—The following very curious case has been kindly forwarded to us by Mr. N. Burgess, of the Hackney Road, and is given nearly in his own words, for we have had no opportunity of seeing the specimen, and depend entirely upon his report. A plant of the pink *Cactus speciosus* had been kept dry all the winter, and had well matured its flower buds, but as it stood in an inconvenient place for watering it had been neglected, and consequently had not received much food for developing its flowers. The house meanwhile had been close shut up, and the thermometer had often risen to 110°. One day Mr. Burgess was surprised at seeing an expanded flower upon the plant about half an inch long, perfectly destitute of colour, or rather resembling in hue a Deal shaving. Surprised as he was at seeing so puny a flower expanded, he was still more surprised a week after to find that it was, notwithstanding its want of nutriment, gaining colour and increasing in size. This led him to pay more particular attention, and to water the plant well and regularly. The result was that in a fortnight every part had grown to its full normal size. It was indeed in every respect as fine or finer than usual, except that the tint was a little paler. The flower, moreover, has kept open longer than ordinary flowers. Unfortunately the state of the stamens and pistils was not examined, but from the duration of the flower it is probable that the stamens were imperfect, and impregnation had not taken place. Better opportunities may occur hereafter of examining the phenomenon, which we think worthy of being recorded, even with the imperfect information which we possess, because it shows that as blanched leaves, if not too suddenly exposed to extreme changes, will recover their proper green tint, flowers which have been dwarfed and discoloured from shade and defective nutriment may still attain their full dimensions on the admission of more favourable conditions.

457.** Though light is in general necessary to the perfection of the processes of vegetation, a few plants withdraw their parts of fructification as much as possible after impregnation from external influences. This is exemplified by such plants as *Trifolium subterraneum*, but in none more remarkably than in *Arachis hypogæa*, on which a short but interesting note was published by Poiteau in 1853. With the exception of Poiteau, Mr. Brown appears to have been the only Botanist who had previously observed it accurately, and in consequence it was supposed that part of the flowers were sterile, and part hermaphrodite, and exhibiting therefore a state just contrary to the abnormal condition which is so often assumed by certain Violets, Ajuga Iva, and some other plants. This notion, however, depended upon imperfect examination. The tube of the calyx is in fact extremely long and the style of equal length, with an extremely minute ovary at its base, so that a superficial notice might well overlook its existence altogether. After impregnation the ovary acquires a peduncle which soon becomes recurved so as to bring the fruit in contact with the earth in which it is ultimately immersed, and where it perfects its seeds. The upper flowers meanwhile in which the peduncle is not long enough to reach the earth are constantly abortive. It has been supposed that in these alone the corolla was fully expanded, and from its size exhausted the vegetative powers, while that in the lower flowers was small, but Poiteau informs us that at least in St. Domingo he has always seen the standard an inch across. The abortion of the upper flowers may be cited as an instance of sterility, in addition to those already given. *M. J. B.*

Home Correspondence.

Parasitic Vegetation.—On the 1st of August, while searching for animalcules in a salt-water pool, I observed a small tuft of bright green Seaweed darting about in various directions, as if it were alive. I soon succeeded in transferring this bit of animated Alga to a wide-mouthed bottle, when it appeared that a common brown shrimp had growing on the middle of his back a small plant of weed (Enteromorpha compressa, I think) quite as long as himself. Besides this, there was a commencing growth of the same Alga beneath his belly. In the pool he had at least one companion in misfortune burthened with the same incumbrance, whom I could not catch. Transferred to a large glass jar of sea-water he swam about, and fed, and cleaned himself, as well as his vegetable impediments would permit. He reminded one somewhat of a convict condemned to drag a heavy weight about with him. Next morning he was sporting about free in the jar, clean and lively; he had got rid of his load by changing his skin or shell, which lay at the bottom with the weed still attached. I inclose it for your inspection [and very curious it is. *Ed.*]. Not knowing how often the brown shrimp changes his skin, I cannot approximate to the time required for this growth of Seaweed on a living body. The Enteromorpha is fond of growing on living shells, as those of mussels and periwinkles; but I had never before seen it vegetating on a creature so highly organised and endowed with such locomotive power as the shrimp. *E. S. D.*

Peach Trees in Pots.—I read with great pleasure and profit the article on this subject by Mr. Saul, of Stourton Park, in your Number for April 11. But I want a little further information as to the treatment of my trees from the present time till they are taken into the house for forcing. They are now "set out of doors in a sunny airy situation," as Mr. Saul directs, and I fear with some red spider, as the foliage here and there looks autumn-like. But they are syringed daily, and are about to be "shifted into larger-sized pots." What then? How as to the "plunging," and where—a north wall, a south wall, or close shed—is the best place till forcing time? *W. C.* [Upon sending the above to Mr. Saul he has kindly furnished us with the following:—"The trees in question are probably affected with red spider; and although syringed daily, I would ask are the under-sides of the leaves syringed? Peach trees in pots require great attention in this respect. I would say still go on syringing until towards the end of September, when it should be discontinued; after the end of August it should only be done in the mornings, as after that time we often have frost at night. The shifting of the plants into larger sized pots should be completed forthwith. In shifting give them pots sufficiently large to carry them over another season. If the plants are strong and well-rooted, and are say in 10-inch pots, then a shift into a 12-inch pot would answer admirably, and so on with larger plants. In potting the soil should be pressed firmly down between the old balls and the sides of the pots. When potted plunge them in some sunny airy situation, either close to a south wall or other sheltered place, where they will be protected from the autumn gales. The soil in the pots must not on any account be allowed to get wet; to prevent this tiles or slates should be placed over them to throw off the rain. About the beginning of October they should be placed behind a north wall and plunged; there they may remain until they are wanted for forcing. They should not be placed in a 'close shed.' An open shed with a glass roof is the best possible situation for them, as the soil in the pots can then be kept in a sound healthy condition, and the plants will receive plenty of light and air, without anything to excite them."]

Elms in the Champs Elysées.—A few weeks ago a gentleman writing from Dingwall to your Paper expressed a wish to hear further news of the barked Elms in the Champs Elysées. For his benefit and that of any others whom the subject may interest, I therefore report that I looked at them on Saturday, and that their appearance does not seem encouraging. Few, if any, are well clothed with leaves, especially towards the top. In some, the upper part seems to be dead or dying. On the whole, however, these trees have resisted the effects of the July drought better than might have been expected, considering that this drought has reduced the Seine to almost the lowest ebb on record, and has caused many Canadian Poplars here to lose their leaves and Limes, Birches, and some other trees to assume their autumn colours within a month of the longest day. I should mention that a few young Elms which were barked last year are now looking very healthy, but those stripped this spring certainly do not appear as if they would ever arrive at the state of wonderful second youth which was said to be in store for them. No doubt you were right in supposing the enemy of the trees to be the Scolytus vastator, although your woodcut of its burrow seemed to me to be more regular than the marks on the bark of the Paris trees. May I ask why this grub kills the Elm and not the Ash, in the bark of which I have constantly seen the passages of this or some similar insect, and yet one does not see Ashes dying off in the way that Elms do? If I am not encroaching too much on your space, let me inform the writer of the description of the garden and flower show in the Palais de l'Industrie, that the said garden is looking very stately just now by reason of a large number of statues which are for the time placed in it and arranged very tastefully. They form part of the annual exhibition of pictures and sculpture, the remainder of which is in one of the galleries of the same building. I am surprised that in the description referred to no notice was taken of the atrociously bad effect of the ugly painted glass at each end of the building. It represents certain allegorical figures surrounded by a sky of most vivid and intense blue, the contrast of which with the green below is in my opinion quite enough to set one's teeth on edge. *H. J. Moule, St. Germain-en-Laye.*

The only Novelties I have met with thus far much are at Ripley Castle, where I found a very small white Water Lily, Nymphæa minima (not the yellow Nuphar minima), and an Eringo (not maritima) in the York Museum Gardens. A whetstone much used hereabouts must be an acquisition, as it is preferred to the sandstone, so cheaply procured in this district; it is like a large broad razor strop, about 13 inches by 2½ inches of Deal, with coarse sand adhering to its surface by rosin. The field labourers use it, and say it does not break the scythe or wear it away so much, and is not liable to break, moreover it is not so cold to the heated kidneys—a matter of some consequence. The hay and corn stacks are quite the reverse in form of our southern, and must keep the wet longer in their centre than those of the south; the hay will not be so close as where the "pitch" is towards the centre (our centre); it is also in my opinion a bad shape for an exposed situation, *i. e.*, the whole of the north. *Somerset, Harrogate, August* 10.

Silene vespertina.—Is this known in England by that name or has it a synonym? I saw a beautiful bed of it near Paris, but I have tried in vain to obtain seed under that name in England. *F. P.* [It is called S. bipartita in the seed shops.]

Abies Pinsapo.—As the measurements given in your columns two or three weeks ago of Abies Pinsapo are very much short of those of one at Fineden Hall which I have this day (Aug. 7) measured in presence of the owner, W. M. Dolben, Esq., who has a beautiful collection of Conifers, I have thought the following might be interesting. The height is 18 feet, and the diameter 13 feet, and the tree is clothed to the ground with its beautiful branches. A better specimen than this I am not acquainted with. *Geo. Archer, Gardener, Fineden Hall, Northamptonshire.*

Names of Florists' Flowers.—When the poet asked "What's in a name?" and immediately after recorded as his private opinion that "a Rose by any other name would smell as sweet," he certainly never contemplated a "Pretty Poll" Geranium, a "Shrubby Dazzle" Calceolaria, or "The Nigger" or "Lollypop" Dahlias—names which are certainly more likely to repel than attract lovers of flowers. Why cannot florists give more pleasing names than these? Both in the real and the fictionist's world there are plenty. Botanists have long since been laughed or shamed (and it matters not which) out of the use of such names as pollopostemonopetalæ, cleutheromacrostemones, and so on: and the sooner the florists follow their example in the case of such absurdities as Pretty Poll and Lollypop the better. *G. W. L.*

Achillea millefolium (Yarrow) remains perfectly green and healthy in hot dry situations where ordinary herbage becomes scorched up. Are there not many situations where it would be valuable for this property? Of course it would be an easy matter to prevent the flower stems from being perfected, and so preserve a uniform green surface. I am merely alluding to the plant in an ornamental point of view, although it affords, I believe, very good sheep food. *G. W. H.* [Sheep will keep it fed down.]

Plant Pegs.—Having seen several plans suggested for pegging down plants in borders, I wish to recommend wire hair pins, which I have used for several years. They are neat in appearance, and very inexpensive, and if care is taken in removing them they will last good more than one season. *Maria.*

Notices of Books.

Vacations in Ireland. By C. R. Weld. Longmans. 8vo, pp. 399.

A very agreeable volume, abounding in incident, and anecdote of a good class. The author's vacation was passed chiefly in the west of Ireland. "My rambles," he says, "on the Clare coast, Dingle, and the south-west of Kerry, were made many years ago; but as the natural features of those parts of Ireland have not changed since I saw them, my descriptions hold good; while, on the other hand, I have thought that a few sketches of 'life' in the West, which has changed since the days of slow coaches and few tourists, may not be uninteresting. The remaining parts of Ireland embraced in the following pages have been more recently visited by me—Connemara and the Carra Lakes so lately as last year." Of these districts we have a vivid description, which we recommend to all other long vacationists. What will give Mr. Weld's pages unusual interest in the eyes of our own readers are his natural history tales, and the account he gives of the present state of Ireland in the wild western districts. Of the first we lately transferred a portion to our columns, and we now present a picture of a Kerry peasant and his notions about America.

"While musing on eagles, my guide, having fulfilled his pioneering duties, was lying down at full length, smoking his dhudeen in silent enjoyment. The pipe finished, he was eloquent in praise of the extensive view. 'Why, yer honour, I'm tould if yez good eyes yez can see Meriky.'—'Not quite so far, I think.'—'Well, thin, 'tis myself would like to see it, any how.'—'Then you have friends there?'—'Troth I have, yer honour, and relations too.' Then he proceeded to tell me of their emigration and prosperity in the great country; and how one of his sisters had become a grand lady, wearing silk dresses, which puzzled him much, as she was only a factory girl. Ascertaining that she was at Lowell, near Boston, I told my guide that I knew the place where his sister worked; upon which he started to his feet, and besieged me with numberless questions respecting her occupation and the locality where she was living. It appeared that she had promised to send him money to take him out to America, and he was daily expecting a remittance; though how she could manage to effect this, seeing that she was only working in a cotton mill, was beyond his comprehension. I bade him have faith in her promise, assuring him that the young ladies of Lowell had means to do many things besides adorning themselves in silk and satin.

"No traveller in Ireland, and particularly through the western counties, can fail being struck by the yearning spirit which generally prevails among the peasantry to emigrate to America—and no wonder. For although agricultural wages are higher than they were a few years ago, yet the condition of the Irishman in the United States and parts of Canada is still very superior to that of his brother in the old country. My guide informed me that more than half the population of the parish in which he resides have emigrated; and that, although accounts are occasionally received of a surplus of labour hands in America, still the sums of money sent home, to enable persons to join their relatives in the States and Canada, are so large as to remove all doubts respecting the wisdom of crossing the Atlantic.

"Of this I have had more than once ample confirmation, when sojourning at the houses of magistrates in Ireland. The law requires that all money-orders on a bank in Ireland, drawn by emigrants in favour of their relations in Ireland, should be indorsed by a magistrate before they are paid. Thus it is no uncommon sight to see at the hall door of a magistrate wretched-looking peasants, rag-clothed, bearing money-orders, from two pounds to twenty pounds in amount, which they have received to enable them to cross the Atlantic."

We recommend the following account of an ascent of the Reeks to the adventurous spirits whose persons and leisure will not carry them to Mont Blanc.

"The ordnance survey, which has robbed many heights of the proud elevation which they enjoyed by local reputation, and exalted others, has crowned Carran-Tual with the distinction of being the highest mountain in Ireland. The height of the Reek is 3414 feet, whereas Mangerton is only 2756 feet, a difference which makes it difficult to understand how it could ever have been supposed higher than Carran-Tual."

"I was sojourning at the Mucruss Hotel last summer, when I made the ascent. Unable to meet with a companion, and unwilling to be at the expense of a car, for which fifteen shillings was demanded, I hired a pony, which I mounted at seven in the morning, and by dint of a rather free use of spurs—a pair of which, by the way, you should not forget to take with you to Killarney if you purpose riding—I found myself at ten o'clock some miles to the west of the gap of Dunloe. The road beyond the entrance to the gap dwindles to a mere bridle-path, and intersects a vast tract of bog, from which to the south rise the precipitous Reeks. The view of these great rock pinnacles, steeped in purple gloom, is extremely grand. The greater number present strange weird forms, and their dark sides are rent by numerous fissures worn by the storms of ages.

"It has been well observed by more than one tourist familiar with the loftiest peaks of continental Europe, that our remembrance of them rather augments than weakens the pleasure with which we contemplate the more humble mountains of the British Isles. For, after all, the emotions caused by elevation are always more due to the form of the mass than to the actual height of the mountain. Thus the Jungfrau and Wetterhorn impose more awe than Mont Blanc; and the cone-tipped Kerry Reek, with its precipitous buttresses, stirs many feelings of admiration and wonder which dome-shaped mountains of double the altitude fail to arouse.

"One Reek towers so considerably above its neighbours in the range, that I conceived it to be Carran-Tual. This impression was strengthened by a peasant, who assured me that it was the highest point; but, as I afterwards discovered, he was in error, for Carran-Tual is not visible from any part of the road leading to Kilgobnet. Having pursued this road, which runs at the base of the Reeks for about three miles, I turned to the left, and was soon in the midst of an amphitheatre of mountains, which rose grandly before me. The way now became so rough, bad, and indistinct, that I was rather puzzled, in the absence of a guide, respecting further progress, and was doubtful how to proceed, when I saw a couple of peasants rushing towards me down a slope. They were as wild as the country they inhabited, and although eager to enter my service as guides, were of little use to me, as their acquaintance with English was limited to a few words. They were, however, not long without rivals, for in a few minutes I was joined by other peasants who came trooping down the hill-sides. Some of these spoke English, and all soon made me aware that they were desirous to guide me to the summit of Carran-Tual. In fact, my arrival had evidently created a sensation among the peasants, who had forsaken their agricultural labours in hopes of acting as my guide. Addressing myself to a pleasant-looking fellow, who protested that he knew every inch of the Reeks, I demanded his charge as guide up Carran-Tual.—'Five shillings, yer honour.' 'Five?' I replied; 'that is far too much.'—'Arrah, yer honor, shure we earns half-a-crown wid de hook.'—'Well,' said I, to cut the matter short, 'I will give you three shillings, and no more.' And for this sum my man undertook the office of guide, and swelled with importance as he bade the boys go home who were at my heels. Having seen my pony housed in a small cabin, with a comfortable allowance of food, I commenced the ascent of the mountain at eleven o'clock, the weather giving good promise of a clear view from the summit. Crossing the Giddah, which brawls through a rocky gorge, we followed a herd-path skirting the mountain torrent. Observing with an angler's eye that this stream, rock-chafed as it is, settles frequently for a space into tranquil pools, I asked my companion, Pat Denny—who, by the way, I beg to recommend to the reader who may visit the Reeks with an intention of ascending Carran-Tual, and desires an able, and at the same time entertaining guide—whether there were fish in the Giddah? 'By dad, there are, yer honour, and salmons too;' thus, by special mention of this noble fish, showing the great respect which he entertained for it. 'And I suppose you catch one now and then?'—'Troth we do, yer honour.'—'With flies?' I demanded.—'Ah, not at all, but wid a hook.'—'Oh, with worms?'—'The divil a worm.—No, yer honour, we just goes to the smiddy, and gits a hook made about as long as yer hand, and we ties it to a pole, and grips the salmon when they do be jumping.'—'Do you catch large ones?' I asked.—'Faith, an we do sometimes.' This avowal contrasted strangely with the narrow dimensions of the mountain-stream, now, from long drought, attenuated to a mere thread; but the well-known instinct which leads salmon at certain seasons to ascend rivers and even brooks, is sufficient guarantee that my guide probably told the truth. For, having no fear of water-bailiffs, and holding the government license to fish for salmon in sovereign contempt, the peasants of the Reeks are not slow to take advantage of the periodical good fortune which visits them in the form of lusty salmon which ascend the Giddah *viâ* the Laune.

"Having passed over a wilderness of rocks, extending for three miles above the defile, we entered the Hag's Glen, where a witch of evil is reputed to exercise very prejudicial dominion over the flocks and herds which pasture on the mountain slopes. You are shown her bath, a dark inky-looking lake, where she laves her contorted limbs in companionship sometimes with his Satanic majesty, who, however, has a similar-hued lough assigned to his special use; and that you may have an impressive idea of the magnitude of the said hag, your attention is drawn to a huge rock jutting from the mountain side, at a considerable elevation, which you are told is one of her teeth.

"On, still on, over chaotic *débris* of mountain-masses, the defile narrowing as you ascend—darker and more grim frown the precipices, and bolder are the mighty ribs of rock which gird the sides of Carran-Tual. And now further progress seems arrested, for before you rises a mighty precipice, closing the glen to the south. Scan its rugged face, and you will be puzzled to know how it can be surmounted. Yet the way to the cone of Carran-Tual lies up the face of this steep. As you draw nearer you will see a green streak fringing a water-course which has fissured the precipice, and which descends in a series of miniature waterfalls. This is the 'Devil's Ladder.' For superstition having accorded extensive dominion to his Satanic majesty, in exalted as well as unfathomable places, his name has been given to this remarkable cleft; and certainly, in accordance with the general rule that unlovely objects and ugly localities should bear the foul fiend's name, this precipitous rock staircase is appropriately named.

"The head and limbs familiar with dizzy Alpine heights will consider the ascent of the 'Devil's Ladder' not a difficult undertaking; but it will, nevertheless, be found sufficiently laborious, and even dangerous, to give zest to the ascent of Carran-Tual, for this great natural rock-ladder is 800 feet high, and during more than half the ascent you will be glad to take advantage of the auxiliary assistance of your hands.

"Having gained the top of the Ladder, we came to a saddle-shaped ridge, not unlike that on Snowdon, very narrow, and sloping precipitously on the south side. The cone of Carran-Tual rises to the west, an extremely steep climb, which occupied us nearly an hour. The top of this picturesque and grand mountain is composed of weather-worn masses of felspar and pale-red porphyry, covering an elliptic area of about twenty feet in the longest axis. On all sides except that on which you ascend, the cone falls away in abrupt precipices. The centre of the summit is surmounted by a lofty cairn, a memorial of the labours of the Ordnance Engineers, who made Carran-Tual the centre of their geodetic operations in Kerry. But your vision will soon embrace a wider range, and if you are favoured by a clear atmosphere, you will not be unwilling to assent to the general opinion that the view from Carran-Tual is among the finest of mountain prospects. To the east, a wilderness of peaks, within whose dark breasts lie tiny tarns, which gleam like molten silver; beyond these, but more to the south, the soft outline of Kenmare river and Bantry Bay appear. Lackabaun, the boundary mountain between Kerry and Cork, and the wild district of Gougane Barra, the nursing-mother of the fair river Lee, will be pointed out in this direction by your guide; and, if he be a good Roman Catholic and a believer in St. Patrick, he will tell you that it was from the heights of Lackabaun that the Saint blessed Kerry. To the south-west, more peaks, among which the Glencar mountains and many of the Reeks are conspicuous; Cape Clear, a shadowy form in the distance; to the west, Dingle Bay, terminated by Dunmore and Kerry Heads, and the Blasquets; and to the north, the Shannon bays and estuaries, fringed by a thin white line, marking the Atlantic where it chafes the cliffs. If you are as fortunate as I was, you will see all this; and should mists curl upwards and wreathe Carran-Tual in their folds, your impressions of the grandeur and vastness of the scene will be increased."

"On our way down we saw great troops of goats balancing themselves on giddy ledges overhanging grim precipices. These animals abound throughout the Reeks, and are so wild as to require the aid of dogs to bring them within the fold. Numerous as they are, the flocks have decreased since the improved condition of the roads has enabled the peasant to find a market for butter made from cows. When my brother visited and explored this district all the traffic was carried on by means of horses, and it was, he says, no uncommon sight to see twenty horses or more in a string following mountain paths. Each horse carried two casks of butter; the exceptional case being when a peasant, having only one cask to send to market, slung a stone on the opposite side to the cask as a counterpoise. Now all agricultural produce is carted to Killarney, and conveyed from thence by railway to Waterford, Cork, or Dublin."

Of such and even better matter is Mr. Weld's volume composed. Can a traveller have a more agreeable companion?

Garden Memoranda.

Mr. Cuthill's, Denmark Hill, Camberwell.—Ten years have nearly passed away since we last visited this place. At that time Mr. Cuthill used to grow early Potatoes in the open ground for Covent Garden Market. Since then, however, the importation of foreign produce, including Potatoes, has become so frequent and extensive that English growers, except those in the favoured climates of Devon and Cornwall, cannot compete with it successfully, at least in the case of new open ground Potatoes. In Cornwall Mr. Cuthill's plan of wintering the sets and growing in ridges, as is explained in a pamphlet published by him on the subject, is we believe almost universally adopted for the first crops, and now we have excellent Potatoes in the market from that district as early as the 16th of April. They follow immediately the fine Broccoli and Radishes that are so largely supplied from the same quarter. As regards sets Mr. Cuthill always preferred planting what are called Chats to large whole Potatoes, which some of our correspondents have lately been recommending. By using full-sized Potatoes for that purpose he considered the country would be deprived of a large amount of useful food, and their employment he felt certain would offer no security against disease. In order to avert the latter, after a continuance of hot, dry weather, he is of opinion that if the haulm is nearly ripe it should be cut off to prevent the plants making a second growth. Tubers from plants that have pushed afresh he has always found never boil well, the inside being hard while the outside gets overdone. After a period of drought and bright sunshine, if the weather promises to become wet and gloomy, he therefore strongly advises cutting off the haulm, provided the latter shows symptoms of being nearly ripe, and the tubers have obtained a fair useful size.

Early Potatoes having failed to yield a profitable return, Mr. Cuthill has of late years turned his attention almost wholly to Strawberry growing, which he finds answers better. He cultivates three sorts, viz., the Black Prince, his Prince of Wales (which must not be confounded with Mr. Ingram's sort bearing that name), and his Princess Royal of England. The good

character which we years ago gave to the Black Prince was deserved, and is now fully established; it is very prolific, very early, and a good forcer. The Prince of Wales Mr. Cuthill describes as a cross bred between the British Queen and the Black Prince. This sort he says has also given general satisfaction, being not only a good table fruit, but also an excellent kind for preserving. Like the Black Prince, he adds, it is a heavy and certain cropper, larger in size than that kind, nearly as early, and lasts much longer in bearing. This year he gathered from it in quantity during a period of 50 days. If therefore the weather should be so wet or unsettled while the Black Prince is in fruit as to prevent that variety being gathered for preserving, for which it is very suitable, then this sort from its long season of bearing comes in to supply its place; it need scarcely be mentioned that Strawberries for preserving should only be gathered in dry weather, which is sure to occur during the long time this sort is in fruit. [In our opinion this Prince of Wales is second to none as regards real utility. *Ed.*]

The third sort of Strawberry grown by Mr. Cuthill is as yet comparatively little known. It is we understand a seedling of his own, to which has been given the name of Princess Royal of England. In ripening it is said to be only three or four days behind the Black Prince, while in point of appearance, size, and flavour, it is greatly superior to it. It is Pine-shaped, sometimes flat or cockscombed, colours well to the point, and has an aroma like that of the British Queen, while as respects hardiness it has few equals. On this point the Rev. H. F. Bacon of Castleton, Derbyshire, writes as follows:—"I am satisfied that Cuthill's Princess Royal is one of the hardiest Strawberries grown. I planted out runners of this, of Black Prince, of Keens' Seedling, and of a local hardy sort late in the autumn of last year, in the open ground, and left them without the least protection. The winter was very severe even for this country, and the Princess Royal not only bore it, but bore it I think the best of any. It was certainly the first in fruit and the fullest in bearing, and the flavour decidedly superior." "A winter here," adds Mr. Bacon, "is no slight thing. My garden is 650 feet above sea level, nearly surrounded by hills from 1200 to 1800 feet high, where the cold is intense, and open only to the east to a high range of extensive moors over which an east wind blows all spring with unrelenting cruelty till the middle of June. Gardening here may be truly called growing Cabbages under difficulties. What will stand here will stand anywhere." More we should think need not be said of this Strawberry on the score of hardiness; we can speak personally of the excellence of its flavour and productiveness, and we hear that Mr. Fleming, of Trentham, and others who have grown it, are equally well pleased with it.

With the three sorts just named, Mr. Cuthill has nearly all his ground cropped; and taking both fruit and runners into consideration, he finds that it could not be more profitably occupied. In cultivating the Strawberry Mr. Cuthill neither digs between the rows nor mows off the foliage. He, however, mulches in January with stable manure, which he throws all over the beds and rows, quite covering the ground to the depth of an inch or more. This keeps down weeds, the Strawberry plants push strongly through it in spring, the manure becomes decayed, furnishes an available source of food when the plants most want it; it keeps the fruit clean, and lastly it forms excellent material for the runners to root into. This plan he considers greatly superior to all other appliances for keeping the fruit clean, inasmuch as the dung not only effectually does that, but, as has just been stated, at the same time feeds the plants.

Cucumbers, both Black and White spined sorts, are grown here on rough trellises in low brick pits. The plants are sprinkled with water every afternoon, with the view as Mr. Cuthill asserts of preventing mildew. When he only watered twice or thrice a week he states that his plants became affected with mildew; but since daily sprinklings have been resorted to no disease of the kind has appeared. The same plan, he says, has also been adopted with equally good results in other gardens in his neighbourhood.

Excellent Mushrooms are raised here in a lean-to house, with a glass roof and brick sides. The roof is, however, covered over with litter to darken it, and in hot weather the latter receives a good syringing every night with the view of keeping the beds cool. The latter are made up with fresh dung, the shortest of it being kept near the surface; they are afterwards managed according to the directions given by Mr. Cuthill at p. 342 of our present year's volume. Better Mushrooms than a dish we saw gathered from this house could not possibly be produced.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—It is now time to provide and encourage an assortment of flowers adapted for blooming late in autumn and in early winter. Camellias if forced into wood will be tolerably forward. They should be kept out of doors in a cool place on cool flags or coal ashes, to prevent worms from deranging the drainage. Chrysanthemums should now receive their last shift, if possible using chiefly sound fibrous loam for the purpose with plenty of charcoal. This is the best way to keep them stiff in habit and to preserve their lower leaves. Any necessary amount of strength may be imparted to them when the flower buds are formed by good liquid manure. Successions of Brugmansias, Clerodendrons, Euphorbias, Poincettias, &c., should receive a last shift in order that they may produce a rich display in the conservatory. Climbers on ornamental trellises should be occasionally cut back, with the view of having a succession late in the season when flowers become scarce. A batch of such things as Thunbergias, Ipomœas, Jasmines, Stephanotis, Passifloras, &c., should be got up ornamental trellises without delay. Clematis bicolor and C. azurea grandiflora force well in early spring; rest them behind a shady wall in June and July, and they will flower again in October and November. These latter plants, although perfectly hardy, are well adapted for conservatory trellises. Orchids.—Continue to top up late growths, and to keep the plants at the warmest end of the house. Give air liberally in the early part of the day, and on very fine mornings syringe occasionally the whole of the stock. A little fire heat must be kept up, if only to ensure a proper circulation of air. Take care however that it is very low during the night. In mixed greenhouses look well after winter flowering things of common character, such as Cinerarias, Verbenas, Scarlet Pelargoniums, Heliotropes, Roses, &c. Cinerarias must now be potted off, whether from seed or from suckers, Chinese Primulas also, remembering to give the last shift immediately to those intended to blossom in October and November. Scarlet Pelargoniums to bloom well should be somewhat pot bound.

FORCING DEPARTMENT.

Pineries.—Plants growing in dung pits must be freely supplied with air to prevent their getting drawn, and they should also be kept near the glass and not allowed to stand too closely together, for strong robust plants need hardly be expected unless this is attended to, and weakly drawn ones seldom or never yield fine fruit. Give careful attention to such as are swelling; afford them plenty of warmth and moisture, and as much manure-water at the root as the soil will bear. Remove useless suckers and gills as soon as they are perceived, which, if left, only rob the fruit and weaken the suckers which it may be necessary to leave on the plant for keeping up the stock. Do not allow young stock in free growth in the succession pits to stand too closely together, nor to sustain any check through neglect in watering, or the want of pot room. Plants growing in beds of soil must also be carefully attended to with water, keeping the soil in a nice moist state. Where rapid growth is required keep as warm and moist as can be done without drawing the foliage, and give plenty of strong clear manure water at the root, and the plants will make rapid progress for the next two months. Vineries.—See that Vines from which the fruit has just been cut are free from insects, giving the foliage an occasional washing with the engine if red spider is at all troublesome; and use every precaution to keep the leaves in health as long as possible. Prevent the growth of laterals, which only shade and injure the principal foliage. Late Grapes colouring should be assisted with slight fires in cloudy weather, especially Muscats, which, after this season, where they are not already all but ripe, will require gentle fires, unless the weather should prove unusually fine. Thrips are frequently very troublesome in late Vineries where plants have been grown under the Vines, and where there is any reason to expect these, the foliage should be frequently examined closely; giving the house a heavy smoking as soon as they are perceived, and repeating this for two or three times at intervals of about a week, shading the house the day after smoking, where it can be done so as to be able to keep it rather close, will render the cure more effectual; and if the pest is taken before it gets quite established, it will be easily got rid of by two or three smokings, but unless taken in time it is very difficult to eradicate. Peaches.—Give every attention to get the wood well ripened, as next year's success will very much depend upon this being properly effected. Keep the foliage clean and free from insects, and endeavour to preserve it in health as long as possible. Give air freely both day and night, but keep the roots as dry as can conveniently be done, therefore guard the inside borders from heavy falls of rain, shutting up the ashes at night when there is reason to apprehend much wet. Any gross shoots that may still incline to grow should be stopped, as if left they encourage the action of the roots, and cause a greater tendency to growth than would otherwise be the case. Loosen the surface of the border where this is at all close, in order to admit air and warmth.

FLOWER GARDEN AND SHRUBBERIES.

Let Rose budding be closely followed up, also the pruning off at least of the dead blooms of those which flowered early. Those who can find time may pick off the seed pods from Rhododendrons; this will add much to the strength of the blossoms next year. Azaleas of course will be benefited by the same process.

HARDY FRUIT AND KITCHEN GARDEN.

This is the period in which to lay the foundation of a sure supply of vegetables and Salads for the ensuing winter. We will suppose that all the spring and midwinter Broccolies have been planted some time, and that Turnips for October and November are in also, still it remains to ensure a continuous succession of Cauliflowers and autumn Broccoli, also a full supply of Salads. The Cape Broccolies although apt to sport are amongst the most useful for the certain supply of the house. A rich border should also be prepared for Cauliflowers, which should be planted immediately; these will supply the table until Christmas, provided they are secured from frost. Endives also must be got out with a liberal hand, also Autumn Lettuces. Attend well to fruit trees of all kinds. Little superfluous wood should if possible be formed on tender fruit trees after the middle of August. Not only the fruit but the wood for the ensuing year must be ripened. Even Apples, Pears, Plums, Cherries, &c., are in some degree amenable to this law.

COTTAGERS' GARDEN.

Under this head there is little to add this week. Many of the directions contained in the Kitchen Garden portion also apply to this. Everything that can be done in the way of cropping should be attended to.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON, For the week ending Aug. 13, 1857, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 7	17	29.698	29.640	68	54	61.0	65½	62	S.W.	
Satur. 8	18	29.714	29.648	67	52	59.5	65	62	S.W.	
Sunday 9	19	29.948	29.749	70	43	56.5	64	61	W.	
Mon. 10	20	30.117	30.050	80	61	70.5	63	61	W.	
Tues. 11	21	30.129	30.090	78	54	66.0	66	62	S.W.	
Wed. 12	((	30.119	30.031	83	52	67.5	66	62½	S.W.	
Thurs. 13	23	29.953	29.695	83	57	70.0	68	63	S.E.	
Average		29.955	29.843	75.5	53.3	64.4	65.3	61.9		

August 7—Overcast; light hazy clouds: overcast; fine.
— 8—Overcast; very fine; cloudy.
— 9—Densely overcast; very fine; rain.
— 10—Foggy; very fine; slight rain at night.
— 11—Light clouds and fine; cloudy; rain.
— 12—Foggy; exceedingly fine; rain at night.
— 13—Cloudy; very fine; much lightning, thunder, with heavy rain at night.

Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK, During the last 31 years, for the ensuing week, ending August 22, 1857.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.
Sunday 16	73.2	52.2	63.2	13	0.58 in.	— 3 3 2 4 7 5 4
Mon. 17	73.3	50.9	62.1	17	1.12	3 2 1 2 4 5 12 2
Tues. 18	73.4	51.9	62.7	11	0.38	1 6 3 2 4 7 7 1
Wed. 19	72.7	51.8	62.3	16	0.42	2 3 2 1 1 5 10 5
Thurs. 20	72.3	51.8	62.1	15	0.45	2 1 1 1 5 8 11 2
Friday 21	72.1	50.1	61.1	11	0.62	3 2 — 1 8 7 5 3
Satur. 22	71.0	50.7	60.9	12	0.67	2 2 2 — 4 10 1 —

The highest temperature during the above period occurred on the 16th, 1842—therm. 92 deg.; and the lowest on the 21st, 1850—therm. 32 deg.

Notices to Correspondents.

Alonsoa Warczewitzii: *S Cooper.* We do not know whether this plant is or not strictly an annual. Probably not like Mignonette. But it certainly ought to be regarded as an annual in an Exhibition, because it has all the habits of one.

Climbers: *O P Q.* Cover your dead tree with Glycine sinensis, or American creeper, or Ayrshire Rose, or Aristolochia Sipho, or Clematis Flammula; all will answer the purpose.

Insects: *C M.* The Death Watch, Anobium striatum, and its parasites, Theocolax formiciformis.—*F B G.* The beetle found in the quill is one of the smaller dung beetles, Aphodius fimetarius. It has no power of stinging or biting, but its legs are spiny, but they could scarcely prick into the flesh. We think there must have been some other delinquent, perhaps a minute midge.—*Anon.* The insects which have attacked the shoots of Pinus insignis we suppose (in the absence of specimens) to be the common Pine shoot beetle (Hylurgus piniperda) or the Pine moth (Orthotænia Turionana). The shoots infested ought to be nipped off and burnt.—*J and J G.* The caterpillars on your Turnips are the nigger caterpillars, or larvæ of the sawfly (Athalia centifolia). Watering with lime water and turning young ducks into the field are the best remedies.—*R P L.* See the last answer, your insects being the same as J. G.'s. Quick lime strewed on the ground and renewed from time to time *has proved* destructive to the insects.—*W B.* The *insect* attached to the Fuchsia bloom is the cocoon of the female Vapourer moth (Orgyia antiqua) covered with her eggs.—*J T A.* The *insect* found at the base of the leaves and under the external coating of your bulbs of Hippeastrum is a mass of eggs and young of a species of Coccus, enveloped in the white downy secretion common to so many of the species, such as the Vine coccus. If it has only occurred in one instance we should think it an accidental case. The plants must however be well looked to or the young will disseminate themselves immediately. *W*

Laurels: *Inquirer.* They should only be cut back in April. If you prune them now or later they are apt to push around weakly shoots which get killed in winter. Drumhead Cabbages next week.

Monstrous Cucumber: *H W.* Such instances are not uncommon. A leaf stalk has adhered to the surface of the Cucumber when both were in a nascent state; and when the tree part ripens it appears like a leaf growing from the surface of the fruit.

Names of Fruits: *J F.* A bright red middle-sized Apple, not known; most probably a seedling; not equal in quality to the Red Quarrenden and some other early Apples in cultivation.—*J S.* The Keswick Codlin.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to help them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*T S P.* 1, Marchantia polymorpha; 2, Mnium cuspidatum, a moss; 3, Saxifraga Hirculus.—*A Dublin Subscriber.* 1, Stenactis speciosa; we can find no difference and there is certainly no distinction.—*Conway.* Rubus cæsius; R. fruticosus and R. corylifolius are our three common types of the genus, and doubtless are perfectly distinct species.—*A F.* A. Inula dysenterica. B. Senecio Jacobæa.—*Jas. Fullerton.* Chrysanthemum segetum.—*Louisa D.* No. 1. Carnation. 2. Cytisus sessilifolius; 3. Spiræa lævigata.—*J Sugden.* It is now known that Cattleya crispa is a Lælia.—*Bella Donna.* Your Dead Sea Apple is Solanum coagulans, and not S. Sodomæum.—*S P.* No. 2. is Thuja pendula. Miserable specimens like the others, out of flower, cannot be named. You may possibly know Hercules by his foot, but not a plant by one of its petals.—*J B M.* Pavia macrostachya.

Paint: *A B.* Nothing is so good as white lead and oil; but white lead is so infamously adulterated that it is often much better than chalk. Zinc paint is very good and more generally pure, but it is rather difficult to lay on.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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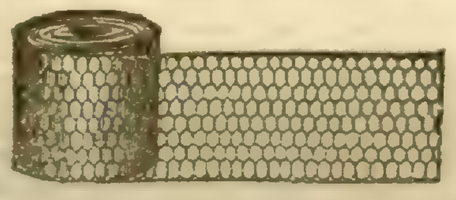

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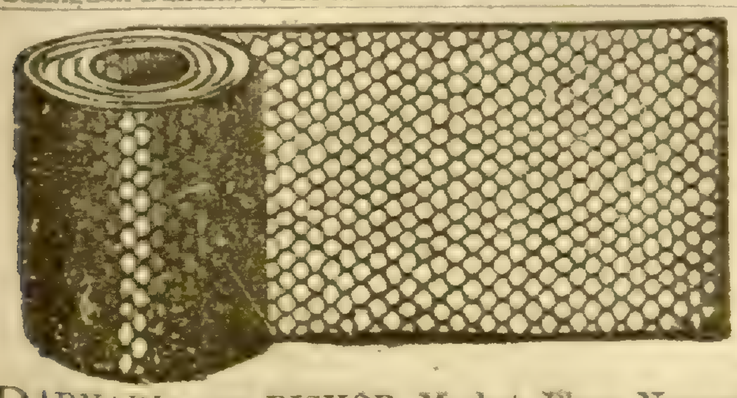

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2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5¼ ,,
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Diameter of Barrel.	Length of Barrel.		£	s.	d.
2 in.	short 1 ft. 17 in.	Fitted for lead,	1	10	0
2½ ,,	long 3 ,, 3 ,,	gutta percha,	1	14	0
3 ,,	ditto 3 ,, 6 ,,	or cast iron	2	8	0
3½ ,,	ditto 3 ,, 6 ,,	flanged pipe,	2	12	0
4 ,,	ditto 3 ,, 6 ,,	as required.	3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
½ in. long	ditto ditto	ditto	2	18	0

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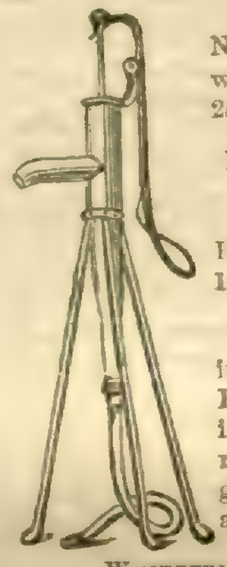

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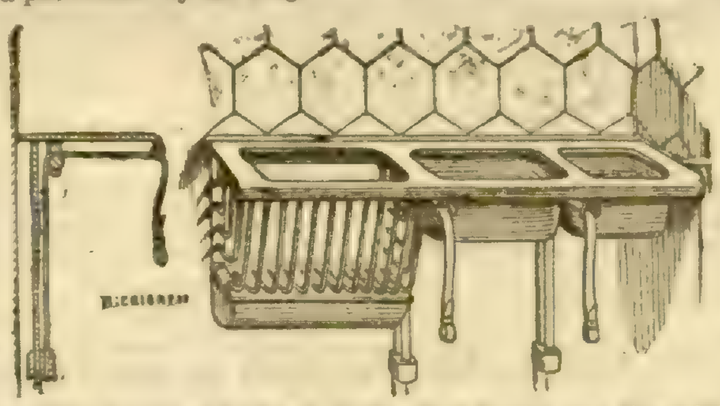

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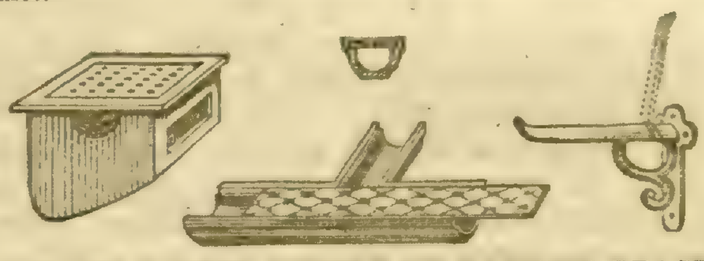

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First Prize for best Chaff Cutting Machine for Hand.
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First Prize for best Corn Crusher for Hand
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double-Action Turnip Cutter for Beast and
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First Prize for best Root-Washing Machine. Also, [Slicer.
Specially Commended for Steaming Apparatus and Turnip

Works—Salford, Manchester;
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BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, AUGUST 15, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, August 18 } Agri. Improvement Society at Waterford.
WEDNESDAY, — 19 }
THURSDAY, — 20 }

JUSTLY has it been said by the author of the article Weeds, in MORTON'S Cyclopædia of Agriculture, that "there is hardly a more fertile source of annoyance than dirty seed;" and again, in an essay on Weeds in the Journal of the Royal Agricultural Society, we find the following words: "that weeds are perpetuated notwithstanding the most careful preparation of the land by sowing them with our seeds, is a fact too well known to be disputed."* Until lately, however, we had not the slightest idea of the real extent of the mischief arising from this cause, but as through the kindness of several correspondents in different parts of the country we have been enabled to examine seeds in the state in which they have purchased them, and indeed just as they would sow them for the crop, we take it for granted that the samples we have examined are capable of affording a tolerable average notion of the extent of the mischief we would now comment upon.

Lest, however, any mistake should arise from the paucity of examples we shall append in our list, it will perhaps be well to state that the tale this list will unfold has been confirmed by examinations of seeds for many years past, though it is only lately we have commenced to tabulate the results. In the present state of the inquiry we may mention that from some of our readers we are still receiving samples, of which we shall be glad for some time to come, as much remains to be done in the matter of seed diagnosis. At present, for instance, our investigations as regards the samples received have been confined to an examination of the amount of seeds of other plants than those of the intended crop, or in other words, to the amount of admixture of weed and other seeds foreign to the sample, from which it will be seen that the important questions as to the fertility of the sample arising from its being ill or well grown, pure or impure as to sort, well or badly harvested—all of

* Prize Essay on Weeds, vol. xvi., Part 2, by Professor BUCKMAN, Royal Agricultural College.

them important inquiries—have been neglected for the present, and are only here mentioned to show how much remains to be done in connection with seeds.

During the last few years much has been done by the chemist in the analysis of manures, and surely the analysis of seeds is a matter of equal importance, and though in this inquiry the intelligent farmer may do much for himself, still as regards seed admixture it requires all the penetration of a practised eye, aided by no little amount of botanical knowledge, to detect the different species of seeds forming part of a sample.

Even in examining the market value of a seed it seems necessary not only that we should know that it was or was not diluted with a foreign seed (as a sample of guano with a foreign substance), but also the nature and quality of the seed so mixed, as some would be most pernicious weeds; take for example a few of the commonest in Rye-grass, namely, Lop, *Bromus mollis;* Creeping Crow-foot, *Ranunculus repens;* Couch, *Triticum repens.* These are detestable as weeds, and thus injure the sample, as well as being heavy seeds, and so diluting the bulk; while such as a little Plantain, *Plantago lanceolata*, or the Trefoil would hardly be injurious. Again, it is highly necessary that these matters be investigated, not alone as one involving the consideration of the commercial value of seeds, but also as a question of cultivation; for it cannot be denied that though farmers spend much every year in weeding, yet they too often as industriously sow weeds, and this, too, in their foul seeds, so that they absolutely pay a large sum for what is inimical to them in every way—an enemy in diluting the seed, an enemy in preventing its growth, a pest for years after in the weeding which foul seed entails.

Rightly does the old adage declare—

"One year's seeding
Seven years' weeding."

And if we grow weeds they will certainly seed, and the immense fecundity of a single plant, as previously insisted upon in our journal, should of itself impel us to avoid every source of weed growth.

Having said thus much on the matter of the present inquiry, it may be well before giving the table illustrative of the subject to call attention to the manner in which this inquiry has been conducted, reserving to ourselves the description as to the manner in which weeds get into seeds, and the injury they do, for a future period.

Our plan has been in all cases where we had the bulk to choose from to take from 1 to 2 ounces without exercising any kind of choice. Our samples from correspondents have generally been less in quantity, but we are now anxious to show that from this circumstance we are more likely to have fallen into error in under rather than in overstating, for as will be seen our calculations are all made up to pints; if, therefore, we had but half or a quarter of an ounce to examine, as it is next to impossible to pick out every seed, especially of such minute weeds as infest *Trifolium*, so then missing a few in the smaller quantity would much diminish the computation on multiplying for pints. It seemed desirable, however, for the sake of comparison, to have a fixed measure, as this will afford a basis for future computations as to quantities per acre, per pound, per bushel, and the like.

We may further carry on an inquiry as to how many seeds of weeds may be sown to an acre of crop, and from this we shall be astonished to find that some of our samples contain enough of foreign plants to stock the ground. This, of course, is on the supposition that all would grow; but though we know that seed weeds, like Crop Seeds, are infertile to a large degree, yet we also know that "ill weeds grow apace," and a Crowfoot, Climbing Buckwheat, Dock, or Coltsfoot will smother up a quantity of other plants; and, besides, we should never forget that some weeds, such as Chickweed, Shepherd's-purse, Groundsel, and others, will absolutely ripen two crops of weeds before the crop is matured; and here then, with comparatively small plants, we have examples of how larger ones may ultimately be driven out. For, referring again to a previous inquiry, namely, the census of weed seeding, we find as regards the insignificant plants just named the following:—

A Single Plant may Produce—of

	Number of Flowers.		Seeds to each Flower.		Total.
Groundsel	130	×	50	=	6500
Chickweed	500	×	10	=	5000
Shepherd's-purse	150	×	30	=	4500

so that in these examples we have numbers doing even more than a lesser quantity of larger individuals. The following, then, is a table containing the results hitherto of our inquiries into this subject:—

Table of Weed and other Seeds mixed with Crop Seeds.

Crop.	Number of Weeds in a pint imperial.		Remarks on principal contents, &c.
1 Alsike Clover ..	7600	D.	Grasses, Umbelliferæ, and Polygonaceæ
2 Cow Grass Clover	12,000	D.	Umbelliferæ, Polygonaceæ, Creeping Crowfoot, Sherardia
3 do.	6400	J. H. R.	Plaintain and Umbelliferæ
4 Broad Clover ..	7840	D.	Much as 2
5 do.	1040	J. S.	
6 do.	8400	M. G. & D.	Principally a small Umbelliferous plant
7 do.	39,440	J. H. R.	Plaintain and little weeds
White Dutch Clover	26,560	D.	Sandworts, Ranunculus, Polygonaceæ
do.	70,400	J. H. R.	Plantain, Polygonaceæ, and Caryophyllaceæ
Trefoil	1920	M. G. & D.	
Lucerne	880	D.	
Vetches	32	D.	
Beans without cleaning, as threshed and planted in 1 case	5000	R.	Black Mustard, Charlock, Polygonaceæ, Convolvulus, &c.
8 Peas as threshed and planted ..	1550	R.	Charlock, Campion, Bindweed, &c.
9 Vetches	10	R.	
10 Canary Grass ..	520	D.	
11 Perennial Rye-grass	800	D.	Lop ⅛th of the weeds—Holcus lanatus, &c.
12 do.	3200	J. R.	Lop, &c.
13 do. (English) ..	3840	M. G. & D.	Holcus mollis .. = 1680 Bromus mollis .. = 800 Ranunculus repens = 480 Undetermined ... = 880 3840
14 do. (Pacey's) ..	1120	T. S.	
15 Italian Rye ..	3200	D.	Field Madder, Sandworts, &c.
16 do. imported A.	7040	H. D. P.	Lop, Soft Grass, and Creeping Crowfoot
17 do. do. B.	1600	H. D. P.	Lop, Soft Grass, &c.
18 do. do., Hop, Trefoil, Clover, mixed	4880	R.	Lop, Sherardia, Ranunculus, Plantain, &c.
19 Hop and Red Clover, mixed	7200	R.	Ranunculus, Plantain, Chickweed, Sandworts, &c.
20 Yellow Oat-like Grass, *Avena flavescens* ..	560	J. H. R.	Mostly a species of Rush
21 Meadow Fox-tail *Alopecurus pratensis*	1320	J. H. R.	Alopecurus agrestis Lop, &c.
22 Cock's-foot, *Dactylis glomerata*	9200	J. H. R.	Holcus lanatus & Arrhenatherum, nearly half weeds
23 Hard Fescue, *Festuca duriuscula*	4600	J. H. R.	Lop, Holcus, &c.
24 Oat-like Grass, *Arrhenatherum avenaceum* ..	800	J. H. R.	Mostly Lop
25 Dactylis glomerata, Lolium perenne, Lolium Italicum, mixed	8400	J. C.	Ranunculus, Holcus, &c.
26 Sheeps' Fescue, *Festuca ovina* ..	2620	J. H. R.	Medick
27 Phleum pratense, Medicago lupulina, Trifolium pratense per., Trifolium hybridum, Trifolium repens, mixed	3840	J. C.	Plantain
28 Linseed	4600	D.	Polygonaceæ, Charlock, Scabiosa, and Grasses
29 Linseed, as a sample sown ..	15,520	R.	Black Mustard, Charlock, a Cress, &c.
30 Mangel Wurzel	320	T. S.	Mostly Polygonum, Convolvulus

Here then we have tabulated as many as 30 examples of seeds of crops, each presenting a variable proportion of weed seeds, and from the remarks made upon the prevailing weeds it will be found that they are among some of the most mischievous of their class. We have examples of many kinds of seeds which we have not tabulated, as Parsnips and Carrots of different varieties. These are seldom mixed with weeds, and so far may be pronounced as tolerably pure; they will however, in too many instances, be found either purposely or accidentally much mixed, and consequently not true to sort.

As respects seeds of common and Swedish Turnip, all we can now say is, that they are seldom diluted with seeds of any other family of plants; but there is not only the same difficulty as to genuineness of sort, but in addition to this there is reason to believe that much prepared Charlock seed is fraudulently mixed with Turnip seed by way of adulteration. There is great temptation to this, in that the seeds are alike, and unhappily so much Charlock is grown by farmers that it can be obtained from them for as little as 2*s.* 6*d.* a bushel, and thus the farmer sells by the bushel to buy back by the pound.

We would, however, conclude these remarks at present by stating that the cases of weed mixture which we have tabulated are not the result of direct adulteration, as they are derived from growing weeds with the crop; at the same time we hope to show in a future article that the manner seeds are grown and sent into the market is the reverse of honest, and until men who are interested in the subject combine to put an end to the nefarious traffic by getting all the information they can, and seeking counsel where they have not sufficient direct knowledge themselves, so long must they submit, not only to pay for weeds instead of crops, but also to bear the cost of getting rid of them afterwards if they would secure a crop.

APPEARANCE OF THE CROPS.

Bucks.—I consider the Wheat crop unusually promising, much straw but large ears, well filled. Barley generally below an average. Less Barley and more Wheat grown than last year. Oats not much grown here, but an average crop. Beans and Peas average. No blight. Wheat, Barley, and Oats are now all ready for the sickle, and harvest is very general now. Labourers scarce, but owing to the absence of wet there is no fear of the Wheat shedding. *W. G. Duncan, Bradwell, Stony Stratford.*

Cambridgeshire.—The fine sunny weather and high temperature of the last month have hastened on the harvest apace; and ere July was out we found ourselves busily engaged in reaping both Oats and Wheat. Our report of the Wheat crop must still be favourable. We have less bulk of straw than last year, but the plant is thick upon the ground, and has a very good ear, and is well filled. Upon our high lands, and also upon our gravelly fen lands, the great bulk of the Wheat is already cut, and appears likely to afford an average yield of good, but not fine quality. Upon our black fen lands the Wheat is later, and is only just becoming fit to cut, and some of it will scarcely be ready until next week. Here the crop is more bulky, and in some instances a good deal laid, and not altogether free from mildew. Indeed, we have considerably more mildew upon these soils than we at first contemplated, and we fear the quality of the corn will be slightly deteriorated by it. With a continuance of the present favourable weather we shall be able to secure our Wheats in fine condition. The Oat crop is very various; in some instances very good, in others wretchedly bad. We think it quite below average. The early sown crops are now being cut, and we think will give a much better yield than those sown late in the season. The hot weather of the latter end of June seriously injured the Beans; they were stinted in their growth, and the top blossoms were cut off, and the pods generally are small. Our report of this crop is anything but favourable. The Mangel Wurzel crop looks as well as could be expected with such dry and intensely hot weather. With occasional showers, and ere long a lower temperature, we may yet get an average crop. Coleseed on dry soils is looking sickly. The dry weather has impeded its growth; it is consequently a light crop, and will yield but little feed. It is also where early sown infested and very much injured by the "smother fly." On our low cool soils the prospect is better, but even here some showers are needed to secure us a heavy crop. Potatoes must of necessity be small, and a light crop; the continued heat and drought have seriously affected them. We have seen no symptoms of disease up to this time, and should conceive the present high temperature calculated to check any development of it. We usually find it more severe in rainy seasons, and upon wet-bottomed lands. Linseed is also a light crop. The straw is short, and the head generally light. We can scarcely expect anything beyond a very poor yield of the seed, and the straw will scarcely be worth manufacturing, as the quantity and strength of the fibre must be unusually small and deficient. We need scarcely say our pastures are dried up and withered, and present a very unfruitful appearance. Grass cannot possibly grow with the weather we now have, nor can the stock improve much in condition, consequently prices of all kinds of stock are lower, and the trade for them is heavy. We can scarcely offer an opinion or give a report of our corn markets; we rather await a supply of new Wheat, when business, which is now suspended, will doubtless be resumed. *A. S. R., Isle of Ely.*

County Cork.—Our harvest here looks promising, but the farmers are complaining of the blight in the Potato crop, particularly those that are now in use as our earliest. Wheat looks well, but will not be so heavy as last year, and we have not so much spring Wheat about here as last year. Oats look well and seem good. Barley good crop. Turnips have been injured by the fly. Our Carrots look well. Beans not much used here, nor do we grow Peas. Our yield is much about the same as for the last year; and our general harvest will not be until the latter end of September. *A. Piddell, Kilderrery, Cork.*

County Down.—Our crops, owing to the high mean temperature of the last two months, have progressed very rapidly towards maturity, and we are now likely to have rather an early than a late harvest, the latter having been decided as the natural consequence of a late and very unfavourable seed time. Wheat is scarcely in as large breadth as last year, but is extremely promising, and I do not doubt will produce an abundant yield of grain of the best quality. Wheat harvest is likely to commence in less than a fortnight. Oats are very short in the straw, though tolerably well eared, but, as that grain requires a good deal of moisture, I scarcely expect that the produce will be abundant, though the meal will be of excellent quality. Flax, in this district, a short crop, but less so than was anticipated a few weeks ago. Root crops backward, moisture having been deficient, but the occasional showers at present, though much lighter than in ordinary seasons, are promoting their growth, and they may yet attain tolerable productiveness. Potatoes are in large breadth, and were planted, owing to the late spring, at a most imprudently late season. They have attained a good development of top, but have as yet formed tubers of insignificant size (I mean the general crop), and the disease is manifesting itself rather generally. If it should progress rapidly the consequences will be more than ordinarily fatal, the crop not having been in so backward a state at the time of the commencement of the disease since the fatal year 1846. *John Andrews, Comber, Aug. 5.*

Cumberland.—Wheat over average; Barley over average; Oats under average; Potatoes good; Turnips bad. Harvest general in three weeks. *Jos. Rigg, Wigton, Aug. 6.*

Fifeshire.—Crops very irregular in this neighbourhood. Considerably less under Wheat this year, and the yield will not reach an average. Oats and Barley good crops, but suffering much in many cases from the protracted drought, which is causing them to ripen prematurely. Harvest will be general about August 20. Hay a full crop. Turnips and Potatoes backward, and in need of rain. *R. Russell, Kilwhiss, Cupar.*

Herts.—The prospect of the harvest in this locality is most cheering. We only want a few showers. The Wheat is generally above an average yield, and the quality good. Oats are good, and Barley fair. Roots, if we shortly have rain, bid fair also to be good. The second crops of Grass and Clover are injured past help by the drought. I have seen the Potato disease. *C. F. Humbert, Watford.*

Kent.—Our harvest was general by the 1st or 2d of August. We have about the same proportion of Wheat land as the last

year, with the prospect of a great yield per acre. *M. Sandford, Dover.*

KERRY.—Potatoes far and away the best since 1846; Wheat good; Oats better; hay suffering from wet; Turnips very poor; Mangel Wurzel very good; Peas and Beans none. Prices for butter and cattle, our staple here, such as to gladden the heart of the farmers. On the whole, great and universal prosperity among the farmers, and they admit it! *John O'Sullivan, P. P. and V. G., Kenmare, Aug. 5.*

LONGFORD.—I write from the wild country on the borders of Cavan and Longford, in which there is scarcely any Wheat, not perhaps one acre in two or three thousand, but what there is appears free from rust and promising an average yield. The Oats will probably scarcely amount to an average crop; it will be short in straw. In the richer lands it will no doubt head well, but in the poorer ones, from the very dry latter spring, it will come short. The Turnip crop has suffered, and is also late in consequence of the drought. The meadows are generally heavy, and the high price that hay has fetched the last two or three years having induced an extension of meadowing, we may expect an abundance of hay. But Potatoes, our mainstay, are most promising; till the last few days there has been little sign of disease, and that confined to the very earliest kinds, and to the leaves, with very few exceptions indeed (*i. e.*, in this neighbourhood), but around I hear of much complaint. A garden here was very much injured both in leaf and tuber three weeks back, but another, a very close one, which has invariably suffered among the first, was a few days ago exempt. If close moist weather now sets in we may expect the disease to spread rapidly, but hitherto the season has been unfavourable to the growth of mildew. A very large breadth is under Potatoes, and the latter crops are very luxuriant and well advanced, so we may expect a sufficient supply. So much depends on weather that it is hard to say when our harvest here will be general, but we may say not till the end of this month or beginning of next. *J. M. Goodeff, Scrabley, Aug. 8.*

MEATH.—The crops in this neighbourhood are unusually fine, and notwithstanding the backward spring (fully one half of the Oats having been sown in May), I think the harvest will not be later than usual. The yield of corn promises to be very abundant. The extent under Wheat is pretty much as usual; some has been already cut, and the harvest will be general in this month. Green crops are very luxuriant; but I regret to say that the Potato blight has made its appearance to a greater extent than last year. *Ed. Bewley, M.D., Navan.*

NORTHUMBERLAND.—The harvest prospects are very bright. Yield of Wheat above an average. Extent about the usual quantity. Harvest will be general about the beginning of September. *William Glover, Newcastle.*—Of Wheat there is rather under an average breadth of winter sown and over an average of spring sown; as a whole, there is an average breadth of Wheat in this district. There is not the same bulk of straw there was last year, but it is better headed and better filled. The crop is fully an average one. I expect to have all my Oats and part of my Barley cut next week, and probably a small portion of Wheat. By the 17th the harvest will be quite general in this valley. *Thos. P. Dods, Anick Grange, Hexham.*

SELKIRKSHIRE.—I understand the probable yield of Wheat, Barley, and Oats in this district will be fully an average. Both in quantity and quality it is supposed it will be above last year's crop. There is little Wheat grown in the district, and the quantity sown is likely to be much the same as last year. Harvest will probably be general in from three weeks to a month. Potatoes are a good crop. Turnips in some parts of the district are not so promising. *James Stalker, Galashiels.*

YORKSHIRE.—As far as I can judge the yield of Wheat this year will be above average; the extent in this neighbourhood is about the same as last year, and the harvest will be general about the 10th of this month. *H. Currie Briggs, Wakefield.*—The Wheat crop is thin and light upon the ground generally, but healthy and likely to yield well for the quantity of straw. Barley a good crop, Oats light crop, Beans very poor crop. Rather less Turnip land sown to Wheat, of course rather more Barley than last year. Harvest will be very general by the 10th; some little pieces will be reaped this week. *Peter Stevenson, Rainton, Thirsk.*

A NEW HOME-MADE MANURE, THE NITRO-SULPHO-CYANIC.

AGRICULTURISTS are informed that crops grown with clay, altered by and impregnated with fertilising elements from coal gas, are now growing and (by the kind permission of the owners) may be inspected on the undermentioned estates and farms in this neighbourhood. Testimonials are so frequently unworthy of trust, and are so often fabricated that it appears to be the most satisfactory plan to give every person an opportunity of exercising his own judgment upon the crops, while they are growing; in which case no advantage can be taken, and mistake is impossible. The crops are grown by the following gentlemen:—

Quantity of Manure applied per acre.	Cost per acre.	Kind of Crop.	Results obtained.	Names and Addresses of Persons using the Manure.
15 to 20 cwt.	15*s.* 9*d.* to 21*s.*	GRASS	About 1¾ ton of hay per acre. Potatoes give remarkable promise	Atkinson, Esq., Old Hall, Heath, near Wakefield
15 cwt.	15*s.* 9*d.*	GRASS	A crop equal to that on another part of the field manured with rotten dung at a cost of about 4*l.* per acre	Dr. Atkinson, Retreat, Rook Nest, Stanley, Wakefield
About 2 tons.	42*s.*	GRASS	Grass much burnt by the excess of manure. Has since grown well	Mr. Beaumont, Crofton, Wakefield
20 cwt.	21*s.*	GRASS	Double the crop on other parts of the same field. Applied to part of a pasture. Cattle would not touch the Grass upon other portions while they could get a bite on this	H. S. Bennett, Esq., Horncastle, Wragby, Wakefield
"	"	WHEAT	Longer straw, broader blade, larger and fuller ears	" "
10 cwt.	10*s.* 6*d.*	GRASS	Crop nearly doubled	W. Belton, Esq., Chevet, Wakefield
20 cwt.	21*s.*	GRASS	Best Grass on the farm	Mr. Burton, Dirtcar, Wakefield
20 cwt.	21*s.*	GRASS	Nearly 2 tons per acre upon land but a few years before reclaimed from common, and which was never known to give even a fair crop of Grass before	T. M. Carter, Esq., Wakefield; farm at Sharlston
20 cwt.	21*s.*	WHEAT	Estimated improvement a quarter of Wheat per acre, beside considerably more straw	G. Cooper, Esq., Woolley, Wakefield
"	21*s.*	TURNIPS	Unknown	" "
20 cwt.	21*s.*	GRASS	Unknown	Mr. Hutchinson, Losco, Normanton
15 cwt.	15*s.* 9*d.*	GRASS	A poor field which was hardly worth mowing before, grew 1½ ton of hay per acre. On part of a rich field the crop was considerably increased by the larger growth of the better Grasses .. .	Mr. Lake, Featherstone, Pontefract
15 cwt.	15*s.* 9*d.*	GRASS	The best crop in its neighbourhood	J. Marsden, Esq., Solicitor, Walton, Wakefield
Uncertain ..	Uncertain	RYE-GRASS	Crop more than doubled where applied	" "
18 cwt.	18*s.* 11*d.*	GRASS	Unknown	H. J. Morton, Esq., Garforth West, Leeds
10 cwt.	10*s.* 6*d.*	WHEAT	An unsurpassed crop of White Wheat after Potatoes to which 10 cwt. per acre of the new manure was applied in 1856, in addition to the ordinary manure. Part of the field which had none of the new manure is much inferior to the rest .. .	Mr. R. Ramsden, Hay-dealer, Wakefield
About 20 cwt.	21*s.*	WHEAT	A remarkably fine crop; best on the farm	E. Sykes, Esq., Solicitor, Wakefield; farm at Austingley, Thornhill
20 cwt.	21*s.*	GRASS	Between 1½ and 2 tons of hay per acre. This field was ready to mow and was mown a fortnight sooner than the adjacent ones which were well manured with farm-yard dung. The after Grass of this field grows very rapidly, and promises to be so good a crop that a neighbouring farmer has purchased it for his sheep and cattle at the high price of 15*l.* for 9½ acres (July 15). The same farmer gave the same price for the after Grass of this field last year when it had the same manure. Part of a pasture dressed with it. Cattle eat this portion as bare as a common, while they leave abundance of long Grass upon other parts of the field.	Mr. John Turner, Stanley, Wakefield
30 cwt.	31*s.* 6*d.*	ONIONS	Free from mildew and 3 weeks earlier than part of quarter treated alike in every other respect, but to which none of the new manure was put. Rest of crop suffered much from mildew	" "
20 cwt.	21*s.*	GRASS	An excellent crop on some inferior land which has never grown even a fair crop since it came into Mr. W.'s hands some years ago	J. Wilson, Esq., Seacroft Hall, Leeds
15 cwt.	15*s.* 9*d.*	WHEAT	The crop looked so badly that Mr. W. was very near ploughing it up to sow with spring corn. He states that it is now excellent	Mr. J. Waites, Lake Lock, Stanley, Wakefield
"	"	GRASS	Put upon a pasture. Plot is much darker, but the cattle graze so continually upon it that it is quite bare. They leave plenty of Grass in other portions of field to eat here	" "
15, 20, 30 cwt.	15*s.* 9*d.*, 21*s.*, 31*s.* 6*d.*	GRASS	Tried on a bad field, and divided into four parts against 3 cwt. guano per acre, farm-yard dung, and nightsoil. That grown with the new manure half as good again as either of the others. Where most was applied the Grass is best	Woolley Coal Company
10 cwt.	10*s.* 6*d.*	TURNIPS	Very promising	" "

This new manure is made under the patent of the Rev. W. R. Bowditch, Wakefield, for purifying coal gas; and can be produced in almost unlimited quantity. The above has been extensively circulated where the crops are growing. It has also been published in the local newspapers. *Wakefield, July 17.*

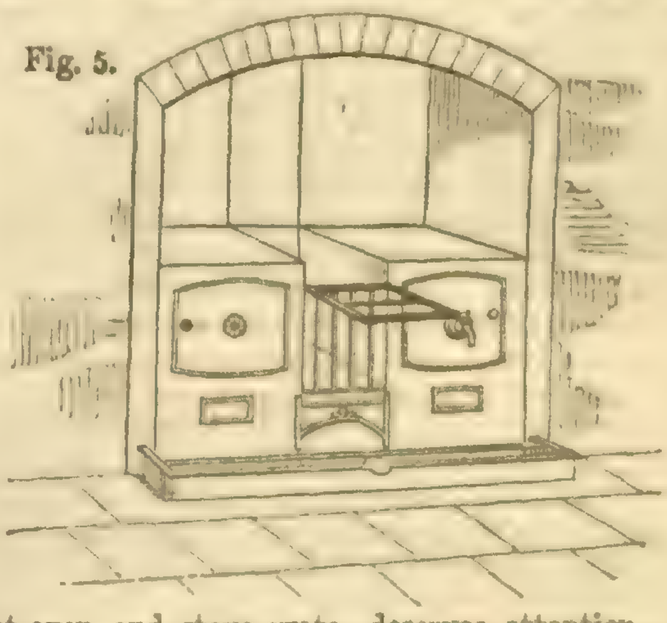
THE

HEATING APPARATUS OF THE COTTAGE.

FROM THE JOURNAL OF THE ENGLISH AGRICULTURAL SOCIETY.

WE have specified for the Newark cottage range* in the living room (see Fig 5). The back and bottom may be formed of fire-lump, by which arrangement greater heat is obtained, and no bottom bars are required. The door of the oven when open forms a convenient shelf, and the firebars being vertical instead of horizontal, obstruct as little of the heat as possible; whilst the smallest coals or cinders may be used. The price of these grates varies according to their size, from 2*l.* to 4*l.*† An ironing-stove may be added to these ranges at the cost of 3*s.* extra, provided the outside dimensions are not exceeded. The cottage grate, manufactured by Hardy & Co., of Worcester, known as the the 2 feet 10, or

Fig. 5.



3 feet oven and stove-grate, deserves attention. This grate has a fire from 10 to 12 inches wide, has an oven on one side, a flat or stove on the other, a draw-out stand at bottom, on which anything may be placed before the fire. The top of the oven and the flat are level with the fire; thus in cooking the entire heat is made use of, the boilers, &c., being placed wholly or in part on the fire. The oven is warmed partly by the heat conducted from the fire through the side, and partly by the flue under and at the side and back. The price of these grates is from 26*s.* to 28*s.* The back is formed wholly of fire-bricks; these are not included in the cost.

In the cottage erected by Sir Stewart Menteath, Bart., at Closeburn, there is a warming apparatus, of which Fig. 6 is a section. Behind the fireplace of the kitchen is an iron box. One side of this box, made of strong sheet-iron, forms the back of the fireplace. In communication with this box, or air chamber, is a pipe which admits a current of cold air. The air entering the box, and being heated by the fire, ascends through a pipe, and warms the bedrooms. This plan, although economical of heat, is subject to one serious drawback, viz., the deterioration of the air which passes through the flue, for "when air is warmed by contact with heated surfaces, it is liable to be deteriorated in quality if the communication of heat be too sudden and intense. The minute floccules of dust, and probably many attenuated portions of organic matter which are generally suspended in the air, and myriads of which may be seen floating in the light of a sunbeam, are decomposed at high temperatures, and their decomposition probably gives that scorched or roasted flavour which is perceived in air which has been in contact with hot surfaces. Metallic surfaces, on account of their great conducting power, by which they readily receive and as readily part with heat, are most apt to produce this effect on the air. It is therefore highly disadvantageous to employ such materials in any apparatus for heating, unless their temperature be kept moderate. To avoid all risk of unpleasant effects, the surfaces employed to warm air for human use should never be heated above the temperature of 107°."

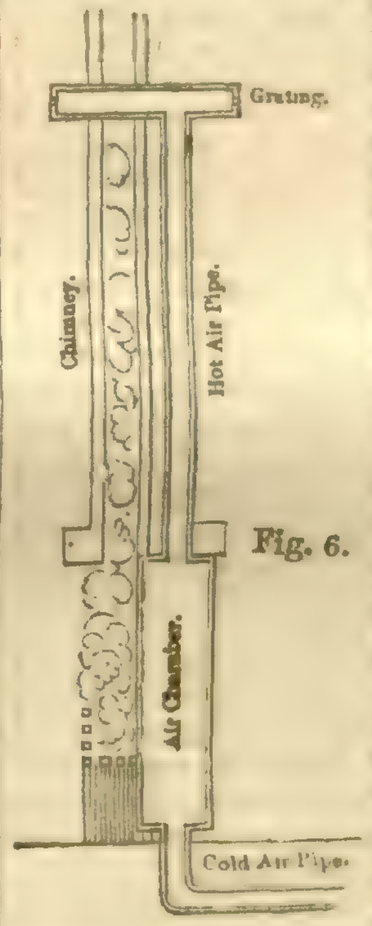


Fig. 6.

Whilst adopting the principle of warming the bedrooms by means of the fire on the ground-floor, we have taken care that the heating surface shall be of no deleterious character. We have introduced Pearce's Fire-Lump Grate,‡ which consists of a hollow back formed of fire-lump, and acting as a warming chamber. This chamber receives, by means of a pipe, fresh air from the external air. Another pipe ascends to the chamber floors, and supplies them with heated air. We shall touch upon the advantage which these grates

* This grate obtained the Royal Agricultural Society's prizes at York and Exeter, and also a medal at the Great Exhibition.

† Revised prices and dimensions of the above prize ranges complete, from July, 1853:—3 feet wide, 54*s.* 6*d.*; 3 feet 2 inches wide, 57*s.* 6*d.*; 3 feet 4 inches wide, 63*s.*; 3 feet 6 inches wide, 69*s.*; 3 feet 8 inches wide, 77*s.*; 3 feet 10 inches wide, 82*s.* 6*d.* The above grates are also made with ovens only, and no boiler:—30 inches wide, 36*s.*; 33 inches wide, 39*s.* 6*d.*; 36 inches wide, 43*s.*; 39 inches wide, 46*s.*; 42 inches wide, 49*s.* 6*d.* Or without the oven, but with boiler and brass cock:—30 inches wide, 42*s.*; 33 inches wide, 46*s.*; 36 inches wide, 50*s.*; 39 inches wide, 52*s.* 6*d.*

‡ A medal at the Great Exhibition was awarded to this grate.

afford for ventilation when treating of the subject of ventilation. Their cost is from 30*s.* to 35*s.* *Mr. Isaac in the Journal of the English Agricultural Society.*

WILTSHIRE LIGHT LAND FARMING.

It would be a grave error to consider the management of our arable lands as devoted particularly either to sheep and dairy purposes on the one hand, or, on the other, to corn farming; and yet there are periods of the year when both remarks would be fairly applicable. It is the mixed judicious application of sheep stock to the purposes of profitable feeding at the one time, and their employment as "dung carriers" to the distant fields at another, which constitutes what is supposed to be the right management of the hill lands.

To take, therefore, as illustrations, the two rotations of four fields which most frequently occur, let us suppose the first set of fields to be managed in the ordinary course of Wheat, Turnips, Barley, and Grass. This course is so identical with that which is current elsewhere, that it needs no further observation than that a catch crop of Rye, winter Oats, or Vetches invariably precedes the Turnip crop. The other rotation is one so peculiar to this district that it will probably be of more interest. It is as follows:—First year, Wheat; second year, Barley; third year, half Clover and Rye-grass and half Rye or Vetches, followed by Swedes or late Turnips; fourth year, half old field or old lea, and half forward Turnips or Rape. The half of the Barley land, which is sowed off to Clover and Rye-grass, is mowed for hay in the ensuing year, is fed through the autumn, and a moiety is then covered with long fresh straw or dung, and the sheep stock are penned upon this in the latter end of November and the early part of December, as soon as the folding for Wheat is completed. The food which supports the sheep through this period, except in the event of an unusual crop of Turnips, is hay supplied to them night and morning, and a spread or run over the downs for a few hours in the day when they go for water. The average folding is about one and a half sheep to a square hurdle, or 36 square feet, which is equal to about 1860 sheep per acre per night. When the fold has passed over the land, it is either raftered or fallowed, and after a cross-ploughing in March is in capital condition for early Turnips or Rape preceding the Wheat crop. The other moiety, of old field, is reserved for feeding about the first week in May, when the sheep leave the meadows. It is subsequently dunged and folded, and either planted to Turnips or Rape, or ploughed up, and the sheep folded upon the fallows, to consolidate them previous to the sowing of Wheat. The Wheat crop, after both these systems of management, is usually very good.

Let us now return to that portion of the Barley field where no Rye-grass or Clover was sown. In the early autumn it is sown with Vetches, which are consumed on the land in the June and July of the next summer, thereafter Swedes or Turnips are drilled in, which stand over for feed until any period in the spring which may be most convenient, and frequently it happens where the meadows are early, that the sheep can be penned on Swedes or Turnips. The land is then dunged from our yards, or from heaps which have been carted to the fields during the winter, and, with the addition of superphosphate, is drilled with early Turnips, or Rape, preceding the Wheat crop. A modification of this latter system sometimes occurs by the substitution of a five for a four-field course, when a Turnip crop intervenes between the Wheat and Barley, or the land, or a proportion, is sown with the Barley to Sainfoin, in which crop it remains for three years.

The peculiarity of the second system just described consists chiefly in the sowing of Barley after Wheat, a custom so well known and appreciated in Wiltshire, and which has there stood the test of so much practice, that it is only to an audience of comparative strangers that anything like a defence of a rotation so apparently old-fashioned need be offered. Its application over a fair proportion of the medium arable land of this district is advantageous for the following reasons. First. It enables the farmer to sow his Barley over a large area early, and with very little labour of tillage. Secondly. The quality of the Barley so grown is uniformly superior to that grown after Turnips. Thirdly. If the management for Wheat has been what it should be, the bulk and quantity of corn grown is generally satisfactory, and, on an average of years, will quite compete with that grown after Turnips, which latter is frequently injured through its late sowing. Fourthly. It affords an excellent opportunity of cleansing the land, a process, with our system of frequent catchcrops, often troublesome and inconvenient to accomplish before Turnips. The other leading points of this system are the large quantity of green food which is cheaply produced under it, and the admirable facility afforded for the consumption of such food at any period consistent with the farmer's convenience.

Another advantage not to be lost sight of is, that a forced and wasteful application of the Turnips, for fear of losing the season for sowing Barley, is avoided, nor however thickly the sheep may be penned, is there any danger of thereby injuring the succeeding crop of Turnips. It leads, moreover, to a more equable distribution of the horse labour throughout the year. The folding of the ewes on the old field, to which reference has been made, and the system of folding generally, may be regarded as peculiar to this district, and it may well happen that, in some measure, the system is attributable to the increased quantity of hay grown on a farm having a fair proportion of water meadow. It is practically a folding out of meadow during the winter with the produce of the summer growth, and taking the data supplied by Mr. Combes as to the area folded per acre from water meadow, and charging the increased bulk of hay in excess of the spring feed against the cost of its manufacture and carriage, it may be assumed that its value, as manure, is quite equal to that of the spring fold, which is usually valued at 25*s.* to 30*s.* per acre. There is this further value in the summer produce when in the form of hay, that it is applicable to any period and locality.

On farms where there are no water-meadows the useful and beautiful Sainfoin comes in to supply in great measure their absence. That it does supply such want is a recognised axiom, and although it cannot furnish in March or April the luxuriant herbage which then clothes our meadows, yet, in the form of hay, it contributes largely to the health and well-being of the stock. The proportion of land devoted to Sainfoin in this district on farms with a fair share of water-meadow is about 10 per cent. on the area of arable land; where they are absent it is about 15 to 18 per cent. The following are a few statistics of the produce and mortality of the flocks. A prejudice exists in favour of the present system with regard to sheep, but the following statement indicates a larger mortality, with a proportionately smaller produce than is obtained from any other district or breed, the statistics of which are known. From a census taken on the 4th of May, during five consecutive years, it appears that the average produce of 10,600 ewes, in a district within a radius of 10 miles of Salisbury, was 89 per cent. of lambs. The average mortality of ewes from October 10th to May 4th was 4.85 per cent. The average mortality of ewe tegs, or hoggets, derived from the same district and during the same period, was 2.75 per cent. It is believed that the conditions under which these numbers were obtained fairly represent the general circumstances of the flocks of the southern portion of this county. *Mr. Squarey at Wilton, July 22.*

Home Correspondence.

Dr. Anderson's Test for Common Salt in Nitrate of Soda.—The following is the test to which Dr. Anderson referred in his lecture the other day at Glasgow:—"It is founded on the chemical principle, that if a sufficient quantity of nitrate of silver be added to common salt, that substance is entirely decomposed and no longer exists in the fluid. This fact can be easily illustrated by experiment, in which it is shown how common salt can be detected, for it is only necessary now to add to a solution of the manure a further quantity of nitrate of silver, when it is seen that no further precipitate is formed, the salt originally present having been decomposed by the previous addition. By reference to well-known chemical laws, it is found that 29 grains of nitrate of silver are required to decompose 1 grain of salt. Upon this principle a solution is made, containing 290 grains of nitrate of silver in a imperial pint of water, and its strength is then such that a fluid ounce of it decomposes exactly 5 grains of salt. The use of this solution for the purpose of determining the purity of nitrate of soda depends on the fact that when of good quality it always contains less than 5 per cent. of salt, so that if we take 100 grains of it dissolved in water, and add a measured ounce of the silver solution, we ought to have decomposed the whole of the salt it contained, and none should be left in the fluid; whereas, if there be more than 5 per cent., the excess above that quantity will remain, and be detected by a further addition of nitrate of silver. The mode in which the experiment is made is very simple. One hundred grains of the sample to be examined are weighed in a pair of common apothecaries' scales, and put into a bottle capable of containing about half a pint. Four ounces of warm water (rain water is best) are then poured into the bottle, which is shaken until the nitrate is dissolved. The experimenter then carefully examines the insoluble matter, which should be very small in quantity, not exceeding 1 per cent., and consisting of grains of sand; and a little experience will enable him to ascertain by inspection whether the quantity is excessive. An ounce of the nitrate of silver solution is then measured in a common glass measure, and poured into the bottle, which is shaken violently for some time, and then allowed to stand at rest for five or ten minutes, when the white curdy matter deposits and leaves the supernatant fluid nearly or altogether clear. When this is the case, a few drops of nitrate of silver are added, and if the fluid remains clear and shows no further milkiness, then the sample must have contained less than 5 per cent. of salt, and is of excellent quality. But should it become muddy, another ounce measure of the nitrate of silver is added, the bottle shaken, allowed to stand until clear, and the clear fluid again tested with a few drops of the nitrate, and if it remains clear, then the sample contains more than 5 and less than 10 per cent. of salt. Should it still give a precipitate, the same manipulations are gone through again as often as may be requisite, until the clear fluid ceases to become muddy. Every ounce of nitrate of silver which has thus been used corresponds to 5 per cent. of salt, so that if 3 ounces had been added there must be from 10 to 15 per cent. of impurity and so on over. In this way the experimenter can always ascertain within 5 per cent. the amount of impurity. But it would probably not be advisable for him to go beyond the first additions; and should he find that there is more than 5 per cent., then he should suspect that his sample is inferior, and have it carefully analysed. It is important to notice that, by this method of testing, we proceed by steps of 5 per cent., and that, for instance, no distinction will be made between a sample containing 6 and another containing 9 per cent. of salt; but it is obvious that any degree of precision may be arrived at, provided we add the solution of nitrate of silver, not by whole ounces, but by smaller quantities, for every fifth of an ounce must correspond to 1 per cent. The objection to using it in this way, however, lies in the delay consequent in waiting between each addition; but it is very easy to make an exact experiment for the purpose of checking the correspondence between the article delivered and the analysis by which it was sold. Thus, supposing the analysis to bear that the sample contains 3.5 per cent. of salt, it would only be necessary to add three-quarters of an ounce of the nitrate of silver; and if that precipitated the whole of the salt, the result is satisfactory. It is, in fact, only necessary to take a little more of the nitrate than is requisite to precipitate the whole of the common salt or chloride of sodium stated in the analysis, and to ascertain whether it has actually done so by observing whether the solution remains clear when a few drops more of the nitrate are added. *M. S.*

Exposed Cottage.—Felt is very hot and very cold, and the wind is sure to get under it and the rain too, if not constantly tarred and sanded. Your correspondent will, like myself, find flat tiles with a deep "lap" the surest roof if the woodwork be strong enough and well "tied" at the bottom (which from his eaves being only 10 feet from the ground is at present impossible); if the tiles are 10 inches by 6 or 7, let the lap be 8 inches, so as only to expose 2 inches. The pitch of roof must not be less than ⅓ or 4 feet in 12 feet; he would find it better to make his cottage only one floor of 8 feet; or to make the eaves 13 feet above ground, and add a shed on the lee side, very useful for stock, &c., which increase of roof will give the house water, mostly a desideratum. *Somerset.*

Societies.

Highland Society, *Glasgow.*—The annual meeting during the past week has been unprecedented for the number of exhibitors, spectators, and stock and implements exhibited. No fewer than 195 Ayrshire cattle, 88 Short-horns, 22 Aberdeenshire, 19 polled Galloways, 79 Kyloes—in all upwards of 440 cattle—competed for the Society's prizes. Three hundred and four pens of sheep and 89 of pigs were exhibited. There were besides these 143 entries under the head of poultry and 234 under that of dairy produce, which is a department in which the Highland Society far exceeds our own—unless, indeed, it should be beaten at the forthcoming show at Chester next year. These, with upwards of 600 implements, completed the show. The following is the award of prizes in the cattle yards. It will be seen that Mr. Stirling's prize short-horn bull at Salisbury is successful here again.

LIST OF PRIZES.

CLASS I.—CATTLE.—AYRSHIRE.

Old Bulls.—1, I. Campbell, New Cumnock; 2, J. Stewart, Strathaven; 3, J. Rennie, East Kilpatrick.

Two-year-old Bulls.—1, J. Stewart, Strathaven; 2, J. Parker; 3, Wm. M'Adam, Balfron.

Yearling Bulls.—1, J. Parker, Irvine; 2, Geo. Paton, Bankhead, Renfrew; 3, J. Rennie, East Kilpatrick.

Old Cows in Milk.—1, J. Frew, Kilsyth: 2, A. Wilson, Kilbarchan; 3, J. Parker, Irvine.

Young Cows in Milk.—1, J. Stewart, Strathaven; 2, R. Markland, Bogside, Port-Glasgow; 3, D. M'Farlane, Torr, Helensburgh.

Cows in Calf any age.—1, J. Parker, Irvine; 2, H. Crawford, Beith; 3, J. Robertson, South Hillington, Paisley.

Heifers.—1, Jas. Stark, Garngad Hill, Glasgow; 2, J. Morson, Drumley, Tarbolton; 3, W. Muir, Hardington Mains, Biggar.

Yearling Heifers.—1, G. Pender, Dumbreck, Kilsyth; 2, J. Stewart, Strathaven; 3, A. Fleming, Avon Mills, Hamilton.

SHORT-HORNS.

Old Bulls.—1, W. Stirling of Keir, M.P., Dunblane; 2, Sir F. W. Heygate, Bart., Bellarena, Ireland; 3, T. Bell, Ballinshae, Kirriemuir.

Two-year-old Bulls.—1, J. Douglas, Athelstaneford, Drem; 2, A. Bethune of Blebo, Cupar-Fife; 3, J. Hunter, Laith, Castle-Douglas.

Yearling Bulls.—1, Wm. Stirling of Keir, M.P., Dunblane; 2, J. Douglas, Athelstaneford; 3, T. Willis, Manor House, Bedale.

Cows of any age.—1, J. Douglas, Athelstaneford; 2, J. Douglas; 3, W. Stirling of Keir, M.P.

Heifers.—1, Messrs. Turnbull, Bonhill Place, Dumbarton; 2, W. Tod, Elphinstone Tower, Tranent; 3, Messrs. Turnbull.

Yearling Heifers.—1, J. Douglas, Athelstaneford; 2, J. Douglas; 3, J. Gulland, Newton of Wemyss.

Polled Angus or Aberdeen.

Old Bulls.—1, the Earl of Southesk, Kinnaird Castle; 2, R. Walker, Portlethen-Mains, Aberdeen; 3, R. Walker.

Two-year-old Bulls.—1, J. Collie, Ardgay, Forres; 2, J. Leslie, Thorn, Blairgowrie; 3, G. Brown, Westerton, Fochabers.

Cows of any age.—1, R. Walker, Portlethen-Mains; 2, the Earl of Southesk; 3, the Earl of Southesk.

Heifers.—1, G. Brown, Westerton, Fochabers; 2, J. Collie, Ardgay, Forres; 3, G. Brown.

Polled Galloway.

Old Bulls.—1, Rob. B. Wardlaw Ramsay of Whitehill; 2, J. Cunningham, Whitecairn, Castle-Douglas; 3, Wm. Irving, Barndennoch, Dumfries.

Two year-old Bulls.—1, J. Beattie, Newbie House, Annan; 2, J. Beattie

Cows of any age.—1, James Graham, Meikle-Culloch, Dalbeattie; 2, Allan Pollok, of Faside, Newton-Mearns; 3, James Gillespie, Annan Park, Lockerby.

Heifers.—1, J. Shennan, Balig, Kirkcudbright; 2, J. Shennan; 3, J. Graham, Meikle-Culloch.

Highland.

Old Bulls.—1, D. Campbell, of Jura; 2d, Neill Malcolm, of Poltalloch; 3, D. Sinclair, Kilchamaig, Argyle.

Two year-old Bulls.—1, Alex. M'Donald, Ballochallan, Callander; 2, Neill Malcolm, of Poltalloch; 3, Right Hon. Duncan M'Neill, of Colonsay, Lord Justice-General.

Cows of any age.—1, Neill Malcolm, of Poltalloch; 2, Marquis of Breadalbane; 3, Allan Pollok, of Faside, Newton-Mearns.

Three-year-old Heifers.—1, Allan Pollok, Faside; 2, R. D. Campbell, of Jura; 3, Marquis of Breadalbane.

Two-year-old Heifers.—1, Donald Maclaren, Callander; 2, Allan Pollok, of Faside; 3, Allan Pollok.

CLASS II.—HORSES, For Agricultural Purposes.

Old Stallions.—1, S. Clark, Manswrae, Bridge of Weir; 2, P. Crawford, Dungoyack, Strathblane; 3, John L. Gow, Raith, Kirkaldy.

Entire Colts (3-year-olds).—1, Alexander Galbraith, Croy Cunningham, Killearn; 2, A. Turnbull, Newton, South Queensferry; 3, A. Logan, Crossflat, New Monkland.

Entire Colts (2-year-olds).—1, S. Clark, Manswrae, Bridge of Weir; 2, Sir M. R. Stewart, of Ardgowan, M.P.; 3, Wm. Stirling, of Keir, M.P.

Entire Colts (1-year-olds).—1, J. Salmon, Benston, Paisley; 2, Andrew Warnock, Bereyards; 3, Archibald Coubrough, Carwood, Biggar.

Old Mares (with foal).—1, George Davidson, Dean Park, Balerno; 2, David Fleming, Westhorn, Glasgow; 3, James Russell, Shawhill, Mearns.

Mares (in foal).—1, T. G. Buchanan, Wellshot, Cambuslang; 2, Peter Drew, Carmyle, Tolleross, Glasgow; 3, T. Morrison, Middlefield, Falkirk.

Filly (3-year-old).—1, Mrs. Hay, Duntyblae, Kirkintilloch; 2, David Riddell, Killbowie, Duntocher; 3, Andrew Renfrew, Barrance, Mearns.

Filly (2-year-old).—1, John Crawford, Millstonford, West Kilbride; 2, David Riddell, Kilbowie, Duntocher; 3, Dugald Napier, Port-Dundas.

Filly (yearling).—1, George Tudhope, Colinhill, Strathaven; 2, A. Wilson, Forehouse, Kilbarchan; 3, George Davidson, Dean Park, Balerno.

Draught Horse or Mare in Harness.—1, John Bryson, Glasgow; 2, Dugald Napier, Port Dundas; 3, John Bryson, Glasgow.

Horse or Mare not exceeding 15 hands high, suitable for milk carts of heavy draught.—1, George M'Murray, North Mains, Houston; 2, William Paisley, High Walton, Renfrewshire; 3, Andrew Pollock, Muirhouse, Eaglesham.

Horse or Mare not exceeding 14½ hands high, suitable for milk carts of light draught.—1, A. Dunlop, Glasgow; 2, A. Warnock, Bereyard, Bishopbriggs; 3, A. B. Armour, Meiklehill, Kirkintilloch.

CLASS III.—SHEEP.—Leicester.

Old Rams.—1, Thomas Simpson, Blainslie, Lauder; 2, Thos. Cockburn, Sisterpath, Dunse; 3, Lord Panmure.

Shearling Rams.—1, Thomas Simpson, Blainslie; 2, Thomas Cockburn, Sisterpath; 3, Thomas Cockburn.

Pens of Five Ewes.—1, Thomas Mason, Pallinsburn, Coldstream; 2, Thomas Mason, Pallinsburn, Coldstream; 3, John Collie, Ardgay, Forres.

Pens of Five Shearling Ewes.—1, Thomas Mason, Pallinsburn, Coldstream; 2, George Murray, Mount Pleasant, Berwick; 3, Thomas Mason, Pallinsburn.

Cheviot.

Old Rams.—1, Thomas Elliot, Hindhope, Jedburgh; 2, James Bryden, Moodlaw, Langholm; 3, James Bryden.

Shearling Rams.—1, Thomas Elliot, Hindhope, Jedburgh; 2, John Carruthers, Kirkhill, Moffat; 3, John Carruthers.

Pens of Five Ewes.—1, James Bryden, Moodlaw; 2, Thomas Elliot, Hindhope, Jedburgh; 3, A. Oliver & Son, Hawick.

Pens of Five Shearling Ewes.—1, Lord Panmure; 2, Thomas C. Borthwick, Hopsrig, Langholm; 3, Thomas Elliot, Hindhope, Jedburgh.

Blackfaced.

Old Rams.—1, Adam Blacklock, Minnygap, Moffat; 2, John Watson, Nisbet, Biggar; 3, Hon. Lady Menzies, Rannoch Lodge.

Shearling Rams.—1, David Foyer, Knowe Head, Campsie; 2, James Watson, Mitchel Hill, Biggar; 3, Adam White, Biggar.

Pens of Five Ewes.—1, James Brydon, Kinnelhead, Moffat; 2, James Drife, Barr, Sanquhar; 3, Allan Pollok of Faside.

Pens of Five Shearling Ewes.—1, Allan Pollok of Faside; 2, Captain Kennedy of Glenapp, Ballantrae; 3, Donald M'Laren.

Southdown.

Old Rams.—1, John Hutchison, Monyruy, Peterhead; 2, John Hutchison; 3, Duke of Richmond.

Shearling Rams.—1, Duke of Richmond; 2, Duke of Richmond; 3, John Hutchison.

Pens of Five Ewes.—1, John Hutchison; 2, Duke of Richmond; 3, Scott Skirving, Camptown, Haddington.

Pens of Five Shearling Ewes.—1, John Hutchison; 2, Duke of Richmond; 3, John Hutchison.

Long-Woolled Sheep other than Leicester.

Old Rams.—1, Robert Scott Skirving; 2, Duchess of Gordon, Huntly; 3, Lord Kinnaird, Rossie Priory.

Pens of Five Ewes.—1, Lord Kinnaird; 2, Duchess of Gordon, Huntly; 3, Lord Kinnaird.

CLASS IV.—SWINE.

Boars, large breed.—1, John Harrison, jun., Heaton Norris, Stockport; 2, James Skinner, Woodside, Aberdeen; 3, W. H. Brown of Ashley, Ratho.

Boars, small breed.—1, Jonathan Brown, Aspatria, Cumberland; 2, John Harrison, jun., Stockport; 3, Adam Dunn, Tranent.

Sows, large breed.—1, John Harrison, jun., Stockport; 2, Sir F. W. Heygate, Bart., Ballerena; 3, John Gibson, Woolmet, Dalkeith.

Sows, small breed.—1, James Skinner, Woodside, Aberdeen; 2, Robert H. Watson, Bolton Park, Wigton, Cumberland; 3, John Arklay, Pownill, Brechin.

Pens of three Pigs.—1, Jonathan Brown, Aspatria; 2, James Skinner, Woodside, Aberdeen; 3, Robert Glover, Shandon, Drymen.

As to the implements, we must be satisfied with intimating that the premiums for ploughs, grubbers, rollers, land-pressers, horse-hoes, harrows, and sowing-machines, were for the most part awarded to Scottish implements. Those for Turnip-cutters, chaff-cutters, oilcake-bruisers, grain-grinders, steaming-apparatus, and threshing-machines, were for the most part awarded to English makers, amongst whom were Bentall, of Maldon; Isaac, of Cheltenham; Richmond & Chandler, of Salford; Hill & Smith, of Dudley; J. Palmer, Stockton-on-Tees, and others.

A prize of 50*l.* offered for a new reaper was not awarded.

On the evening of Wednesday Professor Anderson gave a lecture on the means of detecting adulteration in manures. He referred more especially to sulphate of ammonia, nitrate of soda, and guano. The following are extracts from the lecture:—

Adulteration of Manure.—Sulphate of ammonia. If its colour be pale, and it be made up of distinctly crystalline fragments, it is probably pure. If it contains white grains or lumps, obviously different from the greater part of the mass, it is probably a mixture. Take a quantity of the substance, spread it upon a piece of blotting paper, and inverting a saucer or small box over it, leave it for some hours. If at the end of that time the blotting paper has become very damp, the sample probably contains more than the usual quantity of moisture. The next process consists in placing a small quantity of the sulphate upon a fire-shovel until it cease to give off fumes. If pure it will almost entirely volatilise and leave behind only a very small quantity of sand or other fixed matters. A genuine sample of sulphate of ammonia contains from 94 to 97 per cent. of the pure salt, and rarely more than 1 per cent. of non-volatile matters, so that the residue in this experiment ought to be very small. If the sample stands all these tests it may be considered genuine, but it must be understood that tests do not enable us to distinguish the relative qualities of different samples where all are genuine. For this purpose analysis is absolutely necessary, and its importance will be understood when it is borne in mind that a diminution of only one per cent. in the quantity of ammonia corresponds to a reduction in value of nearly 15*s.* per ton.

Nitrate of Soda invariably contains common salt in greater or less quantity, resulting from the mode in which nitrate of soda occurs. In examining a specimen of nitrate of soda, the farmer will direct attention, in the first instance, to its dryness. He will then look to its general appearance, which is extremely like that of raw sugar, being composed of small grains, which should be uniform in appearance, and have a brownish but not too dark a colour. If the eye distinctly detects a mixture of two kinds of grain, one whiter than the other, the presence of common salt as an adulteration may be suspected. The presence of common salt is easily detected by means of a solution of nitrate of silver (or lunar caustic), which immediately produces a curdy white deposit in any fluid containing it.

Guano.—Peruvian contains 16·5 per cent. of ammonia, 22 to 25 per cent. of phosphates; Saldanha Bay contains only 1.5 per cent. of the former and above 60 of the latter. In examining a sample of Peruvian guano it is necessary first to attend to the colour, which should be pale. If it is dark the sample is probably damp, and if, when a handful is strongly squeezed, it coheres into a mass, this is still more probable. It should contain lumps having a rather paler colour than the mass of the guano, when they are broken across, and sometimes they are white and have a crystallised texture. The entire absence of lumps is always a suspicious circumstance, but adulterators are now so well aware of the importance attached to them that great care is taken not to break them down, and their presence is therefore no guarantee that the guano is genuine. The observer will next fill a bushel measure with the guano, and weigh it, and if the weight exceed 72 lbs. the guano is probably adulterated. But by far the most conclusive test of adulteration is one which approaches to an analytical process, although it is one which can be performed without difficulty. It depends upon the fact, that in a genuine Peruvian guano the moisture and organic matter make up two thirds of its whole weight, and as these are volatile at a red heat, it follows that when burnt it should leave an ash not exceeding one-third of its weight. For this experiment a small porcelain cup or capsule is required, and after this has been accurately counterpoised by means of sand or any other matter, 20 grains of the guano are weighed into it. The capsule is then placed in a hot place by the side of a fire, and when it has become hot it is carefully placed upon the red-hot coals on a clear fire, and left there for 15 or 20 minutes, and is then removed and allowed to cool as gradually as possible, so as to avoid cracking the capsule, and weighed again. The residue ought to weigh about 7 grains; and if it exceeds 8 the guano is certainly adulterated. The value of this test depends upon the fact that all the substances used to adulterate guano—such as sand, sulphate of lime, chalk, &c.—are fixed in the fire, and as they are generally used very liberally the chances are that the quantity of residue is materially increased—in point of fact, it will probably range from 10 to 14 grains; that is to say, two-thirds of the guano remain instead of one third. This is by far the most accurate and conclusive method of testing a Peruvian guano; but it must be distinctly understood to apply to that variety only. When any of the other kinds are examined, it is important to bear in mind that the colour is a character of very little value; as a general rule, indeed, it is desirable that they should be pale and of a brownish rather than a grey colour, but no conclusions can be drawn from this as to whether it is damp or not. The best method of testing is to burn a small quantity in a capsule until the organic matter is completely burnt off; and though no conclusions can be drawn from the proportions of fixed and volatile matters, it is advisable to take about the same quantity, say as much as will lie on a shilling, so that the observer may be able to institute some sort of comparison between different samples. When burnt the residue should be white; if it is brown or reddish like brick dust, the sample is probably either adulterated or of a very inferior kind. It is then shaken out into a wine glass or other convenient vessel, and about half a teaspoonful of water poured upon it, and as soon as it has become thoroughly moistened about a teaspoonful of muriatic acid (spirit of salt) is added. If it effervesces the guano contains chalk (carbonate of lime), or has either been adulterated with that substance, or is one of the inferior varieties which contain it naturally. If it does not effervesce the glass is left in a warm place for an hour or two, and then a little more acid and water are added, and then it is again allowed to stand. The whole should now be dissolved, with the exception of a few grains of sand. If the guano stands all these tests it is, in all probability, genuine; but of its quality we get no information, for it may be worth from 7*l.* up to 10*l.* or even 12*l.* per ton, if a phosphated guano, and from 12*l.* to 15*l.* if Peruvian, according to the proportions of its valuable constituents: that, of course, can only be decided by an accurate analysis, without which no prudent man will purchase a guano, but he will take care to make the experiments we have just described with the analysis in his hand. Thus, if he find that the ash of his guano effervesces on the addition of acid, and no mention is made of the carbonate of lime in the analysis, his suspicions will naturally be awakened. So, likewise, he will be enabled to form a rough guess as to the correspondence between the sand he finds and that stated in the analysis; but it will be necessary for him to be careful should the guano contain sulphate of lime, part of which will, in the method of treatment just described, remain undissolved and mixed with the sand. For ascertaining the presence of the latter substance, however, there is no satisfactory test which can be put into the hands of the farmer.

Reviews.

North America: its Agriculture and Climate. By Robert Russell, Kilwhiss. Adam and Charles Black, Edinburgh.

This volume contains the observations of one well qualified by previous study and experience to make them on the agriculture and climate of Canada, the United States, and the Island of Cuba. Mr. Russell has for many years in this Journal given expression to his views of the influence of climate in modifying both the experience of the agriculturist and the expectations of the agricultural chemist. And during his recent tour he has had ample opportunity both of verifying and correcting on a large scale his theories in pure meteorology and in the meteorology of agriculture. The present volume shows how competent to make use of these opportunities he has been. It is more likely to be of service as an agricultural guide to the intending settler in Canada or the States than any previous book of travels there that we have seen. We shall hereafter call attention to the general view of American agriculture and climate to which Mr. Russell's investigations have led him. At present we confine ourselves to extracts descriptive of local farm management.

The following is a picture of a farm in New York State:—

"I drove about 12 miles to the west of Rochester to visit some farms in the township of Riga. The sowing of Wheat was going on very briskly on many of the farms that we passed, and on some it was already finely brairded. Wheat is put in very early throughout Canada and the United States, and the plants tiller and are well rooted before the winter sets in. In this part of the country the farm horses are a superior class of animals, having a good deal of breeding, and being similar in figure and size to our carriage horses. They are very active, and a good team will sometimes plough 2½ acres of light land in a day. It is common to put three horses abreast in the plough, and to make a furrow from 8 to 10 inches in depth and from 14 to 18 inches in breadth.

"The system of cultivation which is pursued is interesting. The land does not strike one as being particularly fertile, but rather of middling quality. It consists of a light-coloured sandy loam of considerable depth and having some boulders strewed over it. But this soil seems to be as suitable to the growth of Red Clover as the limestone gravels of Ireland are to the growth of Grasses, and hence its fertility is maintained by Clover as our fields in Scotland used to be by Grass. The rotation that is followed is usually Clover one year and Wheat the next. There are few or no soils in Britain upon which Clover would grow with vigour every second year; but were it not for this property of many of the American soils, much less Wheat would be raised than at present. On the light soils in this region, I was astonished at the fine healthy plants of Clover in the Wheat stubbles. When the autumns are somewhat moist a considerable growth of Clover takes place before winter; but the farmers do not like to pasture it too close. An intelligent farmer informed me that the common Clover would last for 10 or 15 years on these soils if it was cut early in the season and not allowed to seed. By the system at present pursued, the farmers in this district cannot keep a large herd of stock, and the Clover fields are worth little money, being chiefly of use in renovating the land.

"The Clover fields are prepared for Wheat by being deeply ploughed in June, and the surface being afterwards worked by the harrow and the scarifier to destroy the weeds. Though this system sacrifices a vast quantity of valuable forage, yet in the circumstances it is perhaps the best that can be followed, for it admits of the Wheat crop being frequently repeated, and involves but a small amount of manual labour, which is the element that determines the agricultural systems of America.

"The farmers in the Riga district sow about one-third of the whole extent of their possessions with Wheat every year. It is the best paying crop, and every one endeavours to have as great a breadth of it as possible. The ploughing up of the Clover sod and the cultivation of the surface is called 'fallowing,' which is a less expensive system than what goes under the same name at home. The winters are very severe, and field labour is then entirely interrupted; but the short season for labouring and cleaning the land is more than compensated by the powerful influence which the hot summer weather has in destroying the perennial Grasses and weeds. These are readily killed by being ploughed up at that season and having their roots exposed to the heat and drought. In this way is the land kept clean by the best farmers in the north-western part of the State of New York, which is perhaps the most productive region of Wheat in North America. No clean fallows nor any expensive fallow crops, such as Turnips, are necessary to keep the land in good condition and free from weeds.

"On one of the Riga farms which we visited, extending to 230 acres, we found 80 acres in Wheat, 11½ in Barley, 14 Indian Corn, 25 woods, the rest pasture and Clover. In 1853 the crops of Wheat averaged 40 bushels to the acre; in 1854, only 25 bushels. As indicating the natural capabilities of the land, we were shown a field on which a heavy crop of Indian Corn had grown in 1852; it was sown next spring with Barley, which produced 50 bushels to the acre, then sown with Wheat in autumn, and this year it had yielded 40 bushels per acre. On this farm a field of Clover was in course of being ploughed up and sown with Wheat; it had been in Wheat this year, but the farmer was complaining that the plant of Clover was bad, while in our opinion it was a most excellent one. Mr. Harris remarked that this was surely a mere excuse for getting a little more sown with Wheat while the prices were good. One hundred sheep are kept on this farm, besides 10 or 15 cattle, which are reared and sold when two years old.

"On another farm of 208 acres there were 40 in woods, 12 permanent pasture, 7 Indian Corn, 12 Oats, 10 Peas, 65 Wheat, the rest in Clover. About 1000 bushels of Wheat were threshed this year, 500 last, and 2000 the year before. The seasons appear to influence the yield of Wheat far more than they do in Britain. The flock of sheep yielded 400 dollars last year. Leicester sheep do not seem to thrive well where so much of the land is cleared, for frequently the whole flock are seen during the heat of the day standing crowded together with their heads all down.

"It is almost the universal practice to sow Clover

among the Wheat in spring, and at the same time to give the field a dressing of 100 lbs. of gypsum, which has a wonderful effect on some crops. The Clover is benefited more than any other plant, though Peas, Potatoes, and Indian Corn have often new life imparted to them by a light dressing of this substance, which is almost the only artificial manure used in the Western States. The manure of the farm is applied to Indian Corn, which is perhaps more grateful than any other crop for liberal treatment."

The following, again, is the account of a farm in Vermont:—

"Stopped for a night at Newbury, a handsome little town of 2000 inhabitants, where the valley widens out a little, and the wooded hills are considerably lower. I went over a farm which I had heard very much praised. Its owner assured me there was not a better in the valley of Connecticut, or even in New England; and I believe this was not very far from the truth. Yet it was no great affair after all. It consisted of 700 acres, 500 of which lay back on the hills, and were wholly under pasture; of the 200 acres in the valley some 25 acres were in Indian Corn, 35 in Oats, and 10 in Potatoes, the remainder in pasture and hay. It seems to pay much better to graze the land than to plough much of it. The richest meadows here are overflowed every spring when the snows melt on the White Mountains. These meadows yield about 3 tons of hay, and are worth 100 dollars per acre. When the original turf is broken up, it is long until the Grass becomes so good as it was originally. According to the season, from 50 to 95 bushels of Indian Corn per acre are got from the best lands, while the ordinary sandy or gravelly land in this valley does not produce more than from 30 to 40. This crop is cultivated in ridges 3 feet wide; some 4 to 5 grains of corn are planted on the ridges at a distance of 2 feet. Towards the latter end of its growth it is slightly earthed up. The proprietor conducted me through the farm-offices, which consisted of a huge building 250 feet by 45, another 250 feet by 20, and two 70 feet by 20. There were stalls for feeding 70 cattle, and 150 could be wintered in the yards. The cattle get an allowance of Indian Corn meal when feeding on hay. It is considered good payment if they yield 10*s.* a month for their keep.

"South from Newbury the hills again come closer together, and there is consequently less land in cultivation. In the cars I met a farmer who told me that he possessed 200 acres, but he only had in cultivation 4 acres Indian Corn, 7 acres Oats, and 4 acres Potatoes; he kept 7 or 8 cattle, and 74 sheep during the winter. The majority of farms in New England have not perhaps a much larger proportion of land in crop, for the soil is the poorest I could imagine capable of being cultivated. It is nonsense to talk of the land being exhausted, for evidently there never was anything to exhaust. Gravels and sands full of huge boulders are the characteristics of what goes under the name of 'improved lands' in the schedule of the census commissioners. In my travels through New England I saw hundreds of acres in cultivation, and Mr. Horace Greeley assured me he knew of thousands over which one might almost step from one large boulder to another without ever touching the soil. I did not see a single farm that would be ranked higher than a fourth-rate one either in the Lothians or in my own county of Fife; yet after I had completed my tour I was told I had seen a fair average. The New England farmers are active and industrious, and doubtless the soil admits of vast improvement, but I suspect cultivation can never be generally carried on upon the large farm system. Granite and gneiss form the basis of the whole country, which is covered with their débris, yielding the poor soils that I have described. Volney was so far justified in saying 'that all North America above Long Island is a rock of granite.'"

Notices to Correspondents.

Cattle Diseases: *Sub.* "Spooner on the Sheep;" "Youatt on the Ox and Horse." The two latter are the volumes issued by the Society for the Diffusion of Useful Knowledge. The articles on Cattle Diseases in "Blackie's Cyclopædia of Agriculture" are by Mr. Spooner, of Southampton.

Mouldy Hay: *M.S.* All that steaming will do is to make it palatable; but of course that is a great deal. It will not make it more nourishing than it was, but what nourishment the hay possesses can thus be made available; while as long as the hay was refused by the cattle it was of course absolutely useless.

Sheep Folding: *X.* The average folding is about 1½ sheep to 36 square feet, which is equal to 1860 sheep per acre per night. After the sheep have thus folded the land it is fallowed, and is in excellent condition for Turnips when it has had a cross ploughing in March preceding a crop of Wheat.

The Character of the Harvest: *To Readers.* We have issued circulars to our correspondents in the several counties of England and Scotland, and hope to be able next week to give the returns from the different districts to which they refer.

Weights and Measures: *N N.* The London Farmers' Club have issued circulars in order to ascertain the feeling among agriculturists in reference to uniformity in weights and measures. It seems that in the sale of corn the prevalent feeling is in favour of a combination of weight with measure as the unit of sale. This is carried out in the following manner:—The farmer after well dressing his Wheat (or other grain) has 4 imperial bushels, that is, half a quarter, or, according to local terms, a coomb, carefully measured, put into a sack, and weighed. He then measures no more, but weighs the whole, and takes his sample to market marked thus:—

John Hudson, 100 coombs of Wheat,
17 st. 10 lbs. net weight per coomb.

And he thus sells his Wheat at its natural weight without any more measuring. This is the method advocated by Mr. Hudson, of Castle Acre, and others.

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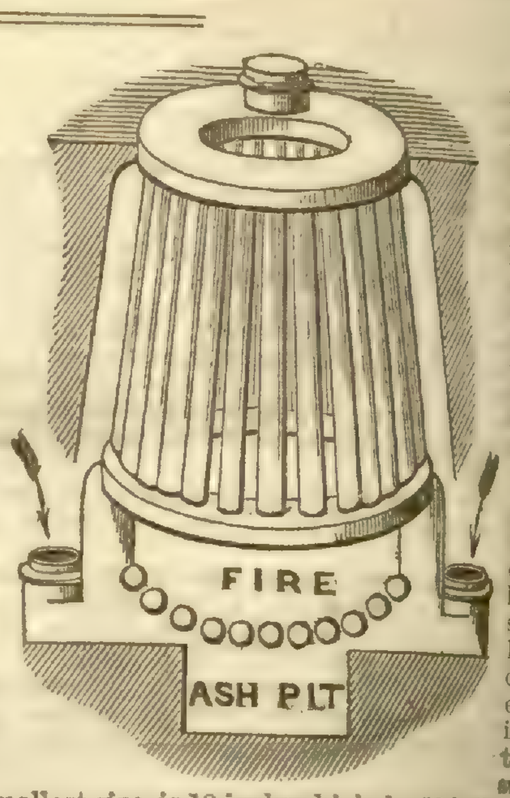

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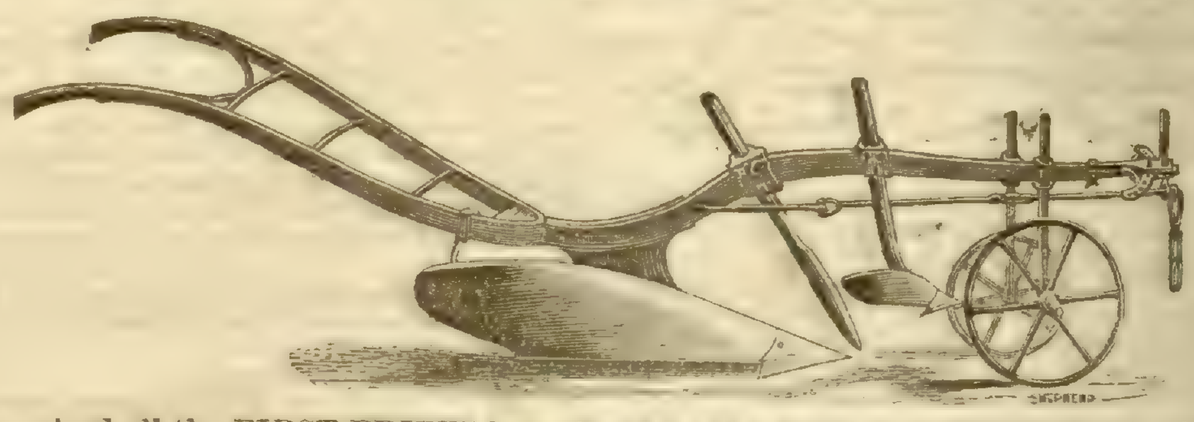

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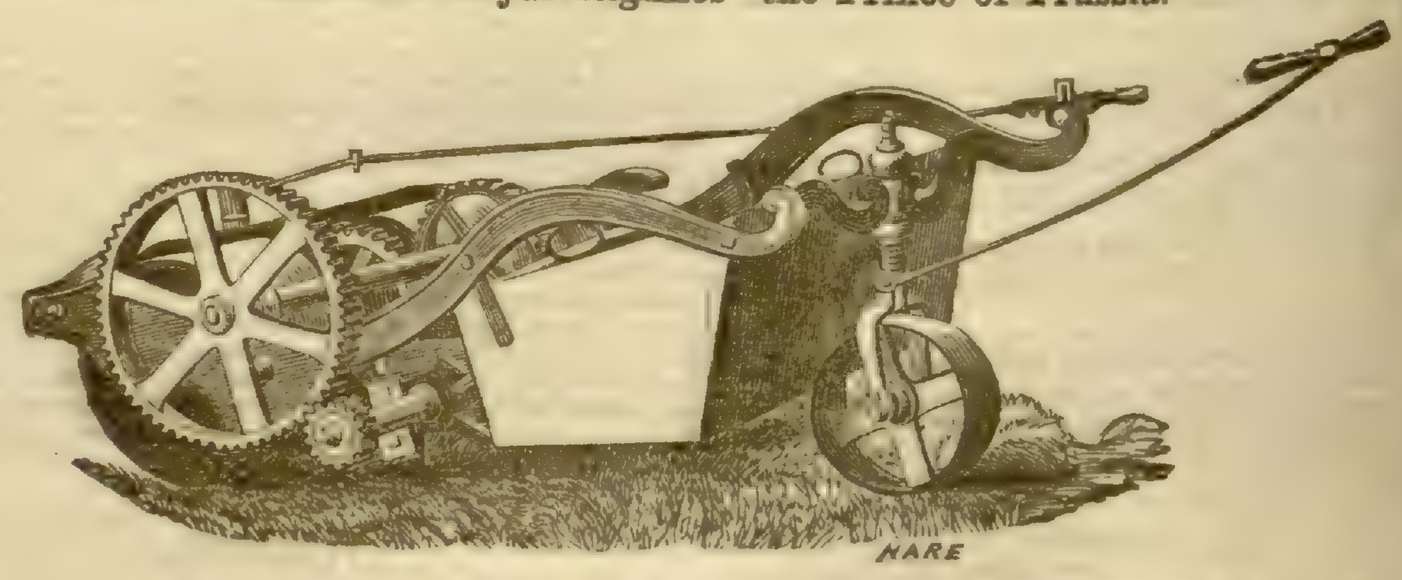

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A. Shanks & Son cannot give a better proof of the superior style in which the Machine executes its work, as well as of the ease by which it can be managed and its economy in the saving of labour, than by referring to the hundreds of places where it is at present in use.

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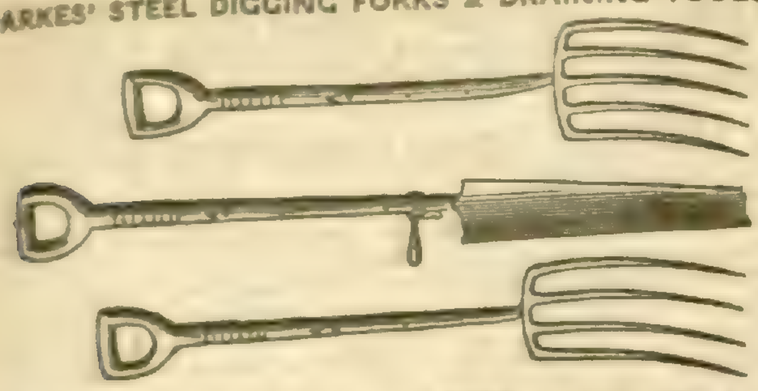

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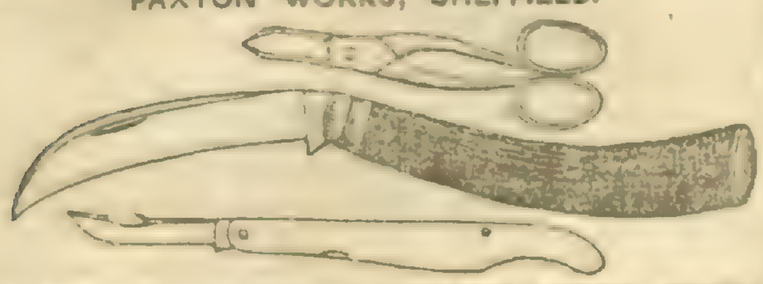

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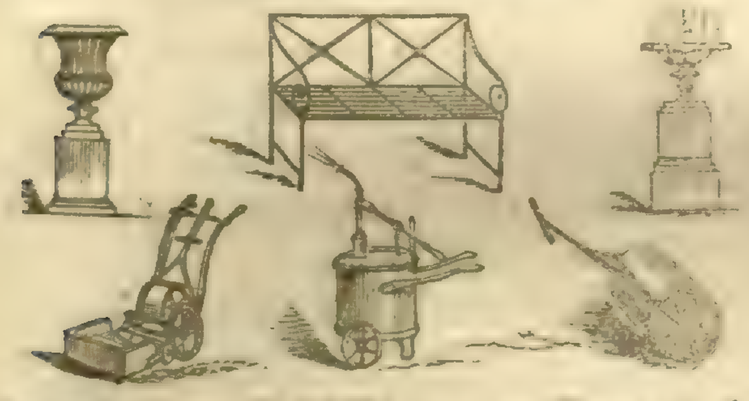

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"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 34.—1857.] SATURDAY, AUGUST 22. {Price Fivepence. {Stamped Edition, 6d.

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NATIONAL FLORICULTURAL SOCIETY.—St. Martin's Hall, Long Acre.

AWARDS, AUGUST 20, 1857.

FIRST CLASS CERTIFICATES.

Hollyhock Arethusa (Bircham & Ward).
" Rosa Bonheur (Bircham & Ward).
Dahlia Elizabeth (Barnes).

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Dahlia (Fancy) Ellen (Barnes).
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JOHN EDWARDS.

CRYSTAL PALACE FLOWER SHOW.—The SECOND FLOWER SHOW of the present Season will be held on WEDNESDAY, THURSDAY, and FRIDAY, September 9, 10, and 11. Schedules of Prizes are now ready, and may be had on application.

By Order, GEORGE GROVE, Secretary.

THE STOKE NEWINGTON FLORICULTURAL SOCIETY'S DAHLIA, ASTER, HOLLYHOCK, and MISCELLANEOUS EXHIBITION will be held at the Manor Rooms, Church Street, Stoke Newington, on WEDNESDAY, September 2. ARTHUR WORTLEY, Hon Sec.

BISHOP AUCKLAND FLORAL AND HORTICULTURAL SOCIETY.—The Annual Show of the above Society will be held in the Park at Auckland Castle on FRIDAY, Sept. 4, when the following Prizes will be awarded, open to all:

Best 6 Stove and Greenhouse Plants, 5*l.*, and 2d, 3d, 4th, and 5th prizes.

Best 24 Dahlias (dissimilar), 5*l.*, and 2d and 3d prizes

Best 9 Spikes Hollyhocks (ditto), 4*l.*, and 2d and 3d prizes.

Best 12 Dahlias (Nurserymen excluded), 3*l.*, and 2d, 3d, 4th, 5th, and 6th prizes.

Best 12 ditto (Amateurs only), 3*l.*, and 2d, 3d, 4th, and 5th prizes; and upwards of 150*l.* in Prizes.

Schedules may be had on application to

Mr. S. J. CHERRETT, Secretary.

Parties exhibiting at Newcastle will have an excellent opportunity of competing at the Bishop Auckland Show, which takes place on the following day. Mr. C. TURNER, of Slough, will attend as one of the Judges for Cut Flowers.

CHATTERIS HORTICULTURAL AND FLORICULTURAL SOCIETY.—The next EXHIBITION of this Society will be held at Chatteris on WEDNESDAY, September 9. In addition to the usual Prizes the following will be offered, viz., for the best TWENTY-FOUR DAHLIAS (various), excluding fancies, a SILVER CUP, value FIVE GUINEAS; second best, 1*l.* 10*s.*

Persons intending to compete for these Prizes must give written notice to the Honorary Secretary by September 2. Four entries or the Cup will not be given, and no Exhibitor will be allowed to take both prizes. The Honorary Secretary will inform intending competitors whether a sufficient number of entries have been made. Each Exhibitor must find his own stands, and be a subscriber of 10*s.* or upwards to the funds of the Society, which subscription will also entitle him to Show for the general Prizes.

Persons intending to Exhibit for all other Prizes than the Cup must give notice in writing, stating what they intend to Exhibit, and in which class, to the Honorary Secretary, by 8 o'clock in the evening of Tuesday, September 8. Prize Lists and Regulations and all further information may be obtained on application to WILLIAM FRYER, Hon Sec.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Grand Autumn Exhibition in the above splendid Rooms and Grounds on WEDNESDAY and THURSDAY, September 16 and 17. **Between 300*l.* to 400*l.* are offered in Prizes, including a 10*l.* Silver Cup, the gift of the L. B. and S. C. Railway Company to the best eight dishes of Fruits "distinct" sorts. Also a second 10*l.* Silver Cup for the best "Thirty-six" Dahlia** Blooms of distinct Show varieties. Open to all growers. Schedules can be had of the Secretary, 96, St. James's Street, Brighton; or of Mr. SPARY, General Superintendent, Queen's Graperies, Brighton. Free Carriage of Plants, &c., from the Bricklayer's Arms Station, and all other stations on the Brighton and South Coast as on former occasions.

E. CARPENTER, Secretary.

THOS. ATTREE, Esq., Chairman of Committee.

MANCHESTER BOTANICAL AND HORTICULTURAL SOCIETY.—The THIRD and LAST Grand Floral and Horticultural Fête of the Season will take place in the Society's Gardens, Old Trafford, on WEDNESDAY and THURSDAY, August 26 and 27. Military Bands will be in attendance each day. Admission Tickets, if purchased before the 26th, 2*s.* 6*d.* each on that day, and at the gates, 5*s.* 6*d.* each (these tickets are available both days, but are not transferable). Admission on the 27th, 1*s.* each. For Tickets, &c., apply at the Society's Rooms, 3, St. Peter's Square. JOHN SHAW, Sec.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER AND CO.'S COMPREHENSIVE CATALOGUE of DUTCH and CAPE BULBS will be published on the 1st of September next, forwarded free of charge and post paid to all parts of the world upon application.

238, High Holborn, London, W.C.

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JOSEPH MAY AND CO. beg most respectfully to announce that their CATALOGUE OF DUTCH FLOWER ROOTS, including a brief list of some of the most showy HERBACEOUS PLANTS, is just published, and may be had post free on application.

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WILLIAM CUTBUSH AND SON beg to state that their DESCRIPTIVE CATALOGUE OF HYACINTHS, &c., can be obtained free on application.

Highgate Nurseries, London, N.

HUGH LOW AND CO. have now ready for distribution their CATALOGUE OF DUTCH BULBS, which will be sent post free on application.

Clapton Nursery, London, N.E., Aug. 22.

BULBS.—A CATALOGUE OF BULBS is just published by A. VAN GEERT, Nurseryman, Ghent, which may be obtained on application of his agent, Mr. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

JOHN KERNAN, 4, Great Russell Street, Covent Garden, has much pleasure in announcing the arrival of HYACINTHS and other DUTCH BULBS in very superior condition, owing to the highly favourable weather for maturing them. None but those of a decided character have been imported, and as quality of colour and flowering, not quantity of undeserving novelties, has been the rule of selection, purchasers may depend upon their giving general satisfaction.

CABBAGE,	ONION,	LETTUCE,
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J. DOBSON AND SON beg to announce that their DESCRIPTIVE CATALOGUE of the above is now ready, and may be had post free on application.—Woodlands Nursery, Isleworth, W.; and High Street, Hounslow, W.

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PANSY, fine	1 0
HOLLYHOCK, fine mixed	1 0
WHEELER'S IMPERIAL CABBAGE	1 0

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SPIRÆA CALLOSA, fine Plants, 2*s.* 6*d.* each; packets of the Seed, 2*s.* 6*d.*

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The Nursery, Bagshot, August 22.

CHARLES M'INTOSH, F.R.P.S., Landscape Gardener, Garden Architect, & Nurseryman, Murrayfield, Edinburgh.

London address: Messrs. T. Lawson & Son, 62, Grosvenor Street, Westminster.

JOSEPH MEREDITH, Garden Architect and Horticultural Engineer, Vine Cottage, Aigburth, near Liverpool. Heating Apparatus fitted upon the most approved principle. First class references may be had.

GARDENERS' CHRONICLE PENNY

E. G. HENDERSON & SON'S
ILLUSTRATED BOUQUET.

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Gesneria cinnabarina	Bouvardia Rosalinda	White Ger. Empress Eugenie	Cineraria Duchesse de Brabant
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Tapina (Achimenes) splendens	,, Oriana	Cineraria Prince of Orange	Delphinium Montmorency
Monochætum ensiferum	,, Hogarth	,, Princess Mary	

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

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GHENT AZALEAS (Hardy) with Flower Buds. See VAN HOUTTE'S List No. 67, page 52.

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MAKOY'S TAMBOUR MAJOR, of very straight habit, and fine upright red flowers.

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The Roses delivered free in London.

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AZALEA INDICA (Vervaene's Petuniæflora) with buds, Coene's albo cincta, and Vander Cruysse's Roi Léopold, the set 15*s.*, free to London, from LOUIS VAN HOUTTE'S Nursery, Ghent.

HARDY RHODODENDRONS.—See VAN HOUTTE'S List No. 67, page 47.

CAMELLIAS, warranted all first class, fine imbricated forms. See 1st section in VAN HOUTTE'S Catalogue No. 67, page 43.

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As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot	.. .. ..	0	15
Ditto	ditto, extra strong	1	1
Six ditto	ditto, smaller	3	3
Twelve ditto	ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Aug. 22.

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JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

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JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

BY ROYAL LETTERS PATENT.

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GREEN'S Patent Improved Machines were only introduced this season, and on trial have proved to be the best, and have been already patronised by the following nobility and gentry, viz.:—

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Duke of Leinster.	Duke of Devonshire, Chiswick House (twice).
Viscount Campden.	London Horticultural Society, Chiswick.
Major Wemyss.	Dr. Royle, Secretary to ditto.
Sir Angus Campbell.	J. P. Chorley, Esq., Editor of *Field.*
Countess of Harewood.	Lord Bridport.
Earl of Harewood.	Sir George Goodman.
Hon. Geo. Lascelles.	Sir T. W. Ramsden.
Lord Ashtown.	Sir John Scott.
Earl of Stamford and Warrington (twice).	Rev. Sir George Robinson.
Earl of Leicester.	
Lord Suffield.	
Sir Robert Sheffield.	

THOMAS GREEN, Proprietor, Patent Mowing Machine Works, Leeds, Yorkshire. T. G. begs respectfully to call attention to the superiority of his Pony Machines.

London Agents:—Messrs Cottam & Hallen, 2, Winsley Street, and 76, Oxford Street; Messrs. Burgess & Key, Newgate Street.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOM-HEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. HENDERSON begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin ..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. HENDERSON, Inventor of the Patent Improved Broomheads, Dunkeld.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Peach houses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numerous of the nobility and gentry by whom they are extensively employed.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS OF EVERY DESCRIPTION FOR THE AMATEUR OR PRACTICAL GARDENER, AND OF WARRANTED QUALITY.

DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Barrows, Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Wire Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—DEANE, DRAY & Co., (opening to the Monument), London Bridge, E.C. Established, A.D. 1700.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their REDUCED PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

	s.	d.	
6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ / 8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½	11	6	per 100 feet.
10 by 8 and 10½ by 8¼ ..	12	6	,,
Larger sizes from 12 by 9 to 15 by 10 ..	14	0	,,
Above 15 ,, 10 ,, 24 ,, 18 ..	16	0	,,

ORCHARD HOUSE GLASS,

As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. / 20 ,, 13 ,, 20 ,, 15 ..	18	0	,,

The Glass is of British Manufacture, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 40*s.* and 42*s.* per case.

HARTLEY'S PATENT ROUGH PLATE GLASS.

Packed in Boxes of 50 feet each.

6 by 4 and 6½ by 4½	10*s.*	6*d.*	per box.
7 ,, 5 ,, 7½ ,, 5½	12	0	,,
8 ,, 6 ,, 8½ ,, 6½	13	6	,,
9 ,, 7 ,, 9½ ,, 7½ & 10 by 8	15	0	,,

HORTICULTURAL GLASS WAREHOUSE,

116, Bishopsgate Street Without, E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr Rivers.

Hartley's Patent Rough Plate Glass, ½ to ¾ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands.
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness. A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds. Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and their stewards, land agents, &c. A liberal Allowance to the Trade, &c.—Manufactory, Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and Foreign Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Canvas, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by any thing of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10s. per 100; and GOLIATH, 3s. 6d. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

BRITISH QUEEN STRAWBERRY PLANTS.—The Subscriber has on hand a large lot of strong plants of the above-named first-class variety. Price 2s. 6d. per 100, warranted genuine.—J. WILLIAMSON, Bishopton, Renfrewshire.

STRAWBERRY PLANTS.

WOOD AND INGRAM beg to offer well established Runners of the following kinds at prices annexed. A remittance expected from strangers.

	Per hundred—s.	d.		Per hundred—s.	d.
Underhill's Sir Harry ..	20	0	Cole's Prolific	3	6
Rivers's Eliza	3	6	Bicton Pine	3	6
Trollope's Victoria ..	3	6	Princess Alice	3	0
Black Prince	3	0	Swainston Seedling ..	3	0
Prince of Wales (Ingram's)	5	0	Stirling Castle Pine ..	3	6
Keens' Seedling	2	6	Kitley's Goliah	3	0
Elton Pine	2	6	Myatt's Eleanor	3	0

Huntingdon Nurseries.

PERMANENT PRICES OF

UNDERHILL'S "SIR HARRY" STRAWBERRY PLANTS for the future. All orders (not less than 20) to be accompanied with a Post-office order on Birmingham.

20, 10s. | 40, 18s. | 60, 1l. 6s. | 80, 1l. 14s. | 100, 1l. 18s.

Plants in pots, not less than 10, 1s. 3d. each, will be ready after September, package included.

Mr. UNDERHILL'S "Treatise on the Cultivation of the Strawberry," price 1s., may be had through the Post.

Address Mr. RICHARD UNDERHILL, Sir Harry's Road, Edgbaston, Birmingham.

The "SIR HARRY" being now in general cultivation, Mr. UNDERHILL intends to make no further reduction in the price of his plants; he purposes reserving for a few years plants for those persons who may prefer having them direct and genuine from himself, spurious varieties having been so often substituted for the original.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true as exhibited at the Horticultural Rooms, Regent Street, for which a Certificate of Merit was awarded; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Son's, Covent Garden, London.

R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised. He can now supply strong, well-rooted Plants to any extent. Price 20s. per 100, or 4s. per dozen. Also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.—St. Ann's Square, Manchester.

P.S.—Plants sent over to compensate for distant carriage. The usual discount to the Trade when not less than 1000 are ordered.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety that has ever yet been sent out, possessing all the good qualities for which a Strawberry is required, viz. flavour equal, and considered by many to be superior to that fine sort the British Queen; the fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season. The plants are of a very dwarf habit, and as hardy as Keens' Seedling, will force well, and have been spoken of by gentlemen and nurserymen, who were competent judges, as being the best they had ever tasted. Now ready for sending out—strong well rooted plants 1l. per 100; 50 for 11s., hamper and package included; 25 for 6s., and 12 for 4s., postage free. A remittance must accompany every order by cash or penny postage stamps.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

EARLY STRAWBERRIES.

WILLIAM JAMES NICHOLSON has much pleasure in offering plants of the following, as being equal to the earliest of the older Strawberries in time of ripening, and much superior in flavour and size:—Princesse Royale, the earliest and best French forcing variety, large size, fine colour, and good bearer, flavour rather acid, fruit ripe June 13, 1857, 10s. per 100.—Marquise de Latour-Maubourg, very fine flavoured handsome fruit, ripe June 13, 20s. per 100.—Ne Plus Ultra, a very large and beautiful variety, very dark colour, of vigorous habit and an abundant bearer, should be in every collection, ripe June 20, 30s. per 100.—La Reine, exquisite flavour, colour nearly white, middle size, and good bearer, ripe June 20, 10s. per 100.—Comtesse de Marnes, a very early forcer, good in flavour and bearing, ripe June 20, 5s. per 100.—Comte de Paris and Cremont, each 5s. per 100.—Sir Harry, 20s. per 100.—Ingram's Prince Alfred, 20s. per 100, and a great number of others, including Alpines, from 5s. to 10s. per 100.

A Post-office Order on Yarm is expected with every order.

Egglescliffe, near Yarm, Yorkshire.

CUTHILL'S STRAWBERRY PLANTS, 1857 and 1858, now sending out.

CUTHILL'S EARLY BLACK PRINCE, best for Forcing, Preserving, &c., per 100, 5s.; selected, 7s. 6d.

CUTHILL'S EARLY PRINCESS ROYAL OF ENGLAND—Rich colour, very hardy, good size, superior fine flavour, excellent early forcer, great bearer. Per 100, 15s.; 50, 10s.; 25, 6s. Plants allowed to the Trade only. See the *Illustrated London News* of July 12, 1856, and of June 20, 1857; also the *Gardeners' Chronicle* of August 15, 1857. The Rev. F. H. Bacon also writes from the Table Land, in Derbyshire, 550 feet above the level of the sea, (where even Cabbages refuse to grow) that CUTHILL'S Princess Royal of England was the earliest, best bearer, and decidedly superior in flavour, far exceeding all others, and leaving even the hardy Black Prince, its near relative, behind. Mr. Fleming, at the Duke of Sutherland's, also writes that he intends to force it next year. Also by Mr. M'Ewen, Horticultural Society.

CUTHILL'S PRINCE OF WALES.—Rich colour, fine shape, good size, tremendous bearer, first rate for Table and Preserving, keeps in bearing longer than Elton. Price per 100, 10s.; 50, 6s. Plants allowed to the Trade.

CUTHILL'S EARLY FORCING BLACK SPINE CUCUMBER, 1s. per packet.

CUTHILL'S NEW LONG WHITE SPINE.—Great bearer, fine form, 2s. 6d. per packet. Out of 24 sorts grown this year at the Horticultural Society of London, these two were the best. See the *Gardeners' Chronicle*, August 1st.

CUTHILL'S HIGHLAND MARY CUCUMBER, the best of all for Winter Forcing, 12 inches long, 2s. 6d. per packet.

GREEN'S LADY ANTROBUS WINTER CUCUMBER, 2s. 6d. per packet.

J. CUTHILL'S Pamphlet containing the Belgian Prize Essay on the Potato, the Strawberry, Asparagus, Sea Kale, Cucumber, Herbs, &c., 2s.

J. CUTHILL'S Market Gardening Round London, containing all things grown by them, Mushrooms, &c. 1s. 6d.

J. CUTHILL'S Pamphlet on the Vine Disease, also an easy plan for the total Destruction of Woodlice in Cucumber pits, Mushroom houses, &c., price 1s.

Payable on Camberwell, JAMES CUTHILL, Camberwell, London.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

DUTCH FLOWER ROOTS.

CHARLES TURNER'S DESCRIPTIVE CATALOGUE of HYACINTHS and other BULBOUS ROOTS is now ready, and can be had post free on application. This Catalogue gives descriptions of the colours and habit of each variety, also Brief Hints for the proper Culture of the Hyacinth.

A CATALOGUE of CHARLES TURNER'S Superb Collection of TULIPS is now ready, in which will be found a great reduction of price of many of the varieties, and will be sent post free on application.

The AUTUMN CATALOGUE of PELARGONIUMS, &c., is now ready, and contains descriptions of Hoyle's, Turner's, and Foster's new varieties. Sent post free on application.

Royal Nursery, Slough.

MILNER'S BALSAM SEEDS.

NOTICE TO THE TRADE AND OTHERS.

JOSEPH MILNER, late Gardener at Loftus Hall, near Redcar, begs respectfully to inform his friends and the public that he is again sending out Seed of his Celebrated BALSAMS, in nine separate and distinct varieties, post free for 24 stamps, or mixed, all colours, 13 stamps. The Trade will oblige by communicating by Post, when the price per 1 oz. or half oz. will immediately be sent. Allowance on all orders above 3 packets.

JOSEPH MILNER, Seedsman and Florist, Airmyn, near Goole.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—August 22.

DUTCH BULBS.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are PARTICULARLY FINE and in EXCELLENT CONDITION. Catalogues are now ready and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their ORDERS EARLY, as the successful cultivation of Bulbs depends in great measure on their BEING PLANTED EARLY IN THE SEASON.—August 22.

VAN HOUTTE'S BULB CATALOGUE No. 67.—Hyacinths, Tulips, Narcissus, Crocus, Jonquils, Imperial Crowns, Anemones, Ranunculuses, Gladiolus, Lilies, Ixias, Cyclamen, Pæonias, Alstrœmerias, Colchicum, Cypripedium, Funkia, Hemerocallises, &c.; new Achimenes, Fine Amaryllises, Gesnerias, Gloxinias, &c.

HAARLEM HYACINTHS.—The department of the Hyacinth culture in this establishment is directed by M. Jacob Vanden Berg, from Heemstede, Haarlem. This practical Gardener offers a special guarantee of knowledge acquired by his 30 years' experience in this part of horticulture. M. Vanden Berg visits the Bulb growers in Holland every year; looks out and buys the Bulbs while just in flowering state, afterwards directs their displanting, and brings his acquisitions to Holland. A stock of 60,000 Hyacinths enables the establishment this year to meet almost any order.

A trial would convince my correspondents that by the excellence of varieties, fine condition of bulbs, and respective moderation of prices, L. v. H. offers to his numerous customers advantages which even but few firms can offer. L. v. H. invites all connoisseurs to favour his establishment by a visit at the time of flowering of the forced Hyacinths, as well as of those in the open ground, about the 15th of April.

LOUIS VAN HOUTTE, Ghent, Belgium, August, 1857.

Orders sent direct or through his Agent, Mr. R. SILBERRAD, 5, Harp Lane, London.—The Bulbs delivered in London free.

VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg to call the attention of the Public to their large Stock of fine healthy VINES in pots from eyes, 6 to 8 feet long, and strong in proportion, including all the leading varieties. Having a few years since built a large experimental Vinery, which is now in full fruit, they have had the opportunity of proving the different varieties, which accordingly enables them to warrant their plants true to name. Amongst others L., P., & Co. would very strongly recommend the following, especially the "Bidwell's Seedling," a fine Vine of which may now be seen in full bearing in their Vinery:—

Alicant	Grosmier du Cancal
Bidwill's Seedling	Golden Hamburgh
Black Hamburgh	Joslyn's St. Alban's
Black Prince	**Muscat of Alexandria**
Black West's St. Peter's	Mill Hill Hamburgh
Black Barbarossa	New White Dutch Sweetwater
Cannon Hall Muscat	Richmond Villa Hamburgh
Esperione	Raisin de Calabre
Frontignac, White	Tottenham Park Muscat
" Black	Wellbeck Tripoli, &c.
" Grizzly	

Exeter Nursery, Exeter.—Established 1720.

NEW HARDY MUSCAT GRAPES.

T. RIVERS has much pleasure in offering a few Vines of the following new hardy Muscat Grapes:—

MUSCAT DE SARBELLE.—Berries deep purple, medium size, flavour rich and excellent; partaking of the brisk flavour of the Black Frontignan; a great bearer.

MADEIRA MUSCAT.—Berries large, round, reddish purple; of a rich Muscat flavour. Both the above sorts ripen in a cold Vinery as early, or a little earlier than the Black Hamburgh. Vines 7s. 6d. each.

MUSCAT ST. LAURENT.—Berries oval, below medium size, yellowish white or amber when ripe, with a rich Muscat flavour. A most abundant bearer.

MUSCAT DE JUILLET.—Berries round, deep purple, with the Frontignan flavour. The two latter are the earliest of all the Muscat Grapes, and will ripen on a wall with a good aspect in the South of England. They are also well adapted for pot culture. Vines 5s. each.

T. R. believes that his culture of Vines in pots is the most extensive in Europe, six large houses being filled with Vines as rods for Vineries, and with bushes for pot culture of the most select varieties.—Nurseries, Sawbridgeworth.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, GEORGE GIBBS & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre)	30s. per acre.
Gibbs's fine mixed Lawn Grass	1s. 3d. per lb.

Directions for sowing accompany the seeds.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE-GRASS, 7s. 6d. per bushel; Dwarf ESSEX RAPE, 14s.; White MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; Early Racer TARES, 10s. per bushel; Drumhead CABBAGE, 4s. per lb.; EARLY SIX-WEEKS' TURNIP, 1s. per lb.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

AZALEA INDICA

JIVERY AND SON have a quantity of the above to offer to the Trade, of most of the leading kinds, well set with bloom, very healthy and bushy plants, in large 48 and 32-size pots. Price (or sample) per 100 or dozen, with a list of sorts upon application; also a fine healthy and well-grown lot of young specimens of all the newest and best varieties. Catalogues sent post free upon written application.—Dorking Nursery, August 22.

NEW AZALEA INDICA.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, intends sending out in September next his new AZALEA INDICA "Baronde Vrière," figured in VERSCHAFFELT'S "Illustration Horticole." Good Plants, 7s. 6d. each; strong ditto, 16s. each.

The NEW CATALOGUE, No. 64, is now ready, and can be obtained gratis at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

SPLENDID HYBRIDISED CALCEOLARIA SEED, now sending out in packets at 1s. 6d., 2s. 6d., 3s. 6d., and 5s. each, finest quality only. Also CINERARIA, very choice, 1s. per packet.

JOHN DONSON & SON, Woodlands Nursery, Isleworth, W., and High Street, Hounslow, W.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. GLENNY, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 14, York Street, W. C.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, SEEDSMAN and FLORIST, 10, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

NEW AND CHOICE PLANTS.—PANSIES, new, of this season, at 9s. per dozen; older varieties from 3s. to 6s. VERBENAS, new, of this season, at 6s. per dozen; last year's, 4s. per dozen. GERANIUMS, new in 1856, 12s. per dozen; older varieties, 6s. to 8s. CHRYSANTHEMUMS, large flowered and Pompone varieties at 5s. per dozen, good bushy plants.—Names given on application to GEORGE SMITH, Florist, Common Side, Macclesfield, Cheshire.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10s. 6d., 15s. and 21s.; four Plants for three to the Trade.—Maidstone, Aug 22

CHRYSANTHEMUMS.

W. H. DAVIS has now ready for sending out a splendid stock of the above, comprising the newest and choicest of the Pompone and large flowering varieties. Strong healthy plants, well established in 48 inch pots, at 8s. per dozen; extra do., in 32 inch pots, which will make splendid plants for the Greenhouse or for Exhibition, 24s. per dozen. Older varieties as above, 4s. and 12s. per dozen.

Nurseries, St. Mary's Hill, Newbury.

GRAPES.

MESSRS. JOHN WEEKS AND CO., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hotwater.

The Gardeners' Chronicle.

SATURDAY, AUGUST 22, 1857.

IT is not a little curious that such a hackneyed operation as that of PRUNING EVERGREENS should, in a country like this, still continue to be the subject of the most opposite opinions: that is to say when any opinion at all can be said to be formed. "You may prune them when you like," says one of our Western friends; "no!" replies an Easterling, "you must never cut them in except in winter;" "summer for me!" exclaims a Scoto-Devonian; while a little man from Buckinghamshire starts up with an emphatic declaration against any season except April. What is the truth of all this? Are all right? We think so when all are rightly understood. Different climates, soils, plants and objects, demand different treatment.

Here as in everything else the gardener can only extricate himself from embarrassment by falling back upon first principles, which will never mislead him if he does but clearly understand them. Let him ask himself then firstly, why he prunes at all, and secondly, what the result must be from the very nature of the things operated upon.

The only reasons for pruning evergreens are that they require to be kept dwarf, or to be prevented from becoming over luxuriant, either wholly or in

part. Keeping them dwarf is, as we know, brought about by clipping not pruning, and therefore scarcely concerns the question before us. It is not unlikely, however, that the prevailing and very proper practice of clipping evergreens in June may have led to the opinion that pruning should also be performed in that month. Now, whether that should or should not be depends, we conceive, upon climate, soil, and the extent to which the pruning is carried.

The effect of all pruning must of necessity be to force into growth buds that would otherwise lie dormant, and if it is severe to cause excessive and rapid growth in consequence of the sap previously directed to many outlets being concentrated upon a very few. Another effect of pruning, but confined to evergreens, is to lay bare, and bring under full exposure to cold, branches which if unpruned would have been protected by their own foliage. This last circumstance is what renders pruning such plants in midwinter inexpedient, for the greater part of our evergreens are natives of countries warmer than our own, and they consequently demand all the peculiar shelter with which they are naturally provided. Hence there can be no doubt that as a general rule their pruning should not take place in winter. If any one doubts it let him cut severely a bush of the common Laurel in February. Should hard frost follow he will be pretty sure to find an alarming amount of deaths among the branches he has unadvisedly laid bare. The same result exactly will be certain to follow in the great majority of cases. Doubtless his bushes may escape; there may be no hard frosts, or he may be in a county like Devonshire and Cornwall where hard frosts in spring are unknown. Such cases are, however, entirely exceptional.

At whatever season the operation is performed it must be succeeded either immediately or ultimately by an excessive development of strong shoots. When this takes place in the spring such shoots have the whole summer before them in which to ripen their wood; but if it is practised after midsummer the new wood that follows the pruning does not begin to appear much before the middle of August, they then grow fast, especially in the damp nights of autumn, and when winter comes they are watery, unripe, and liable to perish outright under the action of frost; or what is much worse to be frost-bitten, so that they soon become diseased, and produce incurably unhealthy branches in the following summer. If he doubts this let him cut down his Laurels, Bays, Rhododendrons and Azaleas in August. We therefore altogether object to pruning evergreens after midsummer.

Here again, however, circumstances may justify what would be otherwise condemned. For instance, in hot dry soils, in very exposed places, the late shoots may be expected to ripen readily, and then late pruning may be allowed. Or, again, winters may be so mild that shoots run no risk of injury, however unripe they may be. But these too are quite exceptional in these damp islands, to which our remarks of course apply.

In putting the question into this form we have assumed that pruning really consists in removing branches. If nothing more is done than trimming off superfluous spray, then it matters little when the work is done, and probably midsummer or August are as good seasons as any.

This matter was not overlooked when the *Theory and Practice of Horticulture* was written, as will be seen from the following extract, which relates to an argument in favour of autumn pruning, to which we have not here adverted:—"Nevertheless there are those who advocate autumn pruning for all Evergreens. It is alleged that when Evergreens are cut back in the autumn, the roots, which are not affected by the pruning, continue to absorb during the whole winter, and to render all the mutilated branches turgid with sap against the return of spring; the consequence of which is that every bud pushes with great vigour. It is also said that if pruning Evergreens is delayed till the spring, the removal of branches filled with the sap, which would otherwise have been concentrated in the trunk or stock, produces the effect of weakening the tree, and rendering its sprouting thickly less certain. Possibly in mild situations, where there is no danger from severe frost, this mode of reasoning is correct. But it is to be recollected that the greater part of our Evergreens are native of countries much warmer in summer than our own. The common Laurel is from the Black Sea, the Portugal Laurel from Portugal and Madeira, the Phillyrea from the coast of the Mediterranean, and the Alaternus, Arbutus, Evergreen Oak, and many more, from similar climates. It is true that such trees are sometimes exposed to severe frost; but their winters succeed extremely hot summers, which have the effect of ripening the wood so thoroughly as to render it far more capable of resisting cold than with us under even the most favourable circumstances."

When reporting the award which had been made by the Société d'Encouragement pour l'Industrie Nationale to parties who had made laudable efforts towards the suppression of the Vine mildew, we hinted the possibility of our making some observations on the subject on a future occasion. It is not however our intention to take upon ourselves the invidious task of weighing the respective merits of the parties to whom the award has been made, but rather to express our surprise that some individuals of equal if not superior merit have been passed over in silence. We presume that it was not the intention of the French Government to reward those who had simply studied, however deeply, the characters of the plant which is beyond all doubt the cause of the prevalent disease, or it would have been impossible that the merits of Mohl, Amici, and Plomley could have been overlooked. Mohl was the first to describe the peculiar suckers by which the threads of the parasite exhaust the juices of the plant, and Amici and Plomley, at the same time and independently of each other, made the first step towards ascertaining the multifarious phases assumed by the fruit, and these writers were followed, with their wonted skill, by the brothers Tulasne.

There are however two persons who mastered the subject as far as practical and successful treatment go, before it had been even noticed by any of the parties to whom the award has been made, with perhaps a single exception. The merits of Mr. Tucker were recorded by Mr. Berkeley in the name by which the fungus is universally known, *Oidium Tuckeri*. He was the very first who published any notice on the subject, as we have lately stated, and though in that notice which appeared Oct. 2, 1847, in the "Gardeners' Journal," Mr. Tucker did not enter upon the remedial measures which he had adopted, Mr. Berkeley has recorded in this periodical, Nov. 27, 1847, that Mr. Tucker had completely mastered the evil by the application of sulphur and lime water. This article is quoted in almost every pamphlet which has appeared on the subject in France, and therefore the commissioners could not be ignorant of his merits. It is true that flowers of brimstone are not spoken of; but as this substance had been used for some generations as a remedy against mildew in hothouses, especially against Peach mildew, the principal merit belongs to the parties who first ascertained the nature of the evil, and suggested a fitting remedy. When once the nature of the evil was ascertained, and sulphur in one shape asserted to be a specific, nothing appears more simple than to apply an accredited remedy to a known disease. It appears, then, very clear in our estimation that Mr. Tucker ought to have had a principal place in the award.

At the very time that Mr. Tucker was making his experiments, Mr. John Boys, an eminent solicitor at Margate, was conducting a far more extensive series of observations, and on a larger scale. His observations were accurately recorded from day to day, and though not published at the time, Mr. Berkeley has given some account of them in an appendix to a translation of Dr. Léveillé's memoir which appeared in the Revue Horticole, 18 June 1851. This translation is contained in the sixth volume of the Journal of the Horticultural Society of London, and therefore was easily accessible to every one, and not likely to escape notice, as it contains several other notices of greater or less importance on the subject. Mr. Boys' favourite remedy was washing the flues when not of iron with black sulphur and quicklime mixed in equal quantities with water, or where made of iron with flowers of sulphur, taking care not to ignite the mineral. He had indeed tried many other methods, and amongst them applying sulphur to the leaves; as this, however, is not recorded especially, he can only take credit as regards the award for what appears on the record, and this goes to show that he had been equally successful in curing the malady, though like Mr. Tucker he had not studied the parasite itself which produced it, and therefore, though not entitled to so high an award, as his practice seems to have been more empirical, he was yet entitled in our opinion to great merit in a secondary degree.

Both Mr. Tucker's and Mr. Boys' observations were complete in 1847, a period at which the disease was unknown in France. It seems, however, that the commissioners were inclined to reward no treatment except that which had been ultimately approved in France, namely, the use of sublimed sulphur unmixed with other material. Gasson, therefore, is passed by without notice, though his method was once highly commended, was tried with good effect in a large vineyard in France, and has proved successful in the hands of many cultivators elsewhere; and so also is Dr. Price, another inhabitant of Margate, whose pentasulphide of calcium is at this day preferred in Portugal to crude sulphur. And indeed though we prefer on the whole the crude sulphur to any other form of administration, as the most easy of application, and the most permanent, it has been proved that some of the solutions of sulphur may be applied so successfully and economically, that they do not deserve to be rejected altogether. It may indeed be objected that the application of these solutions requires to be repeated, but it is equally true that the first application of crude sulphur does not always preclude the necessity of a second, or even of a third application. Apart however from mere practical operations there is one other person of whom no notice is taken in the award, though his exertions towards the diffusion of knowledge respecting the Vine mildew in France have been unremitted from the commencement of the disease in that country. Dr. C. Montagne, if he was not the first to call attention to the subject in France, was certainly the first to lay a description of the parasite before an agricultural society,* his memoir on the disease is one of the best which has appeared in France, and he has translated the memoirs of Mohl and Berkeley with a view to make them accessible to his countrymen. It may perhaps be thought that his admission into the Academy is reward enough for his exertions; but if so, we should still have thought that the very remarkable memoir of Bouchardat, which describes the effect of the disease of 2050 varieties of Vine, would have commanded the especial notice of the commissioners. What however we regret most, and what in our opinion is the most glaring fault in the award, is the complete neglect of the claims of Mr. Edward Tucker, and we think it a matter of grave regret that the judgment pronounced by a French scientific tribunal upon one of the most important applications of science to practice which can ever engage attention should have been so singularly open to animadversion. All that can be urged in extenuation is that they have overlooked the claims of their own countrymen as much as those of others.

We learn that the King of Holland has charged Prof. de Vriese of Leyden with an important mission to the Dutch Asiatic islands. His object will be to report upon the principal branches of agriculture there, with a view to their improvement and extension. Prof. de Vriese expects to spend at least three years in Java. A correspondent also informs us that a monument in granite is preparing in Aberdeen, to be erected to the late Prof. Bojer in the cemetery of Port Louis in the Mauritius; the expense is defrayed by a subscription among his friends, aided by the grant of 100*l.* by the Colonial Government. A Latin inscription has been drawn up by Mr. James Morris, a personal friend of the deceased.

New Plants.

206. Thunbergia Harrisii, *Hooker.*

We extract from the Botanical Magazine Sir William Hooker's account of this most magnificent stove plant, the specimens of which, when exhibited last spring in Regent Street by Messrs. Veitch, excited so much interest:—

"We intimated, under our description of Thunbergia laurifolia, Lindl. (Tab. Nostr. 4985), that it was our intention shortly to figure another Thunbergia, more beautiful than that, but belonging to the same section or group as that 'calycis limbo truncato,' and we now redeem that pledge. About the same time with the introduction of Th. laurifolia, direct from the Malayan Peninsula, we received seeds from his Excellency the Right Hon. Lord Harris, Governor of Madras, marked as a 'new and very beautiful Thunbergia.' From these seeds have been raised the plant here figured, which has flowered copiously with Messrs. Veitch, of the Exeter and Chelsea Nurseries, to whom we had given plants during the winter and spring months of last year. On writing to our noble friend for some further information, he informs us it is considered at Madras to be the Hexacentris acuminata of Nees, in De Candolle's Prodr. vol. xi. p. 61. If this were really so, that name should undoubtedly be adopted; but I think it is

* This statement was made May 1, 1850, to the Imperial Central Society of Agriculture in France. Monsieur Pelletier had made a statement to the same society relative to the appearance of the disease at Baron Rothschild's, [illegible] Monsieur Bouchardat on the previous 27th of March. As Bouchardat himself says of Montagne's notice, "c'est le point de départ pour nous, de tous les travaux importants sur ce grave sujet."

appear that the name is totally unworthy of adoption, when I state that that supposed species is made up from two plants, both miserable specimens without flowers, one from Sylhet, in the Wallichian Herbarium, the other from Mergui (Griffith), in our own herbarium; and it would appear that they are referred to Hexacentris, from a resemblance in the foliage to that of H. (or Thunbergia) coccinea. Indeed, Dr. Wallich himself called it 'Th. coccinea?' Assuredly too our plant is a true Thunbergia, and no Hexacentris, if that genus be a sound one. Under these circumstances we feel quite justified in dedicating it to the nobleman who has first introduced it to Europe, and who has so much served the cause of science both in the West and East Indies. Its close affinity with Th. laurifolia (and besides the distinctions indicated in the above specific character, the colour of the flower is different, much more rich and varied and beautiful) would lead us to suspect its native country to be the Malay Peninsula. [At the moment of going to press, a letter from our excellent friend, Dr. Cleghorn of Madras, informs us that he detected this plant and conveyed the seeds to Madras while accompanying his Excellency Sir P. Grant to the Tenasserim coast: common at Rangoon and Moulmein.] And since, in foliage, it corresponds with Mr. Griffith's plant, just mentioned, of the Tenasserim coast, I wrote to my botanical friend the Rev. C. S. P. Parish, at Moulmein, on the same coast, to make inquiry if such a plant were found there. His reply seems clearly to point either to this species or to its near ally Th. laurifolia. I should infer the former, from its very high merits. 'Certainly we have a very splendid Thunbergia in Moulmein. It is a common plant here, and the jungles, especially those in the neighbourhood of Tavoy, are full of it. It flowers in January, indeed throughout the cold season; and as it is a rampant climber and free flowerer, adds much to the beauty of the jungle. I knew it was an undescribed plant, *i. e.* that it had not appeared in any published Flora; but as it had been for some few years introduced to the neighbourhood of Calcutta I imagined that you must have known all about it, and possessed plants long ago, otherwise I should certainly have called your attention to it. If it grows at home as it does here, no hothouse, except your splendid one, will hold it. It is indeed a fine thing; but I have never seen seed. It is in my garden, running all over a Jack-tree, and in a neighbour's, but neither here nor there does it ripen a seed. I brought my plant, when young, from the jungle.' For ourselves we do not find it difficult to keep this plant within bounds in our stoves.

"The different form of the leaves and petioles, the different and more compound inflorescence, the shorter and whorled pedicels, larger and differently coloured flowers, will distinguish this from Th. laurifolia. Its flowering season has hitherto been the winter or early spring, the same season indeed as the Amherstia bears its rich scarlet and yellow flowers."

PHLOXES.

Of late years these have been making rapid progress in the march of improvement, and although nearly all the varieties of this beautiful genus will grow freely in almost any garden soil, still they are seldom found in first class condition. As Messrs. Downie & Laird of Edinburgh have been most successful not only in raising fine varieties of this flower from seed, but also in flowering them in perfection, we beg to lay before our readers the mode of culture adopted by them, which is as follows:—

In the first place they select a sheltered, but at the same time an open situation for them, having a rich loam not over sandy, at least 1½ to 2 feet deep. This they will trench over in autumn in a rough manner, avoiding at the same time heavy manuring, more especially leaf mould or decayed vegetable matter; this last generates insects, which eat the young plants. If the ground has been well manured for any previous crop it is much safer to plant out without manure, and rather depend upon giving the plant some in a liquid state once or twice a week, just before they are coming into bloom. Nothing answers better for this purpose than sheep's droppings; applications of this kind both add to the size of the spike and impart to the foliage a dark shining green. Great caution is enjoined on this point, as it is stated that many fine collections have been lost by injudicious manuring. Also avoid if possible planting on a steep or sloping piece of ground, as few plants suffer so soon for want of water as the Phlox. In dry weather the beds should receive a good watering at least once a week. Should this be neglected the plants will come both weakly and prematurely into bloom, and have a very unsightly appearance, and, as young plants produce much finer spikes than old ones, cuttings should be struck the summer before they are wanted under a hand-glass, and potted off as soon as struck (which will generally be in about four weeks), and kept in pots in a cold frame over winter. Towards the end of March, if the weather is favourable, plant out in rows 2 feet apart in the row, and 3 feet asunder, according to circumstances. To procure a succession of bloom, take the strongest cuttings from the old stools, when they are about 3 inches long; use 5-inch pots, putting one cutting into each pot; place them on a gentle hotbed, and when well rooted and hardened off they may either be planted out or repotted in 8-inch pots, plunged out in any sheltered situation, and taken into the greenhouse when they begin to show bloom. These will be found useful if wanted for exhibition about the end of August or beginning of September. To grow Phloxes in perfection they should be renewed from cuttings at least every three years, and, if wanted for exhibition, two or three stems may be left on an old, and one only on a young plant. Have them well secured to stakes and protected from rain, and, if possible, from scorching sunshine.

About the middle of March a selection should be made from plants struck the previous season, taking care to choose those that are throwing up vigorous shoots. Put one plant in each pot, allowing not more than two stems to each, using pots from 8 to 12 inches in diameter, according to the strength of the plants, avoiding too much drainage. Pot with rich fibry loam, adding a little sand and well decomposed manure. The dwarfer growing sorts may be placed under glass at once, either in a cold frame or greenhouse, and kept as near the glass as convenient. The dwarfer they can be grown the better. Give air on all possible opportunities. A little weak liquid manure may be given with advantage occasionally. The tall growing varieties may be plunged out of doors in any sheltered situation, and brought into the conservatory or greenhouse. If they have long naked stems the pots can be placed out of sight, so as to make the heads of bloom display themselves above other plants. By a careful selection, and only bringing the plants in-doors as they show flower, a succession of bloom may be kept up from June till September. When quantities of them are grown as just described, they produce a beautiful display.

In repotting the Phlox care must be taken not to break or reduce the ball, although shifting from a 12 to an 18-inch pot, as on this particular much of the future success of the plant depends. Should large specimens be wanted, those that have flowered once may be kept over winter in a cold frame, and if this is inconvenient they may be plunged out of doors and covered over with 3 inches of coal ashes or tanners' bark, taken up early in spring and repotted and thinned to three or four stems and treated as formerly directed; they will then amply repay any care and attention that may have been bestowed upon them.

The following are well adapted for most purposes, being dwarf and bushy in habit:—

Abdul Medschid Khan	Harold
Admiral Linois	Lichniflora
Alice Allain	Leonida
Amabilis	Madame Couslin
Antagonist	Masterpiece
Colonel Dundas	Monsieur Fontaine
Countess of Home	President M'Carel
Criterion	Princess Mathilde
Dr. Leroy	Queen Victoria
General Brea	Rubra

It may be added that a collection of Phloxes, kindly presented to the Horticultural Society by Messrs. Downie & Laird, may now be found in the Gardens at Chiswick. Many of the same varieties are also at present beautifully in bloom in private establishments, and for the decoration of mixed borders nothing could possibly be handsomer. *M.*

ON THE TEMPERATURE OF THE NORTHERN LIMITS OF MAIZE CULTIVATION.

(From A. de Candolle's Géographie Botanique.)

The following table exhibits the mean monthly temperature near the limits of Maize cultivation:—

Locality.	Mean Temperatures.						
	May.	June.	July.	August.	September.	Summer (June to August).	May to September.
1. *Beyond the Limits.*							
Penzance	54	59	61	61½	58	60½	58½
Cracow	58½	66	67¼	65½	58½	66¼	63½
Tambow	55	64	68	64½	53	65½	61
2. *On the Limits, or a little below it (—)*							
—La Rochelle	60	66	67¼	66¼	62	66¼	64½
Paris	58½	62½	66	65	60	64½	62¾
Frankfort-on-Maine	58	63½	66	65¼	59	65	62½
—Lugan	60¼	68¼	76	73	62½	72¼	68
3. *Below the Limits.*							
Buda or Ofen	64½	68	71	71	63	70	67½
Odessa	56	65	70	69¼	63½	68	65

As usual, neither the mean temperatures of the months nor of the seasons sufficiently explain the position of the limits. It would appear that a summer-heat of 64½° was sufficient; had not Tambow and Cracow even higher temperatures and yet no Maize cultivation.

We may now inquire whether the sums of temperatures will accord better with the facts. According to the calculations of Boussingault, it takes 4410° to 5400° of accumulated heat to ripen Maize exposed to very different conditions. The initial temperatures are not given and cannot have been uniform, for amongst the examples cited are those of very hot countries, where the Maize may be sown at any period, according to the convenience of the agriculturist or to suit the rainy season. On its boreal limits the case is very different; there it is sown only when the plant can germinate and increase.

This takes place at Alsace on June 1st, according to Boussingault, when the mean temperature at Strasburg is 60½°. It is sown at Alais about May 1st, when the mean temperature is supposed to be about 60¾°. Gasparin, speaking probably of the environs of Orange, says it is sown when the mean temperature in the shade is above 54½°, and when no more frosts are expected. Maize being a tropical plant necessarily requires heat for its vegetating, and when sown at the end of summer, or too early, it becomes fit for fodder only, and shows no inflorescence. I shall assume 55½° and 59° as the necessary initial temperatures. I have also tried with 54½°, but that gives less satisfactory results than 55½°.

The following are the sums of temperatures above these degrees. I omit Tambow, because the result would be below that of Cracow and prove nothing. I also omit Lugan and Buda, where they are evidently in excess:—

Place.	Sums of Temperature.	
	Above 55½°	Above 59°
1. *Beyond the limit.*		
Penzance	3699°	2421°
Cracow	4464	3987
2. *On the limit, or a little within it.*		
La Rochelle	4878	4734
Frankfort-on-the-Maine..	4095	3472
Paris	4626	3537
3. *Within the limit.*		
Odessa	4914	4734

These sums, whether starting from 55½° or 59°, are lower for Penzance, one of the warmest spots in England, than for La Rochelle and Paris; we can hence understand why Maize will not usually ripen in north-western France or in the British Islands.

With regard to Cracow, if we start from 55½°, which accords best with facts, we find that it presents a lower temperature than exists at La Rochelle, or even at Paris; but it is still possible that by choosing early varieties and good exposures, Maize might be produced in that part of Poland. I am still more uncertain about Cracow, because the monthly means there require a correction for the hours, which renders them rather uncertain. Lastly, the sums calculated for Frankfort are too low; here the method is at fault, or perhaps Maize is not cultivated generally in that part of Germany, or if so not in open fields. The monthly means are taken from the last century, and the observations may not have been good.

The sums calculated from the minimum of 55½° accord best with known facts, except perhaps for Frankfort, and we may perhaps conclusively fix on 4680° as the approximate requirement for Maize, above 55½°.

[In the above extract, as in similar ones, we have purposely abstained from obtruding any comment upon the real or supposed great superiority of this much vaunted method of estimating the effects of temperatures, but with all respect for M. Boussingault's ingenuity and M. De Candolle's industry and fidelity, we must confess that, as a means of explaining or accounting for facts in the limits of distribution, we do not perceive that it is, *per se*, either better or worse than the method of mean monthly temperatures, either of them being very far indeed from satisfactory. In saying this we by no means undervalue the operation or its results. We cannot pretend to understand the *rationale* of limitation by temperature without a full appreciation both of mean temperatures and of sums of temperatures; but we think that neither method indicates, even approximately, the limits required, and that as an indicator of such limits one is hardly better than the other. M. De Candolle, for instance, says, that Maize not ripening in Britain or in north-west France is explained by the fact that the sums of the temperatures above 55½° and 59½° are lower in Penzance, the warmest part of England, than at Paris and Rochelle; but every one of the monthly means of Penzance, Paris, and Rochelle, and their summer means, and those of May to September in the previous table, express the same fact far more clearly and simply. In short, it seems to us to be quite as philosophical, and much more intelligible, to say, that the mean summer heat of Penzance being only 60½° is insufficient to ripen Maize, whilst that of Paris being 64½° is warm enough; than to say that 3699° above 52½°, or 2421° above 59°, are insufficient to ripen Maize, whilst 4626° and 3537° above the same temperatures are sufficient. Neither mode of procedure explains the anomalies of Cracow or Frankfort, and it does not appear to us to be fair to dismiss the mean temperatures with the observation that "as usual they do not sufficiently explain the limits," and then proceed to draw the same conclusions as these give from a more complicated formula, which solves no difficulty that the method of mean temperatures leaves unsolved. We again repeat that we do not undervalue the method of sums of temperatures in the abstract, nor the importance of the facts it evolves; but we cannot help perceiving that undue value is in this and other cases given to it relatively, and that its short-comings are too much excused and its anomalies explained away in M. De Candolle's anxious endeavours to account by it for facts in distribution. *J. D. H.*]

SEEDLING APRICOTS.

The generality of Apricots formerly cultivated in this country had bitter kernels, the Breda and Turkey forming the only exceptions worthy of notice. But besides the two just named, there must now be included in the class of sweet-kernelled Apricots the Musch-Musch, originally from the oases of Upper Egypt, the Syrian Apricot Kaisha, and we believe some others introduced into this country by the late Mr. Barker, of Suedia. We have now to add another, a seedling raised

by M. de Jonghe, of Brussels, who has kindly sent us a branch of it about 3 feet in length from a tree growing as a standard. On this length of branch we counted *upwards of six dozen fruits*, notwithstanding the unfavourable spring. There can therefore be no question as to the productiveness of the variety. The fruit so crowded could not of course be large, but if properly thinned it would have probably equalled in size the Breda, which it also resembles in form. The skin is brownish-orange; the flesh is deep orange, parting freely from the stone, exceedingly juicy and rich. The stone is small, roundish, and contains a sweet kernel. The fruit is excellent for the dessert, and makes, we can add, a rich preserve.

Specimens of another seedling were received with the above, but not at all to be compared with it in point of flavour; the flesh was not so juicy; kernel bitter. *R. T.*

ARCHIBALD GORRIE.

BY GEORGE LAWSON.

Abridged from the Northern Warder of August 6.

We have already recorded the death of Mr. Archibald Gorrie, which occurred at Annat Cottage, near Errol, on July 21. We must not let this event pass by without indicating briefly his character as a contributor to the Rural Literature of Britain, whose writings have been long justly admired, and as a Christian naturalist, who, regarding his Bible as his best book, and the glory of God as the great purpose of his life, laboured hard to elevate the tone of science, and to make wiser and better men of all who came into contact with him. Mr. Archibald Gorrie was born in the district of Logie Almond, Perthshire, in the year 1777. In boyhood he received what was then considered "a good country-school education." This was afterwards supplemented by various studies in his early life, to an extent which will be indicated by the facts we have to mention respecting his discoveries and writings. Although "by birth an agriculturist," yet horticulture soon became his most favourite pursuit, and he was placed as an apprentice in the gardens of Logie House, under Mr. Peter Barnet, father of the Mr. Barnet who afterwards became Superintendent of the Experimental Garden of the Horticultural Society, Edinburgh. From Logie House gardens Mr. Gorrie removed to Dupplin Castle, also in Perthshire, where, under the then superintendent Mr. Miller, and with George Don, the celebrated Forfar botanist, as a companion, he enjoyed every advantage for prosecuting his favourite study of British Botany and other departments of the natural history of his native land. Towards the end of the last century he had charge of the hothouse department in Leith Walk nursery, where he first became acquainted with the late Mr. J. C. Loudon, who succeeded him in that charge; an acquaintance which was again renewed when Mr. Loudon commenced the publication of his "Gardeners' Magazine," and was continued till the close of that talented writer's useful life. And we believe that after his death a lively remembrance of that friendship was cherished by Mrs. Loudon, who continued to correspond with Mr. Gorrie. A knoll near Annat Cottage is called "Loudon's brae," having, we believe, been planted with Coniferæ chiefly obtained from Mr. Loudon. During the last 50 years Mr. Gorrie resided on the estate of Annat, in the Carse of Gowrie, acting successively as gardener, general manager, and factor, on the property. During a considerable portion of that period he rented the neighbouring farm of Shanry, and his previous acquaintance with horticulture was of great service in prompting to the introduction on his farm of improvements in cultivation and of novelties in cropping. He reached the ripe old age of 80, and was cut off by an attack of bronchitis on July 21. The introduction and improvement of useful and ornamental plants was always a favourite pursuit, as will long be testified by the numerous fine specimens of Coniferæ and other rare trees, which adorn the estate, where he spent most part of his life. Among his contributions to fruit trees may be mentioned Lawson's Golden Gage Plum, Annat Park Apricot, Annat Beurré Pear, Annat Scarlet Apple, &c., while as a florist he was the first to introduce the cultivation of that now general favourite, the Pansy, into Scotland, if not into Britain. Several notices of Mr. Gorrie's efforts in agricultural improvement occur throughout Messrs. P. Lawson & Son's "Agriculturist's Manual," in which we find the following notice of the celebrated Annat Barley:—"This new and very superior Barley is the produce of two ears picked in a field on the farm of Flaw Craig, Carse of Gowrie, in 1830, since which period it has been grown by Mr. A. Gorrie (its discoverer), at Annat Garden, hence its name. In 1834 it was sown on a ridge in the middle of a field, with common Barley on the one side and Chevalier on the other. In bulk of straw it seems to have the advantage of both these kinds. It was five days ripe before the former, and about a fortnight before the latter. It was also about 2½ lbs. per bushel heavier than the Chevalier. (See "Quarterly Journal of Agriculture," March, 1835.) The grain is even more round and plump than that of the Chevalier, of a bright yellow transparent colour."—Lawson's "Agric. Man.," p. 40. In 1834 Vicia villosa was added to the list of British forage plants by Mr. Gorrie, who discovered its seeds in a cargo of Dantzic Wheat, and pointed out its applicability as a winter Tare. In the same year he discovered a fertile-seeded variety of the tall Fescue Grass (Festuca elatior fertilis), which was subsequently propagated; and in 1840 he introduced the wood Millet Grass (Milium effusum) to cultivation (Lawson's "Treatise on Cultivated Grasses," &c., p 17). In short, the cultivation of the natural Grasses, and herbage and forage plants, afforded him a constant source of profitable recreation. Few rural writers who originate in his sphere of life ever acquire a style of writing so appropriate to the subject as that which characterised Mr. Gorrie. To say that his mind was well stored with knowledge would be an inaccuracy of expression, for his knowledge was not laid up as in a storehouse, but was so completely assimilated that his mental character grew, as it were, upon it, so that in communicating his thoughts to others he did not merely deal out facts and ideas in the crude form in which they had been received; they became so elaborated by the (perhaps to him insensible) operation of his powerfully original mind, that it was impossible to draw the line of distinction between what was acquired knowledge and what was spontaneous thought. And in this (as in the case of every popular writer), lay the secret of his success in rendering interesting the most barren details of rural operations. We have long regarded Mr. Gorrie as one of the most intelligent writers on rural affairs and natural history which Scotland has produced: and Scotchmen will do well to cherish his memory as that of one who in his quiet and unobtrusive life has done great and lasting good to their country, by his personal influence, by his genial writings, and by his improvements in the art of rural industry. Annat Cottage has long been in our minds the Selborne of Scotland, and Archibald Gorrie the Gilbert White thereof.

Home Correspondence.

Lucombe Oak.—In looking over a few back numbers of the *Gardeners' Chronicle* I met with some interesting remarks on the wood and bark of this variety of Oak, in which the former is represented as being much heavier, tougher, and harder to cut than the wood of our English Oak; and the bark, from being what tanners call "fatty," is stated to contain a large proportion of tannin. Now, although a great admirer of the Lucombe Oak, which is unquestionably one of the most ornamental kinds for planting near a country residence, I am inclined to think the qualities of its wood and bark, if they equal those of our common Oak, do not so far exceed them as the difference given by your correspondent of their respective weights might lead us to imagine. The grounds on which I venture to give this opinion are based on the result of experiments made some years ago with a fine specimen that must have been planted near about the same time as the one at Penrose. It grew in a warm sheltered situation. The trunk was straight and destitute of branches, excepting at the top. It was sawn up into 4-inch planks, and afterwards exposed for a considerable time until properly seasoned for use. The wood in this instance was found to be rather lighter, less compact, and of a softer nature for working than that of the common Oak, from which it differed greatly in appearance, being much whiter and larger grained, with scarcely any mark by which the sap and heart wood could be distinguished from one another. For out-door work it was employed in different ways, and in point of strength was ascertained to be fully equal to that of well seasoned Oak, but strange to say some articles of household furniture that were made of it soon showed symptoms of decay, and at the end of five years were all pierced with holes and worm-eaten, the same as if they had been made of Beech wood. The bark was similar to that of the Turkey Oak (of which the Lucombe is no more than a sub-evergreen variety), and although abounding in tannin is very much disliked by tanners. This however I believe is nothing more than an excuse for cutting down the price whenever it is found that any other kind has been mixed with the bark of the common Oak. *B.*

Ridge Planting of Potatoes.—The following mode of planting has been adopted here this year with a view to inducing earliness, and thereby in some measure to keep off disease. The ground was slightly manured and dug, part in autumn and part in spring. A line was stretched at two feet apart, and the sets planted on the surface of the ground at the usual distance asunder in the row; the workmen then went between the lines of sets thus planted, and covered them up right and left with the spade in a ridge-like form. The result was that I had Potatoes a week or more earlier than my neighbours who planted in the usual way, and the yield as to quantity and quality has been greatly superior to that of former years. As yet the tubers are free from disease, although there is some indication of it in the haulm. However beneficial this way of planting may prove, it cannot be expected that the produce will all keep sound, as the sets were saved from Potatoes half of which were diseased, and they have again been planted on the same ground on which they were last year. This mode of planting you will perceive is to obviate saturation of the tubers; the bottom of the furrows on each side of the lines being several inches below the Potatoes, superfluous moisture runs over the latter and under them, thereby preventing all inducements to rottenness. In conclusion, I may state that while digging up the Potatoes the old sets came up as sound in appearance as the new tubers. *A Subscriber, Dumfriesshire.*

Names of Florists' Flowers.—I can scarcely believe that "G. W. L.," who has favoured you with his views on this subject, can be either botanist (in spite of the two scientific words he employs) or florist; moreover his complaint is but inaccurately set forth. It stands thus: We have a shrubby Calceolaria called "Dazzle," not "Shrubby Dazzle;" it was so christened on account of its bright colour; is such a name inappropriate? Dahlia "The Nigger;" if this appellation had been assigned to a white flower then might "G. W. L." have had some reasonable ground for complaint; but as "The Nigger" Dahlia happens to be one of the darkest flowers extant, I again challenge "G. W. L." to point out in what consists its inappropriateness. For Pretty Poll Geranium read Pretty Polly, and why should not a flower as well as a bird be thus designated? I admit that I cannot so readily defend "Lollypop" as the name of a flower; but time has proven this variety to be a *bon-bon* of the highest merit; for constancy no better flower exists; so much is this the case that I would cheerfully engage to prove at the close of the coming Dahlia season that "Lollypop" shall have been shown more frequently than any other variety. *J. E.*

Planting Strawberries.—As this is the season for planting Strawberries, I should feel obliged by having some information on the following points. Mr. Underhill in his lucid little pamphlet directs thus (p. 5):—"When the ground is dug and the plants are ready tread the soil hard and well where they are to be planted." Is this a good plan. [Yes, where the soil is light.] I do not remember to have seen it enforced. Again (p. 8):—"Strawberry beds must never be dug or forked amongst," &c. Mr. Cuthill, in his pamphlet on Strawberry growing, "Practical Instructions," does not mention this; but in your notice of his grounds in your last Number you say, "In cultivating the Strawberry Mr. Cuthill neither digs between the rows nor mows off the foliage," &c. I thus learn that these two experienced cultivators agree as to not digging between the rows, or, if I infer correctly, not digging within a foot or 18 inches of a single row; but I wish to know whether this restriction includes the use of the Dutch hoe in keeping down weeds, or whether the hands alone should be employed. Again, as to mulching, Mr. Cuthill in his pamphlet (p. 36) says he mulches "just as the strawberries are coming into flower." In your notice referred to you say he "mulches in January." Which is the best time to do so, or may it advantageously be done at both periods? [Mr. Cuthill speaks in favourable terms of mulching in January.] The mowing of the leaves is, I think, a settled question in the negative. Physiologically it cannot be right, but are we quite sure that cutting off the runners now of young plants put into the ground a fortnight or three weeks ago is correct? I planted runners of British Queen a fortnight since, and this morning I cut off some a foot long or more; am I doing right. [Yes.] The Strawberry is a fruit so valuable that we can hardly give too much attention to the minutiæ of its cultivation. *J. C. M. Birkenhead, Aug.* 18.

Large Yield of Potatoes.—In March last I planted between some newly put in Gooseberries 26 sets of Potatoes, at a distance of 5 feet from set to set. On taking them up last week one set produced 74 Potatoes which weighed 15 lbs.; a second 11, and a third 10½ lbs. The total weight of the 26 roots was 227 lbs. Is not this an unusually heavy crop? The name of the variety I do not know; it was an early one that came up with some late Regents two years ago—a neighbour tells me that it is Fox's Seedling. *J. M., Wallington, Surrey.*

Alonsoa Warcewitzi.—In answer to your correspondent permit me to say that this beautiful plant is a biennial. I have proved this by keeping it two years. *An Old Subscriber, Brompton.* [Then it certainly ought to be admitted among annuals in Exhibitions.]

German Elder.—I have seen in Germany an Elder of the size of our English one, with a red berry. Will you please inform me if that tree is known in England? *C. R. C.* [Yes, it is Sambucus racemosus.]

Clerodendron fœtidum.—I send you a specimen of the flowers of this ornamental Chinese shrub, which I do not think is cultivated as it deserves. My plants are perfectly hardy on a south wall, and are five feet high, and at this time flowering profusely. Do you consider my blossoms of a satisfactory size, as I have never seen them anywhere but in my own garden? *A Devonian.* [It is beautiful. We never before saw it in such colour, and did not think it was half so handsome.]

Sundries.—Will you tell me whether the refuse Apple pulp from the cider press is used for manure in England? [Not that *we* know of.] Here (France) it is sometimes dried and made into cakes for firing. Permit me to say that I have read the correspondence in the *Agricultural Gazette* on slugs. I attribute their presence in a garden to neglect; depend upon it that when the soil is well dug and manured the slugs are few in number. Rooks are of little or no use for the extirpation of them. Quite accidentally I have had one in my garden during the summer, and I am of opinion that he has done more harm than good—breaking down annuals, and eating the seed out of the seed pods. I have double Campanulas in my garden too, both white and purple; they are not so rare as Mr. Bromhead would make out. *J. H., Paris.*

Societies.

Botanical of Edinburgh, *July* 9.—Professor Fleming in the Chair. Mr. G. Lawson exhibited a series of photographs of microscopical objects, by Mrs. Colonel Spottiswood, Benares, including spiral cells of Collomia, scales of Elæagnus, sporangia, and spores of Ferns, sections of various woods, &c. Mr. Lawson also exhibited specimens of Peucedanum Ostruthium, collected by Mr. Peter Mackenzie, near West Plean, Stirling, where he had known the plant for nearly thirty years in a perfectly wild state, having the appearance of a bed of Goutweed. The following papers among others were read:—

"*Remarks on Certain Glandular Structures in Plants.*" By Mr. G. Lawson. The author of this paper, after briefly alluding to Meyen's researches on vegetable secretion, stated that the advancement of our knowledge of this subject had not kept pace with other branches of vegetable physiology, for it was very much in the same position as Meyen left it twenty years ago. He then referred to Dr. Carpenter's views as expressed in the new edition of his "Principles of Comparative Physiology," and especially called attention to the following statement of the author: "Besides that separation of effete matters [in animals] from the blood, for the purpose of maintaining its purity, which is usually distinguished as excretion, we find that certain products are elaborated from it for special purposes in the economy; and it is to the process by which this is accomplished that the term secretion, in its more restricted sense, is applicable. But even this has scarcely any parallel in the vegetable kingdom. For although there is a large class of substances which are commonly designated as 'vegetable secretions,' yet these are not poured out upon the surface nor into the cavities of the plant, but are stored up in its constituent cells, of which they form the characteristic contents; and thus they bear the same relation to it as the oleaginous contents of the fat cells, or the calcareous deposit in the cells of shells, &c., bear to the animal organism." Mr. Lawson pointed out many instances in which the secretions of plants were poured out upon the surface and into the cavities of the plant, and not stored up in its constituent cells; and referred particularly to the glands of Rubiaceæ, Galiaceæ, Aurantiaceæ, Passifloraceæ, &c., specimens of which were exhibited under the microscope. Mr.

Lawson then observed: "The next remark which I wish to make in regard to vegetable glands has reference to the homological character of these bodies. The statement that glands are modified epidermal cells has long remained unquestioned. Some years ago Dr. Weddell discovered peculiar glands in Cinchonaceæ, and the results of his observations, as well as of my own, on the similar glands of Galiaceæ, were detailed to the Society. (Ann. Nat. Hist., ser. 2, vol. xiv., Trans. Bot. Soc., vol. v.) The homological character of these glands were not then referred to; for, when viewed in connection with the glands of Sundew and some other plants, their structure did not appear explicable on the supposition that they were formed of epidermal cells. Since my former paper was published, an extended series of observations on vegetable glands, and especially on the stipules of plants belonging to the Apocynaceæ, has shown that the Cinchonaceous glands and all other forms are reconcilable with the idea of epidermal origin. The Cinchonaceous gland consists of two kinds of cells—one which represents ordinary leaf tissue, and the other which may be regarded as the epidermal cells transformed for secretion. The gland is, in fact, the homologue of the leaf—a leaf very much reduced in size, as stipular leaves usually are, and with its epidermal cells changed into secreting ones: and it closely resembles in structure the stipules of Dipladenia, which no one can regard as being other than reduced leaves. When we see a gland thus formed by a cone of tissue elevated above the general surface of the organ to which it is attached, with its whole epidermal surface consisting of secreting tissue, we can readily understand how an epidermal gland can also be formed in the tissue of the plant, by simply introverting the epidermis. In this way the remarkable ovarian glands of Endogenous plants are explained, and probably also the imbedded glands of the Orange, the latter bearing the same relation to the Cinchonaceous gland as the conical receptacle of the Strawberry does to the hollowed out receptacle of the Fig. The ovarian glands of Endogens are especially deserving of attention on this point, for we find them of very frequent occurrence; and in cases where three or more carpels are united into one fruit, these glands always occupy a position corresponding with the points of union of the carpels. Irrespective of histological characters, the glandular tissue is seen in these cases to be necessarily formed by the contiguous layers of epidermis where the two surfaces of the carpels are brought into contact. (*To be completed in our next.*)

Entomological, *August* 3.—H. T. Stainton, Esq., V.P., in the Chair. Mr. Foxcroft sent for exhibition various rare insects recently captured in Scotland, with notes on the economy of some of the species, and illustrations of their habits. Amongst the latter were the transformations of the rare Dipterous genus Xylophagus, and also those of Rhagium Indagator. Mr. Waring exhibited various rare moths, including Trochilium chrysidiforme, Pione palealis, P. margaritalis, and Melia bipunctana, all taken on the south coast, near Deal; and Hemithea smaragdaria, taken near Southend. Mr. Waterhouse read a memoir on the rectification of the nomenclature of the British species of Aleocharidæ, derived from a careful investigation of the Kirbyan and Stephensian collections, collated with specimens of seventy species which had been sent to Dr. Kraatz, the monographer of the family. Mr. Pascoe read a paper on new species of Longicorn beetles, recently sent from Macassar and Celebes by Mr. Wallace. With one exception the species were entirely of Indian forms, one only being peculiar to the eastern islands. Mr. Stainton mentioned a curious circumstance observed in the economy of the hive bee, a piece of naked comb having been found attached to the branch of a tree having a little honey in some of the cells, and a smaller piece of comb having been found on the ground beneath the tree. It was evident that these pieces of comb had been constructed by a swarm of bees which had settled on the branch. Mr. Westwood exhibited specimens of the Elephant fly of Ceylon (a Dipterous insect belonging to the genus Pangonia), recently received from Mr. Thwaites, and which has the power of inflicting severe wounds on the elephant with its acute proboscis or rostrum. He also exhibited some remarkable rolls made at the extremity of the leaves of the Spanish Chesnut about the size of a small thimble, within each of which an egg was deposited, and which Mr. Westwood considered to be the nests of some species of Attelabus or Rhynchites: genera of weevils which are known to possess such habits.

Notices of Books.

Cultivated Ferns; or a Catalogue of Exotic and indigenous Ferns cultivated in British Gardens, &c. By John Smith, A.L.S., Curator of the Royal Botanic Gardens, Kew. 18mo, Pamplin. Pp. 84 (1*s.*).

The lover of Ferns, as seen in Gardens, will welcome this little book as a most useful guide to the formation of a collection. It is very neatly printed, well arranged, and convenient for reference, besides which it gives the distinctions that exist between the genera of this difficult though fascinating group of plants. And it is the more useful because it expresses the opinion of one entitled to deference, as to what names should be selected for adoption from among the higgledy-piggledy confusion into which ignorance and presumption have reduced the nomenclature of Ferns. While Mr. Moore's catalogue includes all the genera and species which are known, Mr. Smith's is confined to cultivated plants alone, by which it is brought within the dimensions of a pocket volume, and at the same time appears at once in a complete state. The two will doubtless be found necessary by all students of the order. It is founded upon the catalogue formerly noticed by us (p. 727, 1856), which it entirely supersedes.

In the form of a shilling number we have an authentic, well written, and pretty complete account of the Duke of Sutherland's famous seat at *Trentham*, and of the gardens there (Piper & Co.).

It forms an 8vo volume of 80 pages, of which about 20 are occupied by the gardens and eight by the park. A good many woodcuts of scenery add considerably to the interest of the work. The account of a portion of the ground near the lake gives a fair example of the manner in which the author describes such scenery.

"The most contracted part of the narrow strip of land between the river and lake was the point where, previous to 1853, those waters joined. In that year Mr. Fleming in a very short time, and at a trifling cost, effectually changed its course, and by a careful selection of the most favourable points about its margin has made the locality both interesting and ornamental. Beside a small grotto on the opposite side are specimens of the common Bulrush, Iris, and other aquatic plants; and the entire length of the river from this point to the long bridge presents a double line of Water-lilies; the mid-channel only being clear. A rustic bridge connects this narrow tongue of land with the American and other characteristic gardens, the site of which, a few years ago, was little better than a quagmire of 10 or 12 acres in extent; but by effective draining and perseverance is now made one of the most ornamental spots in the gardens. The turf is in beautiful order, and the whole locality presents a most healthy and interesting appearance. The beds in which it is laid out are generally large, and irregular in shape, and planted with Araucaria imbricata, Rhododendrons purple, white, and scarlet, Pinus Douglasi, Kalmias, masses of Mahonia aquifolium, &c., and bordered by Pernettia mucronata, Gaultheria Shallon, Daphnes, Heaths of various sorts, &c. There is also, supported by a beautiful collection of Hollyhocks, a small but choice Rosery, of the best specimens, in circular beds with Ivy borders; and the letter S, formed of iron, trained with Roses and Honeysuckle, stretches across the velvety turf. Approaching the larger trees, numerous varieties of Thorn fringe a line of Arbutus and Yew, relieved by masses of Furze and Heath; and standing here and there, diversifying and enriching the scene, are Thorns and Hollies covered with Honeysuckle and wild Roses. Throughout these gardens the chief aim has been to arrive at the highest point of natural perfection by the application of natural means. Looking towards the wood the eye crosses an astonishing variety of plants, shrubs, and trees—the effect is singularly beautiful and harmonious—but it is produced by materials whose character is not strained or divided by anything foreign to their nature. Plants and flowers familiar to our childhood, and associated with the glowing dreams of our youth, here seem as much at home as in the sunny glades of the bird-singing wood, the cottage garden, or the ripening cornfields. Ferns, white and yellow Broom, Furze, Bluebells, Foxgloves, large Scotch Thistles, Poppies, Peonies, and a host of others, contribute to the general effect. Italy, too, has a place in this arboretum, being represented by several species of Quercus, the Stone Pine, Pinus maritima, &c. Mexico, that wonderful land of gold and mystery, gives her Cupressus thurifera and others. Before the river ran through these grounds, a beautiful Hibernian collection stood adjoining the lake; and its site may still be seen by a very fine specimen of Taxus baccata fastigiata, flanked by two smaller ones, which stands boldly on the cone of a large bed, containing a variety of other plants and flowers, that slopes to the margin of the river. A short distance from this bed, standing alone on the verdant glade, is an excellent specimen of the Spiræa ariæfolia."

We regret to learn that the noble lake which has been invaded by our formidable enemy the Anacharis, as we announced some months since, is still infested. This plant threatens indeed to take possession of every piece of water in the kingdom. It has already seized upon the large basin at Kew, and may soon be expected in the lake in St. James's Park. While describing the lake our author relates an anecdote or two which we must repeat.

"The ancient grey herons make it their haunt, and we have seen nearly a score of these noble birds rising from its waters at one time. There is no heronry there strictly speaking—they generally rear their young elsewhere—but occasionally they have been known to build their singular nests in the wood close by. The old fisherman one day related to us a curious anecdote of one of these birds, which occurred several years ago, and of which he was the witness. Pulling quietly down the lake one morning in a boat with one of his sons to look at the trimmers he had set over-night, he was struck by the unusual circumstance of seeing a heron rise from the water, reach a certain height, and then suddenly fall to the water again; this was repeated two or three times before they reached the spot, and accompanied by much struggling, and the cries peculiar to the bird. When they came to the place, they found that the heron was hooked, and that a fine pike, of about 5 or 6 lbs. weight, lay on the surface of the water at the head of the trimmer. Taking hold of the line they began to haul the bird in, but the nearer it came the greater its struggles and cries; and at last it attacked the son, striking him on the side of the head with its long beak, and drawing blood. However, it was in time secured, and brought away alive. It appears that the heron had struck the fish after it had taken the bait, and in eating it had extricated the bait to which the hook was fixed, and swallowed both together. Rising on the wing to escape, it could reach no further than the length of the line, and was consequently forced back again.

"The following singular case of voracity occurred many years since on the river opposite the poultry yard: a swan was observed in the same position for several hours; on going to it, its head was found fast wedged in the mouth of a very large pike, and both were dead. The swan, while searching for food beneath the surface of the water, had been struck by the pike, and as its head, in consequence of the peculiar formation of the pike's teeth, could not be disgorged, the one had suffocated the other."

The gardens themselves are a very remarkable example of the power of man to triumph over nature. Placed in a low wet situation in an indifferent climate they have become unsurpassed for beauty, high cultivation, and productiveness of every kind. The gayest flowers, the richest Grapes, the most fragrant Pines, the rosiest Peaches grow at Trentham: Mr. Fleming's kitchen garden yields to none in the quantity and quality of its produce; and if the terrace walks are not bordered with Orange trees, as would be the case in happier climates, much of their effect is imitated by Standard Portugal Laurels in tubs: a happy idea which we believe originated with the Duchess herself. The gardens now occupy an area of 65 acres. What they were in the time of Plot, the historian of Staffordshire, "it is difficult, says our author, "to say; but a large and conspicuous fountain attracted his attention, and to which he refers in his 'History of Staffordshire,' as follows:—'In the curious garden south of Trentham Hall there is another (fountain) that sends up a large column of water, falling into a bason of 10 yards in diameter, which from the parlour (the folding doores opening just against it) yields a pleasant prospect; but much better would it be, were it made to toss a golden ball (as easily it might), and the designed vista were cut through the adjoining wood, which, lying upon a rising ground, and taking up a mile in length, must necessarily give it a great advantage.' We presume this 'curious garden, south of Trentham Hall,' to have been laid out in the Dutch style, then becoming fashionable, and of which traces were visible about 100 years ago in the part of the ground alluded to. These consisted of numerous Yew trees, clipped with the greatest care and method into representations of various birds, such as peacocks, turkeys, &c. The fountain, with its large column of water, and the anticipated 'golden ball,' would agree with that style, and certainly impart a little animation to the quaint and imperturbable dark masses of geometrically cut Yew trees.

"This south garden would appear to have occupied the whole of the site of the present Parterre and Terrace Garden; it is hardly probable to have extended further in a southerly direction, because where the Italian Gardens now stand was, up to within a comparatively recent period, a sheep walk, by no means free from water at all times. The 'curious' garden, that is, the principal features of it, would no doubt disappear with the Elizabethan mansion, and the modern one of red brick accompanied a style of gardening more suited to its character.

"We have seen a rough drawing of the south front of the Hall, taken probably very early in the present century. The site of the Italian Gardens is open ground, studded with a few trees, and only divided from the park, which runs quite up the western entrance door, by a scarcely visible fence. To the right, bordering the river, over which appears a rustic bridge in the place now occupied by the iron span bridge close to the conservatory, a cluster of trees are faced by a small temple; but we look in vain for those masses of shrubbery that give to a mansion an air of comfort as well as importance. The old boat-house on the borders of the lake appears in the drawing. The years 1839-40 witnessed the commencement of the eradication of the old style, and its memory is now almost obliterated by the introduction of a scene that is nowhere surpassed, according to its character, for general beauty, arrangement, and picturesque effect."

To visitors to Trentham this little volume is indispensable; it must however be remembered that although all are allowed to visit the park, access to the garden and Hall is only granted as an especial favour.

The *Essence of Grammar*, by Henry Mence (Tweedie), is a child's horn-book, teaching in verse, simply and cleverly, the meaning of articles, nouns, adjectives, pronouns, &c. It is a happy idea borrowed from the classical School Books.

We have received from Mr. Stanford, of Charing Cross, a capital coloured *Map of Delhi* and its environs, prepared from official documents, and fully illustrating the military events.

Garden Memoranda.

Messrs. A. Paul & Son's Nurseries, Cheshunt, Herts.—These well known nursery grounds are 13 miles north-east of London, and one mile from the Cheshunt Station on the Eastern Counties Railway. Although the principal stock consists of Roses, Hollyhocks, Coniferæ, ornamental trees and shrubs, and fruit

trees, there is a variety of other things usually found in suburban nurseries. A broad walk leads from the high road through the centre of the grounds; on either hand are quantities of bedding plants arranged in masses, behind which is a considerable collection of herbaceous plants chiefly plunged in pots under the shade and shelter of a north wall. Passing numerous glass houses and ranges of cold pits, we first encounter several squares of hardy Heaths, Rhododendrons, Azaleas, and other American plants. Here also is a "conservative" wall with a west aspect, against which are placed various plants reputed hardy, but which are found unsuitable for an open situation in the climate of Hertfordshire. The most interesting of these were:—Escallonia macrantha, Garrya macrophylla, Silver and Gold-edged Alaternus, the Banksiæ Solfaterre and Cloth of Gold Roses, the Gum Cistus, Aristolochia Kæmpferi, Stauntonia latifolia, Buddlea globosa, Ceanothus azureus, C. dentatus and C. rigidus, Eriobotrya japonica, Azara crassifolia, Elæagnus reflexus, Hedera algeriensis, the variegated Euonymus, and a few others. We also saw several beds of climbing plants plunged in pots to be ready for removal at any season, such as Clematis, Honeysuckles, Ivies, &c. Passing to the Arboretum we found a variety of beautiful and healthy young Conifers interspersed with trees of pendulous growth, and some with variegated leaves; while climbing plants trained up pillars and various flowering shrubs agreeably diversified this part of the grounds, and offered a favourable opportunity to the purchaser for selection. Among the Conifers were Abies Deodara, 25 feet; Pinus excelsa, 15 feet; Picea nobilis, 7 feet; Picea Pinsapo, 14 feet; Cryptomeria japonica and Taxodium sempervirens, each 15 feet; Pinus Benthamiana, 6 feet; Abies excelsa monstrosa (a curious weeping kind of Fir), 10 feet; Abies alba glauca (a very silvery variety) 7 feet; Picea Nordmanniana, 7 feet; Cupressus Lambertiana, 18 feet; Juniperus chinensis, 14 feet; Salisburia adiantifolia, 15 feet; and handsome bushes of many Pinuses, Yews, Junipers, and Cypresses of less dimensions. Among flowering shrubs the most remarkable were Indigofera Dosua, a charming shrub covered with spikes of purplish rose-coloured flowers, which are produced abundantly and for a long period; the Ceanothus pallidus, grown as a bush, is similar in style of growth and little inferior in point of beauty; and both these plants are found perfectly hardy. Then there were good examples of Garrya elliptica, Spiræa callosa, S. californica, S. ariæfolia, Hydrangea radiata, Magnolias, Ligustrums, Arbutuses, Berberis, &c. The effect of sundry climbing plants, introduced among the evergreens and trained up rustic poles, was very good. Of those now in flower may be mentioned Lonicera hybrida nova (an abundant and rich flowered kind), L. flava nova (the Yellow Trumpet Honeysuckle), Clematis florida, C. Sieboldi, C. Hendersoni, C. viticella (three kinds), C. odorata azurea (a bright purple sweet-scented sort, somewhat in the way of C. flammula), and Tecoma flava speciosa. Of climbers rich in foliage the most remarkable were some species of Vines, Tecomas, Atragenes, and Ivies.

Quitting the Arboretum we passed to the Hollyhocks, where a gorgeous spectacle presented itself. There is about two acres covered with these plants in flower, the spikes in many instances rising to the height of 10 feet. Among the most beautiful may be reckoned Beauty of Cheshunt, light rosy red; Eugenie, saffron shaded with pink; Honourable Mrs. Ashley, lilac peach; Attraction, (Paul), cherry colour beautiful on the spike; Lemonade, improved canary purple base; Crusader, rich even rose; Leonice, crimson scarlet; Celestial, delicate blush, the colour of the Celestial Rose; Memnon, light crimson, very fine; Miss Ashley, pale creamy fawn; Mrs. Oakes, delicate shaded salmon, very close; Pourpre de Tyre, rich smooth purple; Lady Willoughby d'Eresby (Paul), pale cream, remarkably smooth and very beautiful on the spike; Waterloo, rich blood red; El Dorado, deep golden yellow; Primrose Perfection, delicate primrose; Purple Perfection, light purple; Queen of the Whites, snowy white; Rosy Morn, bright rose; Queen of the Yellows, yellow, very smooth and close; Lady Palmerston, shaded peach, of a soft and distinct colour; White Globe, white forming a long close spike; Sir Colin Campbell, bright cherry scarlet, showy and good; Lady Franklin, bright pink, very smooth and good substance. These are all named varieties, and among the seedlings there are many very promising yearlings. On our way from the Hollyhocks to the Roses we passed several squares of choice Conifers and other evergreens arranged in their respective sorts and sizes, which appear to have suffered nothing from the continued dry weather owing, probably, to deep cultivation. A border of miscellaneous evergreens contrasted well with these; at the back are numerous Deodar and Douglas Firs, Cedar of Lebanon, &c., 8 to 10 feet in height, the front rows gradually receding to the walk, and well intermixed with various evergreens.

On entering the Rose grounds there is still no lack of flowers, and although these are at present somewhat small in size the promise of autumn bloom is both good and abundant. The Tea-scented Roses, judging from the flower stalks, must have been one mass of beauty; some indeed were everything that could be wished for now; Sombreuil, Comte de Paris, Gloire de Dijon, Vicomtesse Decazes, Safranot, and Narcisse were the most beautiful; perpetual Moss Salet and Madame Edouard Ory were also flowering freely and well. Among other kinds we found—Hybrid Perpetuals: Triomphe de l'Exposition, purplish crimson; Triomphe de Paris, dark crimson; Souvenir de Reine d'Angleterre, bright rose; Ornement des Jardins, brilliant red Bacchus, crimson scarlet, a most profuse bloomer; Madame Vidot, transparent flesh; Louise Odier, bright rose; Louis Peyronny, silvery rose; Jules Margottin, bright cherry; Lord Raglan, scarlet crimson; General Jacqueminot, brilliant velvety red; Auguste Mie, light pink; Ravel, bright scarlety crimson; Madame Thérèse Appert, pale rose; Gustave Coraux, purple; Géant des Batailles, bright crimson; Bourbons: Leon Oursel, rosy pink; Scipio, brilliant crimson; Angelina Bucelle, rosy purple; Madame Angelina, fawn; Dr. Leprestre, purplish red; Souvenir de Malmaison, flesh; Sir Joseph Paxton, bright rose shaded; Prince Albert, scarlet crimson, a most abundant bloomer; and Marquis Balbiano, rose tinged with silver.

Crossing the New River we entered the fruit ground, about 20 acres in extent, the most remarkable feature of which is an avenue of pyramidal trees, 150 yards long, many of the Pear trees in a fruit-bearing state. In this avenue is planted one of a sort of old and new kinds, in order to test their accuracy and merit before propagating for sale. On either side of this avenue are the usual nursery squares, occupied with the trees growing for sale. This branch of the nursery is alternately cropped with fruit and ornamental trees.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—Continue to look over climbers, borders, &c. Large specimens which have been placed out of doors to provide room for other things will soon require housing; this however will depend greatly on the weather. The earthworm is a greater enemy to pot plants in general than low temperature, every precaution must therefore be taken to avoid its depredations. Orchids.—Many of the earliest growths showing signs of ripeness in the leaf and plump pseudo-bulbs may be removed forthwith from the excitement of the growing house. Any situation where a temperature averaging 60° or 65° by night and day can be guaranteed will suit them well; a very moderate amount of atmospheric moisture will suffice. Look well after late flowering things; late Heliotropes, scarlet Geraniums, Petunias, &c., will now be somewhat pot bound, and will in that state, with the application of weak liquid manure, produce abundance of blossom on a light shelf until the beginning of December. Lachenalias should be repotted, and Persian Cyclamens if planted out will now be fine bushy plants full of young leaves. They should be taken up forthwith with all the soil possible adhering to them, potted carefully, and placed in a close frame or propagating house; a bottom-heat of 75° would be an advantage with a very moderate atmospheric temperature. After three weeks of this treatment they may be introduced to the greenhouse, where they will produce blossoms in abundance from November until April.

FORCING DEPARTMENT.

Pineries.—Endeavour to afford plants swelling their fruit a high temperature with as little assistance from fire-heat as possible, which, as it tends to render the atmosphere dry is not conducive towards obtaining large finely swelled fruit. Therefore economise the sun's warmth as much as possible, shutting up early on the afternoons of bright days after syringing the plants and moistening every available surface, and maintain a high temperature during the day, giving air sparingly. But fruit approaching maturity will be improved in flavour by a moderate use of fire-heat, a freer circulation of air, and a dry atmosphere, and where there are no means of avoiding having plants swelling their fruit and those ripening it in the same compartment, then it will be advisable to keep the atmosphere rather dry and airy while fruit is colouring, as size is of little importance unless combined with quality; but this will be best decided by employers' tastes, &c. Give careful attention to securing a fair supply of fruit for winter and spring use. Look over stock in pots frequently to make sure that it is properly supplied with water at the root, and give a liberal supply of clear strong manure-water where free vigorous growth is desired. Vineries.—Give abundance of air on all favourable opportunities where the fruit is ripening, using fire-heat rather freely when the weather is damp and cloudy, and be careful to secure a dry state of the atmosphere where the fruit is ripe and expected to hang for any length of time, using a little fire-heat when necessary to dispel damp. See that ripe fruit is secure from the depredations of wasps, if these are at all troublesome.

FLOWER GARDEN AND SHRUBBERIES.

Decay of some of the earlier flowers will now begin to leave blanks which will not be easily filled unless a stock of large things in pots has been provided. In mixed beds some of the late kinds of Phloxes, Asters, &c., may occasionally be untied and made to occupy three or more sticks in order to fill the blanks. Petunias and other bedding plants of gross habit should have a pruning betimes to keep them within bounds. A few Crocuses, Snowdrops, &c., may be planted soon to obtain an early bloom. Follow up closely all matters relating to propagation for next year's masses.

HARDY FRUIT AND KITCHEN GARDEN.

A rich border should now be got ready and planted with Bath or Brown Cos Lettuce; these will furnish a supply in the open ground until Christmas, provided they are protected. If Tomatoes are over luxuriant cut away a portion of their roots. Late plantings of Radishes must be made forthwith; this planting will be eligible to move into frames with balls of earth in November—the soil must be very rich. This is an excellent time to make a sowing of the Brown or Bath Cos and Hammersmith Lettuces, to remain where sown through the winter. The beds should be elevated considerably, the higher the better, and the seed scattered broadcast rather thinly. Let a good breadth of Coleworts be put out on well prepared ground, as before observed; Onion beds will be available. Old Strawberry rows should now receive attention, the foliage of the runners will shade the principal leaves of the old plant. Sow winter Cauliflowers.

COTTAGERS' GARDEN.

High cultivation and thorough cleanliness should henceforward be mainly attended to. Let Cabbages and other winter Greens be well earthed up. Celery should also receive similar attention, giving it little and often. A little Brown Cos and hardy Hammersmith Lettuce may be sown on a raised bed, to stand the winter, choosing for the purpose ground not over rich. A bed of Radishes sown now will be in use until Christmas.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,

For the week ending Aug. 20, 1857, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind.	Rain in inches.
Friday 14	24	29.723	29.647	76	42	59.0	67	63	W.	[illegible]
Satur. 15	25	29.807	29.751	73	53	63.0	66	62½	W.	[illegible]
Sunday 16	26	29.938	29.743	81	55	68.0	65	62	E.	[illegible]
Mon. 17	27	30.027	29.955	72	42	57.0	66	63	N.	[illegible]
Tues. 18	28	30.089	30.048	76	54	65.0	66	63	E.	[illegible]
Wed. 19	●	30.121	30.109	74	61	67.5	66½	63	N.E.	[illegible]
Thurs. 20	1	30.123	30.098	75	58	66.5	67	63	N.E.	[illegible]
Average		29.975	29.909	75.3	52.1	63.7	66.2	62.8		[illegible]

August 14—Densely and uniformly overcast; thunder storm commenced 6 P.M.
— 15—Fine; very fine; heavy rain at night.
— 16—Clear; hot; very fine throughout.
— 17—Very fine; clear; hot sun; very fine.
— 18—Very fine throughout.
— 19—Light clouds and fine; very fine.
— 20—Overcast; cloudy; overcast; lightning.
Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending August 22, 1857.

August.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.
Sunday 23	71.0	49.4	60.2	17	0.95 in.	[illegible]
Mon. 24	70.9	47.8	59.3	15	0.23	[illegible]
Tues. 25	70.7	51.0	60.8	13	0.32	[illegible]
Wed. 26	72.3	49.0	60.6	10	0.51	[illegible]
Thurs. 27	72.8	50.6	61.7	9	1.32	[illegible]
Friday 28	72.7	50.7	61.7	14	0.20	[illegible]
Satur. 29	71.7	48.3	60.0	11	0.58	[illegible]

The highest temperature during the above period occurred in the 24, 1842—therm. 85 deg.; and the lowest on the 29th, 1850—therm. [illegible] deg.

Notices to Correspondents.

Bananas: *R.* One of the most successful cultivators of these is Mr. Scott, of Leigh Park, who in 1843 produced a bunch weighing 129 lbs. His mode of growing them we will endeavour to give in a future Number.

Conservatories: *Siegfried.* Mr. Freeman's address is "The Triangle, Hackney."

Garden Walls: *Inquirens.* Experience is not in favour of the plan you mention. Build hollow brick walls not less than 10 feet high, and take care that the garden is rectangular. If oblong, we should have it run north and south.

Glazing: *M D, Hull.* By all means use Hartley's rough plate, and pay no attention to those who advise you to the contrary. We can only suppose that the gentleman who recommends crown glass so strongly is a dealer in the article.

Insects: *J R.* The grubs which fed on the Swedish Turnips have undergone their transformations to the perfect state, changing to the saw-fly Athalia Centifoliæ.—*Miss H B.* The objects sent were the galls of an underground species of Gall-fly, Cynips (Biorhiza) aptera, which very much resembles a pale coloured ant.—*M H.* Your leaves have most probably been gnawed either by slugs or some larvæ during the night, the larvæ in such case during the day hiding themselves in the earth.—*W T.* The insects sent are a particular species of Aphis, which we believe to be peculiar to the tree on which they were found, and which consequently are not dangerous to the adjacent crops.—*R F.* Thanks for the Wax insect of China, which shall be deposited in the new museum at Oxford.—*J H.* The caterpillar of the Privet Hawk moth, Sphinx Ligustri.—*C A.* The caterpillar found on your Poplar tree is that of the common Vapourer moth (Orgyia antiqua), the male of which is a brown moth with a white spot on each fore wing, which flutters about in the day time about houses and gardens. *W.*

Names of Plants.—We have been so often obliged to reiterantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time—*F A P.* Rhus Cotinus, the Venetian Sumach. It may be propagated by layers, and also by seeds which are sometimes produced. Every nurseryman sells it. It is an acrid poison.—*A Devonian.* It is not Solanum Sodomæum, nor can we name it till we see the flowers. The Grass is only Hordeum murinum a little stronger than usual.—*Brighton.* The seed Triticum monococcum, whose corn the Turks employ instead of Rice in their pilafs.—*Mary.* Sedum roseum.—*R B.* Amaranthus tricolor.—*G P.* Russelia juncea. The cause of Cucumber disease has been fully explained at p. 388 of our last year's volume.†—*A B.* A very bad variety of Spiræa callosa, by no means genuine.—*Shem.* Parnassia palustris.

Roses: *J H.* The Manetti Rose is a variety of Rosa alpina, imported from Italy, and now, as you see, becoming a favourite. Signor Manetti was an Italian horticulturist of eminence.

Skeleton Leaves: *G A.* Steep them for weeks in rain water in a warm place freely exposed to air; when nearly ready add a small quantity of muriatic acid to it. A great deal of care is however required in picking out with needles the parts that are not rotted away. Hard kinds of leaves are most suitable for the purpose.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

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"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

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WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by WAITHMAN & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
8d.	11d.	1s. 1d.	1s. 3d.	1s. 5d.	1s. 7d.	1s. 9d.	2s.	2s. 3d.	2s. 6d.	2s. 9d.

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2	2¼	2½	2¾	3 inches.
2s.	2s. 3d.	2s. 6d.	2s. 9d.	3s. per yard.

The hose is Burnettized at an extra charge of 3d. per yard. Union Joints, Branch Pipes, and Jets are also supplied.

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THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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SALISBURY MEETING, 1857.

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The superiority of TUXFORD & SONS' Patent Portable Iron-housed Steam Threshing Engines, with upright Cylinders and Improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well merited reputation of standing at the head of their class.

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First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power.
First Prize for best Double-Action Turnip Cutter for Beast and [Sheep.
First Prize for best Oil-Cake Breaker for Beast and Sheep.
First Prize for best Root-Washing Machine. Also, Specially Commended for Steaming Apparatus and Turnip [Slicer.

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Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY, 1857.—The Annual Show of LIVE STOCK (including POULTRY), IMPLEMENTS, &c., will take place at Warrington, on THURSDAY, September 10. Prize Lists and Rules may be had by applying to the Secretary. Entries close on the 29th inst. T. B. RYDER, Sec.

2, Elliot Street, Liverpool, Aug. 22.

The Agricultural Gazette.

SATURDAY, AUGUST 22, 1857.

THE present condition of the crops in the several counties of England and Scotland is described pretty fully in the returns given in the following pages. They will, doubtless, be scanned with interest by our readers, and it is the less necessary that we state the general impression they convey. We may, however, add to what is given by our correspondents in their several reports that we have letters, especially from the Midland and Western counties, stating how very severely the rains of the past fortnight have injured the Wheat and Barley standing and lying cut in the fields. No such great injury, however has been suffered in our principal corn growing districts, and however lamentable this injury may be in localities, we do not believe it ought much to affect the general report of the yield of 1857. The Wheat crop may be pronounced unusually productive. The Barley crop is of unusual extent, but will probably yield barely an average per acre. The Oat crop is decidedly below its average productiveness. Pulse crops are for the most part inferior. Potatoes have promised better, but are more diseased than they have been for several years. The hay crop is good and unusually well got. Turnips are generally inferior, Mangel Wurzels generally good.

WE made last year some observations on the regermination of Barley which had been exposed to continued wet, and which had in consequence been seriously injured in the field. We took great pains to get the seed in as good condition as was practicable, but as our experiments were made only a short time after the harvest, and therefore possibly under too favourable circumstances, we thought it would be advisable to repeat them when the grain was threshed out in spring. The Barley it should be observed was not in the least heated, though perhaps there was not a single grain in the stack which had not germinated to a greater or less extent, and the condition of the grain apart from the injury it had previously received was quite satisfactory. A portion of the grain was sowed from the sample bag without the slightest selection, care however being taken that the lightest grain, alone, which naturally first presented itself, was not used; a second portion consisted of the very worst grains that could be picked out, some seeds showing symptoms of blue mould, others of decay, and none giving any promise of growth, while a third consisted of those grains which had grown considerably, showing a large tuft of rootlets and a distinct acrospire of greater or less length but neither mouldy nor decayed. The first germinated to the extent of 50 per cent., the second of 10 per cent., and the third of 16 per cent., and all produced ultimately a fair crop of Barley, there being little or no difference between the three.* At first indeed the plants, especially in No. 1, appeared in parts pale and discoloured, or in other words chlorotised, and the outer leaves soon became brown and perished. In a few instances the chlorotic appearance extended to the inner leaves, and indeed lasted till the ear was ready to burst, when the plants failed, presenting at the time a striped appearance like that of Ribband-Grass; but in general the plants were healthy, or exhibited merely the same appearances that were prevalent in the fields. Several for instance gave rise to smutty ears, as was the case almost universally with the Barley crop. A single individual indeed was strongly mildewed, which is not a common affection in ordinary cultivation. On the whole then it appears that such Barley may safely be used for seed, but it is clear that its use is not economical where there is reason to believe that most of the grain, or perhaps all, has already germinated. Half at any rate will be lost, and the loss will not be compensated by the comparative cheapness of the seed corn. We did not repeat our experiments about its capability for malting, because it appeared clear, from the manner in which the mouldy grain tainted the whole mass in our former experiments, that it would be very injudicious to apply the grain to such a purpose.

The occurrence of smut and mildew amongst the plants induces us to add a few words on that subject. The question has frequently been asked this year by farmers—What are we to do about the smut? So long as a few ears only were sacrificed we paid no attention to it, or we were accustomed to speak of it as a good sign; but now that a tenth, a seventh, a fifth, or even a third are affected, which has been the case for the last two seasons, the matter becomes serious, and we must look after a remedy. The natural thought is that the same measures will be effectual against smut as against bunt. We do not however, advise our friends to be too sanguine on this point. It may be prudent to adopt some precautionary measures, but it must be remembered that smut does make its appearance where Wheat has been dressed, and it is notorious that dressing is no remedy against mildew. The fact is, that the spores are blown away by the first high wind long before the Barley is ripe, whereas bunt is taken into the barn

* There seemed at first a marked difference in the plants which sprang from the seeds taken indiscriminately, but this was merely a temporary condition arising from their being too crowded. Ultimately all three produced good and healthy ears.

with the ripe corn and affects the whole sample when it is threshed, when there are no smut spores to adhere to the Barley. It is probable therefore that the smut spores come in contact with the grain after it is placed in the ground. The complete history of the germination of smut has not yet been ascertained, but there is every probability that like mildew the spores germinate, and give rise to a second order of spores themselves capable of germination. The young germinating threads may come in contact with any poisonous substance which may cover the surface of the seed corn and so perish, but it is not certain at all at what period of its growth the plant is affected by smut, and therefore the effect of the poisonous substance applied to the seed is a mere matter of speculation. As it is not supposed that the effect will take place upon spores of smut attached to the seed itself as in the case of bunt, the matter chosen for dressing should be something which will retain its virtue for some time. Dressing therefore with lime, alone, or mixed with Glauber salts, would not seem as applicable as in the case of bunt; arsenic would probably prevent germination if drought ensued, as is so often the case with Barley-sowing, and we should therefore be inclined to try blue vitriol, as at the same time permanent, and more manageable than arsenic. At any rate it would be well to try something, though after all the result will be very uncertain. The compositions which are sold as preventives against smut and mildew were most of them projected before the real history of the parasites which cause these and similar diseases was ascertained, therefore must be regarded like all empiric applications with more or less of suspicion. The farmer has simply to remember that he can attack the seeds or spores of the bunt at the fountain head; they stick to his Wheat and he can kill them by his antidotes; the spores of the smut are spread over the face of the earth, and the poison is to be carried on the surface of the seed grain into the field. He may therefore hope to kill the bunt by liming, but if he thinks of destroying smut he must use some more powerful substance and may fail after all. *M. J. B.*

What quick growing plants can be substituted as Sheep Feed for the Turnip Crop?

This question is now of especial agricultural interest, refreshing showers having at length succeeded one of the most dry and precarious seasons for Turnip cultivation that has ever been known in this country. Repeated sowings have been made only to be followed by repeated failures, the more disheartening to the farmer on account of the careful and expensive tillage now generally bestowed upon this crop. Warned by the bare and patchy appearance presented by their fields, the flock-masters of southern England are at the present time eagerly seeking for early quick-growing substitutes to eke out the scanty produce anticipated from the Turnip fields. It is in such a season as this that the artificial aid of irrigated meadows becomes so invaluable in the early spring, and at a future time we hope to allude to them more at length, as well as to the substitutes obtainable by preparing food from compounds of straw, chaff, oilcake, &c. At present we intend to confine our remarks to those quick-growing plants which can be sown now to afford feed in the autumn or early in the spring.

With the exception of a few varieties of early growth, such as Stubble, Six Weeks, &c., it is now too late to sow Turnips with any chance of a crop. These sorts will however succeed if drilled in August upon warm early land with superphosphate to force them quickly to the hoe, but upon later descriptions of soils the sowing of Turnips at this season cannot be recommended.

White Mustard, which is the most rapid growing of farm plants, is suitable for almost any soil. It will come in for food in about seven or eight weeks from the time of sowing. It requires a finely pulverised soil. One or two pecks of seed per acre is usually sown broadcast and harrowed in. Upon poor land we should prefer drilling with superphosphate or other forcing manure. When required for feed a few acres should be sown in succession, and it may be stocked a week before coming into blossom. There is not much feeding quality or "proof" in Mustard, but it is safe and healthy for sheep, and from its most rapid growth very valuable when the Turnip crop fails. It is a good system to sow a portion of Mustard with Rape to prevent the blowing of sheep when feeding upon the latter crop; the feeding value of both plants is much enhanced by the admixture. When intended as a green manure Mustard should be ploughed in before it flowers; it may be turned under by a heavy chain fastened at one end to the coulter of the plough, and drawn along in the furrow. It is found very beneficial upon stiff soils, and is a good preparation for Wheat or spring corn either fed off or ploughed in. It is also considered a preventive to the wireworm. At the present time Mustard seed is selling at an extreme price. Very inferior seed is making 12*s.* to 15*s.* per bushel, and that of the new crop is coming upon the market is selling as high as [illegible] per bushel, being more than 100 per cent. above the usual prices. This is attributable to the inferior growth of last season, combined with the present large demand for low qualities for sowing consequent upon the partial failure of the Turnip crop.

Rape seed sown by itself and cultivated in a similar manner to Turnips is well known to the flock-masters as one of the most forcing food crops, its only drawback being the liability of sheep to "hove" or blow when fed upon it; but this may be prevented in a great measure by sowing a little Mustard seed at the time of hoeing the Rape.

An early autumn or good spring feed may be obtained by sowing about four pounds of Rape and about two to four bushels (according to the quality of seed) of Italian Rye-grass, or the latter may be sown by itself on a clean Wheat stubble.

The Trifolium incarnatum, or Italian Clover, well known to travellers in southern countries by its splendid crimson bloom in the flowering season, and some years ago only known here as one of the most showy annuals of our flower gardens, deserves particular attention this season from the unusual abundance and cheapness of the seed, an outlay of from 6*s.* to 8*s.* per acre being amply sufficient. It is the earliest of the cultivated Clovers; 20 to 30 lbs. of seed may be sown upon a clean stubble immediately after the corn crop is removed, the only preparation required being a few turns of the harrows to cover the seed, the young plants thriving best when the soil is left in a firm state. It forms excellent early feed for all kinds of cattle, or it may be cut for hay early in June, and upon good land we have known crops of 2 tons per acre produced.

Both Trifolium and Italian Rye-grass are useful in filling up deficient plants of Clovers and Grasses, for which they should be sown in showery weather as soon as possible after the Corn crop is removed.

Rye, Winter Oats, Winter Barley, and the early varieties of Winter Tares are crops too well known and generally used to need recommendation as early spring crops. Rye succeeds best upon the sands and gravels, but the sheep farmers of the south of England give the preference, although they are scarcely so early as Rye, to Winter Oats and Winter Barley, being both more productive and lasting longer in a fit state for feeding; and they therefore only sow Rye for their flocks to begin upon. *R.*

THE APPEARANCE OF THE CROPS.—August 15.

ANSWERS TO A CIRCULAR ASKING FOR THE PROSPECTS OF THE HARVEST IN "THE NEIGHBOURHOOD."

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	GREEN CROPS.	GRASS.	NAME.
SCOTLAND.									
INVERNESS	Under average	Average	Under average	....	....	Average	Average	Under average	J. Mackenzie, M.D., Eilenach
ABERDEEN	Average	Fair average	Under average	....	....	Fair crop	Deficient	Light	J. Macdonald, Huntly
FORFAR	Under average	Under average	Deficient straw	Fair	....	Indifferent	Very bad	Over average	W. Smith, Brechin
	Thin; large ears	Average	Under average	Average	....	Bad crop	Unpromising	Average	Alex. Bell, Ferryden
MORAY	Under average	Average	Average	Average	Average	Average	Under average	Average	R. Colville, Chanonry
	About average	Average	Bare average	....	....	Healthy	Deficient	Not average	J. Hamilton, Forres
	Average; except spring sown on dry land	Average, except on dry ground	Average, except on dry ground	....	....	Good	Unpromising	Under average	J. Grigor, Forres
FIFE	Under average	Under average	Average	Average	Average	Under average	Under average	Over average	R. Russell, Kilwinnie
MID-LOTHIAN	Average	Average	Under average	Under average	....	Under average	Promising	Under average	W. Veitch, Kinghorn
	Full average	Full average	Full average	Full average	....	Full average	Full average	Full average	J. Finnie, Swanston
	Above average	About average	Under average	Poor	Fair	Improving	Unequal; Finger and Toe	Various	J. Melvin, Rathe
EAST LOTHIAN	Average	Over average	Nearly average	Under average	....	Nearly average	Over average	Average	G. Hope, Drem
LANARKSHIRE	Above average	Average	Average	Deficient	Deficient	Very fine	Indifferent	Average	D. Gairdner, Hamilton
RENFREW	Full average	Average	Under average	Average	....	Good	Fair average	Under average	G. Boyd, Renfrew
AYR	Full average	Over average	Average	Light crop	....	Over average	Improving	Light	A. Ralston, Lang
SELKIRK	Over average	Full average	Under average	....	....	Average	Full average	....	J. Stalker, Galasheils
ROXBURGH	Average	Above average	Average	Under average	Under average	Average	Full average	Average	J. Thomson, Whitsome
	Over average	Over average	Average	Under average	Under average	Under average	Average	Average	P. Brodie, Charlaw
BERWICK	Average	Average	Average	Average	....	Over average; some disease	Average	Under average	G. Logan, Hume Hall
DUMFRIES	....	Good	Average; short straw	....	....	Average	Average; some "Finger & Toe"	Under average	J. Little, Langholm
	Average	Under average	Average	Over average	....	Average; "disease"	"Finger & Toe"	Average	W. Watts, Craigs
WIGTON	Average, but injured by weather	....	Average	....	....	Good; disease	Good	Average	A. M'Clean, Auchneel
ENGLAND.									
NORTHUMBERLAND	Under average	Heavy	Average	Light	Average	Good	Promising	Good	J. Grey, Dilston
	Full average	Over average	Light	Good	Good	Capital	Splendid	Various	W. Glover, Newcastle
	Under average bulk	Full average	Average	....	Over average	Over average	Full average	Clovers light	T. P. Dods, Hexham
DURHAM	Average	Average	Average	Under average	Below average	Over average	Over average	Below average	——, Coldstream
	Full average	Average	Under average	....	Thin crop	Look well	First-rate	Various	G. Crofton, Kimblesworth
	Light	Various	Very light	Short	Poor	Good	Good	Good	G. Bell, Durham
	Average	Good	Fair	....	....	Good	Good	Good	R. B. Dixon, Darlington
CUMBERLAND	Average	Average	Under average	....	....	Over average	Under average	Average	T. Donald, Linstock
	Good	Fair	Average	....	....	Not heavy	Fair	Light	T. Wilson, Ulleswater
	Average	Average	Good	Average	....	Good	Various	Good	T. Gibbon, Burnfoot
	Over average	Over average	Under average	....	....	Good	Bad	Good	J. Rigg, Wigton
WESTMORELAND	Over average	Average	Average	....	....	Average	Under average	Average	J. Robinson, Warcop
	Full average	Good	Generally good	Full crop	....	Disease appearing	Good generally	Full crop	W. Key, K. Lonsdale
YORKSHIRE	Full average	Above average	Under average	....	....	Average	Under average	Average	J. Crosby, Kirkby Thore
	Over average	Good	Good	Under average	....	Good as yet	Good	Over average	H. C. Briggs, Wakefield
	Average yield	Very poor	Pretty good	Middling	....	Good	Very good	Heavy	F. W. Tyas, Norton Priory
	Average; ears large	Average	Average	Average	Over average	Promising	Very good	Full crop	H. J. Turner, Richmond
	Much under average	Average	....	Under average	....	No complaints	Good	Average	J. Oldroyd, Barnsley
	Rather under average	Full average	Not average	Not average	....	Look well	Fair	Good	P. Stevenson, Thirsk

THE APPEARANCE OF THE CROPS—*Continued.*

COUNTY.	WHEAT.	BARLEY.	OATS.	BEANS.	PEAS.	POTATOES.	GREEN CROPS.	GRASS.	NAME.
LANCASHIRE	Good	Fair	Moderate	Barely average	....	Blighted	Good	Not average	G. W. Fowler, Liverpool
	Very good	Under average	Quite average	Middling	....	Good	Late	Good	R. Robinson, Garstang
	Over average	Very light	Short, but full	Good	....	Much diseased	Very bad	Good	G. Drewry, Holker
	Average	Under average	Under average	Average	....	Very good	Good	Heavy	F. Twining, Wigan
CHESHIRE	Over average	Average	Over average	....	....	Look well	Look well	Good	R. Owen, Tarporley
	Very good	Under average	Full crop	Look well	....	Good	Not good	Good	H. Tipping, Warrington
	Average	Full crop; laid	Average	Full average	Over average	Good	Good	Good	W. Palin, Chester
STAFFORDSHIRE	Average	Over average	Over average	Average	Average	Good	Good	Very good	J. Aston, Astley
DERBYSHIRE	Under average	Average	Over average	Average	Over average	Good, but diseased	Injured	Under average	J. Parkin, Wirksworth
	....	....	Over average	....	....	Very good	Very good	Over average	B. Swaffield, Ashbourne
LINCOLNSHIRE	Average	Under average	Under average	Very bad	....	Average	Average	Very light	Croft Sharpley, Louth
	Average	Under average	Under average	Under average	....	Average	Average	Under average	F. Sowerby, Gt. Grimsby
	Average	Under average	Under average	Average	Average	Average	Average	Average	E. Darby, Horncastle
	Over average	Over average	Under average	Average	Average	Small tubers	Very bad	Under average	J. A. Clarke, Long Sutton
NOTTS	Over average, but much sprouted	Under average	Rather under average	....	Under average	Over average, but attacked	Very good	Full average	H. J. Wilson, Mansfield
	Light straw, yielding well	Very light	Light	Good	Average	Very good	Very promising	Not heavy	J. Young, Newcastle
	Average; under water	Deficient	Bad	Bad	Bad	Good	Late	Good	T. Stafford, Marnham
	Under average	One-third under average	Under average	Under average	Average	Very good	Under average	Over average	C. Walton, Clifton
SHROPSHIRE	Average	Under average	Under average	....	....	Partly diseased	Under average	Average	W. Minor, Market Drayton
	Average	Under average	Average	....	...	Blighted	Very good	Average	E. Bowen, Ludlow
WARWICK	Barely average	Indifferent	Light	Not good	Blighted	Good	Very good	Not heavy	J. Ford, Newbold Pacey
	Average	Under average	....	Under average	Average	Diseased	Good	Under average	W. Gibbs, Stratford
	Average; greatly damaged	Under average	Under average	Much under	Average	Various	Various	Under average	——, Coventry
	Average	Under average	Under average	Average	Under average	Blight	Various	Hardly average	J. W. Burbery, Kenilworth
LEICESTERSHIRE	Over average	Average	Under average	Average	....	....	Late	Light	T. Spencer, Knossington
NORTHAMPTON	Above average	Under average	Under average	Hardly average	Fair	Uncertain	Partial	Average	J. Whitwell, Peterborough
	Full average; good quality	Short straw; average yield	Very light	Average	Average	Good	Good; late	Good	J. B. Smeeton, Naseby
	Full average	Much under average	Below average	Under average	Average	Blight	Growing fast	Short	W. Gray, Courteen Hall
RUTLAND	Average	Under average	Average	Under average	Average	Good	Various	Average	W. Fancourt, Empingham
NORFOLK	Over average	Average	Under average	Below mark	Average	Good	Various	Light	——, Bristow
	Over average	Various	Poor crop	Average	....	Diseased	Good	Average	W. Cubitt, North Walsham
	Good average	Under average	Under average	Under average	....	Small	Various	Under average	T. Brown, Denver
	Less straw; average yield	Less straw; fair average	Thin crop; under average	Short straw; poor crop	Hardly average	Small; but good	Promising	About average	W. H. Taylor, Wymondham
SUFFOLK	Heavy; but suffering from rain	Good; but sprouting	Pretty good	Blighted	Light	Diseased	Various	Superb	C. Welton, Wickham Market
	Full average	Bare average	Fair crop	One-third under	One-third under	Good	Partial	Light	H. Edwards, jun., Woodbridge
	Above average	Average	Average	Under average	Average	Poor	Under average	Good	G. Edwards, Framlingham
	Average	Under	Under	Under	Under	Average	Indifferent	Short	L. O. Cottingham, Saxmundham
ESSEX	Average	Perhaps average	Under average	About average	Under average	Good quality	Promising	Very fair	A. Barfield, Dunmow
	Over average	Rather below	Below	Average	Below	Below	Average	Average	R. Baker, Writtle
	Over average	Average	Not average	Not average	Average	Small	Good	Not average	W. Hutley, Witham
	Above average	Above average	Good	Blighted	Blighted	Good	Good	One-third less than last year	C. Hall, Romford
	Over average	Under average	Not near average	Not average	Under average	Fair	Various	Full crop	I. J. Mechi, Tiptree
CAMBRIDGESHIRE	Over average	....	Not average	Not average	....	Small as yet	....	Good	A. S. Ruston, Chatteris
	Above average	Average	Not quite average	Below	Average	Good as yet	Good	Large crop	Page Howard, Granchester
HUNTINGDON	Above average	Below average	Below average	Below average	Below average	Average	Average	Over average	R. Beart, Godmanchester
	Full crop	Light	Bad	Light	Average	Very good	Good	Light	P. Purves, Brampton
HERTS	Good and plentiful	Not very good	Very fair	Variable	Very good	Fair	Good	Moderate	C. F. Humbert, Watford
BUCKS	Over average	Under average	Average	Average	Average	Diseased	Good; late	Scanty	W. G. Duncan, Bradwell
BEDFORDSHIRE	Over average	Under average	Bad	Bad	Average	Good	Good	Over average	W. Lavender, Biddenham
WORCESTERSHIRE	Full average	Under average	Under average	Under average	Various	Blighted	Improving	....	H. Hudson, Pershore
	Average	Near average	....	Average	Under average	Over average	Fair	Over average	R. Smith, Droitwich
HEREFORDSHIRE	Over average	Average	Under average	Average	Blighted	Some blight	Average	Over average	R. Bennett, Leominster
	Over average	Average	Average	....	....	Average	Over average	Over average	H. Pride, W. Monmouth
	Average	Not average	....	Good	Full crop	Good	Good	Very good	W. Price, Ross
	One-sixth above average; very wet weather	One-sixth under average	Average	....	Bad	Blighted	Average	Average	J. Muscott, jun., Hereford
	Over average	Average	Average	....	Blighted	Diseased	Average	Over average	J. Mathews, Blakemore
	Above average	Very heavy	Full average	Average	Blighted	Good; various	Promising	Good	P. N. Edwards, Hereford
MONMOUTH	Over average	Over average	Deficient	....	....	Diseased	Never better	Over average	G. R. G. Relphe, Usk
	Over average	Average	Average	Average	Blighted	Good	Middling	Average	T. Dyke, Monmouth
	Good	Middling	....	....	Good	Good	Various	Good	W. H. Little, Abergavenny
GLOUCESTERSHIRE	Not above fair average	Promising	Fair crop	Short	Well podded	Good; diseased	Improved	Good	J. Kearsey, Tarlton
	Full average	Average	Average	Not average	Various	Good; diseased	Promising	Good	J. F. Peacey, Winchcomb
	Good	Good	Middling	Good	Good	Good	Good	Good	G. N. Hulbert, Bagenden
	Very good	Various	Very good	....	Average	Look well	Very good	Various	C. L. Denton, St. Briavels
BERKS	Over average	Average	Under average	Average	Over average	Average	Good	Good	J. Adnam, Newbury
	Average	Under average	Average	Average	....	Promising	Good	Good	E. W. Moore, Coleshill
SOMERSET	Over average	Average	Under average	....	Average	Diseased	Very fine	Two-thirds of crop	J. W. Eastment, Wincanton
	Over average	Slightly under average	About average	Average	Average	Diseased	Very good	Over average	C. P. Collyer, Dulverton
WILTS	Fair—a little sprouted	Various	Very middling	Fair	Middling	Diseased	Good	Good	T. Arkell, Swindon
	Over average	Average	Average	Average	Average	Badly diseased	Very good	Over average	J. R. Maskelyne, Calne
	Good for this district	Not quite average	Deficient	Good	Good	Haulm blighted	Good	Very good	J. Charles, Chippenham
	Not so good as expected	Good	Under average	Good	Good	Good	Good	Good	G. Brown, Avebury
	Average; blighted since rain	Over average	Under average	Average	Average	Partly diseased	Good	Very good	T. Chandler, Aldbourne
SURREY	Considerably over average	Below average	Below average	Bad	Very good	Good	Very good	Average	J. M. Paine, Farnham
KENT	Much over average	Under average	Under average	Average	Under average	Partly diseased	Very good	Not average	R. Matson, Wingham
	Over an average	Good, but half injured by wet	Average	Three-quarters of average	Various	Diseased	Various	Fair	W. Manser, Ramsgate
SUSSEX	Over average	Average	Average	Under average	Average	About average	Not average	Not average	J. Brotherston, Robertsbridge
	Over average	Average	Average	....	Good	As yet good	Good	Light	H. E. Sadler, Chichester
HANTS	Over average	Barely average	Barely average	Average	Average	Very good	Improving	Hardly average	S. Hayward, Folkington
	Full average	Under average	Under average	Various	Average	Diseased	Partial	Average	J. W. Clark, Romsey
	Over average	Average	Average	Average	Over average	Over average	Good	Good	E. J. Lance, Farnborough
	Over average	Average	Average	Average	Average	Average	Average	Average	W. C. Spooner, Eling
	Over average	Average	Average	Average	Average	Good	Good	Good	J. Blundell, Bursledon
	Over average	Under average and coarse	Under average	....	Average	Good as yet	Late	Well got	J. T. Twynam, Winchester
	Over average	Average	Under average	Under average	....	Good	Improving	Good	H. Raynbird, Basingstoke
DORSET	Over average	Under average	Average	Average	Average	Bad	Good	Good	J. Furmedge, Beaminster
	Over average	Average	Average	....	Good	Much blighted	Good	Good and well made	W. Voss, Corfe Castle
	Over average; ears well filled	Full average, but coarse	Average crop	Good	Good	Much diseased	Generally good	Good and well made	W. J. Pope, Bridport
	Over average	About average	Average	....	....	Under average; partly blighted	Promising	Over average	R. Damen, Dorchester
DEVONSHIRE	Average	Over average	Average	....	...	Diseased	Average	Large crop	S. Cornish, Stancombe
	Average	Average	Good crop	....	....	Average	Good	Heavy	T. Michelmore, Bury Pomeroy
	25 bushels	32 bushels	36 bushels	...!	....	4 tons	Promising	Average	W. E. Rendle, Plymouth
	Over average	Average	Average	....	....	Blighted	Good	Over average	G. Langdon, Barnstaple
	Light straw; well filled ear	Under average	Under average	Good	Full average	Diseased	Improved	Abundant	——, Exeter
	Average	Good	Average	....	....	Good, but diseased	Various and bad	Over average	J. Benson, Tavistock
CORNWALL	Over average	Under average	Under average	....	....	Much diseased	Partial	Good	J. Wills, Launceston
	Full average	Average	Over average	....	....	Much diseased	Good	Good	J. Michel, Truro
	Average	Average	Over average	....	....	Very bad	Very good	Over average	J. Tresawna, Probus

FARM NEAR CHELMSFORD.

Upon the 20th of July we carried our crop of early Rye. This has been since threshed and is found to yield about 5 quarters per acre of very fine quality. The straw is very valuable for thatching, or for use in brick yards, and will produce about 3*l.* per acre. If the deficiency in price from Wheat to Rye was not partly compensated by the increased value of the straw, it would be an unproductive crop as far as remuneration goes upon land that will produce Wheat.

Since the Rye has been removed, all the land has received repeated ploughings and scarifyings; has also been manured, and is now in full plant of Turnips, Cabbages, and Coleworts.

The land upon which the early crops of Rye, Vetches, &c., were produced have been sown with Turnips, and for the most part are excellent in plant. Still upon that portion where Vetches were taken the plant is less perfect, and the growth is not so regular, but in every instance where Rye was previously grown, they are vigorous, full in plant, and promising.

In our last report we adverted to having ploughed up the Italian Rye-grass upon one field by the middle of May; this field was brought into perfect tillage by the middle of June, and has now a crop of Swede Turnips, which are growing most vigorously. During this season the attack by fly has been very limited upon Turnips, indeed on some pieces none whatever were seen; during the whole of the previous season, 1856, they were on the contrary more plentiful than we ever before remember to have witnessed.

Notwithstanding the long drought to which we have been subjected our Mangel Wurzel has progressed amazingly well. Many roots a week ago had attained the circumference of 24 inches, and the leaves touch each other in rows planted 30 inches apart; fortunately they had been set out rather too thickly, being 15 to 16 inches apart only, and being almost destitute of other green food we are now drawing the roots alternately and cutting them up together with the leaves for cows and neat stock, and we do not see under the circumstances that we could bring them to a more profitable account, the leaves producing an increase of milk beyond that of any other vegetable. The Mangel Wurzel under proper management may be rendered serviceable throughout the whole year. The crop amounts now to 27 tons per acre, and there is but little doubt that the quantity withdrawn will be compensated to nearly the full extent by those that remain having a wider space to grow upon, and a free circulation of air to accelerate its action. We are desirous of communicating this fact to show that upon highly cultivated land the Mangel Wurzel may be cultivated as a most productive and beneficial summer crop.

The second math Clover is so restricted in its growth by the drought as to become of little value for a hay crop, but the high temperature and great amount of light has rendered it likely to produce a full crop of seed, which is fast approaching maturity; and we believe the crops of seed Clover are likely this year to be very productive.

All descriptions of cattle food are exceedingly scarce many of the pastures are bare and of a dark russet colour; the late showers, however, are beginning to produce their effects, and a continuance of rain would doubtless still produce abundance of pasture feed.

The harvest proceedings we next advert to. They commenced upon this farm upon the 25th ult., and until Wednesday 5th proceeded without interruption from rain; up to that day two Wheat ricks, one Barley, and one Oat rick had been housed, and full preparation was made for clearing 25 acres more on the 5th; but the morning was attended by light rain, and no carting could be effected; on the following morning a fine rain attended by thunder took place, and the weather has continued slightly showery up to Wednesday the 12th, which day was only partially fine; the consequence is that although we have carried Wheat and Oats at intervals since the rain we have secured none in fine order. This day, Thursday, we are making up lost time, and shall probably carry 20 acres in excellent order; that will nearly complete our Wheat harvest, and certainly one of the most prolific we remember; the quantity of straw being also large. It is evident, however, that the red Wheat is better proportionately than the white. We grow several varieties—the Hopetoun White and Large Prolific Red appear the most productive. The Browick Red is fine, but the ears are smaller, and it appears best adapted to light soils; it is a delicate Wheat, and upon a light soil last season was the best grown here; but this year it is sown upon a chalk clay, and as it appears with less success. We are quite satisfied with the yield, having threshed a portion of White Hopetoun Wheat which produced 40 bushels per acre, and this not the best we grow. We flatter ourselves that the whole yield will reach that quantity, the weight 64 lbs. per bushel.

The Barley upon this farm has been partly carried, a portion without rain since it ripened, and it is of a beautiful silvery appearance, but the effect of rain upon the remainder has decidedly improved it for malting purposes. That is almost invariably the case provided it is not subjected to its effects too long, and in too large quantity. The sample is good upon this farm, but not very superior; the quality generally was said to be otherwise before the rain. Oats are also cut and carried, and the sample of those secured before the rain is very fine.

We grow a limited breadth of Potatoes, which are still looking well, and for the most part free from disease; but the tubers are throwing out new shoots, and a second crop of young Potatoes is now forming. Where the rain has fallen heavily the disease is more apparent, but here we have had but a small quantity, on the aggregate barely enough to secure the Turnips from injury.

All hands will be now directed to the autumnal cultivation of the land. We begin by removing the patches of Couch with forks, then plough and scarify, in other cases broad share, as the land may be required for ensuing crops. The maxim laid down is to plough or broad share all the fields in grain crops not sown with Clover before the period of Wheat sowing commences. This in addition to stirring the late fallows after Tares and Clover, and carrying some 300 to 400 loads of manure on for Wheat, will occupy the utmost assiduity and energy to effect.

Pleuro-pneumonia is again very prevalent. We have lost several within the last month, and no remedy appears at hand except that of inserting setons just behind the shoulders on both sides. This has already arrested the disease, and may probably succeed in preventing its extending further, in addition medicine of an alterative character is administered.

The hazard to purchasers of neat stock is very great, and the introduction of the disease upon a farm is a very serious matter. In our case we invariably send newly purchased animals to a distant farm, where they undergo quarantine, and fortunately this case was not an exception. *W.* [Many thanks: we have to apologise for a possibly imperfect correction in the absence of your letter.]

VENTILATION OF THE COTTAGE.

[From the Journal of the English Agricultural Society.]

The Rev. C. Wakley, of Collumpton, makes the following remarks on the same subject:—

"Cottages for the most part are without sufficient ventilation, particularly in the upstairs apartment, this being almost invariably without a chimney, with a low window, commonly about 2 feet from the floor, and having no ceiling; therefore the thatched roof, lofty in itself and full of cobwebs, contains the foul air; and in several instances I have been the means of restoring health apparently by blowing gunpowder in cases where fever has raged for months, the ground-floors being often damp—very seldom above the level of the land."

It need be hardly said that a system of ventilation for a labourer's cottage should be simple in its character, cheap in its construction, and effective in its operation.

The smoky chimney too often accompanies bad ventilation; both proceed from the same cause—insufficient supply of fresh air.

In the accompanying plans, Pearce's ventilating grates are used, which, as they draw a supply of oxygen from the external atmosphere, diminish the chance of smoking; at the same time they give to the rooms a continuous and unlimited supply of fresh air warmed to a moderate temperature over undeleterious surfaces. The operation of these grates will be understood from the accompanying sketch (see Fig. 7): Fresh air is supplied by a pipe A to an air chamber B formed of fire-lump. This air, when sufficiently heated, passes by a pipe C through a valve D into the room. The vitiated air escapes through one of Dr. Arnott's valves E into the chimney. We would strongly advise the use of these air-traps; they can be obtained of nearly every ironmonger, at a cost of from 6*s.* to 12*s.*

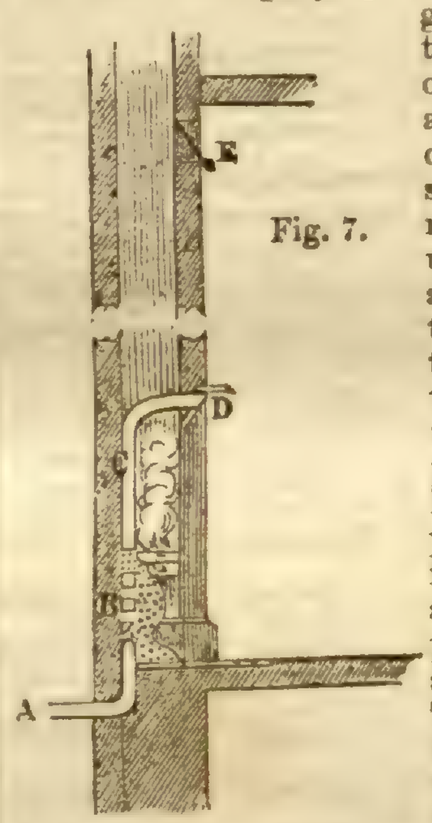

Fig. 7.

Dr. Arnott, in a letter to the *Times*, dated Sept. 22, makes the following remarks on them:—

"For years past I have recommended the adoption of such ventilating chimney openings as above described, and I have devised a balanced metallic valve, to prevent, during the use of fires, the escape of smoke to the room. The advantages of these openings and valves were soon so manifest, that the referees appointed under the Building Act added a clause to their bill, allowing the introduction of the valves, and directing how they were to be placed, and they are now in very extensive use. A good illustration of the subject was afforded in St. James's parish, where some quarters are densely inhabited by families of Irish labourers. These localities formerly sent an enormous number of sick to the neighbouring dispensary. Mr. Toynbee, the able medical chief of that dispensary, came to consult me respecting the ventilation of such places, and, on my recommendation, had openings made into the chimney-flues of the rooms near the ceilings, by removing a single brick and placing there a piece of wire-gauze, with a light curtain-flap hanging against the inside, to prevent the issue of smoke in windy or gusty weather. The decided effect produced at once on the feelings of the inmates was so remarkable, that there was an extensive demand for the new appliance, and, as a consequence of its adoption, Mr. Toynbee had soon to report, in evidence given before the Health of Towns Committee and in other published documents, both an extraordinary reduction of the number of sick applying for relief and of the severity of diseases occurring. Wide experience elsewhere has since obtained similar results. Most of the hospitals and poorhouses in the kingdom now have these chimney-valves; and most of the medical men and others who have published of late on sanitary matters have strongly commended them."

It is important that one casement in every window should be made to open, for although such an arrangement will not effectually ventilate, yet it materially assists ventilation. It will be observed that the door between the living-room and wash-house is made to open towards the fire. The reason of this arrangement is best explained by an extract from Tomlinson's work on ventilation:—

"Chimneys which otherwise draw well will often smoke from the improper situation of a door. Thus when the door and the chimney are on the same side of the room, and the door, being in the corner, is made to open against the wall, as is usually done, to have it more out of the way, it follows that when the door is partially opened a current of air rushes in and passes along the wall into and across the opening of the fire-place, and whisks the smoke into the room. This happens more frequently when the door is being shut, for then the force of the current is increased, and persons sitting near the fire feel all the inconvenience both of the draught and the smoke. A remedy may be found by an intervening screen, projecting from the wall and passing round a great part of the fireplace, or still better, by shifting the hinges of the door so as to throw the air along the other wall."

When the bedrooms are formed either partially or wholly in the roof, their cubical content is diminished, and the difficulties of ventilation proportionably increased. The accompanying plans are designed in accordance with this principle, no portion of the bedrooms being constructed in the gable; consequently their cubical content is considerably above the average of cottage rooms. *Mr. Isaac in the English Agricultural Society's Journal.*

HINXWORTH DRAINAGE.

As the party perhaps most deeply interested I have watched attentively the several discussions with reference to the drainage operations at Hinxworth, which have appeared from time to time in your columns and in those of your contemporaries.

Considering that the heavy lands of this kingdom offer in their normal condition great discouragement to the tiller of the soil, I can conceive no subject which ought more readily to secure the combined efforts of all scientific and practical men than the perfect ventilation of this question—How to devise the most efficient and practical means of relief? No attachment to any so-called system or preconceived opinions ought to prejudice our efforts in this cause, which must ultimately increase production, forward the best interests of both owner and occupier, and supply the surest means of that constant steady employment which after all is the real "labourer's friend."

Mr. Trimmer, in a letter on "the Keythorpe System of Draining," which appeared in your Paper of August 8th, after dealing somewhat sharply with his opponent, takes "a final leave of the controversy on this subject." I am quite alive to the fact that we are much indebted to Mr. Trimmer for his works on geology and agriculture, and should therefore regret the more the absence of such a high authority in the ultimate settlement of certain disputed points, *adhuc sub judice.* It may be a question, moreover, whether after having thrown the gauntlet down, he can retire thus abruptly from the contest with all the honours of war.

If you will allow me I will make one or two observations on the following passage in Mr. Trimmer's letter respecting the Hinxworth tables,—"I have not the slightest doubt that the water ran off the clay. I should require much stronger evidence than that furnished by the two months published experiments at Hinxworth. I know at least three ways in which it might have found its way into the drains without accepting the astounding conclusion, that water passes more rapidly through retentive than through a porous soil."

As the basis of argument, we may assume that the gault clay at Hinxworth is sufficiently homogeneous to satisfy the most fastidious, and that it is so close in texture as not to be permeable in the ordinary acceptation of the term. That these tables require confirmation I quite admit. I have spared and shall spare no pains to observe and record accurately the results of these drainage operations, in the hope that they may in a certain extent contribute the confirmation required.

During the last nine months I have watched narrowly the discharge from the outlets at Hinxworth; my conviction is that the water does percolate through the pores of the clay, not over it, to the 4 feet drains. I believe moreover that under certain conditions water is discharged more immediately after rain from heavy clays, which always retain a large quantity of moisture, than from more porous strata which after periods of drought absorb and hold in suspension for a certain period large quantities of the water falling upon them.

During the late dry months these outlets, with hardly an exception, ceased to run; but immediately after indeed almost simultaneously with the late rains, many of them again discharged freely. I was at Hinxworth on Friday last, the rain having only ceased that morning at 7 A.M. When the outlets were measured at 1 P.M. those from the fallows and land under green crop, all of which have been more or less deeply cultivated, discharged severally 6, 15, 21, 31, and 45 gallons per minute; those from the adjoining land of similar texture under cereal crop were dry. At the same time no water stood upon the surface.

These facts would appear to strengthen the disputed opinion as to the permeability of clay soils thoroughly drained, and may throw some light on what one of my contemporaries terms "the new dictum of the percolation of water through homogeneous clay." The simple question which suggests itself is—By what process is the enormous quantity of water I have recorded discharged from these drains? By percolation through the clay, or, as Mr. Trimmer suggests, *over* it.

One word as to these drainage operations at Hinxworth and their results. I am glad to have this opportunity of thus publicly expressing my thanks to Mr. Denton for the efficient and (as the tables of cost prove

lished in your last Paper prove) economical manner in which great improvements have been carried out there. I feel much indebted to him no less for his judicious arrangements than for the masterly manner in which the different works have been now all but brought to a conclusion by means of a most efficient staff under his control. By not committing himself to any one system, but by dealing with the several varieties of soil according to its close or porous texture, by parallel or occasional drain, Mr. Denton appears to me to adopt the common sense view of this difficult question.

The professional man who has at his command the most ample and varied means of relief will necessarily effect practically the largest amount of good, and will establish his reputation upon a broad and therefore sound basis.

As I now occupy 300 acres of the heaviest land at Hinxworth, I shall be enabled to record any facts which may appear likely to throw any light on these disputed points, and I shall feel pleasure in giving every reasonable facility to those persons who may feel disposed to see on the spot what has been done there, and who may thus be enabled to judge for themselves. *Robert Clutterbuck, Watford House, August* 12.

ON CORN RENTS.

A number of applications having recently been made on the subject of corn rents, indicating on the part of individuals connected with land a desire to avail themselves of the benefits attending this mode of payment, I am induced to offer some observations of an explanatory character respecting the working of the system, which I have had ample opportunities of witnessing in this part of the country, where it has been long in universal operation.

Although the system of convertible corn rents works beneficially, promoting in various ways the interests of both landlord and tenant, and is in itself sufficiently simple; yet some degree of caution is requisite on the part of those who propose adopting the system *de novo*.

The first point to be determined is of course the quantity and kind of corn to be paid as rent; the second, the selection of the particular price or sum which shall constitute the standard by which the money value of the corn shall be ascertained, for the rent though estimated in corn is of course not paid in kind but in money. The first of these questions, the quantity and kind of corn to be paid as rent, will of course be determined by the quality of the soil, and other circumstances of a local character affecting the value of land; while, with respect to the second, the proper standard of commutation, there exists a considerable diversity of opinion, some supposing the average price of corn for the entire kingdom for seven preceding years, and some the average price of some particular market town, to constitute the true standard. This, however, is not the case, as we could easily show did our space permit; and in Scotland we accordingly find the sum chosen to be the average price of the crop and year of each county, annually determined by the sheriff and a jury, and called here "fiars prices." In England, however, fiars prices do not exist, but something similar is weekly published in the shape of "the averages" of each county; and such averages are, and should be chosen as the only true standard for converting into money the corn rents of all farms within the boundaries of each county respectively.

It has been objected to the corn rent system that it works injuriously in years distinguished by the peculiar scarcity of the crops, as well as in those rendered remarkable by their unusual abundance; in the former case causing the farmer to pay high rent with diminished means, in the latter lowering the landlord's rent below the average standard of ordinary seasons. This feature of the system, however, has been entirely mitigated in this country by the adoption of a maximum price, by which the claim of the landlord is limited, while his interest on the other hand is usually guarded by a minimum, below which his claim does not fall. There can be but one opinion as to the propriety of the former limit as to price, but I am disposed to doubt whether the minimum limit can be reasonably insisted on, on our advent to Free-trade times, especially as we are yet in ignorance as to what will be the average range of prices under the new regime of unrestricted competition.

An important feature of the corn rent system is the principle of self-adjustment, which distinguishes it from a fixed money rent, arranging, so to speak, on principles of impartial justice, and amid all fluctuations of price, however violent, the just amount of rent, and this without necessitating a recourse to those eleemosynary deductions so prevalent in England, and which are every now and then paraded as "benevolence" on the part of the landlords. Think of the benevolence of a deduction of 5 or 10 per cent. to a tenant whose means of payment have been reduced 30 per cent., as has been the case in recent years, and by causes beyond his calculation or control! These announcements of per centage deductions at the annual audits of country gentlemen are especially characteristic of English provincial journals, but are never found in those of Scotland, and the reason is, not that Scotch landlords are less liberal than their English brethren, or that Scotch rents are less in amount, for the reverse is the fact; but the true reason is to be found in the universal prevalence of corn rents, which, by that inherent principle of self-adjustment above alluded to, arrange the amount of rent in conformity with the range of prices in the corn market, whatever the amount of fluctuation may be, or from whatever cause arising. Another important feature of a convertible corn rent is its capability of smoothing the difficulties of periods of agricultural distress; for whatever be the cause of these periodical visitations, their pressure is unquestionably aggravated by the circumstance that rent, in England especially, is a fixed sum—an unchanging charge upon the land; whereas the source whence rent is derived—namely, the produce of land, varies with the season in quality and amount, and hence in value, and an unprovided means of meeting this difference between the character of rent and the source whence rent is obtained cannot be regarded otherwise than as an evil of great magnitude, and productive of agricultural distress and difficulty. A properly apportioned convertible corn rent, however, by fluctuating as prices fluctuate, places the landlord and his tenant in their true relationship, under all circumstances, by guarding the interest of each, whatever the value of farm produce.

Two great distinctive features between the agriculture of Scotland and that of England are, the prevalence in the former country of leases for 19 years, and corn rents payable in money; and to these two circumstances do we attribute the fact, that in Scotland all changes in the value of produce, whether arising from political or other causes, are less severely felt than in England. Hence the cry of agricultural distress is ever less loud here than in the latter country; and hence also the reason why rents in Scotland are steadily advancing, although the principle of unrestricted competition in grain has been finally affirmed by the Legislature. This latter fact—the rise of rent in the face of free trade in corn—would be regarded as anomalous, and difficult of explanation, were it not that the universal prevalence of leases, and corn rents convertible into money at the average prices of the respective counties for each crop and year, impart to both landlords and tenants an amount of confidence which no other arrangement could confer—the lease securing the interest of the tenant, and leaving him free to fully exert his enterprise, and invest his capital, in stimulating to the highest pitch the productive capabilities of the soil; the convertible corn rent securing to the landlord his full and fair share in the produce of his estate, whatever the range of prices during the currency of the lease, while the tenant on the other hand is assured that his rent, by being estimated in the time's price of produce, shall be the fair annual value of his farm for the time being.

That the combined influence of leases and corn rents has tended in an important manner to promote the success which distinguishes Scotch agriculture, I entertain not the shadow of doubt, and therefore it is that I am induced to commend them to the serious and favourable consideration of the landowners and tenantry of England. *Mr. George Rich, of Preston Mains (Jan., 1853), quoted in Mr. Cowan's Pamphlet on Corn Rents.*

Home Correspondence.

The New Manure.—The gardener at Heath Old Hall has a series of trials of the manure upon various crops. Sown broadcast upon Radishes it killed them. Ground forked over and resown grew the finest crop he ever saw. Beans.—A large quarter manured with nothing else; a good crop. Beans in this district a complete failure. Farmers will give their crops for the cost of reaping and removal. Potatoes.—One quarter tried against ordinary dung: larger and stronger tops, and much darker colour. Another quarter nothing but the new manure: potatoes planted a yard apart every way; cover the whole ground with healthy and luxuriant tops. No Potatoes could promise better. Savoys look very well. Strawberries.—One row of a quarter dressed in spring: the foliage is much larger and darker, and the gardener says the fruit was as superior to the other as the foliage is. Dahlia.—Mr. Phillips, Wood Street, Wakefield, mixed one part of the manure with eight of earth and applied it to one of his Dahlias. It is described as half as large again as any of the others. Mr. J. Whitaker, Gas Works, Wakefield, has applied it diluted with four times its bulk of earth to every other of a long row of Dahlias. The application was made too late in the season for its full benefit to be witnessed, still the improvement is most marked. *W. B., Wakefield.*

Mangel Wurzel Bread.—Amongst the methods of economising Wheat in bread, the addition of Mangel Wurzel must not be overlooked, especially in country places. Not only is it a highly nutritious and productive root, but the juice of the sweetest varieties would make the bread as sweet as a cake. Quantities of it were brought forward last year at Tiptree Hall, and at Mr. Wilkins' meeting at Reading, said to be equal in appearance to second-rate bakers' bread (though containing 50 per cent. of Mangel Wurzel), and to be hearty, wholesome, and palatable. It seems probable that the Mangel Wurzel is steamed and pulped through a sieve; and more or less of the sweet juice being drawn off, according to the purpose (or palate) of the maker, the pulp is worked with the flour, &c., into dough. But it is very desirable to have the experience of those who have tried different methods with eventual success. *J. Prideaux.*

The Keythorpe Drainage.—As my funny friend Mr. Trimmer has in his usual style connected my name with the Keythorpe drainage—which is (only) peculiar (as I have before said) from its having been executed 18 inches deep with straw and bushes in the year 1854, and because it has had an eminent geologist for its historiographer, I beg to be allowed to disclaim most decisively any connection with it. However much I may enjoy the pleasantry of Mr. Trimmer's occasional sallies, and benefit by his more serious essays on that science to which he has devoted so much attention, I am not at all likely to adopt a mode of draining which I am bound in self-defence to state is unworthy of the age in which it was executed, and is no more deserving of the able writing and pleasantries of Mr. Trimmer, or the distinction given to it by the President of the Royal Agricultural Society of England than any work executed a century back when clay soils were deemed impenetrable by water, when drain-pipes were not invented, and when Walter Bligh might have been the historiographer and not Mr. Trimmer. The fact that the drainage executed under my superintendence in Cheshire gained a prize, and that judges when awarding that prize spoke of the Keythorpe drainage merely proves what I have ventured before to state, that Mr. Trimmer's description and the practice he has described are two very different things, and that "occasional" or "partial and irregular" draining, as suitable to irregular soils and surfaces, has been and is practised by other people besides Lord Berners. As Mr. Trimmer has again spoken of me as one adopting the Keythorpe system (!) I cannot resist the opportunity of saying distinctly that if any one in my employment, or in the service of the company with which I am connected, were to dig a drain 2 feet deep, or to use straw and bushes, or to lay out his drains systematically across the fall (unless there were, as at Lyme, slacks and hollows specially requiring drains) he would be dismissed instantly as one unworthy employment. The only peculiarities which signalise the drainage at Keythorpe are those which are inadmissible with those who have learnt the lessons of experience. As to the different modes of draining adopted in the instance to which Mr. Trimmer refers, I may be pardoned if I quote the following paragraph of my Letter to Lord Berners. It will explain the principles upon which different modes may be adopted even in the same field: "Parallel equi-distant drainage is a method as correct for homogeneous soils with regular surfaces, uniformly wet, as it is wrong for soils either varying in constitution or inclination, or only partially wet; and, by the same reasoning, partial or irregular draining applied to uniform soils and circumstances, would be as erroneous as it is correct when applied to soils and surfaces of irregular condition." As to the Hinxworth tables, they will be published in full as an appendix to the Referees' Report on the London drainage, and will be open to the scrutiny of all parties interested. The fact that the clay soils, extending to several hundred acres, uniformly discharged a larger proportion of heavy rainfalls than the freer soils was proved in the presence of Mr. Clutterbuck, the owner of the estate, and is to be accounted for not by any geological phenomena, but by the simple fact that the clay soils were drained uniformly 25 feet apart, with 105 rods per acre, whereas the freer soils were drained at very wide intervals, sometimes 75 yards asunder, and with less than 20 rods per acre, and it does not require great philosophy to understand that water will pass to drains 12½ feet distant in less time than to those 37½ yards off, even though "clay" does interpose in the lesser distance. *J. Bailey Denton.*

Societies.

Royal Agricultural Improvement: Waterford.—The great annual meeting of the Irish Agricultural Society has been held on Wednesday and Thursday of this week at Waterford. We have not room in our present number for the report of this meeting. This and the list of awards to exhibitors of implements and stock shall be given next Saturday. Meanwhile we may mention that the trial of reaping-machines consisted merely in the successful exhibition of Messrs. Dean and Dray's reaper and of the American and other mowing-machines. No other reaper was on the ground; and in fact all these reapers having now sufficiently proved their efficiency, are the less likely to be submitted by their owners to the awards of judges made after a few hours' trial. The value of an established manufacture and extensive custom consequent upon an already proved efficiency, far outweighs any result that could follow the reception of a society's prize. It is a somewhat singular comment however upon the asserted extensive manufacture of these machines, that we have seen only one of them at work in the field during 1200 miles of journeying by the Great Western, South-Eastern, South-Coast, South-Western, London and North-Western, Shropshire Union, and York and Manchester lines during the past few weeks. As to the live stock department of the Waterford Show there were upwards of 100 cattle shown in the short-horn classes, and 64 of other breeds of cattle; 90 horses; 84 Leicesters, and upwards of 70 of other breeds of sheep; upwards of 80 swine; 100 pens of poultry, and 40 or 50 specimens of dairy produce, flax, &c.

Miscellaneous.

Profits from Good Farming in France.—We give the following particulars, extracted from the *Journal d' Agriculture Pratique*, both to show the benefits of good farming, efficient drainage, use of guano, and the judicious selection of animals and seeds, and also to give some idea of how such things are managed in France. M. Chomel-Adam bought in April 1855 a property near Boulogne-sur-Mer. It consisted of about 112 acres of

wet land, reckoned about the worst in the district, for which he paid about 1400*l.*, or nearly 13*l.* per acre, including the buildings, which were valued at 400*l.* Before the purchase, the rent was 40*l.*, by which the farmer was nearly ruined, and possessed only four horses, five cows, one sow, and some fowls. The farm is now all drained at a depth of about 4 feet, and at a cost of nearly 3*l.* 10*s.* per acre. The crops on it this year, which are far better than those on the neighbouring farms, are equal to, if they do not surpass, those on lands valued at 44*s.* per acre. The stock on the farm consists of five horses, four foals, 18 cows in boxes, some calves, and a number of pigs, all of which have been carefully selected, and are of the best breeds, requiring an abundance of nourishing food. They are in first-rate condition, while the neighbouring farms can scarcely support some poor miserable brutes. For the last three years, a new kind of red Wheat was introduced from England, which has proved one of the most prolific that has been tried in that district, and is not liable to be affected by blight. There are rarely fewer than from 75 to 80 pickles in a head, and sometimes as many as 110 are counted from one head. A patch of ground, very wet before it was drained last year, was sown with this Wheat after two imperfect ploughings, and without any manure. The plot consisted of 6½ acres, which received in spring a dressing of nearly 12 cwt. of Peruvian guano, at the time that the Grass and Clover seeds were sown among the Wheat. The crop at the time this was written was magnificent, the probable produce of which would be about 165 bushels, the value of which for seed would be about 17*s.* per bushel. Thus this piece of ground, which did not exceed 80*l.* in value before it was drained, produced the first year a crop worth 140*l.*, not counting the straw. Besides this, there is a fine appearance of Clover for 1857; a good crop of Oats is sure to follow the Clover in 1858; and in 1859, with an abundant manuring, which the farm will by that time be able to produce, the soil will rank among the most fertile in the district. This has been produced by complete drainage, which cost altogther about 24*l.*, and by an outlay of 8*l.* 12*s.* for guano. Thus have the results of thorough-drainage, a good dressing of guano, and a good kind of Wheat, been sufficient to cover the original cost of the land and all expenses. *Quarterly Journal of Agriculture.*

Calendar of Operations.

AUGUST.

Nottinghamshire.—I beg to inform you that Wheat cutting began partially in this district 29th July, and immense breadths were cut up to Wednesday night, the 5th inst. If the weather had continued fine great quantities would have been secured on the 6th, but about 5 o'clock in the morning on that day the weather suddenly changed, and the greatest quantity of rain ever known in these parts fell in about seven hours; the Wheat stooks were literally saturated with wet, and the weather continuing still showery and very warm much Wheat has sprouted. It is quite evident now that there will be the least bulk of corn known for many years in the stack-yards this season in this district. Wheat is excellent in quality, but very deficient in quantity; Barley, Oats, and Beans in general very light indeed. *C. Walton, near Clifton, Nottinghamshire.*

North Yorkshire: *Aug.* 13.—The weather broke here on Thursday the 6th inst., on which and the following day we had a large fall of rain, so much that in the neighbourhood of Whitby and at Scarborough considerable damage was done by flooding. Several houses and mills were run down with water, accompanied with loss of life to man and beast. Since Saturday we have had moderately fine weather, very warm, and frequent showers with thunder. We have very little harvest as yet, and the damage by the wet will probably not amount to more than an extra expense in reaping. The crops are generally much broken down, and will require much care to harvest properly. In general through the North Riding Wheat may be said to stand thin on the ground, but the ears are bold and well filled and give every promise of good yield. Oats and Beans we consider are both below an average crop. Barley is various, but on the whole up to the general yield in average years. The harvest will be general about the 20th. *"Carabas."—Farm near Guisbro.*

Yorkshire, *Aug.* 13.—Our harvest commenced pretty generally last Tuesday; it would have commenced three or four days earlier but for the very heavy rain we have had. We have had three tolerably fine days, but the rain is setting in again this morning, with a lowering barometer, and every prospect of its continuance. However I may differ from others I consider the Wheat crop again decidedly deficient in our neighbourhood. The ears are not well filled, and there are not so many grains in one ear by nearly one-third as there ought to be. In an abundant year I have always found upon an average (taking a number of the best ears), 80 grains in one ear; if they do not average more than 65, again taking the best, I consider the crop decidedly deficient. This year in our neighbourhood they do not average more than 50, and although the plumpness of the grain may in some degree compensate for the number, yet I am confident that our crop of Wheat will be considerably below an average. *J. Oldroyd, near Barnsley.*

Notices to Correspondents.

Agricultural Statistics: *F N C.* We learn from Mr. Donelly's recently published table that the growth of Flax this year in Ireland is somewhat less than it was last year—98,000 acres against 106,000.

Exposure of Diseased Sheep: *R.* The following is an instance:—A fine of 20*l.* was recently imposed by magistrates in the county of Lincoln, for exposing for sale sheep in the market which were attacked with the scab, and the sheep were ordered to be destroyed.

Food for Horses: *W.* A poney will eat probably ¼ cwt. of Carrots, straw *ad lib.* cut into chaff, and 10 or 12 lbs. of mixed Oats and bran a day.

Horse Power: *R S H.* asks where Dr. Cartwright's clip as a substitute for horse power, described in the *Agricultural Gazette* of June 27 and July 4, is to be procured.

Transplanting Wheat: *G W M.* It would cost you at least 18*s.* to 20*s.* an acre to transplant Wheat. There is no difficulty in sowing Wheat after Mangel Wurzel. Sow Talavera Wheat in February or March. If you have made up your mind to try transplanting sow 20 perch with a peck of seed. This will give you plants enough—one plant to every 4 inches square of land.

JAMES AND FREDERICK HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

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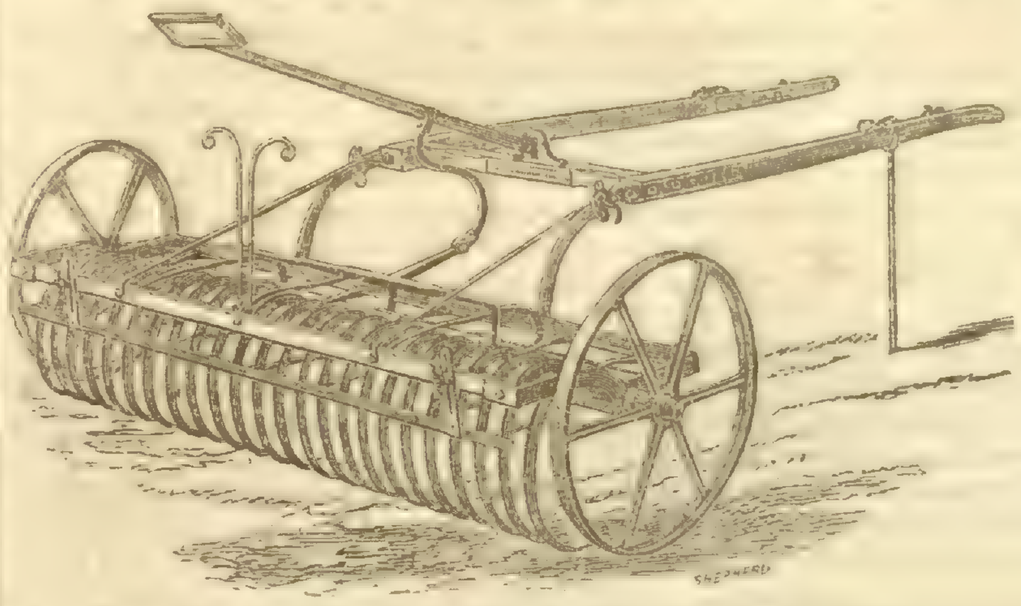

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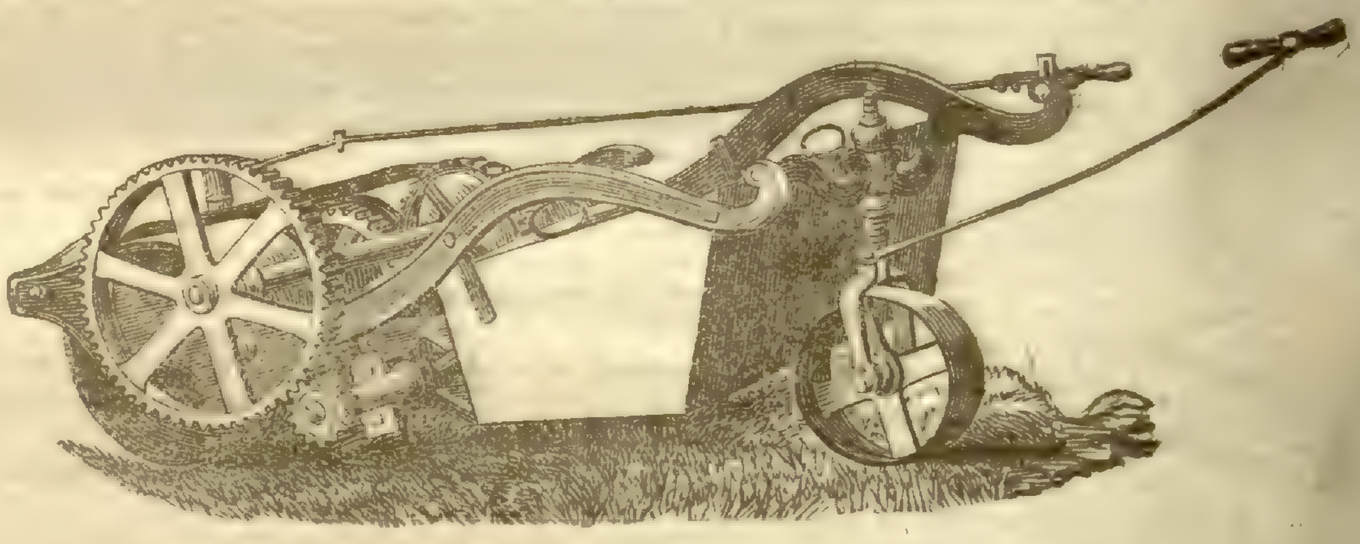

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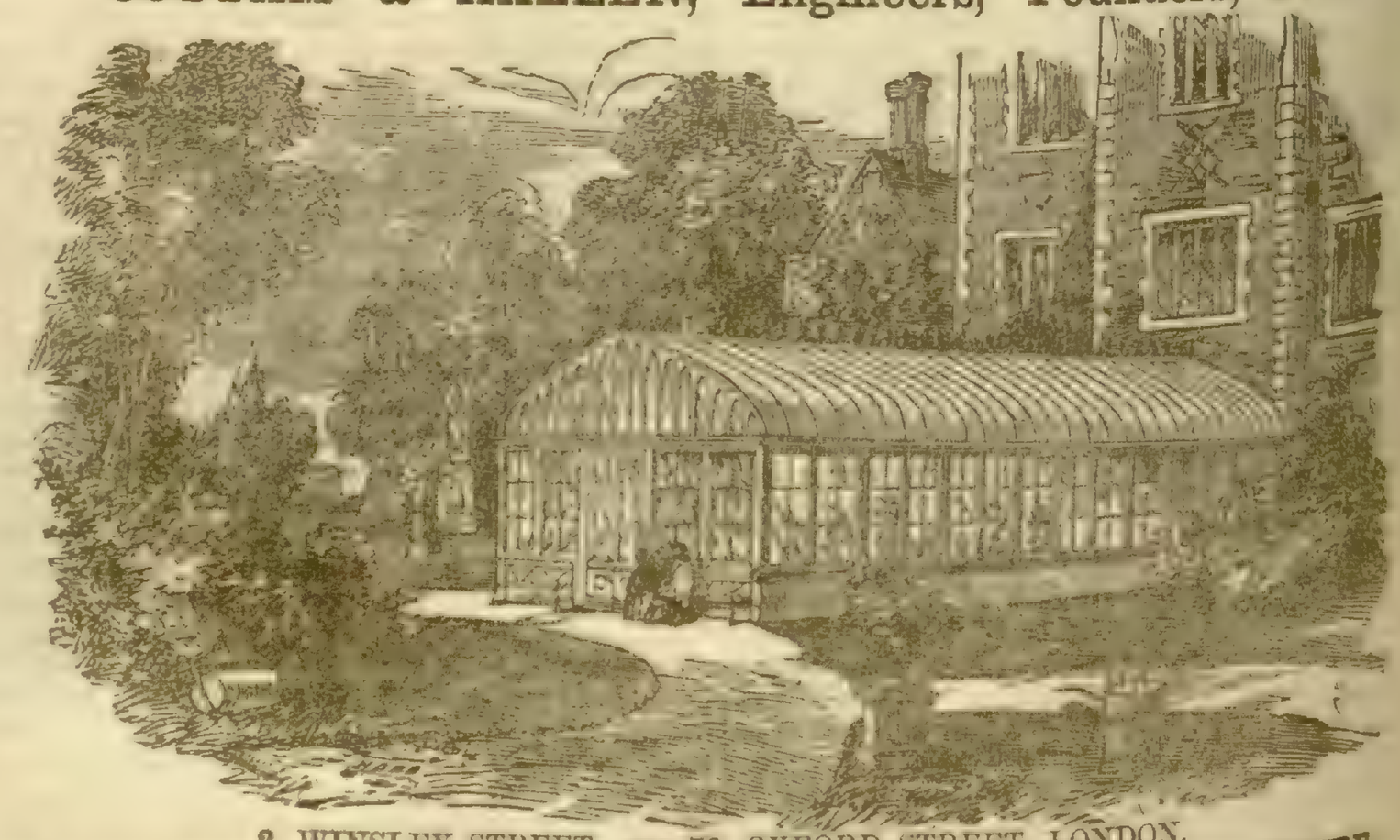

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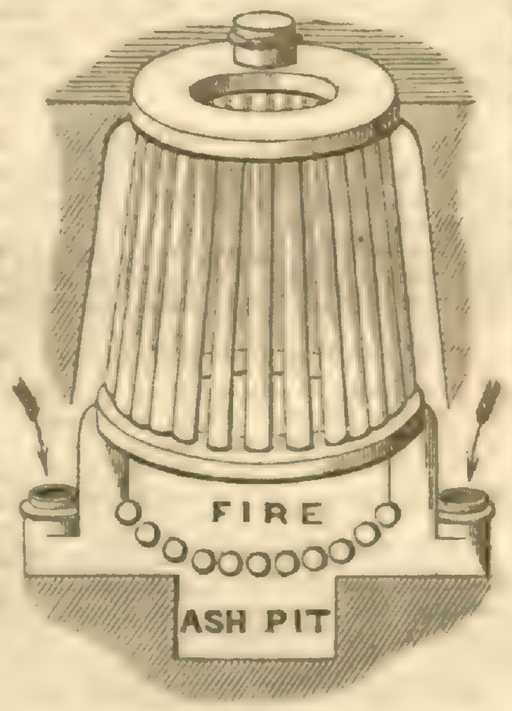

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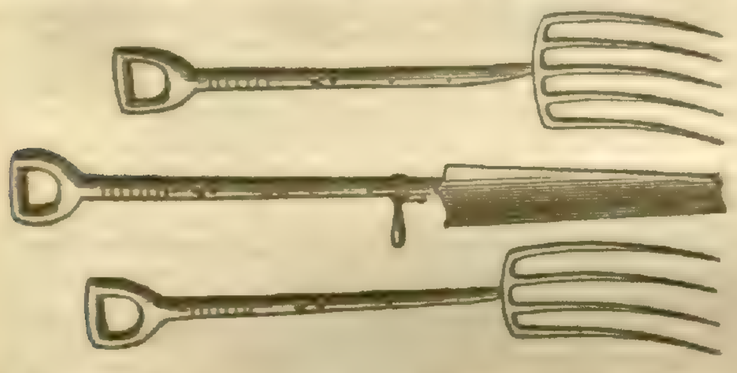

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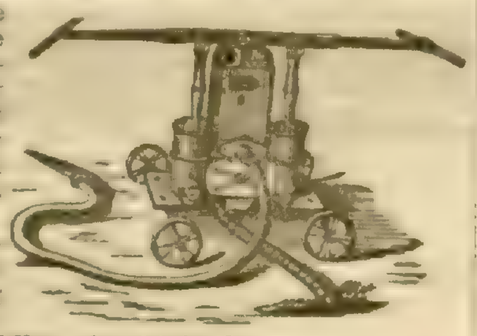

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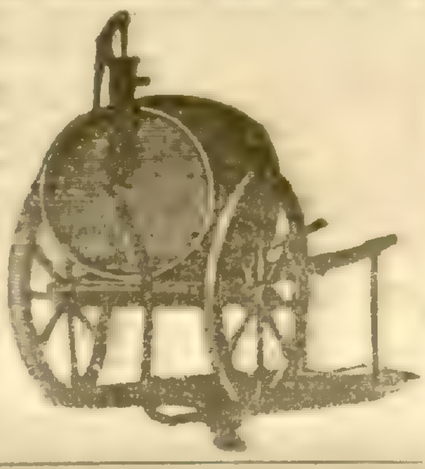

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3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
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A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 35.—1857.] [SATURDAY, AUGUST 29. {Price Fivepence. {Stamped Edition, 6*d*.

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CRYSTAL PALACE.—FLOWER SHOW.—The SECOND GRAND EXHIBITION OF FLOWERING PLANTS, CUT FLOWERS, AND FRUIT, with special separate Prizes for Amateurs and Cottagers, will take place on WEDNESDAY, THURSDAY, and FRIDAY, September 9, 10, and 11.—On Wednesday the doors will be open at 12; Admission, 5*s*. On Thursday and Friday the doors will be opened at 10; Admission, 1*s*. Children, half-price.

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By Order, GEORGE GROVE, Secretary.

Crystal Palace, August 29.

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Persons intending to compete for these Prizes must give written notice to the Honorary Secretary by September 2. Four entries for the Cup will not be given, and no Exhibitor will be allowed to take both prizes. The Honorary Secretary will inform intending competitors whether a sufficient number of entries have been made. Each Exhibitor must find his own stands, and be a subscriber of 10*s*. or upwards to the funds of the Society, which subscription will also entitle him to Show for the general Prizes.

Persons intending to Exhibit for all other Prizes than the Cup must give notice in writing, stating what they intend to Exhibit and in which class, to the Honorary Secretary, by Sunset in the evening of Tuesday, September 8. Prize Lists and Regulations and all further information may be obtained on application to WILLIAM FRYER, Hon. Sec.

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MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

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CUTHILL'S three celebrated sorts of STRAWBERRIES, now sending out. The plants are very fine. A Printed List of them, as well as Cucumbers. Pamphlets can be had. See last week's Advertisement and the Leader.

JAMES CUTHILL, Cumberland, London, S.

DUTCH AND CAPE FLOWERING BULBS.

JAMES CARTER AND CO.'S COMPREHENSIVE CATALOGUE of DUTCH and CAPE BULBS will be published on the 1st of September next, forwarded free of charge and post paid to all parts of the world upon application.

238, High Holborn, London, W.C.

DUTCH FLOWER ROOTS.

JOSEPH MAY AND CO beg most respectfully to announce the arrival of their DUTCH FLOWER ROOTS in excellent condition. Catalogues with prices may be had post free on application.

1, Wellington Street, Strand, near Waterloo Bridge.

DUTCH FLOWER ROOTS.—The Trade supplied by the undersigned at Wholesale Prices. Catalogues free on application.

HUGH LOW & Co., Clapton Nursery, London, N.E.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to state that their DESCRIPTIVE CATALOGUE OF HYACINTHS, &c., can be obtained free on application.

Highgate Nurseries, London, N.

HUGH LOW AND CO. have now ready for distribution their CATALOGUE OF DUTCH BULBS, which will be sent post free on application.

Clapton Nursery, London, N.E., Aug. 29.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

ROBERT PARKER begs to inform his friends and patrons that his NEW PRICED and DESCRIPTIVE CATALOGUE of Exotic Orchids, Stove, Greenhouse, and Hardy Ferns, Selaginellas, Variegated and Ornamental-foliaged Plants, Cactuses, Conifers, Indian Azaleas, Gloxinias, Roses, Show, Fancy, Variegated, and Bedding Geraniums, Fuchsias, Herbaceous Phloxes, Miscellaneous, Stove, Greenhouse, and Hardy Plants, &c., is now ready, and will be forwarded post free on application.—Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, N.

GROOM.—H. MATTHEWS, Son-in-law and successor to the late H. Groom, Florist, &c., Clapham Rise, Surrey, begs to inform the Nobility, Gentry, and Public that his superb collection of LILIUMS is now in full perfection.

Printed Catalogues free on application.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Conifers, &c. His Catalogue may be had on application.

The Nursery, Bagshot, August 29.

ORCHARD HOUSES.

T. RIVERS has the pleasure of informing his friends that his PEACHES and NECTARINES in pots are now in great perfection: they are loaded with fruit in different stages of ripening, and are most interesting to all lovers of this improved mode of cultivation. The most convenient Train is the 11 A.M. to Harlow Station, Eastern Counties Railway.

Nurseries, Sawbridgeworth.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. GLENNY, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 11, Bream's Buildings, Chancery Lane, W. C.

TO BEE KEEPERS.—Sow now for next season LINUM USITATISSIMUM (var. Crimson) for a heavy yield of Honey. [illegible] of Scabious seeds [illegible] Co., Seedsmen [illegible] Plants.—L. PERSAC & Co., Plants, 136, High Street, Exeter.

70,000 [illegible] NURSERYMEN.

for the supply [illegible] STICKS WANTED. The Trustees of [illegible] in Alnwick are [illegible] to receive offers [illegible] JOHN QUINN [illegible] to be delivered [illegible] from 1st FEBRUARY [illegible] to DECEMBER 21st next, [illegible] two years unexpired, and 35,000 three years [illegible] Parties willing to contract must communicate with [illegible] 14, Bondgate Street, Alnwick, Northumberland, and state quantity, kind, and price per 1000. Payment, Cash on delivery.—Alnwick, Aug. 29.

CHARLES M'INTOSH, F.R.P.S., LANDSCAPE GARDENER, GARDEN ARCHITECT, &c., Newhaven Villa, Murrayfield, Edinburgh.

London address, Messrs. T. LAWSON & SON, Great George Street, Westminster.

JOSEPH MEREDITH, GARDEN ARCHITECT and HOTHOUSE ENGINEER, Vine Cottage, [illegible] Liverpool. Heating Apparatus fitted up on the [illegible] principle. First class references may be had.

GARDENERS' CHRONICLE NEWSPAPER

VINES FROM EYES IN POTS.

LUCOMBE, PINCE, AND CO. beg to call the attention of the Public to their large Stock of fine healthy VINES in pots from eyes, 6 to 8 feet long, and strong in proportion, including all the leading varieties. Having a few years since built a *Large Experimental Vinery*, which is now in full fruit, they have had the opportunity of proving the different varieties, which accordingly enables them to warrant their plants true to name. Amongst others L., P., & Co. can especially recommend the "*Bidwill's Seedling*," which is one of the finest black Grapes in cultivation, a fine Vine of which may now be seen in full bearing in their Vinery.

Exeter Nursery, Exeter.—Established 1720.

NEW AND CHOICE PLANTS.—PANSIES, new, of this season, at 9*s.* per dozen; older varieties from 3*s.* to 6*s.* VERBENAS, new, of this season, at 6*s.* per dozen; last year's, 4*s.* per dozen. GERANIUMS, new in 1856, 12*s.* per dozen; older varieties, 6*s.* to 8*s.* CHRYSANTHEMUMS, large flowered and Pompone varieties at 5*s.* per dozen, good bushy plants.—Names given on application to George Smith, Florist, Common Side, Macclesfield, Cheshire.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Lord Lyons, Scarlet Gem, Brightonia, optima, Andromaque, Julie de Courcelle, Mrs. B. Stowe, Calypso, Lady Turner, Marmion, Magnet, Phœbus, Lady A. Foster, Surprise, Mademoiselle Casille, Evelina, Madame Castellan, Venus, Cupid, Stephen, Clarissa, Admiral Dundas, Duchess de Palmella, Mrs. Turner, Prince Edward, Thomas Barnes, Monarch, and Miss Trotter. Selections from the above 6*s.* per dozen, free by post.

Henry May, The Hope Nurseries, near Bedale.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, Seedsman and Florist, 10, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

CAMELLIAS, CHINESE AZALEAS, ERICAS, EPACRIS.

HUGH LOW AND CO. call the attention of intending purchasers to their extensive and fine stock of the above, consisting of very many thousands of the Genera named. The Plants are all in luxuriant health, and will flower well during the ensuing Winter and Spring, as they have been exposed to the full sun of an unusually hot summer. The limits of an advertisement do not admit of particular details as to sorts and sizes of plants, and therefore H. L. & Co. would recommend a personal inspection.

Rare hardy Conifers, such as Cupressus macrocarpa, Cupressus Lambertiana, Pinus ponderosa, Pinus Fremontiana, Pinus insignis, Pinus radiata, Wellingtonia gigantea, can also be supplied by the 1000 at low prices.

Clapton Nursery, London, N. E.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE "CUPRESSUS LAWSONIANA"

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter: the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

	Each.—£	s.
For a single plant in 48-sized pot	0	15
Ditto ditto, extra strong	1	1
Six ditto ditto, smaller	3	3
Twelve ditto ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Aug. 29.

REIGATE SILVER SAND (sharp Grit and free from Iron) 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. KENTISH and other PEATS, and LOAM, in large or small quantities. Price and samples on application. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—John Kennard, Swan Place, Old Kent Road, S.E.

M'DOUGALL'S DISINFECTING POWDER.—This valuable and cheap disinfectant used in Stables, Cow-houses, Piggeries, Fowl-houses, and Kennels, completely removes all noxious smells, and gives a pure atmosphere. Manures treated with it are much improved, as the ammonia and phosphoric acid are preserved, and a compound formed well known to be of great value for Agricultural purposes.—A. Herriot & Co., London Agents, 2, Great Scotland Yard, Whitehall, S.W.

BOITE À HOUPPE.

For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

THE PATENT CREAM ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin.—Manufactured by John Fisher & Co., Label Works, Boston, Lincolnshire.

GREEN'S PATENT LAWN MOWING MACHINES will be exhibited on the Lawns at the Crystal Palace, Sydenham, during the Horticultural Show to be held on the 9th, 10th, and 11th of September. The above Machines were proved on trial at the London Horticultural Society's Show at Chiswick, June 5, 1857, to be the best, and are open for further trial against any other Pony or Hand-Machine now in use. Every information can now be obtained, and the machines seen at Thomas Green's Patent Mowing Machine Works, Leeds, Yorkshire; Mr. C. Lawson, Manager of the Agricultural Department, Crystal Palace, Sydenham; Mr. M'Ewen, London Horticultural Society's Gardens, Chiswick; the London Agents, Messrs. Cottam & Hallen, Oxford Street; Messrs. Burgess & Key, Newgate Street; and at the Baker Street Bazaar.

The Machines also may be had of all respectable Ironmongers, Nurserymen, and Seedsmen in the kingdom.

HARTLEY'S PATENT ROUGH PLATE GLASS.

For Ridge and Furrow Roofs, Conservatories, Manufactories, Skylights, Workshops, Public Buildings, Railway Stations, Offices, Mills, Market Halls, &c. Particularly adapted for Verandahs, Carriage Entrances, &c.

Cut to the Sizes ordered.	Thickness in parts of an inch. $\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$
Under 8 by 6	0 4	0 5	0 6	0 8
8 by 6 and under 10 by 8	0 5	0 6	0 7	0 9
10 by 8 " 14 by 10	0 6	0 7½	0 9	0 10
14 by 10 " 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½	0 11
1½ ft. sup. " 3 ft. or if above 20 and not above 30 in.	0 7	0 8½	0 10	0 11
3 " 4 " 20 " 30..	0 7½	0 9	0 10½	1 0
4 " 5 " 30 " 35..	0 8	0 9½	0 11	1 1
5 " 6 " 35 " 40..	0 8½	0 10	0 11½	1 1
6 " 8 " 40 " 45..	0 9	0 10½	1 0	1 1
8 " 10 " 45 " 55..	0 9	0 10½	1 0	1 1
10 " 12 " 55 " 65..	0 9	0 10½	1 0	1 2
12 " 15 " 65 " 75..	0 10	0 11	1 0	1 3
15 " 20 " 75 " 90..	0 11	1 0	1 2	1 3
20 " 25 " 90 " 100..	1 1	1 2	1 3	1 4
QUARRIES	0 6	0 7	..	..
BENDING, ordinary curves ..	0 6	0 9	1 0	1 4

Packed in Boxes of 50 feet each.

6 by 4, and 6½ by 4½ .. 10*s.* 6*d.* | 8 by 6, and 8½ by 6½ .. 13*s.* 6*d.*
7 by 5, and 7½ by 5½ .. 12*s.* 0*d.* | 9 by 7, 9½ by 7½, & 10 by 8 15*s.* 0*d.*

For large quantities special prices.

From Gardeners' Chronicle.

"By all means use Hartley's Rough Plate Glass, and pay no attention to those who advise you to the contrary."

JAMES PHILLIPS AND CO., London Agents,
116, Bishopsgate Street Without, E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to James Hetley & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.
Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ¼ to $\frac{3}{16}$ and ⅜-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands
Bee "	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

TO THE GENTRY, ARTISTIC GARDENERS, &C.

SWISS AND RUSTIC WORK, a great variety always on view. Thatched Summer Houses, Pagoda Roof Zinc ditto; Yew, Oak, and Swiss Tables, Oak Benches, Yew Seats and Stools, Flower Tubs, Vases, and Baskets, ready for delivery, always on view at TROTMAN'S Manufactory, 12, Alfred Terrace, Upper Holloway.

N.B.—On account of extensive alterations in the premises, a liberal allowance will be made to present purchasers.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOMHEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. Henderson begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin..	Messrs. W. Drummond & Son, Seedsmen
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee	Messrs. W. Dreghorn & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs. Osborn & Sons, Nurserymen
Birkenhead ..	Mr. W. Henderson, Nurseryman

Printed directions for filling are sent with each Broomhead.

W. Henderson, Inventor of the Patent Improved Broomheads, Dunkeld.

WASPS, WASPS.—HAYTHORN'S HEXAGON AND CHISWICK NETS will protect Fruit from Wasps, Flies, Birds, &c. Patterns and prices free by post.—Address Mr. Haythorn, Nottingham.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in Slate a variety of articles for Horticultural purposes, which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, fire bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction, not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS

of every Description for the Amateur or Practical Gardener, and of Warranted Quality.

DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Lawn Rollers, Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Garden Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument), London Bridge, E.C. Established, A.D. 1700.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of [illegible] different patterns of Suspending Flower Baskets, from 1 foot to 3 feet diameter, new and original designs. Manufactured by W. RICHARDS, at the Imperial Wire Works, 37, Oxford Street, London, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less subject to kink, will wear longer, and is about 60 per cent cheaper than the best leather hose pipe. Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 8*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.* 3 in. 3*s.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and many years past, by the West India Dock Company, for Railings, Gates, &c. Recommended to the notice of Railway Companies, Land Agents, &c. A liberal Allowance to the Trade.—Manufactory, Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and Foreign Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Canvas, &c., &c., work, as has been proved by the practical test of upwards of 20 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by any testimonials of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to Walter Carson & Son, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, Gibbs & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre) .. .. } 30s. per acre.

Gibbs's Improved Lawn Grass .. .. .. 1s. 3d. per lb.

Directions for sowing accompany the seeds.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE-GRASS, 7s. 6d. per bushel; Dwarf ESSEX RAPE, 14s.; White MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; Early Racer TARES, 10s. per bushel; Drumhead CABBAGE, 4s. per lb.; EARLY SIX-WEEKS' TURNIP, 1s. per lb.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

CAMELLIAS AND INDIAN AZALEAS.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform the public that his Camellias and Indian Azaleas are extremely well set with flower buds this season, and can be supplied at the following reasonable prices:—

CAMELLIAS with flower buds in best named varieties, 1 to 1½ foot high, 6l. per hundred; a collection ditto of 100 different varieties, mostly with flower buds, 1 foot high, 5l.

INDIAN AZALEAS, the best varieties, with flower buds, 4l. to 5l. per hundred and upwards.

CAMELLIA STOCKS, 30s. per hundred.

INDIAN AZALEAS for grafting, 25s. per hundred.

GLADIOLUS BRENCHLEYENSIS—the most splendid flower of the tribe, and easy of culture.

GLADIOLUS GANDAVENSIS, and

TIGRIDIA CANIARIENSIS—MORGAN'S pure yellow and richly spotted Tiger Iris.

JOSEPH MORGAN, Torbay Nurseries, Torquay, holds a large Stock of the above, and respectfully offers to supply strong flowering Roots in and after October 1, at reduced prices.

A Priced CATALOGUE OF BULBS, embracing a select list of J. MORGAN'S collection of GLADIOLI, will be sent free on application. The Trade supplied on advantageous terms.

STATICE HALFORDI in 4-inch pots

Horticultural Establishment, Torquay, August 29.

NEW HARDY MUSCAT GRAPES.

T. RIVERS has much pleasure in offering a few Vines of the following new hardy Muscat Grapes:—

MUSCAT DE SARBELLE.—Berries deep purple, medium size, flavour rich and excellent; partaking of the brisk flavour of the Black Frontignan; a great bearer.

MADEIRA MUSCAT.—Berries large, round, reddish purple; of a rich Muscat flavour. Both the above sorts ripen in a cold Vinery as early, or a little earlier than the Black Hamburgh. Vines 7s. 6d. each.

MUSCAT ST. LAURENT.—Berries oval, below medium size, yellowish white or amber when ripe, with a rich Muscat flavour. A most abundant bearer.

MUSCAT DE JUILLET.—Berries round, deep purple, with the Frontignan flavour. The two latter are the earliest of all the Muscat Grapes, and will ripen on a wall with a good aspect in the South of England. They are also well adapted for pot-culture. Vines 5s. each.

T. R. believes that his culture of Vines in pots is the most extensive in Europe, six large houses being filled with Vines as rods for Vineries, and with bushes for pot-culture of the most select varieties.—Nurseries, Sawbridgeworth

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10s. per 100; and GOLIATH, 3s. 6d. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

STRAWBERRY PLANTS, ETC.

EVAN PAUL begs to offer the following, of superior quality:—

Sir Harry,	20s. per 100		Prince of Wales ..	3s.	6d.
	per doz.	4s. 6d.	Prince Albert	2	6
Keens' Seedling,	per 100	2 6	Hautbois	2	6
British Queen,	per 100	3 6	Calceolaria seed, p. pkt.	1	0
Elton Pine ..	..	2 6	Cineraria	1	0
Black Prince ..	..	2 6	Primula sinensis ..	1	0
Kitley's Goliah ..	..	2 6	Polyanthus	0	6
Alice Maude ..	..	2 6	Sweet William	0	6

The Nurseries, Derby, Aug. 29.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true as exhibited at the Horticultural Rooms, Regent Street, for which a Certificate of Merit was awarded; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Son's, Covent Garden, London.

R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised. He can now supply strong, well rooted Plants to any extent. Price 20s. per 100, or 4s. per dozen. Also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.—St. Ann's Square, Manchester.

P.S.—Plants sent over to compensate for distant carriage. The usual discount to the Trade when not less than 1000 are ordered.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety that has ever yet been sent out, possessing all the good qualities for which a Strawberry is required, viz. flavour equal, and considered by many to be superior to that fine sort the British Queen: the fruit ripens to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season. The plants are of a very dwarf habit, and as hardy as Keens' Seedling, will force well, and have been spoken of by gentlemen and nurserymen, who were competent judges, as being the best they had ever tasted. Now ready for sending out—strong well rooted plants 1l. per 100; 50 for 11s., hamper and package included; 25 for 6s., and 12 for 4s., postage free. A remittance must accompany every order by cash or penny postage stamps.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

EARLY STRAWBERRIES.

WILLIAM JAMES NICHOLSON has much pleasure in offering plants of the following, as being equal to the earliest of the older Strawberries in time of ripening, and much superior in flavour and size:—Princesse Royale, the earliest and best French forcing variety, large size, fine colour, and good bearer, flavour rather acid, fruit ripe June 13, 1857, 10s. per 100.—Marquise de Latour-Maubourg, very fine flavoured handsome fruit, ripe June 13, 20s. per 100.—Ne Plus Ultra, a very large and beautiful variety, very dark colour, of vigorous habit and an abundant bearer, should be in every collection, ripe June 20, 30s. per 100.—La Reine, exquisite flavour, colour nearly white, middle size, and good bearer, ripe June 20, 10s. per 100.—Comtesse de Marnes, a very early forcer, good in flavour and bearing, ripe June 20, 5s. per 100.—Comte de Paris and Crescent, each 5s. per 100.—Sir Harry, 20s. per 100.—Ingram's Prince Alfred, 20s. per 100, and a great number of others, including Alpines, from 5s. to 10s. per 100.

A Post-office Order on Yarm is expected with every order.

Egglescliffe, near Yarm, Yorkshire.

CHOICE BULBS.

BASS AND BROWN'S Imported and other choice BULBS, select Hardy Herbaceous Plants, &c. New Descriptive Lists sent on application. The above forms a part of their No. 1 Catalogue for the season, and will be sent out complete as soon as ready.

STRAWBERRIES.—Sir Harry, 20s. per 100, or 4s. per doz.; also upwards of 25 others, finest in cultivation at low prices.

CHRYSANTHEMUMS.—BUSHY PLANTS.	s.	d.
12 best new Pompones, of last season	15	0
20 best of previous introduction	15	0
12 best new large flowerings	15	0
12 best of previous introduction.	9	0

BASS & BROWN, Sudbury, Suffolk.

BULBS FOR PRESENT PLANTING.

CARRIAGE FREE, EXCEPT SMALL PARCELS.	£.	s.	d.
HYACINTHS, the best imported by name, per dozen	0	10	6
,, Fine mixed for beds (all double) per 100	1	10	0
ANEMONES ,, ,, (,,) ,, ..	0	5	0
,, ,, ,, (single) ,, ..	0	4	0
TULIPS, fine mixed early, for pots or borders ,, ..	0	7	6
CROCUSES, mixed for open ground, (per 1000, 12s. 6d.)	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free. New Early Peas, Radish, Horn Carrots, &c., now ready.

SUTTON AND SONS,

Royal Berks Seed Establishment, Reading.

ROYAL BERKSHIRE SEED ESTABLISHMENT.

SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—August 29.

DUTCH BULBS.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are PARTICULARLY FINE and in EXCELLENT CONDITION. Catalogues are now ready and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their ORDERS EARLY, as the successful cultivation of Bulbs depends in great measure on their BEING PLANTED EARLY IN THE SEASON.—August 29.

The Gardeners' Chronicle.

SATURDAY, AUGUST 29, 1857.

IT was stated in this Journal a short time since that the season had altogether been a peculiar one. A high daily temperature, either attended for many weeks by cold, or latterly, on occasion, by unusually warm nights, an absence of rain and high state of the barometer attendant on those winds which commonly produce much rain, while yet the quantity which fell occasionally was so disposed in point of time and quantity as to produce a maximum of benefit, and withal a more than usual amount of direct solar light were amongst the most striking peculiarities. It became, therefore, a matter of interest to note what was the effect upon the two diseases which have of late been the plague of gardeners, viz., the Cucumber or Melon disease and Potato murrain. We can speak only from our own individual observations, for the most part within a limited area, but these are not quite void of interest. As far as we have had an opportunity of observing, the Melon crop has been far more free from disease than it has been for some years. The leaves have retained their colour to a late date, the fruit has been well formed and has ripened well without that tendency to rot prematurely which is so provoking to the cultivator when he thinks that he has arrived successfully at his desired object. Exceptions probably have existed—one or two have come within our notice—but the general impression has been that which we have stated.

The Cucumber crop again, whether in the frame or open soil, has been unusually good. Gardens where the Cucumber is extensively grown, which in 1855 produced scarcely a healthy fruit, have yielded a profusion without spot or blemish. In our own garden three sorts—the Sion House, the Conqueror of the West, and the Victory of Suffolk (the latter from South Carolina seed)—have been cultivated, and the result has been striking. The plants of the first showed every symptom of chlorosis. The foliage looked streaked and yellow, the base of the stem was inclined to rot, and the fruit as soon as it appeared exhibited the worst indications of the malady. Still wherever the leaves were properly thinned, though the fruit was ill shaped and only partially green, it swelled, attained a good size, and not a single specimen occurred which was not available for use. There is no doubt that in any ordinary year the plants would have failed entirely, or would not have yielded a single full grown fruit. They were evidently diseased by constitution, and not by treatment, and the constitutional weakness was in a great measure counteracted by favourable climatic conditions. The Conqueror of the West proved far more healthy. Where the leaves were not sufficiently thinned some fruit failed after it was one third grown, but the plants were fruitful, and the result on the whole was excellent. The third sort, from American seed, was healthy from the first, the produce has been excellent, and we hope to get some seed perfectly free from any tendency to disease. The result, in fact, has confirmed our notion that if we wish to escape disease it is desirable to import Cucumber seed from warm countries, but this could only be done successfully by arrangements with parties on whom implicit reliance could be placed, as there would otherwise be no certainty of obtaining the particular sorts which are most favourable for cultivation.

As regards the Potato disease, since the late tremendous storms matters have entirely changed their appearance. We have a letter from Dr. CASPARY, dated Poppelsdorfer Schloss, near Bonn, August 4, in which he says:—"The *Peronospora devastatrix*, or to please you the *Botrytis infestans*, has not yet made its appearance here, although it is the 4th August. This is a most extraordinary circumstance, as it appeared always in former years, ever since 1845, in June. Living in the country, I am looking daily for it. Perhaps it will not appear any more. Then I conclude we should also have no more Potato disease." Our own experience at the time of the receipt of Dr. CASPARY's letter exactly coincided with his. We had in vain hunted for a specimen, and had hoped that the plague had gone, and that we should henceforth have only that form of Potato rot which existed in this country before 1845. On the 19th of this month, however, the mould had made its appearance and was spreading like wildfire, and we have information that it had commenced its ravages a few days before about Bath. In our own garden where the sets were dusted with sulphur and there has been a copious top-dressing of the same substance, a few spots can be found, but not one on which the mould is well developed, while on a piece where no sulphur has been employed the mould is just beginning to be active and distinctly visible to the naked eye. It is too soon, however, to form any notion of the result of sulphuring; a fortnight will show whether it is of any use. It may be well to add that on a piece of Potatoes under a south wall, which was partly sulphured, there is at present not the slightest indication of disease, a very marked difference from the experience of former years.

While on the subject of fungi, we embrace the opportunity of stating a curious fact which has lately come under our notice. A portion of the Norfolk fens was during the winter of 1852 and for some months of 1853 under water from the bursting of the banks of the Brandon river. This district abounded formerly in Mushrooms, but since the flood scarcely a Mushroom is found, from the complete destruction of the old spawn. *M. J. B.*

WE regret to say that the news from Portugal is as disheartening as ever. The VINE DISEASE is still raging, and the vintage must be bad. Mr. FORRESTER has been exerting himself to the utmost, both by precept and example, to persuade the wine farmers to attack the disease with sulphur, but we understand that with the exception of his own vineyard very little advantage has arisen. This is undoubtedly owing in some measure to the impossibility of bringing sulphur into contact with the foliage of Vines trained over the branches of trees, and partly we suspect to dilatoriness or want of skill in its application. Sulphur should always be used when the Vines are wet.

The following extract from a letter dated Oporto, Aug. 8, gives Mr. FORRESTER's own view of this most important question:—

"The pentasulphide of calcium does much good in invigorating the Vine and in perfecting the fruit; but it is neither a perfect palliative nor a cure. Withal, by the application of sulphur after the third washing of the Grapes, the crop may be saved, and has been saved by myself in many instances when in the immediate vicinity hundreds of attempts to save the Grapes by the dry process have failed.

"Certain it is that flowers of sulphur cannot be applied here next year on account of the poverty of the land; neither, were the farmers ever so rich,

could they approach their Vines on Pollards at a height of 25 feet from the ground.

"About 300 tons of sulphur have been used in the Douro, and the result will be that this year there will not be so much wine as was produced in that country last year."

Along with this we have received the following thermometrical observations for July made in Mr. Forrester's garden. It shows how far our heats have been from those of Portugal, excessive as we thought our own.

State of the Thermometer for the month of July 1857, *in the District of Covas, in the Alto-Douro.*

1857	8 A.M.	Noon.	3 P.M.	8 P.M.
July 1	62	68	71	64
,, 2	61	71	78	70
,, 3	66	76	84	74
,, 4	66	80	89	74
,, 5	68	82	88	72
,, 6	68	76	78	70
,, 7	65	74	76	72
,, 8	68	72	82	74
,, 9	66	74	78	70
,, 10	64	72	75	68
,, 11	65	76	84	74
,, 12	70	80	90	78
,, 13	72	86	94	80
,, 14	74	90	98	84
,, 15	80	92	95	84
,, 16	78	92	95	84
,, 17	78	92	95	84
,, 18	72	93	99	84
,, 19	76	94	104	87
,, 20	79	96	102	88
,, 21	80	96	103	85
,, 22	82	92	101	84
,, 23	82	92	95	79
,, 24	70	85	89	75
,, 25	71	84	90	78
,, 26	72	86	94	80
,, 27	78	90	98	83
,, 28	70	85	92	79
,, 29	70	84	90	80
,, 30	70	84	90	80
,, 31	72	85	98	84

It was remarked that during the days on which the thermometer was so very high the sun destroyed a great number of Grapes, even among those which had been cured by sulphur.

A very curious production has been lately sent to us by Mr. H. O. Stephens, which he found in the shape of an Orange gelatinous stratum on bones which had been just landed from a South American vessel on the quay at Bristol. Mr. J. Lowe has lately shown in a memoir read before the Botanical Society of Edinburgh, that some of the moulds which occur on living animal structures, and which constitute numerous new genera of authors little versed in Fungi, though skilful anatomists and pathologists, are merely forms of *Aspergillus glaucus*. Of this we have been long convinced, including, however, *Penicillium glaucum*, and we have endeavoured in vain to prove the case by actual experiment in the instance of the *Sarcina* which occurs in malignant disease of the stomach, and is remarkable for its quaternate spores. Hitherto, however, no such spores have occurred in the coloured gelatinous masses so common on decayed food, and which are undoubtedly the infant state of our common moulds of the genera *Aspergillus* and *Penicillium*. The Orange matter of Mr. Stephens now supplies the desideratum, and we have spores in fours, either in detached packets, or forming a continuous stratum, consisting of several sets of four, exactly as in *Sarcina*. Mr. Stephens is paying further attention to the subject, and will shortly publish his remarks; we therefore leave to him the task of giving the necessary details, and content ourselves with simply calling attention to the very curious fact. *M. J. B.*

CALCEOLARIAS.

Within the last few years these have improved greatly both in form, size, and colour of marking. We now in fact possess an endless variety of them. Many are, however, scarcely worth cultivating. People must therefore use some caution if it is intended to make a judicious selection. The Calceolaria is considered by some difficult to cultivate; this is, however, a mistake, for with attention there is scarcely any florist flower easier to manage. The grand secret in growing it is to keep the plants tolerably dry in winter, and well protected from frost with as little fire-heat as possible, and during the summer months to supply them liberally with water, and keep them well shaded from the scorching rays of the sun. The plants may be grown successfully in frames placed against a wall with a south-east aspect, the front and ends being glass if possible, as well as the top. Let the roof lights lift up instead of sliding, so as to admit air in wet foggy weather, and at the same time exclude rain. The frames, if possible, should be elevated on brick work about 2 feet or more, in order to show off the plants when in bloom to greater advantage, and it is also a more convenient height for watering and general management.

In all cases let the plants be as low and bushy as possible and well rooted. Let them be shifted into 4-inch pots in compost consisting of one-third good friable loam well rotted from an old pasture, one-third peat or heath soil, and one-third leaf-mould, all well mixed together with a quantity of silver sand. Let the drainage be efficient, or even under the best treatment failure will be the result. If new varieties are required let them be obtained as early as you can in autumn.

During winter the plants need but little water; but they must be kept from flagging; all decayed leaves should be picked off, and the plants should be protected at night by covering with mats. Of course a hot-water pipe run round the pit will be required in severe weather. If by accident the plants should, however, happen to get frosted, keep them covered up for a few days and expose them cautiously to sunlight; if not too much injured they may recover. About the last week in February they in general begin to exhibit signs of growth; then repot them into one-fourth leaf-mould, and one-fourth good rotten cow or horse-dung with loam and sand as before. During the two succeeding months, March and April, continue to repot them according to their growth, until they are in the pots in which they are intended to bloom. About a month before they come into flower a little clear guano water may be given them, say twice a week; this will be found to improve the bloom. In May and June they ought to be in full beauty.

After they have done blooming cut them down, top dress, and remove them to a shady situation, supplying them liberally with water, where they will soon push side shoots, which should be taken off when about 2 or 3 inches long for cuttings. In September offsets and cuttings may also be obtained and struck in the usual compost, but with more silver sand in it. Insert them about 2 inches apart in wide-mouthed pots or pans, and if a bell-glass is placed over them they will strike all the sooner. After the cuttings are well rooted place them in 4-inch pots, as already recommended, and by proper treatment they will make fine blooming plants the ensuing spring.

As regards sorts, handsome though many of the herbaceous Calceolarias may be justly considered, they are fast giving place to the shrubby kinds, which are if possible more profuse flowerers, hardier, and therefore more easily managed. Of the latter the following are 12 of the best, viz.:—

Orange Boven.
King of the Yellows.
King of Sardinia (crimson).
Gem (yellow with brown spot).
Yellow Prince of Orange.
Beauty of Montreal (light crimson).
Orange Perfection.
Eclipse (crimson scarlet).
Hawk (orange spotted brown).
Yellow Dwarf.
Heywood Hawkings (orange brown).
Aurea floribunda (yellow).

Of these the last six are most suitable for pot culture. *M.*

THE HARMONY OF COLOURS.

We borrow from the *Literary Gazette* the following excellent report of an excellent Lecture upon this subject, which is to no class more interesting than to garden lovers. The lecture was delivered at the Royal Institution by Mr. F. Crace Calvert.

Mr. Crace Calvert stated that he had three objects in view in this discourse. The first was to make known the laws of colours, as discovered by his learned master, M. Chevreul; secondly, to explain their importance in a scientific point of view; and, thirdly, their value to arts and manufactures. To understand the law of colours, it is necessary to know the composition of light; Newton was the first person who gave to the world any statement relative to the components of light, which he said consisted of seven colours—red, orange, yellow, green, blue, indigo, and violet. It is now distinctly proved that four of those seven colours of the spectrum are the result of the combinations of the three colours now known as the primitive colours—viz., red, blue, and yellow. Thus blue and red combined produce purple or indigo; blue and yellow, green; while red and yellow produce orange; these facts being known, it is easy to prove that there are not seven, but three primitive, and four secondary, called complementary colours. Several proofs can be given that light is composed of three colours only. One of the most simple consists in placing pieces of blue, red, and yellow papers on a circular disc, and rotating it rapidly; the effect to the eye being to produce a disc of white light. If therefore, the eye can be deceived so readily while the disc travels at so slow a rate, what must necessarily be the case when it is remembered that light proceeds at the rate of 190,000 miles per second? The rapidity with which light travels is such that the eye is not able to perceive either the blue, red, or yellow, the nerves of the retina not being sensitive enough to receive and convey successively to the mind the three or seven colours of which the light is composed. Before entering into the laws of colour, Mr. Crace Calvert stated that it might be interesting to know what scientific minds had devoted attention to the laws of colours. Buffon followed Newton, and his researches had special reference to what M. Chevreul had called the "successive contrasts" of colours. Father Scherffer, a monk, also wrote on the laws of colour. Goethe, the poet, also brought his mind to bear upon the subject, and studied it to a great extent. Count Rumford, about the end of the 18th century, published several memoirs on the laws of colours. He explained very satisfactorily the "successive" contrasts, and arrived at some insight into the "simultaneous" one; still he did not lay down its real laws. Prieur, Leblanc, Harris, and Field, were also writers of most interesting works on this subject. The reason that they did not arrive at the definite laws of colour was because they had not divided those laws into successive, simultaneous, and mixed contrasts. These form the basis of the practical laws of colour, and the honour of their discovery is due to M. Chevreul. The reason why a surface appears white or brilliant is, that a large portion of the light which falls on its surface is reflected on the retina, and in such a quantity as gives to the surface a brilliant aspect; whilst in plain white surfaces, the rays of light being diffused in all directions, and a small portion only arriving to the eye, the surface does not appear brilliant. The influence of colour on these two kinds of surfaces is very different, as may be perceived by the examples round the room, showing the influence of different colours on gold ornaments. When rays of light, instead of being reflected, are absorbed by a surface or substance it appears black; therefore white and black are not colours, as they are due to the reflection or absorption of undecomposed light. It is easy to understand why a surface appears blue; it is due to the property which the surface has to reflect only blue rays, whilst it absorbs the yellow and red rays; and if a certain portion of light is reflected with one of the coloured rays it will decrease its intensity; thus red rays with white ones produce pink. On the contrary, if a quantity of undecomposed light is absorbed, black is produced, which by tarnishing the colour and making it appear darker, generates dark reds, blues, or yellows. The secondary colours are produced by one of the primitive colours being absorbed and the two others reflected; for example, if red be absorbed, and blue and yellow reflected, the surface appears green. There are two reasons why a perfect blue, yellow, red, cannot be seen, &c. The first is, that surfaces cannot entirely absorb one or two rays and reflect the others. The second is, that when the retina receives the impression of one colour, immediately its complementary colour is generated; thus, if a blue circle is placed on a perfectly grey surface, an orange hue will be perceived round it; if an orange circle, round it will be noticed a bluish tint; if a red circle, a green; if a greenish yellow circle, a violet; if an orange yellow circle, an indigo; and so on. The "successive" contrast has long been known; and it consists in the fact that on looking stedfastly for a few minutes on a red surface fixed on a white sheet of paper, and then carrying the eye to another white sheet, there will be perceived on it not a red, but a green one; if green, red; if purple, yellow; if blue, orange. The "simultaneous" contrast is the most interesting and useful to be acquainted with. When two coloured surfaces are in juxtaposition, they mutually influence each other—favourably, if harmonising colours, or in a contrary manner if discordant: and in such proportion in either case as to be in exact ratio with the quantity of complementary colour which is generated in the eye; for example, if two half sheets of plain tinted paper, one dark green, the other of a brilliant red, are placed side by side on a grey piece of cloth, the colours will be mutually improved in consequence of the green generated by the red surface adding itself to the green of the juxtaposed surface, thus increasing its intensity, the green in its turn augmenting the beauty of the red. This effect can easily be appreciated if two other pieces of paper of the same colours are placed at a short distance from the corresponding influenced ones, as below:—

Red. Red Green. Green.

It is not sufficient merely to place complementary colours side by side to produce harmony of colour, since the respective intensities have a most decided influence; thus pink and light green agree, red and dark green also; but light green and dark red, pink and dark green do not; and thus to obtain the maximum of effect in perfect harmony the following colours must be placed side by side, taking into account their exact intensity of shade and tint.

Harmonising Colours.

Primitive Colours.	Complementary Colours.		
Red	Green	Light blue, Yellow, Red	White light
Blue	Orange	Red, Yellow	White light
Yellow-orange	Indigo	Blue, Blue, Red, Yellow	White light
Greenish-yellow	Violet	Red, Blue, Yellow	White light
Black	White	Yellow, Blue, Red	White light

If attention is not paid to the arrangement of colours according to the above diagram, instead of their mutually improving each other, they will, on the contrary, lessen the beauty; thus if blue and purple are placed side by side, the blue throwing its complementary colour, orange, upon the purple, will give it a faded appearance; and the blue receiving the orange yellow of the purple will assume a greenish tinge. The same may be said of yellow and red, if placed in juxtaposition. The red, by throwing its complementary colour, green, on the yellow, communicates to it a greenish tinge; the yellow, by throwing its purple hue, imparts to the red a disagreeable purple appearance. The very great importance of these principles to every one who intends to display or arrange coloured goods or fabrics was convincingly shown by Mr. Crace Calvert, from a great variety of embroidered silks (kindly lent by Mr. Henry Hope, worth), calicos, and paper-hangings, which demonstrated that if these laws are neglected, not only will the labour and talent expended by the manufacturer to produce a

a given piece of goods the greatest effect possible, be neutralised, but perhaps lost. It was clearly demonstrated that these effects are not only produced by highly-coloured surfaces, but also by those whose colours are exceedingly pale, as, for example, light greens, or light blues with buffs, and that even in grey surfaces, as pencil drawings, the contrast of tone between two shades was distintly visible. The contrast of tone or tint was most marked when two tints of the same colour were juxtaposed, and it was therefore the interest of an artist to pay attention to this principle when employing two tints of the same scale of colour. From the "mixed contrast" arises the rule that a brilliant colour should never be looked at for any length of time, if its true tint or brilliancy is to be appreciated; for if a piece of red cloth is looked at for a few minutes, green, its complementary colour, is generated in the eye, and adding itself to a portion of the red, produces black, which tarnishes the beauty of the red. This contrast explains, too, why the tone of a colour is modified, either favourably or otherwise, according to the colour which the eye has previously looked at. Favourably, when, for instance, the eye first looks to a yellow surface, and then to a purple one; and unfavourably, when it looks at a blue and then at a purple. Mr. Crace Calvert also showed that black and white surfaces assume different hues according to the colours placed in juxtaposition with them; for example, black acquires an orange or purple tint if the colours placed beside it are blue or orange; but these effects can be overcome, in the case of these or any colours, by giving to the influenced colour a tint similar to that influencing it. Thus, to prevent black becoming orange by its contact with blue, it is merely necessary that the black should be blued, and in such proportion that the amount of blue will neutralise the orange thrown on it by influence, thus producing black. As an instance, to prevent a grey design acquiring a pinkish shade through working it with green, give the grey a greenish hue, which, by neutralising the pink, will generate white light, and thus preserve the grey. Mr. Crace Calvert, after explaining the chromatic table of M. Chevreul, which enabled any person at a glance to ascertain what was the complementary colour of any of the 13,480 colours which M. Chevreul had distinctly classed in his table, stated that it was of the highest importance to artists to be acquainted with these laws, in order to know at once the exact colour, shade and tint, which would produce the greatest effect when placed beside another colour, and that they could save the great length of time which no doubt the great masters lost in ascertaining by experiment those laws, which they could now learn in a few hours by consulting M. Chevreul's work.

VEGETABLE PATHOLOGY.—No. CLXX.

378.*** Hypertrophia (*Clubbing*). The disease which is known under the name of clubbing has been confounded more or less with Anbury, and *Dactylorhiza* (Fingers and Toes).* The first, however, is due to an insect, the second is a tendency to revert to the wild condition, while clubbing is a peculiar disease distinguished by very singular phenomena. The malady, like those just mentioned, which more or less resemble it, is chiefly confined to the root, which becomes gouty and distorted, sometimes splitting longitudinally, or cracking transversely, and acquiring an extremely offensive smell. The main root is principally affected, but the laterals sometimes swell, or become nodular, and occasionally the base of the stem itself is affected. It occurs in some of our cultivated Crucifers or Cabbageworts, but especially in Broccoli and Cauliflowers. It is certainly local, or where not local extremely capricious, attacking one garden for several years in succession, and then migrating to some neighbouring locality. In my own inferior Oolite district I have never seen a single specimen. The swellings, when divided, have a marbled appearance, approaching, especially when dry, somewhat that of the brown-skinned Truffles; an appearance which arises from certain groups of cells being in a totally different condition from those which separate them. The diseased cells present two distinct phases; they are either gorged with a multitude of minute granules, about $\frac{1}{8000}$ of an inch in diameter, which ooze out and give the section a milky appearance, or they contain a smaller number of sub-globose or spherically triangular sacs $\frac{1}{1000}$ of an inch in diameter, each of which contains myriads of extremely minute bodies of a brown tint, which are in constant motion within the sac. This motion is not destroyed by iodine, and is therefore in all probability not vital. The cellular tissue which interves between the groups of diseased cells is nearly in the ordinary condition, and while they have sometimes a brownish tint these are always colourless. The contents of the cells with free granules, which at first sight resemble starch grains, are highly nitrogenous, and do not show the slightest blue tint when treated with iodine, while sulphuric acid and sugar produce a fine rose colour. The granular matter of the cells or sacs, when free, resembles very closely the brown substance of which so much has been said in the discussions about the Potato disease. It seems then that the peculiarity of this disease consists in the concentration of highly nitrogenous matter within a portion of the cells. The contents of all the cells, indeed, are more or less nitrogenous, but in the diseased cells the nitrogenous matter appears to exclude almost everything else. The whole energies of the plant are directed to the hypertrophied parts, and in consequence the leaves make little or no progress, and ultimately perish. It is well known that the best preventive of this disease consists in the free use of wood-ashes, which contain several salts of potash, but whether it arises from too great an abundance of nitrogenous matter in the soil, or whether the potash prevents its accumulation within the plant which, from some peculiarity of constitution has a tendency to concentrate such matter in particular parts, is at present unknown. It is one of those maladies of vegetables which is the most worthy of study, and which is best calculated to throw light upon the subject of Vegetable Pathology in general, and a series of experiments and observations following the development of the disease from its first appearance in the seedling, combined with the effect produced by different chemical substances, might lead to very important results. The only instance in which I have seen the cells under disease so completely gorged with abnormal matter is in that curious affection of Potatoes which was described in this Journal, 1857, p. 483, though the phenomena are by no means identical. *M. J. B.*

* This is the case in our article Clubbing in "Morton's Encyclopædia." The characters, however, when once ascertained, which was not the case till July 1856, will prevent any further confusion. See *Gardeners Chronicle*, 1856, page 500.

MARKET FRUITS OF SIERRA LEONE.

The flying visits which I have made to other parts of western Africa have not allowed me to make any observations on the fruits of these regions. An exception at Sierra Leone has enabled me to send you the following list as observed in the markets during a residence there of three weeks in April and May:—

"Papaw," Carica papaya, I saw in two forms, the common ovate, the other resembling a Vegetable Marrow, measuring from a foot to 15 inches in length, and weighing from 4 to 6 lbs. In addition to these were "Sour Sop," Anona muricata, Guava, Psidium pyriferum, and Pine Apple, two varieties, called black and white, both apparently offsprings of the Providence. The fruit of these were small, but they were of fine flavour; average weight 1 to 2 lbs.; price 1*d.* to 2*d.* each. The largest Pine seen weighed a trifle less than 4 lbs. The "Monkey Apple," Anisophyllum laurinum, has fruit the size of a Golden Drop Plum, with a large stone and tough stringy pulp, acid. Of Mangoes there were several varieties, distinguished as Hog, Cherry, and Peach Mango, the latter is the best, the fruit is large, red on one side and tastes less of turpentine than the other varieties. I saw two sorts of Plantains, Banana form, of which the small Golden is the best flavoured, the red-fruited Jamaica was the largest and finest looking. Oranges, Limes, Lemons, Shaddocks, I saw in abundance. Avocada Pear, Persea gratissima, was not plentiful; price 2*d.* to 4*d.* each, a most delicious fruit when taken with Lime juice and sugar. The Granadilla, Passiflora quadrangularis, and P. laurifolia are sometimes offered for sale, but they are apparently not much cultivated. Inga biglumosa, called "Locust," I saw in pod; the sweet yellow meal of this is also sold separately in measures of half a pint each for 2*d.* Black Tamarinds (Dialium guineense), in the shape of a small one-seeded pod, is collected in loose panicles. It is pleasantly acid, and is used to make cooling drinks. Bread-fruits are plentiful. Few trees present a finer appearance than these when laden with their large fruit. "Damson Plums," resembling loose clusters of Black Hamburgh Grapes, may be found, but they are tough-skinned and large-seeded; they taste strongly of turpentine. To these may be added Cocoa-nuts and Cashew-nuts, and two varieties of a native fruit called by the natives of Sierra Leone Beacon Bush, and by the Jaloff people "Kibbit;" they resemble a small Orange, and contain a few large seeds enveloped in pulp, which is insipid and scarcely edible. "Krooman's Papaw" is a splendid looking fruit, with the size and appearance of a large cricket ball covered with crimson morocco leather; it is borne in clusters of 10 or 14 fruits together; each contains a quantity of watery juice, which is ejected with force when the skin is punctured. The seeds are the size of small Acorns, enveloped in a sweet yellow flesh, which latter is the only part eaten. Some trees of this are growing in the neighbourhood of Sierra Leone, but I had not an opportunity of seeing them. The inhabitants recognise it as a new fruit, but probably it has been previously noticed. It is said to grow at Monravia and other places in Liberia, but whilst lying there I had not an opportunity of going ashore.

Several wild fruits are also brought to market under native names, but the majority of them are worthless; they are either so austere or insipid as not to be tolerable to European palates. Many other fruits are cultivated at Sierra Leone which are not in season now. They are comprised in the genera Spondias, Hog Plums; Chrysophyllum, or Star Apples; and Anonas, Sops. The Guinea Peach I could learn nothing respecting, natives or Europeans apparently knew nothing of it, neither have my inquiries on other parts of the coast been attended with more success. I cannot say much in favour of the native fruits, perhaps the Monkey Apple is the best of them; it occurs in great abundance everywhere round Free Town, but where the ground is cleared occasionally by fire it appears only as a small shrub. On the hills I have found it growing to the height of 20 or 30 feet.

The Pine Apple, now so common in a wild state about Sierra Leone, cannot I think be considered indigenous; it grows abundantly, forming dense thickets almost to the exclusion of other plants in several parts of the colony, but always near cultivated ground or villages; in the mountains, as the Sugar Loaf and those beyond, I did not meet with it at all, nor in uncleared ground, or places remote from habitations or footpaths. In all the gardens of the negroes the plant is cultivated, and the manner in which the crowns are scattered by the fruit being eaten in the hand will sufficiently account for the appearance of the plant under the circumstances just mentioned in this hot moist climate. Other Bromeliaceous plants do not occur; the Pine Apple, as a migratory species, is the sole representative of the family.

The vegetable market is well supplied and cheap. Yams, three or four kinds; Cocas, Cassavas, Sweet Potatoes, the common Potato, but only as imported from England; Cabbages, French Beans, Onions, Shallots, Garlic, Radishes, Lettuces, Tomatoes, white and red; Watercresses, Gourds, Cucumbers, various Peppers from the genera Amomum, Capsicum, and Piper; most of the herbs which are seen in an European market, besides various native productions used in making the soups of the country. Numerous seeds, barks, and roots having useful medicinal properties are exposed for sale; but as few of these can be traced to the plants from which they are derived, the bare enumeration of them would be useless. *C. Barter, Botanist to the Niger Expedition, Fernando Po, June* 10, 1857.

ORNAMENTAL GARDENING.

I.—INTRODUCTORY.

"I think, therefore, the true test of all the arts is, not solely whether the production is a true copy of nature, but whether it answers the end of art, which is to produce a pleasing effect upon the mind."—*Sir Joshua Reynolds's Discourses.*

If there is not at the present time any decided school of gardening; if there is no mania for mere imitation; no following of this or that style, simply because it happens to be the fashion, it is that we are beginning to arrive at a better knowledge of what a garden should be—of a true appreciation of garden scenery as something totally distinct from landscape scenery. This being admitted, we ought not to recognise in name what we deny in reality, by still retaining in our vocabulary the contradictory term landscape gardening. Such a term in fact ought never to have been admitted, expressing as it does two things which are antagonistic to each other, and which, if the true aim and objects of a garden proper be recognised, can never be intimately blended. "Scott," to quote the words of a writer in the "Quarterly Review," "very justly finds fault with the term landscape gardening, which is a word that has proved fatal to our parterres;" and he adds, "if such a word as 'landscaping' be inadmissible, it is high time to find some phrase which will express the laying-out of park scenery as completely distinct from 'gardening' as the things themselves are." The aim to unite in practice what the term landscape gardening suggests in theory has unquestionably been productive of many evils; for one can hardly imagine two things more opposite in all their essential particulars than a garden proper and a painter's landscape. A garden is, and should be recognised as a work of art. Any attempt to disguise this must end in failure and disappointment. No matter whether the style be decidedly formal, or the so-called picturesque, it is still purely a work of art. It is a scene created for the enjoyment of and carefully tended by man, and to attempt to banish the idea of his agency or superintendence, even in theory (it never can be done in practice), is absurd, and at once ignores the true end and aim of a garden. It is true that the great essentials of ornamental gardening are to create pleasing combinations of water, plants, trees and flowers, with buildings, statuary, and other architectural accessories of a garden; but such scenes, though capable of being exquisitely beautiful in themselves, or even when transferred to canvas by the skill of the painter, have little in common with purely landscape scenery, and can never be confounded with it. A garden and its scenery is, in fact, as purely a work of art as a living room and its furniture. The only difference is that in the one case you have natural objects artificially arranged, and in the other both the objects and their disposition are artificial. The hand that arranges either can only be successfully guided by an eye which has a true perception of the beautiful both in form and colour.

The creation or improvement of landscape scenery, however, demands far higher powers of the mind than the mere designing and arranging of a garden. In the former an artistic appreciation of scenery must be wedded to the faculty, and that in an eminent degree, of prejudging future effects from present causes, which are in themselves insignificant, and which, to an ordinary eye at least, often bear no appreciable relation to the effect intended. In fact he who attempts to create or to improve landscape scenery must be in every sense of the word an artist in feeling, and if he possesses the mechanical powers which are usually associated with the name of artist, so much the better. But this is not gardening. And if, as the writer before quoted observes, "landscaping" be not admissible, and if there is no word in our language that is really applicable it is surely possible to invent one that shall express what is meant. But until a better name is adopted we must be content with the one we have.

In a garden everything bears the impress of art. If it were not so it would not be a garden. The forms and disposition of the flower beds and shrubberies, the graceful undulation of the lawns and windings of the walks, and, above all, the high keeping so essential in a arden remind us at every turn of the constant superin-

tendence of art. If to create varied and pleasing scenes out of the simple elements of which a garden is composed does not demand any great mental qualities, they certainly call for the exercise of good taste. Dr. Johnson in his life of Shenstone has a passage upon this subject which may be very appropriately quoted here. "Whether," he observes, "to plant a walk in undulating curves, and to place a bench at every turn where there is an object to catch the view—to make water run where it will be heard, and to stagnate where it will be seen—to leave intervals where the eye will be pleased, and to thicken the plantation where there is something to be hidden—demand any great powers of the mind, I will not inquire. * * * But it must at least be confessed that to embellish the form of nature is an innocent amusement, and some praise must be allowed by the most scrupulous observer to him who does best what multitudes are contending to do well."

But although, as a general rule, the creation of landscape scenery has nothing whatever to do with gardening, instances sometimes occur in which a just appreciation of its beauties are demanded; as for example where the garden forms the foreground to extensive views, which will of course be as much as possible appropriated. But even then the control of the artist can rarely be exercised beyond the immediate foreground, and to cramp his efforts still more, to bind him in spite of himself to the recognition of art, shade and shelter claim attention over mere prospect, and compel him to mould his designs to the comfort and convenience of man.

I prefaced this article with a quotation from the admirable discourses of Sir Joshua Reynolds, and I cannot do better than conclude it by another, conveying as it does so forcibly, and in much better manner than I could myself, the sentiments which I wish to express:—"Gardening, as far as gardening is an art, or entitled to that appellation, is a deviation from Nature; for if the true taste consists, as many hold, in banishing every appearance of art, or any trace of the footsteps of man, it would be no longer a garden. Even though we define it 'Nature to advantage dressed,' and in some sense it is such, and much more beautiful and commodious for the recreation of man, it is, however, when so dressed no longer a subject for the pencil of a landscape painter, as all landscape painters know who love to have recourse to Nature herself, and to dress her according to the principles of their own art, which are far different from those of gardening, even when conducted according to the most approved principles, and such as a landscape painter himself would adopt in the disposition of his own grounds for his own private satisfaction." In this series of articles then we shall have little to do with landscape scenery; that will form a subject for future discussion. That the subject of gardening proper may be treated simply as such, the word "ornamental" has been substituted for the more generally adopted one "landscape" at the head of this preliminary paper. *George Lovell, Landscape Gardener, Bagshot.*

Home Correspondence.

Manuring Forest Trees.—In your Paper of the 8th inst. there is an article on this subject; perhaps the following remarks may be of some use to your correspondent. I have made a few experiments and observations how trees might recover their health and become useful and ornamental to those who possess them. The want of proper nutriment either to vegetables or animals soon shows itself in one way or another, and food applied even in a rough state is to all appearance greedily received when animated beings are in want of it. The trees I intend to make a few remarks upon had fallen into a languid state through want of food, or in other words the soil appears to have been worn out by means of the crop that grew upon it. In a hollow part of a wood where some Elms and other trees were planted some years ago symptoms of decay manifested themselves in a very prominent form, such as the leaves turning yellow early in the season and falling off, when others in a more healthy state remained longer to perform the office assigned them. Leaves in such a state make little wood for the tree that bears them; the young shoots apparently never ripened their wood, for many of them died, and the trees altogether had a decaying appearance. The hollow ground was used to put rubbish in that came from the garden and other places. It was thought at first that the rubbish would kill the trees by burying the roots too deep, but much that was put there was of vegetable origin, which soon decomposed, and being of a porous nature did not prevent the air from reaching the roots, and instead of injuring the trees they soon began to show signs of improvement. Their health recovered rapidly, their leaves expanded in length and breadth, their shoots did the same, and their leaves instead of being the first to droop in the autumn, continued to hold on as long as most deciduous plants do. From these observations we may learn that even old trees may be made to have a healthy old age, and young ones that have set prematurely in their growth, from want of proper soil to grow in or some deficiency in the constituent parts of the soil, may be made either by liquid or solid food to resume a healthy state, and may live from generation to generation a shelter and an ornament in the place which they occupy. Liquid manure may also be applied with advantage to forest trees. In a plantation where the trees were chiefly Oak, Elm, Maple, Spanish Chesnut, and Birch, and the soil light, the subsoil being of a clayey nature, where liquid manure was applied to some of the trees, they profited greatly by it. The few Elms that remain in the plantation in the natural soil measure on an average about 1 foot 7 inches in circumference at 3 feet from the ground; the Maples or Sycamores in the same soil measure about 1 foot 9 inches in circumference at 3 feet from the ground. In the same plantation and same soil there are two places where the Maple and Elm have grown much better than the rest. These have had their roots occasionally watered with liquid manure, and the difference in the measurement of the stems shows that they agree well with such treatment. In one of the places the circumference of the Maple 3 feet from the ground is 3 feet 5 inches, and contains about 12 cubic feet of timber, and the Elm measures 4 feet in circumference, and contains about 20 cubic feet of timber; in the other place the Maple measures 3 feet 6 inches in circumference, and contains about 14 cubic feet of timber, and in both places the trees are remarkably healthy, and stand about 18 feet apart. It may be a long time before such manure can be spared for growing forest trees, and there are some kinds to which it would do more harm than good if it were applied, such as Pine and Fir trees; but if even the slops thrown away as waste water from gentlemen's and farmers' kitchens and dairies were applied to the purposes of arboriculture, there would be both pleasure and profit derived from the application. Many trees may be seen growing in soils naturally poor and unfitted to carry heavy timber without assistance, and trees considered by many to be in the last stage of existence may be made to renew their growth; for, give a tree room to grow and food to live upon, and vegetable physiologists will not be able to tell how long it should live and how large it should grow. *P. Mackenzie.*

Tree Guards.—In reply to the inquiry of "A. N. I. C.," whether the rubbing of sheep is injurious to ornamental trees, I have observed that it has been injurious. I have a guard, which I adopted after trying many several years ago, and subsequent experience has confirmed its advantages. It is formed as follows;—Take stakes, such as are used for hurdles for sheep folds, drill holes through each 3 or 4 inches from the top and from the bottom; then saw another stake across into 2 inch lengths, and drill each in the direction of the growth; thread the stakes and the short pieces, alternately, as many as may be necessary to surround the stem of the tree, on a copper wire at each end, and close it round the stem and fasten the wire. This forms a secure cradle, very much resembling that put over a horse's neck to prevent his reaching to bite a blistered leg. Space must be left to admit of the growth of the stem for three or four years. The cradle lies loose round the tree, on the surface of the ground, and never damages it; and it effectually prevents barking, for which some animals have a most inconvenient propensity. Three feet stakes are sufficient for sheep and 5 feet for cattle. *C. L.*

Crystal Palace Scarlet Dahlia.—An advertisement in your Paper last spring announced that as a bedding plant this variety would stand pre-eminent and would be found unequalled for the decoration of the flower garden in the autumnal months, &c. So far good; but permit me to state that I have proved it to be identical with a seedling raised by my father (Joseph Wells), at Redleaf, some 25 years ago. There it always was a favourite massing plant. Surely therefore a cheap old plant should not have been sent out at a high price with a new name, and my father deprived in his declining years of the honour of having raised a good and useful flower. Under such circumstances I hope that the name of Crystal Palace Scarlet may be withdrawn, and that the old and appropriate name of Wells's Ranunculiflora may be henceforth substituted for it. *C. E. Wells, Gardener, Highnam Court.*

Alonsoa Warczewitzi.—In the spring of 1856 I sowed a packet of this Alonsoa in an 8-inch pot; it bloomed the whole of the summer, and yielded a quantity of seed. In autumn I cut off the flower stems, and kept the pot in a dry cold frame, and this year it has been in bloom from May until the last fortnight; it is now covered with seed. *E. Persac, Exeter.*

Names of Florists' Flowers.—I am aware that I have small claim to be considered a botanist, and if possible still less desire to be thought a "florist;" and what possible connection exists between the two I am at a loss to understand. "J. E." accuses me of having stated my complaint inaccurately, and says there is no Calceolaria "Shrubby Dazzle." To this I shall only reply by referring him to the "National Garden Almanack" for 1855, page 42. Then "J. E." does not, or will not, understand the sense in which I employed the term inappropriate. Nigger as a name certainly conveys the idea of a sooty complexion, and so would coal-scuttle or chimney-sweep, but are they notwithstanding appropriate names for flowers? There is to me something repulsive in such names as I have before mentioned as applied to flowers, and moreover they are not pleasing or musical in themselves—qualities which names for florists' flowers should have. As mere isolated names they are bad enough, but when employed in conversation they are infinitely worse. We will imagine "J. E." to be conducting a few friends round his garden, and pointing out to them some of its more striking features and occupants. A fine Dahlia attracts attention:—"Pray, Mr. E., what is the name of that very dark flower?" "That, Madam, is the 'Nigger;' and the fine Calceolaria in the border opposite, to which I beg your especial attention, is 'Shrubby Dazzle;' and pray, Tomkins, did you observe (but as a Dahlia fancier I am sure you did) that attractive flower by the sun-dial? That is an especial favourite of mine; its name is 'Lollypop.' And, by the bye, how have the Geraniums I sent you succeeded?—I mean the Pretty Polly." How any one can seriously defend the use of such names for flowers I am at a loss to guess. They are neither pleasing in themselves nor suggestive of pleasant associations. *G. W. L.*

Mandevilla suaveolens.—This beautiful climber is generally treated as a stove or greenhouse plant, at least I have not noticed any account of its having been grown in the open air. If the following mode of treatment, therefore, is new to any of your readers, I shall be pleased to have been the means of bringing it under notice. The circumstances which led to my treating it as a hardy plant are these. I had a large specimen on the back trellis of a Vinery where it grew most luxuriantly for some years. Every summer, however, it was attacked with green fly and red spider, and notwithstanding every exertion these pests not only maintained their hold on the Mandevilla, but the latter spread to the Vines, which I need not say it greatly injured. I saw I had no chance of ridding the Vines of spider unless I removed the Mandevilla from the house, and I reluctantly made up my mind to do this. Observing however that such branches of it as passed through the sashes at the top of the Vinery to the open air continued to flourish till the beginning of winter, I began to think that the plant was not so tender as it had been represented to be, and accordingly I determined to give it a trial on a wall. I therefore cut it in to the bare woody stem, about 3 feet from the ground, and removed it into a good sized pot which I placed in a small orchard house erected here last autumn. During the whole of the winter it received no covering, and there being no fire in the house the thermometer frequently fell as low as 20°, and on one or two occasions to 17°. The vitality of the plant, however, continued unimpaired, and I planted it out towards the end of March on a wall with a south aspect. As the season advanced the stem became studded with numerous buds, which in due time threw out branches, and it is now growing and blooming abundantly. If the weather is at all favourable I hope to have it flourishing for a couple of months to come, and I am sanguine enough to hope from the degree of cold to which it was subjected last winter, and stood uninjured, that I shall be able to preserve it during the ensuing cold season by covering it with a thick mat. *John Ferme, Haddington, East Lothian.*

Disgraceful Impertinence.—I very much wish you would notice the extreme annoyance which I and many others have been subjected to during the last two or three years, and this season more especially, by the almost daily visitations of men travelling for orders from various nurseries in different parts of the country. A ring at the bell, a card brought in—Mr. Tonkins or Hopkins solicits an interview. He is shown into your study, and you find a person dressed in black with a flashy gilt watch chain dangling across his waistcoat; his hair parted on one side and flattened down with grease. He carries a portfolio under his arm, and announces himself as commissioned by Mr. So-and-So to introduce to your notice various splendid novelties. Unclasping his portfolio he displays a vast number of highly-coloured nondescripts, which he "can do you" from 5*s.* to 5 guineas. You tell him you really are not in want of any. He still persevers, till at last you can bear the infliction no longer, and you have fairly to order your servant to show him the way out. Once in a while this might be put up with, but from day to day to be bored by a set of men with whose characters few persons are unacquainted, is not to be tolerated. I found one fine gentleman endeavouring to take liberties with the maid-servant in the hall, which he will be loth to repeat elsewhere, I strongly suspect. The effrontery of these men has no limit, and a lady friend was greatly distressed by the conduct of one fellow, who in spite of her remonstrances sent down a hamper of plants, which I returned for her with a suitable comment on the proceeding. They have no right to intrude themselves on private individuals, they are in the trade, and to the trade let them keep; and in the name of many I beg you will make known our decided disapproval of these visitations—it is a nuisance which you must release us from. *A Reader from No. 1.* [Why see them?]

The Yew.—In the church-yard of this parish, Winscombe, in Somersetshire) is growing a fine Yew tree, of which I inclose a rough sketch. Its size and the majestic head make it an attractive object to visitors in the neighbourhood. The circumference of the stem at the step is 17 feet, and at the smallest part below the branches it measures 15 feet round. The diameter of the spread of the branches is 65 feet, thus it covers an area of upwards of 360 square yards. *Henry Dymond, Sidcot, near Weston-super-mare.* [It seems from the drawing sent us to be indeed a noble tree.]

Ivy.—I am going to add to my house and want Ivy to cover one side. Can any of your correspondents tell me whether Ivy will adhere to the smooth surface of Roman cement, or to rough-cast? I should be extremely much obliged for information. The older part of my house is covered with lias cement, which is level but is rough like a file; and after many years' trials I find that Ivy will not adhere to it. Even when it has occasionally grown up the first gale tears all down. *C. D.*

Spiræa ariæfolia.—Trained as a standard this is a truly beautiful plant intermixed with Standard Roses. Of course it requires some skill to get a fine, clean straight stem, 3 or 4 feet high, but when this has been obtained, all that has to be done is to treat the plant as

you would a Standard Rose. A well formed standard when in full flower is indeed a gem. *J. Walker, Royal Hospital Garden, Dublin.*

Societies.

Botanical of Edinburgh (*concluded from p.* 583). —"*On the Development of the Yeast Plant.*" By Mr. J. Lowe. After some general remarks on the nature of yeast and the yeast plant, Mr. Lowe proceeded to observe that, "under the microscope, brewers' yeast consists entirely of cells, spherical in form, transparent and nucleated, varying from 1-7500th to 1-2500th of an inch in diameter. The nuclei are highly refractive, and vary from 2 to 10 in number. These nuclei were termed globuline by Turpin. The growth of yeast has been divided by Pereira into three stages—1st, That in which the cells are single; 2d, That in which they have become elongated and form a mycelium; 3d, That of aerial fructification. The first stage, or that of yeast proper, is said by Mitscherlich to consist of two kinds, viz., Oberhefe (or surface yeast), and Unterhefe (or sediment yeast). These two varieties are propagated in different ways, and each produces specific results upon the fermenting liquor. The Unterhefe is the ferment of Bavarian beer, which is allowed to ferment very slowly, and at a low temperature. The formation of lactic and acetic acids is thus avoided. The following is a brief account of the changes which I have observed yeast to undergo in the process of fermentation at the distillery of Messrs. Duncanson, and at the brewery of Messrs. Jeffery, to whose kindness I am much indebted. Before its application to the wort, yeast is seen to consist of isolated cells of a spherical form intermixed with some which are oval or tubular. These latter are only formed on the surface of the yeast where it has come in contact with the air. They are the commencing mycelium, and should never be present in any considerable quantity, as they materially affect the process of fermentation. The spherical cells are seen to be of two kinds; the one having a thin very transparent cell wall, containing from 2 to 10 nuclei—these are found in yeast which has become sour, and they are usually met with at the bottom of the cask. They appear to correspond with the Unterhefe of Mitscherlich. In specimens of yeast kept in bottles I have found that the cell wall became thinner and the nuclei more numerous in proportion as the fluid became more acid. The other kind of cell has a thicker cell wall, and contains, instead of a number of nuclei, a large globular, granular mass or blastema, which in older yeast is converted into nuclei. This is the most perfect form of yeast, and is the only kind which should be used. Its activity I have found to be always proportionate to the thickness of the cell wall, and this, a most important subject to brewers, can easily be determined under the microscope, and thus the value of any specimen of yeast made apparent. After being added to the wort, yeast, which consists of the two varieties of cell above mentioned, is observed to undergo two kinds of growth. The nucleated cells, with the thin walls, burst and liberate the nuclei ('globulins seminifères' of Turpin), which then increase in size and become like the second kind of cells. This is the form of propagation which Turpin observed in the rupture of the cells, although he makes the cell contents appear to be finely granular instead of nuclear. I am satisfied that it only takes place in old acid yeast, and not as Turpin imagined as a result of normal fermentation; and this explains why others have failed to observe the process of bursting in fermenting yeast, for it can only be seen on the first addition of the yeast to the wort; and, moreover, in new yeast these cells are often altogether absent. The thick-walled cells, and the enlarging nuclei, after the period varying according to the temperature and the activity of the yeast, are observed to put forth minute bud-like processes, which soon separate and enlarge themselves, afterwards undergoing the same process. This is the second mode of growth noticed by Turpin, and is, in fact, the only result of true fermentation. My own observations confirm those of Mitscherlich, who thinks the true modes of propagation just mentioned are the only ones, and that the conversion of 'globuline' into cells is entirely erroneous. The budding was observed by Turpin to begin after an hour, and the gemmations were doubled in size in three hours: in eight they had attained the size of the maternal cell. There can, however, be no stated time for these changes, for they vary with the temperature. In distillery wash, which is worked at a much higher temperature than brewery wort, the process begins much sooner, and is sooner completed; and as might be inferred from the fact of their rapid growth, the cell walls are much thinner in the former than in the latter. One very important fact results from this, viz., that yeast which has been worked at a high temperature loses a considerable amount of its activity. It is in fact 'forced,' and if yeast of this kind be applied at once to work at a lower temperature, the process of fermentation will be late in commencing, and will often stop. If, however, the yeast be allowed to stand for a day or two it recovers some of its activity, but it is never so good for working at a lower temperature; and, therefore, as a general rule, yeast should always be worked at a higher temperature in each succeeding operation, that is, it should, if possible, be worked in cool wort before being applied to wort which requires to be worked at a greater heat. As soon as the process of fermentation has attained its maximum, the budding begins to decline, and ceases towards the close of the operation. The cells, which were before of very variable size, now become more uniform, and the nebulous mass in their interior assumes a more definite outline, and appears to be finely granular. After remaining on the liquor for five or six days, a portion of the cells which are exposed to the atmosphere become oval and then elongated into tubes, multiplying still by gemmation and fissiparous division. Similar formations are also found in the sediment of the tun. This is the first stage in the formation of the mycelium, and exercises an influence of an important kind over the fermentation of the liquor. The subsequent changes consist in the formation of a mycelium composed of a network of ramifying tubes. These tubes are identical in form with those given in a previous paper, and need not therefore be again described. The perfect fructification in the specimens which I have examined is that of Aspergillus glaucus, but there can be no doubt, as I have before remarked, that other species and genera are also present. In proof of this a series of experiments were made in Messrs. Jeffery's brewery, with the following results:—1st, A quantity mixed Penicillia and Aspergilli (P. glaucum, Asp. glaucus, A. nigrescens, &c.), were placed in a gallon of wort at a temperature of 65° Fahrenheit, and allowed to stand in the tun-room. On the second day the surface was covered with specks of foam. On the third day the fermentation had fairly set in, and the surface became coated with pale yeast, which, under the microscope, exhibited oval non-nucleated cells in a state of gemmation. On the 4th day the fluid gave off a nauseous "foxy" odour, which disappeared on the 6th day, when the yeast cells were observed to have become spherical, and in all respects like good yeast. On the 8th day the yeast was removed from the surface and applied to a fresh quantity of wort at the same temperature. This entered into fermentation on the first day, and exhibited all the characters of perfect yeast. The second experiment was made by placing a portion of Penicillium glaucum in wort, under the same circumstances as in experiment 1. The same series of phenomena ensued, ending in the production of good yeast. A third and fourth experiment were made with Aspergillus glaucus and A. nigrescens with like results; the only difference being that the sporules produced by the latter were at the commencement larger and more spherical than in either of the other species, from which it may be inferred that this species would yield a better kind of yeast. The idea that yeast can be produced spontaneously in nitrogenous fluids we hold to be entirely erroneous, for we see that the lower class of fungi are capable of yielding it, and from the general distribution of these they must be present in every kind of exposed fluid. Another subject which has not received the attention which it deserves is the growth of fungi on malting Barley. Whole floors of malt may be seen in summer time covered completely with various fungi, which grow from the interior of the grain, and ramify within the perisperm. These must have a most important influence on the saccharine matter contained in the grain, and there can be little doubt that they affect its decomposition, and cause an immense loss to the brewer. The fact that malt made in summer time is never so sweet as that made in winter sufficiently attests to the truth of this observation. It is not improbable, where the fungus is so abundant as I have sometimes seen it, that one-third of the saccharine principle is destroyed, and the foundation laid for the inefficient working of the wort during fermentation. In conclusion, I would merely remark upon one or two cases of skin disease which I have met with in those engaged amongst the yeast in breweries. Brewers, generally speaking, are not likely subjects for the growth of parasitic plants, but I have met with several cases which seem to me to prove that these are derived from the growing yeast, and thus tend to establish the proposition laid down in my last communication regarding the origin of skin diseases. In one brewery, I met with two cases of Psoriasis annulata, and one of Mentagra. These occurred in the only persons who were engaged amongst the yeast. The former were both situated on the right upper extremity, in the one case on the back of the hand, and in the other, on the anterior surface of the fore-arm, about 3 inches above the wrist. It commenced as a small red spot, and in eight days had attained to the size of a shilling. On examining it carefully under the microscope, a distinct mycelium was obtained, differing in no respect from the same growth in favus, with a recent specimen of which it was compared. I have not yet had an opportunity of making inquiries at all the other breweries, but I have little doubt that other instances of a like nature will be found."

Notices of Books.

A Guide to the knowledge of Pottery, Porcelain, and other objects of Vertu, &c. By Henry G. Bohn. 8vo, pp. 504. Bohn.

This is in reality the illustrated catalogue of the celebrated Bernal collection of curiosities, republished, with the addition of an illustrated lecture on Pottery and Porcelain, and a rather long Appendix upon the same subject, both by the author, who is an enthusiastic amateur, well skilled in this branch of industry. A great part of the volume relates to armour, pictures, glass, furniture, &c. &c.

Not being admirers of china merely because it is rare, or curious, or costly; and unable to discover the wisdom of paying a large price for non-descript cups and plates neatly flashed with designs that would disgrace a child, or for such tawdry ware as is now made under the name of Majolica, we at once avow our inability to do justice to the subject of Mr. Bohn's work. Indeed, we are heretical enough to prefer the common brown and white flower pot exhibited by Mr. Gleadhming at Chiswick and in Regent Street to half the costly porcelain wonders amassed by the collectors of old china. That is however no reason why Mr. Bohn should not express his enthusiasm in an opposite direction; nor is there any probability of his wanting followers so long as the present collecting mania continues.

"All descriptions of old Sèvres," he says, "are now collected with eagerness, and sell for high prices; but 'pièces de luxe,' which are generally painted by the best artists on grounds of 'bleu de roi,' 'gros bleu,' 'turquoise,' 'Rose Dubarry,' 'Jonquille' (a canary yellow), 'vert-pré' (a bright green), or 'œil de perdrix' (partridge eye), sell at auctions for sums almost fabulous. At Mr. Bernal's sale a pair of Rose Dubarry vases (No. 469) sold for 1942*l.* 10*s.*; a pair of turquoise vases (No. 470) for 1417*l.* 10*s.*; a single bleu de roi vase (599) for 871*l.* 10*s.*; a single green vase, with a painting after Greuze (No. 507), for 388*l.* 10*s.*; a cup and saucer (No. 451), painted by Morin, for 160*l.*; and a jewelled cup and saucer (No. 571) was thought cheap at 30*l.* And since Mr. Bernal's sale, this kind of property has increased in price rather than diminished."

Such is the madness of 1857; a landed estate exchanged for a pair of little china jars, with ridiculous Cupids sprawling on their sides!!!

Mr. Bohn's lecture is an interesting abridgment of the history of pottery from the earliest days to the present time; and his long account of the marks or monograms used by the old potters will doubtless be found most valuable by collectors. We can only find room for a part of his account of Sèvres porcelain.

"This beautiful porcelain originated at St. Cloud, where an artist named Morin, after more than 25 years of experiment, succeeded in discovering an artificial soft paste. In 1735 a runaway carried the secret to Chantilly; and in 1740 it was conveyed in like fashion to Vincennes. It was not, however, till several years later that it arrived at perfection, and not till 1753, when Louis XV. took a share in the establishment, that its recognised date commenced. Three years after this the factory became too small for its extending operations, and was removed to Sèvres.

"The extraordinary perfection to which this porcelain arrived is especially attributable to the patronage of Madame de Pompadour, who, from 1741 to 1764 was the strenuous supporter of all the elegant arts.

"The '*pâte tendre*' manufacture, however, was limited to the use of the wealthy, and never became a staple article of commerce, as the difficulty of its composition, and the loss sustained by its liability to fall in the process of firing, made it of slow produce and very expensive. The true porcelain or hard paste, such as was used by the Chinese, and had recently been discovered at Dresden, still remained unknown at Sèvres, in defiance of the unremitting researches made to discover the secret. In 1761 G. A. Hanung, son of the founder of the Frankenthal factory, sold them the secret; but it was comparatively useless, for want of the white earth called *Kaolin*, which had not been found in France, notwithstanding the diligent inquiries of scientific men.

"Chance led to its discovery in 1768. A poor woman named Darnet, the wife of a surgeon at St. Yrieix, near Limoges, found some unctuous earth in a ravine, which she thought might be used as a cheap substitute for soap. On showing it to her husband, who was aware of the inquiries made for a porcelain earth, he took it to a neighbouring chemist, through whose means it was proved to be the true *Kaolin*. This led to the hard paste manufacture at Sèvres, which, from 1769 to present, has been on a very extensive scale, and given employment to thousands all over the kingdom.

"The woman who discovered it was in 1825 still living, and in poverty, unable to return home for want of means. She applied to Mons. Brongniart, then the superintendent of Sèvres, upon whose recommendation Louis XVIII., on being made acquainted with her condition, granted her a pension from the civil list."

The following well arranged trade catalogues are on our table. *Van Houtte's* list of Hyacinths and other bulbs now ready at Ghent, with a supplement containing a great variety of hothouse, greenhouse, and hardy plants, especially sinnias, the names of which are new. *Mr. Sim's* copious *lists of hardy and tender Ferns* grown for sale at his nursery, Foot's Cray; one useful peculiarity of which is the addition to the names of short descriptions suited to the wants of purchasers. There are also some good directions for cultivation, both out of doors and under glass. Visitors from London to this nursery must take care to read the travelling directions on the title page of *the Supplement* to Catalogue No. 5, since those on previous catalogues are no longer exact.

Garden Memoranda.

The Canterbury Exotic Nursery.—In a ramble through the fertile county of Kent, I lately took up my abode in the ancient and picturesque city of Canterbury. Walking one morning through the High Street, my eye was attracted by some beautiful flowers in a small shop window, and over it was written "Masters' Exotic Nursery." Having been already much pleased with the

love of flowers manifested by the people of Canterbury and the environs, and by the displays of some fine kinds of Fuchsias even in the houses of the poorer classes, which strongly reminded me of Ghent and other Belgian cities, I entered the shop and asked permission to inspect the various exotics. As I had seen many tropical plants in their native countries, I was agreeably surprised on entering the garden, where I found Mr. Masters himself. He at once entered into conversation, botanical of course, and Mr. Masters introduced me to his beautiful family, the result of many years of constant and zealous devotion; and I can say that his garden certainly realises its name, and possesses plants that I did not expect to find in such variety and high cultivation. Many of the exotics which I had seen flourishing in hothouses only since my return from the tropics, I here found growing in great vigour and beauty in the open air. There are also many species and varieties rarely met with in provincial nurseries; and Mr. Masters has decidedly shown what skill and care can effect in acclimatising plants. Most of the varieties introduced by Mr. Fortune from China are here well tested; the Calycanthus macrophyllus is now beautifully in blossom, and has been so for two months past; the double-flowering Pomegranate on a south-eastern wall is covered with a profusion of brilliant flowers, far superior to those which I had lately seen under glass in the Crystal Palace at Sydenham. I also found the lovely Lagerstrœmeria indica and the Clerodendron fragrans, where they have been growing unprotected for several years, and now appeared as if the frowns of winter had never passed over them. The gigantic Wellingtonia and many other rare Conifers show also how well they can adapt themselves to our climate under the skill and care of Mr. Masters. A very large house is devoted to Camellias, which are in fine health and well set for blossom, while the variety of sorts is very extensive. The collection of Azaleas contains all the best varieties, and were in excellent condition, though their gorgeous beauty had passed away. The garden is also rich in every kind of Fuchsia, many of them of great beauty; this plant, in fact, seems an especial favourite with the people of Canterbury, for nearly every window is lit up with its delicate and radiant glow. I was also glad to find so many fruit trees in pots of small dimensions; and from the free manner in which they were fruiting, it seems an easy and agreeable way of transporting them. Peaches and Nectarines, Pears, Apples, and Figs were those which appeared the best adapted to this mode of culture. I was particularly struck with a beautiful bank of inflorescence formed by the union of Lilium lancifolium and Tritonia aurea. In the stoves I also found a very extensive assortment of Ferns and Orchids; and I saw the Grenadilla in fruit in a pot of small dimensions. I also made acquaintance with my old friends of the tropics, such as the Arrowroot, Cinnamon, Sago, India Rubber, the true Senna, the Black and Long Peppers, and the sensitive plant of Linnæus, very different from the kind usually grown. I also came upon an excellent specimen of the Urania speciosa, the Fan Palm of Mauritius, and several species of Araucaria, Guavas, Orange trees, &c. There is also a very interesting object which towers above its beautiful tropical companions, a Lombardy Poplar, the oldest in England, the diameter of which is remarkable; and near this is a tree of American Elm, grafted in 1816, which has also acquired an unusual growth. Having seen so many of the plants I have mentioned flourishing in their native places, I was particularly pleased with the healthy and vigorous appearance of these children of the tropics, which certainly did not seem to regret the warm atmosphere and sunny skies of their tropical homes. The *ensemble* of the gardens spoke highly for the artistic taste and skill in arrangement of Mr. Masters, and to him I believe the cathedral city of Canterbury is much indebted for the floral beauty of its public promenades, and of that favourite one *par excellence*, "the Dane John." This was my first visit to the city of Canterbury; and when I entered the "Exotic Nursery" I certainly did not expect to find not only so extensive a collection of plants of all kinds, but so much taste in their disposal, and so much attractiveness in all around. No lover of flowers who is passing near Canterbury should omit a visit to the "Exotic Nursery," and this pleasure will be heightened by the extreme urbanity of Mr. Masters. I was a perfect stranger to him, yet he kindly spent more than an hour in pointing out to me all the treasures of his garden. Considering the want of appreciation in many of our rich commercial towns of England for so delightful an art, I thought it simply right on my part to give expression to the pleasure I felt in visiting this result of many years of labour and anxiety, that others might participate in this pleasure by doing as I have done, and recommend so deserving a nursery to public notice. *Aug.* 15. (*From an occasional Correspondent.*)

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Hyacinths and other Dutch bulbs should be procured and potted for early forcing as soon as they can be obtained, and even where early forcing is not intended there will be a better chance of getting first-rate bulbs early than some months hence. Small Orange trees in pots for forcing in winter for the decoration of this house should now be fully exposed to sun and air, in order to get their wood well ripened, upon which their flowering freely will greatly depend. The Mandarin being a free grower, with a dwarf bushy habit and small foliage, and a most abundant bloomer, is probably the best for this purpose, but any of the varieties flower profusely provided the wood is thoroughly ripened in autumn. These and Daphnes should be largely grown wherever sweet-scented flowers are in demand in winter. Also see to having plenty of Salvia gesneræflora, which is an exceedingly gay plant and very useful for mixing among Chrysanthemums in the show-house. Should mildew appear on any of the soft-wooded Heaths, dress with sulphur at once. These will, however, be mostly out of doors, where mildew is seldom troublesome, but they must be guarded against getting too wet at the root. Get Azaleas that have set their buds tied into form, in order to give them a neat appearance. Also attend to the staking and training of other things as leisure time can be found. Look carefully after red spider on anything found to be liable to this pest, and see that it is eradicated before the plants get disfigured. It is easily got rid of by laying the affected plant on its side, and well washing the under sides of the leaves with the engine, applying the water with as much force as the foliage will bear. Shake out and repot Pelargoniums that are sufficiently advanced after having been cut back, keeping them rather close and moist until they strike into the soil. Plants, however, that are fairly established after repotting can hardly be too freely exposed to air or kept too cool. Also keep Cinerarias cool and moist, and attend to repotting such as require it. Primulas must also be carefully attended to, in order to encourage them to make rapid growth, particularly the double varieties.

FORCING DEPARTMENT.

Pineries.—Where the pot system of cultivation is practised, any of the stock which may appear to require repotting should be examined and shifted at once, if this is found necessary, in order that the roots may get hold of the fresh soil before dull cloudy weather sets in, when it will not be safe to encourage free growth. And any necessary rearrangement of plants growing in the open bed should also be effected as soon as possible, as with a little care in shading on bright days and keeping the atmosphere moist, this can be done at present with very little risk of checking the plants, so as to throw them into fruit, and there is also plenty of time to get them well established after removal before the dormant season. Encourage plants expected to show fruit next January to make vigorous growth, for these should be sufficiently advanced by the middle or end of October to allow of keeping them rather cool and dry through November and December, so as to check and thoroughly mature their growth, as unless this is attended to there will be considerable risk about getting them to show fruit at that season. Plants which have been prepared for fruiting, and which it is desired to get up at once, should be encouraged with a moist warm atmosphere, keeping the soil about their roots in a healthy state as to moisture. Some dislike to apply water at the root in the case of plants that have been kept dry for a time to check growth, and withhold it until the fruit is perceptible; but this is a mistake, causing loss of time as well as injuring the plants, as unless root action is encouraged, plants cannot be expected to start freely. If artificial treatment must be resorted to in order to get the plants to fruit at the desired time, there is no method so certain or so little injurious to the plants as keeping them cool and dry for a month, exposing them to as much sunshine as the foliage will bear without scorching, and then affording them a moist warm temperature and a brisk bottom-heat, giving sufficient water at the root to properly moisten the soil. Take off and pot, or plant out suckers at short intervals as they can be obtained of sufficient strength, for having a regular succession of plants is the most likely way to secure a regular supply of fruit. Vineries.—Take advantage of dry weather to give air freely in houses where the ripening of the wood is the object aimed at, and if a little fire heat is used, with air, this will be much more efficacious now than later in the season, when the sun will be less powerful.

FLOWER GARDEN AND SHRUBBERIES.

The stock of cuttings should be carefully looked over to see that nothing has been omitted, and that a sufficient quantity of everything is in a promising state for making nice dwarf plants before winter, and if it is found that the stock of anything is insufficient not a day must be lost in getting in cuttings. If, however, there is a reserve stock of strong plants in pots, which is a safe practice where there is a large quantity of bedding stuff required, and proper convenience for growing them and propagating in spring, these will furnish a large quantity of cuttings next March which will form equally good plants by turning out time as cuttings put in now. In the case of such things as Ageratums, Heliotropes, and dwarf Lobelias, it is useless wintering young stock, as these grow so freely in heat and are so easily propagated from soft cuttings that a few good-sized old plants which require but little room or attention in winter will furnish a very large quantity of plants by turning out time. See, however, where there are not plants to furnish spring cuttings, that plenty are got in at once, so as to provide while it can be done against the risk of being short of stock at planting out time.

HARDY FRUIT AND KITCHEN GARDEN.

Take advantage of dry days to get Celery earthed up, first thoroughly soaking the lines with manure water; also apply quicklime where slugs are troublesome. On heavy soils it is sometimes necessary to surround the plants with sand or sifted ashes to prevent their rotting off in winter, which they are apt to do if surrounded with soil that holds much water. Where anything of this kind is necessary it will be advisable to defer earthing up till later in the season, as frequent exposure of this sort would be very troublesome. Also pull Onions where ripe, and get them thoroughly dried. Thin young crops of Turnips, Spinach, &c., before they become weakly and drawn, through standing too close together. Stir the surface of the soil deeply among growing crops, to admit air to the roots, and keep down weeds. Recently planted Strawberries will be benefited by liberal applications of manure-water. Get spare ground manured and dug or trenched for another crop whenever time can be spared for this kind of work.

COTTAGERS' GARDEN.

As before observed high cultivation amongst all small crops will amply repay any extra labour it may require. Hoeing or even forking amongst growing crops, provided the roots are not injured, is highly beneficial to the plants, and will prove a sort of fallow for successive crops. Earth up Celery often, adding a little at a time. As has been elsewhere recommended, sow spare land with Rye and Vetches.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON

For the week ending Aug. 27, 1857, as observed at the Horticultural Gardens.

August.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Winds.
Friday 21	2	30.104	30.028	81	57	69.0	66	63	E.
Satur. 22	3	29.983	29.869	82	56	69.0	67	63	E
Sunday 23	4	29.812	29.726	86	63	74.5	67½	63	E
Mon. 24	5	30.180	29.760	85	54	69.5	68½	64	E.
Tues. 25	6	30.278	29.932	82	46	64.0	69½	64½	S.W.
Wed. 26	7	30.300	30.270	83	46	64.5	68	64½	W.
Thurs. 27	☽	30.298	30.246	81	44	62.5	66	64	S.W.
Average		30.122	29.973	82.8	52.3	67.5	67.5	63.7	

August 21—Overcast; very fine throughout.
— 22—Foggy; hot and dry; very fine at night.
— 23—Slight haze; very hot; clear and fine.
— 24—Slight haze; excessively hot and dry.
— 25—Hot and dry throughout.
— 26—Clear; very hot sun; cloudless; very fine.
— 27—Faint haze; cloudless; hot and dry; cool at night.
Mean temperature of the week 6¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Sept. 5, 1857.

August and Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.
Sunday 30	71.9	49.0	60.4	6	0.92 in.	
Mon. 31	70.8	48.5	59.6	14	1.31	
Tues. 1	70.1	48.4	59.3	16	1.50	
Wed. 2	70.7	47.1	58.9	11	0.44	
Thurs. 3	70.4	48.2	59.3	11	0.48	
Friday 4	70.4	47.1	58.8	13	0.58	
Satur. 5	69.7	47.5	58.6	14	0.30	

The highest temperature during the above period occurred on the 31st, 1843—therm. 85 deg.; and the lowest on the 4th, 1850—therm. 30 deg.

Notices to Correspondents.

Our Correspondents are requested to excuse until the return of the editor to town any delay that may possibly occur in replying to their inquiries in case it should happen that any one's communication has not received the usual prompt attention.

Asparagus: *Inquirer.* In preparing ground for this vegetable allow at the rate of 20 lbs. of salt for a bed 20 feet by 4 feet, taking care to spread it regularly all over the beds.‡

Fuchsias: *Galashiels.* Remove them to a dry warm situation where they will be fully exposed to the sun, and suspend watering gradually in order to harden the wood. Afterwards, when the plants are likely to be injured by the frost, remove them to a cool cellar, or similar situation, where they will be free from damp or drying winds (both of which would injure them). They may remain there until February. You had better however examine them once or twice during the winter, and if they appear dry sprinkle them slightly with water; if too damp, remove them into the open air on a fine dry day for a few hours. If you have no cellar or other place, tie them up tightly in Wheat straw (separately), and pit them like Potatoes.‡

Insects: *H M.* The insect inclosed within the shell is one of the largest known species of seed beetles (Bruchidæ). It is called Caryoborus Bactris. Can you inform us what was the seed attacked? The habits of the insect are similar to those of the common nut weevil, except that that insect leaves the nut in the grub state, whilst the Bruchidæ undergo all their changes within the seeds. *W.*

Names of Plants.—We have been so often obliged to constantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited task of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*A Subscriber.* 1, Not in flower; 2, Calluna vulgaris; 3, Erica carnea; 4, E. arborea?—*P B.* Bryum punctatum.—*S S.* 1, Senecio Jacobæa; 2, Inula dysenterica. Improved culture and good cultivation will soon cause these to disappear.—*Diamond.* Holcus cernuus, Willd., Sorghum cernuum of some authors. Much eaten in warm countries where the seed comes to perfection in the open air.

Potato Seed: *Sub.* The Plums when ripe may be spread on a dry loft until they become shrivelled, and then mixed with twice their bulk of dry peat or sand, turning the whole occasionally until the pulp becomes dry and mixed with the peat or sand, in which the seeds will keep good for years. The plan of washing the seed out of the shrivelled Plums and thoroughly drying it also answers perfectly; and, suspended in bags in a dry situation it will keep good for a long time, more especially if the slime has not been too much rubbed off in the operation of washing. Care must be taken, however, to keep it from mice. As much clean seed may be sent by post for 4*d.* as will grow plants for about an acre of ground.‡

Sundials: *Somerset.* We regret to say we do not understand the sketch sufficiently to have a drawing made from it.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES and others desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Copperas, &c.—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.
The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.
Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (Limited)
NOTICE is hereby given that the first Ordinary General Meeting of the Plymouth Seed, Agricultural Implement, and Manure Company (Limited), will be held at the Offices of the Company on THURSDAY, September 3, at 12 o'clock at noon, in accordance with the Articles of Association.
Signed, R. W. CLARK, Secretary.
Union Road, Plymouth, Aug. 29.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation can not grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE SHEDS, FARMYARDS, and all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

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GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.
GALVANISED SPOUTING, at from 10½d. per yard, for Farm Buildings, Houses, &c. Never requires painting.
PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 900 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.
GALVANISED GAME AND POULTRY NETTING.
Galvanised, 24 ins. wide, 2-inch mesh, 6d., 8d., and 11d. per yard.
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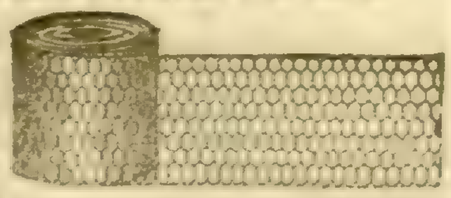
The Netting made any width, and with openings of any size.



GALVANISED CHAIN CAMP STOOLS AND CHAIRS (These are made to close up and are very neat, 6s. 6d. to 14s. 6d. each.)
GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.
WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.
WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½d. per yard.
For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

TO LANDOWNERS.
THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—The following distinguished Awards have marked the superiority of RICHMOND & CHANDLER'S numerous CHAFF MACHINES, CORN CRUSHERS, OIL-CAKE MILLS, TURNIP CUTTERS, &c., in competition with the best Makers in every class, exhibiting at the Glasgow Show, August 5, 1857:—
First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double-Action Turnip Cutter for Beast and
First Prize for best Oil Cake Breaker for Beast and Sheep.
First Prize for best Root Washing Machine. Also, [Slicer.
Specially Commended for Steaming Apparatus and Turnip
Works—Salford, Manchester;
Branch Establishment, South John Street, Liverpool.

HIGH-BRED SHORTHORN BULL for Sale, the property of Mr. HARVEY, Tillygreig—"Prince of Cobourg," four years old, rich roan, by Matadore, 11,800, Herd Book, Vol x.

d.	Matchless, 4,	by Velvet Jacket,	10,998
g.d.	Matchless, 2,	by Fairfax Royal,	6987
g.g.d.	Matchless,	by Bates' Holkar,	4041
g.g.g.d.	Premium,	by George,	2057
g.g.g.g.d.	"	by Togston,	5487
g.g.g.g.g.d.	"	bred by Mr. Laing, &c.	

"Prince of Cobourg" has won the following prizes:—At one year old, the Formartine Society's, and Royal Northern Agricultural Society's prizes; at two years old the prizes of same Societies; at three years old, the Royal Northern Agricultural Society's Second Prize at Aberdeen, and Highland and Agricultural Society's 20l. First Prize at Inverness; and at four years old (on 30th ult.), the Royal Northern Agricultural Society's First Prize—besides two Sweepstakes. He is an animal of fine constitution, docile temper, and very sure.—Apply to Mr. HARVEY, or his Overseer, Tillygreig, by Aberdeen, August 29.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

CRAVEN AGRICULTURAL SOCIETY. The Third ANNUAL SHOW will be held at Skipton, on FRIDAY, September 11, when 320l. will be awarded in prizes to Horses, Cattle, Sheep, Pigs, Poultry, and Implements. Forms of entry and Prize Lists may be had from Mr. GEO. KENDALL, Acting Secretary, Skipton, to whom all entries must be sent before the 2d of September.
STEPHEN ROBINSON, Hon. Sec.

The Agricultural Gazette.
SATURDAY, AUGUST 29, 1857.

IN resuming our remarks upon Mr. LAWES' practice of Lois-Weedon Wheat growing, we repeat that there are reasons for his failure which do not restrict the advantages of the system to Mr. SMITH'S special soil and locality. Commencing upon a bare fallow is opposed to Mr. SMITH'S directions, as we lately showed; and of course the adoption of a triple row in every 6 instead of in every 5 feet will of itself account for something like one-fifth minus in the yield. There is a discrepancy between the Lois-Weedon and Rothamsted experience as regards the quantity of seed used per acre, when the seeds are deposited singly at 2 to 3 inches apart in the rows. Mr. SMITH put in about a peck per acre: Mr. LAWES little more than half a peck: part of the explanation probably lying in the superior magnitude and boldness of the kernels of Mr. SMITH'S seed Wheat, obtained as it is with great care by a process described in the "Word in Season." In that work, however, it is always calculated that two pecks per acre will be used; and in "Lois-Weedon Husbandry" this quantity is advised "in order to secure a full and even plant," and "for the sake of the sample and for safety sake." On that portion of Mr. LAWES' land which was dibbled with two seeds in a hole, or rather more than a peck per acre, the produce was considerably greater than that having the thinner seeding; and it is, therefore, probable that with 2 pecks an acre the yield would have been much better. Still, as we have already said, it is this extraordinarily thin seeding, in conjunction with the fallow-worked intervals, upon ground in good condition for bearing a heavy crop in the ordinary way without intervals, that seems to have mainly occasioned the first blighted and miserable crop.

Let us now proceed to the second crop. While the first was growing the fallow intervals were trenched (in December, 1851) 14 to 15 inches; forked in spring; "occasionally spudded, but became foul and crusted over during the summer;" again forked before sowing. The same quantities of seed were dibbled in October, 1852: the crop was hand-hoed twice and weeded, and turned out foul, "poor, and blighted,"—the yield of dressed corn was about 4 bushels on the "one-seed" and 5 bushels 1 peck on the "two-seed" plot. The harvest of 1853 was one of great deficiency, and Mr. SMITH'S own Wheat produced only 26 bushels per acre: this, however, will not account for the insignificance of the above yield. It appears that the staple of 5 or 6 inches of good soil was buried (by trenching 14 or 15 inches) underneath 8 or 9 inches of raw upturned subsoil—a stiff reddish yellow clay, and this by one year's exposure was to become a fine and prolific seed-bed for Wheat. Does Mr. SMITH inculcate such a proceeding as this? In the "Word in Season" are the following passages on the point:—"In digging the intervals bring up only so much of the subsoil as can be thoroughly pulverised and mellowed for the succeeding crop; of clay only a few inches." "At the commencement of my trenching a field, I bring up only so much of the subsoil—say 4, 5, or 6 inches—as can be penetrated by the atmosphere and prepared for use by the one year's fallow;" "bring up at first only 4, 5, or 6 inches, according to the nature of the subsoil, whether tenacious, or loamy, or light. To bring up more at the outset would be a wasteful and injurious expense."

In "Lois-Weedon Husbandry" he says, "At the end of 12 years I have gained (on the clay piece) only a depth of 20 inches: my practice being to bring up only 2 or 3 inches of this tenacious substance at a time." How then could Mr. LAWES expect to reap a crop from his 8 or 9 inches of fresh clay? He says, "The same amount of labour expended upon the Rothamsted soil as upon the Lois-Weedon one was quite inefficient to get the same amount of staple, and of exposure of surface to atmospheric influences;" "the same means which afforded the early success on the soil at Lois-Weedon did not even attain for the Rothamsted soil those mechanical conditions without which the necessary action between soil and atmosphere could not be expected to take place." . . "A much greater porosity, and consequently a much greater amount of surface for atmospheric influences is attained in the heavy soil at Lois-Weedon than by an equal expenditure of mechanical means could be attained in the one at Rothamsted." And he proceeds to speak of the different capabilities of heavy soils for mechanical subdivision, &c., which we shall comment upon another time, as though precisely the same manipulation in trenching had been employed in Mr. SMITH'S and in his own case, something in the physical qualities of the two soils and had occasioned the difference in result. The fact, however, obviously was that, at Lois-Weedon a suitable quantity, and at Rothamsted an improper and mischievous quantity of the clay subsoil was brought to the surface at one time, in consequence of trenching too deeply. We are not told *how* this operation was performed; but if with the common spade, the simple manner of performing the operation may have exercised considerable influence upon the after crop. Mr. SMITH says, "For bringing up definite quantities of a few inches of subsoil, in even layers, and placing them on the surface to be acted on by the atmosphere before mixing with the staple, the fork is the only implement at present on which I can depend. For the exposure of the subsoil is a matter of bit by bit. At an early stage of my farming, about 12 years ago, a chain or two of my land was ill dug with the spade by a heavy hand—a spit of 8 or 10 inches of clay was brought up and then mixed with the staple—and the error has taught me a lesson. The clods, covered with mould, and thus kept from the influence of the atmosphere, have never been effectually weathered; with all my stirring I have been defied, and that stubborn piece has defeated me to this day."

And not only in the trenching, but also in the summer tillage of the fallow intervals, it appears that Mr. LAWES neglected to adhere to Mr. SMITH'S principles and precautions. They were forked in spring; but instead of being stirred and horse-hoed several times, were "occasionally spudded" (whatever that may mean), and were suffered to become "foul and crusted over" during the summer. Mr. SMITH directs that the intervals should be scarified and horse-hoed, and moreover, that these operations should be so timed as to feed the Wheat plant when required. He says: "I follow up the spring stirring with the fork, the cultivator and hoe, as often as the surface incrustates, and as long as the growing corn will permit;" "stir the land incessantly with a suitable horse-hoe or scuffler;" "keep the intervals open with the tines of the scuffler;" "move the settled intervals from 6 to 8 inches deep with the

common scarifier . . . continue the process, if possible, up to the time of flowering in June;" "neglect the hoe, cease to pulverise, and the plant may starve:" "clays and heavy loams must be pulverised to the letter, or the result may be failure." Were these stipulations observed at Rothamsted?

The preparation for the third crop was equally faulty; and even that for the fourth crop, in which the intervals were trenched for the second time, seems to have been denied the necessary stirrings with the scuffler and horse-hoe, and with the very scanty seeding produced a miserably short crop. Yet it is evident the land was well able to grow a fine crop had the seeding and other portions of the management been suitable; for after the fourth harvest the ground was ploughed up and drilled with about 2 bushels per acre in the ordinary way, and though including half Wheat stubble and half fallow strips, yielded 21 bushels per acre. *I. A. C.*

A vigorous discussion is proceeding in the agricultural journals on the merits of the rival reapers. Judges and manufacturers differ on the point, and the controversy is kept up by the contributions of independent agriculturists.

Mr. Dray protests against a decision founded on the short comparative trial at Salisbury being taken as of equal weight with that at Boxted Lodge, where three days instead of three hours were devoted to the comparison. Mr. Read and Mr. Hawkins, two of the judges of implements, defend their judgment on the former occasion, clearly on the ground of an experience at home and elsewhere during an entire harvest. The judges have already long employed the tools, and have come to their task of awarding the premium merely for the purpose of ascertaining if the implements before them are the same as those they have already known. Mr. Hawkins, in his comparison of M'Cormick with Hussey, the one manufactured by Burgess and Key and the other by Dean and Dray, gives a preference to the former on the several points of—the knife employed, its efficiency taking the power exerted into account, and its saving of labour in harvest work. He says, as the result we presume of his own experience, that M'Cormick's knife will cut through a harvest without getting out of order—that with it two horses can walk through any crop at their ordinary pace—while in the case of Hussey's machine a high walking speed, 4 miles an hour, is indispensable; that the friction in the latter implement is enormous—that in point of convenience the side delivery is preferable—clean gathering is quite in favour of it—it costs indeed 3*d.* to 8*d.* per acre more to tie for a light crop, but in a heavy one there is not much difference.

The letter is in fact written by one who has evidently made up his mind on the subject of it. It is only fair to add that others write on the same subject, attesting the perfect satisfaction which the reaper thus condemned is giving in their own experience and that of their neighbours. Mr. Thomas Lyall, of Gayton Manor, says:—"We have in this neighbourhood four of Dray's machines at work in the hands of good practical farmers, who are all perfectly satisfied with them. The first day's work we accomplished on my farm was 13 acres of Wheat, and it was done in a manner very superior to either the scythe or Crosskill's reaper; the crop was, of course, suitable. We are now cutting as strong a crop as we are in the habit of growing on the Lincolnshire wolds, and quite to my satisfaction. I have at work one of Crosskill's and one of Dray's, and at the close of the harvest you shall have the result. With respect to the Salisbury trial, on a small field of Rye, it was worthless as a test of merit. I was not present on the Saturday evening when the trial took place: but on looking the work over on Monday I took the opinion of one of the labourers, a man of more than ordinary intelligence; he at once stated 'that the little machine, with the man on the box, did its work the best of the lot.'"

The conclusion to which all that we have seen of these machines has led ourselves is expressed by Mr. Lyall thus—when corn is standing, "reapers will cut corn better, and more economically than by hand, the farmer being in a position to let his men earn quite as much money. *There is no doubt there are three machines manufactured that will pay any extensive occupier to purchase.*"

PRAIRIE FARMING.

I visited several farms in the neighbourhood of Napierville. Ordinary land, 25 miles from Chicago, with suitable farm-houses, is worth 25 to 32 dollars an acre. I walked over one farm of 230 acres, which cost 25 dollars an acre 4 years ago, but was now worth 31. I saw a man ploughing a field of Oat-stubble which had borne its twelfth crop last year, and that was too heavy. The plough was light, with a broad share, and cut a furrow 8 inches in depth and fully a foot in breadth, and did its work remarkably well. I took hold of the implement, and I certainly never before assisted in turning over such a depth of fine friable sandy mould of a dark colour, which was no doubt partly owing to the presence of charcoal, resulting from the repeated burning of the prairie Grass. There were no stones in it, and the plough-irons were almost as sharp as a knife. From the fact of the subsoil containing clay, which can be turned up as soon as the surface soil becomes wasted, the prairies may be rendered productive for many years, even though no manure is applied. The fertility of the prairies, however, is not so great where the vegetable matter is in excess, for in these cases they approach somewhat in their nature to peaty soils, which are too deficient in earthy matter to be permanently productive. There are few or no root weeds to be seen in the prairie lands, but annuals grow up with great vigour in summer; and to keep them down, the frequent use of the plough among the Indian Corn is required.

Another farm I visited consisted of 600 acres, but there was not a great deal of it in crop. Its owner had lately visited California by driving right westward in his own waggon, a journey of 3 months' duration. There were only 70 acres Indian Corn, 30 Wheat, 50 Barley, and 50 Oats. Formerly he used to raise 300 acres of spring Wheat, but was now grazing more. There were 1000 sheep on the farm, which were partly grazed on other lands. The greater portion of the grain was given to pigs. A monster reaping-machine was standing near the buildings and going to decay; it required eight horses to work it, for it was not only intended to cut the crop, but also to thresh and sack it.

I also paid a visit to a farmer who came out here from Dumfries with his family 15 years ago. He bought 1200 acres, for which he gave 300*l.* Latterly, he divided this property among his sons and sons-in-law, who each had about 140 acres. On this extent they each kept a man-servant and two horses. The master and servant, without any assistance, managed the stock upon the farm, cultivated, harvested, and threshed 25 acres of Indian Corn, and 50 of Oats and Wheat, and took the produce to market. The yield of spring Wheat varied from 10 to 30 bushels to the acre, and Indian Corn from 40 to 60; average about 50. The cereals are chiefly cut by machinery, and mowing machines for Grass are also coming rapidly into use. On the best managed farms little rotation is observed, the most approved mode of cropping being Indian Corn, autumn Wheat, spring Wheat, Oats. The prairie farmers have the idea, that "land has new life put into it by cultivating Indian Corn." But no other crop possesses greater capacities for expanding under liberal treatment, and giving a good return for manure. On one of the farms of 140 acres, 30 cattle of different ages were kept, which required to be foddered with hay for 5 months in winter. The fact of two men managing so much arable land shows how easily it can be cultivated, There is little manure, and what is collected is not greatly cared for, as a man's labour is no doubt quite as well applied here in cultivating land as in manuring it. One of the implements which economises labour to the prairie farmer is the railroad threshing machine. The whole apparatus is light and portable, and goes into so little compass that it is the most handy machine imaginable. Two men can work it and attend to the horses. Where labour is so high priced, this is a most invaluable machine. If ever horse power be applied in Britain to the cutting of roots for stock, or other light work at present done by hand power, the railroad principle will undoubtedly be adopted. The same mode of applying horse power is greatly used in America for sawing wood as well as for other purposes. There is still a large quantity of grain trodden out by horses in Illinois.

The cereals are nearly all cut by horse power on the larger farms in the prairies; but everywhere there seemed to have been a great waste of grain in the harvesting. The Oat stubbles were overgrown with what had been shed out in reaping, and were now affording pasturage nearly a foot in length. All the grain crops often ripen about the same time, and unless they are quickly cut down immense quantities are shed out. Indian Corn, however, is not liable to waste, though it is allowed to stand in the field long after it is ripe. I went into a large field which was still untouched, where the stalks were standing from 10 to 11 feet high. The owner told me that the grain would not be injured though it was allowed to stand till January. The cobs containing the grain are protected from the rains, as they hang down from the centre of the stalks, and are thickly covered by folds of sheath. The stalks of Indian Corn are not collected and used for manure; in spring, a roller is usually put over them, when they are drawn together by a rake, and afterwards burned. On those fields on which Wheat was sown, it had just been harrowed in amongst the stalks of Indian Corn, which would afford some protection in winter.

From the proximity of this part of the prairie to the shipping port of Chicago, a portion of the grain raised is every year sent to market, the quantity varying according to the price. The farmer from Dumfries informed me that, for the last 15 years, the lowest price of Indian Corn at Chicago was 28 cents, or 1*s.* 2*d.* a bushel; the average price about 50 cents. Within the same period winter Wheat had been as low as 50 cents; average about 80. The distance [illegible] was 34 miles, and the roads were often [illegible] this distance it is not so economical [illegible] quantities of Indian Corn to the shipping [illegible] the centre of the State of Illinois is [illegible] most of the grain is consumed by cattle [illegible] which means the produce of the country [illegible] little compass, and more easily exported.

The mode of feeding hogs in the central [illegible] State of Illinois, where the most of the [illegible] what is called "hogged down," will be learned [illegible] statement of Mr. Phelps, of Peoria county, [illegible] sioner of Patents at Washington:—"Hogs [illegible] the spring are turned into a Clover field, with [illegible] salt, and light feeding of corn, where they remain [illegible] about the 10th July, when they are turned [illegible] of Oats to keep themselves. These last them [illegible] or 6 weeks, when the feeding on corn [illegible] First, and for a time, it is cut and hauled to them [illegible] the stalk is green and juicy, and both stalk and [illegible] eaten with a high relish. During all this [illegible] animal has been growing thriftily, developing [illegible] bone, and stamina, and is in the best condition [illegible] corn ripens and hardens, to lay on fat with [illegible] The closing period of feeding, in November and December, upon ripe grain, gives to the flesh the [illegible] most desirable character. Thus, with comparative [illegible] little labour, at the cost of about 8 or 10 [illegible] corn, or its equivalent in other food, for every [illegible] we produce pork in the open fields, with [illegible] shelter towards the close, and find it remunerative [illegible] at the lowest prices. Hogs properly cared for [illegible] way will weigh at 20 months old from 200 to [illegible]

The economy of consuming the Maize that is raised in the central parts of the Western States, such as Illinois, by pigs and cattle, will be obvious when we reflect on the expenses of transportation. The average price of this grain at Chicago is 50 cents a bushel; [illegible] according to Mr. Seaman, the ordinary cost of transporting a bushel of Wheat or Indian Corn by teams is [illegible] cents for 100 miles. This statement of the cost of transportation approximates very closely to an estimate that I had formerly made. In the Western States, the price of the labour of a man and a pair of horses for a day is about 9*s.* of English money, or fully the value of 4 bushels of Indian Corn at Chicago. If we suppose 40 bushels a sufficient load for two horses on the prairie roads, the whole value of the load would be exhausted in a journey of 9 days' duration—equivalent to a distance of about 125 miles. Wheat, of course, would bear to be transported double the distance. But it is estimated that a bushel of Indian Corn weighing about 55 lbs. will in fattening pigs make 10 lbs. of pork,* which, at 4 cents a lb., the common price of meat in the west, would leave 40 cents for a bushel of Indian Corn converted into bacon.

In some districts in Illinois of great fertility, the quantity of grain that is produced is extraordinary. The county of Sangamon, in the centre of the State, contains a total area of 750 square miles, and had only a population of 19,228 in 1853, of whom 6500 were in Springfield, the capital of the State, 230 miles from Chicago. The produce, by the census returns of 1850, was 3,318,304 bushels of Indian corn; 104,126 of Wheat; 335,008 of Oats; 120,868 lbs. of wool; and 377,[illegible] butter. These figures must furnish a very large [illegible] per head for those engaged in agriculture. The great part of the Indian Corn and Oat crops, however, are not reaped, but consumed on the fields by hogs and cattle.

More than three-fourths of the surface of Illinois consists of prairie. In many parts not a tree or shrub is to be seen in the distance, a circumstance which has prevented its being cultivated. Wood for fuel and fencing is one of the first requisites to the working farmer, and he will rather hew for himself a farm out of the forest than sit down upon the treeless prairies. Immense beds of coal extend through the country, however, which will no doubt soon be made available, as they are [illegible] very near the surface. The Locust tree also has been planted on many farms for shelter, and with the view of obtaining wood for fencing and fuel. It has been rapid in its growth, and holds out the prospect [illegible] of great utility to the prairie farmer. Mr. Ellsworth, of Napierville, informed me that Apple trees thrive well on the prairies, but that they require to be well cultivated for 6 or 7 years when planted. Thus it seems that the fertility of the soil does not make up for its peculiar physical condition, because if mere fertility had anything to do with the matter, it is altogether a mystery why the granites and sands of New England are so productive under Apple orchards which are neither tilled nor manured, and yet are so unproductive under grain crops. Peach trees do not bear well on the prairies. The reason assigned is, that the blossom comes out too early in spring, and is destroyed by the late frosts. The farmer told me that they grew so rapidly that the winters frequently killed them. I could also believe that the constitution of all trees that grow upon the "mucky" soil of the prairies must be weaker, and therefore more liable to suffer from intense frosts, than those that grow upon sounder land. At home, many facts bearing out this principle are observed in the cultivated crops, and doubtless somewhat similar conditions are not without their influence in this extreme climate. *North America, its Climate and Agriculture, by Robert Russell, Kilwhiss.*

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* It is curious that this is very nearly the same increase [illegible] Mr. Huxtable obtained in feeding pigs with Bean and Barley meal and a mixture of pollard and bran, for 54,204 of this mixture made 10,152 lbs. of meat.—"Present Prices," page 26.

READING FOR THE POORER CLASSES, ESPECIALLY IN RURAL DISTRICTS.

By Professor James Buckman, F.S.A., F.L.S., F.G.S., &c.

Seeing how rapidly education has advanced, and is still advancing, among the poorer people of England through the medium of infant, Sunday, and national school teaching, it has often struck me with astonishment that some efforts have not been made to supply a more sound and pleasing class of reading to meet the new tastes which the power of reading has induced. That this power of reading, and a taste for reading, has been given to thousands, in a class who formerly did not possess it, is certain; but that our efforts at education should end there will, without great care, result in evil rather than good, for this acquirement and taste is well known to those who are ever ready to make use of it to favour political projects; to spread sectarian views; or as a source of profit, especially to such as would get money by providing for the craving for reading, little caring whether the food be wholesome or not; and who too frequently take advantage of ignorance to gratify their own depraved feelings by disseminating all that is bad, and thus make others as bad as themselves. In order to prove our position, let us just glance at the kind of reading of the cheap class which is open to the poor; this it may be sufficient for our present purpose to classify as follows:—

1st. Religious tracts circulated gratuitously by several denominations, religious and otherwise.
2d. Cheap journals and magazines.
3d. Cheap newspapers.

1. That much of the reading provided for the poor by different religious communities is not without its benefit we would readily admit, at the same time it is doubtful whether any reading exclusively sectarian in character is capable of supplying the present want either from its own inherent qualities or from its meeting the tastes of the people at large; and again, as most of the tracts are after all only exciting tales little if at all superior in artistic skill to the melodramatic novelets of the cheap newspaper and magazine, it can hardly be considered as a kind of literature which may be termed either genial, instructive, or elevating to the reader. But if this be so with tracts in general, how much more true will it not be considered when applied to tracts published to disseminate the doctrines of Socialism, Mormonism, and Infidelity.

2d. The higher of the cheap serials for the most part appeal to readers in the middle class of society, intelligent mechanics, and the like, for whom they provide short essays on general morals or political economy; and tales, such for example as may be found in Chambers's Journal, Dickens's Journal, &c. These are usually of a playful genial character, and such as may safely be read by all classes without a chance of injury to the finer feelings and susceptibilities of our better nature. But even the best of these are scarcely adapted to the population for whom we now more particularly plead. They have not enough of variety; they are for townspeople and mechanics; they do not appeal enough to country pursuits and country feelings; they indeed have more of art than of nature.

3. As respects the cheap newspapers, besides the general style of news which they collect, such as details of murders, executions, revolting cases of all kinds, with exciting articles on party politics, chiefly of a revolutionary character, we have the unhealthy excitement kept up by means of tales of love, jealousy, revenge, murder, and so on.

So that view this subject in whatever light we may we find that the truly poor class of readers are provided with reading of a most unhealthy description, all the reading which reaches them being mostly subservient to a pandering to the lower feelings, which are supposed to predominate; though we look upon it as an evidence that the poorer classes are not as some people express it the "lower orders," that these publications have not effected a still greater measure of mischief than has yet arisen from them, and which, indeed, the truly low designing demagogue is ever trying to bring about.

If we inquire why this is in so much as the rural districts are concerned, we think the chief reason may be found in the fact that our country people are almost exclusively of Saxon origin, and are hence difficult to move from their usually quiet and orderly pursuits. Tidyness and a love of country life and country things is their especial mark, and hence to be "a tidy man" means to be orderly in his country occupation and honest in his dealings, and is usually applied by a countryman to one of his class who is so; a man in trade or business possessing these qualities would by such be termed an "honest" tradesman. Chartists and the like always complain of how difficult they are to move, but the truth is they can see no good in what is promised; on the contrary, they know that these men get into scrapes themselves or leave others to suffer, and if not so still they have long thin meagre faces, which they associate with discontent and confinement, and so if they do not think over much about freedom and the rights of man, they at all events conclude against the slavery of the factory and the being pushed into combinations like Trades Unions and political societies, for which indeed their long quiet thinking and weighing, and perpetual "I'll see about it," unfits them. Here, then, our rural population may be considered for the most part as of quite different materials from the manufacturing one; to a great extent, indeed, they are of a different race and origin; their modes of thought are different, not quick and excitable, they are steady and thoughtful, the Trades' Union agent would say "lumpish and heavy." And further, as they live in remote places and scattered villages, they do not belong to alehouse clubs and cabals like those who meet nightly in towns, and so they neither pretend to be able to "settle the nation," or to instruct the commanders of our armies, and therefore it becomes obvious that the newspaper or magazine suitable for men with such pretensions are ill adapted to our country population.

The question therefore arises, what is the kind of reading that would interest, amuse, and wholesomely instruct the working agricultural population? and to answer this we must inquire further into the habits, modes of thought, and occupations of the dwellers in rural districts. Being literally obliged to earn his bread by the sweat of his brow, the agricultural labourer and many country people but little higher in the social scale have but few opportunities to improve their minds. Most, however, are now taught to read, and in the evenings after toil each will in summer busy himself with looking after his pig, tending his little garden, and training his flowers; still even in the busy time of summer a taste for reading having been once acquired, a little time will be given up on week-day half-hours and on Sabbaths to this object, sufficient in most instances to direct the tastes and feelings of the family, and as our domestic servants are derived for the most part from the poorer classes, how careful ought we to be in the exercise of a beneficial control over the reading to which they may become habituated.

Now we have seen that the bucolic mind is not political, but is more inclined to country pursuits, and its sympathies are more decidedly with natural objects; does it not plainly appear that we may have a hold for good upon such characters by supplying them with a class of cheap literature having reference to all that is useful, instructive, and elevating, by laying before them some general facts connected with the natural objects by which they are surrounded? Thus, the poor man keeps a pig; may he not profitably learn something about the different breeds of these animals? He prunes his fruit trees; should he not know their origin and something of the principle of action connected with pruning, and the facts which should direct him to the different methods of its performance in trees of different sorts? He is fond of flowers; may he not be told something of the history of his favourite specimens? May he not be further led to be interested in the subject of wild flowers, the superstitions connected with them unfolded to him, the pretty customs in which they have borne their part be dwelt upon, the uses of some, the evils and modes of eradication of others pointed out? In short, in plants alone is a world of interest the poor would be delighted to enter into if he only had an intelligent but simple guide.

Again, there is no class of people upon whom old associations have so firm a hold as the rural population; the ancient church, the venerable manor-house, the ruined castle, are things upon which the poor man will dwell in wonder and admiration for a life-time. He will tell you the tales and legends connected with them with a picturesque earnestness which shows how much his sympathies have been enlisted for them. Here then we have another bond of sympathy, or rather we may have, with the poor man by interesting him with descriptions of buildings, with accounts of ancient customs, with a history of the manners of different peoples, and indeed all general gossip of things of the olden as well as of the present time.

That the countryman attends to his church as well, if not better than any other class, is we think quite certain. If you go to a town congregation you will too frequently see a marked absence of men, the worshippers being mostly composed of the gentler sex. This may be attributed in great measure to the intellectual pride of men. They have their newspapers and political reading for the Sabbath; but in a country church it is quite remarkable what devout attention is paid by the men equally with the women. Religion is deeply rooted in the feelings of the rustic mind, and the degree of unreasoning faith which they exercise is astonishing. And here, then, is another hold, for how gladly would simple instructions as to the derivation and meaning of religious ceremony and observance, general instruction in religious truths be received.

Here, then, we must for the present content ourselves with having shown that we have a largely increasing reading population both in town and country; that while in towns efforts have been made to supply food for this taste which to a considerable extent may meet town views and circumstances, yet the country poor have no efficient literary friend and counsellor, and though it is more easy to point out a want than to supply a remedy, yet we cannot help thinking that, amongst others, the establishment of a cheap journal for the benefit of the rural population, for whom we now more particularly contend, would be a boon to the people at large. Such journal should combine an epitome of news, more especially that relating to country matters, with the kind of information once given in such works as "Hone's Every-Day Book," "Year Book," and "Table Book;" the "Penny Magazine," the "Saturday Magazine," the "Mirror," and others of their class; works which in their day had a large circulation among those in towns who were profiting by education in that time; these were then little valued among the country people, for as then education had not reached the rural districts; but as national and Sunday schools are established in every village, so would we have distributed in every village some periodical combining all that would be likely to instruct, amuse, and interest; but avoiding all objectionable matter relating to party politics, sectarian religion, and the disgusting details of crime and murder.

It were useless here to dwell upon the desirableness of the topics we would see discussed, or the manner in which they should be treated; but of this we feel certain, that if such matter be laid before the poor man in a kindly spirit—circulated it may be through subscriptions from the opulent in the village, the squire, the clergyman, and the intelligent farmer—a taste for reading would be gratified by the providing it with a genial and wholesome food, and if this be neglected others will still busy themselves in spreading abroad a literature among the poor, even in our country cottages, calculated more to do mischief than good.

We all know when people can read, and especially if only read, what a powerful influence reading can exert upon their minds; hence, if any political agitation is on foot, tracts are industriously circulated amongst the parties to be acted upon. But great as has been the influence for evil that has arisen from these sources, literature is, nevertheless, a weapon that can be wielded in the cause of mercy and truth as well as of that of sedition and falsehood, and we cannot help thinking that a well-conducted periodical for the poor man might much contribute to his happiness and progress by furnishing him with facts and ideas of a pure and elevating kind, and thus leading him to love God for the manifold mercies by which he is surrounded, and teach him his duty to Him and his neighbour; the which, if rightly followed out, will make him happy here while it points to a higher reward hereafter.

THE DISTILATION OF BEET-ROOT.

[The following is the substance of an article on this subject by Mr. R. Scott Burn, in the Journal of Agriculture.]

Statistics, carefully got up, have proved that in France, where the manufacture of sugar and the distillation of spirits are carried out, the cultivation of Sugar Beet has doubled the amount of corn grown. The society of Valenciennes, in the report of 1850, attributes all the progress in agriculture, since 1832, to the cultivation of Beet. Before that year the produce of Wheat was 250,000 hectolitres; this, since the establishment of sugar-work and distilleries, has nearly doubled (420,000 hectolitres). The average for the whole district before 1832 was 8 hectolitres per acre; it is now 12. The district of St. Quentin affords results still more significant. About 1825, 67,755 acres comprised the extent of land devoted to corn; in 1855 this was increased to 84,772; the increase of the Wheat during the above period being nearly doubled, the produce of Barley, Oats, and Rye being considerably decreased. In 1825 the average crop of Wheat per acre was 5½ hectolitres; in 1852 it was 8 hectolitres per acre; Beet-root at this latter date having been cultivated to a great extent, yielding produce for 25 sugar manufactories and distilleries. The influence upon stock of Beet-root cultivation is as striking and suggestive as it is upon the white crops. The residue of the sugar manufacture, as shown in our article formerly alluded to, affords a feeding pulp of considerable value. The residue of the Beet distillation is, however, still more remarkable for its feeding properties; in addition to its superior feeding qualities, it is capable moreover of being kept for years without deterioration. In the district of Valenciennes, in 1822, scarcely 4000 oxen were fed; in 1851 this number had increased to 10,784. In St. Quentin the number of cattle fed at the date of erection of the first sugar factory (1828) was 10,000, and of sheep 70,000. In 1852 the Beet-root residue enabled 16,909 head of cattle, and 149,491 head of sheep, to be fed.

"We are only beginning to comprehend the true end of the distillation of Beet-roots. The production of spirits ought to be regarded as a subsidiary object; the essential aim and end of the distillation is, to produce more abundantly, and at the same time more economically, meat and corn. The distillation of roots, we must repeat, in order to keep the true object of this industry in view, is a means of solving the chiefest problem, that in which art and science blend all their efforts—the production of manures. It helps the solution by enabling animals—our machines for supplying manure—to give it for nothing, which is a great progress; to give it with profit, and with even increasing profit, which is perfection."

There have been several systems of distillation introduced in France, none of which we believe have been so successful in an agricultural point of view as that of M. Leplay. M. Leplay's method of distillation is now being introduced into this country through the auspices of the well known and enterprising firm of Messrs. William Dray & Co., agricultural engineers, Swan Lane, London, and who have already, during the course of a few months, been instrumental in establishing 11 large distilleries in various parts of England. A member of the firm, Mr. William Dray, at his farm at Farningham, Surrey, has an apparatus which is now operating on 20 tons of roots per diem.

In preparing the roots for the distillation, the first process to which they are subjected is that of washing. This is effected in a rotatory root-washing machine, driven by the steam-engine which works the apparatus, and the boiler of which also provides the steam by which the distillation is effected. The roots are passed in at one end of the machine, soiled as they come from the field, and are delivered from the other well washed, and cleaned from all adhering matter. They are then

passed through a Turnip-slicing machine—that of Messrs. Barnard and Bishop being employed at Mr. Dray's farm—which cuts the roots into slices. The form of slice best adapted for the after processes through which it has to go is found to be that of a narrow slip 1 to 1½ inches in breadth, with a thickness of 1-8th to 1-4th inch.

The fermentation of the roots so washed and sliced is the next process. It is carried on in large vats capable of holding some 300 gallons of liquid, and about 15 cwt. of sliced Beet. Covers are provided to the vats, and are perforated with holes to allow of the escape of the gas evolved during fermentation; the covers are kept down by means of bars while the process is going on.

The principle on which the fermentation is carried on is founded on the fact that the saccharine roots, if cut into pieces, and placed in a fermented liquid formed of their own juices, and completely covered therewith, and thereafter treated with a proper quantity of sulphuric or any other powerful acid, will "undergo a perfect alcholic fermentation; after which the alcohol is found in the cellular tissues of the vegetable fermented, having thus taken the place of saccharine matter." By fermenting the Beet in a liquid or juice saturated with its own elements, its azotic and nutritive parts are left in it, the saccharine matter only being changed into alcohol. The roots thus fermented being subjected to the action of steam in properly arranged vessels, the alcohol is released, and, escaping as vapour into a condenser, is converted into a spirit, varying in strength according to circumstances.

In commencing to distil, then, the first operation is to prepare the fermenting liquid, "vinasse," or "little wine," as it is termed. This, in the first instance, is prepared by macerating slices of fresh Beet in a vat with water, raised to a temperature of 145° Fahr.; or with water acidulated with sulphuric, chlorohydric nitric, or other acid. When the liquid thus obtained becomes fully saturated, that is, contains as much alcohol as the roots put amongst it, it is ready for the after processes of distillation. To saturate the liquid, or, in other words, to prepare the vinasse, takes about a fortnight; a succession of fillings and emptyings of the tank being gone through during that time. It is evident, therefore, that until the vinasse is of the proper strength, the first distillations will produce alcohol of little strength. This, however, in the average of working is no loss, inasmuch as the vinasse, after the working season is over, when the supply of fresh Beet is no longer maintained, is passed through the still, and produces alcohol of the average strength. Each filling, parting with less of its alcohol to the liquid, produces in distillation stronger alcohol, until the liquid, being saturated, derives no further supply from the Beets, but these are passed to the distilling cylinders in a condition capable of yielding their full average amount of alcohol. The vinasse being thus obtained, the process goes on as follows:—As the slices of Beet are filled into the fermenting tanks, a certain quantity of sulphuric or other powerful acid is added. The quantity of this varies with circumstances, as the quality of Beet, the soil on which it was grown, or the period of the year during which the distillation is carried on—an average quantity of acid per ton of Beet may be stated at ½ a gall. or 3½ pints. This should be divided into three equal portions, each portion being diluted with a little of the "vinasse" or water—one-tenth of the acid to nine-tenths of vinasse or water. One portion of the mixture should be added to the tank, with one portion of the Beet—the latter also being divided into three parts. When the tank is filled with its proper quantity of Beet and liquid, the whole would be well mixed, and the temperature kept up by admitting steam to the interior of the tank to about 77° to 82° Fahr. The temperature should not exceed 82° 49′. While the temperature is rising, the whole mass should be well mixed, so as to insure a uniformity of heat. When this is obtained, the mixture is fermented by adding to it "five pounds of compressed beer-yeast, as obtained in the breweries." This should be mixed with a little of the liquid from the tank, until the mixture is homogeneous; it should then be added to the contents of the tank, and the whole well mixed with the rake. When thus filled, and the cover put on, the contents of the tank soon begin to ferment—the liquor bubbling through the apertures in the cover, and the carbonic acid gas escaping freely. Fermentation ceases according to circumstances in from 10 to 24 hours; and on this taking place the contents diminish in volume. The succeeding fillings of the tanks are conducted precisely as above stated, with this exception, that the quantity of yeast should be only one-half for the second and third fillings of that used for the first, no yeast being supplied to any of those succeeding the third filling. By this fermenting process the "transformation of the saccharine matter is always regular, and the quantity of spirit obtained is proportionate to the quantity of sugar in the Beet."

(To be continued.)

Home Correspondence.

Farm near Chelmsford.—[We take from a letter published elsewhere the following particulars in explanation of the passage in the article given last week with the heading on Mangel Wurzel as summer food]:—"The utility of Mangel Wurzel is yet scarcely appreciated; it will soon become the most valuable adjunct to the farm of any known vegetable, as by proper management it may be available throughout the entire year. My attention has been directed to its use for summer foddering of cattle, and I therefore had it left closer together in the rows than is usual; and as this season has become remarkable for drought, and consequent deficiency of cattle food, and having a large number of cows and neat stock, I have at length determined upon drawing the Mangel Wurzel for immediate use, which is cut up with the tops and mixed with cut chaff; and my cows are yielding a plentiful supply of milk, which is daily forwarded to the London market. I have usually fed them upon grains, which cost 2*s.* 8*d.* per qr., or 4*d.* per bushel; but the improved method of brewing has become so perfect of late, that in point of quality they are little better than moistened sawdust. It became then a matter of calculation which are the cheapest—the Mangel Wurzel or the grains; and this morning I had an experiment made and the weight accurately ascertained. One rod in length and six rows in width produce in all 84 roots, which weighed with the tops 27 stone 12 lbs. equivalent to 27 tons 12 cwt. per statute acre, of which the roots weighed 19 stone 10 lbs., and the tops 8 stone 2 lbs. per rod, or the same in tons and cwts. per acre. I therefore obtained from each acre, by drawing one-half the roots, 13 tons 13 cwt. of excellent food, leaving a moiety of the roots for a winter crop, and which will, doubtless, become nearly equal in weight with the others by the end of October. I have no hesitation in stating that the piece of Mangel in question is the finest I have seen this season; and that portion experimented upon is the Long Orange variety, and which I think best adapted for summer use, as the roots grow faster in the first portion of the year. It then becomes a question of value only, as compared with other substances, whether I continue to use them, and estimating them as a saleable article at 12*s.* 6*d.* per ton, or 7½*d.* per cwt., or 3¾*d.* per bushel of 56 lbs., grains weighing about 46 lbs. per bushel, the latter are, in my estimation, vastly inferior to the Mangel Wurzel for any purpose of feeding."

Testimonial to Mr. W. C. Cambridge.—Mr. Cambridge is known as having been among the first to suggest and carry out the employment of locomotive engines for threshing purposes, and as the inventor of his well known presser and other agricultural implements. I beg to call attention to the report of a meeting lately held at Devizes, where a testimonial was presented to Mr. Cambridge in acknowledgement of his many agricultural services. *W. G.* We extract from the *Salisbury Journal* the following passages from the addresses on this occasion:—

Mr. Stephen Mills, of Elston, said—"Let us look a little at what Mr. Cambridge has done. We are not going to put him before the world as an inventor of the portable steam-engine, but we do regard him as the introducer of that implement to one of the important purposes of farming operations. I say, we place our friend before the world as the introducer of a most useful implement on a farm—the portable steam engine in connection with the threshing-machine. It was he who first introduced it to my notice, when, having hired it for a few days, I was so well satisfied with it that I immediately purchased it for myself. That is now 15 years ago; very soon most of my neighbours fell in with my views on the subject, and there is now scarcely a farmer in the country who does not either own or hire for use one of these very useful machines. We will now go to a different point, namely, to the production of a most excellent implement called the wheel roller. This is an implement of Mr. Cambridge's own invention, and it has been used, not in his own county merely, but in many other parts of England; and go where I will I find that the highest testimony is borne to its value and usefulness. It is a matter of great importance to us to find a man who will devote his life in endeavouring to produce instruments such as these, and which prove to be of such great advantage to us as they are: and nothing will be more gratifying to him, as well as to his mechanical friends who have assisted him in their construction, than to see that he is rewarded. It must have cost him a great deal of time, of effort, and of capital, before he could have brought this implement to that degree of perfection to which it has now attained; and nothing, I am sure, could give me more pleasure than to offer him this small tribute of our gratitude for what he has done." Mr. Cambridge in reply said:—"My first experiments were tried on a farm I occupied in Hampshire. I then removed to Market Lavington, and started as a manufacturer of agricultural implements. I had not been long so engaged before the idea struck me that I could construct an engine on the portable principle to be employed on the farm for threshing and driving other machinery. Nothing daunted, I backed my own opinion, and gave an order for one. After receiving it, and making several alterations, I got a few friends to try it, who spoke in its praise. I then began manufacturing them myself. The first I made was exhibited at the Royal Agricultural Society's meeting, held at Bristol, and a prize was awarded to it. The same success attended me at several other of their meetings, and I am pleased to state that my order-book was well filled at the meeting held at Salisbury. Let me now give you a brief history of the patent wheel roller My respected friend, Mr. Whitaker, of Bratton, first induced me to bring out a roller for pressing Wheat in the spring. After constructing a number of models and plans, my experiments ended in the production of the present patent wheel roller. One was made and sent to Mr. Whitaker, who much approved of it. I next exhibited one at the Royal Agricultural Society's meeting held at Southampton, but with no other success than to bring it back and recast it for something more useful, or try to introduce it through some other channel I easily prevailed on my friend, Mr. William Sainsbury, of West Lavington, to take one and try it against the then so called 'Yorkshire lion' of the day. He decided in my favour, and gave me an order for one. His and Mr Whitaker's kind recommendations were the means of a few other sales being effected, but very few sales took place for a length of time. Afterwards, however, their uses becoming known, the sale rapidly increased, as I think you will bear me out when I inform you that it has continued to do so, by proving that between 2000 and 3000 have been sold since last September, by myself and agents.'

Societies.

Royal Agricultural Improvement.—At the great annual meeting at Waterford last week, the Lord Lieutenant referred to the agricultural statistics of Ireland for the current year. He said: "Owing to the time at which these annual exhibitions are held, I am empowered to gain the earliest insight into the abstracts of the agricultural statistics for the year just [illegible] which are always furnished by the industry and enlightened superintendence of the Registrar-General. I will only present you with a very short summary of the leading results of what has been ascertained respecting the growth of the cereal crops and green crops, and the quantity of live stock in the year that has just [illegible] as compared with the year immediately preceding. As to the growth of Wheat crops in the year ending 1st [illegible] compared with the year ending 1856, there has been an increase in acres under cultivation of 34,000, and in the Barley and Rye crops of 27,000 acres. This is met by a decrease in the quantity of acres under cultivation of Oats 55,000; but the whole increase in the cereal crops in the year 1857, as compared with 1856, may be reckoned as 3000 acres. With respect to the green crops there is an increase of 41,000 acres under cultivation of Potatoes. In other green crops—except Turnips, in which there has been a small decrease—there is an increase of about 8000 acres; and on the whole the total increase of green crops under cultivation is 49,000 acres. The increase of acres in meadow and Clover amounts to 65,000 acres; and the total increase in the extent of land under crops in Ireland this year, as compared with last year, amounts to 105,000 acres. With respect to the quantity of live stock in Ireland, there is an increase in the number of horses of 27,000; an increase in the number of cattle of 30,000; an increase in the number of pigs of 332,000, which is met by a decrease in the number of sheep of 241,000. This decrease in the number of sheep seems to me to be worthy of your consideration. I don't know to what causes it will be attributed—perhaps the most pleasant cause to which to attribute it would be a greater demand for mutton, and consequently there has been perhaps a premature demand for lean sheep. Well now, these remarks seem to me to be on the whole of a satisfactory and encouraging character. I do not know whether it will be reckoned one of the proper functions of a viceroy to use the office of admonition, as well as the more grateful and more [illegible] office of approval. I have heard it insinuated that even in this favoured county of Waterford, while there has been a very marked improvement within the two or three last years both in tillage and in stock, in drainage and in the raising of fences, yet still landlords and tenants are to be found who allow themselves to be negligent about the state of the open main drains. It is a subject, I take it, of very intimate concern to the well-being of their estates; and I also think there may be reason to fear that, notwithstanding the active and enthusiastic exertions of my friend Mr. Donnelly—whose many public services, I am happy to say, her Majesty has lately been pleased to recognise, though some think not quite so appropriately as they might have been, inasmuch as she has made him a Companion of the Bath and not of the Thistle (laughter)—still it is to be feared that, notwithstanding those exertions, the general surface of Ireland does still continue to exhibit more than at least its proper proportion of weeds. I know that the total extinction of weeds must be a work of time—of gradual and continued effort, like all other great works; but, gentlemen, Delhi has not fallen yet, as far as we know, and Irish weeds are not yet extirpated; and I believe the one to be as essential to the real regeneration of Irish agriculture as the other is to the martial glory and stability of the empire."

The following are the awards of the Judges of Live Stock:—

SHORT-HORNS.

Old Bulls.—1, Marquis of Waterford; 2, R. Cheevers, Cappoquin.

Two-year-old Bulls.—1, John Hunter, Templemore; 2, Lord Talbot de Malahide.

Yearling Bulls.—1, John Christy, Adare; 2, R. Waters, Castletownroche.

Old Cows.—1, R. Campion, Shanballymore; 2, Sir R. Paul, Waterford.

Three-year-old Heifers.—1, J. Douglas, Athelstaneford; 2, J. J. Turner, Kilcullen.

Two-year-old Heifers.—1, J. J. Turner, Kilcullen; 2, N. Campion, Shanballymore.

Yearling Heifers.—1, J. Douglas, Athelstaneford; 2, J. Bancroft, Cabinteely.

OTHER BREEDS.

Best Devon Bull.—The Earl of Charlemont.

Best Polled Angus or Galloway Bull.—Lord Talbot de Malahide.

Best Ayrshire Bull.—N. W. Roche, M.D.

Best West Highland Bull.—W. S. Trench.

Best Kerry Bull.—William Owen.

Best Devon Cow.—Earl of Charlemont.

Best Devon Heifer.—Earl of Charlemont.

Best Devon Yearling Heifer.—Earl of Charlemont.

Best Polled Angus or Galloway Cow.—Lord Talbot de Malahide.

Best Polled or Galloway Heifer.—Lord Talbot de Malahide.

Best Polled Angus or Galloway Yearling Heifer.—Lord Talbot de Malahide.

Best Ayrshire Cow.—N. W. Roche, M.D.

Best Ayrshire Heifer.—N. W. Roche.

Best Ayrshire Yearling Heifer.—N. W. Roche.

Best West Highland Cow.—Messrs. Wilson and [illegible], Tullamore.

Best West Highland Heifer.—Mr. W. French, Mountmellick.

Best West Highland Yearling Heifer.—Mr. French.

Best Kerry Cow.—Sir Edward M'Donnel, Lusk.

Best Kerry Heifer.—Sir E. M'Donnel.

HORSES.

Best Stallion, of any breed, for agricultural purposes, foaled on or after the 1st January, 1850.—1, Mr. W. Joyce, Ballyfarn; 2, Mr James Connor, Gorey.

Best Stallion, of any breed, for agricultural purposes, foaled on or after the 1st January, 1855.—1, Mr Andrew [illegible], Dalkey; 2, Mr. James Dixon, Tullamore; Mr. [illegible] received the medal for the best stallion.

Best Draft Mare, in foal or with a foal.—1, Mr. D Sherrard, Dublin; 2, Mr. S. Rait.

Best Draft Filley.—1, Mr. Rait; 2, Mr. Chalmers, Dalkey.

Mares of foreign breed.—1, Major Quentin; 2, Major Quentin.

SPECIAL PREMIUMS.

Best weight-carrying thorough-bred Stallion, 50 sovs. and the Gold Medal.—1, Mr George Thompson, Shinrone; 2, 30 sovs., Marquis of Waterford; 3, 20 sovs., Marquis of Waterford.

Best weight carrying Brood Mare, having a foal or being in foal, 20 sovs. and the Silver Medal.—1, Mr. W. M. Glascott, New Ross; 2, 10 sovs., Mr. Quin, Loughloher Castle.

(The judges stated that they had much difficulty in deciding in these two classes, as the best horses had been pronounced unsound by the veterinary surgeon, and so excluded from taking any of the prizes.)

LEICESTER SHEEP.

Shearling Rams.—1, Mr. Garde; 2, Mr. Meade.
Two-shear Rams.—1, Mr. Reynell; 2, Mr. Roberts.
Shearling Ewes.—1, Lord Talbot de Malahide; 2, Mr. West, of Ardenode.
Old Ewes.—1, Mr Roberts; 2, Mr. Marris.
Pens of Ewe Lambs.—1, Mr. La Touche.

All the prizes for Southdowns were awarded to Mr. Roberts, of Strokestone—bred in every case by Mr. Henry Overman, of Weasenham.

LONG-WOOLLED SHEEP, NOT LEICESTERS.

Shearling Ram.—1, Mr. T. Beale Browne, Andoversford; 2, Mr. S. Rut, Edenderry.
Two-shear Ram.—1, Mr. W. H. Carroll, Nenagh; 2, Mr. N. W. Roche.
Old Rams.—Mr. N. W. Roche.
Pens of five Shearling Ewes.—Mr. T. B. Browne, Andoversford.
Pens of five Ewes.—1, Mr. T. B. Browne; 2, Mr. N. W. Roche.

CHEVIOTS, OR ANY OTHER MOUNTAIN BREED.

Best Ram.—1, Marquis of Conyngham; 2, do., do.
Pens of five Shearling Ewes.—1, Marquis of Conyngham; 2, do., do.
Pen of five Ewes.—1, Marquis of Conyngham; 2, do., do.

SWINE—Black.

Best Boar under 18 months old.—Mr. W. Joyce, Abbey Farm, County Waterford.
Best Boar over 18 months.—1, Mr. William Joyce; 2, Lord Carew.
Best Breeding Sow under 18 months.—1, Sir Robert Paul; 2, Miss Fitzgerald, Ballybrack, County Dublin.
Best Breeding Sow over 18 months.—1, Marquis of Waterford; 2, Mr. J. P. Tynte, Dunlavin.
Three Breeding Sow Pigs.—1, Mr. W. Joyce; 2, Marquis of Waterford.

SWINE.—White.

Boar under 18 months.—1, Mr. John H. Peart, Cappagh, Co. Dublin; 2, Earl of Bessborough.
Boar over 18 months—Mr. Boyle, Glasnevin.
Breeding Sow under 18 months.—1, Mr. Richard Bowman, Ballinaloe; 2, John H. Peart.
Breeding Sow under 18 months.—1, Earl of Carlisle; 2, Sir Robert Paul.
Three Breeding Sow Pigs.—William Royle.

IMPLEMENTS.

The following prizes were given for implements best suited to the wants and circumstances of Ireland:—Best reaping machine, 20*l.*, Dray & Co.; best hay-making machine, 5*l.*, Smith & Ashby; best horse rake, Richmond & Chandler; best plough for general purposes, 5*l.*, Mr. Law; best instrument for breaking up the subsoil, 5*l.*, Mr Bentall; best heavy harrow, 3*l.*, Mr. Bentall; best light harrow, 3*l.*, Mr. Bentall; best grubber, 5*l.*, Mr. Grey; best drill grubber, 3*l.*, Mr. Graham; best drill horse hoe, 2*l.*, Mr. Fry; best machine for hoeing and spacing Turnips, 5*l.*, Mr. Garrett; best corn drill for general purposes, 5*l.*, Mr. Garrett; best corn drill for small occupations, 5*l.*, Mr. Fisher; best machine for distributing portable manure broadcast, 5*l.*, Mr. Garrett (for Chambers' distributor); best and least expensive liquid-manure carriage and distributor, 5*l.*, Hart, Gibbons, & Co.; best machine for sowing Grass seeds and Clover broadcast, 5*l.* Mr. Fry; best farm cart, 5*l.*, Richmond & Chandler (for Busby); best set of hand implements for the farm, 3*l.*, Mr. Edmundson; best set of drainage tools, 3*l.*, Mr. Edmundson; best and most economical set of farm harness, 3*l.*, Mr. Hamilton Willis; best and most economical cart and cattle weighing machine, adapted to general purposes, 5*l.*, James & Malcolm; best assortment or collection of field gates, 3*l.*, Hernulewicz, Main, & Co., St. Pancras Iron Company, commended; best churn, 5*l.*, Mr. Shanahan, Moore & Clark, commended; best general collection of implements, 20*l.*, Mr. Garrett; second, 10*l.*, Richmond & Chandler, Mr. Sheridan, commended.

Additional Implement Prize.—Best mowing machine suitable for cutting meadow Grass, 20*l.*, Moore & Clark.

Among the short-horns shown it may be noted that nearly all the prizes were awarded to Irish exhibitors, Mr. Douglas, of Athelstaneford, being the only exception. He won the first prize for the best 3-year-old heifer with the Rose of Athelstane, which has now received the first prize in her class at Salisbury, Glasgow, and Waterford, besides carrying off the Purcell Challenge Cup as the best animal of the breed in the yard of the Agricultural Improvement Society. Mr. Douglas also received the first prize in the class of yearling heifers. The prizes for horses were awarded for the most part to the Clydesdale breed—the prizes for old stallions, however, being given to Suffolks. As regards the sheep exhibited, the show of Leicesters must be pronounced inferior to that of previous years. Longwools not Leicesters were well represented by Mr. B. Browne, and Southdowns by Mr. Overman.

The show of implements suffered from the absence of many of the chief English manufacturers, as Ransome, Howard, Hornsby, Clayton, and others.

Reviews.

The Manufacture of Agricultural Machines. By a Manufacturer. E. Stanford, 6, Charing Cross.

This pamphlet has been written at the instance of the Association of Agricultural Engineers, and represents, we believe, the nearly unanimous opinion of that body on the competition fostered by the existing prize system of the English Agricultural Society.

The influence of that system on the character of the implements submitted to the Society's judges is believed now to be injurious. The writer of this pamphlet says:—

"We do not maintain that any machine has reached positive perfection; indeed, we would set no limit to improvement; but we are convinced that a stage has been reached when artificial stimulus is needless and baneful, and that such a state of progress has been attained in a great number of machines that they now may be safely left to the simple principles which regulate the great business of bargain and sale all over the world. The maintenance of the prize system can only lead to a further development of a practice condemned by all parties concerned. We allude to the practice, well-known to all in the trade, of so preparing machines intended for competition which, whilst they comply most fully with all the conditions of the prize sheet, and carry off the premiums offered, are so little calculated for actual wear that no manufacturer who values his reputation would put them into the hands of his customer. These views are fully confirmed by the opinion expressed in the 'Report on the Exhibition,' and trial of implements at the Gloucester Meeting, 1853. The jury shrewdly remark, speaking of the desirability of engines composed of the least possible number of working parts to produce the best practical results:—

"'As such engines are intended to be placed in the hands of those who hitherto have had little or no experience either in their management or repairs, it must be of the utmost importance that they should require as little attention as possible. We find that manufacturers have given their whole attention to one point only, viz., a low consumption of fuel, which has evidently been encouraged by the principle upon which the tests have been applied, and the prizes awarded; this has introduced great complication of parts, and entirely set aside the main objects required—*i. e.*, simplicity and utility. This is fully admitted by the manufacturers themselves; and in some cases two classes of engines were exhibited, viz., the 'racer,' to compete for the Society's prize, and the working or commercial engine.'

"In the able 'Remarks on the Trials' at the Carlisle Meeting, 1855, by Mr. Fisher Hobbs, we find the same opinions:—

"'The conditions of competition laid down by the Society for portable steam engines have, unfortunately, led to the production of engines only intended for winning the Society's prize, and known as 'racing' engines, requiring the nicest care, instead of those simple and effective engines which may be safely entrusted to the management of intelligent farm servants. This result has, I fear, arisen from too strict an attention being paid to the condition relating to the economy of fuel without a corresponding regard being had to the general character and usefulness of the engine. I think it will be absolutely necessary in future for the Society not only to make such conditions in reference to the construction and trial of portable steam-engines as may prevent a recurrence of this evil, but to secure the Society and the public from disappointment in their practical value by submitting the prize engines to subsequent trials for a lengthened period, under the ordinary management of a farm establishment.'

"The observations quoted from so practical a farmer as Mr. Hobbs are equally applicable to many of the more simple machines; indeed, refinements, called improvements, have been carried to such an extent in implements intended for competition, that utility has been sacrificed to mere show. The prize system encourages a continued straining after novelty, and such restless desire for change obliges manufacturers to make alterations to meet this requirement, the effect of which is, that the old standard of the greatest simplicity with the greatest utility is overlooked, and that constant and progressive cheapening which uniformity invariably produces in all manufactured articles is sacrificed."

The following passage, again, bears on the same point:—"We are of opinion that the useful progress in the manufacture of agricultural implements would have been as steady and as certain had no such artificial stimulus been applied, and we ground this opinion upon the fact that inventions have invariably preceded the offer of prizes.

"Among the standard implements which have been invented, or almost re-invented by the addition of important features, without the offer of a prize, we may instance horse-rakes, horse-hoes, broadshares, liquid-drills, Turnip-pulpers, broadcast seed and manure distributors, and combined threshing-machines. One of these implements (we intentionally omit all names) had received a thousand testimonies from agriculturists before the Society gave the inventor a prize; another had been sold in thousands before being so honoured; and what is still more instructive, the latter when rewarded included certain new ingenious modifications, which were subsequently found to be so difficult and expensive to keep in order, that the makers had to call in the machines they had sent out, to refuse to sell the prize models, and fall back upon the original construction. In fact, such a case is far from being unusual; the manufacturers find the great demand is not for their prize machines, but for those of the ordinary kind, without the refinements and prize-winning additions.

"In the Report on the Gloucester trials in 1853, the judges of implements observe that they 'cannot help expressing their regret that a prize* was not offered for a machine of this description; for, after the very decided proof given last year that all these operations could be perfectly performed by one machine, they cannot see why it should be limited to half its capabilities, and that too at a time when the want of machinery that will supersede manual labour is more urgently felt.'

"We are, moreover, of opinion, that prizes in some instances have retarded the very object which they were intended to accomplish. For instance, in the case of reaping machines, notwithstanding the utmost conscientiousness and painstaking on the part of the judges, the awards have been so conflicting that inventors and makers have been greatly discouraged, buyers have been perplexed, and consequently the introduction of these machines into general use has been delayed. The failure also of many machines to which prizes have been hastily awarded has operated so injuriously upon whole districts that prejudice against any prize machine has been the result."

It is not the object of those who thus criticise the existing system to refuse all countenance to the Agricultural Society in its character of judge and superintendent of the farm implements of this country. They would come even more clearly and constantly under the eye of qualified judges than they at present do. They say:—

"Whilst we propose the withdrawal of money-prizes, we have no wish to abolish trials; on the contrary, we desire—

"1st. That trials of agricultural machinery should be of longer continuance than heretofore, and conducted as much as possible in the same manner and under the same circumstances that such machinery will be used in the ordinary practice of farming.

"2d. That a Committee be appointed by the Council of the Royal Society, composed of the consulting engineer and of farmers and manufacturers, who shall consider the best mode of conducting trials, and settle what shall be regarded as the 'points of excellence' of each implement or machine, and fix the relative importance of each point.

"3d. That the trials shall be conducted upon the plans so settled, and that a full report of such trials be instantly published and sold with the catalogue on the first day of the show."

"Upon the subject of our first proposition, we append the remarks of Mr. Fisher Hobbs, which appear in his report of the Carlisle Meeting, 1855:—

"'On looking back through my period of office to its commencement at Lewes in 1852, I think the Society has reason to congratulate itself upon the steady improvements in agricultural implements and machinery which have, year by year, continued to mark its progress. * * *

"'The trial of agricultural machinery should be more adapted to the ordinary work required of the several machines employed on the farm, and the judges ought in every case to be men of great practical experience and independence of mind. At the conclusion of the Carlisle meeting I was impressed with a conviction that, for the future, the implement prize sheet of the Society should undergo an entire revision; and on my return to London I expressed these sentiments at the August Council Meeting, adding that, although no implement could be regarded as at present in a perfect state, still that the time might come when the implements might be arranged into classes for the purpose of more extended trials.'

"Mr. Hobbs has seen as much as most men of the hurry and confusion consequent upon hastily conducted trials, and knows full well the effect that such exhibitions have upon minds of a practical character. So long as judges had to decide upon the relative merits of so many classes of implements in competition, it was impossible to conduct trials with that order and precision, without which they must always be unsatisfactory, and the only remedy is to be found in the Society concentrating its attention upon as few implements as possible in each year, so as to afford ample time for the suggestions in the Report above quoted.

"The suggestion for the formation of a Committee is made with the full belief that many improvements can be made in the mode of conducting trials, and as some of the manufacturers have been present at every meeting of the Royal Society, we think their addition to the Committee would be of advantage. A settlement beforehand of the mode of trial, as well as the points of excellence with their relative importance, would render comparatively easy the work of trial and reporting.

"The report should not be drawn up in a competitive spirit, but should be a plain statement of facts so ample in detail and perspicuous in character, that a farmer or manufacturer who might not be present at the show would from such report be able to form a correct opinion of the respective merits of the implements tested."

In order to carry out these suggestions, it is recommended that certain permanent paid offices should be created, and besides the engineer, that superintendents of the field and yard trials should be made responsible for the thoroughness of the examination to which the implements reported on are submitted, while in order "to ensure the prompt issue of the report a paid secretary should be appointed to attend upon the judges, whose duty it should be to draw up the report under the direction of the judges, and to see it through the press."

The whole pamphlet is written in a very fair and candid spirit, and seems to us well worthy of the careful consideration of those who are responsible for the arrangements and mal-arrangements witnessed hitherto on the recurrence of every annual country meeting of the Agricultural Society.

* "'Not long since the farmer was satisfied to thresh an increased quantity of corn by the application of steam power to the old threshing-box. Soon he finds he must have his corn partially dressed; but now he must have it finished, sacked, and weighed by machinery. And here I must remark that the makers were rather in advance of the Society, for they brought out their finishing-machine at Lewes previously to a prize being offered.'—*Report of the Judges; Lincoln Meeting.*

Miscellaneous.

Influence of Air on the Soil.—It has been seen, then, that the influence which the atmospheric forces exert upon the soil is very various and extensive. Their action indeed is not rapid nor energetic, and a very perfect exposure of the soil is necessary to catch much of the ameliorating influence. It is not therefore to be expected that a barren soil can be rendered fertile by mere exposure to the air, although it were wrought with a perfection that would have satisfied even Jethro Tull. The importance, however, of taking advantage of the manifold benefits to be derived from the air, it is hoped, has been rendered evident in the course of this paper. It needs scarcely perhaps be said that stagnant water will completely prevent any benefit that is to be looked for from this source, and that in the case of wet land its drainage must first of all be thoroughly effected. The ground being dry, and the rain consequently enabled slowly to filter through the soil, the full benefit of the atmospheric waters will be obtained. Unless in the case of sloping grounds, little rain-water should run off the fields; almost the whole ought to sink gradually through the soil as it falls. In order, however, to gain the utmost advantage from the frosts and atmospheric influences, as great a surface should be exposed to the

air as possible; and the best way to effect this would seem, in the case of ground under tillage, to be, to have the soil ploughed up into ridges like Potato drills, and to leave it in this shape through the winter—a practice of which the advantage is well known to gardeners. Sir Joseph Paxton, for instance, advises that "the surface of all strong land should be laid up in ridges during the winter, as the action of frost, by expanding the moisture in it, leaves it when thawed in a fine pulverized, friable, or loosened state, by which it is rendered fertile, and ready immediately after levelling in favourable weather to receive the intended crop." Many other benefits, however, than those of the frost will result. Are the oxygen—ammonia—carbonic acid—nothing? Let the agricultural mind therefore be of good cheer; the atmosphere is a force everywhere present; although his farm may be like Justice Shallow's, "barren, barren," he has at least this consolation—"Marry, good air!" *Mr. T. F. Jamieson, of Ellon, in the English Agricultural Society's Journal.*

Calendar of Operations.

AUGUST.

West Sussex, *Aug.* 25.—Harvest began with us on the 27th of last month, and was finished on the 15th inst., and has been upon the whole good; there were a few storms, but not heavy just here, and they were succeeded by very drying winds, so that none of the corn suffered any harm, indeed the Barley was better for it. The Wheat crop may be described as a heavy one, a little laid, but little damaged; while the standing part was far heavier than usual, much of what has already come to market weighing 64 to 66 lbs. per bushel. There is not so much being threshed out by the steamers at present as there was during and immediately after harvest last year, as the price is not so high, and perhaps, being earlier, money is not yet so much wanted. Barley is a good crop, and the quality better than usual, and is likely to command a high price as there is not a great breadth sown, spring Wheat getting into more demand every year, though we can hardly think with much advantage to the grower at the present prices. Oats are not quite so heavy a crop as we expected, nor do we think the quality so good, and many took advantage of the showers we had to carry them when not fit, and so further deteriorate them, for there is still a belief that we may cart them when wet with impunity, and when other corn is unfit to take up, "Let us take up the Oats," is the decision. Peas are a superior crop, and have been secured in good order, and will come in useful for pig fatting, as Barley will hardly be available to pay. The young Clovers are not so good as usual with us, which we attribute partly to the wet spring that prevented us from using the roller so freely as we wished in putting them in. We prefer rolling the ground before sowing them; then sowing half and scratching it in with the horse rake, and then about three weeks after putting in the other half and rolling it down, so that if anything happen to the first sowing (either frost or fly) the latter will supply its place, for there is no doubt that one half of the seed is enough if it nearly all grow; but last season we were able only to use the rake, and so the land was left too soft. Where the broad Clover is thin, we have sown Trifolium and rolled with a heavy roller, and among the Trefoil and Dutch we have put a little more of the latter, serving it the same. Potatoes are a good crop; but more than usually diseased, but still there may be more than the usual quantity available for food. Swedes are very good, and Turnips, with partial exceptions, are a fair crop; some of them came very irregularly, but with a fine season will do very well. Mangel is also good. The stubbles will not require so much cleaning this year as they are free from weeds; some of them are now sown with Trifolium, which has not done well, and some with Rye, which is coming up quickly. Vetches will soon be put in as a reserve for spring, while a spring sowing or two will be made for horses, the land to come into Wheat again after them. Pasture Grass has been rather short with us, but not so bad as is reported from some quarters, but cattle have not done well, it has been so hot for them, and the fly has kept them in trouble all day. The reaping machine has not been able to make way in this district yet, and is not likely so long as hands are so plentiful, as such an innovation would quite upset our long established rules, both master and man will have their misgivings about it. The men fear or dislike it, as it is likely to curtail their earnings and leave them to cut what is laid or otherwise most difficult to do; so that it is to be feared that it will be long before it makes much way. We have known some machines to have been used, but from some cause or other they have been laid aside. No doubt the manager must become a little more acquainted with mechanics before they are properly worked, as in all these new things there is very frequently a "screw loose." We have had the Pea stubble ploughed up, it was pretty clean, and if it lie for a month or so all the seeds of weeds that may have ripened and fallen on it will have germinated, and by the next ploughing and harrowing will be destroyed; and we like to turn over clay land rather than scarify it, as it is more exposed to the sun. *G. S.*

Notices to Correspondents.

Drumheads: *Inquirer.* If you want them early next autumn sow now for transplanting early in spring. If you do not want them till Christmas, sow in April for transplanting in June and July.

Grass Seeds for Light Land: *J Preston.* Obtain the pamphlet by Messrs. Lawson, of Edinburgh, entitled "Agrostographia," which will give you every information. Eight lbs. each of Perennial and Italian Rye-grass; 2 or 3 lbs. each of three or four of the best Fescues; 2 lbs. of Timothy Grass; 2 or 3 lbs. of Foxtail Grass; 2 or 3 lbs. of the rough and smooth-stalked Poas, and 3 lbs. of Cock's-foot, along with 5 or 6 lbs. each of Red and White Clover, are a good seeding per acre for a light soil.

Prize Rams: *J L.* We are told that the three-shear ram of Mr. Handy, which took the first prize at Salisbury, was beaten at York by Mr. Beale Browne's two-shear ram.

Reports: *W J M* We shall be happy to hear from you at any time.

Shorthorns: *R S.* The Durham County Agricultural Society offer a piece of plate, of 100 gs. value, as a prize for the best shorthorn exhibited at their meeting at Stockton in the first week of September. The plate is to be won thrice before it becomes the absolute property of the exhibitor. The society also offers several large money prizes, and it is expected that the new feature of a challenge plate will bring together in their native county one of the finest collections of shorthorns ever witnessed.

To Make Sugar Vinegar: *J C.* Put to 10½ gallons of water 10 lbs. of brown sugar, boil it gently till no scum is on the surface, taking what does arise off with a skimmer; put it into an open tub or pail to cool, and when quite so, add a teacupful of yeast, to put it into a fermentation; in three days put it into a cask filling about two-thirds of it, which will cause it to acidify quicker. Place the cask in the sun, with the bung hole open, covering it with a coarse piece of muslin to prevent flies from getting into the liquor.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings:—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. Weeks & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. Weeks & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by One Boiler. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

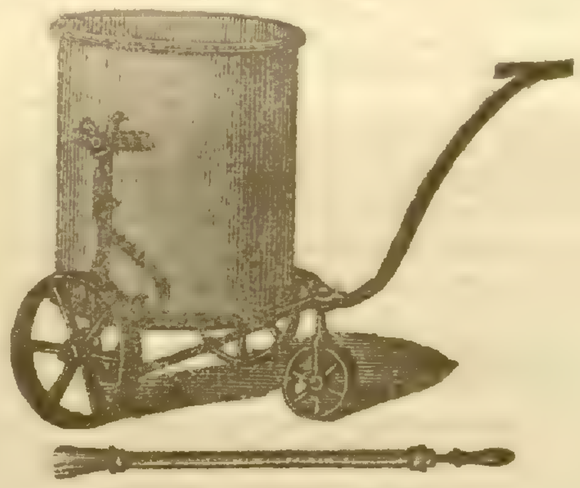
Messrs. J. Weeks & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. Weeks are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

WARNERS' SWING WATER-BARROW
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

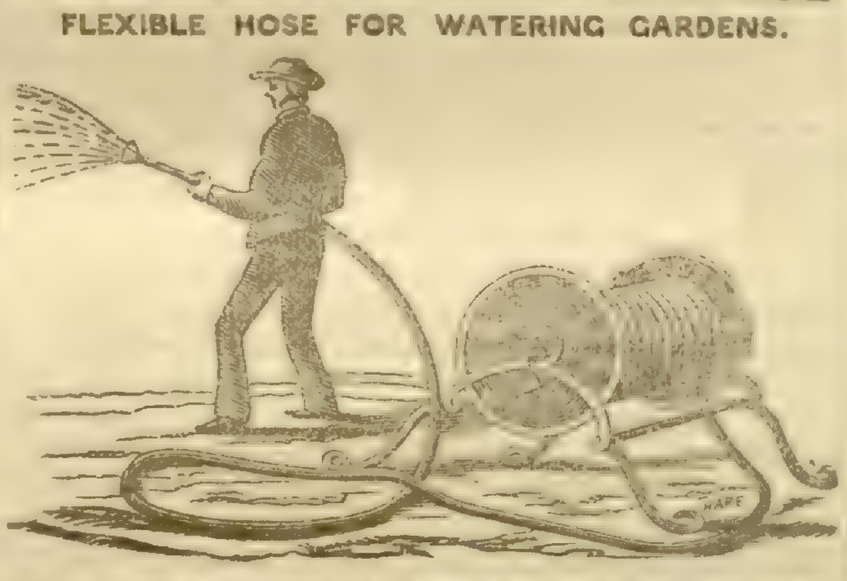


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

FLEXIBLE HOSE FOR WATERING GARDENS.

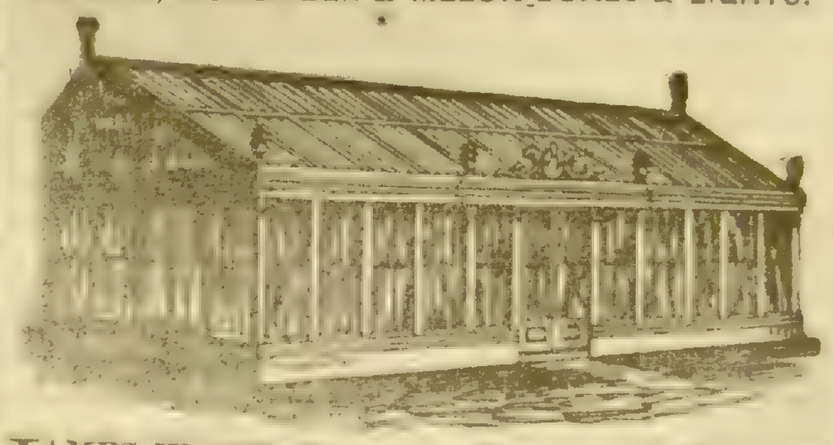


J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, Hothouse Builder, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unrivalled, are cheaper, more durable, and less liable to leak than others.
T. Lambert & Son, Short Street, New Cut, Lambeth, S.

FOWLER'S PUMPS FOR ALL PURPOSES

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

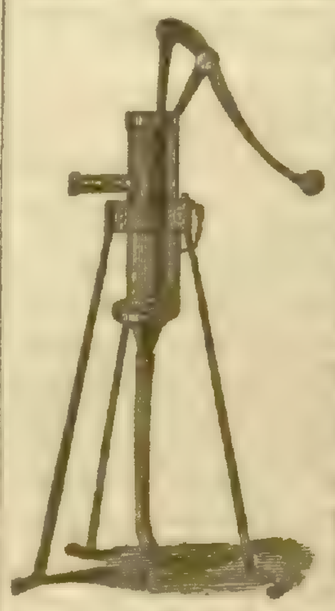
Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

Whitefriars Street, Fleet Street, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be easily lowered at pleasure. The legs are hinged together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 3*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, John Warner & Son, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.	
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.
2½ ,,	long 3 ,, 3 ,,	
3 ,,	ditto 3 ,, 6 ,,	
3½ ,,	ditto 3 ,, 6 ,,	
4 ,,	ditto 3 ,, 6 ,,	
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing	
½ in. long	ditto ditto	ditto

The short barrel Pump is very convenient for fixing in situations of limited height or space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot Forcing and Pine Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SON, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

HORTICULTURAL WORKS.

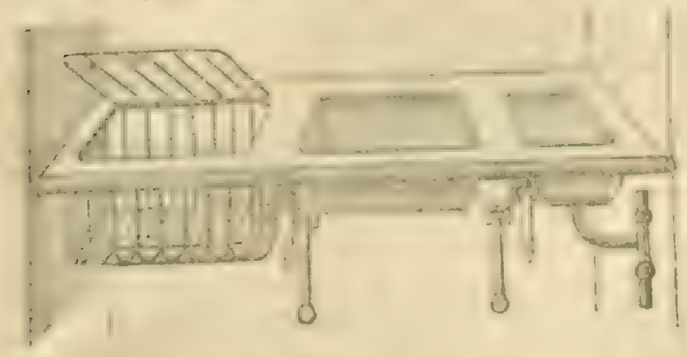
HURD AND VOKINS, 1, South Street, and 44, Rading Street, Chelsea, S.W., Horticultural Builders and Hot-Water Apparatus Manufacturers.

Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-Water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

Plans and Estimates forwarded on application as above.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.

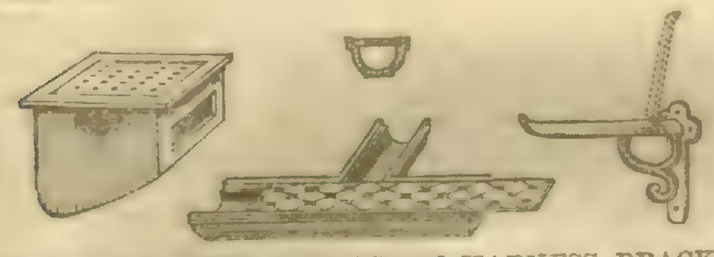


THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unattempted, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.

COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to escape from the drain.

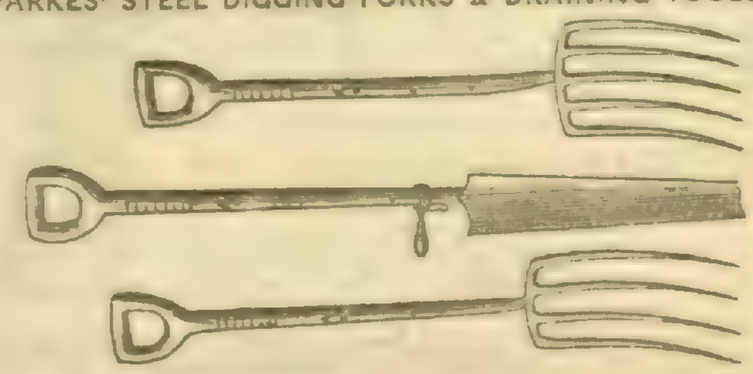
PATENT LOOSE BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

GARDEN REQUISITES, &c.

COTTAM AND HALLEN have on Show, at their Repository, 2, Winsley Street, Oxford Street, a great variety of the following ARTICLES for the GARDEN, &c., at very low prices, viz.—Garden Rollers, cast-iron Rick Stands, Garden Engines, Mowing Machines, Garden Chairs, superior Garden Tools of all kinds, Garden Vases and Pedestals, and a large assortment of Horticultural and Agricultural Implements; ornamental wire Flower-stands, Pot-trainers, Rose-tree Guards, Flower Bordering, and every description of Wire-work, both plain and ornamental; Hand-glass Frames, cast and wrought iron Flower-stakes, Garden Arches, &c.; strong iron Hurdles and best Wire for strained wire fencing; Hothouses and Conservatories, &c., made upon the most improved principle, either of iron or of iron and wood combined, which can be fixed complete with hot-water apparatus in any part of the kingdom. Show rooms at the manufactory, 2, Winsley Street, Oxford Street, opposite the Pantheon, where every information may be obtained.

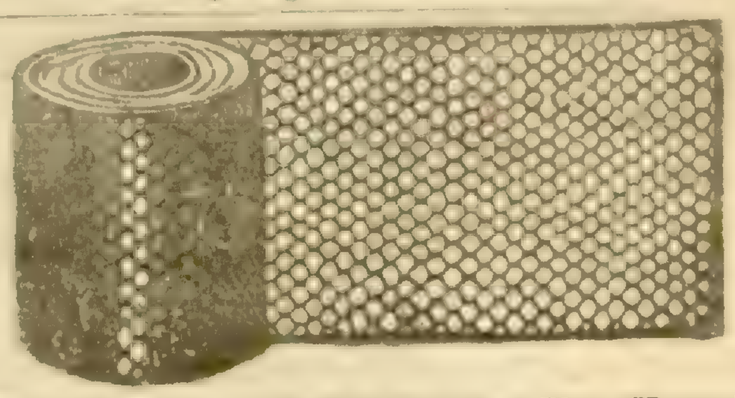
PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5d. per yd.	4d. per yd.
2-inch ,,	strong do.	6 ,,	4¾ ,,
2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,,	intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do. ..	10 ,,	8 ,,

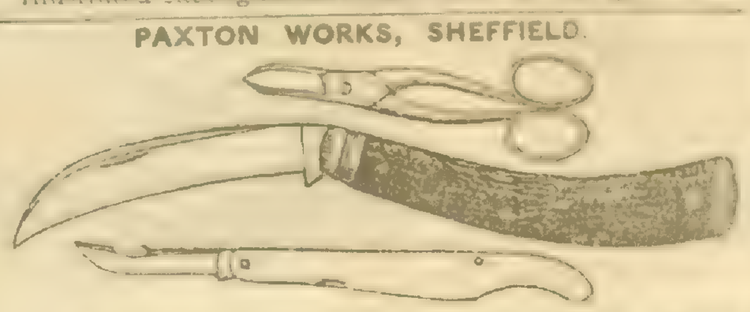
All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½d. per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½d. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1776.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 187 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10s. 6d. by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"429, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much [illegible] as I necessarily am in all weathers, and with the present [illegible] states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

ALLENS' ILLUSTRATED CATALOGUE OF THE PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue).—18 and 22, Strand.

TO HORTICULTURAL SOCIETIES.

TO BE SOLD, a Bargain, the large TENT lately erected in the Botanical Gardens, Manchester. It is 240 feet long by 60 wide, and can be erected in lengths of 20 feet and upwards. The materials and workmanship are of the most substantial kind.—On view at W. Earwicker's Manufactory, 1, Southgate Road, Islington, London, N.

N.B. Marquees, Tents, and Tarpaulins of all dimensions on sale or hire.

A LEAN-TO GREENHOUSE (new), to be Sold, suitable for a Specimen House. Size, 20 feet by 10 feet; front, 4 feet 6 in. high, with wood carved trusses on each mullion. Price complete, 30 guineas.—Apply to VOKINS & HURD, Hothouse Builders, Chelsea, London.

TO BE LET OR SOLD, a CEMENT QUARRY, near Highbridge Station.—Apply to Mr. SMITH, Pawlett, Bridgewater.

WANTED TO RENT, from Michaelmas next, in a good Market Town, or within a few miles of London, a FLORIST AND SEED BUSINESS, or a good SHOP IN THE CORN TRADE, not too extensive.—Address to J. H., 6, Herbert Street, New North Road, London, N.

KENT.

TO BE LET, NURSERY with COTTAGE, on Lease, with 18 acres of Land. Partly planted with Nursery Stock, Hops, Fruit Trees, &c. &c.—For particulars apply to W. CLARKE, 25, Bishopsgate Street; or E. J. B. [illegible]

NURSERY AND SEED BUSINESS.

TO BE LET, with immediate Possession, five minutes' walk from a Railway Station, in a neighbourhood where several thousand acres of land are being sold for building purposes. The NURSERY contains about 3 acres, and more can be had if required. May be had for any term of years not exceeding 10; or if not Let, arrangements might be made with an active managing partner.—Apply in the first instance to P. P., *Gardeners' Chronicle* Office.

TO BE LET, and entered upon at Michaelmas or sooner if required, a HOUSE and SHOP where a SEED, PLANT, and FRUIT BUSINESS has been carried on these last eight years. There is a walled Garden attached, about half an acre stocked with common Fruits, and a Pit heated with hot water, which will require to be taken at a valuation. The above is situated in a small Market Town and good neighbourhood; a good opening for a small nursery, as there is nothing of the kind within eight miles.—For further particulars apply to A. B., Mr. Brooks, 39, Sussex Street, Winchester.

TO BE LET OR SOLD, an excellent MARKET GARDEN, with good Dwelling House and all necessary Out Buildings, Grapehouse, and Greenhouse. The Garden is thoroughly stocked with very fine Fruit Trees of all descriptions, both standards and others; the whole comprising a measurement of 7 acres in first-rate condition, and is situated 5 miles from Windsor, 3 from Maidenhead, and a short distance from the Great Western Railway Station.—For terms and further particulars apply to Mr. JAMES AUSTIN, Burnham, Bucks.

CROWN LANDS, WHICHWOOD, OXFORDSHIRE.

TO BE LET, by Public Tender, by order of the Hon. Charles Alexander Gore, a Commissioner in charge of Her Majesty's Land Revenue in England, about 2844 acres of LAND, comprising parts of the Queen's Allotment and the purlieus of the late Forest of Whichwood, and some old Enclosures adjoining, the whole of which will be divided into convenient Farms. The Lands are within a short distance of the Chadbury, Ascott, and Shipton Stations, on the Oxford, Worcester, and Wolverhampton Railway, and near to the Markets of Oxford, Witney, and Chipping Norton. They are of excellent quality, the Forest and Purlieu portions being recently cleared.—Tenders will be received on or before MONDAY, September 14, addressed to the Hon. CHARLES A. GORE, 1, Whitehall Place, Westminster. Particulars and forms of tender may be had on application as above; of Mr. JOHN CLUTTON, 9, Whitehall Place; or of Mr. GEORGE MOORE, Potter's Hill Lodge, Ascott, Enstone, Oxfordshire. Plans shewing the Farms may be seen at 9, Whitehall Place; Potter's Hill Lodge; and the Churchill Arms, Ascott.

TO NURSERYMEN, SEEDSMEN, MANURE MERCHANTS, AND OTHERS.

TO BE DISPOSED OF, by Private Contract, the old-established NURSERY, SEED, and MANURE BUSINESS of Mr JOHN RENDLE, of St. Austle. It offers a rare opportunity to any young Man who can command a capital of about One Thousand Pounds, to obtain a most excellent and lucrative Business, the present proprietor having determined to retire. The NURSERY BUSINESS has been successfully carried on for a period of about Fifty Years. The soil is excellent, and the climate so good that Double Camellias, Indian Azaleas, and the sikkim Rhododendron can be cultivated with the greatest success in the open air. The SEED BUSINESS is capable of considerable extension, and could with a little energy be made one of the largest in the county. The MANURE BUSINESS is also capable of being greatly extended. A large trade is done in Peruvian Guano, and the proprietor retains the Agency for Lawes' Patent Superphosphate. The Cornish Railway, which will now be soon completed, runs close to the Nursery, and will afford a ready communication with all parts of the United Kingdom. This Business might be made a Branch concern to any large establishment in England.—Application to treat for the same must be made to Mr. JOHN RENDLE, Nursery, Seed, and Manure Merchant, St. Austle, Cornwall; or to Mr. WILLIAM E. RENDLE, Mount View, Plymouth.

This day is published, price 1s., with Illustrations on Steel and Wood, Part XXI. of

CHARLES KNIGHT'S POPULAR HISTORY OF ENGLAND.

"Mr. Knight's book well deserves its name; it will be emphatically popular, and it will gain its popularity by genuine merit. It is as good a book of the kind as ever was written."
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JAMES CARTER AND Co. beg to offer new Seeds saved from the choicest varieties of the following:—

CALCEOLARIA	PRIMULA SINENSIS FIMBRIATA
CINERARIA	Price 1*s*. per packet.

238, High Holborn, London, W.C.

TO THE TRADE.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, N.E., beg to offer healthy young plants of PIMELEA DIOSMÆFOLIA in small pots for Stocks.—Price per dozen or per 100 on application.

*** September is the best month for grafting Pimeleas.

POMPONE CHRYSANTHEMUMS.

J. CHATER AND SON offer the above in stout bushy Plants, well established in 32-size pots, all fine kinds, at 8*s*. per dozen. Nice Grafted Plants of Isabella Grey Rose, at 5*s*. each.—Nursery, Haverhill, Sept. 5.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s*.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

SPIRÆA CALLOSA, see Dr. LINDLEY'S Leading Article, August 1. Can be supplied in the autumn at 18*s*. to 30*s*. per dozen, by CHARLES NOBLE, the Nursery, Bagshot.

THE ADVERTISER wishing to add to a small Collection of the ALOE CLASS, would consider it a favour being allowed to exchange or purchase.—Address T. H., 3, Wellington Row, opposite Orange Street, Bethnal Green.

TO BEE KEEPERS.—Sow now for next season MELILOTUS LEUCANTHA (var.), for the richest supply of Honey. Sixpence per packet free; also eight splendid sorts of Scabious seeds, 6*d*., and all other Bee Plants.—E. PERSAC & Co., Seedsmen and Florists, 253, High Street, Exeter.

1000 SPECIMEN AZALEAS AND ERICAS, FROM 9 INCHES TO 3 FEET IN DIAMETER.

MR. EPPS has no hesitation in saying that his stock of the above contains some of the finest plants possible and of all the leading kinds. Prices and list on application. Fine young specimens three guineas per dozen.

EPPS'S Nurseries, Maidstone.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, Jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s*., including package.

EPPS' Nurseries, Maidstone.

20 fine large CAMELLIAS, 5 to 8 feet high, well set with flower, bushy, and in good health, consisting of double white, variegata, Warratah, candidissima, Donkelaari, amabilis, elegans, Fentonia, &c., price 50*l*., delivered to London.—Inquire of Mr. EPPS, Nurseries, Maidstone.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7*s*. 6*d*. per bushel, for ready money only.—New Park, Lymington, Hants.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. RAYNBIRD, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

TO BE SOLD, Two very handsome Broad-leaf MYRTLES (in Bloom in tubs), from 6 to 8 feet high; bushy from the root upwards. Price 4 guineas.—Apply at 7, Kensington Crescent, Kensington.

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FIRST CLASS FRUIT WANTED.

BLACK GRAPES	MUSCAT GRAPES
PINE APPLES	PEACHES

AND OTHER CHOICE FRUIT.

Apply to GEORGE TAYLOR, Junior, Choice Fruit Salesman, St. John's Market, Liverpool.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Sept. 5.

JOSEPH MEREDITH, GARDEN ARCHITECT and HORTICULTURAL ENGINEER, Vine Cottage, Garston, near Liverpool. Heating Apparatus fitted up on the most approved principle. First class references may be had.

CHARLES M'INTOSH, F.R.P.S., LANDSCAPE GARDENER, GARDEN ARCHITECT, &c., Newcome Villa, Murrayfield, Edinburgh.

London address: Messrs. T. LAWSON & SON, 27, Great George Street, Westminster.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.

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STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s.* per 100; and GOLIATH, 3*s.* 6*d.* per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true as exhibited at the Horticultural Rooms, Regent Street, for which a Certificate of Merit was awarded; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Son's, Covent Garden, London.

R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised. He can now supply strong, well-rooted Plants to any extent. Price 20*s.* per 100, or 4*s.* per dozen. Also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.—St. Ann's Square, Manchester.

P.S.—Plants sent over to compensate for distant carriage. The usual discount to the Trade when not less than 1000 are ordered.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety that has ever yet been sent out, possessing all the good qualities for which a Strawberry is required, viz. flavour equal, and considered by many to be superior to that fine sort the British Queen; the fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season. The plants are of a very dwarf habit, and as hardy as Keens' Seedling, will force well, and have been spoken of by gentlemen and nurserymen, who were competent judges, as being the best they had ever tasted. Now ready for sending out—strong well rooted plants 1*l.* per 100; 50 for 11*s.*, hamper and package included; 25 for 6*s.*, and 12 for 4*s.*, postage free. A remittance must accompany every order by cash or penny postage stamps.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

EARLY STRAWBERRIES.

WILLIAM JAMES NICHOLSON has much pleasure in offering plants of the following, as being equal to the earliest of the older Strawberries in time of ripening, and much superior in flavour and size:—Princesse Royale, the earliest and best French forcing variety, large size, fine colour, and good bearer, flavour rather acid, fruit ripe June 13, 1857, 10*s.* per 100.—Marquise de Latour-Maubourg, very fine flavoured handsome fruit, ripe June 13, 20*s.* per 100.—Ne Plus Ultra, a very large and beautiful variety, very dark colour, of vigorous habit and an abundant bearer, should be in every collection, ripe June 20, 30*s.* per 100.—La Reine, exquisite flavour, colour nearly white, middle size, and good bearer, ripe June 20, 10*s.* per 100.—Comtesse de Marnes, a very early forcer, good in flavour and bearing, ripe June 20, 5*s.* per 100.—Comte de Paris and Cremont, each 5*s.* per 100.—Sir Harry, 20*s.* per 100.—Ingram's Prince Alfred, 20*s.* per 100, and a great number of others, including Alpines, from 5*s.* to 10*s.* per 100.

A Post-office Order on Yarm is expected with every order.

Egglescliffe, near Yarm, Yorkshire.

TO THE NOBILITY AND PUBLIC.

GEORGE BAKER begs to call attention to his unrivalled stock of CONIFERA AND AMERICAN PLANTS, all in the finest possible condition.—Catalogues may be had on application, American Nursery, Bagshot, Surrey, 1¼ mile from Sunningdale Station, Staines, Wokingham, and Reading Branch, S.W.R.

Araucaria imbricata, from 1 foot to 8 feet high, and all intermediate sizes.
Abies canadensis, very fine specimens, from 8 to 15 feet high, very handsome specimens.
" Douglasi, good seedling plants, 4, 5, 6, 7, 8, 9, and 12 feet.
" Menziesi, from 6 to 14 feet.
Cedrus Deodara, small seedling plants, 6 to 9 inches, by the 100; good specimens, 4, 5, 6, 7, 8, 9, 10, to 16 feet.
" Lebanon, ditto.
Cryptomeria japonica, from 4 to 8 feet; a few very fine specimens 18 feet.
Cupressus macrocarpa, a large stock from 1 feet to 4 feet, nice well-grown plants.
" torulosa, from 1 to 3 feet.
" disticha, very handsome plants, from 1 to 8 feet.
Cephalotaxus Fortuni, from 1 foot to 18 inches.
Junipers, common, from 1½ to 4½ feet.
" Irish, from 1 to 8 feet.
" Chinese, from 1 to 4 feet; very fine specimen plants, 5, 6, 7, 8, and 9 feet, very bushy.
" fœmina, 4 to 5 feet.
" recurva, from 1 to 4 feet; very large bushy specimens, 7 feet high and 5 feet through, very handsome.
Juniperus phœnicea, nice bushy plants.
" Bedfordiana, 2 to 4 feet.
" tamariscifolia, good well established plants in any quantity.
" communis pendula, good specimens 6 to 8 feet.
" pendula vera, 2 to 3 feet.
" virginica, 1, 2, 3, 4, to 7 feet; very handsome well-grown plants.
" ericoides by the 100, small plants; good specimens 2 to 3 feet.
Libocedrus chiliensis, small plants by the dozen; good specimens 3 to 4 feet.
" Fitzroya patagonica, 6 to 9 inches, nice plants.
Norway Spruce, 6 to 12 feet.
Picea nobilis, from 6 inches to 3 feet.
" grandis, 1 foot.
" amabilis, do.
" Nordmanniana, 9 inches, 12 inches, 18 inches, to 3 feet.
" Pinsapo, 1, 2, 3, 4 feet; very handsome specimens, 6 feet.
Pinus Montezuma, 3 to 5 feet.
" Sabiniana, do.
" macrocarpa, 4 feet.
" californica, 5 feet.
" Cembra, from 1 to 5 feet; good specimens 6 to 8 feet.
" excelsa, 2 to 4 feet; some exceedingly handsome specimens from 8 to 15 feet.
" insignis, small, by the 100; 1, 2, 3, 4 feet; very handsome specimen plants from 6 to 9 feet.
" Benthamiana, from 1 to 3 feet.
Taxodium sempervirens, or Sequoia gigantea, 1, 2, 3, 4, 5, 6 feet; good plants, 10 feet.
Taxus baccata (common), a very large stock of all sizes from 1 foot to 5 feet.
" hibernica, 2½ to 3, 4 feet; very fine handsome specimens, 5 to 7 feet.
" Gold stripe.
" elegantissima.
" adpressus.
" japonica.
" ericoides.
Thuja americana, 3 feet to 7 feet.
" orientalis, 2 to 4 feet.
" siberica, a large stock from 2 to 6 feet.
Weeping Ash, on 12 to 16 feet stems; very fine specimens.
" Hollies, 10 to 12 feet.
Variegated Hollies, from 2 to 7 feet.

Rhododendrons (a very large collection), Azaleas, Kalmias, Magnolias, and Nursery Stock generally. A good and extensive assortment of Standard and Dwarf Roses, Roses on their own roots in pots, &c.

STRAWBERRY PLANTS, ETC.

EVAN PAUL begs to offer the following, of superior quality:—

Sir Harry, 20*s.* per 100 per doz.	4*s.* 0*d.*	Prince of Wales ..	3*s.* 6*d.*
Keens' Seedling, per 100	2 6	Prince Albert	2 6
British Queen, per 100	3 6	Hautbois	2 6
Elton Pine	2 6	Calceolaria seed, p. pkt.	1 0
Black Prince	2 6	Cineraria	1 0
Kitley's Goliah	2 6	Primula sinensis ..	1 0
Alice Maude	2 6	Polyanthus	0 6
		Sweet William	0 6

The Nurseries, Derby, Sept. 5.

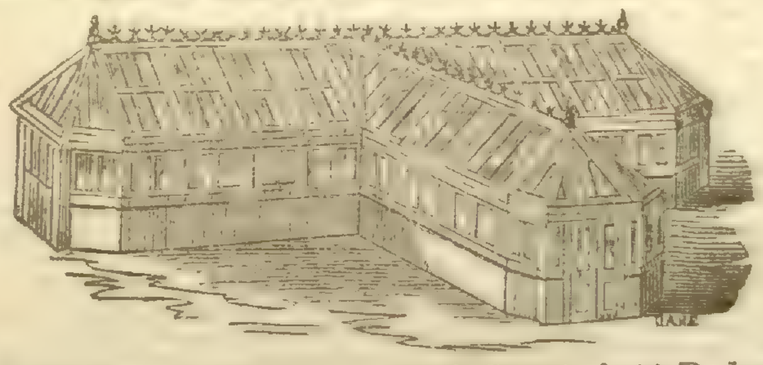
DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

SPLENDID HYACINTHS, NARCISSUS, TULIPS, CROCUSES, ETC.

JAMES CHARTRES begs to inform his numerous patrons and purchasers of the above generally that his unrivalled Collection of the above (selected in Holland) has arrived in fine condition, and he earnestly requests that Orders may be sent early to ensure the finest Bulbs. A Catalogue may be had on application.—Seed Warehouse, 74, King William Street, City, London.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. GLENNY, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 14, York Street, W. C.

HORTICULTURAL WORKS.



VOKINS AND HURD, 1, Smith Street, & 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

Plans and Estimates forwarded on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

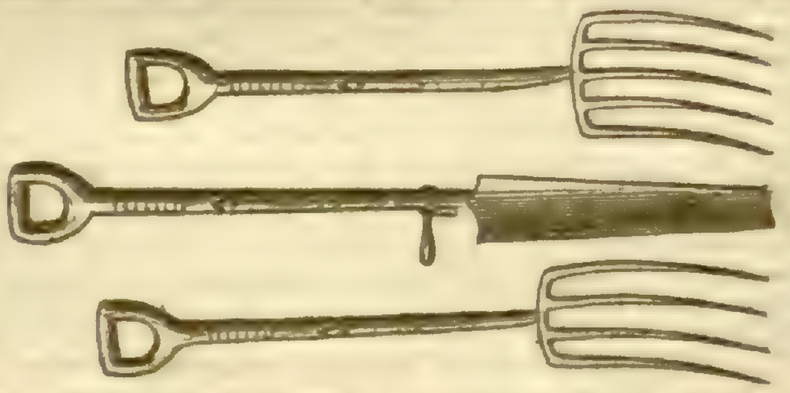
FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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HARTLEY'S PATENT ROUGH PLATE GLASS.

For Ridge and Furrow Roofs, Conservatories, Manufactories, Skylights, Workshops, Public Buildings, Railway Stations, Offices, Mills, Market Halls, &c. Particularly adapted for Verandahs, Carriage Entrances, &c.

CUT TO THE SIZES ORDERED.	Thickness in parts of an inch. ⅛	3/16	¼	
Under 8 by 6	0 4	0 5		
8 by 6 and under 10 by 8	0 5	0 6		
10 by 8 ,, 14 by 10	0 6	0 7½		
14 by 10 ,, 1½ ft. sup. if not above 20 in. long	0 6½	0 8		
1½ ft. sup. ,, 3 ft. or if above 20 and not above 30 in.	0 7	0 8½		
3 ,, 4 ,, 20 ,, 30..	0 7½	0 9		
4 ,, 5 ,, 30 ,, 35..	0 8	0 9		
5 ,, 6 ,, 35 ,, 40..	0 8½	0 10		
6 ,, 8 ,, 40 ,, 45..	0 9	0 10		
8 ,, 10 ,, 45 ,, 55..	0 9	0 10½		
10 ,, 12 ,, 55 ,, 65..	0 9	0 10½		
12 ,, 15 ,, 65 ,, 75..	0 10	0 11		
15 ,, 20 ,, 75 ,, 90..	0 11	1 0		
20 ,, 25 ,, 90 ,, 100..	1 1	1 2		
QUARRIES	0 6	0 7		
BENDING, ordinary curves ..	0 6	0 9		

Packed in Boxes of 50 feet each.

6 by 4, and 6½ by 4½ .. 10*s.* 6*d.* | 8 by 6, and [illegible]
7 by 5, and 7½ by 5½ .. 12*s.* 0*d.* | 9 by 7, 9½ by 7½, & 10 by [illegible]

For large quantities special prices.

From Gardeners' Chronicle.

"By all means use Hartley's Rough Plate Glass, and pay no attention to those who advise you to the contrary."

JAMES PHILLIPS AND CO., LONDON AGENTS.

116, Bishopsgate Street Without, E.C.

GLASS.

THOMAS MILLINGTON'S reduced Tariff for SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12, 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to [illegible] and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. | Fern Shades and Stands.
Bee ,, | Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds. Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing [illegible] square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.		Inches.	Per foot.	Per light.
	Under 6 by 4	at 1½*d.*	is [illegible]	[illegible]
From 6 by 4	,, 7 ,, 5	,, 2*d.*	,, [illegible]	[illegible]
,, 7 ,, 5	,, 8 ,, 6	,, 2½*d.*	,, [illegible]	[illegible]
,, 8 ,, 6	,, 10 ,, 8	,, 2½*d.*	,, [illegible]	[illegible]
,, 10 ,, 8	,, 12 ,, 9	,, 2¾*d.*	,, [illegible]	[illegible]

Larger sizes, not exceeding 40 inches long.

16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3½*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3½*d.* to 7½*d.* ,, ,, ,,

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tilles, Glass Milk Pans, Glass Water Pipes, and various other articles hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence, without alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. A liberal Allowance to the Trade.—Manufactory, Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and Foreign Governments, the Hon. East India Company, the Admiralty, Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Composition, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by any thing of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SONS, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition, and, *as usual, of first-rate quality*; and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE of DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany orders from unknown correspondents.—Paradise Nursery, Hackney and Seven Sisters Road, Holloway, London, N.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, SEEDSMAN and FLORIST, 15, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

JOHN KERNAN, 4, Great Russell Street, Covent Garden, has much pleasure in announcing the arrival of HYACINTHS and other DUTCH BULBS in very superior condition, owing to the highly favourable weather for maturing them. None but those of a decided character have been imported, and as quality of colour and flowering, not quantity of undeserving novelties, has been the rule of selection, purchasers may depend upon their giving general satisfaction.

CABBAGE, ENDIVE,	ONION, CAULIFLWER,	LETTUCE, SPINACH,

TURNIP, and other Seeds for present sowing. Also Mushroom Spawn, genuine Guano, Cuba Bass, Garden Knives, &c., on sale.

For Catalogues apply to JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden, W.C., who will be happy to assist the purchaser in his selection by every means in his power.

SPLENDID NEW VERBENAS OF 1857.—Prince of Wales, Dred, Crimson King, Sims Reeves, Evening Star, Lady Palmerston, Rosy Gem, Prince of Oude, Sir J. Paxton, Celestial, Attraction, Lord Lyons, Scarlet Gem, Brighton, Optima, Andromaque, Julie de Courcelle, Mrs. B. Stowe, Calypso, Lady Turner, Marmion, Magnet, Phœbus, Lady A. Foster, Surprise, Mademoiselle Casille, Evelina, Madame Castinda, Venus, Cupid, Stephen, Clarissa, Admiral Dundas, Duchess de Palmella, Mrs. Turner, Prince Edward, Thomas Barnes, Monarch, and Miss Trotter. Selections from the above 6s. per dozen, free by post.

HENRY MAY, The Hope Nurseries, near Bedale.

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OBBATA PURPUREA.—Shape and size similar to its parent Obbata, but is suffused with plum colour purple large whorls of flowers of great substance, and continues blooming for many weeks; it is one of the finest Ericas ever seen. Good plants 10s. 6d. to 21s.

MAIDSTONIENSIS.—An excellent variety for exhibition; size large, colour bright rosy red, extra substance, fine form and habit, quite distinct from anything out. Was awarded first-class certificates in Regent's Park. Fine plants, 5s., 7s. 6d., and 21s.

TRICOLOR EPPSI.—This beautiful Heath is a hybrid of great merit, early and free flowering, large whorls of flowers, very scarlet shading off to white, and very glossy; a first rate variety for exhibition; decidedly the finest Tricolor out. Was awarded first-class certificates at Chiswick, Regent Street, and the National Meeting. 1s. 6d., 21s., and 42s. 30s. the Set.

LEE'S Nurseries, Maidstone.

CAMELLIAS, CHINESE AZALEAS, ERICAS, EPACRIS.

HUGH LOW AND CO. call the attention of intending purchasers to their extensive and fine stock of the above, consisting of very many thousands of each of the Genera named. The Plants are all in luxuriant health, and will flower well during the ensuing Winter and Spring, as they have been exposed to the full sun of an unusually hot summer. The limits of an advertisement do not admit of particular details as to sorts and sizes of plants, and therefore H. L. & Co. would recommend a personal inspection.

Rare hardy Conifers, such as Cupressus macrocarpa, Cupressus Lambertiana, Pinus ponderosa, Pinus Fremontiana, Pinus Lambertiana, Pinus radiata, Wellingtonia gigantea, can also be supplied by the 1000 at low prices.

Clapton Nursery, London, N. E.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say that they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "It was the handsomest tree seen in the whole expedition. Grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the extremities in ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasii, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot	.. .. ..	0	15
Ditto ditto, extra strong	.. ..	1	1
Six ditto ditto, smaller	.. .. ..	3	3
Twelve ditto ditto	.. .. ..	5	0

Knap Hill Nursery, Woking, Surrey.—Sept. 5.

DUTCH BULBS.

JAMES VEITCH, JUN., Royal Exotic Nursery, Chelsea, begs to announce that he has received his annual supply of BULBOUS ROOTS from Holland, and is pleased to say they are PARTICULARLY FINE and in EXCELLENT CONDITION. Catalogues are now ready and will be forwarded on application.

J. V., Jun., desires to impress upon those who patronise him the great advantage of giving him their ORDERS EARLY, as the successful cultivation of Bulbs depends in great measure on their BEING PLANTED EARLY IN THE SEASON.—Sept. 5.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—Sept. 5.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

THE BEST TWELVE HYACINTHS FOR POTS OR GLASSES.

	Per dozen.	
The best 12 HYACINTHS (by name) imported	10s.	6d.
Fine Double do. for open ground, mixed	4	0
TULIPS, fine mixed, early for pots or borders, per 100	6	0
ANEMONES, fine double mixed, per 100	5	0

And all other BULBOUS FLOWER ROOTS at low prices, as per Catalogue. Carriage free, except parcels under 20s. value. Terms cash.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, GEORGE GIBBS & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre)	30s. per acre.
GIBBS's fine mixed Lawn Grass	1s. 3d. per lb.

Directions for sowing accompany the seeds.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE-GRASS, 7s. 6d. per bushel; Dwarf ESSEX RAPE, 14s.; White MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; Early Racer TARES, 10s. per bushel; Drumhead CABBAGE, 4s. per lb.; EARLY SIX-WEEKS' TURNIP, 1s. per lb.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 5, 1857.

MEETINGS FOR THE ENSUING WEEK.

WEDNESDAY, Sept.	9	Crystal Palace Horticultural Exhibition: Wednesday at 12, and Thursday and Friday at 10 o'clock.
THURSDAY, —	10	
FRIDAY, —	11	

IT is by no means unusual to witness among plants as well as animals symptoms of ill health the meaning of which is unknown, but which invariably lead sooner or later to the death of the sufferer.* Instances of the kind are more especially common among shrubs and trees, whole limbs of which, if not the entire tree, perish no one knows why. Recent observations lead us to believe that we can explain the history of some accidents of the kind.

In a damp clay shrubbery closely planted with evergreens are many Portugal Laurels, for the most part in exuberant vigour. Here and there, however, branches alter their appearance; leaves lose their greenness and assume a leaden tint, and eventually limbs or the entire plants become brown and die. Now and then the amputation of such a limb seems to stop the evil, which however more commonly reappears. One case of the kind which lately occurred was most especially remarkable. Two bushes stood next each other in the same soil, the same aspect, the same everything. One was as healthy as it is possible to imagine, the other became so sickly that it was ordered to be removed, although only the branches on one side indicated illness. Upon digging it up the roots on the lead coloured side were brown and rotten, but those on the green side were pretty much in their usual state. And *on the surface of the rotten roots was the white spawn of some dry rot fungus*, while the healthy roots were free. The connection between the dying branches and the dry rot was unmistakeable; no observer could doubt that the one was caused by the other, and since the leaves could not be supposed to have communicated dry rot to the root, the inference that the dry rot had been communicated by the root to the leaves was inevitable; the more so, indeed, when it was found that the brown colour of the dead wood, although deepest next the root, and palest next the leaves, extended from one to the other.

Near the Laurel grew a Sweet Bay tree, a branch of which was also dying, but its leaves were becoming yellow and brittle. Upon cutting into this branch brown wood like that of the dying Laurel was found advancing from below upwards into the twigs that bore the leaves. The cases were perfectly analogous.

Here, then, was the clearest possible evidence that the Laurel limbs and the Sweet Bay limbs were victims of dry rot originating in the roots. And we entertain no doubt that the dead limbs so common in the broad-leaved Laurel, Ribes sanguineum, and others are assignable to the same cause: affording further examples of the destructive effects of the spawn of fungi, effects that were at one time not suspected, then thought to be quite exceptional, but which modern observation leads us to believe will prove to be the cause of half the diseases of the vegetable kingdom. That this spawn is also what causes the rot in Larch we hold to be as certain as any fact whatsoever in natural history.

The value of this very important evidence is greatly enhanced by the facility of understanding what it is in shrubberies that brings about the mischief. Roots are attacked by dry rot because they are dead; the question then arises, what kills roots? This, we entertain no doubt, is the slovenly manner in which shrubs, especially large shrubs, are transplanted. They are pulled or wrenched out of the ground, by which some roots are broken or twisted; they are rolled and tumbled about afterwards, by which more roots are bruised or killed by the mere weight of the ball: at last they are replanted, but how? The old gardeners, in such cases, most carefully cut to the quick all broken roots, leaving everywhere a nice clean wound, and it was only after this was done that the shrub was lifted carefully into its hole, after which the earth was shovelled in. But now-a-days these things are seldom thought of: it is supposed to be enough if the roots of the transplanted bush are straightened and arranged in a hole with some moderate care; as for pruning and paring they are looked upon as the mere dandyism of a gardener. The consequence is that dead and dying roots are buried by the side of the living; the dead parts become rotten; these become the residence of dry rot fungi, which by degrees extend their insidious spawn among the live roots themselves, weaken them, occupy them, kill them, and then proceeding upwards with accumulated force rapidly invade and destroy everything above them. And we must never forget that as soon as these fungi have succeeded in weakening the constitution of a plant their progress becomes more rapid, till at last the vitality of the individual attacked is so greatly lowered that it can oppose no more resistance to its enemy.

Slovenly gardening then is at the bottom of the mischief in the instances now under consideration; and careful gardening is their cure. Is it not the same with cankered Apple trees, Apricot trees whose limbs are struck with sudden death, Oak trees whose timber quickly rots, and many another vegetable sufferer? We do not pronounce a positive opinion; but we say that since it is so in the instance of certain shrubs, the question as regards others demands the most strict inquiry. But of this more hereafter.

* The very able author of the articles on Vegetable Pathology which have been for so long a time a conspicuous feature in our columns has, we believe, noticed such cases, and referred them with his usual sagacity to their probable origin. But we are not aware of his having as yet made his observations public.

THE VINE DISEASE.

THE following letter has been addressed by Mr. John Malam of Holmpton Lodge to the Portuguese, French, and Spanish ambassadors.

The calamity, says Mr. Malam, which England and the continent experienced a few years ago from the Potato disease, induced me to turn my attention to its cause and prevention. After duly studying the history and nature of the disease, I felt convinced that the origin of the mis-

chief existed in the soil and air. The low state of vitality in the plant, as exemplified in its susceptibility to the meteorological changes of the atmosphere, I considered due to a deficiency in those constituents of food essential to its well-being; hence the partial exhaustion of the powers of life, which dispose it to the invasion of fungi, &c. A series of careful experiments and observations of facts only confirmed those views, and I flatter myself that the practice founded on the principles enunciated by me in a pamphlet on the Potato disease, (and which I have the honour to enclose), materially conduced to the immediate mitigation, and in many districts to the entire disappearance of the disease. I was ultimately led to the belief that similar conditions of soil and air were influencing the vineyards of Portugal, and other countries; and, after numerous successful experiments in Vine cultivation, and which, moreover, have been proved by the testimony of others, I am induced to send your excellency the following communication, of which you are at liberty to make such public use as may be deemed expedient.

About three years have now elapsed since I pointed out the benefits of antiseptic carboniferous manures in the prevention of Vine disease. The *oidium* in my opinion will not attack plants vegetating in a state of perfect health, and growing in a soil of antiseptic character suitable to the nature of the Vine.

The bad effects of a putrescent soil are exemplified in the condition of the plants; they become weak from being unnaturally forced, they are in a disordered condition, containing decomposable albuminous matter, unable to bear those atmospheric changes which occur in unfavourable seasons, and, consequently, they not only do not bear fruit to perfection, but become liable to disease. Amongst the conditions I consider to be quite essential, or of primary importance, to the well-being of the Vine, are supplies of potash and carbonic acid. Potash is requisite in the soil for the formation of wood, leaves, and fruit, and although Vines may be hastened in their growth by nitrogenous manures, and their produce and development may be increased by them, yet after a few years (that is as soon as the potash has been exhausted in the soil) the Vine will be found to cease to be productive. The flavour of Grapes is deteriorated by the use of putrescent manures, which stimulate the Vine too highly, and cause an excessive and unnatural growth of the wood, which, being formed too rapidly, becomes long-jointed and productive of leaf-buds instead of flower-buds. Boussingault found that Vine leaves, enclosed in a glass globe, removed completely from the air all the carbonic acid contained in it, however rapidly the stream of air was made to pass. Liebig states "we may feel assured that all the alkalies contained in the Vine, Potato, and Beet, and found in the juices, united with tartaric, oxalic, and malic acids, are not merely present for the purpose of being used in druggists' shops, or in our households, as acid or neutral salts."

"These inorganic acids must be necessary for the formation of certain constituents in the plants. We have already come to the conclusion that the carbon of all plants is derived from carbonic acid—tartaric, oxalic, citric acids, &c., must, therefore, obtain their carbon from the same source." Both these essential elements are supplied by antiseptic manures, amongst the best of which I consider wood ashes and gas tar; the former supplying the potash, and the latter the carbonic acid. The wood ashes, when used, are simply at once dug into the soil. The coal tar, on the other hand, requires to be poured on the surface of the soil, and then turned over with a fork occasionally, so that it may gradually decompose, and in this state reach and be absorbed by the rootlets. The antiseptic qualities of coal tar, and its fertilising properties as a carboniferous manure, are but imperfectly known to agriculturists and horticulturists, many of whom erroneously suppose it to possess properties identical with those of gas water. As coal tar is one of the constituents contained in coal, which latter is of vegetable origin, and having been received from the atmosphere and soil as food for plants ages ago, I conceive it to be a very natural food for vegetation at the present period. The antiseptic carboniferous and ammoniacal products, distilled from coal, appear to me to be far better calculated to conduce to a healthy growth of plants, than the putrescent, fœtid, nauseous, undecomposed animal and vegetable matters in use at the present time, which latter favour the attacks of fungi and insects. Coal tar being practically destitute of nitrogen furnishes a supply of carbonic acid to the roots of plants, whilst the other product, gas water, is very valuable as an ammoniacal manure, especially for cereal crops, from the nitrogen supplied by it to vegetation. It is evident, therefore, the coal tar is valuable as an antiseptic carboniferous manure, and gas water as a nitrogenous manure. I have found by experience coal tar, mixed with farm-yard and stable manures, very beneficial for Oats, Melons, Cucumbers, &c., and when dug into the rows before planting Potato sets, a preventive to the disease. It is a singular fact, that the antiseptic properties of volatile hydro-carbons of coal tar have, in numerous instances, not only prevented the ravages of the Vine and Potato diseases, freeing the former in Vineries from red spider, but have also prevented the ravages of cholera.

As corroborative testimony to the value of these experiments, I may refer your excellency to the "Year-book of Agriculture" for 1855 and 1856, on the "Grape dew," at page 195, as follows:—"M. Dido pointed out the absence of the *oidium* on Vines, the wood of which had been smeared over with coal tar. M. Sandette proposes a simple and inexpensive preservative, which proved successful in some experiments made during two years in the neighbourhood of Bordeaux. In order to prevent and arrest the development of the *oidium*, it is sufficient, three weeks after pruning the Vine, to smear the stem and shoots with liquid tar, applied with a brush. This operation costs very little, and has proved very successful on all plants in which it has been performed, even although they were in the midst of infected Vines."

In the *Gardeners' Chronicle*, of May 16th, 1857, at page 345, a correspondent points out also the advantages of coal tar in preventing the attacks of red spider, as follows:—"The day following putting my leaves in a pit the whole place seemed alive with red spider, but after placing one or two gallon saucers with a little gas tar in them on the leaves, not a spider was to be seen the following morning, nor indeed has one appeared since."

Having thus treated of the defects of the soil and their remedies, I will now give my views of the state of the atmosphere when most prejudicial to Vines. The excessive presence of ozone (oxygen in a concentrated state) in the atmosphere, at certain periods, is most injurious, producing oxidising effects upon most organic compounds, and causing diseases both in the animal and vegetable kingdoms. Dr. Moffat, from meteorological observations at Hawarden, in Flintshire, has found that the maximum of ozone corresponds with the atmospheric conditions which give the maximum of diseases. If ozone, then, in a warm, moist atmosphere charged with it, has such an influence in causing disease in the animal kingdom, need we wonder at its causing disease in the vegetable kingdom? It is a well-known fact that the Vine and Potato disease are more prevalent, and the quantity of ozone is greater on the coast than inland. The English troops encamped on elevated ground at Varna escaped the ravages of cholera until a violent thunderstorm came, when the majority of them were seized with it. Mr. Forrester, in a letter to the *Times*, stated that, by the end of July, another visible change took place in the Vines of the Alto-Douro; the few Grapes which had escaped, but which had become quite hard, began to increase in size, and to be less affected by the *oidium*, when a severe thunderstorm swept away at least two-thirds of the remaining fruit, and the ligneous part of the branches, and even the tendrils became stained with a variety of leopard-like spots of various hues, while the healthy colour of the leaves remained unchanged.

The Potato disease, after a thunderstorm, has, in hundreds of cases, first manifested itself; and I believe it is an admitted fact that, wherever cholera has raged amongst us, it has been found that the air was charged with ozone.

I believe all antiseptics to be beneficial in neutralising the effects of an excess of ozone; the flowers of sulphur, on this principle, are useful in arresting the ravages of the *oidium*, owing to the antiseptic properties of the sulphur*ous* acid given off by them in a vitiated atmosphere being converted into sulphur*ic* acid by the ozone. Gas tar not only contains antiseptic properties, but is also calculated to supply the plant with proper food, thereby rendering it healthy enough to bear, without injury, any vitiated state of the atmosphere. As the fungi on the diseased parts of the Vine might be prejudicial to them if put in the soil near the roots, I would recommend all the diseased parts, when removed, to be burned, and the ashes dug into the soil.

In conclusion, I consider it the duty of all Vine cultivators to endeavour to get at the root of the matter, and ascertain what is the predisposing cause of the disease in the Vine, as no external application can effectually afford a cure. I should again recommend, then, that antiseptic manures should be dug into the soil, such as wood ashes (which contain potash), gas tar, also boghead charcoal, lime, &c.; and the use of all putrescent animal and vegetable manure be abandoned, in order to restore the Vine to its original state of health and natural productiveness.

ON THE BEARING OF FRUIT TREES IN 1857.

EVERY observer must have remarked that fruit trees, without exception, presented at the beginning of March the most promising appearance. The temperature of the external air was favourable to the development of flower buds and to their maturation. From the end of March, the time when the flowering of certain kinds of Plums, Apricots, Pears, and Cherries commenced, until the blossoming was over, there prevailed during April and May strong east and north-east winds, which caused serious fears to be entertained of the fruit not setting. Throughout this period, in consequence of these winds, neither flies nor bees could be seen among the expanded flowers, and fertilisation must therefore have been effected without the assistance of these agents. The seed of 1857 will therefore be possessed of a peculiar property which will make the present year an epoch in raising seedlings from varieties which have been frequently renewed. We may once more state, that these varieties, though fecundated by their own pollen, have a tendency to vary when propagated by seed, and that seeds from the same flower, without having been artificially fertilised or accidentally so by bees and flies, may produce different varieties. This opinion was put forth by Van Mons, and I believe that it can be sustained by experiments which I have made in sowing the seeds of certain sorts of Strawberries and Cherries, the results of which will be fully detailed on another occasion.

But to return to our subject. Notwithstanding temperature which varied from 27° to 68°, and even 88°, Fahrenheit, several hardy and well acclimatised varieties of fruit trees set a large quantity of fruit, and there still remains as much as they can bear to perfection. It is always in a situation having a western aspect, a soil enriched with suitable manure, and which is light, deep, and somewhat moist, that the best results as regards bearing are obtained with the Pear, the Apple, Plum, and Cherry. In strong and wet soils we find, on the contrary, a less quantity of fruit on the trees, and sometimes none at all. A scientific mode of pruning and training adapted to the mode of vegetation and bearing peculiar to the variety, as well as a careful extermination of all kinds of insects, are conditions necessary for ensuring success.

In our climate there is certainly no fruit tree comparable in productiveness to the Apricot, when raised from the stone of a variety which has been frequently removed and acclimatised. When these seedlings are raised according to the directions given in a previous article, superb trees of every habit of growth and incredible fertility and hardiness are the result. One of our oldest seedlings has borne for the last six years. The first year of bearing there were some clusters of two, three, and four fruits; in the second, three times as many, and so on till the present season, when there are not less than 2000. Another seedling with large fruit, although not so old, has at this time 400 or 500 fruits, and several others only from six to nine years old are bearing equally well. To prove the productiveness of the first two trees, I send two branches with the fruit upon them. [*These are marvellous examples of productiveness literally loaded with fruit. We never saw the like in our English gardens. The sorts should be introduced immediately, although the fruit is small. Ed.*] These results, obtained in the last six years, appear to me conclusive. In short, it is to be hoped that for the next quarter of a century we shall not have such climateric variations in spring as those we have experienced since 1852.

Of all fruit trees the Pear tree is that which has most occupied attention for the last century. Some of the varieties are due to chance; the greater number to some amateurs, all of whom appear to have had in view the acclimatation of the Pear, so as to make it produce in the open ground fruits as delicious as those previously obtained upon a wall. These amateurs, not being actuated by a desire of gain, distributed scions gratuitously to their friends and correspondents. Thus, with the exception of a limited number described by Van Mons in the "Annales des Sciences," and in the "Revue des Revues," the whole of these fruits were brought into cultivation without sufficient information respecting them having been afforded to the cultivator. The short notices which accompany the drawings in the "Album de Pomologie," and "Annales de Pomologie" are not perfect; some are erroneous, others defective. The M. Decaisne's work, which has the advantage of appearing after all that has been said and written for the last 50 years and more, will be of no utility as a guide to the cultivator. To be of practical utility in the present age pomological descriptions must be made, not from books, but from specimen trees in bearing. It is necessary to be able to study varieties of fruit trees with the actual tree in bearing before our eyes. Trees worked on the Pear stock, and trained as a high, low, or half standard, according to the constitution and mode of growth of the tree, should be employed as models. These should be studied in different soils for a series of years. On another occasion we fixed the period for this at 15 years. For certain productive varieties this period is sufficient, for others it is not long enough, as will hereafter be seen.

Previous to entering into details respecting the fructification of the Pear tree last spring, we must observe that the hardiness of a variety of the Pear in setting its fruit is independent of its vigour. Last spring it was proved that under the influence of a dry, cold temperature, several extremely vigorous sorts did not set their fruit so freely as others that are considered less vigorous. Of the latter, we may cite three examples, viz., the Easter Beurré, Flemish Beauty, and Ne plus Meuris. We cultivate three trees of the Easter Beurré for comparison. One of them is worked on the Quince stock, trained as a Quenouille, and planted in a light soil, improved by the addition of manure. The tree has been budded 10 years; it has set 300 fruits without shelter, and, after the requisite thinning has been performed, there now remain 50 large, well formed Pears.

The second tree is a tall standard on the Pear stock, grafted eight years ago; it has 15 fruits upon it, and is planted in a cold moist soil, which is also heavier than in the preceding case. The third is a miserable pyramid 13 or 14 years old, bearing a score of Pears. This is planted in a shallow strong clay. This variety appears in my soil to be healthier on the Quince stock; still it is not perfectly so; the stem and branches suffer from cankers, and the bark scales off from the spurs. In several old gardens in Brussels there are trees of this variety half a century old, which, notwithstanding their infirmities, produce excellent fruit in a light, deep, moist soil, and sheltered situation. They set fruit every year. What most prevents their bearing is not the spring frosts, but the multitudes of insects which attack the fruit as soon as it is set.

It is now generally known that the Easter Beurré when worked either on the Pear or Quince stock

gives the best and handsomest fruit as a half-standard against a wall with a south-east or south-west aspect.

Ne plus Meuris forms a healthy and vigorous tree, which sets its fruit better and sooner on the Quince than on the Pear stock. To produce perfect fruit it must have a west wall. On the Quince stock and without this protection the tree assumes the Quenouille form; on the Pear stock, when planted in a soil rich with humus, it requires to be grown as a half-standard, which becomes productive in 10 or 12 years. A Quenouille on the Quince stock only seven years old has set 25 fruits.

The Flemish Beauty, cultivated as a half-standard on the Pear stock, and planted in a light soil, forms a fine head with spreading branches, and bears in 10 years a delicious and finely formed fruit. As a Quenouille on the Quince stock, this variety is very productive. It also bears handsome and excellent fruit against a wall. A fine pyramid on the Pear stock, 15 years old, has set upwards of 200 fruits, of which 70 or 80 remain. *J. de Jonghe, Brussels, July 24.*

(To be continued.)

FERN GROWING.

[WE extract the following useful directions from the Catalogue No. 5 of the Ferns on sale in the nursery of Mr. Robert Sim of Foot's Cray.]

It should be borne in mind that there is, in the case of stove Ferns, the same necessity for a period of rest (induced by lower night temperature in winter than in spring and summer) as in that of other stove plants. But this important point in stove Fern culture is too often overlooked, and if any difference of temperature occurs, it is rather the result of chance than of intention, and as a consequence the plants literally live too fast—2 or 3 years' growth are compassed in one year, and the result is drawn, weakly fronds—so tender indeed that a little sunshine, damp or extra air at once disfigures or destroys them: 55° to 60° at night in winter will keep any stove Fern, in this catalogue, in good health, and prepare it for a vigorous spring growth.

AIR, too, should be regularly given, in moderation, in summer, to lessen the effect of excessive sunshine. This particularly applies to July and August—when artificial heat ought to be entirely discontinued, and the stove Fernery, for a while, cease to be a stove in point of temperature. Such a structure, if kept quite close during bright sunshine, will, though shaded, be unbearably warm, and many of the Ferns in it will speedily show that its close heat is more than they require. Moreover, in such a close and high temperature it is scarcely possible to spend an hour, without an amount of personal inconvenience that very much detracts from the gratification every Fern-lover feels in a leisurely and frequent inspection of his collection.

SOIL.—The peat, which must be the basis of the compost, ought to be of a rather spongy and very fibry nature—such as Orchid growers use, and which abounds in decayed Moss, fibry roots, and the decaying creeping stems of the Common Brake—avoid the close, heavy, dark-coloured kind which, when very wet, becomes a dark muddy mass. For small Ferns no loam need be added, but for large-growing kinds in large pots moderate-sized pieces of yellow turfy loam, with the herbage decayed, and used in moderation, is decidedly advantageous, as it retains moisture longer than peat does, and in consequence many of the tiny roots will cling to the pieces of it. Enough of pure white sand should be used to give the compost a slightly sandy appearance. Let the relative proportions be of peat at least two-thirds—of loam one-third or less. To keep the mixture porous, and to secure proper drainage through it, add to it a liberal portion of free-stone; or better still, and everywhere accessible, well burnt cinders proportioning the size of the pieces to the size of the plants. The compost must not be sifted. In the hardy Fernery, out of doors, the soil is not of so much consequence as in pot culture. It may be composed of decayed leaf-soil (where peat cannot be got) and loam, and for large-growing kinds even loam alone would do. If peat, however, can be procured, by all means let it form half the mixture.

WATER.—A too frequent impression prevails that water may be unsparingly used in pot culture, and in carrying that impression into practice the soil is often reduced to little else than bog-mud, and as a matter of course all the more delicate and most succulent kinds perish—hence one cause for the supposed difficulty in cultivating many Cheilanthes, Nothochlænas, &c., and the frequent loss in winter of the gold and silver Gymnogrammas. The right practice is not to allow the fronds to droop from dryness of the soil, but as soon as its surface looks and feels dry, give water at once and enough—not little and often; and if the drainage and compost are right the soil may be touched a few minutes after watering without soiling the fingers. The drainage in the bottom of the pot need not exceed one fourth of its depth. Syringing or sprinkling (in either case as slightly as possible and with rain water) the foliage of all Ferns, excepting the very succulent and small hairy kinds, that are cultivated under glass, is very advantageous, if practised once or twice daily during the warmest summer weather.

INSECTS.—The two greatest pests to the Fern-grower—thrip and brown-scale—are not easily extirpated. The thrip seriously disfigures the fronds; to destroy it, remove the most infested fronds and fumigate the others often, but cautiously, with tobacco, or use tobacco-water, adding to it a little black sulphur, and applying the mixture with a camel's-hair brush, syringing it off again in a few hours—repeat the application till all trace of it disappears. The brown-scale should be removed by hand; if the Fern is much infested with it, cut away all the fronds at once and remove any trace of it on the new growth.

GLASS-COVERED FERN CASES are too frequently kept as close as though the plants were undergoing a long sea voyage, and required the total exclusion of the external air. This is the chief cause of the Ferns in so many of these very interesting structures having a drawn and untidy appearance, and the glass soiled and obscured by the condensed moisture. Perhaps the following hints may be useful:—CASE for the soil should have a perforated bottom, and be made to fit into, but not to touch, the bottom of a water-tight outer one, having an appliance for removing the drainage-water occasionally. SOIL.—The same as for large pot Ferns (see above), to be raised considerably above the rim of the case, and to rest on at least an inch of large cinders or other pieces of porous drainage material. AIR.—Admit occasionally, but not on very dry sunny days, as it is then desirable to retain the internal moist air. Small glasses may be slightly tilted on one side; large ones must have special ventilators. WATER.—As air is given occasionally, and the case has a perforated bottom, there will be a moderate escape of moisture from the soil, and that will have to be replaced at distant intervals, and then only when the surface gives slight indications of dryness. PLANTING.—Nothing is eventually gained by crowding the plants and leaving no room for future growth. Occasionally wash and well dry the glass, replacing it quickly.

Home Correspondence.

Mandevilla suaveolens.—I was pleased to see in your last Number some account of this fine but somewhat neglected plant. If there is one greenhouse or conservatory climber worthy of more extensive cultivation than another, I would say that this is the one. I admit at once that it is rather subject to red spider, and that on that account it requires a little more attention than some other plants may do; but its charming racemes of white flowers, produced in such abundance, combined with their agreeable fragrance, amply repay whatever extra labour may be bestowed upon it. At no place have I seen this fine climber better managed than it is at Osmaston Manor, the seat of F. Wright, Esq. Here it is grown in a span-roofed greenhouse; it is planted in a slate box 4 feet by 3 feet, and trained up a shaft to the rafters of the house; it is then trained down the rafters and across them, forming squares of about 3 feet all over the roof. Here it is watered very sparingly in autumn and winter until its buds begin to push; it is then pruned, rather severely, and after that surface-dressed with a good rich compost, and watered with rain water until it begins to grow freely; after that it receives abundance of manure water. It is allowed to ramble about until its flower stems begin to appear, after which it is looked over, all superfluous shoots removed, and the remainder tied in. I cannot say whether it will endure the winters out of doors here or not, but I have observed that the shoots and flower stems are strengthened very much by being allowed to get into the open air through crevices in the roof. I presume that if it be planted out of doors it should be in a sheltered situation, thoroughly drained, and that the roots should be protected from wet during the autumn and winter months. *T. P., Derby.*

White Forty-fold Potato.—Having grown the Forty-fold Potato for many years as a second early, I have often thought how desirable it would be if we could obtain the same kind with a white skin, without losing those excellent qualities which the Forty-fold possesses. The great drawback to the use of this Potato as an early kind is its purple colour, for new Potatoes being scraped it is next to impossible to get the purple skin out of the eyes, which makes them look unsightly on the table. I therefore set to work to see if I could obtain a white skinned variety, but not in the usual way from seed; on the contrary I tried to produce a sport, which I eventually did by planting on the same soil year after year without changing the sets. After four years' trial I had the satisfaction to find one tuber perfectly white. At first I thought it was a white kind that had got into the soil by accident, but on closer examination I found it attached by a fibre to the parent stem along with numerous coloured brethren. I carefully preserved it, and have propagated it successfully, and I find it in every respect equal to its parent. I have enclosed six tubers of it for your inspection. *B. F.* [The tubers sent are undistinguishable in appearance from Regents.]

Ivy (see p. 598).—I beg to say that Ivy will adhere to rough or smooth cement on the north side of a house, but not on the south side. *An Old Subscriber, Chelsea.*

Large Yew Tree.—In the parish churchyard of Aldworth, in Berkshire, stands a Yew tree, which is much larger than any I have ever seen or read of elsewhere. This tree is 9 yards, or 27 feet in circumference, 4 feet from the ground. The denuded branches spread over a very large surface; their shadow it is affirmed at one time covered nearly an acre of ground. Its once lofty head is decayed. *James Alexander Hawley, Blackwater.*

The Potato Disease in this and adjoining localities is, I am sorry to say, this year of the most destructive character. The various crops of early varieties are destroyed, and the later kinds now exhibit the deadly effects of the malady in the form of deep brown spots upon the leaves and stems. When attacked the circulation of the sap appears to be arrested, decomposition immediately ensues, and the smell arising therefrom becomes most disagreeable. My Forty-folds, which were perfectly sound and fast approaching maturity previous to the drenching rains which accompanied the storms of the 14th and 15th ult., now show unmistakable symptoms of disease, and upon examining the tissues of the tubers I find them to be completely riddled with the mycelium of the fungus and wholly destroyed. The decaying parts at the time I write are enveloped in a kind of reticulated network; apprehensive fears are therefore entertained that our general crops this year will be destroyed. *T., Moulton Grange, Northampton, Sept. 1.*—The Potato blight, I regret to say, is now rapidly progressing, not only in England but in Ireland, and more destructively since the last thunderstorm, which traversed this part of the country from south-west to north-east. From this and other opportunities of observation, I am strongly inclined to agree with those who ascribe the disease in a great measure to the effect of electricity. I resided in Germany in 1846, and in the latter part of July in that year I travelled by rail along the valley of the Rhine, from Carlsruhe to the neighbourhood of Basle, parallel with the ridge of the Black Forest. The crops were there in great luxuriance, especially the Potato, the cultivated fields being close to the border of the railway. In the after-part of the day during my journey a thunderstorm which passed over the crest of the Black Forest attracted the notice of my fellow travellers. The lightning was very vivid and seemed to spread over the plain. I remained two days at Baden Veiller at the end of the Black Forest next to Switzerland, and on my return was surprised to observe the whole of the Potato crop totally changed in appearance, blighted, and blackened in the leaf—a general failure was the consequence. In the present season the change which took place in the Potato plant after the late thunderstorm was marked and immediate on the leaf and stalk. Let us hope however that at least two-thirds of the crop may escape; in that case, from the extent of cultivation, a sufficient quantity may still remain to ensure moderate prices of what may be termed essentially the food of the poor. *Downe.*

Mule Canaries.—In 1850 I bought in Bombay two pairs of a small species of finch (which had been brought by Portuguese traders from Mozambique), with the view of trying to cause them to breed in confinement, which I believe they would have done; but unfortunately after I brought them to England one of the cocks killed the two hens. I then thought of breeding mules with canary hens, and although persons conversant with the subject discouraged the attempt, yet from the decided finch shape of the bill, habits, food, and docility under confinement, so convinced did I feel to the contrary that I persevered, and although during the early months of the breeding season I was unsuccessful in obtaining fertile eggs, at last in the month of August, 1852, I was rewarded by seeing two eggs, the produce of this union, hatched and the young reared. I have been unable to ascertain satisfactorily the proper name of my African finch, and even in the collection in the British Museum I could not find a specimen of it. In the trade it is called an African singing finch, and although not very often to be met with, yet males may be occasionally bought for about 15*s.* each. I also find that there is another species of finch imported into London, but smaller and lighter in the colour of its plumage, which the dealers here call by the same name; and, again, another somewhat smaller than the last, but different in colour being nearly all of a rather leaden brown hue, is also termed "the African singing finch." The one I bought at Bombay is not much larger than a blue titmouse, yellow under the throat and down its breast, with slate brown over the wings and back. It is a free singer, with a very fine voice indeed, and this led me to think that it had qualities which, if bred in confinement or crossed with the canary, would make it a fine chamber songster, capable of considerable improvement. With this male and canary hens I have succeeded in rearing during three seasons a nest in each year; but only two young in each nest, and they were all males. Their song resembles that of the white-throat of our gardens more than any other song with which I am acquainted, and although more powerful it does not inflict those shrill notes which so many canaries do. I have been quite unsuccessful this year, but I believe there is yet time enough for a nest. These mules are more robust than most canaries, and those bred last year exceeded in this respect those bred in previous seasons. In plumage they take much after the male, although in size and particularly in the length of the bill they most resemble their canary mother. In the duties of the nest box the male takes great interest, assisting in building, incubation, and feeding, but he is apt to be too anxious, and I found it necessary to secure him in a separate wired partition of the cage. This season I have tried unsuccessfully to breed with one of these mules and a hen canary. My object was to ascertain what amount of relationship there existed between these two birds, and also if possible to discover the effect of infusing new blood into the domesticated canary. I have however been successful in rearing one mule this season, a cross from the second named African finch, which although somewhat similar in colour is lighter, less impetuous in temperament and disposition, and smaller, with a different song (not near so good). I placed this male with a hen of his own species, and also along with a hen canary; the mule from the latter is the only result. With the third kind of African singing finch I have been quite unsuccessful. These mules, besides the amusement they

afford, become interesting as indicating closeness of relationship, and if they would only breed and become domesticated like the canary, they would no doubt interbreed with each other and break into varieties consequent on confinement, more variety of food, &c. I have also had this season a hen mule bred from a male goldfinch and a hen canary lay three eggs. *J. W. Wooler.*

Strawberry Culture.—During a recent trip to England I visited the Strawberry grounds of Mr. Nicholson, at the charming village of Egglescliffe, near Yarm, in Yorkshire. He grows my favourite—the Strawberry—on a very large scale, and I was surprised at the beauty of his fruit, which, in my opinion, must be attributed in a great measure to the particular care which Mr. N. bestows on his plants. He grows upwards of 50 kinds, every one of which he keeps perfectly separate, so that it is impossible for them to get mixed. On the day of my visit (July 5) the earliest sorts, such as Cuthill's Black Prince, Marquise de Latour Maubourg (French), Princesse Royale (French), Comtesse de Marnes (French), Triomphe (a new American seedling), were nearly over; but the more important kinds for a general crop were only just approaching their best. I was struck with the beauty of a bed of Underhill's Sir Harry, which was covered with an immense crop of the finest and largest berries imaginable. In richness of flavour, however, the fruit was not be compared with that grown in France. Carolina superba (Kitley's) was also in great perfection, both as regards size and flavour, and may safely be considered one of the best Strawberries in cultivation. Then came a seedling raised by Mr. Ingram, of Frogmore, called "Prince Alfred;" this is a large and fine fruit, and the plant is of very vigorous habit. The Filbert Pine is a good and useful sort. La Reine (a Belgian seedling raised by my friend M. De Jonghe) is of a pretty blush colour and exquisite flavour. Sir Walter Scott I consider one of the best flavoured Strawberries in existence, and an enormous bearer. Admiral Dundas (Myatt's) is very large and showy, but as regards flavour it is only middling. Surprise, of the same raiser, produces a prodigious quantity of fruit of enormous size; but it is of sickly colour and without flavour. Scarlet Nonpareil (Patterson) scarcely merits the high character given it when first sent out. Ruby, a seedling of Mr. Nicholson's, is a fine fruit of nice shape, good size, very bright in colour, and excellent in flavour. It is a great bearer, and appears to continue fruiting longer than most other kinds. I further noticed a new seedling of Mr. N.'s, which he calls "Exhibition," a name which it seems to deserve on account of the quantities of handsome showy fruit which it produces. Comte de Paris, which in France is almost abandoned being a very shy bearer, was here not only most vigorous in growth, but also the most profuse cropper I have ever seen. I have said nothing about Mr. Nicholson's excellent system of cultivating the Strawberry, as I understand that he intends publishing shortly a little treatise on the subject. *F. Gloede, aux Sablons, near Moret-sur-Loing, France.*

Aphides.—Various remedies have been advertised in your Paper from time to time for the destruction of these pests, but as their prices appear to me to be so high as to preclude the use of them, at all events by the million, I send one the only objection to which is (with some people) that it costs almost nothing. The following wash destroys both green and black aphis on flowers and fruit trees, viz.:—4 lbs. rosin, 1 lb. soda ash, or 5 lbs. rosin, 1 lb. caustic potash; 3½ gallons water. Boil them together in an old iron pot until the rosin is dissolved. If caustic soda is used allow the dissolved rosin to settle to the bottom of the vessel, throw the supernatant mother liquor away, otherwise the rosin will not combine with an additional quantity of water. Add one quart of the dissolved rosin to three gallons of water, and syringe your trees or flowers with the solution, which is a rosin soup, and the effect is seen in a very short time by the disappearance of the aphis; care, however, should be taken that the solution is not too strong, otherwise the blossom buds may be destroyed as well as the aphides. The discoverer of this is an intimate friend of mine, who has successfully employed it both in his hothouses and in the open air for several years, but last year he had a fresh gardener, who misunderstanding his instructions applied the solution so strong as to destroy nearly all the blossoms in one Peach-house—as well as the aphides—therefore let any trying the experiment for the first time use it rather too weak than too strong. It is well known that first crop of aphides hatch from the ova with just such a temperature as sets the sap in motion and swells the buds, therefore my friend has his trees carefully syringed as soon as he perceives the buds of his trees to expand, as he thereby catches the aphides without their top coats—in other words before the leaves have unfolded themselves and the insects have of course not had time to roll themselves up by their incessant punctures of the leaves; by thus syringing the trees the whole crop of aphides is killed, and the gardener then waits until the trees have blossomed and the fruit is well set; he then gives another syringing of the trees, which keeps them in such cleanly condition that I did not see a single curled leaf in two large Peach houses. He adopts the same plan with his Roses, Asters, Chrysanthemums, &c., as well as his Plums and Cherries. Now for the cost. My friend being a manufacturer and a consumer on a large scale both of rosin and soda ash, gets both his commodities at wholesale prices, which in round terms are a halfpenny per lb. for the former and a penny per lb. for the latter, but as most of your readers may not have the same opportunity, I will suppose they pay double, or rather as potash offers some facilities in practice, I will suppose it to be used in preference; we have then 1 lb. potash costing 6*d.*; 4 lbs. rosin, 4*d.*; coals, say 2*d.*; total, 1*s.* Now, as by previous instructions these are to be boiled in 3½ gallons of water, we will suppose that so much of this is evaporated as to leave the bulk still 3½ gallons when the operation is completed; we have consequently 3½ gallons for 1*s.*, or rather more than a quart for a penny; but this is a concentrated essence, and requires to be further diluted by the addition of 42 gallons of additional water, or, in other words, one quart of this solution of rosin is mixed with 3 gallons of water before using. We have, therefore above 45 gallons of the liquid ready for use for a shilling, or at the cost of about one farthing per gallon. As this is a soup, after it has done its duty by slaying the enemy, it may be very easily washed off again by syringing with cold water, and it leaves the tree or plant as clean as possible. I may have made some slight mistakes in the details, but as the discoverer of this remedy is a reader of your Paper, I request that if any such errors have been made he will correct them. *T. G., Clitheroe.*

Climate of N. Devon.—There is growing here, in front of the Castle Hotel, a fine healthy plant of Melianthus major, which has been out of doors unprotected for many years. Is any one acquainted with a similar instance? Benthamia fragifera flourishes in Mr. Sanford's beautiful plantation overlooking the sea. Let me add, that if gentlemen who think Quercus sessiliflora not to be distinct from Q. pedunculata would visit this place they would certainly change their opinion. The woods consist entirely of the former, and are so unlike woods of Q. pedunculata that they might be mistaken for masses of Sweet Chesnut. I could not see a Q. pedunculata in the whole district. *Jael, Lynton.*

Sparrows.—I am overwhelmed with these pests. In spring they wantonly destroy Crocuses and Primroses wholesale, and as far as I can see do not eat any part of them. In summer a newly raked bed soon looks as if it had lately had the small-pox, and the walks are covered from their "dusting" proceedings. But I have never lost my newly sown Peas since I adopted the plan of placing two parallel cotton threads along the rows, 1 or 2 inches from the ground at sowing time, at the same time dusting with soot and lime. I could not save my sweet Peas (which it suits me to sow in the segments of a circle) till I strewed chopped Birch twigs over them. By the time the plant gets through them it is safe. No array of threads will keep chaffinches from Radish seed. *Subscriber.*—The most effectual mode of keeping Peas and other seeds from sparrows and other birds is covering with nets, and that crop is worth but little that is not worth such a covering. The expense of old fishing nets is but trifling, and the time taken up in covering a crop of newly sown seeds is not much when compared with the satisfaction which uninjured crops produces. If imperfectly protected one is almost sure of being put to the trouble of having to make repeated sowings. *M. Austin, Forest Hill.*

Transplanting Evergreens.—In the *Chronicle* of January 17, there is an account by "Sigma" of "a plan for transplanting Evergreens at all seasons of the year." Permit me to say that the same may be done by using peat well cut up, instead of leaf mould as there recommended. *P. M.*

Pegs for Bedding Plants.—Several modes of pegging down plants have lately been recommended. Nothing, however, answers more perfectly than pegs cut from the common Brake during this month and early in the next. The cutting them is an amusement for children, and would make a good excuse for a picnic. My children make a nice sum for the Missionary Society every year by selling them to friends at one shilling per hundred. *W. O. F.*

Societies.

BRITISH POMOLOGICAL.—At the Anniversary Meeting of this Society held the other day in St. Martin's Hall, Mr. Hogg in the chair, the Assistant Secretary produced a report of its progress, its present position, and its prospects for the ensuing year, showing that it was steadily increasing in usefulness. Twenty new members had been elected during the past year. The number of members brought forward last year was 148, from which a loss of five, who had died or resigned during the year, was announced. The number of members on the books on the 1st August was shown to be 143. The Treasurer laid before the meeting the accounts of the past year, from which it appeared that after all expenses had been paid there was a balance of cash in hand amounting to 22*l.* 8*s.* 5½*d.* It was announced that a part of the Transactions of the Society was in the press, and it was regretted that the non-fulfilment of the promise by members of important and useful communications had prevented its earlier publication. The accounts having been examined, it was moved by Mr. Lane, seconded by Mr. Paul, and carried unanimously, that the same be approved. Office bearers were then elected for the ensuing year.

Of subjects of exhibition, G. S. Wintle, Esq., of Gloucester, had a Seedling Melon, which was not distinguishable from the smooth variety of the Trentham Hybrid. Mr. Elphinston, gr. at Flixton Hall, near Bungay, sent a Seedling Melon called Elphinston's Hybrid; he described it as a cross between the Trentham Hybrid and the Sebright. It was considered a variety well worthy of cultivation, large, netted, oval, and nearly white in colour; the flavour brisk, melonic, juicy, and sugary. Mr. Rivers exhibited a new French Grape called Gros Maroc. Mr. Ingram, of Frogmore, sent a Seedling Apricot called the Frogmore Apricot, describing it as usually ripening by the end of August, but much earlier and below the average in size this year; it is very healthy, a free bearer, and similar in habit to Moor Park. It was not stated wherein it differed from the last named variety, from which the meeting were unable to distinguish it. Mr. Ingram subsequently reported that it was of better quality than Frogmore than that variety, and usually about two weeks later. Mr. Ingram and Mr. Kinghorn exhibited fruit of the curious old variety Abricot Noir, or Black Apricot. Mr. Lane, of Berkhampstead, contributed from pots specimens of Royal George, Royal Charlotte, and Sulhampstead Peaches. The last mentioned of these is a variety of some years' standing, but not so well known and valued as it deserves; it closely resembles the Noblesse, but is hardier in every respect, and especially recommended to be grown in those gardens where the latter is not found to thrive. Of Nectarines Mr. Lane also exhibited from pots, Imperatrice, flesh firm, but deficient in flavour; Elruge, very good, and Early Newington, a clingstone variety, which is in best condition for eating after it has shrivelled. Mr. Rivers furnished specimens of two seedling varieties of the Stanwick Nectarine, Nos. 3 and 4, from plants grown in pots and ripened by fire-heat; they were reported to be free from the shrivelling and cracking propensities of the old variety, to which they were considered quite equal in flavour. No. 4 was a round fruit, of the same appearance as the parent. No. 3 was larger, and oval in shape. Mr. Rivers exhibited Early Prolific Plums not quite ripe. Mr. Lane produced from pots Drap d'Or, in fine condition, and Kirke's not ripe. Mr. Kinghorn showed from a north wall a variety of Cherry called St. Margaret's, a firm-fleshed very large black Cherry; it was believed to be the same as Tradescant's Black Heart. Mr. Adams, of Brentford, exhibited fruit of Buttner's Yellow, a small, firm-fleshed, sweet, and nicely-flavoured variety, which hangs on the tree till the end of August, and therefore is valuable as being in season when sweet Cherries are not to be had. It is of a fine waxen yellow colour. Mr. Ingram, of Frogmore, sent fruit and branches of the Frogmore Morello, which he reported to be different in habit from the common Morello, more resembling the May Duke in character, forming spurs, and fruiting similar to that kind, as well as on the previous summer's growth like the Morello. It was also said to be of strong growth, and not liable to die back like the old variety, and Mr. Ingram considered it would be desirable for growing in soils where the common Morello does not thrive. The specimens of wood strongly exhibited the May Duke character referred to, and the leaves were broader and more coarsely serrated than those of the common variety. Of Gooseberries, Mr. Adams exhibited the White Warrington, a variety in every respect resembling the Red Warrington except in colour. Messrs. Joseph May & Co., 1, Wellington Street, Strand, exhibited fine large specimens of 20 varieties of Gooseberries. Mr. Adams contributed a seedling Black Currant, reported to be much sweeter and equal in other respects to the common Black. The samples shown, however, being the last hanging berries, were not good enough to judge of its merits. Mr. Adams also exhibited Knight's Long-Bunched Red and Ogden's White. Mr. Adams exhibited a new variety of Pear called Jolivet.

Notices of Books.

Essays on Natural History. Third series. By Chas. Waterton, Esq.; with a portrait, &c. 12mo. Longmans, pp. 290.

A new series by one of the Nestors of natural history and he the most entertaining of them all is indeed a treasure, for no one can have read the author's former essays without an eager desire to hear more from him and about him. A most enthusiastic lover of wild nature, a patient, acute, and experienced observer, no believer in travellers' stories, at least not in their marvels, but thoroughly practical in his views, and provided with a tenacious memory crowded full of facts—it is impossible that the works of such a man should not carry with them a charm that never loses its power over kindred spirits.

On the present occasion 10 chapters upon dogs, humming birds, monkeys, pigeons and pigeon-stealers, cannibals, foxes, and snakes fill the pages, introduced by a continuation of the author's autobiography, and closed by his farewell to his little volume. The latter is too characteristic to be omitted.

"Haste away, my little darling. Shouldst thou accidentally fall in with the 'Wanderings,' and the two other volumes of 'Essays'—thy elder brothers, say that I send my paternal thanks to them for the credit which they do me; because I learn from the instructive pages of Chambers, Sharpe, and other literary gentlemen, that they are still in favour with the public. But do not let this puff thee up. Thou must bear in mind that thou art but a puny and an ailing brat. 'Parvæ sunt vires, invalidæque tibi.'

"In passing through the dreary vale of criticism, if thou art fortunate enough to catch the sun's beams, as thy brothers did, my soul will then rejoice. But, on the other hand, if a blast overtake thee, be not disheartened. Violent squalls are never long in action. The damage

they may do will not affect thee much, nor cause me to regret the time and labour I have spent upon thy education. Remember, my little fellow, the old saying, that there are many men of many minds. 'Facies non omnibus una.' What is pleasing to one critic is not always approved of by another. We are informed by Ovid that even the Immortal Gods themselves, in ancient times, took up the warlike club, and that, whilst one party of them advanced to the attack of a town another party stood up in its defence.

"'Mulciber in Trojam, pro Trojâ stabat Apollo;
Æqua Venus Teucris, Pallas iniqua fuit.'

"Some writers march steadily along; others stumble in the road: whilst others fall down flat on their faces, never to rise again. Thy path, my boy, is rough and thorny: be careful of thy steps. 'Cave ne titubes.' Farewell once more, and may I hear that thou art prosperous."

In so amusing a volume it is probable that the chapters on Monkeys and Humming birds, full as they are of good sense and practical knowledge, together with a sharp denegation of mere cabinet authority, will find most favour with naturalists. From the former we select a short notice of what are called "preacher monkeys," which according to some writers prefer living on terra firma to swinging from the limbs of trees, the former habit being in the author's opinion one which the conformation of their feet clearly shows to be wholly foreign to their nature.

"We can find nothing in the economy of its feet so called, to demonstrate that they are intended for the ground. The projecting thumb, and the long toes or fingers, argue that they are inadequate for a journey on land, or even to make it a temporary abode, now and then, for pleasure or for ease. Indeed, their delicacy and tenderness show beyond dispute, that they have not been in the habit of coming in contact with the sand and the flints on the paths which nearly all other animals pursue." With this preface we introduce the following account of the preachers just alluded to:—

"By way of varying the dull monotony of hacknied description, I will introduce here a conversation betwixt an ant-bear and a howler or preacher monkey; although most probably at the risk of displeasing scientific compilers, and of incurring their monitory censure. Still, methinks, it will not be altogether lost upon the general reader. It will tend to show the true habits of two animals hitherto but imperfectly known:

"DIALOGUE.

"'I thought that you inhabitants of the trees, Mr. howler,' said the ant-bear, 'never troubled the ground?' 'I thought so too,' replied the preacher monkey, 'until very lately. But I fancy that I must have got drunk one night at a party of our preachers. All I remember was, that I came whack to the ground; and that soon after daylight I found myself on a man's shoulders, and he was carrying me off. When I had recovered my senses sufficiently to know what was going on, I made my teeth meet in his ugly cheek. So he threw me down and left me to myself. All this was pure accident; but here, alas, I am, with my back broken, and for ever incapacitated from returning to the trees, which are my native haunts.' 'I see clearly,' replied the ant-bear, 'that you are out of your element; but pray, Mr. howler,' continued he, 'how many of you howler monkeys assemble together, when you have determined to give the woods a benefit of your preaching? We are gravely told by an author, that you assemble for that purpose.' 'The idea of our howling in concert,' rejoined the preacher monkey, 'is most absurd. 'Tis the invention of a wag—believed and handed down in writing by some closet naturalist or other. Gentlemen of this last description seldom possess discrimination enough to distinguish truth from error. They will just as soon (most unintentionally no doubt,) offer husks left by swine for sound corn. Had one compiler not referred his readers to a work, written by a man whom he styles "an eccentric writer," the public would still be ignorant of my true history. Now, that "eccentric writer," disdaining information acquired in the closet, dashed boldly into the heart of our tropical forests, and there convinced himself that one solitary individual of my tribe produces, by his own efforts alone, all those astounding sounds which naturalists have attributed to a whole bevy of monkeys assembled on the trees to howl in concert. But you, Mr. ant-bear, if reports be true, are said to get your daily food from ants' nests, high up in the forest trees?' 'Mr. howler,' replied the ant-bear, 'if writers on natural history bring you to the ground from the tops of the trees, in order that you may find your daily food, I don't see why these gentlemen should not elevate me to the tops of trees, in quest of mine.

"'Now, good Mr. howler, pray look at my hind feet, and examine them well. They are just like those of a dog, totally unfit for climbing, whilst the fore ones are most unlikely for that purpose. The curvature of the three long claws, added to the inward bending of the foot itself, ought to convince anybody, one would think, that we ant-bears draw no nutriment from ants' nests in the high trees of the forest. 'Tis quite true that huge ants' nests are seen amongst the trees; but it does not follow from this that we are to place our lives in jeopardy by attempting to draw our food from them. The ground itself swarms with millions upon millions of insects, fat and healthy, through the whole extent of our wooded empire. Upon these ants I exist. Neither am I in fear of an enemy. My skin is tough enough to resist the teeth of an hungry tiger, whilst my claws are the dread of every rushing foe.'

"'Then,' remarked the howler monkey, 'our respective customs are opposite in the extreme. You draw your nutriment from the ground, whilst I procure mine from the trees. You would perish in the trees, and I should die on the ground for want of food. Were I to abandon the trees, and be attacked on the ground, my death would be certain; for I can neither save myself by flight nor by fight. In the trees alone, I am safe:—whilst you, Mr. ant-bear, would be awkwardness itself in a tree, and would soon wish yourself down again.'

"Here the conversation ended;—and from it we may infer, that the information acquired by the 'eccentric writer' in the heart of the forest is more to be depended upon than that of the scientific compiler, who draws up the history of monkeys in his own ornamental study."

Mr. Waterton is not less sceptical concerning the so-called peculiarities of humming birds:—

"Very great doubts may be entertained as to the song or supposed song of humming birds. Although I was in the midst of humming-birds, I never heard the least attempt at it. Still, the great French naturalist talks of singing humming-birds; but I imagine that he must have been wrongly informed, as the humming-birds of which he writes (and he had his information from an eye-witness) were only young birds, a few weeks out of the nest. Now we all know that this age, both in man and in birds, is too immature for the production of song.

"I am not a believer in humming-bird-melody. If it do exist, it must come from a species hitherto unknown; and with a guttural formation quite different from that which obtains in the species already examined. These guttural parts are alike in the whole known family:—and thus, if one bird can sing, they all ought to sing.

"I can state positively, from long experience, that humming-birds are not gregarious in the usual acceptation of the word. Their incubation is always solitary, and although many dozens of them may be seen feeding at the scarlet flowers, for example, on the tree which the French call 'Bois Immortel,' those birds will have been seen to arrive one by one at the flowers, and to have retired from them, one by one, when the repast was over.

"Neither the monkey nor the humming-bird, on account of the formation of the feet in this, and of the hands in that, can labour on the ground for their food. Yet, when they are in the right region to acquire it, there is a visible difference in their mode of proceeding. Thus, the monkey sits on the branch, and in that position supplies its wants with what the tree produces. But the humming-bird must be on wing whilst it extracts food from the flowers; and never can it possibly be seen to take nourishment whilst perching on a twig.

"This rule is absolute for the humming-bird.

"The vault of heaven offers a large supply of food to these birds. It is interesting to see how they satisfy the call of hunger, by invading the columns of insects which frequent the circumambient atmosphere. Darting from the shade with the rapidity of a meteor, the humming-bird stops short at the column, and there, apparently motionless, it regales itself, and then departs as swiftly as it had approached.

"Authors are divided as to the exact kind of food which humming birds require.

"In all the species which I have inspected (and I have inspected not a few), I have found insects, or fragments of insects in the œsophagus; and occasionally, by applying my tongue to the contents of the stomach, I have experienced a sweet taste, as though of sugar and water. Still, were I asked if I considered that the nectar in flowers constituted the principal food of humming birds, I should answer in the negative. Insects form their principal food.

"The robust frame of these birds seems to require something more solid to support life than the nectarious dew abstracted from flowers, and I don't exactly see, if these birds do principally exist on this nutriment, how it is that they continue to keep it pure in their own hot stomachs; and then, by a process unknown to us, convey it to the stomachs of their gaping little ones. But the schoolmaster has left his closet and gone abroad. Perhaps he will clear away a good part of the mist which still envelopes this ornithological section of natural history. Let us hope for the best."

Not less original are our author's opinions about the fox and his habits; more especially his superior cunning is wholly denied:—

"Common opinion seems to concur in attributing to the fox an extraordinary amount of cunning, 'as cunning as a fox;' still, I am not prepared to concede this prerogative to the fox alone, *par excellence*, as I am acquainted with many other animals capable of disputing the prize with it. Perhaps people are inclined to give it more credit for cunning than they do to other animals, on account of the singular formation of its head and face, which, according to our own notions of physiognomy, indicate the powers of cunning."

This is illustrated by an anecdote of what occurred to the author when, as a boy whom there was no keeping within "bounds," the Jesuit fathers at Stonyhurst constituted him rat and fox catcher to that establishment.

"Once it so happened that Reynard (and possibly other members of his family) had made an excellent supper on an unprotected flock of fine young turkeys, about half grown—the property of the establishment. Eight of these were missing the next morning. It seems that after the four-footed thief had satisfied his call of hunger, he naturally bethought himself that his wife and children would like a bit of turkey for supper on the following night: so he buried five of the remaining victims in an open garden which was close by. Now, if the simpleton had covered them all over with the soil on the garden-bed, I would have given him credit for superior sagacity. But he actually left one wing of each bird exposed to view; and it was this exposure which led to their discovery.

"I could not possibly mistake as to who had been the sexton, for when I had disinterred them, each bird emitted that odour which a fox alone produces. Thus, whilst I admired the pains which Reynard had taken in covering up the turkeys, I condemned his folly and want of judgment in leaving the wing of his murdered prey exposed to the eyes of the whole world. An ass, in this case, would have shown just as much talent and cunning as Reynard himself had exhibited."

Of such materials, intermixed with frequent allusions to the status of Roman Catholics in this country, is Mr. Waterton's new volume composed; he himself being a zealous member of that ancient faith.

Garden Memoranda.

ROYAL BOTANIC GARDEN, KEW. That the many attractions which this great national establishment presents continue to be duly appreciated by our middle class London public is proved by the increasing numbers which annually visit it. Last Sunday no fewer than 9900 persons inspected the garden and pleasure grounds during the afternoon. On every hand might be heard expressions of satisfaction and delight, and indeed how could it be otherwise, for never have we seen the gardens in better order than they are at present. Since the late rains the lawns, which are neatly mown, have exchanged their brown and parched appearance for a coat of the most lively green, and the beds in front of the old museum, along the sides of the principal walks, and in the little flower garden near the great Palm stove are literally masses of showy blossom, in quantities sufficient to be at once striking and effective. Of these Verbenas of different kinds, Scarlet Geraniums, Petunias, Calceolarias, and Ageratums form the staple; but we also noticed other plants such as Cuphea platycentra, &c., edged with the compact-growing white-leaved Cerastium tomentosum. These looked neat and dressy. Geranium Punch it was remarked made a capital bed; among Petunias few looked better than the old Shrubland Rose, and of Verbenas Scarlets, edged with white, had a good effect. Mangles's variegated Geranium, mixed with a very dark purple Verbena, made a charming mixture. We also noticed the same Geranium associated with a pink Verbena; but this did not appear to match so well as the dark colour just mentioned. Mixtures of different plants in the same bed, such as Geraniums, Verbenas of various colours, Calceolarias, &c., have also been attempted with tolerable success, and the contrast made by the different colours thus brought into juxtaposition produced a striking effect, more especially where the plants matched well as to height, which did not in all cases happen. This, however, is a mistake which will doubtless be remedied next year. Vases round the pond are also now extremely pretty; they are filled chiefly with Scarlet Geraniums, which are in some cases intermixed with Fuchsias, Calceolarias, and Petunias, and round the edge with drooping blue Lobelia and Nierembergia. These resemble huge bouquets of flowers, and, as they well deserve, appear to be greatly admired.

The row of young Deodars planted some time ago along the sides of the "long walk"— each of which stands as it were in a square, whose corners are indicated by Junipers and Cypresses, by some termed "Guardsmen"—have made very satisfactory progress this year, and some of the trees are already fine specimens. A Wellingtonia or two planted out in the grounds seemed also most thriving, and we noticed in pots several species of Mexican Pines, some of which from our late severe winters have been almost if not wholly lost to the country. The magnificent specimens of Araucaria Bidwilli and excelsa, Dacrydium cupressinum and other fine Conifers of a tender kind kept in tubs, and usually wintered in the old Orangery, are now placed out-of-doors at the top of the broad walk leading from the main entrance and are objects of great beauty. The Dacrydium itself is quite 12 feet in height and as much through, and nothing could possibly be more graceful than are its drooping branches. Several Banksias have also been moved out of the stone building in this part of the grounds devoted to these trees and placed out of doors, and some of the larger ones which it would have been inconvenient to have moved have been repotted or surface dressed as the case required. Near this house a Chusan Palm has been planted out on the Grass; and we also noticed a fine specimen of this Palm near the entrance gate in a tub. These plants when they shall have produced stems sufficient to raise them well up from the ground will form handsome objects, tropical and striking in appearance. This kind of Palm is, as is now pretty well known, tolerably hardy.

Of hardy ornamental trees not commonly met with may be mentioned Kölreuteria paniculata, a fine specimen of which is just now in full blossom. Its foliage has some resemblance to that of an Ash, and is of a beautiful deep green; the flowers are yellow and borne in panicles at the end of the branches. Altogether this is a very pretty middle-sized Chinese tree, which deserves to be better known than it is.

More common, but not less ornamental perhaps, are two noble specimens of Sophora japonica, at present loaded with blossoms. Large bushes of Chinese

Privet are also everywhere coming into bloom. In another part of the grounds we remarked a good example of New Zealand Beech (Fagus fusca), in a tub. The peculiar brown withered appearance which the foliage of this tree always presents readily distinguishes it from all others. It is however not hardy, which F. antarctica and betuloides from Cape Horn are. The latter have been planted out.

In the Herbaceous ground Tritoma (Kniphofia) Uvaria, many specimens of which are now in full flower, are at present quite striking and give life and beauty to that part of the garden. This is a plant which should be plentiful everywhere, but strange to say that is not the case. All who have an opportunity of seeing how handsome it is at Kew at the present time we think, however, will not fail to procure it. It likes a light rather dry warm soil, and is very easily cultivated. A bed of it here made by pulling a plant to pieces, cutting the tops off the leaves of the different portions used, and planting them last June just as one would Leeks, is now in full beauty. It is however as single specimens planted by the sides of walks or drives that this fine autumn blooming plant is seen to most advantage, and for this and other decorative purposes it well deserves attention.

As regards glass structures some have been fresh painted, others are being repaired, and one, the Fern house, is being enlarged by taking down a glass partition which divided it from the adjoining house, and throwing both into one. This has caused an entire remodelling of the house just named, which is now all to pieces and in course of reconstruction. To permit these operations to be proceeded with the late Mrs. Lawrence's large tree of Amherstia nobilis that was growing here has been removed — it is thought safely—to the large Palm house, where it is intended to remain for the future. The fine Fern Angiopteris evecta, than which a better specimen perhaps does not exist in the country, although much incommoded by the alterations just alluded to, still stands where it was, and it is to be hoped will not be injured by the comparatively rough treatment to which it is now necessarily subjected. Among other Ferns here we observed a fine specimen of Drynaria coronans, thought to be the only one at present in the country. What appear in nurserymen's collections under this name Mr. Smith believes to be D. morbillosa. Of Gleichenias we noticed some beautiful specimens, and to this handsome and valuable genus has lately been added a new species, viz. G. dichotoma, the Polypodium dichotomum of Thunberg. This may truly be called the Brake of the Tropics, for it is common throughout the tropical and sub-tropical regions of the southern hemisphere, where it often reaches a height of 10 and 12 feet. All efforts hitherto made to introduce it to Kew direct from its native country have failed; it has however at last been obtained from the Continent. Among Lycopods was one named mutabile, a Jamaica species; to other claims to attention this possesses the singular peculiarity of becoming white towards night, although it is as green as denticulatum in the morning. Of other Lycopods there were also some pretty kinds.

In the succulent house little alteration has taken place since our last report. Of Dasyliriums three are coming into blossom, and the speed with which they throw up their great flower stems is remarkable. One which has been removed to the Banksia house, to give it room, has though comparatively a small plant pushed a flower stem 14 feet in height in the course of the last fortnight. This is D. acrotrichum; the other kind about to bloom is D. glaucum. Some of the Aloes, for which the temperature of this house has been too high this summer, have been set out of doors.

The Royal Water Lily (Victoria Regia) is now blooming beautifully in a slate tank in one of the smaller houses. It has also flowered in the Victoria house; but not in the same degree of perfection it has done here. Its leaves are numerous, large, and well rimmed. In the same tank is a good example of the Madagascar Water Yam or Lattice plant (Ouvirandra fenestralis), the leaves of which measure at least a foot in length, and about as much in width. Below the leaves has been strewed white gravel, which serves to set off their beautiful dark-coloured network to advantage.

The entrance lobby to the Victoria house is overhung with bottle and club Gourds, whose singular forms render them objects of attraction to the many. From a plant trained up the roof inside hung the bright orange fruit of Momordica charantia, associated with Dioscorea alata and other Yams and climbing plants. In the tanks were Nelumbiums, Papyrus antiquorum, and Colocasia antiquorum. From the points of the large kite-like leaves of the latter, when the latter is in full vigour, water keeps constantly dripping at night. The evaporation which constantly goes on from their surface enables the plant to get rid of the large amount of water which it so greedily takes up in the daytime; but at night it has the peculiarity of parting with it in the way just described.

In the large Palm stove the whole of the plants were rearranged last winter. They are now grouped according to their Natural Affinities; the Palms occupy the centre and the more hard-wooded plants the two ends. Several of the Palms have been fresh tubbed, and such of them as had grown too tall for the house have been let down deeper into the floor. Cocos plumosa and coronata and Caryota urens are among the tallest, having reached a height of some 55 feet in about 30 years. Among Musads is a magnificent specimen of M. Ensete, whose stems are mentioned by Bruce in his travels in Abyssinia as affording a kind of food for the natives. This was raised here from seeds three years ago, and is now some 15 feet in height. Seaforthia elegans is both in flower and fruit. Among Euphorbias was a magnificent specimen of grandidens, which was introduced to Kew by Bowie in 1823. It is now some 14 feet high, with a trunk a foot in diameter at the ground and 5 feet in height to the spring of the branches. Most of the climbers have been removed from the pillars in the interior of the house. Among those left on the roof is the East Indian Mucuna prurita, one of the Cow-itches, whose clusters of flowers hanging down below the leaves look not unlike bunches of Black Hamburgh Grapes. For the decoration of roofs of stoves late in the season this plant merits attention.

The New Holland and other houses, whose occupants are now placed out of doors, are gay with summer flowering plants, both indoors and out, therefore this great garden is at present extremely attractive and well worth inspection.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Luculias and other winter flowering things growing in the border must be freely exposed to light and air, in order to get the growth well ripened and to insure a fine display of bloom. Also see that all plants are clear of black thrips, for this pest is particularly active at this season wherever it is allowed to gain a footing, especially on Luculias and such things as are in a growing state. STOVE.—Where there is but one house for the accommodation of tropical plants, considerable care and attention are necessary to properly manage these at this season, as some having completed their season's growth require to be kept cool and rather dry, in order to ripen the wood, while others in free growth require to be encouraged with warmth and moisture. If there is no convenience for removing to a cooler house such things as have made their growth, these should be placed together at one end of the stove, keeping them sparingly supplied with water at the root, and giving air rather freely, which will generally serve to prevent any attempt at a second growth; and those requiring to be kept warm and moist should also be placed together at the opposite end of the house, where very little air should be given, using every care to keep the atmosphere about them moist, &c. Allamandas, Clerodendrons, &c., which have done blooming, may be removed to a Vinery where the Grapes are ripe or ripening, for as these will require very little water, they will not do much mischief in the way of causing damp, and their room in the stove will be found very useful for other things. See that everything is free from insects, and keep the foliage of such things as Ixoras, &c., clean by washing with a sponge and soapy water when necessary.

FORCING DEPARTMENT.

PINERIES.—Take advantage of favourable weather while it continues to encourage free growth where this is desirable, giving the plants a liberal supply of water at the root, using manure water for such as are moderately well rooted, and keeping the atmosphere warm and moist. Shading will of course be dispensed with by this time—at least it should be, as growing plants will require exposure to all the light possible, in order to induce fine strong foliage and a dwarf stocky habit. See that the succession stock is properly supplied with water at the root, as any neglect in this respect while the weather continues bright would be liable to cause some of the plants to fruit prematurely. Also keep the atmosphere moist by frequently sprinkling the paths, &c., and syringe them lightly over-head, and shut up early in the afternoon, so as to husband the solar heat as much as possible: be careful, however, in syringing to spare plants in flower, as syringing these over-head would probably cause deformed fruit. Give plants swelling their fruit plenty of clear strong manure water, and young plants growing in open beds will enjoy an occasional soaking of the same. VINERIES.—If bright weather occurs, it will be advisable to shade fruit that is thoroughly ripe and expected to hang for a considerable time; for although the quality of the fruit may be rather improved by warmth, &c., some sorts soon lose their fresh plump appearance. Give air freely, and keep the house as cool and dry as circumstances will admit. Stop laterals in the late house, and keep the foliage regularly exposed to light, so as to have it as healthy and vigorous as possible.

FLOWER GARDEN AND SHRUBBERIES.

That the present month is a favourable time for transplanting large sized shrubs and trees is seldom disputed; nevertheless, it more or less annually happens that a great amount of this kind of work is put off until so late that the plants have no chance of pushing a few fresh roots to enable them to resist the cold drying winds of March: and there are doubtless many of our readers purposing to shift large shrubs and trees this season who have hardly thought of commencing yet; we would, however, strongly advise all such to start as soon as circumstances will admit, and they will find that things shifted during this month will require but little attention in the way of watering next spring and summer, compared with others transplanted in winter and spring. Also get ground intended to be planted with young things from the nursery turned up as soon as possible, especially in the case of strong adhesive soils, which are quite unfit for planting until they have been some considerable time exposed to the influence of the sun and air. Give diligent attention to the propagation of bedding out stock, and get cuttings that are sufficiently rooted potted off at once, keeping them close and moist until they become established. Those that have been potted off some time and have established in their pots should be gradually inured to exposure to the open air, stopping the shoots to keep them dwarf and stocky. But plants that are not very strong should be shaded from bright sunshine for a few hours in the middle of the day, or placed in a shady situation out of doors; let them have the benefit of the light however, if kept under glass, and guard them from drying winds if removed from under shelter. If any beds under trees appear to be suffering from want of water, give them a good soaking at once, and see that late Hollyhocks are afforded a liberal supply, which will greatly assist in prolonging their beauty. We may soon have indications of the near approach of frosty nights, and it will be well to be prepared with something with which to cover any of the beds likely to be injured by slight frost, such as Heliotropes, &c., and the variegated Geraniums, the foliage of which is very readily injured.

HARDY FRUIT AND KITCHEN GARDEN.

Any of the Peach or Nectarine trees which are observed to be growing too freely should be gone over, stopping all the stronger shoots, and those that were treated in this way a few weeks ago should also be looked over again, stopping a further portion of the shoots if this appears necessary, to prevent the formation of gross strong wood. Pear, and indeed all trained fruit trees should also be gone over, removing all superfluous wood, so as to expose the trees to sun and air as fully as possible, which will be of service towards getting the fruit spurs and bearing wood well matured before winter. Where mulching has been used for Peach and Nectarine trees, this should be removed at once, if not already done, for the fruit is seldom well flavoured if the roots are excluded from the action of the sun and air during the period of ripening. See that Strawberries in pots for forcing next season are well cared for, placing them in an open sunny situation where they will have all the light possible, and do not allow them to suffer from want of moisture at the root. Exhausted crops as Peas, Beans, &c., should be cleared away as soon after they are done with as possible, and the ground manured and trenched, when it will be in readiness for planting.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Sept. 3, 1857, as observed at the Horticultural Gardens.

August and Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 28	8	30.261	30.202	77	52	64.5	67	64	N.E.	[illegible]
Satur. 29	9	30.161	30.045	70	50	60.0	66	63	N.E.	[illegible]
Sunday 30	10	30.014	29.955	82	45	63.5	65	63	E.	[illegible]
Mon. 31	11	29.944	29.929	80	56	68.0	65	63	E.	[illegible]
Tues. 1	12	29.676	29.822	76	48	62.0	65½	63	W.	[illegible]
Wed. 2	13	29.615	29.519	64	44	54.0	65	62½	W.	[illegible]
Thurs. 3	14	29.541	29.527	63	41	52.0	63	62	S.	[illegible]
Average		29.916	29.857	73.1	48.0	60.5	65.2	62.9		[illegible]

August 28—Cloudless; partially overcast; fine at night.
— 29—Overcast; very fine throughout.
— 30—Dry haze; cloudy and hot; fine.
— 31—Very fine; dry haze; hot; fine.
Sept. 1—Overcast; very fine; rain at night.
— 2—Densely overcast; sudden fall of temperature; cold showers.
— 3—Rain; heavy showers throughout the day; rain at night.
Mean temperature of the week ½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Sept. 12, 1857.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Wind: N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	69.7	45.9	57.8	13	0.70 in.	1	9	4	—	1	9	[illegible]	[illegible]
Mon. 7	69.2	47.3	58.2	15	0.55	1	5	6	1	6	[illegible]	[illegible]	[illegible]
Tues. 8	68.3	47.4	57.9	12	0.65	3	6	3	2	3	10	[illegible]	[illegible]
Wed. 9	68.3	48.5	58.4	13	1.09	—	5	2	3	7	[illegible]	[illegible]	[illegible]
Thurs. 10	69.4	46.8	58.1	17	1.27	—	4	4	1	6	[illegible]	[illegible]	[illegible]
Friday 11	68.7	46.0	57.4	9	0.46	2	5	1	3	4	[illegible]	[illegible]	[illegible]
Satur. 12	68.0	45.4	56.7	12	0.49	4	5	1	4	1	4	[illegible]	[illegible]

The highest temperature during the above period occurred on the 12th, 1846—therm. 84 deg.; and the lowest on the 7th, 1855—therm. 28 deg.

Notices to Correspondents.

BOOKS: *A B.* Lindley's School Botany, or any other making work of the kind provided it is not called "Popular Orchid." It is a very costly book in folio, with plates hand-coloured, of some select species only. Enquire of Mr. Rid way, Bookseller, Piccadilly.

CARTER'S PROLIFIC RASPBERRY: *J C.* This is a very [illegible] variety, but on the whole not superior to the Red Antwerp, the fine aroma of the latter is, we think, as yet unequalled.

INSECTS: *H C A.* The grub sent is the destructive caterpillar of the Agrotis Segetum, or common dart moth, of which a description and figure will be found in *Gard. Chron.*, 1855, p. 741. A good plan is to search the plants after dark, as the caterpillars then leave their burrows and come above ground to feed on the young foliage. Children may also be easily taught to search round the roots of the plants and extract the grubs, which may be dislodged by lime water or gas water. *W.*

NAMES OF FRUITS: *J D.* 2, Golden Reinette; 3, 13, Haw[illegible] den; 5, Beauty of Kent; 6, Nonsuch; 8, Rhode Island Greening; 14, 20, Nonpareil; 15, Golden Pippin; 18, [illegible] fordshire Foundling; 19, Catshead. The Peach is a Clingstone, not worth cultivating. It agrees with the description of the Pavie Madeleine of Duhamel.—*McW.* 1, 11, Marie Louise; 2, Williams' Bon Chrétien; 3, St. Germain; [illegible] 12, Gansel's Bergamot; 6, Eyewood?; 7, Jersey Gratioli; [illegible] Forelle; 10, Thompson's.—*J S.* 1, 2, Easter Beurre; 3, Pa[illegible] yer's Victoria Plum; 4, Diamond Plum.—*Charles F Fre[illegible]* good Plum, having great resemblance to Kirke's; perhaps a seedling from that variety.

NAMES OF PLANTS: *Hippolyte.* The imperfect specimen [illegible] appears to be Chrysostemma tripteris, Bot Mag. [illegible] destitute of the stem leaves and before the flower heads are fully developed.

SEEDLINGS: *T K.* Such names are for the most part [illegible] gible and useless. Of course the Pines are hardy [illegible] be treated like Pinasters. The others are we presume [illegible] plants, and may be potted in equal parts of peat, loam, and sand.

MISC.; *C B.* 6d. a line.

ARTIFICIAL MANURES, &c. — Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—The following distinguished Awards have marked the superiority of RICHMOND & CHANDLER'S numerous CHAFF MACHINES, CORN CRUSHERS, OIL-CAKE MILLS, TURNIP CUTTERS, &c., in competition with the best Makers in every class, exhibiting at the Glasgow Show, August 5, 1857:—

First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double-Action Turnip Cutter for Beast and
First Prize for best Oil-Cake Breaker for Beast and Sheep.
First Prize for best Root-Washing Machine. Also, [Slicer.
Specially Commended for Steaming Apparatus and Turnip
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SALISBURY MEETING, 1857.

THE ROYAL AGRICULTURAL SOCIETY OF ENGLAND'S FIRST PRIZE PORTABLE STEAM THRESHING ENGINE.—The Royal Agricultural Society of England, at their latest Award of Prizes, decreed the merit of the FIRST PRIZE to TUXFORD AND SONS' PORTABLE STEAM THRESHING ENGINE, the Judges at the same time declaring, in addition to its other excellencies, that the Straw Shaker and Barley-horning Apparatus of TUXFORD & SONS' Patent Combined Threshing Machine were perfect in their operations.—(*Vide the Journal of R. A. Society*, Vol. xvi., page 614.)

The superiority of TUXFORD & SONS' Patent Portable Iron-housed Steam Threshing Engines, with upright Cylinders and Improved Boilers, for continuance of power and economy in fuel, over Engines with horizontal Cylinders, is well known in all parts of England wherever they have been brought into competition with other Engines—(when the Tubular Boiler is selected in preference to the Combined Boiler, the proportion of parts of the Carlisle Prize Engine Boiler is strictly adhered to)—and their Patent Combined Threshing, Shaking, and Dressing Machines, for simplicity of construction, the amount of work performed, and perfection in the Threshing, Shaking, and Dressing Operations, have the well merited reputation of standing at the head of their class.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

CRAVEN AGRICULTURAL SOCIETY.—The Third ANNUAL SHOW will be held at Skipton, on FRIDAY, September 11, when 320*l.* will be awarded in prizes to Horses, Cattle, Sheep, Pigs, Poultry, and Implements.
STEPHEN ROBINSON, Hon. Sec.

The Agricultural Gazette.
SATURDAY, SEPTEMBER 5, 1857.

"ONE WHO HAS BEEN WELL DRAINED" puts the following question:—

"In recent discussions respecting the Keythorpe System we have heard much about the necessity of making the direction of the drains coincide with that of the line of greatest descent. I should feel very grateful to any of your correspondents who would explain the reason of this."

The simplest explanation of this point appears to us to be that when once water has got into a drain its uses to the soil are completed, and the object then is to let it run away as fast as possible. So far as furnishing a place for the lodgment of the water after passing through the land is concerned, every point in the drainage pipe may be considered as an independent space for its reception, and the object is that each of these spaces shall have the quickest possible exit provided for its contents as fast as they arrive.

If we could have these separate absorbent points scattered equidistantly underneath the soil, say one in every two yards square, with a direct and rapid outfall for each, then the best result would be attained, but at an excessive cost, and the question practically is whether it is better to connect these absorbent points by a conduit common to a number, lying in such a direction as that the water contributed by each shall leave it slowly, or in such a direction as that the water contributed by each shall leave it quickly. It is plain that the latter is the better method of the two and that for this purpose those points lying immediately above one another on the slope should be connected by a conduit rather than those points which lie obliquely on the slope. The only limit in practice to this rule is when the slope is so great that the flow of water down it would tear up the soil. So that the rule may be expressed thus: drains should be so directed that they shall furnish the most rapid exit for their water, under that velocity at which its passage would be attended with this mischievous effect. This seems so plain that the only explanation possible of the idea that drains aslant the slope are best is, that it originated when the object of drainage was supposed to be the removal of the water from the surface, down which it might flow until it met a catch drain which would remove it.

WE have received specimens of an Ægilops grown by Mr. BROWN, of Stanway, near Colchester, in the fourth successive year of cultivation. The seed resembles a shrivelled grain of Wheat—the ear is as rigid and brittle as one of Spelt.

Mr. BROWN writes regarding it as follows:—

"Allow me to submit to your notice some fresh and dried seeds and a few ears, both of this year's growth, of a species of Grass called Ægilops squarrosa. This is the first year of my cultivating it, and it had been cultivated three years before by the gentleman who very kindly gave me the seed about a year ago, and who is now continuing cultivating it. I am told that this is the Grass whence Wheat is derived; but from what I have observed of it during this its fourth year, all the improvement appears to me to consist in the kernels of this year being larger, owing to a development more to the form of our common bread corn than those of last year; but probably the season may have something to do with this development.

"It appears to be a most productive Grass, for in sowing the seed—two only in a dibbled hole—I have 60 ears from two seeds in one instance, and 45 from another.

"You will observe the form of the seeds is very like that of our common Wheat. The only difference appears to me to be in size—a development which probably more cultivation, aided by a gravel soil, would give. I shall continue the cultivation of this seed for the next six years, if it please God, so making up the ten years, in the space of which I am told that this Grass will by care and attention assume the fully developed form of our common Wheat."

The history of ESPRIT FABRE's cultivation of *Ægilops* and its development under his treatment into a true Wheat is given in the 15th Volume of the English Agricultural Journal, and in the *Gardeners' Chronicle* of the same date. It was not *Ægilops squarrosa*, however, but *Æ. triticoides* that furnished the original of M. FABRE's experiments. This triticoid form of the plant is in fact yielded by two distinct species of *Ægilops*, and it was the notice of that fact that led M. FABRE to persevere in the cultivation of it. He says:

"The remarkable fact that, under certain circumstances, plants approaching *Triticum*, or Wheat, are produced from the two perfectly distinct species of *Ægilops*, leads to the supposition that, as has often been presumed, these Ægilops are the wild representatives of cultivated corn, and that consequently Wheat is nothing more than Ægilops modified by the influence of soil and climate."

To determine the accuracy of this supposition the seed of *Æ. triticoides* was cultivated for 12 successive years by M. FABRE and at length yielded a true Wheat. "For 12 successive years," he says, "I have thus cultivated *Ægilops triticoides* and its products; I have seen them gradually attain perfection, and become at last true Wheat (*Triticum*), and I have never seen a single plant reassume its primitive form, that of *Ægilops ovata*, L. This form never reappeared.

"Let us now recapitulate the series of modifications by which *Æ. ovata* became transformed into a sort of *Triticum sativum* (cultivated Wheat).

"*Æ. ovata*, as generally met with in a wild state, is glaucous in all its parts. Its flowering stems never exceed 10 inches in height; its upper leaves never reach the first tooth of the rachis of the ear; the last is short and oval, has only four spikelets, and of these the two lower ones are alone fertile.

"Even in a wild state the grains of *Æ. ovata* give rise to the variety called *triticoides*, in which one or two of the awns of *Æ. ovata* disappear, so that the valves of the glume of the greater part of the spikelets have only two long awns instead of four in the lower spikelets. The outer membranous valve of the floret, instead of terminating in three awns, has only one, at the base of which may be seen the two rudiments of those which are wanting. The other membranous valve is without a beard, and is ciliated at its apex. The ears are formed, like those of *Æ. ovata*, of three or four spikelets, generally sterile, rarely fertile. The florets are hermaphrodite, and enclose three stamens around a pistil, ending in two long silky stigmas. These florets are often sterile, in consequence of the abortion of the pistil. The fruit (grains) of those which are fertile is elongated, angular, very concave, and sometimes flattened on one side; its colour is yellow, approaching black-

ness, like that of *Æ. ovata*, but is much longer, and is silky at the top.

"These grains, sown and cultivated for the first time, yielded plants three or four times as high; their ears were cylindrical and much more elongated than those of the parent plant, and the valves of their glumes had only two awns, of which one was shorter than the other, and occasionally one was almost entirely absent, so that each glume had but one awn, as is the case with corn. Further, as in *Triticum*, the awns of the glumes of some of the plants were very long, whilst those of others were short. The plants moreover had the appearance of *Triticum*, and assumed its characters more and more. The spikelets, more numerous than those of the parent plant, were often sterile, and the few which were not had only one or two fertile flowers, so that the fertile spikelets only yielded one or two grains. These grains, being sown, produced the next year more perfect plants. Their spikelets were more numerous than before, and almost all of them contained two fertile flowers, and thus yielded two grains. The awns of the glume were always two in number, but the abortion of one was in every case carried further than previously, and was often complete. The grains were less compact, less concave, less hairy at their extremity. The ears, when ripe, separated less easily from the axis, and the grains were much more floury than in former years. A third year produced plants similar to those of the year before, but more perfect. They had scarcely any sterile spikelets, each of which yielded two and sometimes three grains, more developed, less concave, and less hairy.

"The next, being the fourth year, produced no notable change. A year later the stems attained the height of a yard; the grains were sufficiently developed to separate the valves of the floret and to be wholly exposed when ripe. The mature ears separated less easily from the stems.

"The year following all the spikelets were fertile, although the ears separated with ease.

"The next year the ears did not break off easily; all the spikelets were fertile, and occasionally enclosed three well developed grains. It is clear that a true *Triticum* was then obtained, for a cultivation in the open fields for four successive years did not cause any change in its form, and it yielded produce similar to that of the other corn of the country."

Mr. BROWN's specimen indicates a stage in the process of development somewhat akin to that described above as characteristic of M. FABRE's 3d year. We have no doubt that his perseverance will be rewarded as was that of his predecessor by the attainment of a true Wheat.

THERE has been so much discussion lately on the general subject of LAND DRAINAGE—and more especially on points which we thought had long passed from the region of controversy—that it may perhaps be well in a short series of articles to state the case once more: not, certainly, that mere dogmatism may put down discussion, but that a completer view of this part of farm practice may reduce to their relative importance some of the topics connected with it which have been, as we believe, of late unduly rated.

Plants grow in virtue of additions to their structure, which they absorb either in a gaseous or a liquid state. Mineral matters (besides much that is not generally called inorganic matter) enter the roots of plants only as dissolved in water. It is obvious then that those relations of water to the growing plant imposed on both by the condition of the soil are of the first agricultural importance.

Water is the vehicle of nourishment to plants. It enters the laboratory of the soil, mixes and prepares the food of plants. It enters this storeroom of their food, deposits fresh stores, removes for immediate use a portion of the abundance warehoused there, and takes it by those open mouths through which, with its nutritive burden, it is sucked in to be ultimately, without this burden, exhaled from the leafy surface of the plant. On the aptitude of the soil then as a vehicle by which the water travels to and fro, and acts the part of labourer and of waiter, depends the ability of that soil both to yield food for plants and to convey it to them.

But what is this water which, falling on the surface of the land, acts so important a part in the economy of vegetation? It is in the first place a very powerful solvent, and so when it reaches the ground in its passage through the air it is found to contain a little of everything that is soluble which the air contains, and so when it reaches the roots of plants after its passage through the soil it contains a little of everything that is soluble which it has met with there.

The air which it holds in solution has a considerably greater proportion of oxygen dissolved in it than is present in the atmosphere, and it has many times the proportion of carbonic acid that the atmosphere contains, and both of them exert an important influence on the constitution of the soil. Common air contains 21 per cent. of oxygen, and .04 per cent of carbonic acid. Air from water on the other hand contains 30 to 32 per cent. of oxygen, and .1 to .6 of carbonic acid.

Rain-water also contains nitric acid and ammonia. The latter ingredient more especially, as supplied to land in this way, has been supposed to be the main source of the nitrogen which plants contain. The opinion on this subject has however been gradually altered by the more accurate investigation of chemists, and the annual supply per acre of nitrogen from both the ammonia and nitric acid in rain-water has proved much smaller than was originally supposed. M. BARRAL found in rain-water near Paris hardly a grain of ammonia per gallon, which taking into consideration the annual rain-fall there, amounts to about 9.6 lbs. of ammonia per acre, or 7.9 lbs. of nitrogen supplied per annum over that extent in this way. He also found 1.35 grains of nitric acid in a gallon of rain-water, so that from this source there was a further supply of 16.9 lbs. of nitrogen per acre per annum. Since then, however, Mr. WAY has applied more accurate means to the measurement of the nitric acid in rain-water, and of both ammonia and nitric acid he finds a much smaller proportion than had been expected. The following is a statement both of the quantity of rain, and of the quantity of ammonia and nitric acid, with that of the nitrogen they contain, falling on an acre of land during the year at Rothamstead in Hertfordshire.

ROTHAMSTEAD, 1855.

	Gallons of Water per acre.	Nitric Acid per acre. Grains.	Ammonia per acre. Grains.	Nitrogen per acre. Grains.
January	13523	230	1244	1084
February	22473	944	2337	2167
March	52484	1102	4513	3995
April	9281	325	1141	1024
May	52575	1840	4206	3939
June	41295	3303	5574	5447
July	157713	2680	9620	8615
August	59622	3577	4769	4870
September ..	34875	732	3313	2917
October	124466	4480	7592	7414
November	55950	1007	3021	2949
December	39175	668	2436	2180
Total	663332	2.98 lbs.	7.11 lbs.	6.03 lbs.

Mr. WAY's analyses lead him to conclude that not more than 6 lbs of nitrogen fall in rain per annum on an acre near London, and this is not more than half a cwt. of guano contains. The refreshing effect of an April shower then as he states cannot be due to these compounds of nitrogen, seeing that the rain of the whole month of April in 1855 contributed but 1000 grains per acre, not more than is contained in a single pound of guano.

This is not the place to consider in what way plants do obtain their nitrogen if not through rain-water. It is sufficient at present that we understand that the water falling per annum on an acre near London does not contain more than 7 lbs. of nitrogen.

Of the three principal characteristics of rain-water—its contents, such as they are, in ammonia, nitric acid, oxygen, and carbonic acid—its solvent powers increased by the presence of these substances—and its temperature—the first is not the most important. It is probably more to its solvent powers and to its relations to temperature that the good or the mischief that it does is chiefly due.

To these points we shall in future articles refer.

ON HARVESTING AND THRESHING GRAIN.

THE operation of severing the grain crop from the ground is sometimes performed by means of the sickle or hook, at other times by the scythe, and of late years machines worked by horses have been introduced. But, as the last-mentioned mode has hitherto only been found practicable under circumstances of the ground being tolerably level, and the crop not lodged, the two first-mentioned modes of reaping only will be treated of.

Whether the sickle or the scythe is the implement by which reaping is performed, the cost of the operation will, in a great measure, depend upon whether the crop is light or heavy, and whether it is lodged or not. Before proceeding to point out the amount of labour required in reaping by either of the modes mentioned, it will be necessary to state the size of a sheaf and number of sheaves that may be considered to constitute a light, medium, or heavy crop per acre, and also the number of hours as a day's work. These elements being settled, the value of any quantity of work, either by the acre or by the number of sheaves, will easily be determined in a similar way to that adopted in reference to the cost of labour in other operations of husbandry.

The proper size for a sheaf of corn is 11 inches in diameter at the band; of these 144 per acre may be deemed a very small crop; 192 a small crop; 216 a light crop; 324 a medium crop; 432 an abundant crop; 54[illegible] a very heavy crop; and 648 a very large crop. Twelve sheaves form a stook; therefore—

A very small crop is ..	.. 12	stooks per acre.
A small crop is ..	.. 16	" "
A light crop is ..	.. 18	" "
A medium crop is ..	.. 27	" "
An abundant crop is	.. 36	" "
A very heavy crop is	. 45	" "
A very large crop is ..	.. 54	" "

The usual hours for a day's work for reapers, when hired by the day, is from 8 A.M. till 6 P.M.; and as an hour is taken for rest and refreshment during that time, 9 hours is the net working time of a day's work. An acre of a medium crop of Wheat, of 27 stooks per acre, can generally be got through by three women reapers in a day's work of 9 hours; it follows that the day's work of such is represented in a constant multiplier by 3 per acre, or by .111 per stook; but two able-bodied male labourers accustomed to the work will reap an acre of a medium crop of Wheat, with a large hook, in a day; therefore, in that view of the case, 2 will be the multiplier per acre, and .074 per stook. In reaping with the scythe, an acre of a medium crop of 27 stooks can be cut in a day; therefore, 1 will be the multiplier per acre, and .037 per stook. Besides the cost of cutting the crop, a further expense is incurred in binding the sheaves and setting them up in stooks; and such will furnish full employment for one male labourer to every six women reaping with sickles, to four men reaping with hooks, and to one man reaping with a scythe.

The following is a table of multipliers of any given rate of day's wages, to find the cost of reaping per acre, according to different quantity of crop per acre:—

	Men Reaping with Hook.			Men Reaping with Scythe.		
	Reaping.	Binding.	Total.	Reaping.	Binding.	Total.
Very small crop ..	·888	·222	1·111	·444	·444	·888
Small crop	1·192	·296	1·488	·592	·592	1·184
Light crop	1·333	·333	1·666	·666	·666	1·332
Medium crop	2·	·5	2·5	1·	1·	2·
Abundant crop ..	2·666	·666	3·333	1·333	1·333	2·666
Very heavy crop ..	3·333	·833	4·166	1·666	1·666	3·332
Very large crop ..	4·	1·	5·	2·	2·	4·

Women reaping with sickles will not do more than two-thirds the quantity of work of men working with hooks; therefore, three women must be employed in the place of two men to do an equal quantity of work. This applies to cutting or reaping only, as one man will be required to bind to six women reaping with sickles, instead of four men reaping with hooks.

The following is a table of multipliers of any given rate of day's wages to find the cost of reaping per stook, according to different quantities of crop:—

	Men Reaping with Hooks.			Men Reaping with Scythes.		
	Reaping.	Binding.	Total.	Reaping.	Binding.	Total.
Very small crop ..	·0317	·0079	·0396	·0164	·0164	·0328
Small crop	·0438	·0109	·0547	·0219	·0219	·0438
Light crop	·0493	·0123	·0616	·0246	·037	·061
Medium crop .. .	·074	·018	·092	·037	·0493	·086
Abundant crop ..	·0953	·0276	·123	·0493	·0616	·1[illegible]
Very heavy crop ..	·1266	·0318	·1584	·0616	·074	·1[illegible]
Very large crop ..	·148	·037	·185	·074	[illegible]	[illegible]

Paying for reaping by the stook has many important advantages over paying by the day. In the first place, it renders constant supervision of the work unnecessary; secondly, it enables an equitable remuneration according to the abilities of the labourers; thirdly, it enables women to devote any portion of time they may be able to spare from domestic duties, in earning according to the quantity of work they may be able to perform in the time they can spare to harvest work; and it enables the shifting of work-people from one crop to any other that it may be more convenient or proper to reap according to the state of the crop, or the state of weather, without any difficulty in ascertaining the quantity of work performed, and wages earned by the labourers. Besides the advantages already pointed out of paying for reaping by the stook, the inducement for making the sheaves too large is thereby avoided; and making them too small is easily checked, by having a gauge in the form of a fork, 11 inches wide, screwed to the end of a walking stick, by which the diameter of the sheaves may be measured, and the penalty of remaking the sheaves when found too small will prevent the reapers attempting such fraudulent advantage.

The operations next succeeding to reaping in harvesting corn are—removing the crop from the field, and storing it in the stack. These ought to be, and are generally performed with the greatest despatch, when the weather suits, and the crop in proper condition for being carried; and the day's work is, therefore, longer than that for reaping; as it is not unusual in favourable weather, that these operations are carried on without any intermission for more than 12 hours during the day. The operations of pitching to the cart, loading the cart, and pitching from the cart to the stack, may each of them be performed at the rate of 1000 sheaves as the day's work of a man, and the time of each of such operations per 100 sheaves will be represented by .1 of a man's day's work; and 1000 sheaves may also be built in a stack by one man in a day with the assistance of an active lad to hand the sheaves to him, and the

time for stacking 100 sheaves will, therefore, be represented by .15.

The quantity of corn which a man can thresh with a flail in a day varies with the yield from the sheaf, and its condition as to dryness. Subject to these circumstances, the following are the quantities of the different kinds of grain which can be threshed in a day's work—the variation in the quantity being, of course, caused by the circumstances named.

Wheat	4 to 6	imperial bushels.
Barley	7 to 9	" "
Oats	10 to 13	" "
Beans or Pease	9 to 13	" "

Two men will put twice through the winnowing machine, and measure into sacks, about 15 quarters or 120 bushels of grain in a day, so that the following is a table of multipliers for calculating the expense of threshing and dressing and measuring the different kinds of grain per imperial bushel.

Kinds of Corn.	Threshing.	Dressing and Measuring.	Total.
Wheat	·1666 to .25	·0166	·1832 to ·2666
Barley	·1111 to ·1428	·0166	·1277 to ·1594
Oats	·077 to ·1	·0166	·0936 to ·1166
Beans and Peas..	·077 to ·1111	·0166	·0936 to ·1277

To find the cost of threshing or of threshing and dressing corn per bushel at a given rate of day's wages.—Multiply the day's wages in pence by the tabular multiplier the case may require, and the product will be the price per bushel to earn the given wages per day. Observe that the great multipliers be used under the more unfavourable circumstances of yield from the sheaf and condition of the corn. As a similar rule has so frequently before occurred, elucidation by example will scarcely, in this instance, be deemed necessary.

Excepting upon very small farms, threshing by flail has now become superseded by threshing machines driven by horses, by water, or by steam.

When machines are moved by horse-power, they are generally of four or six horse-power, and these require the manual labour of six men and four women or boys to work them to the greatest advantage. But when steam or water power is used, threshing machines are frequently of 8, 10, and even of 12 horse power, and they require additional people in their working. These additional hands may, however, be women or boys—say two to an 8 or a 10-horse power machine, or four to one of 12-horse power.

Reckoning the value of the labour of two women or boys equal to that of one man, the manual labour required in threshing machines of different powers will be—for an engine of 4 or 6-horse power, 8 men; for one of 8 or 10-horse power, 9 men; and for one of 12-horse power, 10 men. Thus, whatever may be the performance of threshing machines, the cost of their use, exclusive of the expense of the moving power, and of wear and tear and interest upon cost of machinery, will be the wages of eight, nine, or 10 able-bodied labourers, according to the size of the machine.

The performance of a good fixed threshing machine on the Scotch principle of construction, supposing the corn to be a good crop, and reaped in fair condition, may be stated to be per hour as under, viz.:—

Horse-power of Machine.	Thresh Imperial Bushels per hour.	
	Wheat or Barley.	Oats.
Four	30	40
Six	40	54
Eight	50	68
Ten	64	85
Twelve	90	120

Fixed machines are not generally provided with more than one blowing machine, and Wheat will require to be put through a hand-winnowing machine to complete the dressing, which, together with measuring and filling sacks for market, will cost .01, or 1-100th of a day's wages per bushel, in addition to the cost of threshing by machine.

When machines are driven by horses, the cost of the labour of the horses, to be treated of hereinafter, and also the wages of a driver, will have to be added to the expense of the threshing.

The consumption of fuel per horse power by a fixed steam engine may be stated at 10 lbs. per hour of coal of ordinary quality, and which quantity will include that required for getting up the steam.

When water is the moving power, interest on the cost of the waterworks, and also on the cost of the machinery, together with the wear and tear of all threshing mills, must be taken into an estimate of threshing by their means; which items, however, being uncertain, cannot be calculated by any constant rule.

Great as is the saving of expense by the use of machinery in threshing, a still greater advantage of threshing by machine over threshing by flail is the despatch by which corn crops can be got ready for a favourable market; and besides which, the advantage of steam or water power in driving other machines now used in farm-steads in preparing cattle food renders the necessity of such powers in agricultural establishments not to be estimated so much by the extent of the farm as by the system of husbandry pursued. Thus, the writer has witnessed the use of a fixed steam-engine, of eight horse-power, of palpable economic advantage on a farm of only 100 acres of tillage land, on which the fattening of oxen was practised to the greatest extent of which the land was capable; when on other farms of many times the extent, on which motive power might be less frequently required, the advantage of a fixed steam-engine might be questionable. *From Ewart's Agriculturist's Assistant.*

THE EXTENT UNDER FLAX IN IRELAND IN 1856 AND 1857.

Counties and Provinces.	Extent of Land under Flax.		Difference between 1856 and 1857	
	1856	1857	Increase.	Decrease.
ULSTER.	Acres.	Acres.	Acres.	Acres.
Antrim	6029	4244	..	1785
Armagh	10,954	12,222	1288	..
Cavan	6044	4962	..	1082
Donegal	17,509	15,562	..	1947
Down	13,492	13,969	477	..
Fermanagh	1940	1573	..	367
Londonderry	13,886	12,495	..	1391
Monaghan	12,133	11,537	..	596
Tyrone	14,777	14,362	..	415
Total of Ulster ..	96,754	90,936	Decrease 5818 acres.	
MUNSTER.				
Clare	951	672	..	279
Cork	1567	1278	..	289
Kerry	674	549	..	125
Limerick	232	207	..	25
Tipperary	101	130	29	..
Waterford	50	47	..	3
Total of Munster ..	3575	2883	Decrease 692 acres.	
LEINSTER.				
Carlow	158	128	..	30
Dublin	1	2	1	..
Kildare	4	3	..	1
Kilkenny	48	41	..	7
King's	234	204	..	30
Longford	391	282	..	109
Louth	215	321	106	..
Meath	212	195	..	17
Queen's	8	15	7	..
Westmeath	203	185	..	18
Wexford	1551	456	..	1095
Wicklow	2	1	..	1
Total of Leinster ..	3027	1833	Decrease 1194 acres.	
CONNAUGHT.				
Galway	535	446	..	89
Leitrim	678	564	..	114
Mayo	925	789	..	136
Roscommon	442	331	..	111
Sligo	375	312	..	63
Total of Connaught ..	2955	2442	Decrease 513 acres.	

	1856 Acres.	1857 Acres.
Acreage under Flax in Ireland	106,311 ..	98,094
Decrease in 1857	8217 acres.	

Extent of Flax grown in Ireland in each of the following years:—

1850 Acres.	1851 Acres.	1852 Acres.	1853 Acres.	1854 Acres.	1855 Acres.
91,040	140,536	137,008	174,579	151,403	97,041

1856—106,311 acres | 1857—98,094 acres.

William Donnelly, Registrar-General, Agricultural Statistics Office, 5, Henrietta Street, Dublin, August 15.

THE DISTILLATION OF BEET-ROOT.

(*Continued from page 604*).

THE Beet being fermented, it is ready for the distillation process. The Beet to be distilled is placed in tall cast-iron cylinders, five of which are placed around and have communication with a central rectifying column. The Beet is not filled *en masse* into the cylinder, but is spread evenly in comparatively thin layers on a series of perforated plates or diaphragms, supported by a central bar standing vertically in the cylinder. Each diaphragm is provided with a central hollow boss, projecting some distance from its upper side; the central bar passes through the boss, and while one plate is filled with its layer of Beet, and is lowered into its place in the cylinder, the next succeeding plate rests on the upper edge of the boss of the lower plate, thus leaving a space between the two plates. The number of plates varies with the size of the cylinder. On all the plates being put into the cylinder the cover is fitted tightly on, and this is provided with a safety-valve, through which the steam escapes when it exceeds a certain pressure. The cylinders being filled, the steam from the boiler is admitted, according to a certain plan, the cock between the cylinder and the refrigerator also being opened.

At the period of our visit in December last (1856), three cylinders were used, and the following is a description of the process of distillation then adopted:—A steam pipe communicating from the upper part of cylinder No. 3 to the lower part of cylinder No. 1 is opened, steam at the same time being admitted from the boiler to the upper part of No. 1. In three-quarters of an hour after the steam is laid on to No. 1, the steam begins to enter the condenser. The spirit at this point is above proof, but as the process continues the strength is reduced below proof, which result is arrived at in three-quarters of an hour. While the distillation of No. 1 is going on, cylinder No. 2 is filled with the Beet, and its cover put tightly on. As soon as the spirit from cylinder No. 1 runs 20 under proof, the communication between it and the condenser should be stopped; at the same time the communication between the top of No. 1 and the bottom of No. 2 must be opened. The cylinders 1 and 2 are now in communication; the steam from the top of No. 1 passing from the bottom of No. 2 through its layers of Beet. At the expiration of 45 minutes the steam from the top of No. 2 passes off in the condenser—the spirit at first over proof as above stated. Since our visit a very important alteration in the method of charging and distilling has been made, which we shall now describe in the words of the talented engineer who has the conduct of the process in this country, and which he has kindly furnished us with during the last few days. In the new arrangement, five cylinders are used instead of three; they all work into the bottom of a rectifying column, "so that the columns or cylinders of distillation being placed all in communication with the column, three at a time, at different periods of their distillation, give into the bottom of the rectifying column three different alcoholic vapours having three different strengths. Thus No. 1, which begins, throws off vapour 40° over proof; in a quarter of an hour it is throwing off 10° under proof; but No. 2 is in communication, giving off 40° over, and No. 3 is to be added when No. 2 is gone down to 10° under proof—No. 1 at this time giving off 10° under. The result is, the mixed alcoholic vapours are together about 20 under proof, which is the best strength for rectification. Thus the spirit is never completely condensed till it is rectified; the new regulations of the Inland Revenue are complied with; and a continuous rectification is carried on, so that the spirits do not enter the receiver till they are fit for sale, that is, perfectly neutral."

We now turn to the important subject, the value of the residues of the Beetroot distillation for feeding purposes. The slices of Beetroot after distillation, or "cossets" as they are termed on the Continent, contain a large per-centage of the nutriment contained in the root in its normal condition, and have moreover the invaluable property of keeping, for a period of one or two years, in a state of perfect preservation, either banked up like Potatoes, or kept in reservoirs or pits. "The fermentation," says M. Leplay, "of the slices of saccharine roots in a juice saturated with its own elements, has the effect of leaving to the root its azotic nutritive and other valuable principles, and changing into alcohol the saccharine matter only. The nutritive azotic matters, being essentially fixed by the process of fermentation and heat, are found solidified and coagulated in the slices during the fermentation and distillation, and are thus insoluble in water. When the distillation of the fermented slices has been conducted so that they retain their shape after the operation, they drain off themselves, and thus concentrate themselves into a volume of 50 per cent. less in bulk, retaining all the nutritive principles they contained before their fermentation. The slices thus distilled, and thus cooked by the current of steam, and placed in thick layers in a large tank, in a drained or porous ground, or even exposed to the air, drain themselves, and form a compact mass of the consistency of cheese, which may be kept an indefinite time, and even without being covered with earth." Such is the statement of M. Leplay—a statement corroborated in its chief features by the successful practice of continental agriculturists, who use the residues, and with whom they are held in high esteem as a valuable feeding material. It is, however, with satisfaction that we are enabled to place before our readers analyses (and remarks) by John Mitchell, Esq., F.G.S., of residues fresh and old sent him by Messrs. Dray & Co. for examination. Mr. Mitchell made analyses of fresh Mangel Wurzel roots, of which the following is the mean:—

Water	86·470
Sugar	8·028
Pectine and mucilaginous matter	1·904
Albuminous matter and woody fibre	2·824
Fatty matter	traces.
Ammoniacal salts	traces.
Alkaline and earthy salts	·774
	100·000

Of the analyses of fresh residue (pulp), after distillation of Mangel Wurzel root, the following is the mean:—

Water	87·502
Sugar	2·065
Pectine and mucilaginous matter	3·032
Albuminous matter and woody fibre	5·642
Fatty matter and lactic acid	traces.
Ammoniacal, alkaline, and earthy salts ..	1·759
	100·000

Of the analyses of old residue (pulp), which has been kept about 3 months, the following is the mean:—

Water	85·603
Sugar	2·098
Pectine and mucilaginous matter	3·302
Albuminous matter and woody fibre	7·100
Fatty matter and lactic acid	traces.
Ammoniacal, alkaline, and earthy salts ..	1·957
	100·000

From a table given by Mr. Mitchell, it appears that the residue or pulp contains less of the non-nitrogenised matters than the fresh root; that is, of the element least useful for feeding purposes; while, on the contrary, the residue contains more of the nitrogenised or flesh-forming element than the flesh-root, in the proportion of 1½ to 1; "or, in other words, 60 lbs. of the residue (pulp) have the same nutritive value as 100 lbs. of fresh root, as far as the formation of flesh is concerned."

The following recent experiments in the feeding of lambs and ewes on residues, and fresh Mangel Wurzel, may be interesting. The experiments extended from February 16 to March 9:—

6 ewes, 3 with 2 lambs, 3 with 1 lamb each—

Per day	22½ lbs.	residues.
"	5 "	cake.
"	30 "	chaff.

Weight when put up, 8 cwt. 3 qrs. 8 lbs.

First week	9 "	3 "	0 "
Second week	10 "	0 "	11 "
Third week	10 "	2 "	10 "

On Mangel Wurzel,—6 ewes, 3 with 2 lambs each, 3 with 1 lamb each:—

Per day	15 lbs. Mangel.
"	30 " chaff.
"	3 " cake.

Weight when put up	8 cwt.	3 qrs.	21 lbs.
First week	8 "	2 "	26 "

Mangel increased to 38 lbs.

Second week	8 "	3 "	20 "
Third week	7 "	2 "	23 "

"It will be observed that those fed on Mangel fell off the first week, and in the second, though Mangel was increased, they only recovered the quarter cwt. lost in the first, and the third a ewe fell ill—thus showing little in favour of raw Mangel. Those fed on residues, on the contrary, increased nearly 1 cwt. the first week, 1 cwt. the second, and ½ cwt. in the third." M. Didier, of Cairy House, near Soissons, in France, a gentleman who has farmed for the last 20 years 1250 acres, and who has had most extensive experience in the fattening and feed-

ing of cattle, gives it as his opinion, that with no other food can he obtain such an increase in the weight of cattle as he has obtained by the use of residues. The farmers who use it for dairy purposes give equally favourable testimony. They state that the butter from the cows fed on the residues is more solid than when oilcake is added to the hay, or when green meat is given. M. Didier's plan of feeding, we may observe further, is to weigh his sheep and proportion the ration of food to every 2 cwt. of living sheep. The food for sheep, with residues for 2 cwt. of living weight, is 17 to 18 lbs. of residue, 2 lbs. 4 oz. Wheat husks, 4 lbs. Lucerne or Clover chaff, 1 lb. 2 oz. Rape cake, 1½ lb. litter. It must not be overlooked that this is not the food of one sheep, but of 2 cwt. of living sheep. From a statement furnished by M. Didier, it appears that the rate of increase of sheep fed on this principle was above 20 per cent. in 100 days, every 2 cwt. of living sheep having increased 41½ lbs. This gave an increase in the 524 wethers fed of 10,783 lbs in all. The consumption of residues was 130 tons of hay and straw chaff; 91 tons at 6*d.* per lb., the increase of meat (10,783 lbs.), would be worth 271*l.* 17*s.* Taking the hay and chaff at 2*l.* per ton, we find 182*l.* as its full value. This gives 82*l.* as the value of the meat obtained by the residues, the cost of the residues at 10*s.* per ton being only 65*l.* Another experiment with 180 ewes showed the value of the residues to be 13*s.* per ton; and this must be added to the large profit obtained from the sale of the spirits.

Home Correspondence.

The Crops in Suffolk.—Wheat is an average crop; best on good heavy soils. Barley below an average on light lands; not more than average on heavy soils. Oats are not much grown in this district, but what I have seen are a fair crop. Beans are very light in bulk of straw, and below an average crop. Peas are partially injured by drought and insect; crop good on heavy soils, but below average. Potatoes are generally free from injury by blight, but early crop short from dry weather; an average of two last years. Mangel Wurzels are deficient in plant on cold soils; not equal to bulk of two last years. Turnips: Swedish good; Common on most soils affected with black Jacks; prospect for general root crops not equal to last year. Hay is a short crop, but generally well secured. *Cornelius Gibson, Willingham Hall, Wangford, Suffolk.*

On Pickling Wheat.—After reading the article in your Paper of August 22 on the subject of "Smut in Wheat" (p. 585), allow me to state the result of experiments I made on my father's land some six years ago in the use of blue vitriol, which I believe to be an easy, cheap, and effectual preventative to the smut in Wheat. I have tried it with success now four successive years on land previously much subject to smut, and have this year cut 150 acres of Wheat, in which I do not think 150 smutted Wheat ears could be found. The way in which it is used here is to put to 1 gallon of boiling water 1½ lb. of best blue vitriol (which costs 6*d.* per lb.), stir it up, and when dissolved pour out the mixture on to the seed Wheat, which must be thoroughly well saturated with the water and blue vitriol—these quantities are found to be sufficient for one sack of seed Wheat. Should any of your readers think this recipe to be worth a trial, I shall be happy to answer through your columns any question that I may be able. *T. Lyn Thurton, Baynard's Park, Guildford.*

The Breeding and Management of Sheep.—In the liberal prizes offered by national and local agricultural societies, and the large prices paid for the use and purchase of rams, we see evidence of the high estimation in which sheep are held. A hundred guineas for a season's use of a ram may seem an extravagant sum; indeed to those not up in first class breeding statistics as something incredible. Though absurd as such a price may seem, yet if a judicious selection be made we believe it capable enough of demonstration that not only will the investment pay, but that even to the practical man it will prove good husbandry. A symmetrical ram of pure blood and good grazing qualities may by use exercise a beneficial influence on the flock which may be visible many years hence. The reverse holds good of a mongrel breed and indifferent one; "we cannot expect clean water from a muddy fountain," and though in every case "like does not produce like," yet as a general rule we may expect that it will, and I should just as soon hope to gather "Grapes from Thorns and Figs from Thistles," as to have lambs fine in conformation and with inherent grazing qualities whose sire was personally and genealogically defective. In selecting a ram for use the following points should be attended to—I am speaking of Leicesters—his head should be fine and pleasant yet hardy, ears small, thin, and pointing forward, neck not too short and with plenty of substance; when seen from before he should have a somewhat massive appearance, with plenty of room between his forelegs; his breast should be wide and spreading and well covered with flesh; he should be wide across the top of the shoulders, which should have a good cover of mutton, and down his shoulders to the forearm should also be prominently fleshy; his back and loins must be long, wide, and level, and so covered with flesh that when touched with the hand it should give way with a gentle pressure; his ribs should be well arched, and have substance behind the forearm to give the sheep the barrel appearance; his rumps should be broad and level with the back, well thrown out to each side, and covered well down to the hock; and to complete the description he must have a heavy coat of wool, and that of the right sort. A sheep embodying these points with good constitution and purity of blood I should consider a useful animal and likely to do good service. It however sometimes happens that where there has been a want of skill or attention in crossing, defects are engendered and perpetuated in the flock. When these exist they must be met and counteracted by the judicious selection of a ram. In any point where the ewes are radically deficient, the ram in that point should be prominently good. The effect on the first year's produce may be little, but if to that produce another animal of similar physical conformation be put, the impression will be greater; it will however require a long process of attentive selection and rejection before the defect can be fairly overcome. A single year's neglect may produce deficiencies in a flock which may take years to overcome, hence to keep it in a state of excellence requires the utmost attention and care. By individual skill and perseverance we can thus blend and arrange the elements placed within our reach by nature, and mould after our will any class of animals we may require. But be it remembered that to engraft any peculiar tendency on a breed of stock is not the work of a season; a man might spend his lifetime in the pursuit, and the results if followed up be obtained only by his successors. It often occurs in all breeds of animals that some individual far outstrips his compeers in particular and favoured qualities. Now if one of the other sex should be paired with him we have certainly no guarantee that the produce will inherit those good qualities in prominence. It may accidentally be very good, but as is more generally the case in cross bred animals it may have "kinded back"—exhibiting the inferior characters of the previous generations. Hence we see the value of pure blood, and we have a key to the immense sums paid for animals possessing it. I may here notice the much vexed question of "in and in" breeding; that is, in breeding from animals originally from one flock and possessing in some degree more or less affinity for each other. The controversy has raged from Bakewell's time until now. He bred only from his own flock; he selected the best he could find, and he attained high perfection by his system. The same may be said of our present eminent flockmasters. Who ever heard of Jonas Webb crossing his flock with any other? Or who has heard of Mr. Sanday crossing his Leicesters? Mr. Bates's rule was "breed in and in from a bad stock and you commit ruin and devastation," and the rule holds good conversely too—"If you have a good stock breed in and in as much as you please." *Carabas.*

Societies.

BELFAST.—The monthly meeting of committee was held in Belfast on 5th inst., William Sharman Crawford, Esq., in the chair. Reports of the Flax crop were generally favourable. Although seldom of an average length, it was stated to be thick on the ground, and to appear full of fibre of a better apparent quality than last year, and promising a larger proportion of the finer sorts. Pulling had begun in some districts, and would soon be general. Arrangements were made for the immediate location of the rest of the society's instructors in their districts in the west and south, some having already been sent out. Mr. Nelson, instructor for county Mayo, forwarded specimens of the Flax plant, grown in that county, from different varieties of seed, including the white-flowered kind, and also the produce of the seed saved in county Cork last year by Lord Fermoy, from an experimental sowing of East Indian Flax seed. The plant grown from the imported seed last year was very short, but that produced this season in Mayo, from the seed saved from it, was considerably longer, though still under the length of Flax reared from the usual kinds, and very branchy at the top. Mr. O'Flannigan, instructor at Tuam, reported another new scutch-mill as about to be put up within his district. Mr. Arthur, instructor at Cashel, forwarded a copy of a lecture delivered by him to a meeting of farmers in county Tipperary, advocating the growing of Flax, and pointing out the large demand for the fire. The committee directed this to be printed for circulation in the south. In order to test the merits of the scutch-mill of Messrs. Craker and Felhoen, of Courtrai, the secretary was directed to procure some Irish Flax straw, after steeping and Grassing, and to forward one-half of it to Courtrai, to be scutched, while the other half should be scutched in one of the best Irish mills. The fibre cleaned out in each to be accurately weighed, and produced for the committee's inspection. The quantity of seed on this year's Flax crop appearing unusually great, the committee directed that the attention of farmers should be again called to the profit to be derived by taking off the seed-bolls from the green Flax before steeping, kiln-drying them, and selling the seed, when threshed out, reserving the husks and light seeds for feeding cattle. This practice has been considerably on the increase of late years, especially in county Down, in several of the towns of which there are regular buyers of the seed on speculation. This year Mr. Donnolly, of Strabane, had advertised his intention of purchasing bolls and seed, and it was hoped that others would follow his example in different counties, as by thus affording a local market advantage would accrue both to the farmer and the buyer. As bearing on the subject so often brought before the committee, of the alleged injurious effects of steeping Flax in rivers and running streams, reference was made to the memorial lately presented to the Belgian government by the municipal council of Ghent, praying to interdict Flax-steeping in the river Lys, alleging it to be a nuisance injurious to the public health, and preventing the use of the water, during the summer, in the breweries and sugar refineries of Ghent. The chambers of commerce of Courtrai and Ypres, in a counter memorial, represented the great injury to the Flax growers of Flanders which would result from such an interdiction. They pointed out that, so far from the effluvia from the steep-water being proved injurious to health, it was known that, during the prevalence of cholera and other epidemics, the districts on the banks of the Lys suffered less than many others. Also, that the impurity of the water arose much less from the steeping of Flax than from the sewerage and other impurities of the great manufacturing district of the north of France, brought down to the Lys by the river Deule; and they mentioned, as a fact, that fish are sometimes found dead in great numbers in the Lys above the point where any Flax is steeped, so that they must have been poisoned by the contents of the Deule.—*Belfast Paper.*

CRAVEN.—The following report has just been issued of the progress and practice of this useful agricultural society. It indicates a very satisfactory prosperity. We give a place to it here, as it appears to us to illustrate the results of energetic management, and to furnish a useful example to other institutions of a similar character:—"The Society is young and vigorous. The result of its labours has been the means of overcoming the prejudices of many opposers, and gaining the confidence of some who looked with suspicion on its formation. Any one may now see that it is not, as some were pleased to say, a mere bubble, the result of excitement, or the love of novelty. It was established at a time when its usefulness could be appreciated, and those who wish to be made aware of its hold on the farming population may be satisfied by giving ear to the discussions which are ever taking place in the homesteads throughout the district, on the decisions of the last exhibition, or perhaps on their own chance of success at the coming one. There is not only usefulness, but something essentially pleasing to an Englishman in a cattle show. On the return of each show day, what a multitude prove their interest by their presence on the field. Amongst the number, there are not only those who are engaged in agricultural pursuits,—the mechanic leaves his bench that he may see for himself the progress made by the tillers of the soil, many whose occupations are in smoky atmospheres give themselves much inconvenience that they may enjoy the pleasing scene. It is well for the nation that such is the case, for it cannot be denied that the fact of commerce and agriculture going hand in hand has greatly contributed to the prosperity of our country.

"As to the state of the funds, it will be seen that there is again an excess of the receipts, which will allow the committee to increase the liberal prizes which have characterised the society since its commencement. Although the amount of donations which was so striking in the first year's statement is somewhat diminished, yet it is gratifying to observe that the amount of subscriptions is greater than that of last year. The committee wish to recognise with thanks the highly valuable services of the collectors. The state of the funds prove beyond question their activity and zeal in the cause. Feeling assured that they in some measure must have felt rewarded by the society's progress, the committee appeal to them with confidence for a continuation of their spirited exertions. The public have given liberally, and it has been asserted that if every farm house in the district were canvassed, that not only would there be no scarcity of funds, but the committee would be in a position to offer prizes equal to if not superior to any local society in England. The total number of entries at the show in September last was 833, which is a large increase over the preceding year. The cattle in the farmer's class were numerous; and although there were signs of improvement in their character and quality, yet it could not but be apparent that further progress was not only possible but highly desirable. It is with much pleasure that the committee have witnessed the formation of a club in the district which offers to the tenant farmer the privilege of improving his stock at a reasonable cost. Surely with lean cattle at the present price there lacks no inducement for an improved breed of stock. And such clubs if taken advantage of will very much contribute to so desirable a result. No comment need be made respecting the splendid animals exhibited in the class of short-horns open to general competition. The show of horses was large, and the animals exhibited of a quality which did credit to the Craven breeders. The committee anticipate a great improvement in the breed of horses, from the arrangement that the entire horses in each class taking prizes are required to travel in the district. The entries of sheep were numerous, but the quality generally was not considered creditable to the district, therefore the committee hope in future years to see an improvement in this class. The entries of pigs were also numerous, and the quality decidedly good. The collection of roots and vegetables on the field were well worthy of the attention of all interested in their cultivation in the district; indeed, many of the specimens would not have disgraced any county in England.

"The committee have peculiar pleasure in believing that a good understanding exists between this and the neighbouring societies. The feeling that one might injure or interfere with the workings of the others seems to be subsiding; indeed, there are not a few who are now of opinion that the societies have already mutually benefited each other. Before concluding the report the committee wish to express their obligation to those gentlemen who were found ready to give their services as judges at the last exhibition. The society received no little advantage from the liberal

manner in which these officers were pleased to act. The thanks of the committee are also due to the president for his courteous bearing; and they view with great satisfaction his re-election. They would also express their high appreciation of the motives which have induced the public to place at their disposal the means which have contributed in so great a degree towards the success which has already attended the society's operations. The only cause for regret in connection with the exhibition of 1856 was the refusal of the Midland Railway Company to carry stock and implements to Skipton at reduced rates. The committee are not without hope that the company may be induced to act to the Craven Agricultural Society with the same liberality as is shown by other companies to societies of a similar character."

Reviews.

Meat, Milk, and Wheat: an Elementary Introduction to the Chemistry of Farming: to which is added a Review of the Questions at issue between Mr. Lawes and Baron Liebig. By Thomas Dyke Acland, Esq.

This pamphlet reprinted from the Bath and West of England Agricultural Journal well deserves the wider circulation which its present independent form—detached from the local Journal—will obtain for it. It presents in a very simple and very agreeable form the results to which the researches of late years into the chemistry of practical farming have led—and the conclusions which an intelligent and impartial man has formed after an examination of the controversial writings arising out of some of those experimental researches. It will be read all the more trustfully, for the cautious manner in which it speaks of the benefit which the practical man may derive from science. Take the following paragraph as an illustration:—

"*Farmers not to expect too much from Chemistry.—Why?*—The practical questions which I believe many farmers want answered are these—Can I find by analysing plants what food they want? and can I by analysing my soil find out in what it is deficient, and give my orders to my manure merchant accordingly, and so reduce my expenses and save the interest of my capital by buying only so much of each article as my plants may annually require? If these questions could be answered simply in the affirmative, farming would be reduced to a simple calculation as sure as mathematics, and we might expect to see senior wranglers coming forth as first-rate farmers; or, at any rate, farming could be reduced to the same simple rules as any other manufacture. Now, not to mention the vicissitude of seasons which affects all calculations of a business which has to be conducted in the open air, there are two reasons of a definite kind why the simple affirmative cannot be given to the farmer's questions above propounded.

"1st. The difficulty of detecting by chemical analysis of soils the causes of their fertility. 2dly. The imperfection of our knowledge as to the processes of life in plants, or as to what is called the physiology of plants. As to the first point, the analysis of soils, we know by practice that when a soil is what we call exhausted, if we attempt to grow a crop without manure it will not pay. We know also that the addition of say 3 cwt. of guano will in many cases make all the difference between a good and a bad crop. And yet, if a chemist were to analyse the soil before and after the application of the guano, it is very doubtful whether he would be able to detect its presence. For consider, an acre of soil taken at the depth of an ordinary ploughing, cannot be estimated at less than * 1,500,000 lbs., allowing each cubic yard to weigh a ton; 3 cwt. of guano would contain (at 17 per cent.) about 50 lbs. of ammonia; the chemist therefore has to detect one part in 300,000, or the per centage of ammonia would be increased by 0·0003 by the dressing.†

"This small per centage is practically far too minute for the most delicate modes of analysis to estimate with certainty for practical purposes. The same reasoning would apply to many of the other mineral elements removed by crops in small quantities. I wish to lay stress on this point, because I believe that some intelligent men who desire to bring chemistry to bear on farming have formed expectations from analysis of soils which can only lead to disappointment.

"2dly. As to the physiology of plants. Any one who has examined the modern books on botany, such as those of Dr. Lindley for instance, cannot fail to be struck with the vast amount of minute and laborious investigation which has been bestowed by men of the very highest abilities and industry on every subject relating to the growth of plants. The scales of the chemist and the microscope of the botanist vie with each other in aiding the search into the wonderful workings of life; and yet one cannot but feel how very little is absolutely known of the state in which plants take their food, and of the way in which they assimilate it. Still more must we admit how little we are able to estimate and explain the circumstances which regulate the development of each part of the plant; the practical experience and ingenuity of the gardener have far outstripped the theory which tries to account for his acts, and just so it is in farming. We want different plants for the sake of different parts, corn crops for their seed, forage crops for their leaf, and the Turnip for its root; and to a certain extent we have found the means of turning the laws of nature to our account; but of the agencies by which the living plant prepares for us our corn, our Grass, and roots we know little; and therefore how to obtain more grain, how to stiffen the straw, by what management we can avert the smut, the rust, and the mildew, are questions which all practical men ask, but the man who knows most about science is slow to give a positive answer, and the reason is the imperfection of our knowledge as to the food and growth of plants.

"For these two reasons, then, the imperfect powers of analysis and imperfect knowledge of the laws of living things, we cannot at present reduce farming to the simple question of supplying to plants what they take out of the soil."

One other extract must suffice to give our readers an idea of the interesting style in which the pamphlet is written:—

"*What is Guano?*—There is hardly any fact in the history of agriculture which so impresses my mind with the sense of an overruling Providence as the introduction of guano into this country at the time when opposite classes were engaged in a struggle on the question, how are the people to be fed and how is the tiller of the soil to live? For consider what guano is. In the crowded cities of old countries like England we annually consume an enormous amount of corn and meat, of which nearly the whole of the nitrogen and phosphates pass off into the sewers, from which as yet the wit of man, not to mention the wit of Mechi, has utterly failed to recover them; down they flow to the rivers, and thence to the ocean, there as it might seem to be hopelessly lost. But stay, consider how the ceaseless motion of the sea diffuses these elements all over the globe, how the great forests of seaweed, feeding on the carbonic acid in solution bring up the stores from the depth, how the fish feed on what floats in the water, and how the seafowl again, subsisting partly on the seaweed and partly on the fish and the animalcules attaching to the weeds, deposit their droppings on rocks in a rainless region, where the manure being quickly dried never ferments, and so by a wonderful provision of the Great Creator, we are permitted to go down to the sea in ships and bring back the materials of our food which our rivers had washed away. I refer to this fact not merely because in guano we have a supply of ammonia in a cheaper form (even at present prices) than any other in which manufactures or commerce can at present bring it into the market, but because I think guano has been the great practical schoolmaster of the English farmer. Our illustrious countryman Sir H. Davy discovered and expounded in his admirable lectures the theory of ammonia as a source of food to plants; but his lectures bore little fruit till we had the great practical proof that a man could draw into a 10-acre field in a single cart the essential ingredients of fertility which he could not formerly obtain without a hundred journeys of his waggon."

And as a last illustration of the character of the work, giving at the same time a sort of table of contents of the first part of it, we extract the following summary of conclusions to which the writer has been led.

"The analysis of crops, when taken by itself, is not a safe guide in the selection of manures.—p. 33.

"The habits of plants must be studied as they actually occur in the rotations of husbandry.—p. 41.

"The examination of the four-course rotation shows that where the green crops are consumed on the farm the amount of minerals removed from the land and not returned to it is small.—p. 36.

"An abundant restoration of minerals will not by itself secure the profitable growth of plants.—p. 44.

"The mineral chiefly required to be imported is phosphorus—potash sometimes (lime and salt have special functions in certain cases).—pp. 35-46.

"Carbon is largely consumed—that is, not only turned into meat, but burnt away—in stock-feeding; and, as there is no other available source, it must ultimately come from the air. If the plant is healthy it easily accumulates carbon.—p. 37.

"Nitrogen is dissipated by corn-crops and Grass; it is collected by Clover, Beans, and other leguminous plants; it is retained by root crops consumed on the farm; it is also collected by clay soils, when porous; it is imported as ammonia in guano, as nitric acid in nitrates, in various combinations in feeding-stuffs.

"Carbonaceous matters, such as oil, starch, sugar, form fat in animals; but so much of them as passes through the animal into the dung is in time changed into carbonic acid, which has no appreciable money value, being abundantly supplied from the air.—See note to pp. 19-21.

"Nitrogenous matters form flesh, and are only taken into the animal system in small quantities; but so much of them as passes through is found again in the dung as ammonia, which has a high money value, the supply being limited.

"Therefore, the more meat is made on a farm, the more ammonia; and, under suitable conditions of soil and climate, the more corn.

"The quicker the meat is made, the more profitably, as the less carbonaceous matter is wasted in proportion to the meat sold."

Miscellaneous.

Relations of Rothamsted and Lois Weedon.—"Liebig's memorable discovery that ammonia, or nitric acid, is contained in the atmosphere in sufficient quantities for maintaining the growth of all the plants that flourish on the earth's surface, has practically circumscribed the bounds of the discussion within the narrow limits of the capabilities which different plants have for drawing upon this inexhaustible supply. The Rothamsted experiments, for example, seem to indicate that the Wheat plant was peculiarly dependent on a supply of ammonia in the soil, but Turnips were not so much so. But no sooner had many parties given their assent to these propositions, than some curious results were forced upon their notice. The Lois-Weedon experiments seemed to lead to diametrically opposite results; for while Wheat appeared to be in a great measure independent of an artificial application of ammonia, Turnips seemed to be peculiarly dependent." "What do the Rothamsted experiments prove? The results are really interesting and curious. The Rothamsted soils produce from 16 to 17 bushels of Wheat, year after year, without manure of any kind; but the same soils only produce a few cwt. of Turnips, year after year, when no manure is added. The addition of superphosphate of lime, however, raises the produce of Turnips to about 8 tons an acre year after year, when they are supplied with this substance. On the other hand, superphosphate of lime does not raise the produce of Wheat above the 16 or 17 bushels that grow without anything. This is the foundation for the axiom, 'phosphorus for Turnips,' and there is nothing more in it. But let my readers only bear two things in mind, and all others will become pretty plain: first, that 16 to 17 bushels of Wheat can only be regarded as about a third part of a full crop; second, that 8 tons of Turnips can only be regarded as a third part of a full crop. Neither of these crops can be raised above a third, however much superphosphate may be added. When full crops are spoken of, or meant, it would be, therefore, just as proper to say nothing for Wheat as to say phosphorus for Turnips. What do the Lois-Weedon experiments prove, that have been regarded as the 'Eden of mystery?' Mr. Smith raises double the quantity of Wheat on an acre, year after year, that Mr. Lawes does, for the average produce of the Lois-Weedon soil is about 34 bushels, or about two-thirds of a full crop, without manure of any kind. The axiom 'nitrogen for corn' makes these results very perplexing. Mr. Smith's crops of Turnips may be regarded as full ones, but he does not act upon the recipe 'phosphorus for Turnips.' True, he adds a cwt. to his crop out of deference to the 'axiom.' He manures his land heavily before winter from the farmyard, and adds guano in spring, and obtains full crops, exceeding 20 tons to the acre. His recipe, therefore, is nitrogen and phosphates for Turnips, and nothing for Wheat." *Mr. Russell in the Quarterly Journal of Agriculture.*

English History of Agriculture.—Considering the agricultural victories which science has already achieved—from the past let us take hope for the future. Difficult as it is to ascertain the total amount of Wheat grown in England 600 years ago, we may feel convinced that the quantity was but small. From the extraordinary variations in the price of Wheat in the year, and from the frequency when the poorer classes were reduced to bread made of Peas, Vetches, and Fern roots, we may infer that the quantity raised was hardly adequate to meet the necessities of a not very dense population. For more than 300 years these fluctuations are observable; but as centuries elapse, and cultivation extends, they become less continuous and extreme. In the year 1246, the price of the bushel of Wheat was 16*s.*—three years before it had been as low as 2*s.* During 1254, it sold in Northampton market at 1*l.*—in Dunstable at one-fourth of that price. At Leicester, in the early part of March, 1317, it was 54*s.*—four days later it fell to 14*s.*—during the harvest it reached 80*s.*—a fortnight afterwards, when the crop had been collected, it was under 6*s.* From these, and similar statistics, we are entitled to conclude that the supply of grain was often insufficient for the demand—that at the commencement of autumn the nation was generally in great want, and sometimes on the verge of starvation, and that consequently the extent of land under cultivation must have been extremely limited. In the last century, more than four millions of acres were reclaimed from waste, and converted into farms; and since the commencement of the present century, down to 1850, upwards of four million acres more have been enclosed, including a large part of what are now our leading farming counties, Norfolk, Lincolnshire, and Nottinghamshire. There are patriarchs now living, who can remember mile after mile of wild heath and rabbit warren where now sheep feed on roots, and corn waves in fifty-acre fields. In the time of the Stuarts the average production of Wheat in England is believed to have been two millions of quarters—now it is 13 millions: so much for increase in our bread-corn. As respects meat, a century and a half ago the average weight of a beast in Smithfield was about 370 lbs.; now the average weight in that market is about 700 lbs.—a proof, if any was wanting, of the progress of animal physiology, and an important consideration for an increasing meat consuming population. *Rev. R. Begnon.*

Calendar of Operations.

AUGUST AND SEPTEMBER.

WESTER ROSS: *August 25.*—This is our fourth harvest day, and, although the weather is extremely warm and oppressive, the work proceeds satisfactorily. We have had heavy dews through the night, and easterly wind during the day. The crops have ripened with wonderful celerity, and now the whole

* An acre contains 4840 square yards; therefore the soil to the depth of 6 inches will be a little more than 800 cubic yards. Allowing a cubic yard to weigh a ton, or say 2000 lbs., we have 1,600,000 lbs. of soil in an acre, without going beyond a depth of 6 inches.

† See Lawes and Gilbert in the Royal Ag. Jour., vol. xii, p. 3.

is ready for the sickle. Harvest is general in this neighbourhood, and all is hurry and hard-driving to have the crops cut and secured. Twenty days hence, and with good weather very little would remain in the field. The crops are about an average in bulk, and the quantity of grain will we expect be very good. The Potato disease has once again manifested itself, and our Potato fields are speedily losing the fine appearance they so lately exhibited. Turnips have been making progress, and, although not so good as we would like, would, with seasonable showers, come to be something respectable.

Notices to Correspondents.

ACRE: *R S.* The following Table gives an answer to your question—it is taken from "Ewart's Agriculturist's Assistant":—

THE RELATIVE VALUES OF THE IMPERIAL STATUTE, SCOTCH, AND IRISH PLANTATION ACRES.

Imperial Statute Acre..	1·	2·	3·	4·	5·	6·	7·	8·	9·
Scottish Standard Acre	·792906	1·585812	2·378718	3·171624	3·96453	4·757436	5·550342	6·343248	7·136154
Irish Plantation Acre ..	·61734	1·23469	1·85214	2·46938	3·08673	3·70408	4·32152	4·93877	5·55612
Scottish Standard Acre	1·	2·	3·	4·	5·	6·	7·	8·	9·
Irish Plantation Acre ..	·778587	1·557175	2·335763	3·11435	3·892938	4·671526	5·450114	6·228701	7·007289
Imperial Statute Acre..	1·26118	2·52236	3·78354	5·04472	6.3059	7·56708	8·82826	10·08844	11·34962
Irish Plantation Acre ..	1·	2·	3·	4·	5·	6.	7·	8·	9·
Imperial Statute Acre..	1·284376	2·568752	3·853128	5·137504	6·42188	7·706256	8·990682	10·275008	11.559384
Scottish Standard Acre	1·01983	3·23966	4·85949	6·47932	8·09915	9·71898	11·33881	12·95864	14·57847

CALF DISEASE: *F Hale.* Next week.

CHAFF-CUTTER: *A Constant Reader* asks if your correspondent of June 27 will be so good as to give the address of the maker of a good chaff-cutter he recommends.

CLOVER DODDER: *Agricola.* Your specimen is one of the now common parasite—Cuscuta—which attacks Clover, commonly called the Clover Dodder. You should pare and burn the patches.

CONCRETE: *Oreye.* The Portland cement has been recommended to us as able to resist the snout of a pig.

COTSWOLD SHEEP: *A Subscriber, Lancaster.* Cirencester, Sept. 3; Nuthleach, 1st Wednesday in Sept.; Cheltenham, 2d Thursday in Sept.; Marshfield, Oct. 24;—all these are good fairs for Cotswold sheep.

IRON HARROWS: *E L S.* Howard or Williams of Bedford will supply you with heavy iron harrows adapted to a clay soil.

LUCERNE: *A Seedsman.* The first year of Lucerne is rarely of much value, and if your customer ploughs up his Trefoil and sows Lucerne next spring he must be taken to have lost the present value of last year's crop of Lucerne which he would have had, had it not been for the mistake of your shopman. What is the value (if paid now) of the crop he would have had over the extent of land sown? If the land was good and in good heart you may suppose it would have yielded in three cuttings 12 or 14 tons or more per acre of green food.

MARL: *Sub.* The word refers to many different things, as you will see in Sprengel's papers on inorganic manures in the early volumes of the *Agricultural Gazette.* Its efficiency depends often on phosphates present in them in small quantities rather than on the lime or other more abundant earth that they contain. A heavy dressing of marl is often sufficient for many years, and a redressing under such circumstances would be useless. The gradual descent of any dressing, as of ashes, marl, &c., is owing to the worm casts being taken from below them continually. Mr. Darwin's explanation of this was given some years ago in the Transactions, we think, of the Geological Society.

MILK, AND MEAT BISCUITS: *N.* The process of evaporating milk to dryness is done by patient stirring at a temperature below boiling. The vessel containing the milk had better be floated in another containing boiling water. The price of the book you refer to must be ascertained on application to the publisher. A review does not profess to be an advertisement.

ROTATION: *Agricola.* Your letter will appear next week with a reference to the subject of it. Meanwhile we may remark that a crop coming on the 1st, 5th, 7th, and 11th year of a 12-year rotation, does in effect amount to a *triennial* recurrence of the same plant on the land.

PRICE OF CORN AND MEAT IN LONDON: *J C H.* Mr. C. M. Willich's book of Tables, published we think by Longman, is a storehouse of such information as you require. The price of corn, no doubt, it contains; but we doubt if any such record of the price of meat exists.

THISTLES: *Constant Reader.* Constant destruction of the growth of a plant will ultimately kill it. Ferns will yield to repeated and persevering mowings, and so will Thistles. We expect, however, that if "too thick for manual extirpation" the best advice will be to fallow the land and lay it down to Grass again.

*** As usual, many communications have been received too late and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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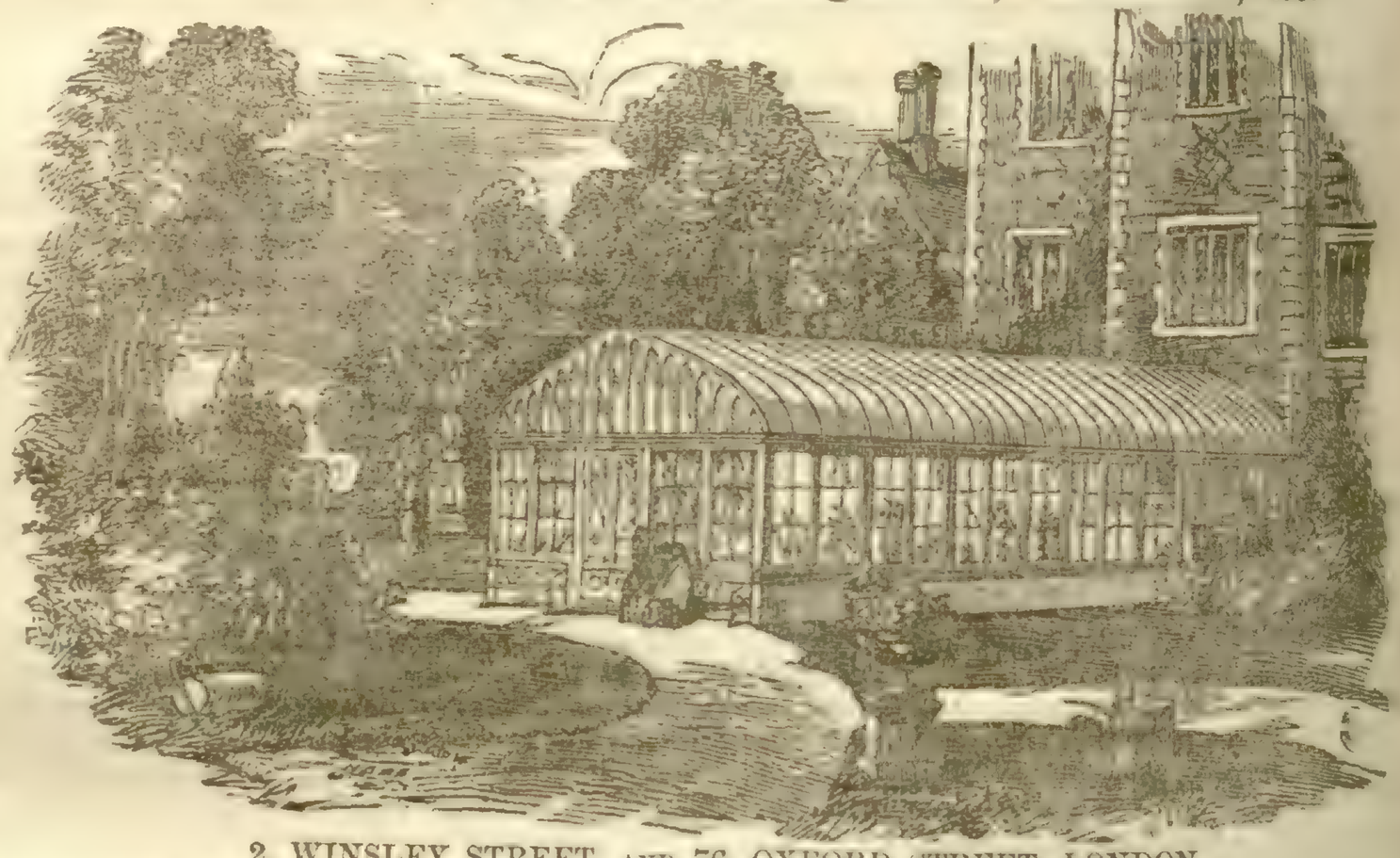

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Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

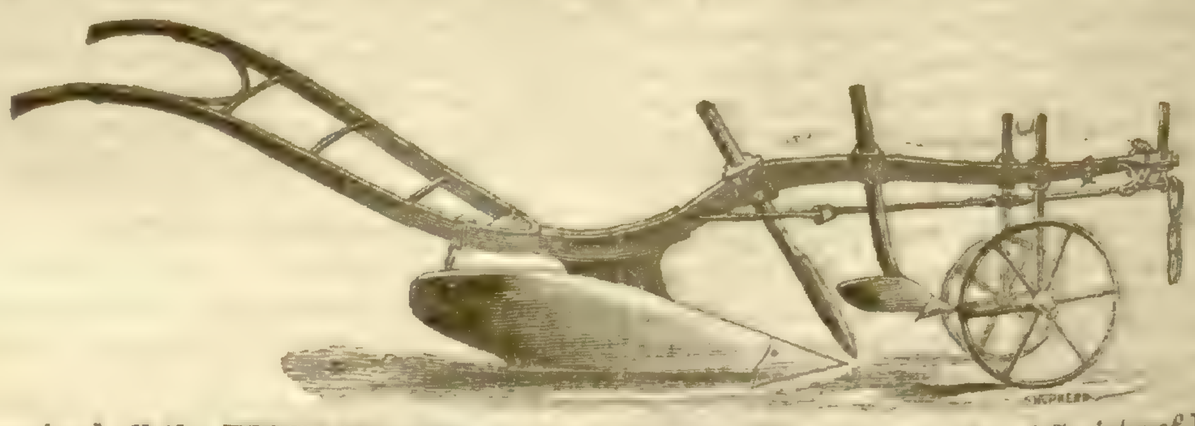
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

CHAMPION PLOUGHS,



For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

THE FIRST PRIZE FOR THE BEST PLOUGH FOR GENERAL PURPOSES.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR HEAVY LAND.
The only PRIZE ever offered by the Society for the best RIDGING PLOUGH was also awarded to J. & F. HOWARD.

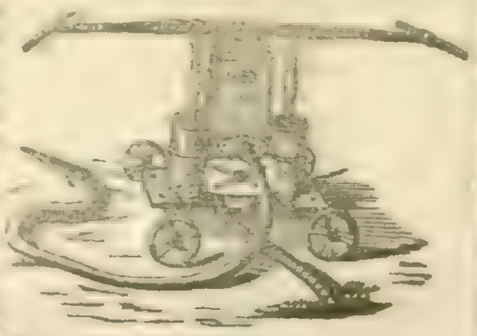
P Plough, with Two Wheels (for Light Work)	£4 7 6
P P Ditto ditto (for General Purposes)	£4 12 6
Skim Coulter, extra	£0 5 6

Steel Breasts, 7*s.* and 7*s.* 6*d.* extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. Fowler & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

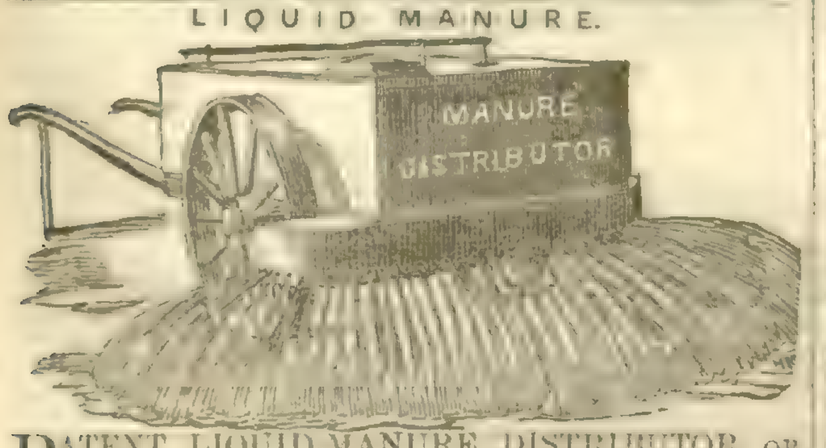
BURGESS AND KEY'S LIFT PUMP.—

THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 53, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

LIQUID MANURE.



PATENT LIQUID-MANURE DISTRIBUTOR OR WATER-CART, for the Distribution of Guano, &c., warranted not to clog up or otherwise get out of order. It has Waterproof Joints, and will scatter its liquid from 12 to 15 feet wide. It will work equally well on hilly or on level land without any alteration. It is thoroughly adapted for Drill Crops or Pasture Land, or for Watering Streets.

PRIZES:—

A SPECIAL PRIZE at the Bath and West of England Show, 1855.
A SPECIAL PRIZE at the Stow Agricultural Show, 1855.
A SILVER MEDAL at the Liverpool and Manchester Show, 1856.
A SPECIAL PRIZE at the Gloucestershire Agricult. Show, 1856

Full particulars may be obtained of the Patentee, ISAAC JAMES, Tivoli, Cheltenham.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.

1½-inch Flexible Rubber and Canvas Suction for ditto, 2s. 9d. per foot.

1½ Gutta Percha Suction, 1s. 9d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in. short	1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,, long	3 ,, 3 ,,		1	14	0
3 ,, ditto	3 ,, 6 ,,		2	8	0
3½ ,, ditto	3 ,, 6 ,,		2	12	0
4 ,, ditto	3 ,, 6 ,,		3	3	0

½ ,, short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing 2 14 0

½ in. long ditto ditto ditto 2 18 0

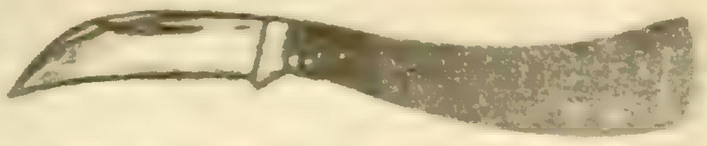
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 437 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10s. 6d. by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

PRIZE MEDAL. PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of METCALFE'S celebrated Alkaline Tooth Powder. 2s. per box; and of the New Bouquets.—Sole Establishment 130, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

DR. DE JONGH'S

LIGHT-BROWN COD LIVER OIL has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Its leading distinctive characteristics are:

COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES.
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS AND CONSEQUENT ECONOMY.

OPINION OF A. B. GRANVILLE, ESQ., M.D., F.R.S.,
Author of "The Spas of Germany," "The Spas of England," "On Sudden Death," &c.

"Dr. Granville has used Dr. de Jongh's Light-Brown Cod Liver Oil extensively in his practice, and has found it not only efficacious, but uniform in its qualities. He believes it to be preferable in many respects to Oils sold without the guarantee of such an authority as De Jongh. DR. GRANVILLE HAS FOUND THAT THIS PARTICULAR KIND PRODUCES THE DESIRED EFFECT IN A SHORTER TIME THAN OTHERS, AND THAT IT DOES NOT CAUSE THE NAUSEA AND INDIGESTION TOO OFTEN CONSEQUENT ON THE ADMINISTRATION OF THE PALE NEWFOUNDLAND OILS. The Oil being, moreover, much more palatable, Dr. Granville's patients have themselves expressed a preference for Dr. de Jongh's Light-Brown Cod Liver Oil."

Sold ONLY in IMPERIAL Half-pints, 2s. 6d.; pints, 4s. 9d.; quarts, 9s.; capsuled and labelled with DR. DE JONGH'S stamp and signature, WITHOUT WHICH NONE CAN POSSIBLY BE GENUINE, by most respectable Chemists throughout the United Kingdom.

WHOLESALE AND RETAIL DEPOT,
ANSAR, HARFORD, AND CO., 77, STRAND, LONDON, W.C.,
DR. DE JONGH'S SOLE BRITISH CONSIGNEES.

CAUTION.—Proposed substitutions of other kinds of Cod Liver Oil should be strenuously resisted, as they proceed from interested motives, and will result in disappointment to the purchaser.

HOLLOWAY'S OINTMENT AND PILLS HAVE AGAIN CURED AN ULCERATED LEG.—Charles Martin, of Winchester, was for 16 years afflicted with an ulcerated leg; there were 13 wounds in it of an alarming character, and he tried every remedy that professional skill could devise, which, however, only made him worse, and with disease and suffering he became a mere skeleton. About 16 months ago he commenced using HOLLOWAY'S Ointment and Pills, and these wonderful remedies in 12 weeks left him without a wound or blemish, enjoying sound and robust health.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

METROPOLITAN SCHOOL OF SCIENCE, APPLIED TO MINING AND THE ARTS.

The Prospectus for the ensuing Session, 1857-8 (containing information about the Lectures, Laboratories, Fees, &c.), is ready, and will be sent on application to TRENHAM REEKS, Esq., Museum of Practical Geology, Jermyn Street, London.

Registrar, Museum of Practical Geology.

SOUTH KENSINGTON MUSEUM.—The Museum will be open free on MONDAYS, MONDAY EVENINGS, TUESDAYS, TUESDAY EVENINGS, and SATURDAYS. The Students' days are WEDNESDAYS, WEDNESDAY EVENINGS, THURSDAYS, and FRIDAYS, when the Public are admitted on payment of 6d. each person. During the month of SEPTEMBER the hours are from 10 to 5 in the day time, and from 7 to 10 in the evening.

THE TEETH AND HEALTH.—A good set of Teeth ever insures favourable impressions; their preservation is of the utmost importance to every individual, both as regards the general health by the proper mastication of food, and the consequent possession of pure and sweet breath. Among the various preparations offered for the purpose, ROWLANDS' ODONTO, OR, PEARL DENTIFRICE, stands unrivalled for its capability of embellishing, purifying, and preserving the teeth to the latest period of life. It will be found to eradicate all tartar and concretions, and impart a pearl-like whiteness to the enamelled surface, remove spots of incipient decay, render the gums firm and red, and thus fix the Teeth firmly in their sockets; and from its aromatic influence impart sweetness and purity to the breath. Price 2s. 9d. per box.

CAUTION.—The words "ROWLANDS' ODONTO," are on the Label, and "A. Rowland and Son, 20, Hatton Garden," on the Government stamp affixed on each box.—Sold by them, and by Chemists and Perfumers.

COOL AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—O. & A. OLDRIDGE, 13, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3s. 6d., 6s., and 11s.; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

TO THE NERVOUS AND DEBILITATED.

CHARLES WATSON, M.D. (Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted. "The first man of the day in these complaints."—*Medical Review*, July 1856. "The true guide to those who desire a speedy and private cure."—*University Mag.*

TO GENTLEMEN AND NURSERYMEN
ABOUT TO REFRESH THEIR AMERICAN BEDS.

RICH BOG AND LOAM can be had in large or small quantities upon reasonable terms, by Land or Water carriage.—Apply to ROBERT NEAL, Nurseryman and Contractor, Wandsworth Common, Surrey.

FOR SALE, cheap, equal to new, Horse-power BRUISING MACHINE, by Garrett; Hand-Power do.; Weighing Machine for Sheep, Calves, and Pigs; Steel Flour Mill and Dressing Machine, Saw Tables, and Boring Machines.—EDWARD WEIR, 16, Bath Place, New Road, six doors from Hampstead Road, London.

TO HORTICULTURAL SOCIETIES.

TO BE SOLD, a Bargain, the large TENT lately erected in the Botanical Gardens, Manchester. It is 240 feet long by 60 wide, and can be erected in lengths of 20 feet and upwards. The materials and workmanship are of the most substantial kind.—On view at W. ESTWICK'S Manufactory, 1, Southgate Road, Islington, London, N.

N.B. Marquees, Tents, and Tarpaulins of all dimensions on sale or hire.

TO BE LET, and entered upon at Michaelmas or sooner if required, a HOUSE and SHOP where a SEED, PLANT, and FRUIT BUSINESS has been carried on these last eight years. There is a walled Garden attached, about half an acre stocked with common Fruits, and a Pit heated with hot water, which will require to be taken at a valuation. The above is situated in a small Market Town and good neighbourhood; a good opening for a small nursery, as there is nothing of the kind within eight miles.—For further particulars apply to A. B., Mr. Brooks, 39, Sussex Street, Winchester.

NURSERY AND SEED BUSINESS.

TO BE LET, with immediate Possession, five minutes' walk from a Railway Station, in a neighbourhood where several thousand acres of land are being sold for building purposes. The NURSERY contains about 2 acres, and more can be had if required. May be had for any term of years not exceeding 10; or if not Let, arrangements might be made with an active managing partner.—Apply in the first instance to P. P., *Gardeners' Chronicle* Office.

TO NURSERYMEN AND OTHERS.

TO BE LET, a compact NURSERY, within 14 miles of London, consisting of about 5 acres of ground, cropped with a general assortment of Nursery Stock; also six Greenhouses, Pits, Seed Shop, &c.—Further particulars had of PROTHEROE & MORRIS, American Nursery, Leytonstone, Sept. 5.

CROWN LANDS, WHICHWOOD, OXFORDSHIRE.

TO BE LET, by Public Tender, by order of the Hon. Charles Alexander Gore, a Commissioner in charge of Her Majesty's Land Revenue in England, about 2844 acres of LAND, comprising parts of the Queen's Allotment and the purlieus of the late Forest of Whichwood, and some old Enclosures adjoining, the whole of which will be divided into convenient Farms. The Lands are within a short distance of the Charlbury, Ascott, and Shipton Stations, on the Oxford, Worcester, and Wolverhampton Railway, and near to the Markets of Oxford, Witney, and Chipping Norton. They are of excellent quality, the Forest and Purlieu portions being wooded soil.—Tenders will be received on or before MONDAY, September 14, addressed to the Hon. CHARLES A. GORE, 1, Whitehall Place, Westminster. Particulars and forms of tender may be had on application as above; of Mr. JOHN CLUTTON, 9, Whitehall Place; or of Mr. GEORGE MOODIE, Potter's Hill Lodge, Ascott, Enstone, Oxfordshire. Plans showing the Farms may be seen at 9, Whitehall Place; Potter's Hill Lodge; and the Churchill Arms, Ascott.

KINGSLAND GATE.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr Harrington to Sell by Auction, on the premises, Kingsland Gate Nursery, Kingsland, Middlesex, on THURSDAY, September 24, at 11 o'clock, about 400 choice DOUBLE CAMELLIAS, from 18 inches to 7 feet, consisting of all the most approved kinds, beautifully furnished with bloom buds; fine Azalea indica, Epacris, Ericas, Cytisus, Acacias, Chorozema, Myrtles, Geraniums, &c., with a few handsome Cedrus Deodara, 5 to 6 feet, established in pots.—May be viewed two days prior to the sale. Catalogues may be had on the premises, at the Nursery, Dalston; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

J. S. MORRIS, Hydraulic Engineer, 38, Upper Thames Street, City, London.

Hot-Water Apparatus complete. on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. Morris in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. Morris in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

A Treatise by J. S. Morris "On Warming and Ventilating Dwellings" sent free.

THOMSON'S RETORT BOILER.

A New Form of Boiler for Heating by Hot Water. Designed by Mr. Thomson, Gardener, Dalkeith Park.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. Thomson to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

Kensal Green, Harrow Road, London.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & Son have great pleasure in referring to numbers of he nobility and gentry by whom they are extensively engaged.

HORTICULTURAL IMPLEMENTS AND GARDEN TOOLS

of every Description for the Amateur or Practical Gardener, and of Warranted Quality.

DEANE, DRAY AND CO. have prepared for the present season a new ILLUSTRATED PRICED LIST of the above (to be obtained gratis on application, or post free), including Lawn Mowing Machines, Garden Engines, Boyd's Patent Self-Acting and Vulcan Scythes, Garden Rollers (from 30*s.*), Flower Stands, Garden Seats, &c., Galvanized Game Netting from 6*d.* per yard. Ornamental Wire Work made to order, Garden Arches, Flower Baskets, &c.

London Agents for Lingham's Permanent Labels, price from 1*s.* per box, containing 100; also Saynor's celebrated Pruning Knives.—Deane, Dray & Co., (opening to the Monument,) London Bridge, E.C. Established, A.D. 1700.

HOSE PIPING.

WAITHMAN'S PATENT FLAX HOSE PIPING will sustain a greater pressure, is lighter, less bulky, will wear longer, and is about 60 per cent. cheaper than the leather hose pipe. Manufactured only by Waithman & Co., Bentham, Lancaster.

No. 1 quality, inches diameter, and price per yard:—

½	¾	1	1¼	1½	1¾	2	2¼	2½	2¾	3 in.
9*d.*	11*d.*	1*s.* 1*d.*	1*s.* 3*d.*	1*s.* 5*d.*	1*s.* 7*d.*	1*s.* 9*d.*	2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*

Super-extra stout quality:—

2	2¼	2½	2¾	3 inches.
2*s.*	2*s.* 3*d.*	2*s.* 6*d.*	2*s.* 9*d.*	3*s.* per yard.

The hose is Burnettized at an extra charge of 3*d.* per yard. Union Joints, Branch Pipes, and Jets are also supplied.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From James Kennedy, Esq., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1856."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

M'DOUGALL'S DISINFECTING POWDER.—This valuable and cheap disinfectant used in Stables, Cow-houses, Piggeries, Fowl-houses, and Kennels, completely removes all noxious smells, and gives a pure atmosphere. Manures treated with it are much improved, as the ammonia and phosphoric acid are preserved, and a compound formed well known to be of great value for Agricultural purposes.—A. Herriot & Co., London Agents, 2, Great Scotland Yard, Whitehall, S.W.

BOITE À HOUPPE.

For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. Lambert & Son, Short Street, New Cut, Lambeth, S.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, Horticultural Builder and Hot-water Apparatus Manufacturer, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of Gray & Ormson, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

Stanley Bridge, King's Road, Chelsea, Sept. 5.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOM-HEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. Henderson begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. Henderson, Inventor of the Patent Improved Broomheads, Dunkeld.

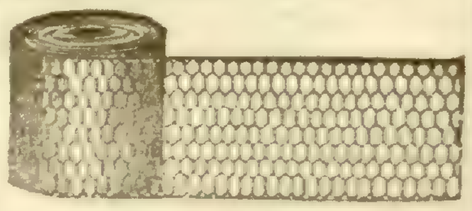
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK and GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to Henry J. Morton & Co., 2, Basinghall Buildings, Leeds.

NEAT AND DURABLE GARDEN LABELS.—A Specimen Label will be sent on the receipt of three postage stamps.—Address, F. H., Lydbury N[illegible]

THE PATENT CREAM ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin.—Manufactured by [illegible] Fisher & Co., Label Works, Boston, Lincolnshire.

"TIFFANY" FOR SHADING CONSERVATORIES.

Manufactured by

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to Cottam & Hallen, 2, Winsley Street, Oxford Street.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of [illegible] different patterns of Suspending Flower Baskets, from 1½ inches to 3 feet diameter, new and original designs. Manufactured by W. RICHARDS, at the Imperial Wire Works, [illegible] Oxford Street, London, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

WATERPROOF PATHS. BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

GREEN'S PATENT LAWN MOWING MACHINES will be exhibited on the Lawns at the Crystal Palace, Sydenham, during the Horticultural Show to be held on the 9th, 10th, and 11th of September. The new Machines were proved on trial at the London Horticultural Society's Show at Chiswick, June 5, 1857, to be the best, and are open for further trial against any other Pony or Hand Machine now in use. Every information may be obtained at the machines seen at Thomas Green's Patent Mowing Machine Works, Leeds, Yorkshire; Mr. C. Garrood, Manager of the Agricultural Department, Crystal Palace, Sydenham; Mr. M'Ewen, London Horticultural Society's Gardens, Chiswick; the London Agents, Messrs. Cottam & Hallen, Oxford Street; Messrs. Burgess & Key, Newgate Street; and at the Baker Street Bazaar.

The Machines also may be had of all respectable Ironmongers, Nurserymen, and Seedsmen in the kingdom.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments, DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and [illegible] Articles for travelling. By post for two stamps.

J. W. & T. Allen, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS (See separate Catalogue).—18 and 22, Strand.

HEAL AND SON'S NEW ILLUSTRATED CATALOGUE contains designs and prices of the different articles of BEDROOM FURNITURE, as well as of 200 Bedsteads, and prices of every description of Bedding. Sent free by post.—Heal & Son, Bedstead, Bedding, and Bedroom Furniture Manufacturers, 196, Tottenham Court Road, W.

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Gaseliers, Tea Urns, Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Furnishing Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1a, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.

GLENFIELD PATENT STARCH USED IN THE ROYAL LAUNDRY, AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS: "THE FINEST STARCH SHE EVER USED."

Sold by all Chandlers, Grocers, &c., &c.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West Brixton, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office, No. 5, Lombard St., Precinct of Whitefriars, City of London, and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul, Covent Garden in the said Co.—Saturday, September 5, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 37.—1857.] SATURDAY, SEPTEMBER 12. {Price Fivepence. Stamped Edition, 6*d*.

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COUNTY OF DURHAM, SOUTH SHIELDS, AND WESTOE FLOWER SHOW will be held SEPT. 16 and 17, First Prize, for 36 Dahlias of Dissimilar Blooms, a Silver Cup, value 5*l*.; Second Prize, 1*l*. 1*s*.; Third Prize, 15*s*.; Fourth Prize, 10*s*.

ROYAL PAVILION, BRIGHTON.

THE BRIGHTON AND SUSSEX FLORICULTURAL AND HORTICULTURAL SOCIETY will hold their Grand Autumn Exhibition in the above splendid Rooms and Grounds on WEDNESDAY and THURSDAY, September 16 and 17. Between 300*l*. to 400*l*. are offered in Prizes, including a 10*l*. Silver Cup, the gift of the L. B. and S. C. Railway Company to the best eight dishes of Fruits "distinct" sorts. Also a second 10*l*. Silver Cup for the best "Thirty-six" Dahlia Blooms of distinct Show varieties. Open to all growers. Schedules can be had of the Secretary, 96, St. James's Street, Brighton; or of Mr. Spary, General Superintendent, Queen's Graperies, Brighton. Free Carriage of Plants, &c., from the Bricklayer's Arms Station, and all other stations on the Brighton and South Coast as on former occasions.

E. Carpenter, Secretary.
Thos. Attree, Esq., Chairman of Committee.

CHARLES M'INTOSH, F.R.P.S., Landscape Gardener, Garden Architect, &c., Newcome Villa, Murrayfield, Edinburgh.

London address: Messrs. T. Lawson & Son, 27, Great George Street, Westminster.

JOSEPH MEREDITH, Garden Architect and Hothouse Engineer, Vine Cottage, Garston, near Liverpool. Heating Apparatus fitted up on the most approved principle. First class references may be had.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT, COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Sept. 12.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5*s*. to 21*s*.

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

ERICAS Five Pounds per 100, consisting of obbata, mutabilis, tricolors of all the leading kinds, ampullacea, ventricosa, Parmentieri rosea, Cavendishi, aristata, vittata, Juliana, Jasminoides, &c.: these are splendid young healthy stock. Sample basket containing 12 for 1*l*., including package.

Epps', Nurseries, Maidstone.

1000 SPECIMEN AZALEAS AND ERICAS,
FROM 9 INCHES TO 3 FEET IN DIAMETER.

MR. EPPS has no hesitation in saying that his stock of the above contains some of the finest plants possible and of all the leading kinds. Prices and list on application. Fine young specimens three guineas per dozen.

Epps's Nurseries, Maidstone.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10*s*. 6*d*., 15*s*., and 21*s*.; four Plants for three to the Trade.—Maidstone, Sept. 12.

NEW AZALEA INDICA.

A. VERSCHAFFELT, Nurseryman, Ghent, Belgium, intends sending out in September next his new AZALEA INDICA "Baronde Vrière," figured in Verschaffelt's "Illustration Horticole." Good Plants, 7*s*. 6*d*. each; strong ditto, 16*s*. each.

The NEW CATALOGUE, No. 64, is now ready, and can be obtained gratis at Mr. R. Silberrad's, 5, Harp Lane, Great Tower Street, London.

AZALEA INDICA

J. IVERY AND SON have a quantity of the above to offer to the Trade, of most of the leading kinds, well set with bloom, very healthy and bushy plants, in large 48 and 32-size pots. Price (or sample) per 100 or dozen, with a list of sorts, upon application; also a fine healthy and well-grown lot of young specimens of all the newest and best varieties. Catalogues sent post free upon written application.—Dorking Nursery, Sept. 12.

SUTTON'S IMPROVED ITALIAN RYE-GRASS SEED
SHOULD NOW BE SOWN.

SUTTON AND SONS, Seed Growers, Reading, have fine new Seed now ready. Also of Dickenson's Italian Rye-grass. Quantity required per acre, 3 bushels. Price 7*s*. to 8*s*. per bushel, according to quantity required. Carriage free. Terms cash.

PERMANENT PASTURE GRASS SEEDS.

SUTTON AND SONS, Seed Growers, Reading, have a fine stock of fresh natural Grass Seeds, for Permanent Pasture. August is a good season for sowing. Goods delivered carriage free by railway. Prices moderate. Terms cash.—Royal Berkshire Seed Establishment, Sept. 12.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS
SHOULD NOW BE SOWN.

These Seeds consist of Perennial Clovers and fine Grasses for improving the bottom. Price 9*d*. per lb., or 80*s*. per cwt. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—Sutton & Sons, Reading, Berks.

TRIFOLIUM INCARNATUM SOWN NOW will produce a heavy crop of Clover in May and June next. Quantity of Seed required per acre 24 lbs.

Sutton & Sons, Reading, have fine new Seed, price 4*d*. to 5*d*. per lb., according to quantity required. Carriage free. Terms cash.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Sept. 12.

GUERNSEY AND BELLADONNA LILIES.

B. PAGE AND CO. can now supply strong Bulbs started for bloom at 4*s*. per dozen. Early Roman and Paper White Narcissus, 4*s*. ditto. Price to the trade upon application.

Oxford St. (facing the Railway), and Above-bar, Southampton.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST of FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

DUTCH AND OTHER BULBS.

J. H. COTTRELL (successor to F. Warner, and late Dawe, Cottrell, & Benham), 2, High Street, Birmingham. Wholesale and Retail Catalogues now ready.

(Established at 28, Cornhill, London, 1720.)

*** Please observe J. H. C. now resides at Birmingham.

DUTCH FLOWER ROOTS.—The Trade supplied by the undersigned at Wholesale Prices. Catalogues free on application.—Hugh Low & Co., Clapton Nursery, London, N.E.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

Wm. C. & Son strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH BULBS.

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SPIRÆA CALLOSA, see Dr. Lindley's Leading Article, August 1. Can be supplied in the autumn at 18*s*. to 30*s*. per dozen, by Charles Noble, the Nursery, Bagshot.

PINE PLANTS FOR SALE.—A large healthy stock for sale; also 3 year old VINES in Pots, &c.

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20 fine large CAMELLIAS, 5 to 8 feet high, well set with flower, bushy, and in good health, consisting of double white, variegata, Warratah, candidissima, Donkelaari, amabilis, elegans, Fentonia, &c., price 50*l*., delivered to London.—Inquire of Mr. Epps, Nurseries, Maidstone.

WANTED, 50 Bushels PYRACANTHA BERRIES.—Send price to Charlwood & Cummins, 14, Tavistock Row, Covent Garden, London.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. Raynbird, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

FIRST CLASS FRUIT WANTED.

BLACK GRAPES	MUSCAT GRAPES
PINE APPLES	PEACHES

AND OTHER CHOICE FRUIT.

Apply to George Taylor, Junior,
Choice Fruit Salesman,
St. John's Market,
Liverpool

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hotwater.

JAMES CARTER AND Co. beg to offer new Seeds saved from the choicest varieties of the following:—

CALCEOLARIA CINERARIÆ	PRIMULA SINENSIS FIMBRIATA

Price 1*s*. per packet.

238, High Holborn, London, W.C.

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CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s*.—James Carter & Co., Seedsmen, 238, High Holborn, London, W.C.

TO THE TRADE.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, N.E., beg to offer healthy young plants of PIMELEA DIOSMÆFOLIA in small pots for Stocks.—Price per dozen or per 100 on application.

*** September is the best month for grafting Pimeleas.

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CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Sept. 12.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, established in single pots, at 30*s*. per doz., or 6*l*. 5*s*. per 100. No charge for packing.—John Henchman, Edmonton, near London.

POMPONE CHRYSANTHEMUMS.

J. CHATER AND SON offer the above in stout bushy Plants, well established in 32-size pots, all fine kinds, at 8*s*. per dozen. Nice Grafted Plants of Isabella Grey Rose, at 5*s*. each.—Nursery, Haverhill, Sept. 12.

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R. SHACKELL begs to offer healthy strong plants of his beautiful Seedling VIOLET "Russian Superb," at 12*s*. per dozen. Strong plants of Neapolitan Violet, at 4*s*. per dozen, or 1*l*. 5*s*. per 100. Five other varieties at 4*s*. per dozen. Old Russian, 10*s*. per 100. Hamper and package included.—Address Robert Shackell, 5, Broad Street, Bath.

JOSEPH [illegible] AND Co., having a large stock of the following articles, beg to offer them in large or small quantities:—

DOUBLE AND SINGLE SNOWDROPS.
PHEASANT'S EYE NARCISSUS.
GARLIC AND SHALOTS.
MUSHROOM SPAWN (best quality).

Prices on application.

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STRAWBERRIES.—See Dr. Lindley's opinion of Cuthill's three sorts of Strawberries, August 15, in *Gardeners' Chronicle*, Black Prince, Princess Royal, and Prince of Wales. J. C.'s three pamphlets containing much information upon difficult things. Also his celebrated Cucumber Seeds. Please to write for a List.

James Cuthill, Camberwell, London, S.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true, strong well-rooted plants, 15*s*. per 100.

British Queen, 2*s*. 6*d*. per 100.	Keens' Seedling, 2*s*. 6*d*. per 100
Elton Pine, 2*s*. 6*d*. ,,	Black Prince, 2*s*. 6*d*. ,,

Messrs. Cuthbert, Southgate, Middlesex.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

STRAWBERRY PLANTS, ETC.

EVAN PAUL begs to offer the following, of superior quality:—

Sir Harry, 20*s* per 100 per doz.	4*s*. 0*d*	Prince of Wales	3*s*. 6*d*.
Keens' Seedling, per 100	2 6	Prince Albert	2 6
British Queen, per 100	3 6	Hautbois	2 6
Elton Pine	2 6	Calceolaria seed, p. pkt.	1 0
Black Prince	2 6	Cineraria	1 0
Kitley's Goliah	2 6	Primula sinensis	1 0
Alice Maude	2 6	Polyanthus	0 6
		Sweet William	0 6

The Nurseries, Derby, Sept. 12.

SPLENDID HYACINTHS, NARCISSUS, TULIPS, CROCUSES, ETC.

JAMES CHARTRES begs to inform his numerous patrons and purchasers of the above generally that his unrivalled Collection of the above (selected in Holland) has arrived in fine condition, and he earnestly requests that Orders may be sent early to ensure the finest Bulbs. A Catalogue may be had on application.—Seed Warehouse, 15, King William Street, City, London.

CRYSTAL PALACE.

AWARD OF THE JUDGES

AT THE

SECOND GRAND FLOWER SHOW,

WEDNESDAY, THURSDAY, AND FRIDAY, SEPTEMBER 9th, 10th, and 11th, 1857.

PLANTS.

CLASS I.—12 Stove and Greenhouse Plants, in flower.

First prize, 10*l.*, B. Peed, gr. to T. Tredwell, Esq., St. John's Lodge, Norwood. Second ditto, 7*l.*, W. Taylor, gr. to J. Coster, Esq., Streatham. Third ditto, 5*l.*, R. Baxindine, gr. to W. H. Smallpiece, Esq., Rydinghurst, Surrey. Fourth ditto, 3*l.*, W. J. Epps, Bower Nursery, Maidstone.

CLASS II.—6 Greenhouse and Stove Plants, in flower.

First prize, 5*l.*, E. A. Hamp, gr. to J. Thorne, Esq., Mawbey House, South Lambeth. Second ditto, 3*l.*, W. Kaile, gr. to the Right Hon. Earl Lovelace, Ripley, Surrey, equal. Third ditto, 2*l.*, J. Green, gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey; and O. Rhodes, gr. to J. Philpott, Esq., Stamford Hill, equal. Fourth ditto, 1*l.*, H. Chilman, gr. to Mrs. Smith, Ashtead House, Epsom; and T. Page, gr. to William Leaf, Esq., Park Hill, Streatham. Extra ditto, 15*s.*, W. Cutbush, jun., Barnet Nursery, Herts.

CLASS III.—20 Variegated Plants, in or out of flower (*Amateurs*).

First prize, 7*l.*, Arthur Young, gr. to F. C. Hills, Esq., Denmark Hill, Camberwell. Second ditto, 5*l.*, James Morris, gr. to Coles Child, Esq., Bromley, Kent. Third ditto, 4*l.*, Robert Oubridge, gr. to J. Foster, Esq., Stamford Hill. Fourth ditto, 3*l.*, Osman Rhodes, gr. to J. Philpott, Esq., Stamford Hill.

CLASS IV.—20 Variegated Plants, in or out of flower (*Nurserymen*).

First prize, 7*l.*, T. Jackson and Son, Kingston, Surrey. Second ditto, 5*l*, Messrs. Parker and Williams. Third ditto, 4*l.*, W. Cutbush, jun., Barnet Nursery, Herts. Fourth ditto, 3*l.*, Messrs. C. & J. Lee, Nursery, Hammersmith. Extra ditto, 2*l.*, W. J. Epps, Bower Nursery, Maidstone.

CLASS V.—10 Plants remarkable for fine foliage.

First prize, 5*l.*, Messrs. Parker & Williams, Paradise Nursery, Holloway. Second ditto, 3*l.*, Messrs. Jackson and Son, Kingston, Surrey. Third ditto, 2*l.*, G. H. Bunney, Stratford, Essex. Fourth ditto, 1*l.*, Arthur Young, gr. to Crawshay Baily, Esq., M. P., Aberaman, Glamorgan.

CLASS VI.—6 Species of Exotic Orchids.

First prize, 6*l.*, Samuel Woolley, gr. to H. Ker, Esq., Cheshunt. Second ditto, 4*l.*, William Keele, gr. to J. Butler, Esq., Woolwich. Third ditto, 3*l.*, S. M. Carson, gr. to W. F. G. Farmer, Esq., Cheam. Fourth ditto, 2*l.*, Messrs. Jackson and Son, Kingston, Surrey. Extra ditto, 1*l.* 10*s.*, W. Gedney, gr. to Mrs. Ellis, Hoddesdon, Herts.

CLASS VII.—10 Cape Heaths, distinct kinds.

First prize, 8*l.*, W. Cutbush, jun., Barnet Nursery, Herts. Second ditto, 6*l*, B. Peed, gr. to T. Tredwell, Esq., St. John's Lodge, Norwood.

CLASS VIII.—6 Cape Heaths, distinct kinds (*Amateurs*).

Third prize, 3*l.*, Osman Rhodes, gr. to J. Philpott, Esq., Stamford Hill. Fourth ditto, 2*l.*, T. Williams, gr. to Miss Traill, Hayes Place, Kent.

CLASS IX.—6 Plants of Nepenthes with pitchers.

First prize, 10*l.* Messrs. Parker and Williams, Paradise Nursery, Holloway. Second ditto, 7*l.*, William Gedney, gr. to Mrs. Ellis, Hoddesdon, Herts.

CLASS X.—10 Exotic Ferns, tender, and cultivated in pots, distinct kinds (*Amateurs*).

First prize, 4*l.*, F. Fletcher, gr. to J. F. Young, Esq., Upper Kennington Lane. Second ditto, 3*l.*, Robert Baillie, gr. to W. C. Carbonell, Esq., Harrow Road, Middlesex. Third ditto, 2*l.*, S. M. Carson, gr. to W. F. G. Farmer, Esq., Cheam, Surrey. Fourth ditto, 1*l.*, W. Gedney, gr. to Mrs. Ellis, Hoddesdon, Herts. Extra ditto, 15*s.*, H. Lavey, gr. to E. A. De Grave, Esq., Fetcham, Surrey.

CLASS XI.—12 Exotic Ferns, tender, cultivated in pots, distinct kinds (*Nurserymen*).

First prize, 4*l.*, Messrs. Parker and Williams, Paradise Nursery, Holloway. Second prize, 3*l.*, Messrs. Jackson and Son, Kingston, Surrey. Third prize, 2*l.*, James Cutbush, Highgate. Fourth ditto, 1*l.*, G. H. Bunney, Stratford, Essex. Extra ditto, 15*s.*, John Hally, nurseryman, Blackheath. Equal extra ditto, 10*s.*, W. J. Epps, Bower Nursery, Maidstone, and Thomas Gaines, Battersea.

CLASS XII.—20 British Ferns, cultivated in pots, distinct kinds.

First prize, 3*l.*, Robert Sim, Foot's Cray, Kent. Second ditto, 2*l.*, Robert Baillie, gr. to W. C. Carbonell, Esq., Harrow Road, Middlesex. Third ditto, 1*l.*, James Morris, gr. to Coles Child, Esq., Bromley, Kent. Extra ditto, 15*s.*, Henry Lavey, gr. to E. A. De Grave, Esq., Fetcham, Surrey.

CLASS XIII.—12 Lycopodiums, not less than six species.

First prize, 3*l.*, Messrs. Parker and Williams, Paradise Nursery, Holloway. Second ditto, 2*l.*, G. H. Bunney, Stratford, Essex. Third ditto, 1*l.*, Samuel Woolley, gr. to H. Ker, Esq., Cheshunt. Extra ditto, 15*s.*, William Gedney, gr. to Mrs. Ellis, Hoddesdon, Herts; and John Hally, nurseryman, Blackheath.

CLASS XIV.—6 Achimenes, distinct kinds.

First prize, 3*l.*, G. Gibbs, Wandsworth. Second ditto, 2*l.*, Henry Lavey, gr. to E. A. De Grave, Esq., Fetcham, Surrey. Third ditto, 1*l.* 5*s.*, William Gedney, gr. to Mrs. Ellis, Hoddesdon, Herts.

CLASS XV.—6 Fuchsias, distinct kinds.

First prize, 5*l.*, John Liley, gr. to J. Robinson, Esq., Croydon. Second ditto, 4*l.* James Tegg, gr. to Baron Hambro, Roehampton. Third ditto., 3*l.*, Robert Oubridge, gr. to J. Foster, Esq., Stamford hill. Fourth ditto, 2*l.*, Osman Rhodes, gr. to J. Philpott, Esq., Stamford hill. Extra ditto, 1*l.* Messrs. Mitchell and Co., Brighton.

CLASS XVI.—6 Scarlet Geraniums, distinct kinds.

Equal First prizes, 3*l.*, Mrs. Mary Conway, Earl's Court Nursery, Old Brompton, and Richard Weatherill, [illegible] Nursery, Holloway. Second ditto, 2*l.*, Henry Moses, gr. to J. Bonns, Esq., Point house, Blackheath. Third ditto, [illegible] John Lewis, gr. to J. Guy, Esq., Hampton Wick. Extra ditto, 15*s.*, Thomas Maylon, Blackheath Hill.

CLASS XVII.—6 Scarlet Geraniums, variegated foliage, [illegible] kinds.

Second prize, 2*l.*, Mrs. Mary Conway, Earl's Court Nursery, Old Brompton.

CLASS XVIII.—6 Nosegay Geraniums (various).—No competition.

CLASS XIX.—6 Continuous-blooming Geraniums, distinct, such as Unique, Sydonia, &c.

Second prize, 2*l.*, James Shrimpton, gr. to A. J. Dent, Esq., Putney Heath. Third ditto, 1*l.*, Thomas Gaines, Battersea.

CLASS XX.—12 Balsams.

First prize, 3*l.*, John Green, gr. to Sir E. Antrobus, Bart., Lower Cheam, Surrey. Second ditto, 2*l.*, Henry Cox, gr. to W. H. Cox, Esq., Balham hill. Third ditto, [illegible] Messrs. F. & A. Smith, Park road, Dulwich. Extra ditto, [illegible] William Kaile, gr. to the Right Hon. Earl Lovelace, Ripley.

CLASS XXI.—6 Cockscombs.

First prize, 2*l.*, John Holmes, gr. to J. Bacons, Esq., Lee, Dulwich. Second ditto, 1*l.*, Thomas Bailey, gr. to P. P. Drake, Esq., Shardeloes, Amersham. Third ditto, 15*s.*, [illegible] Lambert, Oakwood, Chichester. Extra ditto, 10*s.*, J. Shepherd, gr. to Mrs. Graham, Herne hill.

CLASS XXII.—9 Lilium lancifolium, not less than two kinds.

First prize, 5*l.*, James Cutbush, Highgate. Second ditto, [illegible] William Laybank, gr. to T. Mandesley, Esq., Knightsbridge, Norwood. Third ditto, 2*l.*, M. Higgs, gr. to — Barnes, Esq., Putney Heath.

CLASS XXIII.—Miscellaneous.

Equal First Prizes, 2*l.*, Wm. Keele, gr. to J. Butler, Esq., [illegible] Wellington-street, Woolwich, Edward Shenton, Hendon Park Villas, Hendon, and Messrs. Jackson & Son, Kingston. Second ditto, 1*l.* 10*s.*, E. A. Hamp, gr. to James Thorne, Esq., Mawbey House, South Lambeth. Third ditto, [illegible] S. M. Carson, gr. to W. F. G. Farmer, Esq., Cheam, Surrey. Fourth ditto, 15*s.*, E. A. Hamp, gr. to James Thorne, Esq., Mawbey House, South Lambeth, and R. Weatherill, Hampshire Nursery, Holloway. Equal Extra ditto, [illegible] Dods, gr. to Sir John Cathcart, Cooper's Hill; Parker and Williams, Paradise Nursery, Holloway; Edward Shenton, Hendon Park Villas, Hendon, and Messrs. Jackson and Son, Kingston.

CUT FLOWERS.

CLASS XXIV.—50 Roses, distinct varieties, 3 trusses only of each variety as gathered (*Nurserymen*).

First prize, 4*l.*, Messrs. Paul and Son, Cheshunt. Second prize, 3*l.*, W. J. Epps, Bower Nursery, Maidstone. Third ditto, 2*l.*, E. P. Francis, Nurseries, Hertford.

CLASS XXV.—25 Roses, distinct varieties, 3 trusses only of each variety as gathered (*Amateurs*).

First prize, 4*l.*, J. Hollingworth, Maidstone. Second ditto, 3*l.*, Alexander Rowland, Esq., Rosenthal, Lewisham. Third prize, 2*l.*, Thomas Terry, Youngsbury, near Ware, Hants. Fourth prize, 1*l.*, B. Peed, gr. to T. Tredwell, Esq., St. John's Lodge, Norwood.

CLASS XXVI.—24 Roses, distinct varieties, single blooms.

First price, 2*l.*, James Mitchell, Maresfield, Sussex. Second ditto, 1*l.*, E. P. Francis, Nurseries, Hertford. Third ditto, 2*l.*, Charles Kimberley, Stoke Nursery, near Coventry.

CLASS XXVII.—24 Hollyhocks, distinct varieties, single blooms.

First Prize, 3*l.*, William Chater, Saffron Walden, Essex. Second ditto, 2*l.*, Messrs. Paul and Son, Cheshunt. Third ditto, 1*l.*, W. Bragg, Star Nursery, Slough.

CLASS XXVIII.—24 Hollyhocks, in spikes, distinct varieties.

First Prize, 3*l.*, William Chater, Saffron Walden, Essex. Second ditto, 2*l.*, William Bragg, Star Nursery, Slough.

CLASS XXIX.—50 Dahlias, dissimilar.

First Prize, 10*l.*, Charles Turner, Royal Nurseries, Slough. Second ditto, 8*l.*, John Keynes, Salisbury. Third ditto, 6*l.*, Thomas Barnes, Dane Croft, Stowmarket. Fourth ditto, 4*l.*, John Sealey, St. Georges, Bristol. Fifth ditto, 2*l.*, William Bragg, Star Nursery, Slough; ditto, Charles Kimberley, Stoke Nursery, near Coventry; ditto, Henry Legge, Marsh side, Lower Edmonton.

CLASS XXX.—24 Dahlias, dissimilar (*Amateurs*).

First Prize, 6*l.*, George Holmes, Brook Lodge, Norwich. Second ditto, 5*l.*, Charles Fellowes, Shotesham Rectory, Norfolk. Third ditto, 4*l.*, Charles Grant, Shotesham Rectory, Norwich. Fourth ditto, 3*l.*, Charles James Perry, The Cedars, Castle Bromwich, near Birmingham. Equal Extra ditto, 1*l.*, Thomas Bailey, gr. to P. P. Drake, Esq., Shardeloes, Amersham; ditto, George Barrett, Winter's Hall, Guildford. C. J. Field, High Street, Epsom; ditto, J. Hollingworth, Maidstone; ditto, R. James, Stoke Newington; ditto, T. Leslie, gr. to Mrs. Alexander, Stone House, near Ramsgate; ditto, John Sladden, Ash, Kent.

CLASS XXXI.—12 Dahlias, fancy.

Equal first prizes, 3*l.*, John Keynes, Salisbury, and Charles Turner, Royal Nurseries, Slough. Second ditto, 2*l.*, Thomas Barnes, Danecroft, Stowmarket. Third ditto, 1*l.* 10*s.*, Henry Legge, Marsh Side, Lower Edmonton. Fourth ditto, [illegible] Charles James Perry, Castle Bromwich. Equal extra ditto, 10*s.*, Charles Fellowes, Shotesham Rectory, Norwich, and Dilnot Sladden, Ash, Kent.

CLASS XXXII.—24 German Asters, single blooms, dissimilar (quilled).

First prize, 2*l.*, R. H. Betteridge, Abingdon. Second ditto, 1*l.* 10*s.*, Laurence Begley, East Hendred, Berks. Equal third ditto, 1*l.*, William Molyneux, Newnham Park, Coventry; ditto, 1*l.*, William Molyneux, Newnham Park, Coventry (cottager), and Thomas Westbrook, Abingdon, Berks.

CLASS XXXIII.—24 French Asters, single blooms, dissimilar (tasseled).

First prize, 2*l.*, Messrs. Paul and Son, Cheshunt. Second ditto, 1*l.* 10*s.*, William Bragg, Star Nursery, Slough. Third ditto, 1*l.*, Charles Brown, gr. to G. C. M. Thomas, Esq., King's Wood, Dulwich. Fourth ditto, 15*s.*, R. James, Stoke Newington. Equal extra ditto, 10*s.*, William Chater, Saffron Walden, Essex, Charles Sandford, gr. to T. Thomasset, Esq., Leyton, Essex, and George Smith, 42, Whitechapel.

FRUIT.

CLASS A.—Collection of twelve dishes, 10 distinct kinds.

First prize, 10*l.*, Thomas Page, gr. to William Leaf, Esq., Park Hill, Streatham. Second ditto, 7*l.*, Thomas Dawson, gr. to the Right Hon. Earl Cowper, Panshanger, Hertford. Third ditto, 5*l.*, B. Peed, gr. to T. Tredwell, Esq., St. John's Lodge, Norwood.

CLASS B.—Collection of eight dishes, 6 distinct kinds.

Equal second prizes, 5*l.*, Charles Squires, gr. to Mrs. Delap, Stoke Park, Guildford, and William Taylor, gr. to J. Coster, Esq., Streatham. Third ditto, 4*l.*, John Gould, R[illegible] Cottage Nursery, Redditch. Fourth ditto, 3*l.*, James Neighbour, gr. to William Dent, Esq., Beckley Park, near Bromley.

CLASS C.—Pine Apples, collection of six, 3 distinct kinds.

First prize, 7*l.*, Thomas Dawson, gr. to the Right Hon. Earl Cowper, Panshanger, Hertford.

CLASS D.—Pine Apples, collection of three, 2 distinct kinds. No competition.

CLASS E.—Pine Apple, Providence, single fruit. No competition.

Class F.—Pine Apple, Cayenne, single fruit.

Third prize, 1*l.*, Thomas Bray, gr. to T. B. Lonsada, Esq., Peak House, Sidmouth.

CLASS G.—Pine Apple, Queen, single fruit, any variety.

First prize, 2*l.*, Joshua Nickson, gr. to Lady William Fitzroy, East Sheen House, Mortlake. Second ditto, 1*l.*, G. S. Dods, gr. to Sir John Cathcart, Cooper's Hill. Third ditto, 1*l.*, William Rattray, gr. to J. Back, Esq., Cobham, Surrey.

CLASS H.—Grapes, boxes of 12 lbs. weight (*Market Gardeners only*).

First prize, 4*l.*, C. F. Harrison, Oatlands Palace Gardens, Weybridge. Second ditto, 3*l.*, Peter Kay, Finchley. Third ditto, 2*l.*, Messrs. Spary and Campbell, Queen's Graperies, Brighton. Fourth ditto, 1*l.*, Edward Collingwood, St. James's Cottages, Kingsland.

CLASS I.—Grapes, three dishes, distinct kinds.

First prize, 5*l.*, George Fleming, gr. to his Grace the Duke of Sutherland, Trentham Gardens; ditto, James Woods, gr. to William Beckford, Esq., Bexley Lodge, Esher. Second ditto, 4*l.*, Charles Allborough, gr. to G. S. Kett, Esq., Brooke House, Norwich; ditto, J. Allport, gr. to H. Aycroyd, Esq., Doddington Park, Nantwich. Third ditto, 3*l.*, M. Busby, gr. to J. Crawley, Esq., Stockwood Park, Luton.

CLASS J.—Grapes, black, two dishes, distinct kinds.

First prize, 3*l.*, W. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire. Second ditto, 2*l.*, P. Borcham, gr. to Sir Fitzroy Kelly, M.P., Chauntry. Third ditto, 1*l.*, J. Rodgers, gr. to B. Gurdon, Esq., M.P., Letton Hall, Norfolk.

CLASS K.—Grapes, White, two dishes, Muscat, and any other variety.

First prize, 3*l.*, Seward Snow, gr. to the Right Hon. Earl de Grey, Wrest Park, Silsoe. Second ditto, 2*l.*, George Wortley, gr. to Mrs. Maubert, Norwood. Third ditto, 1*l.*, G. Fleming, gr. to his Grace the Duke of Sutherland, Trentham Gardens. Fourth ditto, 10*s.*, George Allis, gr. to Sir George Chetwynd, Bart., Greudon Hall, Warwickshire.

CLASS L.—Grapes, the largest bunch of any kind.

First prize, 1*l.* 10*s.*, Edward Vare, gr. to Rev. C. A. Belli, South Weald Vicarage, Brentwood. Second ditto, 1*l.*, J. D. Watson, Ealing.

CLASS M.—Peaches and Nectarines, six dishes, 3 kinds.

First prize, 4*l.*, George Fleming, gr. to His Grace the Duke of Sutherland, Trentham Gardens. Second ditto, 3*l.*, Thomas Dawson, gr. to the Right Hon. Earl Cowper, Panshanger, Hertford. Third ditto, 2*l.*, John Hope, gr. to Miss Gurney, Upton Park, Essex. Fourth ditto, 2*l.*, T. Terry, Youngsbury, near Ware. Fifth ditto, 10*s.*, J. Peed, gr. to C. P. Gabriel, Esq., Streatham.

CLASS N.—Peaches and Nectarines, four dishes. [illegible] First prize, 3*l*, George Fleming, gr. to His Grace the Duke of Sutherland, Trentham Gardens. Second ditto, 2*l.*, Seward Snow, gr. to the Right Hon. Earl De Grey, Wrest Park. Third ditto, 2*l.*, J. Croxford, gr. to E. Warner, Esq., Hall, Woodford. Extra ditto, 1*l.* 10*s.*, John Gould, R[illegible] Cottage, Nursery, Redditch. Extra ditto, J. B. Whiting, [illegible] Deepdene Gardens, Dorking.

CLASS O.—Peaches and Nectarines, two dishes. [illegible] First prize, 2*l.*, H. Bailey, Nuneham, near Oxford. Second ditto, 1*l.* 10*s.*, G. Fleming, gr. to His Grace the Duke of Sutherland, Trentham Gardens. Third ditto, [illegible] gr. to the Right Hon. Earl Cowper, Panshanger, Hertford.

CLASS P.—Apricots, two dishes, distinct, not less than [illegible] No competition.

CLASS Q.—Melons, three kinds, distinct. [illegible] First prize, 4*l*, Thomas Frost, gr. to E. L. Betts, Esq., Preston Hall, Maidstone. Second ditto, 3*l.*, A. Bouse, gr. to the Right Hon. H. Labouchere, M.P., Stoke Park, Stoke. Equal third ditto, 2*l.*, Thomas Blake, gr. to E. [illegible] Sprangewells, Ware, and William Taylor, gr. to J. [illegible] Esq., Streatham.

CLASS R.—Melons, green-fleshed, single fruit. [illegible] First prize, 2*l.*, Thomas Bailey, gr. to P. P. Drake, Esq., Shardeloes, Amersham. Equal second ditto, 1*l.*, [illegible] Turner, gr. to James Hill, Esq., The Rookery, Streatham Common; and James Woods, gr. to William Beckford, Esq., Bexley Lodge, Esher. Third ditto, 10*s.*, A. Bouse, gr. to the Right Hon. H. Labouchere, M.P., Stoke Park, Stoke.

CLASS S.—Melons, scarlet-fleshed, single fruit. [illegible] First prize, 2*l.*, J. B. Whiting, The Deepdene Gardens, Dorking. Second ditto, 1*l.*, J. D. Watson, Vine Cottage, Ealing. Third ditto, 10*s.*, W. Humber, Red Lion, Southall.

For continuation of Crystal Palace List of Prizes see next page.

Crystal Palace List of Prizes—*Continued.*

FRUIT.

CLASS T.—Figs, two dishes, 10 fruits each, distinct.

First prize, 2*l.*, James Lane, gr. to J. H. Palmer, Esq., Harlingham, Fulham. Second ditto, 1*l.* 10*s.*, J. Newton, gr. to A. J. Graham, Esq., East Lodge, Enfield Chase. Third ditto, 1*l.*, John Gadd, Castle Garden, Dorking.

CLASS Y.—Apples, kitchen, 6 dishes, distinct varieties, 12 fruits each.

First prize, 2*l.*, Thomas Frost, gr. to E. L. Betts, Esq., Preston Hall, Maidstone. Second ditto, 1*l.* 10*s.*, John Newton, gr. to A. J. Graham, Esq., East Lodge, Enfield Chase. Third ditto, 1*l.*, William Tegg, gr. to Arthur Pryor, Esq., Dover House, Roehampton. Fourth ditto, 7*s.* 6*d.*, J. Mortimer, gr. to Miss B. Brown, Wallington, Carshalton; ditto, W. Turner, gr. to James Hill, Esq., The Rookery, Streatham Common.

CLASS Z.—Pears, six dishes, distinct varieties, 12 fruits each.

First prize, 3*l.*, C. F. Harrison, Orchards Palace Gardens, Weybridge. Second ditto, 2*l.*, Mitchell and Co., Bristol Nurseries, Brighton; ditto, J. B. Whiting. Third ditto, 1*l.*, Thomas Frost, gr. to E. L. Betts, Esq., Preston Hall, Maidstone.

CLASS AA.—Pears, 3 dishes, distinct varieties, 12 fruits each.

First prize, 2*l.*, D. Hutcheson, gr. to H. P. Cotton, Esq., Quex Park, Margate. Second ditto, 1*l.*, J. Holden, Reading. Third ditto, 15*s.*, J. Mortimer, gr. to Miss B. Brown, Wallington, Carshalton.

CLASS BB.—Pears, single dish for weight.

First prize, 1*l.*, T. Frost, gr. to E. L. Betts, Esq., Preston Hall, Maidstone. Second ditto, 15*s.*, W. Ruttray, gr. to J. Bach, Esq., Byfleet Lodge, Surrey. Third ditto, 10*s.*, H. Chilman, gr. to Mrs. Smith, Ashstead House, Epsom.

CLASS CC.—Pears, single dish, for flavour.

First prize, 1*l.*, W. Roberts. Second ditto, 15*s.*, W. Kemp, gr. to H. Drummond, Esq., M.P. Albury park, Guildford. Third ditto, 10*s.*, J. Gould, Rose Cottage Nursery, Redditch.

CLASS DD.—Vines in pots, with fruit, 4 plants.

Fourth prize, 1*l.*, William Kaile, gr. to Rt. Hon. Earl Lovelace, Ripley, Surrey.

CLASS EE.—Peaches, Nectarines, and any other fruit, in pots, 4 plants.

First prize, 3*l.*, Messrs. Lane and Son, Great Berkhampstead. Second ditto, 2*l.*, William Kaile, gr. to Rt. Hon. Earl Lovelace, Ripley, Surrey.

CLASS FF.—Miscellaneous.

First prize, Messrs. Lane and Son, Great Berkhampstead. Second ditto, M. Clarke, High Grounds, Hoddesdon. Third ditto, P. Kay, Finchley. Fourth ditto, — Scott, gr. to Sir George Staunton, Bart., Leigh Park. Fifth ditto, Richard Underhill, Sir Harry's Road, Edgbaston, Birmingham.

Amateurs' and Cottagers' Classes.

AMATEURS.

CLASS I.—Collection of Horticultural produce, consisting of Fruits, Flowers, and Vegetables, by Amateurs with the assistance only of two gardeners.

First prize, 10*l.*, W. Hudson, East Hill, Wandsworth. Second ditto, 7*l.*, W. and J. Nicholson, Stamford Hill. Third ditto, 5*l.*, P. S. Desvignes, Lewisham.

CLASS II.—Collection of Horticultural produce, consisting of Fruits, Flowers, and Vegetables, by Amateurs with the assistance only of one gardener.

First prize, 10*l.*, J. F. Bennett, Tulse Hill, Brixton. Second ditto, 7*l.*, W. F. Watson, Isleworth, Middlesex. Third ditto, 5*l.*, J. Beer, Chiswick Mall. Extra ditto, 2*l.* 10*s.*, H. Walmsley, Lower Tulse Hill.

CLASS III.—Collection of Horticultural produce, consisting of Fruits, Flowers, and Vegetables, by Amateurs with the assistance of a gardener one day in a week.

First prize, 10*l.*, T. Smith, Floral Cottage, Crookham, near Farnham. Second ditto, 7*l.*, D. Davie, 4, Paradise Place, Hammersmith. Third ditto, 5*l.*, James August, Beddington, Surrey.

COTTAGERS.

CLASS IV.—Collection of Horticultural Produce, consisting of Fruits, Flowers, and Vegetables.

First prize, 10*l.*, Thomas Dalton, Glass House Street, Nottingham. Second ditto, 7*l.*, George Grover, Western Cottage Garden, Hammersmith. Third ditto, 5*l.*, Joseph Turner, Westerfield. Extra ditto, 1*l.* 10*s.*, J. E. Downing, Merton, Surrey.

CLASS V.—Potatoes, dish of 12.

First prize, 1*l.*, Humphrey Excell, Borley, near Maidstone. Second ditto, 15*s.*, Marshall Wortley, Merstham, Surrey. Third ditto, 10*s.*, J. E. Downing, Merton, Surrey. Equal, Fourth ditto, 5*s.*, William Brown, Sutton, Surrey, and Mr. Leslie, Stone House, Ramsgate.

CLASS VI.—Cauliflowers, dish of 6.

CLASS VII.—Carrots, dish of 12.

First prize, 1*l.*, W. Molyneux, Nuneham Park, Oxfordshire. Second ditto, 15*s.*, George Bulbeck, Funtington, near Chichester. Third ditto, 10*s.*, Humphrey Excell, Borley, near Maidstone. Fourth ditto, 5*s.*, Joseph Turner, Westerfield.

CLASS VIII.—Onions, dish of 12.

First prize, 1*l.*, Joseph Carter, Merton, Surrey. Second ditto, 15*s.*, Henry Cannell, Archbishop Place, Brixton. Third ditto, 10*s.*, Thomas Wakeman, South End, Eltham. Fourth ditto, 5*s.*, William Brown, Sutton, Surrey.

CLASS IX.—Turnips, dish of 12.

First prize, 1*l.*, R. Davis, Carshalton. Second ditto, 15*s.*, Thomas Dalton, Glasshouse Street, Nottingham. Third ditto, 10*s.*, George Bulbeck, Funtington, near Chichester. Fourth ditto, 5*s.*, William Austin, Chalvey Grove, near Slough.

CLASS X.—Cabbages, dish of 6.

First prize, 1*l.*, George Bulbeck, Funtington, near Chichester. Second ditto, 15*s.*, J. E. Downing, Merton, Surrey. Third ditto, 10*s.*, William Snazell, Sydenham Hill. Fourth ditto, 5*s.*, Richard Stevens, Cheam, Surrey.

CLASS XI.—Collection of Pot Herbs.

First prize, 1*l.*, David Friend, Habing Lime Kilns, Croydon. Second ditto, 15*s.*, John Johnson, Lower Mall, Hammersmith. Third ditto, 10*s.*, George Bulbeck, Funtington, near Chichester. Third ditto, 5*s.*, C. Macer, Broxbourne.

BULBS! BULBS!

BASS AND BROWN have received their first and second importation of DUTCH ROOTS in fine condition. The HYACINTHS in particular, which are unusually fine, they have pleasure in offering as follows:—

HYACINTHS.	£	s.	d.
12 choice named varieties	0	6	0
12 very choice ditto	0	9	0
12 extra superb ditto	0	15	0
50 roots in 50 choice varieties	1	10	0
25 roots in 25 ditto	0	16	0

Extensive and very superior collections of Gladiolus, Early Tulips, Iris, and other Bulbs.

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The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 12, 1857.

MR. GLAISHER states in the Journal of the Royal Agricultural Society (xviii.) that the price of POTATOES in the second quarter of the present year was 60 per cent. higher in London than it was in the spring quarter of 1856. What will the price be next spring? It is too soon to offer any decided opinion upon this important question, but it is not too soon to say that the disease is already making progress in all directions. Reports reach us from so many places, and are so consistent with our personal knowledge, that we begin to fear something like a return of 1846. This is the more remarkable when we consider the long drought and unusual heat of the present season; circumstances thought to be above all others unfavourable to the advance of this inscrutable malady. We thus see, however, how little it is under control by human agency.

Public interests would be served if our correspondents in all parts of the United Kingdom would furnish us with the facts as known to themselves personally, authenticating their information by giving their names and addresses—not necessarily for publication but as a guarantee of their accuracy. Should a sufficient number of such statements reach us we would willingly condense them, so as to give a distinct general view of the extent to which the mischief has already gone.

The appearance of the disease has been from the very beginning so associated with thunderstorms, that many believe it to be brought about by their action. Reference to our columns from the year 1845 to the present time will show how extensively this opinion prevails. Fresh statements of the same kind continue to reach us, from among which we select the following by way of illustration. In a village in Sussex the Potato crop was sound in the beginning of last week. Indications of a coming storm having been given by the barometer, one of our correspondents advised a gardener to dig up his crop immediately. The advice was taken in part; some Potatoes were dug, and some were left. The storm broke over the place; the Potatoes left in the ground are now in a very bad state; those which were housed before the storm are sound.

Are we then to infer that the storm caused the disease? Surely not. In the absence of any better explanation we venture to hazard the following. The Potato disease is intimately connected with the presence of a fungus called *Botrytis*, whose spawn, invisible to the naked eye, exists in abundance in the haulm. This spawn has the property of setting up a putrid fermentation in the juices of the living Potato, and thus of bringing on rottenness. Now all fungi feed greedily upon nitrogen, and may be said to grow with a vigour proportioned to the quantity of this kind of food which they can obtain, whether in the form of ammonia, nitric acid, or any other compound. In dry tranquil weather such substances are naturally supplied in such inconsiderable quantities as to produce no material effect upon the plant. But one of the effects of thunderstorms being to form nitric acid, this substance, diluted in rain-water, is brought by them into contact with the Potato plant in unusually large quantity. In this way the latent fungus is suddenly and copiously supplied with its natural food, its spawn spreads rapidly, and soon shows its presence by the putrid fermentation it brings on. It seems to be in consequence of this sudden development of fungi in the presence of thunderstorms that such plants have been termed meteoric. Such at least seems to be an unobjectionable manner of explaining what is regarded as one of the mysteries of nature.

Should this hypothesis prove correct it will not, however, support the views of those who think that the Potato disease is caused by thunderstorms. Disease undoubtedly exists prior to their appearance; but they may have the power of prodigiously intensifying its action—which indeed seems to be the case.

OUR readers will be glad to learn that Dr. J. E. PLANCHON has just been appointed Professor of Botany to the Faculty of Sciences at Montpellier, where he has for some time held a professorship at the school of Pharmacy, and thus now worthily occupies the chair of his late distinguished predecessor and master, Professor DUNAL. In this position M. PLANCHON is admirably placed for carrying out his botanical studies, and considering his well founded reputation and zeal for the science, the appointment cannot fail to be hailed with satisfaction by all interested in the real progress of botany. M. PLANCHON writes to his friend Dr. HOOKER that he has repeated his experiment of fertilising the ovules of *Papaveracea* by direct application to the ovules of the pollen, introduced for this purpose within the cavity of the ovarium of the unexpanded flower. Dr. HOOKER's experiments were detailed in the *Gardeners' Chronicle* for 1854, p. 629, and were performed upon the *Meconopsis cambrica*. M. PLANCHON has succeeded with *Papaver orientale*.

M. PLANCHON has also been occupied with the vexed question of *Ægilops* and *Triticum*, and has succeeded in repeating M. GODRON's experiment of producing *Ægilops triticoides* by artificially fecundating *Ægilops ovata* with the pollen of Wheat. We may add here that the intermediate *semi-Triticoid Ægilops* that appeared last year amongst a bed of *Ægilops ovata* in the Rev. Professor HENSLOW's garden (see *Gardeners' Chronicle*, p. 582) has survived last winter, and has thrown up several flowering culms of precisely the same character as those of 1856. In all these the anthers are small and the pollen imperfect, and though fully formed and vigorous the culms, leaves, and spikes are much infested with rust, and make no attempt to ripen fruit. It hence appears most probable that Mr. HENSLOW's plant is a hybrid originating in the accidental impregnation of a flower of *Ægilops ovata*, grown in the garden at Hitcham Rectory, by Wheat pollen from the surrounding fields, and possibly owes its perennial character to the fact of its not perfecting its seeds. *J. D. H.*

It is announced that Dr. GRISEBACH has undertaken the preparation of a complete *Flora of the West India Islands*, in aid of which the Treasury has granted 300*l.* A botanist more qualified for the work could hardly have been selected.

We also learn from HOOKER's Journal that Mr. CHAS. WILFORD, lately one of the Botanical assistants in the herbarium of the Royal Botanic Gardens, Kew, has joined the *British Mission to Japan* as collector of plants for that establishment. Let us hope that circumstances will favour his carrying out successfully the object of his mission. In a horticultural point of view Japan is one of the lands of promise.

The *Flora of the Cape of Good Hope* is reported to be taken up in earnest by our very able friend Prof. HARVEY, of Dublin, who long resided in the colony, and whose materials for the purpose are most ample.

THE daily papers have lately mentioned several cases of the LOCUST having appeared in this country. One is said to have flown into a shop in the Strand, London, another has been caught in Lambeth, another on the farm of Achvochie in Strathspey, a third specimen somewhere in Hyde Park, and one of our own correspondents communicates the following intelligence upon the subject:—

"The appearance of the locust in England this

summer having attracted some attention, I beg to inform you that on the evening of Sunday the 23d August last, on the racecourse at Great Yarmouth, my son captured a very fine one in full vigour, and we saw on the denes during the ensuing week several others, but they were all too quick for us; this one was *much larger* than *any I ever saw* in America, where they are common. To my great surprise I was told by several of the inhabitants that for several summers past they are not unfrequently caught there, and are called by the boys 'coach-horses;' that they made their first appearance during a very hot summer 10 or 11 years ago. Can it be possible that they breed in the sandy denes which skirt the sea for several miles?"

As some alarm seems to have been felt lest we should have to add another pest to the enemies that have of late years invaded our crops it is as well to state that the occasional appearance among us of the true oriental locust is by no means a new occurrence. From the Philosophical Transactions we learn that in the year 1693 vast swarms settled about Dolgelly in Wales, and others in Pembrokeshire. EDWARDS mentions "small flocks" near London in 1748, and more recently, about 1809, DONOVAN saw a live specimen. The same writer tells us that in 1797 he received from the then Lady AYLESFORD a true migrating locust taken at Packington in Warwickshire. Mr. CURTIS also states in the new part of the Journal of the Royal Agricultural Society, that this formidable insect occasionally visits this country in autumn in small quantities which are evidently stragglers from some continental swarm. The *Nord* indeed informs us that an immense cloud of these insects passed over Odessa on the 6th of the present month, in a direction from the south-east to the north-west. A portion of them alighted upon the Place de la Cathédrale, but being frightened by the cries of the people who were running to see the curious spectacle, they took to flight, and continued their route.

Our friends may take heart then, for there is no probability of our being seriously invaded by an insect which requires so much higher and more prolonged a summer temperature than these islands know. Should it come it would soon perish under our cold damp autumn nights, and if it left eggs to be hatched in the spring its young successors would speedily disappear from the same cause.

ON THE BEARING OF FRUIT TREES IN 1857.

(*Continued from page* 613.)

OF the other varieties of the present century and end of the last one, the following are those which have set their fruit the most freely in the open ground, and which, after having undergone the various changes and severities of the weather, have retained the most:—

1. *Beurré Diel*, on the Pear stock, grafted 25 years, planted 12 years ago in a light, rather free, alluvial soil, with a compact, moist subsoil, at the depth of 5 feet below the surface, trained as a pyramidal half-standard, 35 feet high. It bears 400 fruits, but has only produced half that quantity for 10 years. This proves that the tap roots have penetrated beyond the bed of alluvial soil. It is a magnificent tree, and its branches cover a space of 15 feet in diameter. This variety succeeds very well on the Quince stock, upon which, after having been budded four or five years, it is very productive. Upon the Pear and Quince stock the fruit is only second-rate; but when planted in a moist soil, rich in humus, against the gable end of a house with a western aspect, it acquires a larger size and better quality. We have observed this variety succeed, even in the present year, in more than a hundred places when worked on the Pear stock, and planted in a light, deep, moist soil; in a strong soil with a gravelly subsoil; or even in calcareous, marly, and clayey ground. The original tree still exists in the garden of Trois Tours, between Brussels and Mechlin, and to all appearance is 70 or 80 years old. Trees 50 years old, or thereabouts, are to be found in most gardens throughout Belgium, but more particularly at Brussels. At the present day this variety is no longer propagated or planted in gardens of recent formation, as it has been eclipsed by others equally vigorous and hardy, but more productive and yielding fruit of better quality.

2. *Urbaniste.*—Three trees, one a half standard on the Pear stock, grafted 15 years; another on the Pear stock, budded seven years; the third a tall standard on the Pear stock, grafted four years. They all bear as many fruits as they formed clusters of flowers at the extremities of the twigs. It is chiefly upon these that this variety bears its fruit, and they must, by pinching, breaking, and pruning, be kept as much as possible towards the interior of the tree. The variety succeeds well on the Pear stock, in a light moist deep soil, and it does not dislike a gravelly subsoil. It requires to be grown as a half standard, and as such attains a large size. After having borne fruit for a few years it has the appearance of a Weeping Willow, as the boughs, even of this variety, are borne down by the weight of the fruit. The seedling tree of the Urbaniste first fruited in the garden of the Count Coloma at Mechlin, in 1786. The original tree exists there now, and has the appearance of being at least 80 years old. The excellent quality of the fruit and the beauty of the tree having been fully appreciated towards the end of the last century, the variety was soon planted in every garden. Near our nursery at St. Gilles there is in an old garden one of the finest specimens of a pendulous Urbaniste that is anywhere to be found. It is at least 50 years old, and its branches extend over a space of 60 feet in circumference, with a stem 40 feet high. It bears every year from 150 to 300 Pears. This variety is perfectly hardy. Its productiveness exclusively depends on the pruning, which consists in removing forked shoots in summer, and shortening the terminal shoot two-thirds of its length in spring. The interior of the tree is not touched. It has been said that this variety is barren, or at best only a poor bearer, but reproach is certainly deserved not by the tree, but by the want of attention and incapacity displayed in its management. The fruit, as large as that of the Flemish Beauty but shorter, has the buttery melting flesh of that Pear, but the vinous juice is of a much more aromatic flavour. It usually ripens in November and continues good during December. Twenty years ago a nurseryman at Paris sent out this variety as new under the name of Beurré Piquery, although it may be observed that the Pomological Congress held at Lyons in September last believed that the two were distinct. In conclusion, as well for the beauty of the tree, when properly managed, as for the excellence of the fruit, the Urbaniste deserves to be propagated and cultivated in gardens.

3. *Conseiller de la Cour.*—This name was intended to designate M. Theodore Van Mons, a barrister in the Court of Appeal at Brussels. Van Mons considered this variety to be the best of those raised by him, and he therefore named it after his son. It is the most vigorous, hardy, and prolific variety that need be desired in our climates. I grow, for experiment and examination, 10 trees upon all kinds of stocks, and in different soils and situations. Everywhere it influences the stock, even the Quince, by its vigour. It requires to be grown as a half standard, or still better, as a tall standard, and as such it bears fruit after four or five years' growth. Here again success depends on the particular mode of pruning, which consists in pinching back the secondary laterals in the end of May or beginning of June to five buds, and breaking, in the end of July, at two buds above the fifth one, to which the shoot was first pinched. In the beginning of March the leading shoots are pruned so as to leave seven or eight buds, and 10 on the stem leader. Every year at the beginning of July all forkings, over-luxuriant shoots, if there are any, in short, all useless shoots are removed. By following these instructions a very productive tall standard with a large pyramidal head will be obtained after four or five years' culture. If, on the contrary, the tree is subjected to inconsiderate mutilation, shoots and burrs producing a crowd of spray will be produced instead of fruit. It was thus that we had for 20 years in our garden a magnificent but barren pyramid, which in 12 of those years might have produced abundant crops of excellent fruit. At present a standard grafted seven years bears at least 60 good Pears. As is known, the fruit of this variety is nearly as large and quite as handsome as that of the Marie Louise. It is equally melting and buttery, and the vinous juice has a higher flavour than that of the Marie Louise, which ripens a month earlier, and is considered to be one of our best modern sorts. The Conseiller de la Cour, which first bore fruit in the experimental gardens of Louvain 30 years ago, is now generally cultivated in the gardens of amateurs, and pretty generally also the trees are unproductive in consequence of a mutilating system of pruning being pursued. Like the Urbaniste it has been accused of barrenness, but erroneously so, as has just been stated. In our opinion, formed from personal experience, there is no kind of Pear that deserves to be planted in gardens so much as this, either on the Quince stock as a low or half standard, or on the Pear stock as a tall standard, if sufficient space can be afforded. It may be planted as a tall standard on the Pear stock in the orchard. If this variety is not sufficiently hardy for the English soil and climate, then the cultivation of the Pear tree must be abandoned.

4. *Comte de Flandres.*—On another occasion we devoted a special article to this variety, which first fruited at a much later period than the preceding. It is already sufficiently tried and known. During five successive years, notwithstanding the severity of the springs, it has freely set an abundance of fine fruit on a handsome pyramid, not more than 12 or 13 years old. This year it has at least 50 Pears on it.

5. *Beurré Clairgeau.*—I can only reiterate what I have already stated respecting the hardiness and fertility of this variety, both on the Pear and on the Quince stock. By this time, I think, there ought to be no doubt as to its qualities in England, even in the minds of the most circumspect amateurs. In my garden I observe more than 100 fine fruits on the original seedling. I remarked that tall standards, grafted two or three years, and trees budded on the Quince stock only three or four years have borne fruit in the nurseries.

6. *Leopold I.*—It is scarcely 11 years since this variety first bore fruit. It was sent out seven years ago, and already we believe that we can establish its principal characters. It engaged our attention by the beauty of the fruit, the elegant form of the tree, and its noble foliage. On the Pear stock it forms a handsome dwarf pyramid, resembling a small Italian Poplar in miniature. In the fifth year from the bud on the Pear stock [illegible] tained three fruits from a small pyramid; last year [illegible] bore five, and this year seven fruits. On a tall standard on the Pear stock, grafted six years, and growing in my town garden, the soil of which is lighter and warmer, I counted a score of fruits. The latter is not readily blown down. As a Quenouille on the Quince stock this entirely distinct variety produces rounder fruit the third year after budding. Against a wall, either on the Quince or Pear stock, the fruit is larger and in unfavourable years of much better quality than in the open ground. We have been enabled to make these observations by side grafting old Pear trees, on the Pear stock, against a wall with a west aspect. Three years ago we stated the result, which has been confirmed in 1856 and 1856. In every respect Leopold I. deserves to be planted in gardens where there is a small amount of space and where it is desirable to have dwarf pyramids and Quenouilles. The usual time of ripening is towards the end of December.

A seventh variety which first bore fruit at an earlier period than the two preceding, merits on account of the beauty of its fruit, which does not yield in that respect to the Beurré Clairgean, and on account of its productiveness and its hardiness special mention. The original tree exists at the village of Tongres, near Ath, Hainault. It belongs to M. Durandeau, a bleacher. For this reason the variety has been called Poire Durandeau, or Poire de Tongres. It is very productive on the Pear stock, either as a dwarf, half, or tall standard, and still more so on the Quince stock as a Quenouille or espalier, without protection. It is a superb fruit of first-rate quality, ripening in November. Against a wall with an east or west aspect the fruit comes nearly as large as the Calebasse Bosc against a wall, Van Mons Leon le Clerc, or Poire Van Marum of Van Mons, preserving at the same time a better shape than the last two varieties. This notice is the result of observations made of late years in my own garden, and in those of amateurs who for 10 years have cultivated it in every form. In this as in previous years the Poire de Tongres has freely set its fruit in my own garden and those of such of my friends as I have visited. It is in a soil rich with humus or clay marl, with a gravelly subsoil, that the greatest number of fruits and of the finest flavour were produced on the Pear stock. *J. De Jonghe, Brussels.*

(*To be continued.*)

PREPARATION OF GROUND FOR PLANTING.

By J. DARLING, Forester, Ochterlony.

IN making a few remarks on the preparation of ground for planting, I shall state them in the following order:—

First, Clearing the Ground.
Second, Fencing.
Third, Making Roads.
Fourth, Drainage.
Fifth, Making Pits.

1. *Clearing the Ground.*—On the greater part of land which has not been used for agricultural purposes there will be much matter detrimental to the growth of young trees if left untouched. Heath, Broom, Furze, Brambles, and other coarse ligneous plants must all be removed, that there may be nothing to impede the full development of the trees. We would prefer burning as the surest and most expeditious mode of checking the growth of Heath, where such an operation can be performed with safety, and where danger is apprehended, the flame can be stopped by turning over a line of sods across the direction of the flame. Even burning will not eradicate Heath, but will so check its growth that by the time it recovers, the trees will be beyond all danger of injury from it. Were it not that where Heath is rank, the young trees might be choked by it, we do not consider it otherwise detrimental. Broom, if old, can easily be destroyed by cutting over above ground; but if young, the stems will be covered with eyes, and such cutting will only induce a more rapid growth—therefore, it will be necessary to take such up by the roots. Whins are in this quarter more detrimental to the growth of plantations than other underwood plants, as well as more difficult to eradicate, and where they grow close, simply cutting over above ground is altogether lost labour. The greatest care should therefore be taken to remove them by the roots, and any necessary expense incurred by this operation will be amply repaid in the smaller amount of labour required in the future management of the plantation. Raspberries and Brambles will sometimes, especially on gravelly soils, be found a great nuisance. It is next to impossible to eradicate these; perhaps the best plan is to cut the canes successively till the young trees are beyond reach of injury from them. All other spontaneous growths, such as Birch, Hazel, &c., which in almost all cases, will be entirely unworthy of a place in the new plantation, should be cleaned off, so that not only the growth of the young trees may not be impeded, but also that subsequent operations on the ground may have as little interruption as possible. In certain localities the clearings may be of value as firewood, and may somewhat lessen the expense of preparation. If such is not the case, let them be collected into heaps and burned, and the ashes blended with the soil.

2. *Fencing.*—We consider fencing the next indispensable operation in the preparation of ground for planting. It ought never to be considered a point of minor importance, but ought to be attended to immediately after the clearing of the ground, lest the future operations of making roads, drainage, and pitting, might suffer damage from stray cattle or other causes. In

selecting a fence for a plantation the first object to be aimed at is durability; next, the least possible ultimate expense. In some cases a necessity for ornament may guide the selection, but in all other cases, and where the requisite material can be obtained, we would prefer a stone dike, both for durability and ultimate cheapness. In many situations, however, it may be difficult, or altogether impossible, to obtain stones; in such cases a wire railing with Larch posts offers a good substitute, and if economical considerations extend beyond the present, a little extra labour and expense in charring the ends of the posts, or dipping them into some solution to resist the decomposition which inevitably ensues from contact with the soil, and coating the part exposed to the atmosphere with boiling coal tar, or other solution suitable for the purpose, will eventually remunerate, by increasing the durability of the paling; but where cheapness guides the choice, a dike and ditch, with a hedge of Whins on the top—the materials of which the dike is built being taken from the outside—will form a fence of considerable efficiency, although this is at best but a clumsy and not very certain protection to the plantation, especially for the first three or four years, when the trees are young. In such places as require an ornamental fence, a hedge is no doubt the most suitable—Beech, Hornbeam, Holly, and Thorn, are the more common materials, but the two former do not offer such resistance to animals as may in many instances be desirable—the two latter will in time make an excellent fence, especially Thorn, which offers greater resistance to animals than Holly, and is also much cheaper. Holly, being an evergreen, may be preferred in some instances; still, as a general rule, we would prefer Thorn. Hedges, however, require to be protected a number of years by a paling. Care should be taken to select such material, and give it such treatment, as will make the paling last till the hedge is a sufficient fence. Hedges also entail considerable expense, not in the original laying down merely, for continued yearly attention must be paid to them; but they amply repay it all by the charm they give to the landscape.

3. *Making Roads.*—In a highly civilised and commercial country such as this, time is of great value. It ought, therefore, to be the object of the planter to provide the greatest possible facilities for the removal of felled timber, as such facilities will greatly enhance its value. In former times this was never thought of till the trees were of large growth, when gaps were made in the fences, if any fences existed, and avenues cut through the wood. This must often have been at hap-hazard, and the soil was in all cases unfit for bearing the conveyance of heavy burdens, added to which the stumps and roots of the cut trees combined to form a road as execrable as any in the back-woods of Canada; nor are roads needful for the removal of felled timber only, but for the protection of the plantation when, in a growing state, they are highly advantageous, and also for preventing the necessity of removing prunings or thinnings over the fences. All these considerations enforce the necessity of forming roads at the commencement of operations for planting. We are not prepared to specify the particular distances at which they should be made—this must be regulated by the extent, plan, and situation of the plantation, keeping always in view the economy of labour in conveying timber of large growth to the roads, taking advantage also of level tracts or gentle declivities leading to the outside of the plantation, and avoiding if possible steep ascents,—thus lessening as far as possible the amount of animal labour required. In forming the roads, particular attention must be paid to drainage, especially where the soil is not hard. In most cases a drain on each side, with the material taken from them laid over the centre of the road, so as to give it a convex form and throw the surface water into the ditches, will be sufficient. Where the inclination of the ground renders it necessary to provide cross drains, they should be built with stone, and have very strong stone covers. We would not be inclined to lay down a road less than seven yards in width, so that loaded carts might pass with ease without injuring the edges of the ditches, and also to give room for loading and turning carts. A road made in this manner when a plantation is laid down will, by the time timber is fit for cutting, be in a state to bear any ordinary load.

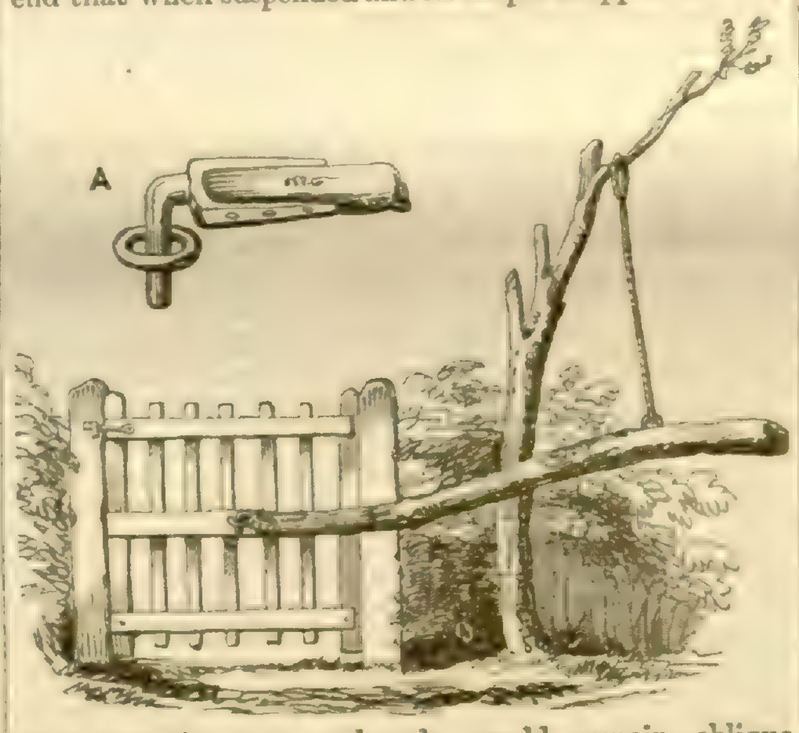
4. *Drainage.*—This, except on very dry soil, is all but indispensable. In proceeding with it it is necessary to examine the inclination of the ground that the main drains may have the advantage of all the fall possible. The distance of the main drains from each other must be regulated by the nature of the ground. If level, or nearly so, the small drains cannot be expected to be effective farther than from 150 to 200 yards; but where considerable declivities exist they will act farther, and the mains should be carried along the natural hollows. As a general rule, small drains should not be less than two feet deep, and, if the fall permit, an additional six inches would make them much more effective. If the ground is very wet, we would not be inclined to place them further apart than from 24 to 30 feet. Where the ground is not so wet, the distance may be increased by six or nine feet. To keep the small drains clear, the mains require to be from four to six inches deeper, and where a natural fall does not exist to carry off the water from the mains, no labour must be spared to secure it. It sometimes happens that very steep ground requires to be drained—in such cases, instead of leading the drains directly down the declivity, we would carry them obliquely across, taking care that sufficient fall is secured to carry off the water speedily. The propriety of this mode will be apparent when we consider that the particles of water in the soil of a deep declivity will have a greater tendency to settle down the declivity than sideways into a drain running straight to the bottom. A drain carried obliquely across the face of the declivity catches all the moisture as it percolates downwards, and if a quick fall is secured the water will have no inducement to penetrate into the soil below the drain, but will run off and secure a perfect drainage; whereas drains cut straight down the declivity would do little more than carry off the rain water which might fall into them.

The advantages of judicious draining must be apparent to even the most casual observer. Stagnant water about the roots of the young trees prevents that development of the roots necessary for their healthy growth—hence, on undrained ground, young trees have a stunted unhealthy appearance, make little progress, and in many cases die out altogether. It may also frequently be noticed, on ground where the drains are too far separate, or too shallow, that the trees by the sides of the drains are thriving and growing rapidly, while in the centre between the drains they have the stunted appearance peculiar to undrained ground.

5. *Making Pits.*—This operation is necessary for all hardwood trees. In ordinary cases slit planting is sufficient for trees of the Fir tribe, but hardwood trees will not succeed so well unless better pulverised soil is provided than can be got by slit planting. For trees of the size ordinarily got from the nursery, pits two feet in width and depth regulated by the nature of soil will be sufficient. The pits should be dug some months previous to the time of planting, that the action of the weather may pulverise the soil, and make it more congenial to the tender roots of the young plants. Ordinary sized hardwood plants, on gravelly soil especially, with a southern exposure, will require pits of much larger dimensions. In such situations pits of the ordinary size will retain too little moisture to sustain the young trees, whereas if a greater area and depth of the soil is loosened, and the stones removed, the original channels through which the water percolated are disturbed, and far greater power given to retain moisture. In such situations Firs, especially if intended for standards, would require to be treated similarly, and even in ordinary soil, if Firs are of larger size than common, they will require pits prepared for them. *Abridged from Transactions of the Scottish Arboricultural Society.*

Home Correspondence.

Gate Fastener.—In a field leading to the Tors, at this place, is a gate which opens into the grounds of Mr. Shepperson's pretty Tor Cottage. All sorts of contrivances for keeping it shut having been tried in vain, the following simple and effectual plan was hit upon. An iron loop was driven into the middle cross rail of the gate; a rope was cast over the branch of a neighbouring tree. A rough pole was then fitted at one end with a staple long enough to work in the iron loop of the gate without jumping out when jarred. To this pole the rope was fixed at such a distance from the other end that when suspended and its staple dropped into the



iron loop the rope and pole would remain oblique when the gate was shut. The accompanying sketch explains this. When the gate was opened the pole was at the same time pushed back, but as soon as a person had passed through, the weight of the pole acting upon the middle of the gate closed it again, and as the pole swung freely on the rope this could never fail to happen. The fig. A shows how the staple and iron loop fitted together. *Jael, Ilfracombe.*

Hibiscus syriacus.—A bold man would he be, and triply clad in brass ought he to be, who ventures to break a lance in horticultural matters with Dr. Lindley. I had thought of doing so, but as the better part of valour is esteemed discretion, I will content me with mentioning my inclination. Spiræa callosa is certainly a very pretty shrub, and flowering as it does at a time when our shrubberies have lost much of their attraction, it is a valuable acquisition, but when it is said to be the most valuable and showy flowering shrub of the month, I looked at my favourite Hibiscus syriacus and said—"No." True it was, the season was an early one, but there was the Althæa frutex radiant in its own beauty, and though not fully in bloom, yet enough flowers were expanded to throw any of the beautiful family of Spiræa, callosa not excepted, into the shade. But now another month has passed, and a glorious floral month it has been, this August but even now just passed, and day by day my beautiful Althæa frutex became more and more beautiful, and even now, the 7th of September, although somewhat dimmed of their pristine splendour, are still most attractive. What think you, readers, of plants that have produced from 500 to 1000 blossoms measuring from 2½ to 4 inches in diameter? Can any Spiræa vie with these? Then again there is no diversity—it is Spiræa callosa for ever, but a group of seedling Hibiscus well selected is as varied as it is distinguished. Remarkable indeed are their variations in colour, ranging from pure white to pink, red, crimson, and purple, and these again diversified with deep blotches, or with long clearly-defined lines of a deeper tint commencing below and terminating half up each petal, where we lose it in the soft colouring of creamy-white, the shaded pink, the glowing red and crimson, or the deepened purple, thus giving two series of the same colours—the one with lines and blotches and the other with deep and well defined spots only. But we do not end here, for what we have spoken of are all single, and suit the purer taste of the botanist, but, as well, the florist may find interest, for there are several variations possessing double flowers, and these latter blossoms last for a longer time than their single derivatives—a matter of no small import when flowers in the shrubbery have become scarce, and when for colour we have to press into our service the coral berries of the Mountain Ash, the red Elder, &c., not to speak of the Thorns that again brighten our shrubberies with their berries, as in May and June they did with their blossoms. Apart from all banter, in truth and in verity I have always loved the Hibiscus syriacus, and have in my time raised thousands of seedlings from seeds collected in South Carolina, as well as those collected in the Holy Land and at home; and curious it is to see that from each locality there appears to be produced two strains originating from leaves that in one instance are obtuse, producing generally purple and crimson varieties, and in the other elongated, which usually produce the pink, the Painted Lady, and the like tints of colour. In this particular the varieties are as well marked as the two kinds of Thorns in our Quickset hedges. If I can but succeed in enlisting those who read this into my service, and be the means of introducing more liberally the variations of the Hibiscus into plantations, I am sure I shall also increase greatly the enjoyment of the garden in the month of July occasionally, but in most years of August and September, and then there will be also ample room for the pretty Spiræa in its season. *William Masters, Exotic Nursery, Canterbury.*

[Nothing can be more true. But surely the Althæa frutex cannot be called a July flower.]

White Forty-fold Potato.—Allow me to assure you that this is a Forty-fold, though I admit that the tuber is very similar to that of a Regent, yet the character of the plant is quite different from that variety, and as a proof of its being early I found several of the tubers measuring 2 inches in diameter on the 30th of June (in the open field), which I think would be impossible in the case of Regents. *B. Fielder, Alresford, Hants.*

Manuring Forest Trees.—Several articles have appeared in your pages relative to this subject. Can any of your contributors recommend a good manure? Some years since I made a plantation in a clay soil, having first double trenched. Nothing thrives upon the land. I purpose digging it again single spit, but as it is not of great extent, I would dig in any manure well recommended. *An Enquirer.*

Large Figs.—There are now growing at Greys Court, near Henley, in Oxfordshire, two Fig trees, from which several dozen have already been gathered, the length 4½ inches, circumference 8¾ inches, and the weight 7½ ounces. There are still many left on the trees. *Greys Court, Sep. 9.*

Aldworth Yew (see p. 613).—I see a neighbour has sent you a notice of this splendid Yew. He should, though a "Friend," have added that the churchwarden, a farmer, has unsolicited thoroughly restored the stone seat round it. *Somerset.*

Diseased Wellingtonia.—In 1855 I purchased a plant, in a pot, of Wellingtonia gigantea. In the autumn I transferred it from the pot to a basket, about 18 inches diameter, so loosely woven that the roots could extend themselves freely, and I plunged it with other plants into a bed of prepared soil in a cool frame, the lights of which were removed in the day time, except in severe weather during the following winter. The plant remained in this situation till the autumn of 1856, having grown 16 inches in height, when I planted it out in a part of my pleasure ground perfectly well sheltered on these sides, but open to the south. It was well drained and the soil prepared, the plant was also covered with a piece of bunting in the winter. In the course of the present summer it has grown 12 inches, and now measures 36 inches in height; it is well formed and making vigorous shoots. In the same situation are the Sequoia gigantea, having made 30 feet in seven years; Cryptomeria japonica, very fine; Deodara, fine; Fitzroya, patagonica, Picea amabilis, Picea grandis, Thujopsis borealis, Thuja glauca, &c., all growing well: but in the course of the last month or six weeks I have observed the Wellingtonia to be attacked by some disease, which I am afraid will prove fatal to it; I enclose for inspection many dead and dying branches and shoots which I have cut off the plant. I send them to you as showing every stage of what I consider to be disease, because I can detect no traces of an insect. I shall feel much obliged by your opinion as to what is best to be done. I believe I noticed some considerable time since a communication to you similar to this; and I think the public, or at least the growers of costly new plants,

would be advantaged by learning your opinion whether the Wellingtonia is a plant really suited to our climate so far as experience goes. It is remarkable that in its native place there are no young trees. I must not omit to add that the leading shoot of my plant shows symptoms of the disease. *A. T. P.* [The disease seems to be constitutional and not to be produced by any insect. In our own experience the dead twigs are unimportant; and their loss is soon repaired. The same kind of affection is common with Cryptomeria, and even occurs in Sequoia sempervirens. We believe Wellingtonia to be perfectly hardy.]

Rose stakes.—I shall be much obliged if you will inform me in the columns of your Paper whether iron stakes are injurious to standard Roses. Mine have been painted, and in order to keep the heads steady they are made high enough to go up into the branches, and it has been suggested to me that this is injurious to the shoots. Being anxious to do what is best for my Roses I shall be very much obliged for your advice. *H. S. A. Sept.* 7, 1857. [We have ourselves used iron stakes for Roses through many years, and have never discovered that any injury follows their employment; nor indeed is it likely. We however place the stakes in the form of a triangle, secured at the top by an iron collar. If the iron stakes are upright and single, they are very likely to work a great hole in the ground at the root of the Rose tree, and that is undoubtedly injurious.]

Melianthus.—I observe a notice of Melianthus major being hardy in Devonshire, I do not consider this very remarkable, as there has been a fine plant as long as I can remember in the garden at St John's, Isle of Wight, where my father is gardener. There also is trained to his cottage a fine specimen of Edwardsia grandiflora, about 10 feet by 10 feet, which is annually covered with its curious yellow flowers. *J. W. L.*

Travelling for Orders.—I am sorry to see in a late Number a very intemperate letter in reference to "men travelling for orders from various nurseries in different parts of the country." That there may be some truth in the statements alluded to and ground for censure I am not prepared to dispute, but that the letter as a whole is a fair representation of the "men" as a body in dress, behaviour, character, or manner of doing business, I most emphatically deny. Is it true that they dress in a livery like the writer's footman, who has evidently stood for his portrait when the sentence was penned? Is is true that the men who represent the various nurseries do not understand common politeness, that they will take no denial, and before you can get rid of their importunity they must be ordered off the premises? Is it true that their numbers are so great that they come "day by day," and that they are "a set of men whose characters are so notorious that they cannot be tolerated?" Is it true that the various nurseries in this country send out "a vast number of plates of highly coloured nondescripts" wilfully to deceive and impose upon the public? But how is it these rude bad fellows gain admittance? One might expect from the grievous complaint of the writer that they insinuated themselves into the presence of ladies and gentlemen (for he says he speaks for many others) before they had opportunity of knowing who and what they were. They do not according to the writer's own admission come stealthily; they ring the bell; they present a card; they solicit an interview; so far I should think all is right and in order. Does the card deceive? Generally the card bears the name not only of the person presenting it, but of the firm he represents; but should it not convey the name of the firm, could anything be easier than for the servant to inquire the nature of his business, and having been informed, what necessity then to see him? But to a servant of ordinary capacity even to inquire I should suppose would be unnecessary. Are the men not coming day by day? Are there not to be seen the "black dress," the "flashy gilt chain," the "hair flattened down with grease," the "portfolio under the arm," &c.? Why not tell the servants to order such fine gentlemen away from the place? I think the remedy is very simple and easy. As you have stated, "Why see them?" It is indeed to be regretted that any man should so far forget himself as to commit such a gross offence as the one referred to by your correspondent, and I am right glad to know that the culprit was so effectually dealt with that he will be loth to repeat it elsewhere. It is alike indefensible for any person to send a hamper of plants without having received an order. Such proceedings, I know, will be reprobated by the nurserymen of England as a body. But what can be said of a man moving in genteel society who goes into his study to write a gross libel, imputing to a class of upright and honourable men the offences of a few? *One who Travels for Orders.*

Crystal Palace Scarlet Dahlia.—In your Paper of August 29th will be found some remarks regarding the origin of this flower, and also a just complaint against the questionable practice of renaming an old variety in order to sell it at a high price; the practice is becoming general, and therefore assumes a somewhat serious aspect. The latest instance is the new dwarf white Dahlia advertised in your Journal last spring as a white Zelinda (see *Gardeners' Chronicle*, May 16th). Now, the merits of this variety may be all that is there set forth, and it has doubtless been sold by the hundred, its character being endorsed by so strong a guarantee as Trentham and Mr. Fleming; not one word has however been offered as to its origin, but it may now be seen in many gardens, and is Heale's Empress of the Whites, sent out in 1845. *J. E.*

Societies.

CRYSTAL PALACE HORTICULTURAL EXHIBITION.—The second great display of flowers, fruits, and vegetables, held under the auspices of this company, took place on Wednesday, the 9th inst., and lasted till yesterday. On Wednesday the attendance was but limited, a circumstance doubtless attributable to the heavy showers which fell during the morning. On Thursday the weather was more favourable, and visitors more numerous. As regards the exhibition itself it might on the whole be considered highly successful for September. Stove and greenhouse plants were plentiful, and in unusually good condition for this season of the year. Variegated and fine foliaged plants were present in tolerable abundance. Orchids, though scarce, were good. Of Ferns and Lycopods there was a great display. Dahlias, Asters, and other cut flowers filled one side of a long stage, and the amount of Fuchsias, Japan Lilies, Balsams, and Cockscombs was somewhat above the average. Fruit was unusually abundant. A double stage many yards in length and three shelves deep was wholly filled with the finer kinds, such as Pine Apples, Grapes, Peaches, and Nectarines, Melons, and Miscellaneous collections, and another flat table of equal length was crowded with Apples and Pears, Cherries, Plums, and Figs. Nor could table room be found to accommodate all the fruit that was furnished on this occasion; at the last moment a third bench had to be erected for Peaches and Nectarines. As this part of the exhibition was considerably the most attractive, we will therefore begin with it.

Of large collections of Fruit there were no fewer than five. Of these the best came from Mr. Page, gr. to Wm. Leaf, Esq.; it consisted of a good Queen Pine Apple, Black Hamburgh Grapes not very well coloured, Muscats, Melons, Cherries, Figs, and Plums, the last beautiful specimens of Magnum Bonum. Another collection came from Mr. Dawson, gr. to Lady Cooper. It contained Peaches and Nectarines, very fine Figs, Melons, a good Providence Pine Apple, Grapes, Cherries, Apples, Pears, and Red Currants. Mr. Peed, of Norwood, sent two Queen Pine Apples, Grapes, Jefferson Plums, Cherries, very fine Figs, a Hybrid Melon, Williams's Bon Chrétien Pear, and Devonshire Quarrenden Apple. Mr. Ewing, gr. to O. F. Meyrick, Esq., of Bodorgan, Anglesea, had Melons, Grapes very much rubbed from travelling, Figs, Red Warrington Gooseberries, Cherries, Peaches, Nectarines, and Plums.

Of collections of 8 Dishes the best was contributed by Mr. Squires, who sent Golden Perfection Melon, Black Hamburgh and Muscat Grapes, a Pine Apple, and a dish of Plums. Mr. Taylor, gr. to J. Coster, Esq., produced good specimens of Peaches and Pitmaston Nectarine, Cherries, Jefferson Plum, Black Hamburgh and Muscat Grapes, and a Melon. Mr. Gould, of Redditch, exhibited Windsor Pears, Gould's Hybrid, and Enville Hall Melons, Late Admirable Peaches, Tottenham Park Muscat, and Black Hamburgh Grapes, Washington Plums. Of these the Black Grapes was a fine bunch, but scarcely sufficiently well coloured. Mr. Kemp had Figs, very good Peaches, Black Hamburgh Grapes and Magnum Bonum Plums. Mr. Rodgers furnished White Currants, Barrington Peaches, and Coe's Golden Drop Plum. Mr. Tegg had Cherries, Figs, and Plums, the latter very good. In Mr. Neighbour's collection, to which an extra prize was awarded, we remarked fine specimens of Magnum Bonum Plums and Williams's Bon Chrétien Pear.

Pine Apples were scarce. The best Queen came from Mr. Nickson, of Sheen House, Mortlake. Mr. Dawson, Mr. Rattray, and Mr. Dods also showed good specimens of this variety. We noticed a very fine Enville, weighing 8 lbs. 8 oz., and a noble Black Prince from Crewe Hall; but beyond these there was nothing remarkable.

Grapes were very plentiful; but some of the exhibitions were very inferior in quality. By far the best came from Mr. Fleming, gr. to the Duke of Sutherland at Trentham, and Mr. Hill, gr. to R. Sneyde, Esq., Keele Hall, Staffordshire. The former sent Cannon Hall Muscat, Black Hamburgh, and Gromier du Cantal, the last very fine bunches of their kind. Mr. Hill produced Muscat, Black Hamburgh, and Black Prince. Mr. Allborough sent very good bunches of Muscadine, Black Hamburgh, and Muscats. Mr. Busby had Black Hamburgh, Muscat, and Sweetwater. Mr. Ewing showed in this class, but his bunches were very much rubbed. Mr. Miller furnished Jostling's St. Alban's, scarcely ripe; Black Hamburgh, and Black Prince. Mr. Taylor sent Muscat, Black Hamburgh, and Black Prince. Mr. Little, of Slough, contributed good bunches of Black Hamburgh and Muscat. Mr. Allport sent capital Muscats and Black Hamburgh, The same grower also had a good bunch of West's St. Peter's. Mr. Boreham, of Ipswich, had Black Prince, long bunches and well coloured, and Black Hamburgh, and the same varieties were shown by Mr. Hill and Mr. Rodgers, of Letton, Norfolk. Mr. Bousie sent very good Sweetwater and Muscat. Mr. Allis and Mr. Wortley also showed Grapes, the former very fine Muscats. From Mr. Snow came very fine Muscats; and Mr. Fleming sent Cannon Hall Muscat and the Verdelho Grape, the latter a white oval dark seeded kind. Mr. Harrison, of Oatlands, had the best basket of 12 lbs. The sort was Muscat. Mr. Kay, of Finchley, sent 12 lbs. of very good Black Hamburgh. The largest bunch was one weighing 5 lbs., from Mr. Vare, of Brentwood. This was, however, a double bunch. Mr. Neighbour sent a fine bunch of Muscat, and Mr. Watson Black Barbarossa. Mr. Busby had samples of the Stockwood Golden Hamburgh, which fully maintained the excellent character this sort has always possessed.

Peaches and Nectarines were very plentiful. Mr. Fleming and Mr. Gould had unusually fine specimens, especially of Late Admirable and Red Roman. Mr. Little, of Slough, sent Late Admirable and Claremont Nectarines. Mr. Dawson sent Violette Hâtive Peaches and Nectarines. Mr. Whiting furnished very good Noblesse Peaches and Elruge and Violette Hâtive Nectarines. Some good Peaches came from Mr. Bailey, of Nuneham. Mr. Shrimpton, gr. to A. J. Doxat, Esq., sent Royal George Peaches and Violette Hâtive Nectarines. Some good Peaches and Nectarines were also shown by Mr. Rose, gr. to the Right Hon. L. Sulivan, of Broome House, Fulham.

Figs were not numerous, but what were shown were very good. The best came from Mr. James Lane; the next in point of merit from Mr. D. Hutchison. The sorts shown were mostly the Brunswick.

Cherries were chiefly confined to the Morello variety, of which fine dishes were shown by Messrs. Dawson, Bailey, and Snow.

Plums were numerous, large, and fine. Mr. Rose contributed magnificent specimens of Magnum Bonum, Goliath, and Washington; and Mr. Frost, gr. to E. L. Betts, Esq., had Green Gage, Jefferson, and Goliath. Mr. Snow sent fine fruit of Kirke's, Coe's Golden Drop, and some French kind. Among other sorts were fine specimens of Sharp's Emperor, and Victoria.

Among Strawberries was a dish of Sir Harry from Mr. Underhill, still in fair condition.

Among dessert Apples were some first-rate examples from Mr. Mortimer, of Downton, Red Quarrenden, Ribston, Herefordshire Pearmain, Kerry Pippin; Mr. Newton had Downton, Margil, Nonpareil, Golden Russet, Ribston, and Quarrenden. Of Kitchen Apples the best came from Messrs. Frost and Newton. Among the sorts were Dumelow's Seedling, Kentish Fillbasket, Hollandbury, Hall Door, Tower of Glammis, Dutch Codlin, Belle Fleur Brabant, and Emperor Alexander.

Pears were shown in excellent condition by Messrs. Harrison, Mitchell, Whiting, and others. Among the best sorts were Marie Louise, Gansel's Bergamot, Williams's Bon Chrétien, Duchesse d'Angoulême, Summer Bergamot, Brown Beurré, Louise Bonne of Jersey, and Beurré Bosc. Some of these were from pyramids. Some of the largest Pears exhibited were Grosse Calebasse, from Mr. Frost, of Maidstone.

Among Miscellaneous Fruit were Pears and other fruits in pots bearing heavy crops, from Messrs. Lane, of Berkhampstead; the Singleton Fig loaded with fruit from Messrs. Veitch; some Pomegranates from Bedfordshire; beautiful specimens of Mangoes from Mr. Scott, gr. to Sir George Staunton, Bart.; and a dish of Guavas from some person unknown.

As regards plants in flower, considerably the best collection of six came from Mr. Hamp, gr. to J. Thorn, Esq., of South Lambeth, a fact worthy of remark, inasmuch as it shows what may be effected by means of skill and perseverance with stove and greenhouse plants even within three miles of the General Post Office of sooty London. Among the sorts were Dipladenia crassinoda, Ixora javanica, Allamanda grandiflora in good condition, Erica Ewerana, Cyrtoceras reflexum, and Ixora coccinea. Mr. Kaile, gr. to Lord Lovelace, who was second, sent Dipladenia crassinoda, the new Meyenia erecta with deep purple Achimenes-like flowers having a white tube and throat, Clerodendron Kæmpferi, Allamandas, Vincas, and Franciscea acuminata. Mr. Cox's bush again showed his fine Statice Holfordi still in good condition. Mr. Green had some very fine Allamandas, a Meyenia, and a finely flowered Balsam.

In collections of 12 Stove and Greenhouse Plants Mr. Peed contributed the handsome Pleroma elegans, Allamanda grandiflora and others, Dipladenias, Vincas, Heaths, Rondeletias, and Cyrtoceras reflexum. Mr. Taylor produced Pleroma elegans, a plant we are glad to see beginning to claim some attention; Allamanda grandiflora, Begonia Prestoniensis, and an Ixora. Messrs. Baxendine & Epps also showed in this class. Among Mr. Baxendine's plants were Hoyas, Gardenia florida, Æschynanthus, Dipladenias, Allamandas, and Clerodendron Bungei, the last with fine heads of pink flowers.

Variegated plants in the Amateurs' Class were shown in fine condition by Mr. Young, of Denmark Hill, Mr. Morris, gr. to Coles Child, Esq., Mr. Oubridge, Rhodes, and others. Among the sorts were Tillandsia zebrina, Hoya carnosa variegata, Cissus discolor, Dioscorea discolor (a handsome species), Dieffenbachia maculata, Crotons, and Variegated Hydrangeas, some of the last exceedingly handsome. Among Nurserymen's collections, which were exhibited by Messrs. Jackson, Parker & Williams, and Lee, were Sansevieras, Marantas, Yuccas, Caladiums, Aspidistrum luridum variegatum, Coleus Blumei and pectinatus, Pavettas, Tradescantias, Begonia picta, Vriesia speciosa, and Ficus leuconeura.

Of plants remarkable for fine foliage, the best collection came from Messrs. Parker & Williams, who sent among other things Palms of different kinds, Dracænas, Norfolk Island Pines, Philodendron pertusum, Pteris Bonplandi, and Rhopalas. Messrs. Jackson had Berberis trifurca, Palms, Cordyline australis, Rhododendron Falconeri, and a Cycas revoluta. Among other fine-leaved plants was Solanum purpureum shown by Mr. Cutbush. Messrs. Rollisson had a beautiful plant of Begonia Rex under a bell-glass, with large leaves beautifully ornamented with broad silvery markings.

Ferns and Lycopods, as we have already stated, were

usually plentiful; we did not however remark among them anything new, or that has not already been reported as at previous exhibitions. Messrs. Parker & Williams and Mr. Fletcher had the best exotic kinds, and Mr. Sim the best British varieties. Of the best of these some account will be found in another column of our present Number.

Pitcher plants were also shown in good condition by Messrs. Parker & Williams. These are grown in pots plunged in tan over a hollow chamber through which warm air is permitted to have free circulation, entering as it does through a grating in the front wall and escaping at top through pipes placed there for the purpose. Thus situated the plants are found to grow most vigorously and to form pitchers in abundance.

Orchids were not numerous. They came from Messrs. Woolley, Keele, Carson, Jackson, and Gedney. Among them were Vanda suavis, a most beautiful Miltonia spectabilis from Mr. Keele, Eria leucostachya, Miltonia Moreliana with large deep purple flowers, and one or two Oncidiums.

Among Cape Heaths we did not observe anything requiring special remark.

Achimenes were furnished in tolerable abundance, but with the exception of the hybrid sort called Meteor there was nothing new among them. This is truly a glowing variety, with flowers nearly three times as large as those of the old coccinea and equally brilliant.

Fuchsias were contributed from Croydon, Roehampton, Stanford Hill, and Brighton. Few of them, however, were striking specimens of good cultivation, and the varieties were for the most part well known. In short, some of the plants in the Amateur and Cottagers' department were equally well grown.

Scarlet Pelargoniums were exhibited by Mrs. Conway and others, and being massed together in great quantities they made a brilliant display. We have little to say in praise of the continuous blooming kinds; but some of the scented nosegay sorts were much admired for their finely divided and beautiful foliage. Among them were Rose-scented, Prince of Orange, Helen, Crow's-foot, Stag's-horn, and Lady Plymouth. These came from Mr. Gaines, of Battersea.

Balsams were present in large numbers, and very showy and beautiful they were. They consisted chiefly of what are called Camellia-flowered kinds, such as have been so often exhibited this year by Messrs. Smith, of Dulwich. Among them are all shades of colour, and they are very large and double.

Japan Lilies from Mr. Cutbush and others were greatly admired by all who saw them. Though perfectly hardy when well grown as these were they form striking objects in pots, and for the decoration of the conservatory or cool greenhouse at this season nothing could possibly be more suitable. Rubrum or speciosum is the most showy; but for the sake of variety punctatum and the common white kind should not be forgotten.

Cut flowers consisted of Roses, Hollyhocks, Asters, Verbenas, and Dahlias. The latter, owing to the rains we have lately experienced, were shown in very fine condition, and in great numbers, the principal growers from all parts of the kingdom being present. There were 10 collections, each consisting of 50 blooms. The first prize was awarded to Mr. Turner, of Slough, whose blooms were beautifully formed, and admirably matched as regards size, thereby giving a completeness to his stand, which it would not otherwise have possessed. Mr. Keynes, of Salisbury, was 2d with fine large flowers but little inferior to those just named; 3d, Mr. Barnes, Stowmarket; 4th equal to Mr. J. Sealey and Mr. Kimberly, Coventry. In the class of 24 varieties for amateurs only, the competition was equally well contested. The three first stands, which were all from the neighbourhood of Norwich, deserved all that could be said, each bloom being a specimen in itself. The 1st prize was awarded to Geo. Holmes, Esq., Brook Lodge, near Norwich; 2d, the Rev. C. Fellows, Shottisham, Rectory, near Norwich; 3d, Mr. Grant, gr. to R. Fellows, Esq., Shottisham Park, near Norwich; 4th, Mr. J. C. Perry, Castle Bromwich, Birmingham, and several extra prizes were awarded. In Fancy varieties equal first prizes were awarded to Mr. C. Turner and Mr. J. Keynes; 2d, Mr. Barnes; 3d, Mr. Legg. The Rev. C. Fellows, Mr. Perry, and George Barrett, Esq., exhibited fine stands in this class. In these exhibitions the following blooms were very perfect, viz.:—Lady Popham, Cherub, Midnight, Touchstone, Satirist, Bessie, Colonel Windham, Dr. Gully, Empress, Grand Sultan, Lord Palmerston, Lollipop, Lady Franklin, Lilac King, Lord Bath, Miss Caroline, Miss Spears, Miss Burdett Coutts, Pandora, Perfection, Pre-eminent, Rachel Rawlings, Robert Bruce, Sir C. Napier, Sir J. Franklin, Sir R. Whittington, Yellow Beauty, Roland, Duchess of Beaufort, Harbinger, Admiral Dundas, Beauty of Slough, Chance, Constancy, Deutsche Zierde, Eclipse, Omar Pacha, Mr. Seldon, Princess, Royal Scarlet, Salvator Rosa, and Sir F. Bathurst. The following Fancies were also good:—Cleopatra, Admiration, Baron Alderson, Iphigénie, Butterfly, Charles Perry, Conqueror, Duchess of Kent, Enchantress, Fancy King, Florence Nightingale. To Seedlings no awards were apparently made; nevertheless there was a fine display of new varieties. King (Rawlings) is new in colour—fawn, shaded, finest shape. Major Fellows (Grant)—Lilac, a large full flower, of fine form and great depth. Mrs. Church—Yellow, tinged red, with close high centre and fine form. Venus (Rawlings)—Blush, small, but fine form. Village Gem (Green)—White, tipped with crimson, delicate and excellent shape. Canary (Fellows)—Pale yellow, also perfect form. General Havelock (Fellows)—Scarlet. Miss Watts (Turner)—White. Alice Downie (Keynes); Miss Pressly (Turner)—Fine light white. Jupiter (Rawlings)—Fine dark fancy. Cynthia, Mr. Critchet, Tiger, Invincible, Mrs. Boshel, and Sir J. Watts were also good.

The Amateurs' and Cottagers' department appeared to give universal satisfaction. The different objects contributed by them were placed on flat tables by themselves, apart from the general exhibition, and their variety and incongruous aspect appeared to afford amusement to those who took an interest in closely inspecting them. One table was backed up with Fuchsias, another with cut flowers, and a third with Cabbages and other vegetables. In the class of Amateurs, with two Gardeners, Mr. Hudson, gr. to Mrs. Barchard, had the best group. It contained most beautiful pans of Lycopodium densum and other Lycopods, some cut flowers, Apples, Pears, Plums, Peaches, and Currants; Melons and Cucumbers, Nuts, Carrots, Parsnips, Onions, Beet, Vegetable Marrow, Beans, and Capsicums. Where one gardener only was kept, Mr. F. Bennett had the best group, in which we observed Muscadine Grapes, Melons, Apples and Pears, Peaches, Nectarines, Plums, Gooseberries, Cherries, and Cob Nuts, Stone and other Tomatoes, the former a round-polished kind; Shallots, Garlic, Onions, Potatoes, Beans, Turnips, Champion and other Peas still in good condition; Vegetable Marrows, Parsnips, Carrots, Cabbages, and Herbs.

Among Cottagers the most successful was Thomas Dalton, of Nottingham. In this group were Apples, Pears, Plums, Dahlias and other cut flowers, Potatoes, Celery, Cucumbers, Parsnips, Turnips, Carrots, Beans, Cabbages, and Leeks. From Geo. Grover, of Westerton Cottage, Hammersmith, who was next in point of merit came Dahlias and other cut flowers, out-door Grapes apparently free from mildew, Apples and Pears, Turnips, Carrots, Parsnips, Beet, Cabbages, and Cucumbers. Of white Spanish Onions we observed some beautiful specimens, especially from Mr. Molyneux, of Nuneham, and there were also some good examples of Tripoli. Potatoes were for the most part good, particularly a sample of Lapstones from the neighbourhood of Maidstone. Fortyfolds were also good, and among others we noticed a, to us, new kind called Royal Sovereign, a large solid white variety. Early Manly and others were more common. Some of the bunches of Carrots were admirable specimens of their respective kinds; but unfortunately these as well as many other things were unnamed, a fault which we trust may be rectified next year. One exhibition wholly consisted of different kinds of Vegetable Marrows and Turk's Cap Gourd. Among Turnips, Cabbages, and Cauliflowers, there was nothing remarkable.

Notices of Books.

First Lessons in Botany and Vegetable Physiology, &c. By Asa Gray. New York, Putnam. 8vo., pp. 236, with 360 woodcuts.

We cordially recommend this small volume to students of botany. Its author stands confessedly at the head of that science in the United States, and among the highest in all countries; the arrangement of its matter is good; the language simple and perspicuous, the science sound, and the illustrations inferior to none; added to which there is an excellent glossary of terms. The work commences with general considerations; to these succeeds vegetable physiology, beginning with the progress of a plant from the seed, after which we have growth from buds and branches; then comes a series of lessons concerning the root, the stem, the leaf, and their manifold modifications, the flower and all its parts, the fruit and the seed—a complete cycle of instruction, altogether occupying one-and-twenty lessons. What may be called the second part of the book, though it is not so distinguished, relates to the manner in which plants live, the internal changes which are perpetually going on, and the final result of those changes. In addition to this, and by way of supplement, are six more lessons upon "species and kinds," "botanical names and characters," "how to study plants," "Botanical Systems," and "how to collect specimens and make an Herbarium." It will thus be seen that the volume includes everything that a beginner requires to know, except Cryptogamic plants, which are purposely excluded.

In a work of this kind originality is not to be looked for; its merit must consist in skilful selection, perspicuity, and above all things accuracy, without the last of which the rest is worthless; as is so unfortunately proved by the majority of the English Natural History books called "Popular," a term that in too many cases is equivalent to *trashy*. Here in all that is most important these "Lessons" of Dr. Asa Gray are excellent; and we must add that the illustrations are so happily selected as to be nearly as useful to beginners in Europe as in the United States.

Fletcher's Norwich Handbook (Fletcher, Norwich) is a very useful compilation by Mrs. Madders, who has shown considerable skill in condensing the numerous facts of interest which belong to this fine old city.

Stocqueler's India (Routledge, 1*s.* 6*d.*) is a sketch of the great Eastern Empire, its history, institutions, and climate; together with the author's views of the manner in which it should be governed hereafter. As the writer has a personal acquaintance with India his views deserve consideration. He is for eradicating in future the prejudices of our Asiatic subjects, for a rule of iron, and for an entire change in the machinery of government.

We have received the 7th number of M. Decaisne's beautiful *Jardin Fruitier*; the 7th number of Dr. Weddell's valuable *Chloris andina*; and the last part of the same learned botanist's elaborate *Monography of the Urticaceous order*. This last now forms a fit volume of 592 pages, and 20 exquisite plates, which will remain to all time models of artistic skill as well as scientific accuracy.

The following trade Catalogues have reached us since our last—*Vilmorin & Co., Quai de la Mégisserie, Paris.* Lists of Flower seeds, Bulbs, and Strawberry plants; of the latter all the continental sorts are offered, with short useful conscientious descriptions.—*Sutton & Sons, Reading*, an autumn catalogue of Bulbs, Geraniums, Roses, &c. &c.—*Turner, of Slough*, lists of Bulbs and Pelargoniums.—*Jacob Makoy & Co., of Liège*, a general catalogue rich in all classes of ornamental plants, hardy and tender.—*A. Terschuffelt, Ghent*, a supplement to the general Catalogue, with references to the work called *Illustration Horticole*, a periodical with which we are unacquainted.

Garden Memoranda.

MESSRS. PARKER & WILLIAMS' NURSERY, HOLLOWAY AND SEVEN SISTERS' ROADS.—This nursery, which covers about 2 acres of ground, may be entered from either of the roads just named. A commodious new seed shop with a small show house attached to it has lately been built at its entrance on the Seven Sisters' Road, and to the glass houses which it contained in Mr. Pamplin, its former possessor's time, have been added two excellent new stoves by its present occupiers, who have also in other respects already greatly improved the place. The borders along the sides of the two principal walks which intersect the grounds at right angles are filled with herbaceous plants, among which Tritoma Uvaria and the taller kinds of Phloxes are now beautifully in flower; the different quarters beyond these borders are also at present for the most part cropped with herbaceous plants. On one of these was a large plantation of the handsome blue Larkspur (Delphinium formosum), now in full blossom; these had been raised from seeds sown last spring. Another bed planted with the new Verbena Miss Trotter was literally one mass of brilliant scarlet. In general appearance this variety resembles the old V. Melindres major, but it is not so dwarf in habit; it therefore associates better with our ordinary kinds of bedding plants. Of other Verbenas, Lord Raglan, General Simpson, Géant des Batailles, and Mrs. Woodruff were very gay and effective. The best white was Mrs. Holford. Among Calceolarias, aurea floribunda stood in the foremost rank; not much inferior, however, in point of effectiveness was Kayi superba.

Ferns, Orchids, fine foliaged and other valuable plants occupy the two newly-built stoves above alluded to. With the beauty and luxuriance of the Ferns which this nursery contains all who have had the good fortune to be present at our leading metropolitan exhibitions this season will be familiar; among them are some of the finest specimens of their respective kinds to be found perhaps in the kingdom. One (Gleichenia flabellata) which was sold the other day was in all respects a magnificent specimen. Among other remarkable sorts was Gymnogramma peruviana argyrophylla, a plant 2½ feet across, though last year only in a thumb pot. It will thus be seen what a fine growing kind it is. Its habit of growth is also unusually graceful, its white powdered fronds drooping down so as to cover the sides of the pot. To the above must be added Onychium auratum, also a fine species from the East Indies and Malay Archipelago. The foliage of this is about as finely divided as that of Fennel, and almost of as bright a green. Like the last-mentioned plant, and indeed most Ferns, this grows freely in a mixture of peat, loam, and sand. Care must, however, be taken that the pots are well drained, and the plants at all times carefully and regularly attended to with water. Intermixed with beautiful specimens of Cissus, Dracenas, and Crotons were the vigorous growing Angiopteris evecta, the West Indian Hemitelia horrida, Gleichenia dichotoma or Brake of the tropics, Cyathea elegans, the New Zealand C. medullaris, Cheilanthes hirta Ellisiana, Hemidictyum marginatum, from tropical America, the Jamaica Nothochlæna trichomanoides, a fine plant of Gymnogramma ochracea, and the West Indian Hymenodium crinitum. The last had leaves quite 18 inches in length and nearly a foot in width.

In this collection may also be found some beautiful varieties of hardy Ferns, among the more handsome of which may be noted Lastrea Filix mas cristata, Polypodium vulgare Cambricum, with leaves 12 inches in length and 7 inches in breadth; the fingered and other varieties of Scolopendrium vulgare, one of the most prolific species in monstrous forms among known Ferns, and Athyrium Filix fœmina gracile.

Of rarer sorts of Pinuses we observed several good specimens in pots. It is however intended soon to plant them out in an open quarter of the nursery, which is now being prepared by deep trenching for their reception.

The show-house was gay with flowering plants, consisting of Calceolarias, Japan Lilies, Balsams, Fuchsias, the pretty Lobelia ramosa and variegated and other Gera-

niums. A mound opposite the entrance was literally covered with the latter in full bloom, and though small plants they made a very fine display. It is, however, ultimately intended, we believe, to convert this mound into a piece of rockwork.

Miscellaneous.

Finland Bread.—It appears that there has been a season of great distress in the spring of the present year (1857), for want of a sufficiency of food in the northern provinces of Finland. Samples of the bread employed have been obligingly sent by the Board of Trade to the Museum of Economic Botany at Kew, together with a copy of the following letter, addressed by H.M. Consul, H. W. Crowe, to the Earl of Clarendon, dated—British Consulate, Helsingfors, 16th June, 1857. My lord,—The reports which from time to time have found their way into our public journals, with regard to the scarcity of food in the northern provinces of Finland, have not been exaggerated, and in the early part of the spring of this year the distress was so great that the peasantry were forced to live on bread made of bark, and several cases of death by starvation took place. The Imperial Government has lately sent three students from the University of Helsingfors to teach the inhabitants how to bake bread from Iceland Moss (Lichen Islandicus) and Reindeer Moss (Lichen rangiferinus), mixed with Rye, samples of which I have taken the liberty to forward on to your lordship, under care of the Legation at Stockholm, as they may probably prove of interest. Subscriptions took place very extensively, not only in Russia and Finland, for the relief of the poor, but also very largely in Sweden and in England, so that for the moment the requirements have been supplied; but the authorities look with considerable anxiety to the result of this harvest, as up to this time the appearances are not of the most promising description, and should they fail, the result will be most distressing, and the inhabitants inevitably exposed to greater misery than what they experienced last winter. *Hooker's Journal.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Where valuable stove plants have to be kept here while in bloom, they will require careful management to prevent their being injured by damp, and they must not be overwatered at the root, as stove plants are soon injured in a low temperature if kept too wet underground. Give air freely on bright days, but if the house contains many stove plants it will be advisable to shut up rather early in the afternoon, so as to retain a little warmth for the night; and in the event of wet cloudy weather setting in, it will probably be found necessary to use a little fire-heat, to dispel damp and preserve the blossoms of tender things, and this should be seen to before handsome specimens get disfigured or ruined for the season; for these in bloom are not over plentiful about most places at this season of the year, and are therefore worth caring for. Keep everything in this house as clean and neat as possible, removing decaying flowers and leaves, &c., immediately they are perceived, and examine pot specimens frequently, particularly such as may not occupy the most suitable places, turning them partly round in order to expose all their sides equally to light and air.

FORCING DEPARTMENT.

PINERIES.—A rather dry state of the soil about the roots and also of the atmosphere is essential during the ripening of the fruit where high flavour is an object, therefore be careful not to over-water plants on which the fruit is approaching maturity, and it will be advisable to use slight fires on dull days, so as to allow of giving sufficient air to prevent a stagnant state of the atmosphere, for fruit of first-rate quality cannot be expected from plants growing in a sodden soil or a damp unhealthy atmosphere. Endeavour to afford growing stock a steady bottom-heat of about 85°, and keep it well supplied with manure-water at the root, but avoid getting the soil too wet. As fire-heat will now be necessary to a considerably larger extent than has been the case during the summer, care must be exercised to secure a properly moist state of the atmosphere, keeping the evaporating pans or troughs regularly supplied with water, and moistening the floors, &c., frequently, as any sudden change from a moist to a dry state of the atmosphere would be most injurious to growing stock, and also to plants swelling their fruit. Be as sparing of fire-heat, however, as circumstances will allow, and shut up early on the afternoons of bright days, so as to husband the sun's influences as much as possible. Where young stock is grown in dung-pits care must be exercised after this season not to get the plants weakly through keeping too close and warm, giving air freely on every favourable opportunity, and sufficient command of warmth should be secured from the linings to allow of giving a little air at night and on cloudy days.

VINERIES.—Use gentle fires when the weather is damp in houses where the fruit is ripe; but only just sufficient to keep the atmosphere dry, and look over the bunches, frequently removing any tainted berries immediately they can be perceived, for these if left in the bunches communicate the malady to others, and cause it to spread much faster than would otherwise be the case. It is still a too common practice to expose the Vines to the weather immediately the fruit is cut, and some persons deem this practice essential to the ripening of the wood. When the weather happens to be warm and dry, such treatment may answer very well, but to expose Vines in wet, cloudy weather, when the object is the ripening of the wood, is sure to result in disappointment; therefore, where the wood is not properly ripened, keep the atmosphere dry and moderately warm, and use sufficient fire-heat to allow of giving air freely both day and night. Use brisk fires in houses where the fruit is not yet ripe, giving air freely, and be careful to guard the foliage from insects, particularly where the fruit has to be kept for any length of time after it is ripe. PEACHES.—As the trees will now be freely exposed to the air day and night, very little attention will be required here for the present. The foliage should, however, be kept clear of red spider, by an occasional washing with the engine where necessary, so as to preserve it in health until it has performed its functions and decays naturally. If any trees have to be removed here from the open wall, this may be done immediately the present crop of fruit is gathered, as the removal if very carefully effected and the tree properly attended to afterwards will not prevent the wood ripening, and there will be plenty of time for the trees to make fresh roots and get sufficiently established to carry a crop of fruit next season if not forced too early.

FLOWER GARDEN AND SHRUBBERIES.

If previous directions have been attended to, the propagation of next season's bedding stock will by this time be well advanced, and where, from the pressure of other work or other causes, this is not the case, every possible dispatch must be used while the weather is favourable for such work. Where cuttings of Verbenas and such like things have yet to be put in they should be inserted rather thinly in deep pans or shallow pots, in which they can be wintered, as they will be got established sooner in this way than would be the case if they were to be potted off before winter, and we have frequently found late cuttings managed in this way to winter fully as well as stronger plants; and except plants intended to furnish cuttings in spring, it is very immaterial how small bedding plants are before winter, provided they are well rooted without having been got up in a close warm atmosphere to render them sappy and tender. Many parties, through anxiety to secure large plants, keep bedding out stock close and moist until late in autumn, and frequently in frames on dung beds, where size is soon obtained, but plants treated in this way are necessarily so soft and tender that it is almost impossible to carry them over the winter without serious loss. Therefore avoid keeping such things too warm after this season, and if they are placed in bottom heat give air at night, and whenever it can be done without the cuttings flagging, so as to prevent weakly growth. One of the most effective beds we have seen this season was one of Tropæolum Triomphe de Gand. This pegged down stands rain well and is very brilliant.

HARDY FRUIT AND KITCHEN GARDEN.

Where wasps are troublesome means must be taken to preserve ripe fruit from their depredations, and Plums and Peaches had better be netted up, as wasps, if at all numerous, soon do serious damage to these. Also look frequently over any varieties of Pears ripening, and gather those that are fit, for if allowed to hang after they are ripe the wasps are sure to find them, and will attack the fruit before it is fit for gathering, so that the crop will probably be spoiled unless it can be netted up. Where Currants are covered with mats, which, by the bye, are very inferior to close nets for this purpose and much more expensive, the trees should be uncovered occasionally on fine dry days, so as to expose the fruit thoroughly to the air, in order to prevent their being injured by damp, &c. Trim and dress Strawberry plantations, and be careful to injure the leaves of the plants as little as possible, and avoid deep digging between the rows which is of no further use than to injure the roots, as the Strawberry rather prefers a somewhat firm soil.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Sept. 10, 1857, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth. 1 foot deep.	Temperature of the Earth. 2 feet deep.	Wind	Rain.
Friday 4	○	29.629	29.505	66	44	55.0	63	61	S.W.	.01
Satur. 5	16	29.730	29.522	72	43	57.5	62	60½	S.W.	.00
Sunday 6	17	29.876	29.836	73	42	57.5	62	60	S.W.	.01
Mon. 7	18	29.848	29.709	75	51	63.0	62½	60½	S.W.	.15
Tues. 8	19	29.561	29.474	69	49	59.0	63	60½	S.W	.60
Wed. 9	20	29.589	29.533	73	54	63.5	63½	60½	S.W.	.29
Thurs. 10	☾	29.692	29.658	74	55	64.5	63	60	S.W.	.24
Average		29.703	29.603	71.7	48.3	60.0	62.7	60.4		1.20

Sept. 4—Partially overcast; cloudy; clear and fine.
— 5—Slight fog; very fine; fine at night.
— 6—Slight fog; fine; overcast; very fine.
— 7—Cloudy; very fine; overcast; rain.
— 8—Densely overcast; heavy and constant rain; overcast.
— 9—Very fine; showery; fine; cloudy; lightning; heavy rain.
— 10—Cloudy; exceedingly fine; rain at night.

Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Sept. 19, 1857.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13	67.2	46.1	56.6	13	0.40 in.	2	3	6	2	2	6	6	4
Mon. 14	66.3	46.5	56.4	15	0.84	1	4	6	4	2	6	6	2
Tues. 15	66.6	46.4	56.5	15	0.63	—	5	4	2	7	3	5	5
Wed. 16	67.9	48.1	58.0	13	0.50	3	5	4	1	9	2	6	1
Thurs. 17	68.5	46.9	57.7	12	0.90	1	4	6	1	2	10	4	3
Friday 18	66.2	45.4	55.8	15	0.84	1	7	2	1	2	3	5	5
Satur. 19	66.8	45.8	56.3	13	0.60	3	6	3	1	3	6	4	3

The highest temperature during the above period occurred on the 17th, 1843—therm. 84 deg.; and the lowest on the 17th, 1840—therm. 29 deg.

Notices to Correspondents.

APOTHECARIES SOCIETY: *Sunderland.* The [illegible] gained the Gold Medal at the late Botanical Ex[illegible] Mr. Fr. D. Harris, of Gower Street, who also [illegible] Silver Medal in Botany at University College.

AUSTRALIAN PRODUCE: *Exul.* In June last Onions at M[illegible] were worth 24*s.* per cwt., although they did [illegible] than 10*s.* at Adelaide. Similar instances of low [illegible] price may be quoted; for example, while French [illegible] selling for 6*d.* per lb. at Adelaide, they were [illegible] Melbourne, but only 1*s.* at Geelong. On the [illegible] Vegetable Marrows were worth only 1*s.* 6*d.* a [illegible] bourne, though they sold at Geelong for 8*s.*

BOOKS: *Cantab.* The worst in your list is that wh[illegible] first. You will find no better helps to continue [illegible] than Koch's Flora Germanica, and Grenier and [illegible] Flore de France, both excellent books. We ne[illegible] the 5th in your list. It must be something too [illegible] recollected or quoted.

CAMELLIAS: *Sub.* Cold and imperfect drainage [illegible] the buds of these to drop off, and even a scar[illegible] after they had formed will produce the same effe[illegible] reason why Camellias drop their buds is leaving [illegible] the plant. Some varieties produce twice as [illegible] have strength to expand, the consequence of w[illegible] are not picked off at any early period they will [illegible] those that remain will often be deformed and [illegible] therefore, you want good blooms, you must not [illegible] many buds to remain on a plant.‡

CITRUS AND ORANGE PLANTS: *Nec ultra.* The following [illegible] prices in ducats at which these are offered for sale [illegible] Royal Botanical Garden, Naples. Each ducat is wor[illegible]

	Ducats.
Cedrone di Reggio	60
Citrus australis	60
,, Histrix	30
Limetta acre (Citrus medica Limetta)	30
,, dolce	30
Limone (Citrus medica Limon)	30
,, a foglie variegate auree	30
,, a peretta	20
,, Capo d'asino	10
,, Cedro	30
,, del Chili ibrido (Citrus pseudochilensis)	30
,, dell' Avana	30
,, di Calabria (Limone piccolo)	20
,, dolce	20
,, ,, grande	20
,, inganna villano	20
,, mostruoso	20
,, pomo d' Adamo	30
,, quercifolio	30
,, ,, medio	20
,, Spatafora	20
,, spinosissimo (Citrus spinosissima)	30
Lumia (Citrus medica Lumia)	30
,, acida	20
,, bianca	30
,, dolce	30
Lumia valentina	[illegible]
Mandarino (Citrus [illegible] ciosa Ten.)	[illegible]
Melangolo (Citrus [illegible] vulgaris)	[illegible]
,, a foglie argentate variegate	[illegible]
,, a foglie [illegible] variegate	[illegible]
,, a foglie d[illegible]	[illegible]
,, a stella dolce	[illegible]
,, braca tedesca	[illegible]
,, del dito	[illegible]
,, stellato	[illegible]
,, dolce a foglie diverse screziate	[illegible]
,, dolce di N[illegible]	[illegible]
,, l'undente [illegible] (Citrus Aurantium [illegible]	[illegible]
,, della Cina (Citrus sinensis acre	[illegible]
,, riccio	[illegible]
Melorosa (Citrus medica Melirosa)	[illegible]
,, bastarda	[illegible]
Pompelmos (Citrus decumana)	[illegible]
,, campaniforme	[illegible]
,, medio	[illegible]
,, minore	[illegible]
,, Schadeck	[illegible]
Ponzino (Citrus medica Poncina)	[illegible]
,, napolitano	[illegible]

DISEASES: *J D & Sons.* The Grapes which you have sent are covered with the true Vine mildew, Oidium Tuckeri. The sulphur was probably not applied at a sufficiently early stage of growth. The Vines will not necessarily perish. The treatment would probably be to paint the Vines, after they are cut back, with a mixture of flowers of sulphur and water with any addition that may make the sulphur adhere without injuring the buds; and then to watch narrowly when the buds break for the first appearance of mildew, and apply flowers of sulphur immediately. *M J B.*

GARDENERS' WAGES: *R G.* Judge for yourself. Last June the highest wages given in S. Australia were 65*l.* a year, very high for a Colony where even bacon and cheese were 1*s.* per lb. and more, and milk 1*s.* per quart.

GLADIOLI: *B B.* Apparently very pretty, but spikes, not single blooms, should have been sent to enable us to form a correct opinion of their merits.‡

GLOXINIAS: *Lark.* All handsome; but not more so than similar we already possess.‡

INSECTS: *N.* Your Pear trees are infested by the slimy grub of the black sawfly (Selandria Æthiops). Syringing the leaves with lime water or gas-tar water or dusting them with lime is an excellent remedy. *W.—M J B.* Ptinus fur; it never attacks our herbarium, which Anobia seem to prefer.

LOCAL SHOWS: *Erraticus.* We cannot find space for reports of these unless they contain something of general interest.

M'GLASHAN'S TREE TRANSPLANTERS: *L.* Apply to the inventor, Cannon Mills Bridge, Edinburgh.‡

NAMES OF PLANTS.—We have been so often obliged to [illegible] tantly decline naming heaps of dried or other plants that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited [illegible] this kind. Young gardeners, to whom these remarks especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time. 1, *Rudolph.* 1, Galium verum, which Daubeny and others suggest may have been the Cerinthæ ignobile gramen of Virgil. 2, Arundo Phragmites.—*Clifton X.* Bartsia viscosa and [illegible] Portula.—*Combe.* Lastrea recurva; a wild sweet-scented Fern.—*A Sub.* 1, Not in flower; 2, some Myrtus, quite indeterminable; 3, Clethra arborea; 4, Casuarina equisetifolia.—*G. [illegible]*—*J M A.* No Cattleya, but Leptotes bicolor.—*G. [illegible]* The Candian form of Pyrus Aria, called Pyrus cretica; and [illegible] neaster marginata.—*F N.* It is very much crushed in the mail bag, but seems to be Saponaria calabrica.

PAINT: *Vectis.* It is a very good material, but rough, and not fit for rebates or parts over which sashes require to slide.

SCARLET GERANIUM: *J O.* Apparently no improvement on the parent Tom Thumb.‡

STEPHANOTIS: *Geo T.* It often produces its great egg-shaped fruits. They are poisonous.

THE SUEZ CANAL: *Bristol.* We have already given you such information as we possess. The question resolves itself into three heads, possibility, profit, and expediency. That it is possible as an engineering work we are ready to believe; that it can be profitable we doubt; its expediency involves political considerations with which we do not meddle.

TRAINED FRUIT TREES: *A Young Nurseryman.* Neither we nor any one else can tell whether it will answer your purpose to grow trained fruit trees for the trade. It is a question of rent and labour. You should put yourself into communication with the great London nurserymen.

*** As usual, many communications have been received to which and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7l. per ton; Superphosphate of Lime, 7l.; Sulphuric Acid and Coprolites, 6l.—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

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Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not sink through it, to give a fall from the middle of the path towards the sides. The same preparation makes first rate paving for BARNS, CATTLE SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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Galvanised, 24 ins. wide, 2-inch mesh, 6d., 8d., and 11d. per yard.

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First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double Action Turnip Cutter for Beast and
First Prize for best Oil-Cake Breaker for Beast and Sheep.
First Prize for best Root-Washing Machine. Also, [Slicer.
Specially Commended for Steaming Apparatus and Turnip
Works—Salford, Manchester;
Branch Establishment, South John Street, Liverpool.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7s. 6d. per bushel, for ready money only.—New Park, Lymington, Hants.

MEADOW AND PASTURE GRASS SEEDS.—The present month being a good time for sowing Grass Seeds, GEORGE GIBBS & Co. beg to state that their new Seeds are now in, and orders will be at once attended to.

Mixtures for Permanent Pasture for light, medium, or heavy soils (allowing 2 bushels and 12 lbs. to the acre) .. .. 30s. per acre.
GIBBS's fine mixed Lawn Grass .. .. .. 1s. 3d. per lb.

Directions for sowing accompany the seeds.
GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

NEW FARM SEEDS FOR PRESENT SOWING.

GIBBS'S IMPROVED ITALIAN RYE-GRASS, 7s. 6d. per bushel; Dwarf ESSEX RAPE, 14s.; White MUSTARD, 18s. and 20s. per bushel; TRIFOLIUM INCARNATUM, 5d. per lb.; Early Racer TARES, 10s. per bushel; Drumhead CABBAGE, 4s. per lb.; EARLY SIX-WEEKS' TURNIP, 1s. per lb.

GEORGE GIBBS AND CO., 26, DOWN STREET, PICCADILLY, W.

The Agricultural Gazette.
SATURDAY, SEPTEMBER 12, 1857.

SOME weeks ago a correspondent, "AGRICOLA," asked our opinion of a rotation he had adopted, by which one-third of the land was cropped with Sugar Beet and Mangel Wurzel, one third with Wheat, and the remainder of it in equal proportions with Clover, Barley, Beans, and Oats. The crops ran thus:—

1st year,	Mangel Wurzel	7th year,	Mangel Wurzel
2d ,,	Barley	8th ,,	Oats
3d ,,	Clover	9th ,,	Beans
4th ,,	Wheat	10th ,,	Wheat
5th ,,	Beet	11th ,,	Beet
6th ,,	Wheat	12th ,,	Wheat

The question was whether the root crop occurring so often would "sicken" the land of it, and whether there are any such differences in the requirements of the Sugar Beet and Mangel Wurzel as would in such a case hinder the effect usually following the recurrence of one crop continually on the same land.

It is intended to use the Beet for the purposes of distillation, and to employ the "residues" in cattle feeding after the manner indicated in our last week's Paper, so that probably all that is taken from the soil will be given back to it in the manure, and no exhaustion of the land in the strict sense of the term will thus be incurred. There is however an effect of the continued cultivation of some crops, besides that of exhaustion, which ultimately renders the soil unproductive of them. The Clover sickness cannot be accounted for on the ground simply of exhaustion, neither can the liability of land, after yielding Turnips often and at short intervals, to grow diseased and stunted roots. Whether the recurrence of the Mangel Wurzel in like manner would result in the failure of the crop we cannot tell, but the difference of Beet and Mangel Wurzel cannot be enough to give them the effect of different crops, and we must therefore repeat our answer to the question—"Whether Mangel Wurzel and Beet coming so often as once every third year is a possible and desirable thing has yet to be proved—we should think it unlikely to succeed in the long run."

Since that answer was given we have received the following letter in reference to it:—

"In your Number for May 23 of this year you have inserted a letter from me on a rotation of crops, with your opinion annexed. As this opinion is evidently not one which has reference to the rotation in question, I beg to draw your attention once more to the subject, which is one likely to become of considerable interest to farmers, especially to those who may be located in the neighbourhood of the new distilleries from Beetroots which Messrs. Dray & Co. are now in process of erection. Your answer supposes that the crop will recur every third year, whereas in the proposed rotation it would not occur during the 2d, 3d, or 4th years, nor during the 8th, 9th, or 10th in the second part of the course. It is believed by some that the system would be well adapted for the cleaning and keeping in good heart the land so cultivated as in the 5th and 7th years; and again in the 11th and 1st there would be the opportunity afforded of thoroughly fallowing for the roots. My best crop of Wheat this year has been produced after Mangel, grown without any farmyard manure, but fed with 4 cwt. of guano and 4 cwt. of salt per acre, applied broadcast at three dressings during the spring. The tops were ploughed in and the land drilled with the Wheat after the removal of the roots (about 25 tons per acre), and the crop is estimated at upwards of 6 quarters per acre. *Agricola.*

Now it seems to us that there can be little difference as regards the effect of a frequently recurring crop between constant intervals of two years and alternating intervals of one year and of three years, and that the proposed rotation will in its most important feature be triennial in its character and influence upon the soil. So frequent a recurrence of a fallow crop will no doubt ensure the thorough cultivation of the land—so frequent a removal of the crop will, unless the "residues" be continually restored, require large purchases of manure to hinder the exhaustion of the land—so frequent a recurrence of the same crop *may* result in a refusal of the land to grow it notwithstanding liberal treatment of the soil.

Upon the whole we may recommend our correspondent to try his rotation, provided he has a profitable sale for his Sugar Beet and Mangel Wurzel, though the results of experience in the frequent growth of Turnips and of Clover forbid entire confidence in his success.

WHATEVER be the sources of the influence exerted by the rain upon the soil, it is only as the soil enables it to reach the roots of plants that it can act for good. Let us, therefore, consider the means of its access to the plants growing on the soil.

Water can get into the soil in three ways—1st, as rain falling directly on its surface; 2d, as in the case of spring-water, rising from below, where there is a direct connection between the soil and a reservoir at a higher level; 3d, by that surface attraction of matter for it, which, as exhibited by porous substances on water lying beneath them, is called capillary attraction. And it is plain that any attempt to drain a field must be guided by all three of these considerations. The quantity of the rain-fall, added possibly to an additional supply from beneath and both held with more or less tenacity by capillary attraction within the soil, is the agent which you wish by means of drainage, we will not say to get rid of, but to direct to useful ends in the growth of your plants.

Again—water can leave the soil in three different ways: 1st, by running over its surface; 2d, by evaporating from its surface; 3d, by percolation through its substance. And let us consider what the water does and does not do when escaping from the land in each of these several ways.

1.—In the first, when running over the surface of the land, it is of course inoperative. It is wanted to dissolve food out of the soil and feed the plants upon it. It is wanted to bring its own supplies, such as they are, from the air for the nourishment of these plants. It is wanted to break up and comminute the soil by its passage through it. It is wanted for the sake of its own dissolved oxygen and carbonic acid, as well as for the same ingredients in the atmospheric air which follows it in its passage downwards, both of these substances acting usefully in the laboratory of the soil. And it is wanted especially in the spring time for the sake of the temperature of the spring showers, which, if they could get into the land, would warm it. None of these things can it do. It runs off the surface without penetrating it, and its influence as well as want of influence are shown in the case, which often happens, of rain water falling on a frozen field. If it could gain access to the substance of the soil the whole furrow slice would at once be thawed, and we should have vegetable growth recommencing earlier. If it could make its escape through the soil instead of over it, we should avoid those surface currents which wash the finer particles into the furrows and the ditches. The *fertilising* influence of a *constant* surface current seen in the water meadows is perfectly consistent with the mischievous influence of the state of things with its occasional surface currents seen in every undrained field. The former coexists along with an escape of water through the soil, for a constant drainage is as necessary as a constant water supply to successful irrigation.

2.—But let us now consider what the water does during its escape by evaporation. In

the first place it is worth while remembering as being among the comparatively indefinite results of evaporation from the surface of the soil, that in this way great loss ensues of the nutritive substances which the water held in solution. It is very true that some theorists contend for what they call the leaf-feeding of plants, and urge that all the benefits of cultivation during the growth of plants arise from the extension of this evaporation, by which the leaves of the growing plants thus obtain a more abundant supply of food; but we believe that our object in cultivation should rather be to increase the stores of food within the soil, and that tillage operations have this tendency by increasing the quantity of absorbent surface within the soil which is exposed to the air.

The principal result however of the loss of water by evaporation is indicated by the fact that during the conversion of every pound of it into vapour, as much heat is consumed and lost as would be produced by burning 2 or 3 ounces of coal; and when you think that an ordinary rainfall amounts to 3000 tons per acre per annum, you can easily conceive that the loss of heat by the evaporation of a comparatively inconsiderable portion of this must involve a great cooling of the land. If 30 inches of rain were evaporated in this way it would need 1 cwt. of coal per hour per acre through the year to make good the loss of heat sustained in this way; a quantity which, in Dr. ARNOTT's hands, would give us an Italian climate. The quantity however actually lost by evaporation is of course nothing like this; a great deal of water finds its way through the land. The water supply of all our springs and wells if that were known would indicate its quantity for the island. A great deal escapes in flood times by running over the surface, and a great deal now finds its way out of drains after percolation through the soil. Notwithstanding these causes however, and notwithstanding the extremely irregular character of the rainfall, the loss by evaporation must be very considerable. DALTON measured the quantity of water escaping from two rain gauges, one of an ordinary kind, and the other filled 3 feet deep with earth, and he found that of 33 inches of rain which fell per annum as indicated by the one, only 8½ passed through that quantity of earth as indicated by the other, and he concluded therefore that the difference between the two—25 inches, or three quarters of the whole annual fall—escaped by evaporation.

Mr. DICKINSON, of Abbot's Hill, near Kings Langley, has for several years copied DALTON's experiments, with results somewhat different from his; finding that of 26 inches per annum 15 were evaporated, while as much as 11, rather more than two-fifths of the annual rain-fall, passed through the soil. His results however probably exaggerated the quantity of the rain-fall which in general passes through the land, for it is plain that earth loosely placed in DALTON's gauge is much more likely to transmit the rain which falls upon it than the same depth of earth can be in ordinary circumstances, the lower half at least never having been disturbed since the Deluge. And in fact the attempt of Mr. MILNE HOME to ascertain the truth upon this point, by measuring the water actually escaping from the mouths of drains in a field of a given extent (though it on the other hand was liable to an opposite error because it could not take account of what went through the land altogether to feed the wells and springs of the neighbourhood) leads to the conclusion that a much less quantity of water than either DICKINSON or DALTON indicates passes through the land in the course of the year. And it would appear from this that the loss of water by evaporation even in well drained soils is considerable, and therefore that the loss of heat by evaporation is to a great extent unavoidable.

3.—Let us now, however, consider what water does by percolation; and its effects here we must do little more than enumerate. They are shortly these: it carries the temperature of the air into the soil, a thing the possible injury of which, as in autumn and winter when the air is colder than the soil, is as nothing compared with the benefit of it in spring when the air is warmer than the soil and when the advantages of early growth are great. The most important experiments which we know proving the influence of drainage on the temperature, are those described by Mr. STEPHENS in his exceedingly instructive little book descriptive of the Marquis of TWEEDDALE's operations at Yester Mains, where, the temperature of soil being 48° in its undrained state, the cutting of a drain near it and the setting in of a current through it raised its temperature 1½° in six hours.

Another effect of water percolating through the land is seen in the introduction to it of the atmospheric elements which it holds in solution. The carbonic acid by its operation on the alkalies and alkaline earths is a powerful solvent and disintegrator, and the oxygen keeps in check the deoxidating effect of vegetable matter in the soil, which in its absence tends to reduce the higher state of oxidation of the iron present in the soil into the lower state, when it does mischief by forming with acids in the soil soluble salts injurious to vegetation.

But the main purpose served by water during its percolation through the land is that of feeder of the plants.—A fertile soil, cultivated so as to exhibit its fertility in the most profitable manner, has growing upon it crops whose habit and specific character are adapted to the climate in which they are placed, and to the character of the soil itself—it yields these crops in the order in which each succeeding to the cultivation of its predecessor shall find the soil, chemically as regards its contents, and mechanically as regards its texture, and practically as regards consequent cleanness of the land and the fitness of their respective times of cultivation to one another, in the best condition for the supply of the wants of the crop in question—it is annually manured and cultivated so as best to meet the current wants of the plants cultivated on it—but it is especially dependent for all its powers to bring these crops to a fruitful maturity upon the fact that there is during every shower and after every shower of rain a continual current of water and current of air throughout its substance, not too rapid lest its soluble parts should be washed to waste; indeed, it is hardly possible to be too slow; slow enough, however, to dissolve from the soil whatever it contains of food for plants, and fast enough to be continually bringing fresh supplies by every mouth which the absorbing extremities of the roots of plants present.

All these purposes of *warming* the soil, of *introducing substances* within it which shall operate chemically upon the mineral and other matters within the soil, and of *converting the soil into an efficient vehicle* of the matters which it contains, are answered by the percolation of water through the soil. You must not think then of drainage as being a contrivance for getting rid of water as an enemy from the land; nor must you think of a wet and ill-drained field as being merely an illustration of the injury done by water *in excess*, as it is called. Water need hardly ever be an enemy, and need hardly ever be in excess. Drainage is a contrivance for making use of it as a friend, and an ill-drained field is an illustration of the mischief done by water, whether there be little of it or much, when not in motion.

It is well however to consider the *mischief* that may be done by the percolation of water. If, as it moves through the soil, it contains the food of vegetables in solution when it passes the mouthpiece of a plant, no doubt it also contains useful matters in solution when it passes into the drain which is to convey it altogether away, and the waste of food for plants by our drainage water is a matter of considerable importance. It has been most admirably investigated by Mr. WAY during the past year. His results are given in the following table:—

Samples of Drainage Water from Mr. PAINE's very highly manured field contained grains per gallon of		Samples of Drainage Water from Mr. ACLAND's poor clay contained grains per gallon of	
Ammonia	Nitric Acid	Ammonia	Nitric Acid
.018	7.17	.003	4.78
.018	14.74	trace	2.99
.018	12.72	.012	.628
.012	1.95	.012	.12
.018	3.45	trace	.485
.018	8.85		
.006	11.45		
.018	3.91		

He found that the drain water from highly manured fields near Farnham contained 18 thousandths of a grain of ammonia in every gallon; but as much as 4 to 14 grains of nitric acid: while from ordinary poor arable soil in Devonshire the drain water contained from 3 to 12 thousandths of a grain of ammonia, and from 1-10th to as much as 4 grains of nitric acid in a gallon.

From this it appears that there is a very large waste indeed of nitrogen in the form of nitric acid in the drainage of very highly manured fields; comparatively little, however, in the case of fields of ordinary cultivation. Whatever it is, we must simply bear it as a tax upon the otherwise general advantage of the practice of land drainage. One very satisfactory thing observable in the results of these experiments is the comparatively small quantity of ammonia which the samples of rain water contain, even when compared with that present in the rain water which falls upon the land.

LYNE, HINXWORTH, AND KEYTHORPE.

No. I.

IN his letter in your Journal of the 22d, Mr. Clutterbuck intimates that if I adhere to my resolution of declining all further controversy with Mr. Denton I cannot expect to be allowed to march out with the honours of war. Will that gentleman allow me to remark that I consider myself the victorious party, and that it is for me to grant terms, not to accept them.

I claim the victory because I have established, on the evidence of his own friends the important fact that however Mr. Denton may write against the Keythorpe system, he has actually adopted it in practice. I endeavoured to escape from this conclusion by the hypothesis of there being two Mr. Dentons; but he will not allow me that alternative. I am therefore compelled to believe that the spell of the Keythorpe system is too strong for him—for truth will prevail—and that it has placed him under mesmeric influence, if there is such a thing. It has placed him in a state of unconsciousness, and he is obliged to adopt that method of draining whether he will or not, without knowing that he is doing it, and in spite of the deflecting influence to be noticed hereafter which draws him in an opposite direction.

Whether from this cause, however, or from some other, the victory is mine, after a hard fought contest, and I am quite willing to grant terms. I will allow Mr. Denton to march out with the honours of war, drums beating and colours flying, Keythorpe on the banner, No Keythorpe on the other; crossing the fall with his drains at all angles; and threatening to discharge subordinates who disobey orders and do the very thing which impartial witnesses say he is doing himself.

It is not I who make these statements; they are his own friends—gentlemen who have awarded prizes to Mr. Lee for having done the largest quantity of draining in the year ending May 12, 1856, and done on the best principle.

But though I consider Mr. Denton a prisoner of war, I have no wish to stipulate that he shall not be allowed to serve in the present campaign. On the contrary, the more he drains on the Keythorpe system, and the more successful his draining, the better shall I be pleased. The world is wide enough for us both. I do not even stipulate that he shall cease to write against his own practice. Every one would not like to do so. I should not like to do so myself. But tastes differ; and if it is any gratification to Mr. Denton, by all means let him enjoy it. With respect to Hinxworth, I have not the same documentary evidence as at Lyne of its having been drained on the Keythorpe system; but I am assured by all who have seen it and have been at Keythorpe that Hinxworth has been drained in the same manner, with drains at irregular intervals, and crossing the fall at all angles. I am assured that even trial holes have been resorted to, which we were told are to consume the fee simple of the land. Will Mr. Clutterbuck allow me to suggest that it would be a great public benefit if he were to employ Mr. Denton to make one of those relief maps for which he is so celebrated of the 672 acres drained, on which the position of the drains and of the "slacks," whatever they may be, should be shown as well as the position of any trial holes. The map should be on the same vertical and horizontal scale. The exaggerated scale of a railway section only misleads in these matters, though it is better adapted for railway objects. If such a map were too large for the hall of a mansion there would be plenty of room for it at the Crystal Palace, where it would be very interesting and useful as an exponent of the extent to which the Keythorpe system had been adopted or improved on.

With respect to the cost of draining at Lyne and at Hinxworth there is a manifest improvement at the latter. The total expense of draining at Lyne is not given. We are merely informed that it was from 3*l.* 10*s.* to 7*l.* the acre. Under the circumstances to which I before alluded of that unaccountable proceeding of putting the steep uninclosed lands on "the gridiron," I should be justified in assuming the average to be the half of the sum of those two amounts or 5*l.* 5*s.* I will limit it however to 5*l.* That, if I am not mistaken, is the amount which Mr. Denton estimated before the Keythorpe system acquired notoriety as the sum necessary to drain land effectually. Comparing this with Hinxworth, I find that at the latter place 672 acres were drained for 267*l.*, or 3*l.* 19*s.* an acre as nearly as possible. Now if Lyne had been drained at this rate, or we will say 4*l.* an acre, there would have been a saving of 2439*l.* on the drainage of that estate, where the inspectors tell us the Keythorpe system was only partially adopted. On the other hand had Hinxworth been drained like Lyne Mr. Clutterbuck would have been obliged to put his hand into his pocket for some 672*l.* more.

Landowners and farmers of England, can you afford to throw your money in the dirt in this way? Are these sums worthy your attention or are they not? If they are, remember that you would never have heard of them but for the despised labours of a land geologist in that neglected department of geology of which you are most interested—the geology of the superficial deposits. These constitute in most cases the soils in their feeblest development the soils and subsoils which you drain and cultivate. For ten years I have fought the battle of the superficial deposits with the Government geologists, who had ignored them, and then for nearly five years for its practical application

tion with those who have acquired vested interests in land draining as it is. And now Mr. Clutterbuck considers that the question requires further ventilation, because on freshly drained land and during two months the Hinxworth tables are supposed to prove that water was faster through the pores of a retentive soil than through a porous soil? I will ventilate the question no longer. I retire from the contest. There are better ways of advancing the cause of the Keythorpe system than by newspaper controversy; and if there are not there are better ways of employing my time than in the thankless office of applying geological research to save the pockets of landlords, who do not appreciate those labours. Chemistry was once in very low esteem in the agricultural world. It is now held in the estimation which it deserves. The day of geology will come if it does not come in my time. It must be, however, the geology of our fields, not the conventionalities of geological maps.

Whence arises this tardiness to adopt improvements in agriculture compared with the avidity with which they are seized on in manufactures? Can any one doubt that if a process had been pointed out in cotton spinning or calico printing or any other manufacture which promised to reduce the expense of it from 30 to 50 per cent., there would have been the utmost eagerness, I will not say to adopt it, but to test its merits by experiment? Would there have been all this cavilling about it?—would there have been all this controversy?—all this necessity for ventilation?—this opposition to improvement?—this *vis inertiæ* pervading everything agricultural? In draining it is aggravated by Government interference. All who wish to drain an entailed estate, and to charge the inheritance with the expense, must drain on a system sanctioned by the Inclosure Commissioners, for it is their sanction which makes the rent-charge a marketable commodity. This is a wide subject on which I cannot enter at present. Those who feel an interest in it will do well to consult the evidence given before the Lords' Committee for the Improvement of Land. In commerce, in science, in agriculture, leave us alone! is the sound principle. It would be well if we could reduce the expense of draining, as I believe we can, to such a point that we could dispense with borrowed capital and Government inspection.

To his connection with draining companies and the Inclosure Commissioners I attribute much of that opposition which I have received from Mr. Denton, and received, I hope, against his better judgment. Of all the draining engineers whom I have had for opponents, he comes the nearest to the Keythorpe system, just as there is the most deadly hostility between borderers. He may say as the Speaker of the House of Commons said to Charles, "I have neither eyes to see, ears to hear, nor tongue to speak, save as this House directs me."

This letter relates to the Hinxworth drainage, and its economy compared with Mr. Denton's first attempt at the Keythorpe system at Lyne. With respect to its efficiency, all we can say at present is that the owner is perfectly satisfied with it. I hope that the doctrine of the percolation of water through the pores of clay may not have exercised a pernicious influence. It is a dangerous doctrine to be promulgated on the authority of two months' experiment on recently drained land. Mr. Denton appears to have abandoned it, and to attribute the rapidity with which the water passed for a time from the drains on the clay to the greater closeness of the drains, and the shorter distance the water had to traverse to reach them.

There are many other ways of explaining the phenomenon. In a future communication I will trouble you with some observations on the Hinxworth tables, and I trust I shall be able to convince Mr. Clutterbuck that the facts are capable of a very different construction from that which he has put on them. *J. Trimmer.*

MEMORANDA FOR THE AGRICULTURAL STUDENT.—No. IX.

THE following notes relate to the cultivation of Fallow Green crops:—

Take in the first place the chemist's view of the subject, and you will find that in their growth these crops extract more matter from the soil than any other of the plants the farmer grows. Thus 20 tons of Swedes remove generally speaking in bulbs and tops nearly 6 cwt. of mineral substance from the soil per acre; 30 tons of Mangels will in their roots take away 6 cwt. of ash, and in their tops probably nearly 2 cwt. more per acre; while 25 bushels of Wheat take only 178 lbs. in both straw and grain: 40 bushels of Barley take 208 lbs. in grain and straw; 28 bushels of Rye take 187 lbs. in grain and straw; 50 bushels of Oats take up 225 lbs. in grain and straw; 25 bushels of Beans take up 251 lbs. in grain and straw per acre.

Then, again, as to different elements—the Turnip crop takes 200 lbs. of potash, and the Potato crop takes above 100 lbs., and the Mangel Wurzel takes ¼ of the weight of its tubers in the form of potash. The Turnip crop takes 60 lbs. of phosphoric acid from an acre; the Potato, 23 lbs.; the Mangel, 1-20th of its entire weight of ash, in the form of phosphoric acid. The grain crops which yield the smaller quantity of ash, and which take the smaller quantity of phosphorus and nitrogen too in building up their structure, are in practice nevertheless the exhausting crops, while the Turnip and the Mangel Wurzel, which take the large quantity from the land, are in reality the restorative crops. The explanation is that the latter, notwithstanding the greater immediate tax upon the soil, being consumed upon the land again, give all those ingredients to the surface which they had taken from the subsoil as well, so that the soil is in effect richer by their cultivation and consumption on the land, while much of the corn crop, its grain crop for instance, being sold off the land altogether, takes from it much which it does not restore.

The reason, secondly, is that the Turnip—which requires a certain amount of nitrogen in the form of ammonia and other nitrogenous compounds in the manure and in the soil—does in the act of growing take it not only from these sources, but absorbs additional quantities of ammoniacal matter, which by its broad system of leaves it takes from the air, and so by its consumption a larger quantity of nitrogenous matter is restored to the land than was taken from it. While the grain crop, on the other hand, which also needs nitrogenous matter in the food of which it builds its structure—not having such a system of leaf and of air-feeding apparatus—does by the manner and the time of its growth use up and waste more of the nitrogenous matter of the soil and manure than it afterwards returns in the straw to our dung heaps.

The reason, lastly, is because the manner of cultivation of the Turnip and other winter crops is such as to render the soil itself so much more open to all the fertilising influences of air and rain than is permitted to it during the growth of the grain crops as *ordinarily cultivated*. That this is a valid reason for the superiority of the Turnip to the Wheat in its influence on the soil is plain from Mr. Smith's experience at Lois Weedon, in which it appears that by the thorough cultivation of the land during the growth of grain the period of exhaustion consequent upon the growth of that grain seems indefinitely postponed. I now have the general consideration affecting all green crops alike, and turn to the serial crops coming under that designation—the Turnip, Mangel Wurzel, Potato, and Carrot.

The Turnip.—Among its sorts are (1) the Common Green-top, less known since the introduction of the Purple-top, than which it is coarser and more irregular in form. (2) The Common Purple-top, very solid in texture—not apt to run to seed, hardy with a tendency to grow into the land. (3) Skirving's—also a Purple-top, a very large bulbed sort—commonly grown with a great deal of neck, apt to run to seed—growing out of the ground, therefore more liable to injury by frost—a very free grower, coming early to maturity, and keeping well when stored. (4) The Fettercairn Globe Swede is another good sort of Purple-top, possessing good solid flesh and tolerable productiveness. (5) Laing's Swede is characterised by a flat growth of leaves, which are entire, and of Cabbage-like form. It is one of the hardiest kinds, growing later into the winter than any other—not so heavy a cropper as Skirving.

Of the common Turnips, the Yellow (1) Aberdeen Bullock, a green-top globular Turnip, is one of our best sorts. (2) Dale's Hybrid is another Green-top yellow, supposed to be a hybrid between a Green-top Swede and a White Globe Turnip; it is of a somewhat oblong shape, of larger size than the common Green-top yellow Turnip; it grows mostly above ground, but is hardy and keeps well in the heap.

Then we have a number of Purple-top yellow Turnips, of Globe and Tankard shape. Among them I may mention the Lawrenceskirk Yellow Tankard, which stands a foot or more out of the ground, barely entering it at all; and the common Purple-top Yellow, of a globe form; and, lastly, there are a number of much softer white-fleshed Turnips—capable of being sown much later than any other, and requiring to be consumed much earlier—the common White Globe—Pomeranian White Globe, White Norfolk, White Stone, White Tankard, &c., and we have also red topped Globe and Tankard Turnip as soft as the white Turnips generally are, and as productive. Of all these the common Stone Turnip is the sort most generally sown as stubble Turnip in England; but any of them admit of being sown much later than the kinds already mentioned.

Culture of the Turnip Crop.—The seed time of the Swede in Scotland is from the middle of May—in South and Midland England it is from the middle of June. The common Turnip again is sown in England all through July, and even in August—while in Scotland they aim at getting the seed all sown in June.

Its place in the rotation is after a corn crop and before a corn crop. The Turnip soils used to be a pretty definite class; but now the Turnip is sown on almost all soils. A friable loam is the true Turnip soil; but all soils can be made friable loams with more or less success by the use of proper means. Clay soils drained and burned and well tilled before winter may be brought to the proper tilth for either Swedish or Common Turnips.

Mangel Wurzel likes a stiffer soil than is congenial to the growth of Turnips. On stiff soils the most of the culture should be done in autumn. The Wheat stubble or stubble of any other corn crop should be cleaned and ploughed and drilled up and manured in the drills with 20 or more tons of farm dung before winter. The manure is covered by splitting the intervening ridgelets in the usual way, and the land is left till spring time, when towards April it may be harrowed down, and artificial manure sown over it. Common salt is efficient as a manure for Mangels, and 3 or 4 cwt. mixed with 2 or 3 cwt. of guano per acre as an auxiliary to 20 tons of manure, is the best dressing the land can get. Sowing this broadcast you re-ridge up the drills by the double mould-board plough, and you sow the seed. 7 lbs. an acre are wanted, and it is drilled or dibbled. Three boys will dibble an acre in a day. A blunt dibble will be best, as the seed must not be put in deep. Dibble at 15 to 20 inches apart. There are several kinds—globe and long shaped sorts.

The after culture of the Mangel is the same as for the Swede. The seed comes up in little bunches at the intervals at which it was sown. They are singled by boys for 2*s.* 6*d.* an acre. The horse-hoeing and hand-hoeing is done as for Turnips, and Mangels must be pulled before frost touches them.

THE POTATO DISEASE AND THE NEW MANURE.

ON Saturday last the Rev. W. R. Bowditch requested a gentleman from this office to witness the taking up of some Potatoes which were then growing in a garden contiguous to his residence. The patch consisted of eight rows, all of which we were informed were planted at the same time, with the same kind of Potatoes, and manured at the time of setting with ordinary stable dung. Three of the rows, however, had been subsequently sprinkled with a top dressing of Mr. Bowditch's new manure (clay used in the purification of gas). When our reporter arrived he found several gentlemen present who had also been invited to witness the getting of the Potatoes. The Potatoes obtained from the rows which had received the top dressing of the gas manure were all perfectly sound, with the exception of about one Potato to every 20 lbs. weight; while those grown by the ordinary manure were at the very least three-fourths of them diseased, the greatest proportion being absolutely rotten. The appearance of the stalks of the esculent before getting were alike, all evidently being very much diseased; and what to us appeared rather singular was, that even in the sound Potatoes the disease had penetrated the very roots, and there appeared to have been arrested.

We may add that a sample of Potatoes which had been dressed with the gas manure on being cooked were good sound Potatoes, mealy, and of excellent flavour; while a sample of those dressed with stable manure only were sad, watery, and unpalatable.

As the Potato disease has occupied the attention of the public, and especially of agriculturists for so many years, but without any satisfactory solution, either as to its cause or how to prevent it, we have the greater pleasure in publishing the foregoing, without offering any opinion of our own; but at the same time we beg to press it strongly upon the attention of agriculturists, so that the matter may be set at rest next season by experiments being tried on a large scale.

We append below Mr. Bowditch's own account of the experiment, corroborated by a statement from his assistant.

"St. Andrews, Wakefield, August 22, 1857.

"Sir,—The particulars of the experiment of which you have witnessed the result to-day are enclosed. I should not attach much value to this if it were solitary, but when it accords with those made by me last year upon 3 acres of Potatoes, and with those at Heath Old Hall this year (made with an entirely different object) I am bound to think that its importance can hardly be overrated. I believe I may fairly say it has been my good fortune to present the country with a palliative, if not a cure for, Potato disease—a cheap modes of saving from destruction the food of millions.

"*Explanation of Experiment.*—A plot of garden ground near my house was cropped with Potatoes in 1856 and produced a good crop, of which at least nine-tenths were rotten. Part of this ground was planted with early Potatoes in the second week of May, 1857. The seed was grown in a field some distance off, appeared perfectly sound, and was nicely sprouted by being kept in a warm kitchen for two months before planting time. The rows were 2 ft. 6 in. apart, sets about 7 in apart in the row, and a liberal supply of dung, purchased from a stable in the town, was placed upon the sets in the rows before they were covered with earth. They were kept clean during growth, and when ready for earthing (but before being earthed) I directed some foul clay from my laboratory to be scattered alongside the rows as far as it would go. I happened to have but a small supply, which was sent me from Dewsbury Gas Works, and therefore three rows only were dressed with the gas clay. During growth the three rows were rather more vigorous than the others, but still the difference was not very great. Upon the crop becoming ripe I commenced to use those which had been dressed with the gas clay, and finding them sound, well flavoured, and mealy, continued their use daily. The others were then tried and were found badly diseased and so wet as to be uneatable. This was before the recent rains, during the fine weather which preceded them. You have seen the results to-day and can judge of the difference in quality by cooking the samples taken up in your presence. *W. R. Bowditch.*

"Wakefield, August 22, 1857.

"In May last I was an assistant in Mr. Bowditch's laboratory, and was present at the planting of the Potatoes which have been examined to-day. All the rows examined were set at the same time, and were well manured with stable dung. There was no difference whatever in their treatment. When the Potatoes were ready to be earthed I applied to three rows a bottle of foul clay which came for analysis from Dewsbury Gas Works. Nothing whatever was applied to the rest of the plot, but all were earthed directly. The three rows to which I applied the gas clay are those found free from disease to-day. Those which are so badly diseased received nothing but common dung. *John Saville, junr.*"

Potatoes (planted in 1856) with a portion of this manure gave most interesting and satisfactory results, which I hope will induce agriculturists to apply it experimentally to portions of this crop and report the results. A man set to mix a quantity of this manure with a heap designed for about three acres of Prince Regent Potatoes, mixed it so unequally that parts of the heap contained none and parts a large quantity. It was used in this state. The crop grew well, but the tops were much affected by disease. When the Potatoes were dug the yield was generally good for the season, but where the large quantity of the special manure was applied it was very much better than in other parts. Where none of this manure was used there was much disease; where a moderate quantity the disease was much less; and where a large quantity (an excess as I thought) there was little or no disease.

If this be general, the result is both interesting and important, and I hope the experiments of the next season will determine the question.—St. Andrews, Wakefield, January 9, 1857. *Wakefield Journal, August* 28.

Home Correspondence.

Lois-Weedon.—The following details of an experiment on a modified form of the Lois-Weedon plan of growing Wheat in intervals for the last 4 years may be interesting to your readers now that "I. A. C." is drawing attention to Mr. Lawes' failure in the same attempt. The soil in which I am trying it is a dry gravelly land in Berks, which grows good Barley, and if well cultivated 4 to 5 quarters of Wheat. My experimental piece is just an acre, of most irregular shape, and therefore very awkward to plough, and one side runs along a footpath, hence it is open to the speculations and also the peculations of all passers by. It has been an experimental piece for some years. In 1851 it was Flax, in 1852 Wheat, in 1853 a small coat of dung was put on and a small crop of Potatoes taken off. It was then ploughed into lands 4 feet wide, harrowed, and two rows of Wheat drilled along each ridge at 9 inches apart, leaving 3 feet intervals, which were well horse and hand hoed, and the produce was 4 quarters of best Wheat. It was ploughed back after harvest, drilled as before on the reversed ridges, Couch forked out and hand hoed, and the produce at Michaelmas 1855 was 3 quarters. The next year it looked well in spring under the same treatment, and a row of Rape was drilled down the furrows, to be fed off by sheep. This spoiled the crop, which yielded only 2 quarters, and filled the land with Couch, which could not be got out till the spring of 1856, when it was forked out and burnt and the intervals drilled in April with Malaga Wheat. Though well hoed the crop was not clean, and the produce only 2 quarters. But it was ploughed and well cleaned with forks after harvest, drilled as before, hand hoed at intervals, and subsoiled in the spring, and the crop now harvested is very clean and upwards of 3 quarters. The crops would all have yielded better but from the difficulty of keeping birds off a single acre of ripe corn. I append a balance-sheet, from which it will appear that

the experiment would not have paid but for the high prices realised during the last 3 years; but from the present appearance of the land I think I shall be able to grow 3 quarters annually, at a cost of 7*l.*, which will pay with Wheat even at 40*s.*, as I can always command a high price for the straw for thatching. The chief lesson I have learnt is that cleanliness is a *sine qua non*, and when that is secured the plough may take the place of the fork and is much cheaper.

Balance Sheet of 1 *acre cropped with Wheat on the interval system for* 4 *years from* 1853 *to* 1857.

1853–4. Dr.	£ s. d.	Cr.	£ s. d.
Rent 1*l.* 10*s.*, tithe 7*s.*, rates and interest on capital 13*s.* ..	2 10 0	By 4 quarters of Wheat at 64*s.* ..	12 16 0
Cultivation, viz.—Ploughing 9*s.*, harrowing 2*s.*, drilling, 4*s.*, seed 1 bush. 8*s.*, hoeings 1*s.*, harvesting, threshing, and markets, 1*s.* ..	3 3 0	By straw	2 0 0
	5 13 0		14 16 0
1854–5.			
Charges as above ..	5 13 0	By 3 quarters at 70*s.*	10 10 0
Extra forking in spring	1 10 0	By straw	2 0 0
	7 3 0		12 10 0
1855–6.			
Charges as above ..	5 13 0	By 2 quarters at 80*s.*	8 0 0
Extra forking, burning, &c., in spring	2 10 0	By straw	2 0 0
	8 3 0		10 0 0
1856–7.			
Charges as above ..	5 13 0	By 3 quarters at 64*s.*	9 12 0
Extra forking 1*l.*, and subsoiling 6*s.* ..	1 6 0	By straw	2 0 0
	6 19 0		11 12 0
Total of 4 years' expenses ..	£27 18 0	Receipts	£48 18 0
Ditto profit ..	21 0 0		
	£48 18 0		

J. B. M.

Smut in Barley.—In a recent Number of the *Agricultural Gazette* I observed notice taken of the black ears in Barley, which abounded in the crop of 1856, and were very general, and a suggestion whether pickling the grain before sowing, in the same manner as we treat Wheat, might not prevent this. This occurred to me as a possible remedy which was worth trying. Accordingly, this spring I dressed one half of the Barley sown in two fields, the same as we do the Wheat, and sowed the other half undressed, but the black ears appeared quite as numerous in the one case as the other. We must first endeavour to ascertain the cause of this abortion, a remedy may then be sought with a better chance of success. I never observed this to any extent on my own farm till the crop of 1856. I have not seen anything of the kind affecting the Wheat. *Charles Lawrence, Cirencester.*

Rotation of Crops.—I observe in your "Notices to Correspondents" that you have received my communication of last week. I should wish to explain as briefly as possible that I cannot see, though the *desired effects* as to the division of crops would be obtained by the 12-year rotation which I have mentioned to you, that the exhausting consequences of a triennial course would be the result. I take it for granted that by a triennial course is to be understood one in which the fallow crop would recur every third year, with a repetition of Wheat in the same proportion, *i. e.*, in the period of 12 years the Mangel would be planted in the first, fourth, seventh, and tenth. In the rotation which has suggested itself to me, the benefit of the four years course would be derived twice during the 12 years. It is not unfrequently the practice to run the land, as we say, when in good heart, for an extra crop of Wheat, making the course, as far as the particular field is concerned, one of six years, thus:—1, Roots; 2, Barley; 3, Clover or Beans; 4, Wheat; 5, Beans; 6, Wheat. My proposed system would merely change the fifth and eleventh crops from Beans (which may be considered as a sort of half fallow crop) to Mangel or Beet. It is not to be supposed that land could be so cropped generally without an extra allowance of manure, which however would also hold good in the case of Beans. Mr. Charles Paget, M.P. for Nottingham, indulges in a course of cropping of a far more scourging character as regards Wheat than the one which I suggest (*vide* Royal Agricultural Society's Journal, vol. xvix., p. 404), with, as you no doubt are aware, a very high degree of success, and I should consider that the effect of so frequent a recurrence of corn crops would tend more to the exhaustion of the soil than an extra crop of Mangel, which is a plant deriving so much of nourishment from the atmosphere, and which elaborates, in consequence of the great depth to which its roots extend, so much more from a subsoil which is not available from many other plants. I trust that I may have sufficiently explained the difference which I conceive to exist between the system on which I wish for your opinion, and a triennial one, though the effect with regard to the proportion of the various crops would be equally attained. *Agricola.*

Farmers' Clubs.

TETNEY AND LOUTH.—The following report has been made to these Societies by their Committee appointed to inspect the operations of *Boydell's Traction Engine*, and its practicability for farming purposes, &c:—

Your Committee appointed to report on the trials of Boydell's traction engine have much pleasure in laying before you their observations of the results of the several experiments witnessed by them on the 29th and 31st July ult., on the farm of Mr. James Robson, at Brackenborough, near Louth.

The traction engine brought for the experiment was one of 10-horse power, made by Mr. Burrell, of Thetford, with Mr. Boydell's Patent Shoe, forming an endless Railway, attached to the wheels.

It appeared to your Committee that the ploughing on the first day was not so successful as anticipated, owing to a variety of causes unconnected with the traction power of the engine. Amongst these we may name that the ploughs used were not constructed on the best principles for being thus worked; further, they were not well adjusted. Failures of this kind are not to be attributed to the traction engine. The Committee feel convinced that experience will shortly remedy defects in the adjustment of ploughs attached to this engine, and they would suggest the practicability of fixing ploughs within a frame, or some other mode, in order that they may work simultaneously at equal depths. But without any arrangement of this kind, the ploughing was improved upon in a very marked manner on the second day. Indeed, before this trial closed the general company ceased following the ploughs, convinced, as it would appear, that the problem of ploughing by steam had been so far satisfactorily solved, and thus prejudices that had previously prevailed were left, like other cumbersome but far more serviceable articles, to be dragged at the heels of Boydell's engine.

And here the committee would pass on to notice other implements, more readily adjusted. The trial of Coleman's cultivator, followed by Crosskill's first clod crusher, afterwards by the Cambridge roll and expanding harrows, was in the highest degree successful. The ground, baked as it was at the surface, was with its stiff tenacious subsoil stirred to the depth of 5 or 6 inches, and by the combined action of the three implements, a good seed bed was made at once. Cotgreaves's trenching plough, with subsoil ploughs attached, breaking up the ground to the depth of 12 inches, did their work well. No doubt could exist as to the success of these experiments. Results were attained for which horse-power could not in our opinion be made available. It is somewhat difficult to institute an exact comparison between the power of this engine and that of horses; but according to the best estimate your committee are able to form, they are of opinion, that while Coleman's cultivator was being used, the draught was equal to that of 16 horses or upwards, and while Cotgreaves's trenching and subsoil ploughs were at work, a uniform power of not less than 20 horses was employed.

The work done by six ploughs was nearly at the rate of one acre per hour, that by Coleman's cultivator nearly two.

With reference to the traction power of the engine on common roads, and over a farm, this was fully and satisfactorily proved by the engine drawing four waggons heavily laden with chalk and road scrapings, weighing altogether about 18 tons, across scarified land, on rather rising ground Two of these waggons were drawn up a hill, the gradient being one in nine, the weight of the two laden waggons being upwards of 10 tons, independent of the engine and its equipments.

Your Committee are also of opinion that the engine taking its own threshing machine and plant from one part of the farm to another is of considerable advantage to the farmer.—The beautiful models of waggons exhibited at Mr. Robson's house were intended to show how waggons thus constructed and fastened to this engine must necessarily follow in the track, however serpentine, of the engine itself.

From the experiments made on the above days, your Committee are led to the conclusion, that the great features in the character and construction of Boydell's engine are, its capability of laying down its own railway in endless succession—of travelling upon it in any direction, under the complete control of its driver—and its immense power of traction. They see no reason why the cost of working it should much exceed the cost of working any other 10-horse power engine. In short, they recognise in this invention a great motive power at a comparatively small working cost, requiring what experience alone can give, a better knowledge of the proper mode of attaching and managing the implements to make it available for the farmer's purposes. Taking into account the extent of work it is capable of performing, your Committee consider that, after allowing great latitude to the estimate of the cost of working (2*l.* per day) as detailed in the "Engineer," it must in this respect contrast favourably with the expense of horse draught, favourably also as regards working duration, steadiness of action, and economy of time. Your Committee are conscious, however, that it is only after careful trials that men's minds will be made up. At present there may be a difference of opinion as to the extent to which the powers of this engine may be applicable to the operations on the farm; but enough in our opinion has been proved to establish the fact that the agricultural world is deeply indebted to men, like Mr. Boydell, who are thus providing unforeseen facilities for meeting the requirements of an age marked by progress in everything which appertains to civilised life. May success attend their patriotic efforts, and reward their skilful exertions for promoting the public good!

Signed by GEORGE ALINGTON, Chairman, Swinhope House, Grimsby; CROFT SHARPLEY, Acthorpe, Louth; FRAS. SOWERBY, Aylesby, Great Grimsby, and 14 others.

Reviews.

Words to Labourers, &c. By the Rev. E. F. Beynon. Grey & Warren, 131, High Street, Croydon.

Progress the Farmer's Watchword, &c. By the Rev. E. F. Beynon. Grey & Warren, 131, High Street, Croydon.

These are pamphlets containing the substance of addresses by the President for the year of the East Surrey Agricultural Association on the occasions of its periodical meetings. The following passages from the addresses to servants in husbandry sufficiently indicate the kindly feeling and wisdom by which they were dictated:—

"I have heard it remarked, that 'good masters make good servants,' but it is, I think, equally true, that 'good servants make good masters.' When I see that some of those to whom prizes have been awarded have been 38 or 40 years in the same service, or employed on the same farm, I consider how much must have been endured—how much difficulty and hardship must have been too frequently undergone—how much 'give and take' there must have been—how much forbearance displayed by the master to the servant, and by the servant to the master, during that long course of years; and I think the fact of this long service alike creditable to the employer and employed. Living as I have now done for many years upon the Surrey Hills, I know how arduous your labour is in cultivating the stubborn soil—I know the difficulties with which you meet, and your long hours of toil in summer's heat and winter's cold—toil sometimes not remunerated to the extent which your master might wish; and I confess I sympathise with you, and feel that much allowance should be extended to you, if at any time, under circumstances of more than usual trial of temper, an ungracious, ungenerous, impatient expression should escape your lips. How indeed is the heart which makes no such allowance, and blessed is the man who desires to promote the welfare of his servant."

And again:—

"But now let me give you a few words of encouragement. I have heard the remark made, that the life of a labouring man is a dead level from the cradle to the grave, and that he possesses no lever by which he may raise himself to a higher position. I wish to tell you something more cheerful—something of a less gloomy character. There are, I am thankful to say, many instances on record, where men of your class and position in life have risen to stations of eminence and wealth, and those instances are worthy of mention.

'Lives of great men all remind us
We can make our lives sublime;
And departing, leave behind us
Foot-prints on the sands of time—
Foot-prints that, perchance, another
Sailing o'er life's solemn main,
A forlorn and shipwrecked brother,
Seeing, shall take heart again.'—*Longfellow.*

"The late Sir Robert Peel (whose father was himself an instance of a man who, by his industry, integrity, and skill, had raised himself to a high position in society) stated in the House of Commons, that he knew 10 men who were receiving 25 or 30 shillings as a week wages, when he was a boy, who were worth at the time when he was speaking from 50,000*l.* to 100,000*l.* each. On this occasion he also dwelt upon the importance to working-men of a small saving. 'It may be,' he observes, 'the foundation to them of future independence; it may enable the father of a family, imitating the honourable example of the hon. member for Salford, the late Mr. Brotherton, then in the House of Commons, to gather that family round him, and say, 'From these small gains I will lay the foundation of a fortune, such as hundreds in Lancashire have acquired by their own industry and integrity.' The great Rothschild began by buying prints at Manchester, and ended by becoming the principal money power in Europe. But you may say to me, 'True, but these examples are comparatively useless, and do not meet our case; we do not live in a manufacturing but in an agricultural district, and do not earn 25*s.* to 30*s.* a week.' Granted, but I will tell you of men in your own position and walk of life, who have raised themselves in a similar manner. On a former occasion I alluded to the late Alderman Kelly, who, when a boy, fed sheep on the Surrey hills, and afterwards, by his honesty, industry, intelligence, and skill, raised himself to be Lord Mayor of London, and had the honour of receiving at the ancient gates of the city over which he presided, our present gracious sovereign Queen Victoria, on her accession to the throne. Mr. Lushington, at an agricultural meeting in Kent, not long since, mentioned the circumstance of a gentleman who once fed sheep upon the downs of Lancashire, being made a magistrate by the Duke of Portland, the Lord Lieutenant, and who shortly after received the thanks of the magistracy of the whole county, for his intelligence and zeal. Sir Joseph Paxton, of Crystal Palace celebrity, commenced life as a gardener; and the best mathematician at King's College, Aberdeen, at this time, is a man who part of the year works in agriculture, and during the other part studies in college. Seek then to inscribe your name in that golden record of self-made men, a place in which none of us can inherit but may aspire to attain. I do not indeed suppose that you will all become lord mayors, magistrates, or mathematicians, and if you do, you will not be freed from work, for you will have brain work, than which none is more arduous; but you may all achieve excellence and honour in your own position by integrity and skill."

The addresses to the members of the Surrey Agricultural Association at the annual meetings contain a great deal of useful information indicative of the progress and present stage of British agriculture. The following passages may be taken as a sample of its quality:—

"There are, I believe, about 29 millions of inhabitants in the United Kingdom, and the population is increasing, it is estimated, at the rate of about 1000 a day. There are, it is calculated, 77 millions of acres, at a rental of 127 million pounds sterling per annum, in the area of these kingdoms, 14 millions of which are unimproved waste, but 12½ millions are uncultivated, but improvable land; and we are said to grow, on an average, 51 million quarters of corn, and this corn crop is reckoned to be on an average worth 120 million pounds sterling per annum. In England we have a population of 18 or 19 millions, and we grow about 13 or 14 million quarters of Wheat; and taking the estimate of consumption at one quarter per annum per individual made in Mr. Pitt's time, at the instance of that eminent statesman, when Wheat was 1*l.* per bushel, we find that we have to import 5 million quarters of Wheat annually for home consumption. Now the importation for the last six years was about 4¾ millions of quarters annual average, and for the previous six years 4 millions. In 1856 we imported more than 8 millions of corn grain, of which above 4 millions were Wheat, 1 million quarters Barley, more than 1¼ million quarters of Oats, ¾ million quarters of Beans, and nearly 4 million cwts. of meal and flour. Nor was that all the food which was brought from abroad. Our total annual consumption of butcher's meat amounts to 750,000 tons. The sheep

the British Isles are believed to amount to 35 millions or more, of which England possesses 27 millions; and of cattle in the United Kingdom there are 8 millions. One quarter of these sheep and cattle are said to be consumed every year, and the value of each sort thus consumed is estimated at 20 million pounds sterling. Now, we import on the average of the last few years about 300,000 live animals, though during last year a smaller quantity, viz., 52,019 oxen and bulls, 9843 cows, 21,444 calves, 135,588 sheep, 9471 lambs, and 9916 swine and hogs—total 238,251 animals, mostly from Holland, Denmark, and the Hanseatic towns; we import also about 600,000 cwt. of meat, 400,000 cwt. of cheese, a like quantity, 400,000 cwt., of butter, besides a variety of other articles of food, to the aggregate value of 45 millions of pounds sterling. From this view of the largeness of our importations, we might be led to look forward with fear, to the occurrence of circumstances which might militate against our supply of food from abroad—such, for instance, as the increase and improved condition, and therefore increased consuming power, of the inhabitants of those countries from whence this supply is drawn; but no such apprehension need, I think, be entertained, when we reflect upon the largely increasing amount of corn cultivation in countries where agriculture has not previously flourished, or think of the fertile lands of the American Far West, the improving agriculture of more than one portion of Africa, the opening out the rich valley of Armenia by the proposed Euphrates Railway, or the many other places in which agriculture is improving—the certain effect of a constantly open British market. At the same time, I think that we should endeavour to do our utmost to grow food for the consumption of our own people. It was the opinion of the late Duke of Wellington, that we ought not to depend upon a foreign country for food; and much, no doubt, may be advanced in support of that proposition; but I prefer to take lower ground, and to say, if we can produce food at a profit let us do so. But the question will arise, How shall we best set about the work of increasing our home supply of food? Shall we produce the requisite amount by putting into cultivation the 12½ million acres of land lying waste, but improvable; or shall we apply ourselves to increase the production of the land under cultivation? My answer is, Let us do both—let us cultivate all the land of the country which will pay for such cultivation, but first let us improve the tillage of that which is now under culture, and look to advancing knowledge to aid us to develope to the utmost the latent powers of those fields which we have now in hand."

Miscellaneous.

Why is Farmyard Dung so valuable?—As regards farmyard dung its value probably consists in several points. 1. That it presents a great choice of salts of all sorts in every state of combination, and in every digestible form, so that the plant finds all its wants easily supplied: well-made dung is always rich in ammonia, phosphates, and potash, which, as we have seen, are the elements of prime necessity. 2. It acts mechanically on the soil by loosening clay and binding light soils. 3. Its slow fermentation no doubt raises the temperature of the soil. And lastly, as it ferments and decomposes, it probably supplies carbonic acid to the roots of the plants, and so assists the action of the atmosphere and the rain, both in directly supplying carbon, and in dissolving the alkalies and other minerals in the soil. The objection to dung as the sole supply of the farm is, that it is expensive to make, bulky to move, and always insufficient in quantity; and on these accounts the chemist and the farmer have both done their best to find some cheaper means of keeping up the fertility of the soil and the supply of the food of the people. *Acland on the Chemistry of Practical Farming.*

Calendar of Operations.

SEPTEMBER.

FARM NEAR HEXHAM, *Sept.* 4.—The frequent rains during the first two weeks of August retarded harvest operations, and it was not until the 17th that cutting was commenced in earnest. The weather during the remainder of the month was everything that could be desired, and as a very large proportion of the crops on the earliest farms was ready for the sickle all at once, a considerable breadth was cut and carried before the weather broke on the 2d inst. We were fortunate in getting the great bulk of our crop, including winter Beans, carried in excellent condition, and what remains to be secured is part of our spring Wheat and late sown Barley. Except in the most favoured situations, however, the greater proportion of the crops in this neighbourhood is either uncut or standing in stook, and the torrents of rain which have fallen for the last three days must do considerable damage, unless followed immediately by drying winds. From the scarcity of labourers the expense of harvesting has been great—in some cases 15s. and 16s. per acre having been paid for cutting and stooking Wheat and Oats. The success of Burgess & Key's reaper on a neighbouring farm will doubtless turn the attention of those whose farms are suitable to this comparatively cheap and expeditious method of cutting down their crops. The Potato disease has appeared to a very limited extent in most fields under this crop. The green crops in general will be much benefited by the copious supply of moisture, as early-sown Swedes and Turnips on hot soils were suffering severely from mildew. Pastures are fresh, and seem capable of carrying forward the stock until the Turnip crop is ready for consumption. *W. C. T.*

Notices to Correspondents.

CLOVER DODDER: *T P W B.* Your Clover is being destroyed in patches by the Clover Dodder, to which reference has several times been lately made in these columns.

THISTLES: *E L, Bucks.* There can be no doubt of the impropriety of mixing up seeding Thistles in the dung-heap. There no certainty of the seed being destroyed during the fermentation of the manure.

HARTLEY'S PATENT ROUGH PLATE GLASS,

For Ridge and Furrow Roofs, Conservatories, Manufactories, Skylights, Workshops, Public Buildings, Railway Stations, Offices, Mills, Market Halls, &c. Particularly adapted for Verandahs, Carriage Entrances, &c.

CUT TO THE SIZES ORDERED.	Thickness in parts of an inch. $\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{5}{8}$
Under 8 by 6	0 4	0 5	0 6	0 8
8 by 6 and under 10 by 8	0 5	0 6	0 7	0 9
10 by 8 ,, 14 by 10	0 6	0 7½	0 9	0 10
14 by 10 ,, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½	0 11
1½ ft. sup. ,, 3 ft. or if above 20 and not above 30 in.	0 7	0 8½	0 10	0 11
3 ,, 4 ,, 20 ,, 30..	0 7½	0 9	0 10½	1 0
4 ,, 5 ,, 30 ,, 35..	0 8	0 9½	0 11	1 1
5 ,, 6 ,, 35 ,, 40..	0 8½	0 10	0 11½	1 1
6 ,, 8 ,, 40 ,, 45..	0 9	0 10½	1 0	1 1
8 ,, 10 ,, 45 ,, 55..	0 9	0 10½	1 0	1 1
10 ,, 12 ,, 55 ,, 65..	0 9	0 10½	1 0	1 2
12 ,, 15 ,, 65 ,, 75..	0 10	0 11	1 0	1 3
15 ,, 20 ,, 75 ,, 90..	0 11	1 0	1 2	1 3
20 ,, 25 ,, 90 ,, 100.	1 1	1 2	1 3	1 4
QUARRIES .. —	0 6	0 7	..	..
BENDING, ordinary curves ..	0 6	0 9	1 0	1 4

Packed in Boxes of 50 feet each.

6 by 4, and 6½ by 4½ .. 10s. 6d. | 8 by 6, and 8½ by 6½ .. 12s. 6d.
7 by 5, and 7½ by 5½ .. 12s. 0d. | 9 by 7, 9½ by 7½, & 10 by 8 15s. 0d.

For large quantities special prices.

From Gardeners' Chronicle.

"By all means use Hartley's Rough Plate Glass, and pay no attention to those who advise you to the contrary."

JAMES PHILLIPS AND CO., LONDON AGENTS,

116, Bishopsgate Street Without. E.C.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15s. 6d. per 100 feet. Some of the above in 21 oz. Glass at 1s. and 2s per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ — 10s. per 100 feet.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9 — 14s.
8 by 6, 9 by 7, 9½ by 7½, 10 by 8 — 12s.
12 by 10, 13 by 10, 14 by 10, 15 by 10 — 14s.
19 by 12, 20 by 12 — 16s.
18 by 12, 20 by 14

Foreign Sheet Glass in 200 ft. cases, 32s. and 40s. per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ½ to $\frac{3}{16}$ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. | Fern Shades and Stands.
Bee ,, | Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2d. to 3d. per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & CO., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17s 6d. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. A liberal Allowance to the Trade, &c.—Manufactory, Kennington Lane, Lambeth.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling house, &c. Flower Stands, Garden Arches, Fencing, &c., of all kinds. Upwards of 60 different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, new and original designs, Manufactured by W. RICHARDS, at the Imperial Wire Works, 370, OXFORD STREET, LONDON, W.; and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

THE CELEBRATED REIGATE SILVER SAND, 16s. per ton, a less quantity 1s. 6d. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & CO., Seedsmen, Wellington Street, Strand.

REIGATE SILVER SAND (best quality for Florists), 16s. per ton, or 1s. 6d. per bushel, delivered five miles, or to any London Wharf or Railway. PEAT and LOAM of various kinds, in large or small quantities. Strong sacks, 2s. each; or on hire, 6d. each.—JOHN KENNARD (Purveyor to Her Majesty), Swan Place, Old Kent Road, S.E.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. LAMBERT & SON, Short Street, New Cut, Lambeth, S.

SIGMA'S CORN PLANTERS, with Five Depositors, 3l. 3s. The STEEL DRAW SHAVE HOE, 4s. 6d.

Mr. POWELL will be able to execute fresh orders in three weeks' time. A Prospectus sent.

Mr. POWELL, Hurst Green, Sussex.

HOT-WATER APPARATUS

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER. DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PARK.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction not only in regard to its simplicity in management, its economy in fuel and attendance, but also in regard to the great power of heating which it possesses. The boiler is certainly one of the most valuable inventions for heating purposes that has ever been brought before the public. Full particulars with illustrations and prices forwarded on application.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24 inch Wrought Iron is 6l. 10s. each; 30-inch ditto, 8l. 10s. each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

J. S. MORRIS, HYDRAULIC ENGINEER, 38, Upper Thames Street, City, London.

Hot Water Apparatus complete, on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. MORRIS in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

A Treatise by J. S. MORRIS "On Warming and Ventilating Dwellings" sent free.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2s. 6d. each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

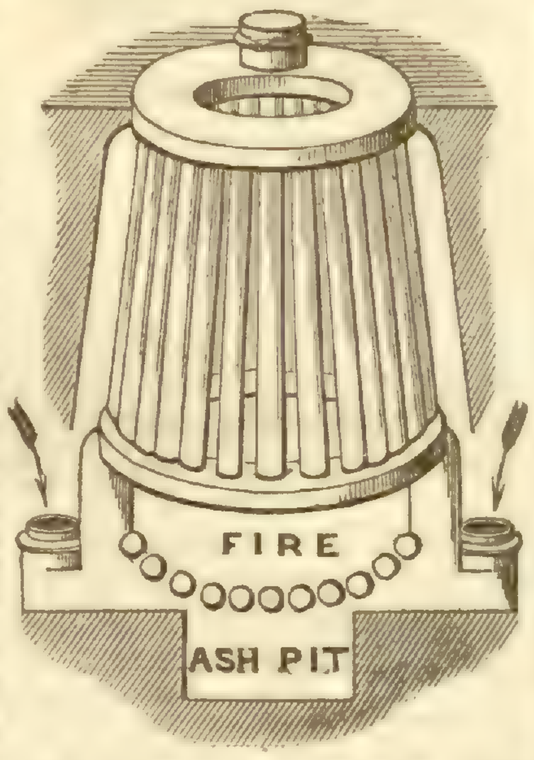
ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings :—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.



Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

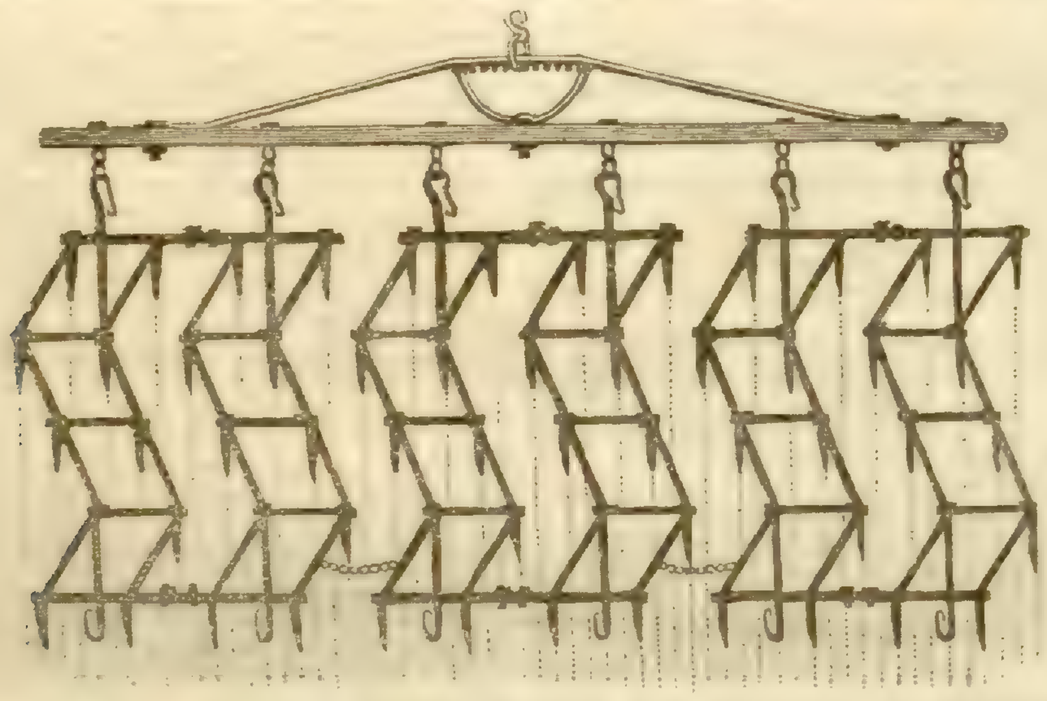
JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

PATENT PRIZE-JOINTED HARROWS.



FOR which they received the following FIRST PRIZES last offered by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, viz. :—

THE FIRST PRIZE FOR THE BEST GENERAL PURPOSE HARROWS.
THE FIRST PRIZE FOR THE BEST LIGHT HARROWS.
THE FIRST PRIZE FOR THE BEST DRAG HARROWS.

A Set of 3 Four-beam Harrows, with Whippletree, No. 12, 9½ feet wide, recommended as general Seed Harrows .. £3 14*s.*
A Set of 3 Four-beam Harrows, with Whippletree, No. 11, 10 feet wide, adapted for three horses .. .. .. £4 4*s.*
If with Patent Joints, as above, 6*s.* per set extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

HORTICULTURAL WORKS.

HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS.

Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-Water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

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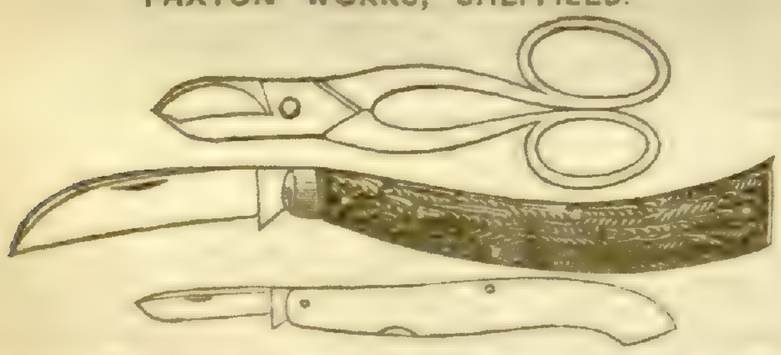

SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1748.

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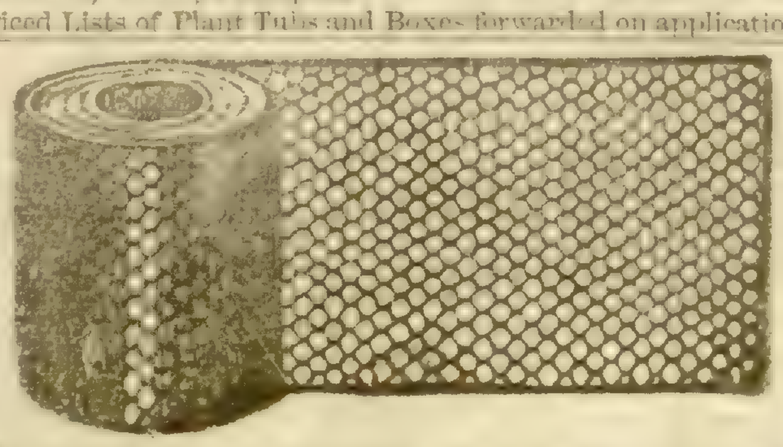

BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,,	strong do.	6 ,,	4½ ,,
2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5½ ,,
1⅝-inch ,,	intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

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WARNERS' SWING WATER-BARREL (TO HOLD THIRTY GALLONS)

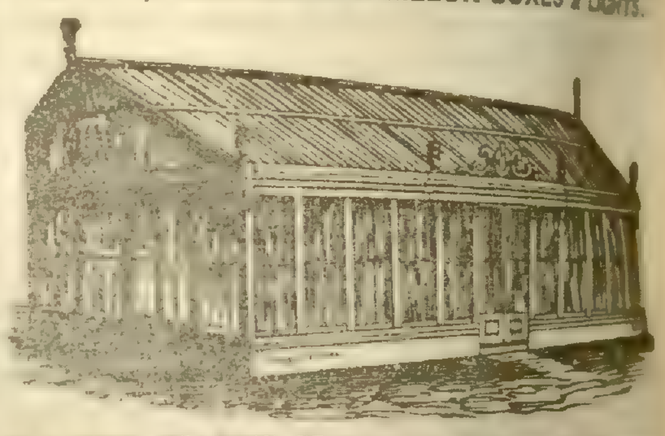
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Horticultural purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

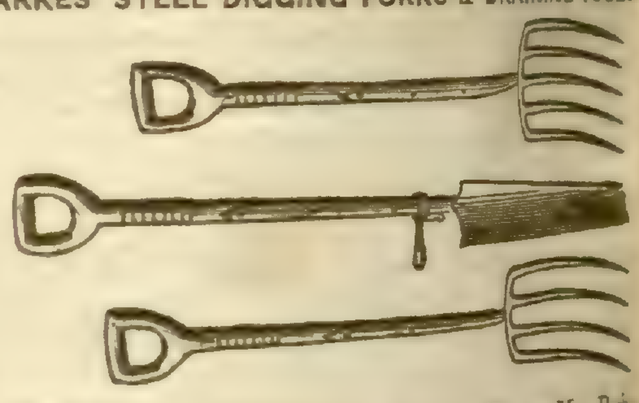
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft., 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had from Nobility, Gentry, and the Trade in most of the counties of England.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Circulars of the best Farm Implements on receipt of eight postage stamps.

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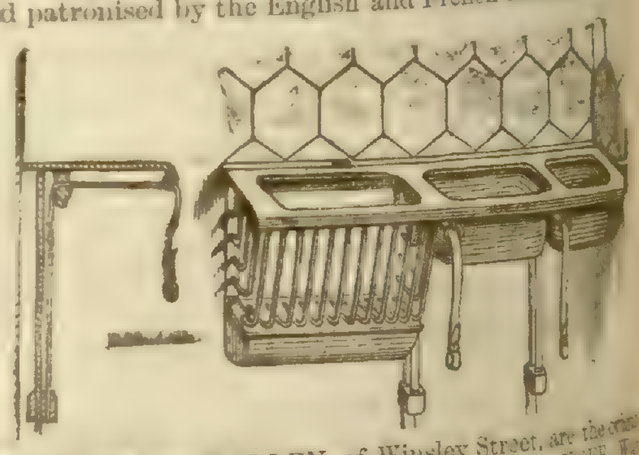
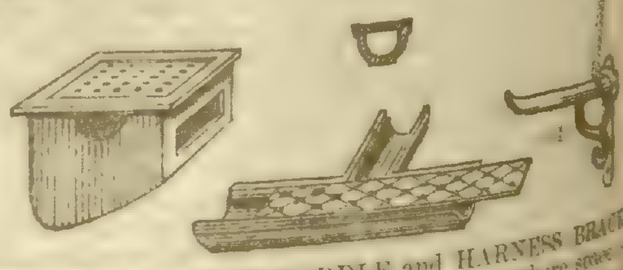
COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron upright, and forming one complete and useful fixture, having Cottam's patent noiseless halter guide and collar rein attached, and which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE BOX FITTINGS, and every article for the harness room and stable, kept in stock, plain, galvanized or enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, post free on application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBERr, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of those support and favours he has much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

Stanley Bridge, King's Road, Chelsea, Sept. 12.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOM-HEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. HENDERSON begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. **Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.**

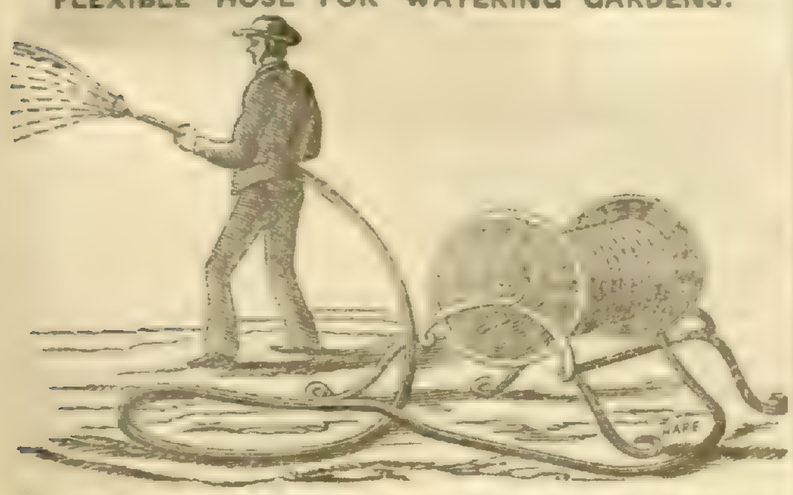
The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin ..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. HENDERSON, Inventor of the Patent Improved Broomheads, Dunkeld.

FLEXIBLE HOSE FOR WATERING GARDENS.



J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up large lengths of India Rubber Hose, *see Sketch*.

IMPROVED ECONOMIC REGISTERING GARDEN THERMOMETER, price 4s. Arranged to show present temperature and register correctly the lowest degree of cold during absence. Especially adapted for Gardens, Greenhouses, Melon Pits, Stables, Dairies, &c. Each instrument is separately graduated to its scale, and regulated in all its parts by authorised standard instruments. CASELLA'S Agricultural or Cottage Barometer, 11s. 6d.; CASELLA'S Gardeners' Rain Gauge, 15s. 6d.; CASELLA'S Milk Test for the Dairy, 4s. 6d. Sole Agents for Schönbein's Ozonometer, 5s. 6d. A Descriptive lists and Drawings on receipt of a stamped envelope.—L. CASELLA, Maker to the Hon. the Board of Trade, of Ordnance, Royal Geographical Society, &c., 23, Hatton Garden, London.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

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MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

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MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

FOWLER'S PUMPS FOR ALL PURPOSES

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

WHITEFRIARS STREET, FLEET STREET, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & SON'S Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 8*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required	1	10	0
2½ ,,	long 3 ,, 5 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
½ in.	long ditto	ditto ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

HOLLOWAY'S PILLS—LET THE SICK TAKE HEED.—The stomach is the commissariat of the physical system. It furnishes the material sustenance of every organ. If disordered the whole body languishes, but however severely affected, its tone and vigour may always be restored by a course of these irresistible Pills: Bile, Indigestion, Liver Complaint, and other disorders of the stomach, can easily be cured by the use of HOLLOWAY'S Pills. Thousands attest to this assertion, and no sufferer that has ever tried them will deny their supreme efficacy.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STORPS, Constantinople; A. GUERIN, Smyrna; and E. MUIR, Malta.

COOL AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—C. & A. OLDRIDGE, 13, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3*s.* 6*d.*, 6*s.*, and 11*s.*; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

DR. DE JONGH'S
LIGHT-BROWN COD LIVER OIL has now, in consequence of its marked superiority over every other variety, secured the entire confidence and almost universal preference of the most eminent Medical Practitioners as the most speedy and effectual remedy for CONSUMPTION, BRONCHITIS, ASTHMA, GOUT, RHEUMATISM, SCIATICA, DIABETES, DISEASES OF THE SKIN, NEURALGIA, RICKETS, INFANTILE WASTING, GENERAL DEBILITY, AND ALL SCROFULOUS AFFECTIONS.

Its leading distinctive characteristics are:
COMPLETE PRESERVATION OF ACTIVE AND ESSENTIAL PRINCIPLES.
INVARIABLE PURITY AND UNIFORM STRENGTH.
ENTIRE FREEDOM FROM NAUSEOUS FLAVOUR AND AFTER-TASTE.
RAPID CURATIVE EFFECTS AND CONSEQUENT ECONOMY.

OPINION OF **A. B. GRANVILLE, ESQ., M.D., F.R.S.,**
Author of "The Spas of Germany," "The Spas of England," "On Sudden Death," &c.

"Dr. Granville has used Dr. de Jongh's Light-Brown Cod Liver Oil extensively in his practice, and has found it not only efficacious, but uniform in its qualities. He believes it to be preferable in many respects to Oils sold without the guarantee of such an authority as De Jongh. DR. GRANVILLE HAS FOUND THAT THIS PARTICULAR KIND PRODUCES THE DESIRED EFFECT IN A SHORTER TIME THAN OTHERS, AND THAT IT DOES NOT CAUSE THE NAUSEA AND INDIGESTION TOO OFTEN CONSEQUENT ON THE ADMINISTRATION OF THE PALE NEWFOUNDLAND OILS. The Oil being, moreover, much more palatable, Dr. Granville's patients have themselves expressed a preference for Dr. de Jongh's Light-Brown Cod Liver Oil."

Sold ONLY in IMPERIAL Half-pints, 2*s.* 6*d.*; pints, 4*s.* 9*d.*; quarts, 9*s.*; capsuled and labelled with DR. DE JONGH'S stamp and signature, WITHOUT WHICH NONE CAN POSSIBLY BE GENUINE, by most respectable Chemists throughout the United Kingdom.

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DR. DE JONGH'S SOLE BRITISH CONSIGNEES.

RUPTURES EFFECTUALLY CURED WITHOUT A TRUSS.—DR. BARKER'S celebrated REMEDY is protected by three patents, of England, France, and Vienna; and from its great success in private practice (having cured 437 cases last year, 1856), is now made known as a public duty through the medium of the press. In every case of single or double rupture, in either sex, of any age, however bad or long standing, it is equally applicable, effecting a cure in a few days, with the utmost certainty, without inconvenience, and will be hailed as a boon by all who have been tortured with trusses. Sent post free to any part of the world, with instructions for use, on receipt of 10*s.* 6*d.* by Post-office order or stamps, by CHARLES BARKER, M.D., 10, Brook Street, Holborn, London.

TO THE NERVOUS AND DEBILITATED.

CHARLES WATSON, M.D. (Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted. **"The first man of the day in these complaints."—*Medical Review*, July 1856. "The true guide to those who desire a speedy and private cure."—*University Mag.***

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

BLAIR'S GOUT AND RHEUMATIC PILLS, price 1*s.* 1½*d.* and 2*s.* 9*d.* a box.—Thirty years ago to speak of a cure for the Gout was considered a romance, but now the efficacy and safety of this medicine are fully demonstrated by testimonials from persons in every rank of life, and public opinion proclaims this as one of the most important discoveries of the present age. These Pills require neither attention nor confinement, and are certain to prevent the disease attacking any vital parts.—Sold by PROUT & HARSANT, 229, Strand, London, and all Medicine Vendors.

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FOR SALE CHEAP. Circular Saw Table and Boring Machine; Horse Power Threshing Machine, by Garrett; Hand ditto; Steel Flour Mill and Dressing Machine; Irrigating and Liquid Manure Pumps.

EDWARD WEIR, Bath Place, New Road, N.W.

TO NURSERYMEN AND OTHERS.

TO BE LET, a compact NURSERY, within 14 miles of London, consisting of about [illegible] of ground, cropped with a general assortment of Nursery Stock; also six Greenhouses, Pits, Seed Shop, &c.—Further particulars had of PROTHEROE & MORRIS, American Nursery, Leytonstone, Sept. 12.

TO BE LET, and entered upon at Michaelmas or sooner if required, a HOUSE and SHOP where a SEED, PLANT, and FRUIT BUSINESS has been carried on these last eight years. There is a walled Garden attached, about half an acre stocked with common Fruits, and a Pit heated with hot water, which will require to be taken at a valuation. The above is situated in a small Market Town and good neighbourhood; a good opening for a small nursery, as there is nothing of the kind within eight miles.—For further particulars apply to A. B., Mr. Brooks, 39, Sussex Street, Winchester.

FARM TO LET by Tender or Lease, or on a just and equitable system of Tenant Right, containing 290 acres or thereabouts, 200 of which is first-rate Meadow and Pasture Land, feeds well, water in every field; the rest is Arable, a deep and loamy soil. A nice and genteel Residence amidst delightful scenery, the right of Sporting, with plenty of Game, a capital Trout stream, within reach of five or six Packs of Hounds, and situated within six miles of the ancient town of Ludlow, where there is railway communication to all parts of the country.—Apply by letter, enclosing a postage stamp, to A. B., Mr. Partridge, Library, Ludlow, Salop.

KINGSLAND GATE
To GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Harrington to Sell by Auction, on the premises, Kingsland Gate Nursery, Kingsland, Middlesex, on THURSDAY, September 24, at 11 o'clock, about 400 choice DOUBLE CAMELLIAS, from 18 inches to 7 feet, consisting of all the most approved kinds, beautifully furnished with bloom buds; fine Azalea indica, Epacris, Erica, Cytisus, Acacias, Chorozema, Myrtles, Geraniums, &c., with a few handsome Cedrus Deodara, 5 to 6 feet, established in pots.—May be viewed two days prior to the sale. Catalogues may be had on the premises, at the Nursery, Dalston; and of the Auctioneers, American Nursery, Leytonstone, Essex.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition, and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	**CROCUS**	**ANEMONES**	**IRIS**
NARCISSUS	**TULIPS**	**RANUNCULUS**	**LILIES, &c. &c.,**

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

CATTELL'S EARLY BARNES & RELIANCE CABBAGES, ALSO DEPTFORD, PARAGON, KING, IMPERIAL, &c.

JOHN CATTELL has now ready Bedded Plants of the above well known best kinds for early spring cutting at 5*s.* 6*d.* per 1000; also Red, for pickling, of first rate stock, at 1*s.* per 100 or 7*s.* 6*d.* per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway, carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

JOHN CATTELL has to offer a good stock of the following Variegated GERANIUMS at the annexed prices, hamper included. They were struck last spring, and are now in small pots, and will make extra strong plants for bedding next season:—

	Per doz.—*s.*		Per doz.—*s.*
Attraction (Kinghorn's) ..	6	Alma, 1*s.* 6*d.* each.. ..	15
Annie (do.) 1*s.* 6*d.* each ..	12	Mrs. Lennox	12
Countess of Warwick (do.) 1*s.* 6*d.* each	12	Silver Queen (young plants)	6
		Golden Chain	6

Also Flowering Bulbs of a new unnamed Oxalis, with large sea-green leaves growing close to the surface; the flowers are large (rising just above the leaves) of a bright purplish rose colour; it is a highly ornamental spring flowering plant. Price 4*s.* per dozen, post free. Orders from unknown correspondents must be accompanied with a remittance.

Nursery and Seed Establishment, Westerham, Kent.

DUTCH AND OTHER BULBS.

JOHN CATTELL begs to inform the Public that his CATALOGUE of the above for the current season may be had gratis on application. Besides the general assortments of Hyacinths, Narcissus, Tulips, Crocuses, &c., J. C. particularly directs attention to his fine collections of Liliums, Amaryllis, Oxalis, Scilla, &c. His stock of Lilium spinosum varieties consists of several thousands of bulbs, and J. C. has now good bulbs of the beautiful varieties raised by him from seed; they have flowered splendidly this season, both in-doors and out: the earliest begin to flower in July, and the latest are now in great beauty; in colour they vary from white, thinly spotted with brilliant crimson, to very dark crimson, with all intermediate shades; some of the flowers are very large. J. C.'s stock of the beautiful sky-blue Scilla siberia consists of many thousands; also Tropæolum tricolorum grandiflorum, the bulbs of which are from one to nine inches round; other good bulbous plants in great variety.—N.B. Of Dutch Bulbs, J. C. imports those of best quality only.

Nursery and Seed Establishment, Westerham, Kent.

STRAWBERRIES.—Underhill's SIR HARRY, warranted true as exhibited at the Horticultural Rooms, Regent Street, for which a Certificate of Merit was awarded; the Pomological Society, Long Acre; and Messrs. J. W. Draper & Son's, Covent Garden, London.

R. S. YATES having this summer fruited upwards of half an acre, can with confidence recommend it as the best Strawberry for general purposes that has yet been raised. He can now supply strong, well-rooted Plants to any extent. Price 20*s.* per 100, or 4*s.* per dozen. Also every other kind worth cultivation; and (if requested) both old and new varieties of questionable merit.—St. Ann's Square, Manchester.

P.S.—Plants sent over to compensate for distant carriage. The usual discount to the Trade when not less than 1000 are ordered.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety that has ever yet been sent out, possessing all the good qualities for which a Strawberry is required, viz. flavour equal, and considered by many to be superior to that fine sort the British Queen; the fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season. The plants are of a very dwarf habit, and as hardy as Keens' Seedling, will force well, and have been spoken of by gentlemen and nurserymen, who were competent judges, as being the best they had ever tasted. Now ready for sending out—strong well rooted plants 1*l.* per 100; 50 for 11*s.*, hamper and package included; 25 for 6*s.*, and 12 for 4*s.*, postage free. A remittance must accompany every order by cash or penny postage stamps.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

INGRAM'S PRINCE OF WALES STRAWBERRY.

J. AND E. SMALL beg to intimate that they are again prepared to supply fine strong Plants of the above fine Strawberry, which is so extensively grown in the Royal Gardens. J. S. exhibited a fine basket at the meeting of the Pomological Society on July 8th from Plants six weeks in bearing. "The fruit exhibited were very large, firm, and full flavoured." See the July report of the Pomological Society. This Strawberry is highly recommended for market purposes, being very prolific and bears carriage well. Mr. Plimley, Market Gardener, of Shepherd's Bush, Middlesex, has authorised me to state that he has proved it to be in every point superior to the Keens' Seedling, which variety he has now ceased to cultivate. Mr. Plimley will kindly answer any inquiry respecting it. Strong and true Plants 7*s.* 6*d.* per hundred, and a liberal allowance to the trade.

P.S. Plants of all the leading sorts can also be supplied.

Orders sent to the Colnbrook Nursery, Slough, Bucks.

CAMELLIAS, CHINESE AZALEAS, ERICAS, EPACRIS.

HUGH LOW AND CO. call the attention of intending purchasers to their extensive and fine stock of the above, consisting of very many thousands of each of the Genera named. The Plants are all in luxuriant health, and will flower well during the ensuing Winter and Spring, as they have been exposed to the full sun of an unusually hot summer. The limits of an advertisement do not admit of particular details as to sorts and sizes of plants, and therefore H. L. & Co. would recommend a personal inspection.

Rare hardy Conifers, such as Cupressus macrocarpa, Cupressus Lambertiana, Pinus ponderosa, Pinus Fremontiana, Pinus insignis, Pinus radiata, Wellingtonia gigantea, can also be supplied by the 1000 at low prices.

Clapton Nursery, London, N. E.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, SEEDSMAN and FLORIST, 10, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

FINE STOVE PLANTS ON SALE.

JAMES DICKSON AND SONS, NURSERYMEN, Chester, have been instructed by Sir John Hay Williams, Bart., of Bôd Elwyddan (six miles from Rhyl Station), to DISPOSE OF BY PRIVATE CONTRACT, in lots, or otherwise, his very valuable and remarkably well-grown COLLECTION OF STOVE PLANTS. The proceeds of the sale to be for the BENEFIT of a CHURCH in ANGLESEA much in debt. The Collection contains many rare and valuable specimens, Catalogues of which and full information may be obtained on application to JAMES DICKSON & SONS, the Newton Nurseries, near Chester.

THREE THOUSAND AZALEA INDICA.

WILLIAM BARNES has for Sale the above number of INDIAN AZALEAS, and has no hesitation in saying that for health, shape, and cleanliness, they are not to be surpassed by any collection in this or any other country. All the best kinds are worked upon vigorous healthy stocks, and can be supplied in nearly all sizes and heights, as well as those upon their own roots, which are literally covering the pots with their branches, and are finely set with bloom buds. The following list comprises a small portion of his extensive stock:—

Admiration	Eulalie Van Geert	Mrs. Fry
Adolphe	Extransi	Perfecta elegans (true)
Alba meliora	Fentoni	Perryana
,, magna	Gem	Petuniæflora
,, striata	Gledstanesi excelsa	Princess Mary of Cambridge
Ardens	,, formosa	Queen of Perfection
Ascendens	Glory of Sunning Hill	Queen Victoria
Aurora	Holfordi	Reine des Belges
Barclayana	Impératrice Josephine	Roi Leopold
Beali	Iveryana	Rosy Circle
Beauté d'Europe	Juliana	Ruckeri
Beauty of Reigate	Lateritia alba supreme	Sir C. Napier
Chelsoni	,, grandiflora	Stanleyana
Constantia rosea	Lawrenciana	Striata formosissima
Countess of Stamford	Leeana	Symmetry
Crispiflora	Louis Napoleon	The Bride
Criterion	Lucens	Trotteriana
Delicatissima	Magnificans	Vesta
Duke of Devonshire	Madame Miellez	Violacea superba
Elegans superb	Maria	
Empress Eugenie		

As well as every other known variety worth cultivation.

W. B. would respectfully invite intending purchasers to an inspection of his unrivalled stock, which will give them the opportunity of making their own selections. A great many are splendid specimen plants fit to exhibit at any horticultural show in the world. Prices, which are exceedingly low, can be obtained on application. W. B. would further state that his plants are perfectly free from Thrip (which is almost universal in its ravages), and that purchasers will be supplied with the most effectual method of keeping them ever free from their attacks. Camden Nursery, Camberwell, S.

NOW READY FOR SENDING OUT.

GEORGE SMITH begs to offer fine strong Plants of the following new and superb Collection of Show GERANIUMS, including the best of the new Flowers sent out in the autumn of 1856, raised by Mr. Hoyle, Mr. Turner, Mr. Beck, Mr. Dobson, and Mr. Foster, at 36*s.* per dozen, viz.:—

HOYLE'S—Bianca, Agnes, Matilda, Polly, Rose, Raglan, Review, Standard, Marvellous, Viola. TURNER'S—King of Scarlets, Miss Foster, Spotted Gem, Queen of the Fairies, Mr. Beck, Mr. Hoyle. BECK'S—Emperor, Ardens, Florence, Selim. DOBSON'S—British Queen, Alexander. FOSTER'S—Flora and Symmetry. Also a first-class collection of older kinds of the above, and the most choice of fancy, spotted, scarlet, and variegated kinds at a moderate price. Package and hamper free, with plants to compensate for carriage.

A Descriptive Catalogue will be forwarded in exchange for one postage stamp.

*** Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders made payable at Holloway, Middlesex.

Tollington Nursery, Hornsey Road, Islington, London.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	*s.*
For a single plant in 48-sized pot ..	.. ..	0	15
Ditto	ditto, extra strong	1	1
Six ditto	ditto, smaller	3	3
Twelve ditto	ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Sept. 12.

GLADIOLUS BRENCHLEYENSIS—the splendid flower of the tribe, and easy of culture.

GLADIOLUS GANDAVENSIS, and

TIGRIDIA CANIARIENSIS—MORGAN'S pure yellow and richly spotted Tiger Iris.

JOSEPH MORGAN, Torbay Nurseries, Torquay, has a large Stock of the above, and respectfully offers to supply the flowering Roots on and after October 1, at reduced prices.

A Priced CATALOGUE OF BULBS, embracing a select list of J. MORGAN'S collection of GLADIOLI, will be sent on application. The Trade supplied on advantageous terms.

STATICE HALFORDI in 4-inch pots.

Horticultural Establishment, Torquay, Sept. 12.

SEEDLING ERICAS.

OBBATA PURPUREA.—Shape and size similar to the type obbata, but is suffused with plum colour purple. Large trusses of flowers of great substance, and continues blooming for weeks; it is one of the finest Ericas ever seen. Good plants 10*s.* 6*d.* to 21*s.*

MAIDSTONIENSIS.—An excellent variety for exhibition; tube long, colour bright rosy red, extra substance, fine form and habit, quite distinct from anything out. Was awarded first-class certificates in Regent's Park. Fine plants, 10*s.* 6*d.* and 21*s.*

TRICOLOR EPPSI.—This beautiful Heath is a plant of great merit, early and free flowering, large whorls of fine colour scarlet shading off to white, and very glossy; a fine variety for exhibition; decidedly the finest tricolor. Was awarded first-class certificates at Chiswick, Regent's Park, and the National Meeting. 10*s.* 6*d.*, 21*s.*, and 42*s.* each.

EPPS'S Nurseries, Maidstone.

J. BESTER, Barlow Moor Nursery, Didsbury, Lancashire, begs to offer the undermentioned choice Plants at the following low prices:—

FUCHSIAS.—Little Treasure, Etoile du Nord, Napoleon, Chiswick, Catherine Hayes, Star of the Night, Lady Boyle, Cœur de Lion, Albert Smith, Tristram Shandy, Marquis of Anglesea, Cedo Nulli, The Fair Oriana, Silver Swan, Fairest of the Fair, Marchioness, Royal Victoria, Princess Royal, 1*s.* each; Unique, Miss Bailey, 1*s.* 6*d.* each.

SHRUBBY CALCEOLARIAS.—Archeriana, Amabilis, Defiance, Dominiana, Figaro, Hero, Leopard, Orion, Perfecta, Rantornet, superbissima, 6 for 7*s.* 6*d.*; 12 for 12*s.*

NEW GERANIUMS of 1856.—Strong plants, 1*s.* 6*d.* to 2*s.* each.

FRENCH GERANIUMS from 1*s.* to 2*s.* 6*d.* each.

TO GENTLEMEN AND NURSERYMEN ABOUT TO REFRESH THEIR AMERICAN BEDS.

RICH BOG AND LOAM can be had in large or small quantities upon reasonable terms, by Land or Water carriage.—Apply to ROBERT NEAL, Nurseryman and Contractor, Wandsworth Common, Surrey.

TO THE NOBILITY AND PUBLIC.

GEORGE BAKER begs to call attention to his unrivalled stock of CONIFERA AND AMERICAN PLANTS, all in the finest possible condition.—Catalogues may be had on application, American Nursery, Bagshot, Surrey, a mile from Sunningdale Station, Staines, Wokingham, and Reading Branch, S.W.R.

Araucaria imbricata, from 1 foot to 8 feet high, and all intermediate sizes.

Abies canadensis, very fine specimens, from 3 to 15 feet high, very handsome specimens.

,, Douglasi, good seedling plants, 4, 5, 6, 7, 8, 9 and 10 feet.

,, Menziesi, from 6 to 14 feet.

Cedrus Deodara, small seedling plants, 6 to 9 inches, by the 100; good specimens, 4, 5, 6, 7, 8, 9, 10, to 14 feet.

,, Lebanon, ditto.

Cryptomeria japonica, from 4 to 8 feet; a few very fine specimens 18 feet.

Cupressus macrocarpa, a large stock from 1 feet to 4 feet, very well-grown plants.

,, torulosa, from 1 to 3 feet.

,, disticha, very handsome plants, from 1 to 3 feet.

Cephalotaxus Fortuni, from 1 foot to 18 inches.

Junipers, common, from 1½ to 4½ feet.

,, Irish, from 1 to 8 feet.

,, Chinese, from 1 to 4 feet; very fine specimens, 5, 6, 7, 8, and 9 feet, very bushy.

,, fœmina, 4 to 5 feet.

,, recurva, from 1 to 4 feet; very large bushy specimens 7 feet high and 5 feet through, very handsome.

Juniperus phœnicea, nice bushy plants.

,, Bedfordiana, 2 to 4 feet.

,, tamariscifolia, good well established plants in pots.

,, communis pendula, good specimens 6 to 8 feet.

,, pendula vera, 2 to 3 feet.

,, virginica, 1, 2, 3, 4, to 7 feet; very handsome [2 to 3 feet] grown plants.

,, cricoides by the 100, small plants; good specimens.

Libocedrus chilensis, small plants by the dozen; good specimens 3 to 4 feet.

,, Fitzroya patagonica, 6 to 9 inches, nice plants.

Norway Spruce, 6 to 12 feet.

Picea nobilis, from 6 inches to 3 feet.

,, grandis, 1 foot.

,, amabilis, do.

,, Nordmanniana, 9 inches, 12 inches, 18 inches, to 3 feet.

,, Pinsapo, 1, 2, 3, 4 feet; very handsome specimens, 5 feet.

Pinus Montezuma, 3 to 5 feet.

,, Sabiniana, do.

,, macrocarpa, 4 feet.

,, californica, 5 feet.

,, Cembra, from 1 to 5 feet; good specimens 6 to 8 feet.

,, excelsa, 2 to 4 feet; some exceedingly handsome specimens from 8 to 15 feet.

,, insignis, small, by the 100; 1, 2, 3, 4 feet; very handsome specimen plants from 6 to 9 feet.

,, Benthamiana, from 1 to 3 feet.

Taxodium sempervirens, or Sequoia gigantea, 1, 2, 3, 4, 5 feet; good plants, 10 feet.

Taxus baccata (common), a very large stock of all sizes from 1 foot to 5 feet.

,, hibernica, 2½ to 3, 4 feet; very fine handsome specimens, 5 to 6 feet.

,, Gold stripe.

,, elegantissima.

,, adpressus.

,, japonica.

,, ericoides.

Thuja americana, 3 feet to 7 feet.

,, orientalis, 2 to 4 feet.

,, siberica, a large stock from 2 to 6 feet.

Weeping Ash, on 12 to 16 feet stems; very fine specimens.

,, Hollies, 10 to 12 feet.

Variegated Hollies, from 2 to 7 feet.

Rhododendrons (a very large collection), Azaleas, Kalmias, Magnolias, and Nursery Stock generally. A good and extensive assortment of Standard and Dwarf Roses, Roses on their own roots in pots, &c.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE
AND
AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 38.—1857.] SATURDAY, SEPTEMBER 19. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—GREAT AUTUMN EXHIBITION OF FRUIT AT WILLIS'S ROOMS, SATURDAY, OCTOBER 24.

Classes.	Prizes offered £	s.	£	s.	£	s.
I. Collections of Fruit—(Fruiterers only)	4	0	3	0	2	0
II. Grapes—						
a. Three bunches of Muscats	2	0	1	0	0	15
b. Do. of other White kinds ..	2	0	1	0	0	15
c. Do. of Black Hamburgh ..	2	0	1	0	0	15
d. Do. of other Black kinds ..	2	0	1	0	0	15
e. Collections .. .. (Foreigners only)	4	0	3	0	2	0
f. Boxes of 15 lbs. weight (Market Gardeners only)	3	0	2	0	1	0
III. Pine Apples—						
a. Threes	3	0	2	0	1	0
b. Single specimens	2	0	1	0	0	15
IV. Pears, of Home growth—						
a. Twelve sorts; six of each	3	0	2	0	1	0
b. Six sorts; six of each	1	0	0	15	0	10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
d. Do. of kitchen kinds, of one sort, containing six fruit	0	15	0	10	0	10
V. Pears, of Foreign growth—						
a. Twelve sorts; six of each	3	0	2	0	1	0
b. Six do. do.	1	0	0	15	0	10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
d. Do. kitchen do. do. ..	0	15	0	10	0	10
VI. Apples, of Home growth—						
a. Twelve sorts; six of each	2	0	1	0	0	15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
c. Do. kitchen do. do. ..	0	15	0	10	0	10
VII. Apples, of Foreign growth—						
a. Twelve sorts; six of each	2	0	1	0	0	15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
c. Do. kitchen do. do. ..	0	15	0	10	0	10
VIII. Oranges, Lemons, and Citrons—						
a. Collections of Foreign growth	3	0	2	0	1	0
b. Do. Home do.	2	0	1	0	0	15
IX. Peaches—Single dish, containing six specimens	0	15	0	10	0	10
X. Nectarines do. do. ..	0	15	0	10	0	10
XI. Melons—Single fruit	0	15	0	10	0	10
XII. Plums and Prunes, of either English or Foreign growth—						
a. A collection of three sorts, twelve fruit of each	1	0	0	15	0	10
b. Single dishes of one sort, containing twelve fruit	0	15	0	10	0	10
XIII. Figs	1	0	0	15	0	10
XIV. Alpine Strawberries	1	0	0	15	0	10
XV. Currants	0	15	0	10	0	10
XVI. Raspberries	0	15	0	10	0	10
XVII. Eugenia Ugni*						

* For single dishes of this valuable new Fruit two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the first of 2*l.*, the second of 1*l.*

Fruit is expected to be as nearly ripe as circumstances will admit. Winter Fruit will of course be unripe. Exhibitors are invited to decorate their Stands with suitable Plants or other ornaments. Tickets 2*s.* each may be procured at 21, Regent Street up to Oct. 17, after which they will be charged 2*s.* 6*d.* each. Fellows and Fellows' Ivory Tickets pass free.

NATIONAL FLORICULTURAL SOCIETY.—THURSDAY, Sept. 17.

AWARDS OF THE CENSORS.

First Class Certificates.

Hydrangea aurea superba (T. Salter).

Certificates of Merit.

Dahlia Lillie Luna (Burgess).
" (Fancy) Oliver Twist (Turner).
" Standard Bearer (Alexander).
" Major Fellowes (Turner).
" Miss Watts (Turner).
" Miss Pressly (Turner).
" (Fancy) Jupiter (Rawlings).
" Mr Critchett (Rawlings).
" Canary* (Fellowes).

* This was omitted in last advertised report.

Achimenes Azurea ocelata (G. Wheeler).

Label of Commendation.

Dahlia Princess Royal (T. Salter).

John Edwards.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.
The Nursery, Bagshot, Sept. 19.

SCOTTISH ARBORICULTURAL SOCIETY.—STATISTICS OF FOREST PRODUCE.

The Society having resolved to obtain for publication Returns of the Prices of Timber and other Forest Produce throughout Great Britain and Ireland, all Foresters and others who are interested in forwarding this desirable object are invited to aid the Society's efforts by communicating as fully as possible the required information.

Blank Schedules for such returns, with full particulars as to the mode of filling up, may be had on application to the Secretary, to whom they must be returned not later than 7th October next, when the annual meeting is to be held.

James Alexander, Secretary.
6, York Place, Edinburgh, Sept. 19.

IMPROVEMENT OF GRASS LANDS.

SUTTON'S RENOVATING GRASS SEEDS SHOULD NOW BE SOWN.

These Seeds consist of Perennial Clovers and fine Grasses for improving the bottom. Price 9*d.* per lb., or 80*s.* per cwt. Eight or 12 lbs. per acre will be sufficient, and will produce a great increase in the produce.—Sutton & Sons, Reading, Berks.

SUTTON'S IMPROVED ITALIAN RYE-GRASS SEED SHOULD NOW BE SOWN.

SUTTON AND SONS, Seed Growers, Reading, have fine new Seed now ready. Also of Dickenson's Italian Rye grass. Quantity required per acre, 3 bushels. Price 7*s.* to 8*s.* per bushel, according to quantity required. Carriage free. Terms cash.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Sept. 19

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*
Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*
Nursery, Foot's Cray, Kent, S.E.

CHEAP PRICED CATALOGUE.

W. W. DAVIS'S DESCRIPTIVE CHEAP PRICED CATALOGUE of all the best and newest Roses, Chrysanthemums, Pansies, Antirrhinums, Verbenas, &c., is now ready, and may be forwarded gratis upon application, enclosing one postage stamp.
Nurseries, St. Mary's Hill, Newbury, Berks.

GUERNSEY AND BELLADONNA LILIES.

B. PAGE AND CO. can now supply strong Bulbs started for bloom at 4*s.* per dozen. Early Roman and Paper White Narcissus, 4*s.* ditto. Price to the trade upon application.
Oxford St. (facing the Railway), and Above Bar, Southampton.

DUTCH AND OTHER BULBS.

J. H. COTTRELL (successor to F. Warner, and late Dawe, Cottrell, & Benham), 2, High Street, Birmingham. Wholesale and Retail Catalogues now ready.
(Established at 28, Cornhill, London, 1720.)
*** Please observe J. H. C. now resides at Birmingham.

DUTCH FLOWER ROOTS.

JOSEPH MAY AND CO. beg to say they will supply the following collection of DUTCH FLOWER ROOTS on receipt of a Post order for 20*s.* :—

12 fine named HYACINTHS,
100 named CROCUSES,
24 EARLY TULIPS,
12 NARCISSUS,
24 JONQUILS.

Bulbs sent extra to compensate for carriage.
1, Wellington Street, Strand, near Waterloo Bridge.

CAULIFLOWER, LETTUCE, AND CABBAGE PLANTS.

G. H. PIKE begs respectfully to inform the Public that he has a large stock of the above plants for sale. The sort of Cabbage is Shilling's Queen, price 5*s.* per 1000; Bath Cos Lettuce, 1*s.* per 100; Cauliflowers, 2*s.* per 100, package included. They are fine healthy plants. All orders must be accompanied with a remittance.—52, Walcot Street, Bath.

SHRUBBY CALCEOLARIA SEED.—Packets, 2*s.* 6*d.* and 5*s.* each, saved from a fine collection of all woody habits.—Apply to Jas. Smith, Gardener, Hendon, Middlesex.

PTERIS ASPERICAULIS.

W. COLE begs to offer to the Trade strong plants of this new and distinct FERN, from 4 to 6 inches high, in fine condition. Price per doz. or per 100 on application.—Nurseries, Withington, near Manchester, Sept. 19.

DOUBLE SNOWDROPS.—The Trade supplied with Double Snowdrops in any quantity. Prices may be had on application to Clarke & Company, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

PELARGONIUMS! SURPLUS STOCK!!

WILLIAM CUTBUSH AND SON beg to offer a quantity of "CUT DOWN" and young Plants of SHOW, FANCY, and FRENCH SPOTTED PELARGONIUMS of the leading varieties at very low prices per dozen.
Highgate Nurseries, London, N.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. Raynbird, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

NEW GIANT RYE.

CHISNELL AND SON, of Colchester, have to offer Seed of their New GIANT RYE, which is quite distinct and in every way superior to the common. A specimen of the straw was exhibited at the Royal Agricultural Show at Salisbury, and highly commended in the report of the Society. Price 1*l.* 10*s.* per peck.—Sole Agents, Charlwood & Cummins, 14, Tavistock Row, Covent Garden, London.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.
Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hotwater.

JAMES CARTER AND Co. beg to offer new Seeds saved from the choicest varieties of the following:—

CALCEOLARIA CINERARIA | PRIMULA SINENSIS FIMBRIATA
Price 1*s.* per packet.

238, High Holborn, London, W.C.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s.*—James Carter & Co., Seedsmen, 238, High Holborn, London, W.C.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s.* to 10*s.* each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

VIOLETS.

R. SHACKELL begs to offer healthy strong plants of his beautiful Seedling VIOLET "Russian Superb," at 12*s.* per dozen. Strong plants of Neapolitan Violet, at 4*s.* per dozen, or 1*l.* 5*s.* per 100. Five other varieties at 4*s.* per dozen. Old Russian, 10*s.* per 100. Hamper and package included.—Address Robert Shackell, 5, Broad Street, Bath.

HOLLYHOCK SEED, &c.

JOHN CHATER AND SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7*s.* 6*d.*; 18 ditto, 4*s.* 6*d.*; best mixed, 200 seeds, 1*s.* 6*d.*; 400 ditto, 2*s.* 6*d.* Fine-named sorts in good plants now ready, 8*s.* per dozen.
Nurseries, Haverhill, Suffolk.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, Jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s.*, including package.
Epps' Nurseries, Maidstone.

1000 SPECIMEN AZALEAS AND ERICAS, FROM 9 INCHES TO 3 FEET IN DIAMETER.

MR. EPPS has no hesitation in saying that his stock of the above contains some of the finest plants possible and of all the leading kinds. Prices and list on application. Fine young specimens three guineas per dozen.
Epps's Nurseries, Maidstone.

20 fine large CAMELLIAS, 5 to 8 feet high, well set with flower, bushy, and in good health, consisting of double white, variegata, Warratah, candidissima, Donkelaari, amabilis, elegans, Feutonia, &c., price 50*l.*, delivered to London.—Inquire of Mr. Epps, Nurseries, Maidstone.

FOR SALE, a collection of about 40 ROSES in pots, principally specimens exhibited at the Botanical, Crystal Palace, &c., this and previous seasons, new and approved sorts, in excellent order. May be exchanged for a collection of Hardy and Greenhouse Ferns. Price 12*l.*—Apply to J. R. S., 57, Coal Exchange.

SPIRÆA CALLOSA, see Dr. Lindley's Leading Article, August 1. Can be supplied in the autumn at 18*s.* to 30*s.* per dozen, by Charles Noble, the Nursery, Bagshot.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden.

STRAWBERRIES.—See Dr. Lindley's opinion of Cuthill's three sorts of Strawberries, August 15, in *Gardeners' Chronicle*, Black Prince, Princess Royal, and Prince of Wales. J. C.'s three pamphlets containing much information upon difficult things. Also his celebrated Cucumber Seeds. Please to write for a List.
James Cuthill, Camberwell, London, S.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s.* per 100; and GOLIATH, 3*s.* 6*d.* per 100, or per post per dozen, 30 stamps. Plants are now ready.
N.B. The trade may communicate by letter.
Lyncombe Vale, Bath.

FILBERT PINE STRAWBERRY.—This variety has maintained its position during the past season as first-class, both as regards flavour and productiveness.
Charles Turner can supply strong plants, either in or out of pots, price per dozen or hundred on application.
Royal Nursery, Slough.

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Cockscomb 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. Glenny, Horticultural Agent, Fulham, S.W.; and *Gardeners' Gazette* Office, 14, York Street, W.C.

JOSEPH MEREDITH, Garden Architect and Hothouse Engineer, Vine Cottage, Garston, near Liverpool. Heating Apparatus fitted up on the most approved principle. First class references may be had.

CHARLES M'INTOSH, F.H.S., Landscape Gardener, Garden Architect, &c., Nurseries, Newhaven, Murrayfield, Edinburgh.
London address: Messrs. P. Lawson & Son, 27, Great George Street, Westminster.

E. G. HENDERSON AND SON'S
BULB CATALOGUE & REVISED HERBACEOUS LIST

ARE NOW READY, and present an excellent opportunity to Amateurs of making a selection from the choicest DUTCH HYACINTHS, and other BULBS. Great care has been exercised in the compilation of the Lists for the present season, and only such varieties inserted as they can, after repeated trials, recommend with confidence.

A TREATISE ON THE CULTURE AND TREATMENT OF THE HYACINTH has been also added, and copious Notes relative to the Management of other Bulbs, &c. Forwarded post free on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,
238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition, and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON can now supply the following excellent varieties, all true to name and well rooted, viz., Ne Plus Ultra, very large and early, 30*s.* per 100; Excellent (really so), large and a great bearer, 30*s.* per 100; Sir Harry, 20*s.* per 100; Ingram's Prince Alfred, 20*s.* per 100; Filbert Pine, 10*s.* per 100; Kitley's Carolina superba, 10*s.* per 100; Sir C. Napier, 10*s.* per 100. All the older sorts, 5*s.* per 100. For Early Sorts see Advertisements in August last. Post-office Orders payable at Yarm.

Egglescliffe, near Yarm, Yorkshire.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety that has ever yet been sent out, possessing all the good qualities for which a Strawberry is required, viz. flavour equal, and considered by many to be superior to that fine sort the British Queen; the fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season. The plants are of a very dwarf habit, and as hardy as Keens' Seedling, will force well, and have been spoken of by gentlemen and nurserymen, who were competent judges, as being the best they had ever tasted. Now ready for sending out—strong well rooted plants 1*l.* per 100; 50 for 11*s.*, hamper and package included; 25 for 6*s.*, and 12 for 4*s.*, postage free. A remittance must accompany every order by cash or penny postage stamps.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

INGRAM'S PRINCE OF WALES STRAWBERRY.

J. AND E. SMALL beg to intimate that they are again prepared to supply fine strong Plants of the above fine Strawberry, which is so extensively grown in the Royal Gardens. J. S. exhibited a fine basket at the meeting of the Pomological Society on July 8th from Plants six weeks in bearing. "The fruit exhibited were very large, firm, and full flavoured." See the July report of the Pomological Society. This Strawberry is highly recommended for market purposes, being very prolific and bears carriage well. Mr. Plimley, Market Gardener, of Shepherd's Bush, Middlesex, has authorised me to state that he has proved it to be in every point superior to the Keens' Seedling, which variety he has now ceased to cultivate. Mr. Plimley will kindly answer any inquiry respecting it. Strong and true Plants 7*s.* 6*d.* per hundred, and a liberal allowance to the trade.

P.S. Plants of all the leading sorts can also be supplied.

Orders sent to the Colnbrook Nursery, Slough, Bucks.

POMPONE CHRYSANTHEMUMS.—1200 or 1400 nice, dwarf, bushy plants of the leading kinds, struck the beginning of June, and planted out, stopped to form bushy plants, are now well set with bloom-buds, and ready for potting up. Persons in the trade wishing for a really good stock at a low price will find this a fine opportunity. Price on application.—W. CHITTY, Florist, Stamford Hill, near London.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

	Each.—£	s.
For a single plant in 48-sized pot	0	15
Ditto ditto, extra strong	1	1
Six ditto ditto, smaller	3	3
Twelve ditto ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Sept. 19.

NOW READY FOR SENDING OUT.

GEORGE SMITH begs to offer fine strong Plants of the following new and superb Collection of Show GERANIUMS, including the best of the new Flowers sent out in the autumn of 1856, raised by Mr. Hoyle, Mr. Turner, Mr. Beck, Mr. Dobson, and Mr. Foster, at 36*s.* per dozen, viz.:—

HOYLE'S—Bianca, Agnes, Matilda, Polly, Rose, Raglan, Review, Standard, Marvellous, Viola. TURNER'S—King of Scarlets, Miss Foster, Spotted Gem, Queen of the Fairies, Mr. Beck, Mr. Hoyle. BECK'S—Emperor, Ardens, Florence, Selim. DOBSON'S—British Queen, Alexander. FOSTER'S—Flora and Symmetry. Also a first-class collection of older kinds of the above, and the most choice of fancy, spotted, scarlet, and variegated kinds at a moderate price. Package and hamper free, with plants to compensate for carriage.

A Descriptive Catalogue will be forwarded in exchange for one postage stamp.

*** Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders made payable at Holloway, Middlesex.

Tollington Nursery, Hornsey Road, Islington, London.

CRYSTAL PALACE.

SEEDLING DAHLIAS.—FIRST-CLASS CERTIFICATES awarded:—

Alice Downie (Keynes)	Mr. Boshell (Rawlings)
Marchioness Aylesbury (Do.)	Village Gem (Green's)
Tiger (do.)	Papilio (Perry's)
Mr. Critchett (Rawlings)	Mark Antony (Salter's)
King (do.)	

J. KEYNES, Nurseryman, Salisbury.

SEEDLING ERICAS.

OBBATA PURPUREA.—Shape and size similar to its parent obbata, but is suffused with plum colour purple large whorls of flowers of great substance, and continues blooming for many weeks; it is one of the finest Ericas ever seen. Good plants 10*s.* 6*d.* to 21*s.*

MAIDSTONIENSIS.—An excellent variety for exhibition; tube long, colour bright rosy red, extra substance, fine form and habit, quite distinct from anything out. Was awarded first-class certificates in Regent's Park. Fine plants, 5*s.*, 7*s.* 6*d.*, and 21*s.*

TRICOLOR EPPSI.—This beautiful Heath is a hybrid of great merit, early and free flowering, large whorls of flowers, colour scarlet shading off to white, and very glossy; a first-rate variety for exhibition; decidedly the finest tricolor out. Was awarded first-class certificates at Chiswick, Regent Street, and the National Meeting. 10*s.* 6*d.*, 21*s.*, and 42*s.* 30*s.* the Set.

Epps's Nurseries, Maidstone.

RARE FERNS.

EDWIN COOLING offers the following very beautiful and distinct FERNS:—

PTERIS ARGENTEA, a dwarf neat growing Fern, densely silvered on the under side (very rare). 10*s.* 6*d.*

*NOTHOCHLÆNA LÆVIS, an elegant and very distinct species. 5*s.*, 10*s.* 6*d.*

*NOTHOCHLÆNA HOOKERI, a neat and lovely Fern, the fronds having the appearance of frosted silver on both sides. 10*s.* 6*d.*

*ASPLENIUM RACHIRHIZON, an extremely handsome Fern, very rare in cultivation. 21*s.*

GYMNOGRAMMA PERUVIANA, var. ARGYROPHYLLA, the most beautiful silver Fern, being densely covered with pure white farinose powder on the upper as well as the under side of the frond. 5*s.*, 10*s.* 6*d.*

ASPLENIUM FILIX-FŒMINA, var., a splendid new multifid variety recently discovered in the Channel Islands. This will be the most beautiful hardy Fern in cultivation. Good plants. 7*s.* 6*d.*

*LASTRÆA FILIX-MAS, var. CRISTATA, hardy and very handsome. 2*s.* 6*d.*

Those marked * are figured in Lowe's "Natural History of Ferns."—Mile Ash Nurseries, Duffield Road, Derby.

THREE THOUSAND AZALEA INDICA.

WILLIAM BARNES has for Sale the above number of INDIAN AZALEAS, and has no hesitation in saying that for health, shape, and cleanliness, they are not to be surpassed by any collection in this or any other country. All the best kinds are worked upon vigorous healthy stocks, and can be supplied in nearly all sizes and heights, as well as those upon their own roots, which are literally covering the pots with their branches, and are finely set with bloom buds. The following list comprises a small portion of his extensive stock:—

Admiration	Eulalie Van Geert	Mrs. Fry
Adolphe	Extransi	Perfecta elegans (true)
Alba meliora	Fentoni	Perryana
,, magna	Gem	Petuniæflora
,, striata	Gledstanesi excelsa	Princess Mary of Cambridge
Ardens	,, formosa	Queen of Perfection
Ascendens	Glory of Sunning Hill	Queen Victoria
Aurora	Holfordi	Reine des Belges
Barclayana	Impératrice Josephine	Roi Leopold
Beali	Iveryana	Rosy Circle
Beauté d'Europe	Juliana	Ruskeri
Beauty of Reigate	Lateritia alba supreme	Sir C. Napier
Chelsoni	,, grandiflora	Stanleyana
Constantia rosea	Lawrenciana	Striata formosissima
Countess of Stamford	Leeana	Symmetry
Crispiflora	Louis Napoleon	The Bride
Criterion	Lucens	Trotteriana
Delicatissima	Magnificans	Vesta
Duke of Devonshire	Madame Miellez	Violacea superba
Elegans superb	Maria	
Empress Eugenie		

As well as every other known variety worth cultivation.

W. B. would respectfully invite intending purchasers to an inspection of his unrivalled stock, which will give them the opportunity of making their own selections. A great many are splendid specimen plants fit to exhibit at any horticultural show in the world. Prices, which are exceedingly low, can be obtained on application. W. B. would further state that his plants are perfectly free from Thrip (which is almost universal in its ravages), and that purchasers will be supplied with the most effectual method of keeping them ever free from their attacks. Camden Nursery, Camberwell, S.

THE BEST TWELVE HYACINTHS FOR POTS OR GLASSES.

The best 12 HYACINTHS (by name) imported .. Per doz.
Fine Double do. for open ground, mixed .. ..
TULIPS, fine mixed, early for pots or borders, per 100
ANEMONES, fine double mixed, per 100
And all other BULBOUS FLOWER ROOTS at low prices as per Catalogue. Carriage free, except parcels under 20*s.* value. Terms cash.

JOHN SUTTON & SONS, Seed Growers, Reading, Berks.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to inform that their first importation of HYACINTHS has arrived in excellent condition. Descriptive Catalogues gratis free on application.

WM. C. & SON strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH FLOWERING ROOTS.—A DESCRIPTIVE PRICED CATALOGUE, to which are affixed important Treatises on the Cultivation of the Hyacinth, Crocus, Tulip, Lily, &c., prepared expressly for Amateurs, may be had on application, or free by post. All orders for Bulbs amounting to 20*s.* and upwards sent carriage paid to any principal Railway Station within 150 miles of London. No charge made for packages.—BUTLER & M'CULLOCH, Seedsmen, South Row, Covent Garden Market, London.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this year. Early orders are solicited, as their successful cultivation depends to a great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

WINTER TARES, GIANT RYE, TRIFOLIUM, WINTER OATS, and WINTER BARLEY for early Crops next Spring.—The present being the proper Season for Sowing the above, the undersigned beg to say they have a fine stock of this season's crop of Seed.—For prices apply to CLARKE & COMPANY, Seedsmen and Florists, 81, High Street, Borough, London, S. E.

DOUBLE AND SINGLE HYACINTHS, NARCISSI, EARLY AND DOUBLE TULIPS, PARROT TULIPS, LATE TULIPS, JONQUILS, IRIS, CROCUS, SNOWDROPS, ANEMONES, RANUNCULI, IXIAS, CYCLAMENS, GLADIOLI, AMARYLLIS, SCILLAS, LILIUMS, DENS CANIS, FRITILLARIAS, TROPÆOLUMS, TIGRIDIAS, &c.

CLARKE AND COMPANY beg to announce the arrival of their Choice Assortments of DUTCH BULBS direct from the best growers in Haarlem. Lists of Prices will be forwarded on application.

CLARKE & COMPANY, Wholesale and Retail Seedsmen and Florists, 86, High Street, Borough, London, S.E.

LAMBERT'S PATENT VALVE COCKS, for sustaining continuous high pressure, are unequalled, are cheaper, more durable, and less liable to leak than others.

T. LAMBERT & SON, Short Street, New Cut, Lambeth, S.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the improved Conical Boilers in Iron and Copper, is now enable to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, fire bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

C. STEPHENSON, late STEPHENSON AND SON, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

J. S. MORRIS, HYDRAULIC ENGINEER, 38, Upper Thames Street, City, London.

Hot-Water Apparatus complete, on low pressure principle, erected. Improved Expansion Boxes, fitted valves, remove pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; invented by J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Planet Boilers. Planet Valves, 2, 3, and 4 inches diameter; invented by J. S. MORRIS in 1854. Pedestals, Ornamental Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions for order for Erecting Hot-Water Apparatus.

A Treatise by J. S. MORRIS "On Warming and Ventilating Dwellings" sent free.

THOMSON'S RETORT BOILER.

A NEW FORM OF BOILER FOR HEATING BY HOT WATER, DESIGNED BY MR. THOMSON, GARDENER, DALKEITH PALACE.

A. SHANKS AND SON, Arbroath, Forfarshire, have much pleasure in stating that they have entered into arrangements with Mr. THOMSON to manufacture and supply the above most powerful and economical Boilers. This Boiler, notwithstanding its recent invention, is at work in many parts of the kingdom, and has given the greatest satisfaction, not only in regard to its simplicity in management, its economy of fuel and attendance, but also in regard to the great power of heating which it possesses. The Boiler is certainly one of the most valuable inventions for heating purposes that has yet been brought before the public. Full particulars with illustrations and prices forwarded on application.

MONRO'S CANNON BOILER.—INVENTED BY MR. MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. The most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time for moderate cost for fuel. They are adapted for heating Conservatories, Hothouses, Churches, &c., and will be found superior to every other Boiler hitherto invented. The price of the Cast Wrought Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of hot-water Pipes, and connections for the same. Furnaces and prices, which will be found cheaper than any other house. Orders by application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5s. to 21s.

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10s. 6d., 15s., and 21s.; four Plants for three to the Trade.—Maidstone, Sept. 19.

AZALEA INDICA

THE GREATEST NOVELTY OF THE SEASON IS

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Horticultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10s. 6d. and 21s. A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery, Sept. 19.

NEW AZALEA INDICA.

A. VERSCHAFFELT, NURSERYMAN, Ghent, Belgium, intends sending out in September next his new AZALEA INDICA "Baronde Vrière," figured in VERSCHAFFELT'S "Illustration Horticole." Good Plants, 7s. 6d. each; strong ditto, 16s. each.

The NEW CATALOGUE, No. 64, is now ready, and can be obtained gratis at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the trade his new general CATALOGUE is just published, containing all the best Continental novelties, and many interesting useful plants. A. V. G. begs to recommend particularly his Collections of Camellias, Indian and Ghent Azaleas, Hardy and other Rhododendrons, Liliums, and Herbaceous Pæonies, which are cultivated to a great extent in his establishment.—May be had on application to his agent, Mr. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT, COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Sept. 19.

CAMELLIAS.—Fine home-grown healthy bushy Plants, full of flower buds.

25	choice named varieties, 2 to 3 feet	£3 10s.
12	" " "	1 15
25	" " " extra plants.. ..	5 0
12	" " "	2 10

No charge for packing.

The attention of the trade is invited to a large Stock of fine Double White, fimbriata, imbricata, and other choice varieties full of bloom buds, at 10l., 12l. 10s., and 15l. per 100.

JOHN HENCHMAN, Edmonton, near London.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, SEEDSMAN and FLORIST, 10, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

CATTELL'S EARLY BARNES & RELIANCE CABBAGES, ALSO DEPTFORD, PARAGON, KING, IMPERIAL, &c.

JOHN CATTELL has now ready Bedded Plants of the above well known best kinds for early spring cutting at 5s. 6d. per 1000; also Red, for pickling, of first rate stock, at 1s. per 100 or 7s. 6d. per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway, carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

JOHN CATTELL has to offer a good stock of the following Variegated GERANIUMS at the annexed prices, hamper included. They were struck last spring, and are now in small pots, and will make extra strong plants for bedding next season:—

	Per doz.—s.		Per doz.—s.
Attraction (Kinghorn's) ..	6	Alma, 1s. 6d. each.. ..	15
Annie (do.) 1s. 6d. each ..	12	Mrs. Lennox	12
Countess of Warwick (do.) 1s. 6d. each	12	Silver Queen (young plants)	6
		Golden Chain	6

Also Flowering Bulbs of a new unnamed Oxalis, with large sea-green leaves growing close to the surface: the flowers are large (rising just above the leaves) of a bright purplish rose colour; it is a highly ornamental spring flowering plant. Price 4s. per dozen, post free. Orders from unknown correspondents must be accompanied with a remittance.

Nursery and Seed Establishment, Westerham, Kent.

DUTCH AND OTHER BULBS.

JOHN CATTELL begs to inform the Public that his CATALOGUE of the above for the current season may be had gratis on application. Besides the general assortments of Hyacinths, Narcissus, Tulips, Crocuses, &c., J. C. particularly directs attention to his fine collections of Liliums, Amaryllis, Oxalis, Scilla, &c. His stock of Lilium spinosum varieties consists of several thousands of bulbs, and J. C. has now good bulbs of the beautiful varieties raised by him from seed; they have flowered splendidly this season, both in doors and out: the earliest begin to flower in July, and the latest are now in great beauty; in colour they vary from white, thinly spotted with brilliant crimson, to very dark crimson, with all intermediate shades; some of the flowers are very large. J. C.'s stock of the beautiful sky-blue Scilla siberia consists of many thousands; also Tropæolum tricolorum grandiflorum, the bulbs of which are from one to nine inches round; other good bulbous plants in great variety.—N.B. Of Dutch Bulbs, J. C. imports those of best quality only.

Nursery and Seed Establishment, Westerham, Kent.

JOHN KERNAN, 4, Great Russell Street, Covent Garden, has much pleasure in announcing the arrival of HYACINTHS and other DUTCH BULBS in very superior condition, owing to the highly favourable weather for maturing them. None but those of a decided character have been imported, and as quality of colour and flowering, not quantity of undeserving novelties, has been the rule of selection, purchasers may depend upon their giving general satisfaction.

CABBAGE,	ONION,	LETTUCE,
ENDIVE,	CAULIFLOWER,	SPINACH,

TURNIP, and other Seeds for present sowing. Also Mushroom Spawn, genuine Guano, Cuba Bass, Garden Knives, &c., on sale.

For Catalogues apply to JOHN KERNAN, Seedsman, 4, Great Russell Street, Covent Garden, W.C., who will be happy to assist the purchaser in his selection by every means in his power.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—Sept. 19.

BULBS! BULBS!

BASS AND BROWN have received their first and second importation of DUTCH ROOTS in fine condition. The HYACINTHS in particular, which are unusually fine, they have pleasure in offering as follows:—

HYACINTHS.	£	s.	d.
12 choice named varieties	0	6	0
12 very choice ditto	0	9	0
12 extra superb ditto	0	15	0
50 roots in 50 choice varieties	1	10	0
25 roots in 25 ditto..	0	16	0

Extensive and very superior collections of Gladiolus, Early Tulips, Iris, and other Bulbs.

The No. 1. CATALOGUE for the season is now complete, containing Bulbs, Herbaceous Plants, Antirrhinums, Phlox, Coniferæ, select and popular Evergreen and Flowering Shrubs, Hardy Ornamental Climbers, Roses, Fruits, &c., and will be supplied on application.

BASS & BROWN, Sudbury, Suffolk.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 19, 1857.

THOSE who have studied the properties of the various kinds of Gourds, Pumpkins, VEGETABLE MARROWS, Squashes, or by whatever other name such esculents may be known, are aware that one of the best for the table is that called the *Patisson*, or *Elector's Cap*, or sometimes the *Jerusalem Artichoke Marrow*. It is remarkable for its depressed spherical form with a deep equatorial rim divided irregularly into round knobs, as in the accompanying woodcut. Pale green,

tender, agreeable to the taste, and an excellent recipient of sauce, it has always stood in the highest class of eatable Gourds. But it is a SQUASH, that is to say, a large coarse bush-like Gourd, which does not run along the ground, and in this country at least is so very bad a bearer that it is seldom seen in cultivation.

There is however now growing in the garden of the Horticultural Society a Gourd, whose fruit is of the kind here described, with all its excellen quality, but which *does* run, and bears most abundantly. Seeds were sent to the Society by Mr. THOMSON, Gardener at Dyrham Park, under the name of the "Custard Vegetable Marrow," and we understand he intends to offer seed for sale in the ensuing winter. In the axil of every leaf is a fruit, and there seems to be no other limit to productiveness than the arrival of frost. The cut here given shows the natural size of the fruit when fit for table, and it will be evident the mere beauty of its form would render it better adapted to a side dish than the common Vegetable Marrow, even if it were not superior in quality and more abundant in produce.

ATTENTION has lately been drawn to the fact that many cases of apparently SUDDEN DEATH IN PLANTS, whether partial or total, arise from the mycelium of Fungi derived from pieces of wood or old roots left in the ground. *Ribes sanguineum* is one of the species in which the phenomenon has been observed; there is however another cause to which similar effects are sometimes due in this species, as also in a variety of other cases which it is important to notice. We have been induced to consider the subject more carefully from the sudden death of multitudes of plants of the common yellow *Calceolaria* used for bedding with some other plants, and amongst them *Ribes sanguineum* in a neighbouring garden. The evil was confined to no particular soil or aspect. It was quite clear that no parasite was at work before death, at least as a cause.

The only diseased portion, in the first instance, is that which is on a level with the soil. The roots are in perfect health and activity, and so up to a certain point are the stem and leaves, but suddenly death arrests the plant, from the inability of the tissues of the stem to carry up the moisture still supplied from below. A ring of bark in fact has been for some time dead at the junction of the stem and root, nutriment has been supplied for a season by the stem independent of the bark, but this is not a state of things which can last for ever, and therefore the balance is at length disturbed, and death is the consequence. In shrubs, where the bark is of a finer texture, Fungi take possession, but they are confined to that particular part and do not invade the roots.

In these and many similar cases, we are convinced from repeated observation, that the evil dates back from the previous winter. When the upper surface of the soil was frozen, or its temperature much depressed, the portion of the bark which was in contact with it suffered more or less, though not so much as to be immediately detected. The plants in consequence, though they appeared vigorous for a time, had the seeds of premature death within them. The vitality of the cells of the affected part was lowered, decomposition at length took place, and though a communication with the roots was for a time kept up by the tissues of the wood, the supply at length inevitably failed, and death was the natural issue. We think, moreover, that many other instances of partial or complete death are due to slight injury received in winter. We noticed some time since an example of the kind in the Beurré Diel communicated by an eminent Pear grower. In our own garden the same variety of Pear has suffered in a slight degree, parts only of the leaves and not the whole shoot failing. The portions of the tree which have suffered are precisely those which are most exposed to a cutting north-east wind. One part of the buds may be more affected by frost or cold than another, and hence every degree of injury, from slight discolouring to complete destruction, may take place. We have another instance before us in which the injury has been greater, a large portion of the buds failing entirely, while some are partially affected and others have formed fine and healthy fruit. We are inclined to attribute to the same cause the partial failure of branches of the hardy Araucaria, in which it frequently happens that while the tips of the shoots are healthy the lower leaves, or sometimes their tips only, perish. The apex of the axis in fact was not affected while the external parts suffered, and consequently though the lower leaves turn brown and die, the upper may be healthy. If the mischief extends to the stem itself, the whole branch will ultimately perish.

Precisely the same thing takes place in *Wellingtonia*, and as the stem is slender the evil generally

penetrates deeper than in *Araucaria*, and the twigs at length fail, though they remain green for some time after the lower portions have suffered. We have seen plants thus affected completely recover when removed from the open ground to the conservatory, and even after they have recovered in the more genial air, and have made strong shoots, the scars from whence the dead twigs have fallen may still be traced for two or three years. Many other cases of a similar kind occur, and it is important to refer them to their proper origin, as it may save much trouble, and direct most profitably the gardener's efforts. It is quite certain that in vegetables the same disease may arise from different causes, and if fungi are sometimes the cause of canker and its cognate disease gumming, it is equally certain that climatic conditions may induce the same malady. The tissues of a weakened bud affected by frost may become putrescent and carry the taint into the heart of the tree. No matter whether certain cells may have been killed in the first instance by frost or fungi, the neighbouring cells perish from the contact, and thus the whole stem may be rapidly affected. *M. J. B.*

GOOD cheap WEATHER INSTRUMENTS are so indispensable to all that we have no scruple about directing attention to the excellent barometers and thermometers made by Mr. L. CASELLA, of 23, Hatton Garden, London. The barometer, which costs 10*s.* 6*d.*, is quite as good as one in our possession for which ten times the price was paid, and the thermometer, self-registering and accurately graduated, has proved upon trial to be equally efficient. We have had these instruments in use for some time, and we feel justified in saying that we have seen nothing equally well made that can compare with them for price.

New Plants.

207. VIOLA PEDUNCULATA, *Torrey and Gray.*

The handsomest we know of the genus, albeit lacking the fragrance of the great favourite, the Sweet Violet of Europe. It was one of the many discoveries of Douglas in California, during the last of his journeys, and but a little before the accident which caused his death in the Sandwich Islands. It has been since found by Mr. William Lobb. Beautifully dried specimens were sent home by him, and plants were reared from seed by Messrs. Veitch & Son, Exeter and Chelsea Nurseries, the exhibition of which at the Horticultural Society naturally attracted much attention. It seems well suited to cultivation in a cool frame. It flowers copiously in May. Mr. Nuttall detected it as far south as Monterey. *Botanical Magazine, t.* 5004.

The flowers are a bright golden yellow with a pair of large blood red blotches at the back.

208. AZALEA OCCIDENTALIS, *Torrey and Gray. Bot. Mag., t.* 5005.

The plant just published under this name in the Botanical Magazine is known in gardens as Azalea californica. It has pale yellowish flowers, and is probably as Sir William Hooker suggests a mere form of A. calendulacea, of little horticultural importance.

VEGETABLE PATHOLOGY.—No. CLXXI.

668. REMEDIAL MEASURES. *a. Certain.* *Rational. If we compare vegetable with animal pathology, as regards remedial measures, we shall find a great resemblance in the history of the treatment of disease, making due allowance for the superior attention which has been paid to the latter branch of science. A few remedies only have in the first instance been immediately derived from a perfect knowledge of the origin and nature of particular maladies. The greater part are either strictly empirical, or such as have at length been proved to be consistent with chemical laws in their connection with pathology, though derived originally from mere fortuitous trials, whose good results have been confirmed by frequent repetition, and so have become matters of experience. The doctrine of signatures, for example, may first have pointed out the common Blackberry as useful in attacks of red gravel, while chemistry shows that it contains citrate of potash, an approved remedy in the malady upon strictly scientific grounds. Abundant instances of a similar description might easily be quoted.

669. Remedies may be divided into two classes, those which are certain and those which are uncertain. The Pharmacopeia contains a large quantity of remedies which are very uncertain in their results, and the same may be said of many practices which are current amongst gardeners to remedy or palliate disease. Several of the remedies, on the other hand, which are applied in vegetable pathology, though successful, rest upon no rational principle. A whole class of remedies, however, is not only certain in their results or nearly so, except where disease has reached too great a height, but altogether rational in principle. Plants cannot flourish without proper food, due ventilation, a temperature suited to their peculiar nature, access to light, and other climatic influences. Where they suffer from a derangement or want of proper modification of any of these particulars, and the causes of disease are known, the rational remedy is to restore the requisite conditions, and the effect will be all but certain. A great part of the cultivator's skill and knowledge must necessarily be directed to such points. Again, though moisture is absolutely necessary to the ordinary routine of vegetation, excessive moisture is sure to lead to evil, and if the roots are constantly steeped in stagnant and perhaps noxious water, while the temperature is depressed by the same cause, a dropsical or chlorotic condition will ensue, which can only be remedied by the removal of the cause of evil. When proper drainage is secured, the evil will in the majority of cases cease. Suppose, again, that it is ascertained that fungal threads in contact with the healthy but tender cells of the spongelets or young roots will induce disease, and that pieces of root left in the soil, or smaller fragments of vegetable matter which have not undergone thorough decomposition, send off mycelium which at length comes in contact with these spongelets. The careful cultivator will take pains to prevent the evil, by the removal of all such matters, or the exclusion of it from his composts. This will not indeed cure disease when it has once arisen, but it will tend to prevent it.

670. **Empirical.—Some certain remedies have arisen however from the trial of various bodies without any rational hope of a good result. It is uncertain for instance what first induced the use of mineral poisons against Bunt, one of the most formidable diseases of the farm. They were certainly applied long before the true nature of the malady was even suspected, much more before anything was known of the growth of such fungi. Their effect is all but certain when properly employed, and improvements have been made since the disease was better understood, and the laws of chemistry ascertained. Bunt is now understood beyond all doubt to arise from the attack of a parasitic fungus, and the effect of mineral poisons on such fungi is also matter of experience. The remedy therefore, though in the first instance empirical, is now perfectly rational. The same may be said of the use of sublimed sulphur against white mildew. Sulphur was used constantly as a remedy against this complaint in hot-houses, before the nature of the disease was known, and it is found to be applicable to the same purpose in various stages. It is now matter of certainty that sulphurous acid accompanying it, or formed by decomposition, together with sulphuretted hydrogen, acts fatally upon the threads of the mould; and the remedy though at first empirical is now strictly rational. The experience acquired from such cases may lead to useful results in others, and thus remedies at present doubtful may rest upon rational grounds. *M. J. B.*

PHLOXES.

I WAS much pleased with the excellent article on this subject with which you favoured your readers in the *Chronicle* of the 22d of August last. Having been an admirer and cultivator of all the best varieties of this beautiful genus that have yet been sent out either by English or Continental growers, I may perhaps be permitted to add a few more kinds to those already named that I consider worthy of a place in every collection. Of Phloxes the varieties may now be said to be almost endless, but some of them so closely resemble each other that it is only by carefully comparing them that their slight differences are discovered; such distinctions are therefore undeserving of attention; only the best formed and brightest coloured in each particular class should be kept—the rest should be discarded.

As soon as I receive any new kinds I have a bed prepared for them, and plant out several of each sort, always keeping the newest varieties in beds by themselves. The older kinds are also planted in beds beside the new ones, so that when they are all in bloom I make my comparisons and memoranda respecting them; whenever I am convinced that any of the new ones excel the older kinds in habit or beauty, I then throw away the inferior sorts, and by so doing I find that a very beautiful collection can be formed without being encumbered with a multiplicity of names.

I receive between 30 and 40 different sorts from various sources annually, and I often find among them only four or five worth keeping, or that are either distinct from or superior to those I have already grown. If, therefore, I had not some principle to direct me I should by this time have at least 500 names of Phloxes on my list, but by making annual selections as I have described I reduce the number to less than 100.

However strange it may appear it is a fact that the Phlox has only lately been treated with anything like care or attention. Generally they have had allotted to them places in borders among shrubs, where they have been either overgrown by other plants or completely starved, for the poor Phlox has often had to do service where nothing else would flourish. All must however, I think, admit that a little care and attention bestowed upon it will be amply rewarded; few plants are so useful either for pot culture, cutting for bouquets, or "clumping" in the flower garden, and if proper attention is paid to height and colours at planting time, a succession of bloom may be had from June until November.

The following I can with confidence recommend:—

Addisoni	Abdel de Lepinium
Alba magniflora	Comte de Chambord
Herincq	Impératrice Eugenie
Josephine Pariot	Laurence de Cerf
Madame Fontaine	Madame Delahaye
" Rendatler	Mons. Valery
Primulæflora	Rêve d'Amour
Roi Leopold	

William Barnes, Camden Nursery, Camberwell, S.

ON THE BEARING OF FRUIT TREES IN THE

(*Concluded from page* 622).

Amongst a large number of other varieties which are distinguished by their handsome growth and the quality of their fruits, ripening in autumn and winter, we may mention Esperin, Beurré Kennes, Nouveau Poiteau, Eliza d'Heyst, Alexandre Lambre, Duchesse Helène d'Orleans, Dr. Trousseau, Willermot, Sabine, Cullum, Phillippe Gacs, Docteur Capron, Charles Fredericka, Alexandrine Helie, and Beurré Berckmans, all distinct varieties obtained from seed by Van Mons, Emilie Bivort by Simon Bouvier, Emile d'Heyst and Frederic le Clerc by Esperin, will likewise continue to be cultivated. All these varieties possess for the most part the requisite conditions for succeeding in our climate. Passe Colmar, raised by d'Hardenpont a century ago, notwithstanding a few defects, continues on account of the good quality of its fruit to be propagated and planted even as a half standard in the open ground. Every year I gather several fine fruits from a tree planted without shelter, and trained as a half standard. This year I observed as many fruits as the tree can support.

Among the fruits which ripen at a later period of the season than the preceding, the Beurré Ranee, a hardy and productive variety in the open ground, is also esteemed. In gardens having a light deep soil, rather dry than moist, the fruit, far from attaining the same size as when grown against a wall, is nevertheless of finer quality. The 50 years old tree which I have in my garden bears every year, whatever may the temperature, provided it is properly cleaned from insects in winter, at the time the fruit is setting, and in the month of July. Another tree 25 years old and worked on the Pear stock bears 50 or 100 fruits every year, and the fruit is of a better quality than in the preceding case, which I attribute to the circumstance of its being grafted on a good seedling whilst the other is worked on a root-sucker. This opinion may, it is true, be disputed, but it is based on various circumstances known to old practitioners. In conclusion, this variety is not much propagated, the Bergamotte d'Esperen and Josephine de Malines, two varieties which are far from being faultless, being preferred.

The variety Prince Albert, which is of a very fine habit of growth and of a cultivated appearance, is a first-rate late sort. This year I observed several fruits on grafts placed four years ago on the lateral branches of an old Pyramid, a winter variety. The sort in question succeeds both on the Quince and on the Pear stock, and quickly forms on either of them a magnificent pyramid. Having been sent out only six years ago, it cannot yet be positively spoken of; but we must not forget that by pruning there is no late variety which cannot be made to produce fruit upon the rosettes* in the third year of their formation, when, according to its vigour, the head of the tree is 6 or 8 feet high. As late fruits we may also mention Colmar Josse Smet, Beurré Caty, Suprême Coloma, Rameau, and Prevost.

It requires a very good season to appreciate these varieties when fruited in the open ground. It has been complained that too many autumn fruits have been sent out. It might be replied, how many good autumn fruits have been obtained previous to the present century which can be cultivated in the open ground in our climate? At any rate these complaints, whether well founded or not, will soon cease. Of late years there have been raised from seed, by ourselves and friends, varieties bearing fruit of various forms, and ripening from the end of February to the end of May. The trees in general are of fine habit of growth, healthy, and vigorous. Although still on trial in our nurseries, they will soon be sent out to amateurs. As to the beauty, hardiness, and productiveness of the trees, as well as to the quality of the fruit, there is no longer the slightest doubt. The experiments in the nurseries have been carried on with the view of ascertaining on what kind of stocks, and by what mode of propagation these varieties succeed best.

It may be added that the spring of 1857 has been very favourable to the seedlings of Apricots, Cherries, Pears, and Apples growing on their own roots, with heads more or less elevated, thin and spreading. All the seedlings which were sufficiently old to flower have set and retained their fruits; yes, all their fruits without a single exception! This success depends, in our opinion, not upon the external temperature, whether hot or cold, moist or dry, but upon the preparation of the seed beds, and especially the amount of care that is taken in preparing the soil from which the roots are to derive the elements of future vigour.

Before finishing this long article, and at the risk of advancing a paradox to your readers, we may add that after having planted a collection of 200 sorts of Apples worked upon the Free, Doucin and Paradise stock, and which were obtained from the first establishments in Europe, and trained in whatever form appeared to suit them best for 8, 10, or 15 years, from the very beginning perfect seeds of such of these varieties as appeared to be the best were commenced to be sown. The seedlings gave a more satisfactory result than the 200 varieties from which they were produced, that is to say, with four or five exceptions the seedlings yielded finer and better fruit, and in greater abundance than all the other trees put together.

* There is no term in English to express these. By rosette is to be understood a nascent fruit spur, producing, in the first instance, a tuft of leaves; and such may only be produced for years; or amongst them a blossom bud or buds may appear in the course of two, three, or more years.

which we have been able as yet to see and taste the fruit. From this it would appear to be absolutely useless to procure grafted trees, when we only wish to have Apple trees reared as half or tall standards, to which more room must be allowed than to those on Doucin, or Paradise stocks.

As for Cherries and Plums, an entirely contrary opinion appears to us, from experiments, to be nearer the truth. *J. De Jonghe, Brussels, July* 24, 1857.

THE VIOLET OF ROUEN.

WE have frequently pointed out the advantages which horticulture might derive from some of our indigenous plants. One of our friends, M. Viginien, a zealous botanist, has drawn our attention to the Violet of Rouen as a plant adapted for edgings. M. Jacques has introduced this edging into the Park of Villiers. This horticultural novelty, so far as we are aware, has not been propagated elsewhere; and we venture to recommend it as a treasure of which many horticulturists do not know the value.

A few words upon the principal characters by which the Violet of Rouen, Viola rothomagensis, may be distinguished will, we think, be necessary to enable our friends to identify it. It is perennial, with diffuse tufted angular branches, spreading at the base, and then growing erect to the height of 8 or 10 inches in a cultivated state; but according to authors the actual height of the plant in a wild state is seldom more than 5 or 6 inches. The leaves, which are of a greyish green, are oblong oval, deeply crenated, and, as well as their petioles and stipules, thinly set with hispid hairs. The stipules are large, pinnati-partite lyrate, the terminal lobe usually entire, or nearly so, and larger than the side ones, which are linear. The peduncles are long, furnished with two bracts, and supporting flowers with petals which do not equal twice the length of the calyx. The spur is linear, straight, elongated; the flowers are blueish and violet.

The Violet of Rouen is a species much sought after by the Parisian florists on account of its rarity. In the neighbourhood of Paris it is only to be found, it is said, at Mantes, Liancourt, and Meaux; but its true locality is Saint-Adrien, near Rouen, where on the sandy banks of the Seine the plant is said to be very abundant.

This Violet, which some botanists considered to be only a variety of V. tricolor, was scarcely cultivated till about 1789. It produces numerous flowers throughout the summer. It is one of the group of Violaceæ, which exhibit the property of being perennial, an important point for the horticulturist. Its appearance is graceful, its flowers are richly coloured, and its stems have the advantage of covering the surface of the soil. Lastly, it produces from May till October a profusion of flowers, and it is very readily propagated by seed. About the year 1840 the happy idea occurred to M. Jacques of sowing the Rouen Violet in the Park of Villiers, and planting out the seedlings as edgings; and, as we have stated, with very satisfactory results. The late gardener of Neuilly has therefore enriched horticulture with a valuable plant, which will rank as high as any other, such as Statices, Primulas, Larkspurs, &c., employed for the same purpose. *Léon Gouas, in the Revue Horticole.*

Home Correspondence.

Ozone; its connection with the Potato and other Diseases.—In Mr. Malam's letter relative to the Vine disease, which you published in your Paper of September 5, he attributes it in part to an excessive degree of ozone in the atmosphere; and in the course of his observations he connects it with the Potato disease and cholera in such a way as to create the impression that he regards the causes of all three as identical. In this he appears to be mistaken. The Potato disease did not make its appearance in this neighbourhood this year till the heavy rains at the end of the first week in August, since which time its ravages have been most extraordinary, so that persons who realise one-fifth of the anticipated crop will have reason to think themselves fortunate. Now my observations of ozone during August show, it is true, a large amount on the 7th, 8th, and 9th, as also on the 15th, 16th, and 17th, and the first of those periods marked the commencement of the disease, but the slightest covering is sufficient to protect the test papers from the influence of ozone, and how then can tubers be affected by it, which are covered with some inches of soil? And with the exception of the six days above mentioned the amount of ozone in August has been much below the average, and especially small during the latter half of the month, the period in which the progress of the disease has been more rapid. Nor can the argument be supported by analogy from human disease; it is contradicted by all *à priori* conclusions, as well as by fact. The only trustworthy observations that I know showed a want of ozone in those districts which were attacked with cholera, and whatever may have been held at first respecting it, it is I believe now rightly considered that the absence of ozone rather than its excess is the accompaniment of disease. I have observed the advent of epidemic influenza marked in this manner, and a very opportune confirmation came to hand yesterday by the accidental testimony of a medical man of large country practice of an extraordinary amount of illness just now, though not of a fatal character; this, it will be observed, follows a period of a low amount of ozone. The prevalent opinion amongst the best informed men as to the connection between ozone and disease may be gathered from a quotation I subjoin from Pereira's Mat. Med. vol. i., 277. . . "From what has been stated it is evident that allotropic oxygen (*i.e.*, ozone) is necessary to the preservation of animal life in perfection; and that its presence must be valuable were it only as a deodoriser and disinfectant, both of which offices it fulfils in virtue of its greatly increased power of combination." It may be that what is favourable to animal is unfavourable to vegetable life, or that it is only in a secondary way that it benefits the animal kingdom, whilst it may act on vegetables directly by reason of its "greatly increased power of combination," which enables it to attack their tissue in certain states with greater facility: but in any case ozone cannot be regarded as the cause of disease either in the animal or vegetable world. *A. de Rosas.*

Fruiting of the Catalpa.—It may interest some to know that the large tree here of Catalpa syringifolia is at present covered with perfect seed-vessels, measuring from 6 to 10 inches in length. The only information I can find respecting this tree is in the "Strangers' Guide to Hampton Court Palace," p. 54, where it is stated to have been "planted by the Countess of Mornington when a child." This lady was the late Duke of Wellington's mother, consequently the tree in question must be one of the oldest of its kind in Britain. The time of its introduction is stated to be about the year 1726. *James Donald, Hampton Court, Sept.* 14.

How can Fruit be best kept from Wasps?—I should feel much obliged by being informed of some way of preserving fruit from wasps and ants. I am quite at a loss to know what to do, as I covered all my Peaches and Pears (of which I had a very large quantity) with muslin, and I had occasion to leave home for a few days, and on my return I find all my fruit quite eaten away, not one Peach fit to serve at table, the wasps having eaten entirely through the muslin. Now, this to a person of small income and dependent on selling the product of a garden is very grievous; I trust, therefore, some one will kindly furnish me with a remedy. *Adèle.*

Dry rot the cause of Disease in Trees and Shrubs.—In corroboration of the remarks made by you in a late Number respecting some dry rot fungus being the cause in many instances of ill health in trees, I happened last night to arrive at a similar conclusion. I noticed in a plantation principally of Scotch Firs, four years old, which had borne a crop of this timber removed five years previously to its being replanted, that there were a good many young trees dead, and others in rapid progress of disease. On examining the surface of the rotten roots, and those in partial decay, I found as you describe, "the white spawn of some dry rot fungus," and on cutting the roots they presented a brown appearance to the core, and were quite soft to the cut. Although this plantation contains a good many plants in this state, there remains an abundance of vigorous young trees; but it is just possible that in the gradual decay of the roots of the former crop many more of the young trees may suffer from the spread of this dry rot fungus. *Observer, Aberdeen.*——Your article on the effect of dry rot on the Laurel, &c., reminded me of a circumstance that came under my notice about 20 years ago, an account of which I take the liberty of sending, as I think it bears out your view of the matter. In a greenhouse of which I had the care, one of the stages was attacked by dry rot in the top shelf, on which stood every year much in the same spot a plant of Acacia armata, which was only removed from its place three or four months in summer. On one of these occasions I observed the stage to be so much decayed as to require a new shelf; this was put up, and the house and stages painted; meanwhile the plants were placed in their summer quarters. When I came at the usual time, however, to pot and clean the plants, previous to their being put again into the house, I found the pot of the Acacia to be partly filled with what I thought to be Mushroom spawn. It showed itself on the surface of the mould in patches, the middle of each of which had a brown appearance, much lighter in colour than the soil and very dry. Not thinking it desirable on that occasion to repot the plant I loosened the surface of the soil and removed as much of the spawn as I could, gave a top dressing, and put the plant into its place for the winter. I soon found, however, that the spawn made its way through the fresh soil to the top, and shortly took possession of the entire ball of the plant filling the pot. I now began to fear that I should lose my Acacia, as the water would not penetrate the soil, the spawn seeming to possess the power of resisting the water and causing it to pass down by the side of the pot. As spring advanced the plant became more sickly, and some of the lower branches began to decay; as soon as the flowering season was over I determined to make an effort to save it; it was therefore turned out of the pot, and a great portion of the soil, and a good quantity of the decayed roots, removed; the plant was then placed in a tub of water to try if possible to saturate the ball, and thus destroy the fungus; in this I did not succeed, as the water seemed to make no impression whatever on the spawn. I therefore repotted in good soil, and paid particular attention to watering, but all my efforts proved unavailing, for the fungus rapidly spread through the fresh soil, and in a short time I had only a leafless stem. I think there can be no doubt that it was dry rot in this case that was the cause of the mischief, as it showed itself in the dwelling house, against which the greenhouse was erected. *James Tynam,* 68, *Great George Street, Liverpool.*

Mignonette as a Vegetable.—The following is a translation of a recipe for a sauce, which I found in a French cookery book. Will you tell me if Mignonette is wholesome, and whether flowers or leaves should be used? "Put a little water in a pan with salt, Mignonette, chopped Shalots, and Lemon juice; heat, but do not boil; add a glass of boiled wine and Orange juice, and strain." *L.* [Mignonette is perfectly harmless. We presume that the flowers are used.]

Aphides.—Seeing in your Paper of Sept. 5 a recipe for killing these pests, I beg to ask your correspondent if he thinks that it is applicable, and might be used with safety in my case. I have a greenhouse in communication with my drawing-room, with a bed-room and dressing-room, as well as with the first floor and upper portion of my house in which the use of tobacco for the destruction of aphides is inconvenient. I grow Geraniums, Mimulus, Primulas, Chrysanthemums, Hyacinths, Camellias, Calceolarias, Acacia armata, Azaleas, Gesneras, Gloxinias, and Achimenes; would it be safe to apply the mixture recommended to any or all of these? *A. W. B.*

How are Rose Buds destroyed?—Some time ago I asked this question, for we are constantly having our buds picked off in the spring as clean as if a person had done it with his nail. At first I suspected a bird, and I netted all mine this year, but it did not save them. Upon closer observation I found it was done by the long-nosed beetle. How is this to be prevented? *M. A.* [The beetle is we suppose the common brown Curculio. He feeds by night, travelling upwards from the earth, where he hides during the day. Put a sheet on the ground at night under your Rose trees and strike them smartly; the Curculio will fall off, and may be secured in a bottle of water.]

Mushrooms.—Having read on several occasions in your columns instructions on Mushroom growing by Mr. Cuthill, of Camberwell, I should feel much obliged to him if he will clear up for me several points upon which I am not yet quite *au fait*, viz., is the bed to be spawned and moulded at the same time? Is the mould to be sifted, and is it to be put on the bed in a moist or dry condition? When watered, on finishing the moulding, is it to be soaked or merely sprinkled? and ought the water then used for that purpose to be cold or tepid? Is the bed when finished to be immediately covered up, or are a few days allowed to elapse before so doing? And last, though not least, where is good Mushroom spawn to be procured, at what price, and how far will a bushel go? *Amateur.*

Muscat Hamburgh Grape.—Have you any acquaintance with the new Grape introduced by Mr. Snow, of Wrest Park? If so, you would, I am sure, be conferring a favour on your readers by giving them your experience of it. The practice of the maxim "caveat emptor" was never so much needed as at the present time, and it is only when a fruit or a flower (which I have not tasted or seen for myself) has received your stamp of approbation that I, for one, venture to purchase it. *W. Marshall, Ely.* [Mr. Snow has been so obliging as to send us a part of a bunch, from which we learn that the berries are *oval*, reddish purple, and fleshy. The flavour is quite equal to that of Muscat of Alexandria, although, as we understand, our specimen was ripened in a Peach-house. We have no further information.]

Sun Temperatures as Indicated by the Black ball Thermometer.—Having experienced much difficulty in obtaining any satisfactory or uniform account of the temperature of direct sunlight, I am tempted to send you an account of the arrangement which I have at last adopted. It is so simple that the most uneducated observer can employ it, and nevertheless I believe it will be found effective, at least as a standard of comparison. I need hardly remark that under ordinary practice no two observers will produce the same results with the same instrument, so great are the differences due to the mode of observation. My own method is as follows:—I fix a common black bulb thermometer, whose bulb of course projects beyond its wooden frame, upon a south wall, upon a board about half an inch thick, of the same length as the thermometer scale, so that when this is fixed against the wall the bulb is free, and about an inch from the brickwork. Against the wall I fix a square piece of cork of such thickness that half of the thermometer bulb is buried in a hemispherical hole burnt in the cork to receive it. The effect of the cork is to prevent all radiation between the wall and the bulb, so that the bulb receives heat only from the sun, and parts with it only by radiation into the atmosphere on that side. When wetted the cork soon dries, so that little error arises from the moisture lying on the cork which might otherwise diminish the heat by evaporation. An instrument thus fitted is very sensitive, falling with every cloud which obscures the sun, and rising as rapidly, and being fitted with a register any gardener can register the results. I do not suggest this as a philosophical instrument for scientific purposes, but merely as one for horticultural use, which will with little skill, trouble, or expense, give uniform results. I have employed it now between two and three years. The present summer has been distinguished by the great excess of sun power over the last two, the maximum being 119° on the 27th August, and the temperature has exceeded 100° on many days in July and August, which during the two last years it rarely did. Doubtless this has much to do with the success of our fruit. *J. Rogers.*

Transmutation of Ægilops.—There are many persons of leisure in this country who would be delighted to repeat the experiments of M. Fabre (and so verify or disprove one of the most extraordinary discoveries of modern times) if they knew where authentic seeds of

Æ. ovata and Æ. triticoides could be procured. Your correspondent's labours on Æ. squarrosa, although interesting in some respects, have lost much of their value I apprehend, even in his eye, now he learns through your leading article on the subject that he has not been operating on the same species as M. Fabre. *W. Marshall, Ely.*

Aralia japonica.—Can any correspondent inform me what height this attains when full grown? what sort of flower it bears? if it is sufficiently hardy to stand the winter of this country without protection when planted out? and what sort of treatment suits it best? *East Lothian.* [It is 6 feet high, with pale green flowers. Its hardiness in severe winters is extremely questionable.]

Potato Disease.—My Potatoes this year consisted of the following sorts, viz., Stanley Kidney (this is an early and excellent kind, known under that name in this neighbourhood), Ash-leaved, Walnut-leaved, Prince of Wales, York Regents, Flukes, and Purples. These were all looked over and sorted in the middle of February, and the last week in February I began planting in the garden the Stanley Kidney, Ash-leaved, Walnut-leaved, some Flukes and Prince of Wales; and the first week of March I planted in the field the Prince of Wales, Regents, Flukes, and Purples, and after these got above ground until attacked by the disease never did I see a crop look more promising, and the greater part of them being early sorts and planted early, I thought they stood a good chance of escaping disease. But alas! of 100 bags of fine Potatoes, the pigs have had more than 60. In the beginning of July the disease spread itself over the haulm of the Prince of Wales and Walnut-leaved in the garden; these I sold to a huckster for what I could get, and having only a limited quantity of the Stanley Kidney and Ash-leaved, and these sorts being nearly ripe with only a few diseased among them, I dug them up, and what were sound then are sound now. The Flukes being scarcely touched at all and growing rapidly, I left them in the ground until the 1st September, and out of six bags of fine Potatoes not more than half a peck is diseased—so much for the Potatoes in the garden. As for those in the field, as I stated before, they looked exceedingly well until the middle of July, but then the disease spread fast over the haulm and tubers too, and not being ripe I left them to take their chance until harvest was finished. The result is that three-fifths of the crop are diseased, but the Flukes, as in the garden, have stood it well, and very few are now to be found affected. My neighbours are equal sufferers with myself, and some of them much worse. This is on what may be called a hill farm, but it appears to be the same in the Vale of Gloucester; most of the sorts grown are much diseased, whilst the Flukes may be said to have escaped. *John Spriggs, Steward to W. H. Hyett, Esq., Hill Farm, Painswick, Gloucestershire, Sept.* 14.——The Potatoes in Badger Garden, and also in the cottagers' gardens here are one-third rotten, one-third diseased, and one-third sound, but not fit for food as they smell very badly. In the fields the early kinds are one half diseased, the Farmer's Glory one-third diseased. Flukes are generally good, only one or two being affected in a peck. The disease is as bad as it ever has been in this neighbourhood. *G. Cooke, Badger Hall, Shiffnal, Sept.* 15.——The following is a copy of my weather journal of the days on which the disease attacked my Potatoes. Aug. 15, Potatoes all good:—

	Wind.	Thermometer.	Barometer.
August 15th.		Deg.	Inches.
A.M.—Bright, dry.. ..	S.	61	29.8
12—Cloudy, dry ..	Calm	70	29.8
P.M.—Cloudy, damp ..	,,	66	29.9
16th.			
A.M.—Bright, dry.. ..	E.	68	29.7
P.M.—Clear, dry . ..	E.	71	29.9
17th.			
A.M.—Dull, dry	N.E.	68	29.9
12—Cloudy, dry ..	N.E.	69	29.9
P.M.—Clear, dry	N.E.	63	30.0

My Potatoes were grown upon heavy land, and when we lifted them on the 17th we found about 1 peck of apparently sound tubers in about 10 bushels, and of this peck many were bad in two days after. *George Burton, Southtown, Great Yarmouth, Norfolk, Sept.* 14.——The Potato crop is worse at this place and neighbourhood than it has been for these past 10 years. Potatoes planted in the field on a dry chalky bank are not worth digging; but what I regard as of much greater importance is the fact that the early sorts grown in the garden, which hitherto have been almost unaffected, are now going off rapidly in the storehouse, notwithstanding that they were taken up before the occurrence of the late heavy storms. *E. J., Henley on Thames.*

Pine Apples at the Crystal Palace Exhibition.—As an act of justice will you allow me space for a few remarks upon the management, or rather mismanagement, at the last Crystal Palace exhibition. I think you will agree with me that when exhibitors from the country intrust their productions to the official managers of an exhibition they have a right to expect that they will see that they are properly labelled, &c.; how far this principle was acted upon at the above exhibition a few facts will show. I sent two Pines, one Queen and one Enville (the one noticed by your reporter weighing 8 lbs. 8 oz.). In looking over the advertisement of the awards of the judges in the *Gardeners' Chronicle* I saw a prize was awarded to Mr. Arthur Young, gardener to Crawshay Bailey, Esq., M.P., Aberaman, Glamorgan, in Class 5, for 10 plants of remarkable foliage. Not having shown any plants myself I wrote for some explanation, and was informed that the said Mr. Young lived at Dulwich instead of Wales, but that I was awarded a prize for a Queen Pine which did not appear in the advertisement, because they did not know who the Pine belonged to—it evidently was not labelled; and I have no doubt the same neglect with regard to the Enville was the cause of your reporter not mentioning by whom it was exhibited, and there are few of us who after growing a good production do not like the honour of its being recorded. Now in answer to my inquiries they say that they did not know who the Pines belonged to until they received my letter to send them back, and when do you imagine they received that letter? Why, in the box with the Pines. I had previously filled up their printed form stating what I intended to show, giving the requisite notice, and sent it to the Secretary; I also wrote a letter with full instructions where they came from, where they were to be sent to, &c., and forwarded it as stated above in the box with the Pines, and which they must have read, otherwise they could not have sent them to the address given; therefore there must have been great negligence, to say the least of it, somewhere. So much for their not knowing whose Pines they were. Again, I wrote to them before the exhibition to know if there was any class in which I could exhibit my Enville Pine for competition, and they informed me I could show it in the Miscellaneous Class FF; but I cannot see that there was any prizes given for Pines in that class. I see by your report that there was a noble Black Prince exhibited, I suppose in the same class; but I fear it shared the same fate, as I see no mention of it elsewhere. I hope these mistakes will be remedied in future, for I do not think that a continuation of such proceedings would greatly induce country exhibitors to send their productions to the Crystal Palace exhibitions. *Thomas Young, Gardener to Crawshay Bailey, Esq., M.P., Aberaman, Glamorgan.*

A Poor Lady's Miseries.—Good Mr. Editor, do tell me what to do. I am in torture. Flea-bites are nothing to it. Something else has been biting me all over. You never saw such a skin. Luckily the worst is out of sight. It came this morning while engaged in a delightful picnic. We are all bitten—I and Sophy and Willie, and all except one old gentleman, who seeems to be bite proof; extremely disagreeable of him, for he only laughs at our misery. I can't find out what does it. We can't see anything except some little red points that run about as nimbly as ants; but they have neither heads nor legs nor eyes that we can find. So it cannot be they. Did you ever know what it is to itch? Scratch, scratch, scratch, there is nothing here but scratching. Ugh! I shall send a man and horse to the post-office on purpose to get your *Chronicle* the minute it comes to Penzance, so be sure to tell me what to do. *Cornubia dolorosa.* [Alas! Madam, you have fallen among Trombids, vulgarly called harvest bugs, the little red points you mention. Get a microscope, and it will show you that the wretches have legs and heads and eyes. We rejoice to say that if you apply strong vinegar to the itching places the annoyance will disappear after two or three applications.]

Daddy-long-legs.—Walking through Hyde Park a few days ago I was struck with the vast number of daddy-long-legs (Tipula oleracea) flying about among the Grass to such an extent as to attract the notice of the children, who were chasing them for amusement. This is in fact the season to destroy them in the easiest manner, if the trim appearance of our lawns and parks is an object of solicitude; and in order to prevent their eggs from being deposited in the earth, the sooner children are set to work the better. It would be worth while to offer a small sum per pint for the winged insects. *W.*

Monarch Pear.—I have an excellent crop of Pears on a pyramidal tree, which I have placed in the catalogue "Monarch," but I cannot learn from Macintosh or the other gardening books I possess when it should be gathered, or when it is fit for the table. The wasps have begun their attack on it, and it is apparently quite unfit to gather. Shall I gather the fruit, or allow the wasps to have a share in exchange for the advantage of the fruit hanging a month longer, should any then remain? *Constant Reader, Bristol, Sept.* 14. [We cannot advise you. The Monarch is a late Pear, and if you gather it now it will be worthless.]

What to do with Melons when over-ripe for table?—Having this year had more Melons ripen at one time than could be consumed at dessert, some of them began to get into so rotten a state—I mean so soft and pulpy a condition, and even mouldy on the outside in several places—that they were quite unfit to appear at table. Being, however, loath to throw them away, it occurred to me that they might be converted into a very good marmalade; therefore after removing all the mouldy parts and cutting each into four pieces, I put the seeds and pulp of the interior into a colander, and forced all through but the seeds, which were kept back. I then scooped out the flesh almost to the very skin, added it to the other, and boiled the whole, without water, in a preserving pan with as much sugar as I considered would be sufficient to bring the marmalade, when prepared, to the consistency of a stiffish jelly. This preserve eventually turned out to be delicious, superior, in the opinion of all who tasted it, to that made of Peaches, as it retained the fine flavour of the Melon undiminished. For sweet omelets or tarts no confection can surpass it, and it is also excellent when eaten with bread, though to some palates it may be thought too sweet and luscious, in which case a small portion of the [illegible] of common Rhubarb chopped up and boiled [illegible] parts to it a slight yet agreeable acidity. M[illegible] or jelly of this kind is not so expensive [illegible] sesses the Melons as preserves made from [illegible] fruits, a less quantity of sugar being requir[illegible] it, and white moist sugar I have found prefe[illegible] as it thickens better in boiling. *Subscriber, W[illegible]*

The Wormegay Oak.—This celebrated Oak [illegible] Wormegay Park, near Shouldham, in N[illegible] earliest mention of this tree is in 1563, in [illegible] tive to a messuage called the "House a[illegible] About 50 years previous to the downfall [illegible] patriarch, the oldest inhabitant of the village [illegible] its being propped with spars, but that no [illegible] can be remembered on its bleached surfa[illegible] 60 years ago it was converted into a stowag[illegible] and from time to time did the work of an [illegible] breeding and fattening house. The circum[illegible] the tree where no projecting spars appeared was [illegible] its height about 20 feet. M. Bosc is of opin[illegible] Oak of a century's growth does not measure [illegible] a foot in diameter. Assuming that the W[illegible] increased in diameter 1 foot each century, [illegible] lapse of eight centuries, and allowing that the [illegible] three centuries be necessary to complete the [illegible] of an Oak, provided decay had commenced; [illegible] circumstances the Wormegay Oak had an age [illegible] 1100 years. This tree grew on high land [illegible] valleys of moor soil. Its roots were imbedded [illegible] dark-coloured mould resting on clay, which [illegible] with an acid afforded copious effervescence. E. I. [illegible] *Shouldham.*

Fluke Potatoes.—I have grown this variety [illegible] since it was introduced to the public, and have [illegible] to be all that its friends promised it to be, free [illegible] disease, abundant in crop, and excellent in flavour. [illegible] there is one fault about it that I should be glad [illegible] advised about, as if the experience of any of [illegible] respondents who may be good enough to reply [illegible] agrees with mine, I must give up cultivating the Fluke. It is this, that every year, wet or dry, the stalks [illegible] their vigour and greenness when they ought [illegible] dying off; and the tubers, not to be outdone by [illegible] relations above ground, throw out shoots, or "chimps" [illegible] they are locally called, just as they might be expected [illegible] do the following spring. On taking them up the Potatoes are found studded with excrescences, and when brought to table the tissue hangs in threads. I have found some other sorts at times sprout in "lippy" seasons, but not so much as this. I had my sets from different seedsmen and have grown them with and without manure. Can any of your correspondents tell me if they have observed this tendency in the Fluke? *L. H. Ruegg, Sherbourne.*

Sigma's Aphis Powder.—In a late Number I [illegible] you speak rather slightingly of this new invention, [illegible] which I have reason to be grateful to the author. I had some to try early in the spring, and it came in [illegible] fortunately in time to attack the first brood of [illegible] just as they were becoming uncomfortably vigorous. A few ounces sufficed to dust liberally about 100 [illegible] which were covered. My first impression was that [illegible] was a failure, for a few hours after the blight was moving about as usual. The next day told a different tale—the whole of the enemy had disappeared; [illegible] noticed blight only in one part of my garden afterwards during the whole of the season. The hand-planter [illegible] the same inventor, is also most useful as effecting [illegible] immense saving both of seed and labour. And [illegible] that persons are awakening to the advantage of [illegible] seeding and dibbling their corn, I can imagine [illegible] instrument which will prove more welcome. I find it deposit Mangel seed very nicely, and my man was perfectly astonished at the little seed used. For [illegible] purpose, however, it requires to be carefully handled and the ground should be in good tilth, or the seed will be deposited too deeply. For corn the common amount of care will be enough. *John Slater, Rose Hill, Oxford.*

Slugs.—Several plans have been recommended [illegible] destroying these; the following method will however, I think, be found superior to any hitherto suggested. My garden, which consists of about 4 acres, was so infested with slugs that at first I found 180 under a single trap. Now 20 traps may be examined without finding any. The uses of my trap are however not confined to slugs; it may be employed successfully in catching earwigs, woodlice, beetles, &c. It is constructed as follows:—Place Cabbage, Rhubarb, Turnip, or other leaves (Cabbage leaves are the best), about 4 feet apart, by the side of the crops you wish to protect when the seed is sown; then put a piece of board 4 inches by three or larger on each leaf, press it firmly down; the ground should be moist, the slugs will find their way into the traps. In the morning, and indeed during the day, put a small quantity of unslacked lime into a shallow pan or other vessel, shake the slugs into it, and relay the traps; afterwards examine them as often as may be necessary. *A Practical Gardener.*

Landscape Gardening.—I have read Mr. L[illegible] No. 1 on Ornamental Gardening with some interest. As I do not altogether acquiesce in his observations perhaps you will permit me to make a few remarks which I hope your correspondent will also take in [illegible] part. The term Landscape Gardening I have always considered inappropriate, although considered admissible by some eminent men. According to my view [illegible] land designing and not landscape gardening is the proper term. As to landscape gardening being more

the improvement of natural scenery, and apart from ornamental gardening, I think this idea incorrect. What is usually termed landscape gardening is neither more nor less than the improvement of landed property generally by the formation of parks, pleasure grounds, plantations, roads, drives, gardens, &c., as also squares, cemeteries, &c., in connection with large towns and cities. It embraces not only the improvement of natural scenery, but also the laying out of gardens, from that adjoining the palace to the gardens and grounds attached to the villa and cottage. Although we sometimes find working gardeners and others stepping out of their line and attempting to lay out property, it is done in the one case without any guiding principles, and in others with only a smattering of first principles without practical knowledge of gardening matters and their effects. In short the land designer stands in the same relation to the working gardener that an architect does to a working mason. *J. Lothian, Land-designer and Surveyor, Campbellton.*

Societies.

BRITISH ASSOCIATION AT DUBLIN: *Thursday, Aug. 27.*—Dr. Harvey, in taking the chair of the Botanical Section, referred to the fact that the position he then occupied had been assigned to the late Dr. Ball. He then proposed that the meeting should adopt the following resolution:—"Resolved, that we hereby express our deep regret at the loss we have sustained by the recent sudden death of Dr. Robert Ball, an early and constant supporter of the British Association, and who had been named President of the Natural History Section on the present occasion; and that this tribute of marked respect to his memory is due not merely on account of his great merit as a naturalist and promoter of science, but much more to his personal character as a kindly, high-minded, and honourable man."

Dr. Daubeny, of Oxford, read the *Report of the Committee appointed to investigate the Vitality of Seeds.*—He alluded to the circumstances which called the Committee into existence, and stated that after planting year after year all the seeds they were able to collect, they had now left but four species of plants whose seeds continued to grow. These were species belonging to the genera Ulex, Dolichos, Malva, and Ipomœa. He exhibited a register in which every experiment as performed by Mr. Baxter, of the Botanic Garden, was detailed. From this register it would be seen that the shortest period for which any of the seeds had retained their vitality was eight years, and the longest forty-three years. Grouping the plants according to their natural orders, the following selected will give some idea of the plants whose seeds retain their vitality longest:—Gramineæ, 8 years; Liliaceæ, 10 years; Coniferæ, 12 years; Tiliaceæ, 27 years; Malvaceæ, 27 years; Leguminosæ, 43 years; Rhamnaceæ, 21 years; Boraginaceæ, 8 years; Convolvulaceæ, 14 years; Compositæ, 8 years; Myrtaceæ, 18 years; Umbelliferæ, 8 years; Cruciferæ, 8 years.—Dr. Steele stated, that he had planted many seeds obtained from Egyptian mummies, but always failed to obtain any indications of their vitality.—Mr. Moore, of the Dublin Botanical Garden, related an instance in which he had succeeded in producing a new species of leguminous plant from seeds obtained by Mr. John Ball from a vase discovered in an Egyptian tomb. He also stated that he had picked from out of the wood of a decayed Elm, at least fifty years old, seeds of Laburnum, many of which had germinated when planted, and produced young trees. He had once grown a crop of young Barberry trees by planting a quantity of Barberry jam, which proved that the process of preparing the jam did not injure the seed. Many seeds grew the better for being placed in boiling water before they were set.—Dr. Daubeny stated that seeds did not retain their vitality whilst entirely excluded from the air; that, in order to keep them well, they should be wrapped up in brown paper, or some other porous material.

On the Employment of the Living Electric Fishes as Medical Shock-Machines, by Prof. G. Wilson.—The author stated that, in prosecuting researches into the early history of the electric machine, he did not at first contemplate going further back than the seventeenth century, or commencing with any earlier instrument than Otto Guericke's sulphur globe, of 1670. His attention, however, had been incidentally directed to the employment of the living torpedo as a remedial agent by the ancient Greek and Roman physicians, and he now felt satisfied that a living electric fish was alike the earliest and the most familiar electric instrument employed by mankind. In proof of the antiquity of the practice, he adduced the testimony of Galen, Dioscorides, Scribonius, and Asclepiades, whose works proved that the shock of the torpedo had been used as a remedy in paralytic and neuralgic affections before the Christian era. A still higher antiquity had been conjecturally claimed for the electric Silurus, or Malapterurus of the Nile, on the supposition that its Arabic name, *raad*, signifies thunder-fish, and implies a very ancient recognition of the identity in nature of the shock-giving power and the lightning force; but the best Arabic scholars have pointed out that the words for thunder (*raad*) and for the electric fish (*ra'ád*) are different, and that the latter signifies the "causer of trembling," or "convulser;" so that there are no grounds for imputing to the ancient Egyptians, or even to the Arabs, the identification of Silurus-power with the electric force. In proof of the generality of the practice of employing the living zoo-electric machine at the present day, the author referred to the remedial application of the torpedo by the Abyssinians, to that of the gymnotus by the South American Indians, and to that of the recently-discovered electric fish (*Malapterurus Beninensis*) by the dwellers on the old Calabar River, which flows into the Bight of Benin. The native Calabar women are in the practice of keeping once or more of the fishes in a basin of water, and bathing their children in it daily, with a view to strengthen them by the shocks which they receive. These shocks are certainly powerful, for living specimens of the Calabar fish are at present in Edinburgh, and a single one gives a shock to the hand reaching to the elbow or even to the shoulder. The usages referred to appear to have prevailed among the nations following them from time immemorial, so that they furnish proof of the antiquity as well as of the generality of the practice under notice. The author concluded by directing the attention of naturalists to the probability of additional kinds of electrical fish being discovered, and to the importance of ascertaining what the views of the natives familiar with them are in reference to the source of their power and to their therapeutic employment.—Sir J. Richardson stated that there were not less than eleven genera of fishes known that had the power of giving electric shocks. There was one peculiarity in all these fishes, and that was the absence of scales. In every one of them an apparatus had been discovered, which consisted of a series of galvanic cells put in action by a powerful system of nerves. He read extracts from a letter from Dr. Baikie, now engaged in exploring the Niger, in which that gentleman stated that he had met with an electric fish in Fernando Po, and which Sir J. Richardson believed was identical with the Malapterurus, which had been described by Dr. Wilson, from the coast of Old Calabar. The natives called this fish the Tremble-fish.

Mr. R. Patterson read the following note of *the quantity of periwinkles (Littorina littorea) shipped at Belfast* during the years 1853, '4, '5, and '6. It had been kindly furnished to him by Edmund Getty, Esq., Secretary to the Harbour Commissioners of that port:—

	Bags.	Tons.	Bushels.
1853	1034	181	3102
1854	2626	459½	7878
1855	2286	400	6858
1856	786	137	2358

Such of these as are not got in the Bay of Belfast are principally collected on the coasts of the County Down; but the "banks" from which they have been derived are becoming exhausted, and no longer capable of supplying the demand. The quantity of periwinkles deficient is now imported from Stranraer to Belfast, and thence reshipped for London. The local term in the north of Ireland for the periwinkle is "whelk." The "whelk" (Buccinum undatum) is known as the "buckie." The reading of this paper led to a general conversation on the subject of the habits of marine animals used as food, and the methods of their conservation.—Mr. Patterson, of Belfast, stated that fishermen were generally ignorant of the simplest fact connected with the habits of the animals they caught, and stated as an illustration, that at Belfast one party of fishermen swore before a court of law that flat-fish deposited their spawn on the shore, whilst another party swore equally hard that they went out to sea to deposit their spawn.—Prof. Kinahan stated that a frequent cause of the destruction of the crustacea on our coasts was the occurrence of either great heat or cold at the period of the hatching of the spawn. The young were hatched in holes and shallow pools on the shore, and either heat or cold killed them.—Prof. Wyville Thompson stated that the laws which regulated the development of animal life were little understood, and that the naturalist must be careful not to promise the fisherman too much.

Observations on the Plants which, by their Growth and Decomposition, form the principal part of the Irish Turf Bogs, by Mr. D. Moore.—We shall shortly give this highly interesting paper *in extenso*.

On the Remarkable Result of Experiments on a Fruit-bearing Tree, by Mr. N. Niven.—In this paper Mr. Niven detailed the result of an experiment of grafting 12 different sorts of Pears on the same stock, so that he had obtained fruit from this tree, which ripened and were ready for the table at all seasons of the year.

BRITISH POMOLOGICAL: *Aug. 20.*—Mr. Hogg in the Chair. Mr. Rivers furnished nine varieties of the earliest Peaches, of which the following are arranged in the order of their ripening. 1st. Red Nutmeg. End of July. The earliest of Peaches, a very old, but little known and less grown variety, not of first quality, but being a free bearer its extreme earliness makes it a sort worth having where room can be spared, and variety in dessert is an object. 2d. Petite Mignonne. First week in August. A small early Peach, good flavoured, but inferior to the next variety. It is well adapted for pot culture, and forms a charming bush. 3d. Early York. First week in August. An American Peach of medium size, and of a bright red next the sun; flavour full, deliciously melting, with a fine aroma. This is without doubt by far the best early Peach known. 4th. Early Anne. Beginning of August. An old variety which, although second rate in quality, has been grown in almost every collection on account of its earliness, but should now give way to the superior variety mentioned above. 5th. Early Grosse Mignonne. Second week in August. Quite distinct from the Petite Mignonne or Early Mignonne of some. Apparently a variety of the Grosse Mignonne, which it resembles, excepting that it is 14 days earlier, and not quite so large. The specimens exhibited were very ripe, not having endured the retarding so well as the Early York. 6th. Pêche à bec. Middle of August. Nearly allied to the above, and in nice condition. 7th. Belle de Doué. Middle to end of August. An early variety of the Bellegarde; flavour not well developed, fruit not being ripe. 8th. Belle de la Croix. End of August. In nice condition, flavour good, full, and nearly equal to Early York. 9th. Precoce de Savoie. Middle to end of August. A Peach with serrated leaves and medium-sized flowers, flesh very red in the centre; promising, but not quite ripe. This is the largest of all the early Peaches. Fairchild's Early Nectarine, also from Mr. Rivers, is an old and very early small yellow-fleshed variety, desirable in large gardens for the same reason as the Red Nutmeg Peach. Mr. Davies, of Pershore, sent Jemmy Moore, a local variety of Plum, which was considered like Denyer's Victoria, with which it also agrees in its reported great productiveness. Old Noll, also a local variety, was reported to be a great bearer, but useful only as a kitchen Plum. Brandy Gage. The fruit of this Plum was too much decayed to form an accurate opinion of its merits; but it was considered worthy of being asked for in a better condition next year. Of Pears, Mr. Rivers brought specimens of Poire Pêche (Esperen), showing that it was not an early Pear in this country. The examples were hard, and did not seem likely to attain to good quality. Mr. Rivers also exhibited young trees out of the ground, on Quince stocks, 4 years old, about 2½ feet high, and having from 15 to 20 fruit on each, of the following varieties:—Belle d'Août, of which Beurré Kirke is a synonym; and Beurré Goubault, showing the prolific habit of that variety on the Quince. Mr. Phillley, of Hemel Hempstead, Herts, sent specimens of a local Apple, supposed to be a seedling. It was a clear good-looking kind, but was not considered so valuable even for culinary purposes as to make it worth adding to catalogues. J. Biggar, Esq., of Maryholm, near Dumfries, sent specimens of a Seedling White Gooseberry, said to possess most of the qualities of the Red Champagne, and to remain on the bush in good condition much longer. The fruit sent had fermented in the package, but the variety was considered promising and worthy of further examination, as a really good white rough late keeping variety would be a useful addition to desserts in September and October.

Notices of Books.

Mensuration, Plane and Solid. By the Rev. J. Sidney Boucher. London, Longmans. 1857. 12mo, pp. 176.

By the aid of this little work any intelligent person possessing an ordinary knowledge of arithmetic may teach himself how to measure flat surfaces and solid bodies. A section showing how to *apply* the principles laid down to the measurement of rough timber would add considerably to the value of the book. This branch of mensuration is of the greatest importance to persons employed in buying or selling trees, and deserves special notice, inasmuch as it is beset with difficulties peculiar to itself, and which an uninstructed learner would not find it easy to overcome. The methods generally employed will be found in the *Gardeners' Chronicle* for 1854, pp. 301 and 405.

In addition to the Trade Lists that have been already noticed, we have received the Catalogue of *Hyacinths and Bulbs* on sale at *Parker & Williams'*, Hornsey.—*Descriptive Catalogue of a Selection of Roses, &c.*, grown at St. Mary's Hill, Newbury, by *W. H. Davis.* Eight thousand are worked on the Manetti stock. The sorts are select, and briefly described.—*Catalogue of Dutch Roots* imported by *Alex. Pontey*, of Plymouth, among which we perceive a rich assortment of Gladioles.—*A Descriptive Catalogue of Hyacinths, &c.*, imported by *Cuthbush & Son*, of Highgate. collections are offered at the price of two guineas up to five guineas each, a good arrangement for buyers.

Garden Memoranda.

J. THORN'S, ESQ., MAWBEY HOUSE, SOUTH LAMBETH.—Mr. Hamp, who is gardener here, is one of the most successful growers of Amaryllids we know of. Beautiful collections of them have been shown by him both this year and last at our great metropolitan exhibitions; some account of his mode of culture may, therefore, be acceptable. He makes it a rule to examine the stock under his care about the end of January or beginning of February; those wanted to bloom in April are then selected and examined as to the efficiency of their drainage. If their roots are decayed all the mould is at once shaken off, and the bulbs are then repotted in a mixture of one third loam, one third peat, and one third rotten dung, with a rather liberal admixture of silver sand; they are then placed in a temperature of from 60° to 65°, and watered very sparingly until the flower spike has grown from 6 to 8 inches in length. If it is then desirable to accelerate their growth more water and more heat are applied; if, on the contrary, their growth is to be retarded, water and heat are withheld. If, however, on examination, the roots are found to be healthy, potting at that time is dispensed with, and is performed when the foliage has pushed about 6 inches.

When the plants have done flowering they are placed on the back shelf of a stove or Vinery or in a pit that can be kept warm; they are then watered and syringed

freely until the foliage begins to assume a yellow tint; water is then gradually withheld until the leaves have parted from the bulb, when no more water is given and the pots are then laid on their sides at the warm end of a greenhouse, under the stage, until the following spring. As regards resting, all kinds are not found to be alike; for Hippeastrum aulicum and one or two others seldom shed their leaves in winter at all. The best way of managing these is therefore keeping them moderately dry and cool during winter. To amateurs and gardeners who have room and leisure a wide field is open for the improvement of this class of plants, for although they are justly admitted to be in the highest degree ornamental, some of them fragrant, and all of them easily cultivated, yet they are very far from possessing that roundness of petal and compactness of flower which it is desirable they should possess. Vallota purpurea perhaps approaches nearer perfection than any of them in this respect, and Mr. Hamp believes it might be employed with advantage in the improvement of the other sorts.

As regards seeds, Mr. Hamp usually sows them as soon as they are gathered in some rather dry loam and sand, and places them in a warm house or frame, watering sparingly until they germinate; they are usually allowed to remain in the seed pan until the following March, when they are potted off into 3-inch pots at first and afterwards shifted into larger ones as they progress in growth. What is found to be of most importance to their successful cultivation is an abundance of light, heat, and water, and above all a proper period of rest. Without the last a fine display of bloom need hardly be expected.

Miscellaneous.

Herbarium Duplicates.—It may interest our readers to know that, in the spring of the present year, in consequence of the dissolution of the Botanical Society of London, Mr. Brocas, of 38, Tavistock Street, Covent Garden, a young and ardent botanist, purchased their herbarium, which he has carefully preserved for public reference. He also bought its British duplicates, and numerous other lots, and having purchased and collected extensively from other sources, he now possesses a very perfect stock of duplicates, well calculated to supply the wants of botanists. As Mr. Brocas is almost exclusively dependent on his botanical engagements for the maintenance of himself and family, we hope that his energy and enthusiasm will meet with encouragement; and that all who wish to purchase anything in his way will favour him with their support, which his industry and perseverance well deserve. The results of some of his researches have already been given in our early volumes. *Florist.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Keep New Holland plants which have been placed under glass cool and airy, and avoid crowding, especially in the case of things which are in a growing state, but everything must be allowed sufficient space, so that the foliage may be fairly exposed to light and air, and rather than be under the necessity of huddling specimens too thickly together some of the least valuable should be thrown away. Look sharply after mildew upon Heaths, as this pest is sometimes very troublesome upon plants that have been growing freely in a shady situation in the open air, and are in a rather soft state when taken in doors, and apply sulphur freely on the first appearance of the enemy. Also see that everything is clear of insects. Take advantage of leisure hours to get Azaleas which have made their season's growth nicely tied, as also anything else requiring training, and endeavour to keep everything very trim and neat, in order to compensate, as far as possible, for the paucity of flower among hard-wooded plants at this season. COLD PITS.—Plants which have made their season's growth should be freely exposed to sun and air on every favourable opportunity, in order to get the wood well ripened. But such things as are still in free growth should be encouraged by every possible means while fine weather continues, keeping them rather close, guarding them carefully from cold winds, and giving a liberal supply of water at the root. If anything requires more pot room get such shifted as early as convenient, keeping the atmosphere rather close, and watering very cautiously for some time afterwards until the roots get hold of the fresh soil.

FORCING DEPARTMENT.

PINERIES.—Attend to last week's directions, and endeavour to afford plants on which the fruit is ripening a warm rather dry atmosphere with a moderate circulation of fresh air on dry days, and whenever this can be done without lowering the temperature too much; also keep young stock growing as freely as may be consistent with securing stocky plants, giving them a liberal supply of manure water at the root, and maintaining a moist atmosphere. Be as sparing of fire-heat, however, as circumstances will permit, shutting up early on the afternoons of bright days, but give air rather freely in the early part of the day, which will assist in preventing weakly growth, and after this season the syringe must not be used too freely, even on young growing stock, and where the atmosphere can be kept moist at pleasure by means of tanks, &c., syringing might almost be discontinued for the season; at all events avoid syringing so heavily as to cause water to lodge in the hearts of the plants, which tends to blanch and weaken the foliage. Look over young stock growing in pots, and shift any requiring more pot-room without delay, so that it may get rooted into the fresh soil before winter; and see to having the balls moist at the time of shifting, for neglect of this is a frequent cause of young stock fruiting prematurely. VINERIES.—Vines that are to be forced very early, provided the wood is well ripened, and the leaves mostly off, should be pruned and dressed, keeping the house as cool as possible, in order to prevent bleeding; for it is difficult to get Vines sufficiently dormant at this season that bleeding will not occur to some extent after pruning. And so injurious is this in weakening the plants that where there is any danger of its occuring to any serious extent pruning should be deferred until the Vines seem to be fairly at rest.

FLOWER GARDEN AND SHRUBBERIES.

As cold nights may now soon be expected, scarce plants which it may be desirable to secure before they are injured should be taken up and potted at once, or carefully covered when there is the least cause to suspect injury. See to securing a good stock of cuttings of variegated Geraniums before the plants are injured by frost, for although these root more freely in spring than at present, such varieties as Golden Chain and Mountain of Light grow so slowly that spring-rooted cuttings make but very poor plants by turning-out time, hence it is desirable to gain size, even at the expense of the loss of a few cuttings. We do not believe all that has been said in different periodicals about the difficulty of rooting Golden Chain in autumn, for we have experienced no particular difficulty in rooting it at that season; but we may be fortunate as regards convenience, which is simply a flue running underground in the open air; this we cover with a suitable depth of soil, and protect the cuttings by hand-glasses. That cuttings taken from plants growing in the open ground are liable to damp in a moist warm place is well known, and the variegated Geraniums are perhaps more so than most things: but persons who can command a gentle bottom-heat without keeping the atmosphere warm and moist will experience no difficulty in rooting them now. The old plants of these are, however, well worth wintering wherever room can be found for them, for these go much farther at planting-out time, and cover the beds sooner with foliage and flower than either autumn or spring-rooted cuttings; hence they should be carefully guarded from frost until the beauty of the garden is destroyed, when they should be taken up, potted, and stored away for the winter in a cool dry house. Continue to put in cuttings of Hollyhocks, as these can be obtained until there is an ample stock of rooted plants, and do not allow those that were rooted early in the season to suffer for the want of pot room. Cut off the flower stems of herbaceous plants as soon as they become shabby, and endeavour to prolong the beauty of Phloxes, &c., by keeping them well supplied with water at the root. Also keep the beds and everything about the flower garden and grounds trim and orderly.

HARDY FRUIT AND KITCHEN GARDEN.

Look over choice Pears and Apples at short intervals, and gather such of the fruit as may be found to readily part from the tree. Espalier and dwarf standards, or indeed any kind of fruit trees which exhibit more tendency to produce useless wood than such as is likely to furnish fruit, should be root pruned as early as convenient in the autumn, cutting out any useless shoots at the same time, in order to expose the wood expected to bear fruit as freely as possible to light and air, so as to get it ripened. Provision should be made for protecting a quantity of French Beans from frost should this occur, and Cauliflowers should be looked over frequently, turning down a few leaves over the hearts, for these are readily spoiled by frost. Get a lot of brown Dutch or Bath Cos Lettuce planted where they can be protected by frames for spring use; attend to the earthing up of Celery that is likely to be wanted for use soon, keeping it closely soiled up, so as to get it well blanched. Keep the late crop of this well supplied with manure-water while growing weather continues. Get Onions dried and stored.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Sept. 17, 1857, as observed at the Horticultural Gardens.

Sept.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday	11	22	29.583	29.543	60	43	51.5	62½	60	S.W.	.68
Satur.	12	23	29.735	29.627	72	46	59.0	62	60	S.W.	.08
Sunday	13	24	29.963	29.842	73	46	59.5	63	60	W.	.05
Mon.	14	25	30.125	29.986	72	48	60.0	63	60	S.	.15
Tues.	15	26	30.204	30.133	74	55	64.5	63	60	S.W.	.00
Wed.	16	27	30.210	30.197	78	44	61.0	63½	60	S.W.	.00
Thurs.	17	28	30.216	30.186	81	45	63.0	64	61	S.W	.00
Average			30.005	29.971	72.8	46.7	59.8	63.0	60.1		.08

Sept. 11—Constant heavy rain throughout; overcast at night.
— 12—Fine; masses of white and dusky white clouds; very fine; rain.
— 13—Foggy; very fine; very fine; rain.
— 14—Foggy and drizzly; rain; foggy at night.
— 15—Dense fog, fine; cloudy and fine, overcast.
— 16—Very fine throughout, with hot sun.
— 17—Very fine; hot; exceeding y fine throughout.
Mean temperature of the week 2¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Sept. 26, 1857.

Sept.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	66.3	44.2	55.3	14	0.45 in.	2	6	2	3	3	6	6	3
Mon. 21	66.7	44.8	55.8	16	0.50	2	3	5	2	6	5	6	2
Tues. 22	67.0	46.1	56.6	14	0.40	—	2	8	2	5	7	5	2
Wed. 23	66.1	46.7	56.4	15	1.21	—	6	6	1	8	6	5	1
Thurs. 24	65.4	45.4	55.4	14	0.75	2	7	2	1	4	9	5	1
Friday 25	65.7	44.6	55.1	14	0.30	2	4	3	2	4	11	4	1
Satur. 26	65.0	44.6	54.8	16	0.72	—	4	6	1	8	8	1	3

The highest temperature during the above period occurred on the 25th 1832—therm. 82 deg.; and the lowest on the 26th, 1855—therm. 26 deg.

Notices to Correspondents.

BOOKS: *J G D.* The last part of the Flore des Serres which we have received is No. 3 for the present year. We do not think that any more have appeared.—*L.* Bohn, York Street, Covent Garden, London. Or of Pamplin, bookseller, 45, Frith Street, Soho Square.—*R T.* We have already stated that Gray's Botany is published by Putnam, of New York. All booksellers can obtain it through their agents in the United States. We do not know its cost; a few shillings we suppose.—*W H W.* The Tree Book, if you can obtain a copy of it, or Rivers' Amateur's Guide, will possibly answer your purpose.‡

CLEMATISES: *Rudolph.* Such as we know cannot be considered hardy except in some warm climate in the W. Indies. The conservatory is their proper place. We should recommend except lanuginosa and Sophie or Louise. As to barbata, Quascoi, and amplexicaulis, they are not names of sorts, but only occur in nurserymen's catalogues. Probably seedlings.

CUTTINGS FOR ITALY: *Omega.* In the first place they must be ripe; in the next they must be packed very tightly in a case in damp Moss. Don't stop your Brussel Sprouts when sent. Many do not stop them at all, and they are right. Seaweed to Asparagus beds in February or March.

EXHIBITIONS: *A Z.* They must be extraordinary indeed to disqualify a basket shown as an ornamental object because some plants are put into it. Such baskets should be always so shown, if we wish to know what kind of effect they produce when brought practically into use.

FIGS: *J F.* Plant them in good turfy loam, and feed with required with manure water.‡

GLASS: *M & L.* Hartley's patent rough plate will be found to answer perfectly.‡

INSECTS: *C A B.* The insect found in the Oak tree is the larva of the Goat Moth, Cossus ligniperda. Blowing the smoke of a cigar into its burrows is a good way of dislodging it, when it must be destroyed with boiling water. Burying it in the ground is not sufficient.—*F H S.* Your Fucisias and Pelargoniums are badly infested with the Thrips; repeated fumigations with tobacco, and syringing with gas-tar water or lime water should be adopted. The plants worst affected should be destroyed.—*H P L.* Your Pear leaves are infested with the slimy larva of the black Sawfly, Selandria Rosæ. See our answers to correspondents in last week's Paper for remedies. *W.*

MONSTROUS PEARS: *R, Truro.* A capital example of the change in the parts of the flower into leaves. The sepals are absent, leaves, and the axis is growing into a branch clothed with leaves. We shall take care of it.

NAMES OF FRUITS: *O G.* Your Apple is the Gravenstein.—‡ The Minchall Crab. ‖

NAMES OF PLANTS.—We have been so often obliged to pertinantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited task of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*J Young.* Tigridia conchiflora.—*J M J.* Euphrasia officinalis, one of the commonest of all plants. It is parasitical on the roots of Grass.—*Warrington.* We cannot afford the time required for naming herbarium specimens. We are however happy to oblige you on this occasion. Your fragments undoubtedly belong to the Dulongia acuminata, or Yerba de las viruelas, which is employed by the Mexican Indians as a remedy against syphilis. Your pieces exactly correspond with specimens of this plant in our herbarium collected at Cordova in Mexico by Frederick Mueller.—*Farnham.* Gilia tricolor.—*An Old Subscriber.* You must have two kinds of plants growing in the same patch, as often happens with imported plants. The leaf and flowers you sent last week were certainly Leptotes; the flat leaf now sent probably belongs to Rodriguezia secunda, or some such species.—*J C L.* Bignonia radicans, from N. America.—*S P.* Passiflora quadrangularis, the true Granadilla.

NASTURTIUM: *Juvenis.* Your pale flowered seedling may be common, but it is certainly not so handsome as the ordinary kind. The flowers sent were, however, bruised quite flat, and were dried up when they reached us.‡

NEW NECTARINE. Mr. Pierce, of the Yeovil Nurseries, has forwarded us fruit of a new Nectarine raised by Mr. Davis, of the Cricket Gardens, with blossoms said to be larger than those of the Noblesse Peach. The following is a copy of our note upon it. "This is a small dark sort with very tender sweet flesh, red next the stone, from which it parts freely; looks like a fine Early Orleans Plum. Certainly a very excellent Nectarine. Sept. 12." It seems however to be too soft to travel well.

NURSERYMEN'S TRAVELLERS: *W Wood.* One letter on each side has now appeared, and we cannot admit the subject any further. No doubt a "Reader from No. 1" was wrong in applying a description of one or two discreditable persons to a body which we must say is as respectable and well conducted as any class of tradesmen whatever. You see what comes of employing black sheep.

ORCHARD: *Since* 1851. Should you not let well alone? If the trees bear well what more can you want? There is the chance of their exhausting the ground, and if you feed sheep under them that is of itself abundantly sufficient. However you are resolved to manure the place—why then use thoroughly rotten stable dung; as to cesspool water, or guano, neither will be unsuitable.

POTATOES: *J Dell.* When they are rotting fast there is no remedy, unless pulling up the tops should answer, which is doubtful.

STRAWBERRIES: *A B.* Cuthill's Prince of Wales is not an excellent sort for ordinary purposes but also for preserving. It comes in about a fortnight later than the Elton; it stands travelling well, and therefore will doubtless be suitable for preserving whole.‡

THE SWEET BAY: *D S.* It is Laurus nobilis, *The* Laurel of the ancients, and a native of the S. of Italy. Prune it in April when frosts are going. It flowers in May, producing little yellowish blooms nearly hidden among the leaves. There is no such thing as a green Rose wild; but there are occasional monsters of the kind, one of which cultivated under the name of R. Bengale à fl. vertes has been well figured in the Flore des Serres.

THE VIOLET OF ROUEN: *Hedus.* It is not sweet-scented, but a kind of Pansy with blue and violet flowers. It is figured in the Botanical Magazine, t. 1498. There is a full account of it in the last Number of the Revue Horticole, a translation of which you will find in another column.

VARIEGATED OAK: *F N.* This is to be found in collections of curious plants. The nurserymen could doubtless supply you. Weeping Willows strike so freely from cuttings that we have never heard of their being grafted; but we see no reason why they should not succeed, provided scions of sound two year old wood were employed. Attack thrips with tobacco smoke.

WATER WEEDS: *J Dell.* You cannot destroy them in any other way than by cleaning the bottom continually, unless you keep fish that will condescend to eat them, which they will often do.

*** As usual, many communications have been received since last week, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents whose contributions we still delay to insert.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

PERUVIAN GUANO, Bolivian Guano, Superphosphate of Lime, Nitrate of Soda, Blood Manure, and every description of Artificial Manures, Linseed Cakes, &c.
W. INGLIS CARNE, 10, Mark Lane, London.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELIJAH THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—The following distinguished Awards have marked the superiority of RICHMOND & CHANDLER'S numerous CHAFF MACHINES, CORN CRUSHERS, OIL-CAKE MILLS, TURNIP CUTTERS, &c., in competition with the best Makers in every class, exhibiting at the Glasgow Show, August 5, 1857:—

First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double-Action Turnip Cutter for Beast and
First Prize for best Oil-Cake Breaker for Beast and Sheep.
First Prize for best Root-Washing Machine. Also, [Slicer.
Specially Commended for Steaming Apparatus and Turnip Works.—Salford, Manchester;
Branch Establishment, South John Street, Liverpool.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE DORSETSHIRE POULTRY SHOW will be held in Dorchester on WEDNESDAY and THURSDAY, October 28 and 29, when 14 Pieces of Plate will be offered for Competition, in addition to the Society's Prizes. A List of the Prizes to be awarded may be had by forwarding an envelope, addressed, and six postage stamps, to G. J. ANDREWS, Hon. Sec.
Dorchester, Sept. 19.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth Great Annual Exhibition of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.*, will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE November 2 next.
JOHN MORGAN, Secretary.
Offices, Bingley Hall, Birmingham, Sept. 19.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, SEPTEMBER 19, 1857.

THE AGRICULTURAL NEWS of the past few days has included a number of very interesting particulars.

1. A new Part of the English Agricultural Society's Journal has appeared, to which reference is made in another page. It contains the usual combination of descriptive, original, scientific, and practical matter. Mr. CURTIS concludes his excellent series of papers on the entomology of the farm, and Dr. VOELCKER and Mr. HORSFALL contribute the valuable results of their original researches—the one in connection with farm manure, and the other in connection with dairy experience.

2. Mr. ROMAINE'S steam cultivator has received its first public trial in this country. The power employed drives a rotatory cultivator across the field, and at the same time works it as it goes, pulverising the land to any required depth. It attempts to develope the principle first advocated by Mr. HOSKYNS of a rotating digger. It was brought to this country four years ago from Canada, when Mr. MECHI was to have brought it into notice. It was afterwards shown at Paris in 1855, and there attracted the notice of Mr. CROSSKILL, of Beverley, by whom it has now been brought into operation.

"It is a 14-horse portable steam-engine, capable of propelling itself and giving motion to a rotary digger. The engine and boiler are constructed like the common portable agricultural engines, and are carried by a pair of high broad wheels, and by two smaller wheels in front. The large wheels are driven round by the engine, and the front wheels used for steering; but by a simple disengaging arrangement, the latter are left perfectly free when the machine has to be turned round, and by driving one of the large wheels while the other remains stationary the implement can be turned completely round in its own length. The cultivating part of the machine is carried by a strong frame attached to the boiler, and consists of a hollow cylinder 6 feet 6 inches long and 2 feet 6 inches in diameter, armed with knives or cutters on its outer surface. The cutters are of wrought iron, and sufficiently strong to enter the land and encounter roots, stones, or other obstacles without injury; but in case of accident they can be readily replaced at small cost, and without delay, as each is secured separately by bolts to the outside of the cylinder."

It is stated by the *Hull Advertiser* to have made a very successful *debût* at Beverley:—"The implement commenced operations on Friday, at one end of a field of strong clay stubble, and traversed its entire length, transforming a breadth of 6½ feet into a perfect seed-bed, fully equal to what could have been produced by twice ploughing and harrowing, or clod-crushing. On its arrival at the headland, it turned round in less space than would have been required by two horses with a common plough, and returned along the side of the work already done. The cultivation of the field was thus proceeded with, no vacant space being left, except the two small headlands which could easily be finished by the machine after the rest of the ground was done."

It professes to cultivate from 5 to 7 acres a day at a total expense of from 35*s.* to 40*s.* The work includes the thorough pulverisation of the soil to a depth of 7 or 8 inches, at a cost somewhat less than that of ploughing.

3. The award of the premiums offered by the Duke of NORTHUMBERLAND for the best cultivated farms within a certain district and on his Grace's estates appears to have excited considerable interest in the north. No fewer than sixteen competitors for these prizes appeared. Thirty pounds were awarded to Mr. HENRY EALES, of East Layton, for the best cultivated farm exceeding 200 acres, and 15*l.* to Mr. JAS. NEWHOUSE, of Caldwell, for the best cultivated farm not exceeding 200 acres; these premiums being awarded with reference to the cultivation of the farm, the state of the roads, fences, and gates, water-courses, buildings, live stock, implements, best kept accounts, the use of artificial manure, and including everything connected with good husbandry. And the judges add—

"This being the concluding year of the competition, we consider it proper on our part to state that we have been informed generally, and it is also our own conviction, that the object for which these premiums were given has to a great extent been accomplished, and that they have created a greater spirit for agricultural improvements amongst the farmers in the district."

4. At a meeting held last week at Oxford it was resolved that the cross-bred Down and Cotswold sheep should for the future receive the name of Oxford Downs, as distinguishing a new and permanent breed possessing properties which as much deserved patronage in the prize lists of our Societies as those of the Shropshire and Hampshire Downs, now so well known throughout the country. A report of this meeting is given in another column.

5. The meetings of Agricultural Societies included those of the counties of Durham and Lancashire. The latter—that of the Manchester and Liverpool Agricultural Association—was distinguished by the presence of the Commissioner from the French Government—Mons. E. C. MOLE—appointed to report on the agriculture of Great Britain, who in his speech on the occasion styled England the world's instructor in agriculture. At the Durham agricultural meeting the challenge cup, value 100 guineas, was awarded to Mr. RICHARD BOOTH, of Warlaby, for his two-year-old in calf heifer, "Queen of May." There was a very great show of the short-horn breed. Mr. BOOTH, Col. TOWNELEY, Mr. WETHERELL, Mr. FAWKES, and many others were among the exhibitors.

6. The discussions between judges, exhibitors, and journals on the awards at Salisbury and Glasgow still continue. A review of the whole of what has been done and written on this subject leads, we think, fairly to the conclusion that the judges were justified in their awards, not however on the ground of such hurried trials as took place in their presence during the several competitions, but on the much more satisfactory ground of previous knowledge of the implements before them.

7. We have to report the unusual prevalence of pleuro-pneumonia in the West of England and in Ireland. It may be well to recall to the recollection of our readers the almost uniform success of Mr. HORSFALL'S treatment of this disease, as described in our last year's volume, p. 810. Bleeding, in the first stage, is followed by a dose of Epsom salts 8 oz., spirits of nitre 1 oz., tartar emetic half drachm, Digitalis half drachm, flour of sulphur 4 oz., treacle 16 oz., coco-olein 6 oz. These ingredients are mixed and given with plenty of warm gruel, and the coco-olein, sulphur, and spirits of nitre are afterwards given morning and evening with treacle in gruel, while at noon gruel, with sugar only, is given. This, with careful nursing, seems to be all that is required; and the object appears to be to reduce the fever and supply food as rich as possible in the elements used during respiration, so as to lessen the labour thrown upon the lungs. Mr. HORSFALL says that he lost only 2 out of 14 cases, and those were before he had entirely adopted the treatment here described. The period of illness lasted from two to three weeks, after which the animals rapidly recovered their flesh and

milking properties, notwithstanding the permanent injury in some instances done to the lungs.

We have to regret the very serious weather which again characterises harvest time in the north. The losses consequent on this are aggravated in Scotland by an unusual virulence in the Potato disease, which appears to be generally more destructive this year than it has been for many seasons.

IN our remarks last week on the subject of Land Drainage we referred to the composition of rain-water, to its powers as a solvent, and to its relations to heat—the three characteristics on which its fertilising influence and its mischievous influence both depend in the cases of well and ill-drained land respectively. Our attention has been directed to the three ways in which water enters the soil (1) by falling on the surface—(2) by rising from the subsoil under pressure from above—and (3) by the capillary attraction of the soil itself on water lodged in the subsoil. The three ways in which water escapes from the soil have also been named; and we know the injury done by allowing it to run off the surface, and by the large quantity which, especially in wet land, evaporates from the surface; we know the benefits received by its percolating downwards through the soil as in well-drained land it does, and the way in which its wastefulness as a solvent is held in check by those absorptive properties of the soil which Mr. WAY has investigated. Among the benefits arising from this percolation of the water is the practical one that on well-drained land the farmer can plough and cultivate later in the autumn, earlier in the spring, and indeed all through the winter at less cost for efficient tillage than is incurred by him who, occupying undrained land, has often imperfectly to hurry over the operations of cultivation, while the land is left not as in the former case moist though full of air, but with all its parts clung together and excluding air, presenting therefore to the action of the atmosphere not that surface which is represented by the aggregate superficies of all the particles of which it is composed, but merely so much surface as is visible to the eye. Such lands are wet in winter and burnt in summer, for it is on the quantity of this active surface within the soil that its absorbent powers on the moisture in the air depend.

Let us now consider the artificial means by which water may be induced to percolate through the land.

The art of land drainage may be shortly described as consisting in laying down underground conduits for the water which it is desired to remove—at such a depth as the final outfall may permit, or as the quantity of fertile soil desired for the roots of the growing plants may render advisable, or as the capillary powers of the soil may require before it can be overcome by the influence of gravity upon the water which it holds:—Conduits at such intervals, too, as shall by their frequency give exit to all the water which, falling on the surface, shall find its way through—as shall, by their regularity of distribution, correspond to the uniformity of the supply of rain from above—as shall, by their departures from regular distribution, correspond to the irregularity with which the water distributes itself within the soil after its entrance there. These three points, viz., 1st, the *depth*, as limited by the outfall, as desirable in the interests of fertility, and as necessary owing to the constitution of the soil; 2d, the *frequency or capacity* of the drains to correspond with the rain fall of the district; 3d, the *distribution* of the drains, irregular just in so far as the under structure of the land interferes with that regular distribution of the water within it which the regularity of the downfall might lead us to expect—these three points will now occupy our attention.

1.—The depth of drains as limited by the outfall is of course a matter to which all subsequent operations must be accommodated. In many level English valleys watered by sluggish rivers the evils of a defective outfall, aggravated by dams and weirs, have proved sufficient to justify Parliamentary interference, and there is many a district in Lincolnshire, Northamptonshire, and Cambridgeshire which have benefited by an enforced improvement of the outfall thus obtained. In practice, however, the only effect of this consideration is that in the drainage of a field or a farm the operation must commence at the lowest part, and the work must proceed from the final outfall towards the upper end of the main drain, completing the subsidary drains in the order in which they fall into the main drain from its outfall upwards. When draining large districts, it may in some cases be advisable to complete the operation on a higher district, when that happens to be the feeding ground of the land below it, so that this lower land, after the removal of this water from the land above, may not require so expensive a system of drainage as it would had it been undertaken first. But this is only an exceptional interference with the general rule which, as we have said, requires that we commence our drainage on the lowest level.

Supposing, then, that the outfall permits us to lay our drains at what depth we choose, the question arises, what is the depth which the interests of fertility require?—and we have no hesitation in saying that the general experience of agriculturists as to land drained from 2 to 3 feet, and from 3 to 4 feet deep respectively, has proved the superiority of the greater depth. Our tillage operations would some of them interfere with drains laid so shallow as the smallest depth here named, and indeed except perhaps in pasture lands—and there they are not justifiable—we never hear now of drains laid so near the surface as 24 and 30 inches. The roots of plants would use a greater depth if it were accessible.

You would indeed do well to think of the mass of earth through which you can get rain-water to percolate, not as so many inches deep of soil, but as so many tons weight or cubic yards of material, which by cultivation and rain-water you have to fertilise, and from which by rain-water and by living plants you have to extract and convert the fertility you have conferred. No doubt the principal limit put to the depth of drains is the cost of this depth, for, as we shall explain hereafter, the greater depth of deeper drainage does not justify us in diminishing their frequency and so shortening their length per acre. But admitting the greater cost of the deeper drains and supposing that drainage 2, and 3, and 4 feet deep will cost 3*l.*, and 4*l.*, and 5*l.* respectively per acre, yet we must remember that the mass of soil actually drained by these several operations, supposing the average depth so drained to be 18, 30, and 42 inches deep respectively, amounts to 65,000, 109,000 and 152,000 cubic feet respectively per acre, and the mass of soil actually placed so as that rain shall percolate through it, amounts to probably at least 1800, 3000, and 4200 tons in the several cases; thus costing 1*l.* for about 600 tons of earth in the cheaper shallow drainage, and 1*l.* for 840 tons of earth in the latter case, which though dearer per acre is thus shown to be cheaper per the weight of earth laid open by it as the feeding ground of plants.

Looking upon drainage, therefore, as the means of rendering fertile not so much a surface as a *mass* of soil, it is plain that the deeper and more costly drainage per acre may be the cheaper of the two. But this question of depth is to some extent determined by the force of capillary attraction within the soil, for, in order to lay a certain depth of soil so free from water as that rain when falling on it shall at once travel through it downwards, it is plain that the whole mass of soil of that depth which it is thus desired to lay dry must be so far raised above the level at which water can *stand* within the subsoil that the capillary attraction of the earth immediately above that level shall not be able to lift this water into that thickness of soil which is thus to be made dry.

We have once already quoted the proceedings at a meeting of the London Farmers' Club some years ago, when a gentleman who farms largely in Hampshire declared with energy that give him but 20 inches downwards of dry soil, and he cared not though the waters of the Hellespont ran beneath it. He thought that, in this, his experience gave a complete answer to the arguments for the deeper drainage that was being advocated: he forgot this property of the soil to which we are alluding, and that it is because, owing to it, we cannot have 20 inches of dry soil over standing water, that we contend for the deep drains by which the water level is put low enough to ensure sufficient depth through which rain water shall percolate with facility. Of course the water in the hard stiff clays of which some subsoils consist cannot be considered (however imperfect may be the drainage of water from them) in the same light as a body of free water would be, nevertheless it remains true that though by drains cut 4 feet deep in such clays we should draw off water from them at that level, the earth above that level would remain wet up to such a height as capillary attraction lifts it; and it is only above the level to which it is thus lifted that the land can be said to be dry. It can be said to be ALL DRAINED because every addition by rain to the water in the soil, adding to the height of that water level which is due to capillary attraction, forces a corresponding quantity out below until the original level is regained, so that circulation of the water is thus effected notwithstanding that the earth is wet; and this movement or circulation as we have seen is the principal object of drainage.

Now, the force of capillary attraction within a soil is greater in finely divided clay soils than in coarse sands: the former soils will therefore lift water to a higher level in them than the latter: our 20 or 30 inches of free soil must in the former case therefore be placed higher above the drains than in the latter, and the apparent paradox results that the stiffer the soil the deeper the drains ought to be. You need to cut a deeper pit into a saturated clay than into a saturated sand before water will begin to ooze out, and it is upon this oozing out that the whole of that circulation of water within the soil which drainage has to effect depends.

Any one who has read on the subject of land drainage has had his attention directed to an extension of the network of cracks and fissures throughout the subsoil consequent upon the drainage of the land, by means of which it is supposed that the action of deep conduits in the drainage of stiff clays is effected. We believe that this idea does not rest on observation, but has been invented to explain the undoubted action of deep drains in clays to those who might otherwise continue sceptics, and the speculation is, we believe, entirely a mistake. If water found its way through cracks and fissures to the drains it would have comparatively little fertilising influence. What we want is that the water passing through our soil shall wrap round every particle, and not wash merely the sides of cracks and fissures in its passage. These fissures have not been seen, they have been merely fancied, but water has been *seen* oozing from a surface at every pore. And that clays are porous is proved by the fact that they are wet: whenever we shall find on digging downwards that the subsoil which we reach contains no water, then we may admit that we need not try to drain the water from it; but so long as it is seen that water has gone through it into it without the aid of those cracks which drains are supposed to make, so long must it be admitted that without the aid of those cracks it will pass through it out of it.

These remarks upon capillary attraction are general enough. We cannot give figures expressive of the actual quantity, so to speak, of the capillary power existing in different soils, and of the depth at which a conduit must be therefore laid in each before the water will begin to leave its surface; that is, before the weight of the column of water in question will be high enough and heavy enough to force the capillary attraction which sustains it; but it is plain that where this capillary attraction is strongest, as in clays, then this column will have to be highest, and drains, therefore, should, according to this explanation of the matter, be the deepest. In practice of course we make drains as deep in sands as in clays, the results being that we have a greater depth of drained soil in the former than in the latter. Our object in urging the obvious relationship of capillary attraction within the soil to the movements of the water within it is not to induce any one in his practice to go deeper than is found actually to yield a satisfactory result; it is to give confidence in the successes of deep drainage of clays, of which many instances can be quoted, as being not merely exceptions calculated to excite surprise, but as being the necessary consequence of a general rule operating everywhere.

Before leaving the subject of the depth of drains we must refer to the statement often made that deep drains run sooner after a shower than shallow ones. This is perfectly true. The explanation that is generally given is that the deeper drains run first, on the same principle that of two holes in an empty cask, the one nearest the bottom will run before the higher one, when water is poured into it. The water that runs out of a deep drain immediately after a shower is however not the water that fell just then upon its surface; the water that runs out of a shallow drain is that which fell just then upon its surface. In the former case it is the water held in suspension by capillary attraction that is expressed by the pressure of the first shower—a pressure exerted through the air in the soil above this water held in the subsoil. In a shallow soil, on the other hand, it may be supposed that after a drought the land is dried through, and the water falling on the surface must itself find its way through to the drain before any runs out. This explanation is the one offered by Mr. THOMPSON, of Kirby Hall, in Yorkshire, and it is interesting as being consistent with the theory which connects the capillary attraction of soils with the practice of land drainage.

We have referred, then, to the depth of drains as limited by outfalls, as desirable in the interests of

fertility, and as necessary owing to the constitution of the soil. This is the first of the points requiring discussion—the others will occupy our attention hereafter.

LYNE, HINXWORTH, AND KEYTHORPE.

No. II.

FROM the consideration of the Hinxworth "drainage" and the improvement in point of economy which it exhibits compared with the drainage at Lyne, I proceed to discuss the "Hinxworth tables."

It may be as well to commence with a brief analysis of the letter in which Mr. Clutterbuck calls for further discussion. It commences with some general remarks, in which we must all concur, on the necessity of draining our heavy lands and the importance of discarding prejudices in favour of our preconceived opinions. Allusion is then made to a previous letter of mine, in which Mr. Clutterbuck appears to think I have dealt rather sharply with my opponent. This is followed by some compliments on my geological researches, and an intimation that I cannot retire from the contest with the honours of war if I decline further discussion. On these points I have made in my last letter all the remarks I deem necessary.

A passage is then quoted from my letter published in your Journal of March 8. I give the passage quoted *in extenso*, adding in italics some words omitted in the quotation. The passage is as follows:—"I have not the slightest doubt that the water ran off the clay. *That it ran through the pores of the clay* I should require much stronger evidence than that furnished by the two months of published experiments at Hinxworth. I know at least three ways in which it might have found its way into the drains without accepting the astounding conclusion that water runs more rapidly through a retentive than through a porous soil."

I am quite sure the omission of the words in italics from the quotation was unintentional; the omission does not very materially affect the sense, though it makes it rather obscure. This is my only reason for adverting to the subject, and giving the passage in full. Mr. Clutterbuck then proceeds to observe that as the basis of argument we may assume the gault clay at Hinxworth to be sufficiently homogeneous to satisfy the most fastidious, and to be so close in texture as not to be permeable by water in the ordinary sense of the term. If so, I might ask in what sense is it permeable? But the point to which I would particularly draw attention is that in this passage the writer appears to fall into an error which has been much too prevalent in our draining operations. He starts with two assumptions as the basis of his argument, and I contend that hitherto we have drained too much upon assumptions of one kind or other, some of which I will point out hereafter. I consider that landowners and farmers have hitherto paid rather dearly for those assumptions. Clays are often assumed to be homogeneous when they are not; and, on the other hand, to be permeable by water when they are impermeable.

I was not many years back over an estate with a draining engineer of some celebrity, situated on clay which he pronounced to be homogeneous, but in which a practised geological eye at once detected thin alternating seams which were permeable by water. Again, I have seen clays perfectly homogeneous in composition, but which were separable into flakes, these flakes being lines of successive deposit. In neither of these cases would these conditions much affect the drainage if the strata were horizontal. On the other hand, if they were inclined, both seams and partings would become carriers of water from a distance,—the distance from which it would be transmitted would within certain limits be greater the less the inclination of the strata. On the other, I have seen a boulder clay which was perfectly impenetrable by water but which was covered by a "warp drift" of a more porous or "brick earth clay" to the depth of little more than 2 feet 6 inches. At this depth only did water enter trial holes—though they were sunk (as I saw one sunk for a railway) to the depth of 20 feet. The only water was at the junction of the brick earth or warp drift with the boulder clay. On the other hand this same boulder clay, at not many miles distant, contained alternately seams of porous materials which were permeable by water. The knowledge of that fact led me very reluctantly to believe that water would not come into the trial holes first mentioned at a greater depth than 2 feet 6 inches or thereabout. The conclusion I would draw from this is, that many clays are assumed to be pervious by water, but under one set of conditions are, and under another are not; while, on the other hand, certain clays (belonging to one geological formation) may be pervious in one locality and not pervious in another. But the principal conclusion I would insist on is, that in draining we must not assume anything, but must be guided by careful observation of the structure of the soils and subsoils to be drained in each particular case.

Mr. Clutterbuck continues:—"During the last nine months I have watched narrowly the discharge from the outlets at Hinxworth; my conviction is that the water does percolate through the pores of the clay, and not over it to the 4 feet drains. I believe, moreover, that under certain conditions water is discharged more rapidly after rain from heavy clays, which always retain a larger quantity of moisture, than from more porous strata which absorb and hold in suspension for a period large quantities of the water falling upon them." Now, whatever grounds Mr. Clutterbuck may have for this conviction, the only facts communicated to the public in support of it that I am aware of are the two months' published experiments at Hinxworth. These views may be illustrated in the following manner. Let us suppose cylindrical vessels, 4 feet deep, as representing the column of earth over our drains. Let these cylinders be filled with the following materials—coarse gravel the fragments as big as marbles, finer gravel, coarse sand, fine sand, a mixture of sand and clay constituting loam, and lastly stiff clay. Let them be in the ordinary state of dryness in the fields, the sand not so dry that its particles repel moisture for a time, and the clay sufficiently wet to cause it to adhere to the side of the cylinder, and prevent the escape in that way of water poured on it. Let 2 or 3 inches of water be poured on the top of these different kinds of soil. At the bottom of each jar let there be a discharging pipe. There would be more vacant spaces to be filled with water between the pebbles of the coarse gravel than of the sand, and still more than of the loam. The clay however is in a moister state than either; its pores are partially filled with water, according to the hypothesis of Mr. Clutterbuck, in order to make it sit close to the side of the vessel. Now pour water on the sand, clay, &c., sufficient to represent as many inches of rain as you please; by the hypothesis water ought to be first discharged from the clay, because the interstices between its particles are partially filled with water. It ought to be the longest in appearing at the bottom of the vessel filled with coarse gravel, because there are more vacant spaces to be filled with water before a discharge can take place at the bottom of the vessel. Has any one sufficient doubt what the result would be to induce him to make trial of it? Now, I can see no difference between the columns of gravel, sand, loam, and clay filling these jars and the column of retentive and porous soils above our drains. Does Mr. Clutterbuck think that under these conditions water would make its appearance sooner at the orifice of the bottom of the jar containing the clay than at the bottom of those containing sand and gravel? In order to make the clay fit closely to the side of the jar, I allow its pores to be as much filled with water as his theory requires. If, under these conditions, water appears at the bottom of the clay jar sooner than at the bottom of the gravel jar I will no longer contend against facts—I will accept the Hinxworth hypothesis.

Some facts are cited by Mr. Clutterbuck at the close of his letter as confirming his theory that under certain conditions water will pass more rapidly through the pores of a retentive than through those of a porous soil. From these facts, however, I draw the very opposite conclusion. It appears that after the late rains, and almost simultaneously with them, the outlets from the fields under fallow and green crop, *all of which had been more or less deeply cultivated*, began to run, while those from the adjoining *land of similar composition under cereal crops were dry*. Now in this case the deep cultivation which the fallow and the Turnip grounds had received had separated their particles, and even if they were clay soils of the densest quality caused them to represent porous soils. They would continue to represent porous soils till there had been sufficient rain to dissolve the particles formed by cultivation and to run them into a homogeneous mass. The lands under cereals, on the contrary, which had not received this deep cultivation and the particles were closer together. They were more in the normal condition of clay soils. From facts stated therefore I infer that water passes more rapidly through porous than through retentive soils. By all means I would say let our clay soils be drained; let them be drained on the Keythorpe system till Mr. Denton and Mr. Clutterbuck shall have devised one cheaper and as efficacious, but let us have some better reason for our proceedings than an assumption of the greater permeability of retentive than of porous soils. *J. Trimmer.*

THE SICKLE, THE SCYTHE, THE REAPING MACHINE.

THIS subject has been suggested to us for consideration by the immense emigration which is at present taking place of our farm labourers, generally the most able and the most useful during harvest. Already has a deficiency been felt of the ordinary servants of the farm; and still, month after month, Scotland and Ireland send forth their thousands to the colonies, so that the pressure on the labour market becomes more and more severe; and we may well look forward with anxiety to harvest, when an extraordinary demand is made on that market. If, as sometimes happens, the crops become ready for cutting at the same time throughout the country, it will be impossible to find hands to carry on harvest operations, and the risk that will then be run by the farmer will be incalculable. It is therefore incumbent on us to look the difficulty in the face, and try and devise some means by which we can mitigate the evil.

So long as a bounty is given by the Emigration Commissioners, we cannot expect the efflux of our population to the colonies to cease; nor can we by any means increase it during that most important and critical period of the year—harvest. We must therefore try and perform the same work with a reduced number of hands, and this can be done only by the aid of machinery. In making a comparison between cutting grain by the sickle and by the reaping machine, we have been in the habit of regarding it chiefly as a question of expense; now, however, we are forced to look at it in another light. We must view it more as a question of expediency and of necessity. Our corn must be cut down and harvested—we cannot get sufficient hands to do it for love or money—what means must we adopt to attain our object? This is the question to be answered, the problem to be solved; to aid us in doing which we will now inquire into the number and kind of people required when corn is cut by the sickle, the scythe, and the reaping machine.

It is calculated that three scythemen, with their followers, will, on an average, cut, bind, and stook 4¾ imperial acres in the day. To perform the same work with the sickle 18 people will be required, with the Hainault scythe 12, and with the reaping machine seven. Now these people are distributed in the following manner:—

	Women employed in gathering, &c.	Men cutting.	Men binding.	Men at Machine	Child at Rake.
Sickle	15	..	2	..	..
Scythe	3	3	3	..	1
Hainault scythe	9	..	3	..	..
Reaping-machine	3	..	3	1	..

Such, then, are the number and the kinds of people required to cut, gather, bind, and stook 4¾ imperial acres of Wheat, Barley, or Oats, on an average, according to these different methods. We have not included a raker for any of the implements but the scythe, as one is always held indispensable by those who use it. Of course a horse-rake would be used after the crop was removed from the fields where the others had been used. We have assumed that the reaping machine, as at present constructed, would cut 9 or 10 acres in a day of 10 hours throughout the harvest; and as two men are required for the management of it, we have allowed one for the 4¾ acres. The Hainault scythe being used by women and girls in Belgium, we have made our calculations accordingly—two women cutting, and one gathering and making ropes, being the complement for each bandster.

Before analysing these figures further at present, we will inquire as to what class of workers is now emigrating to the colonies. The principal emigration is taking place from the Highlands and Ireland, whose population generally supplied the agricultural districts of Scotland and England with reapers. We must look then for a great falling off in the number of these. It is seldom that good bandsters can be got from among the crowds that frequent these districts during harvest. We have often seen active young women better at binding than most of the Highlanders and Irishmen who leave their own country for harvest. Again, in the Highlands and Lowlands of Scotland a drain is being made of a most important class of our rural population, viz., young able-bodied men, married and unmarried, good at all kinds of farm work, and who are mostly employed during harvest at the scythe, binding, or leading-in. Though there are not so many of these leaving the country as of the other class, still the want of them will be materially felt, particularly as for some years back there have been great complaints of a deficiency in their number, and farmers have been obliged to employ Irishmen in their place, by whom the work has not been satisfactorily performed.

As the greatest number of hands is required for the sickle, it is evident that a general deficiency will be felt by those most who use it, while a deficiency in the number of men usually employed as scythemen and bandsters will be felt by those most who use the scythe. But of the two there is no doubt that emigration at present will cause the greatest inconvenience to the former, for though there may be a deficiency in men for bandsters, this evil can be in some measure remedied by teaching others to do it, and by farmers being satisfied in the meantime with an inferior class of work. We would therefore advise all whose crops are not too much lodged or twisted to endeavour to reduce their harvest expenses by using the scythe, which will perhaps, at the same time, relieve them of no little anxiety if people are scarce, and reduce the risk of having a large breadth of crop ready to be cut, and no person to do it. Of the Hainault scythe, a comparison of the number of people required in the use of which with that of the other implements is most favourable for the former, we will say nothing, as none of our people have been trained to the use of it. But we can only express our surprise that an instrument on which a most favourable report was made about 30 years ago by a committee of the Highland and Agricultural Society, in which it was stated that the "saving by the use of this implement would be from ¼ to ⅓ part of the ordinary expense of reaping by the sickle," has not received more attention from the farmers of Scotland.

Of all the different modes of reaping, however, the greatest saving of hands is obtained from the use of the reaping machine. It is true, we cannot expect to have all our crop cut by it in its present state, but by the use of it and the scythe very few more people than those ordinarily employed on the farm would be required during harvest, which every farmer must admit would be a great advantage. The reasons given in an article on reaping machines, in a number of this Journal in 1828, for the use of such machines then, are far stronger and more conclusive now. They are—"1st. All our corn crops come to maturity at present nearly at the same time; 2d. Our country labourers are reduced in number; 3d. There is now a much greater quantity of corn to

cut down; 4th. Harvest work has become more expensive." We hope that the interest excited in them some years ago will not be allowed to flag now, but that members of local agricultural societies, while recognising what has been done by the national society for the improvement of this useful machine, will use every exertion for getting it better adapted to the present and future requirements of agriculture. Already have improvements been made in it with the view of economising labour. The revolving web of Bell's, which delivered the grain as it was cut, but which at the same time added very much to the draught, has had a substitute for it in Aitken's automaton applied in Wright's reaping machine, which, acting as an arm and hand, lifts the grain in sheaves as it is cut, and lays it on the ground. On this account, only the man who drives the horses is required for driving this machine. Several public exhibitions of this machine at work have been made in France, by which it has been raised very high in the estimation of the agriculturists who witnessed its performance—so much so, that a committee appointed by the Central Society of Agriculture of the Seine-Inferieure to report on the subject, gave as their verdict that "the automaton machine of Aitken & Wright was preferable to all other reaping machines."—*Journal of Agriculture.*

Home Correspondence.

Potato Crop on the Borders of Longford and Cavan,—The most alarming accounts prevail of serious injury to the Potato crop, even equal to that of 1846. I am in some hopes that these accounts originate rather from the appearance of the tops than from the state of the tubers, for here—and a man can only speak safely of the localities under his eyes—although the fields show most blackly, yet the tubers are but slightly affected, and the withering of the tops is not, I think, always an indication of the amount of disease in the tubers; for both last year and this I have remarked that in many cases where the tops have been totally withered and dried up, the tubers have been safer than where they retained some verdure. The crop will not, it is thought, be so heavy as last year, but general report says a greater breadth is under it. They are generally mealy and well tasted. The Oat crop in this neighbourhood does not appear an average one. *J. M. G., Scrably.*

Lois-Weedon Husbandry.—Perhaps I might be permitted, without too much assumption, to observe on the leading article of "I. A. C.," in the *Agricultural Gazette* of the 29th August, on Mr. Lawes's practice of Lois-Weedon Wheat growing, that although a servile following of Mr. Smith's practice may not be absolutely necessary, nor even agreeable, to all who would act upon his principle of grain growing, yet whenever we depart at all from it we rather pursue a modification of it than the self plan, and therefore any results of such deviation cannot and ought not to be brought forward either for or against it, either as against the system itself or its inappropriation to other soils than those of Lois-Weedon. In Mr. Lawes's experiments there appears by "I. A. C.," and as he fairly argues, such and so many departures from Mr. Smith as must render them inconclusive as experiments on Lois-Weedon. Yet there are some objections to the Rothamsted attempt which I do not think so strongly apply. In the first case, there is that of the naked fallow (perhaps in dirty ground a necessity); for virtually, however commenced, every successive crop is preceded by a bare fallow, the 3 feet intervals of the crop are really such and so considered by Mr. Smith, for he says his crop only occupies half the ground; besides he advises the seed to be got in as early in September as possible, to give the before winter tillering, and the land ploughed and prepared by August, which it is scarcely possible could be done after a previous broadcast grain crop, and, indeed, I do not see that he insists on a stubble. Moreover, however this might affect Mr. Lawes's first crop, it could not have any effect on his future ones. Indeed, the success of Mr. Smith's first crop must rest in some degree on the inexhausted pabulum of a previous fallow at some period or other, though more so on the surface operations during the growth of the plants; a fallow then must be rather in favour of successful practice than against it. It can scarcely be conceived that even an excess of mineral matters in a soluble state, the consequence of fallow, could induce blight, and the more so if we are to consider the blight as a mildew. I am not, therefore, disposed to regard the failure at Rothamsted in any degree attributable to the previous fallow, and there have been, according to "I. A. C.'s" showing, sufficient other causes for it. In my own small way, with various crops and on various soils, I have seen the bad effects of bringing up too much subsoil or even a smaller quantity without allowing a very long period for its amelioration; certainly a whole winter for gross growing plants and 12 months for finer ones. We know not the time nor the quantity of aerial influence necessary to the fertilisation of a soil first exposed to its direct action; we are to suppose it can only act on immediate contact, and therefore that the surfaces of the matters exposed to it can alone be operated on. The elements of fertility contained in the atmosphere, be they carbonic acid, ammonia, oxygen, or what not, are not probably in sufficient amount in a free state to act on large masses of mineral matters, and therefore the great quantity of subsoil brought up by Mr. Lawes must have remained inert and unreduced by aerial action, in a state in which they could afford no nutriment or but little to plants. But there appears to me still more injurious consequences from this heavy coat of subsoil laid on the surface. It is now everywhere admitted that plants receive a very large amount of their nourishment through their leaves from the air; it is generally believed that this nourishment is chiefly of carbonic acid floating in our atmosphere and descending; but I have long been of opinion that a greater amount of nourishment is obtained by them in the ascending flow of matters from the soil. If there is truth in this opinion then a large dense and compact imperviable subsoil covering and sealing up the fertilised soil, the soil containing the soluble food of plants, must prevent the ascent of these matters and so starve the plants; again, to promote the liberation of these matters a continual stirring and breaking up of the crusted surface is necessary, and in effect we find vegetation most surely promoted by these our surface operations, however superficial they may be. This is experience, but no superficial stirrings can penetrate a covering of 8 inches of subsoil; nay, supposing they do and liberate these matters, is it not more likely they would be absorbed by the covering of subsoil than that they should reach the vegetation above it? Again, to the ascent of those soluble matters in a fertile soil moisture is necessary, but a crusted and indurated surface denies the access of light rains and dews; they rest on this surface and enter it not, but evaporate as soon as they cease to fall; they therefore give to the leaves only water and its contents. The bringing up such a mass of subsoil and the neglect to break up the surface during the growth of the Wheat appear to me all sufficient to account for the Rothamsted failure. I rather disregard the breadth of intervals and the smaller amount of seed; experiments are yet wanting to assure us, under a perfect tillage, with or without other manures than those derived from natural sources, what may be the most productive distances to sow grain at, or the quantity of seed corn to sow an acre with; but the Hardys have given very satisfactory evidence that plants may be at very great distances from each other and very small quantities of seed sown with results of very superior produce. It is a great pity that experiments bearing on the Lois-Weedon system should be so conducted as to prejudice it in the eyes of those who do not inquire into them with the research of "I. A. C.:" and these compose the great mass of lookers-on. It is a system that not only in Cereal, but in green cropping is worthy of much more serious attention than it obtains. By confining its grain tillage to lands most suitable to Cereals, and which can be safely, nay, best left to natural sources of fertilisation, it enables the application of the entire manure of the farm to the ground under these gross feeders which will not do without it, and for which, under ordinary treatment, the farm rarely supplies enough. It also admirably accommodates itself to the circumstances of the farmer of limited capital, who may thus grow as much corn as he pleases, independent of fallows and muck heap, while the ground he appropriates to his green crops will yield him increased returns for his pains, being always manured and doubly so. *J. M. Goodiff.*

Sheep Breeding and Management.—The general plan of breeders of all classes in improving the breed is by the adoption of a change in the male animal. The flock master would probably grudge more to give 5*l.* for the purchase of a ewe than he would to give 30*l.* for the season's use of a ram. And yet to reason from analogy we might naturally consider the dam as more influencing the produce than the sire. Her influence is long and continuous; her blood flows through its veins; and it is a partaker of her habits and sympathies. But much as undoubtedly she does influence the constitution, yet the vital force of the male shows conspicuous, and exercises a much greater sway over the conformation, qualities, and appearance. Therefore to improve and perpetuate good qualities and remove bad ones, it is essential in the breeder to select both sire and dam from the best source he can find. In selecting ewes for breeding, all the barren, aged, and otherwise inferior animals should be drafted. Should the flock exhibit any tendency towards any weak point or bad physical conformation, any animals showing prominently this development should be carefully weeded out. The age to which they may be kept will much depend on circumstances. On farms where the "rot" prevails frequent changes are absolutely necessary. The plan I follow is to have one-fourth of the flock shearlings every year, thus consequently involving a change of the entire flock every four years. By this means I am exempt from the light fleece which aged ewes naturally yield; and likewise I find no difficulty either in feeding or disposing of at a good price 4-year old mutton. One shearling ram will serve from 50 to 100 ewes. I have heard of one sheep serving the latter number, but I should say it is much safer to put one to every 60. In my own flock I never give more than 50. An aged ram will, according to age and activity, require proportionally fewer. The best time for putting to will depend on the object in view in breeding. When the desire is to have lambs fat in early spring, they cannot be served too soon, and should be put to in the beginning of October, and from that time up to the 20th will be found to answer for general purposes. The time in special cases must however be regulated according to the climate and prospect for spring food. At the time of putting the rams with them it is most essential towards a good fall of lambs that the ewes be in a thriving mending condition. To accomplish this they should either have a better pasture or some other helping auxiliary. The best food for this period that I am acquainted with is Rape. I never get so good a stock of lambs by any other means. Clover seeds after the corn crop is removed is also very good, if the sheep are not put on too many to an acre. I have frequently had a good crop of lambs from seeds. If Rape or seeds cannot be had in addition to their usual Grass, they should for a few days before and during the time the rams are among them have a liberal supply of Turnips. This feeding to some may seem rather extravagant, but if the subsequent management be as it should be at lambing and after, the expense for food incurred during the stinting season will be repaid and with interest. *Carabas.*

Sigma's Dibble.—As there has been a good deal of discussion about Sigma's plan of seeding, I determined to use his dibble this spring. I planted two pieces of Beans with it; one piece of land was so wet, and the soil a strong stiff clayey nature, that it could not be sown in any other way; the other piece was a very light soil. The produce of both was so satisfactory that I intend adopting the plan for the future. *Wm. Smith, Tolhurst Farm, Ticehurst, Sussex.* [It would be more satisfactory if the particulars of the crop in question were given.]——Sigma's seeding has been much approved of in this parish. In February last I planted 4 gallons of spring Wheat as an experiment on nearly an acre of land with Sigma's dibble; on the remainder of the acre I planted ½ gallon of Barley. The produce was 54 bushels of Wheat and 7 bushels of Barley, in all 61 bushels of grain on the acre. *James Brissenden, Broomden Farm, Ticehurst, Sussex.*

Societies.

OXFORD: *Sept. 9. The Down Cotswold Breed of Sheep.*—A public meeting of the breeders of this class of sheep was held for the purpose of taking into consideration the propriety of agreeing on some more definite name for it.—Mr. Barnett, of Glympton Park, the Chairman, had mentioned this subject to some members of the Royal Agricultural Society, with a view of showing that the breeders of this class of sheep were not fairly treated in being precluded from competing for some of their prizes. The name at present, "half-bred," and "cross-bred," led people to think but little of them, but he thought that by a little exertion and patience they might get the breed more universally recognised at their great public meetings. If they produced the quantity of the long wool, with the quality of the short wool, it would entitle them to be classed along with the short-woolled sheep. He hoped before they departed they would agree to some resolution which would be satisfactory to all who were interested in the breed of sheep for which this county had become distinguished.—Mr. H. Middleton, of Cutteslowe, said he had first suggested the propriety of giving a more definite name to the class of sheep now known as "Down Cotswolds," because at the recent Royal Agricultural meeting at Salisbury they were entered in the catalogue not as Down Cotswolds, but as Downs and Cotswolds, and were thought but little of. It appeared to him that a breed of sheep of 20 years' standing ought to have a definite name, like the Shropshire, Hampshire, and other Downs. The very Downs were now cultivated and covered with corn, and the Down sheep were improved as well as the pastures, and he considered the name of "Oxfordshire Downs" would best denote the breed peculiar to this county. At the recent exhibition in France, in the present year, the Down Cotswolds were classed with the Cotswolds, instead of with the short-woolled sheep, and the Down Cotswolds were patronised by the gentlemen abroad as much as they were at home. He contended that they ought to have a distinctive name for their breed of sheep, and cited the authority of the late Earl Spencer, who laid down the rule that if they continued a breed for four or five generations it was so fixed that nothing could move it if they stuck to it.—Mr. J. Hitchman, of Little Milton, had been a breeder of this class of sheep upwards of 20 years, and exhibited them at the Smithfield Show the second year when prizes were given to that class of sheep. He had taken five first prizes in succession, and had obtained three medals and several second prizes for them. This breed of sheep had made a stand in Oxfordshire, and had now become an extensive breed, and he was not sure whether it would not soon exceed all other classes in point of numbers. They were not met on that occasion to condemn this or that breed of sheep, and he desired to see kept up all breeds which were best adapted to their respective localities. He thought they were now in a position to claim for their peculiar breed of sheep a more definite name, and he could not see why these sheep should not retain the name of Oxfordshire Downs.—Mr. John Rowland considered that this breed of sheep was entitled to a distinctive name, which would enable it to compete in any county as a distinct breed of sheep. The breed had been kept up for 20 years, which was surely long enough to establish any breed, and he thought that if they went back they might even go to a further extent. With regard to Down Cotswolds, no doubt the first cross was one of the most useful breed of sheep they had to certain flock-masters; but there were many gentlemen who did not keep a breeding flock, but bought stock and fed out. In his opinion the most useful cross was the Long-woolled with the Down; for with respect to money value they got greater weight and nearly as much wool, though as regards quality they could not go quite so far. They had seen some fine specimens of Long-woolled sheep and of the Downs, but when they spoke of the Oxfordshire Downs they meant a distinct breed—a continuation from the Cotswold and

the Downs. The following resolution was then carried unanimously:—"That this meeting is of opinion that it is expedient to give to the breed of sheep now known as 'Down Cotswolds,' and which has been established in this county for upwards of 20 years, the more distinctive and proper name of 'Oxfordshire Downs.'"

Reviews.

The Journal of the Royal Agricultural Society of England. Vol. XVIII., Part 1. J. Murray, Albemarle Street.

The first part of the volume for 1857 has only just appeared. It contains 196 pages—a much less bulky volume than usual—much too small a volume indeed considering that it costs 10*s*. The delay of its publication has been due, we believe, to the desire that the prize lists of the Salisbury show should receive immediate publication. These lists have however been already fully published, and every one knows the fortune, good or bad, of himself, his friends, and others as exhibitors. What we want is the immediate publication not so much of the awards as of the reports of the judges. The weekly and the daily press announce and publish the awards; but we have not access to the reasons given for them, to which the judges refer in their reports, and it is these that are desired as soon as possible after the meeting to justify decisions which have often excited, as they have this year, much discussion and displeasure.

The volume is itself as usual full of useful information. The two last papers are especially valuable. Dr. Voelcker and Mr. Horsfall deserve our best thanks for their laborious researches on farm manure and dairy management respectively. We shall refer hereafter to both of these papers in detail—meanwhile we may name as new features in the character of this work, the statistical tables of the meteorology, health, and market prices of the half year, and the controversial character permitted to some of its pages. This last point is not at all to be lamented. Baron Liebig has in a previous volume questioned the results of Rothamsted experiments, and now Mr. Smith of Lois-Weedon does the same. Nothing but mischief can in the long run arise from the unquestioned reception of authoritative teaching, however generally trustworthy and praiseworthy it may be. Mr. Lawes, no doubt, as much as any one desires that his investigations should receive ample criticism and discussion—and the readers of the Journal may be glad of the livelier and more readable form in which by means of such controversial writings agricultural truth is presented in its pages.

Notices to Correspondents.

EXMOOR PONIES: *R.* Forest ponies, the property of F. W. Knight, Esq., M.P., and Mr. Smith's colts and galloways are disposed of at the Bampton Fair on the last Thursday in October. Particulars will appear in our advertisements.

HAMPSHIRE DOWNS: *Cor.* At Weyhill Fair, Oct. 10-15.

LOIS-WEEDON AND ROTHAMSTED: *An old Farmer.* The articles on this subject by "I. A. C.," to which you refer, have examined the reasons why Mr. LAWES' attempt at Rothamsted to realize Mr. Smith's experience at Lois-Weedon has failed. Mr. Smith sows Wheat in alternate strips on the same land year after year: three rows 1 foot apart, separated by an interval of 3 feet from the next three rows; and the intervals are well cultivated during the growth of the crop and form the seed bed of the next year's crop. He applies no manure, and gets a crop of about 4 qrs. an acre every year. This is the Lois-Weedon system, which you will find vindicated in the new part of the English Agricultural Society's Journal.

MANCHESTER AND LIVERPOOL AGRICULTURAL SOCIETY: *T D R.* Many thanks—we regret our inability to give a full report. The following particulars are extracted:—The Society meets at one or other of the towns in its district—and this year at Warrington, where the receipts have been 220*l*. 17*s*.—exceeded by 40 to 50 per cent. those of previous years at Liverpool and Manchester. There was a good show of implements, seed, and stock: and the following comparison of the meetings this year and 1853, when last held at Warrington, shows on the whole a considerable advance:—

	1853.	1857.
Live stock	245	199
Vegetables, seeds, and roots	26	32
Implements	157	409
Poultry	117	66
Special prizes..	..	29

MANGEL WURZEL: *Count. Sub.* We should suppose neither it nor Turnips, nor any other bulky food, to be well adapted for horses touched in the wind. The proper plan to treat such horses is to keep them in "the highest possible condition, so that they may be able to accomplish ordinary exertion with the least expenditure of muscular exertion, and consequently with less demand on the lungs. The food should be of a concentrated kind, such as Oats and Beans, that the stomach be not distended. Very little hay should be allowed and no straw, but a fair proportion of Carrots may be given in the course of the day." Water should be given in small quantity, and the feeding should be managed so that the animal may not be required to work with a loaded stomach.

PREPARED THATCH: *Shem* asks what is the preparation used for steeping straw for thatching to render it less liable to take fire? Perhaps some of our correspondents will give this information. We presume that, like Dr. Boucherie's process, the principle of it consists in using such solutions as shall on contact produce an earthy precipitate. If straw soaked with saturated solution of muriate of lime were dipped in a solution of carbonate of ammonia, it would become filled with a chalky precipitate which would interfere with its burning when dry.——Tar is prepared for use as "paint" or coating for outside woodwork by boiling.

THE ORDER IN COUNCIL OF APRIL IN REFERENCE TO THE IMPORTATION OF HORNED CATTLE: *H.* The former Order in Council forbidding importation from the Baltic has been withdrawn, but as there is still danger of disorders being introduced into this country by means of horns, hoofs, bones, or raw or wet hides or skins of cattle imported thence, it is now ordered that no horns, hoofs, bones, or raw or wet hides or skins of cattle, shall be imported or introduced into the United Kingdom from any place wiin the territories under the ban of the former order.

YOUNG GRASSES: *J James.* You may pasture lightly in autumn without injury. Sheep are the best stock. You can remove them before any harm is done.

ERRATUM: *A Seedsman* will have noticed that in our answer to his question on Lucerne the week before last the words "last year's crop" should have been printed "next year's crop," &c.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s*.

1¼-inch Flexible Rubber and Canvas Suction for ditto, 2*s* 9*d*. per foot.

1½ Gutta Percha Suction, 1*s*. 9*d*. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2¼ in. short	1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,, long	3 ,, 3 ,,		1	14	0
3 ,, ditto	3 ,, 6 ,,		2	8	0
3½ ,, ditto	3 ,, 6 ,,		2	12	0
4 ,, ditto	3 ,, 6 ,,		3	3	0
½ ,, short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing			2	14	0
½ in. long	ditto	ditto ditto	2	18	0

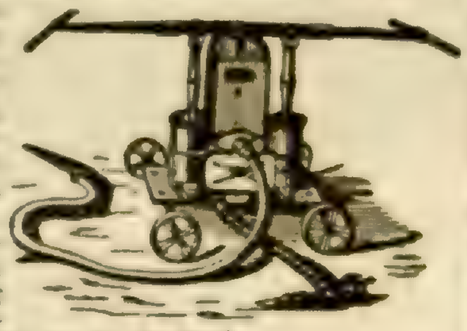
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines &c. &c.—Engravings sent on application.

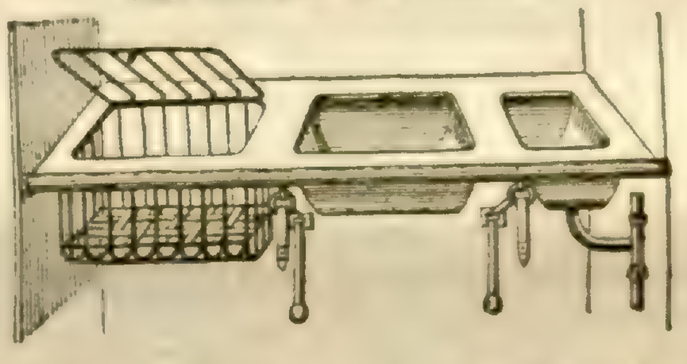
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



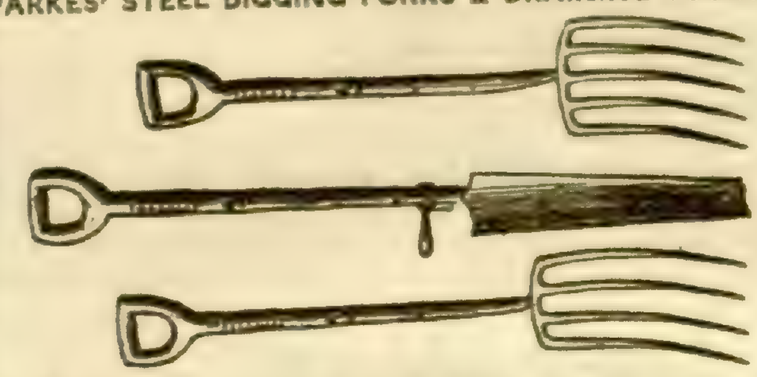
These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps. 95, Newgate Street, London.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

MR. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ } 11*s*. 6*d*. per 100 feet.
8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½ }
10 by 8 and 10½ by 8½ .. 12 6 ,,

Larger sizes in 100 feet boxes from 14*s*. per 100 feet.

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. } 18 0 ,,
20 ,, 13 ,, 20 ,, 15 .. }

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d*. to 3*d*., 21 oz. from 2½*d*. to 5*d*. per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d*. per foot. 21 oz., 3½*d*.

Foreign Sheet Glass, in crates of 200 feet, 30*s*., 40*s*. and 42*s*. per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ¼-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

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HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d*. to 3*d*. per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

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Above 15 by 10, and not exceeding 18 by 12. 15*s*. 6*d*. per 100 feet. Some of the above in 21 oz. Glass at 1*s*. and 2*s*. per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s*. per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s*.
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s*.	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s*.
19 by 12, 20 by 12	16*s*.	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s* and 40*s*. per case.

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Hartley's Patent Rough Plate Glass, ⅛ to 7/16 and ½-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. | Fern Shades and Stands
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Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ¼-inch in thickness.

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Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

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BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus. Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

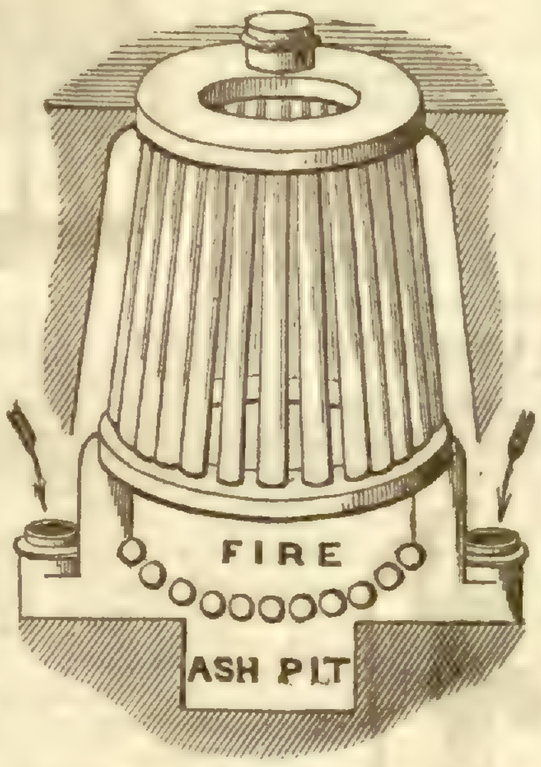
MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings:—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.



See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

JOHN WEEKS & COMPANY,
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KING'S ROAD, CHELSEA, S.W.

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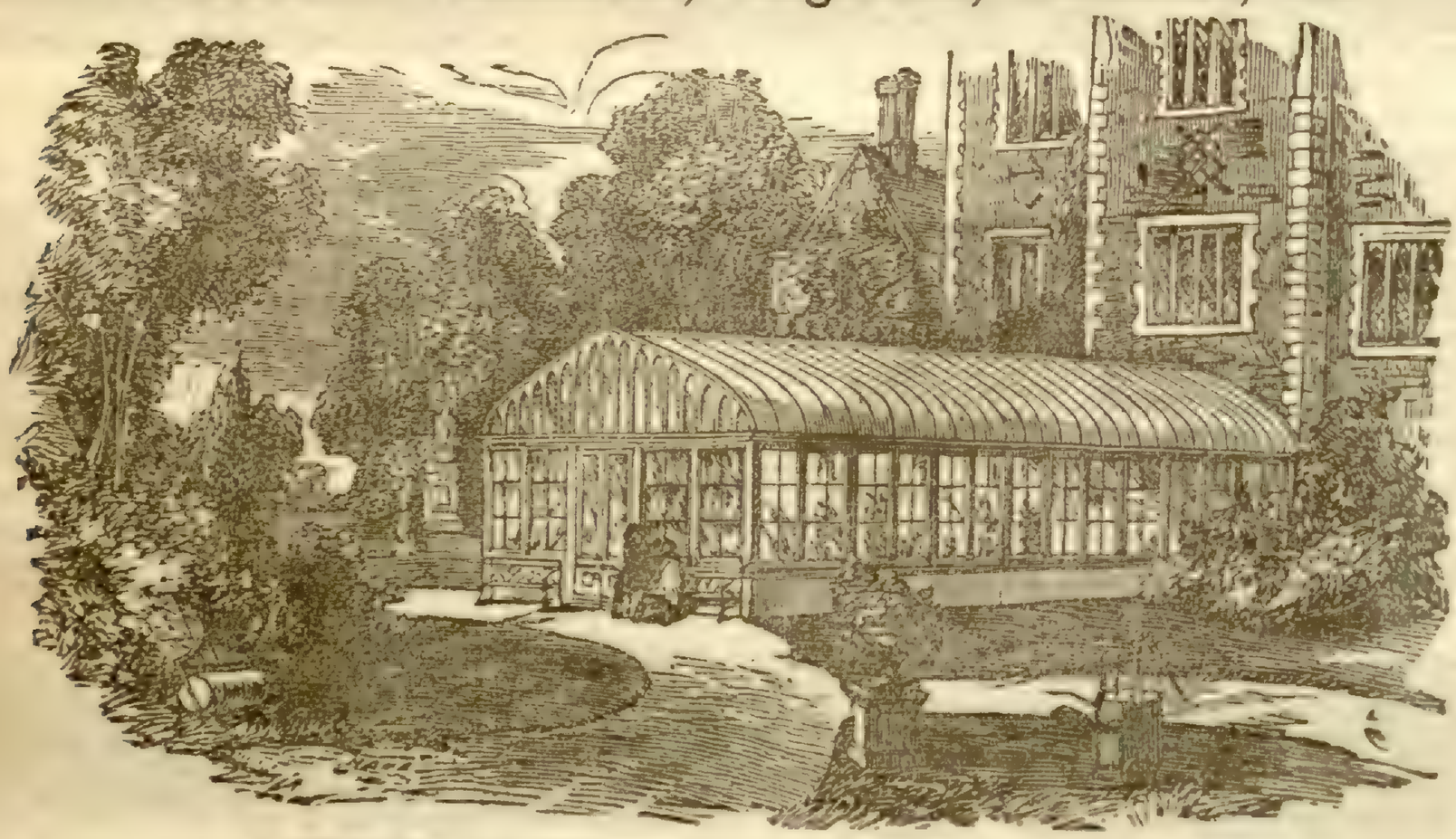

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Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
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Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

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Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

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JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

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For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

THE FIRST PRIZE FOR THE BEST PLOUGH FOR GENERAL PURPOSES.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR HEAVY LAND.
The only PRIZE ever offered by the Society for the best RIDGING PLOUGH was also awarded to J. & F. HOWARD.

P Plough, with Two Wheels (for Light Work)	£4 7 6
P P Ditto ditto (for General Purposes)	£4 12 6
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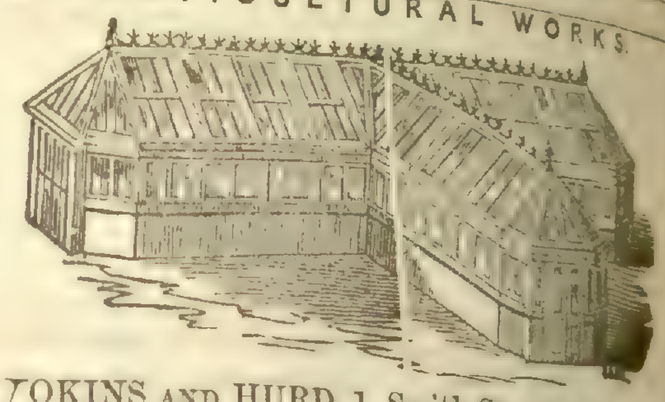
Steel Breasts, 7s. and 7s. 6d. extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.* A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. P. [illegible], Hurst Green, Sussex.

HORTICULTURAL WORKS.



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Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

Plans and Estimates forwarded on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, who also Manufacture Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 1*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

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J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. Price illustrated price apply at the Works.

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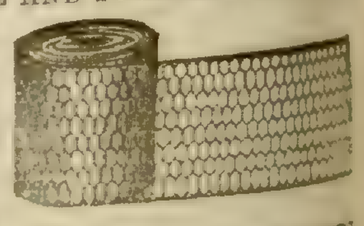

Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

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GALVANISED POULTRY FOUNTAINS AND FEEDERS, or DRY and WET FOOD.

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WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

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CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

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THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than [illegible] the wet bottom, and is not liable to be eaten off by vermin. 500 post free for 7s., on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

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BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2s. 6d. each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

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MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3d. per yard or 5s. per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

WIRE WORK OF EVERY DESCRIPTION,

USEFUL AND ORNAMENTAL, for Conservatory, Greenhouse, Garden, Dwelling-house, &c. Flower Stands, Garden Arches, Fencing, [illegible] Upwards of [illegible] different patterns of Suspending Flower Baskets, from 10 inches to 3 feet diameter, [illegible] Manufactured by W. RICHARDS, at the Imperial Wire Works, 350, Oxford Street, London, W., and at the Crystal Palace, Sydenham.

Window Blinds and Sun Shades of every description.

N.B. An allowance made to the Trade for exhibition or other purpose. Conservatories and Aviaries fitted up. Superior Bird Cages, &c.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOM-HEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. HENDERSON begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

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Dundee	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
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Printed directions for filling are sent with each Broomhead.

W. HENDERSON, Inventor of the Patent Improved Broomheads, Dunkeld.

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METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue).—18 and 22, Strand.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4l. 14s. to 12l. 13s.; ditto, with ormolu ornaments and two sets of bars, 5l. 5s. to 22l.; Bronzed Fenders, with standards, 7s. to 5l. 12s.; Steel Fenders, 2l. 15s. to 11l.; ditto, with rich ormolu ornaments, 2l. 15s. to 18l.; Fire-Irons, from 1s. 9d. the set to 4l. 4s. The BURTON and all other PATENT STOVES, with radiating hearth plates.

GASELIERS IN GLASS OR METAL.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers in metal and glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12s. 6d. (two-light) to 16l. 16s.

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 Illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Gaseliers, Tea Urns and Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—ESTABLISHED 1820.

ACHROMATIC MICROSCOPES

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

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MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

GLENFIELD PATENT STARCH
USED IN THE ROYAL LAUNDRY,
AND PRONOUNCED BY HER MAJESTY'S LAUNDRESS to be THE FINEST STARCH SHE EVER USED.
Sold by all Chandlers, Grocers, &c., &c.

COOL AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—C. & A. OLDRIDGE, 12, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3s. 6d., 6s., and 11s.; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

TOURISTS AND TRAVELLERS exposed to the scorching rays of the Sun, and heated particles of dust, will find ROWLANDS' KALYDOR a most refreshing preparation for the Complexion, dispelling the cloud of languor and relaxation, allaying all heat and irritability, and immediately affording the pleasing sensation attending restored elasticity and healthful state of the skin. Freckles, Tan, Spots, Pimples, Flushes, and Discolorations fly before its application, and give place to delicate clearness, with the glow of beauty and of bloom. In cases of Sunburn, or Stings of Insects, its virtues have long been acknowledged. Price 4s. 6d. and 8s. 6d. per Bottle. The heat of Summer also frequently communicates a dryness to the hair, and a tendency to fall off, which may be completely obviated by the use of ROWLANDS' MACASSAR OIL, a delightfully fragrant and transparent preparation, and, as an invigorator and purifier of the Hair, beyond all precedent. ROWLANDS' ODONTO, OR PEARL DENTRIFICE, bestows on the Teeth a pearl-like whiteness, frees them from Tartar, and imparts to the gums a healthy firmness, and to the breath a grateful sweetness and purity. Price 2s. 9d. per Box.—Sold by A. ROWLAND & SONS, 20, Hatton Garden, London, and by Chemists and Perfumers.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 Physicians, for promoting a fine, healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2s., or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

TO THE NERVOUS AND DEBILITATED.

CHARLES WATSON, M.D. (Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted. "The first man of the day in these complaints."—*Medical Review*, July 1856. "The true guide to those who desire a speedy and private cure."—*University Mag.*

PERSONS OF A FULL HABIT, who are subject to headache, giddiness, drowsiness, and singing in the ears, arising from too great a flow of blood to the head, should never be without FRAMPTON'S PILL OF HEALTH, as many dangerous symptoms will be carried off by their timely use; and for elderly people, where an occasional aperient is required, nothing can be better adapted.

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Sold by all Medicine Vendors. Observe the name of "THOMAS PROUT, 229, Strand, London," on the Government stamp. Price 1s. 14d. and 2s. 9d. per box.

HOLLOWAY'S OINTMENT AND PILLS, REMARKABLE FOR THEIR EFFICACY IN CURING DISEASES OF THE SKIN.—Scurvy, ringworm, and other cutaneous disorders are engendered by the impurity of the blood, and the only sure means of eradicating such complaints is to undergo a course of HOLLOWAY'S PILLS, and at the same time apply externally his invaluable Ointment. Cures by these extraordinary medicines are daily attested, proving their astonishing efficacy in purifying the blood, strengthening the constitution, and re-establishing the best of health; they are equally beneficial in curing wounds, &c.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

TOULOUSE GEESE, pure breed.—The remaining Pen to be disposed of at 3l. Also a Pen of Younger Birds at 2l.; each Pen contains two Geese and a Gander.—Apply to JOHN NUNN, Bailiff at Ruxley Lodge, Esher.

THE WELLINGTON AND BEDFORD NURSERIES.

TO BE LET, with immediate possession, the Wellington and Bedford Nurseries, Clapham; or the Lease (19 years unexpired) to be sold. There are 13 Glass houses, newly painted and in complete repair.—Particulars to be had of Mr. THOMP, 26, Upper Albany Street, Regent's Park, N.W.

TO NURSERYMEN AND OTHERS.

TO BE LET, with 14 years' unexpired Lease, a NURSERY and FRUIT GARDEN close to the High Road, well stocked with the best kinds of Fruit Trees and Nursery Stock, a Greenhouse and Frames full of useful plants. May be entered on at Michaelmas, or sooner if required.—Apply to Mr. BEADLE, on the premises, Queen's Road, Peckham, Surrey, S. E.

Sales by Auction.

KINGSLAND GATE.
TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Harrington to Sell by Auction, on the premises, Kingsland Gate Nursery, Kingsland, Middlesex, on THURSDAY, September 24, at 11 o'clock, about 400 choice DOUBLE CAMELLIAS, from 18 inches to 7 feet, consisting of all the most approved kinds, beautifully furnished with bloom buds; fine Azalea indica, Epacris, Ericas, Cytisus, Acacias, Chorozema, Myrtles, Geraniums, &c., with a few handsome Cedrus Deodara, 5 to 6 feet, established in pots.—May be viewed two days prior to the sale. Catalogues may be had on the premises, at the Nursery, Dalston, and of the Auctioneers, American Nursery, Leytonstone, Essex.

CHEAM PARK, CHEAM, SURREY.

MESSRS. BLAKE will Sell by Auction, on the premises, on FRIDAY, September 25, at 12 o'Clock, a collection of EXOTIC ORCHIDS, AZALEAS, and CAMELLIAS (including several Prize Plants), a Barouche Phaeton, 4-wheel Basket Chaise, Light Spring Cart, Hay making Machine, Two Stack Cloths with Poles, Carts, Waggon, Ploughs, Harrows, Ladders, Stack of Prime Meadow Hay (the growth of 1856), Three powerful Draft Horses, &c.—May be viewed the day before the Sale, and Catalogues had at the Entrance Lodge to Cheam Park; at the Inns in the neighbourhood; at GARRAWAY'S Coffee House, Change Alley; and of Messrs. BLAKE, Croydon.

IMPORTANT SALE OF A VALUABLE COLLECTION OF EXHIBITION STOVE, GREENHOUSE, AND ORNAMENTAL PLANTS, FRUITING AND SUCCESSION PINES, AND MISCELLANEOUS EFFECTS, AT THE OAKLANDS, HANDSWORTH, NEAR BIRMINGHAM.

MESSRS. CHESSHIRE AND GIBSON will Sell by Auction, on FRIDAY next, September 25, the entire Collection of PLANTS as above, including the whole of the fine and valuable SPECIMEN PLANTS, which have been under the management of Mr. Groves, [illegible] with such continued success at the principal Flower and Horticultural Exhibitions in the Midland Counties. In the STOVE PLANTS may be especially noticed—Croton [illegible], Alocasia [illegible], Medinilla magnifica, Epiphyllum [illegible], and Clerodendron squamatum, as being remarkably fine specimens. The collection also includes Begonias, Gesnerias, Achimenes, Gloxinias, Æschinanthuses, &c. The GREENHOUSES contain admirable specimens of Erica Cavendishi, Boweana hyemalis, Vernix coccinea, Pimelea decussata and spectabilis, Azalea Minerva, Old White, &c. In CAMELLIAS may be mentioned fine plants of imbricata, Double White, Mrs. Elliott, grandiflora, Chandleri, &c. SPECIMEN FUCHSIAS include the Duchess of Lancaster, Duke of Wellington, Hebe, Venus di Medici, Banks's Glory, and other choice varieties. The Sale also includes a collection of Geraniums, Calceolarias, Cinerarias, Petunias, Roses, and other varieties; also the healthy Fruiting and Succession Pines and other Miscellaneous effects, which will be fully particularised in Catalogues to be obtained on Thursday next at the Offices of the Auctioneers, 11, Bennett's Hill.—Mr. GREAVES, the Gardener, will show the Plants on the 22d and 23d inst.: admission by Catalogue only. The Sale will commence punctually at 11 o'Clock.

FAT OXEN, FROM THE GROVE, WATFORD, HERTS, THE PROPERTY OF THE EARL OF CLARENDON.

MR. HUMBERT will Sell by Auction, at Harwood's Farm, Watford, on FRIDAY, Sept. 25 (by permission of the Earl of Essex with his lordship's Fat Stock), 12 Fat Scotch Oxen, in excellent condition for stall feeding.—May be viewed, and Catalogues may now be had of Mr. May, Surveyor, 61, Park Street, Grosvenor Square, London; and free by post of Mr. HUMBERT, Land Agent and Surveyor, Watford.

ANNUAL SALE OF FAT STOCK AND POULTRY,
AT CASSIOBURY, WATFORD, HERTS, THE PROPERTY OF THE EARL OF ESSEX.

MR. HUMBERT will Sell by Auction, at Harwood's Farm, Watford, Herts, about a mile from the Watford Station, on FRIDAY, Sept. 25, at 12 o'clock, 34 Fat Oxen, 12 fine Fat Hereford Bullocks, 80 handsome Fat Pigs, 8 Sows and Pigs, 400 fine Fat Wether Sheep, all in prime condition; some Poultry; also two useful Cart Horses and a handsome Grey Galloway.—May be viewed by applying to Mr. SWANSTON, at Harwood's Farm (of whom Catalogues may now be had); of Mr. MAY, Surveyor, 61, Park Street, Grosvenor Square, London; and free by post of Mr. HUMBERT, Land Agent and Surveyor, Watford.

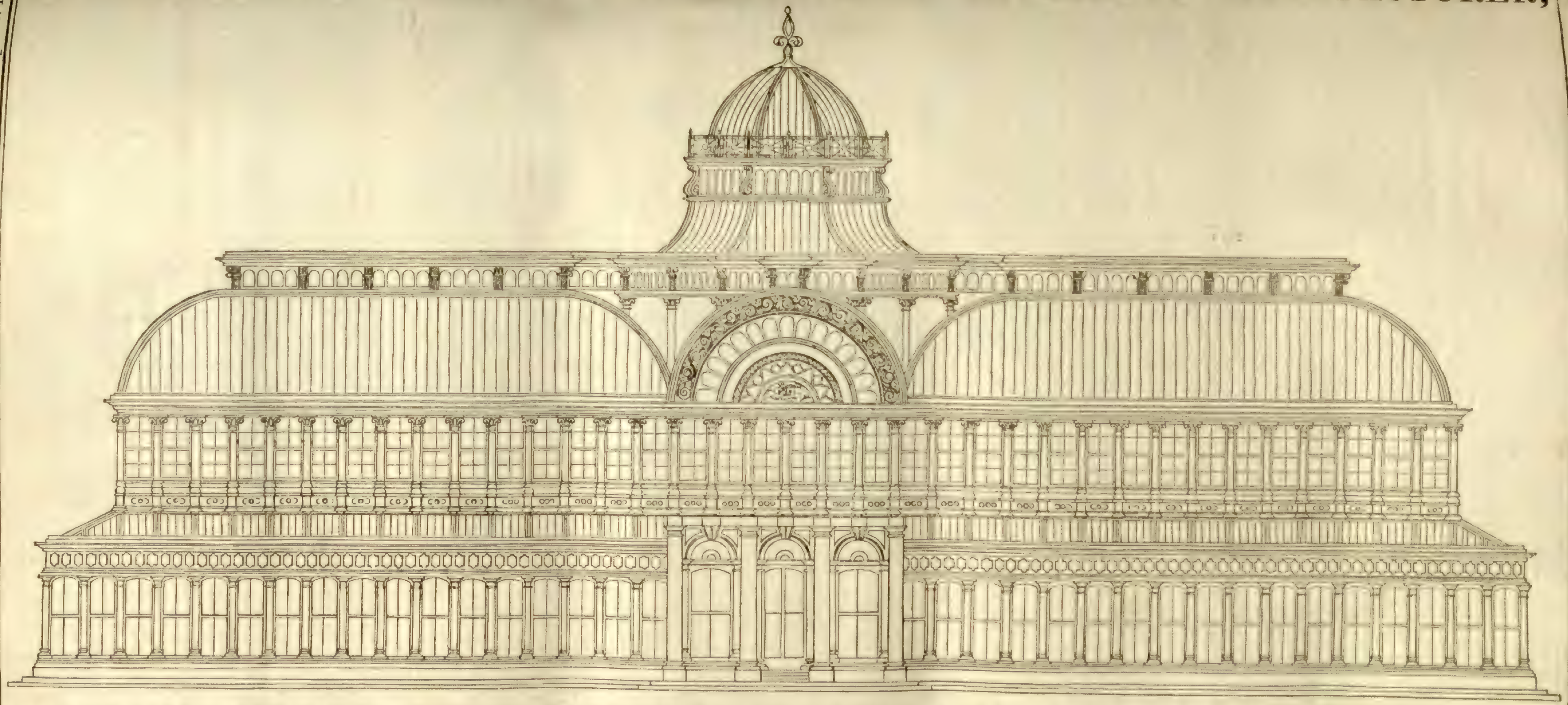
IMPORTANT SALE.

THE PARK FARM, MARESFIELD, SUSSEX.—VALUABLE AND PURE-BRED SOUTHDOWN SHEEP, OXEN, HORSES, SWINE, AND SUPERIOR AGRICULTURAL IMPLEMENTS OF THE MOST IMPROVED DESCRIPTION, &c.

MR. E. DRAWBRIDGE begs to announce that he has been honoured by instructions from Sir J. Villiers Shelley, Bart., M.P., who is selling [illegible] a portion of his Farms, to offer for Sale by Auction on SATURDAY October 3, the valuable and pure bred Southdown Flock, Horses, Oxen, Swine, &c. The FLOCK (which has been selected without regard to cost, from the most eminent breeders of the day) comprises 140 Full mouthed Ewes, six Rams, 200 strong Wether Lambs, and 100 Stock Ewe Lambs. The OXEN, HORSES, &c., comprise 25 pure bred Sussex Working Oxen and Steers, 2 year old Sussex Heifer, five 2-year-old Short-horn Steers, three yearling Short-horn Steers, and two Guernsey and one Runt Milch Cows. The Horses consist of 14 valuable and well bred Cart Horses, and three ditto Mares in foal by Sir John Shelley's celebrated Suffolk stallion. There are also eight fine-boned well-bred Breeding Sows, a superior Boar, and 50 Store Hogs and Shuts. The IMPLEMENTS comprise a variety of waggons, carts, ploughs, harrows, manure carts, water carts, together with numerous machines on the most improved principle and of the best construction. Luncheon will be provided in a Booth in the Field at Ten o'clock. The Sale will commence as soon after that hour as possible, on account of the large number of Lots.—Catalogues to be had in due time of the Auctioneer, Scaynes Hill, Lindfield; and at the various Inns at Lewes, Uckfield, Tunbridge Wells, &c.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,



BEGS most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY and ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

STANLEY BRIDGE, KING'S ROAD, CHELSEA.—Sept. 19.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 30, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard Street Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, September 19, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 36.—1857.] SATURDAY, SEPTEMBER 26. {Price Fivepence. {Stamped Edition, 6*d*.

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Cattle teeth	666 *a*	Pampas Grass	662 *a*
Clover, substitutes for	667 *c*	Pathology, vegetable	660 *b*
College, Queen's	668 *b*	Pentatemon barbatus	664 *b*
Cottages, unwholesome	668 *b*	Plants, begging	660 *a*
Covent Garden flower market	663 *c*	— new	660 *a*
Dahlia, White Zelinda	659 *b*	— buying	660 *a*
Daubeny's (Dr.) Roman husbandry	662 *c*	— Irish bog	660 *c*
Drainage, theory of	667 *b*	— and nitrogen	667 *b*
Entomological Society	662 *b*	Potato, white from purple	662 *a*
Forest trees, manuring	662 *a*	Potato growing	661 *c*
Fruit and wasps	662 *a*	Reaping machines	668 *c*
Grapes, to sulphur	662 *a*	Scottish Arbor. Soc.	662 *c*
— at the Crystal Palace	662 *b*	Sedum fabaria	660 *a*
Gutta percha	659 *c*	Sewage, farm	668 *a*
Harvest bugs	662 *b*	Trade memoranda	661 *c*
Hort. Society's fruit show	662 *a*	Walls and ants	662 *b*
		Wasps and fruit	662 *a*

HORTICULTURAL SOCIETY OF LONDON.—GREAT FRUIT EXHIBITION AT WILLIS'S ROOMS, OCTOBER 24.

Tickets can now be had at the Society's Office, 21, Regent Street, price 2*s*. each to the bearers of Fellows' Orders, or 2*s*. 6*d*. each to the public. After October 17 all Tickets will be 2*s*. 6*d*. each, and on the day of Exhibition 3*s*. 6*d*.

HORTICULTURAL SOCIETY OF LONDON.—GREAT AUTUMN EXHIBITION OF FRUIT AT WILLIS'S ROOMS, SATURDAY, OCTOBER 24.

Classes.	Prizes offered £	s.	£	s.	£	s.
I. Collections of Fruit—(Fruiterers only)	4	0	3	0	2	0
II. Grapes—						
a. Three bunches of Muscats	2	0	1	0	0	15
b. Do. of other White kinds	2	0	1	0	0	15
c. Do. of Black Hamburgh	2	0	1	0	0	15
d. Do. of other Black kinds	2	0	1	0	0	15
e. Collections (Foreigners only)	4	0	3	0	2	0
f. Boxes of 15 lbs. weight (Market Gardeners only)	3	0	2	0	1	0
III. Pine Apples—						
a. Threes	3	0	2	0	1	0
b. Single specimens	2	0	1	0	0	15
IV. Pears, of Home growth—						
a. Twelve sorts; six of each	3	0	2	0	1	0
b. Six sorts; six of each	1	0	0	15	0	10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
d. Do. of kitchen kinds, of one sort, containing six fruit	0	15	0	10	0	10
V. Pears, of Foreign growth—						
a. Twelve sorts; six of each	3	0	2	0	1	0
b. Six do. do.	1	0	0	15	0	10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
d. Do. kitchen do. do.	0	15	0	10	0	10
VI. Apples, of Home growth—						
a. Twelve sorts; six of each	2	0	1	0	0	15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
c. Do. kitchen do. do.	0	15	0	10	0	10
VII. Apples, of Foreign growth—						
a. Twelve sorts; six of each	2	0	1	0	0	15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0	15	0	10	0	10
c. Do. kitchen do. do.	0	15	0	10	0	10
VIII. Oranges, Lemons, and Citrons—						
a. Collections of Foreign growth	3	0	2	0	1	0
b. Do. Home do.	2	0	1	0	0	15
IX. Peaches—Single dish, containing six specimens	0	15	0	10	0	10
X. Nectarines do. do.	0	15	0	10	0	10
XI. Melons—Single fruit	0	15	0	10	0	10
XII. Plums and Prunes, of either English or Foreign growth—						
a. A collection of three sorts, twelve fruit of each	1	0	0	15	0	10
b. Single dishes of one sort, containing twelve fruit	0	15	0	10	0	10
XIII. Figs	1	0	0	15	0	10
XIV. Alpine Strawberries	1	0	0	15	0	10
XV. Currants	0	15	0	10	0	10
XVI. Raspberries	0	15	0	10	0	10
XVII. Eugenia Ugni*						

* For single dishes of this valuable new Fruit two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the first of 2*l*., the second of 1*l*.

Fruit is expected to be as nearly ripe as circumstances will admit. Winter Fruit will of course be unripe. Exhibitors are invited to decorate their Stands with suitable Plants or other Elements. Tickets 2*s*. each may be procured at 21, Regent Street up to Oct. 17, after which they will be charged 2*s*. 6*d*. each. Fellows and Fellows' Ivory Tickets pass free.

SCOTTISH ARBORICULTURAL SOCIETY.—STATISTICS OF FOREST PRODUCE.

The Society having resolved to obtain for publication Returns of the Prices of Timber and other Forest Produce throughout Great Britain and Ireland, all Foresters and others who are interested in forwarding this desirable object are invited to aid the Society's efforts by communicating as fully as possible the required information.

Blank Schedules for such returns, with full particulars as to the mode of filling up, may be had on application to the Secretary, to whom they must be returned not later than 7th October next, when the annual meeting is to be held.

James Alexander, Secretary.

6, York Place, Edinburgh, Sept. 26.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Sept. 26.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Sept. 26.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

CHEAP PRICED CATALOGUE.

W. W. DAVIS'S DESCRIPTIVE CHEAP PRICED CATALOGUE of all the best and newest Roses, Chrysanthemums, Pansies, Antirrhinums, Verbenas, &c., is now ready, and may be forwarded gratis upon application, enclosing one postage stamp.

Nurseries, St. Mary's Hill, Newbury, Berks.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

Wm. C. & Son strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s*. to 10*s* each. A list of the sorts may be had on application

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

PTERIS ASPERICAULIS.

W. COLE begs to offer to the Trade strong plants of this new and distinct FERN, from 4 to 6 inches high, in fine condition. Price per doz or per 100 on application.—Nurseries, Withington, near Manchester, Sept. 26.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, estab lished in single pots, at 30*s*. per doz., or 6*l*. 5*s*. per 100. No charge for packing.—John Henchman, Edmonton, near London.

1000 SPECIMEN AZALEAS AND ERICAS,

FROM 9 INCHES TO 3 FEET IN DIAMETER.

MR. EPPS has no hesitation in saying that his stock of the above contains some of the finest plants possible and of all the leading kinds. Prices and list on application. Fine young specimens three guineas per dozen.

Epps's Nurseries, Maidstone.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT, COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Sept. 26.

HOLLYHOCK SEED, &c.

JOHN CHATER AND SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7*s*. 6*d*.; 18 ditto, 4*s*. 6*d*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400 ditto, 2*s*. 6*d*. Fine-named sorts in good plants now ready, 8*s* per dozen.

Nurseries, Haverhill, Suffolk.

FILBERT PINE STRAWBERRY.—This variety has maintained its position during the past season as first-class, both as regards flavour and productiveness.

Charles Turner can supply strong plants, either in or out of pots, price per dozen or hundred on application.

Royal Nursery, Slough.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

UNDERHILL'S SIR HARRY STRAWBERRY.

WILLIAM WHITEHOUSE has to offer strong healthy young Plants of the above at 16*s*. per 100, or 3*s*. 6*d*. per dozen. References can be had from gentlemen whom he has served with plants for the last two years. Plants sent over to compensate for long carriage. Post-office orders payable in Birmingham.

Mount Pleasant Nursery, Harborne, Birmingham

SEEDS TO BE DEPENDED ON.—Improved Balsam (6 classes) 37 stamps, Mixed 13, Geranium 37, Fancy ditto 37, Bedding ditto 13, Pansy 13, Hollyhock 13, Pink 37.—G. Glenny, Horticultural Agent, Fulham, S. W.; and *Gardeners' Gazette* Office, 14, York Street, W. C.

TO BEE-KEEPERS.—Sow now to bloom next season MELILOTUS LEUCANTHA var., Echinops paniculata, and eight varieties of our splendid Scabious for a rich supply of honey. 6*d*. a packet each, free.—E. Persac & Co., Seedsmen and Florists, 253, High Street, Exeter.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water

MESSRS. WILLIAM ROLLISSON AND SONS have to offer a fine stock of good plants of the GRAPE "Gromier du Cantal," as exhibited by Mr. Fleming at the last Crystal Palace Horticultural Exhibition, for which a first prize was awarded (vide Report), price 5*s*. each. Also the Bowood Muscat Grape, 21*s*. each; and every description of Fruit Tree, true to name, and in excellent condition. An inspection is invited.

The Nurseries, Tooting, London

JAMES CARTER AND Co. beg to offer new Seeds saved from the choicest varieties of the following:—

CALCEOLARIA CINERARIA | PRIMULA SINENSIS FIMBRIATA

Price 1*s*. per packet.

238, High Holborn, London, W.C.

POMPONE CHRYSANTHEMUMS.—A very splendid lot of specimen plants of the above in pots, comprising the very best kinds in cultivation, at 6*s*., 9*s*., and 12*s*. per doz. They are well worthy the attention of all purchasers.

Apply to Thomas A. Caparn, King's Road Nursery, Newark.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, cittata, Juliana, Jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s*., including package

Epps's Nurseries, Maidstone.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50*s*. per 100.—Epps's Nurseries, Maidstone.

SHRUBBY CALCEOLARIA SEED.—Packets, 2*s*. 6*d*. and 5*s*. each, saved from a fine collection of all woody habits.—Apply to Jas. Smith, Gardener, Hendon, Middlesex

SPIRÆA CALLOSA, see Dr. Lindley's Leading Article, August 1. Can be supplied in the autumn at 18*s*. to 30*s*. per dozen, by Charles Noble, the Nursery, Bagshot.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden

WANTED TO PURCHASE, a Collection of DRIED GRASSES in the straw. Any person having such to offer, apply, stating the terms and *all particulars*, to P. A., *Gardeners' Chronicle* Office.

STOCK of GREENHOUSE PLANTS, consisting of very large DOUBLE CAMELLIAS, ALOES, &c., in the neighbourhood of Clapton, Middlesex, belonging to an Estate winding up, to be had a Bargain.—Apply to Mr. Bailey, near the King's Head, Clapton.

FOR SALE, a collection of about 40 ROSES in pots, principally specimens exhibited at the Botanical, Crystal Palace, &c., this and previous seasons, new and approved sorts, in excellent order. May be exchanged for a collection of Hardy and Greenhouse Ferns. Price 12*l*.—Apply to J. R. S., 57, Coal Exchange.

VINES FOR IMMEDIATE FORCING.

TO BE SOLD, 70 BLACK HAMBURGH and 10 MUSCAT of ALEXANDRIA VINES, grown in No. 8 and No. 12 pots, strong, pruned, and ready to force.—Price on application to John Moxon, Shenley Gardens, Barnet, Herts.

LOUISE BONNE PEARS.

JNO. BLACK, Fruit Salesman, Covent Garden Market, will receive large consignments of this fine PEAR the ensuing week from Mr Rivers, of Sawbridgeworth. They are from trees on Quince Stocks, and finer than any in the market either from Jersey or France.

CAULIFLOWER, LETTUCE, AND CABBAGE PLANTS.

G. H. PIKE begs respectfully to inform the Public that he has a large stock of the above plants for sale. The sort of Cabbage is Shilling's Queen, price 5*s*. per 1000; Bath Cos Lettuce, 1*s*. per 100; Cauliflowers, 2*s*. per 100, package included. They are fine healthy plants. All orders must be accompanied with a remittance.—32, Walcot Street, Bath.

EARLY POTATOES.—The improved Lemon Kidney. Small quantities of this excellent variety carefully selected (see last No. of Royal Agricultural Society of England Journal) may be had on application to John Helm, the Parsonage, Moreemple. Price 5*s*. per stone

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7*s*. 6*d*. per bushel for present payment only. No agent employed

New Park, Lymington, Hants

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. Raysbird, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

NEW GIANT RYE.

CHISNELL AND SON, of Colchester, have to offer Seed of their New GIANT RYE, which is quite distinct and in every way superior to the common. A specimen of the straw was exhibited at the Royal Agricultural Show at Salisbury, and highly commended in the report of the Society. Price 1*l*. 10*s*. per peck.—Sole Agents, Charlwood & Cummins, 14, Tavistock Row, Covent Garden, London.

CHARLES M'INTOSH, F.R.P.S., Landscape Gardener, Garden Architect, &c., Newbank Villa, Murrayfield, Edinburgh. London address, Messrs. P. Lawson & Son, 27, Great George Street, Westminster.

JOSEPH MEREDITH, Garden Architect and Hothouse Engineer, Vine Cottage, Aigburth, near Liverpool. Heating Apparatus fitted up on approved principle. First class references may be had.

NEWSPAPER STAMPED PENNY

INGRAM'S PRINCE OF WALES STRAWBERRY.

J. AND E. SMALL beg to intimate that they are again prepared to supply fine strong Plants of the above fine Strawberry, which is so extensively grown in the Royal Gardens. J. S. exhibited a fine basket at the meeting of the Pomological Society on July 8th from Plants six weeks in bearing. "The fruit exhibited were very large, firm, and full flavoured." See the July report of the Pomological Society. This Strawberry is highly recommended for market purposes, being very prolific and bears carriage well. Mr. Plimley, Market Gardener, of Shepherd's Bush, Middlesex, has authorised me to state that he has proved it to be in every point superior to the Keens' Seedling, which variety he has now ceased to cultivate. Mr. Plimley will kindly answer any inquiry respecting it. Strong and true Plants 7s. 6d. per hundred, and a liberal allowance to the trade.

P.S. Plants of all the leading sorts can also be supplied.

Orders sent to the Colnbrook Nursery, Slough, Bucks.

SEEDLING ERICAS.

OBBATA PURPUREA.—Shape and size similar to its parent obbata, but is suffused with plum colour purple large whorls of flowers of great substance, and continues blooming for many weeks; it is one of the finest Ericas ever seen. Good plants 10s. 6d. to 21s.

MAIDSTONIENSIS.—An excellent variety for exhibition; tube long, colour bright rosy red, extra substance, fine form and habit, quite distinct from anything out. Was awarded first-class certificates in Regent's Park. Fine plants, 5s., 7s. 6d., and 21s.

TRICOLOR EPPSI.—This beautiful Heath is a hybrid of great merit, early and free flowering, large whorls of flowers, colour scarlet shading off to white, and very glossy; a first-rate variety for exhibition; decidedly the finest tricolor out. Was awarded first-class certificates at Chiswick, Regent Street, and the National Meeting. 10s. 6d., 21s., and 42s. 30s. the Set.

Epps's Nurseries, Maidstone.

RARE FERNS.

EDWIN COOLING offers the following very beautiful and distinct FERNS:—

PTERIS ARGENTEA, a dwarf neat-growing Fern, densely silvered on the under side (very rare). 10s. 6d.

*NOTHOCHLÆNA LÆVIS, an elegant and very distinct species. 5s., 10s. 6d.

*NOTHOCHLÆNA HOOKERI, a neat and lovely Fern, the fronds having the appearance of frosted silver on both sides. 10s. 6d.

*ASPLENIUM RACHIRHIZON, an extremely handsome Fern, very rare in cultivation. 21s.

GYMNOGRAMMA PERUVIANA, var. ARGYROPHYLLA, the most beautiful silver Fern, being densely covered with pure white farinose powder on the upper as well as the under side of the frond. 5s., 10s. 6d

ASPLENIUM FILIX-FŒMINA, var., a splendid new multifid variety recently discovered in the Channel Islands. This will be the most beautiful hardy Fern in cultivation. Good plants. 7s. 6d.

*LASTRÆA FILIX-MAS, var. CRISTATA, hardy and very handsome. 2s. 6d.

Those marked * are figured in Lowe's "Natural History of Ferns."—Mile Ash Nurseries, Duffield Road, Derby.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

		Each.—£	s.
For a single plant in 48-sized pot	.. .. ..	0	15
Ditto	ditto, extra strong	1	1
Six ditto	ditto, smaller	3	3
Twelve ditto	ditto	5	0

Knap Hill Nursery, Woking, Surrey.—Sept. 26.

THREE THOUSAND AZALEA INDICA.

WILLIAM BARNES has for Sale the above number of INDIAN AZALEAS, and has no hesitation in saying that for health, shape, and cleanliness, they are not to be surpassed by any collection in this or any other country. All the best kinds are worked upon vigorous healthy stocks, and can be supplied in nearly all sizes and heights, as well as those upon their own roots, which are literally covering the pots with their branches, and are finely set with bloom buds. The following list comprises a small portion of his extensive stock:—

Admiration	Eulalie Van Geert	Mrs. Fry
Adolphe	Extransi	Perfecta elegans
Alba meloir	Fentoni	(true)
,, magna	Gem	Perryana
,, striata	Gledstanesi excelsa	Petuniaflora
Ardens	,, formosa	Princess Mary of
Ascendens	Glory of Sunning	Cambridge
Aurora	Holfordi [Hill	Queen of Perfection
Barclayana	Impératrice Jose-	Queen Victoria
Beali	Iveryana [phine	Reine des Belges
Beauté d'Europe	Juliana	Roi Leopold
Beauty of Reigate	Lateritia alba su-	Rosy Circle
Chelsoni	preme	Ruckeri
Constantia rosea	,, grandiflora	Sir C. Napier
Countess of Stam-	Lawrenciana	Stanleyana
Crispiflora [ford	Leeana	Striata formosis-
Criterion	Louis Napoleon	Symmetry [sima
Delicatissima	Lucens	The Bride
Duke of Devonshire	Magnificans	Trotteriana
Elegans superb	Madame Miellez	Vesta
Empress Eugenie	Maria	Violacea superba

As well as every other known variety worth cultivation.

W. B. would respectfully invite intending purchasers to an inspection of his unrivalled stock, which will give them the opportunity of making their own selections. A great many are splendid specimen plants fit to exhibit at any horticultural show in the world. Prices, which are exceedingly low, can be obtained on application. W. B. would further state that his plants are perfectly free from Thrip (which is almost universal in its ravages), and that purchasers will be supplied with the most effectual method of keeping them ever free from their attacks. Camden Nursery, Camberwell, S.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

BULBS! BULBS!

BASS AND BROWN have received their first and second importation of DUTCH ROOTS in fine condition. The HYACINTHS in particular, which are unusually fine, they have pleasure in offering as follows:—

HYACINTHS.	£	s.	d.
12 choice named varieties	0	6	0
12 very choice ditto	0	9	0
12 extra superb ditto	0	15	0
50 roots in 50 choice varieties	1	10	0
25 roots in 25 ditto..	0	16	0

Extensive and very superior collections of Gladiolus, Early Tulips, Iris, and other Bulbs.

The No. 1. CATALOGUE for the season is now complete, containing Bulbs, Herbaceous Plants, Antirrhinums, Phlox, Coniferæ, select and popular Evergreen and Flowering Shrubs, Hardy Ornamental Climbers, Roses, Fruits, &c., and will be supplied on application.

BASS & BROWN, Sudbury, Suffolk.

NOW READY FOR SENDING OUT.

GEORGE SMITH begs to offer fine strong Plants of the following new and superb Collection of Show GERANIUMS, including the best of the new Flowers sent out in the autumn of 1856, raised by Mr. Hoyle, Mr. Turner, Mr. Beck, Mr. Dobson, and Mr. Foster, at 36s. per dozen, viz.:—

HOYLE'S—Bianca, Agnes, Matilda, Polly, Rose, Raphael, Review, Standard, Marvellous, Viola. TURNER'S—King of Scarlets, Miss Foster, Spotted Gem, Queen of the Fairies, Mr. Beck, Mr. Hoyle. BECK'S—Emperor, Ardens, Florence, Solon. DOBSON'S—British Queen, Alexander. FOSTER'S—Flora and Symmetry. Also a first-class collection of older kinds of the above, and the most choice of fancy, spotted, scarlet, and variegated kinds at a moderate price. Package and hamper free, with plants to compensate for carriage. A Descriptive Catalogue will be forwarded in exchange for one postage stamp.

*** Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders made payable at Holloway, Middlesex.

Tollington Nursery, Hornsey Road, Islington, London.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality*; and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

E. G. HENDERSON AND SON'S

BULB CATALOGUE & REVISED HERBACEOUS LIST

ARE NOW READY, and present an excellent opportunity to Amateurs of making a selection from the choicest DUTCH HYACINTHS, and other BULBS. Great care has been exercised in the compilation of the Lists for the present season, and only such varieties inserted as they can, after repeated trials, recommend with confidence.

A TREATISE ON THE CULTURE AND TREATMENT OF THE HYACINTH has been also added, and copious Notes relative to the Management of other Bulbs, &c. Forwarded post free on application.

NEW PLANTS AND FRUITS.

Messrs. E. G. HENDERSON & SON are now prepared to supply the undermentioned New Plants and Fruits, full descriptions and notes of which may be seen in the present Autumn Catalogue, forwarded post free on application.

GESNERIA (NÆGELIA) CINNABARINA.

It is impossible, by description, to give any idea of the extraordinary splendour and richness of this plant. The colour is a brilliant scarlet vermilion, distinct from that of any other Gesneria. The foliage has a velvety appearance, being covered with bright coloured hair. The flowering season commences in November, and continues till April, a period when flowers are most welcome.

GESNERIA DENSIFLORA.

A shrubby habited plant, giving a profusion of flowers from December to March; colour, a brilliant orange scarlet, with yellow marking in the centre. It flowers in bunches four and six together, on a footstalk 2 or 3 inches in length.

TAPINA (ACHIMENES) SPLENDENS.

This beautiful little trailing plant was discovered by Mr. Triana, in the unexplored parts of the eastern Cordilleras, extending through the extensive country between Rio Meta and Guaviare. The habit of the plant resembles much Achimenes cupreata: being a plant of easy culture and free growth, it may be trained in any form that fancy may dictate. The flower is a most beautiful shade of scarlet, seldom found, and not superseded by the brilliancy of any scarlet Geranium. Flowering season from October to January, in which months trailing plants for baskets are so desirable.

MONOCHÆTUM ENSIFERUM.

Among greenhouse plants of late introduction, none will equal in usefulness this lovely plant, the most elegant of Melastomaceæ. It forms a compact spreading bush 12 to 18 inches high, leaves small and plentiful, glossy, of lanceolate form; the bright rose flowers, produced in profusion, are large; size of Chironia glutinosa; the deep scarlet stamen and anthers, which are very large and of a peculiar form, give a most striking and brilliant appearance to the flower. It makes one of the most gay plants for the winter months, February and March.

NEW HYBRID BOUVARDIAS.

Mr. Pasons, of Brighton, from whom they purchased the entire stock, obtained these hybrids from two of the finest species, viz:—B. longiflora, hybridised with leiantha; the former, a pure white, is well known as one of the most chaste and elegant of flowers; the latter, a brilliant scarlet, and one of the best of its class, producing in abundance large trusses of flowers throughout the summer and autumn when planted out in the flower garden, whilst it is equally attractive if cultivated in pot, as it blooms continuously through the autumnal and winter months. The seedlings possess all the advantages of the last-named variety; free growth, robust habit, with large and ample foliage. The flowers partake the character of B. longiflora in having large sepals. They vary in colour, from blush to scarlet, with large trusses or corymb, consisting of 30 or more flowers,—not unlike a bunch of Ixora bloom. One other feature that will render these flowers very useful and desirable for bouquets is the length of time they will keep when cut and placed in water. They appear as firm after 10 days as when first cut, and still retain their brilliant and unique colour.

ROSALINDA.—Good habit, large bright salmon flowers, fine compact truss; a beautiful variety	7s.	6d.
LAURA.—Fine truss, pale pink or flesh colour, pointed broad foliage, spreading habit	7	6
ORIANA.—Fine habit, large bright scarlet salmon, good foliage	7	6
HOGARTH.—Strong robust habit, very large fine truss, bright scarlet, fine foliage, measuring from 4 to 5 inches long and 2 wide	10	6

(The above Plants are Figured in the "Illustrated Bouquet")

NEW WHITE SHOW GERANIUM.

EMPRESS EUGENIE.—The entire stock was purchased by Mrs. Story, and Messrs. E. G. HENDERSON & SON can with confidence say that it will prove the most beautiful of all White Geraniums. Excellent habit, free flowering, foliage distinct from any other. Colour of flower pure white, with clear spot of bright rose or cherry in the upper petals, form first-rate, truss large and compact, habit good. A certificate of merit was given to it at the Exhibition of the Royal Botanic Society, Regent's Park. (Figured in the "Illustrated Bouquet.")

NEW DELPHINIUM—MONTMORENCY.

Light blue, colour more brilliant than D. Hendersoni, with large conspicuous white eye, long truss, and fine form flowers (September and October). 7s. 6d.

NEW CYCLAMEN—ATKINSI ROSEUM.

A pale rose variety of Atkins' beautiful Cyclamen will prove a pleasing addition to this early flowering section. Strong flowering bulbs in September, each 10s. 6d.

NEW CINERARIAS for OCTOBER.

PRINCE OF ORANGE.—Bright plum crimson, fine formed flower, petals of good substance and cupped, habit dwarf. 7s. 6d.

PRINCESS MARY.—White circle surrounding a grey disc, with heavy bordering of deep plum crimson; large flower, and very showy. 7s. 6d.

DUCHESSE DE BRABANT.—Deep rich damson or plum, black disc, large fine petal. 7s. 6d.

NEW FANCY GERANIUM for OCTOBER.

CLARA NOVELLO.—Upper petals rich rosy crimson, margined white, lower petals suffused with delicate rosy crimson, throat pure white, form beautiful and first class, truss large and full, habit excellent, one of the best in cultivation. 15s.

STRAWBERRIES.

DUC DE MALAKOFF.—Introduced by one of the most successful and enthusiastic cultivators of the Strawberry in France. This variety has been pronounced by competent judges to be of superior excellence, very distinct from any other sort, raised from the old Chilian. Fruit of very large roundish shape, of enormous size; colour beautiful dark red, flesh solid, juicy, and highly perfumed. It is one of the finest bearers ever known, and a very good forcer for a second crop, but its principal merit consists of being in flavour far superior to any of the very large sorts in cultivation, which are generally of a very inferior flavour. Strong well-rooted plants are now ready.

The ADAIR STRAWBERRY.

INCOMPARABLE (BLAKE'S).—A new and valuable addition to the choicest collections.

MADAME VILMORIN.—A first-rate fruit, of large size, fine colour, and exquisite flavour; a very late and valuable variety.

SIR CHARLES NAPIER.—A sort of very easy culture, producing abundantly the handsomest and best flavoured fruit known; forces well after Keens' Seedling.

FRAGARIA LUCIDA (new species from California), with leaves of a thick leathery substance, shining above, woolly beneath.

MAGNUM BONUM RASPBERRY.—Extra fine yellow.

BOWOOD MUSCAT GRAPE.

GOLDEN HAMBURGH GRAPE.

☞ *The* SECOND PART *of the* "ILLUSTRATED BOUQUET" *may now be had on application* to Messrs. E. G. HENDERSON & SON, *post free*, 10s. 6d.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

FINE ROSES FOR THE MILLION.

NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12s. per 100; or 2s. per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

A. VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to inform Amateurs and the trade his new general CATALOGUE is just published, containing all the best Continental novelties, and many interesting useful plants. A. V. G. begs to recommend particularly his Collections of Camellias, Indian and Ghent Azaleas, Hardy and other Rhododendrons, Liliums, and Herbaceous Pæonies, which are cultivated to a great extent in his establishment.—May be had on application to his agent, Mr. R. SILBERRAD, 5, Harp Lane, Tower Street, London.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

VIOLETS.

R. SHACKELL begs to offer healthy strong plants of his beautiful Seedling VIOLET "Russian Superb," at 12s. per dozen. Strong plants of Neapolitan Violet, at 4s. per dozen, or 1l. 5s. per 100. Five other varieties at 4s. per dozen. Old Russian, 10s. per 100. Hamper and package included.—Address ROBERT SHACKELL, 5, Broad Street, Bath.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10s. 6d., 15s., and 21s.; four Plants for three to the Trade.—Maidstone, Sept. 26.

CATTELL'S EARLY BARNES & RELIANCE CABBAGES, ALSO DEPTFORD, PARAGON, KING, IMPERIAL, &c.

JOHN CATTELL has now ready Bedded Plants of the above well known best kinds for early spring cutting at 5s. 6d. per 1000; also Red, for pickling, of first rate stock, at 1s. per 100 or 7s. 6d. per 1000. No charge for crates, baskets, or packing. Packages of 5000 or more are delivered to London and to the Edenbridge Station of the South-Eastern Railway, carriage free. A remittance or reference to accompany orders from unknown correspondents.—Nurseries, Westerham, Kent.

SEEDLING GERANIUM "Larkfield Rival," a pure white with small pink spot, each truss from 6 to 11 large flowers of a lasting nature like the fancy varieties; a most abundant bloomer, being a mass of flowers for several weeks; was advertised when in flower, and all who saw it considered it the best white in cultivation. Stout plants, 7s. 6d.; extra strong 2-year old, 15s. each.

ROSE "Isabella Grey," grafted plants, from 9 to 12 inches, or small on own roots, 5s. each.

ISAAC DAVIES, Larkfield Nursery, Wavertree, near Liverpool.

MESSRS. J. AND H. BROWN offer, and will forward to any part of the kingdom,

25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, on their own roots	20s.	0d.
25 Azaleas, do., American varieties, do.	16	0
12 Hardy Rhododendrons, scarlet, rose, and white ..	12	0
Hardy scarlet Rhododendrons, 2 feet .. per doz.	15	0
Hardy Heaths, Lediums and Kalmias	6	0
Greenhouse Azaleas, new varieties per doz. 12s. to	15	0
Camellias, choice sorts with buds .. per doz.	30	0
50 choice Greenhouse Plants, one of a sort	45	0

Albion Nursery, Stoke Newington, London, Sept. 26.

AZALEA INDICA

THE GREATEST NOVELTY OF THE SEASON IS

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10s. 6d. and 21s. A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON can now supply the following excellent varieties, all true to name and well rooted, viz., Ne Plus Ultra, very large and early, 30s. per 100; Excellent (really so), large and a great bearer, 30s. per 100; Sir Harry, 20s. per 100; Ingram's Prince Alfred, 20s. per 100; Filbert Pine, 10s. per 100; Kitley's Carolina superba, 10s. per 100; Sir C. Napier, 10s. per 100. All the older sorts, 5s. per 100. For Early Sorts see Advertisements in August last. Post-office Orders payable at Yarm.

Egglescliffe, near Yarm, Yorkshire.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5s. to 21s.

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

HYACINTHS, CROCUS, TULIPS, ETC.

CHARLES ALEXANDER, NURSERYMAN and SEEDSMAN, 50, West Register Street, Edinburgh, respectfully intimates the arrival of his Third Importation of the various sorts of DUTCH FLOWER ROOTS. The HYACINTH BULBS are unusually large and sound, comprising many fine new ones, with all the old favourites. Inspection invited, and early orders solicited. Catalogues free on application.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

HYACINTHS, CROCUS, NARCISSUS, EARLY & LATE TULIPS, JONQUILS, ANEMONES, RANUNCULUS, &c.

TIMOTHY BRIGDEN, SEEDSMAN and FLORIST, 10, Railway Arcade, London Bridge, begs most respectfully to inform his Friends and the Public generally that he has just returned from Holland, having made a splendid assortment of the above ROOTS.

T. B. further begs to state that having selected them himself he can guarantee them finer than any other house in the kingdom. Priced Catalogues may be had upon application. All orders from unknown correspondents must be accompanied with a Post-office Order.

GLADIOLUS BRENCHLEYENSIS—the most splendid flower of the tribe, and easy of culture.

GLADIOLUS GANDAVENSIS, and

TIGRIDIA CANIARIENSIS—MORGAN'S pure yellow and richly spotted Tiger Iris.

JOSEPH MORGAN, Torbay Nurseries, Torquay, holds a large Stock of the above, and respectfully offers to supply strong flowering Roots on and after October 1, at reduced prices.

A Priced CATALOGUE OF BULBS, embracing a select list of J. MORGAN'S collection of GLADIOLI, will be sent free on application. The Trade supplied on advantageous terms.

STATICE HALFORDI in 4 inch pots.

Horticultural Establishment, Torquay, Sept. 26.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—Sept. 26.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

THE BEST TWELVE HYACINTHS.—THE BEST HYACINTHS IMPORTED BY SUTTON & SONS, Seed Growers, Reading, can be supplied at 10s. 6d. per dozen by name. Also mixed DUTCH HYACINTHS (all Double) for Beds and Borders, at 4s. per dozen, and every other kind of Bulbous Flower Roots at low prices, as see Catalogue, which may be had gratis, post free.

The Gardeners' Chronicle.

SATURDAY, SEPTEMBER 26, 1857.

WE learn that a letter signed "J. E." which found its way into our columns of the 12th instant is regarded by the friends of Mr. FLEMING, of Trentham, as a very unfair attack upon him. We must own that it did not strike us in that light; but upon reading it more carefully we see that it bears an interpretation which we think the writer himself did not contemplate.

"J. E." says that a certain dwarf white Dahlia, called White Zelinda, has been largely sold upon Mr. FLEMING's guarantee as a novelty, although it is in reality HEALE's Empress of the Whites. This assertion is certainly not supported by fact. Upon turning to the advertisement we find Mr. FLEMING's statement to be as follows. "Dwarf White Dahlia, 2½ feet high, a remarkably free and early bloomer, of beautiful form and habit, at first named Dwarf Queen, now best known as White Zelinda or Dwarf White; 300 plants of this superb bedding Dahlia were in full bloom here from the middle of July till November last year, and were seen and admired by hundreds of persons visiting these Gardens." In this not one word is said about novelty, and it was unjustifiable in "J. E." to misrepresent so plain an announcement, especially when he must have known that Mr. FLEMING's high character placed him above any such proceeding. It is true that the advertisement is headed "New Dwarf White Dahlia," but that announcement came from Messrs. ARTHUR HENDERSON and Co., against whom alone "J. E." should have brought his charge of being concerned in "the questionable practice of renaming an old variety in order to sell it at a high price."

But, let us ask, is even this part of "J. E.'s" statement true? The history of the plant is briefly this. Mr. PRINGLE, of Stoke Rochford, near Grantham, sent the Dahlia to Trentham without a name. Mr. FLEMING, finding it extremely useful along with the old established favourite dwarf Dahlia called the Purple Zelinda, employed it very largely at Trentham, where the visitors, who were much struck with its beauty, called it the White Zelinda, and under this name it became much talked about. As to the high price at which Mr. FLEMING is charged with selling it, we have ascertained that here "J. E." is as wrong as in the other parts of his complaint. The price at which it was sold by him was ninepence a plant. It will thus be seen that in every one of his charges "J. E." breaks down. And now for its being, as this correspondent stated, HEALE's Empress of the Whites. Had it been so, "J. E.'s" statement would not have been justified, for after all the public interest is more consulted by sending out plants of good quality than in inquiring into the often unascertainable rights of seedling raisers. But we are enabled by Mr. PRINGLE, who sent this Dahlia to Trentham, also to contradict the assertion about HEALE's Empress. His letter is as follows:—

"Barkwith, Sept. 17, 1857.

"I see in the *Gardeners' Chronicle* an attack on Mr. FLEMING respecting the White Zelinda Dahlia, which I think was quite unnecessary, as through Mr. Fleming a most valuable plant for the flower garden has been made known to the public, owing to the use he has made of it in the gardens of Trentham, and as to its parentage he need not be ashamed of owning that. I raised it in 1847 (pray observe the date), and observing its dwarf habit to continue year after year, I kept it in my own hands until 1851, when I gave Mr. FLEMING some roots of it, from which stock all the plants sent from Trentham have been raised. I proposed the name of Rochford Queen, but Mr. FLEMING said the visitors to Trentham preferred the name of 'White Zelinda,' and I sanctioned that change, as no person had had it by the former name. As to its being 'HEALE's Empress of Whites,' I think that some out of the numerous nurserymen, gardeners, florists, and amateurs who visit Trentham Gardens year after year, and had an opportunity of seeing the immense stock of plants there growing would have detected it, if it really had been that variety, but I never grew 'HEALE's Empress of Whites,' so whatever similarity there may be between them, they are different varieties, raised by different persons, in different years, and each worthy of a different name. "JAMES PRINGLE."

Let us hope that "J. E." will in future be more guarded in his language and more careful in his statements.

WE find the following important statement concerning GUTTA PERCHA in the "Pharmaceutical Journal":—

"From the reports of Mr. E. HIGHTON on the state of the underground wires of the British Electric Telegraph Company, published in the Journal of the Society of Arts, it appears that wherever the wires had passed near the roots of Oak trees they had failed, whilst in other parts, only a few yards distant, they were perfectly sound. On examining the soil a whitish looking plant was detected, resembling the spawn of the Mushroom, or some other fungus: the plant had spread over and around the wooden trough, covering it with a whiteness resembling whitewash, and wherever it had touched the Gutta percha wires the Gutta percha was rotten: a yellowish-green fungus, of which this plant was supposed to be the spawn, was found growing luxuriantly under the Oak, but not under any other tree. The plant possesses a powerful odour, at once detected on breaking the soil. The presence of the plant and the decay of the wires were found coincident; the absence of the plant and a most perfect state of the wires coincident also. It was found that the wires in one locality passing under two Oak trees were not injured; in this case no fruit of the fungus could be found in the soil, although plentiful under other Oak trees in the neighbourhood. With reference to the decay of Gutta percha in iron tubes it was found at Winslow that the wires through the entire lengths of the iron pipings were in a state of decay, whilst the wires in the wooden boxing were found perfect. The decay in this case appears to be produced by a cause entirely different from that under the Oak trees. The following is the result of Mr. HIGHTON's investigation:—With reference to my experiments on the action of the mycelium of a fungus on Gutta percha, I have for some months been growing one of the class called *Agaricus campestris* in contact with Gutta percha. I find as the result that the mycelium of this fungus does rapidly destroy the insulating properties of Gutta percha; and in

fact it appears to decompose entirely this vegetable gum. I send a sample showing the decay. I am trying further experiments, an account of which I hope ere long to lay before the Board. A few days ago I examined a spot near Canterbury, where the Gutta percha of the wires had entirely decayed. The soil was pure, clean, sharp, red sand, and there appeared nothing in such soil to induce decomposition. But at that spot I found a young Oak tree, which could only derive its nourishment from the ground through which the wires passed. And upon these roots, both living and dead, I found what I believe to be the mycelium of a fungus, the same as that which I discovered under the Oak trees at Berkhampstead. I send with this some of those roots upon which the fungus can be distinctly traced. The odour arising from that fungus appears to be identically the same as that from the fungi at Berkhampstead. Ten yards distant was also another young Oak tree, and at that point the Gutta percha of the wires had also decayed. I will again communicate with the Board when I have made further investigations, but at present I feel bound to say that the presence of the mycelium of a fungus, and the decaying of the Gutta percha covering of the telegraphic wire, being so constantly associated together, I can come to no other conclusion than this—viz., that the mycelium of a fungus will cause decomposition in Gutta percha, and probably in most other vegetable productions."

It also appears that Dr. O'SHAUGHNESSY found the telegraphic wires sent out to India, even when first unpacked, quite worthless in consequence of chemical changes that had occurred in the Gutta percha used for coating them.

This is a matter of interest to all cultivators, considering the large quantity of Gutta percha now used for various purposes in gardening and farming. It is clear that the substance, however valuable while sound, is very far from being so imperishable as has been supposed.

SOME people have a rather extraordinary idea of horticultural liberality, and they certainly lose no opportunity of profiting by it. The demands made upon both private and public gardens by persons of this kind exceed belief; and what is not a little curious the modest applicants are now and then indignant when they find their demands met with a civil No. One of the most striking cases of the sort is now before us, in the shape of an application made to an establishment in this country by a person living in the South of France, of whom nothing whatever is known. This gentleman, who is not acquainted with even the name of the director of the establishment in question, but supposes a Dutch traveller to be at the head of it, writes to say that he is *going to take out a patent* for a sort of plant-case to be heated with hot water, and he begs to be immediately furnished with Orchids, Gesnerads, Lycastes, Cattleyas, Victoria regia, Nepenthes, Nymphæas including gigantea, Pine Apple plants, Vanilla, Sarsaparilla, &c., in order that he may experimentalise upon them.

Can cool mendicancy go further?

New Plants.

209. SEDUM FABARIA. *Koch. Synops. Fl. German.*, 284.

The Sedum Telephium is a well-known hardy half-succulent perennial plant, with pale purple flowers, an erect fleshy stem, and oblong broad flat slightly indented leaves. That to which the present name has been given is a far handsomer and larger species, with pale lilac flowers. Its truss (cyme), in a specimen for which we are indebted to Captain Trevor Clarke, F.H.S., is six inches across; the stem is nearly two feet high, and an inch in diameter at the base, while the leaves which grow in whorls of three are 3 inches long and 1¾ wide. The stamens are twice as long as the narrow very sharp-pointed petals. Whether or not it is really a distinct species from S. Telephium is a Botanical question; from a horticultural point of view the two seem extremely different; and when such men as Koch and Grenier and Godron accept it as a species gardeners may very well acquiesce. The last-mentioned writers distinguish it by its petals being spreading not recurved; its stamens inserted above the lower third of the petals, its ovaries shorter without any dorsal furrow, and its leaves narrowed and more tapering into the petiole. It is said to inhabit mountainous places on the Alps, Pyrenees, mountains of Auvergne, Jura, the Vosges, above the limits of both Sedum Telephium and maximum.

NEVER BUY A PLANT THAT YOU HAVE NOT SEEN IN FLOWER.

Now, in saying this, I do not mean to bring any slur upon those who sell, but there are many reasons which make the opinion of others unsuitable for one's own guidance. In the case of seedlings it is very difficult (as I should think every one who has ever raised a seedling will acknowledge) to determine that it is good for nothing. "Our geese are pretty sure to be swans," and one does not like to condemn one's own children. It is like a mother over an ugly child; she looks at it day by day; each day the ugliness seems to wear off, until at last she is fully persuaded it is the "flower of the flock." "Come here," you say to a friend, "what do you think of that Pansy; fine bold eye, hasn't it?" "Ye-e-s," drawls out your friend. "Don't you really think so, then?" "Oh, yes! bold eye enough; but don't you think that lower petal rather too small?" "Oh, dear, no!" is your indignant reply, a slight qualm at the same time coming over you. Another comes in, and pronounces it "capital;" you think him a much better judge, and wonder what No. 1 could have been thinking of:—you always thought him a bit of a muff. You send it off to the editor of some journal, one that you know to be pretty lenient, and you get a flattering notice. You now venture a step further, and submit it to Mr. Turner's critical eye, and read on the cover of the *Florist*:—"*Pansy*. M. D. Good for nothing; lower petal too small." No. 1 was right, then, after all. You are horribly irate, as irate as the mother would be that her ugly baby didn't get a prize at the baby show for beauty. But the case may be different; and although your Pansy be defective some one will have it with its fault, and a flower no way in advance of others already out is thrown on the market. It may have, too, a better habit as a seedling, and this may be a reason for a nurseryman taking it off your hands. Again, some persons only look at a flower for exhibition purposes; they want, as in the case of Verbenas or Chrysanthemums, to show cut flowers, and one, admirable for such purposes, is highly praised; you buy it; but, alas! it won't do for you. Take, *e. g.*, King of Sardinia Verbena; any person who wants to show cut blooms will probably grow it, as it supplies him with a colour he is short of, and admirable for contrast; but I want it for display, and am grievously disappointed to find it a weak, weedy thing, sure to spoil a bed whenever it is put in, and had I paid 5*s.* for it, should perhaps have got up to boiling point on the subject. Again, tastes vary: what pleases my neighbour will not please me; he wants large flowers—I neat ones; he is fond of sombre colours, I of bright ones, and so on; therefore, taking all things into account, never buy anything you have not seen. Even with this rule, one may be *done*. I told a story of a friend last month—let me tell one against myself now. Some three years ago I was at Lincoln, and going into a nurseryman's there, I saw in his greenhouse some capital Roses in pots, and among them two of Cloth of Gold, about two feet high, with a fine cluster of bloom. Oh! thought I to myself, here is the grand secret, here is the philosopher's stone. I looked at it; "What is this budded on?" "The Celine." "Does it flower freely on it, then?" "Oh, we do several every year, and never miss." And so, my prize carefully packed in brown paper, off I marched to the railway. With what jealous care I guarded it! How pleased I was when fellow-travellers admired it, those only can tell who have had Cloth of Gold in bloom. I reached home, and detailing my travels to my Chrysanthemum friend, of course the grand feat of Cloth of Gold in bloom was mentioned. With what pride I stepped back and said, "There, look at that!" I believe his mouth perceptibly watered at the sight. But alas! "a haughty spirit goeth before a fall." My Rose never bloomed afterwards. I turned it out of the pot; it grew for a while, and then died. I then recollected I had never asked how it *continued* blooming, and thus raised up a grand laugh against myself; for whenever I say anything about Mr. S.'s visit, I am met with the reply, "What about the Lincoln Rose?" *Turner and Spencer's Florist, Fruitist, and Garden Miscellany for September.*

VEGETABLE PATHOLOGY.—No. CLXXII.

671. REMEDIES OF DISEASE. *b. Doubtful.* *Rational.—The ultimate result of experiment is for the most part more or less uncertain. If, however, it rests upon rational grounds, and springs from knowledge, it is at the least hopeful. Sulphur is, for instance, an approved remedy in the case of white mildew, where the mycelium is for the most part exposed to its action. Where the mycelium, as in the Potato, runs amongst the tissues, it is difficult to bring it in contact with it. The proposition, therefore, to apply sulphur to the cut tubers when planted rests upon rational grounds, whether it may lead to any good result or not. Experience, again, has shown that the application of the same remedies which are effectual against bunt does not succeed against smut or mildew. In bunt the spores go to the barn with the seed, and the poison is at once applied; in the other cases they are either altogether dispersed, or though carried home upon the straw of such a nature as not to adhere readily to the grain.* If then a rational remedy is to be adopted it must be something which will act upon the spores in the field, and not upon the grain. All other attempts will be sure to fail. Plants, again, from original constitutional weakness or from temporary causes acquire a yellow unhealthy hue, and if left to themselves will not recover. The causes of such a chlorotic condition may not be strictly the same with those which produce an analogous condition in man. It is, however, scarcely irrational, in the absence of correct means of comparison, to apply the remedy which in animal pathology is often attended with such favourable results, and to use salts of iron against vegetable as well as animal Chlorosis. The result of such treatment is still uncertain, but the treatment cannot fairly be charged with folly.

* It may be objected that a few late ears infested with smut, which have not burst through the sheath, may be carried home with the crop. We know that this is sometimes the case, but it is not so common as to be of material consequence in the question.

672. **Empirical.—A large class of supposed remedies rests however upon no rational grounds whatever. When the cholera was first prevalent almost every conceivable substance was tried in the vain hope of hitting upon some specific remedy. Almost the only success however which has been obtained in the treatment of this formidable disease, has been achieved from a study of its nature and symptoms. As might have been expected all other efforts have been useless. Blight compositions are for the most part doubtful in their results, because they profess to treat diseases of a very different nature by the same remedy. Such remedies are necessarily empirical, and even where the expense is not an object may lead to results worse than the original disease. The mere loss of money in the first instance may be a minor consideration; still where the effect is not absolutely certain, and where the treatment has been purely empirical, some rational grounds may exist for occasional success. Salt is often for instance used as a remedy against Onion mildew. There is no certainty that the salt which promotes the growth of the Onion may not also promote the growth of the mould upon which the disease depends, but at the same time the increased vigour of the plant due to the use of salt may render it more able to resist the attacks of the parasite. So, again, in the disease called clubbing, the use of wood-ashes is empirical and uncertain, and yet from the excess of nitrogenous matter in the diseased roots, it is very possible that the potash may be useful in repressing some chemical tendency to store up nitrogen. *M. J. B.*

OBSERVATIONS ON THE PLANTS WHICH FORM THE BOGS IN IRELAND.

BY D. MOORE.

(Read before the British Association at Dublin, Aug., 1857.)

ON reading the different reports of the Commissioners who were appointed to examine into and report on the nature and capabilities of the bogs of Ireland, the idea will occur to those acquainted with the matter, that ampler details of the plants whose growth and decomposition constitute the various kinds of bog therein mentioned would have rendered those able reports more interesting, particularly in a natural history point of view. But surveyors are not often botanists, and probably do not consider it any part of their duty to enter into such minutiæ. Besides, a good deal has since been written at various times on the subject of Irish peat bogs, without any one having filled up the hiatus I have alluded to, so far as I am aware. The case is different in Dr. Mac Culloch's report on the peat bogs of Scotland, who has paid particular attention to the plants which form the different kinds of turf enumerated by him, and has based some of his principal reasonings on the formation by peat from his knowledge of the slow or quick growth of those plants. It therefore occurred to me, that in a country like this, which has so large a portion of its surface covered with bogs, and where bog labour is a very considerable source of productive economy, a short paper on the plants which enter principally into the formation of our peat bogs might prove an appropriate subject for being discussed at this meeting of the British Association. The different varieties of bog which have been chiefly distinguished by writers on the subject in this country are red bog, brown bog, and black bog, which although not very scientific, yet being the names by which they are best known, I shall adhere to in the following details, and first as to red bog.

Red Bog.—The differences of colour and consistencies of matter of which the substances are composed depend chiefly on the localities where they are produced, according as they vary in different degrees of moisture, temperature, and altitude, whereby the growth and decomposition of vegetables are affected. No doubt that iron and some other mineral substances which are generally found in peat bogs affect the colouring to a small extent, but the former combination of causes produces the effect principally.

By far the greater portion of our extensive bogs belong to this variety, which is the least valuable for fuel, and generally varies in depth from 10 to 35 or even 40 feet. Those immense deposits of vegetable matter appear to have been accumulating during many ages in the same positions and under nearly similar circumstances as we find them at the present time. It may very fairly be inferred that the processes of growth and decomposition of plants are now much slower than they formerly were, owing to the greater elevations the surfaces of the bogs have attained above the levels of the drainage rivers, and the more general drainage of the surrounding districts; but in the absence of all trustworthy experiments on the growth of bog in Ireland this only amounts to conjecture. When passing over bogs I have frequently inquired of turf cutters when the turf was cut out of holes I saw partially filled with soft vegetable substance, and if some of their statements can be depended on, that soft half decomposed matter will accumulate to the depth of one foot in five years, which we may suppose will ultimately become compressed to at least one-fourth part of that bulk.

Wherever those bogs are of any considerable extent, and remain in nearly their natural state, without deep

cuttings having been made through them to drain off the surface water, a series of depressions will invariably be found on their surface, though not perceptible to the eye when looking over the apparent level expanse of wild waste they form. It is only when one enters on them this is found out, by sinking deeper and perceiving the whole surface shake for many yards around. When covered over with vegetation the soft parts are called flows or quagmires, but those depressions frequently consist of a series of deep water holes, which are probably for the most part remaining portions of large lakes yet in process of being filled in with vegetable debris. These quagmires may, and no doubt often do, result from springs, as they frequently occur at nearly the culminating points of the bog.

Taking those flows and partially filled up water holes into consideration, with the elevated surrounding districts which generally prevail in the neighbourhood of large bogs, the conclusion that has been mostly come to is, that those great natural basins were at a former period either lakes which have been gradually filled in or wild morasses. The small quantity of wood found in them, and that only near the edges, favours the hypothesis of lakes; besides the kinds, that are generally Birch and Willow, with a little Alder, such as grow on very wet places at the present time. The plants which chiefly enter into the composition of red bog may be conveniently divided into two sections, namely, those which grow on the higher and drier spots of the present surface and those which flourish in the marshy places, and in and near water holes. On the former of these, Narthecium ossifragum, Eleocharis cæspitosa, Carex stellulata, Schœnus nigricans, Erica tetralix, and Myrica gale, may be said to form the framework which bears up the mass, whilst Sphagnum cuspidatum, Sphagnum acutifolium, Sphagnum cymbiforme, and Sphagnum squarrosum are the bog Mosses which fill up the interstices, and ultimately become decomposed along with the phanerogamic plants already enumerated. On the marshy parts of the bog Menyanthes trifoliata, Comarum palustre, and Eriophorum angustifolium mix their decumbent and running stems over the surface of water, which soon become matted together by the growth of their different roots, and capable of bearing up Vaccinium Oxycoccus, Narthecium ossifragum, and Sphagnum acutifolium, which latter is generally the species of bog Moss found on the wettest parts, and admirably adapted for filling up water pools, in consequence of being thickly set with pendulous branches, which secure abundant supplies of moisture, as they take it up by capillary attraction; besides their annual growths are less destructible from moisture than those of the other species. In this way bog is soon formed.

A different set of plants contribute to fill up the deep water holes and lakes. Nymphæa alba, Nuphar lutea, Potamogeton natans, Potamogeton rufescens and lucens, Hippuris vulgaris, Myriophyllum spicatum, and Myriophyllum verticillatum are the species which mostly float in these localities, and supply vegetable matter by the decay of their stems and leaves, on which the roots of the Nymphæas are enabled to elevate themselves nearer to the surface, and prepare for the growth of Menyanthes, Comarum, &c. The accumulation goes on very quickly in limestone districts, where the larger species of Chara abound, which have their stems and branches thickly incrusted with a deposit of calcareous matter. The debris resulting from the decay of Chara hispida alone, where it grows freely, would soon fill up a shallow pool, preparatory for the growth of plants higher in the scale of vegetables.

Along the margins grow species which fill in by their creeping rhizomes and stems—Typha latifolia, Sparganium ramosum, Carex ampullacea, and Helosciadium inundatum are the prevailing kinds on deep bog, whilst Phragmites communis, Phalaris arundinacea, Scirpus lacustris, Eleocharis palustris, Iris pseudacorus, and Carex stricta grow more abundantly on the margins of lakes, and wherever there is slow running water. By the growth and decay of those plants in the localities specified, along with a few others of less importance, the greater part of the red bog in Ireland is now being formed, and so far as I have been able to judge from turf cut at great depths, nearly the same species appear to have formed it from the bottom upwards, though, probably, at different ratios of growth from that they now do. Equisetum fluviatile, Potamogeton polygonifolius, Potamogeton plantagineum, Carex teretiuscula, Cladium mariscus, Alisma plantago, Calluna vulgaris, Rhynchospora alba, Drosera rotundifolia, longifolia, and anglica are the other plants which chiefly deserve notice for the comparative proportions they enter into in the formation of this variety of bog, which according to the report of the Commissioners appointed to report on the nature and extent of the Irish bogs covers upwards of a million of English acres, more than two-third parts of which is westward of the river Shannon.

Brown Bog.—The kind thus named appears to be only a state of the red, differently coloured by mineral substances, or from the matter being in a more decomposed and compressed state, owing to its occurrence at greater depths. I shall therefore not dwell more particularly on it, but proceed to consider the kind called black bog, which next deserves attention from its extent and usefulness. It sometimes occurs in isolated patches among the red and more fibrous bog, and appears from the solidity and darkness of colour of the matter of which it is composed to have been formed on sites of small lakes, which have been slowly and gradually filled up by the decomposition of such floating plants as are now forming matter to fill up the water holes on flow bogs, viz., Nymphæas, Potamogetons, Charas, &c. That found at great depths resting on the bottom, and sometimes nearly as solid as coal, results from age and compression, and may have been formed by the same plants as the red bog. By far the greater portion of black or turbary bog seems to have accumulated on the sites of ancient forests, which either covered over large portions of the country, or skirted along the margins of morasses, as is evident from the number of roots and trunks of trees found in it.

It is the most valuable for fuel, owing to the large quantity of woody matter it contains, and varies in depth from 3 to 20 feet or more. The plants which are now growing on the surface and appear to have been those which formed the principal part of the matter the mass consists of, are Calluna vulgaris, Erica tetralix, Andromeda polifolia (which latter only grows on bogs in the central counties of Ireland), Juncus effusus, Juncus conglomeratus, Juncus acutiflorus, Juncus uliginosus, Eriophorum vaginatum, Molinia cœrulea, Aira cæspitosa, and Pteris aquilina. These combined constitute the woody and fibrous portion, whilst the bog Mosses Sphagnum cymbiforme, Sphagnum squarrosum, Polytrichum commune, with several species of Hypnum and the Lichens Cenomyce rangiferina and Cenomyce uncialis form the greater part of the soft spongy portion, which retains moisture and ultimately consolidates into turf. A few more species of Grasses besides those already mentioned also grow on this kind of bog, such as Aira flexuosa, Agrostis alba, Triodia decumbens, Holcus mollis, and Holcus lanatus. The trunks of trees which often occur in such abundance on this kind of bog consist of Scotch Fir, (Pinus sylvestris), Oak (Quercus robur?), Birch (Betula alba), Alder (Alnus glutinosa), and Hazel (Corylus avellana). The Oak is found for the most part near the margins of the bog, with the roots resting on the clay or marl bottom, whilst the Firs extend further towards the centre, and their roots generally rest on several feet of bog, thus affording proof of a considerable deposit of vegetable matter having taken place before they vegetated on it. Judging from the roots and trunks found, the trees appear to have grown to a large size, when by natural decay, or probably by storms, and often by fire, they fell and became covered over by the gradual growth of the bog, until sufficient matter accumulated for seedling plants growing over and above them. In this way the Pines appear to have died out, and to have been replaced by younger plants, according as the bog increased in growth up to the present surface, there still being a few surviving trees of the ancient stock growing on the Earl of Arran's property in the county of Mayo. The finding of those roots and trunks at different elevations, the one frequently placed above the other, has led some persons to suppose there have been distinct and successive growths of those forests, some of which consisted partly of species of trees not found now in Ireland, but, so far as my investigations have gone, I have not perceived anything that could warrant such a conclusion being come to.

It is stated by Mr. Babington that the late Professor Don referred some cones sent to him from Irish bogs to Pinus Mughus, which circumstance has been quoted by M. De Candolle in his late work, "Géographie Botanique," but those who are best acquainted with the varied appearances of the cones of the common Scotch Fir, as they grow on contiguous trees in the same forest, will consider the instance noticed as only very slight proof of Pinus Mughus ever having formed part of the timber found in our bogs. Although it appears to be a settled fact that the Norway Spruce, Abies excelsa, once grew in England, where it died out and has not reappeared in a natural state, there exists no proof of that species ever having grown in Ireland. The Irish bog formations would seem to be of a more recent date than the time of the glacial epoch of geologists, excepting probably that of Lough Neagh, and it would be very hazardous to state what particular species some of the fossilised wood belonged to which is found there. Abundance of the common Yew and some mountain Ash are frequently found in those bogs at great depths under the surface, both of which grow naturally in many parts of Ireland at present. Willow, Holly, and the common White Thorn are the only other kinds of trees whose trunks are found of any considerable dimensions in our bogs, and they all grow naturally on those curious drumlins and eskars which occur so frequently near bogs.

A variety of compact black bog is to be found at a higher level than any of the former kinds mentioned. This covers large tracts on the slopes of the mountains at considerable elevations above the sea level, and affords excellent turf for burning. It seems to have increased very slowly, especially where the drainage is free, but in the level basins where water lodges it is frequently of great depth, and increases fast. The plants which are now growing on the surface, and appear to have mainly contributed to form the peat on the latter are Juncus squarrosus, Eleocharis cæspitosa, Calluna vulgaris, Erica tetralix, Nardus stricta, Carex stellulata, Carex cæspitosa, with the Sphagnums and Lichens already specified, and Jungermannia juniperina in the southern and western counties, all of which mix with the woody branches of the Heath and running roots of the Junci, causing them to decay into a mass of decomposed vegetable matter. On the drier slopes where the fall is so great as to prevent water from lodging, the best kinds of peat earth for horticultural purposes are found, particularly on sandstone formations, where the *débris* of the rock enters largely into the composition. The plants which generally prevail on this kind of bog are Calluna vulgaris, Erica cinerea, Empetrum nigrum, Vaccinium Myrtillus, Vaccinium Vitis idæa, Andromeda polifolia (the latter in Connemara only), Aira flexuosa, Potentilla tormentilla, with Hypnum squarrosum, Hypnum Schreberi, Racomitrium lanuginosum and Cenomyce rangiferina, which combined in a state of decomposition constitute the principal part of the mass.

The last variety of bog which I shall particularly specify may be truly called mountain bog, being formed on and near the summits of some of our highest mountains, especially those which are situated in the northern counties, and the counties of Dublin and Wicklow, which reach elevations above the sea, varying from 1000 to 2000 feet and upwards. The tops of the higher mountains in the southern and western counties are of a drier nature, and produce only a scanty vegetation, as Neptrin in the county Mayo, Carran Tual in the county Kerry, the Galtees and Knockmieldown ranges in the county Tipperary.

The depth of this mountain bog varies from 2 to 12 feet or more, as mentioned by Colonel Portlock in "Memoir of Ordnance Survey of County Londonderry," to be the depth of the bog on Knocklayd, at an elevation of 1685 feet, which I have seen and examined. Sawel mountain, in county Londonderry, has also deep bog near to its summit, which is 2000 feet high, besides Djoice mountain in county Wicklow, and most of the Dublin mountains afford examples of deep bog on or near their summits. It varies much both in colour and different states of compression and decomposition, being sometimes brown, soft, and fibrous, and at others black and very hard, although the plants which form it are few and the same species in most instances. Here the Sphagnums do not enter so largely into the mass as they do lower down, and their places are in a great measure supplied by the grey Moss, Racomitrium lanuginosum and Cenomyce rangiferina, which together make up nearly one-half of the whole. Eriophorum angustifolium and Eriophorum vaginatum are the Phanerogamic plants, which bind the Cryptogamic together with their creeping roots, particularly the former species. I have occasionally seen great patches of Luzula sylvatica growing in these localities, and entering largely into the composition of the peat, which is always soft, brown, and fibrous when that is the case.

Such are the observations I have been able to make on the plants from which our vast extent of peat bogs have been mainly formed, after having had opportunities of examining them, such as few men have had, during the last 25 years, partly whilst in connection with the Ordnance survey of Ireland, and partly whilst executing some of the duties of my present office.

TRADE MEMORANDA.

BEWARE of a man, lately about Liverpool, who is plundering the nurserymen and florists in all directions; we understand the Dutch dealers have also received some of his favours. Mr. Ashcroft, of Thornspit Lane, West Derby, Liverpool, can give information about him.

Home Correspondence.

Potato Growing.—There will no doubt be in many places heavy losses from Potato growing, all of which might have been avoided by attending to the directions given in the *Gardeners' Chronicle*. If the soil is moist, heavy, or rich with high cultivation, the Potatoes should be of early kinds and consumed or sold before the end of July. Should, however, it be determined that the crop is to remain until ripe, let the Fluke be planted, and it will be an extreme case if 10 per cent. are decayed. There are other kinds which will resist the malady, such as the Goldfinder; but the quality is inferior. The Fluke has not the mealy texture of the Forty-fold, or Regent, nor the creamy richness of the latter; its flavour however is superior to that of all the early Kidneys. But the proper land for Potato growing is that which has a dry porous subsoil. I know of none superior to the stone-brash, having a foot or a foot and a half of mould above the subjacent rock. I have more than 80 allotment tenants, who by caution as to the varieties, time of planting, &c., grow Regents, Forty-folds, and the Farmers' Glory on such land with confidence as to the result. The rotten ones this year will not exceed 3 or 4 per cent. But in the neighbourhood on heavy soils and in rich gardens the sound crop in many places is little more than the seed planted. In all cases let the ground be trenched in autumn and ploughed in spring as soon as the soil is tolerably dry. Let the seed Potatoes be kept thin and dry during the winter, and set shallow in spring in rows not less than 30 inches apart. Let manure be placed in moderate quantities (well rotted, or guano) in the rows, and let them be earthed up early; and if the experience of six years is to be relied upon that will be a profitable crop. In heavy and rich soils no manure should be applied. The Fluke is cultivated in many places;—it ought to be tried everywhere. After experimenting three years upon it I recommend whole tubers to be planted, and also that the seed be placed in a warm place to encourage early sprouts from the eyes. This kind is very sluggish as to germinating in spring. By no means plant close. In the rank soil of a garden I have tried a yard between the rows, and half a yard between the sets with complete success—the produce of one root was more than 8 lbs. But in such

soils the tubers are of all kinds of ugly shapes which renders them unsaleable although good for use. *P. T. S.*

Sulphuring Grapes.—I send you the following interesting account from the *Nacional* regarding the Vines in the Douro—"Baron de Forrester, to whom the Portuguese nation, and particularly the Douro district, owes so much, has made the greatest efforts to discover a remedy for the Vine disease, for which praiseworthy act we owe the good result mentioned in the following report—'We have seen samples of beautiful Grapes from the Vines in a certain Quinta in the parish of St. John of Covas, in the Douro, which for four years had not produced any fruit whatever, and Baron de Forrester obtained this important result by the use of a solution of the pentasulphide of calcium; and he has been most successful if we are to judge by the magnificent bunches of both black and white Grapes that we have seen and also tasted. The Vines may be examined by the farmers until the 15th of the present month, about which time it is most probable the vintage will commence." The *Commercio* also publishes some correspondence concerning a robbery of Grapes which had been sent to Oporto from Mr Forrester's estate, but which, owing to their beautiful state, had been plundered by the boatmen on their way down, a very unusual circumstance in a country where Grapes are generally regarded as of little value. I mention this in corroboration of the statement in the *Nacional*. It would thus appear that sulphur has once more vindicated its claim to be the conqueror of the Vine disease where people have industry and intelligence enough to use it properly.***

To Keep Fruit from Wasps.—Place bits of lump sugar in the forks of the branches, about 2 feet apart, all about the trees liable to their depredations. Half a pound of sugar is sufficient for a large Peach tree. Lodge the bits of sugar securely. *J. C. X., Weybridge.* ——A good plan of keeping fruit from wasps is putting a thin layer of wadding over each fruit. Take care, however, that the wadding is secured at the back of the fruit, as the wasps make many a dart to pull it off. *A. Barcey, Gibside.*

How a White Potato was got from a Purple one.—As nobody has answered Mr. Fielder respecting his White Fortyfold Potato, I venture to inform him that there is nothing new in such a sport, for 9 or 10 years ago Richard R. J. Coleman, labourer, when digging Purple Fortyfolds, turned out one with a white eye; that Potato was saved, and at planting time the white eye was cut out and replanted, and plenty of the said White Potato was the result. I believe that I could get 50 sacks for Mr. Fielder, at 1*l.* per sack of 12 pecks. *G. L. D., Gardener, Cadbury House, Castle Cary, Somerset.*

Large Ribston Pippin Apple.—I have to-day gathered some very fine specimens of this Apple. I question if the original tree at Ribston ever bore finer fruit when in its prime. The largest I could find weighed exactly 11 oz.; it is a handsome finely shaped fruit. Has any of your readers got a heavier fruit of this kind? *M. Saul, Stourton, Sept.* 22.

Pampas Grass.—A splendid specimen of this Grass, 25 feet in circumference, with 20 spikes of flower 20 feet high, is now in bloom at Chelsea. Is it the fine summer that has caused it to flower and grow so beautifully? *S. A. R.*

Manuring Forest Trees.— Your "Enquirer," who wishes to have recommended a good manure for forest trees, cannot do better, I think, than when digging among them, as he proposes, to incorporate with the clayey soil as much good turfy loam or any well enriched garden soil as he possibly can; but I would prefer forking among them, seeing it is a young plantation, and the loam being retained near the surface will be sure to entice the roots there, and until it is all exhausted they will not attempt to penetrate the clay. It is a well-known fact that fresh soil laid down on the surface of the ground in the immediate neighbourhood of Ash, Elm, &c., soon becomes matted with the roots, and if put down in quantity imparts to the trees a verdancy of foliage quite astonishing. I have seen Pines growing upon the lawn at Dalquharran Castle, Ayrshire, the seat of the R. Hon. T. F. Kennedy, that, at the suggestion of Mr. Kennedy himself, were top-dressed with good soil, and I assure you they fully repaid with abundance of large deep green leaves the attention bestowed upon them. Their appearance, compared with others not treated so but nevertheless growing in what was formerly a pretty good soil, was very marked indeed. I have seen guano administered to Laurels with beneficial effects, and I have no doubt it would much improve the growth of weakly growing forest trees as well. *W. C.* [On no account use guano, or any other *manure*, to Pines or Coniferous plants of whatever kind.]

Horticultural Society's forthcoming Exhibition of Fruit.—I have just been looking over the prize schedule of the great exhibition of fruit about to take place at Willis's Rooms. Now, in the event of an exhibitor showing collections of kitchen and table Apples, 12 sorts of each, would the same kind be allowed in each collection, taking such, for instance, as the Ribston and Blenheim Pippins, which, according to the Horticultural Society's list, are adapted for both purposes, or would any preference be given to distinct kinds, although perhaps smaller, which table fruits only generally are? Again, with respect to Pears, will any allowance be made for quality, *i.e.*, flavour, or will size, other points being equal, stand first? I will take, for instance, the Broom Park and the Beurré Diel. The former with us is first-rate in flavour, but small, while the latter is one of our largest Pears, and worthless. Any information on these points would be thankfully received. *An Occasional Exhibitor.* [To these questions Mr. McEwen replies as follows:—"The same kinds are eligible for each collection, if generally considered, table and kitchen Apples. But as a general rule quality will regulate the decision on dessert fruits, and bulk that on kitchen sorts. The same rule applies of course to Pears, and with greater force. In the case of your correspondent I would prefer the Broom Park, as the Beurré Diel from such localities as Windsor would surpass his in flavour. The judges are bound to compare the same sorts when placed for competition, but when there are different kinds in different collections the task is more difficult, and each kind must be judged on its own merits and then compare notes. In such cases small sorts, as Winter Nelis, Seckle, &c., if grown clean and large of their kinds, ought to be classed as superior to such sorts as Duchesse d'Angoulême and Beurré Diel, even though good of their kind. Thus flavour (not size), other points being equal, ought to regulate the decision. I must admit that this view has not been attended to sufficiently; but it will so far as I have influence."]

Grapes at the Crystal Palace.—From your reporter's favourable notice of our fruit at the last Crystal Palace show one would have supposed that we should have been found among the successful exhibitors in the official list of prizes. I find, however, on referring to that list that there is no mention made of our three dishes, although we had, I believe, an equal first prize with Mr. Fleming. I was also first for the two dishes of Black Grapes. The Company ought to be more particular. It is not the first time a similar occurrence has happened to me. At the first exhibition the Company had, I was awarded a first prize for a single dish of Peaches. On that occasion Mr. Constantine had the credit and I had the prize. Those who grow good fruit like to have the honour of its being faithfully recorded. *Wm. Hill, Gardener to R. Sneyd, Esq., F.H.S., Keele Hall, Staffordshire.* [We can only repeat that Mr. Hill's three dishes of Grapes were in every respect first-class productions, quite equal to those of Mr. Fleming, and well deserving a first prize, which we hope it will be found was awarded them.]

Aralia japonica.—I find this all but hardy in this district (Norfolk). It will stand an ordinary winter, with the loss of more or less of the upper part of the branches from not having the pithy wood sufficiently ripened. One severe winter a specimen I have was killed down to the ground, but it threw up a strong shoot, which is now a fine branched tree, and at the present moment is crowded by thick clusters of its elegant pale green racemes or spikes of innumerable little flowers not unlike those of the Vine, but smaller. The spikes vary from 18 inches to 2 feet in length, 6 or 7 of them branching off from the tip of each shoot, and contrasting with the darker green of the handsome Fern-like leaves beneath them. I find some protection in winter advisable, and simply effected by a double hay-band wrapped close round the spiny stem and branches from top to bottom. When this is removed in the spring the extremities are generally dead, but it breaks freely immediately below, and throws out stout shoots which flower in autumn. I know of a tree however, if it may be so called, which has no protection at all in winter, and is 10 or 12 feet high, flowering freely. The Paulownia imperialis shows abundance of flower buds this year after the hot summer, which however will hardly come to perfection. The Yucca gloriosa has also flowered in a number of places. *K.*——We have a plant of Aralia growing in the shrubbery here that was planted out in 1850; it has withstood our severe winters ever since that time; it is 12 feet 6 inches high, and the diameter of the branches is 14 feet. It has two principal stems, the large one 15 inches, and the smaller one 10 inches in circumference at about 1 foot from the ground; at present it has 20 panicles of flowers on it at the points of the principal shoots; it is growing in rich sandy loam, and has not had any protection except a little loose Fern put round the root in severe weather. *G. Cooke, Badger Hall, Shiffnal, Sept.* 22.

Ants and Wall Trees.—I reside at Holloway, and for many years have prided myself upon the fine Peaches grown in my garden. Within these last three years, however, ants have so infested the walls as to completely destroy some of my choicest trees. It will be useless to go to the expense of planting others, unless I can get rid of them. In this dilemma I have taken the liberty to apply to you for advice, and trust you will be able to assist me. *F. M.* [You can drive away the ants unquestionably by strewing Peruvian guano in their nests and runs.]

Harvest Bugs.—"Cornubia Dolorosa" (see p. 646) will not altogether be relieved of harvest bug bites by the application of vinegar, but very strong-scented soap will prevent any such future attacks. After washing nearly dry, rub the arm or leg with such soap, and she will be still happy in her skin. Expertæ credite. *Woglog.*

Societies.

ENTOMOLOGICAL, *Sept.* 7.—J. O. Westwood, F.L.S., in the Chair. Amongst the donations to the library received since the last meeting was an extensive series of the publications of the Royal Society of Brussels and the Zoological Society of London, with various works by Messrs. Barthelemy, Chevrolat, Walker, and Wollaston. Mr. Foxcroft sent for exhibition a very fine series of the rare moth, Aplocera flavicincta, taken on the north side of Schihalleon. Mr. Samuel Stevens exhibited a specimen of Dynastes Mars, taken by Mr. Bates on the bank of the river Amazon; only two or three specimens of this grand insect had hitherto been brought to Europe. He also exhibited a number of fine insects recently collected in Celebes by Mr. Wallace, including new and magnificent species of the genera Catadromus, Papilio, Danais, and Cethosia. Mr. F. Bond exhibited three new or very rare species of Tineidæ, recently reared by himself. Mr. G. R. Waterhouse noticed the occurrence of several new species of Cryptocephalus in English collections, having been chiefly confounded with closely allied species. A notice by Mr. Steadman was read of the occurrence of a web-spinning species of Acarus on Fuchsias and Balsams. Various notices were communicated by different members of the capture of specimens of the migratory locust, at Primrose Hill, Willesden, Brighton, the New Forest, &c. Mr. Samuel Stevens also mentioned the capture of a living specimen of Sphinx Nerii near Brighton. Some notes on the Habits of the Butterflies of the Amazon Valley, by Mr. Bates, were also read.

THE SCOTTISH ARBORICULTURAL SOCIETY has issued a very useful circular in the form of a blank return to be filled up by the recipients. It includes not only the price of timber and bark, but the cost of day labour and task work; and if filled up conscientiously and fully will form a body of very important statistical information. We presume that it is sent to all parts of the United Kingdom, and not confined to Scotland. Those gentlemen who have not received a copy of the form in question will no doubt be furnished with one if they apply to Mr. James Alexander, Secretary to the Arboricultural Society, 6, York Place, Edinburgh.

Notices of Books.

Lectures on Roman Husbandry delivered before the University of Oxford, &c. By C. Daubeny, M.D., F.R.S., Professor of Botany and Rural Œconomy in the University. Oxford, Parker. 8vo., pp. 328.

In this work we have now, for the first time, a thoroughly good view of the gardening and farming that were practised in Italy during the prosperity of the Roman power. We have more. The learned author has given us an invaluable Commentary upon the writings of those old agricultural authors, upon whose teaching the husbandry of Western Europe was certainly founded. This may be said without any disparagement of Dickson, whose Husbandry of the Ancients, with all its merits, is immeasurably inferior to the volume before us.

Dr. Daubeny commences his task by an examination of that "first great book least understood" the crabbed *Liber de re rusticâ* of Cato the Censor; then follows a notice of the three books on the same subject by Varro; the remainder of the agricultural portion of the lectures is occupied by the far more ample and important treatise of Columella, with frequent allusions to the Georgics and Pliny's Natural History. It will thus be seen that the agricultural reader's attention is confined to the Roman practice of farming up to the beginning of the first century of our era. For ourselves we should have wished to see the fourteen books of Palladius examined with the same acuteness as has been displayed in the comments on his predecessors, for thus would have been shown what changes 400 years had produced. This would be the more interesting in connection with the enormous rise in the price of agricultural produce till, in the time of Diocletian, a pound of beef or mutton cost above 2*s.*, of pork 3*s.*, and a pair of coarse brogues or caligæ about 17*s.* of the present money; a state of things followed by so general a discontinuance of cultivation and increase of pasture land that at last two bushels of Wheat were worth a bullock, and 12 bushels would buy a coat of mail. Palladius, who is supposed to have lived a century later, would perhaps be found, when studied with the acuteness of a critic like Dr. Daubeny, to have thrown some light upon so deplorable a state of society. At all events his Calendar of rural work is a curious book, and his little poem about grafting, or as he says of showing how—

> Sub thalami specie felices jungere sylvas,
> Ut soboli mixtus crescat utrinque decor,

is worth examination, and we trust may form the subject of future Oxonian Lectures, along with the Greek writers whose works are known under the name of Geoponica. Interesting matter certainly lies hidden in that little-read collection.

We cannot attempt to follow our learned friend into the details of Roman agriculture as described by Columella; nor indeed can any selection of passages illustrate the skill with which the salient points in that writer's work have been picked out and illuminated. The author's disquisition upon the Roman plough may however serve to show the manner in which an obscure question may be elucidated when the critic is both a scholar and a practical husbandman. (We omit the Greek text, the author's translation being sufficient for our purpose.)

"The kind of plough in use among the early Greeks, so far as we can collect from the description given by Hesiod, and from certain drawings which have come down to us, was not materially different from that of the ancient Egyptians.

"It appears to have consisted of three parts—the ploughshare, ἔλυμα of Hesiod; the draught-pole to which the horses were attached, the ἰστροβοεὺς of the

some author; and the ploughtail which the ploughman holds in his hand, the ἐχέτλα.

"Hesiod also distinguishes by a separate name the lower part of the plough, calling it by the name of γύη.

"It may be interesting perhaps to a classical audience to refer to the lines in which allusion is made to these parts of the plough, translating them consistently with that view of their meaning which I have adopted, which moreover will identify the kind of plough alluded to by Hesiod with that employed in Magna Græcia and in Sicily. 'When the force of the burning sun remits his oppressive heats, all-powerful Jove pouring down his autumnal rains'—'then' (after enumerating other labours fitted for the seasons he proceeds) 'is the time. Then is the time to carry home the material for the hinder part of your ploughshare, the γύη, whenever you may find one fitted for the purpose, whether amongst the mountains or in the field, formed of the Ilex, for this is the strongest wood for oxen to plough with provided only that the ingenious artificer shall have fixed it skilfully to the ploughshare (ἐλύματι), and have nailed it firmly to the draught-pole (ἰστοβοῆϊ).

"'But the strongest draught-poles are of Laurel-wood or of Elm, the ploughshare of Oak, the hinder part of the ploughshare of Ilex.' Again, 'When you begin to till the ground, taking in your hand the extremity of the plough-tail (ἐχέτλης), you shall thrust the goad into the backs of the oxen, the thongs drawing along the plough; whilst the young slave who follows, holding the spade or harrow, shall baffle the birds, by concealing from them the seed scattered over the ground.'

"Let us now consider how far this view of the kind of plough described by Hesiod corresponds with what we may gather to have been the form of the one mentioned by Virgil in his Georgics:—

'Continuo in silvis magna vi flexa domatur
In burim, et curvi formam accipit ulmus aratri:
Huic a stirpe pedes temo protentus in octo:
Binæ aures, duplici aptantur dentalia dorso.
Cæditur et tilia ante jugo levis, altaque fagus
Stivaque, quæ currus a tergo torqueat imos.'—(I. 169.)

"This passage I would translate as follows, in agreement with the sense put upon it long ago by Salmasius, and confirmed by Heynè, but from which Professor Martyn, in his notes on the Georgics, has chosen to depart, thus introducing great confusion, as has been pointed out by Dickson and others:—

"'In the first place, the Elm is forcibly bent in the woods into the hinder portion of the pole (the buris, or γύη of Hesiod), and receives the form of the crooked plough. To the end of this are joined a beam (temo) 8 feet long, two earth-boards (aures), and share-beams with a double back (duplici dentalia dorso). The light Lime tree also is cut down beforehand, and the tall Beech as a handle or plough-tail (stiva), which shall turn or direct the carriage from behind.'

"Such seems to be the translation; unless we prefer placing the last line in a parenthesis, and regard *stiva* as one of the substances connected with the verb *aptantur*, reading, 'to the end of the plough are joined the beam, the earth-boards, the share-beams, and the *stiva* or plough-tail.'

"According to this interpretation the Virgilian plough, as well as that described by Hesiod, might be identified with one still used in the south of France under the name of the Herault plough, as Seguier has suggested.

"In this latter implement we observe, 1st, a piece of curved wood (A) called in the country *basse*, which agrees with the *buris* of Virgil, and, as I consider it, to γύη of Hesiod: 2ndly, a pole (B) 8 feet in length, joined by pins to the *basse*, answering to the *temo* of Virgil, and to the ἰστοβοεὺς of Hesiod: 3dly, a bent handle (C) called *esteve*, which is the *stiva* of Virgil, and the ἐχέτλα of Hesiod: 4thly, a share of wood (D), the *dentale* of Virgil, the ἔλυμα of Hesiod. It is made double by another share of iron placed above it so as to realise the double back which the *dentale* is described as possessing. And lastly, two earth-boards, or lateral appendages, *binæ aures*, which are called *expandideures*, because they spread out the earth heaved up by the operation of the share.

"Professor Martyn, on the other hand, translates *buris* the plough-tail, and *stiva* the staff which directs the motion of the plough: in which case *buris* would be nothing more than the lower part of the *stiva*; but this, as Mr. Dickson remarks in his Agriculture of the Ancients, is an improbable interpretation, as Virgil distinctly mentions them as separate and independent parts of the plough.

"It has also been a subject of dispute, whether the implement described by Virgil was a swing or a wheel plough.

"Martyn compares it to that seen in use near Mantua, and in the Venetian territory, which is a wheel plough; no express mention, however, is made of wheels by Virgil, although the expression 'currus a tergo torqueat imos' has been supposed to refer to them, and although we are told by Pliny (lib. xviii. c. 48), that wheels were added to the ploughs used in Cisalpine Gaul.

"It is at least probable that the plough described by Hesiod had no wheels, and perhaps it may be concluded that this was the commoner form even in Italy at the time when Virgil wrote, since Pliny describes the addition of wheels to have been but recently introduced.

"But of whichever description the Roman or Grecian plough is considered to be, little improvement in its construction seems to have been effected since that remote period, till a very recent epoch; for when we examine the implements employed for ploughing in most nations of modern Europe, we still find them of a construction as rude and clumsy as those represented in the sculptures and models that have come down to us or are described by the writers of antiquity."

The subject of paring and burning is thus skilfully illustrated:—

"Columella and the other prose authors on husbandry scarcely allude to the practice of improving the soil by burning, which Virgil has so graphically described, pointing out in his subsequent lines the three principal causes upon which the advantage of paring and burning is supposed by modern farmers to depend:—

'Sæpe etiam steriles incendere profuit agros,
Atque levem stipulam crepitantibus urere flammis:
Sive inde occultas vires et pabula terræ
Pinguia concipiunt; sive illis omne per ignem
Excoquitur vitium, atque exsudat inutilis humor;
Seu plures calor ille vias et cæca relaxat
Spiramenta, novas veniat qua succus in herbas;
Seu durat magis, et venas adstringit hiantes,
Ne tenues pluviæ rapidive potentia solis
Acrior, aut Boreæ penetrabile frigus adurat.'
(GEORG. i. 84.)

"Whether, that is, it communicates rich juices to the land, or corrects bad ones; opens the pores of the soil to allow the nutritious juices access to the young plants, or renders it more compact; so as to prevent its being injured, either by the showers, the excessive heat of summer, or the severe cold of winter.

"Now the advantages recognised at the present day as arising from the practice of burning the soil, and the plants which cover its surface, are very much of the description which Virgil has stated.

"In the first place, when a large amount of slowly decomposing vegetable matter happens to be present, it accelerates the return into the body of the soil of the alkaline and earthy constituents which the plants contain, so as to render these essential ingredients immediately available for the ensuing crop.

"In other words—

'Occultas vires et pabula terræ
Concipiunt.'

"This is the source of the fertility imparted to the soil in America by the combustion of the timber in its extensive forests; the fire unlocking, as it were, those accumulations of potass, phosphate of lime, and other valuable matters, which the trees in their growth had gradually drawn from the soil, and restoring them at once in a condition in which they can minister to the wants of the forthcoming crops.

"Secondly when the soil is sour, or contains peaty matter, which generates acetic or other acids prejudicial to the growth of plants, the practice of burning dissipates and destroys the injurious principle, or, as Virgil says

'illis omne per ignem
Excoquitur vitium, atque exsudat inutilis humor.'

Burning also may do good to the soil, when it is too retentive of moisture, and too adhesive in quality. My friend Mr. Barwick Baker, of Hardwick Court, in Gloucestershire, has by this treatment improved the soil of his garden, which was a tenacious clay, converting it into a kind of brick earth, which possesses much of the mechanical qualities of a sandstone.

"For such a case it may be said in the beautiful language of the Roman poet:—

'Plures calor ille vias et cæca relaxat
Spiramenta, novas veniat qua succus in herbas.'

"Whether the process of burning can ever act in the last of the ways hinted at by Virgil, that is, by rendering loose soils more compact, is very problematical; indeed, it is even generally considered by agriculturists that light and sandy soils are injured by the operation."

Farmers are probably not aware that they are the parents of prevarication and delirium; yet so it is. "Great importance was accordingly attached by the Romans to straight ploughing. The term 'prevaricare,' as Pliny informs us, was first applied to a peasant who ploughed crooked, and afterwards transferred to a witness in the law-courts who deviated from the truth; and as the ridge thrown up by the plough was called *lira*, the verb *delirare* originally signified to make an irregular ridge, and was afterwards applied to those whose mental faculties were in an abnormal condition."

In this manner the author discusses the various subjects selected for his lectures, especially manures, live stock, managers, bailiffs or *villici*, small tenants or *partiarii*, implements, crops, working the land, Vine growing, bee-keeping, gardens, orchards, and their contents. Here and there, however, we would venture to express a doubt whether his interpretation may not be open to objection. For example, he observes that Columella states that *rapa* (Turnips) in two (not ten) years, in certain soils, changes to *napus* (Rape) and the contrary; upon which he remarks:—"It would seem from this, either that the Romans did not distinguish between Turnips, and Cole or Rape, or else that the terms *napus* and *rapa* both apply to Turnips of different varieties." But did not Columella allude to the fact that Turnips "run away," as seedsmen say, when grown negligently in the same soil, and to their recovery when carefully cultivated in better land. The words of Columella are "Loci proprietas utriusque semen commutat, namque in alio solo rapa biennio sata convertuntur in napum, in alio napus raporum accipit speciem." (The nature of the soil changes the seed of each; for in one kind of land Turnips sown every two years are changed into Rape, and in another kind Rape becomes Turnips.)

In another place it is suggested that Pliny's *arinca* Wheat, called by the Greeks *olura*, may have been the modern *Triticum monococcum*, a poor variety with small corn, now used in Asia Minor in the preparation of the dish called a pilaf. But this supposition seems irreconcileable with Pliny's remark that the ear of Arinca is larger and heavier than that of Spelt, its grain rarely weighing less than 16 lbs. a modius, or about 42 lbs. a bushel, and that it is remarkably prolific in Egypt. It would rather seem to have been the modern Egyptian Wheat were it not for the difficulty of threshing it, which Pliny says was experienced in Greece though not in Egypt, a statement that seems to indicate two different sorts of corn confounded under the name of Arinca. Neither, however, could we think have been *Triticum monococcum*. But these are matters concerning which there will always be some difference of opinion.

The horticultural part is treated at considerable length, especially that which relates to the identification of the plants described by the ancients. This we reserve for another occasion.

Trade Lists received: *Bass & Brown's* No. 1 Catalogue, including, among other things grown in their Nursery at Sudbury, a very nice collection of hardy herbaceous plants.—A wholesale catalogue of plants sold by *G. Jackman*, of the Woking Nursery. This consists chiefly of Fruit trees, Roses, American plants, Evergreen trees, &c. &c. Among the Roses are many on their own roots.

Mr. Sowerby announces his intention of bringing out a work on the *Grasses of Great Britain*, with coloured plates; the letter-press by Mr. Johnson.

We have received the following note from Mr. Boucher, whose work on Mensuration we noticed last week:—"Your critique on my little book of Mensuration has been handed to me, and I beg to thank you for it. If you turn to page 129, you will find *timber measurement* dealt with, and a simple method of estimating it given, under the head of the 'Irregular Prism.'" [In justice to the author we acknowledge that we had overlooked the mention made by him of timber measurement; but in justice to ourselves we beg to say that if books are published without indexes, and subjects are alluded to under headings which do not suggest them, gentlemen must not be surprised if that which is so alluded to escapes the notice of those who look for it.]

Garden Memoranda.

NEW FLOWER MARKET, COVENT GARDEN.—Some of our readers will doubtless have remarked a plan of this in the *Illustrated London News* of the 5th inst. Since then we have taken some pains to obtain further information on the subject. We find that this great metropolitan desideratum is to be in close connection with the new theatre, and that its erection will be proceeded with as soon as the ground for it has been cleared. It is to consist wholly of iron and glass, 220 feet in length and 75 feet in width, the span of the centre semicircular roof being 50 feet. As regards position, it is to run from Bow Street, where there is to be an entrance, in the direction of the Tavistock Hotel, where there will be another entrance, somewhere on the site of the present Piazza Hotel, which is to be removed. In general appearance it will very much resemble one of the transepts of the Crystal Palace. Its roof as we have stated is to be circular, and supported on upright iron pillars, which are intended to be ornamented with climbing plants.

The exact arrangement of the interior is not yet, we believe, finally fixed on. The idea is to make it resemble as much as possible a gigantic first-class nobleman's conservatory, in which are to be exposed for sale bouquets, flowers in pots, and all other floral matters pertaining to ornamental gardening. The floor is to be of wood, like that of the Crystal Palace; its centre is to be occupied with a huge rectangular bed of plants, among which are to be introduced fountains, vases, statuary and other striking objects of decoration, and the whole is to be surrounded by a neat wooden balustrade.

Along the sides behind the pillars that support the roof are to be the dealers' stalls, which are to be cut off from the promenade round the centre bed by a low panelled wooden partition or fence, and in order to keep all as orderly and neat as possible ample storage has been provided underneath the plant stages for potting benches, workmen's tools, and other unsightly objects. In this way it is expected the place will be always clean and agreeable to walk about in. Birds and aquaria are also, we understand, to be accommodated in the interior.

From the above may be gleaned some idea of the main features of this much desired undertaking. For its design we are indebted to E. M. Barry, Esq., of Old Palace Yard, Westminster, the architect of the new theatre, and it promises to be worthy of his taste and skill.

It has been reported that ladies attending the theatre will be permitted to pass into the flower market and promenade there at pleasure. That, we are informed, is a mistake. It is however contemplated to provide a balcony for them, from which the whole interior of the place may be overlooked. Gentlemen will however, we understand, be allowed to pass into the market.

For some account of the plan of ventilation to be adopted, and certain other matters of detail not yet settled, we must return to the subject on a future occasion.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—In cases where there are many stove plants in this house it will be necessary in the event of the weather becoming cold and wet to use a little fire-heat; but be as sparing of this as circumstances will allow, particularly if there are other things in the house likely to be injured by being kept too warm. And in this case it will be advisable to dispense with stove plants even at the expense of rendering the house somewhat bare of flowers rather than to keep them here and run the risk of injuring other things on their account. Be careful not to over-water things brought from the stove and also to use water at a temperature of 70° to 80° for these, as watering plants that have just been brought from a warm house with cold water injures the young and tender roots, shortens the duration of the blossoms, and often ruins the plant. Use weak manure water for Salvia splendens and gesneræflora, so as to preserve the plants in a vigorous state and keep them blooming as long as possible. Give air freely on fine days and thin out the twiners on the roof wherever this can be done with propriety, so as to expose the plants to all the light possible. Give attention to securing a plentiful succession of things for maintaining the gaiety of this house during winter.

FORCING DEPARTMENT.

PINERIES.—Plants swelling their fruit should be assisted with a brisk temperature, say from 65° to 75° at night, regulating this according to the state of the external temperature, keeping the house rather close on sunny days and allowing the thermometer to rise to 80° or 85° before giving air freely. Also endeavour to proportion the moisture to the temperature, for a high dry temperature is not favourable to the swelling of the fruit, and there is no chance of getting well swelled heavy fruit without plenty of warmth and moisture. Maintain a steady bottom-heat of about 85°, and use every care to keep the soil in a healthy state as to moisture. When watering is necessary, use clear manure-water, and give sufficient to moisten the whole of the soil, and avoid frequent dribblings, for when this system of watering is practised it is nearly impossible to keep the under soil, where the principal roots should be, in a healthy state. Use the syringe very sparingly, and only to dew the plants, as heavy syringing after this season is apt to keep the surface soil so moist as to render it difficult to judge as to when water should be given.* Any young plants growing in pots which may require repotting should be seen to at once so as to allow of getting them established in their fresh pots, while they can be kept moderately warm. See that the balls are in a proper state as to moisture before repotting, as neglect of this is a frequent cause of young plants fruiting prematurely. Keep moist and rather warm for a time after shifting, so as to encourage the formation of fresh roots. VINERIES.—Should wet weather set in we would advise covering the border of the early house with dry stable litter, Fern, or whatever can be obtained most conveniently that will answer the purpose of keeping the border dry. Nothing answers better for this purpose than clean straw, provided the border slopes from the front of the house, and in this case it is easily thatched so as to throw off the wet entirely. But straw is too scarce in many parts of the country to be used for this purpose, and wooden shutters would be found cheaper in the end; nevertheless where straw can be obtained, it will be found to answer the purpose perfectly. It will also be advisable to cover the borders of houses in which it is intended to keep ripe Grapes for any length of time, so as to prevent the soil getting saturated about the roots. Look over ripe Grapes frequently, particularly in damp weather, cutting out any tainted berries immediately they are perceived, and keep the atmosphere as dry as possible, using gentle fires when necessary with a free circulation of air; but a warm temperature is nearly as injurious as damp, therefore use no more fire-heat than may be absolutely necessary. Let no pot plants requiring watering remain in houses where the Grapes are ripe and expected to hang for any length of time.

FLOWER GARDEN AND SHRUBBERIES.

Unless alterations are in hand, the principal work in this department will now be confined to mowing and cleaning, and if neatness is to be maintained this will require constant attention; also see to getting gravel walks thoroughly cleared of weeds and Moss, and roll them frequently when wet to keep the surface level and smooth. Continue to afford young stock in pits and frames careful attention, and endeavour to get it well rooted and strong without keeping it so close or warm as to render it sappy and liable to damp off on the first approach of winterly weather, as is often the case with stock got up in heat late in autumn, and then stored away in cold pits for the winter. Admit air freely therefore to all plants that are rooted sufficiently to bear it without flagging. Newly potted off things should, however, be placed on a gentle bottom-heat, which will impart a little warmth to the soil and encourage the formation of roots; but sufficient air should be given to prevent anything like weakly growth. Cuttings of Calceolarias, Scarlet Geraniums, &c., may still be put in where it is considered that the stock of these things is likely to be deficient. Scarlet Geraniums will root almost anywhere; but Calceolarias are not quite so accommodating, as cuttings taken from plants in the open ground are very liable to damp off in heat; these will be found to do very well, however, in a close pit or frame where there are the means of applying a little warmth when necessary to dispel damp. See to securing as many cuttings as possible of any scarce plants which it may be desirable to increase while there is a fair chance of rooting them, and also be prepared to protect Scarlet Geraniums and other things which it may be intended to take up and winter, for we may expect frost any time after this season, and if such things can be protected so as to prevent the foliage and wood being much injured, they are much more easily wintered. Attend to former directions, and lose no time in getting preparations made for the removal of large trees and shrubs, as both the season and the weather are now very favourable for this kind of work, and ground intended to be planted with young stuff from the nursery cannot be turned up too soon.

HARDY FRUIT AND KITCHEN GARDEN.

Look over fruit remaining out of doors frequently, and gather it as it becomes fit, as if left to get over ripe it will be liable to be blown down and bruised should high winds occur; also examine that stored in the fruit room frequently, as there will occasionally be a few decaying fruit found for a few weeks after housing, and these should be removed as soon as they can be perceived. Keep the fruit-room cool and airy in order to allow of the escape of the moisture given off by the fruit, which is considerable for a few weeks at first. Examine Plums or any other fruit protected by covering occasionally to see that they are not spoiling. Where it is intended to make any fresh plantations of fruit trees this season, the ground should be prepared at the earliest convenience and any fresh soil to be used for planting should be thoroughly exposed to the action of the weather so as to have it in a mellow state when wanted for use. If not already done clean and dress Strawberry plantations, clearing away all useless runners and giving a good dressing of manure where necessary, but be careful to select that which is thoroughly decayed and which can be covered without the necessity of digging deep or injuring the roots. The principal crop of Celery should now be kept rather closely earthed up, using quick lime and soot freely to destroy slugs.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Sept. 24, 1857, as observed at the Horticultural Gardens.

Sept.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday 18	●	30.252	30.156	75	40	57.5	64	61	N.	.00
Satur. 19	1	30.371	30.329	65	45	55.0	63	60½	N.E.	.01
Sunday 20	2	30.353	30.323	69	33	51.0	62	60	E.	.00
Mon. 21	3	30.260	30.197	72	43	57.5	61	59½	N.E.	.00
Tues. 22	4	30.191	30.159	68	47	57.5	62	59	N.E.	.00
Wed. 23	5	30.088	29.958	74	42	58.0	62	59	E.	.01
Thurs. 24	6	29.852	29.778	73	51	62.0	62	59	S.W.	.12
Average..		30.195	30.128	70.8	43.0	56.9	62.3	59.7		.14

Sept. 18—Fine; very fine throughout.
— 19—Hazy; cloudy; fine; slight rain; very fine.
— 20—Overcast; cloudy; very fine.
— 21—Fine; very fine; overcast at night.
— 22—Fine; cloudy; overcast.
— 23—Fine; low white clouds; very fine.
— 24—Light hazy clouds; showers; sultry, lightning and heavy showers.

Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Oct. 3, 1857.

Sept. and October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	64.9	45.1	55.0	18	0.57 in.	—	2	4	2	5	9	6	3
Mon. 28	64.7	44.6	54.7	15	0.80	—	3	4	1	9	7	4	3
Tues. 29	64.8	45.2	55.0	20	0.46	1	3	3	3	5	11	2	3
Wed. 30	64.1	43.8	54.0	19	0.58	3	2	3	2	5	8	7	1
Thurs. 1	63.3	45.2	54.2	17	0.53	2	3	2	2	6	10	4	2
Friday 2	63.8	43.2	53.5	17	0.48	2	4	1	—	7	8	5	4
Satur. 3	62.8	44.2	53.5	16	1.01	2	3	1	1	10	8	4	2

The highest temperature during the above period occurred on the 27th and 29th, 1832——therm. 79 deg.; and the lowest on the 27th, 1828—therm. 24 deg.

Notices to Correspondents.

BOOKS: *Caius.* You will find a notice of Dr. Daubeny's work in another column. We strongly advise you to procure Bostock and Riley's excellent translation of Pliny, published by Bohn in half-a-dozen 5*s.* volumes. It ought to be in every scholar's library.—*Folkstone.* We know nothing of *Mr. Wills' Explorations and Adventures in Honduras;* nor are we anxious to become acquainted with it if, as you say, he calls the Ceiba a tempting luscious fruit; why, it has a hard dry seed vessel full of cotton, and would be a rather unpleasant mouthful. We have no faith in such travellers, who write of things they know nothing about. There are no wild eatable Figs in Honduras.

CHERRY PLUM: *G L.* Enquire of any nurseryman.

PENTSTEMON BARBATUS: *Scarborough.* This common plant varies in the quantity of hairs on the lip of the corolla and in the breadth of its leaves as well as in colour. Occasionally the want of hairs is so considerable that the observer would be apt to fancy he had found a new species, as indeed was the case with ourselves when the accompanying figure was engraved, especially as this circumstance was attended by a much deeper and richer colour.

CONIFERS: *T A.* Picea is certainly the same genus as Abies, there is no distinction. Pinus includes all the species with leaves in twos, threes, or fives, and Abies all that have scattered leaves.—*An Old Sub* will do his large specimens no harm by pruning off their lower shoots, provided he does it in mid-winter. It would however be better, since the specimens are so large, to remove the lower branches at two operations, one this year and another next. We certainly should not prune them when the plants are young, or before it is time to remove the cages. Nor indeed would we prune them at all if we could avoid it. What will you do to keep cattle off after the cages are removed? They are not unlikely to rub and bark the stems.

DIOSCOREA: *E T.* Although this is not likely to pay as a field crop in the middle or north of England, we should think it likely to deserve attention in Jersey. It is perfectly hardy, but it wants a long hot summer, and deep land well thrown up in ridges. A more important question is whether it will sell in the market, for although excellent if properly dressed it is easily spoiled by the barbarous cooks who mismanage the kitchens in middle-class families. A good Carrot soil is the very thing.

EVERGREEN SHRUBS: *J G.* Juniperus suecica, Abies clanbrasiliana or Irish Yew, may possibly answer your purpose. Perilla Nankinensis is hardy.

GLYCIRRHIZA LEPIDOTA: *C M.* The plant varies in the degree of silkiness on the leaves, but we do not find any evidence that this is attended by other differences. A species which extends from the Red River to Texas will be likely to vary in such a circumstance.

INSECTS: *J S, Keythorpe.* The grubs which are devastating the leaves of your Poplars are those of a species of sawfly, Cladius viminalis, Fallen, figured by Brischke in his "Abbildungen." Syringing the leaves with gas-tar water or lime water will destroy them. *W.*

LEPTOTES: *Southampton.* Your statement surprises us greatly. Orchids, however, present such very extraordinary deviations from what happens among other plants that it is quite possible that we may have been wrong. Should a flower remain we will examine it again, and with greater care. It did not occur to us that the specimen sent could be anything except Leptotes.

MELONS: *Woolverstone.* It is a globular yellow netted sort with thick white flesh, well grown; the flavour is very pleasant, but not high flavoured. It is a good second class fruit.

NAMES OF PLANTS: *Agricola.* Centaurea solstitialis, a rare plant. —*Belladonna.* Ailanthus glandulosa. We never before saw it in fruit in England.—*M Falconer.* Your Abutilon pictum, which is handsome, seems to be nothing more than a strong growing variety of Abutilon striatum. *B.*

PARASITES: *J R.* The parasite on your Plum leaves is *Puccinia Prunorum.* It is particularly abundant this year, and helps to cause the premature fall of the leaf. *M. J. B.*

MISC.: *G D.* Mrs. Loudon's Amateur Gardener's Calendar. You can only extirpate nettles by constantly forking them up. Apply to the Government Emigration Commissioners, Whitehall. Plant the Evergreens now, or in the course of August. Sow your Grass seeds now.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

WHEAT SOWING.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

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Charles Dimsdale, Esq., Essendon Place, Herts.
Edward Ball, Esq., M.P., 8, Belgrave Road, Pimlico.
Major-Gen. Hall, M.P., Weston Colville, Linton, Cambridge.
John Brady, Esq., M.P., Warwick Terrace, Belgrave Square.

Directors.

Chairman.—Jonas Webb, Esq., Babraham, Cambridgeshire.
Deputy-Chairman.—John Collins, Esq., Myddelton Square, Pentonville.
Edward Bell, Esq., Tottenham, Middlesex.
John Clayden, Esq., Littlebury, Essex.
Richard Hunt, Esq., Stanstead Abbot, Herts.
Thomas Knight, Esq., Edmonton, Middlesex.
Robert Leeds, Esq., West Lexham, Norfolk.
Robert Morgan, Esq., 72, Camden Villas, Camden Town.
Thomas Nash, Esq., Great Chesterford, Essex.
George Savill, Esq., Ingthorpe, near Stamford.
William Collins, Esq., 105, St. John Street Road.

Bankers.—Messrs. Barnett, Hoare & Co., Lombard Street.
Solicitors.—Messrs. Kingsford & Dorman, 23, Essex Street, Strand.
Auditor.—G. W. Brown, Esq., 28, Parliament Street.
Manager.—James Odams, Esq.
Secretary.—C. T. Macadam, Esq.

The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.

Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED.

Capital 30,000*l.*, in 3000 Shares at 10*l.* each.
Deposit 2*l.* 10*s.* per Share.

Managing Director.—Mr. William E. Rendle, Mount View, Plymouth.

Committee of Finance.

Mr. Henry Holman, Mannamead, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. John Rendle, Seedsman, St. Austle.

Bankers.—The Devon & Cornwall Banking Company, Plymouth.
Solicitors.—Messrs. Whiteford & Bennett, Plymouth.
Auditor.—Mr. William Jacques Holmden, Plymouth.
Manager.—Mr. Geo. H. Lamoureux.
Secretary & Cashier.—Mr. R. W. Clark.

The above Company has been formed at Plymouth with limited liability under the Joint Stock Companies Acts 1856 and 1857, for the supply of all kinds of Garden and Farm Seeds, Manures, Agricultural Implements, and every requisite for the Farm and the Garden. Arrangements have been made with the old established and well known firm of Messrs. William E. Rendle & Co. for the transfer of their extensive business to the Company.

The objects for which the Company is established are the purchase, growing, or otherwise procuring, and the sale of Farm, Garden, and other Seeds, Plants, and Trees; also the manufacture, purchase, and sale of Agricultural Implements, Draining Tiles, and other articles used in the cultivation of Land; also the manufacture, purchase, and sale of Manures; also the manufacture, purchase, and sale of any other articles and things used in or requisite for the cultivation or improvement of Land, with power for the Company, in furtherance of the above objects, from time to time to purchase, take on lease, or otherwise acquire any Land or Buildings, to acquire any Patents, and generally to do all other things that may conduce to carrying into effect the objects of the Company, or be incidental thereto.

The Company has been duly registered, and the following is a Copy of the Certificate of Incorporation:—

"Limited Company: Certificate of Incorporation of the Plymouth Seed, Agricultural Implement, and Manure Company, Limited, under the Joint Stock Companies Acts, 1856 and 1857.

"I, George Taylor, Esq., Assistant Registrar of Joint Stock Companies, do hereby certify that the Plymouth Seed, Agricultural Implement, and Manure Company, limited, is incorporated under the Joint Stock Companies Acts, 1856 and 1857, and that it is a Limited Company. Given under my hand this 31st day of August, 1857, GEORGE TAYLOR, Assistant Registrar of Joint Stock Companies."

It will be thus seen that the Company was incorporated on the 31st of August last, and commenced business on the 1st day of September following.

The business will be considerably extended, so as to make it one of the most important concerns in the kingdom. About 2700 Shares have been already taken up and allotted, and it has been decided to distribute the remaining THREE HUNDRED SHARES to those who will have transactions with the Company, or who by their influence can benefit the business.

These Shares will be placed in the hands of the present Shareholders for distribution, and application should be made to

Mr. R. W. CLARK, Secretary to the Company,

Or to the following Shareholders;—

Mr. William E. Rendle, Mount View, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. Thomas Vosper, Merafield, Plympton.
Mr. George Sercombe, Seed Merchant, Exeter.
Mr. William Coaker, Charleton, near Kingsbridge.
Mr. Henry Holman, Mannamead, near Plymouth.
Mr. George Witty, Land Agent to Neville Grenville, Esq., Butleigh, near Glastonbury.
Miss Gregory, Mr. R. Gregory, Merchant, Barnstaple.
Mr. Edward Mortimore, Seedsman, Ashburton.
Mr. John Watson, Shirburn Castle, Tetsworth, near Oxon, Land Agent to the Earl of Macclesfield.
Mr. Thomas W. Eales, Merchant, Dartmouth.
Mr. John Rendle, Seedsman, St. Austle.
Mr. Arthur Pardew, South Devon Place, Plymouth.
Mr. Thomas Huxham, Chemist, Dartmouth.
Mr. John Gidley, Chipley Park, near Wellington, Somerset, Land Agent to E. A. Sandford, Esq.
Mr. Charles Hodson, Land Agent to the Rev. J. R. Hogg, Blagdon Barton, near Totnes.
Mr. P. P. B. Newcombe, Seedsman, Oakhampton.

LONDON MANURE COMPANY (Established 1840).

Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE DORSETSHIRE POULTRY SHOW will be held in Dorchester on WEDNESDAY and THURSDAY, October 28 and 29, when 14 Pieces of Plate will be offered for Competition, in addition to the Society's Prizes. A List of the Prizes to be awarded may be had by forwarding an envelope, addressed, and six postage stamps, to G. J. ANDREWS,
Dorchester, Sept. 26. Hon. Sec.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non-Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, SEPTEMBER 26, 1857.

OF the contents of THE ENGLISH AGRICULTURAL SOCIETY'S JOURNAL, just published, there is not a single page which would have been anticipated had reporters for the weekly Agricultural Journals been permitted to attend the weekly meetings of the Society.

Mr. BENNETT's essay on the Farming of Bedfordshire was not read at any of these meetings; the reply of the Rev. S. SMITH to the Rothamsted Experience of Lois-Weedon Husbandry had not appeared before; Dr. VOELCKER on Farmyard Manure, the Rev. F. MANBY on the Cultivation of Early Potatoes, Mr. CURTIS on the Insect Plagues of Pasture Lands, Mr. DENTON upon Roads, and Mr. VALLENTINE on Winter Beans—all these are altogether new as they now appear in the pages of the Journal; and any portion of Mr. HORSFALL's paper on Dairy Management that is not entirely new had previously been communicated by him directly to our own columns. Our reporter at the weekly meetings of the Society could not have forestalled the Journal in a single instance of all that has just been published in its pages. His presence there could not, as it proves, have spoiled the freshness of the Society's own organ of communication with its members in the very least.

But would not his services, if they had been accepted, have done the Society and its members some good? Where is the report of the lectures at those weekly meetings from which he was excluded—the full report which was deserved of Mr. HENFREY's lecture on the nutrition of plants, of Mr. WAY's lecture on guano deposits, of Professor SIMONDS' report on cattle murrain? These lectures were delivered before audiences, respectively, of about 20, 12, and 40: Mr. HENFREY, Mr. SIMONDS, Mr. WAY, who addressed these audiences, are among the very first in their respective spheres of labour and of study. No one can speak with a fuller, more trustworthy, or more laboriously acquired intelligence on their respective subjects: no one has deserved a larger agricultural audience than they.

The treatment of the Society's members as regards their interest in these addresses has been simply this:—They have been invited on certain evenings of the month to hear the highest scientific authorities on points, some of them, of the most pressing and immediate agricultural importance: the lecture room cannot hold one per cent. of their number, and if it could, not one per cent. of their number can be reasonably expected to attend: reporters who could overcome these difficulties and give the lecturer an audience worthy of his powers and his subject—an audience, too, anxious to listen to his statement—are excluded! Does the Society, then, give its own report of these lectures?—we gather, indeed, from the number of its Journal just published the information that these lectures have been given; but there is not a word of information on the subjects of them to be found in the volume! Are its 5000 members willing that the whole force of the Society with which its office bearers are charged for the general good, shall be so administered by them for the future as that the whole of the benefit derivable falls to the share of the 20, 12, or 40, who alone it seems are able to fall in with the plan they have adopted! It will, we think, be hardly possible after the experience of the past session for the Council to continue the exclusion of the only means that can give value to their labours or general interest to their meetings.

We have during the past few weeks been reading through the agricultural journals of the past 12 months, in order to draw up in as condensed a form as possible the agricultural history of the period—and we find that the two subjects which more than any others have occupied the thoughts of farmers and engaged the anxious consideration of the whole agricultural body during the time in question have been (1) the deficiency of the supply of guano, and (2) the risk of an imported cattle murrain. The daily papers, the weekly journals, agricultural societies, Parliament and Government have all repeatedly been occupied with questions connected with these two subjects since the beginning of the year. *The current number of the Society's Journal does not contain one word upon either of them.* It is not that the Journal does not profess to record the agricultural information of the period. Its tables of weather, health, and prices are for the half year to which itself belongs, and many of its papers contain the very latest additions to our knowledge due to the labours of our most distinguished agricultural chemists. It is not that the Society has not itself been labouring in connection with the subjects so strangely omitted from the pages of its Journal. Its officer was sent to Eastern Europe to study the then, as it was thought, impending murrain; its influence has been often brought to bear on Government in connection with imported guanoes, and its chemist, as we have said, has delivered a most interesting lecture on the regions whence additional supplies may most reasonably be looked for.

Why the reports of Professor SIMONDS and of Mr. WAY—the former of them *promised* in the Journal—have not yet been published does not appear; we only know that the difficulty, whatever it may be, which stands in the way of the appearance of these reports in the Journal of the Society six months after they were read, does not stand in the way of their appearance in our columns two days after their delivery. The hindrance to their appearance here is simply the *refusal* of the Council of the Society to permit the immediate report we would gladly give. It is hardly to be thought that the existing Council will continue the policy of their predecessors in this matter.

They ought hardly to continue to decline the assistance which has so often been proffered them, and which costs them nothing, after the signal instances before us of their inability to publish the information themselves.

THE waste of manure by exposure to the air appears from Dr. VOELCKER's researches to be due much more to loss by solution than to loss by evaporation. Dung, it appears, contains a mere trace of free ammonia at any time. "In perfectly fresh horse-dung the amount of free ammonia is scarcely weighable, it being only about three parts in every 100,000 parts of dung, or 3 lbs. for every 40 tons; the same description of manure in an active state of fermentation yields somewhat more, but still a very inconsiderable quantity of free ammonia. Thus under the most favourable circumstances 100,000 parts of horse-dung yield only 49 parts of free ammonia, or in other words 40 tons in round numbers yield on long-continued boiling only 49 lbs. of ammonia. It must not be supposed, however, that this quantity of ammonia is dissipated into the air during the fermentation of the dung, for it is only in the interior of the dung-heap that ammonia is liberated. It is, indeed, only on turning a heap that ammonia escapes at all in any

perceptible degree; but as soon as the external layers have become cooled down to the ordinary temperature of the air its escape is arrested. There can, therefore, be not the slightest doubt that a very minute quantity of ammonia passes into the air and the remainder is fixed in the heap, provided the heap is kept in such a manner that rain cannot remove from it much of the soluble matters, and with them ammoniacal salts."

Dr. VOELCKER thus declares that there exists no such urgent necessity as has been supposed for fixing ammonia in farm-yard manure; and in his recent paper on the subject in the English Agricultural Society's Journal he refers to the use of Mr. M'DOUGALL's disinfecting powder in terms altogether condemnatory of its uses in this way. He says:—

"This powder possesses, indeed, excellent disinfecting properties; and had the inventor confined his remarks to the sanitary question involved in the use of his powder, no room would have been left to call in question its utility as a disinfectant. But as he describes, in addition to its disinfecting properties, others which I have not found confirmed in my experiments on the subject, I am anxious to correct any erroneous views to which some of Mr. M'DOUGALL's statements may have given rise."

DR. VOELCKER quotes Mr. M'DOUGALL's pamphlet "On the Preservation of the Natural Manures," which states the claim of the inventor of this powder, and the "perfect" theory he has formed of its action, and he declares that in point of fact the preservation of manure is not effected by its means, and that on chemical grounds the theory must be pronounced wild rather than "perfect."

A series of experiments were performed to determine the merits of the disinfecting powder as compared with a mixture of gas lime and gas tar and a mixture of slaked lime with gas tar. All three were at once efficient in the removal of animal smell; but the escape of ammonia was not hindered by any of them. The conclusions on the whole to which the experiments led were:—

"1. That Mr. M'DOUGALL's powder is unfit to fix any ammonia in dung.

"2. That its deodorising effects are not due to the sulphite of magnesia or sulphite of lime, but to the alkaline constituents which it contains.

"3. That, instead of fixing ammonia, it liberates, like all alkaline matters, ammonia from its combinations.

Dr. VOELCKER adds:—

"It is well known, however, that animal excrementitious matters, when deodorised by lime, after some time give off again a disagreeable odour; and it is very likely that sulphite of magnesia and sulphite of lime, on account of their great affinity for oxygen, will prevent this evil by stopping the further decomposition of animal matters deodorised by lime. Considered in a purely sanitary point of view, M'DOUGALL's powder may therefore possess advantages over quicklime as a disinfectant. Still it is difficult to conceive how such a farther decomposition can be arrested practically by the use of this powder, for it appears to me that this can only be realised by the employment of so large a quantity of powder as to render the process altogether too expensive."

Having repeatedly intimated the success of M'DOUGALL's powder as a destroyer of foul animal smells, and published the results of such experiments at the time when the powder was first offered for sale—it is right that we should also publish the results to which Dr. VOELCKER's trials of it lead him.

We gather from them that, however valuable in a sanitary point of view, the powder in question is not likely to be of much value in the farm-yard, in the tank, or in the dung heap.

EXAMINATION OF THE TEETH OF CATTLE AT AGRICULTURAL EXHIBITIONS.

THERE is among farmers in general an entire want of faith in the evidences of age afforded by the teeth. The cry continually is—"so much depends on how the animal has been done! so much difference is perceived in those of the same age that no opinion can be more than vague." This loose method of attack is difficult to parry, because nothing is asserted that can be denied, and the absence of any exact knowledge on the part of the objectors renders explanation of doubtful utility. As an investigator of this subject during the past 7 years I should be the last to deny the effects of breeding and feeding; nor would I disguise the irregularities of dentition in animals that have been equally well cultivated. Nevertheless, I hope to show in spite of these considerations that the teeth afford very useful indications of age, at least sufficiently exact to prevent any imposition being attempted without a very decided probability of exposure.

In proceeding to explain to the agriculturist the system on which I should found an opinion, I am actuated by a wish to satisfy his mind as to the justice of the conclusions rather than to teach him to draw conclusions for himself; and further I must premise that at present I refer only to improved breeds, such as short-horns, Herefords, Devons, and others that receive the special attention of the breeder and feeder. In some uncultivated native breeds a different standard would be necessary; this however is of no importance in the present inquiry.

The classes in which age is a matter of restriction are "not exceeding two years," and "not exceeding three years." Beyond this it is justly considered that age is a matter of no particular importance. In the first class we find animals at the age of nine months, one year, 15, 20, and even 23 months. During these periods the milk teeth in front of the mouth are gradually suffering wear, and from the growth of the jaw show spaces between them, but the wear depending so much on the kind of food consumed, no very exact opinion can be formed; fortunately however the back teeth are available at a time when the incisors are unsatisfactory. At five or six months the fourth back tooth is in its place; at nine or 10 months it is well worn and level, while at about one year and a quarter the fifth back tooth presents itself; being quite level at one year and six months from this time to two years, we judge by the shedding of the centre milk teeth and the cutting of the two first broad teeth. These organs I have seen in two cases stated to be a little over one year; in one the condition of the fifth molar tooth flatly contradicted the assertion, in the other the evidence was interested and by no means satisfactory. I have not found the broad teeth in the mouth at all until after one year and six months. One tooth may be up at that time, but more commonly they both pass forward together about one year and nine months; their full development indicates two years. The test however is the sixth back tooth, which passes into the mouth at one year and nine months, and is fully up at two years, correcting thus any erroneous conclusions drawn from a premature appearance of the broad teeth. In the first class therefore we are tolerably well off for evidence. An animal whose age was incorrectly stated would stand a poor chance of escape.

At this point I venture to correct a wrong impression that is current, to the effect that an animal is not disqualified in consequence of misrepresentation, so long as the age does not exceed the limit. The attempt to pass any animal for younger than he actually is at the time would generally be held sufficient to justify his rejection, although under the limited period. In the class "under three years" we have all ages between two years and three; during this time the other six teeth are frequently cut. Judging from the incisor teeth alone we should be likely to consider such an instance as expressive of three years and six months; but all chance of error is avoided by reference to the three anterior molar teeth, which are changed during the third year. About $2\frac{1}{4}$ years the change commences—one or two teeth may be out; by $2\frac{1}{2}$ years usually two of the three permanents are in the mouth; near three years they are all cut, but never level before the completion of the year, and never worn until two or three months after. In the second class, therefore, not much chance exists of any mistake, even when the incisor teeth are exceedingly forward; still less chance when these organs follow the rule of developement. These changes I have more minutely described in my pamphlet on the teeth of the ox; but at present enough has been explained to justify the system of examination, and show the impropriety of allowing any interested evidence to set aside an opinion based on such definite indications. With the question of attempted fraud, how frequent, or by what evidence supported, I have little to do. It is, of course, apparent that the majority of exhibitors are perfectly honest in their statements; examination proves this. In the exceptional cases of mis-stated age, I hold that any man who would attempt the imposition would certainly have no scruples about supporting his assertions to the best of his ability, and if stock owners would consider how much they are at the mercy of the cattle man who may consider it a very meritorious and sporting thing to do the examiners and judges by passing off an older animal, they would be careful even in asserting what they believe to be true. However exact a man may be in his entries, I know for a fact many are not in a position to identify, without the herdsman's assistance, the animals whose births they have registered. Knowing from experience how lightly such frauds are esteemed by many, and how easily they may be made to seem truth, I confess to a total contempt for all interested evidence, even when the temptation to deceive is no more than the mere wish to support a preconceived opinion. In matters of science it becomes a duty to doubt all but the most decisive and disinterested testimony. *George T. Brown, Professor of Veterinary Surgery, Royal Agricultural College.*

THE THEORY OF MANURES.

ORDINARY soils are comparatively poor, and hence the necessity for manure, that is, for restoring to the soil what has been removed in the crop, especially the phosphates and alkalies, the ingredients most easily exhausted. The excreta of animals, solid and liquid, being rich in these substances, are the best manure; because they contain the phosphates and alkalies in the proportions required for plants, and also in the proper forms, since they are derived from the plants on which the animals have fed, and are, indeed, nothing else than the ashes of those plants. But farm-yard manure is not valuable only as containing phosphates, but also as containing ammonia or sources of ammonia, and organic matter, which serves as a source of carbonic acid. The most essential elements of manure are the phosphates and carbonaceous matters; for the latter supply a solvent, carbonic acid, for the phosphates both of the manure and of the soil; and if this solvent be supplied, and the soil or manure supply also phosphates, alkalies, and sulphates, the air will furnish ammonia, *provided time be given.* This has been practically demonstrated on a large scale by Liebig, who, by manuring a barren and worthless soil with phosphates, alkalies, silica, and sulphates alone, obtained excellent results with wood and other perennial crops; but found the result less favourable with cereals and other annual crops, which require a large supply of phosphates in a short time. He next added to the mineral manure sawdust, to yield carbonic acid, and now he obtained excellent results even for annual crops, although no ammonia was added, and the atmosphere supplied all the nitrogen. But it is certain that when the supply of phosphates is rapid, as it was here from the solvent action of the decaying sawdust, the air can supply any amount of ammonia, which cannot be assimilated without abundance of phosphates. The further addition of ammonia to the mineral manure and sawdust brought it to the state of farm-yard manure, and then the same result is obtained in a still shorter time—a point of much importance in temperate or cold climates. Of course, to render, as in this experiment, barren soil fertile, is an expensive process, from the necessity of adding to it so great an amount of mineral matter. But wherever a sufficient quantity can be added to it, without raising the cost of the improved barren soil to or above that of fertile soil, then, by the judicious cropping and manuring of the improved land, its artificial fertility, like that of a soil originally fertile, may be kept up from its own produce, aided by the action of the weather, and if economically procurable, by liming.

Farm-yard manure, solid and liquid together, is the standard or model manure, and the object of all artificial manures is, in part or in whole, to imitate or replace it. The best sources of phosphates, next to farm-yard manure, are bone-dust and guano. Bone-dust is composed of phosphates and gelatine. Guano is the decaying residue of the excrements of sea-fowl fed on fish, and contains phosphates and salts of ammonia, with some carbonaceous matter. It is evident that both resemble farm-yard manure, more or less, and that both are deduced, like it, from the vegetable food of animals; for the fish consumed by the sea-fowl fed on other fish, which fed on animalculæ, which fed on sea-plants. Another valuable source of phosphates is that of beds of phosphate of lime, derived from extinct animals. There are such beds, of vast extent, in Spain: others have been found near the Rhine, and in Canada; and beds more or less entirely composed of coprolites, the fossil excrements of fish and reptiles, fed on other animals, are abundant in England, as well as in other countries. These may be called fossil guano, and only differ from recent guano in having lost their ammonia and carbon. All these are extremely valuable as manures.

But we must never forget that the best and most economical of all manures is farm-yard manure, or what is the same thing, the night-soil and urine of inhabited places. In large cities the amount of this invaluable matter is prodigious; it represents, in fact, as far as phosphates go, the whole food of the inhabitants; and yet, from ignorance or carelessness, the greater part of it is wantonly cast into the sea, from which a mere fraction is, at a great expense, recovered as fish and guano. There are, no doubt, some practical difficulties in the way of saving the whole of the contents of our sewers in large cities; the chief of which is, the enormous amount of water added to them in order to wash them away from our habitations. But the subject has at length been taken up in earnest, and there are no difficulties which may not be overcome. The bone-dust we import, at a high cost, from other countries, is lost to them, and is to us only a circuitous mode of recovering a small part of what we have thrown away. In process of time no nation will consent to sell bone-dust, save at a price which will render its use impossible; and we must come to that to which the Chinese, with their practical sagacity, have come many centuries ago, namely, the principle of restoring to the land everything taken from it in the crops; the only principle on which agriculture can be permanently or profitably conducted on average soils. The amount of phosphates in our edible crops is far beyond anything ever seen in natural wild plants; and, therefore, the supply required by a dense population, and obtained in the excessive development of seeds and roots in cultivated plants, must be given to the soil in the shape of manure, the best being that derived from man, who consumes the crops. The rotation of crops, which takes advantage of the fact that one crop requires more of one ingredient and less of some other than another crop does, and the occasional use of fallow, which allows the weather to act and to render soluble a fresh supply of mineral matter, are only different branches of the best method of following out the great principle of agriculture above enunciated. The cereals and Grass require more silica; Turnips and Potatoes more of the alkalies; Peas, Beans, Clover, and other Leguminosæ, more lime and sulphates; and thus may be alternated with great advantage, although all require a full supply of phosphates. For details on these important subjects, which our space forbids us to enter upon more fully, but the principle of which we have endeavoured to explain, the reader is referred to Liebig's Agricultural Chemistry, to the third edition of his Letters on Chemistry, and to

small work recently published by him, the "Principles of Agricultural Chemistry."*

A mistake is often made in the use of artificial manures, which is caused by ignorance of the principles on which they act. The farmer has added guano, bone-dust, or gypsum, and has obtained a very heavy crop. He repeats the dose, and a failure ensues. The reason is, that the first addition had enabled the crop to assimilate all the available alkalies, silica, or sulphates present in the soil, or the greater part of them, so that on the second addition of phosphates, there was a great deficiency of one, or another, or of all these matters; and as all are equally essential, the deficiency of any will cause failure. On restoring the balance success again will be the result. Good farm-yard manure is the only one not liable to this cause of failure, because it is the only complete manure; the others being more or less partial, or confined to one substance. Of course the same risk of failure exists, if the artificial manure added at first with success has been potash, or salts of ammonia; for the addition of any of these, if previously deficient on the soil, will enable the crop to take up a large proportion of the others, or of phosphates, and may exhaust it of any one for the time. This ought particularly to be attended to, as when a special manure acts, it does so by exhausting the soil, *pro tanto*, of all the *other* necessary mineral ingredients.

The ashes of wood, peat, or coal, are valuable as manure, containing the mineral elements of wood, and of those plants from which peat and coal have been formed; mixed, in coal, with clay and sand. The ashes of straw are very valuable, especially for Grass or the straw of corn. In general, the ashes of any crop are best mineral manure for that plant. The burning of Heath, or of the turf pared from moor-land soil, is useful in two ways; first, by the action of heat on the felspar in the soil; secondly, by supplying the ashes. By examining the ashes of the plants which grow naturally on any soil, we can easily discover what are the most valuable constituents of that soil, and thus judge of the proper addition to it. The ashes of any crop are identical with the ashes of the excreta of the animals fed on that crop.

The addition of ammonia to any soil, in the manure, can only be of use in so far as that soil contains, in an available form, a due proportion of alkalies, silica, phosphates, common salt, oxide of iron, and sulphates; and the same is true of every special manure. A soil, if totally deficient in any one necessary ingredient, will be absolutely barren. Thus, if all the other matters be present, and phosphates, or sulphates, or alkalies be alone absent no plant can grow there; but the addition of the ingredient which is wanting will convert the soil into a very fertile one. If a soil be fertile for Turnips or Potatoes, and will not yield corn or hay, it is deficient in soluble silica, essential to straw. If a soil yield Grass and straw, but not corn, as sometimes happens, this may arise from deficiency of magnesia, which, in the form of phosphate, is essential to the husk of grain, so that in its absence no perfect seed is formed. Bran and wine, which both contain phosphate of magnesia, are on that account, and on many others very valuable for corn. A soil on which corn grows, while Clover or Peas do not, is probably deficient in available lime or in gypsum. But in some plants the absence of one base may be supplied by another, potash by soda, lime by magnesia. When a soil is deficient in most, or in all, of the necessary mineral matters so often mentioned, it is hopelessly barren. Such is the case with the soil of districts where quartz rock prevails, or where the soil has been derived from that rock, as is seen in part of the north-west of Ireland. But happily such soils are rare, because such rocks are rare in any great extent. The deserts of Asia and Africa are barren, not because the soil is devoid of the mineral food of plants, but because of the want of water. Even in the desert, every spring is surrounded by an oasis of vegetation.

We have said that the presence of decaying organic matter in the soil is useful in two ways; as a source of carbonic acid, which principally acts, dissolved in water, as a solvent for lime, magnesia, and phosphates; and as a source of ammonia. Both of these enable the plant to assimilate the necessary mineral matter in a far shorter time than it could without them; and this is a point of very great importance in our climate, where the summer is short compared with that of tropical regions. To illustrate the power of water containing carbonic acid to dissolve phosphate of lime, insoluble in pure water, I may state that I found the carcase of a horse, buried on the slope of a hill, which was moist and undrained, when taken up after 14 years, to have shrunk into a flat cake (the change, most probably, had been effected in a much shorter time,) which was entirely composed of fatty acids from the fat of the animal. The muscles and membranes, nerves and vessels, had putrified and disappeared, and not a trace of bone-earth was to be found. The whole had been dissolved by the water percolating through the body, and had thus been carried down to the lower ground. I found the water, like all water that passes through soils, to contain carbonic acid, and this had been the solvent. Hence, if cemeteries are placed in a high situation the bone-earth is rapidly carried down to the valleys in a moist climate. In a dry situation, bones remained unaltered for centuries, as in the sandy soil of the field of Cannæ, on which the bones of those killed in that battle are often found to this day entire, though having lost much of their animal matter. The solvent power of carbonic acid must act in every soil, and hence the value of humus on the soil and of decaying organic matter in manure. *Gregory's Handbook of Organic Chemistry.*

* Walton & Maberly, London.

PRELIMINARY NOTICE OF RESEARCHES ON THE ASSIMILATION OF NITROGEN BY PLANTS.

By MESSRS. LAWES, GILBERT, and PUGH.

BRITISH ASSOCIATION: DUBLIN, *Sept.* 1, 1857.—SECTION B.—The great importance of settling the question, whether or not plants can assimilate the free nitrogen, of which the atmosphere to such a great extent consists, was first illustrated. In a purely scientific point of view the question was of high interest; and if answered in the affirmative, this would add a striking fact to the history both of nitrogen itself and of the vegetative functions. A true theory of many agricultural facts and practices also required a definitive solution of this debated point. The earlier writers supposed that the free nitrogen of the air could be taken up by plants. De Saussure and others came to an opposite conclusion; and this latter view had been pretty generally adopted by scientific observers. M. Boussingault, in particular, had adduced experimental evidence to show that plants did not assimilate the free nitrogen of the air. But during the last few years an extensive and elaborate series of investigations had been made by Mons. G. Ville, of Paris, the results of which led him to conclude that plants sometimes assimilated a considerable amount of free nitrogen. M. Boussingault had followed up the inquiry in various ways, and still maintained the opposite opinion. It was, hence, highly desirable that others should undertake the subject; and it was the plan of the authors to this end, and the indications so far obtained that they now brought for discussion before the section. They described the several methods adopted by M. Boussingault and M. Ville respectively, and then illustrated by drawings their own methods and progress. In all cases their plants grew, in the first instance, in soil and atmosphere destitute of all combined nitrogen except that contained in the seed sown. To some, however, as their growth seemed to indicate the need, for the sake of comparison, small and known quantities of ammonia were supplied. Drawings of the progress of the plants showed a very considerable increase of growth where this ammoniacal supply was given. In some of these cases the plants promised to yield seed, and their height and general development was pretty natural.

In other instances, where only the combined nitrogen of the seed sown, and the free nitrogen of the air, were available, the plants remained exceedingly small, and withered before coming to perfection. The quantitative result could not, however, be known until the growing plants, the soil, and the pots in which they grew were analysed; when the debtor and creditor account, so to speak, of the nitrogen could be made up. Collateral researches were briefly described, the object of which was to throw light on the relation of the gases evolved during the growth of plants to constituents actually assimilated; and also others, to show whether free nitrogen was a product of the decomposition of organic matters under certain circumstances. A discussion followed, in which the President and Professor Daubeny took part. The latter gentleman expressed his satisfaction that the question of the assimilation of free nitrogen by plants was now taken up, and was being investigated on such a considerable scale at Mr. Lawes' Laboratory; for he had read with some surprise the apparent sanction given by a Commission of the Academy of Sciences of France to the opinions of M. Ville, which so many scientific considerations would lead us to hesitate in adopting. After further remarks from Dr. Gilbert, Dr. Pugh entered into some fuller explanations illustrating the methods adopted and the difficulties and sources of error to be overcome or avoided.

Home Correspondence.

Theory of Drainage.—In your article on the theory of drainage (Sept. 12), you speak of Dalton's rain gauge. There is a point connected with its action which should be noticed. First, as to capillary attraction: to speak generally, soils will hold in suspension one-third of their bulk, and one-fourth of their weight of water. So long as any free water remains in the soil it rises by capillary attraction to supply the place of that evaporated from the surface. When the free water is gone, the lower soil parts with a portion of that held in suspension by capillary attraction, and the evaporation extends gradually downward. The amount so evaporated must be replaced before any rain water can percolate the lower portions of the soil. Now Dalton's rain gauge having only a certain depth of soil, which is shut off from the subsoil; can allow no free water to rise as in the natural soil. The evaporation from the soil in the gauge will proceed in a more rapid ratio, and it will consequently require more rain fall to replace the water so evaporated. Though, as you say, "the earth loosely placed in Dalton's gauge is much more likely to transmit the rain which falls upon it than the same depth of earth can be in ordinary circumstances, the lower half at least never having been disturbed since the Deluge." The question rather is—in what ratio has the earth in Dalton's gauge parted with its water held by capillary attraction?—for until this water is replaced, depend upon it, Dalton's gauge will register no percolation. It has been observed that the wells in the chalk district have frequently indicated a percolation of water when none has been registered by Dalton's gauge. As to the rising of free water in soils by capillary attraction, carefully conducted experiments tend to show that in chalk and such like substances there is no limit to the depth from which the water will rise to replace that evaporated from the surface. We know that chalk downs with 100 feet to the water never burn. Examine the chalk almost immediately beneath the turf, and it will be found fully saturated with water, though the evaporation is immense. *J. C. Clutterbuck, Long Wittenham Vicarage, Sept.* 15.

Substitutes for Grass and Clover.—Probably few of your correspondents reflect upon the benefit they are conferring, when they sit down and relate their experience to you on the subject of some paper they have read in your publication. Under this impression I am induced to lay before you some remarks on what I have experienced this year, in the hope that you will favour them with a place in your respected Paper, that I may derive the benefit of the suggestions or advice of those who have had more practical experience in agriculture than myself. I will describe the fields by numbers, show how they were managed, and the result of the seeds; and must observe, that for 10 or 12 weeks there was no rain on the farm, except two thunder showers a month apart, a circumstance not known there for upwards of 20 years. Field No. 1.—About 8 acres, was highly manured with good farm-yard dung, and Yellow Globe Mangel Wurzel seed drilled on the ridges at the proper season, with an abundant supply of superphosphate and guano. Field No. 2.—About 14 acres; had Oats drilled in the spring (after Mangel Wurzel), and at the proper time had Red Clover seed sown and rolled. Field No. 3.—About 10 acres; was cleaned last autumn; laid fallow during the winter, and had nothing but Permanent Grass seeds sown over it during the spring, expecting feed from it this autumn. Fields Nos. 4, 5, and 6.—About 30 acres altogether, containing Wheat and Oats; were also sown over in the spring with Permanent Grass seeds and rolled as usual. The soil is stiff and retentive, and being in an elevated position naturally cold. The tillage is heavy and expensive, and it is not intended to plough the Grass land up again, if a better course can be devised. The seeds were obtained from one of the principal seedsmen in London. The result is as follows:—None of the Mangel Wurzel seed ever came up, and the Clover and Permanent Grass seeds are scarcely visible; in fact, there are no signs of them. The failure of the crops has been attributed to the long drought, and the heat of the sun destroying the germinating power of the seeds. The principal object of this inquiry is to ascertain the best opinions, through the medium of your Paper, of what is the best course to be pursued to make up the deficiency of Clover and fodder that will take place next autumn. *Dentatus.*

Lois-Weedon.—In "J. B. M.'s" experiment we have a further and very convincing proof to those adduced by "I. A. C." of the necessity of sticking close to Mr. Smith's instructions in any plan of tillage taking on itself the name of Lois-Weedon, the want of attention to them surely ending in discomfiture. Mr. Smith obtains crops above the average of his neighbourhood, and I would not give a fig for his system if it did not everywhere realise it. Now, "J. B. M." says, "The soil in which I am trying it is a gravelly land in Berks, which grows good Barley, and if well cultivated 4 or 5 quarters of Wheat." And yet he is content if his modification of the Lois-Weedon plan will give him 3 quarters; surely if he can reckon on no more it would be better to abandon his modification and follow out in its integrity Mr. Smith's plan, for surely 3 quarters in a soil capable of yielding 4 or 5 is a sufficient indication of inefficiency. "J. B. M." is not very clear in this matter, but as I understand him he has not attended to that leading principle on which I take it the Lois-Weedon system is founded and mainly depends for success—the early bringing up of fresh mineral matters. Mr. Smith, as soon as the rows of Wheat are distinctly seen, commences to fork up the intervals to a depth somewhat exceeding previous operations, bringing to the surface some 2 or 3 inches of fresh subsoil, to be acted on by the atmosphere for nearly 12 months, in which time it requires to become fertilised, or its insoluble mineral contents rendered soluble, and in a state fit to be taken up by the succeeding year's crop. This most essential operation "J. B. M." seems to have totally neglected; it has formed no part of his plan; his forkings seem to have had no other object, nor to have been of greater depth than for the extraction of Couch, the only subsoiling he mentions having taken place in the spring of 1857, and for which he debits his account with 6*s.*, a sum totally insufficient to the raising of subsoil. Did "J. B. M.'s" field receive the same fallowing treatment as Mr. Smith's, I do not see, if its mineral contents be adequate to it, why he should not realise a continual annual crop equal to that which his soil is capable of yielding under good treatment and ordinary tillage; the variation of two rows in 4 feet, although I know it to be contrary to Mr. Smith's opinion, not constituting, I think, any material difference. To carry out effectually the Lois-Weedon system, the subsoil that is brought to the top should be raised before winter so as to allow as long a time as possible for mellowing, the actions of frost and thaw being also useful in breaking it down; this subsoil should never again be buried in the ensuing summer's tillage work, the future operations being only for the cleaning the ground and tearing up the continually forming surface crust. The surface may be opened to any depth by fork, grubber, or what not, the newly raised subsoil not

being again covered but left exposed to immediate atmospheric contact. Indeed, I do not find that "J. B. M.'s" experiment is entitled to any claim on Lois-Weedon; even as a modification of the plan I see nothing in the statement of it that indicates any attention to those principles, the basis on which it rests. He does not appear to have brought up any fresh matters to restore those used up by previous crops, and to maintain the mineral fertility of the soil; the subsoiling he mentions as taking place in the spring of 1857 must not be so considered. The price paid for the work seems too small to admit the supposition of any having been brought up, and the spring was no time to effect it in. If I have in any point misunderstood "J. B. M." he may perhaps have the goodness to set me right. He will I hope excuse the strictures on his paper which I have thought it expedient to make; I assure him they are conceived in no bad spirit. The spread of the true principles on which the Lois-Weedon system is founded being my only anxious wish, and that nothing should be brought forward by friend or foe without being canvassed which may in any way tend to prejudice it. *J. M. Goodiff.*

Reviews.

Report on the means of Deodorising and Utilising the Sewage of Farms, &c. By Henry Austin, C.E., Chief Superintending Inspector of the Board of Health. Presented to Parliament by command of her Majesty.

We refer to the existence of this blue book for the purpose at present merely of extracting the conclusions to which Mr. Austin's examinations and inspections have led him. Among them are the following:—

"That although the means of remedy by deodorisation appear to be as yet but imperfectly understood, and demand further investigation, various processes have for a long time been in more or less successful use for this purpose. That the employment of some of these, known to be destructive of the fertilising power of sewage, would involve expense without any return; and although such expense, if unavoidable, should unhesitatingly be incurred to avoid any permanent danger to the population, it appears that other deodorising materials are not destructive of that fertilising power. That it is most important, therefore, to determine whether the fertilising elements in the refuse are presented in such form as to be practically available for agriculture, either in the solid state or the liquid form, so as to avoid the injurious consequences, and enormous waste of throwing away the sewage.

"That the nature and value of the chemical constituents of the fæcal matters in sewage having long been known to physiologists and chemists, and admitted to contain all the elements necessary for the food of plants, the recent discussions as to its practical value for agriculture have not arisen from any doubts on that point; but from the uncertainty whether, being diluted in the large bodies of water employed for the drainage of towns, that value is realisable.

"That chemical research has not yet arrived at any satisfactory method of economically arresting from solution the fertilising ingredients in sewage, while the analyses of solid sewage manures, manufactured under various patents, show, that although for the most part possessing a certain low value, they do not justify the high prices at which they have been offered to the public; nor does there appear to be evidence of any agricultural results derived from their use, which will support such a view of their value.

"That the manufacture from excrement of a dry portable manure, as practised at Paris, although realising results of greater value, is applicable only where the cesspool system prevails, and leads to an aggravation of the nuisance of that system, which due regard for the public health would not tolerate.

"That the practical experience obtained during many years at Edinburgh and Milan, has shown the great value of sewer water on Grass lands, although applied in a state of great dilution; while valuable experiments have shown the power of soils to remove from solution, and retain for vegetation, the fertilising elements.

"That notwithstanding the enormous quantities of sewage water which have been applied to the land at Edinburgh, the produce is said to be always in corresponding ratio to such quantity, and that the limits of quantity to be applied, and of produce to be realised, have not yet been ascertained.

"That the precise value of the manure in a given quantity of sewer water may be readily determined, and, therefore, that the corresponding quantity of water which must be applied to convey a certain required quantity of such manuring elements on to the land, may be at any time known.

"That although such immense agricultural results have been obtained from irrigation with sewage water at Edinburgh, the method employed has given rise to much complaint of nuisance. That this arises for the most part from foul deposits in wide ditches, and from the large evaporating surfaces of the sewage constantly exposed in the channels of irrigation.

"That all such sources of nuisance and danger are preventible, and should not be tolerated. That no ditches should be used, and that the sewage should be exposed only during the act of irrigation of each portion of the land, when it would be immediately absorbed and deodorised by the soil.

"That in order to avoid all further risk of injury to health, whether from discharge of the sewage into the rivers and streams, or from its application to the land, it appears desirable that the solid matter should in every case be separated from the liquid sewage at the outfall, and that a cheap portable manure should be manufactured therefrom for use in the immediate neighbourhood, as practised at Cheltenham. That it should be mixed with the ashes of the town, or such other deodorising material as may be most suitable for application to the surrounding land, and prepared, if desirable, with other manuring ingredients for particular crops.

"That the liquid portion of the sewage, thus cleared of its solid matter, but still retaining its chief value as manure, might then be applied with benefit to the neighbouring lands in any quantity; but that all land upon which this method of application of the sewage is practised should, if not naturally porous, be artificially drained; as the liquid, if allowed to become stagnant, would, as in common irrigation, be likely to engender disease in the neighbouring inhabitants, or in cattle exposed to its influence.

"That the distribution of manures in the liquid state by the hose and jet, from a system of underground pipes on the land, has been found, by the experience of several years upon farms in England and Scotland, most advantageous, and that the outlay for such works is considered by eminent agriculturists, who have had experience of their benefits, as a very profitable outlay, irrespective altogether of the question of sewage distribution.

"That although the adoption of the same system at Rugby, and other places, for the distribution of liquid sewage, has been found decidedly successful, the great Edinburgh results are not attainable by this method, unless conjoined with more ample and ready means for getting much larger quantities of sewage on a given area, in less time and with less labour and expense than can be done with the hose.

"That upon Grass lands, for which the application is best adapted, these larger quantities of the liquid sewage, deprived of its grosser particles, may be economically distributed, especially upon the lower levels, by a combination of the underground pipe system with the subsidiary open irrigation by small contour gutters, practised by Mr. Bickford, of Crediton. (*Journ. Eng. Agri. Soc.* vol. xiii.)

"That the solid sewage manure, prepared and deodorised as above proposed, may be anywhere used, and any quantity of the liquid applied on absorbent or properly drained land, without any risk of injury to health, and without any of the offensiveness constantly experienced from farm-yard and other solid manures applied as top-dressings."

Miscellaneous.

Queen's College, Birmingham.—We are happy to observe that the Examiners for Honours in the respective departments of this College have conferred the degree of Bachelor of Civil Engineering (B.C.E.), which the Council under Royal Charter is empowered to confer, on James George Tuxford, the youngest son of William Wedd Tuxford, head of the firm of Tuxford & Sons, Agricultural Engineers, Boston, Lincolnshire.

Unwholesome Cottages.—The man who builds a house and does not provide for its sufficient drainage and ventilation entails the generation and propagation of many diseases, and more especially of fever, on children yet unborn. I am aware that considerable attention has been directed of late to these matters in our towns and cities, but I want a plan devised for every house to be built in future, however rural and solitary may be its site. In my immediate neighbourhood two cottages have been lately built—of stone walls and slated roofs—each comprising a bedchamber upstairs and a little kitchen and a smaller back kitchen downstairs. The houses are neat, and, being new, have a cleanly appearance, and the unprofessional observer might merely think that the little nook of ground where once a dungheap stood had been put to a better use at last; but on looking more closely he will find that the water which comes down from the precipitous ground behind the houses must be "pooled" at the back doors behind them, and, of course, will shortly become foul. On entering one of the houses, new though it is, he will perceive the frequent, indescribable smell of the poor man's house, and especially of his back kitchen, in which are the stairs by which he ascends to his bedroom. On going up-stairs he may observe the beds to be tolerably clean; the floor looking well, for it is new; but alas! there is no chimney in a room which does not afford even 100 cubic feet for each of a family consisting of two adults and five children. Now, let Paterfamilias get sick—let corn be dear—let winter come—let the wife be a slut—let the sole window face the east—let the elder children come home from their work in wet clothes, to be laid at night in the only bedroom—let all stew together the long night—"father is sick and cannot bear the window open," and there is no chimney—must not the air become contaminated, and must not the poor woman send for the doctor? The new workhouse has probably taught him what real ventilation can do, but what can he do here? The window, opened a few inches while he is present, will be closed the moment he disappears; and he looks about for a chimney, and there is none. The best thing he could do would be to push his walking-stick through a pane or two of glass, but it would look unkind to do so, and "mother" would surely stuff them with old rags, for "father cannot bear the cold." "How have you no chimney?" he asks the owner. "Because, though I agreed for it with the tradesman, I suppose he forgot to put it in." So little importance is attached to that great blessing, pure air. Under such circumstances the writer of this note has sometimes had a hole struck through the roof—the best place for a ventilator—but one cannot succeed in carrying so strong a measure until a life or two have been lost. Now, we all know the improvements which have taken place in the matter of air aboard emigrant ships. Authority has decreed for their inmates fresh air; let us trust that ere long no parsimonious wretch will be allowed to erect unwholesome cottages whose air shall decimate the poor man's family, and whose effects shall not stay its course at the rich man's threshold. I would humbly propose that in future the plans of every house, whether for gentle or simple, about to be built should be submitted to the inspection of the registrar of the district, and that he should be empowered to call in some competent builder or architect to assist in the inspection at the builder's expense; that so every precaution may be taken against the generation and propagation of disease. The more simple the agency the more effective. *M. R. C. S.*, in *the Times.*

Relations of Landlord and Tenant.—While I would congratulate the farmer on the past, and encourage him to progress, I would also say that a large responsibility rests upon the owners of property. I have heard the observation made, that really there are no such persons as landlords—that they are only fiefs of the Queen! Interesting as may be this fact to all loyal subjects of our beloved and gracious Sovereign, it is, I think, a truth more adapted to the age in which we live, and one more pregnant with important results, that we all hold our property for the benefit of the community at large. But how do we as landlords practically acknowledge this responsibility, if we still persist to have the leases of our lands to our tenants drawn replete with antiquated covenants, perpetuating the prejudices of former ages, and wholly unadapted to the present improved mode of land culture? Landlords should consider that property has its duties as well as its rights; and that they would be acting more in the furtherance of their own interests when they had an intelligent energetic farmer for a tenant, and one anxious to improve, to leave him more free and unfettered than is generally done at present. Not that I would wish to see agreements and covenants to farm done away with; I consider them most valuable, but I wish to see them liberal in their character. Those generally prevailing in this country are very objectionable. Half fallows, half dressings, and half foldings, with other items, swell up to fearful amount the valuation of a tenant farmer, at a time when he requires all the capital which he has, to meet other charges, and to stock his farm. These should be taken by the landlord, and done away with. Every farm should have also good buildings. How can a landlord expect to see his farms well cultivated and dressed if he does not provide his tenants with suitable buildings to house and fat their stock? Though in a sheep-feeding country extensive buildings may not be so important as they are in a grazing and beast-fatting district, yet I would say let every farmer have good well-ventilated stables for his horses, good warehouse room for his corn, and good houses in which he may preserve his implements from the weather—and let all these buildings have ample gutters. The rain-water collected and preserved in large tanks will be found to be of more value when applied to the use of the living animals on the farm, than when permitted to saturate and wash away the properties of the manure heap. *Rev. R. Beynon.*

Notices to Correspondents.

KOHL RABI: *S X.* The roots are pulled and cut below the bulb and carried home. The leaves are stripped, and the bulb cut up as a Turnip. You must not expect a second crop of leaves.

POULTRY: *Anna.* We consider the ducklings sufficiently old to have had access to a running stream or pond, and would confidently advise that the old one be placed in a coop on dry turf, a little distance from the water, and be there confined for a day or two, after which we should not hesitate to give her liberty during a part of the day, lengthening by degrees her leave of absence. We find no fault whatever with the manner of feeding, but suggest that the ducklings be given plenty of Barleymeal, and a little whole corn, the latter to be gradually increased.

REAPING MACHINE TRIALS: *R.* These appear to excite quite as much interest in America as in England. We take the following tables from an account of competition at Hamilton and at Chesterton, U.S. At the former place there were entered for trial 17 mowers, 16 reapers, and 13 combined mowers and reapers. The mowing machines, tested by the dynamometer, showed the following results:—

	LBS. DRAFT.	WIDTH SWATH.
Ohio harvester.. ..	425	5 feet 5 inches
Iron do.	375	5 " 8 "
Hilts' do.	325	5 " 10 "
Allen's mower	287	4 " 8 "
Atkin's	325	5 " 2 "
Kirby's	362	4 " 9 "
Whiteby's	350	5 " 6 "
Manny's..	350	6 " 0 "
H. F. Mann's	375	4 " 6 "
Ohio mower	400	4 " 8 "
Forbush's improved ..	350	4 " 0 "
Ball, Aultman & Co. ..	275	4 " 8 "

The reaping machines tested by the dynamometer showed the following results:—

	LBS. DRAFT.	WIDTH SWATH.
Atkin's	275	5 feet 6 inches
Kirby's	200	5 " 0 "
Whiteby's	225	6 " 0 "
Whiteby's self-raker ..	250	5 " 2 "
Manny's..	300	6 " 0 "
Hussey's	225	6 " 0 "
Iron harvester	250	5 " 10 "
Ohio	275	6 " 0 "
J. J. Mann & Son ..	300	5 " 6 "
M'Cormick	300	6 " 0 "
"	275	4 " 8 "
Hiltz	225	5 " 10 "

The prizes were awarded as follows. *For Mowers.*—1st, 50 dols. to Manny's combined, entered by Baldwin, Dewitt, &

Co., Cleveland; 2d, 30 dols. to Ohio mower, entered by E. Ball, Canton. *Reapers.*—1st, 50 dols. to Atkin's self-raking, entered by R. Dutton, Dayton, O.; 2d, 30 dols. to Ohio harvester, entered by Warder, Brokaw, & Child, Springfield, O. *Combined Mowers and Reapers.*—1st, 50 dols. to Manny's; 2d, 30 dols. to iron harvester, entered by Long, Black, & Allstutter, Hamilton, O.——At Chesterton there were 14 reapers, and reapers and mowers combined, upon the ground, though of these only 13 entered into competition. The following were the premiums as offered by the Maryland State Agricultural Society, and awarded by the judges:—For the best reaper and mower combined, 100 dols. to Manny's patent with Wood's improvement; for the best reaper with self-raking attachment, 75 dols. to Owen Dorsey's patent; for the best reaper, 50 dols. to R. L. Allen's patent; for the best mower, 50 dols. to Manny's patent with Johnson's improvement. The following discretionary premiums were awarded:—To Ketchum's combined reaper and mower, 50 dols.; to Hussey's reaper of 10 feet cut, 50 dols. There were but two entries of machines for gleaning and raking:—The wire spring-tooth gleaner, by R. Sinclair & Co., to which was awarded the premium of 20 dols., and Dulanay's independent rake, by J. Attlee of Carroll Co., Md. Messrs. Rogers & Boyer's "Allen's improved" was highly commended, and the judges were much struck with the ingenious mode in which the raker's labour was diminished by the use of the pivot rake. Atkin's self-raker was, as it is everywhere, the theme of praise for its wonderful ingenuity and human-like action; but with all the great merit it possesses, and it is very great, the judges thought it was much surpassed by the far more simple and almost as ingenious invention of Mr. Dorsey. The following table gives the cost, dimensions, weight, &c., of most of the machines at the above trial:—

Names of Machines.	Wood's Manny.	Johnson's Manny.	Dorsey's self-raker.	Atkin's self-raker.	O. Hussey's 5 feet.	O. Hussey's 10 feet.	Ketchum's.	Hull's Ketchum.	R. L. Allen.	S. S. Allen's improved.	Ray's.	Ball's Ohio mower
Price at place of manufacture	110 dols.	133 dols.	150 dols.	200 dols.	130 dols.	,,	130 dols.	..	160 dols.	185 dols.	130 dols.	121 dols.
Dynamometrical measurement of draught	515 inc.	650 inc.	502 inc.	596 inc.	527 inc.	810 inc.	612 inc.	508 inc.	530 inc.	642 inc.	551 inc.	512 inc.
Diameter of driving wheel ..	30 ,,	33 ,,	31 ,,	48 ,,	36 ,,	..	48 ,,	..	48 ,,	33 ,,	36 ,,	32 ,,
Face or tread of driving wheel	6 ,,	Same as Wood's Manny.	6 ,,	4½ ,,	6 ,,	..	6 ,,	..	6 ,,	6 ,,	8½ ,,	5 ,,
Diameter of spur pinion ..	4½ ,,	4 inc.	..	4 ,,	4½ ,,	..	..	..	..	4½ ,,	[Double cam.]	52 ,,
Diameter of crown gear ..	19 ,,	2¾ ,,	..	..	..	..	..	..	..	28 ,,	28 in.	
Diameter of bevel wheel ..	14 ,,	1000 lbs.	11 ,,	14 ,,	..	..	36 ,,	..	..	14 ,,	7¼ ,,	
Diameter of bevel pinion ..	4¼ ,,		3¾ ,,	3¼ ,,	4½ ,,	..	..	..	..	5 ,,	60 ,,	
Advance in one vibration ..	2¼ ,,		2¼ ,,	..	3 ,,	..	2¼ ,,	..	..	2¼ ,,	8 ,,	
Length of vibration	3⅝ ,,		3¼ ,,	5 ,,	3 ,,	..	3⅝ ,,	..	..	3⅝ ,,	2¼ ,,	
Width of swath	56 ,,		60 ,,	62 ,,	60 ,,	..	60 ,,	..	56 ,,	58 ,,	60 ,,	
Base of swath	4 ,,		3 ,,	2 ,,	3 ,,	..	4 ,,	..	..	3¼ ,,	8 ,,	
Base to apex of cutter ..	2¾ ,,		3 ,,	1¼ ,,	3 ,,	..	3¼ ,,	..	..	2¼ ,,	2¼ ,,	
Weight of combined machines	850 lbs.	1000 lbs.	800 lbs.	1200 lbs.	..	..	900 lbs.	..	800 lbs.	850 lbs.	972 lbs.	700 lbs.

PAPERS' WASTE: *W B.* When first turned out they contain carbonate, sulphuret, and sulphite of lime. By exposure and burning, the latter becomes converted into sulphate of lime. When well burned, or exposed to the air till it becomes a white powder, it consists of sulphate and carbonate of lime. In most works the ashes are wheeled out to a large heap, which is in a constant state of internal combustion; and when well burnt the farmers fetch them away. They are valued on stiff land. You must not apply them to growing crops, nor should you sow anything immediately after their application. If, however, left for a week or two on the soil, the perfect oxygenation of their sulphur would be effected, and they then are harmless and beneficial. It is worth while giving 2*s.* a ton for them, and hauling them six or seven miles. They apply a ton per acre.

SOLUBILITY OF MANURES: *Q.* Manures are more immediately efficient in proportion to their solubility; hence the greater efficiency of superphosphate of lime over bones—hence the comparative inefficiency of wool waste as manure—hence the greater efficacy of bones which have crumbled down by fermentation in sand. Blood manure is a superphosphate in which blood takes the place of the water commonly used. Clay and lime both absorb matter which is agriculturally useful from gas, the former especially becomes in this way so charged that 1 or 1½ ton are a sufficient dressing per acre.

SWEDISH TURNIP; *Agricola.* The seed was tried on a light sandy soil in Surrey, and yielded about 20 tons per acre of a very well formed bulb—several other kinds were tried along with it—and it was thought that the bulk of the field sown with your seed was superior to many of the kinds in the experimental plots.

TO USE THE MATERIAL REMOVED IN CLEARING A POND: *J C.* We would let the mud drain a bit, and then mix it in layers with unslaked lime, and in a few days turn it over. If your object is to keep the water clear for the future, burn some 6 inches of the clay on which it rests, and spread the burned material, as they have done in the lakes at Sydenham. Water Lilies are easily cultivated.

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These Pumps are fitted with J. W. & SON'S Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

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PATENT CAST-IRON PUMPS, fitted with J. W. & SON'S Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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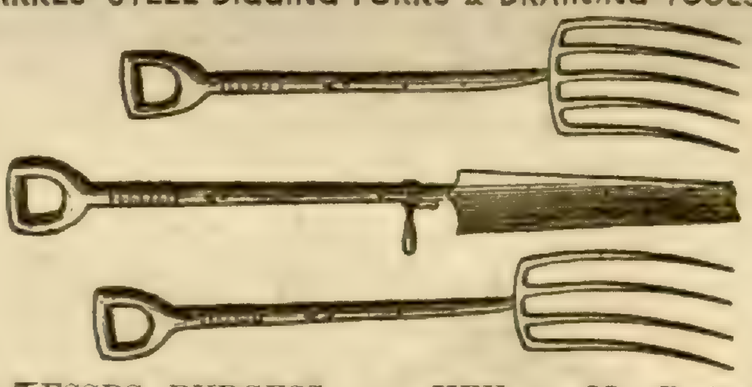

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Cut to the Sizes ordered.	Thickness in parts of an inch. ½	3/16	¼	⅜
Under 8 by 6	0 4	0 5	0 6	0 8
8 by 6 and under 10 by 8	0 5	0 6	0 7	0 9
10 by 8 ,, 14 by 10	0 6	0 7½	0 9	0 10
14 by 10 ,, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½	0 11
1½ ft. sup. ,, 3 ft. or if above 20 and not above 30 in.	0 7	0 8½	0 10	0 11
3 ,, 4 ,, 20 ,, 30..	0 7½	0 9	0 10½	1 0
4 ,, 5 ,, 30 ,, 35..	0 8	0 9½	0 11	1 1
5 ,, 6 ,, 35 ,, 40..	0 8½	0 10	0 11½	1 1
6 ,, 8 ,, 40 ,, 45..	0 9	0 10½	1 0	1 1
8 ,, 10 ,, 45 ,, 55..	0 9	0 10½	1 0	1 1
10 ,, 12 ,, 55 ,, 65..	0 9	0 10½	1 0	1 2
12 ,, 15 ,, 65 ,, 75..	0 10	0 11	1 0	1 3
15 ,, 20 ,, 75 ,, 90..	0 11	1 0	1 2	1 3
20 ,, 25 ,, 90 ,, 100..	1 1	1 2	1 3	1 4
QUARRIES	0 6	0 7	..	..
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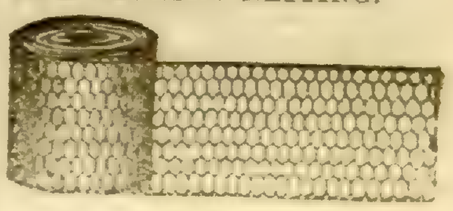

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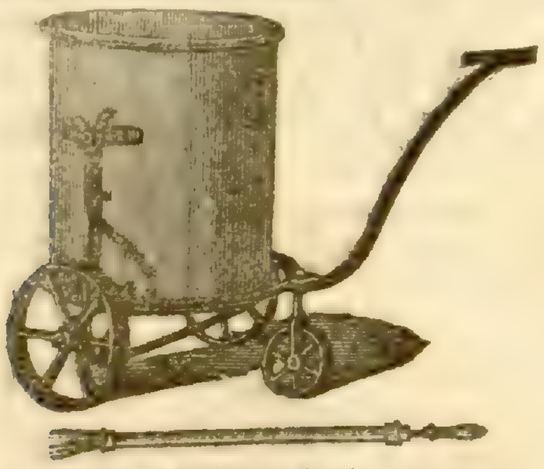
(To Hold Thirty Gallons)
Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

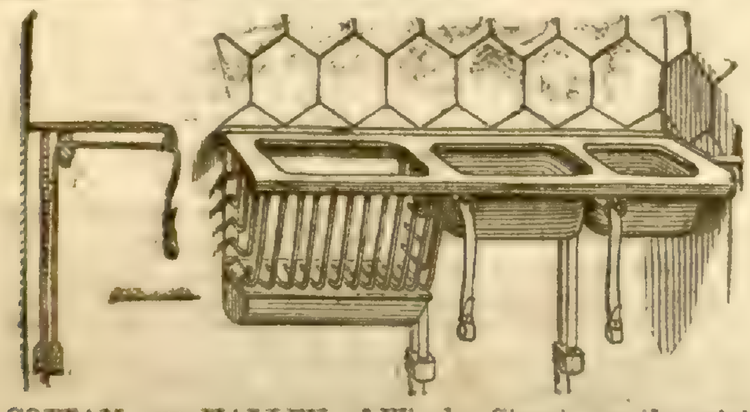


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

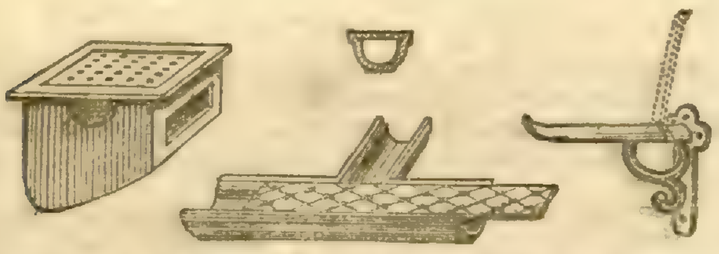
Fountains suitable for Conservatories, Lawns, &c.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the origina inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



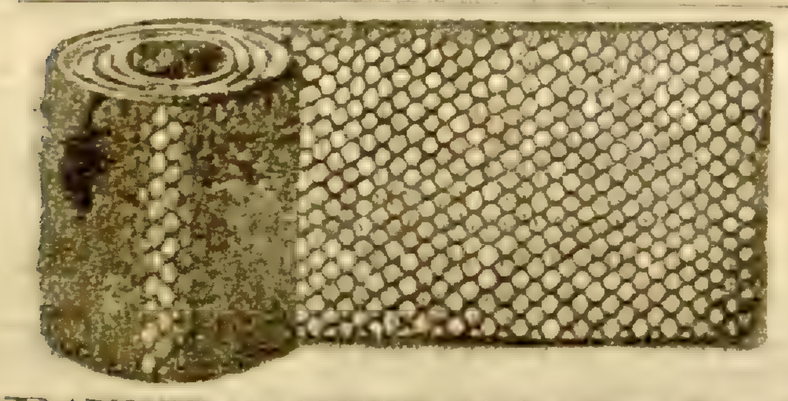
COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.



BARNARD AND BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong do.	6 ,,	4¾ ,,
2-inch ,, intermediate, do. ..	7 ,,	5½ ,,
2-inch ,, extra strong, do. ..	9¼ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4¼ ,,
1⅝-inch ,, strong, do.	6¼ ,,	5¼ ,,
1⅝-inch ,, intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

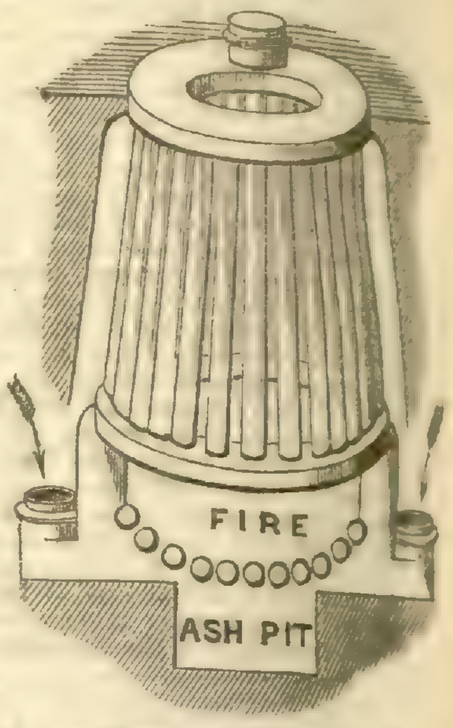
MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings:—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.



See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

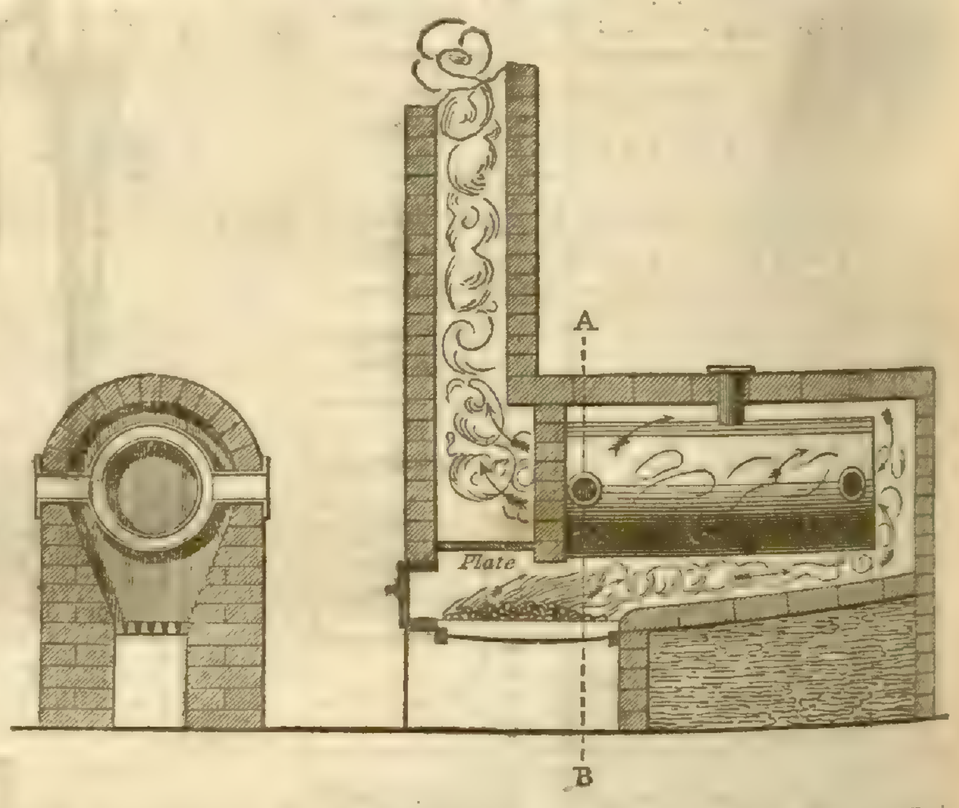
JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

THOMSON'S RETORT BOILER,

MANUFACTURED BY

ALEXANDER SHANKS & SON, Arbroath, Forfarshire.

THE following are some of the advantages afforded by the use of THOMSON'S RETORT BOILER. The Boiler is so constructed that the greatest possible amount of surface is placed over the fire. In proportion to its surface it contains a very small quantity of water, thereby causing the circulation to begin almost immediately upon the application of the heat. Every part of the Boiler admits of being swept clean of soot in about a minute; the advantage of this is obvious, for soot, when settled on the Boiler, acts as a non-conductor and prevents the action of the fire on the Boiler. The Boiler is so constructed that it can be fixed inside a house or pit, so that heat can be radiated from it without the possibility of any escape of smoke or noxious gas, and thus the whole action of the fire may be within the structure to be treated by it. The Boiler admits of a perforated pipe being so fixed as to throw jets of air into the flame at the point where it begins to return through the Boiler, which tends to more perfect combustion and in a great degree to the consumption of smoke. Two of these Boilers have been fixed to supersede SEVEN of the modern Tubular Boilers in one of the most extensive Early Forcing Establishments near London, where they heat the one 750 gallons, the other 580 gallons of water, in 28 divisions of Forcing Houses and Pits mostly span-roofed. The Boiler has never failed to give universal satisfaction. In undertaking the Heating of Forcing Houses, A. SHANKS & SON are prepared to attach Mr. Thomson's highly improved plan of supplying moisture to the atmosphere of such Houses.



Further particulars with prices may be learned on application to the Manufacturers; or to Mr. VEITCH, of the Royal Exotic Nursery, King's Road, Chelsea, where the Boilers may be seen at work.

HORTICULTURAL WORKS.

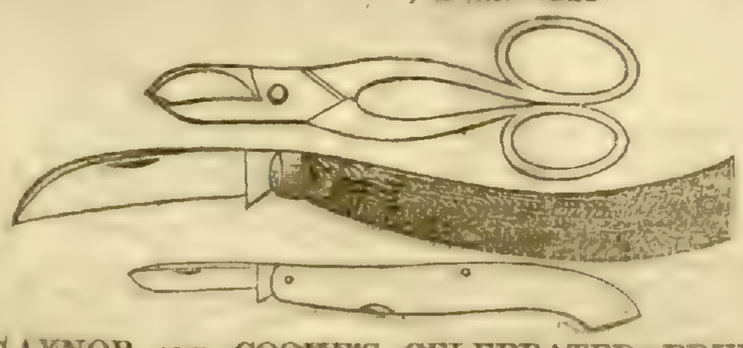
HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS.

Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-Water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

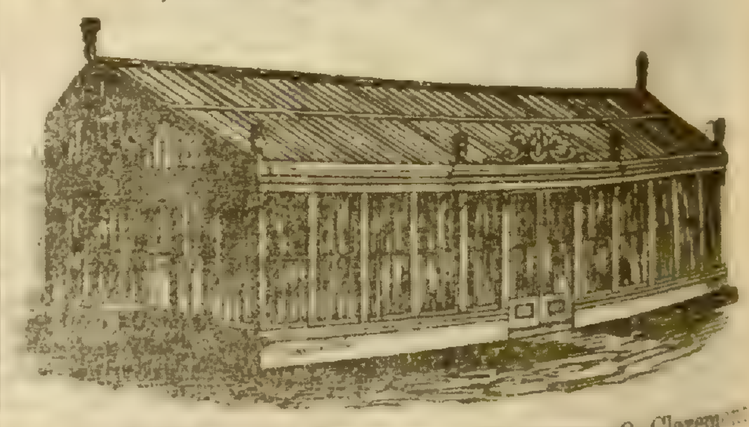
Plans and Estimates forwarded on application as above.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready glazed with stout sheet glass, painted four times, complete ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be made to the Nobility, Gentry, and the Trade in most of the counties of England.

PRIZE MEDAL, PARIS EXHIBITION 1855.

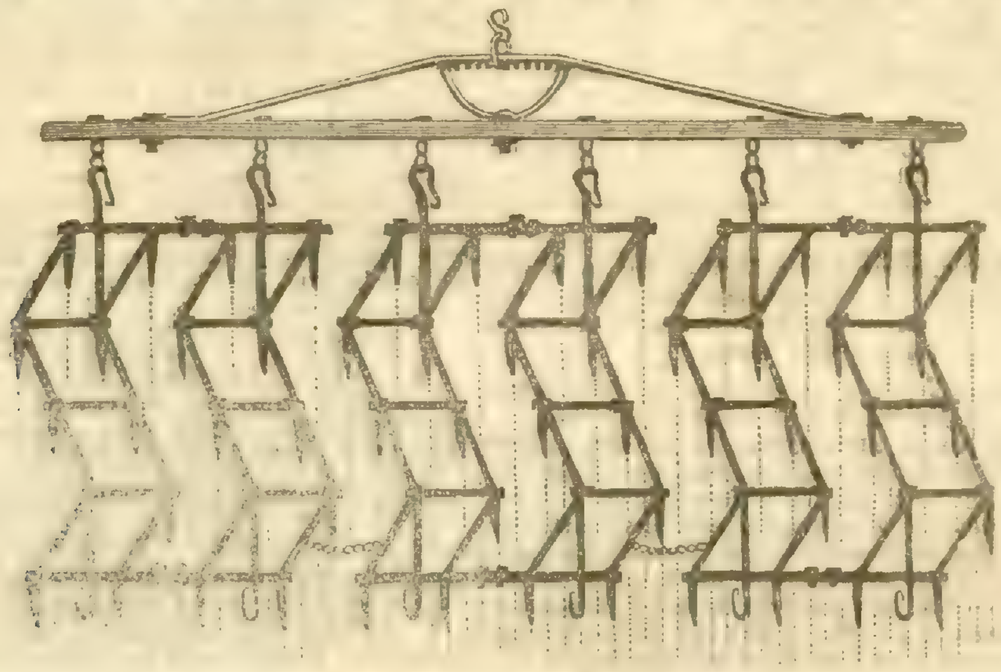
METCALFE, BINGLEY, AND CO.'S New Patent and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb and Perfumery for the Toilet. The Tooth Brush search thoroughly between the divisions of the Teeth and clean them more effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6d. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2s. per box; and of the New Bouquets.—Sole Establishment 130, 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

PATENT PRIZE-JOINTED HARROWS.



FOR which they received the following FIRST PRIZES last offered by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, viz.:—

THE FIRST PRIZE FOR THE BEST GENERAL PURPOSE HARROWS.
THE FIRST PRIZE FOR THE BEST LIGHT HARROWS.
THE FIRST PRIZE FOR THE BEST DRAG HARROWS.

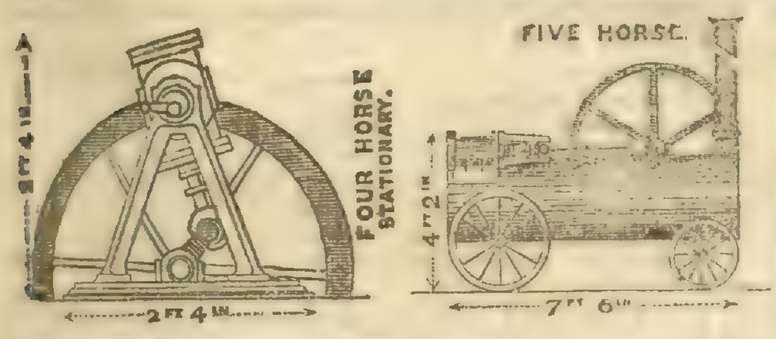
REPORT OF THE JUDGES UPON THE AWARD OF THESE PRIZES.

"First Prizes awarded to Messrs. HOWARDS' Harrows, for their moderate price, their peculiar zig-zag form, and being jointed so as to suit round stetches or flat lands. They have also a simple contrivance of hoop-iron under the nuts, which keeps them in place. They have the advantage of double-draught hooks, and the teeth are well arranged. These Harrows covered their ground well, cut deeply, and might be broken either way."

A Set of 3 Four-beam Harrows, with Whippletree, No. 12, 9½ feet wide, recommended as general Seed Harrows .. £3 14s
A Set of 3 Four-beam Harrows, with Whippletree, No. 11, 10 feet wide, adapted for three horses .. .. .. £4 4s.
If with Patent Joints, as above, 6s. per set extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

TO AGRICULTURISTS, CONTRACTORS, AND OTHERS.



MESSRS. SIMPSON AND BARNES, ENGINEERS' MANUFACTURERS of SAWING and PLANING MACHINERY, HYDRAULIC PRESSES, and all kinds of MILL WORK, Openshaw, near Manchester, beg to call attention to their recently improved STEAM ENGINES, Portable and Stationary, which will burn either Coal, Wood, or Coke.

Messrs. S. & B. desire to draw particular attention to the strong and simple arrangement of their Engines, which renders them well adapted for use in Country Districts, and for Exportation. These Engines are of very superior quality, and being fitted with large Cylinders, they work economically, and at moderate pressures.

N.B. The Portable Engines can be supplied immediately.

SCALE OF PRICES.

PORTABLE ENGINES.		HORIZONTAL STATIONARY ENGINES.	
1-Horse Power	£40	1-Horse Power	£28
2 ,, ...	70	2 ,, ...	34
3 ,, ...	105	4 ,, ...	44
4 ,, ...	125	5 ,, ...	55
5 ,, ...	150	6 ,, ...	65
6 ,, ...	175	8 ,, ...	84
7 ,, ...	190	10 ,, ...	101
8 ,, ...	210	12 ,, ...	116
9 ,, ...	235	14 ,, ...	130
10 ,, ...	260	16 ,, ...	142
11 ,, ...	285	18 ,, ...	154
12 ,, ...	310	20 ,, ...	165

OSCILLATING ENGINES.		BOILERS AND FITTINGS.	
1-Horse Power	£18	1-Horse Power	£30
2 ,, ...	24	2 ,, ...	32
4 ,, ...	36	4 ,, .. .	36
5 ,, ...	45	5 ,, ...	45
6 ,, ...	54	6 ,, ...	55
8 ,, ...	70	8 ,, ...	71
10 ,, ...	86	10 ,, ...	87
12 ,, ...	102	12 ,, ...	104
14 ,, ...	116	14 ,, ...	120
16 ,, ...	130	16 ,, ...	138
18 ,, ...	142	18 ,, ...	154
20 ,, ...	154	20 ,, ...	170

PUMPING ENGINES.

2-in. diam. of pump ..	£24	5-in. diam. of pump ..	£42
2½ ,, ,, ..	27	6 ,, ,, ..	48
3 ,, ,, ..	31	7 ,, ,, ..	57
3½ ,, ,, ..	33	8 ,, ,, ..	72
4 ,, ,, ..	36	9 ,, ,, ..	95
4½ ,, ,, ..	39	10 ,, ,, ..	125

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, pliable, and glossy. In the growth of the Beard, Whiskers, and Moustachios it is unfailing in its stimulative operation. For Children it is especially recommended as forming the basis of a beautiful head of hair. In dressing the hair nothing can equal its effect, rendering it so admirably soft that it will lie in any direction, and imparting a transcendant lustre. A small pamphlet accompanies each bottle of ROWLANDS' Macassar Oil, wherein important hints and advice will be found on the Culture of the Hair of Infancy, and on its preservation and beauty through the several stages of human life.—Price 3s. 6d. and 7s.; family bottles (equal to four small), 10s. 6d.; and double that size, 21s. CAUTION.—On the wrapper of each bottle are the words "ROWLANDS' Macassar Oil," &c., in white letters on a lacework ground, and their signature, "A ROWLAND & SONS," in red ink.—Sold at 20, Hatton Garden, London; and by Chemists and Perfumers.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4l. 14s. to 13l. 13s.; ditto, with ormolu ornaments and two sets of bars, 5l. 5s. to 22l.; Bronzed Fenders, with standards, 7s. to 5l. 12s.; Steel Fenders, 2l. 15s. to 11l.; ditto, with rich ormolu ornaments, 2l. 15s. to 18l.; Fire-Irons, from 1s. 9d. the set to 4l. 4s The BURTON and all other PATENT STOVES, with radiating hearth plates.

GASELIERS IN GLASS OR METAL.—The increased and increasing use of gas in private houses has induced WILLIAM S. BURTON to collect from the various manufacturers in metal and glass all that is new and choice in Brackets, Pendants, and Chandeliers, adapted to Offices, Passages, and Dwelling Rooms, as well as to have some designed expressly for him; these are ON SHOW over his SIXTEEN LARGE ROOMS, and present for novelty, variety, and purity of taste, an unequalled assortment. They are marked in plain figures at prices proportionate with those which have tended to make his Establishment the largest and most remarkable in the kingdom, viz., from 12s. 6d. (two-light) to 16l. 16s.

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 Illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Gaseliers, Tea Urns and Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.—ESTABLISHED 1820.

BLAIR'S GOUT AND RHEUMATIC PILLS, price 1s. 1½d. and 2s. 9d. a box.—Thirty years ago to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine are so fully demonstrated by testimonials from persons in every rank of life, and public opinion proclaims this as one of the most important discoveries of the present age. These Pills require neither attention nor confinement, and are certain to prevent the disease attacking any vital parts.—Sold by PROUT & HARSANT, 229, Strand, London, and all Medicine Vendors.

HIGHLAND AND AGRICULTURAL SOCIETY OF SCOTLAND.—The following distinguished Awards have marked the superiority of RICHMOND & CHANDLER'S numerous CHAFF MACHINES, CORN CRUSHERS, OIL-CAKE MILLS, TURNIP CUTTERS, &c., in competition with the best Makers in every class, exhibiting at the Glasgow Show, August 5, 1857:—

First Prize for best Chaff-Cutting Machine for Hand.
First Prize for best Chaff-Cutting Machine for Power.
First Prize for best Corn Crusher for Hand.
First Prize for best Corn Crusher for Power. [Sheep.
First Prize for best Double-Action Turnip Cutter for Beast and
First Prize for best Oil-Cake Breaker for Beast and Sheep.
First Prize for best Root-Washing Machine Also. [Slicer.
Specially Commended for Steaming Apparatus and Turnip

Works—Salford, Manchester;
Branch Establishment, South John Street, Liverpool.

THE WELLINGTON AND BEDFORD NURSERIES.

TO BE LET, with immediate possession, the Wellington and Bedford Nurseries, Clapham; or the Lease (19 years unexpired) to be sold. There are 13 Glass houses, newly painted and in complete repair.—Particulars to be had of Mr. THORP, 26, Upper Albany Street, Regent's Park, N.W.

TO BE DISPOSED OF, A SEED BUSINESS, occupying a commanding situation in the largest provincial town in England. Stock light, to be taken at a valuation: also the Fixtures.—Apply, by letter, to A. B., Messrs. Hurst & M'Mullen, Seedsmen, Leadenhall Street, London.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, Oct. 6, at 12 o'Clock precisely, POULTRY and PIGEONS of choice quality, including fine Cochins, Brahmas, Hamburghs, Dorkings, Spanish, &c., many of which have taken prizes at the Crystal Palace and other shows. The Pigeons include a draft from Mr. Bult's celebrated stud, with others from well-known breeders of choice stock.—May be viewed on the morning of Sale, and Catalogues had by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

SHACKLEWELL.—To GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Buck to sell by Auction, on the premises, Manor Nursery, Shacklewell, near Kingsland, on TUESDAY, October 12, at 11 o'Clock, the Erections of 11 Greenhouses, some of them nearly new; a quantity of 4-inch Hot-water Pipe, Boilers and Fittings, Furnaces; ½-inch Slate Slab; Foot and Pan Tiles; a capital Tumbril Cart, nearly new; 2 Pumps, Garden Pots, Mould, Manure, and sundry effects. Also the Lease for the unexpired term of seven years of the premises.—May be viewed three days prior to the Sale; Catalogues had on the premises: of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone.

FOR INVESTMENT OR OCCUPATION.—FREEHOLD AND COPYHOLD ESTATE, AND MESSUAGE AND PREMISES, SUSSEX.

MESSRS. DAVIS AND VIGERS are directed by the assignees of Mr. Richard Smith to Sell by Auction at the Auction Mart, on WEDNESDAY, September 30, at 12 for 1 o'Clock, in Two Lots, viz.:—Lot 1. FREEHOLD and COPYHOLD ESTATE, comprising a FARM of 97 Acres of highly productive Arable, Pasture, and Hop lands, known as Spilsteds, in the parish of Sedlescombe, in the eastern division of the county of Sussex, three miles from Battle, nine from Hastings and St. Leonard's, and 49 from London, with convenient Homesteads and suitable buildings and Four Cottages; also 34 Acres of Brookland, in the parish of Whatlington, known as Whatlington Brook. Lot 2. A MESSUAGE and PREMISES, known as the Tan House, in Sedlescombe Street, let at 46l. per annum.—The property may be viewed, and Particulars and Conditions of Sale, with Plans, had of Messrs. SOLE, TURNER, & TURNER, Solicitors, Aldermanbury; W. B. YOUNG, Esq., Solicitor, Hastings; Messrs. MARTIN, Solicitors, Battle; Messrs. ELLMAN & WHITMARSH, Solicitors, Battle and Rye; at the Marine Hotel, Hastings; the George, Robertsbridge; the Sussex Hotel, Tunbridge Wells; the Rose and Crown, Tunbridge; of H. H. CANNAN, Esq., Official Assignee, 18, Aldermanbury; at the Auction Mart; and of Messrs. DAVIS & VIGERS, 3, Frederick's Place, Old Jewry, London.

FREEHOLD AND COPYHOLD ESTATE, SUSSEX.

MESSRS. DAVIS AND VIGERS, in conjunction with Messrs. Ventom & Son, are directed by the Assignees and Mortgagees of Mr. Richard Smith to Sell by Auction, at the Auction Mart, on WEDNESDAY, September 30, at 12 for 1, in Lots, desirable FREEHOLD AND COPYHOLD ESTATES, comprising about 1400 acres of very productive Land, in the parishes of Whatlington, Sedlescombe, and Ewhurst, in the Eastern Division of the county of Sussex, 4 miles from Battle, 9 from Hastings and St. Leonard's, and 56 from London, divided into four Farms, with convenient Homesteads and suitable Buildings, and known as Footman's, Great and Little Swale's Green, and the New Barns; also 15 Cottages, the Toll House on the Hastings Road, a Butcher's Shop in the village of Sedlescombe, and two Inclosures of Accommodation Land in the parish of Westfield.—The property may be viewed, and Particulars and Conditions of Sale with Plans, had of Messrs. SOLE, TURNER, & TURNER, Solicitors, Aldermanbury; W. B. YOUNG, Esq., Solicitor, Hastings; Messrs. CLARKSON & SON, Solicitors, Angel Court, Throgmorton Street; Messrs. MARTIN, Solicitors, Battle; Messrs. ELLMAN & WHITMARSH, Solicitors, Battle and Rye; H. H. CANNAN, Esq., Official Assignee, 18, Aldermanbury; Messrs. VENTOM & SON, 7, Angel Court, Throgmorton Street; at the Auction Mart; and of Messrs. DAVIS & VIGERS, 3, Frederick's Place, Old Jewry, London.

IMPORTANT SALE.

THE PARK FARM, MARESFIELD, SUSSEX.—VALUABLE AND PURE-BRED SOUTHDOWN SHEEP, OXEN, HORSES, SWINE, AND SUPERIOR AGRICULTURAL IMPLEMENTS OF THE MOST IMPROVED DESCRIPTION, &C.

MR. E. DRAWBRIDGE begs to announce that he has been honoured by instructions from Sir J. Villiers Shelley, Bart., M.P., who is relinquishing a portion of his Farms, to offer for Sale by Auction on SATURDAY October 3, the valuable and pure bred Southdown Flock, Horses, Oxen, Swine, &c. The FLOCK (which has been selected without regard to cost, from the most eminent breeders of the day) comprises 140 Full-mouthed Ewes, six Rams, 200 strong Wether Lambs, and 100 Stock Ewe Lambs. The OXEN, HORSES, &c., comprise 25 pure bred Sussex Working Oxen and Steers, 2-year-old Sussex Heifer, five 2-year-old Shorthorn Steers, three yearling Shorthorn Steers, and two Guernsey and one Runt Milch Cows. The Horses consist of 14 valuable and well-bred Cart Horses, and three ditto Mares in foal by Sir John Shelley's celebrated Suffolk stallion. There are also eight fine-boned well-bred Breeding Sows, a superior Boar, and 50 Store Hogs and Shuts. The IMPLEMENTS comprise a variety of waggons, carts, ploughs, harrows, manure carts, water carts, together with numerous machines on the most improved principle and of the best construction. Luncheon will be provided in a booth in the field at Ten o'clock. The Sale will commence as soon after that hour as possible, on account of the large number of Lots.—Catalogues to be had in due time of the Auctioneer, Scaynes Hill, Lindfield; and at the various Inns at Lewes, Uckfield, Tunbridge Wells, and Hailsham.

REIGATE SILVER SAND (best quality for Florists), 16s. per ton, or 1s. 6d. per bushel, delivered five miles, or to any London Wharf or Railway. PEAT and LOAM of various kinds, in large or small quantities. Strong sacks, 2s. each; or on hire, 6d. each.—John Kennard (Purveyor to Her Majesty), Swan Place, Old Kent Road, S.E.

THE CELEBRATED REIGATE SILVER SAND, 15s. per ton, a less quantity 1s. 6d. per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1s. 6d. each. The above Sand is warranted. Orders immediately executed.—Address to John G. Bryan, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. May & Co., Seedsmen, Wellington Street, Strand.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½d. Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by Fisher & Son, Publishers, Kingsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7s., on receipt of stamps. — Manufactured by John Fisher & Co., Label Works, Boston, Lincolnshire.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK manufactures in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.
Priced Lists of Plant Tubs and Boxes forwarded on application.

SIGMA'S GRAIN PLANTERS, with five depositors, 3l. 3s. A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. Powell, Hurst Green, Sussex.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

J. S. MORRIS, Hydraulic Engineer, 38, Upper Thames Street, City, London.
Hot-Water Apparatus complete, on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. Morris in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. Morris in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.
A Treatise by J. S. Morris "On Warming and Ventilating Dwellings" sent free.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1s. 8d. per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.
Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

GREENHOUSES, including Hot-Water Apparatus, fixed complete, except brickwork, 16 ft. long by 10 ft. wide, 35l.; 21 ft. by 10 ft., 45l.; 28 ft. by 12 ft., 70l.; 44 ft. by 15 ft., 100l.—Mr. Smith, Greenhouse Builder and Hot-water Engineer, 121, Pentonville Hill, London.
Warming by Smith's Patent Hot-water Apparatus from 5l., warranted.

HOT-WATER APPARATUS suitable for a small Greenhouse, Wanted. A Second-hand one, if in good condition, would be treated for.—Address, with particulars and lowest price, S. T., 3, City Terrace, City Road.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6l. 10s. each; 36-inch ditto, 8l. 10s. each.
The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, September, 1857.
Dissolution of Partnership.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. Ormson and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.
Mr. Gray avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, Horticultural Builder and Hot-water Apparatus Manufacturer, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of Gray & Ormson, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.
In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.
The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.
Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.
Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.
Stanley Bridge, King's Road, Chelsea, Sept. 26.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOMHEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.
W. Henderson begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.
The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.
W. Henderson, Inventor of the Patent Improved Broomheads, Dunkeld.

SCHWEPPE'S MALVERN SELTZER WATER, Manufactured by J. Schweppe & Co. (the sole lessees), from the Pure Water of the Holy Well, possesses all the celebrated properties of the Nassau Spring. SCHWEPPE'S SODA, MAGNESIA, POTASS WATERS, and LEMONADE, are manufactured as usual. Every Bottle is protected by a special label.—London, Liverpool, Bristol, and Derby.

BOITE À HOUPPE.
For the Application of Sulphur or Lime to the Vine, Trees, and all Kinds of Plants. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2s. 6d. each. Supplied by Burgess & Key, or by all respectable ironmongers in the United Kingdom.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10l. Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.
General Catalogue for March 1857 may be had on application.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.
J. W. & T. Allen, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS.
(See separate Catalogue).—18 and 22, Strand.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,
James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.

HOW TO BREW SPLENDID ALE AT 7d. PER GALLON, WITHOUT THE USUAL BREWING UTENSILS.—This valuable information is by a Derbyshire Practical Working Brewer, of twenty-eight years' standing, and is guaranteed to be the cheapest and best method ever made public, and a secret well worth a guinea to all ale consumers and sellers of this invigorating and tonic beverage, possessing as it does an aroma and flavour equal to the finest eightpenny and tenpenny brewed, leaving a profit of 1s. 9d. per gallon. The above, beautifully printed in large type, can be had of the sole publishers, for eight penny postage stamps. Sent, post free, to any address.—Direct to Fisher & Son, publishers, Kingsland, London. Established 1847.

PRIZES FOR ESSAYS ON MARINE ALGÆ.—Two Prizes of 50l. and 20l. respectively are offered for the two best and approved Essays on the applications of Marine Algæ (Sea-weeds) and their products as food or medicine for man and domestic animals. The Essays, with accompanying specimens, (illustrative of the best modes of collecting, preparing, and preserving them in a state fit for use), to be sent to the Society of Arts, London, by the 31st of March, 1858.
For conditions apply (prepaid) to the Secretary of the Society of Arts, Adelphi, London.

METROPOLITAN SCHOOL OF SCIENCE, Applied to Mining and the Arts.
The Prospectus for the ensuing Session, 1857-8 (containing information about the Lectures, Laboratories, Fees, &c.), is ready, and will be sent on application to Trenham Reeks, Esq., Museum of Practical Geology, Jermyn Street, London.
Roderick Murchison, Director.

THE SCHOOLS OF ART AND DRAWING at South Kensington and in the following Metropolitan Districts will re-open on the 1st of October:—

1. Spitalfields—Crispin Street, Spitalfields.
2. Finsbury—William Street, Wilmington Square.
3. St. Thomas Charterhouse—Goswell Street.
4. Rotherhithe, Grammar School—Deptford Road.
5. St. Martin's-in-the-Fields—Long Acre.
6. Lambeth, St. Mary's—Prince's Road.
7. Hampstead, Dispensary Building; and 37, Gower Street, Bedford Square, for Female Students only.

For prospectuses, terms, &c., apply at the respective Schools.
By order of the Committee of Council on Education.

CHEMISTRY.—DR. HOFMANN, F.R.S, will commence a COURSE of NINETY LECTURES on CHEMISTRY on MONDAY, October 5, at 10 o'clock. Fee for the Course, 2l.
CHEMICAL ADD METALLURGICAL LABORATORIES.—The Royal College of Chemistry (the Laboratory of the Government School of Mines) under the direction of Dr. Hofmann, and the Metallurgical Laboratory, under the direction of Dr. Percy, will re-open on MONDAY, October 5. At both of these Laboratories there are three terms annually, of 12 weeks each. The Fee for working every day in the week is 10l. per term.
PHYSICS.—Professor Stokes, F.R.S., will commence a COURSE of FORTY-EIGHT LECTURES on PHYSICS on MONDAY, October 5, at 2 o'clock. Fee for the Course, 2l.
For Prospectuses apply at the School of Mines, Museum of Practical Geology, Jermyn Street.
Trenham Reeks, Registrar.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.
The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. Clifford, Sec.
52, Parliament Street, London, S.W.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr Boucherie's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
William Howden, Secretary.
26, Great George Street, Westminster.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, September 26, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 40.—1857.] SATURDAY, OCTOBER 3. {Price Fivepence. Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—GREAT FRUIT EXHIBITION AT WILLIS'S ROOMS, OCTOBER 24.

Tickets can now be had at the Society's Office, 21, Regent Street, and the Gardens, Chiswick, price 2*s*. each to the bearers of Fellows' Orders, or 2*s*. 6*d*. each to the public; and also at 2*s*. 6*d*. each of the following Nursery and Seedsmen, viz.:—Messrs. Charlwood & Cummins, Tavistock Row, Covent Garden; Messrs. Noble & Cooper, 152, Fleet Street; Messrs. Henderson & Co., Pine Apple Place, Edgware Road; Messrs. E. G. Henderson & Son, Wellington Nursery, St. John's Wood; Messrs. Hurst & M'Mullen, 6, Leadenhall Street; Messrs. Lawson & Son, 27, Great George Street, Westminster; Messrs. J. & C. Lee, Hammersmith; Messrs. Osborn & Son, Fulham; Messrs. Veitch & Son, King's Road, Chelsea; Messrs. J. Weeks & Co., King's Road. Chelsea; Messrs. Wrench & Sons, London Bridge. After October 17 all Tickets will be 2*s*. 6*d*. each, and on the day of Exhibition 3*s*. 6*d*.

HORTICULTURAL SOCIETY OF LONDON.—GREAT AUTUMN EXHIBITION OF FRUIT AT WILLIS'S ROOMS, SATURDAY, OCTOBER 24.

Classes.	Prizes offered £ s.	£ s.	£ s.
I. Collections of Fruit—(Fruiterers only)	4 0	3 0	2 0
II. Grapes—			
a. Three bunches of Muscats	2 0	1 0	0 15
b. Do. of other White kinds	2 0	1 0	0 15
c. Do. of Black Hamburgh	2 0	1 0	0 15
d. Do. of other Black kinds	2 0	1 0	0 15
e. Collections (Foreigners only)	4 0	3 0	2 0
f. Boxes of 15 lbs. weight (Market Gardeners only)	3 0	2 0	1 0
III. Pine Apples—			
a. Threes	3 0	2 0	1 0
b. Single specimens	2 0	1 0	0 15
IV. Pears, of Home growth—			
a. Twelve sorts; six of each	3 0	2 0	1 0
b. Six sorts; six of each	1 0	0 15	0 10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0 15	0 10	0 10
d. Do. of kitchen kinds, of one sort, containing six fruit	0 15	0 10	0 10
V. Pears, of Foreign growth—			
a. Twelve sorts; six of each	3 0	2 0	1 0
b. Six do. do.	1 0	0 15	0 10
c. Single dishes of dessert kinds, of one sort, containing six fruit	0 15	0 10	0 10
d. Do. kitchen do. do.	0 15	0 10	0 10
VI. Apples, of Home growth—			
a. Twelve sorts; six of each	2 0	1 0	0 15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0 15	0 10	0 10
c. Do. kitchen do. do.	0 15	0 10	0 10
VII. Apples, of Foreign growth—			
a. Twelve sorts; six of each	2 0	1 0	0 15
b. Single dishes of dessert kinds, of one sort, containing six fruit	0 15	0 10	0 10
c. Do. kitchen do. do.	0 15	0 10	0 10
VIII. Oranges, Lemons, and Citrons—			
a. Collections of Foreign growth	3 0	2 0	1 0
b. Do. Home do.	2 0	1 0	0 15
IX. Peaches—Single dish, containing six specimens	0 15	0 10	0 10
X. Nectarines do. do.	0 15	0 10	0 10
XI. Melons—Single fruit	0 15	0 10	0 10
XII. Plums and Prunes, of either English or Foreign growth—			
a. A collection of three sorts, twelve fruit of each	1 0	0 15	0 10
b. Single dishes of one sort, containing twelve fruit	0 15	0 10	0 10
XIII. Figs	1 0	0 15	0 10
XIV. Alpine Strawberries	1 0	0 15	0 10
XV. Currants	0 15	0 10	0 10
XVI. Raspberries	0 15	0 10	0 10
XVII. Eugenia Ugni*			

* For single dishes of this valuable new Fruit two Prizes are offered by C. W. Dilke, Esq., F.H.S.—the first of 2*l*., the second of 1*l*.

Fruit is expected to be as nearly ripe as circumstances will admit. Winter Fruit will of course be unripe. Exhibitors are invited to decorate their Stands with suitable Plants or other ornaments. Tickets 2*s*. each may be procured at 21, Regent Street up to Oct. 17, after which they will be charged 2*s*. 6*d*. each. Fellows and Fellows' Ivory Tickets pass free.

NATIONAL FLORICULTURAL SOCIETY.—ST. MARTIN'S HALL, October 1.

AWARDS OF THE JUDGES.

Certificates of Merit.

Dahlia Village Green (Green).
" (Fancy) Princess Leonora (Slipper).
" Rosebud (Alexander).
" Loveliness (Turner). JOHN EDWARDS.

CRYSTAL PALACE, SYDENHAM.—

ERRATA IN LIST OF AWARDS.—See pp. 626-7.

Class XX. 12 Balsams.—The second prize awarded Charles Brown, gr. to G. C. M. Thom, Esq., King's Wood, Dulwich, instead of Henry Carroll.

Class V. Fine-foliaged Plants.—The fourth prize awarded to Arthur Young, gr. to F. C. Hills, Esq., Denmark Hill, Camberwell.

FRUIT.—Class I. Grapes.—The equal first prize should be William Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire, instead of James Woods.

FRUIT.—Class O. Peaches and Nectarines.—The first prize awarded to Charles Little, gr. Stoke Court, Slough, instead of Henry Bailey.

FRUIT.—Class G. Pine Apples.—Should be G. S. Dods and William Rattray, equal second; and Thomas Young, gr. to Crawshay Bailey, Esq., third.

FRUIT.—Class FF.—Extra prize awarded to Mr. Busby, gr., Stockwood Park, Luton, Beds, for Busby's Golden Hamburgh Grape.

SCOTTISH ARBORICULTURAL SOCIETY.—Her Majesty having appointed the 7th October as a day of Solemn Fast in Scotland, the Annual General Meeting of the Society is necessarily postponed to THURSDAY, 8th inst., at Half-past 12 o'clock, when the attendance of Members is earnestly requested. The Meeting will be held, as usual, in the Society's Chambers, 6, York Place, Edinburgh.

James Alexander, Secretary.

AN EXHIBITION of HYACINTHS and other SPRING FLOWERS will take place in the Music Hall, George Street, Edinburgh, early in March next, when liberal Prizes will be awarded. Early Vegetables, Horticultural Implements, &c., will form, as last year, a feature in the Exhibition. Further arrangements will be duly announced, and in the meantime subscriptions to the Prize Fund will be received at the various seed and fruit shops. Robt. M. Stark.

31, South Castle Street, Oct. 3. Interim Treasurer.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Oct. 3.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

NEW ROSE CATALOGUE FOR 1857-58.

WILLIAM WOOD and SON are now issuing copies of their new ROSE LIST. It will be sent gratis to all their customers, and to others free on application.

The autumnal Roses are now in fine bloom.

Address, Woodlands Nursery, Maresfield, near Uckfield. Sussex.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST of FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

JOHN DOBSON and SON will be happy to forward their BULB LIST free on application.

The following Seeds are recommended:—Prize CALCEOLARIA (a few packets only are left), 1*s*. 6*d*., 2*s*. 6*d*., 3*s*. 6*d*., and 5*s*. each. CINERARIA, 1*s*. PANSY, 1*s*. HOLLYHOCK, 1*s*. ANTIRRHINUM, 6*d*.

Woodlands Nursery, Isleworth, W.

PELARGONIUMS.

JOHN DOBSON and SON have now ready for sending out a large stock of all the leading old and new varieties, at a moderate price. Catalogues forwarded post free on application.—Woodlands Nursery, Isleworth, W.

BECK'S SPLENDID NEW GERANIUMS are now ready for selection. The plants are very fine this season. Catalogues with full descriptions and prices may be had on application.

John Dobson & Son, Woodlands Nursery, Isleworth, W.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s*. to 10*s*. each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

CAMELLIAS.

CHANDLER and SONS solicit attention to their large Collection of young CAMELLIAS, beautifully set with flower buds, 20*s*., 30*s*. & 42*s*. per dozen, package included.

CHINESE AZALEAS.

CHANDLER and SONS' large stock of CHINESE AZALEAS, equally well set with flower buds, at from 18*s*. to 30*s*. per dozen.

CRIMSON RHODODENDRONS.

CHANDLER and SONS have also to offer a large number of CRIMSON RHODODENDRONS, finely set with flower buds, at from 5*s*. to 10*s*. 6*d*. each.

Nursery, Wandsworth Road.

TO BE DISPOSED OF at a low price, a quantity of STOVE PLANTS; also a fine CYCAS REVOLUTA, some large specimen CAMELLIAS, CLETHRAS, &c.—Apply to J. Ogden, Nurseryman, Coventry.

GRAPES.

MESSRS. JOHN WEEKS and Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

STRAWBERRIES.—See Dr. Lindley's opinion of Cuthill's three sorts of Strawberries, August 15, in *Gardeners' Chronicle*, Black Prince, Princess Royal, and Prince of Wales. J. C.'s three pamphlets containing much information upon difficult things. Also his celebrated Cucumber Seeds. Please to write for a List.

James Cuthill, Camberwell, London, S.

MYATT'S SEEDLING STRAWBERRY—FILBERT PINE OF TURNER'S.—Strong plants of this variety, that has "maintained its position so well at the Slough Nursery," can be supplied at 2*s*. 6*d*. per 100, packed and delivered to any address in London free. No less quantity than 100 sent out.—W. Myatt, Manor Farm, Deptford, S. E.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

UNDERHILL'S SIR HARRY STRAWBERRY.

WILLIAM WHITEHOUSE has to offer strong healthy young plants of the above at 16*s*. per 100, or 3*s*. 6*d*. per dozen. References can be had from gentlemen whom he has served with plants for the last two years. Plants sent over to compensate for long carriage. Post-office orders payable in Birmingham.

Mount Pleasant Nursery, Harborne, Birmingham.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, Jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s*., including package

Epps's Nurseries, Maidstone.

HOLLYHOCK SEED, &c.

JOHN CHATER and SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7*s*. 6*d*.; 18 ditto, 4*s*. 6*d*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400 ditto, 2*s*. 6*d*. Fine-named sorts in good plants now ready, 8*s*. per dozen.

Nurseries, Haverhill, Suffolk.

MESSRS. L. JACOB MAKOY & CO., Nurserymen, Liege, Belgium, beg to inform Amateurs and the Trade that their CATALOGUES OF PLANTS, &c., may be had Gratis of their Agent Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London, E.C.

CABBAGE PLANTS, extra fine and true, choicest kinds for the Garden, 3*s*. 6*d*. per 1000; the large ASIATIC CAULIFLOWERS at 2*s*. 6*d*. per 100. Delivered at Godalming Station by Thomas Welland, Surrey Gardens, Godalming, Surrey.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7*s*. 6*d*. per bushel for present payment only. No agent employed.

New Park, Lymington, Hants.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50*s*. per 100.—Epps's Nurseries, Maidstone.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

WANTED TO PURCHASE CEDAR OF LEBANON, a number of strong healthy Trees in Pots, not less than 3 or 4 feet high.—Apply to A. Black, Sunbridge Park Farm, Bromley, Kent.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden.

SEAKALE FOR SALE.—Also strong one-year old Roots of it for Forcing this year.—Apply to G. Bailey, West Drayton.

FOR SALE, a collection of about 40 ROSES in pots, principally specimens exhibited at the Botanical, Crystal Palace, &c., this and previous seasons, new and approved sorts, in excellent order. May be exchanged for a collection of Hardy and Greenhouse Ferns. Price 12*l*.—Apply to J. R. S., 57, Coal Exchange.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. Raynbird, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. Raynbird, Basingstoke, or 14, Seed Market, Mark Lane.

NEW GIANT RYE.

CHISNELL and SON, of Colchester, have to offer Seed of their New GIANT RYE, which is quite distinct and in every way superior to the common. A specimen of the straw was exhibited at the Royal Agricultural Show at Salisbury, and highly commended in the report of the Society. Price 1*l*. 10*s*. per peck.—Sole Agents, Charlwood & Cummins, 14, Tavistock Row, Covent Garden, London.

RARE FERNS.

EDWIN COOLING offers the following very beautiful and distinct FERNS:—

PTERIS ARGENTEA, a dwarf neat-growing Fern, densely silvered on the under side (very rare). 10s. 6d.

*NOTHOCHLÆNA LÆVIS, an elegant and very distinct species. 5s., 10s. 6d.

*NOTHOCHLÆNA HOOKERI, a neat and lovely Fern, the fronds having the appearance of frosted silver on both sides. 10s. 6d.

*ASPLENIUM RACHIRHIZON, an extremely handsome Fern, very rare in cultivation. 21s.

GYMNOGRAMMA PERUVIANA, var. ARGYROPHYLLA, the most beautiful silver Fern, being densely covered with pure white farinose powder on the upper as well as the under side of the frond. 5s., 10s. 6d.

ASPLENIUM FILIX-FŒMINA, var., a splendid new multifid variety recently discovered in the Channel Islands. This will be the most beautiful hardy Fern in cultivation. Good plants. 7s. 6d.

*LASTRÆA FILIX-MAS, var. CRISTATA, hardy and very handsome. 2s. 6d.

Those marked * are figured in Lowe's "Natural History of Ferns."—Mile Ash Nurseries, Duffield Road, Derby.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10s. 6d. each; 12 do. do., 5l. per dozen The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Oct. 3.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants:—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
" " magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
" " 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
" Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
" Douglasi, 5, 6, 8. and 10 feet
" Menziesi, 6 to 8 feet
" Lambertiana, 2, 3, and 5 feet
" Cembra, 3, 5, and 6 feet
" Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
" amabilis, also from seed
" Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
" Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
" Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
" Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
" Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
" elegantissima, or new Gold Striped, in quantities and of all sizes
" adpressa, 2, 3, and 4 feet; ditto worked as standards
" Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
" Wareana, 3, 4, 5, 6, and 8 feet
" aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and, as is well known, one of the largest collections of American Plants Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South Western Railway to Woking, or and Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of packages and a good deal in carriage.

AUTUMNAL LIST OF GERANIUMS, CINERARIAS, AND NEW PLANTS, &c.,

OFFERED BY

E. G. HENDERSON & SON,

NURSERYMEN, SEEDSMEN, AND FLORISTS TO HER MAJESTY.

(All the Plants priced in these Lists will be reduced by the usual discount to the Trade, excepting the New Plants and Fruits, which are altered and arranged for the Trade.)

MESSRS. E. G. HENDERSON AND SON have purchased the property for distribution throughout Great Britain and Ireland of the following three new and first-class Plants of Mr. J. Linden, of Brussels, of which more full description, notes for their culture, &c., may be seen in Part II. of their "Illustrated Bouquet."

GESNERIA (NÆGELIA) CINNABARINA.

It is impossible, by description, to give any idea of the extraordinary splendour and richness of this plant. The colour is a brilliant scarlet vermilion, distinct from that of any other Gesneria. The foliage has a velvety appearance, being covered with bright coloured hair. The flowering season commences in November, and continues till April, a period when flowers are most welcome. Figured in Part II. of the "Illustrated Bouquet." Plants, each 16s.

GESNERIA DENSIFLORA.

A shrubby habited plant, giving a profusion of flowers from December to March; colour, a brilliant orange scarlet, with yellow marking in the centre. It flowers in bunches four and six together, on a footstalk 2 or 3 inches in length. Figured in Part II. of the "Illustrated Bouquet." Plants, 10s. 6d. each.

TAPINA (ACHIMENES) SPLENDENS.

This beautiful little trailing plant was discovered by Mr. Triana, in the unexplored parts of the eastern Cordilleras, extending through the extensive country between Rio Meta and Guaviare. The habit of the plant resembles much Achimenes cupreata; being a plant of easy culture and free growth, it may be trained in any form that fancy may dictate. The flower is a most beautiful shade of scarlet, seldom found, and not superseded by the brilliancy of any scarlet Geranium. Flowering season from October to January, in which months trailing plants for baskets are so desirable. Figured in Part II. of the "Illustrated Bouquet." Plants each 12s. 6d.

MONOCHÆTUM ENSIFERUM.

Among greenhouse plants of late introduction, none will equal in usefulness this lovely plant, the most elegant of Melastomaceæ. It forms a compact spreading bush 12 to 18 inches high, leaves small and plentiful, glossy, of lanceolate form; the bright rose flowers, produced in profusion, are large; size of Chironia glutinosa; the deep scarlet stamen and anthers, which are very large and of a peculiar form, give a most striking and brilliant appearance to the flower. It makes one of the most gay plants for the winter months, February and March. Figured in Part II. of the "Illustrated Bouquet." Plants each 12s. 6d.

NEW HYBRID BOUVARDIAS.

Mr. Pasons, of Brighton, from whom they purchased the entire stock, obtained these hybrids from two of the finest species, viz.:—B. longiflora, hybridised with leiantha; the former, a pure white, is well known as one of the most chaste and elegant of flowers; the latter, a brilliant scarlet, and one of the best of its class, producing in abundance large trusses of flowers throughout the summer and autumn when planted out in the flower garden, whilst it is equally attractive if cultivated in pot, as it blooms continuously through the autumnal and winter months. The seedlings possess all the advantages of the last-named variety; free growth, robust habit, with large and ample foliage. The flowers partake the character of B. longiflora in having large sepals. They vary in colour, from blush to scarlet, with large truss or corymb, consisting of 30 or more flowers,—not unlike a bunch of Ixora bloom. One other feature that will render these flowers very useful and desirable for bouquets is the length of time they will keep when cut and placed in water. They appear as firm after 10 days as when first cut, and still retain their brilliant and unique colour.

ROSALINDA.—Good habit, large bright salmon flowers, fine compact truss; a beautiful variety .. .. 7s. 6d.
LAURA.—Fine truss, pale pink or flesh colour, pointed broad foliage, spreading habit 7 6
ORIANA.—Fine habit, large bright scarlet salmon, good foliage 7 6
HOGARTH.—Strong robust habit, very large fine truss, bright scarlet, fine foliage, measuring from 4 to 5 inches long and 2 wide 7 6

Figured in Part I. of the "Illustrated Bouquet." The set 30s.

NEW WHITE SHOW GERANIUM.

EMPRESS EUGENIE.—The entire stock was purchased of Mrs. Story, and Messrs. E. G. HENDERSON & SON can with confidence say that it will prove the most beautiful of all White Geraniums. Excellent habit, free flowering, foliage distinct from any other. Colour of flower pure white, with clear spot of bright rose or cherry in the upper petals, form first-rate, truss large and compact, habit good. A certificate of merit was given to it at the Exhibition of the Royal Botanic Society, Regent's Park. Figured in Part II. of the "Illustrated Bouquet." Plants, each 21s.

NEW DELPHINIUM—MONTMORENCY.

Light blue, colour more brilliant than D. Hendersoni, with a large conspicuous white eye, long truss, and fine formed flowers (September and October). 7s. 6d.

NEW CYCLAMEN—ATKINSI ROSEUM.

A pale rose variety of Atkins' beautiful Cyclamen will prove a pleasing addition to this early flowering section. Strong flowering bulbs in September, each 10s. 6d.

NEW CINERARIAS.

PRINCE OF ORANGE.—Bright plum crimson, fine formed flower, petals of good substance and cupped, habit dwarf. 7s. 6d.

PRINCESS MARY.—White circle surrounding a grey disc, with heavy bordering of deep plum crimson; large flower, and very showy. 7s. 6d.

DUCHESSE DE BRABANT.—Deep rich damson or plum, black disc, large fine petal. 7s. 6d.

NEW FANCY GERANIUM.

CLARA NOVELLO.—Upper petals rich rosy crimson, margined white, lower petals suffused with delicate rosy crimson, throat pure white, form beautiful and first class, truss large and full, habit excellent, one of the best in cultivation. 15s.

STRAWBERRIES.

NEW FRENCH STRAWBERRY, DUC DE MALAKOFF.—Introduced by one of the most successful and enthusiastic cultivators of the Strawberry in France. This variety has been pronounced by competent judges to be of superior excellence, very distinct from any other sort, raised from the old Chilian. Fruit of very fine roundish shape, of enormous size; colour beautiful dark red, flesh solid, juicy, and highly perfumed. It is one of the freest bearers ever known, and a very good forcer for a second crop, but its principal merit consists of being in flavour far superior to any of the very large sorts in cultivation, which are generally of a very inferior flavour. Strong well-rooted plants are now ready at the following prices:—

100 plants	£5 0s. 0d.	25 plants	£2 0s. 0d.	Each	3s.
50 "	3 0 0	12 "	1 5 0		

STRAWBERRIES.—*Continued.*

THE ADAIR STRAWBERRY was raised by Mr. Elphinstone, Gardener to Sir S. Adair, Bart., is a hybrid between Hooper's Seedling and the Hautbois; and while retaining the size and high colour of the former, has the desirable and peculiar flavour of the latter. A written testimony bearing out the above character was given and signed at the time it was exhibited by N. S. Hodson, A.L.S., Botanic Gardens, Bury St. Edmunds, and ten other gentlemen, nurserymen, and gardeners. It is of strong growth, and will force well. As agents for the above, Messrs. E. G. HENDERSON & SON can offer plants at the following prices:—100 plants, 21s., or 4s. a dozen.

INCOMPARABLE (BLAKE'S).—A new and very valuable addition to a choice collection. 12s. per dozen.

MADAME VILMORIN.—A first-rate fruit, of large size, fine colour, and exquisite flavour; very late. 15s. per dozen.

SIR CHARLES NAPIER.—A sort of very easy culture, producing abundantly, one of the handsomest and best flavoured fruits known; forces well after Keens' Seedling. 100 plants, 20s.; per dozen, 4s.

VINES.

The BOWOOD MUSCAT GRAPE. 21s. each.
The GOLDEN HAMBURGH GRAPE. 21s. each.

SELECT LARGE-FLOWERED SELF AND SHADED-GROUND

GERANIUMS FOR THE EXHIBITIONS OF 1858.

Messrs. E. G. HENDERSON & SON beg to inform those amateurs favouring them with their orders that they may rely upon their judgment in the selection, which will be at a less cost than when the varieties are selected individually from the Catalogue. Selections at 12s. to 42s. per dozen.

	s.	d.		s.	d.		s.	d.
Admiration....	1	6	Flora, extra ..	3	6	Phaeton	1	6
Admirable	1	6	Florence, extra	3	6	Pilot.....	1	6
Agnes	5	0	Floretta	1	6	Pluto	1	6
Amethyst	5	0	Flying Dutchman	1	6	Prince of Wales	1	6
Arab, extra....	3	6	Gem of the West	2	0	Prince of Prussia (Story's), extra	3	6
Ardens.....	5	0	Gen. Williams, fine	7	6	Prince of Prussia (Turner's), ex.	10	6
Ariadne	1	6	Governor-General	1	6	Princess Royal	3	6
Attraction	1	6	Iris	2	0	Purple King ..	1	6
Basilisk	1	6	Juliet	2	6	Purple Perfection	1	6
Bianca, extra..	5	0	Josephine	2	6	Purple Prince	1	6
British Queen	3	6	King of Scarlets, extra	5	0	Queen Eleanor	1	6
Butterfly.....	1	6	Ladybird.....	1	6	Queen of May..	1	6
Carlos	1	6	Lady Drummond	1	6	Regalia	1	6
Clothilde	2	0	Laura (Beck's)	2	0	Rosa Mundi ..	1	6
Colonel of the Buffs	1	6	Laura (Story's)	3	6	Rosaline	1	6
Commander-in-Chief.....	1	6	Lord Raglan ..	2	6	Rose Raglan, ex.	3	6
Conqueror	1	6	Magnificent ..	1	6	Rubens, extra .	7	6
Constancy	2	0	Majestic	1	6	Sanspareil	1	6
Corsair.....	1	6	Margaret	2	0	Selim	3	6
Countess, extra	2	0	Marie, extra ..	3	6	Serena	1	6
Diana	5	0	Marion	3	6	Silenus.....	1	6
Eclipse, extra..	5	0	Marvellous, ex.	5	0	Silver Queen ..	2	0
Empress	1	6	Mathilda.....	7	6	Sparkler	2	0
Emperor, extra	5	0	Meteor	1	6	Standard.....	5	0
Euphemia	2	6	Miranda	3	6	Symmetry, ex.	7	6
Eva	2	0	Miss Foster ..	3	6	The Clipper ..	2	6
Evelyn.....	2	6	Mr. White	2	6	Topsy	1	6
Fair Ellen	2	0	Nepaulese Prince	1	6	Triumphant ..	2	6
Fandango	2	6	Omar Pasha ..	1	6	Una	1	6
Fen Incomparable, beautiful form, brilliant scarlet, extra	3	6	Optimum	1	6	Videnda	3	6
			Pallas	1	6	Viola, extra ..	7	6
			Petruchio	1	6	Wonderful, ex.	2	0
						Yerda	1	6

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Adolphe, Odier	2	0	Godifroid.....	2	6	" Laffay, white, with intense plum spots, ex.	5	0
Alexander, rich coloured, ex.	3	6	Guillaume Sovereyns, deep bluish colour, with maroon spot on lower petals, extra	5	0	" Lamoricière	1	6
Alphonse Leroy, rich bright scarlet, spots crimson, ex.	5	0	Hebe	2	0	" Leflo	2	0
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Atro-violacea .	10	6	Jacques Duval	1	6	" Leseble	3	6
Auguste Miellez	1	6	James Odier ..	2	0	" Martine, salmon, nice crimson spot, extra	7	6
Bicolor.....	5	0	Jussieu	2	6	" Milon	10	6
Bougainville ..	5	0	Lacépède.....	2	6	" Place, white, delicate spot of crimson, ex.	5	0
Bossieur	5	0	L'Avenir	10	6	" Pescatore, striped appearance, orange rose, and light centre, extra	2	6
Bouquette	5	0	La Belle Alliance, extra..	2	6	" Thibaut....	3	6
Brilliant, splendid colour ..	2	6	La Ristori	10	6	" Seur, bluish lavender..	3	6
Capt. Lechrix, purple narrow spot	3	6	Le Tasse	10	6	Mademoiselle Domage ..	10	6
Colonel Foissy	1	6	Le Titien.....	10	6	" La Galisserie	5	0
Comte de Morny, rich ruby crimson, ex.	3	6	Louis Miellez ..	2	6	Mars	5	0
Comtesse Bresson	3	6	Lord Raglan, rose, large intense blotch on lower petals, extra distinct	5	0	Medaille d'Or..	2	6
Conspicuum, ex.	5	0	Madame Corbay	2	0	Merveille	5	0
Demosthenes .	3	6	" Fartado, blush, with fine crimson spot, extra ..	2	6	Midnight.....	2	0
Diamand	5	0	" Hering	3	6	Modèle.....	10	6
Dr. Andry, petals fringed, very distinct	1	6	" Heine, white, with plum spot, ex ..	2	6	Molière.....	7	6
Edith	2	0	" James Odier	2	0	Mr. Beck, ex.	3	6
Eole, white, with plum spot ..	3	6				Mr. Hoyle, white centre, extra	3	6
Elize Miellez ..	1	6				Mr. Ferrier....	3	6
Ernest Duval..	1	6				Napoleon the Third, extra	3	6
Eugenie Duval	1	6				Ne plus ultra..	2	6
Eugenie Scribe	1	6				Osirie	3	6
Excelsior, extra	2	0				Pandora	5	0
Ferdinand de Lastyrie	3	6				Penelope.....	7	6
Géant de Batailles	7	6				Perfection		
General Eugène Cavaignac ..	1	6				Perugino, blush pink, deep blotch on lower petals, extra..	5	0
Gloire de Bellevue	1	6						

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Eulalie Van Geert
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Fentoni
Gem
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,, formosa
Glory of Sunning Hill
Holfordi
Impératrice Josephine
Iveryana
Juliana
Lateritia alba supreme
,, grandiflora
Lawrenciana
Leeana
Louis Napoleon
Lucens
Magnificans
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Maria
Mrs. Fry
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SPIRÆA CALLOSA, see Dr. LINDLEY'S Leading Article, August 1. Can be supplied in the autumn at 18*s.* to 30*s.* per dozen, by CHARLES NOBLE, the Nursery, Bagshot.

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GLADIOLUS GANDAVENSIS, 2*s.* 6*d.* per dozen.
,, FLORIBUNDUS, 2*s.* 6*d.* ,,
IXIAS and SPARAXIS, 3*s.* per dozen.
Bulbs sent to compensate for carriage.
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THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.
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SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 3, 1857.

IN the last number of HOOKER'S Journal of Botany is a letter from Mr. CARL WILHELMI, the Government Gardener at Melbourne, giving some account of the esculent plants found in the COLONY OF VICTORIA. We cannot say that the list is encouraging to those who wish to patronize their own Australian vegetables; nor do we suppose that many horticulturists among ourselves will have sufficient enterprize to devote their gardens to the growth of Australian Tea plants, or Hop trees, or Pig's-faces. The following facts however are of interest enough to deserve a transfer to our columns.

"One useful plant is *Kennedya prostrata*, a Leguminous plant. Most of your readers interested in botany have doubtless observed a beautiful creeper, bearing red blossoms, and winding along amongst the Grass, which is met with in large quantities about Melbourne, and in fact throughout the colony, and in full bloom in the months of October, November, and December. This plant is used by the wood-splitters of the Victoria Ranges as a substitute for tea, and has indeed a very agreeable taste. It is prepared in the following manner:—The creeper is rolled together into a ball, in order that it may be easy to put it into the pot. One or more of these balls are put into boiling water, the boiling is continued for two or three minutes, and the tea is made. For one quart pot of water about one ounce and a half of this plant is required, which may be used either fresh or dried.

"*Bæckea utilis*, from Mount Aberdeen, might serve travellers in these desolate localities as tea, for the volatile oil of its leaves resembles greatly in taste and odour that of Lemons, not without a pleasant, peculiar aroma.

"The leaves of *Acacia myrtifolia* (Myrtle-leaved Acacia) are used by the same splitters as a substitute for Hops, and with success. The method of using it is the same as with common Hops. It appears that in different districts different plants are used for one and the same purpose. For example, in the Dandenong district *Daviesia latifolia* is also being successfully used as a substitute for Hops. Both plants are met with in large quantities throughout the colony. In one district the residents are only acquainted with the use of the one plant, whilst in another district the other only is known as adapted for this particular purpose.

"The seed of all the varieties of the *Acacia*, which they call 'Nundo,' is gathered in large quantities, roasted in hot ashes, which makes it swell to double its former size, and then eaten. As a proof how valuable these fruits are to the natives, it may be mentioned that the Kukata tribe, living in the north-west, and renowned as very savage and possessing the art of sorcery, often threatens to burn the Nundo-bushes, or otherwise to destroy them, to harass the inimical tribes.

"The roots of the *Scorzonera Lawrenci*, and of some Geraniaceous plants, are also roasted in hot ashes, and have an agreeable taste.

"Two varieties of *Mesembryanthemum*, or Pig's-faces, which generally grow in abundance on the sandhills along the sea-coast, and have an agreeable flavour, are a favourite dish with the aborigines of the Port Lincoln district. On my tour I saw the natives between the Grampians and Victoria Ranges eat the fleshy leaf of this plant with kangaroo-flesh, as a substitute for salt.

"Another plant which is of great use to the aborigines is the *Nitraria Billardieri*, which grows in large quantities on high sandhills along the western sea-coast of Port Lincoln. The fruit is of the form and size of an Olive, of a dark red colour, has a very pleasant taste, and is exceedingly cooling. In December and January the bushes are so full of fruit that the natives lie down on their backs under them, strip off the fruit with both hands, and do not rise until the whole bush has been cleared of its load. At the time above mentioned I travelled with five natives, who carried my collection of plants and my blankets on a very hot day through this arid country. All at once they threw off their loads, ran as quickly as they were able to one of these high sandhills, and disappeared amongst the bushes. Not knowing the meaning of all this, I followed them, and found the whole five as above described, lying on their backs under the bushes. I could do no better than do so likewise, and when we had refreshed ourselves we continued our journey.

"The principal vegetable used for food by the Murray natives, near Swan Hill, is the root of *Typha Shuttleworthi*, native name 'Gortong,' or the common Bulrushes (properly Club-rushes, ED.). With them it is a rule that all vegetable food is prepared by the women, whilst animal food can only be dressed by the men. The following is the mode of preparing this root. The women dig a hole, in which they keep a fire lit for some time, to heat the surrounding earth as much as possible. This being done, the fire is taken out, the bundle of roots is placed inside, covered over with earth, and a strong fire is then lit on the little eminence thus made. After about an hour has thus elapsed, they are taken out and distributed to those present. Of the chewed roots which are gathered in, they manufacture their nets, in which their nicknacks and provisions are carried. The women can twirl and twist the fibres of these roots on their legs to any length, and they then have the solidity and appearance of Flax. Thus prepared, the root possesses no taste, but contains a great deal of starch.

"The bark of the root of *Santalum persicarium*, a small variety of Sandal-tree, is roasted by the same tribe in hot ashes, and eaten, has likewise no taste, but is very nutritious. The native name for this plant is 'Quantong.' Dr. MUELLER mentions this plant in his second Report."

This is, we presume, different from the "Quandong" found by MITCHELL on the Murray, the nut of which was as good as Hazel nuts, and which was identified with Fusanus acuminatus.

ONE of the earliest objects that we kept in view after the establishment of the *Gardeners' Chronicle* was the nature of VEGETABLE DISEASE, by far the most obscure and ill understood portion of Vegetable Physiology. It was impossible indeed for any one practically acquainted with gardening not to see that a very large part of the difficulty that attends the ordinary operations of a cultivator consists in his having no means of recognising the insidious causes that perpetually render all care and skill unavailing. Nor till some certainty in this matter could be gained was there any possibility of his knowing how to meet the cases that are perpetually occurring, especially since some forms of malady had never been suspected to be disease at all. Certain troublesome affections had indeed been subdued by remedies accidentally discovered, such as clubbing by wood ashes and "green fly" by tobacco smoke, but these agents were merely empirical, and their application depended upon no known principle.

If information was sought in scientific works

little was to be found beyond what was stated by Duhamel in the middle of the last century, or by De Candolle and Count Ré in the early part of the present. So deficient indeed in this country was our knowledge of Vegetable Pathology, with the exception of mildew in corn, that we caused the more practical part of Ré's book to be translated in our columns, notwithstanding the many glaring defects of that little-known work.

Such being the state of science, it was obvious that the whole question required to be examined in detail by some perfectly competent observer, who should combine high scientific acquirements with considerable practical experience, and whose residence in the midst of the ordinary affections to which plants are liable would give him abundant opportunity of prosecuting the necessary researches. Among gardeners it was not to be expected that a competent authority could be found, for no man engaged in the business of a gardener could possibly spare the time demanded by such an inquiry, even if his education and scientific acquirements were sufficient. Among botanists it was equally difficult to find an observer with leisure and extensive practical knowledge of horticulture. Eventually, however, these difficulties were fortunately removed, as our readers have seen. The Rev. M. J. Berkeley, a gentleman intimately acquainted with vegetable anatomy and physiology, and an excellent practical amateur gardener, who had long devoted his attention to the action upon plants of parasitical fungi, their greatest enemies, at our solicitation undertook the difficult task of examining all that had been written, of collecting all the facts that had become known, of prosecuting the inquiry himself, and of combining the whole into one consistent whole. The result of our learned coadjutor's labours has been given almost weekly for some years past in the form of articles on Vegetable Pathology, and the end of them has been the collection of a mass of information to which there is no parallel. We may say, indeed, that now for the first time the public is presented with a systematical, clear, and practical account of the nature of vegetable disease. The numerous facts, or supposed facts, that have been collected have been classified; the evidence belonging to them has been critically examined, and the whole has been reduced from a mere farrago of casesinto lucid order.

The manner of publication has, however, inevitably had this defect—that from the communications having been scattered over some hundred and fifty numbers of the *Gardeners' Chronicle* it was far from easy to follow the learned author from point to point, and still more difficult to ascertain in what particular place to seek for such information as might be wanted. Such a source of embarrassment to the reader is to-day removed by the publication of a complete index to the whole series of papers; so that any subject treated of may be immediately found by those very numerous subscribers who possess complete copies of our journal.

That Mr. Berkeley has thus laid the foundation of an honourable and permanent reputation as a scientific Horticulturist every one will readily admit. The subject is, however, so intricate that after all we have but a foundation, on which to build up a future treatise. Towards this purpose we earnestly solicit the continuance of that valuable information which our highly intelligent correspondents have hitherto so readily furnished. Out of such communications discussion will arise, and from discussion will in turn be elicited light enough to render this, the darkest part of Natural Science, one of the most vividly illuminated, as it certainly is one of the most important to which practical men can now turn their attention; for there is no doubt that disease is the inseparable companion of high cultivation.

VEGETABLE PATHOLOGY.—No. CLXXIII.

(Concluded.)

We have now arrived at the conclusion of more than three years of continued labour, in a field which has been little cultivated. The result is decidedly favourable to increased study of vegetable disease, and to a high estimation of the importance of the subject. The series might have easily been carried to a much greater length, and a few subjects have been omitted or overlooked, which if the series should be published in a collected form, must be inserted in their proper place. It is, however, time to come to a conclusion, lest the constant recurrence of the same familiar heading, like the too frequent intrusion of a friend, should prove wearisome. Still, though the series is finished, we shall be grateful to those correspondents who will communicate new forms of disease, or important information on those already recorded, and we can assure them that their own increased attention to morbid appearances will be rewarded by many an improvement in their means of sustaining perfect health in the objects which they cultivate.

As the articles on this important subject have extended even to a greater length than was at first anticipated, and the task of reference to any particular subject is in consequence very laborious, a synopsis of the contents is now appended, and a classified arrangement of the maladies described, with reference at once to the numbers of the several paragraphs and the page and volume of the Journal in which they are contained. The classification, it should be observed, clearly admits of improvement, but it is thought better to make no alterations here as it would only complicate the means of reference. One or two points are, however, indicated in the notes.

The divisions under which the subject is proposed to be treated, preceded by a few brief remarks, form the contents of the first number, 1854, p. 4.

¶ 1. (1854, p. 20.) Historical, No. II. Containing a short notice of the works upon the subject which had previously appeared.

2. (1854, p. 36.) General Remarks, No. III.
Work confined almost exclusively to the diseases which affect objects of cultivation in the garden and farm.
Science in a state of infancy.
Comparison of its difficulties with those which attend animal pathology.
Results which may reasonably be expected.

3. (1854, p. 52). Uses of the Science, No. IV.
Prevention often more important than cure.
Connection with the true theory of horticulture.
Evil effects of bad cultivation.
Good effects of scientific culture, as illustrated by the treatment of the Grape mildew at Margate, on its first appearance.
Cholera studied scientifically, and with much practical benefit at the same place.
Inference as regards the use of deep study of Vegetable Pathology.

I. PLANTS IN A STATE OF HEALTH.—NOS. V. TO XLIII.

4. (1854, p. 68.) Definition of plants.
5. General characteristic, absence of voluntary motion.
Exceptions.
6. Animal and vegetable life not necessarily distinct.
7. Simplest forms of vegetables.
Denial of the existence of an amorphous matter which under varying circumstances may be developed into various organisms.
8. New individuals may be produced without cell-division from the contents of living cells.
9. (1854, p. 85.) The more usual mode of reproduction is however by cell division.
10. Two modes of growth often combined.
Views of Mirbel, Trécul, and Hartig about origination of young wood.
11. Cuticle. Occasional formation of cell membrane without vital influence from mere chemical agency.
12. The highest vegetables typically masses of cells originating by cell division from a single embryonic cell.
13. (1854, p. 100.) Consequent necessity of understanding the normal condition and constitution of cellular tissue.
14. Simplest form under which cells can exist.
15. Cytoblasts.
16. Primordial membrane.
17. Its relation to cellulose.
18. Further organisation. Production of outer coats.
19. Gelatinous coat in spores of many Fungi.
20. Linings of outer coat.
Modified by imbibition of nitrogenous matter from contents of cell.
21. (1854, p. 116.) Canals or cæciform tubes in walls of thickened cells.
22. Canals of one cell corresponding with those of its neighbour.
Consequent difference in the structure of different parts of the same cell.
23. All cells and vessels, however complicated, modifications of one original form.
24. Variations of cellular tissue.
25. Parenchym.
26. Woody tissue.
Cambium is nascent woody tissue.
27. (1854, p. 132.) Bast cells.
Bundles of them inclosing vessels.
28. Spiral tissue.
Its modifications.
Energy of formation of new roots and buds.
29. Ducts.
30. Actual pores or perforations very rare in cellular tissue, though occasionally present.
31. (1854, p. 148.) Some organs, as the stigma, not covered by cuticle.
32. Stomates and their functions.
33. Cuticle compensated by modification of subjacent cells.
34. Inner cells of wood in Exogens hardened; outer in bark perish.
35. The grumous contents of Cork cells soon give place to air.
Consequent influence on fall of leaf.
36. Peculiarities of Endogens.
37. Dead bark protects subjacent cambial cells.
38. Modes in which dead bark separates.
39. Healing over of wounds caused by removal of bark.
40. Ascending and descending systems of growth.
41. True and false roots.
42. Original vascular bundle of roots and its ramifications (Compare ¶ 28).
43. Roots of Exogens.
44. Roots capable of sending up shoots when stem is destroyed, and in some other cases.
Exception in those cases where the roots are mere prolongations of the external cells.
45. Stems, on the other hand, often produce roots.
All root-like appendages are not, however, true roots.
46. (1854, p. 180.) Structure of roots.
47. Adventitious roots of Orchids.
Their spiral cells.
48. Evil consequences of breaking off tips of roots, by which the greater part of the nutriment is imbibed.
49. Increase at their tips. Consequences.
50. Structure such that moisture is conveyed to point where the upward current of sap is most active.
51. Buds and roots though similar in origin not necessarily the same organ. Roots sometimes produced in an ascending direction.
52. (1854, p. 196.) The presence of soil no necessary requisite of vegetation. Air plants, aquatic plants, &c.
53. Stagnant water injurious to roots.
54. Office of roots in fixing plants in the soil and keeping up equilibrium of temperature.
55. Necessity of spongelets changing their place, and not remaining stationary.
56. (1854, p. 214.) Fluids and gases enter cells of spongelets by endosmose.
57. Capable of exercising little choice in food.
Rejection of noxious matters probably dependent on chemical and mechanical causes.
58. Excretions of roots.
59. (1854, p. 236.) Development of plant from seed.
60. Vascular tissue formed during course of development.
Modification of cells in stem.
61. Holds good to a certain extent in annuals.
62. Structure of stem.
63. Importance of pith and young bark.
Old pith possibly not entirely unimportant.
64. Pith not confined to stem.
Doubtful if present in true roots.
65. (1854, p. 252.) Pith by no means homogeneous.
Its complications, and connection with buds.
66. Normal buds. Growth dependent upon them.
67. Theory of formation of wood from descending roots of buds.
68. Wood of graft and stock keep up their distinctive characters. Inference from this fact.
Modifications of graft by sap of stock.
69. Grafting consequently only practicable within certain limits.
70. If a slight change in constitution of sap is so important, changes in the nature of the soil must be equally or more important.
71. (1854, p. 268.) Adventitious buds.
72. Axillary and lateral buds.
73. Origin of adventitious buds from vascular tissue.
74. Latent buds (Knaurs).
75. Propagation from buds.
76. Bulbiform buds. Analogy between buds and ovules.
77. Buds produced two or even three years before development in certain bulbs.
78. (1854, p. 284.) Denuded surface both of wood and bark capable of giving growth to new wood and bark, and this productive of adventitious buds.
79. Decortication consequently not necessarily destructive. Wood and bark may be formed where there is not a single leaf, as in filled stumps.
80. Gœppert's case of the Silver Fir.
Hollow trees, the vivacity of, when the pith and medullary sheath are gone. Nutritive fluid consequently not carried up by any exclusive set of organs. (Compare ¶ 78.)
81. (1854, p. 301.) Though there is a constant interchange between all the constituent cells, there are certain courses taken by the main currents upwards and downwards.
82. Spongelets of Madder (with Illustration) in connection with the question, by what part of the root does the main current rise?
83. It appears probably from the roots of Conifers that the nutriment rises principally by the central fascicle.
84. Sap aërated in leaves. Vascular tissue analogous to trachea of insects.
85. Temporary derangements ultimately remedied.
86. (1854, p. 318.) Leaves originally developed from young bark.
87. Vascular and its accompanying tissue extends from medullary sheath into the young leaves forming nerves either in one or several fascicles.
88. Normal buds are therefore always traceable to the neighbourhood of the pith, but not adventitious buds.
89. Leaves have always a bud or buds in their axils, which if not developed at first may be latent for years, and are not to be confounded with adventitious buds.
90. Structure of leaves.
91. (1854, p. 340.) Cuticle of leaves, continued from cuticle of bark.
92. Cuticle impervious to air and moisture; hence necessity of stomates. Roots must bear proper proportion to leaves, therefore injudicious root pruning and removal of leaves may be equally destructive.
93. Perspiration in great measure a vital process. Health cannot be preserved where perspiration is impeded.
94. Newly transplanted plants must not be too rapidly exposed to the direct rays of sun. Moisture absorbed by stomates.
95. Defect of light in many instances produces a dropsical condition, though a few plants are intolerant of light.
96. (1854, p. 356.) Importance of air and light.
97. In animals carbon eliminated, in plants fixed.
Influence of light.
Cases of fungi and charads.
98. Part of oxygen with which the carbon is combined derived from decomposition of water.
99. The green colour of plants dependent on light.
Starch deposited mostly where light is feeble.
100. Influence of light counteracted by cold or constitutional peculiarities.
101. Colour of flowers affected by light. (Compare 457*).
102. (1854, p. 372.) Fall of leaf.
103. Fall not always consequent on death of lamina.
104. Phenomena attendant on disarticulation.
Occasional decay where disarticulation fails.
105. Absorption of moisture by leaves so great occasionally as to counteract the upward course of sap.
Knight's theory of Wheat Mildew.
106. (1854, p. 388.) Reproduction by seed normal in Phænogams.
107. Reproduction by spores in Cryptogams.
108. Existence of sexual distinctions in Cryptogams.
109. Doctrine of Metamorphosis.
110. As the component parts of the fruit and flower of Phænogams are leaves, buds may occasionally occur in their axils.
111. Stamens and pistils essential parts of the flowers of Phænogams. (The cases are excepted where the carpels are naturally open.)
112. Structure of young ovary. Ovules analogous to buds.
113. Stigma as well as placenta void of cuticle.
114. (1854, p. 404.) Impregnation and formation of embryo.
115. Schleiden's Theory.
Cases of formation of perfect seed without impregnation.
116. Heat evolved during process of impregnation in Arads.
117. Effect of impregnation in general not visible in hybrids in the first generation.
118. (1854, p. 419.) Pistil more easily impregnated by its own pollen than that of a stranger. Rarely impregnated at the same time by two kinds of pollen. Instance of two essentially different embryos in the same seed.
119. The result of hybridisation not always beneficial.
120. Constitutional weakness of many hybrids. Diseased hybrids should never be used for crossing.
121. Effects of impregnation on petals, &c.
The ovary may be sometimes stimulated into development where impregnation of ovules fails.
122. (1854, p. 436.) Diffusion of seeds. Comparative periods of vegetation.
123. Retention of vitality in seeds buried in the earth.
124. Differences in respect of the capability of this retention.
125. Imperfect seeds may arrive at maturity from nutriment stored up in the plant without any further accession by roots.
Curious instance of perfection of seed, in Hollyhocks.
126. (1854, p. 451.) Phenomena of germination.
127. Caution respecting use of strong manure to germinating seeds.
128. Necessity of using healthy seed.
129. Unhealthy plants will not produce healthy seed.
Renovation by impregnation from healthy stock.
130. (1854, p. 468.) Influence of external agents.
131. Light.
132. Consequences of its absence.
133. (1854, p. 483.) Plants in mines.
Seaweeds. Their colour at great depths.
134. Difference of intensity in different countries.
Inference as regards cultivation.
135. Effect on Cryptogams.

136. Formation of Chlorophyll greatly dependent on light.
Sugar formed in its absence.
137. Green tint in Fungi, Lichens, &c.
Ripening of fruit.
138. Supposed effects in producing organised beings.
139. (1854, p. 500.) Temperature.
140. Plants in hot springs.
141. Temperature of soil and atmosphere.
Temperature of soil at different depths.
142. (1854, p. 516.) Radiation.
143. Burning of leaves by lenses of water, or by glass.
144. Importance of nocturnal depression of thermometer.
145. Supposed effect on production of male flowers in monœcious plants.
146. Proper heat of plants.
147. Congelation.
148. (1854, p. 532.) Frost more injurious when air is moist.
149. Evaporation.
Necessity of proper condition of air.
150. Stagnation of water and consequent depression of temperature.
151. Life cannot exist in organised beings without a due proportion of moisture.
152. The last stage of ripening of seeds is the elimination of moisture.
153. (1854, p. 548.) Air as necessary as moisture.
154. Consequences of admixture of gases.
155. Fatal effects of many chemical works.
156. Supposed effect of increased consumption of fuel.
157. (1854, p 564.) Gases imbibed by soil.
158. Atmospherical air in soil.
Carbonic acid in soil.
159. (1854, p. 560.) Ventilation.
160. Secures proper hygrometric condition.
161. Effect on the atmosphere.
Motion communicated by wind beneficial.
162. Noxious effects of gases on roots.
163. (1854, p. 596.) Electricity.
164. Destructive effects.
165. Effect of atmosphere highly charged with electric fluid on Fungi and on vegetation.
166. Supposed to be productive of disease.
167. Isolation of crops by means of wires.
Supposed effects accidental.
168. (1854, p. 612.) Effect on germination.
168*. Galvanism.
169. Effect of electricity on fermentation.
170. (1854, p. 628.) Soil.
171. Effect of excess of ammonia and phosphates.
Effect of abstraction of these and other matters.
172. Effects of vegetable and mineral poisons.
173. Some Cryptogams resist poisons which are fatal to Phænogams.
174. Effect of anæsthetic agents on plants.
175. Effect of poisons on dry rot, bunt, mildew, &c.
176. (1854, p. 644.) Organic chemistry.
177. Ternary and quaternary combinations.
178. Sugar.
179. Starch.
180. (1854, p. 660.) Gum.
181. Woody fibre.
182. Quaternary substances.
183. Albumen.
184. Fibrine.
185. Caseine.
186. (1854, p. 676.) Sulphates, phosphates, and other combinations.
187. Nutriment of vegetables derived partly from the air, partly from substances in the soil.
188. Differences of soil.
189. Ulmates, humates, &c.
190. (1854, p, 692.) Fixation of carbon; elimination of oxygen.
Constant deoxydation of materials and elimination of oxygen in every vegetable process.
191. Deoxydation in germination.
192. Phosphates and sulphates necessary components of soil.
193. Selection of artificial manures.
194. Vital action.

II. WHAT IS DISEASE, WITHIN THE MEANING OF THE TERM, AS USED BY CULTIVATORS.—NOS. XLIV–XLV.

195. (1854, p. 708.) Not of the same latitude as when used in animal pathology.
196. Objects of cultivation often abnormal.
197. Peculiar secretions generally diminished in objects of cultivation.
198. (1854, p. 724.) Often in a really diseased condition though answering the ends of the cultivator.
199. Case as regards fruit.
200. Bletting, though essentially a diseased condition, sometimes a necessary end.
201. Case as regards flowers.
202. Conclusion as to what is disease in the sense of the cultivator.

III. CAUSES OF DISEASE.—*a. Internal or Constitutional.* (NOS. XLVI.–XLVIII.)

203. (1854, p. 740.) Constitutional defects of individual plants.
204. Such defects hereditary. Notion of wearing out controverted.
205. Notion of the same as regards fruit trees.
206. Propagation from diseased individuals may lead to erroneous notions respecting the qualities of a species or variety.
207. (1854, p. 756.) Disease may permanently affect a constitution hitherto healthy.
208. Sterility may be constitutional.
209. Chlorosis.
210. Hypertrophy.
211. Many valuable garden plants result of debility.
212. Good varieties of flowers come from the weakest looking seeds.
213. (1854, p. 772.) Hybrids.
214. Permanence of some varieties and variations.
215. If objects of cultivation are often essentially in a diseased condition, cultivators ought to expect impediments arising from such a condition.
216. Difficulty of healing in diseased plants.
217. Fungi may aid decay, when not original causes of it.
218. The effects of unfavourable external conditions not to be ascribed to constitutional weakness.

b. External or Accidental.—(NOS. XLIX–L.)

219. (1854, p. 788.) Constitutional disease may in the first place arise from external causes. Their immediate effects.
220. Specific external agents.
221. Ravages of insects and other animals.
222. (1854, p. 804.) Galls.
223. Ravages of vegetable parasites.
224. Real and false parasites.
225. Fungi fructifying within closed cells.
226. Fungi propagated at first within the plant.
227. White and black mildew.
228. Larger Fungi, Lichens and Mosses.

c. Doubtful or Conjectural.—(NO. LI.)

229. (1854, p. 820.) Substitution of words for facts.
230. Equivocal generation.

IV. CLASSIFICATION OF DISEASE.—(NOS. LII–CLXX.)

231. (1854, p. 836.) Diseases constitutional or accidental.
232. Functions of plants. Circulation and respiration.
233. Nervous energy.
234. Functions obscure, and consequently their derangements.
235. Difficulty of classifying according to such derangements.

a. INTERNAL OR CONSTITUTIONAL.—* *Functional.*

236. (1855, p. 4). All disease productive of organic change, though not always appreciable.
237. Functional malady induces organic change.
238. Effects of functional disease on vital force.
239. Consideration of specific diseases.
239 bis. (1855, p. 20.) Similar diseases may arise from different causes. Difficulty therefore of arranging them under distinct heads.*

Genus I. STERILITAS. *Unproductiveness* (240).
1. Constitutional and functional (241–244).
2. Constitutional and organic (245–250, 1855, p. 36).
3. Accidental and functional (251–257, 1855, p. 52).
4. Accidental and organic (258–263, 1855, p. 68).

Gen. II. APOSTAXIS. Distillation or abnormal emission of nutritive or secretive fluids (264, 1855, p. 84).
1. Weeping. Overflowing of sap (265, 266, 1855, p. 84).
2. Bleeding. Discharge of sap by means of ruptured organs (267, 1855, p. 100).
3. Gumming. Discharge of gum (268–271, 1855, p. 116). Tragacanth (271*, 1855, p. 204). (271**, 1857, p. 400).
4. Resinous discharge (272–275, 1855, p. 133). (272*, 1857, p. 484†).
5. Honey Dew. Discharge of sugary matter (276–281, 1855, p. 152).
6. Discharge of manna (282–285, 1855, p. 172).
7. Discharge of starch (286, 287, 1855, p. 188).

Gen. III. VARIEGATIO. Normal defect or modification of Chlorophyll (289–295, 1855, p. 220).
Gen. IV. DECOLORATIO. Normal change of colour (296–298, p. 240).
Gen. V. CHLOROSIS. Abnormal defect or modification of Chlorophyll (299–302, 1855, p. 260).
1. Chlorosis of Cacti (303–304, 1855, p. 278).
2. Chlorosis of Hyacinths, 305.
3. Chlorosis of Onions (305*, 1855, p. 421).
4. Chlorosis of Cucumbers. *Cucumber disease* (306–309, 1855, p. 301).
5. Chlorosis of Clover (308*, 1857, p. 436).
6. Chlorosis of Orchids (309*, 1855, p. 316).
7. Potato Curl (310–313, 1855, p. 334).
8. Dry Rot in Potatoes, 314–315.

Subgenus *Icterus.* Yellowness.
1. In Wheat (316–317, 1855, p. 356).
2. In Vines (318, 319, 1855, p. 372).
3. Produced by Fungi, 320.
4. Produced by Insects, 321.

Gen. VI. PRÆCOCITAS. Forwardness (322–324, 1855, p. 388).
Gen. VII. SENECTUS. Old age (325–327, 1855, p. 404).
** *Organic* (328–330, 1855, p. 436.)
Gen. VIII. PERIANTHOMANIA. ‡ Abnormal multiplication of Bractes, sepals, &c. (331–333, 1855, p. 452).
Gen. IX. PETALOMANIA. Multiplication of Petals (334–336, 1855, p. 468).
Gen. X. ANTHEROMANIA. Multiplication of Anthers (337).
Gen. XI. CAPSOMANIA. Multiplication of Pistils, &c. (339–342, 1855, p. 486).
Green-centred Roses, &c. (343–348, 1855, p. 516).
Bladder Plums (349–352, 1855, p. 532).
Gen. XII. CARPOMANIA. Grittiness of fruit (353, 1855, p. 549).
Gen. XIII. PHYLLOPTOSIS. Fall of leaf.
Gen. XIV. CARPOPTOSIS. Fall of fruit.
Shedding of Rice § (352*, 1856, p. 36).
Gen. XV. ANTHOPTOSIS. Fall of flowers (354, 355, 1855, p. 564); ‖(356–359, 1855, p. 580).
Gen. XVI. CLADOPTOSIS. Fall of branches (360–363, 1855, p. 596).
Gen. XVII. CARCINODES. Canker. Constitutional decay attended by distortion or the development of unsightly excrescences or depressions (364, 365, 1855, p. 614).
1. Apple canker (366–368, 1855, p. 644).
2. Plum canker (369). See Gumming.
3. Ash canker (370–371, 1855, p. 661).
4. Cherry canker (371*, 1857, p. 453).

Gen. XVIII. CARIES. Decay. Decomposition of cell walls (372, 1855, p. 676; 473, p. 692; 374, 375, p. 709; 375*, 1857, p. 566).
Gen. XIX. HYPERTROPHIA. Excessive development (376–378, 1855, p. 725; 378*, 1857, p. 500; 378**, 1857, p. 517).
Clubbing (378***, 1857, p. 597).
Gen. XX. EXOSTOSIS. Hard excrescences consisting of sound tissue.
1. Knaurs (379–382, 1855, p. 756; 382**, 1857, p. 549).
2. Cypress knees (382*, 1857, p. 549).
3. Warts (383–387, 1855, p. 772).

GEN. XXI. SCLEROGENIA. Induration of roots, tubers, &c., without decomposition (388–393, 1855, p. 788).
Gen. XXII. DACTYLORHIZA. Forking of roots (394–397, 1855, p. 804).
Gen. XXIII. SPHRIGOSIS. Rankness (398–399, 1855, p. 820; 400–403, 1855, p. 836).
Gen. XXIV. CŒNOCLADIA. *Natural grafting* (404–407, 1855, p. 852).
Gen. XXV. ACAULOSIA. Defect of stem (408–413, 1856, p. 5).
Gen. XXVI. HYPOSATHRIA. Bletting. Decomposition of cellular tissue of fruit accompanied by formation of sugar (414–416, 1856, p. 21).

b. EXTERNAL OR ACCIDENTAL.

* Functional (411*, 1856, p. 36).
Gen XXVII. DESICCATIO. Sunstroke. Withering (412*–414, 1856, p. 53).
Gen. XXVIII. CONGELATIO. Freezing (415*–418, 1856, p. 69).
Gen. XXIX. VENEFICIUM. Poisoning (419–422, 1856, p. 85; 423–429, 1856, p. 100).
Gen. XXX. ASPHYXIA. Suffocation (430–436, 1856, p. 117).
Gen. XXXI. ANASARCA. Dropsy (437–442, 1856, p. 133).
Gen. XXXII. LETHARGIA. Deferred vegetation (442–447, 1856, p. 153).
Gen. XXXIII. LANGUOR. Premature old age; decrepitude (448–451, 1856, p. 173).
Gen. XXXIV. ALBEFACTIO. Blanching (452–457, 1856, p. 193; 457*, 1857, p. 566).
** ORGANIC (458, 1856, p. 212).
Gen. XXXV. BRONTESIS. Electric stroke (459–462, 1856, p. 228).
Gen. XXXVI. ANEMOSIS. Windshake (463–466, 1856, p. 245).
Gen. XXXVII. HELIOSIS. Sunburn (467–470, 1856, p. 261).
Compare *Desiccatio*, which belongs to the functional series.
Gen. XXXVIII. PHILLILESIA. Leaf curl. Blister (471–474, 1856, p. 280).
Gen. XXXIX. CLADODYSTROPHIA. Perishing of branches (475, 476, 1856, p. 301).
Gen. XL. HEMIDYSTROPHIA. Partial nourishment (477–480, 1856, p. 320).
Gen. XLI. VULNERA. Wounds (481–485, 1856, p. 340).
1. Fractures, bruises, &c. (484*–486, 1856, p. 357).
2. Wounds from animals (487–489).
3. Wounds from fire or natural decay (490, 491, 1856, p. 373).

* The arrangement of diseases into *sthenic* and *asthenic*, though at first plausible, is in practice as full of difficulty as that which is here adopted.

† This might be placed in *Carcinodes*, as a case of that genus complicated by discharge of resin.

‡ Ré's arrangement has been followed here, but it would be better to consider this and the following analogous instances as species of one common genus.

§ This when better known will probably be referrible to a distinct genus.

‖ These three genera may conveniently be comprised in one.

Gen. XLII. PARASITÆ. Parasites (492–496, 1856, p. 388).
1. Phænogams,* True Parasites. *a.* Dodder (497–502, 1856, p. 405).
b. Broomrape, Misletoe, *Balanophoræ*, &c. (503, 504, 1856, p. 421).
** False Parasites. Ivy (505–508, 1856, p. 436).
2. Cryptogams (509–515, 1856, p. 452).
† Fungi. *a. Ascomyces* (516–519, 1856, p. 470).
b. Erysiphe (520–527, 1856, p. 485).
Hop and Grape mildew (528–534, 1856, p. 501).
c. Cyttaria (536, 1856, p. 517).
d. Rhytisma (537).
e. Dothidea 538, 539).
f. Cordyceps (Ergot) (541–547, 1856, p. 549).
g. Capnodium (including *Antennaria*) (548–554, 1856, p. 564).
h. Botrytis (555–558, 1856, p. 580).
(559–564, 1856, p. 596). Potato murrain.
i. Stemphylium, &c. (565–568, 1856, p. 612).
j. Helminthosporium, Cladosporium (568*–571, 1856, p. 629).
k. Polyactis (572–574, 1856, p. 644).
l. Æcidium (575–578, 1856, p. 660).
m. Peridermium, &c. (578*–581, 1856, p. 693).
n. Tubercinia (582–585, 1856, p. 708).
o. Ustilago. Smut (587–593, 1856, p. 725).
p. Tilletia. Bunt (594–598, 1856, p. 757).
q. Uredo, &c., Rust (599–602, 1856, p. 788).
r. Gymnosporangium (603–605, 1856, p. 804).
s. Puccinia. Wheat mildew (606, 607, 1857, p. 4).
t. Triphragmium, &c. (608–612, 1857, p. 20).
u. Gleosporium, &c. (613–619, 1857, p. 53).
v. Polyporus, &c. (620–623, 1857, p. 69).
†† Mosses, Lichens, Algæ (624–629, 1857, p. 85).
††† Insects (626–628, 1857, p. 101).
a. Galls (629–632, 1857, p. 132).
(633–638, 1857, p. 151).
b. Aphides. Plant lice (639–644, 1857, p. 173).
c. Cocci. Scale, &c. (644–650, 1857, p. 191).
d. Thrips (651–653, 1857, p. 213).
e. Vibrio. Ear cockle (656, 657, 1857, p. 289).
f. Acari. Red spider (658, 659, 1857, p. 308).
g. Cecidomyia. Wheat midge (660–662, 1857, p. 343).
h. Pyralis. Vine moth (663–667, 1857, p. 365).

REMEDIES OF DISEASE.—(NOS. CLXXI–CLXXII.)

668. (1857, p. 644). General remarks.
669. Division into certain and uncertain, and first, certain and rational.
670. Certain and empirical.
671. 1857, p. 660). Doubtful and rational.
672. Doubtful and empirical.
673. Concluding remarks.

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Hydrodictyon utriculatum.
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p. 693. *Peridermium.*
p. 788. *Cystopus candidus.* (White rust.)
1857. p. 21. *Triphragmium, Phragmidium.*
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THE BANANA.

BANANAS or Plantains are the produce of several species or varieties of the genus Musa. They are always very beautiful and stately growing plants; in tropical countries their cultivation is of immense importance, and by the native population the fruit is almost considered to be a necessary article of food; it is produced in bunches weighing 30, 60, and 80 lbs. each, and whatever a few fastidious persons may say to the contrary, the best varieties of Banana, when properly ripened, are of exquisite flavour, differing very much both in taste and texture from all other fruits. The old Banana is, however, not worth growing. The fruit is small, and comparatively insipid and coarse. The old Plantain is also coarse and only fit for kitchen use. The Green Banana is also an inferior kind. The Dacca Banana is a very good sort but not suitable for growing in a mixed collection, as the fruit is very liable to crack and rot before it is properly ripe. The Red Banana is, however, a noble growing variety; it requires a house 30 feet high so as to give it plenty of head-room for its ample foliage. Its fruit is produced in large bunches; it has a peculiarly sharp and pleasant flavour, in which respect it is second to no other variety. The St. Helena Banana (so called from its being introduced from that island, although it cannot have originated there) is perhaps the finest of all the varieties cultivated in this country. It is a splendid growing plant, with leaves from 12 to 14 feet long and nearly 3 feet broad, producing bunches of fruit weighing from 60 lbs. to 80 lbs. each, and sometimes considerably more. Here they are seldom weighed, unless they are expected to prove much above the average weight; in 1843 a bunch of this variety when cut weighed 133 lbs., and after a few of the over ripe pips were gathered it was exhibited to the Horticultural Society; it then weighed only 129 lbs. The quality of the fruit is certainly equal and perhaps superior to the fruit of Musa Cavendishi, and it is very much larger. The well-known M. Cavendishi is a

valuable variety on account of its very dwarf habit, but to grow it well it requires a rather high temperature, particularly when it shows its fruit during winter, otherwise the lower part of the bunch is choked in the folds of the leaves. The fruit of this sort is very good, and sometimes the bunch weighs as much as 60 lbs.; more frequently however it does not exceed half that weight.

Bananas may be grown in tubs or boxes, or in a bed with brick partitions which allow 3 or 4 feet square to each plant, and about 2½ feet depth of soil, using plenty of drainage. When in boxes they may be raised or lowered at pleasure, which is sometimes an advantage. We grow the large varieties in a pit or border (in the centre of the stove). The bottom and sides are hollow brick walls, but they have no bottom heat. The Cavendishi variety is grown in a smaller stove in a border 14 feet long by 5 broad, and 2 feet deep, which accommodates two or three plants; and with an occasional top dressing, both the large and the small sorts will continue to produce excellent fruiting plants for several years, and by this method all expense of boxes, frequent shiftings, establishing young plants, &c., is avoided, and by the time that one plant has ripened its fruit a strong sucker will be ready to take its place.

These plants produce thick fleshy roots which delight to run in any light rich porous soil, such as a mixture of two parts very turfy loam, and one-third of well rotted manure from the Melon pits, and a little sand, using effectual means for keeping the drainage perfect, and thus preventing the soil from becoming adhesive and wet. The minimum temperature for them in winter should range from 60° to 65°, allowing the warmth to rise by sun heat. Summer temperature minimum from 65° to 70°, and maximum 75° to 85°, giving air on all favourable opportunities, keeping up a moist atmosphere, and using liquid manure occasionally. *A. Scott, Leigh Park, Sept.* 14.

New Plants.

210. Rhododendron calophyllum, *Nuttall in Kew Garden Miscell., v.* 362.

It was a matter of surprise and of interest to botanists and cultivators, that during Dr. Hooker's exploration of the mountains of Sikkim-Himalaya he should have detected no less than 43 species of Rhododendrons, of which 30 were considered new; and no less a matter of surprise that when Mr. Booth, shortly after, visited the adjacent mountains of Bootan, he should have added, as detailed by Mr. Nuttall in the journal above quoted, 16 to the number of novelties. We have reason to believe that if the lofty mountains of the Malayan Archipelago were as well explored, an equally extensive harvest would be reaped. The present is among the number of those discovered by Mr. Booth, of which seeds were received by Mr. Nuttall, at Nut Grove, Rain Hill, where flowers were produced, as well as at the Royal Gardens (on a plant presented by Mr. Nuttall), in May of the present year, 1857. Mr. Nuttall, from specimens without flower, in his description, *l. c.*, judged that the species was very nearly allied to his *Rhod. Jenkinsi*; itself too near, if really distinct from *R. Maddeni* (see our Tab. 4805): yet the habit is distinct, the corollas in our present plant are much shorter, the bracts more persistent, and there is a great disposition, at least in our specimen, to send out from the corymbs of flowers new shoots, with scaly or stipulated branches, in a somewhat whorled manner, which, however, detract from the beauty and compactness of the heads of flowers. Descr.—Our plant forms a shrub about 3 feet high, with rather patent, stout, terete branches, the young ones scaly. Leaves 3 to 5 inches long, firm, rigid, coriaceous, ovate, oblong or somewhat elliptical, dark glossy green, penninerved, obtuse at the base, very acute at the point, glaucous beneath in the young leaves, ferruginous in the older ones, with innumerable orbicular peltate scales; a few of these scales are found on the veins above. Petiole from half to three-quarters of an inch long, very stout, brownish green. Corymb of from four to five flowers; bracteal scales large, ovate, concave, membranaceous, deciduous. Peduncles short, scaly. Calyx very scaly, short, five-lobed; lobes rounded, equal or nearly so. Corolla about 3 inches long, and as much broad at the limb, pure white, slightly tinged with yellow-green, tubuloso-campanulate, somewhat ringent, deeply five-lobed, the two lower segments more deeply cleft; the lobes large, spreading, a little waved, and acute. Stamens shorter than the corolla, 18 to 20; filaments quite glabrous. Anthers purple-brown, oblong. Ovary on a fleshy disc or ring, ovate, very scaly (as is the long style), ten or more celled. Stigma broad peltate, two-lobed. *Botanical Magazine, t.* 5002.

Home Correspondence.

Wellingtonia gigantea.—At a small park four miles from Canterbury called Kenfield, the seat of R. E. Thompson, Esq., are some of the finest grown old specimens of Sycamore and Ash trees that I ever remember to have enjoyed the sight of. Here I was employed a few years since to form a flower garden and shrubbery, and subsequently to connect the two with a fruit garden, enclosing a bowling green beyond. This intermediate space, with Mr. Thompson's consent, I determined to plant almost entirely with Conifers. This was done by drawing the edges of existing plantations into agreeable outlines, and then filling up the centre with different groups of Pines, Firs, Cedars, Cypress, Yews, &c., and these groups were placed in circular beds of various sizes, a plan well adapted for the display of this interesting family. Here an opportunity occurred of contrasting colour as well as form, by making the grey and drooping Deodar spring from an underground of dark Yew, which latter having been raised from cuttings do not aspire, but spread over the ground, and allow the Deodars to obtain the upper air unimpeded, without contention or rivalry. The bright green of the Pinus insignis contrasts most perfectly both in form and colour with its Nepalese relative, the Pinus excelsa, and the like. But an unexampled glow of colour is produced by the introduction of the variegated white Cedar—the Silver and the Golden Yews, and that gem amongst low growing coniferous plants, the golden Arbor Vitæ, backed up with Cupressus Lambertiana, macrocarpa, Goveniana, and the like. In this manner it is possible to produce the effect of a landscape painting, by so detaining the eye in the centre of the group, and only allowing it to escape after it has satiated itself with the golden flood of light created by such plants as I have named. But my object in addressing your readers was not to descant upon landscape gardening, as to what is, or what may be effected; but to bring to their notice the effect of the Wellingtonia gigantea, which here has thriven so as to develope its unique character, and at the same time to acquire dimensions beyond what I have elsewhere observed. For instance, a tree 16 inches high in 1855 was 3 feet 9 inches in 1856, and is now, September 1857, 5 feet 6 inches, with branches spreading on the ground nearly equal to its height, namely, 5 feet 3 inches. Then the girth at the base of the stem is 11 inches, and at 2 feet high is 5¼ inches. The stem is unlike that of any other tree, it carries its bulk up in a proportion that no other Conifer acquires, and each branch is supported by a knob that acts as a spur, or truss, so long as the branch requires it; which knob is then incorporated with the bole itself, which becomes perfectly round, and shows the scale-like leaves much enlarged, and incorporated with its bright cinnamon coloured bark. These scars are produced in a somewhat spiral direction, and give to the stem much of the appearance of some fossil lignite. The direction of the branches is such as to give the head of the tree a flattened form, and as the tree advances are gracefully bent down, after the manner of Araucaria excelsa, and like that, rise gradually again at their extremities. The character of the tree altogether indicates that of a rapid growing one, and it will most probably attain an altitude far exceeding our Pines or our Oaks. Some fear has been expressed on account of portions going to decay and falling off; this in my opinion is natural to the species, which seems to shed small branches where most others only shed leaves, but which is a common occurrence in the species of Thuja, &c., and in all likelihood it is this property that enables the tree to acquire such an unusual altitude before it gives off branches. It is only necessary for me to state that the situation of Kenfield Park is cold and bleak, and that the tree has never been protected with a covering of any kind save that of the snow. It therefore justifies the belief that some of the present race of juvenile gardeners may live to see this tree display its heads, clothed with its fine gray foliage, at an altitude that at present we have no example of in this our latitude. *William Masters, F.H.S., Exotic Nursery, Canterbury.*

——The following are the dimensions of a Wellingtonia growing at Lamorbey, the seat of J. Malcolm, Esq., Bexley, Kent:—Last May its height was 4 ft. 2 in., and now it is 7 ft. 2 in., and at the bottom 2 ft. 6 in. on each side of the stem; it looks remarkably vigorous. *J. R. D.*

Sedum Fabaria.—This plant, of which the oldest name is S. purpureum, inhabits England, and was published as a native 10 years since. I have it from Hertfordshire, Westmoreland, and Cardiganshire; and if, as is probable, the same plant is intended by the variety mentioned by Dr. Arnott, it is more frequent than S. Telephium in Scotland. I have never seen it in cultivation, and in a wild state it of course does not attain the size mentioned by you (*Chron.*, 660). *C. C. Babington.* [But there is a S. purpureum regarded by Koch as a var. of S. Telephium, and there is the S. purpureum of Tausch which the same botanist refers to S. Fabaria. We think that Grenier and Godron take the same view, but our copy of their work is in the hands of the binder. It seems to us better to use the name Fabaria, which has but one application, than that of purpureum, which has two; especially since the Sedum purpureum of the gardens is not Fabaria.]

Destroying Ants.—Your correspondent "F. M.," (see p. 662) can easily destroy ants by pouring ammoniacal gas water in their runs and nests. They may also be destroyed in meadows by the following simple method:—Cut off the hillocks with a sharp spade, leaving a little mould to form a basin, then pour in strong ammoniacal gas liquor; this will be found the easiest and best method of destroying these troublesome little pests. *Edward Bennett, Perdiswell.*

How are Rose-buds destroyed?—Permit me to recommend to your correspondent "M. A." a very simple and effectual plan of clearing his Rose trees of the Curculio beetle. Make a small dish in the soil round the stem of the Rose about 4 inches in diameter, taking care to close up with the hand every crevice or opening in the soil round the stem of the Rose or its support, making the surface of the soil in the dish even and close. In this hollow place a few clods of earth or rough stones, laying them close to the stem of the plant, but do not press them into the earth. The following morning the insects will be found clinging to the under surface. I have found this plan to answer very well with both standard and dwarf Roses, and also Raspberries, of the young shoots of which they seem to be very fond. A little patience and care are required by this method at first in making the soil even and closing up all the openings; when this is done you have only to go round and collect the insects and destroy them, replacing the clods for the reception of any future visitor. *James Tynan, 68, Great George St., Liverpool.*

Mignonette Sauce possibly implies more than is obvious at first sight, and is most probably not a preparation of Reseda odorata. It would be easier to discover what was meant had "L." quoted the original passage from the French cookery book; although most cookery books contain so many conventional terms—so much professional slang, in fact—that even that quotation might have left the matter in doubt. The French, almost universally, know as "Reseda" the plant which is so popular with us as Mignonette; while they apply the name of Mignonette (also Amourette) to Saxifraga umbrosa, the cottage favourite styled London Pride. The French cooks often boil Sarriette (Satureia hortensis, Summer Savory), with broad Beans, as we use Mint to flavour green Peas; and I have an indistinct recollection of having heard Mignonette applied to some aromatic kitchen plant—very likely to the one in question, Sarriette or Summer Savory. *E. S. D.*

Yucca gloriosa.—Is it not an unusual circumstance that a plant of this should be sending up at this time five separate spikes of bloom—now in different stages—one nearly in full flower, and the last and largest just emerging from its sheath? This is the case in my garden, a few miles from the south coast. *J. P.* [The hot summer has produced the same result in many places.]

Pampas Grass.—The following information is requested by a correspondent who has a fine plant of this Grass planted last spring. This fine season has made it flourish surprisingly, but it has been suggested to take it up and plant it raised or on a small tump for appearance as to its drooping, and being a damp spot for preservation in winter. Is it well to do so? or is it a risk as to lessening its luxuriancy if its roots spread much? *A. B.* [By all means leave it in peace.]

Eugenia Ugni.—I beg to inform you that a plant of this placed in the open air (in a pot) in July ripened its fruit perfectly by the end of August. Not prepared for this early maturity, I only became aware of the fact by the sweet scent of the berries. This circumstance may possibly induce others, like myself, with little else to do to amuse themselves with, to try the cultivation of this (to me) very interesting plant. It is pretty to look at, sweet scented, and the berries delicious. Mr. Fryer, a nurseryman in the Camberwell New Road, procured the plant for me, a small one with 35 berries on it. *A Subscriber, Camberwell.*

Potato Planting.—I noticed in a late Number an article signed "P. T. S." on this subject. Being at this moment occupied in raising my own Potato crop, I read the above with additional interest. I cannot agree with "P. T. S." in ascribing such virtue as he does to the Fluke; at least it is not so well behaved with me. Since the Potato crop has become so uncertain, I have only planted enough for the use of the house, and this year my lot consisted of about 2 imperial acres, with the following results. On the 2 acres I had about a third Prince Regents, two-fifths diseased; White Rocks or Protestants (an Irish variety), almost no disease; Flukes fully one-half diseased. Of these three sorts the Flukes were decidedly the worst. I may add that they all received the same manure, about 25 carts of farmyard manure per Scotch acre; four drills of each variety got no manure but a fair allowance of guano. On these drills I could not observe any difference. *Galston, Ayrshire.*

Mushrooms.—I am much pleased to have an opportunity of answering "Amateur's" questions in a late *Chronicle*, for I wish every amateur to be sufficiently skilled in Mushroom growing to be able to direct his own beds to be made and managed properly, more especially when we reflect that Mushrooms may be considered second only to beef or mutton. If I were asked what Mushroom spawn is, I should say that it was formed in horses' stomachs, for it is certain that the more Oats a horse eats the more spawn will be produced, the finer the Mushroom will be, and the longer the crop will last. We have proof of this when we make up a bed with no artificial spawn in it; a bed made up, however, without spawning, will take four months instead of two to come into bearing; but such a bed could be much helped by saving all the dry parts of the bed containing spawn, and inserting them near the surface, amongst the droppings of another new bed, before moulding. I only recommend the above plan where you cannot get, nor depend upon artificial spawn; a bed made up like the above must not have any water for four months, until the spawn has run thoroughly through it and well established itself. One thing I cannot understand—how a Mushroom has the power of lifting up a heavy weight, more particularly as we know that it is not by any means a deep rooted plant. I was an eye witness to a case of this kind just 30 years ago, at a public-house door at Roehampton. One morning very early all gardeners in the neighbourhood were summoned to come and see this wonder. A large Mushroom had lifted up one end of a flag stone just at the entrance of a public-house door to the height of about 3 inches. This was seen by hundreds of persons during the day, some of which may

still be able to vouch for the fact. Should the mould, says "Amateur," be sifted? I answer, certainly not. The mould should be put on in a moderately dry state, more for the convenience of handling than for any other reason, because it must be well trodden and watered to make it solid—not watered to pass through the mould, however, or you will ruin the spawn. Tepid water should be employed in winter. When the bed is made up it will always ferment a little, but the less the better; holes made every square foot apart will let out the heat quickly, therefore do not spawn the bed until the interior falls to about 80°, or even lower at this time of the year. Then spawn and mould at once, but do not cover over with anything but a mat to keep the mould from drying and cracking, and when you find that your trial-stick does not indicate more than a nice gentle milk heat, then gradually put on rough coarse hay. The whole is then finished for six or eight weeks; during that time do not forget to uncover, and if there should be wood-lice, slaters, pea-bugs, cheese-bugs, or whatever other name they may be called, boiling water poured round the seams or crevices (not on the bed) will destroy them. This plan is worth something not only to Mushroom growers but also to cultivators of Cucumbers and Melons. A bushel of spawn will be enough for a bed of 100 feet square; if the brick is well run with it, each brick will make into nine pieces, giving 2 inches square to a foot apart each way. I do not recommend over spawning, knowing that if the bed is properly managed new spawn is produced by the droppings themselves. I have myself at times bought bad spawn, and I have no doubt that it was made bad by having been kept in a damp cellar. Spawn if kept dry will remain good for years; therefore if seedsmen and nurserymen will take the above precaution a good crop or no crop at all will depend upon the grower, not on them. I should also advise dealers not to be led away with too cheap an article. Let them give the maker a fair price. I consider that if a bushel of spawn is not worth 5*s*. it is worth nothing. Messrs. Charlwood & Cummins have recommended me to try some Irish spawn this winter, which they think first rate. I mention this fact; but it will be obvious to "Amateur" that it would be unfair for me to recommend one dealer more than another. *James Cuthill, Camberwell, London.*

Potato Sports.—At pages 629 and 662 two of your correspondents speak of Potatoes sporting, but in each case one solitary tuber only is mentioned as having done so. Now Potatoes frequently sport. Within these last few years I have cultivated upwards of 100 so called varieties, and have carefully noticed their productiveness, colour, quality, and the kinds least liable to disease, &c. As regards change of colour, in 1855 a whole row of Early Flintshire, a light pink variety, with few exceptions changed to a clear white. I have not grown this variety since, for being very early both small and large of it were all eaten. The same season a whole row of Painted Lady also changed to a white, and have remained so up to the present time; this is a good firm variety. A seedling named Malakoff, similar to the above (before it lost its spots), has this season sported, nearly one half the row being free from spots, and on the same piece of ground a sort called the Early Sydenham (raised in this neighbourhood, and sent for me to prove) also slightly sported; this kind when planted was perfectly white, but many of the tubers when taken up the middle of June had a slight shade of pink on them. This is without exception the very best early round Potato I have ever grown; it is also a perfect model in shape. I should here observe that each of the above kinds changed colour the first season I had them planted, so that soil may have had something to do with the matter. I have also been informed by a neighbour that he had a sort sport during the present season; we may therefore conclude that it is a frequent occurrence for Potatoes to change colour. *Edward Bennett, Gr. to Sir Offley Wakeman, Bt., Perdiswell Hall, Worcester.*

Aralia japonica.—This is undoubtedly one of our finest autumn ornaments, its inflorescence harmonising so effectually with its lively green pinnated leaves, which of themselves are of sufficient beauty, even previous to the appearance of the flower, to ensure the plant a place in all pleasure grounds; and if planted as a ribbon, bounding the winding outline of a shrubbery, or singly in the centre of large beds massed round with Prince Arthur or other dwarf kinds of dark-coloured Dahlias, the effect is truly striking. Its propagation is easily effected; pieces of the roots, with a portion of the parent stem adhering, taken off in March and placed on a gentle hotbed will be ready for transplanting in May; it delights in good rich loam with effectual drainage, but although comparatively hardy a severe winter will, in some localities and positions, kill it to the ground. This may be obviated by binding a good thick hay band closely round the stem in the latter part of November, and removing the same in April, when the buds will look as fresh and sturdy as those of an Oak. With this precaution none need despair of enjoying the beauty of this, in all respects, fine shrub. *T., Moulton Grange, Northampton.*

Sulphuring the Cut Sets of Potatoes.—I beg to submit to you the following results of an experiment in planting Potatoes according to the method suggested by your valued contributor "M. J. B." in the *Chronicle* for 21st March last. As the report was strictly comparative, the results may afford evidence of some value beyond the mere question of sulphur application. From a heap of "Regents" a certain quantity of small Potatoes (chats), such as usually are sold for planting, and also of full-sized matured tubers were selected, care being taken that they were all free (apparently) from disease. The small Potatoes were planted whole, whereas the others were cut into sets, one portion of which was planted in that state, while to the other portion sulphur was applied, being carefully dusted over every part of the cut surfaces. They were planted on the 9th of April in three divisions—"the chats," "the cut sets plain," and "the cut sets sulphured;" the rows were 24 inches apart, and the plants were set at 9-inch intervals in the drills. On the 28th of August they were taken up, the gross produce of each division weighed, and then the proportion of sound and diseased tubers carefully ascertained. Of No. 1, whole Potatoes, 11 lbs. were planted in one row, which produced 27½ lbs. of good and 26½ lbs. of bad, or 54 lbs. in all. Of No. 2, cut sets plain, 20 lbs. were planted in three rows; the produce was 103½ lbs. good, and 74 lbs. diseased, or 177½ lbs. in all. Of No. 3, cut sets sulphured, 20 lbs. were planted in three rows, which produced 138 lbs. of good and 122½ lbs. of diseased tubers, or 260½ lbs. in all. The results therefore give us in round numbers a gross return of 5 to 1 on the seed used where whole Potatoes were planted, or, as the proportion of good to bad was as 1 to 1, a return of 2½ lbs. of sound Potatoes for each pound planted. In No. 2, where plain sets were used, we see a great increase, the gross return being as 9 to 1 on the seed used; and as the proportion of good to bad is as 4 to 3, we have a return of nearly 5¼ lbs. of sound tubers for each pound sown. In No. 3, where the sets were sulphured, we have a greater increase, the gross return being in the proportion of 13 to 1 on the seed used; while the proportion of good to bad being as 7 to 6, we have a return of nearly 7 lbs. of sound Potatoes for each pound planted. These results tend, I think, to show that it is better policy to use the fully developed and matured tuber than to adopt the too common practice with farmers of planting the small under-sized Potatoes for which they have not so ready a sale. In mere quantity of seed required one-third was saved by using sets of the matured tubers, while the addition of a small quantity of sulphur to the cut surfaces of the sets appears to have added still more to their beneficial returns. *W., Iver, Sept.* 26.

Large Nectarine.—I send you a Nectarine, one of the largest I have ever seen, weight 7½ ounces, circumference 9½ inches. It is a late variety, called the "Late Melting;" although not high flavoured and delicious it is a useful variety at this season. The accompanying fruit was gathered from my specimen tree growing in a 13-inch pot. *Thos. Rivers, Sept.* 24.

Filbert Pine Strawberry.—As there appears to be some mystery respecting this Strawberry at Slough, let me direct the attention of your readers to an advertisement in another part of this Paper, where the Strawberry in question is advertised under its proper name in plain figures. *W. Myatt, Manor Farm, Deptford, Oct.* 3.

Societies.

Hitcham Labourers' and Mechanics' Horticultural Show, *July* 16.—Amidst our numerous harvest homes and happy children's *fêtes*, this gathering maintains, under Professor Henslow, its instructive and pleasant attractions. The lawn in front of the rectory is made gay with flags and streamers, and the visitor comes immediately upon two tents of excellent construction, one of large dimensions for the show, and the other called the Marquee Museum, containing objects of interest on which the Professor gives instructive little lectures in the course of the day. On this last occasion the whole front of the long tent outside had arranged before it a row of most noble Gourds, the seeds of which were given some time since by Dr. Lindley. One of them weighed 111 lbs.; and the three next, the produce of a single plant, full 2 cwt. On the summit of this tent and in the front were various devices in Dahlias and China Asters, due to the zeal and skill of the Professor's servants. In the interior were arranged the flowers, fruits, and vegetable produce of the cottagers, to which the prizes were assigned by the help of the Rev. E. Sidney, C. Bree, Esq., and other gentlemen. They were most creditable to the humble cultivators, and proved that some high encomiums by the judges in the allotment report were well merited. A stuffed rook which seemed to look down archly on the scene had written under it by the Professor "The Farmer's Friend," and his beak was covered with mould to show how he searched in the soil for grubs. There were placed on one of the adjacent stands large bundles of wild fruits collected for prizes by the children of the school, many of whom are excellent botanists. Instead of nosegays they were called *mouth-gags*, and the one that gained the first prize had in it 34 specimens, all accurately named, including Elder-berries, Sloes, Nuts, Guelder Rose berries, wild Carrots, &c. Beautiful herbaria were also shown collected and dried by the same young people; and in a recent excursion one had gathered and named 12 wild flowers not found near Hitcham. Thus the religious and other lessons of the school are mingled with improving knowledge of the natural productions of the district; and the high cultivation of the allotments is coupled with instruction in plants growing in the fields and hedges. About 2 o'clock the company, consisting of the gentry, clergy, and their families from the neighbourhood, and the poor, all gathered round the Professor while he delivered a most interesting *lecturet*, as he called it, on the contents of his Marquee Museum. This Marquee is altogether original. Its name appears in front in letters formed of common snail-shells surrounded by ornamental designs in mussel-shells, looking like mother-of-pearl. It is divided into two compartments by a noble piece of Tappa cloth, from the bark of the Paper Mulberry of the Tonga Islands. On the shelves on each side were arranged the objects in such a way as to attract attention. A group of sloe-worms were so placed as to be supposed to be holding conversation on the disaster of the loss of their tails, which is the accident most commonly befalling them; and two ninny toads were set up as if dancing a minuet to the great amusement of the juveniles. The chief subjects of the *lecturet* were aluminium, fine specimens of which were exhibited, and the manufacture of candles from Palm-oil, and paraffine derived from petroleum, with some observations on certain fossils found in the Suffolk drift of the locality. These explanations were given in the happiest manner. Then began the distribution of the prizes, and John Bull had the first prize for allotment Wheat, and Jack Robinson the second, names that elicited innocent fun. Next came results of experiments on 55 allotments, and after certain other business was transacted an orderly and sociable tea. The conduct of the humbler classes in the midst of the large gathering of their superiors was most modest and decorous, and all partook more or less of the hospitality and enjoyed the courtesy of their talented host. Space will not permit a full description, but a more intellectual rural fête cannot be conceived. All seemed to enter into it with pleasure and spirit. Instead of idling and sauntering without objects the children of the Hitcham schools become intelligent observers of Nature, while they are directed to lift up their young minds to its adorable and infinitely wise and good Author and Creator. One pupil teacher had actually collected in rural strolls and afterwards dried and correctly named more than 250 specimens of plants. The effect of such pursuits so well directed was visible in the countenances of the young people, which expressed a modest intelligence of a most pleasing kind. These children are not made botanists at the expense of higher and more useful knowledge in the economy of their daily life, but are taught to make science within their humble reach an improving amusement. It is true the people of Hitcham have a leader of rare gifts and high attainments, but such an example might be more largely followed, and in the hope that it may be so we point to it for imitation. Long may Professor Henslow be spared, and may many others who have like opportunities learn how to make the field and the garden, as well as the school-room and the desk, helpful to knowledge and promotive of improving enjoyment.

British Association for the Advancement of Science.—Section A. "On a Law of Temperature depending upon Lunar Influence," by Mr. J. Park Harrison.—The author had reduced and thrown into the form of tables and of curves 230 lunations, with the corresponding mean temperatures; and the law at which he had arrived was this—between the first and second octant the temperature immediately after the first quarter, both on the average and also, with rare exceptions, in each individual lunation, is higher than the temperature shortly before the first quarter; and, more particularly, the mean temperature of the annual means of the second day after the first quarter (or what is usually the 10th day of the moon's age) is always higher than that of the third day before the first quarter (or the fifth day of the lunation). We understand that the curves of temperature have been found to be more or less regular at other periods besides the one fixed upon, and that the author hopes soon to publish the results. We also believe that the difference of the mean temperature of the two days for a series of more than 20 years is, on the average, at least 2°.

Notices of Books.

The *Metropolitan Local Management Directory* (6*d*.) is a square 18mo of 182 pages, containing lists of all the vestrymen and parish officers of the whole metropolitan

district, of the Corporation of London and its officers, of the Metropolitan Board of Works, and so on. It also includes some useful memoranda relating to the Building Act, from which we extract the following statement respecting Conservatories in London, which may be useful to some of our readers:—

"The Act having empowered the Board to veto the erection of structures of any description over porticoes when it thought proper, builders have been compelled to apply to the Board on all occasions of the kind, and the decisions that have been given are stated to be contradictory, and not to indicate any fixed rules for conduct on the part of the Board in granting or withholding its sanction. Among the first cases reported in the *Building News*, vol. ii. p. 451, was an application for permission to build a conservatory of incombustible materials over the portico of the Duke of Portland's house in Hyde Park Gardens, which was granted, as well also as authority to build a room over a boudoir projecting from the back of the house.—Vol. II. p. 451. Permission was granted to erect a conservatory, partly of wood, over the portico of 19, Cambridge Terrace, Paddington.—Vol. II. p. 766. But consent was withheld to the construction of a conservatory on the portico of a house in Cambridge Street, Hanover Square; also to the erection of a conservatory over a shop, 7, Weston Place, St. Pancras; also for a metal conservatory, 14, St. George's Place, Knightsbridge,—because they were to be in parts of houses, and were innovations.—Vol. II. p. 910. Permission was refused to construct a conservatory of wood and glass over a portico recently sanctioned to 12, Great Queen Street, Westminster, because it was not of fireproof materials, and extended beyond the general line of fronts.—Vol. III. p. 589."

We have from *Messrs. Henderson, of the Wellington Road Nursery*, their Bulb list for the season, one of the most complete of its kind. The second number of their *Illustrated Bouquet* is also before us, containing 5 very handsome coloured plates of the following showy plants, viz., Gesnera cinnabarina; Duke of Wellington Hyacinth, a magnificent double delicate flesh-coloured sort; Gesnera densiflora, and Monochætum ensiferum, a very pretty Greenhouse Melastomad; three new Pelargoniums, Achimenes splendens, and a couple of Petunias, the last we should think more fit for bouquets than for bedding out. Mr. Andrews, by whom the drawings have been made, has succeeded in giving very satisfactory likenesses of these plants when cultivated in the greatest perfection possible.

The classed Catalogue of the Educational division of the S. Kensington Museum; Chapman & Hall (6*d.*). *Catalogue of the animal products in the South Kensington Museum* (6*d.*). The first of these official reports from the officers of the South Kensington Museum forms a bulky volume an inch and a half thick, for the most part consisting of tradesmen's advertisements. Eight pages are devoted to a statement of the objects that may be exhibited, and 159 pages to those which are already in the building. It thus enables visitors to this great establishment to know for what they may inquire, what they may exhibit, and what vacancies they may assist in supplying. No opinions as to the merits of the subjects included in the Museum are to be found in the volume. —The second Catalogue contains a description and critical account of the substances to which it relates, and is thus available for reference out of the Museum itself. Mr. Simmonds, who compiled it, has been wisely selected for the purpose, inasmuch as a more competent person is probably not to be found.

Miscellaneous.

The late Mr. Duncan Montgomery.—This well-known gardener died at Buchanan House on the 15th ult. He was 79 years of age, 56 of which were spent in the service of the late and present Dukes of Montrose. He was a most successful grower of Grapes and Peaches. Vines planted by him 54 years ago are reported to be still in the best possible condition, and during that long period never to have failed in producing heavy crops. Many of their stems measure 14 inches in circumference. They have never been cut back since they were planted; but through being pruned on the "close spur system" the spurs are stated to be quite close to the stem, and by no means so unsightly as we usually find them on old Vines. Mr. Montgomery was born in the parish of Comrie in Perthshire, where he commenced his horticultural career. He afterwards went to the Botanic Garden, Cambridge, under the late Mr. Donn, who belonged originally to the same parish; from Cambridge he went to Kew, and from thence to Buchanan House. The Council of the Horticultural Society of London conferred on him the honour of "Corresponding Member" of that Society in April, 1825.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—Early Chrysanthemums will now be in a forward state, and such as show their buds prominently should be got under glass; if it is desirable to have them in bloom as soon as possible, they may now safely be placed where a little artificial warmth can be afforded them. Take care, however, that they are placed near the glass, well supplied with manure water, and air given them freely, as anything in the shape of close confinement would soon ruin them. Indeed the whole stock of these should now be placed where it can be covered at night in case of frost; for although they will bear more of that than most things it is not good policy to leave them to the mercy of the weather much after this season, unless in favoured localities. It is better, however, to place them in skeleton frames, or in a sheltered situation, where they can be covered in case of need, than to huddle them too thickly together under glass, or to put them, as is sometimes done, under the shade of Vines. See that tree Violets are perfectly free from their enemy the red spider, for if the foliage is allowed to get disfigured at this season the plants will long remain unsightly afterwards. Greenhouse.—See that Epacrises and other winter blooming things are placed in a light part of the house, where they will be fully exposed to the sun, so as to get the wood well ripened, and to ensure their blooming freely. Examine Heaths or anything else subject to mildew frequently, and apply sulphur immediately the pest can be perceived. Water must be very carefully applied at this season, especially in the case of large specimens, for there is much more danger in overwatering now than when the weather is warmer and the plants more active; therefore look over the plants frequently, and never water until it is absolutely necessary. Any of the late growing Heaths which may be in want of more pot room may still be shifted, but do not expose them to cold winds, and water very carefully afterwards, for the roots cannot be expected to progress very rapidly at this season. Get everything requiring it nicely tied as soon as possible, so as to give the plants a neat appearance, and render the house as interesting as possible, without any grand display of bloom.

FORCING DEPARTMENT.

Pineries.—If the bottom-heat is obtained partly from tan and partly from pipes under the bed, as is frequently the case where the pot system of culture is practised, care must be observed not to get it too strong, of which there will be some danger, owing to the increased amount of fire-heat that will be necessary soon after this season. Provided there are means of stopping the circulation in the pipes under the bed, as there always should be, the temperature will be very easily regulated, but where the one set of pipes cannot be worked without the other the bottom-heat must be frequently examined, especially where fresh tan has lately been added, and if found to be getting too strong the pots should be slightly raised, drawing the tan from about them. Any excess of bottom-heat is very injurious to Pines at any season, and would be particularly so now when the injured roots would not be so speedily replaced by new ones, as would be the case in spring or summer when the plants are growing more vigorously, and no care that may be necessary to secure a steady bottom-heat of about 80° or 85° should be spared. Give air rather freely on bright days to plants ripening their fruit, and also to young stock in a growing state, and do not keep the latter so warm as to induce anything like weakly growth, or long thin foliage; but regulate the temperature according to the amount of light and the state of the plants. Where the temperature is maintained by means of dung linings, the plants must be kept very close to the glass and rather dry at the root, admitting air as freely as can be done without lowering the temperature too much, for there will be nothing gained by growing plants at this season as freely as it is possible to do in dung heat.

FLOWER GARDEN AND SHRUBBERIES.

Where evergreens are to be removed let it be done as soon as circumstances will admit, for the most favourable season for this kind of work will soon be past. The scarcer varieties of variegated Geraniums should not be risked in beds too long; they had better be taken up and potted immediately the weather becomes at all threatening. After potting it will be a good plan to place them on a gentle bottom heat in a pit or house where the atmosphere can be kept sufficiently dry to prevent the foliage being injured. So circumstanced they will soon become established, when they may be stored away for the winter in a cool dry house where they will be out of the reach of frost. Any beds which may have become shabby, and which are to be planted with bulbs or anything else for spring decoration, should be cleared at once and replanted. Keep Grass short and frequently rolled so as in some measure to prevent the growth of Moss and keep the surface firm and smooth. Also roll gravel walks frequently in damp weather so as to render them smooth and comfortable to walk on.

HARDY FRUIT AND KITCHEN GARDEN.

Attend to fruit out-of-doors, looking over it frequently, and gathering it as it becomes fit, so as to prevent its being blown down and bruised by high winds. Keep the fruit room cool and airy; examine the fruit frequently, and pick out any that are found to be decaying. Use every possible means to get the wood of Peach and Nectarine trees well ripened, and where the walls are flued a little fire-heat should be applied until the leaves begin to fall freely, Also if the trees are too thick of young wood, every shoot that will not be wanted at nailing time should be cut out so as to expose those left to all the light possible. Attend to former directions as to root pruning, and where this is required get it done at once. Root pruning, however, is not of much service where the subsoil is such that the roots can strike down into it, and where such is the case it will be better to lift over-luxuriant trees and concrete the bottom of the border, as cutting the horizontal roots, although it might check the gross habit for a season, would not induce a fruitful habit. Clear off all crops that are done with, and get the ground manured and ridged up for the winter; also see that weeds are destroyed among growing crops, taking advantage of dry days for this work, and get every corner thoroughly cleaned, for the weather may soon be less favourable for this sort of work. Keep Celery rather closely earthed up, to prevent the plants getting injured by frost.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Oct. 1, 1857, as observed at the Horticultural Gardens.

Sept. and October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain in
Friday 25	7	29.860	29.773	72	45	58.5	62	59	S.	.16
Satur. 26	☽	29.931	29.836	69	48	58.5	63	59½	S.W.	.10
Sunday 27	9	29.925	29.824	71	50	60.5	62	59	S.W.	.12
Mon. 28	10	29.934	29.794	70	36	53.0	62	59½	S.W.	.04
Tues. 29	11	30.073	29.940	72	36	54.0	61	59½	S.	.00
Wed. 30	12	30.028	29.957	69	43	56.0	60	59	S.E	.00
Thurs. 1	13	30.063	29.999	60	41	50.5	60½	58½	S.W.	.11
Average..		29.973	29.874	69.0	42.7	55.8	61.5	59.1		.71

Sept. 25—Light hazy clouds and mild; showery; overcast; rain.
— 26—Fine; very fine throughout.
— 27—Overcast; fine; rain at night.
— 28—Rain; heavy clouds; fine; cold at night.
— 29—Foggy; very fine; light clouds; cold at night.
— 30—Slight fog; very heavy dew; exceedingly fine; foggy.
Oct. 1—Dense fog; very fine; clear at night.
Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Oct. 10, 1857.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 4	63.3	44.3	53.8	16	1.06 in.	—	5	2	—	6	14	3	1
Mon. 5	62.5	41.3	51.9	15	0.82	4	3	2	1	6	8	6	1
Tues. 6	60.9	43.9	52.4	18	0.78	1	3	4	3	4	9	5	2
Wed. 7	61.8	43.9	52.8	13	0.58	1	5	2	2	5	12	3	1
Thurs. 8	60.3	42.0	51.1	15	0.63	1	5	3	3	4	7	6	2
Friday 9	59.8	43.2	51.5	16	0.52	—	6	1	1	5	11	6	1
Satur. 10	61.2	43.6	52.4	16	0.68	2	3	3	—	7	8	4	4

The highest temperature during the above period occurred on the 5th, 1834—therm. 80 deg.; and the lowest on the 5th, 1850, 8th, 1852, and 9th, 1849—therm. 28 deg.

Notices to Correspondents.

Araucarias: *J W.* We are not yet sufficiently acquainted with this plant to say what will happen to old specimens It is certain that the lower leaves must die off in time; and it is probable that the lower branches will gradually disappear. You seem, from what you say, to have done all that skill can execute for your specimens. If you operate again upon the roots use burnt clay and omit leaf-mould.

Books: *Clericus rector.* We do not think eith r of the books you name likely to suit you. A better work would be M'Intosh's Hothouse, Greenhouse, and Stove.

Botanical Study: *Banbury.* There is very little difficulty in making out the names of plants, provided a student will do two things; viz.,—1, Make himself acquainted with the meaning of technical words; and 2, Ascertain the real structure of the plant under examination. If he does not do these things he must guess; and a guesser is a blockhead.

Diseases: *A C.* The whole history of your Vines shows that deep planting and rank manure are the enemies which you have to overcome. The plan you propose may possibly help you, provided there is no chance of the roots in the inner border being burnt. You had better have nothing to do with gas tar. We fear after all that the evil is so inveterate that the most judicious plans may fail. Your new proposition involves apparently considerable expense. You should consider the matter therefore well before you begin. The Vine leaves, it should be observed, are covered above with a black sooty mould. This seems to show that your house has at times been too damp, but perhaps this has been inevitable. We shall probably give some general remarks upon the case elsewhere. *M J B.*

Exhibitions: *Chepstow.* You say if the judges discover that *cut flowers* are interspersed among plants in an ornamental basket when the Society's prize is for an ornamental basket *of plants*, what should be their conduct, and what that of the Exhibition Committee towards the competitor? We reply that in such a case as this all baskets of plants having *cut flowers* interspersed among them are inadmissible for competition, or, if admitted, ought to be passed over as disqualified.

Forking Borders: *J D.* It is best to do this before winter so that the frost may have an opportunity of acting on the ground, and snow of penetrating.

Gas Tar: *R B.* We regret our inability to give any instructions as to the use of this material in Potato cultivation. When we have used it we have killed our Potatoes. He is a very respectable man; but too enthusiastic.

Hogg's Edging Tiles: *J D.* Our experience of these is unfavourable; those which we saw tried were made of Ely clay which did not stand frost. They are, however, now we understand made of a different kind of clay which the patentee assures us does stand perfectly. We cannot recommend dealers or give prices.‡

Insects: *J W.* The insects upon your Peach and Nectarine leaves are the Aphis Persicæ of Morren. If you could cover the trees with a hoop from which a gauze bag was suspended and fumigate beneath the bag with tobacco-smoke you would get rid of these pests. If the trees be trained against a wall there seems great facility for such a process. *W.*

Names of Fruits next week.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*M R.* Your Cape bulb is the Vallota purpurea, one of the handsomest and most free flowering of its race.—*J R R.* Nerine corusca.—*S, Derbyshire.* Viburnum Opulus, the wild Gueldres Rose.—*Ferrarius.* Fuchsia cordifolia.—*Iota.* The leaf is not distinguishable from that of the Orange Gourd. Your account of the fruit suits none that we are acquainted with. A few seeds would be acceptable. Of course it can really have nothing to do with the Orange Gourd if it is eatable.—*E C.* Your seedling Fern is yet too small to enable us to determine its name with certainty; in the meantime we pronounce it to be *Pteris biaurita. S.*

Orange Trees: *A Sub.* Nothing suits them better than good turfy loam, mixed with the decayed manure from an old Cucumber frame. The soil must be thoroughly drained so that water cannot lodge. When growing fast they require water abundantly; when quite at rest very little or none at all. Burnt clay with bits of charred sticks in it suits them perfectly, but they must have manure as well.

Vines: *J D.* You may improve the hardiness of a Frontignan Vine by grafting it on a Black Hamburgh, but you would probably ruin a B. Hamburgh by grafting it on a Frontignan.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

NATIONAL GUARANTEED MANURE COMPANY (LIMITED) is now delivering for Autumn Sowing, guaranteed by analyses, WHEAT MANURE, 7*l.* 10*s.*; concentrated, highly recommended, 9*l.* per ton, at any Wharf or Railway Station in London.—2, Moorgate Street, City.

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The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

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N B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

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THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—
From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*
"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."
Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
Patron—His Royal Highness the PRINCE CONSORT.
President of Council—Earl BATHURST.
Principal—Rev. J. S. HAYGARTH, M.A.
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Chemistry—J. A. C. Voelcker, Ph.D., F.C.S.
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Surveying, Civil Engineering, and Mathematics—J. A. Jarman, C.E.
Practical Agriculture—J. Coleman.
Assistant to Chemical Professor—A. Sibson.
Students are admitted after the Summer and Winter Vacations, also in April and October. Fees for Boarders:—Under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for Out-students is 40*l.* per annum.
The chief attention of the Students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry, Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering.
The Practical Instruction in Agriculture is given by the Professor on the Farm, where the Students have an opportunity of becoming acquainted with and taking part in the Manual Operations of Husbandry.
A well-appointed Laboratory is devoted to Instruction in Chemical Manipulation and Analysis, which are taught to each Class of Students in succession, under the Superintendence of the Professor of Chemistry and his Assistant.
Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring; in the use of the Theodolite and other Instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.
A Veterinary Hospital is fitted up for the reception of Diseased Animals of all descriptions, with Pharmacy, &c., attached, where the Students have opportunities of witnessing operations, *post mortem* demonstrations, and applied Therapeutics.
A good System of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural information in general.
Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy; Surveying and Mensuration, and other branches of a liberal education.
Prospectuses and information can be had on application to the Principal.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

QUEEN'S COLLEGE, GALWAY.—DEPARTMENT OF AGRICULTURE.
The COLLEGE SESSION for 1857-8 will commence on TUESDAY, October 20, when the Supplemental and Scholarship Examinations will be proceeded with as laid down in the Prospectus.
The First Matriculation Examination for the Session will take place on FRIDAY, October 23.
Additional Matriculation Examinations will take place before the close of the First Term.
In the Department of Agriculture Four Scholarships of the value of 15*l.* each are appropriated; two to Students of the first year, and two to Students of the second year. The College is also empowered to award at the same examination Two Prizes of 12*l.* each to Students of the first year, and two of 12*l.* each to Students of the second year.
In addition to the Scientific Education given in the Lecture Rooms of the College, the most ample means are now possessed for giving Practical Instruction to Students in Agriculture. The Professor will exhibit on his own farm, as well as on a large property of which he has the management, the best examples of land improvement, and superior cropping on waste, worn out bog and mountain land, with specimens of the crops raised thereon.
Further information may be had on application to the Registrar, from whom Copies of the Prospectus may be obtained.
By order of the President,
Oct. 3. WILLIAM LUPTON, A.M., Registrar.

TO LANDOWNERS.
THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.
WILLIAM HOWDEN, Secretary.
26, Great George Street, Westminster.

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THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.
The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.
No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.
The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.
Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.
Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.
For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.
The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.
52, Parliament Street, London, S.W.

HIGHLAND AND AGRICULTURAL SOCIETY.
EDINBURGH VETERINARY COLLEGE.—The Committee of the Highland and Agricultural Society of Scotland, appointed to superintend the Veterinary College, hereby intimate that the Session will commence on WEDNESDAY, the 4th November, at 4 o'clock.
The Course of Study includes the following Classes:—

1. Zoiatrics, Veterinary Medicine and Surgery	Professor DICK.
2. Zootomy, Veterinary Anatomy and Physiology	MR. M'CALL.
3. Chemistry	Dr. ALLEN DALZELL.
4. Veterinary Materia Medica and Pharmacy	Dr ALLEN DALZELL.
Anatomical Demonstrations	Mr. M'CALL.

By order of the Committee,
Edinburgh, Oct. 3. JN. HALL MAXWELL.

THE DORSETSHIRE POULTRY SHOW will be held in Dorchester on WEDNESDAY and THURSDAY, October 28 and 29, when 14 Pieces of Plate will be offered for Competition, in addition to the Society's Prizes. A List of the Prizes to be awarded may be had by forwarding an envelope, addressed, and six postage stamps, to G. J. ANDREWS,
Dorchester, Oct. 3. Hon. Sec.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.
The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non-Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.
The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half Moon Street, Piccadilly, London, W.
N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.
SATURDAY, OCTOBER 3, 1857.

THERE is unquestionably a great deal of misconception prevailing as to the nature and character of several formidable diseases by which cattle are attacked, and some people are possessed with the idea that the *murrain* about which so much has been heard, as to its ravages on the Continent, is now raging in this country. Such however is not the case, and to disabuse the minds of those who entertain such an opinion is the object of the present remarks. We are sorry however to find that the formidable disease known as *pleuro-pneumonia*, which has now existed in this country for some years, and which from time to time has decimated our most valuable herds, exists at the present moment, and has proved exceedingly destructive.

Let us endeavour to point out the characteristics of the three diseases affecting cattle, which have so often been confounded with each other. The first of these maladies is that which was most generally understood under the term the "epidemic;" and although this term is somewhat unmeaning as applied to cattle, signifying as it does a disease raging among men, yet as the word conveys the idea of a disease generally prevalent, it may be well to let it remain although the term "epizoötic" would be far more correct as denoting cattle as the affected subjects. This disease, it is well known, some 15 or 16 years ago spread over the country with great virulence, although it was seldom fatal. It manifested itself in cattle, mostly in the membranes of the mouth, where it caused large bladders and left considerable soreness for some time. It likewise affected the feet though not so severely nor so uniformly as the mouth; although in sheep the contrary was the case, and the sores left behind, augmented by dirt and wet, proved very troublesome and long continued, and seriously affected the condition of the sheep. Pigs also were affected, yet it was very seldom the case that sheep and cattle were attacked at the same time—a peculiarity which favours the idea that the disease was produced by some poison in the atmosphere which seemed to affect those animals whose size and habits caused the entrance of the respiratory organs to be nearer or farther from the ground. This disease was accompanied by considerable fever, and yielded to cooling

aperients internally, and astringent applications externally.

Scarcely, however, had this malady passed and repassed through the land, and scarcely were the systems of cattle recovered from its influence, than a much more formidable disease broke out, but whose ravages were confined to horned cattle. Far more insidious in its approach than the "epidemic," it was generally more fatal in its results; and, in fact, a large proportion of a dairy was often within its fatal influence before any suspicions were entertained, or any precautions adopted. A slight short cough, an unthrifty coat, a little dulness, and diminished appetite were all perhaps that were observed amongst beasts which Death had already numbered as its own. It was not until the seat and character of the disease had been ascertained from an inspection of its numerous victims that it received its name—it was then called *pleuro-pneumonia*.—There are two well-known diseases which attack both man and animals. One is called *pneumonia*, which signifies inflammation of the lungs; the other *pleurisy*, which is inflammation of the *serous* membrane which invests the lungs and lines the chest. A combination of these two diseases at the same time is called *pleuro-pneumonia*, and because in the cattle disease in question both the *pleura* and the lungs themselves exhibit the most formidable traces of inflammation, it has received its very appropriate designation, which, unlike the names of many complaints, points out at once the affected parts.

The nature and the causes of one-half the diseases which affect both man and animals are enveloped in mystery and obscurity. All we can do is to bring the light of science to bear on the utmost amount of facts that can be collected relating to any particular disease. It is of no use to allow these two sources of knowledge to be opposed to each other. It is of no use to say science points one way if facts point another. The latter must be followed and the former must light the way. Thus, although reasoning from analogy with regard to similar morbid depositions in man and animals, we should certainly not be inclined to consider at first that the disease was contagious. The depositions of lymph and false membranes and adhesions of the pleura appear, as in true pleurisy, to be the natural results of ordinary inflammation of these parts, and like it to be due to exposure to cold or the vicissitudes of the weather. So likewise, when it was found that lungs were for the most part solid—heavier than water and yet of much greater size than is usually found in the bodies of animals—the tubes and the air cells being in fact filled up and obliterated with lymph, what was more natural than to ascribe such effects to the existence of ordinary inflammation of the lungs, to consider the disease as due to the same causes, and as likely to yield to the same system of treatment?

Science, however, was here in fault, both as to the cause and as to the treatment. However mysterious its origin, there exist a great number of facts to lead to the conclusion that the disease is infectious. The frequency of the instances of a whole herd becoming affected, the malady being traced to one particular animal coming perhaps from a distance and being first affected, are such as to render it very unsafe to view the disease as other than infectious. With regard to its treatment, there may be some difference of opinion as to the propriety of one moderate bleeding; but there can be no difference amongst those competent to decide, as to the gross impropriety of large or repeated bloodlettings. The vital powers seem concentrated to the chest, there existing as a raging fire, and vitality is diminished elsewhere. If we lower the system too much by depletion the constitution receives a blow which it cannot recover. For the same reason active purgatives should be avoided, but moderate aperients permitted. Sedatives to lower the action of the heart, saline medicines to act on the blood, diuretics to operate on the kidneys are all judicious applications, and counter irritations by large setons in the chest and blisters on the sides are imperatively called for. Linseed or Linseed-cake should be very freely given, both in the way of food and medicine, and indeed we would advise the free use of Linseed-cake in all cases where the animals are affected, or in danger of being affected. The oil contained in the cake has a useful prophylactic effect, and should the beasts become affected by the disease, they are rendered by the use of cake more valuable for the butcher; for it is worthy of serious consideration when the pleuro-pneumonia breaks out in a herd, if two-thirds of the value of the animal can be obtained from the butcher whether it is not wiser to sell at once than to run the risk of treatment and the further spread of the disease. It is a well-known fact and in keeping with that of the concentration of the disease in the chest, that the flesh up to a certain stage is not unfit for meat.

In this respect it presents a marked contrast with the third disease on our catalogue—the *Murrain*, or *Steppe Murrain*, which fortunately hitherto has not reached our shores. This disease appears to be slow and typhoid in its nature; it springs, as it were, from poverty, and prevails most where poverty abounds. The poison it engenders is exceedingly fatal, and its spread is only to be stopped by vigorous slaughtering of the affected animals, and a careful and strict sanitary *cordon*. Like the plague of the human subject which it otherwise resembles, it may readily be propagated by the skins or clothing of diseased animals. It was thought that the dreadful malady was near our shores, but the visit of Professor Simmonds to the Continent removed and accounted for this impression, which was owing to the prevalence of pleuro-pneumonia in the neighbouring countries of Europe, whilst the true murrain was only met with a journey of several hundreds of miles towards Poland and Russia.

We have thus endeavoured to point out the distinctive characteristics of three different diseases. It only remains to observe, that even with the imperfect system of examination which imported animals at present undergo, the danger of the introduction of the murrain is extremely remote, and although it may be well to continue the prohibition of the importation of wet hides from the shores of the Baltic, there is no danger from that of live cattle with the present precautions, and certainly none whatever from the importation of dry bones.

From some egregious blunder or misinformation, bones which come in cargoes and in a dry state for purposes of manure were continued to be prohibited, until in consequence of representations made to the Board of Trade the prohibition has been removed, so far as relates to any existing contracts. And such is the importance of a sufficient supply of bones for the British agriculturists, that it is hoped that this foolish prohibition, so far as it affects bones, will be altogether done away with.

The Keythorpe controversy is brought to a melancholy and untimely close by the sudden death of Mr. Joshua Trimmer. Mr. Trimmer has been long known among geologists by his successful researches into the distribution of those superficial deposits by which the rock formations figured on our geological maps are obscured. It is through these chiefly that geology and agriculture come into practical and useful contact, and accordingly Mr. Trimmer was better known to agriculturists than any other geologist of the day. We have to lament the loss of an able and enthusiastic teacher, and a kind and amiable friend. The following letter is from Mr. Bailey Denton:

"I was preparing a reply to my late friend Mr. Trimmer's recent statements, when I read in the *Times* a notice of his sudden death. It is hardly necessary for me to say that my pen dropped from my hand, and all inclination to pursue the subject ceased directly I realised this sad and unexpected loss. Mr. Trimmer and I had long been on the most friendly terms, though we differed on the subject upon which he last wrote, and I should be sorry if any word of mine uttered in passing controversy should appear ungenerous or unkind. With your permission, therefore, I will postpone for a time all further allusion to either Keythorpe or Hinxworth. Let me, however, take the opportunity of expressing my conviction that the agricultural world have lost in Mr. Trimmer an earnest and powerful teacher in that special branch of geological science—the superficial deposits—whom it will be difficult to replace."

FAILURE OF COMMON TURNIPS.

What satisfactory explanation can be given of the almost universal failure of white or common Turnips in the midland districts? In my own case this failure is the more remarkable because it occurs not only in the same field in which I have a good crop of Swedes, but in which the treatment of the land for the two kinds has been identical. Part of my early Swedes having been taken by the fly, I sowed them over again; but thinking the 11th of June rather late for Swedes, I sowed a portion of the field on the same day with Dale's Hybrids. The land was manured with 15 tons of farm-yard manure; the Swedes had in addition 5 cwt. of Lawes's superphosphate, and the Hybrids 2½ cwt. of the same. This was the only difference in the treatment. The Hybrids looked well enough when they came up, but grew slowly when in rough leaf, and still more slowly after being hoed. The season was certainly extraordinarily dry, but notwithstanding this the Swedes after having once passed the ordeal of the fly continued steadily to improve, and are now an average crop. The Hybrids, on the contrary, became more sickly every day; the tops turned yellow, numbers of plants died, leaving large intervals in the rows completely blank; and, in short, the crop not being worth leaving I shall plough it up for Wheat. The remainder of the field not being ready for Swedes, I sowed in July partly with Pomeranian Globes, which being a total failure I have already ploughed up, and partly with Orange Jelly, the latter with a dressing of 5 cwt. of superphosphate in addition to farmyard manure. These are a degree better than the others, but even they grew so slowly that I did not consider it worth while to hoe them, but after running some sheep over them I shall plough them in. The land is chiefly a very stiff loam or clay, previous crop Beans. It may be useful to mention that on the other side of the same field I have an excellent crop of Mangel, sown on the 18th of May. This confirms my previous experience that it is possible by means of adequate manuring to obtain a heavy crop of this most useful root on land where the Turnip is a precarious speculation. The field I am speaking of having been totally neglected previously to my having occupied it, which I have done for two years, was till this spring much out of condition. Yet it yields a good crop of Mangel, an average one of Swedes, and of White Turnips—*nil*. I observe among my neighbours failures as conspicuous as my own. It appears to be the same whether the system of management is high or whether it is moderate. In travelling by the railway I have not seen a single good crop of White Turnips. In former years when occupying light land on magnesian limestone, I have grown magnificent crops of Dale's Hybrids. Why cannot we do the same now?

I may mention that it is my intention to make every year something like half my root crop consist of Mangel. I believe that in this district, on strong land, this crop will never fail when the proper means are adopted, viz., autumn cultivation, 20 tons of good farmyard manure, added to 2 cwt. guano, 3 cwt. superphosphate, and 3 cwt. of salt, as a minimum of artificial. After this dressing I have grown excellent crops both of Wheat and of Barley. The Mangel and the Swedes ought to replace each other in alternate rotations, thus affording the great advantage of only repeating each one in eight years. It may perhaps be regarded as a collateral benefit that this crop requires the land to be clean early in the season, thus acting as an incentive to an improved system of culture. It is already cultivated to a greater extent than formerly, and I hope to see it still more widely diffused.

I have sent a few of the Dale's Hybrids for your inspection, The worst of the roots are such as contribute the greater part of the crop. Of the best roots there are scarcely 20 to be found on an acre. Where a single Swede occurs among them, it is healthy, and much larger than the Hybrids. I may add that the land has not been under Turnips for at least eight years.

Willoughby Wood, Holly Bank, Burton-on-Trent.

HINXWORTH DRAINAGE.

[The following communication was received before we heard of the lamented death of Mr. Joshua Trimmer, to whose letters on Hinxworth it refers.]

Before I reply briefly to some parts of the letters "on Lyne, Hinxworth, and Keythorpe" addressed to you by Mr. Trimmer, I will assure that gentleman that he only did me justice in treating as unintentional my omission of the words "through the pores of the clay"—indeed a subsequent passage in my own letter would prove it to be so. I beg to disclaim once for all any attempt to gain any unfair advantage in this discussion, my sole object being to record such facts as have been elicited during the late drainage operations at Hinxworth, (and which appear to me to require still further explanation,) in a plain intelligible manner.

The elaborate distinctions drawn by Mr. Trimmer with reference to the term "homogeneous," as applied to what he considers to be or not to be homogeneous clay, appear to me to amount almost to hypercriticism. As regards the expression in my former letter that I consider "the gault clay at Hinxworth to be sufficiently homogeneous to satisfy the most fastidious," I am willing to abide by the terms I then used, as I believe that clay to be especially heavy and retentive in its normal condition. When I added that it was "so close in texture as not to be permeable by water in the ordinary sense (I would rather say acceptation) of the term," I wished to express my conviction that very many persons still agree with Lord Berners, when he stated at the discussion at the Society of Arts "that he had made experiments with heavy retentive clays, and he had found that if the drains were put as close as they well could be, the water could not percolate." I was at one time myself of the same opinion.

I have not yet had an opportunity of seeing what has been done at Keythorpe—and I regret it. But I was present at the discussion two years since on Mr. Bailey Denton's paper at the Society of Arts, and the impression then left upon my mind has undergone little, if any change, viz., that Mr. Trimmer attached too much importance to his favourite theory, and that the feeling of the several speakers on that occasion appeared to be that the so-called Keythorpe system being necessarily confined to certain geological formations which are of limited area, it would form the exception, not the rule, in all future drainage operations.

On referring to the report of that discussion I find much to support my position as regards the percolation of the water through the pores of the clay. Mr. T. Scott (no bad authority) said, "if any one was at a loss to discern why 4-feet drains might be placed further

apart than 3-feet drains, and still be more effective, he had only to consider that 4-feet drains removed the water 12 inches further from the surface, and left some 1000 tons more dry soil per acre above the drains. The vacated water tubes in this large mass then became air cells and rain-water reservoirs in turn, and thus both these elements were continually imparting to drained soil ammonia and nitrogen, the most concentrated and essential food of plants, changing and ameliorating the most noxious subsoils to the depth of the drain. * * Mr. Denton appears to me to have adopted correct principles, and to be guided by sound personal discrimination." This passage expresses so entirely my own feelings with reference to the philosophy of draining, and shows how judiciously the *modus operandi* of Mr. Denton is modified and adapted to local peculiarities, that I will now simply ask: Whether these air cells when reservoirs of rain water will not be under certain conditions influenced by hydrostatic and atmospheric pressure? If I am so far correct, may not the enormous discharge of water from the outlets in the heavy clay at Hinxworth, which has excited my attention as taking place simultaneously with heavy falls of rain, be at once satisfactorily accounted for, and on sound principles.

On one point I entirely agree with Mr. Trimmer, that the surface of heavy clay after deep cultivation represents to a certain extent and for a time a more porous soil, and that (when undrained) a certain amount of rain will cause that cultivated open surface to run into a homogeneous mass, necessarily therefore more or less unfit for cultivation. The next step, if admitted, will go far to prove what I contend for, viz., that when that land is efficiently and thoroughly drained, 3 feet or 3 feet 6 below the cultivable surface, the whole area so drained undergoes such physical and mechanical changes as will enable water to percolate more or less rapidly through its pores, and that it will then represent permanently, and not for a time only, a lighter and more porous soil.

It is for these reasons that I am of opinion that this question requires still further ventilation. The Hinxworth Tables extend necessarily over but a short period. They must be taken for what they are worth, and are clearly intended rather as guides to the future, than as mere tables of reference as regards the past. I am inclined to hope that the publicity which has been given to these said tables, and the discussion of which they have been more or less the cause, may yet prove ultimately to be of some real practical use to those who are at present suffering from the miseries, and their name is legion, which are inseparable from the occupation of heavy. undrained land. *Robert Clutterbuck, Watford House, Sept.* 22.

THE LATE FRANCIS BLAIKIE.

I OFFER no apology for the endeavour, however imperfectly, to submit, through your columns, the following sketch of the character and general features in the life of my late excellent and lamented friend Mr. Blaikie. I am induced to do this from a sense of respect to his memory, and a wish to direct the attention of the agricultural community to the many and great exertions he was always ready to make in behalf of the practical farmer. In all he did and wrote, and he both did and wrote much, of no man could it be said with greater propriety, that a strong sense of duty was his leading motive, and that with him duty and pleasure were synonymous terms. Though not gifted with the advantages of a superior education, or with the acquirements so liberally bestowed on the agricultural students of the present day, his statements were always received with respect, as the result of correct observation expressed in plain, clear-headed, unmistakeable terms. You felt that whatever he said might be depended upon. Hence, if his agricultural papers were not of the highest order of modern scientific excellence, their practical tendency and evident sincerity of purpose were sure to command the attention of his readers.

Without any knowledge of Mr. Blaikie, except as a correspondent of the *Farmers' Journal*, I had for many years read with interest and advantage his various communications on farming topics, chiefly composed during his stewardship of the late Earl of Chesterfield's estates at Bradby Hall, Derbyshire.—According to a late number of the *Norwich Mercury*, "Mr. Blaikie's connection with the Holkham estate arose from a visit Mr. Coke paid to the then Lord Chesterfield at Bradby, where he first saw the cultivation of Turnips and Mangel Wurzel cultivated on the ridge on heavy land, and drilled on the flat on light land. Being struck with the system, he requested a written account, that he might communicate it at the next Holkham sheep shearing. It was complied with, and thus commenced Mr. Blaikie's connection with the farmers of Norfolk. In 1815 Lord Chesterfield died, and the son becoming a ward in Chancery, Mr. Blaikie accepted Mr. Coke's offer to be his agent for the Holkham estate."

My personal acquaintance with him commenced at the Holkham sheep shearing of 1816, when the foundation was laid of a friendship which continued without intermission or diminution till the day of his death. A constant attendant at these delightful meetings from 1813 till their close in 1821, I had many opportunities of cultivating and reciprocating the friendly feeling which subsisted between us. A principal object with me on these occasions over and above the pleasure which, in common with every other visitor, I could not but derive from the privilege of sharing in the enjoyments of such a meeting, was the furnishing a report to one or more of our local papers—an arduous task embracing the proceedings both in doors and out doors of three long and busy days. In this undertaking I received much valuable assistance from Mr. Blaikie.

In my view of the matter, he, and such as he, may be considered the pioneers of many of our modern inventions in the art of cultivation. Take for instance that of the inverted hoes, for perfecting which Mr. Garrett has, and very deservedly in my opinion, carried off a premium year after year ever since he exhibited the implement. The invention is not his but Mr. Blaikie's, as witness the following extract from a letter to me dated Holkham, Nov. 14, 1816:—

"I have very great expectations of the utility of a new species of horse-hoe now in use at this place. It is an inverted hoe which I cannot properly describe to you without the assistance of a drawing. The hoe styled a tormentor in the little tract I now send you is of the description I allude to, but we have lately constructed them upon a principle, not only to hoe Turnips at wide intervals but also with the same implement to hoe corn drilled at narrow intervals without danger of injuring the plants. I have ascertained that an implement of this description, made entirely of iron, at the expense of 6*l.* 10*s.*, will at one operation, and drawn by one horse, hoe three rows of Turnips at 18-inch intervals, or six rows of grain at 9-inch intervals. The Turnip hoeing has been tried and succeeded beyond expectation. The decision as to Wheat hoeing must remain till spring."

I was amongst the first to adopt the principle, had one made, and always used it for Turnips, both on the Northumberland system and the flat, and for all grain crops at not less than 8-inch intervals. The demand for the implement as improved by Mr. Garrett proves the estimation in which it is held by practical men. In relation to this invention the following circumstance, alike illustrative of the liberality of Mr. Coke and the strict sense of honour and justice of Mr. Blaikie, deserves especial mention. At the sheep shearing of 1816 a premium for the best implement was awarded to Mr. Blaikie for his horse hoe. Mr. B. however, in the handsomest manner, begged to decline the acceptance of this premium. The materials, he said, were Mr. Coke's, and the responsibility of its good or ill success therefore rested with Mr. Coke, very modestly adding that if there was any merit in the implement it was chiefly owing to the workmen, who had executed it under his (Mr. B.'s) orders. He could not, therefore, in conscience, accept a reward which seemed rather to be due to the exertions of others, and to which he felt he had so little pretension.

Accordingly, in the sheep-shearing report for 1817, we find in the list of premiums a piece of plate, value 10 guineas, to R. Mann, blacksmith, of Holkham, for an inverted horse-hoe, upon Mr. Blaikie's principle. Acting from similarly disinterested motives, he refused a gold medal awarded to him for a successful experiment by the Board of Agriculture, on the ground that it was carried on at Lord Chesterfield's expense, not at his own. "Such," observes the editor of the *Norwich Mercury*, "were the characteristics of Francis Blaikie; and there was no one to whom, in his sphere, the Holkham tenantry, or agriculture, were more indebted; for while he guarded his employer's interests he never forgot that he had an equal duty towards all who were occupiers, or were employed upon the estate."

Between Mr. Blaikie and Sir John Sinclair there was a little sparring at this time (1817), on what the former considered were gross errors in the MS. of the fourth part of the Code of Agriculture, more especially in relation to the drill husbandry, which, with his usual honesty and freedom, he pointed out to Sir John for correction. By a letter from him dated Oct. 6, 1818, I was glad to learn that this breach was in a fair way to be healed, at least that the belligerents had partially withdrawn from active hostilities.

The following description of the visit to Holkham of the Duchess of Gloucester (July 1819), will be read with interest even at this distance of time:—

"Our Royal visitors have left us. I was honoured with a long private audience with the Duchess. Her Royal Highness claimed an acquaintance with me of upwards of 30 years' standing. This, as you may suppose, surprised every person here, and those belonging to her suite. Her Royal Highness was very much delighted with this place. She went over every part of the house—even the cellars; through the village, into several of the cottages, over the whole domain, plantations, &c. She visited several of the adjoining farms; through Denny's and T. Moore's houses, and partook of luncheon there. She told me she had seen many seats where there was an ostentatious display in some one department, while there was a manifest falling off in others; but that at Holkham there was no falling off; everything was in unison. She had heard much of the place, and had formed high expectations, but that these had fallen far short of the reality; indeed, she said, it was impossible for any person to form a just estimate of this magnificent seat and domain otherwise than by seeing it. She spoke in raptures of Mr. Coke and his family, and said that her visit and reception here would never be effaced from her memory All this was, as you may suppose, very pleasing and flattering, more particularly as I verily believe she spoke as she thought. The house was crammed as full of company as at the sheep shearing."

In 1830 I undertook the editorship of the agricultural department of the *Country Times* weekly paper, published in London, and during the period of my management I had the gratification of receiving much valuable assistance from various quarters, and amongst others from my friend Blaikie.

After 16 years of faithful servitude on the Holkham estate he retired to pass the remainder of his days at Melrose, N.B., carrying with him the regret and love of both landlord and tenants; the former evincing his feelings by presenting him with a massive silver inkstand bearing this inscription:—"An inconsiderable tribute of respect and gratitude for 16 years' service, rendered invaluable by the union of unrivalled ability with incorruptible integrity;" and on the reverse—"Presented by Thomas William Coke to Francis Blaikie. May 6th, 1832."

The tenantry invited him to an entertainment, and presented him with a handsome silver tea service, recording their attachment and their opinion of his character in the following terms:—

"That during the 16 years he has presided over the Holkham property, he has not in any degree compromised, but on the contrary has greatly contributed to strengthen that noble sentiment, which has ever been the favourite motto of its worthy and liberal possessor, A GOOD UNDERSTANDING BETWEEN LANDLORD AND TENANT."

At Melrose he continued in the quiet enjoyment of his estate for 25 years after his retirement from Holkham, during which period nothing gratified him more than a visit from any of his old Norfolk friends. He quietly drew his last breath on August 13, 1857, at the patriarchal age of 86. I ought to add that he might have had employment on his own terms under more than one, who knew and appreciated his value; but to all such offers he turned a deaf ear, not wishing to pay his old master so ill a compliment, as having brought his labours to a close under him, to enter the service of another. He is gone to his reward "Well done, good and faithful servant." *Saml. Taylor, Gloucester, Sept.* 23.

WINTER BEANS.

WINTER Beans, to me, certainly possess some obvious advantages over spring ones; the chief of which are that they are less subject to blight and other diseases than spring Beans: and also that they may be sown in autumn when the state of the land and the labour of the farm will permit, and thus curtail the labour of spring—which is always a busy period—so as to apply the strength of the farm in preparing for other kinds of corn, &c.

I never saw winter Beans much damaged by blight or any other disease, but have frequently seen spring Beans almost entirely destroyed by various kinds of insects about the time of blossoming; so much so, that the land has been ploughed up and sown with some other green crop. I never knew a case of winter Beans failing so signally in summer as to lead us to adopt such a sacrifice; and, therefore, winter Beans have a decided advantage over spring Beans on the score of disease. Winter Beans have frequently failed in spring, however, when sown too late in autumn, or when sown on wet undrained clay in severe winters. Late sowing should, therefore, be avoided, and so also should wet land. The severity of winter cannot it is true by any means be avoided, but its consequences may be rendered harmless, as far as regards Beans, by attending to draining and early sowing. If Beans are sown early, say at the end of September or beginning of October, they will soon come up out of the reach of vermin, and be enabled to take a good, deep, and wide-spread hold of the soil, which no winter we have ever seen was severe enough to destroy. Indeed, we have had winter Beans so far above ground in October, as to be in an excellent state for hoeing; and when this was done in dry weather, the cultivation required in spring was very light. When Beans are sown early the vegetation above ground is almost entirely destroyed by a severe winter, but in spring a second growth takes place, and continues till harvest, which is usually at the commencement of Wheat harvest, whereas spring Beans follow Wheat, and are a month later than winter Beans; that is also a recommendation of winter Beans which should not be overlooked. The disadvantages of winter Beans are alleged to be failure in severe winters, and a less yield than spring Beans. On very retentive clay soils spring Beans should have the preference, to obviate any chance of failure by severe frosts; but I certainly never saw a single instance of failure occur from severe weather but what might be traced to the predisposing causes of late sowing, and sowing on very wet land. The yield of spring Beans has been occasionally higher than any crop of winter Beans we know of: but the yield of winter Beans is more uniform, as might be inferred from their less liability to premature ripening and disease. We have known winter Beans to produce 7 quarters per acre, and as little as 32 bushels per acre, all grown on good land in very high condition. Spring Beans sometimes reach 8 quarters per acre, and some seasons do not exceed as many bushels.

We have endeavoured to show that winter Beans possess some advantages over spring Beans on the head of disease, and also that when sowing in autumn takes place the labour of the farm is forwarded, which is of great importance of itself. It so happens however, that farms of suitable soil for Beans are also suitable for Wheat, and that the proper time for ploughing and sowing Wheat is also best for Beans. Thus, Wheat-sowing is attended to first, and when that is finished it is generally too late to sow Beans in season, so that, if sown, disappointment follows, and winter Beans are condemned without just reason. When winter Beans were introduced into this country about 30 years ago, and when partially grown subsequently, there was scarcely a failure, owing we think to more care being used in sowing at the proper time and under suitable circumstances; but of late partial failures have been common enough, which in a great measure may be attributed to want of proper management. Winter Beans are certainly not so much sown now as they were a dozen years ago, in those districts with which I am acquainted, for the reasons assigned, and also that where Beans hold a constant place in a rotation with Wheat, it is seldom that horse-labour can be spared in autumn for ploughing for Beans as early as necessary. For

spring Beans the land can be ploughed any time in winter so as not to interrupt other kinds of work; and the mere drilling and harrowing Bean-land in February or March does not interfere with ploughing for and sowing Barley or Oats, neither in the preparation for root-crops. It should always be the aim of every arable farmer to keep a sufficient number of horses to accomplish his work in due season, bnt not more. In order, therefore, to keep as few as necessary, the labour of the farm should be so distributed over the whole year as to provide nearly constant employment, without standing still at one time and at another having too much in hand to do it well. It is, we think, for these and similar reasons that spring Beans are so generally sown instead of winter Beans. Because, if there is a sufficient strength of horses on a farm to plough and sow both for Wheat and Beans in autumn in proper season, there would be an expensive surplus during winter, which in all ordinary cases could not be profitably employed. It is very rarely the case that Wheat-sowing can be finished by the middle of October with all the strength of the farm applied to it. It is then a chance only whether the ploughing and sowing of winter Beans can be accomplished in due season.

There are, however, exceptional cases where land may be ploughed for Beans during harvest, or immediately after it, when ploughing for Wheat cannot be carried on properly. It is then that the sowing of winter Beans instead of spring Beans should take place with everything in its favour.

Common winter Beans are said to be of both Russian and French origin. Whatever the origin or original distinctions may have been, there is no particular difference known now amongst farmers. Winter Beans are very small, of a darker brown colour than spring Beans, with a very black eye. They usually weigh, when well harvested, from 63 lbs. to 66 lbs. per bushel, and about 6 grains each. Common Horse-beans, sown in spring, usually weigh from 62 lbs. to 64 lbs. per bushel, and about 14 grains each. There are many varieties of Tick-beans, or at least many Tick-beans sown of different names, which are much alike in appearance and habits of growth and yield. The Harrow Tick and French Tick are both small seeds, and usually weigh from 63 lbs. to 67 lbs. per bushel. The Horse-bean and Mazagan are most commonly sown in England, as they yield more straw and corn than the Ticks. Ticks are better adapted for comparatively light soils than the common Horse-bean, and as they seldom run much to straw are very suitable for allowing a thorough cleaning by the horse and hoe throughout the summer. Some seasons we have seen Tick-beans produce so little straw and leaf as to allow of horse-hoeing nearly up to harvest without injury to the crops. The land was thus kept free of all annuals, and spots of Couch were easily destroyed by being repeatedly moved; yet, although the crop in growing looked small, the yield at harvest has reached 40 bushels an acre, and in one instance where the straw was only 30 inches high, the yield was 50 bushels an acre. Beans, however, which produce little straw allow more annuals to grow, unless well hoed, than such as produce much straw, which covers all the ground and in a measure smothers the weak under-weeds.

There are very few farmers who would acknowledge any system of growing corn which would encourage the growth of weeds rather than destroy them; but, whether acknowledged or not, it is true that in too many instances a Bean crop is anything but a cleansing one, and more generally leaves the land fouler when the crop is reaped than when sown.

To obviate this evil the cultivation of Beans, whether sown in winter or spring, must be such as to allow of horse cultivation; and to accomplish this the seed must be drilled or planted in straight lines, with a sufficient width between the rows to admit of horse-hoeing and a free course of hand-hoeing in all directions. When land is of a very adhesive nature, and contains a good deal of Couch, the only chance of getting it cleaned in summer is to ridge it up in winter, in rows from 24 to 28 inches apart. The winter's frost will then so loosen it, that in the spring the ridges should be divided, new ones formed, and the Beans be either drilled or dibbled on the top. By this system the horse-hoe can be set early to work between the rows without injuring the Beans, and may be kept at work late also: and, in addition, hand hoeing and picking off the couch will, if well followed up, entirely clear the land of weeds, and permit of a good crop growing also. The cultivation of Beans by such method is the same as for roots grown on ridges; and without ridges foul land cannot be cleaned at the time that a crop of corn is growing upon it.

In ordinary cases, when land is free, or nearly so, from couch, the cultivation of Beans upon the flat surface is most usual and answers very well. The rows should never be less than from 18 to 24 inches apart to allow the horse-hoe to work freely between them without smothering the plants. The common horse-hoe used for Turnips does well in general, and if the ground get very hard a plough divested of the turnfurrow and coulter should be used. The left-hand side should go as near the plants as possible, so as not to interfere much with the roots or smother the plants; and if a turn of the plough is thus given between every two rows, the soil is so loosened and broken up that many weeds are killed in fine weather by this operation, which also allows of ready hand-hoeing afterwards on the surface, and the spreading of the roots when horse cultivation is suspended. Beans can be dibbled in straight lines by hand equally true as by the drill, however long the length may be. We have had them dibbled by hand in lines nearly 20 chains long without any apparent deviation from a straight line.

Beans cannot be properly drilled on newly broken-up Grass-land. The coulters become choked and cannot go deep enough to deposit the seed. Neither does the drill work well on land when very stiff or when pieces of dung and bunches of stubble lie about the surface. Dibbling is then preferable. The seed should be put in from 2 to 3 inches deep—the deeper the better in general. The quantity of seed used for both winter and spring Beans ranges from three to four bushels per acre. Three bushels should in general be sufficient, but on poor land in rough condition four bushels are not too much. A two-horse drill should get over 8 acres a-day. A horse-hoe should get over 3 acres a-day if the rows are about 2 feet apart. A man can dibble from one-third to one-half an acre a-day. I give 6*s*. per acre for dibbling in straight rows from side to side of the field, the rows being 18 inches apart. Many persons still dibble Beans at a certain sum per bushel. This I consider to be an evil practice, as both encouraging laziness, theft, and irregular seeding. When a man gets a bushel of Beans to plant in a day, if he have any tendency to bad habits about him, he will either sow the seed too thick, throw some of it into a ditch, or steal some to get rid of it.

Planting by the acre, and allowing a stated quantity, appears to be as near a correct system as can be attained when sowing by hand is necessary.

Beans have long been chiefly confined to the stiffest description of clay soils, and are now in some cases superseded by root-crops, but we think it will be a very long time before root-crops become general instead of Pulse; and as Beans are a substitute for roots, and are regarded as a cleansing crop, it is desirable that it should be so, and that those who cling to drilling and dibbling in narrow crooked rows, and hand-hoeing only, should adopt a more enlightened and economical course.

To sum up—we would sow Beans in autumn rather than in spring, when the labour of the farm would admit of its being properly done before the end of October. Spring Beans should be sown in February, or not later than the middle of March. All kinds of Beans should be put into the ground from 2 to 3 inches deep, and always in straight rows from 16 to 28 inches apart to admit of horse cultivation. Hoeing should take place early, and as frequently as is required to thoroughly clean the land and encourage the growth of the crop. We feel assured that the frequent stirring of the soil has a great tendency to prevent disease, and is a source of ultimate gain in every case, when done with ordinary discretion. *Mr. Vallentine, in the English Agricultural Journal.*

Home Correspondence.

Lois-Weedon.—Many attempts have been professedly made to carry out the above system of farming. The writer of this is acquainted with a case in the immediate neighbourhood of Reading. It is shaded by trees and plantation, besides being over-run with weeds and smothered in Couch, and he has often wondered the meaning of so neglected a corner, at last concluding it was a vain attempt at the Lois-Weedon practice. A more unfair trial could not be given to it. The land is a sharp gravelly subsoil, eaten up with weeds allowed to grow apparently without molestation, ill adapted for the experiment, though if fairly cultivated, all weeds being exterminated, it is a very grateful soil, bearing the finest quality of grain, and commanding the highest price in the market. How can any land yield a full return where weeds are allowed to take the place of crop, and to drop their seeds from year to year? "J. B. M." whose balance-sheet appears in a late *Agricultural Gazette*, must be a novice in farming to have only just learned that weeds and Wheat together cannot thrive. It may be added that wide drilled, either corn or roots should have the intervals kept perfectly friable, clean, and free from rubbish, well horse and hand hoed, otherwise it would be preferable to sow thickly, allowing the crop to take care of itself, as many of the old school are in the habit of doing. Early dibbling or drilling immediately after harvest, when Nature deposits her seed, is the only and best time for the experiment of thin seeding, allowing time for the roots to enter deeply into the subsoil, which will materially assist an early growth on the return of spring, besides protecting the plant from the severity of winter's frost, and by the same reason will enable it to derive nourishment from below the surface. *Tuebor.*

The Turnip Sawfly.—I have noticed the occurrence of the larva of the Turnip Sawfly, Athalia spinarum, in considerable numbers in some parts of this county. I saw on one farm four or five acres entirely destroyed by the grub, the land appearing as if never sown. I hear it was seen last year but very sparingly. The caterpillar of the puss moth has been also very plentiful, the dung attracting notice on the roads and footpaths under the trees. I am sorry to say the Potato disease is very virulent, the tubers having become a mass of paste of the consistency of cream; out of 14 bushels raised in a field only 2 bushels were sound. *Lyston.*

Importation of Bones.—The following letter has been received by Mr. Spooner, of Eling, Southampton, from the Office of Committee of Privy Council for Trade, Whitehall:—"I am directed by the Lords of the Committee of Privy Council of Trade to acknowledge the receipt of your letter of the 15th ult., addressed to Viscount Palmerston, and forwarded by his lordship to this department, with reference to the order in Council of the 27th August last, prohibiting the importation of bones brought from certain parts of the Baltic. In reply I am directed to state that my lords having considered the subject of your letter, as also of other letters addressed to them upon the same matter, have written to the Lords Commissioners of her Majesty's Treasury requesting them to direct the Board of Customs to permit the importation of all bones which were shipped or in course of shipment, or ordered or contracted for previously to the issue of the order in Council." Signed—*T. H. Farrer.*

Farmers' Clubs.

Croydon.—*Destruction of Weeds.*—At a late meeting of this club Mr. Wood read a paper on this subject. He said: I cannot help thinking that weeds are increasing rather than diminishing, and that Thistles are much more numerous than they were, and this I believe arises from the plan of successive cropping without clean fallows; and in many cases they gain strength in not cutting them up when the land is in corn. I cannot alter the opinion that I have before expressed in this room, as to the propriety of having a portion of clean fallow on light lands which is so subject to all sorts of weeds, unless it can be all farmed at a very high rate. I believe it would be found to be right in many ways; first, by giving more time to get rid of all kinds of weeds, as I think there is no other way of getting rid of Thistles, and many other such weeds, but by continually cutting them off for some length of time, which time cannot be given if you sow all with Turnips. How many times, in my opinion, would the Thistles on light lands be nearly all killed, if the land could have another ploughing or two, and be left clear until the spring. And I am still more convinced that too large a portion of land is sown with Turnips, as it is now generally acknowledged that land gets Turnip sick as well as Clover sick if sown too often. And where a whole fallow would be useful, how often could you let your ploughs go into a fallow that has to lie so all the winter! when you do much more harm than good in a Turnip fallow from being too wet. I do not intend to infer that too many Turnips can be grown, but that too many acres may be sown; as a farmer that has a large quantity of land for Turnips, by properly working and dressing three-fourths of it for Turnips, and leaving the other fourth clear fallow, will oftentimes grow as great a weight of Turnips as he would on the whole; and would certainly be more likely to keep his farm cleaner. And how often good Turnip lands may be seen with not half a crop of Turnips on them—often from the cause of having so many acres to sow that none are really done well! And I think that you would, by putting a small quantity of artificial manure on your clean fallow, grow as much Barley, and of a better quality, and better Clovers, than you would on your land that was dressed for Turnips, and fed off with sheep; and it would be likely to be cleaner from weeds. There is another point as regards fallowing, and that is the ploughing land too deep the first time when foul. I have seen several instances lately that convince me that it is wrong, as there has been so much labour bestowed on it, and it is not got any thing like clean after all. I would rather see it rafted or ploughed just to go under the Couch, if any, as I see that it is cleaned at so much less expense, and much more effectually. Another bad plan I have seen practised, in fallowing on lands that are subject to seed weeds is, by the ploughings being too closely followed, and not giving the seeds of weeds time to vegetate; and many fields would often be cleaner if one ploughing was dispensed with; and where land is very subject to Kidlock or many other seed weeds, if time will allow, where Lent corn is to be sown, to harrow the land down, and let it lie until the seeds vegetate, and then, instead of ploughing again, which would bring up more seed, to strike for the crop, I am convinced from experience that on all light lands more corn and less weeds would be grown. Striking I believe to be much better than drilling; and I think, if more practised, it would be found of benefit to light-land farmers. I know many find fault with the time and expense, but I do all with a single horse to a plough; and, if so done, it cannot be a very expensive plan. The effect of striking on the corn crop is, that it seems to enjoy itself better, and to get a-head of the weeds, and not to lose plant so much as in most other modes, or to require quite so much seed. I have before this spoken in favour of transplanting a portion of Mangel Wurzel and Swedes, and have seen nothing to alter my opinion. It may be done with advantage if your land is not clean and ready in proper time to put in the seed. I know from experience that both Swedes and Mangel Wurzel, of the Globe sorts, will, if planted out in reasonable time, say the last week in June, have a good chance of success; and that the Globe Wurzel may be mended in the rows with advantage if done when they are young. I have brought some Yellow Globe that were transplanted to mend the rows of Long Red, and they were, I believe, on the average as heavy as the Long Red that grew from the seed, which speaks in favour of the Yellow Globe, which I certainly prefer. They were not transplanted until the last week in June, on land that was not used so well as it should have been for Wurzel. They were planted about 30 in. by 18 in. and the land very clean. If the land is not very clean and much subject to weeds, I should prefer giving them more room between the rows, and less in the row: I think that 3 ft. by 16 in. is a preferable distance, as there would be the same quantity per acre, viz.,

10,890, which, if of the weight of 5 lbs. each, would be upwards of 24 tons per acre. I should therefore say, from what I have seen of my own, that by putting the rows 3 feet apart you can grow as great a weight, and a much better chance to clean your crop from weeds, than when planted closer. And I think it would be well worth the trial to put the rows of Swedes 3 ft. by 1 foot, which would produce 13,600 per acre. I feel no doubt but that you would get nearly or quite as great a weight, with a much better chance of getting rid of weeds, by being able to keep on with the horse-hoe so much longer. I know many object to putting them so far apart, but I feel confident it would be right, and that there would be more corn produced, and less weeds. There is another thing why we should endeavour to keep the weeds under, that is, the increasing value of artificial manures, which must tend to make all other manures of more value; and it must be clear to all that weeds rob the land very much, as well as the growing crop.

Calendar of Operations.

SEPTEMBER.

BERWICKSHIRE MERSE FARM, *Sept.* 21.—The beginning of August heralded the approach of harvest under very favourable auspices. The crops of Wheat and Oats were good; those of Barley and Beans short of straw, and all 10 days earlier than usual. About the middle of the month, however, the Wheat crop was suddenly affected with the most destructive and universal mildew known for many years, which reduced the most of it to light grain, except what was ready for the sickle. Cutting commenced on the 19th ult., and proceeded steadily until nearly all but spring Wheat was in stook; but not a fourth part was carried when the wind got into the N.E., and we passed 14 dreary days of rain with snatches of reaping, at intervals. A week ago things looked very bad; sprouting had only not gone so far as last year, but was arrested by the splendid west winds of the week. By careful selection and exposure of sheaves to the wind we have been enabled to reduce the quantity of damaged grain within more moderate limits; and all the white corn, good and bad, is now in the stack, with few exceptions. Several cases of heating have occurred where carrying was recklessly pushed. It would seem, however, that we are not a day too soon finished, for it threatens from the N.S. to-night. *J. T.*

WESTER ROSS, *Sept.* 28.—Our harvest is again completed, not however, without difficulty and loss. On Friday, the 21st August, we commenced cutting with five scythes, and on Thursday, the 3d September, the whole crop, consisting of 90 acres of Wheat, Oats, and Barley, was in stook. The weather continued favourable all Friday and Saturday, and until Monday afternoon, on which days we managed to secure nearly all the Wheat and part of the Barley. Throughout Monday night and Tuesday forenoon the rain fell in torrents, accompanied with a tremendous gale of wind. The rivers and streams flowed from bank to brae, carrying along bridges, and stooks, and moveables of all kinds, and so wet and broken did the weather continue that there was scarcely anything done in the way of carting home until Thursday the 7th. The following Friday and Saturday were admirable days for leading, and on these two days we secured 24 stacks, and on the following Monday forenoon we had the whole crop in the stackyard. Our harvest thus extended over a full month, beginning on the 21st August, and finishing on the 21st September. On the first 12 working days the whole cutting was got through with and other six dry days would have been sufficient for securing it, so the whole might have been completed in 18 working days. The crop being less bulky and more easily cut, the expense is less than last year. The whole outlay for cutting, binding, stooking, carting, building, and thatching, is 22*l.*, or about 5*s.* per acre. This, however, is exclusive of the labour of our ordinary half-year servants, three of whom cut with the scythe, and consequently saved a large proportion of expense. I am far from supposing this a perfect state of things, for although three or four weeks would have appeared to our fathers sufficiently short for harvest labour, yet if by the introduction of a cutting machine this period were still further shortened, even although the expense should be thereby augmented, in such harvests as these it would be to the farmers no small boon. There is a limit, with our present system of stacking and housing, to the shortening of the time for harvest, for had we hands sufficient to cut it all in one day, it would still require a few days in the stook, even in the best weather, to prepare it for keeping in the stack; but certainly it is wise to be taking advantage of everything that would in any way tend to accelerate the ingetting of the crops. The grain has sustained far greater damage in the stook this year than last, for although a larger proportion was this year secured ere the weather broke, yet the rains were more abundant, the stooks were more thoroughly drenched, the weather was altogether warmer, and the sprouting was more general and rapid. Barley suffered least; Oats, when short and cut with the sickle, were much damaged; and Wheat which was exposed to all the rain is nearly useless. Fortunately a large proportion of the Wheat was secured before the rain came. The bulk in the stackyards is less by a fourth or fifth than last year. Our Turnips have improved materially since the rain, and should the weather continue mild and open for some time, they will yet be about an average. The disease has made sad havoc amongst our Potatoes within the last 10 days, and the fear is that few will be saved.

Notices to Correspondents.

BONES: *A Farmer.* Puddle a clay floor and lay ashes all round it, leaving a circle of 8 or 10 feet wide in the centre. Lay 30 bushels of bone-dust on it, and pour as much water on as they will suck up—then add a quantity of sulphuric acid by little and little from the windward side, equal to about half the weight of the bones, taking care by dragging it to and fro that every part shall be wet with the acid. Take care of yourself while you are doing it. Cover the ashes over the heap and leave it for a week; afterwards turn the heap over, and add as much more ash as will dry it. The better plan is to buy your superphosphate ready made.

BOOKS: *A B.* For a work of reference on farming generally, "Blackie's Cyclopædia of Agriculture." For information on light land farming, see Mr. Haxton's paper in the Journal of the English Agricultural Society. For information on Flax growing, read Demann's pamphlet on Flax.

COPROLITES: *A Novice.* We have known coprolites sold on the ground about 30 miles from London at 3*l.* per ton. What their present market price may be we do not know.

PLEURO-PNEUMONIA: *W F.* We will give an extract from his paper next week.

POTATOES: *A B.* 30 inches by 12 is a good distance for any strong growing sort of Potato. We do not know the "Gold-finder" by that name.

POULTRY: *J Dawson.* You had better get rid of the sort altogether, and avoid hatching chickens in the dog days for the future.

SUNFLOWER SEEDS: *J D S.* They may be given whole.

WINDMILL SAILS: *T D H.* We do not know the patentee of the self-acting wooden windmill sails, but any agricultural machine maker can obtain what you want in this particular for you.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30th, Crystal Palace.—12 Roses in pots, FIRST PRIZE.
June 3d, Chiswick.—12 Roses in pots, SECOND PRIZE. The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.
June 18th, Royal Botanic Society.—50 Cut Roses, FIRST PRIZE.
Do. do. 10 Roses in pots, SECOND PRIZE.
June 24th, Brighton.—50 Cut Roses, FIRST PRIZE.
June 24th, Manchester.— Ditto, SECOND PRIZE.
*** The Manchester and Brighton Shows were on the same day.
July 1st, Royal Botanic Society.—24 cut Roses, FIRST PRIZE.
,, do. do. 50 ,, FIRST PRIZE.
,, 2d, Stamford Hill.—50 cut ditto, FIRST PRIZE.
,, ditto, collection ditto, FIRST PRIZE.
,, 9th, Diss.—50 cut Roses, FIRST PRIZE, Silver Cup.
,, do., 100 ditto FIRST PRIZE, ,,
,, 15th, Stamford.—12 ditto, FIRST PRIZE, ,,
Sept. 9, Crystal Palace.—50 do. FIRST PRIZE, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, one mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara . } 1 to 10 ft.
,, Africanus } The largest
Cedar of Lebanon } and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
,, austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Picea Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pinaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* per dozen, and upwards; Dwarfs, 6*s.* per dozen, and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ } 11*s.* 6*d.* per 100 feet.
8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½ }
10 by 8 and 10½ by 8½ .. 12 6 ,,
Larger sizes in 100 feet boxes from 14*s.* per 100 feet.

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.
20 by 12 and 20 by 14 .. } 18 0 ,,
20 ,, 13 ,, 20 ,, 15 .. }

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

HORTICULTURAL GLASS WAREHOUSE,

EXTRACT FROM "COTTAGE GARDENER."

"The good properties of really good sheet glass are various. The foreign kind especially is so indifferent, that I may caution the inexperienced to stipulate for British Sheet Glass, as much injury has been caused by substituting a low priced Belgian article for it."

SHEET GLASS FOR CONSERVATORIES, &c., cut to size, 16 oz., 46 inches in length, at 2*d.* per foot; 21 and 26 oz., do., equally cheap, at HICKSON'S, 46, Long Acre. Estimates given, and Glazing done, in any part of the country. Established 1840.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½	10*s.* per 100 feet.	8 by 6, 9 by 7, 9½ by 7½, 10 by 8	12*s.*
10½ by 8½, 11 by 9, 11½ by 9½, 12 by 9	14*s.*	12 by 10, 13 by 10, 14 by 10, 15 by 10	14*s.*
19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to 3/16 and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses.	Fern Shades and Stands
Bee ,,	Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.	Inches.	Per foot.	Per 10 feet.
	Under 6 by 4	at 1½*d.*	is £0 12 6
From 6 by 4	,, 7 ,, 5	,, 2*d.*	,, 0 16 8
,, 7 ,, 5	,, 8 ,, 6	,, 2¼*d.*	,, 0 18 9
,, 8 ,, 6	,, 10 ,, 8	,, 2½*d.*	,, 1 0 10
,, 10 ,, 8	,, 12 ,, 9	,, 2¾*d.*	,, 1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3½*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3½*d.* to 7½*d.* ,, ,, ,,

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

"TIFFANY" FOR SHADING CONSERVATORIES,
MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

BURGESS AND KEY'S LIFT PUMP.—

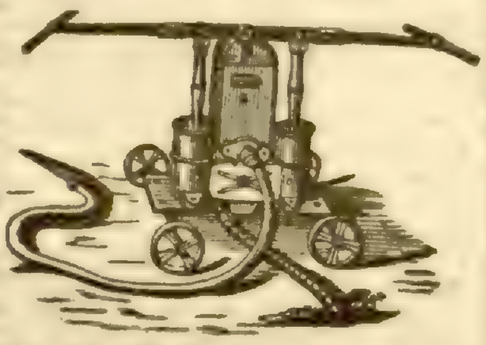
THESE PUMPS ARE USED ON FARMS FOR FILLING MANURE CARTS, AND MANY OTHER PURPOSES.

THE TRIPOD LEGS FOLD UP, WHICH MAKES IT CONVENIENT TO CARRY.

Full particulars sent on application to BURGESS & KEY, 95, Newgate Street, London; or to their Manufactory, Brentwood, Essex.

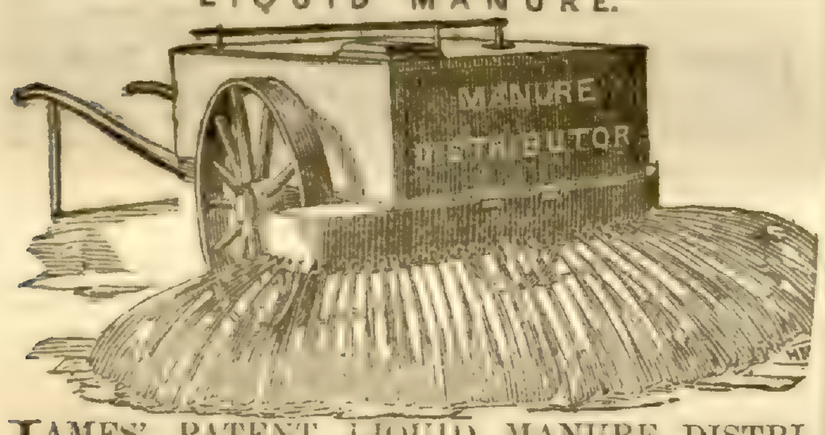
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

LIQUID MANURE.



JAMES' PATENT LIQUID MANURE DISTRIBUTOR OR WATER-CART, warranted not to choke up or otherwise get out of order. It is thoroughly adapted for Drill Crops, or Pasture Land, or for Watering Streets; has been awarded SIX FIRST PRIZES. Full Particulars and Testimonials may be obtained of the Patentee, ISAAC JAMES, Tivoli Waggon Works, Cheltenham.—Improved LIQUID MANURE PUMPS supplied.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50s.

1½-inch Flexible Rubber and Canvas Suction for ditto, 2s. 9d. per foot.

1½ Gutta Percha Suction, 1s. 9d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2s. 6d. each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17s. 6d. per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. A liberal allowance to the Trade, &c.—Manufactory, Kennington Lane, Lambeth.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

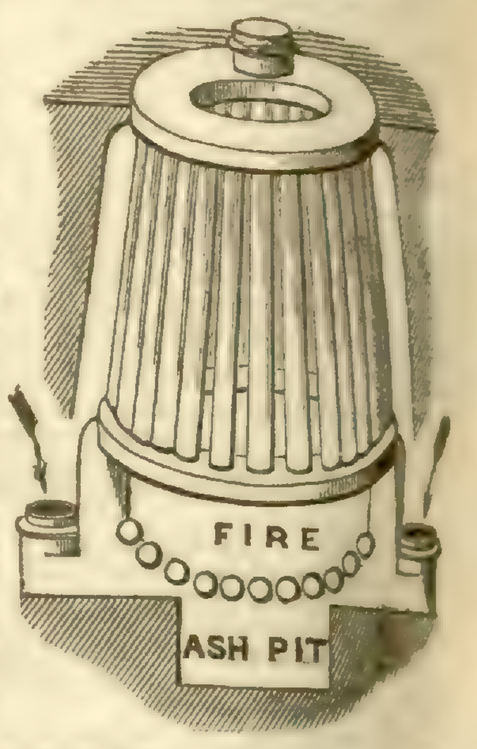
MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings:—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.

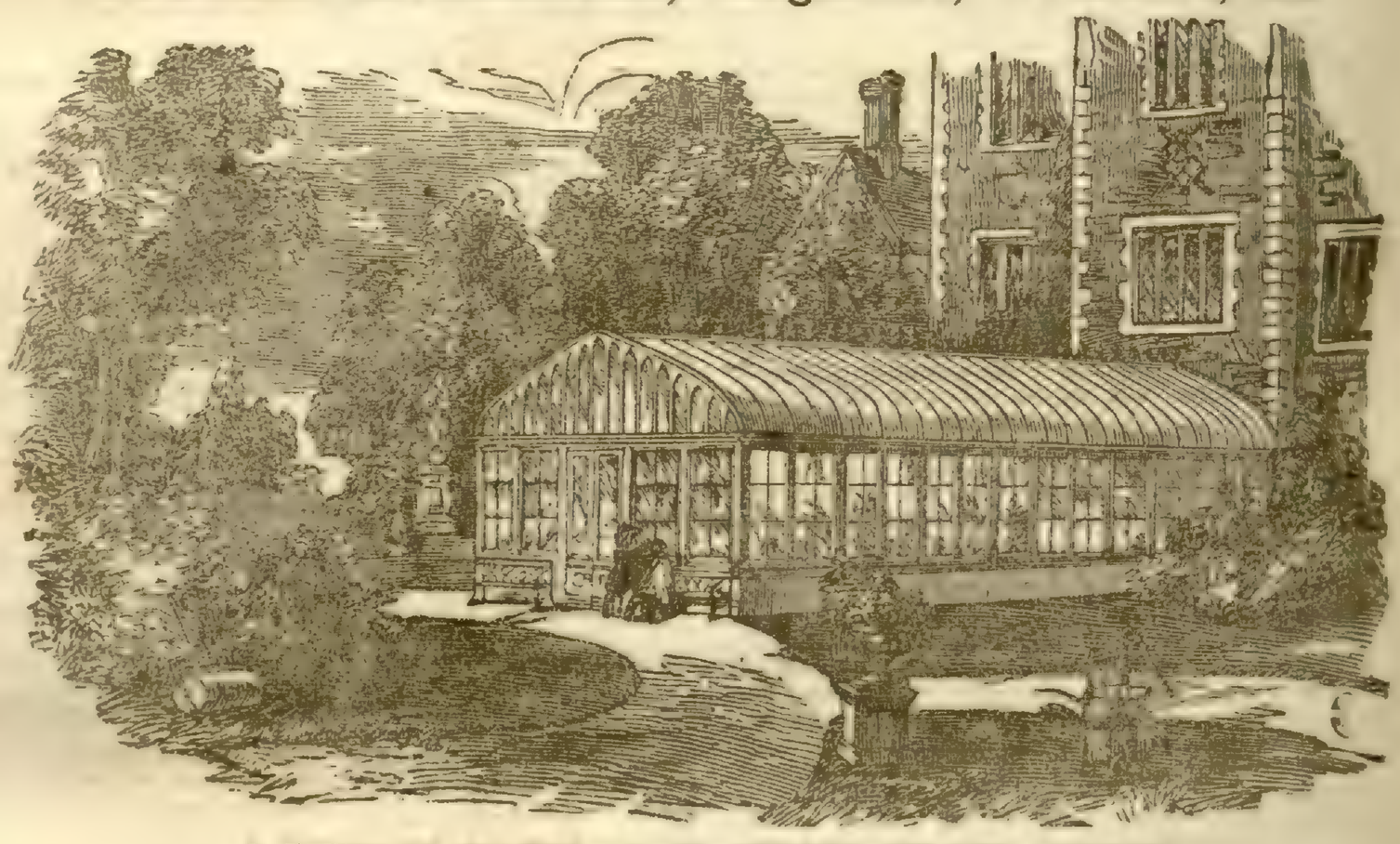


See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

CHAMPION PLOUGHS,

For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

THE FIRST PRIZE FOR THE BEST PLOUGH FOR GENERAL PURPOSES.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR HEAVY LAND.
The only PRIZE ever offered by the Society for the best RIDGING PLOUGH was also awarded to J. & F. HOWARD.

P Plough, with Two Wheels (for Light Work)	£4	7	6
P P Ditto ditto (for General Purposes)	£4	12	6
Skim Coulter, extra	£0	5	6

Steel Breasts, 7s. and 7s. 6d. extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBERr, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

J. S. MORRIS, HYDRAULIC ENGINEER, 38, Upper Thames Street, City, London.

Hot-Water Apparatus complete on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. MORRIS in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

A Treatise by J. S. MORRIS "On Warming and Ventilating Dwellings" sent free.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

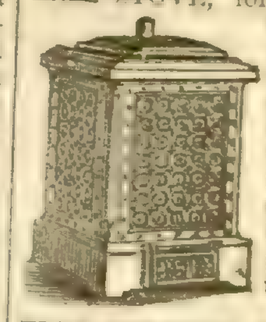
Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

Stanley Bridge, King's Road, Chelsea, Oct. 3.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

IMPROVEMENTS IN HEATING, ETC.



MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of warming a large apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot-water.

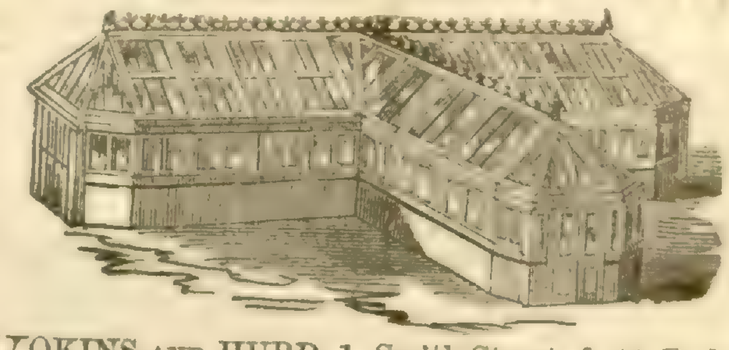
MUSGRAVE'S PATENT SLOW-COMBUSTION COOKING RANGE on the same plan.

MUSGRAVE'S PATENT STABLE FITTINGS.

These inventions will repay public inquiry. For particulars address the makers,

MUSGRAVE BROTHERS, 59, High Street, Belfast.

HORTICULTURAL WORKS.



VOKINS AND HURD, 1, Smith Street, & 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

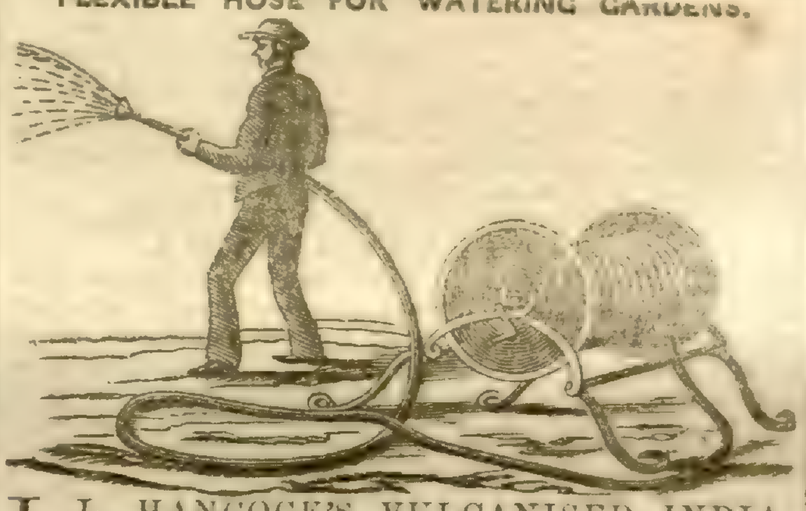
Plans and Estimates forwarded on application.

JOHN WARNER AND SONS, Crescent, Jewin Street, London.—GALVANISED IRON TUB GARDEN ENGINE, with WARNER'S Registered Spreader, is strongly recommended, for durability and low price, viz., 2*l.* 19*s.*, to hold 10 gallons.

Larger sizes in wood or iron, viz., 14 gallons, 24 gallons, and 35 gallons. May be obtained of any Ironmonger or Plumber in town or country, or of the Patentees and Manufacturers, as also Machinery of all kinds for raising Water from any depth to any height by Steam, Horse, or Manual Power. Prices sent on application.

Syringes of various constructions and sizes from 9*s.* upwards. Metallic String from 5*d.* to 1*s.* 3*d.* per lb.

FLEXIBLE HOSE FOR WATERING GARDENS.

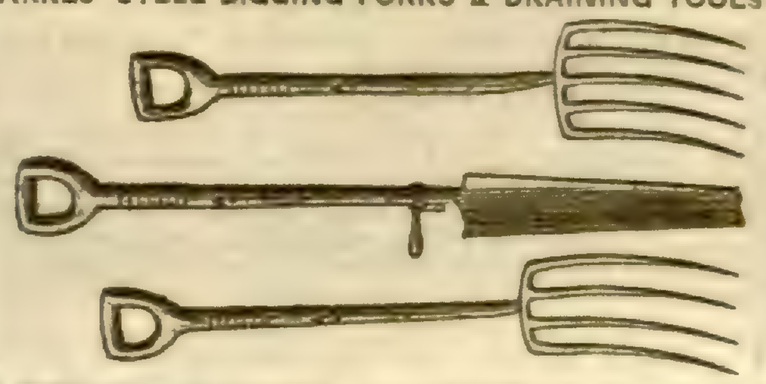


J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

VENTILATING STOVES! SUSPENSION STOVES!—The two Best, Cheapest, and most Economical—Prospectuses with prices post free.

DEANE, DRAY, & CO., London Bridge. A.D. 1700.

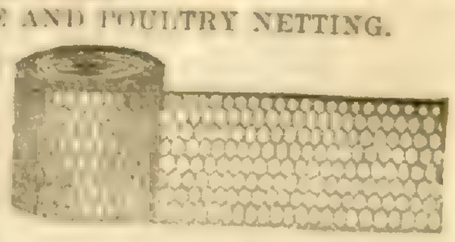
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS or DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & CO., 2, Basinghall Buildings, Leeds.

Sales by Auction.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will sell as above at the Mart, TUESDAY, Oct. 6, and THURSDAY, Oct. 8, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

SHACKLEWELL.—TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Buck to Sell by Auction, on the premises, Manor Nursery, Shacklewell, near Kingsland, on THURSDAY, October 15, at 11 o'Clock, the Erections of 11 Greenhouses, some of them nearly new; a quantity of 4-inch Hot-water Pipe, Boilers and Fittings, Furnaces, ¼ inch Slate Slab; Foot and Pan Tiles; a capital Tumbril Cart, nearly new; 2 Pumps, Garden Pots, Mould, Manure, useful House and Mare, and sundry effects.—May be viewed three days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

N.B. The Lease of seven years unexpired to be disposed of.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction, at the Mart, Bartholomew Lane, on MONDAY, October 12, at 12 o'Clock, a costly and extensive Collection of BULBS and FLOWER ROOTS, being about 35,000 in number, and consisting of all the approved hardy and ornamental varieties of Hyacinths, early and late Tulips, Crocus, Narcissus, and Anemones; also 5000 Sir Charles Napier Ranunculus, the finest variety yet raised, the whole of which are warranted true to name and description, &c.—On view the morning of Sale. Catalogues may be obtained at Mr. LOCKHART'S, Parson's Green Lane, Fulham; at the Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

STOKE NEWINGTON.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Green Lanes Nursery, Stoke Newington, on MONDAY, October 19, at 11 o'Clock without reserve, by order of Mr. Bird, 1000 dozen Cyclamen persicum, 4000 flowering Myrtles, fine double Camellias from 2 to 6 feet, well set with bloom buds; 2000 Moss, Provence, and other Roses in pots; Passiflora coerulea, 450 Vines from eyes, Honeysuckles, Acacia lophantha, with 2000 Black, Red, and White Currants, &c.—May be viewed four days prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

EVELYN VINERIES, DEPTFORD.

TO MARKET GARDENERS, NURSERYMEN, PINE GROWERS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Lancaster to Sell by Auction, on the premises, Evelyn Vineries, Edward Street, close to the Deptford Station on the Greenwich Railway, on TUESDAY, October 20, at 11 o'Clock, without reserve, the land being taken for building, about 700 fine healthy Fruiting and Succession Pines; 500 Black Hamburgh, Barbarossa, Muscat, and other Vines, from eyes in pots; 5000 Linnæus, Albert, and Victoria Rhubarb, 3 years old; quantity of Asparagus, 3 years, and Mint for Forcing; Seakale, Taragon, Rue; 1000 Chili Capsicums, sorts in pots; Dwarf Red Moss and Provence Roses, &c. Also four Greenhouses, 3 Melon Pits, 30 Three-light Boxes; about 1500 feet of 3 and 4 inch Hot-water Pipe; 6 Saddle and other Boilers; 300 Hand Glasses, sundry Lights, Ladders, 2 Pumps, Desks, Carpenter's Bench, Carts, Barrows, Paving Tiles, &c.; together with a quantity of Home saved Flower Seeds, Manure and sundry effects.—May be viewed three days prior to the Sale; Catalogues may be had on the premises; at the Dover Castle, Broadway, Deptford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A reasonable time will be allowed Purchasers for the removal of the Rhubarb in the ground.

TO GENTLEMEN AND OTHERS PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons, Nurserymen, Wandsworth Road, to Sell by Auction on their premises early in NOVEMBER, the first portion of their fine healthy Stock, consisting of Standard and Dwarf-trained Fruit Trees, Forest and Ornamental ditto, Variegated and Green Hollies, Laurels, Box, Aucuba, Chinese Euonymus, Privet, Ivies, and other Evergreeds. Also handsome plants of Deodar, Araucarias, Yuccas, &c.; fine plants of Crimson and Sweet scented Rhododendrons, well set with flower buds; large specimens of Purple ditto; American Azaleas, Kalmias, Pyrus, Gaultheria, Lilacs, Roses, &c. A fine stock of Gooseberry and Currant Trees, Vines in pots, also Asparagus and Seakale. Due notice will be given of the days of Sale, and Catalogues prepared.—N.B. A Sale of Camellias, Chinese Azaleas, and other Greenhouse Plants to take place towards the end of November.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5*s.* to 21*s.*

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10*s.* 6*d.*, 15*s.*, and 21*s.*; four Plants for three to the Trade.—Maidstone, Oct. 3.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30*s.* per dozen; smaller plants, 18*s.* per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30*s.* per dozen.—Epps's Nurseries, Maidstone.

SEEDLING ERICAS.

OBBATA PURPUREA.—Shape and size similar to its parent obbata, but is suffused with plum colour purple large whorls of flowers of great substance, and continues blooming for many weeks; it is one of the finest Ericas ever seen. Good plants 10*s.* 6*d.* to 21*s.*

MAIDSTONIENSIS.—An excellent variety for exhibition; tube long, colour bright rosy red, extra substance, fine form and habit, quite distinct from anything out. Was awarded first-class certificates in Regent's Park. Fine plants, 5*s.*, 7*s.* 6*d.*, and 21*s.*

TRICOLOR EPPSI.—This beautiful Heath is a hybrid of great merit, early and free flowering, large whorls of flowers, colour scarlet shading off to white, and very glossy; a first-rate variety for exhibition; decidedly the finest tricolor out. Was awarded first-class certificates at Chiswick, Regent Street, and the National Meeting. 10*s.* 6*d.*, 21*s.*, and 42*s.* 30*s.* the Set.

Epps's Nurseries, Maidstone.

AZALEA INDICA.

The Greatest Novelty of the Season is

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10*s.* 6*d.* and 21*s.* A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

ROBERT M. STARK begs to intimate that his CATALOGUES for the season are now ready, and may be had on application. The Stock of Trees and Shrubs is unusually fine and well rooted. Many new and showy FERNS and LYCOPODS have been added to his collection. DUTCH FLOWER ROOTS in fine condition and great variety.

Edinburgh—Edgehill Nursery, and 31 S. Castle Street, Oct. 3.

MESSRS. WILLIAM ROLLISSON AND SONS have to offer a fine stock of good plants of the GRAPE "Gromier du Cantal," as exhibited by Mr. Fleming at the last Crystal Palace Horticultural Exhibition, for which a first prize was awarded (vide Report), price 5*s.* each. Also the Bowood Muscat Grape, 21*s.* each; and every description of Fruit Tree, true to name, and in excellent condition. An inspection is invited.

The Nurseries, Tooting, London.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21*s.* the pair, including package and carriage to London. Good named varieties, 12*s.* per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12*s.*

Mixed seed, saved from fine double flowers, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON can now supply the following excellent varieties, all true to name and well rooted, viz., Ne Plus Ultra, very large and early, 30*s.* per 100; Excellent (really so), large and a great bearer, 30*s.* per 100; Sir Harry, 20*s.* per 100; Ingram's Prince Alfred, 20*s.* per 100; Filbert Pine, 10*s.* per 100; Kitley's Carolina superba, 10*s.* per 100; Sir C. Napier, 10*s.* per 100. All the older sorts, 5*s.* per 100. For Early Sorts see Advertisements in August last. Post-office Orders payable at Yarm.

Eggleseliffe, near Yarm, Yorkshire.

INGRAM'S PRINCE OF WALES STRAWBERRY.

J. AND E. SMALL beg to intimate that they are again prepared to supply fine strong Plants of the above fine Strawberry, which is so extensively grown in the Royal Gardens. J. S. exhibited a fine basket at the meeting of the Pomological Society on July 8th from Plants six weeks in bearing. "The fruit exhibited were very large, firm, and full flavoured." See the July report of the Pomological Society. This Strawberry is highly recommended for market purposes, being very prolific and bears carriage well. Mr. Plimley, Market Gardener, of Shepherd's Bush, Middlesex, has authorised me to state that he has proved it to be in every point superior to the Keens' Seedling, which variety he has now ceased to cultivate. Mr. Plimley will kindly answer any inquiry respecting it. Strong and true Plants 7*s.* 6*d.* per hundred, and a liberal allowance to the trade.

P.S. Plants of all the leading sorts can also be supplied.

Orders sent to the Colnbrook Nursery, Slough, Bucks.

BULBS! BULBS!

BASS AND BROWN have received their first and second importation of DUTCH ROOTS in fine condition. The HYACINTHS in particular, which are unusually fine, they have pleasure in offering as follows:—

HYACINTHS.	£	s.	d.
12 choice named varieties	0	6	0
12 very choice ditto	0	9	0
12 extra superb ditto	0	15	0
50 roots in 50 choice varieties	1	10	0
25 roots in 25 ditto..	0	16	0

Extensive and very superior collections of Gladiolus, Early Tulips, Iris, and other Bulbs.

The No. I. CATALOGUE for the season is now complete, containing Bulbs, Herbaceous Plants, Antirrhinums, Phlox, Coniferæ, select and popular Evergreen and Flowering Shrubs, Hardy Ornamental Climbers, Roses, Fruits, &c., and will be supplied on application.

Bass & Brown, Sudbury, Suffolk.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

Wm. C. & Son strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

POMPONE CHRYSANTHEMUMS.—A very splendid lot of specimen plants of the above in pots, comprising the very best kinds in cultivation, at 6*s.*, 9*s.*, and 12*s.* per doz. They are well worthy the attention of all purchasers.

Apply to Thomas A. Caparn, King's Road Nursery, Newark.

CHEAP PRICED CATALOGUE.

W. W. DAVIS'S DESCRIPTIVE CHEAP PRICED CATALOGUE of all the best and newest Roses, Chrysanthemums, Pansies, Antirrhinums, Verbenas, &c., is now ready, and may be forwarded gratis upon application, enclosing one postage stamp.

Nurseries, St. Mary's Hill, Newbury, Berks,

THORNS, LAURELS, PORTUGAL DITTO, AND YEWS.

CHARLES DALY AND SON has 100,000 Common Laurels to sell at 15*s.* per 1000; Portugal ditto, good plants, at 4*s.* per 100; Seedling Forest Trees, 1-year Seedling Thorns, 1 and 2-year Transplanted Thorns, and Irish Yews, 1 to 5 feet. Prices sent free by post of what they have to offer.

Coleraine, October 3.

LEXDEN ROAD NURSERY AND SEED ESTABLISHMENT, COLCHESTER.

WILLIAM BUNTING begs to inform the Trade and public generally that he has taken the above premises and the entire nursery stock as purchased of the assignees, and hopes by careful attention and persevering industry to secure such favours as were bestowed on his predecessors.—Oct. 3.

SAFFRON WALDEN NURSERIES, ESSEX.

HOLLYHOCKS.—The Annual Descriptive Catalogue, with Hints on their Culture, Exhibition, &c., may be had of William Chater, by enclosing one postage stamp.

	Per packet—s.	d.
Seed saved from 20 varieties, fine mixed.. ..	5	0
Ditto 12 ditto	2	6
Ditto good ditto	1	0

CAMELLIAS.—Fine home-grown healthy bushy Plants, full of flower buds.

25 choice named varieties, 2 to 3 feet	£3	10*s.*
12 " " "	1	15
25 " " " extra plants.. ..	5	0
12 " " " "	2	10

No charge for packing.

The attention of the trade is invited to a large Stock of fine Double White, fimbriata, imbricata, and other choice varieties full of bloom buds, at 10*l.*, 12*l.* 10*s.*, and 15*l.* per 100.

John Henchman, Edmonton, near London.

NEW PELARGONIUMS.

JOHN DOBSON AND SON beg to announce that they are now sending out the following beautiful varieties, which they feel assured will attain as great popularity as any set ever offered.

	s.	d.		s.	d.
Aurelia (Beck's).. ..	31	6	Letitia (Beck's)	31	6
Bellona (Beck's).. ..	31	6	Julia (Dobson's).. ..	31	6
Constantine (Dobson's) .	21	0	Octavia (Dobson's) ..	21	6
Charmer (Dobson's) ..	21	0	Signora (Beck's).. ..	31	6
Fairest of the Fair (Beck's)..	31	6	Siren (Beck's)	31	6
			Vestal (Beck's)	21	0
Fancy (Dobson's) ..	21	0	Rosalia (Dobson's) ..	21	0

The usual allowance to the Trade. Catalogues may be had on application.—Woodlands Nursery, Isleworth, W.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. May & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

NOW READY FOR SENDING OUT.

GEORGE SMITH begs to offer fine strong Plants of the following new and superb Collection of Show GERANIUMS, including the best of the new Flowers sent out in the autumn of 1856, raised by Mr. Hoyle, Mr. Turner, Mr. Beck, Mr. Dobson, and Mr. Foster, at 36*s.* per dozen, viz.:—

Hoyle's—Bianca, Agnes, Matilda, Polly, Rose, Raglan, Review, Standard, Marvellous, Viola. Turner's—King of Scarlets, Miss Foster, Spotted Gem, Queen of the Fairies, Mr. Beck, Mr. Hoyle. Beck's—Emperor, Ardens, Florence, Selim. Dobson's—British Queen, Alexander. Foster's—Flora and Symmetry. Also a first-class collection of older kinds of the above, and the most choice of fancy, spotted, scarlet, and variegated kinds at a moderate price. Package and hamper free, with plants to compensate for carriage. A Descriptive Catalogue will be forwarded in exchange for one postage stamp.

*** Unknown correspondents forwarding a remittance with their orders will be liberally dealt with. Post-office orders made payable at Holloway, Middlesex.

Tollington Nursery, Hornsey Road, Islington, London.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s.*—James Carter & Co., Seedsmen, 238, High Holborn, London, W. C.

FINE ROSES FOR THE MILLION.

New Rose Stock, Surpassing all Others.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, John Morgan, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, AMERICAN PLANTS, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

SEEDLING GERANIUM "Larkfield Rival," a pure white with small pink spot, each truss from 6 to 11 large flowers of a lasting nature like the fancy varieties: a most abundant bloomer, being a mass of flowers for several weeks; was advertised when in flower, and all who saw it considered it the best white in cultivation. Stout plants, 7*s.* 6*d.*; extra strong 2-year old, 15*s.* each.

ROSE "Isabella Grey," grafted plants, from 9 to 12 inches, or small on own roots, 5*s.* each.

Isaac Davies, Larkfield Nursery, Wavertree, near Liverpool.

A. VAN GEERT, Nurseryman, Ghent, Belgium, begs to inform Amateurs and the trade his new general CATALOGUE is just published, containing all the best Continental novelties, and many interesting useful plants. A. V. G. begs to recommend particularly his Collections of Camellias, Indian and Ghent Azaleas, Hardy and other Rhododendrons, Liliums, and Herbaceous Pæonies, which are cultivated to a great extent in his establishment.—May be had on application to his agent, Mr. R. Silberrad, 5, Harp Lane, Tower Street, London.

TO BEE-KEEPERS.—Sow now to bloom next season MELILOTUS LEUCANTHA var., Echinops paniculata, and eight varieties of our splendid Scabious for a rich supply of honey. 6*d.* a packet each, free.—E. Persac & Co., Seedsmen and Florists, 253, High Street, Exeter.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Oct. 3.

NOTICE is hereby given, that the Partnership heretofore subsisting between the undersigned JOHN SODEN, the younger, and EDMUND BUTCHER, of the Grove Nursery, Middle Barton, Oxfordshire, as Nurserymen and Seedsmen, is this day dissolved by mutual consent. All debts due or owing from the late partnership will be paid by the said John Soden the younger, and all debts due to the late Firm are required to be paid to him.—Dated this 16th day of September, 1857.

John Soden, jun.
Edmund Butcher.

CHARLES M'INTOSH, F.R.P.S., Landscape Gardener, Garden Architect, &c., Newcome Villa, Murrayfield, Edinburgh. London address: Messrs. P. Lawson & Son, 27, Great George Street, Westminster.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.

2, Randolph Road, Maida Hill, London, W.

JOSEPH MEREDITH, Garden Architect and Hothouse Engineer, Vine Cottage, Garston, near Liverpool. Heating Apparatus fitted up on the most approved principle. First class references may be had.

TREE TRANSPLANTING BY MACHINE. PRACTICAL LANDSCAPE GARDENING, ORNAMENTAL PLANTING, DRAINING, &c., by Contract or otherwise. Designs and Estimates given on moderate terms. The Machines let by the week, with men if required.

W. H. Rumbold, Tunbridge Wells, Kent.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps.—Manufactured by John Fisher & Co., Label Works, Boston, Lincolnshire.

THE MURRAIN! THE MURRAIN!

Every Feeding-box and Cow-house should be White-washed at once with

M'DOUGALL'S DISINFECTING POWDER. It destroys the germs of disease, and scattered about occasionally gives the worst smelled stable, piggery, water-closet, or hen-house a pure atmosphere. It adds largely to the value of manure. Testimonials of its extraordinary efficacy may be seen by the hundred.—Price, per cwt., 10*s.* 6*d.*; or 10*l.* per ton. Orders of 10 cwt. and upwards delivered free. It is also sold in bottles at 1*s.*; and packages at 1*s.*, 6*d.*, and 4*d.* each.—Address, Messrs. A. Herriot & Co., 2, Great Scotland Yard, Whitehall, London, S.W.

DRAINAGE PIPES AND COLLARS.—Several hundred thousand 2-inch PIPES and COLLARS WANTED, to be delivered on the Basingstoke Canal between the Camps at Aldershot, or at the Ash or Farnborough Railway Station. Parties having these to supply may send tenders stating the quantity they can deliver before the 1st February, 1858, with the price and samples, to Messrs. Girdwood & Thompson, Drainage Engineers, 49, Pall Mall, London.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—Saturday, October 3, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 41.—1857.] SATURDAY, OCTOBER 10. {Price Fivepence. {Stamped Edition, 6*d*.

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HORTICULTURAL SOCIETY OF LONDON.—**GREAT FRUIT EXHIBITION AT WILLIS'S ROOMS, OCTOBER 24.**

Tickets can now be had at 21, Regent Street, price 2*s*. each to the bearers of Fellows' Orders, or 2*s*. 6*d*. each to the public; and also at 2*s*. 6*d*. each of Messrs. Charlwood & Co., Tavistock Row, Covent Garden; Noble & Co., 152, Fleet Street; Henderson & Co., Pine Apple Place, Edgware Road; Henderson & Son, Wellington Nursery, St. John's Wood; Hurst & M'Mullen, 6, Leadenhall Street; Lawson & Son, 27, Great George Street, Westminster; J. & C. Lee, Hammersmith; Osborn & Son, Fulham; Veitch & Son, King's Road; J. Weeks & Co., King's Road; Wrench & Sons, London Bridge. After October 17 all Tickets will be 2*s*. 6*d*. each, and on the day of Exhibition 3*s*. 6*d*.

It is earnestly requested that intending Exhibitors will apply for the space they may require by Saturday, October 17, to Mr. M'Ewen, Horticultural Gardens, Chiswick; and that all Fruit be delivered at 21, Regent Street—at the latest—on Friday, October 23.

ERYTHRONIUM DENS CANIS, DOG'S TOOTH VIOLET.

WM. CUTBUSH AND SON beg to offer the above beautiful early spring flower in quantities at 10*s*. 6*d*. per 100, or at 2*s*. per dozen.—Highgate Nurseries, London, N.

DOUBLE SNOWDROPS.—The Trade supplied with DOUBLE SNOWDROPS in any quantity.—Prices may be had on application to Clarke & Company, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.
Lyncombe Vale, Bath.

MYATT'S SEEDLING STRAWBERRY—FILBERT PINE OF TURNER'S.—Strong plants of this variety, that has "maintained its position so well at the Slough Nursery," can be supplied at 2*s*. 6*d*. per 100, packed and delivered to any address in London free. No less quantity than 100 sent out.—W. Myatt, Manor Farm, Deptford, S. E.

UNDERHILL'S SIR HARRY STRAWBERRY.

WILLIAM WHITEHOUSE has to offer strong healthy young plants of the above at 16*s*. per 100, or 2*s*. 6*d*. per dozen. References can be had from gentlemen whom he has served with plants for the last two years. Plants sent over to compensate for long carriage. Post-office orders payable in Birmingham.

Mount Pleasant Nursery, Harborne, Birmingham.

EARLY POTATOES.—The improved Lemon Kidney. Small quantities of this excellent variety carefully selected (see last No. of Royal Agricultural Society of England Journal) may be had on application to John Holm, the Parsonage, Morecombe. Price 5*s*. per stone.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7*s*. 6*d*. per bushel for present payment only. No agent employed.

New Park, Lymington, Hants.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. Raynbird, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

WINTER TARES, GIANT RYE, TRIFOLIUM, WINTER OATS, AND WINTER BARLEY FOR GREEN CROPS IN SPRING.—The present being the proper season for Sowing the above, the undersigned beg to say they have a fine stock of this season's crop of SEED.—For prices apply to Clarke & Company, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

BROWICK RED WHEAT.

MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s*. 6*d*. per bushel, including sacks.—Address to Mr. Slingsby Bethell, Worting Wood Farm, Basingstoke, Hants.

N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all other kinds of Wheat supplied at market prices. Samples sent on application.—Address H. Raynbird, Basingstoke, or 27, Seed Market, Mark Lane.

NEW GIANT RYE.

CHISNELL AND SON, of Colchester, have to offer Seed of their New GIANT RYE, which is quite distinct and in every way superior to the common. A specimen of the straw was exhibited at the Royal Agricultural Show at Salisbury, and highly commended in the report of the Society. Price 1*l*. 10*s*. per peck.—Sole Agents, Charlwood & Cummins, 14, Tavistock Row, Covent Garden, London.

YOUELL AND CO.'S GENERAL PRICED CATALOGUE is now published, and may be had post free on application.—Royal Nursery, Great Yarmouth, Oct 10.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

CHEAP PRICED CATALOGUE.

W. W. DAVIS'S DESCRIPTIVE CHEAP PRICED CATALOGUE of all the best and newest Roses, Chrysanthemums, Pansies, Antirrhinums, Verbenas, &c., is now ready, and may be forwarded gratis upon application, enclosing one postage stamp.

Nurseries, St. Mary's Hill, Newbury, Berks.

MESSRS. L. JACOB MAKOY & CO., Nurserymen, Liege, Belgium, beg to inform Amateurs and the Trade that their CATALOGUES OF PLANTS, &c., may be had Gratis of their Agent Mr. R. Silberrad, 5, Harp Lane, Great Tower Street, London, E.C.

ROSES.

THE DESCRIPTIVE CATALOGUE OF ROSES FOR 1857-8, by Thomas Rivers, is now ready for delivery. It has been compiled with much care, so as to serve as an efficient guide to the Rose Amateur. Sent free per post on application.—The Nurseries, Sawbridgeworth.

NEW ROSE CATALOGUE FOR 1857-58.

WILLIAM WOOD AND SON are now issuing copies of their new ROSE LIST. It will be sent gratis to all their customers, and to others free on application.

The autumnal Roses are now in fine bloom.

Address, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

12,000 TEA-SCENTED ROSES,
On their own Roots in Pots.

WM. WOOD AND SON have much pleasure in offering the above splendid stock of Tea Roses, which they have no hesitation in stating cannot be surpassed in this or any other country.

The plants offered are strong and bushy, in 48 sized pots, comprising all the most esteemed varieties, at 12*s*. to 18*s*. per doz.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIMEN TEA-SCENTED ROSES
in 6-inch pots for exhibition at 30*s*. per dozen.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s*. 6*d*. to 21*s*. each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s*.—James Carter & Co., Seedsmen, 238, High Holborn, London, W. C.

CAMELLIAS.

CHANDLER AND SONS solicit attention to their large Collection of young CAMELLIAS, beautifully set with flower buds, 20*s*., 30*s*. & 42*s*. per dozen, package included.

CHINESE AZALEAS.

CHANDLER AND SONS' large stock of CHINESE AZALEAS, equally well set with flower buds, at from 18*s*. to 30*s*. per dozen.

CRIMSON RHODODENDRONS.

CHANDLER AND SONS have also to offer a large number of CRIMSON RHODODENDRONS, finely set with flower buds, at from 5*s*. to 10*s*. 6*d*. each.

Nursery, Wandsworth Road.

HOLLYHOCK SEED, &c.

JOHN CHATER AND SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7*s*. 6*d*.; 18 ditto, 4*s*. 6*d*.; best mixed, 200 seeds, 1*s*. 6*d*.; 400 ditto, 2*s*. 6*d*. Fine-named sorts in good plants now ready, 8*s*. per dozen.

Nurseries, Haverhill, Suffolk.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s*., including package.

Epps's Nurseries, Maidstone.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. Cobbett's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

GRAPE VINES FROM EYES.

R. GLENDINNING has to dispose of an immense Stock of all the best kinds, some of which are grown for fruiting next season, strong, and well ripened; also a few magnificent plants in pots of Black Hamburgh, with two years' wood, which would at once furnish a house. Bowood Muscat and Golden Hamburgh can also be supplied.

Chiswick Nursery, W.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

Wm. C. & Son strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s*. to 10*s*. each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

THORNS, LAURELS, PORTUGAL DITTO, AND YEWS.

CHARLES DALY AND SON has 100,000 Common Laurels to sell at 15*s*. per 1000; Portugal ditto, good plants, at 4*s* per 100; Seedling Forest Trees, 1-year Seedling Thorns, 1 and 2-year Transplanted Thorns, and Irish Yews, 1 to 5 feet. Prices sent free by post of what they have to offer.

Coleraine, October 10.

SPIRÆA CALLOSA, see Dr. Lindley's Leading Article, August 1. Can be supplied in the autumn at 18*s*. to 30*s*. per dozen, by Charles Noble, the Nursery, Bagshot.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, established in single pots, at 30*s*. per doz., or 6*l*. 5*s*. per 100. No charge for packing.—John Henchman, Edmonton, near London.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2½ feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pot culture.

John Waterer, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

FARFUGIUM GRANDE.—This magnificent plant, the plant of the season, for at all the Metropolitan Exhibitions it has taken first-class prizes, will be sent out the last week of the present month. Early orders are respectfully solicited, as the stock is limited, 63*s*. each. The usual allowance to the trade.

R. Glendinning, Chiswick Nursery, W., October 10.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 35*s*. per 100. Many of the kinds are well suited for forming edgings to clumps of American plants.

John Waterer, American Nursery, Bagshot, Surrey.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden.

LAURELS.

WANTED, a few Thousand Young LAURELS.—Address, with lowest price, delivered at Sydenham, to Mr. Newman, 25, Laurence Pountney Lane, Cannon Street, London.

PINE PLANTS.

WANTED, from 15 to 20 Plants for Fruiting next May or June; also Succession and young Plants of the Queen and other good varieties.

Address T. Miles, Hurstpierpoint, Sussex.

PINE PLANTS FOR SALE.—39 showing and in Fruit; 22 largest sized succession; and 105 next sized plants.—Apply to Mr. Turner, Royal Nurseries, Slough.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.

William Young, Milford Nurseries, near Godalming, Surrey.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50*s*. per 100.—Epps's Nurseries, Maidstone.

SEAKALE SEED FOR SALE.—Also strong one-year old roots, fit for forcing this year.—Apply to G. Bagley, Market Gardener, West Drayton, Middlesex.

TO THE TRADE.

FOR SALE, about 3000 well-grown STANDARD, HALF-STANDARD, AND DWARF ROSES of all the new and leading kinds.—Further particulars on application to X. Z., Post Office, Maidstone.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21s. the pair, including package and carriage to London. Good named varieties, 12s. per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12s.

Mixed seed, saved from fine double flowers, 1s., 2s. 6d., and 5s. per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30th, Crystal Palace.—12 Roses in pots, First Prize.

June 3d, Chiswick.—12 Roses in pots, Second Prize. The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.

June 18th, Royal Botanic Society.—50 Cut Roses, First Prize.
Do. do. 10 Roses in pots, Second Prize.

June 24th, Brighton.—50 Cut Roses, First Prize.

June 24th, Manchester.— Ditto, Second Prize.

The Manchester and Brighton Shows were on the same day.

July 1st, Royal Botanic Society.—24 cut Roses, First Prize.
,, do. do. 50 ,, First Prize.
,, 2d, Stamford Hill.—50 cut ditto, First Prize.
,, ditto, collection ditto, First Prize.
,, 9th, Diss.—50 cut Roses, First Prize, Silver Cup.
,, do., 100 ditto First Prize, ,,
,, 15th, Stamford.—12 ditto, First Prize, ,,
Sept. 9, Crystal Palace.—50 do. First Prize, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18s. to 24s. per dozen, as Standards, and from 12s. to 18s. per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season **in order that little or no loss may be incurred by removal.** Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, one mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, claubrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara . } 1 to 10 ft. The largest and finest stock in the country.
,, Africanus }
Cedar of Lebanon }
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
,, austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Picea Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pinea ster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18s. per dozen, and upwards; Dwarfs, 6s. per dozen, and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

NEW PELARGONIUMS.

JOHN DOBSON AND SON beg to announce that they are now sending out the following beautiful varieties, which they feel assured will attain as great popularity as any set ever offered.

	s.	d.		s.	d.
Aurelia (Beck's)	31	6	Letitia (Beck's)	31	6
Bellona (Beck's)	31	6	Julia (Dobson's)	31	6
Constantine (Dobson's) .	21	0	Octavia (Dobson's) ..	21	6
Charmer (Dobson's) ..	21	0	Signora (Beck's)	31	6
Fairest of the Fair (Beck's)	31	6	Siren (Beck's)	31	6
			Vestal (Beck's)	21	0
Fancy (Dobson's) ..	21	0	Rosalia (Dobson's) ..	21	0

The usual allowance to the Trade. Catalogues may be had on application.—Woodlands Nursery, Isleworth, W.

SEEDLING FOREST TREES, AND ONE-YEAR QUICK.

To the Trade.

THE SUBSCRIBER has a large stock, of very superior quality, of the undermentioned:—

1 year Larch Fir, very fine	1 year Silver Fir
1 year Birch, 9 to 18 ins.	1 year Scotch Fir
1 year Alder	1 year Quick
1 year Sycamore	2 year Larch Fir
1 year Ash	2 year Scotch Fir
1 year Beech	2 year Spruce Fir
1 year Pinus austriaca	2 year Silver Fir

The above Seedlings can be relied on to be strong and healthy and low in price, which can be had, with samples, on application to Michael Burke, Nurseryman, Drumlargan, Summerhill, Co. Meath, Ireland. Carriage paid to Liverpool.

NEW AZALEA INDICA.—QUEEN VICTORIA (Ivery)—pure white ground, rich and large purple flakes, extra large flowers. Plants of this very fine, distinct, and truly **beautiful variety are now ready to send out, large worked** plants, 21s.; small not worked, 7s. 6d. each, with the usual discount to the trade. Received a Certificate at the National Floricultural Society, May 26, 1857; figured in the "Florist," July, 1857. Also all the best varieties in cultivation, from 18s. per dozen and upwards, strong plants well set with flower buds.

W. I. also begs to offer the undernamed new and distinct GERANIUMS, strong plants:—

	s.	d.		s.	d.
Atrato (Hoyle's) ..	2s.	6d.	Arab (Dobson's) ..	5s.	0d.
Alexander (Dobson) ..	5	0	Conspicuum (Turner's)	7	6
Emperor (Beck's) ..	7	6	Matilda (Hoyle's) ..	7	6
Miss Foster (Turner's)	5	0	Prince of Prussia (Turner's)	10	6
Quadroon (Beck's) .	3	6	Rose Raglan (Hoyle's) ..	5	0
Spotted Gem (Turner's)	10	6	Viola (Hoyle's)	7	6

The above set, 50s.

FANCY GERANIUMS.

	s.	d.		s.	d.
Beauty of Slough (Turner's)	5s.	0d.	Queen of Roses (Turner's)	2s.	0d.
Carminatum (Turner's)	5	0	Emperor (Turner's) ..	5	0
Evening Star (Henderson's) .. .	2	0	Masterpiece (Turner's)	2	0
Mrs. Coleman (Turner's)	7	6	MdmeRougier (Turner's)	7	6
			Queen of Crimsons (Turner's)	2	0

The above set, 25s.

Also a very superb stock of ROSES on their own roots in pots, very strong, and consisting of all the best variety of Tea-scented, Bourbon, Hybrid, Perpetuals, Noisette, China, Hybrid China, and fine Climbing Roses at reasonable prices.

Also a very fine stock of DELPHINIUM FORMOSUM, strong roots, 6s. per dozen, or 40s. per 100.

DEUTZIA GRACILIS, fine for forcing, 9s. to 18s. per dozen.

W. I. can also recommend his general Nursery Stock of Fruit Trees, Evergreens, &c., which are very fine this season, hardy Climbers of all varieties, large and fine Plants in pots, Strawberry Plants of all the best varieties in cultivation (cheap).

Catalogues can be had free on application.

William Ivery, Hanover Nursery, Peckham, S.E.

THREE THOUSAND AZALEA INDICA.

WILLIAM BARNES has for Sale the above number of INDIAN AZALEAS, and has no hesitation in saying that for health, shape, and cleanliness, they are not to be surpassed by any collection in this or any other country. All the best kinds are worked upon vigorous healthy stocks, and can be supplied in nearly all sizes and heights, as well as those upon their own roots, which are literally covering the pots with their branches, and are finely set with bloom buds. The following list comprises a small portion of his extensive stock:—

Admiration	Eulalie Van Geert	Mrs. Fry
Adolphe	Extransi	Perfecta elegans (true)
Alba meloir	Fentoni	Perryana
,, magna	Gem	Petuniæflora
,, striata	Gledstanesi excelsa	Princess Mary of Cambridge
Ardens	,, formosa	Queen of Perfection
Ascendens	Glory of Sunning Hill	Queen Victoria
Aurora	Holfordi	Reine des Belges
Barclayana	Impératrice Josephine	Roi Leopold
Beali	Iveryana	Rosy Circle
Beauté d'Europe	Juliana	Ruckeri
Beauty of Reigate	Lateritia alba supreme	Sir C. Napier
Chelsoni	,, grandiflora	Stanleyana
Constantia rosea	Lawrenciana	Striata formosissima
Countess of Stamford	Leeana	Symmetry
Crispiflora	Louis Napoleon	The Bride
Criterion	Lucens	Trotteriana
Delicatissima	Magnificans	Vesta
Duke of Devonshire	Madame Miellez	Violacea superba
Elegans superb	Maria	
Empress Eugenie		

As well as every other known variety worth cultivation.

W. B. would respectfully invite intending purchasers to an inspection of his unrivalled stock, which will give them the opportunity of making their own selections. A great many are splendid specimen plants fit to exhibit at any horticultural show in the world. Prices, which are exceedingly low, can be obtained on application. W. B. would further state that his plants are perfectly free from Thrip (which is almost universal in its ravages), and that purchasers will be supplied with the most effectual method of keeping them ever free from their attacks. Camden Nursery, Camberwell, S.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends to a great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

AZALEA INDICA

The Greatest Novelty of the Season is

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10s. 6d. and 21s. A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

SEEDLING ERICAS.

OBBATA PURPUREA.—Shape and size similar to its parent obbata, but is suffused with plum colour purple large whorls of flowers of great substance, and continues blooming for many weeks; it is one of the finest Ericas ever seen. Good plants 10s. 6d. to 21s.

MAIDSTONIENSIS.—An excellent variety for exhibition; tube long, colour bright rosy red, extra substance, fine form, and habit, quite distinct from anything out. Was awarded **first-class certificates in Regent's Park.** Fine plants, 5s., 7s. 6d., and 21s.

TRICOLOR EPPSI.—This beautiful Heath is a hybrid of great merit, early and free flowering, large whorls of flowers, colour scarlet shading off to white, and very glossy; a first-rate variety for exhibition; decidedly the finest tricolor out. Was awarded first-class certificates at Chiswick, Regent Street, and the National Meeting. 10s 6d., 21s., and 42s. 5s. the Set.

Epps's Nurseries, Maidstone.

ROGERS'S NEW CINERARIAS.

To be sent out last week in October.

PRIDE OF UTTOXETER.—Intense bright crimson, with purplish maroon disc, good form, dwarf grower, the most distinct and beautiful ever offered. (This gained a first-class certificate at the Midland Horticultural and Floral Society, Derby, in 1856.) Plants, 10s. 6d. each.

ADMIRATION.—Bright sky blue, with white round a pale buff disc, good form and habit; of a most exquisite colour, resembling Nemophila insignis. Plants, 10s. 6d. each.

LORD PALMERSTON.—Bright rosy crimson, with white round a dark rosy circle; the petals of this are of unusual width, making it one of the largest and best formed varieties ever offered, bearing a very broad head of bloom. Plants, 10s. 6d.

The following three were sent out in the autumn of 1855:—

ALMA, one of the best grown white, dark purple edge, 1s. 6d. each.

EUPATORIA GENTIANA.—Blue, with crimson round a dark disc. 1s. 6d. each.

INKERMANN.—Rosy, with bright buff disc, 1s. each.

The usual discount to the Trade, and further reduction if ordered by the dozen.

Geo. Rogers, Seedsman and Florist, Uttoxeter.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is **most delicate and graceful, the branches bend upwards at the** end like an ostrich feather, the top shoot droops like a Deodar: the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable **really hardy trees ever introduced to our country.**

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10s. 6d. each; 12 do. do., 5l. per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. Joseph May & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Oct. 10.

UNEQUALLED NEW STRAWBERRY—RIVAL QUEEN.—This has proved to be the very best variety ever yet sent out, possessing all the good qualities for which a Strawberry is required, viz., flavour, considered by competent judges to be superior to that fine variety the British Queen. The fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the Strawberry season; the plants are of a dwarf habit and very hardy, will force well and continue fruiting for several successive seasons without being renewed; the above has been the admiration of all who have seen them while in fruit, and will be sure to give the greatest satisfaction to all purchasers. Now ready **for sending out strong** well-rooted plants, 1l. per 100; 5d. for **11s., hamper and package free;** 25 for 6s.; 12 for 4s., post-age free.

VIOLA ARBOREA, or Perpetual Tree Violet, small plants, 3s. per dozen; extra fine, 5s. per dozen.

DOUBLE WHITE ditto, small plants, 3s. per dozen; extra fine, 5s. per dozen.

NEAPOLITAN ditto, 2s 6d. per dozen; or 5s. per 100.

RUSSIAN SUPERB ditto, small plants, 3s. per dozen; extra fine, 5s. per dozen

FINE SCARLET GIANT BROMPTON STOCKS that have all been pricked out, 4s. per 100; many of the spikes this season having measured from 18 to 24 inches in length, and most of them double.

SWEET WILLIAMS grown from seed selected from the very choicest varieties, 4s. per 100.

ANTIRRHINIUMS selected from all the best spotted and striped sorts, 4s. per 100.

FINE SEEDLING HOLLYHOCKS from one of the most superb collections in cultivation, 1l. per 100; or 3s. per dozen.

DIGITALIS, or Foxglove Seed from above 24 spotted and striped varieties, 1s. per packet. Strong plants of the same, 1s. 6d. per dozen; 10s. per 100.

NEW WHITE CUCUMBER PERFECTION.—This beautiful black spine Cucumber has proved itself to be equally as good for winter as summer use; length in winter from 12 to 18 inches, 2s. 6d. per packet.

LORD KENYON'S FAVOURITE, true, 2s. per packet.

POLYANTHUS SEED from all good named sorts, 1s. per packet.

ANTIRRHINUM SEED from the best varieties, 1s. per packet.

SWEET WILLIAM ditto, 1s. per packet.

HOLLYHOCK SEED from all best double flowers, 1s. per packet.

No charge made for hamper and package. A remittance must accompany every order by cash or penny postage stamps.

Edward Tiley, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE of DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

BULBS, &c.

BASS AND BROWN'S

No. I. CATALOGUE (free on application)

CONTAINS their superb Collection of BULBS AND FLOWER ROOTS, HERBACEOUS PLANTS, CONIFERÆ, SELECT EVERGREENS AND SHRUBS, ORNAMENTAL CLIMBERS, ROSES, FRUIT TREES, &c. The following choice named collections are greatly admired and will be highly approved.

GLADIOLUS.

12 splendid Early varieties, 6s.; 12 extra	10s.	6d.
12 splendid varieties, ramosus habit, 6s.; 12 extra	12	0
9 splendid varieties, gandavensis habit	12	0
50 splendid varieties, a selection of Early and Late	40	0
50 splendid varieties do., including newer	55	0

Colvilli, 2s. per dozen; floribundus, 2s. 6d. per dozen; gandavensis, 2s. 6d. per dozen.

HYACINTHS.

Fine selections, per dozen, 6s. and	9	0
Double, in separate colours, without names	3	0

IRIS.

8 beautiful varieties of Iris pumila, flowering April and May	3	0
40 beautiful varieties of germanica, flowering May and June	30	0
40 splendid English varieties, flowering June and July	18	0

ANEMONES.

50 superb double varieties	12	6
11 superb varieties for clumping, 6 roots of each	12	6
La Brillante Eclatante, extra single, bright scarlet, per 100	7	6

RANUNCULUSES.

100 beautiful varieties, superb Scotch, and others	30	0

Turban, per 100:—Scarlet, 3s.; Golden, 4s.; Seraphique, 4s.; Hercules, White, 18s.

TULIPS.

30 beautiful Early varieties	7	6
60 roots, fine double, in 10 varieties	10	0

CROCUS.

20 splendid and very distinct varieties, 12 roots of each	10s.	6d.
named vars., separate, 3s. to 7s. 6d. per 100; in colours, per 100	2	0

Choice Ixias, Sparaxis, Oxalis, Narcissus, Liliums, and an extensive collection of other Bulbs. See Catalogue.

Roots, in mixtures of colours, of fine quality.

Gladiolus, early varieties, 15s. to 25s. per 100; per dozen	2s. to 3	6
Iris, English, 10s. to 15s. per 100; per dozen, 1s. 6d. to	2	6
" germanica, 15s. to 21s. per 100; per doz., 2s. 6d. to	3	6
Anemones, double, per 100	6	0
Tulips, early and double, 10s. 6d. per 100; late do., 6s. to	15	0
Narcissus, Polyanthus varieties, per dozen	2	6
Anemones, single, 4s.; double, per 100	6	0

CHRYSANTHEMUMS.

HANDSOME GROWN PLANTS, FULL OF FLOWER BUD.

20 Pompons, best vars., 15s.; 12 best new	15	0
12 large flowering do., 9s.; 12 best new	15	0

ROSES.

100 Standards, choicest varieties	£6 to £8	8 0
100 Dwarfs, "	45s. to £5	0 0
Extra plants, in pots, for forcing, per dozen	£1	4 0

HERBACEOUS PLANTS.

100 fine showy vars., 30s.; 100, including new	50	0
20 fine varieties Phlox	10	0
26 superb do., including Catharine Sax, Madame Fontaine, &c.	30	0
24 superb do., of other new striking varieties	36	0
12 beautiful varieties Potentilla	6s. to 12	0
12 " Antirrhinums	6s. to 9	0
ROCK CISTUS, 24 beautiful varieties	15	0
GREENHOUSE PLANTS for winter and early flowering, 12 fine and choice	21	0

Remittances requested from unknown correspondents. Post-office orders payable to BASS & BROWN, or STEPHEN BROWN. Carriage free (not under 20s.) to all the London Termini, or to all Stations on the Colchester Line between London and Norwich

BASS & BROWN, Sudbury, Suffolk.

FRUIT TREES.

THOMAS RIVERS begs to submit to the Public the following synopsis of his FRUIT TREE CULTURE, which is this season the most complete and extensive in Europe.

APPLES, on Crab Stocks.—Standards for orchards, pyramids, dwarfs, and dwarfs trained for espaliers.

APPLES, on Paradise Stocks, for gardens.—Pyramids, dwarf bushes, dwarfs trained for espaliers, and dwarf bushes in pots.

APRICOTS.—Standards, standards trained, half standards trained in pots, dwarfs, dwarf bushes for potting, dwarfs trained for walls, and dwarfs in a fruiting state in pots for orchard houses.

CHERRIES, on black Cherry Stocks.—Pyramids, full of bloom buds, standards, standards trained, dwarfs, and dwarfs trained.

CHERRIES, on the Mahaleb Stock.—Dwarf bushes for potting and culture as bushes, dwarfs trained for walls, and dwarf bushes in pots.

CURRANTS.—Dwarf bushes, including some new and fine varieties.

FIGS, in pots, in a bearing state.

GOOSEBERRIES.—Small, high-flavoured, old sorts, and all the large new Lancashire varieties.

GRAPES for Vineries, from eyes, in pots.—Strong plants, two and three years old; ditto, in pots, dwarf bushes for orchard houses; ditto, hardy sorts from the open ground for walls.

MEDLARS.—Standards and dwarfs.

MULBERRIES.—Standards and dwarfs trained for walls.

NECTARINES AND PEACHES.—Standards, standards trained, half standards in pots, dwarfs, dwarfs trained, and dwarfs in a fruiting state in pots for orchard houses.

NUTS AND FILBERTS.—Dwarf bushes and standards 4 feet high, grafted on the Hazel Nut.

PEARS on Pear Stocks.—Standards, standards trained, dwarfs, dwarfs trained for espaliers and walls, pyramids six years old, twice or thrice removed, in a bearing state. These are adapted for gravelly and chalky soils unfavourable to pyramids on the Quince Stock.

PEARS on Quince Stocks.—Standards trained for walls, pyramids, pyramids root-pruned, in a bearing state; dwarf bushes in a bearing state, for potting, or for culture as bushes; upright dwarf trained dwarf bushes in pots, in a bearing state, for orchard houses.

PLUMS.—Standards, standards trained, dwarfs, dwarf bushes for potting or for garden culture, dwarfs trained for espaliers and walls, dwarf bushes in pots for orchard houses, and pyramidal trees in a bearing state.

QUINCES.—Standards of the common Quince, and pyramids of the large Portugal Quince.

RASPBERRIES.—Canes of the finest varieties.

STRAWBERRIES.—Runners of the finest varieties, fine plants in 14-inch pots, for forcing or for orchard houses.

WALNUTS.—Standards and dwarfs for gardens of the Dwarf Prolific Walnut, and other varieties.

The Descriptive Catalogue of Fruits, which is so arrandge as to point out to those commencing fruit culture the most select varieties, is now ready for delivery. It contains 32 pages of original and useful matter, and will be sent free on receipt of six stamps, to customers gratis on application.

Nurseries, Sawbridgeworth, Herts, Oct. 10.

POPULAR SHOW GERANIUMS.

JOHN DOBSON AND SON beg to announce that they are now prepared with a very large and healthy stock of the varieties named below to execute any orders they may be favoured with. Any 12 of the varieties may be selected for 42s. The plants are unequalled:—

Admirable	2s.	0d.	Lucy	1s.	0d.
Amethyst	5	0	Laura	2	0
Arale	5	0	Marvellous	5	0
Ardens	5	0	Mr. Beck	3	6
Alexander	5	0	Mr. White	2	6
Bianca	3	6	Miss Foster	5	0
British Queen	5	0	Matilda	5	0
Bouquet	2	6	Marion	5	0
Carlos	1	6	Meteora	2	6
Conqueror	2	6	Pallas	1	6
Conspicuum	2	0	Prince of Prussia	5	0
Delicatum	2	6	Rose Raglan	2	6
Eclipse	5	0	Rubens	5	0
Emperor	7	6	Rosamond	1	0
Evelyn	2	6	Sanspareil	1	0
Florence	5	0	Symmetry	5	0
Gem of the West	2	0	Selim	7	6
General Williams	5	0	Spotted Gem	5	0
Governor-General	1	0	Standard	5	0
King of Scarlets	5	0	Viola	5	0
			Wonderful	2	0

Catalogues may be had Post-free on application.

Woodlands Nursery, Isleworth, W.

MESSRS. J. AND H. BROWN offer, and will forward to any part of the kingdom,

25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, on their own roots	20s.	0d.
25 Azaleas, do., American varieties, do.	16	0
12 Hardy Rhododendrons, scarlet, rose, and white	12	0
Hardy scarlet Rhododendrons, 2 feet per doz.	15	0
Hardy Heaths, Ledums and Kalmias "	6	0
Greenhouse Azaleas, new varieties per doz. 12s. to	15	0
Camellias, choice sorts with buds per doz.	30	0
50 choice Greenhouse Plants, one of a sort	45	0
24 Ericas, one of a sort, small pots	16	0
Choice Chrysanthemums, large and small, per dozen	8	0
Violets, fine double winter flowering "	6	0

CHOICE FRUIT TREES.

Standard and dwarf-trained Peaches, Nectarines, Apricots, Cherries, Plums, and Pears, 2s. 6d. each, or, per dozen	28	0
Fine Plants of all the above grown, especially for pot culture, per dozen	18	0
Figs, Apples, Medlars, Mulberries, and Walnuts, each	2	0
Gooseberries, Currants, and Raspberries, per dozen	3	0
Filberts, new, thin shelled and red skinned "	4	0
Choice Grape Vines "	20	0

Fine Ornamental Trees and Evergreens supplied in any quantity.

Albion Nursery, Stoke Newington, London, Oct. 10.

NEW GARDEN SEEDS.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have just purchased the old established and extensive Business of MESSRS. WILLIAM E. RENDLE AND CO.

The Company are now harvesting and laying in their stocks of NEW AND GENUINE SEEDS for the coming season.

Extensive and commodious Warehouses are now being erected for facilitating the conduct of a greatly extended trade; and with a large capital the Company will be in a position to compete with the first houses in the kingdom

The SEED PRICE CURRENT AND GARDEN DIRECTORY (late RENDLE'S), will be published shortly, and Copies will be forwarded to all who have had transactions with the late Firm.

The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

DUTCH FLOWER ROOTS.

THE SUBSCRIBERS beg leave to intimate the arrival, in fine condition, of their first consignment of DUTCH FLOWER ROOTS for this season, consisting of Hyacinths, Polyanthus, Narcissus, Jonquils, Crocuses, Tulips, &c., priced Catalogues of which may be had on application. Early orders are respectfully solicited.

PETER LAWSON & SON, the Queen's Seedsmen, &c. &c., 27, Great George Street, Westminster.—Oct. 10.

ROYAL EXOTIC NURSERY, CHELSEA.

SPLENDID ORANGE TREES, CAMELLIAS, AND AZALEAS.
STANDARD BAYS, LAURUSTINUS, AND PORTUGAL LAURELS, in tubs.
PYRAMID BAYS, BOX, VARIEGATED HOLLIES, in tubs.

JAMES VEITCH, JUN., having received from France and Belgium a fine importation of the above Trees, suitable for Conservatories, Lawns, Terrace Gardens, &c., begs respectfully to solicit an inspection of the same. To persons not able to visit the Nursery prices will be given on application.

Chelsea, Oct. 10.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 10, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, October 13—Horticultural ..... 2 P.M.

THE HORTICULTURAL SOCIETY'S SEASON is about to commence, and promises to be one of much activity. On Tuesday the first meeting takes place in Regent Street, for the Election of new Fellows. On Saturday the 24th Octo er is the great fruit show, open to all the world, at Willis' Rooms, the particulars of which have now been fully advertised; and on the same day the Florentine Camellias will be formally distributed by lot among the 4 guinea Fellows who shall have applied for them. Early in January Prof. LINDLEY is to deliver half a dozen lectures on Elementary Botany to Fellows and their friends. In February, March, and May meetings will be held in London as usual. In April there is to be a great London meeting for the Exhibition of spring Flowers and Fruit. The second week in June is to be devoted to a grand Exhibition at the Garden of flowers, fruit and horticultural implements, a trial of lawn mowing machines taking place on the Tuesday, the Exhibition itself being held on the Wednesday and Thursday, and the merits of the various heating apparatus forming the subject of a lecture on the Friday. July is to produce a grand exhibition of fruit, Roses, Ferns, &c.; and in the same month half a dozen lectures on Botany applied to Horticulture will close the season.

The schedules for the Exhibitions of 1858 are in a state of forwardness, and we believe that some rather important alterations or additions may be expected. We know that Prof. LINDLEY himself offers prizes for a new class of Roses in pots: and we understand that Messrs. VEITCH intend to devote 10*l.* to prizes for the Golden Hamburgh Grape, either next year or the year after. We fear however that the Committee will still delay extinguishing the very uninteresting, very costly, and now threadbare collections called "Mixed Stove and Greenhouse plants."

In the Garden itself considerable changes are taking place. The ground is covered wherever space can be found with Kitchen Garden crops, exhibiting the quality of different kinds of vegetables in every season; the large iron conservatory is converted into a noble Vinery, whose roof affords 9000 square feet, to be eventually covered with specimens of all the more important table Grapes. A Strawberry slope, many hundred feet long, has been planted with all the modern celebrities of that sort. Measures are also in progress for fruiting the vast collection of Figs; and these form only a part of what is done, or about to be done.

The measures taken for procuring seeds from foreign countries are beginning to tell. Some from Peru have arrived, and more are on their road. Others are expected from Mexico, Cuba, and South Australia.

With respect to the approaching fruit show we understand that the display is likely to be one of

the highest interest. The fine summer has brought all kinds of fruit to an unusual state of perfection, and intimations are received from all quarters that the competition will be extremely brisk. Among others M. Liron d'Airolles, a highly distinguished horticulturist of Nantes, has given notice that he intends to produce a collection of fruit of such magnificence that he desires to offer it, after the show, for the acceptance of Her Majesty. We hope that at least our French and Belgian neighbours will also enter the field; that their produce would do them honour we cannot doubt. Since they will only enter into competition with each other, and not with English gardeners, the latter will have nothing to fear from a continental climate, nor foreigners from the artificial shelter which fruit necessarily receives in our unfavourable summers.

If, as we trust, exhibitors will be careful to mark their fruit neatly and exactly with the names it bears with them, the exhibition will have a greatly increased interest for all lovers of gardens, who will thus have an opportunity of seeing how far climate can modify quality, how far skill can subdue climate, and in what the varieties grown in their own gardens require improvement. The accurate naming of fruit must of necessity rest with the exhibitors themselves, for in conducting such an operation as the ensuing fruit show, Mr. M'Ewen and his assistants can by no possibility undertake other duties than such as belong to the general arrangement. Considering indeed the large number of competitors who are likely to take part in this exhibition, the mere management of details will be found a sufficiently formidable task. We therefore strongly recommend every one to give at least one week's notice of what he intends to send, and moreover all who can possibly do so, to send their collections to town by Friday morning the 23d at the latest. There can be no doubt that exhibitors will thus effectually promote their own interests, for those collections will of course be best placed and best displayed upon which most time can be bestowed before the meeting. Upon these and all other points information can be promptly obtained from Mr. M'Ewen, if letters are addressed to him at the Garden of the Horticultural Society, Chiswick, London, W.

A very singular case, illustrative of the remarks which were lately made in this Journal on the effects of the mycelium of Fungi arising from dead wood upon neighbouring plants, occurred a few years ago in Northamptonshire. A Golden Rose, remarkable for the size of its flowers, and a great favourite from the peculiar circumstances under which it was planted, was the subject of conversation amongst a party of friends, who were admiring its beauty, and alluding to the matter of interest with which it was associated. Though apparently in the most vigorous health, the next day it was withered as if killed by a stroke of lightning. The mystery however was soon developed. On examination the roots were found to be covered with a white web of mycelium, which was evidently of extraneous growth. Other instances have occurred of a similar character in the same garden, and we have in consequence been convinced that the principal reason why trees will seldom succeed where an old one has died is due to fungi arising from the decayed roots. Evidence of a like kind will be found in Loudon's Arboretum under the article Larch. The principle, however, is of far wider extent. A disease was noticed some years since in several parts of England, but especially at Ely, where it is known under the name of Copper Web, as attacking Asparagus. It is due to some mycelium, known to botanists under the name of *Rhizoctonium*, but of which the perfect form has not yet been ascertained. In France it is the pest of Lucerne, Chicory, Saffron, and of several other objects of cultivation. We believe that it is always traceable either to dead vegetable bodies in the neighbourhood of the roots, or to more recent substances like sawdust mixed in the manure, as reported in this Journal, 1847, p. 603. It is well known, again, that tender annuals often damp off in a frame without any apparent cause. Where leaf-mould or matter from the base of faggot ricks imperfectly rotted has been mixed with the soil, mycelium developed on the little fragments attacks the roots and kills them, and we have found the same effect arise from lumps of hard cowdung mixed with compost, which are very apt to produce mycelium.

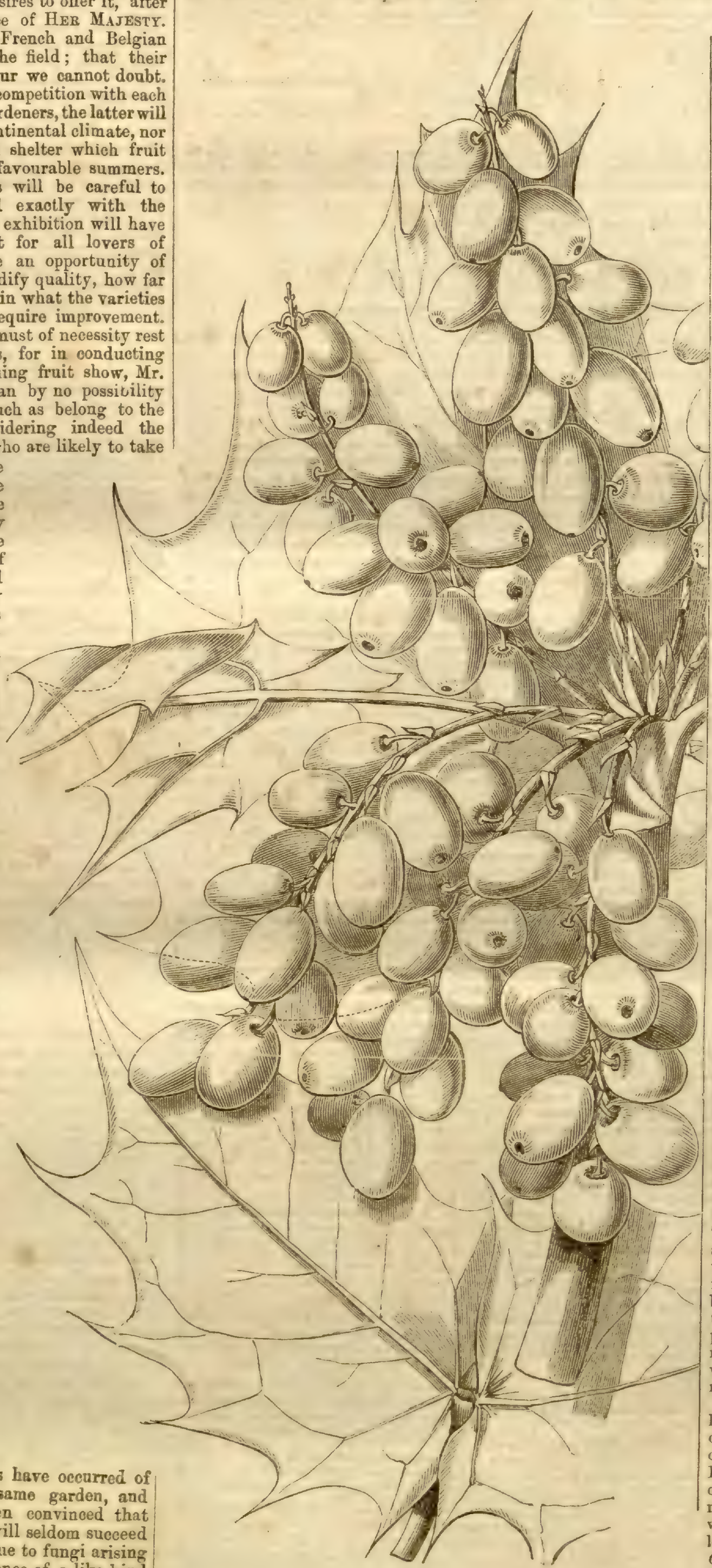
The fungi of which this mycelium is the infant state in many cases could by no possibility be developed upon the plants which it destroys, but it should seem as if there was a peculiar tendency in many fungal threads to produce decomposition upon tender cellular tissue with which it may come in contact, and if one cell only be attacked, the taint may easily be communicated from cell to cell in any direction which may be least capable of resistance. If there is any truth in the notion, which within certain limits can scarcely be denied, that particular roots have an especial reference to particular branches, we have a ready solution of the mystery, that one branch should perish while the rest of the tree is healthy. Especial attention has been called to this point in the articles on Vegetable Pathology under the genus *Cladodystrophia*, *Gard. Chron.* 1856, p. 301. In some cases injury no doubt arises in a different way from contact with decaying vegetable matter, where no mycelium may be produced, and the effect may be precisely the same. An interesting account of injury arising from such a cause is given in the *Bibliothèque des Chemins de Fer* in Payen's treatise on the maladies of several objects of cultivation. It is matter of experience that Sugar Beet is extremely subject to decay when sown on ground which had formerly borne a crop of the same vegetable. The plant is one which sends down a long tap-root into the ground, and when the crop is removed, a large portion of this generally remains behind, though at a considerable depth beneath the surface. When the tap-root of the new plant strikes down to this depth, as it will naturally do if vegetation is vigorous, the tender spongelets are affected by the old putrescent roots, and the decay is soon carried upwards, to the destruction of the crop.

The inferences from the subject are obvious, and show the necessity of increased care in many quarters of the garden, where matters have long been left to take their chance. *M. J. B.*

BERBERIS JAPONICA.

When Mr. Fortune was in China in 1848, he discovered and sent to this country three new Berberries, viz., Beali, intermedia, and japonica; and unquestionably there are no finer hardy evergreen shrubs in cultivation than these are. As I do not recollect having seen any published drawing of the berries of either of these plants, I beg to submit to your notice a sketch of those of B. japonica. When ripe they are similar in colour to those of B. aquifolium, but in size (and in this respect they are somewhat irregular) they more nearly resemble Grapes. Their appearance is indeed very fine and rich. As indicated in the drawing they are borne in terminal racemes, at first erect, but subsequently, as the berries colour, pendent. Since I made the drawing from which the accompanying sketch is taken, I have seen many plants on which the berries were very much more numerous than those represented.

The foliage, too, is very fine. Each leaf usually consists of four or five pair of leaflets and a terminal one. Portions of these are represented in the sketch. From 12 to 18 inches is the usual length of an entire leaf. The three species named are perfectly hardy, and succeed well in a soil composed of good fibrous loam and decayed leaves or manure. *George Lovell, Bagshot.* [We should add that Mr. Lovell's excellent figure was made from a plant in the nursery of Mr. Standish, of Bagshot.]



ORNAMENTAL GARDENING.—No. II.

A garden may be defined as an artificial arrangement of natural objects, calculated at once to gratify the eye, to awaken pleasing emotions in the mind, and withal adapted to the comforts and convenience of man in an advanced state of civilisation and refinements; for under such conditions alone is he

capable of appreciating and enjoying to their fullest extent the emotion of pleasure which a garden awakens. "Without gardens," says Lord Bacon, "buildings and palaces are but gross handy-works; and man shall ever see that when ages grow to civility and elegance, men come to build stately sooner than to garden finely, as if gardening were the greater perfection." This passage, which has in part been quoted threadbare, I venture to quote again because it contains a great truth—a truth which becomes if possible every day more apparent. It is not that to create a garden a more advanced state of artistic knowledge is required than that which could conceive and execute a stately building; but that the mind must, truly to appreciate the simple but refined teaching of a garden, be much in advance of that which is merely excited into admiration by the grandeur of a building.

The true objects of a garden once thoroughly understood, a great part of the difficulties attending the arrangement of one are overcome. The end is in view, and the path leading to it is clearly open. There are, however, certain preliminaries, which though not strictly speaking gardening operations are, nevertheless, so intimately connected with, and have so near a relation to them, that their early discussion in these papers becomes a necessary duty.

The position of the house with reference to the ground to be laid out as a garden is of course a subject of importance, and requires to be carefully studied; but where the domain is large and includes a considerable extent of land to be devoted to a park, upon which masses of wood already exist or are to be planted, the position and style of the residence should be studied in connection with the scenery as a first consideration—the site of the garden must, as a general rule, be secondary to this. A modern house well situated in its own grounds, if they are of any extent, should always command two distinct and independent scenes from its windows—the one composed in the main of landscape scenery, to which everything in that direction is subordinate; in the other garden scenery, with all its artificial accessories, will be the principal feature. If distant and pleasing views can be conveniently and appropriately admitted or retained so much the better; but it must never be forgotten that a garden and a landscape are in many instances wholly antagonistic, and that to admit the claims of both in the same situation is often but to destroy the beauties of both.

The style and position of the house then with reference to the surrounding scenery being a subject entirely within the province of artificial landscape, and having little or no connection with gardening proper, will be more appropriately treated under that head, apart from the immediate subject of discussion.

But the interior arrangement of the house, even though its exact position may not have been decided on, claims more than a passing notice here, because in whatever situation it may be placed, such arrangement must either favourably or otherwise affect the disposition of the garden. Unfortunately most persons building a new house, and contemplating a garden, either forget or do not deem it necessary to consider the two in connection, the latter claiming no attention till the former is nearly completed. The result is, in the majority of instances, an inconvenient and by no means artistic connection between the house and grounds, in place of a well arranged and convenient whole. Nothing is more common than to find, especially in suburban vilias, some of the private, or what should be private, rooms with their windows on the entrance front, and the kitchen and other offices commanding the best views on the garden front of the building. With such a disposition of the house it becomes impossible to obtain either privacy in the garden or retirement in the living rooms. These are glaring errors, and only call for a little early consideration to be remedied. Gilpin, in his invaluable "Hints on Landscape Gardening," observes on this head—"Whilst speaking of the house I cannot omit a circumstance, the inattention to which has spoiled two-thirds of those which I have seen—I allude to the entrance. In a Grecian or Italian edifice it may be essential that the entrance should occupy one of the fronts; in which case I think it quite essential that the living rooms should not be on the same front; on the contrary, we frequently see the entrance on the south front, and the drawing-room or library exposed to the gaze of the servants from the carriage, whilst the windows, which should have opened upon the embellishments of a terrace or a pleasure ground, look upon a sweep of glaring gravel; indeed, it is not unusual to meet with the conservatory on a line with the hall door." Every one who has thought upon the subject at all will subscribe to the justice of these remarks. The same errors are, however, constantly repeated. But a short time since upon being consulted with reference to a new garden, I found the arrangement of the house, as planned (it was fortunately not built), placed the entrance door in such a position that, to reach it, the carriage drive must have crossed the garden front immediately before the windows of the principal living rooms, to the total exclusion of all privacy, either in them or in the garden.

There is no question that the house and grounds, of whatever extent, should be considered as a whole, if a pleasing and convenient arrangement is to be effected. The garden must be treated in many respects as an extension of the living rooms, devoted to the pleasure, luxury, and convenience of their owner, and demanding the same attention as regards privacy and retirement; and any circumstance in their arrangement which is antagonistic to these essentials is a violation of the true purposes of a garden. No mere adherence to precedent or deference to custom must be allowed to overrule the claims of comfort and convenience in a garden; these qualities may be antagonistic to a landscape or a mere prospect, but they are at least among the legitimate elements of a garden.

The approach to the house may appropriately claim a brief notice here. One can hardly conceive that so simple an affair could have furnished matter for the many pages which have been written on it. Repton's simple but just definition contains the principle upon which every approach road should be formed, and if that principle were oftener adhered to there would be fewer examples of the eccentricity of road making. "An approach," he tells us, "is a road to the house, and to that principally." About this there ought to be no possibility of mistake. The main approach should both in its direction and in its appearance assert its purpose. If other roads branch from it they should be wholly of a subordinate character. There should be no necessity for placing, as is frequently done, a hand post with the impertinent sentence, "the back road to the house" staring you in the face. Any approach road to a mansion which requires such an accessory must without doubt be a faulty one. An easy and direct route to a residence having once been decided on, it is the business of art to render it tasteful and appropriate. Neither should any attempt be made to affect a grand approach. Mr. Smith in his "Parks and Pleasure Grounds" very justly remarks on this head that "of all the follies committed in the laying-out of [the grounds of] country residences, the fine approach may be allowed to wear the crown." If pleasing scenery can without affectation be brought into view from it, by all means embrace it; but let there be no straining after effect. The object of the road is to enable visitors to reach the house as quickly and conveniently as possible, and everything else must be subordinate to that.

The unity of expression and harmony of parts which should exist in the grounds of a well arranged and well-kept residence are often sadly marred by decorating (?) the approach road, especially near the house, with beds of flowers. This is a practice which, except under peculiar circumstances, is in bad taste and ought not to be tolerated. But I must defer the discussion of the question for the next article. *George Lovell, Bagshot.*

BREEDING OF SALMON.

It is a sad pity that so many of our best salmon rivers should be obstructed by those abominations called weirs, by which that king of fresh water fish, the salmon, as Izaac Walton truly calls him, is rendered scarce and dear compared with what it would be if the male and female were allowed to get to the upper parts of streams to breed. Near the mouth of the Severn, so celebrated for its salmon, there are I understand extensive traps to catch the fish before they can ascend, and it is only a few that escape up stream. How is it possible in such a case that when the breeding fish are so destroyed, the race can become plentiful? For the benefit of a few persons therefore the community must suffer. In our own river, the Teme (which falls into the Severn, near Worcester), just by the latter city, at Howick, there is an extensive weir, 12 or 14 yards I should think on an incline, over which no salmon can possibly get (as there is not water sufficient for them except in floods), and there are many more obstructions, though not so extensive, up the river. Although we do, therefore, see perhaps one or two fish during the season, those are all; contrasted with which I have been told as a certainty that before these weirs were established, the apprentices' indentures at Ludlow expressly stipulated that they should not be compelled to eat salmon more than three days a week, as being too luscious. There is no danger of this now.

Already most obnoxious monopolies have been compelled to give way before public opinion, and why should not this? What an admirable feeder the Teme with its many tributaries would be to the Severn, if it had but fair play. The landowners on both sides the rivers should agree together to try by courteous means at first to buy out the rights (if there are rights) of the owners of the weirs, or to have salmon ladders built as in Scotland, and jealously guarded, that the fish might be allowed to come up to breed in the upper parts of the streams instead of being intercepted at the mouth, or if no agreement can be arrived at, let them join to get an act of Parliament, to which all private monopoly must give way. It is true this may cost something considerable, but be it remembered they are working not only for themselves but for those who come after them; and moreover, sport and profit both will be the immediate result. Consider what a benefit it would be to have hold of a lively 10 lb. or 20 lb. fish at the end of a line, where you may just as well expect to find a whale while the present impediments exist.

I have searched in Daniel, in Scrope, in Blaine, and in Yarrell, for the quantity of spawn or eggs usually deposited by a female salmon, but without success; however in the Penny Magazine for 1837, under the head Salmon, it is stated:—"They are from 17,000 to 20,000 in number, according to an experiment made by boiling the roe, and counting as many as would fill a certain measure, the rest being subseqnently estimated." For every female fish captured in spawn, therefore, there go at least 17,000 young fish, and say again that owing to floods, destruction by other fish, &c., of the spawn, half of these should perish, still that would leave a right goodly number of young ones to stock a river; but all this is prevented by weirs. At Shrewsbury I have observed fishermen quietly navigating the Severn in those clever but cranky affairs coracles, and catching the salmon peel by dozens—as well may the farmer eat the chick that has just broken the shell, as the residents on the banks of a salmon river catch the smolts. Many contend the latter are a distinct breed and not the young of the salmon, but why are they called lasprings or last-springs? The excellent account given of them in Scrope's Days of Salmon Fishing will convince any unprejudiced person that the smolts or lasprings are really young salmon, and for every dish so caught, delicious though they may be, must be considered a future sacrifice. The description in Scrope of the changes the young salmon undergoes in its progress towards maturity is illustrated by three beautifully coloured plates. He says: "Hitherto the parr and smolt have been considered as different species, but that they are precisely the same I think may be demonstrated. The received opinion and that which the present law of Scotland acts upon is, that the salmon fry of the winter and spring congregate and go down to the sea in the May of the same season, and that they are of a pure silver colour, as indeed more or less they are. Now, in all salmon rivers parrs are to be found in abundance through the summer and early in the spring; and in the summer they are not of a silver colour but marked with red spots and are shaded with vertical bars on their sides at intervals. From the appearance of these bars they are very generally supposed to be of a distinct species from the smolt. Permit me to give my reasons for entertaining a contrary opinion. After May the large parrs totally disappear, and such few as may be found afterwards are very small; but as the summer advances they become larger, and in the spring following the bars and spots above-mentioned gradually die away, and a stronger armour or scale supervenes; and as that is more or less advanced in growth, the bars and spots are more or less visible. When they are in this silvery state, that is when the new scales are perfected, they become what are called smolts or salmon fry; but by removing such new scales you will find the bars and spots of the parr underneath as clear and vivid as ever. I have therefore a positive conviction that the salmon fry instead of falling down to the sea the same year they are produced, remain in the river, under the name of parrs, till the year following"—(in a note he says, "Mr. Shaw has since proved they remain in fresh water still longer")—"that they increase little in size we cannot be surprised at, as it is universally known that the salmon himself wastes from the moment he comes into fresh water."

To a committee before the House of Commons Doctor Brewster (since Sir David) stated—"I have examined very carefully the crystalline lenses of the parr sent, which I find to be the same with those of the salmon, which is a strong confirmation of your opinion." I must add that these parrs, as they are called, are never found but in salmon rivers, or in such as have an uninterrupted communication with them; and that they cannot be the young of the bull trout, as the formation of the tail in that fish is wholly different." These and other arguments have from time to time occurred to me. All conjecture, however, on this subject has now become superfluous; Mr. John Shaw, of Drumlanrig, having demonstrated by a number of careful and scientific experiments that the parr is actually the young of the salmon. He made three ponds, with banks so raised and otherwise constructed that it was impossible for the young fish to escape, or for any other fish to have access to them. "Being thus prepared," says Mr. Shaw (alluding to the construction of the ponds), "I proceeded to the river Nith on the 4th Jan., 1837, and readily discovered a pair of adult salmon engaged in depositing their spawn. They were in a situation easily accessible, the water being of such a depth as to admit of my net being employed with certain success. The fish were accordingly captured by means of a hoop net; the ova were then pressed with the hand from the body of the female, and impregnated by the milt of the male, transferred to a private pond expressly prepared, and the skins of the parent salmon kept to prevent any doubts. Twenty-seven days after this spawn was hatched the young fish had consumed the yolk which remains attached to the lower part of the body, and which serves him for nourishment, and the 'characteristic bars of the parr had become distinctly visible.'" All these young died from a deposit of mud except one, but, undaunted by this failure, on 27th Jan., 1838, he captured a male fish of 16 lbs., and a female of 8 lbs., expressed the ova of the female, impregnated with the milt of the male, and deposited the spawn in a private pool as before, to which no fish could by possibility have access. Fifty-four days after impregnation the embryo fish were visible to the naked eye; 101 days after impregnation they burst the envelope.

Mr. Shaw then proceeds to describe the size and appearance of the salmon fry at different periods of their age, by very accurate engravings. "One of these is a specimen 'two years' old, when it has assumed its migratory dress, and measures about 6½ inches, the average size." "Two years," mark this; and only 6½ inches long. It then goes to sea in May, and returns in two or three months as may happen, when it is called a grilse, and is then from 4 to 7 lbs., and sometimes considerably more, in proportion to the time it remains in the sea. "The circumstance," Mr. Shaw says, "of male parrs with the milt matured and flowing in profusion from their bodies being at all times found in company with the adult female salmon while depositing her

spawn in the river, and the female parrs being in every instance absent, suggested the idea that the males were probably present with the female salmon at such seasons for sexual purposes. To demonstrate the fact," he continues, "in January, 1837, I took a female salmon weighing 14 lbs. from the spawning bed, from whence I took a male parr weighing 1½ ounce, with the milt of which I impregnated a quantity of her ova, and placed the whole in a private pond, where to my great astonishment the process succeeded as perfectly as with the adult male fish—and the young had precisely the same appearance—the result from this experiment was of so startling a nature that it was not thought prudent to give it publicity until the trial was repeated. Early in January, 1838, therefore, two lots of eggs of a salmon weighing 18 lbs. were impregnated with the milt of two male parrs, and there ensued precisely the same result as before. Again, in December, 1838, four lots of ova from an adult salmon were impregnated with the milt of four parrs with similar success, and the same parrs being placed in a private pond assumed the migratory dress in the following May, not in the most minute degree differing from what in the Tweed are universally called smolts, and are acknowledged by all to be the young of the salmon." Again, on the 4th January, 1837, with a male parr, "itself the produce of a male parr and a female adult salmon," an experiment was made by expression of the milt to impregnate the eggs of a salmon weighing 12 lbs., and for the better security of the lot the whole was placed in a wooden trough, over which a sheet of fine copper wire-gauze was fixed—the trough was then placed in a stream of water previously prepared for its reception, and the results were precisely of a nature corresponding with those already detailed. Now, if the parr and the salmon are distinct species, their produce would be hybrids, and would not therefore breed again according to the rules of nature established to prevent the confusion of different species by a conservative law; but this last and most important experiment has proved that the produce from the male parr and female adult salmon will breed again with the old salmon, and therefore that such produce are not mules, but of the same species with their parent. So sayeth Scrope.

As I have incidentally mentioned a salmon ladder, and as many persons may not be acquainted with its construction I will just quote from the same book as follows:—"Mr. Smith of Deanston, in the Carse of Stirling, has invented a sort of stair by means of which salmon are enabled to ascend streams in full waters in spite of natural or artificial obstructions. One side of a river under a weir or cauld is separated from the main stream and intersected by transverse pieces of wood or stone, each of which reaches about two-thirds of the width of the gap; there are two ranges of these steps, one on each side, and the steps on one side face the centre of the interval between the steps on the other, so that the fish ascend from side to side in a zigzag direction, and can rest in their ascent should they find it necessary. This is a very ingenious contrivance, and it has been constructed on the Teith, near Doune, with complete success. But I conclude it can only come into operation in such floods as raise the water to a higher level than is required for the mill-dam; and therefore if rude steps of rolling stones were constructed at a portion of the back of the cauld, the end would be answered in a better manner, since the ascent might be made more gradual." Again:—"Salmon are led by instinct to select such places for depositing their spawn as are least likely to be affected by floods" (as near sources of rivers); and again he says, "a great deal of spawn is eaten by trout, and more especially by eels, who bore into the spawning beds." And again:—"When we contemplate these things we must at once acknowledge the vast importance of Mr. Shaw's experiments, for if ponds were constructed up the Tweed, at the general expense, after the model made by him, all these evils would be avoided. The fry might be produced in any quantities by artificial impregnation, be preserved and turned into the main river at the proper period of migration. There might at first be some difficulty in procuring food for them, but this would be easily overcome. At a very small expense and with a few adult salmon more fry can be sent to sea annually than the whole produce of the river at present amounts to, after having encountered the sweeping perils I have mentioned (whole spawn beds swept away by floods). Proprietors should call meetings for this purpose, and parrs, hitherto so called, should be protected by law. Let all who have an interest in rivers consider the wisdom of mutual accommodation. The proprietors of the lower part of a river are dependent on the upper ones for the protection of the spawning fish and the fry, and they on their part depend upon the lower ones for the strict adherence to the weekly close time."

Daniel's Rural Sports, vol. 2, states that the Scotch in early times had most severe prohibitions against unlawfully killing salmon. "From Saturday night until Monday morning they were obliged to leave a free passage for the fish, which is styled the 'Saterdaye's sloppe.'" Alexander I. enacted, "That the streame of the water sal be in all parts swa free, that ane swine of the age of three yeares, well fed, may turn himself within the stream round about, swa that his snowt nor taill sall not touch the bank of the water." Pity it is not so now. One more quotation from Daniel and I have done:—"Near Middleham, in Teesdale, there is a fall of water 20 yards high; below this fall there are plenty of salmon and salmon fry, but above the fry never were seen." Of course the height would prevent the salmon getting up. *F. N., Ludlow.*

Home Correspondence.

Was the Vine Disease known to the Ancients?—There is a passage in Pliny which appears to have some bearing on the present Vine disease. "Est autem peculiare Olivis et Vitibus quod araneum vocant, quum veluti telæ involvunt fructum et absumunt." It is to be found in the XVII book, c. 24, De Servandis uvis et morbis arborum. The way in which the passage is introduced would seem to indicate an occasional and local complaint, rather than any malady so widely spread as the present disease. But the symptoms of the disease described appear to bear a strong resemblance to the present attack. *E. V. N.* [This curious sentence Mr. Riley translates thus:—"There is still one other affection that is peculiar to the Olive and the Vine known as the "Cobweb," the fruit being enveloped in a web as it were, and so *stifled.*" We are unacquainted with the authority for translating absumo to stifle; if it means as usual to consume or destroy, it will have a great apparent relation to the Vine disease, although it will not suit the theory that the "web" was produced by some sort of maggot. We find nothing about this subject in the Geoponica, but perhaps some of our classical correspondents may remember passages relating to Pliny's *araneum.* Can that author have pointed to such a disease when he says "Sometimes too a pestilence will prevail in certain classes of trees, just as among men we see maladies attack at one time the slave class and another the common people, in cities or in country as the case may be" (*Bohn's Pliny,* III. 519).]

Potato Planting.—For the satisfaction of your Ayrshire correspondent I send the particulars of my experiment on Potatoes. They were planted in rows 15 yards each in a garden with a dry subsoil, which had for at least 50 years before been a pig-yard, and was therefore rank with manure. I give the weights in pounds:—

	Sound.	Rotten.	Total.
Walnut-leaf	8½	30½	39
Silver-skin	10	58	68
White Blossom	11	48	59
Golden Cluster	22	23	45
Fortyfold	26	28	54
Fluke	61	12	73

There was also a row of Regents which was not weighed yielding a little more than the Fortyfolds, but with sound and decayed apparently in the same proportion. The public is obliged to your correspondent for his statement as to the White Rock. If we are informed of its quality it will be an additional favour. Perhaps there will be no more effective method of evading the Potato disease than by availing ourselves of Nature's propensity to form varieties. In this parish the problem has received a proximate solution, and the Potato is cultivated with confidence. In the gardens adjoining the cottages where the soil is a heavy clay, the Walnut-leaf supplies the table to the end of July, by which time this crop must be consumed or sold, otherwise it is the destined prey of "botrytis infestans." The Fluke takes its place to the end of summer, when the late varieties in the allotments (where the soil is a light calcareous loam, with a porous rocky subsoil) are used until the early sorts are ready the next year, A well-flavoured early variety that will resist the rot is a desideratum. The quality is most important. I asked one of my allotment tenants with a large family why he grew Regents in preference to other kinds which produced more. "Because," he replied, "the Regent saves the meat. The children like it better and want less bacon." Another assured me that this variety was even most profitable for feeding pigs. "A chain of Regents," he said, "would produce at least as much bacon as a chain of the more productive in quantity." I hope that all your readers who have cultivated Potatoes which escape the murrain will inform the public of the names, quality, soil, and method of cultivation. *P. T. S.*

The Great Walnut Tree at Beachamwell.—In the village of Beachamwell, in Norfolk, may be seen a Walnut tree (Juglans regia), which spreads its "softly swelling hills" of leaves over the churchyard of All Saints' Church, now a ruin, as if it sought to mingle its leafy dust with human ashes. When this tree is arrayed in all its honours "fresh and green" it is an object interesting by its symmetry and gigantic proportions. The crumbling walls of the ruin, throwing their shadow far away and standing out in gray relief from the green turf beneath which the good forefathers of the village sleep in peace, offer a striking contrast to the huge mass of Walnut foliage, presenting a specimen of its kind seldom equalled. This tree has produced in one season 54,000 nuts, and its dimensions are as follows:—Circumference of the body of the tree near the ground, 32 feet; height of trunk, 10 feet; the circumference of the five large branches is 16 feet, 14 feet, 9 feet, 8 feet, 8 feet. The circumference of the extreme spread of the tree is 120 yards, and its estimated height is 90 feet. *R. Y. C., Shouldham.*

Potato Blight.—The following fact may offer a useful suggestion to some of your readers. In this neighbourhood the blight is very general—many growers having lost half their crops. A few days ago my gardener took up about 11 sacks of a sort which he calls the Scotch Regent, a round yellow Potato, and out of this number there were not half a bushel in the least affected, although the haulm was attacked and became decayed soon after the violent thunderstorms we had this summer. The peculiarity in the growth of this Potato is that it buries itself very deep in the ground, and to this it would seem is attributable its escape. For three years we have grown these Potatoes with similar success. *J. K. H., Berkshire.*

Deodars.—Is it true that the larger trees of Cedrus Deodara in England are beginning to die back and perish? I am told there is a general fear that this will be the case. *F. H. S.* [There is no reason to fear this.]

Seaweeds.—I observe with pleasure that the Society of Arts offers two prizes of 50*l.* and 20*l.* respectively for Essays on Marine Algæ, in relation to their uses for food and medicine. Some years ago (see *Gardeners' Chronicle,* Sept. 25, 1852) I made a few observations on the subject, calling attention to the adaptability of different kinds of Seaweeds as a source of profit, considered as food. I trust that the offer of prizes by the Society in question will be the means of directing the attention of many to the subject who are favourably situated as regards leisure and locality for instituting a thorough scientific and experimental research into the matter. If experiments should go to prove conclusively the value (for the purposes specified in the Society's announcement) of different species of Algæ, and of which I have little doubt, I think the matter would assume a national aspect as opening up a field of industry which might prove, without exaggeration, at least equal to the fisheries on our coast, for from the wonderful rapidity of growth in the Algæ there would be little danger of exhausting the stock, if the business were conducted in a judicious manner. The best mode of collecting as well as manufacturing the material would however be no unimportant part of the Essays in question. *William Hudson, Bridge Hill, Belper.*

Jerusalem Artichoke.—I have been here (Camberwell) now 18 summers, and I have not seen the Jerusalem "Potato" in flower till this year. It has a poor-looking yellow blossom, which measures over an inch and a half across; this year the stems of this plant have grown 10 feet in height. I am told that in the warm, dry, sandy soils of Putney and Fulham, on either side of the banks of the Thames, this variety of Artichoke flowered freely some 25 years ago or more; but I do not recollect the circumstance myself. Some advise cutting down its stems about half way; but this must be a mistake, as it stops the growth of the tubers and makes them still more watery than they already are, and it prolongs their growth too late in autumn. *James Cuthill.*

Falkland Island Box.—It may be interesting to know that there is a specimen of this beautiful Box now in a thriving condition in my garden. It is, I believe, the only living plant of the kind in England, and if not I shall be glad to be informed how I may best preserve it. I have likewise some very fine Australian Millet growing from seed I brought from that part of the world. Also some remarkably large Pumpkins from seed from the same quarter, besides very fine Vegetable Marrows. I shall be happy to show them to any one having an interest therein. *W. Parker Snow, Home Cottage, St. John's Hill, near Wandsworth.* [What is the plant here called Box?]

Glass.—What is the best glass to use in a house for plants with Vines growing under the rafters? The gardeners here complain of the common glass, through which, with the hot suns here (Torquay) the plants get burnt, and are using the ribbed glass, usually called Hartley's Patent Rolled Rough Plate, and they find that it saves the burning. I am just erecting a house, and should be glad of your advice as to the best glass to be used. *A. B. S.* [You cannot do better than use Hartley's Patent Rough Plate.]

Potato Disease.—From observations made during the past season, I am inclined to support the hypothesis regarding the intensity of the disease being greatly accelerated through the agency of nitric acid or ammonia being formed in the atmosphere during thunderstorms. Potatoes in this neighbourhood looked remarkably well for the first three months after planting, presenting scarcely any symptoms of disease until after June 19th, at which time a heavy thunderstorm broke over this place, which, in my opinion, greatly accelerated the rapid progress of the mycelium already generated in the haulm. Many of the tubers were diseased and fast approaching decomposition, and fears were entertained for the safety of the second early and later varieties. After a week or 10 days the weather became intensely dry and hot, so much so that it arrested (to a certain extent) the further progress of the malady. This kind of weather continued until after harvest, by which time the majority of the Potatoes were in a ripe state and fit for removal. On examining crops which have been taken up from various fields I find them generally small, although sound, and very good in eating, and on the whole disease in late varieties appears far less virulent than was apprehended in the beginning of July, which I think may be attributed to the extraordinary dry and hot weather experienced since that time. I find the following general rules most serviceable in preventing the virulence of the disease. 1st. To plant second early varieties in the beginning of March, in well drained sandy loam: ploughed deeply the previous autumn. 2d. To avoid the use of strong nitrogenous manures, preferring a dressing of lime in the spring before planting, or if the soil is very poor, to drill in with the tubers (or otherwise topdress) superphosphate of lime, or some other good concentrated manure. 3d. To take up and store

immediately they are ripe. The sorts I find best and most useful are as follows:—for first crop, Ashleafs; second and general crop, York Regents, Flukes, and Tiley's Emperor, the latter a new red Potato of considerable merit. *Solanum, Lyme Regis, Dorset, Oct.* 3.

Recipe for Killing Aphides.—In your Number of the 5th ult. I stated that the following would destroy both green and black aphis on flowers and fruit trees, viz.—4 lbs. rosin, 1 lb. soda ash, or 5 lbs. rosin, 1 lb. caustic potash; 3½ gallons water. Boil them together in an old iron pot until the rosin is dissolved. If caustic soda is used allow the dissolved rosin to settle to the bottom of the vessel, throw the supernatant mother liquor away, otherwise the rosin will not combine with an additional quantity of water. Add one quart of the dissolved rosin to three gallons of water, and syringe your trees or flowers with the solution, which is a rosin soup, and the effect is seen in a very short time by the disappearance of the aphis; care, however, should be taken that the solution is not too strong, otherwise the blossom buds may be destroyed as well as the aphides. In your Paper of the 19th ult. a correspondent, "A. W. B.," asks whether the above recipe could be safely applied to killing these pests in a greenhouse communicating with a drawing-room. The inventor of the method says he should not hesitate to apply the wash to plants before they came into flower; he never tried it to plants in full bloom, and would rather give them a thorough syringing previous to their flowering. If this were applied of the proper strength and carefully washed off afterwards, he does not doubt that the plants would be kept clean whilst in flower. *T. G., Clitheroe.*——As far as my experience goes, I have not found the slightest injury to any plant from using the above wash, if care is taken to dilute it sufficiently. I have not tried it on plants in flower, but should have no hesitation in doing so if troubled with the aphides, but would certainly prefer a few applications previously. I would advise "A. W. B." to dilute still further than recommended above in the first instance, and try a second application. He can make it a little stronger if he thinks proper; but I have found a second dose of the same strength very effectual when the first has not answered. Syringe the plants well with water five or ten minutes after the application. *P. G. O.*

Remedy for the Potato Disease.—Allow me to bring before your notice a proposed remedy for this widely-spread calamity which may not have been hitherto thought of or tried, and which has been suggested by Mr. James Drummond, gardener, near Edinburgh. His theory of the cause and prevention of the disease seems very rational, the first being ascribed to the continued cutting of the Potato, and the planting of the dismembered portions year after year, whereby the plant becomes weakened and liable to disease. The remedy he proposes is to replant from the native seed gathered from the wild Potato, which grows abundantly in the mountains of Chili in South America, as he avers the wild plant has never become diseased. He further states that in two or three years after planting the seeds would produce a matured crop of healthy Potatoes, and these again should be planted whole and widely set in the fields. This experiment would be attended with some trouble and expense, in employing competent parties to gather the seed and send it carefully home, but it is well worthy of a trial. *Enquirer, Edinburgh.* [Although we print this we must add that the remedy here talked of is a mere fancy. The experiment has been tried more than once and failed.]

Large Peaches and Nectarines.—A writer from near John-o'-Groat's cannot, I imagine, venture to put anything in the balance with your famed fruit growers in their more favoured climate of the south. Still, the weights recorded in the *Chronicle* do not differ much from what we are accustomed to see. One of a fine lot of Peaches sent from Trentham to Dunrobin the other day weighed 11½ ounces; Nectarines from the same place have weighed 8 ounces. *Charles M'Donald, Gardener, Dunrobin, Oct.* 5.

Mignonette Pepper.—Having seen in your columns some inquiries as to what this was, &c., I have enclosed a few grains or pods of what we cooks call Mignonette pepper; and perhaps you will say what seeds they really are. Though an Englishman I received most of my instructions in France, and from Frenchmen in England, but I have never known any other seed or mixture by the name of Mignonette. *W. B., Essex.* [It is Coriander seed.]

Orchid Disease.—Can you or any of your correspondents point out the cause why the brown or black spot, or what is commonly known as the Orchid disease, should have made such fearful ravages in most collections throughout the country within these last two or three years? *A Subscriber.* [It is probably because they are over heated, over watered, and under ventilated.]

Pampas Grass.—From the seeds that were sent me last year from the Horticultural Society I was fortunate to raise a great many plants, which are doing well. In a late Number of the *Chronicle*, p. 662, a specimen at Chelsea is noticed as having 20 spikes of flowers upon it. One at this place has 52, and is altogether extremely handsome. *Carclew, Oct.* 6.——Your Chelsea correspondent has, he says, a plant which has produced 20 spikes 20 feet high, and asks if that height is not very unusual. The oldest plants of this Grass are I believe in this neighbourhood (Dublin), but none have to my knowledge exceeded 12 feet in height. There is a specimen at this place planted five years ago, which has now 100 plumes on it, the majority of which are 11 feet 6 inches in height. Is there a major variety known to exist? *Knockmaroon.* [The males are very inferior in beauty to the females, and the latter vary a good deal.]

Potatoes.—We have just finished raising our Potato crop, and can report much more favourably as to absence of disease than in many previous years. Several sorts were sown:—the York Regents; a purple skin variety, which ripens rather earlier than the Regents, and is much esteemed for domestic use; the Fluke Kidney, and the Walnut-leaf Kidney. The York Regent was much more diseased than the other sorts, indeed, in one field nearly one-fourth of this kind were bad. The other three were very free from disease, and produced good sized well grown tubers. No farm-yard manure was employed, with the exception of a little plot of 5 poles, which was dug with the fork. This produced at the rate of 280 bushels per acre, not at all diseased, a result which I had not expected, since a very general opinion prevails that manure increases the disease. This is a question of much interest, as the produce is increased very largely by the addition of well rotted farm-yard manure. In one field 2 acres, 1 rood, 31 poles produced 316½ bushels of good sized sound Potatoes, 54 bushels of small, and 29½ bushels of diseased, making a total of 400 bushels, equal to 163⅔ bushels per acre nearly. No farm-yard manure was employed, and the management of the land was as follows:—The stubbles were ploughed about 6 to 7 inches deep at early winter, and left till March 3, when the sets were ploughed in, being placed about 5 inches deep 1 foot apart in every third furrow. Whole small sets were principally used. Two portions, each containing 42½ poles, receiving a dressing of superphosphate of lime in the one case, and phospho-Peruvian manure in the other; both these artificials are of excellent quality, sold by Messrs. Dixons, of Liverpool; about 4 cwt. per acre of each was employed. Ten poles of each were carefully weighed and compared with 10 poles which had not received any manure:—

	Cwt.	qrs.	lbs.	
No. 1.—4 cwt per acre of double phosphate of lime	4	3	8	best.
	1	0	13	small and bad.
	5	3	21	
No. 2.—No manure	4	3	17	good.
	1	0	10	small and bad.
	5	3	27	
No. 3.—Phospho-Peruvian, 4 cwt. per acre ..	4	3	26	good.
	1	0	10	small and bad.
	6	0	8	

The difference is so slight between the three that the variation of soil will probably account for it, and we must conclude that in this case at least the manures were useless. I was however informed by a farmer the other day that his crop had been nearly doubled by the use of superphosphate of lime. Such discrepancies are doubtless attributable to the different conditions under which the experiments took place; possibly in one case the soil may have already contained sufficient mineral matter in an available form. It will be interesting to notice whether the succeeding corn crop exhibits a greater luxuriance on the manured portions. I think there is no doubt that upon our soils Barley does benefit considerably from any unexhausted phosphate of lime that may be carried over for the Turnip crop. The soil upon which the Potatoes grew is a fair specimen of medium Cotswold land, easy to cultivate, rather stony, but 8 or 9 inches deep, growing excellent roots and Barley. *John Coleman, Royal Agricultural College.*

Societies.

Caledonian Horticultural, *Sept.* 10.—The following are some of the more important prizes awarded on this occasion:—Peaches: 1st, Mr. Campbell, Alva, with Red Magdalene and Catherine; 2d, Mr. King, with Red Magdalene and Royal George. Muscat Grapes: 1st, Mr. Ewing; 2d, Mr. Whitelaw; 3d, Mr. Edwards, Balbirnie. Plums: 1st, Mr. Whitelaw, with Washington; 2d, Mr. Goodall, with the same variety; 3d, Mr. Laurie, with Victoria. Jargonelle Pears: 1st, Mr. Geddes; 2d, Mr. M'Tavish; 3d, Mr. Joyce. Gooseberries: 1st, Mr. Tait, with Hedgehog; 2d, Mr. Thomson, with Warrington. Black Hamburgh Grapes: 1st, Mr. Laurie; 2d, Mr. Story. Highest Flavoured Bunch of Grapes: 1st, Mr. Laurie, with Grizzly Frontignan; 2d, Mr. King, with the same variety. Greengage Plums: 1st, Mr. Whitelaw; 2d, Mr. Geddes; 3d, Mr. Goodall. Phloxes: 1st, W. Blackwood, Esq., with President M'Carol, Jeanie Rouillard, General Brea, Alba perfecta, Madam Couslin, and Madam Rendatler. Verbenas: 1st, Mr. Dunlop, with Victory, Admiral Dundas, Mademoiselle Piccolomini, Géant des Batailles, Auguste Manget, Madame Restauria, Madame Plantamour, Miss Trotter, Loveliness, Esther, Defiance, and Gloire de France. Best collection of Turnips of the following kinds: Early Dutch, Snowball, Stone, Yellow Altringham, Finland, Golden Stone, Malta, Orange Jelly, Felton, Bortsfield, Round Black Skinned, Pink Top White: 1st, Mr. Tait. Dahlias: 1st, Messrs. Downie & Laird, with Anne Rawlings, Lord Raglan, Lord Cardigan, Duchess of Wellington, Mrs. Edwards, Lollipop, Lord Palmerston, Beauty of Slough, Primrose Perfection, Princess, Lady Franklin, Fanny Keynes, Miss Caroline, Admiral Dundas, Rachel Rawlings, Perfection, Mrs. Legge, Duke of Wellington, Reginault, Incomparable, Bessy, Ruby Queen, Cherub, Lady Popham. The following blooms were specially noticed by the judges: Cherub, Admiral Dundas, Lady Franklin, Mrs. Legge, and Bessy; 2d, Mr. T. H. Douglas, with Lord Palmerston, Fanny Dodds, Colonel Wyndham, Beauty of Slough, Robert Bruce, William Tell, Fenella, Touchstone, Fairy Queen, Lady Franklin, Minnie, Lord Bath, Yellow Beauty, Perfection, Royal Scarlet, Duchess of Wellington, Princess, Duke of Wellington, Empress, Lollipop, Lady Popham, Cherub, Mrs. Wheeler, Roland. In this stand the following flowers were unusually fine:—Lord Palmerston, Lady Franklin, Touchstone, and Royal Scarlet; 3d, Mr. Handasyde, in whose stand were fine blooms of Fanny Dodds, Annie, Lady Popham, and Admiral Dundas. 12 Dahlias (gardeners or amateurs): 1st, Mr. Sivewright, with Lady Popham, Midnight, Perfection, Yellow Beauty, Touchstone, Royal White, Eclipse, Annie, Bessy, Lord Palmerston, Cherub, and Mrs. Wheeler. In this stand the most noticeable were—Cherub, Lady Popham, Royal White, and Touchstone; 2d, Mr. Turner, with Lady Palmerston, Empress, Pre-eminent, Lady Franklin, Duchess of Wellington, Lollipop, Beauty of Slough, Princess, Annie, Lady Popham, Perfection, Yellow Beauty. The finest in this stand were Beauty of Slough, Annie, and Lord Palmerston. 6 Dahlias produced by growers of not more than 30 plants: 1st, Mr. King, with Lord Palmerston, Princess (which was fine), Pre-eminent, Lollipop, Annie, and Beauty of Slough; 2d, Mr. Cuthbertson, with Lord Palmerston, Beauty of Slough (a good flower), Lollipop, Empress, and Yellow Beauty. Fancy Dahlias (nurserymen): 1st, Messrs. Downie & Laird, with Carnation, Lady Paxton, Mrs. Hansard, Tam o'Shanter, Jonas, Conqueror, Eugénie, Topsy, Lady S. Douglas, Pigeon, Enchantress and Magician. Fancy Dahlias (amateurs): 2d, Mr. Walker, with Carnation, Mrs. Hansard, Eugénie, Enchanter, Topsy, Triomphe de Roubaix. Best bloom in the room: 1st, Messrs. J. & R. Thyne, Glasgow, with Colonel Wyndham. Spikes of Hollyhocks (nurserymen): 1st, Messrs. Downie & Laird, with Souvenir, Standard, Miss Nightingale Improved, Hon. Mrs. Ashley, Dysart Beauty, Miss Ashley, Beauty of Cheshunt, Salmon King, Autocrat, Lizzy, and Memnon; 2d, Messrs. Ballantyne, with Joan of Arc, Queen of Fairies, Lady Middleton, Eva, Queen of the Bulls, Empress, Lilac Model, Penelope, Solfaterre Improved, Juno, and Mrs. Oakes. Hollyhocks (amateurs): 1st, W. Blackwood, Esq., with Queen of Fairies, Sulphur Queen Improved, Masterpiece, Memnon, Mrs. Oakes, Empress, Lady Middleton, Beauty of Dysart, and Solfaterre; 2d. Mr. Thom, with Lemonade, Glory of Cheshunt, Lemonade Improved, White Globe, Brennus, Hon. Mrs. Ashley, Beauty of Cheshunt, Miss Ashley, and Pourpre de Tyre. The best spike in the room was one of Memnon in the prize stand of Mr. Blackwood. Fancy Dahlias, six tipped and six striped (Nurserymen): 1st, Messrs. Downie & Laird, with Enchantress, Jonas, Mrs. Hansard, Conqueror, Comet, Magician, Eugénie, Carnation, Duchesse de Bratiantes, Inimitable, Cockatoo, and Lady Paxton; the two last fine flowers. Fancy Dahlias, three tipped and three striped (Amateurs): 1st, Mr. Berry, with Baron Alderson, Duchess of Kent, Gloire de Keynes, Triomphe de Lebeck, Comet, and Merveille. John Reid, Ballindean, exhibited a seedling Dahlia named the Hon. Mrs. Trotter, to which a first class Certificate was awarded. The show was much enhanced by some well-fruited Apples in pots; also many fine specimens of Japan Lilies and other greenhouse plants from the Society's collection.

Notices of Books.

Messrs. *Paul and Son* have issued their useful descriptive Catalogue of the selected Roses they grow for sale at Cheshunt during the ensuing season. We are glad to see the word selected in the front of their list.

Moore's Handbook of British Ferns (Groombridge) has most deservedly reached a third edition, which we observe is considerably enlarged and improved. It always has been, and is now more than ever, the best guide to a knowledge of our wild Ferns and of the mode of cultivating them, the latter the result of long personal experience, for Mr. Moore is a gardener as well as a Botanist.

An Address to the R. Irish Academy, by the late J. M. Kemble (Hodge, Dublin, and Lovell Reeve), is a pamphlet of 32 pages upon several points of considerable antiquarian interest. The lamented author treats in it of the Danish theory of a stone, bronze, and iron period, of horn weapons armed with stone, of the curious bronze side arms found in Ireland, of Kelts, gold ornaments, &c., and he shows how entirely these are sometimes characteristic of a country which borrowed nothing from the sources of so-called classical art.

The Grasses of Great Britain; illustrated by J. E. Sowerby, described by C. Johnson, Esq. No. 1 (price 1*s.*) of this periodical is before us. It contains five carefully drawn coloured plates and 8 pages of letter-press, and from its singular cheapness ought to meet with an extensive sale. We must however remark that the figures are larger than life, which is a fault. The letter-press is carefully prepared, and will be found a useful guide to those who commence the study of what is generally thought a very difficult part of Botany.

Garden Memoranda.

Gowran Castle Gardens, *Kilkenny, Ireland.*—This is a fine country; we have had no frost to do any harm as yet, and Dahlias, Geraniums, Verbenas, Heliotropes, and indeed the whole family of bedding plants are still in full beauty. Figs in this quarter come to great perfection. Some of those produced in the gardens here have been as large as a well-grown Marie Louise Pear. A sample of them forwarded to Mr. Fleming at Trentham, who sent them to the Horticultural Show at Manchester, was pronounced very superior to all others shown there. Pears also do well; two very fine trees of Beurré Diel are loaded with fruit, first-class both in size and quality. They are on a wall, and individually very heavy. In fact fruit of every description does well here. Gathering Peaches from the open wall commenced on the 28th July. The early sorts were Nutmeg, Noblesse, and Royal George; the intermediate were the Malta and Late Admirable; what we are now gathering is the Catherine, at least it is so labelled. Plums are also good and plentiful in their season. A fine old Mulberry tree in the pleasure ground is loaded with large black fruit; no one uses them; and they fall to the ground in bushelfuls. *W. M., Oct.* 6.

Miscellaneous.

The Late Flower Show at Newcastle.—On Wednesday evening, Sept. 30, the friends of Mr. G. Edward, florist, of that city, gave him a complimentary dinner to mark their high sense of his merits as a cultivator of flowers, and especially of the Dahlia, with which he carried off the challenge prize for the north and south of England at Newcastle, a few weeks ago. The silver teapot which he then won, as well as two silver cups which he has also had awarded to him, graced the festive board. After the usual loyal toasts had been disposed of, the chairman proposed Mr. Edward's health. The latter returned thanks, and expressed a hope that the York Horticultural Society would, by giving more liberal prizes, secure that amount of success which characterised the show at Newcastle. The health of the visiting friends from a distance was next proposed and drunk. Mr. Connaty, gardener at Hazlewood Castle, responded; and Mr. Newsome, gardener to J. Hatton, Esq., of Sowber Hill, Northallerton, afterwards acknowledged a similar compliment paid individually to himself. A number of toasts followed, and an agreeable evening was spent.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—All plants belonging to this structure should now be under glass. Cleanliness and free ventilation (whenever the weather will admit of it) should receive constant attention. If unfavourable weather should occur, do not hesitate to use a little fire-heat at times, especially if the houses contain a good many plants in bloom; for in that way a free ventilation may be indulged in to expel damp and stagnant air. By means of Roses, Chrysanthemums, and other late flowering plants this structure may yet be kept gay for many weeks to come. Supply them occasionally with weak manure water in a clear state. Cold pits will now be in request. Sawdust forms a good plunging material if new and dry; coal ashes are also very good. Whatever material is employed keep the plants within a foot or so of the glass, and endeavour to keep the soil in a somewhat dry state. A portion of the stock of Roses, Lilacs, Honeysuckles, &c., in pots, may soon be placed in a pit to have a slight advance of temperature. The present is a good time to procure from the nurseries or from the reserve garden a supply of Rhododendrons, Azaleas, and Kalmias for forcing; select plants will set with bloom, and of the desired size. Some of the hybrid scarlet Rhododendrons, as Nobleanum and others, require but little forcing, and are the best to start first. Pot them in as small pots as their roots can be got into without injury, and place them out of the reach of frost till wanted. A few of the stove climbers may yet be in bloom. Remove dead flowers from them occasionally, and stop all straggling shoots. Let the atmosphere in the stove be moderately dry, in order that a lower night temperature may be permitted.

FORCING DEPARTMENT.

Pineries.—Where the bottom heat is obtained from fermenting materials it is generally found to decline very rapidly on the occurrence of dull cloudy weather, and any necessary addition of tan or whatever else is used should be made directly it is wanted, so as to secure a steady temperature of about 85° for the roots. In adding fresh fermenting matter at this season it will be worth being at some trouble to have it in a rather dry state, for when used very wet it is apt to chill the roots at first, and when fermentation commences the heat often becomes so strong that the plants must be raised. Vineries.—Ripe Grapes will require to be frequently looked over, cutting out any decaying berries; and if the bunches have not been well thinned, the inside berries must be carefully examined in the event of damp weather, otherwise the bunches will be very liable to get disfigured. Avoid, if possible, having pot plants requiring watering in houses where the fruit is expected to hang for any time, and where any plants must be kept under the Vines they should be watered in the morning, using a little fire heat with air to get the atmosphere dry before night. Gentle fires will be necessary here when the weather is damp, but use no more than may be necessary to keep the atmosphere in motion, for too much warmth is nearly as injurious as damp.

FLOWER GARDEN AND SHRUBBERIES.

Proceed with potting such plants as it is desirable to keep with as much dispatch as possible, and if practicable a little artificial heat should be applied to help them to root before winter. Steps should also be taken to fill up the beds as they are cleared, for the purpose of contributing to the enjoyment of spring. A miscellaneous mixture of dwarf early blooming shrubs, perennial plants and bulbs, is most commonly planted; but as has often been stated in regularly laid out beds, as in geometric flower gardens, the disposition of colour should be carefully considered, as there is an abundance of spring flowering plants and bulbs to form a rich and varied display if properly arranged and carried out. Lawns will now require daily sweeping to present anything like neatness; roll constantly wherever the turf is hollow to keep a firm sward. Well clean gravel walks for the winter and afterwards let them be well rolled in order that the water may pass freely off the surface. All operations connected with planting, relaying turf, and border-making should be actively proceeded with.

HARDY FRUIT AND KITCHEN GARDEN.

Where the wood is well ripened and root pruning is intended either with wall trees or those in open quarters, a commencement should be made with the earliest ripened trees first. As regards vegetables, the principal crops of Celery and Cardoons should have their final earthing up before sharp frosts set in. The spring crop of Celery will however stand the winter better with only a moderate earthing up and the remainder towards spring. A wide sheltered border should be selected for hand-glass Cauliflowers. The soil if not already light and rich should be made so previously to planting. Put three plants under each glass in a slight hollow, which will be useful in spring when they require water, and may afterwards be filled up as the plants advance. Keep the glasses on for a few days after planting; afterwards expose the plants daily to harden them for the winter. The smaller plants should be wintered in a frame, and some of them should be potted in 5-inch pots for turning out in spring. Beds of Rhubarb, Asparagus, and Seakale should be cleared of their dead stems, &c., as soon as the leaves are ripe; where the above are in request in December steps should be taken to force them. Pits heated with hot water are most suitable for the two former, planting the crowns thickly in light rich soil over a moderate bottom heat. Asparagus should be kept as near the glass as possible in order to improve its colour and flavour. Where pits are wanted for other things a few roots of Rhubarb may be placed in the warm end of the Mushroom house or in a cellar, but most people think the flavour improved by being forced under glass. Later crops of Rhubarb may be forced in the open ground where it grows, using pots or boxes for covering the crowns, and leaves or leaves and dung for the heating materials. Seakale may be either forced on the ground as advised for Rhubarb, or taken up and the roots placed thickly in a frame on a gentle bottom heat.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Oct. 8, 1857, as observed at the Horticultural Gardens.

October.		Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature Of the Air. Max.	Temperature Of the Air. Min.	Temperature Of the Air. Mean	Temperature Of the Earth 1 foot deep.	Temperature Of the Earth 2 feet deep.	Wind	Rain.
Friday	2	14	30.174	30.013	65	53	59.0	61	58½	S.W.	.00
Satur.	3	○	29.983	29.696	66	48	57.0	61	58½	S.W.	.00
Sunday	4	16	29.704	29.639	64	43	53.5	60½	58	N.E.	.02
Mon.	5	17	29.670	29.659	65	34	49.5	60	58	S.W.	.08
Tues.	6	18	29.732	29.688	66	32	49.0	59	56½	S.W.	.00
Wed.	7	19	29.445	29.077	64	48	56.0	58	57	S.E.	.32
Thurs.	8	20	29.103	28.781	63	41	52.0	57	57	S.	.55
Average			29.657	29.507	64.7	42.7	53.7	59.1	57.6		.97

Oct. 2—Fine; very fine; overcast at night.
— 3—Overcast; densely overcast; very fine; clear.
— 4—Clear; cloudy; rain; overcast.
— 5—Foggy; fine; very fine; rain at night.
— 6 Very clear; fine; very fine.
— 7—Cloudy; showery; rain.
— 8—Heavy rain; rather boisterous; frequent heavy showers; barometer remarkably low; fine at night.
Mean temperature of the week 1 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Oct. 17, 1857.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 11	61.9	43.4	52.6	15	0.34 in.	2	5	2	2	4	9	4	3
Mon. 12	60.0	41.9	50.9	17	1.00	4	4	2	—	6	6	7	2
Tues. 13	59.9	42.3	51.1	15	0.33	4	4	4	—	7	5	5	2
Wed. 14	59.0	41.2	50.1	16	0.50	1	4	2	2	8	3	5	6
Thurs. 15	57.8	40.2	49.0	15	1.04	2	4	2	1	7	6	5	4
Friday 16	58.1	40.2	49.1	14	0.56	—	5	4	1	3	8	6	4
Satur. 17	57.9	41.5	49.7	11	0.31	1	4	5	—	1	9	7	4

The highest temperature during the above period occurred on the 14th, 1845—therm. 76 deg.; and the lowest on the 15th, 1850—therm. 24 deg.

Notices to Correspondents.

Books: *D J.* For British Ferns the new (3d) edition of Moore's Handbook; for foreign Ferns Smith's "Cultivated Ferns," both published by Pamplin.

Conifers: *A C.* Young Conifers frequently go off when sown in loose soil. The latter should be pressed firmly before and after sowing, and care should be taken not to allow it to become very dry. Sow in spring in pans, in fine yellow loam, and place them in a cold frame; they do not require heat.‡

Diseases: *C.* The black spots are not produced by a fungus. A pure spirituous solution of corrosive sublimate does not affect the paper, nor a mixture containing sulphuretted hydrogen and other compounds of sulphur. It is probable for several reasons that they arise from some matter extracted from the plants by the spirituous solution which you use to destroy insects.—*G H E.* The fungus which affects your Grass is apparently Agaricus oreades, which grows frequently in rings, and has a very vivacious mycelium. You may certainly destroy the spawn by a solution of corrosive sublimate, but then you will destroy your Grass too. We should recommend you to pare the parts affected, and dig out the spawn completely, replacing the soil from some other quarter and laying down fresh turf. A little gas tar might be used to prevent the growth of any spawn still remaining in the soil. But with these precautions you may find your enemy still reappearing.—*J J.* There is a minute fungus on the inner leaves, but whether cause or consequence is quite uncertain. Spots of this kind on plants in stoves often arise from sudden changes of temperature and moisture. An eminent cultivator told us that in the Cocoa plant and some others he could produce them at pleasure. *M J B.*

Filters: *D J.* Nothing is better than the contrivance described at p. 646 of our volume for last year.

Greenhouse: *C W.* If your purpose is no greater than you describe, the kind of house you propose is all sufficient, and it will be amply heated by a common brick flue. It would be a waste of money to apply hot water to such a place.

Insects: *W W.* Your caterpillar had changed to a chrysalis, and the latter was smashed in the transit by post. We believe the former was the Hop-dog, or larva of the Dasychira pudibunda.—*W C.* Your friend's grubs are the young larvæ of the common Cockchaffer; we know no better plan than to plough the ground over two or three times. If you are near a rookery the rooks will soon find out their prey. Next summer it will be worth your while to employ children to catch and kill the Cockchaffers.—*H H.* Your small white worms are the larvæ of the Cockchaffer. See the preceding reply to *W C.* In both instances the larvæ were small and of this year's brood; as they remain three years in the active voracious state, the sooner they are attacked the better. *W.*

Names of Fruits: *W Bates.* 1, Grosse Mignonne; 2, Noblesse; 3, probably also Noblesse; 4, (decayed); 5, Coe's Golden Drop; 6, Chaumontel; 7, Early Crofton; 9, Brabant Bellefleur; 10, Court Pendu Plat; 11, Beauty of Kent; 12, Bedfordshire Foundling; 13, Golden Reinette.—*J T W.* 1, Hawthornden; 2, Golden Reinette; 4, Keswick Codlin.—*P X.* Both the Figs appear to be the Brown Turkey.—*B F.* The Apple, which you say is a good cropper and does well in your soil, is the Minchall Crab, acid but good for kitchen use if plenty of sugar can be afforded.—*Rev T R.* 1, Thompson's; 2, Jersey Gratioli. In the situation in which the tree is planted, viz., against an east aspect wall where the latter joins a south wall, the flavour o the fruit is not likely to improve as the tree gets older. We know an instance where trees planted in a similar situation do not thrive; owing perhaps to the moisture of the air heated by the south wall being continually condensed as it comes in contact with the adjoining colder east wall.—*W T.* 13, Syke House Russet; 16, Easter Pippin; 17, Dumelow's Seedling; 51, decayed—Margil? 34, Suffolk Thorn; 35, Aston Town.—*J Newton.* 1, Hollow-crowned Pippin; 2, Gravenstein; 3, Golden Pippin; 4, Court of Wick; 5, probably Beauty of Kent; 6, Syke House Russet; 7, Golden Reinette; 8, Pearson's Plate; 9, English Codlin; 12, Scarlet Nonpareil; 13, Downton Nonpareil; 15, Northern Greening; 35, Winter Pearmain. 1, a sort of wild Pear; 2, Black Worcester; 3, Ambrosia.—*J W.* 1, Beurré Diel; 2, Passe Colmar; 3, Urbaniste; 4, 8, Glou Morceau; 5, Louise Bonne (of Jersey); 6, Beurré de Capiaumont; 7, Chaumontel; 9, appears to be Winter Pearmain; 10, Fearn's Pippin; 11, Gloria Mundi.—*J H, Sandwich.* A fine specimen of the Wormsley Pippin.—*C S.* 1, Yellow Ingestrie; 2, Duchess of Oldenburg; 4, Minchall Crab; 5, Fearn's Pippin; 8, Sweeny Nonpareil; 9, Northern Greening; 10, Royal Russet; 11, Bedfordshire Foundling; 12, Court Pendu Plat; 13, Sucré Vert; 14, Napoleon; 15, Easter Beurré; 17, Glou Morceau; 18, Uvedale's St. Germain.—*John Rowe.* 1, Dutch Codlin; 2, Reinette du Canada; 3, Calville Blanche d'Hiver.—*F F.* 1, Beauty of Kent; 2, Wormsley Pippin; 3, not known.—*F R.* The Blenheim Pippin.—*D S.* The Apple appears to be the Red Astrachan. The Pear was quite decayed.—*A P.* 3 and 13, Court of Wick; 4, Dutch Mignonne; 5, Calville Blanche d'Hiver; 6, probably Early Nonpareil; 7, Minchall Crab; 8, Round Winter Nonsuch; 9, King of the Pippins; 10, Lewis's Incomparable; 11, Scarlet Pearmain; 12, Brabant Bellefleur. 1 is worthless—not known; 2, sweet insipid Apple—unknown.—*Jane.* 1, Napoleon; 2, White Doyenné; 4, 5, 10, Glou Morceau; 6, Rousselet; 7, Beurré Rance; 8, Vicar of Winkfield; 9, Catillac; 11, Easter Beurré; 12, King Edward. Apples: 1, Hollandbury; 2, King of the Pippins; 3, Margil; 4, Fearn's Pippin? 6, Marmalade Pippin.—*E H.* Thompson's.—*E S.* 1, perhaps Golden Reinette; 2, Trumpington, or Eve Apple.‖

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Const. Reader.* Gesnera tubiflora.—*Juvenis.* No doubt one of the forms of L. dilatata.—*Subscriber.* Aponogeton distachyon.—*Subscriber.* Myosotis palustris.—*R Draper.* Calycanthus floridus.—*W J.* Probably the seed belongs to some Caleolaria. The skin when peeled off is a very pretty object.—*Subscriber.* Tritoma Uvaria.—*Beginner.* 2, Scolopendrium vulgare; 3, Pteris serrulata.—*D T.* 1, 2, Lastræa dilatata. 3.

Linum grandiflorum: *A Sub.* This is an annual, and very difficult to grow well.

Lombardy Poplar: *A W.* Nothing can be more fatal to a tree than such a cesspool within reach of its roots. You may regard its fate as sealed unless the receptacle is immediately drained and filled up. It is not impossible that the mischief may be already beyond cure.

Pampas Grass: *F H G.* We can assure you that the seed was perfectly good. It grew freely wherever there was the skill to raise it. The seeds were very small, and mixed with the chaff in abundance. We doubt whether more seed is likely to come. Plants of it are given away by the Horticultural Society to their four guinea members.

Potato Disease: *S V.* You must place yourself in the hands of some patent agent. Consult the Mechanics' Magazine.

The Hampton Court Vine: *Ephraim.* We do not think it is looking particularly well. On the contrary, the number of bunches is less than usual, and many of the bunches are very small. And this in the face of the capital summer we have had! No, no.

Ventilation: *A Subscriber.* In glazing a hothouse the best way to stop the air coming in at the laps of the glass is to putty the laps. But you must remember that plants, as well as animals, *must* have change of air, and if you stop up the laps you must provide ventilation in abundance elsewhere.

Misc.: *New Beginner.* Potatoes are propagated by cutting the large ones into sets, containing one or more eyes, or by planting the "chats" (small ones) whole. About the middle of February put them into the ground. Sow Parsley, Radishes, and Turnips about March, and Carrots about the middle of April. Paxton's Cottager's Calendar affords useful information on these and other matters connected with ordinary cropping.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, and MANURE COMPANY (LIMITED), General Seed and Manure Merchants, Union Road, Plymouth, late WILLIAM E. RENDLE & CO.

NATIONAL GUARANTEED MANURE COMPANY (LIMITED) is now delivering for Autumn Sowing, guaranteed by analyses, WHEAT MANURE, 7*l.* 10*s.*; concentrated, highly recommended, 9*l.* per ton, at any Wharf or Railway Station in London.—2, Moorgate Street, City.

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Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
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The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED.
Capital 30,000*l.*, in 3000 Shares at 10*l.* each.
Deposit 2*l.* 10*s.* per Share.
Managing Director.—Mr. William E. Rendle, Mount View, Plymouth.
Committee of Finance.
Mr. Henry Holman, Mannamead, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. John Rendle, Seedsman, St. Austle.
Bankers.—The Devon & Cornwall Banking Company, Plymouth.
Solicitors.—Messrs. Whiteford & Bennett, Plymouth.
Auditor.—Mr. William Jacques Holmden, Plymouth.
Manager.—Mr. Geo. H. Lamoureux.
Secretary & Cashier.—Mr. R. W. Clark.

The above Company has been formed at Plymouth with limited liability under the Joint Stock Companies Acts 1856 and 1857, for the supply of all kinds of Garden and Farm Seeds, Manures, Agricultural Implements, and every requisite for the Farm and the Garden. Arrangements have been made with the old established and well known firm of Messrs. William E. Rendle & Co. for the transfer of their extensive business to the Company.

The objects for which the Company is established are the purchase, growing, or otherwise procuring, and the sale of Farm, Garden, and other Seeds, Plants, and Trees; also the manufacture, purchase, and sale of Agricultural Implements, Draining Tiles, and other articles used in the cultivation of Land; also the manufacture, purchase, and sale of Manures; also the manufacture, purchase, and sale of any other articles and things used in or requisite for the cultivation or improvement of Land, with power for the Company, in furtherance of the above objects, from time to time to purchase, take on lease, or otherwise acquire any Land or Buildings, to acquire any Patents, and generally to do all other things that may conduce to carrying into effect the objects of the Company, or be incidental thereto.

The Company has been duly registered, and the following is a Copy of the Certificate of Incorporation:—

"Limited Company: Certificate of Incorporation of the Plymouth Seed, Agricultural Implement, and Manure Company, Limited, under the Joint Stock Companies Acts, 1856 and 1857.

"I, George Taylor, Esq., Assistant Registrar of Joint Stock Companies, do hereby certify that the Plymouth Seed, Agricultural Implement, and Manure Company, limited, is incorporated under the Joint Stock Companies Acts, 1856 and 1857, and that it is a Limited Company. Given under my hand this 21st day of August, 1857, GEORGE TAYLOR, Assistant Registrar of Joint Stock Companies."

It will be thus seen that the Company was incorporated on the 21st of August last, and commenced business on the 1st day of September following.

The business will be considerably extended, so as to make it one of the most important concerns in the kingdom. About 2700 Shares have been already taken up and allotted, and it has been decided to distribute the remaining THREE HUNDRED SHARES to those who will have transactions with the Company, or who by their influence can benefit the business.

These Shares will be placed in the hands of the present Shareholders for distribution, and application should be made to Mr. R. W. CLARK, Secretary to the Company,

Or to the following Shareholders;—
Mr. William E. Rendle, Mount View, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. Thomas Vosper, Merafield, Plympton.
Mr. George Sercombe, Seed Merchant, Exeter.
Mr. William Coaker, Charleton, near Kingsbridge.
Mr. Henry Holman, Mannamead, near Plymouth.
Mr. George Witty, Land Agent to Neville Grenville, Esq., Butleigh, near Glastonbury.
Miss Gregory, Mr. R. Gregory, Merchant, Barnstaple.
Mr. Edward Mortimore, Seedsman, Ashburton.
Mr. John Watson, Shirburn Castle, Tetsworth, near Oxon, Land Agent to the Earl of Macclesfield.
Mr. Thomas W. Eales, Merchant, Dartmouth.
Mr. John Rendle, Seedsman, St. Austle.
Mr. Arthur Pardew, South Devon Place, Plymouth.
Mr. Thomas Huxham, Chemist, Dartmouth.
Mr. John Gidley, Chipley Park, near Wellington, Somerset, Land Agent to E. A. Sandford, Esq.
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IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

ROYAL AGRICULTURAL COLLEGE, CIRENCESTER.
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Assistant to Chemical Professor—A. Sibson.

Students are admitted after the Summer and Winter Vacations, also in April and October. Fees for Boarders:—Under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for Out-students is 40*l.* per annum.

The chief attention of the Students is directed to a diligent attendance on the Lectures on Practical Agriculture, Inorganic, Organic, and Agricultural Chemistry, Geology, Botany, Veterinary Medicine and Surgery, Surveying, and Civil Engineering.

The Practical Instruction in Agriculture is given by the Professor on the Farm, where the Students have an opportunity of becoming acquainted with and taking part in the Manual Operations of Husbandry.

A well-appointed Laboratory is devoted to Instruction in Chemical Manipulation and Analysis, which are taught to each Class of Students in succession, under the Superintendence of the Professor of Chemistry and his Assistant.

Practical Instruction is also given in the field in Surveying, Levelling, and Land Measuring; in the use of the Theodolite and other Instruments; also in Field Botany and Practical Geology, by the Professors of Surveying and Natural History respectively.

A Veterinary Hospital is fitted up for the reception of Diseased Animals of all descriptions, with Pharmacy, &c., attached, where the Students have opportunities of witnessing operations, *post mortem* demonstrations, and applied Therapeutics.

A good System of Farm Accounts is laid before them, and they are periodically examined as to their acquaintance with what has been done on the Farm, and also as to their proficiency in Agricultural information in general.

Instruction is also afforded in Arithmetic, Algebra, Mathematics, and Natural Philosophy; Surveying and Mensuration, and other branches of a liberal education.

Prospectuses and information can be had on application to the Principal.

QUEEN'S COLLEGE, GALWAY.—DEPARTMENT OF AGRICULTURE.

The COLLEGE SESSION for 1857-8 will commence on TUESDAY, October 20, when the Supplemental and Scholarship Examinations will be proceeded with as laid down in the Prospectus.

The First Matriculation Examination for the Session will take place on FRIDAY, October 23.

Additional Matriculation Examinations will take place before the close of the First Term.

In the Department of Agriculture Four Scholarships of the value of 15*l.* each are appropriated; two to Students of the first year, and two to Students of the second year. The College is also empowered to award at the same examination Two Prizes of 12*l.* each to Students of the first year, and two of 12*l.* each to Students of the second year.

In addition to the Scientific Education given in the Lecture Rooms of the College, the most ample means are now possessed for giving Practical Instruction to Students in Agriculture. The Professor will exhibit on his own farm, as well as on a large property of which he has the management, the best examples of land improvement, and superior cropping on waste, worn out bog and mountain land, with specimens of the crops raised thereon.

Further information may be had on application to the Registrar, from whom Copies of the Prospectus may be obtained.

By order of the President,
Oct. 10. WILLIAM LUPTON, A.M., Registrar.

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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London
Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.
52, Parliament Street, London, S.W.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

EDINBURGH NEW VETERINARY SCHOOL,
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UNDER DISTINGUISHED PATRONAGE.
The SESSION will commence on WEDNESDAY, Nov. 4.
INAUGURAL LECTURE by Mr. JOHN GAMGEE at 2 o'clock.
The Course of Instruction will be undertaken as follows:—
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5. Veterinary Medicine and Surgery .. Mr. JOHN GAMGEE.
Anatomical Demonstrations, Mr. JAMES LAW.
Clinical Department and Farriery, Mr. GAMGEE, Sen., and Mr. JOHN GAMGEE.
Perpetual Fee .. .. £12 12*s.*
Separate Courses 3 3
Those Gentlemen who have attended Mr. Gamgee's Classes before admitted gratis.
For further information apply to Mr. GAMGEE, 4, Scotland Street, Edinburgh.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.
Annual Exhibition at Cirencester, November 26, 1857.
The Exhibition of Stock, Horses, Roots, Wheat, Cheese, &c., will take place at Cirencester on THURSDAY, the 26th November, and the Poultry Show will be held on WEDNESDAY and THURSDAY, the 25th and 26th November. All entries must be made on or before Monday, November 2. None but printed Certificates can be received, which may be had on application to me at Cirencester. EDWARD TRINDER, Secretary.
Cirencester, October 10, 1857.

THE DORSETSHIRE POULTRY SHOW will be held in Dorchester on WEDNESDAY and THURSDAY, October 28 and 29, when 14 Pieces of Plate will be offered for Competition, in addition to the Society's Prizes. A List of the Prizes to be awarded may be had by forwarding an envelope, addressed, and six postage stamps, to G. J. ANDREWS,
Dorchester, Oct. 10. Hon. Sec.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications o the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 10, 1857.

THE chief impediment to the introduction of Flax as a regular rotation crop in counties where it is not grown, and yet where it might be most advantageously established, arises from the want of Flax mills and a certain market for the crop within convenient access. Without a sure and ready purchaser for his Flax the farmer will not enter into the speculation of producing it, even under circumstances of a soil and climate which would be favourable to the systematic cultivation of it.

The beneficial results of commencing in any locality (properly suited to the raising of Flax) with a mill and market have been so admirably manifested in the county of Wexford that we propose giving here a history of the circumstances.

The establishment of a Flax mill in a hilly district of light poor soil, by a spirited and energetic landowner, has been the principal incentive to Flax growing on a considerable area of this county.

Mr. JOHN ROWE, of Ballycross, has in the barony of Bargy and in the adjacent one of Forth a large estate of very fertile lands. He has also an extensive property in another part of the same county, where the soil is in many parts a thin gravelly loam unfit for any other grain than Oats. There, surrounded by very high land and very near the hills which separate the county of Wexford from those of Kilkenny and Carlow, Mr. ROWE built a mill in 1853. This was burnt soon afterwards, and being uninsured, a great pecuniary loss unfortunately resulted to the owner, who had merited a better return. Subsequently and with little delay it was rebuilt and on fire-proof principles, having an iron roof, with doors and partitions of the same metal. Adopting M. SCHENCK's system of

retting, Mr. Rowe commenced with six steeping vats made of timber at the cost of 25*l.* each, but having found that wood begins to rot in the course of five or six years, he has recently put up nine additional vats (each capable of containing one ton of Flax fibre) constructed of flagstones puddled with yellow clay, with brick floors bedded in sand over clay and grouted with lime. These have cost much less than the wooden vats. At the bottom of each pipes are laid in snakelike evolutions, to diffuse the steam which is c nducted by them to heat the water for steeping the flax fibre: the temperature is regulated by a thermometer, and maintained at about 86° in all seasons. The straw remains in steep for shorter or longer periods according to its ripeness or its rigidity or softness when put into the water. A steam engine keeps all the mechanical operations of the mill in motion, and they are very ingeniously adapted to their several purposes. The apparatus for rippling, scutching, separating the tow, and thereby dressing the fibre to various degrees of fineness is ingenious and effective.

Formerly all the seed was destroyed by the process of steeping the Flax straw in stagnant water. But now the operation of rippling by mill machinery has put an end to such a wasteful practice; and even where a mill is not available to the Flax grower the process of hand-rippling is generally resorted to, as the great value of the seed has become apparent.

The produce of a statute acre of Flax-straw may be compu'ed at from 2½ to 5 tons; the grower who chooses to ripple and steep the seed of this would obtain about one-third less for the straw than if the seed were not abstracted. A ton of good straw will yield about 20 stone of seed which is worth from 12*s.* to 14*s.* per cwt. at the current price, and the value of the seed is about a third of the whole crop. The maximum weight of straw per acre (seed inclusive) may be stated at 5 tons, worth from 3*l.* to 5*l.* per ton; and estimating the crop at the price of 5*l.* per ton, 25*l.* per acre will be obtained. The minimum produce above stated would yield to the grower only 7*l.* 10*s.* per acre, and from this, besides the labour expended, the price of the seed sown must be deducted; and this would be about 1*l.* 10*s.* per acre. A ton of prime straw ought to yield by the mill processes 15 stone of fibre and 4 stone of tow; the proportion of tow is greater, and that of fibre less, from straw of inferior quality, and the prices obtained for the fibre are variable according to the quality of the raw material and the skill evinced in the treatment of it. In this respect Mr. Rowe's operations have been already successful.

The vats now steep a great number of tons of straw per week and yet the immense ricks of the straw, valued at several thousand pounds sterling, do not sensibly diminish, as there is a continued periodical course of purchasing. Mr. Rowe's mill has the rare distinction of combining the seed-crushing process with the manufacture of the Flax straw. It expresses all the oil from the seed.

On a stone platform elevated some inches from the floor of one of the fire-proof rooms, and 9 feet in diameter, two vertical stone wheels can be made to revolve within a circle of 5 or 6 feet diameter, from the outer circumference of which a metal ring 18 inches wide and slightly inclining inwards from the edge, is screwed into the stonework to prevent it from being disturbed and loosened by the working of the wheels; the inward inclination of this metal rim prevents the seed from being pushed off the platform by the wheels, which revolve in different orbits, crushing the whole surface of the seed beneath them. The seed when fully crushed is put into a steam boiler, and when sufficiently heated packed in bags, which are subjected to pressure in an hydraulic press. The oil which is received from this press in iron vessels, after remaining in them three weeks, is casked and sold off to commercial men. The refuse oilcake, averaging 15 cwts. per day, and worth 10*l.* 10*s.* per ton, is eagerly purchased by farmers for fattening cattle and pigs.

The locality in which Mr. Rowe has judiciously erected this mill, and on which he spares no expenditure of time or money to render it complete, is critically suited to the introduction of the Flax crop among regular rotations, while in the more highly favoured distr'ct in which his estates principally are situated, it would not be very serviceable for reasons before assigned. Yet, even there, many acres of land (especially of old bog requiring to be broken up), have been appropriated to the growth of Flax during the last two or three years, and large depots of Flax straw are now accumulated in the stack-yards of Ballycross House: it is sent off on single horse carts to the mill when required for dressing, though the distance is more than 30 miles. The social advantages derived from this Flax mill in a mountainous and poor district are not to be omitted. It affords sufficient employment to the surrounding peasant labourers, women and children inclusive; and one good effect is, that no poor rate was levied during the financial year ending in September last in the electoral division in which the mill stands; whereas when it was first put into operation the rates amounted to 6*s* 9*d.* in the 1*l.** Many of the women and children who earn wages in the mill, small though the amount is in many cases, would be entirely unemployed in field labour under the slovenly weed-encouraging system of ordinary Irish husbandry; and many of them are too delicate for any severer occupation than that which some of the easy mill operations affords them. Many young men who would idle and drink on non-working days, being obliged to attend to their mill work with regularity, are always earning some wages and industriously occupied; and thus much social and moral good results to them and to their families.

More than the produce of 1300 acres of Flax passed through this mill in the course of the last year; farmers of the adjacent counties having in some degree availed themselves of the advantages it more particularly confers upon Wexford.

If on moors and bogs which are not distant from Mr. Rowe's mill the growth of Rape were introduced and established, the seed-crushing capabilities adverted to would become of immense local advantage, by promoting the feeding and fattening of cattle, sheep, and swine, thereby increasing the best manures to an unlimited extent, and affording profit from the sale of Irish Rape-oil, which would be quite as good as the Colza oil of France that is so largely imported into the United Kingdom as lamp fuel.

Mr. Lawes having tried the Lois-Weedon system of Wheat growing for four years, with an average produce of about 8 to 12 bushels per acre, according to the seeding, has philosophically sought for the rationale of his failure. After the fourth harvest the land was divided into four portions, in such a manner that each of the four had an equal proportion of the trenched and forked fallow and of the stubble ground. The whole was then ploughed and prepared for sowing in the ordinary way; one portion was left unmanured, the second received mineral manure only, the third ammoniacal salts only, and the fourth both mineral constituents and ammoniacal salts. Two bushels of seed per acre were drilled in the ordinary way; and the respective amounts of produce showed that while mineral manures gave an increase, ammoniacal manures gave a much larger increase, and minerals and ammoniacal salts together the largest of all, from which results it is inferred that the failure of the Lois-Weedon Wheat crops was mainly owing to "a deficiency of available and assimilable nitrogen within the soil." And we have a sufficient cause of this deficiency in the fact that the Rothamsted soil never attained "those mechanical conditions without which the necessary action between soil and atmosphere could not be expected to take place." It never became so porous and pulverulent as Mr. Smith's land; but Mr. Lawes proceeds to argue that as "the same means" which exposed so great an amount of superficies of the soil at Lois-Weedon to the atmosphere did not do the same at Rothamsted, "therefore, considerable caution should be exercised in the application to various descriptions of land, of plans which peculiarly rely for their success on qualities of soil which which are admittedly so variable in the degree of their activity." But Mr. Lawes' land is good average Wheat land, and if the Lois-Weedon system meet here with insurmountable obstacles in the nature of the soil itself, it will probably find similar hindrances very generally throughout the country; and the inference authorised by Mr. Lawes's statement is, that the system is far less promising than has been hitherto supposed, and must be regarded as of very limited applicability. We think, however, that our late articles on the subject showed that "the same means" used at Lois-Weedon were never really employed at Rothamsted, so that for aught which appears in the experiments, Mr. Smith's rules, if properly attended to, might have been as successful at one place as at the other.

Mr. Lawes instituted analyses of the amount of nitrogen in the soil and subsoil at Rothamsted and at Lois-Weedon, and tested both their respective powers of acquiring nitrogenous plant-food from atmospheric sources, and also the facility with which they give up to the plant their nitrogen in an assimilable form. The examination showed that the Lois-Weedon soil both contained more nitrogen and had the power of absorbing more ammonia under equal circumstances than the Rothamsted soil. Upon this, he says, "we can have little doubt, that to the difference between the respective soils in the degree of the conjoint influences of mechanical division, and of power of absorption and liberation (in part depending on it) of a sufficiency of available nitrogen relatively to the available mineral constituents, must in great measure be attributed the difference in the results obtained at Lois Weedon and at Rothamsted."

Now, it strikes us as being rather innocent of Mr. Lawes to deny his field the proper culture which Mr. Smith has found successful, and then to assign as a cause of his utter and complete failure that the soils in some respects slightly differ from each other. The samples of soil and subsoil were taken (in 1856) *after* the husbandry had been long pursued, so, who can say what the original and natural porosity and absorbing power and proportions of nitrogen respectively were? As it is, the analyses simply elucidate the condition of two pieces of land, one after good, the other after inferior management; the present condition and contents of the soils are not therefore the causes of the success or failure of the methods of tillage employed upon them; but, conversely, the differences in the tillage have occasioned the differences in the present state of the two soils.

We think that in Mr. Lawes' bringing up of 8 or 9 inches of raw clay at one time in his trenching, his too scanty seeding, his commencement of the system upon a bare fallow, and his withholding of the requisite summer scarifyings and horse-hoeings, there are sufficient reasons for his ill-success without going into a laboratory to prove that one soil yields 34 bushels and another only 8 or 12 bushels per acre, because the former contains 18-hundredths per cent. and the latter 14-hundredths per cent. of nitrogen.

We consider these investigations interesting and very valuable for the light they throw upon the nature of the poor condition of an upturned half-weathered and unpulverised subsoil, as compared with the character and capabilities of a judiciously exposed, well mellowed and aërated subsoil; but we entirely demur to their being cited as testimony unfavourable to the Lois-Weedon method of Wheat culture, which not being faithfully represented in the processes of the experiment, ought not to be judged of by the results here met with. *I. A. C.*

* The poor rates however are throughout the county very trivial at present.

ROYAL AGRICULTURAL COLLEGE.

SESSIONAL EXAMINATION, JUNE 10, 1857.

Practical Agriculture.—*Answers to questions selected from the papers of Messrs. Hockin, Heritage, and Norman.*

Write a short Essay on Parallel Drainage, paying attention to—
1. The nature of Soil for which the system is adapted.
2. The depth and frequency of Drains.
3. Action of Parallel Drainage.
4. General cost, and return that may be expected from it.

It is far better to have a general knowledge of the right principles of drainage, than to follow implicitly any particular system, which it is folly to suppose can be adapted to every case.

Parallel drainage is applicable to all strong and tenacious soils, to many loamy soils, and indeed to all those soils whose subsoil is not sufficiently porous to allow of the proper escape of moisture, and to those soils which, light at the surface, possess at a short distance beneath an impervious bed.

The depth and frequency of the drains depends on the nature of the soil and the district. Thus in the stiffest description of soils there is no advantage gained by going deeper than 3 feet, or perhaps it will be wiser to consider 3 feet as the minimum depth at which drains should ever be placed; the drains should be placed at a depth below that which the roots of plants can penetrate, or the atmosphere is enabled to reach. Increased depth beyond this point, whatever it may be, is useless, since in stiff soils it does not allow of greater distance. In lighter soils 4, 5, or even 6 feet may be necessary, and the drains may work at distances varying from 10 to 22 yards apart. In stiff clay lands we require as many as four drains in a chain of 22 yards, or as a general rule, from 5 to 7 yards apart; in strong but less tenacious soils from 7 to 9 or 10 yards. In medium soils 4 feet may be taken as the required depth. It is of no use whatever draining from 18 to 30 inches deep, and yet large sums of money have been thus expended.

By cutting a drain the particles of earth surrounding it are deprived of their water mechanically, the drain has no affinity for the water, but simply forms a vent. This portion of earth being laid dry becomes in its turn a drain to the next portion, and in this way the space between the drains is laid dry. By drainage the formerly soft marshy unworkable land is rendered friable, more easily worked, and drier. Air is enabled to penetrate deeper into the soil and subsoil, and acts on the mineral constituents of the soil, preparing them for the use of the plant, and again absorbs valuable organic matters from the air thus brought in contact with it.

and retains them. The roots of the plant are enabled to go further and deeper in search for nutriment, and in dry weather the land is kept moister, and the baking of the soil prevented.

The advantages which follow thorough drainage are due to both chemical and mechanical causes. Chemical, inasmuch as the atmosphere is admitted to the soil, and oxidizes the iron compounds, converting the protoxide into the harmless peroxide. The evaporation of water from undrained soils causes extreme cold, which chills the roots of the plants and retards their growth. The mechanical advantages are seen in the lightened draft; three horses doing as much as four did before. It is frequently stated that drains draw water from the surface; this, however, is probably a mistake. The first thing that takes place is the water running out of the cells of the clay into the drain; the successful action of drainage in strong clay depending upon the formation of horizontal fissures between the drains through which the water flows (see page 650, col. *c*.)

The cost of drainage depends on the frequency of the drains, the nature of materials, and the price of labour.

Clay may be cut 3 feet deep for 9*d*. a rod. [We have seen clays cut 4 feet deep for 6*d*. a rod.] In soils containing stones or gravel from 1*s*. to 1*s*. 4*d*. The price of tiles varies considerably. The return is always greatest on that land which was originally the most injured by the excess of moisture, and it has frequently happened on clay soils that the extra produce of the first crop goes far to defray the drainage expenses.

The cost of draining is very various. No rules can be laid down, for it depends so much upon the nature of the soil. If a clay soil free from stones, draining 3 feet deep costs for labour only from 7*d*. to 8*d*. a log or pole of 5½ yards. The presence of stones enhances the cost. Pipes cost on an average 15*s*. a 1000 for 1½ inch bore; 18*s*. for 2 inch; 24*s*. for 3 inch; 30*s*. for 3½ inch, and 50*s*. for 4 inch, and 60*s*. for 6 inch. On an average it perhaps costs about 5*l*. an acre to drain 4 feet deep on moderately strong land. It is said to increase the corn crops one-fourth and green crops rather more, and may be considered to return 20 per cent on the outlay.

Water does not find its way into a drain at an angle, but soaks straight down and gets in from horizontal fissures; in heavy land it takes some time for these to form, so that drains on clay soils should not be expected to run freely before the first summer is over. On light land the water flows as soon as the cut is made. The return you get for draining depends on the damage done to the land by the water; a farmer may generally drain on a 14 years' lease, though it is better for landlords to do the work and charge the tenant a reasonable per-centage. In many cases the outlay will pay 20 per cent. in the increased corn crops alone, without calculating the improvement to the root and fodder crops.

Home Correspondence.

Thin Seeding, Late Ripening, and Rust.—Among the many communications in your columns on the subject of thin seeding, few, if any, have said much of its consequent late ripening. In the south and east of England a week or so more or less may be of little importance, but here in the south-west a system must have strong merits indeed to counterbalance the evils of a late harvest time. I have seen this summer the cutting of some 35 acres of thin-sown Wheat, and the result altogether has been by no means favourable. Up to the time of coming into blossom the crop looked very promising, but rust soon began to fix on it, and when ripe enough to be cut a sound ear was more the exception than the rule. The acreable produce however rather exceeded that of last year, but the harvest on the farm has been a week behind the average of the neighbourhood, and there is also the injurious excess of rust above mentioned. Barley and Oats showed the same general results. The whole extent of corn on the farm was about 50 acres. The Wheat was sown at the rate of from one to two pecks per acre, and the Barley and Oats one bushel. It was all dibbled at the same distance apart—about 18 inches from row to row, and 6 inches apart in the rows—the seeds not being put singly, but several together, and having also a supply of artificial manure. The Wheat was sown from October to December, and the Barley and Oats in April, and it is to be noted that there was but little accord between earliness of sowing and earliness of ripening in the different fields. The crops were rolled and harrowed, horse-hoed and hand-hoed, and with a favourable summer and every reasonable allowance, the result has been a confessed failure. In conclusion, may I ask—Why should the stronger and apparently more healthy thin-sown plants be more liable to disease—rust, for example—than the slighter and apparently weaker broad-cast plants? *F. L.*

Substitutes for Grass or Clover.—It appears to me that your correspondent "Dentatus" of the 26th September is in a fix. The failure of so large a breadth of Clover and Grass is so serious a matter as to be very difficult, if not impossible, except at a cost far exceeding any probable advantage, to hope to remedy. But hopeless as may be the attempt to devise an efficient cure of so formidable an evil it ought to be made; though at this advanced period of the season the good can only be prospective, and not as he seems to wish, during "the present autumn." Some 50 years ago, Mr. Salter, then a farmer at Whinbergh, in Norfolk, adopted a plan for filling up the blanks, and what may not improperly be called the sore places in meadows, especially those on which a coat of mould had been carted, and perhaps unequally spread, by dibbling in Tares or Vetches. He even extended the practice to old worn-out pastures and Clover that had become spotty, and had partially failed, as Clover crops occasionally will. The plan attracted notice at the time, insomuch that it began to be known by the name of the inventor, and when these naked spots in either Grass or Clover fields were observed, people used to say such and such a field wants saltering. I don't mean to set up any meadow or field thus treated as a model of neatness in farming. By no means; at best it had a scrubby uneven appearance; but at all events it was better to cover the blanks in the surface with Tares than to leave them bare and uncropped. Now, can this patching system be brought to meet the case of our friend "Dentatus"? I write in utter ignorance of the present state of his fields, or to what extent the late rains may have promoted the germination of his small seeds. Drought we know often suspends, but does not always destroy, vegetation; and I for one shall be happy to hear that this is his own case, and, however late, that he may yet have a partial crop of Clover and other Grasses. I should not despair if ever so minute the plants, even at this fag end of September. But be this as it may, it is not too late to dibble in the Tares, which, if the true winter stock, will be fit to cut in May, June, and indeed all through the summer in regular succession, by putting in the seed at regular intervals of time. This however, as a mere filling up crop, he cannot expect to accomplish; but then comes the question how far Tares may be made to subserve the farmer's purpose as a portion of his rotation of cropping. Clover has often been complained of as liable to failure if taken every fourth year, and though the Norfolk people do change it for what they call black and white, or Trefoil and Rye-grass, by which Clover recurs only once in eight years, still, with many, this is hardly considered a sufficient change. The parties are too nearly related. The banns are forbidden. What, then, shall be the change? I have frequently thought that Tares might be advantageously introduced as a crop into the rotation, either to be eaten off by sheep, by mowing for soiling purposes, or by making into hay. Perhaps the last is rather questionable, inasmuch as being very succulent when cut they require so much time in the field—groundage we call it—as greatly to increase the risk of converting into hay; but with good weather I do not see why Vetch hay should not be made as well, though not perhaps as good, as Lucerne or Sainfoin. The grand thing is to guard against overheating. There is no fear of its not heating enough. *Samuel Taylor, Gloucester.*

Conveyance of Water.—You published lately in the *Agricultural Gazette* a paper by Mr. Chadwick, giving an interesting description of a successful experiment made in France to convey water to a distance, by means of a pipe formed in cement, a canvass hose being used as the core. I should be very glad to learn if any of your readers can communicate further facts as to laying down a cheap pipe for conveyance of water. I wish to supply water to a farm homestead from a distance of 600 yards, crossing a valley 60 feet deep. I imagine that this can be done at small expense by laying common 2-inch draining pipes in cement—say in Roman cement. This would not cost one-third so much as cast iron socket pipes. For the lower part of the valley, where the dip is the greatest, I should use about 100 yards of cast-iron pipe; and at the lowest point I should fix a small well, to take the sediment of the running water and prevent the pipe being choked. If I succeed I shall not only secure a supply of excellent water, but I shall have it laid on—so that there will be no labour required for pumping. I assume that 2 inches diameter of the pipe is quite enough, for the spring will not constantly yield more than 200 gallons per diem. This method, perhaps, is not so ingenious or so cheap as the canvas pipe method; but there seems a better chance that it may be successfully constructed by a common bricklayer. Much is to be done both for the benefit of estates and for the comfort of the people who live on them, by skilful dealing with that most abundant and valuable material—water. *W. E. H.*

Loss of Plant in newly laid down Grass.—My case, as to laying down four fields in permanent pasture last spring, is so similar to that of "Dentatus," mentioned in your last week's Paper, that I think my experience may be of use to him. I had four fields adjoining each other of clay soil, but thoroughly drained. No. 1, Wheat; No. 2, Winter Oats; No. 3, Barley; No. 4, an Oat stubble, with a good root of Red Clover and Trefoil. Nos. 1 and 2 were sown with Marl Clover (Cow-grass), Red Clover, and permanent Grasses in the spring; but the grain crops being heavy, there was little appearance of the Grasses, but after the grain had been cut they began to flourish, and the two fields now look most luxuriant, and are being closely grazed by sheep. No. 3, the permanent Grasses and Clovers, as in 1 and 2, but sown with the Barley, was nearly an entire failure, attributable, I think, to being sown too soon after a previous crop of Clover. In consequence of this failure in the Clovers, I sowed on the 1st September (last month), 28 lbs. per acre of Trifolium incarnatum, 6*d*. per lb., and it is now up thickly all over the field; the land was harrowed half a turn first, and then the seed rolled in. I have before sown down, at different times, two fields with permanent Grasses, producing each time abundant crops for the scythe the first year, and afterwards excellent pasturage. I have another field, No. 5, adjoining, which two years ago was of Carnation Grass and Rushes, not worth 2*s*. 6*d*. per acre; this I drained, pared, and burned, and lightly limed, and sowed with Red Lammas Wheat, an excellent and clean crop. I have now on the same field Swedes, Mangels, and Potatoes, as fine as were ever seen. I think that none of the seeds "Dentatus" used could have been new. If he will apply to Sutton, of Reading, and mention my name, he will get honestly served, and by mentioning the nature of the soil and the acreage, Sutton will send him exactly the seed suitable—the long White Mangel is a fine sort, not the Silesian, *i.e.*, the Sugar Beet. *Dyn o' Gwent.* [Sutton supplies renovating seeds for old pastures; the Clover field, No. 4, I sowed with such in April last.]

Societies.

Royal Bucks.—At this meeting Mr. Smith of Woolston described what he had done with his steam plough since harvest. Being determined to make the best of the fine weather, he sent his engine and two additional men into his fields, to give a relay of men to the plough. In six days and a half they ploughed 44 acres, an average of seven acres a day. The cost of the work was as follows:—

Eight men, at 3*s*. 6*d*. a day	£9	2	0
One boy, at 1*s*. 6*d*. a day	0	9	9
68 cwt. of coal, at 1*s*.	3	8	0
Oil	0	3	0
Wear and tear, 1*s*. 6*d*. per acre	3	6	0
Total cost	£16	8	9

or 7*s*. 6*d*. per acre. Now, I challenge the world, said Mr. Smith, to produce the same amount of work in the same time by horses and the turn-over plough at double the cost, and also to produce work equal to it at all. Mr. Smith proceeded to say that Lord Hatherton had purchased a set of implements from him, and, according to a letter from Baron Rothschild's steward, which he read, his lordship was ploughing 10 to 12 acres a day in first-rate style, and Baron Rothschild was himself so satisfied with the implements, that he was about to supply the Baron with a set on Monday next. He further said that, after his (Mr. Smith's) ploughing was finished, he lent the plough to Mr. Whiting, of Stoke Goding. Mr. Whiting worked it nine days, broke in a set of men to its use, and ploughed 59 acres of land. He had 6½ acres to finish at 12 o'clock yesterday, and the plough got through the work at half-past 6, and the next morning was in their ploughing field for exhibition, where in five hours and 50 minutes it ploughed 5½ acres, and showed splendid work. As to the rotatory things he would challenge the roundabouts for a thousand pounds. Mr. Smith directed some observations to the difficulty of providing economical harvest carts, and then to the practicability of clearing foul land with his steam cultivator. He stated that a field of his made foul by the turn-over plough system had been perfectly cleaned by the pulverising system, and that he had grown during the time of cleansing the four best crops he ever grew in the field.

Staffordshire.—*Steam Culture.*—At the annual meeting of this Society Lord Hatherton spoke as follows:—"It was now quite clear that one of the difficulties with which they would have to contend was the scarcity of labour. They felt it in their farms and in their domestic establishments. He had taken the trouble to inquire at a registration office in Birmingham whether they had any servants in want of situations, and the reply he received was, that for one person who wanted a place there were 50 applicants for persons to fill situations. The explanation his informant gave him of the cause of this state of things was that Ireland had disposed of her surplus population, and that any person can now for 5*l*. transport himself to Australia; and there are arrangements by which persons are conveyed there by means of money advanced to them, they guaranteeing its gradual repayment after their arrival. This difficulty of a deficient supply of labour was likely to continue, and he did not see how it could be met except by an intelligent application of mechanical agencies. He had, together with his able agent Mr. Bright, introduced a steam cultivator on his farm, which they had had an opportunity of seeing in operation, and the result of a careful estimate of the cost showed that it effected a saving of 40 per cent. Since the 1st of March a plough had not been seen on the whole of his extensive farm, except to ridge for Turnips. The land was cleaned in a superior manner and worked by the steam cultivator, and after making a very careful calculation he was satisfied that it had caused a saving of not less than 40 per cent. He had originally been an opponent of it theoretically, but trial and examination had convinced him of its excellence, and he believed that before another year had elapsed he should have a second steam cultivator, or some similar implement. For the last five years he had gathered in his Wheat harvest by means of Hussey's reaping machine, and this year he had done some portion of the work with M'Cormick's, and he was satisfied that the saving which these implements effected was 50 per cent. In reply to some faint expression of incredulity as to the correctness of this estimate, his lordship said he had given himself great pains to make these estimates correctly, and he could not make the saving less. In the case of the steam cultivator, not a single man had been displaced on his farm. Just the same number of labourers were required as were before necessary to attend to the horses; and, as some degree of mechanical skill was necessary to manage the

cultivator, the labourers employed to work it had had their wages raised from 12*s.* to 15*s.* per week, so that it proved not only no detriment to that class, but it introduced a superior and better paid body of labourers. So in reference to the reaping machines. So far as he was concerned he always felt the necessity of keeping his hands, especially when they were so difficult to be got as at this moment, and not a single man had been displaced through the introduction of this machine." The *Staffordshire Advertiser* gives the following account of the trial of the cultivator:—"The most interesting part of the day's proceedings was the exhibition of the steam cultivator, which Lord Hatherton had kindly sent from Teddesley, in order that the many agriculturists who assembled on this occasion might have an opportunity of seeing it in operation. The field in which it was worked was a stubble field, and contained a quantity of Couch, which, however, formed but a feeble obstacle to the operation of the powerful instrument. The length traversed by the cultivator was 238 yards, and the outside prongs are 3 feet 8 inches asunder, so that it tore up the ground at each journey a width of nearly 4 feet. It was worked to the depth of 6 inches on the present occasion, but when there is necessity for deeper cutting it will penetrate the earth to the depth of a foot. In its ordinary work at Teddesley five men and three boys—one of the latter carting coal and water—are found to be sufficient to work it; but, in order that it might be seen to the greatest possible advantage, six men and two boys attended it on Wednesday. The implement traversed the length of the field and returned—the anchors which keep the snatch-blocks in position being once changed during the time—in about five minutes and a half. The speed at which it moves is such as to require the man who steers it to walk at a rate very little, if any, under four miles an hour. The work executed was highly praised by all who witnessed it. The ground was thoroughly torn up and broken. At Teddesley, the implement does on an average six acres a day, at a cost for wages, a mule to draw water, cost of coal, &c., of less than a pound. It appeared to be the general opinion that it would have required eight horses to work the cultivator at the depth it was working on Wednesday, and that on account of their greater slowness they would not go over more than 4 acres in a day. Reckoning these horses at 3*s.* 6*d.* per day, and two men and a boy at 5*s.* 4*d.* per day, the cost for 4 acres with horse power would be 1*l.* 13*s.* 4*d.*, or about 8*s.* 4*d.* per acre, against less than 3*s.* 4*d.* per acre, which is more than the actual cost by the machine. The steam engine is applicable for threshing, or any other work where power requires to be applied to a machine. The machine was the object of much attention and interest, and although many doubted whether the first outlay would be repaid to any but very extensive farmers, no question was raised as to the complete success of the implement."

Reviews.

Agricultural Statistics, Ireland. Blue book, pp. 40. Alex. Thom & Sons, 87, Abbey Street, Dublin.

The pamphlet issued by Mr. Donelly contains the abstracts of results obtained during his inquiry into the agricultural statistics of Ireland for 1857:—

"According to these abstracts it would appear that in 1857 there were in Ireland 5,860,089 statute acres under tillage, being an *increase* of 106,542 acres over the quantity in 1856. This addition to the extent of land under crops is composed of an increase in cereal crops of 2508 acres,—in green crops, of 45,637, and of the land under meadow and Clover, of 66,634 acres,—making in all 114,779 acres, from which a *decrease* in Flax of 8237 acres is to be taken. In the cereal crops, Wheat shows an *increase* of 33,531 acres in 1857 compared with the previous year, and Barley, Bere, Rye, Beans, and Peas, of 27,536 acres;—but Oats shows a *decrease* equal to 58,599 acres. In green crops—Potatoes continue to be more extensively cultivated, 42,216 acres having been planted in 1857 above the number returned for 1856: Turnips on the contrary have diminished, 4487 acres less having been sown in 1857 than in 1856, in which year there were more than 12,000 acres under the quantity returned for 1855. Potatoes would, therefore, still appear to be the favourite green crop of the Irish farmer. Mangel Wurzel, Beet Root, Vetches, and Rape, also Carrots, Parsnips, and Cabbages, increase in cultivation—1857 exhibiting an extent in these crops above 1856 of 7908 acres, and over 1855, of 12,858 acres—thus, in some degree, compensasating for the falling off in Turnips."

"According to the returns of live stock, there were 600,693 horses in Ireland in 1857, being an increase over the number enumerated in the previous year of 27,285, of which 16,606 were horses used for agricultural purposes; 2466 for traffic and manufactures; 2469 for amusement or recreation; 1779 were yearlings, and 3965 under one year old. Cattle increased by 30,686 between 1856 and 1857; the number returned in the latter year being 3,618,544; of these 1,602,908 were milch cows; 801,875 two years old and upwards; 616,015 were under one year old; and 597,746 were one year old and under two years; these last decreased in 1857 by 23,361, compared with the same class in 1856. Pigs increased 333,627 since 1856; the number for that year having been 918,525, and for 1857, 1,252,152; the increase is made up of 34,037 one year old and upwards; and 299,590 under one year. Sheep show a decrease of 245,618 in 1857, of which 119,391 were ewes; 41,714 tups and wethers, and 84,513 lambs."

Miscellaneous.

Value of Different Varieties of Wheat.—Having, as usual, made some experiments to ascertain the comparative value of different varieties of Wheat, I send you the result of small trials, and regret that I cannot do more, for the slugs destroyed the plant of Wheat last autumn on my largest experiment, at places so as to render them useless for the purpose intended. The Wheat was well limed over twice; first, as soon as it made its appearance, and again a few days afterwards; it did not, however, have that effect in killing the slugs I have usually experienced. I suppose the greatest part of the injury was done before the Wheat was well out of the ground. The following experiment was made on a good piece of land, after White Clover, which had been summer eaten by sheep, and drilled at intervals of 8 inches, at the rate of about 6 pecks of seed per acre, on the 13th of October:—

	Per acre. Bush.	Pks.	Gal.
No. 1. Hybrid Red	35	3	1
,, 2. Browick Red	45	3	1
,, 3. Grace's White	53	3	0
,, 4. Essex White	45	3	0
,, 5. Imperial White . ..	45	3	0
,, 6. Grace's White, as No. 3 ..	52	0	0

A friend recommended me to try a productive sort of Wheat, the Rough Chaff White, and I accordingly tested its merits against my own "Grace's White," which had for the last two or three seasons beaten every other kind, by bushels per acre. I drilled them after a root crop late in the last season, and put on about 10 pecks of seed per acre in rows at 8 inches apart, when I found the relative value as follows:—

	Per acre. Bush.	pks.	gal.
Grace's White	40	1	0
Rough Chaff White	35	1	0

I believe, from my own experience, that Grace's White is by far the most profitable Wheat that I can grow on my loamy soil, but it may not do so well on land of a lighter description, and that the Browick is the most productive kind of Red Wheat, which answers admirably on the gravel soils of this neighbourhood. I regret that my experiments are reduced to so small a scale this year. *T. E. Pawlett, Beeston Sandy, Beds, in Bell's Messenger.*

Pleuro-pneumonia.—During the year 1856 pleuro-pneumonia prevailed to some extent in the neighbourhood, more especially amongst the dairy cows about Leeds. Its first appearance in my immediate vicinity was in the herd of my next neighbour, who lost several, and sent others off immediately for slaughter—in all 16 to 18. Towards the close of July, and during the hot weather of August, my own herd of cattle, more especially my milk cows, were also attacked. I sent some few off which were in a forward state of fatness; the return for these being small in proportion to their value for milking, together with the unpleasant idea of sending off animals at all ailing for slaughter, influenced me to use every means for their restoration, and to give their treatment my best attention. At first my treatment underwent various modifications, and I lost two cows. Without describing the change, I proceed to supply particulars of the treatment I afterwards adopted, and which I have since continued with little alteration. My feeders are strictly enjoined without loss of time to report to me any appearance of ailment, a practice I strenuously recommend to any one who concerns himself about the treatment of his cattle when sick, more particularly as regards the disease of which I am speaking, the chance of success in which depends essentially on early application. The first appearance which arrests the feeder's attention is loss or partial loss of appetite. If on examination I detect any of the symptoms which characterise pleuro, viz., cough, quickness or deepness of respiration, loss of cud, and acceleration of pulse, intermittent warmth and chillness of horns and feet, I proceed at once to bleed till the pulse is sensibly affected; this requires usually 5 or 6 quarts to be taken. I then give:—

Epsom salts	8 oz.
Sweet spirits of nitre..	1 oz.
Tartar emetic	½ drachm.
Digitalis..	½ drachm.
Flower of sulphur	4 to 6 oz.
Treacle	16 oz.
Cocoa clein	6 oz.

These ingredients are mixed and given in plenty of warm gruel, for which I use my pig food, boiled Indian meal with one-fourth proportion of Pea-meal. On a renewal of the difficulty of breathing or acceleration of pulse, I repeat the bleeding to a less degree, say 3 quarts, and give likewise the tartar emetic and Digitalis in the gruel. I continue to give, morning and evening in the gruel—

Sweet spirits of nitre	½ oz. to 1 oz.
Flower of sulphur	4 oz.
Treacle or sugar	8 oz.
Cocoa olein..	4 to 6 oz.

At noon I give gruel, with addition of a little sugar only. The doses of treacle and sulphur are modified so as to keep the bowels moderately open. It will be observed that I give Epsom salts as the first dose, on account of their quick action, but afterwards I prefer treacle with sulphur. The patient requires watching with the greatest care. The sick room ought to be well ventilated at the top, but kept warm day and night; a depression of temperature or a draught has been observed to disturb the breathing. When the feverish symptoms have abated I give Oatmeal instead of Indian meal in the gruel. I continue the Cocoa olein in the gruel throughout, with doses of ½ oz. to 1 oz. sweet nitre, and 3 to 4 oz. of flower of sulphur. In several cases, when the pulse has become feeble and below 60 beats per minute, accompanied by weakness and languor, I have given a wineglassfull of brandy in the morning's and evening's gruel with apparent advantage. The attendant is instructed to offer the animal change of food—brewer's grains, bran-mash, a little hay, Grass, Green Rape plant, or other palatable material. It is encouraging to find the animal begin to eat and make its selection of food. Since I used the precise treatment I have described, upwards of 20 in succession have recovered. In this number I include those belonging to my neighbours who have used the same means under my advice and direction. The time the cattle have been unwell has ordinarily varied from 14 to 21 days; some have exceeded this. The healthy action of the skin is stimulated; the animals continue to lick themselves with little intermission throughout; they likewise retain or otherwise resume their cud, under conditions I should not have expected; frequently when supplied only with the gruel and its ingredients, with not more than a pound or two of hay per day, I have observed them cudding. They have lost in live weight 1¼ cwt. to 1¾ cwt. A considerable portion of this will doubtless be in bulk from the use of the purgative medicines. The milk cows, whilst suffering, have reduced their yield of milk from 2 to 4 quarts per day; but on recovery have almost wholly regained their former quantity. In no instance have I found a greater diminution than what might have been expected from the loss of condition and of time. The Cocoa olein is prepared in Messrs. Price & Co.'s candle manufactory expressly for cattle, being lower in price than what is used by medical practitioners. *Mr. Horsfall, in the Journal of the Agricultural Society.*

Calendar of Operations.

SEPTEMBER AND OCTOBER.

Agricultural Report for the Isle of Ely, *Sept.* 30.—Our report for this month must necessarily embrace some facts and particulars relative to the results of the harvest, which we have just concluded. We find the opinion we ventured to express in a former report is likely to be verified, viz., that the crop of Wheat was a very good one, and the yield satisfactory, but not so excessive as had been in many cases represented. We also ventured the opinion that many of the crops upon the black land, where heavy and laid, were affected with mildew, and would consequently be slightly deteriorated in value, as they could not yield so uniform and perfect a sample. The free use of the threshing machine since harvest has enabled us to form a tolerably accurate estimate of the average produce of the Wheat crop; and the exports we hear, combined with our own experience, lead us decidedly to state that the crop is a thoroughly good one, but nothing more. The quality is in many cases good, in some fine, but from the black soils is very various and irregular. But very little of our Wheat crop in this locality was secured before the heavy rains fell, which threatened to deluge the whole country; we have consequently but very few samples quite free from sprouted kernels. But notwithstanding this the quality is not seriously deteriorated, as we were fortunate enough where patient to get our Wheats stacked in good dry condition. We can give but little information respecting the yield of the other grain crops, as most of our farmers have directed their attention to the threshing of Wheat rather than of the different varieties of spring corn. The rains have doubtless injured the quality of all, and must have seriously discoloured the few Oats. Our farmers are now actively engaged in preparing their lands for sowing with Wheat, and even in some instances we believe the drill has been already set to work, and in a few days will be largely employed. An early harvest and a beautifully fine autumn, we might almost a protracted and continued summer, have enabled us to make rapid progress with every kind of field work. Ploughing for Wheat is unprecedentedly forward, and autumn stubble cultivation has progressed most satisfactorily. Our pastures are superb, and present all the rich and luxuriant appearance of May. This increases the demand for and enhances the price of store stock generally. Both beasts and sheep are high, and in active request. Mangel Wurzels are likely to prove a heavy crop, and will be invaluable, as the Turnip crop is wretchedly bad, and can afford a very small amount of food. Coleseed also goes on very badly, and will be an inferior crop. Our markets are liberally supplied with Wheat, and prices are satisfactory, and we think unlikely to range lower for some time to come, and must, we think, be influenced considerably by the failure in the Potato crop, which is the worst we have seen it for the last 10 years. The disease prevails to a fearful extent, and we believe is very general. In a tour through Yorkshire last week we found the crop fully as much diseased, and complaints as universal as in the Fen. *A. S. R.*

Border of the Fens, *Oct.* 6.—Harvest this year was concluded before the end of August, so that we had two or three weeks' start to scarify and scuffle the stubbles before it became necessary to prepare for Wheat seeding, and herein lies the great advantage of mowing instead of reaping (although the so called "reaping" machines leave as close a stubble as the mower), enabling the farmer to push in his Bentall or Coleman as soon as the corn is in "stook:" and indeed let the harvest be ever so early there will be scarcely time sufficient to do all in autumn cultivation that might be wished, for every one now tries to get his Wheat in early, which necessarily abridges the best part of autumn for cleaning purposes, as in November there is no killing weather, and the rain generally prevents the use of the scarifier altogether. Talking about reaping machines, they make very slow progress hereabouts, owing in some measure to the passive resistance of the labourers, as the farmer who uses them finds considerable difficulty in procuring hands to use them, although when they can be brought into operation they undoubtedly effect a great saving in the cost of cutting. The usual rate about here for fair crops of Wheat reaping by hand is from 10*s.* to 12*s.* an acre, a reaping machine with plenty of tyers will not cost more than half that price, cutting at the rate of 10 or 12 acres a day, and doing the work well. The Wheat crop threshes out as well as was anticipated, but Oats are deficient. Potatoes are everywhere bad, and there are grave apprehensions of a complete scarcity of that useful root being felt before Christmas; no treatment seems to exempt the Potato from disease, although heavily manured and wet land entails greater loss. Turnips are also defective, the early sown and promising crops being mildewed and discoloured, while we fear the late sown will be found deficient in size and weight of bulb. Coleseed has improved astonishingly since the rains gave it a start, and sheep are now busy in reducing it where Wheat is intended to be sown. Tares sown before the 1st of October are coming up, some very forward.

Grass is very plentiful, and stock of all kinds fresh and doing well. Price of meat keeps up, and fattening, as well as the breeding and rearing of stock, must be considered remunerative. Labourers are well employed, and their wages are not yet much reduced, 12*s.* to 13*s.* a week being given to ordinary hands. *J. W., Peterborough.*

NORTH YORKSHIRE, *Oct.* 3.—Our harvest is now brought to a satisfactory close. Very various has been the weather and various will be the samples of grain as they come to hand during the season. We believe that in the whole of North Yorkshire few indeed will be the samples of Wheat entirely free from sprout. The grain secured in the earlier part of the harvest, that is, in the end of August and beginning of September, will certainly prove the sounder corn. Our own was all stooked by the 7th ult., and though what we have threshed is a very good dry yield, yet sprouted grains are very easy to find in the bulk. The damage must have been sustained while yet on the ground during the deluging and continuous rains in the middle of August, as our Wheat never got a shower while in stook. What was exposed after the 7th ult. must be considerably damaged, and though we do not think to any such extent as last year, yet the acreage unsecured this season was much greater than last. The bulk is wanting, but the yield is extremely satisfactory, and probably as regards the Wheat crop this may fairly be stated as equal to an average year. In several of our local districts Oats are much complained of as being deficient, and nearly over the entire Riding Beans have been a very bad crop. Generally Turnips are a poor crop; although Swedes are better than white ones. *Carabas, Farm near Guisbro'.*

Notices to Correspondents.

AMERICAN PURCHASES OF BREEDING STOCK: *R.* Commissioners from the State of Illinois lately purchased and transported a large number of well bred animals, 82 in all, namely, 2 entire horses, one thorough-bred, and a thorough-bred brood mare, 9 bulls, 21 cows and heifers, 25 sheep, and 24 pigs, all of which were shipped on board the Georgia for Philadelphia. Every precaution which skill and experience could suggest was adopted with regard to fitting up and ventilating the ship, and also for the feeding and care of the animals on the long voyage which was before them, rendered in some degree perilous by the comparatively warm climate to which they were destined. The precautions indispensable for this purpose were necessarily very costly, as also was the quantity of provisions requisite for so long a voyage. The expenses of travelling and conveyance, added to the first cost of the animals, amounted in all to 32,767 dollars; notwithstanding which, and the occurrence of some mortality among the animals (namely, the brood mare, two bulls, one cow, one sheep, and one pig) the investment has turned out a very profitable one, the whole lot having realised 43,520 dollars. From the *Illinois Chronicle*, as quoted in the *Liverpool Daily Post* of the 3d ult. we learn some particulars of the sale; these are as follow:—"Young Barnton," thorough-bred stallion, which cost, including conveyance, 2200 dols., sold for 5050 dols. Among the bulls "Defender," which cost 1100 dols., sold for 2500 dols.; "Argus," which cost 1066 dols., sold for 2058 dols.; "Admiral," which cost 1201 dols., sold for 2000 dols.; and "King Alfred," which cost 1100 dols., sold for 1300 dols. Among the cows and heifers "Rachel," which cost 1766 dols., brought 3925 dols.; "Emerald," which cost 1204 dols., brought 2125 dols.; and "Lady Harriet," which cost 916 dols., brought 1300 dols. The Cotswold rams cost 558 dols., the ewes 720 dols, the Southdown rams cost 578 dols., the ewes 590 dols.; for the Berkshire boars the cost was 398 dols., and for the sows 347 dols. For the Irish, Cumberland, and Yorkshire boars the cost was 251 dols,, and for the sows 360 dols. From a comparison of the original cost, including all expenses, with the full amount realised it appears that a profit of nearly 33 per cent. has accrued from the speculation, after deducting all costs and casualties. The only class of stock on which money was lost was the sheep, the highest amount of aggregate profit being on the pigs; but so satisfactory has the speculation turned out that other gentlemen have intimated their intention of coming over here in the spring for the purpose of making similar purchases.

COWS: *An old Subscriber.* The question is to be answered only after trial. The same quantity of oil-cake which would make the milk of one cow taste would not affect that of another. Try 2 lbs. a day, and increase gradually up to 5 or 6 lbs.

FLOUR MILLS: "1857" asks for the experience of any of our readers who have employed hand flour mills.

POULTRY: *A Scot.* The disease to which you allude is frequently caused by damp and bad feeding. The best treatment is to place the chickens in a dry situation. Give good hard corn (Wheat is preferable), and occasionally a very small portion of soaked bread crust.

STIFF LAND CULTURE: *A B.* Garrett's horse hoe for Wheat in rows 12 inches wide will answer perfectly well. We do not know Tennant's grubber except by report, which gives it a very good character. It is of no use to roll Tares and Clover now.

SUPERPHOSPHATES: *A Farmer.* The following is Mr. Spooner's method:—He advises that the acid added should be one-third the weight of the bones, and that four times its weight of water should first be poured over the heap. A very convenient and cheap vessel for manufacturing the mixture is a sugar hogshead, having its holes stopped with plaster of Paris. It is very desirable to avoid if possible any measuring or weighing of the acid, as it is so very dangerous a substance to handle. Many serious accidents occurred to my knowledge during the last year, and it is very difficult to impress farm-servants with a sufficient degree of caution, or to convince them that a liquid, which appears so colourless, will burn their skin and clothes. In emptying a carboy of acid, even into a tub, it is difficult to prevent a little slopping about, and damaging the clothes of the attendants, as well as the basket which contains the carboy. To prevent these unpleasant consequences I have adopted the following plan. The carboy is placed on a stage or cask, the same height as the sugar hogshead, into which is put the precise quantity of bone-dust we intend mixing with the carboy of acid. The water is now added with a watering-pot having a rose at the end, so as to disperse it thoroughly, and the carboy of acid is then emptied by means of a syphon. This syphon is made of a piece of block tin pipe, which can be bent into any form, about three-quarters of an inch in calibre, and 4 feet in length. A brass cock is soldered to the long end of the syphon, on which the rose of a watering-pot may be placed. The syphon is now filled with water, and its long end closed with the cock, and the small end with the hand or finger; the latter is then quickly inserted into the carboy. The cock turned on, the acid will continue to flow till the vessel is nearly empty, without any assistance, so that the attendant has no need to expose himself to the injurious and offensive fume, which almost immediately begins to escape. He may, however, approach the windward side of the tube, and give the mixture a little stirring, which should be continued a little time afterwards, so that the mixture may be complete. A convenient utensil for this purpose is a fork with two grains, long in the grain, bent at some distance from the grains, nearly at right angles, and fixed in a wooden handle. On the same day a fresh lot of bones may be added and the process repeated until the hogshead is nearly full. In two days afterwards the mixture may be shovelled into a heap, and either remain till wanted or mixed with a certain portion of ashes. It should be shovelled over several times, and ashes added at each time of turning, which will thus render the mixture fine and dry enough to pass through an ordinary drill.

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3 ,, 4 ,, 20 ,, 30..	0 7½	0 9	0 10½	1 0
4 ,, 5 ,, 30 ,, 35..	0 8	0 9½	0 11	1 1
5 ,, 6 ,, 35 ,, 40..	0 8½	0 10	0 11½	1 1
6 ,, 8 ,, 40 ,, 45..	0 9	0 10½	1 0	1 1
8 ,, 10 ,, 45 ,, 55..	0 9	0 10½	1 0	1 1
10 ,, 12 ,, 55 ,, 65..	0 9	0 10½	1 0	1 2
12 ,, 15 ,, 65 ,, 75..	0 10	0 11	1 0	1 3
15 ,, 20 ,, 75 ,, 90..	0 11	1 0	1 2	1 3
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19 by 12, 20 by 12	16*s.*	20 by 13, 20 by 14	

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Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ⅛ to $\frac{3}{16}$ and ¼-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. | Fern Shades and Stands
Bee ,, | Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

All packages charged, but allowed for when returned.

Address, 87, Bishopsgate Street Without, the same side as Eastern Counties Railway.

BOITE À HOUPPE.

FOR THE APPLICATION OF SULPHUR OR LIME TO THE VINE, TREES, AND ALL KINDS OF PLANTS. (Patented in England and France.)

BURGESS AND KEY, 95, Newgate Street, London.—The advantage of the Boîte à Houppe is, that before distribution the material to be distributed passes through short lengths of wool: by this means it is distributed in almost imperceptible particles upon the plants, without the waste which takes place by the present method. Price of the Boîtes à Houppe, 2*s.* 6*d.* each. Supplied by BURGESS & KEY, or by all respectable ironmongers in the United Kingdom.

PROTECTED BY ROYAL LETTERS PATENT.

HENDERSON'S PATENT IMPROVED BROOM-HEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. HENDERSON begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. HENDERSON, Inventor of the Patent Improved Broomheads, Dunkeld.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

J. S. MORRIS, HYDRAULIC ENGINEER, 38, Upper Thames Street, City, London.

Hot-Water Apparatus complete, on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. MORRIS in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

A Treatise by J. S. MORRIS "On Warming and Ventilating Dwellings" sent free.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

Stanley Bridge, King's Road, Chelsea, Oct 10

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.

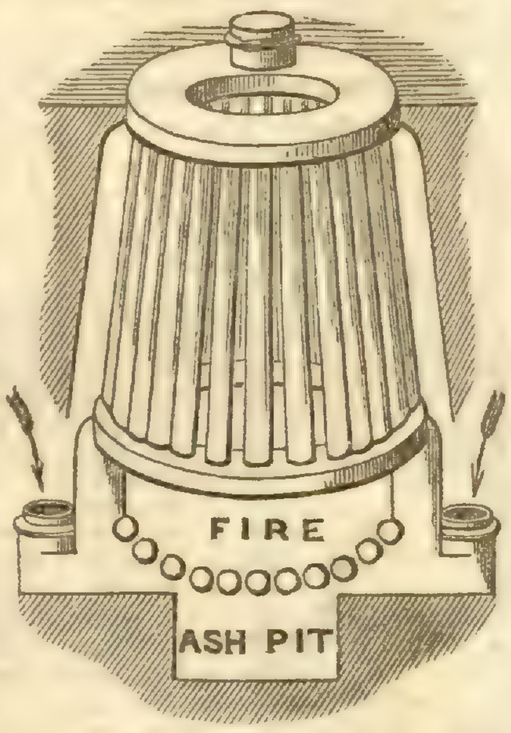
MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings :—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.



See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

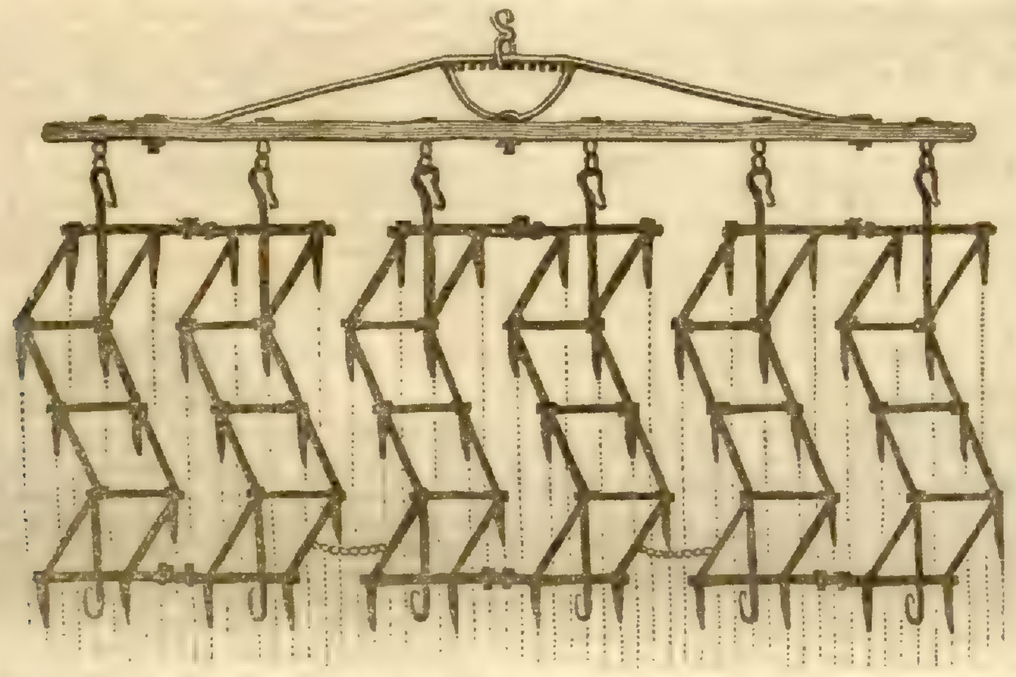
JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

PATENT PRIZE-JOINTED HARROWS.



FOR which they received the following FIRST PRIZES last offered by the ROYAL AGRICULTURAL SOCIETY OF ENGLAND, viz. :—

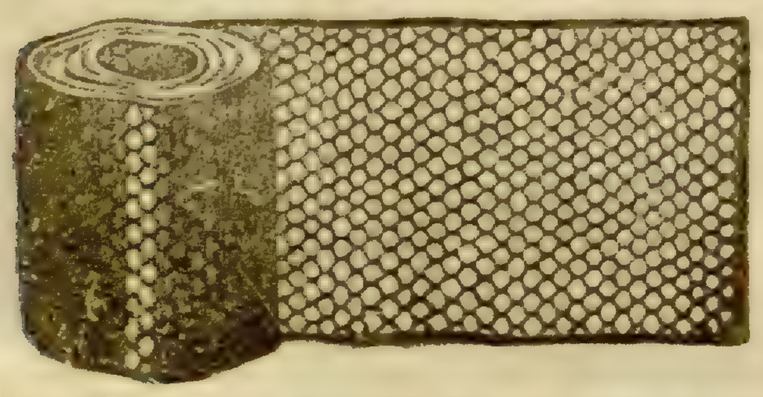
THE FIRST PRIZE FOR THE BEST GENERAL PURPOSE HARROWS.
THE FIRST PRIZE FOR THE BEST LIGHT HARROWS.
THE FIRST PRIZE FOR THE BEST DRAG HARROWS.

REPORT OF THE JUDGES UPON THE AWARD OF THESE PRIZES.

"First Prizes awarded to Messrs. HOWARDS' Harrows, for their moderate price, their peculiar zig-zag form, and being jointed so as to suit round stetches or flat lands. They have also a simple contrivance of hoop-iron under the nuts, which keeps them in place. They have the advantage of double-draught hooks, and the teeth are well arranged. These Harrows covered their ground well, cut deeply, and might be broken either way."

A Set of 3 Four-beam Harrows, with Whippletree, No. 12, 9½ feet wide, recommended as general Seed Harrows .. £3 14*s.*
A Set of 3 Four-beam Harrows, with Whippletree, No. 11, 10 feet wide, adapted for three horses .. .. .. £4 4*s.*
If with Patent Joints, as above, 6*s.* per set extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*



BARNARD AND BISHOP, Market Place, Norwich in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch "	strong do.	6 "	4¾ "
2-inch "	intermediate, do. ..	7 "	5½ "
2-inch "	extra strong, do. ..	9½ "	7½ "
1⅝-inch "	24 inches wide	5½ "	4½ "
1⅝-inch "	strong, do.	6½ "	5¼ "
1⅝-inch "	intermediate, do. ..	7½ "	6 "
1⅝-inch "	extra strong, do. ..	10 "	8 "

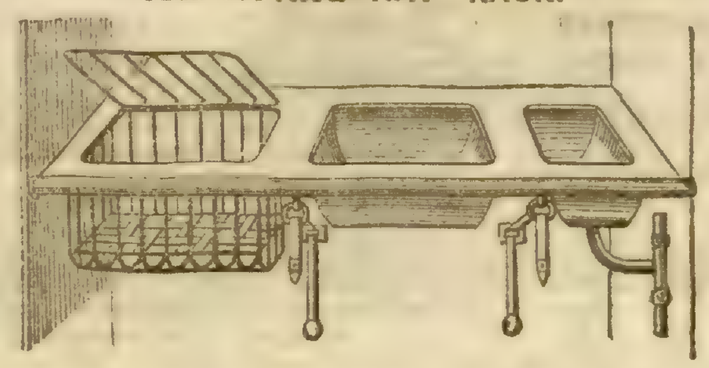
All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

TO THE NERVOUS AND DEBILITATED.

CHARLES WATSON, M.D. (Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted "The first man of the day in these complaints."—*Medical Review*, July 1856. "The true guide to those who desire a speedy and private cure."—*University Mag.*

HORTICULTURAL WORKS.

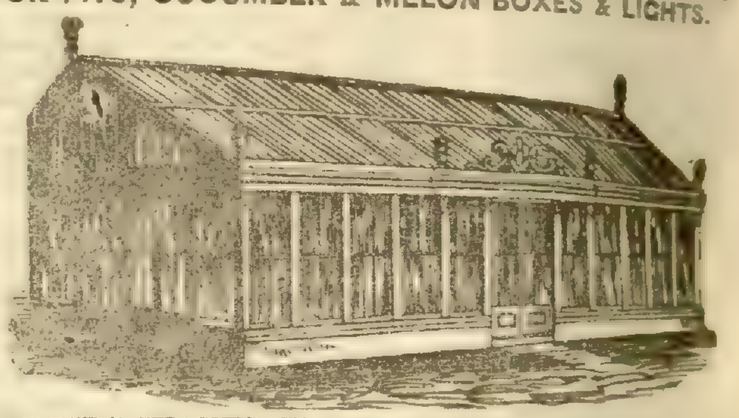
HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT WATER APPARATUS MANUFACTURERS.

Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-Water Apparatus of every description fixed warranted complete in every respect, 15 per cent. under the usual charges.

Plans and Estimates forwarded on application as above.

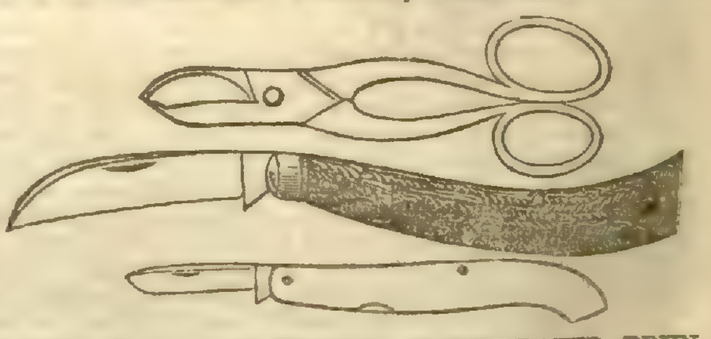
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

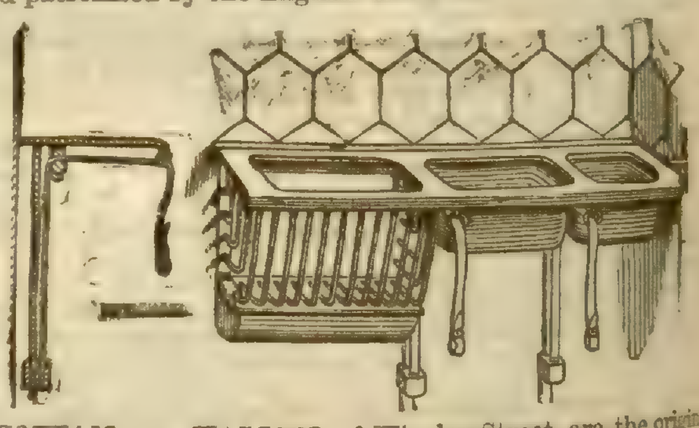
Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

PAXTON WORKS, SHEFFIELD.



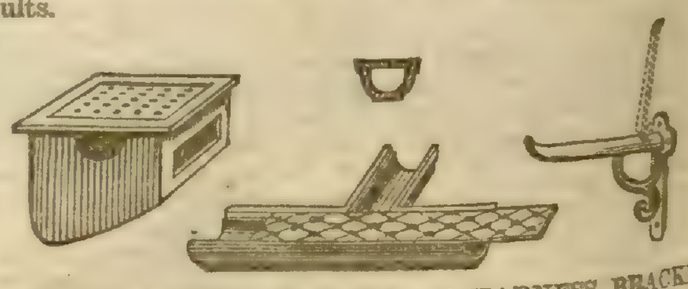
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, and all of which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

BLAIR'S GOUT AND RHEUMATIC PILLS, price 1*s.* 1½*d.* and 2*s.* 9*d.* a box.—Thirty years ago to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine are so fully demonstrated by testimonials from persons in every rank of life, and public opinion proclaims this as one of the most important discoveries of the present age. These Pills require neither attention nor confinement, and are certain to prevent the disease attacking any vital parts.—Sold by PROUT & HARSANT, 229, Strand, London, and all Medicine Vendors.

LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

21 varieties of Vases and Tazzas at prices varying from 15*s.* to 50*l.*
94 Statues and small Figures.
38 figures of Animals.
17 ,, of Birds.
16 Baskets of suitable Pedestals; prices from 12*s.* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
Garden Seats.
Sun-dial Pedestals
Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1856, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau*. The prices range from 10*l.* to 400*l.*

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

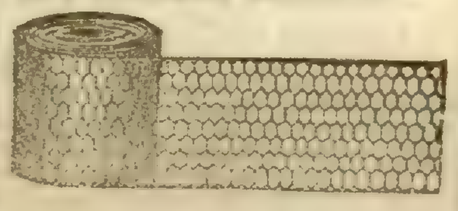
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

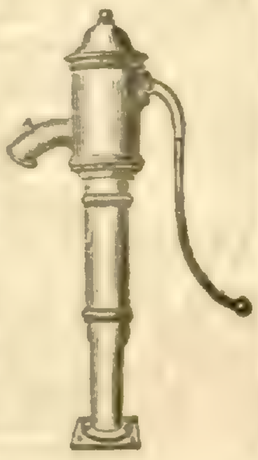
JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*



Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

WHITEFRIARS STREET, FLEET STREET, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* The barrel is 27½ in. long, and the legs are 5 ft. high.

1½ inch Gutta Percha Suction Pipe, 1*s.* 9*d.* per foot.

1¾ inch Flexible Rubber and Canvas Suction Pipe, 2*s.* 9*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c.

Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

Diameter of Barrel.	Length of Barrel.		£	s.	d.
2 in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2 ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2	14	0
½ in.	long ditto	ditto ditto	2	18	0

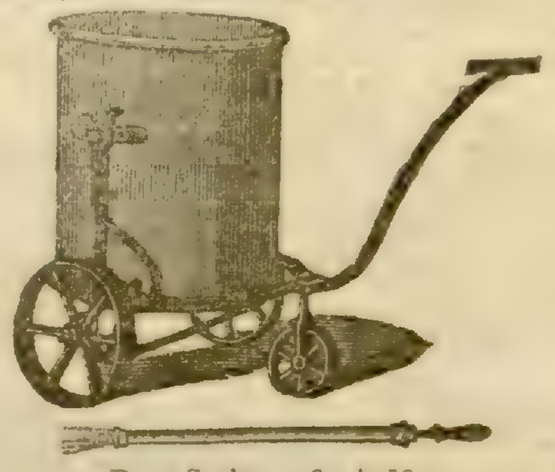
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNERS' SWING WATER-BARROW (TO HOLD THIRTY GALLONS)

Will save much of the gardener's time and labour. May be obtained of any Ironmonger for 3*l.* 3*s.*

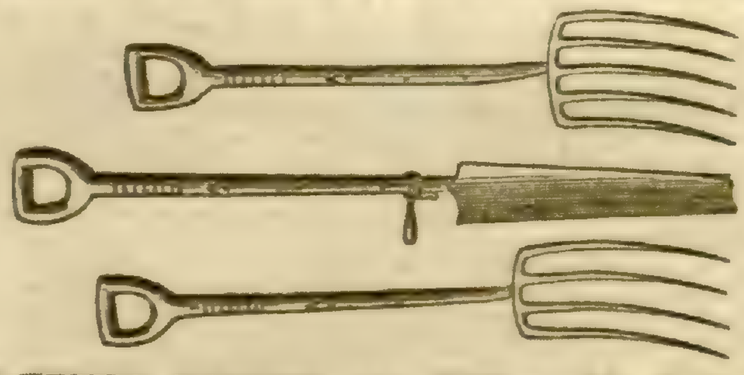


Brass Syringes, 9*s.* to 18*s.*

Also a great variety of effective Machines for Hydraulic purposes, and to supply Gardens, Hothouses, Cottages, Farms, Mansions, or Boards of Health, with every requisite connected with the conveyance and distribution of Liquids.

Fountains suitable for Conservatories, Lawns, &c.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

COOL AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—C. & A. OLDRIDGE, 13, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3*s.* 6*d.*, 6*s.*, and 11*s.*; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

FIVE GREENHOUSES FOR SALE.—One 32 feet by 13; one 24 feet by 12; one 20 feet by 10; one 16 feet by 9; all new, lean-to roofs. One span roof-house, second-hand, quite sound, as good as new, 26 feet by 16; glass, 5 feet high all round. The whole are made of the best seasoned materials, of fit and proper dimensions, glazed with stout sheet glass, with all necessary fastenings, painted four times complete, fit for immediate use; they can be taken down and refixed in any part of England in three days. To be sold a bargain under circumstances.—May be seen fixed at the rear of JAMES WATTS'S Premises, 8, Claremont Place, Old Kent Road, S. E.

TO BE SOLD, very cheap, two FORCING-HOUSES, 65 feet long; two 30 feet long; two CONSERVATORIES, 30 feet long, and smaller ones. Some of them now standing at E. DENCH'S Patent Horticultural Works, Mornington Place, Hampstead Road, and King's Road, Chelsea. Sold in consequence of alterations being required.

Sales by Auction.

NOTICE—TO NURSERYMEN AND OTHERS.

MESSRS. SMITH AND TAYLOR beg to notify that the Leasehold Estate the Abbey Nursery, St. John's Wood, submitted to public competition by order of Mr. Sommerville on Wednesday, Sept. 30, WAS NOT SOLD, and is consequently open for treaty by private contract.—Auction Offices, 288, Regent Street, W.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will sell as above at the Mart, TUESDAY, Oct. 6, and THURSDAY, Oct. 8, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

BRUNSWICK NURSERY, STOKE NEWINGTON ROAD.

MR. A. RICHARDS will Sell by Auction on the premises, on MONDAY, Oct. 12, and two following days, the whole of the Nursery Stock, consisting of American Plants, Evergreens, and Deciduous Shrubs; comprising 40,000 Rhododendrons, Fruit and Forest Trees, 4000 Aucubas, 3400 Euonymus; Greenhouse Plants; an excellent Horse, four-wheeled Chaise and Cart, Garden Tools, &c.

LOCKHART'S ANNUAL SALE OF BULBS AND FLOWER ROOTS.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to Public Competition by Auction, at the Mart, Bartholomew Lane, on MONDAY, October 12, at 12 o'Clock, a costly and extensive Collection of BULBS and FLOWER ROOTS, being about 35,000 in number, and consisting of all the approved hardy and ornamental varieties of Hyacinths, early and late Tulips, Crocus, Narcissus, and Anemones; also 2000 Sir Charles Napier Ranunculus, the finest variety yet raised, the whole of which are warranted true to name and description, &c.—On view the morning of Sale. Catalogues may be obtained at Mr. LOCKHART'S, Parson's Green Lane, Fulham; at the Mart; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

SHACKLEWELL.—To GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS have received instructions from Mr. Buck to Sell by Auction, on the premises, Manor Nursery, Shacklewell, near Kingsland, on THURSDAY, October 15, at 11 o'Clock, the Erections of 11 Greenhouses, some of them nearly new; a quantity of 4-inch Hot-water Pipe, Boilers and Fittings, Furnaces; ¼-inch Slate Slab; Foot and Pan Tiles; a capital Tumbril Cart, nearly new; 2 Pumps, Garden Pots, Mould, Manure, useful Horse and Mare, and sundry effects.—May be viewed three days prior to the Sale; Catalogues had on the premises; of the principal Seedsmen in London, and of the Auctioneers, American Nursery, Leytonstone, Essex.

N.B. The Lease of seven years unexpired to be disposed of.

SALE OF NEW AND VALUABLE TULIPS.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. John Slater, of Cheetham Hill, near Manchester, to Sell by Auction, at the Mart, Bartholomew Lane, City, on WEDNESDAY, October 21, at 12 o'Clock, one of the choicest and most select collections of TULIPS ever offered to the public, the whole having been most carefully selected in bloom.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

STOKE NEWINGTON.

To GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Green Lanes Nursery, Stoke Newington, on MONDAY, October 19, at 11 o'Clock without reserve, by order of Mr. Bird, 1000 dozen Cyclamen persicum, 4000 flowering Myrtles, fine double Camellias from 2 to 6 feet, well set with bloom buds; 2000 Moss Provence, and other Roses in pots; Passiflora coerulea, 450 Vines from eyes, Honeysuckles, Acacia lophantha, with 2000 Black, Red, and White Currants, &c.—May be viewed four days prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

EVELYN VINERIES, DEPTFORD.

To MARKET GARDENERS, NURSERYMEN, PINE GROWERS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Lancaster to Sell by Auction, on the premises, Evelyn Vineries, Edward Street, close to the Deptford Station on the Greenwich Railway, on TUESDAY, October 20, at 11 o'Clock, without reserve, the land being taken for building, about 700 fine healthy Fruiting and Succession Pines; 500 Black Hamburgh, Barbarossa, Muscat, and other Vines, from eyes in pots; 5000 Linnæus, Albert, and Victoria Rhubarb, 3 years old; quantity of Asparagus, 3 years, and Mint for Forcing; Seakale, Taragon, Rue; 1000 Chili Capsicums, sorts in pots; Dwarf Red Moss and Provence Roses; 400 bushels of Mushroom Spawn, &c. Also four Greenhouses, 3 Melon Pits, 30 Three-light Boxes; about 1500 feet of 3 and 4 inch Hot-water Pipe; 6 Saddle and other Boilers; 300 Hand Glasses, sundry Lights, Ladders, 2 Pumps, Desks, Carpenter's Bench, Carts, Barrows, Paving Tiles, &c.; together with a quantity of Home-saved Flower Seeds, Manure and sundry effects.—May be viewed three days prior to the Sale; Catalogues may be had on the premises; at the Dover Castle, Broadway, Deptford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A reasonable time will be allowed Purchasers for the removal of the Rhubarb in the ground.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5*s.* to 21*s.*

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

SEEDLING AZALEA—"STANDARD OF PERFECTION."

MR. EPPS in offering this superb SEEDLING AZALEA has no hesitation in saying that it is by far the best yet sent out, and will warrant its giving the highest satisfaction. Colour vivid rosy carmine, and of the most perfect shape; the outline is similar to a Petunia; petals smooth, the top of which are like those of a Pelargonium. This flower has an exceedingly rich waxy-like appearance and of great substance. Habit dense and free grower. Plants 10*s.* 6*d.*, 15*s.*, and 21*s.*; four Plants for three to the Trade.—Maidstone, Oct. 10.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30*s.* per dozen; smaller plants, 18*s.* per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30*s.* per dozen.—Epps's Nurseries, Maidstone.

NEW HARDY HEATH.—ER CA MEDITERRANEA ALBA.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer this new and interesting variety, which is a pretty and desirable addition to our hardy plants, price 5*s.* each, or 42*s.* per dozen. Hardy Heaths of the best kinds, and in good plants, supplied at 50*s.* per 100. The attention of planters for immediate effect is respectfully directed to our immense stock of large American Plants.

The Nurseries, Tooting, London.

SCILLA SIBERICA, SKY BLUE.

THE HARDIEST AND MOST BEAUTIFUL OF ALL OUR EARLY SPRING FLOWERS.

JOHN CATTELL can supply strong Bulbs of the above at 3*s.* per dozen; 21*s.* per 100; 9*l.* 9*s.* per 1000.

A Catalogue of Dutch and other Bulbs, containing lists of J. C.'s splendid Seedling Japan Lilies, &c., may be had gratis upon application. A remittance or reference must accompany all orders from unknown correspondents.—Nursery and Seed Establishment, Westerham, Kent.

N.B. Tropæolum tricolorum grandiflorum, strong bulbs, in quantities to the trade, very cheap.

GLENNY'S IMPROVED BALSAM SEED from Double Flowers, three inches over, though very limited, is now ready; six classes, 37 stamps; mixed packet, 13. Other Florists' Flower Seeds equally fine.—G. GLENNY, Fulham, S.W., or "Gazette" Office, 14, York Street, W.C.

HYACINTHS, CROCUS, TULIPS, ETC.

CHARLES ALEXANDER, NURSERYMAN and SEEDSMAN, 30, West Register Street, Edinburgh, respectfully intimates the arrival of his Third Importation of the various sorts of DUTCH FLOWER ROOTS. The HYACINTH BULBS are unusually large and sound, comprising many fine new ones, with all the old favourites. Inspection invited, and early orders solicited. Catalogues free on application.

DUTCH FLOWERING ROOTS.—Hyacinths, Narcissus, Tulips, Crocus, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c. In collections, No 1, containing 1400 assorted roots for 100*s.*; No. 2, 700 roots for 50*s.*; No. 3, 600 roots for 42*s.*; No. 4, 300 roots for 21*s.* Sent carriage paid, no charge made for package. A Descriptive Priced Catalogue of the above, with information regarding the collections, and valuable Treatises on the Culture of the Hyacinth, Gladiolus, Japan Lily, Crocus, &c., to be had on application or free by post. All orders to be accompanied with a remittance or a reference.—BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London. Established upwards of 100 years.

GLADIOLUS BRENCHLEYENSIS—the most splendid flower of the tribe, and easy of culture.

GLADIOLUS GANDAVENSIS, and

TIGRIDIA CANARIENSIS—MORGAN's pure yellow and richly spotted Tiger Iris.

JOSEPH MORGAN, Torbay Nurseries, Torquay, holds a large Stock of the above, and respectfully offers to supply strong flowering Roots on and after October 1, at reduced prices.

A Priced CATALOGUE OF BULBS, embracing a select list of J. MORGAN's collection of GLADIOLI, will be sent free on application. The Trade supplied on advantageous terms.

STATICE HALFORDI in 4-inch pots.

Horticultural Establishment, Torquay, Oct. 10.

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.

WILLIAM YOUNG, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

TO THE TRADE.

FOR SALE, PINUS DOUGLASI, 1 year seedlings, in single pots, 3 to 6 inches (good); 2 years transplanted do.

ANDROMEDA FORMOSA, 1 year seedlings (true), in pots.

2 years seedling RHODODENDRON PONTICUM; 2, 3, and 4 years transplanted do.

RHODODENDRON Stocks, 1 foot; Standard do., 3 to 5 feet.

QUICKSETS, strong 1 year seedlings, 3 to 9 inches.

PINUS MARITIMA, 2 years (good).

Early orders solicited.

GEORGE S. ROGERS, Red Lodge Nursery, near Southampton.

TO TULIP FANCIERS, FLORISTS, ETC.

FOR SALE, about 3000 SEEDLING TULIP BULBS, the produce of 30 years' cultivation of the Tulip by a gentleman who is about to give up his garden. Several of the Bulbs have produced the finest Bizarres both for ground colour, form, and dark marking, that have ever been grown, and the seedling bulbs are all raised from the choicest named Tulips. Lowest price, 25*l.* For further particulars apply to Messrs. FLEXON & WEST, Printers, &c., High Wycombe, Bucks.

"CRIMSON PERFECTION" RHUBARB.

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above splendid variety of RHUBARB, trusting from its superior quality and reduced price to meet with a continuance of favours. It is very early and productive, and the interior of the stalks are a crimson colour. Price one year old roots, 1*s.* each; two years old, 1*s.* 6*d.*; three years old, 2*s.* 6*d.* each. With usual discount to the trade.

Orders forwarded to ROBERT SALT; or to Messrs. HURST & M'MULLEN, Seedsmen, 6, Leadenhall Street, London; BURGESS & KENT, Nurserymen, Penkhull, Staffordshire; F. & A. DICKSON, Nurserymen, 106, East Gate, Chester; CHARLES TURNER, Royal Nursery, Slough, will receive strict attention. A remittance to accompany the order from unknown correspondents.—Longton, October 10.

CHRYSANTHEMUMS, LARGE-FLOWERED & POMPONE.

WOOD AND INGRAM beg to offer fine plants of the above, well-established in 5 and 6-inch pots, and full of bloom buds at from 6*s.* to 9*s.* per dozen. These plants have been grown in pots all the season, and are well furnished with healthy foliage to the very base. They consist of such kinds as Auguste Mie, Annie Salter, Berthilde, Bride, Campestrion, Madame Comerson, Perfection, Temple de Solomon, Anna Boleyn, Argentine, Bob, Calibri, Solfaterre, &c.

Nurseries, Huntingdon.

SUPERB NEW STRAWBERRIES.

WILLIAM J. NICHOLSON can now supply the following excellent varieties, all true to name and well rooted, viz., Ne Plus Ultra, very large and early, 30*s.* per 100; Excellent (really so), large and a great bearer, 30*s.* per 100; Sir Harry, 20*s.* per 100; Ingram's Prince Alfred, 20*s.* per 100; Filbert Pine, 10*s.* per 100; Kitley's Carolina superba, 10*s.* per 100; Sir C. Napier, 10*s.* per 100. All the older sorts, 5*s.* per 100. For Early Sorts see Advertisements in August last. Post-office Orders payable at Yarm.

Egglescliffe, near Yarm, Yorkshire.

DOUBLE AND SINGLE HYACINTHS, NARCISSI, EARLY AND DOUBLE TULIPS, PARROT TULIPS, LATE TULIPS, JONQUILS, IRIS, CROCUS, SNOWDROPS, ANEMONES, RANUNCULI, IXIAS, CYCLAMENS, GLADIOLI, AMARYLLIS, SCILLAS, LILIUMS, DENS CANIS, FRITILLARIAS, TROPÆOLUMS, TIGRIDIAS, &c.

CLARKE AND COMPANY beg to announce the arrival of their Choice Assortments of DUTCH BULBS, direct from the best growers in Haarlem. Lists of Prices will be forwarded on application.

CLARKE & COMPANY, Wholesale and Retail Seedsmen and Florists, 86, High Street, Borough, London, S.E.

FINE ROSES FOR THE MILLION.

NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Oct. 10.

ORANGE TREES.—A few handsome Orange plants in excellent fruit-bearing condition, removed from the conservatory of a nobleman's county mansion, to be Sold a Bargain.—Apply to Messrs. SMITH & TAYLOR, 288, Regent Street, W. To view apply at TAYLOR'S, Regent Nursery, Park Village East, Regent's Park.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

SAFFRON WALDEN NURSERIES, ESSEX.

HOLLYHOCKS.—The Annual Descriptive Catalogue, with Hints on their Culture, Exhibition, &c., may be had of WILLIAM CHATER, by enclosing one postage stamp.

	Per packet—*s.*	*d.*
Seed saved from 20 varieties, fine mixed.. ..	5	0
Ditto 12 ditto	2	6
Ditto good ditto	1	0

NEW CINERARIAS, FUCHSIAS, ETC., OF 1857.

WM. RUMLEY AND SONS beg to offer fine strong plants of the under-named, hamper included, or free by post on receipt of a Post-office Order, payable at Richmond, Yorkshire.

	Per dozen—*s.*	*s.*
Cinerarias, new varieties of 1857	9 to	12
Do. older varieties	4 to	6
Fuchsias, new varieties of 1857	12 to	15
Verberas do. do.	6 to	9
Hollyhocks, extra fine	6 to	9
Chrysanthemums do.	4 to	6
Primula sinensis, alba, and rubra, beautifully fringed	3 to	6
Geraniums, choice show and fancy	6 to	12
Pansies, extra fine varieties	3 to	6

Descriptive Catalogues of the above can be had on application.

Gilling, near Richmond, Yorkshire.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, AMERICAN PLANTS, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

RATS, MICE, AND DESTRUCTIVE ANIMALS, how to paralyse and render them immoveable on the spot, though there be hundreds, so that they may be gathered with a shovel and finally drowned. The effect warranted, and the cost to paralyse 50 will be 3½*d.* Materials can be bought in every town and village. The above astounding remedy sent post free for eight postage stamps to any address by FISHER & SON, Publishers, Ringsland, London. Established 1847. Two Hundred testimonials sent first if desired.—N.B. This remedy surpassing all conception is exclusively Russian.

TREES, SHRUBS, EVERGREENS, ETC.

THE BURIAL BOARD for the PARISH of WEST HAM, in the County of Essex, desire TENDERS for about 3000 TREES and SHRUBS for their Burial Ground, near Forest Lane, in the said Parish. A List may be obtained of the Clerk, and which will serve as a Tender on having the prices annexed against the different sorts of Trees therein enumerated, and on being signed with the address. Any portion may be Tendered for. The Board do not confine themselves to take the whole number of the Trees and Shrubs contained in the List. The Tenders to be forwarded on or before WEDNESDAY, the 21st inst., to Mr. JOHN SUTTON, Clerk to the Burial Board, Plaistow, West Ham, Essex, to whom all applications are to be made.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

REIGATE SILVER SAND (best quality for Florists), 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. PEAT and LOAM of various kinds, in large or small quantities. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—JOHN KENNARD (Purveyor to Her Majesty), Swan Place, Old Kent Road, S.E.

THE CELEBRATED REIGATE SILVER SAND, 15*s.* per ton, a less quantity 1*s.* 6*d.* per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s.* 6*d.* each. The above Sand is warranted. Orders immediately executed.—Address to JOHN G. BRYAN, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. MAY & Co., Seedsmen, Wellington Street, Strand.

CHARLES M'INTOSH, F.R.P.S., LANDSCAPE GARDENER, GARDEN ARCHITECT, &c., Newcome Villa, Murrayfield, Edinburgh. London address: Messrs. P. LAWSON & SON, 27, Great George Street, Westminster.

TREE TRANSPLANTING BY MACHINE, PRACTICAL LANDSCAPE GARDENING, ORNAMENTAL PLANTING, DRAINING, &c., by Contract or otherwise. Designs and Estimates given on moderate terms. The Machines let by the week, with men if required.

W. H. RUMBOLD, Tunbridge Wells, Kent.

DRAINAGE AND LAND IMPROVEMENT WORKS LAID OUT AND SUPERINTENDED BY MR. H. ALLNUTT, DRAINAGE ENGINEER, 49 A, Lincoln's Inn Fields, London.

BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.—ASPHALTE for any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.* A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. POWELL, Hurst Green, Sussex.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.*, on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

THE best and cheapest PAINT for PARK FENCING, Barns, Stables, all outside Wood and Iron Work, is MITCHELL'S ANTISEPTIC MINERAL BLACK PAINT. Sold ready for use, 17*s.* 6*d.* per cwt. Used largely, now and for many years past, by the West India Dock Company, for fencing, barges, &c. Recommended to the nobility and gentry, stewards, land agents, &c. A liberal allowance to the Trade, &c.—Manufactory, Kennington Lane, Lambeth.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, October 10, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 42.—1857.] SATURDAY, OCTOBER 17. {Price Fivepence. Stamped Edition, 6*d*.

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GREAT FRUIT EXHIBITION AT WILLIS'S ROOMS, OCTOBER 24.

HORTICULTURAL SOCIETY OF LONDON.—Tickets can now be had at 21, Regent Street, price 2*s*. 6*d*. each; and also of Charlwood & Co., Tavistock Row, Covent Garden; Noble & Co., 152, Fleet St.; Henderson & Co., Pine-apple Place, Edgware Road; E. G. Henderson & Son, Wellington Nursery, St. John's Wood; Hurst & M'Mullen, 6, Leadenhall Street; Lawson & Son, 27, Great George Street, Westminster; J. & C. Lee, Hammersmith; Osborn & Son, Fulham; Veitch & Son, King's Road; J. Weeks & Co., King's Road; Wrench & Sons, London Bridge. Price on the day of Exhibition 3*s*. 6*d*. each

HORTICULTURAL SOCIETY OF LONDON.—GREAT LONDON SPRING EXHIBITION, APRIL 6.

SCHEDULE OF PRIZES.

Class		Prizes offered £	s.	£	s.	£	s.
I.	Hyacinths, twelve distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
II.	Do. eighteen distinct sorts, named; in pots .. (Nurserymen)	2	0	1	0	0	10
III.	Do. six new and distinct kinds, named	2	0	1	0	0	10
IV.	Do. twelve, in glasses	2	0	1	0	0	10
V.	Tulips, eighteen, in six distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
VI.	Do. twenty-four, in eight distinct sorts, named; in pots (Nurserymen)	2	0	1	0	0	10
VII.	Narcissus, twelve, in six distinct sorts (Amateurs)	2	0	1	0	0	10
VIII.	Do. twenty-four, in six distinct sorts.. .. .. (Nurserymen)	2	0	1	0	0	10
IX.	Do. eighteen, mixed .. .. The greatest variety will have the first consideration in this class.	2	0	1	0	0	10
X.	Amaryllis, in twelves; two of a sort admitted .. .. *Note.*—As the bulbs will be exhibited in groups, and no pots to be seen, it is requested that competitors in these classes will furnish sufficient Moss for that purpose.	4	0	3	0	2	0
XI.	Camellias, in sixes	4	0	3	0	2	0
XII.	Roses, in sixes; in pots of any size ..	4	0	2	0	1	0
XIII.	Do. in twelves, in three distinct colours; in pots not exceeding 8 ins. in diameter	4	0	2	0	1	0
XIV.	Dwarf Moss Roses, in twelves	3	0	2	0	1	0
XV.	Rhododendrons, four distinct kinds (Amateurs)	3	0	2	0	1	0
XVI.	Do. six do. (Nurserymen)	3	0	2	0	1	0
XVII.	Azaleas, four distinct kinds	4	0	3	0	2	0
XVIII.	Do. six do. (Nurserymen)	4	0	3	0	2	0
XIX.	Forced Shrubs, in sixes (Hardy, as Lilacs, Deutzias, &c.) .. .. .. No plant admitted to this class which can be exhibited in separate classes	2	0	1	0	0	10
XX.	Six Plants of fine and remarkable foliage, whether in flower or not; variegated plants admissible	4	0	3	0	2	0
XXI.	Annuals, six distinct sorts; in pots ..	2	0	1	0	0	10
XXII.	Cinerarias, in sixes, correctly named .	2	0	1	0	0	10
XXIII.	Auriculas, in twelves	2	0	1	0	0	10
	FRUIT.						
XXIV.	Pine Apples, any sort	2	0	1	0	0	10
XXV.	Grapes, black; three bunches	3	0	2	0	1	0
XXVI.	Do. white do.	3	0	2	0	1	0
XXVII.	Do. retarded do.	3	0	2	0	1	0
XXVIII.	Vines, in pots; in twos	3	0	2	0	1	0
XXIX.	Peaches, in sixes	3	0	2	0	1	0
XXX.	Nectarines, in sixes	3	0	2	0	1	0
XXXI.	Cherries, white	2	0	1	0	0	10
XXXII.	Do. black	2	0	1	0	0	10
XXXIII.	Strawberries	2	0	1	0	0	10
XXXIV.	Apples, in 2 sorts, nine of each; dessert	1	0	0	10		
	Do. do. do. kitchen	1	0	0	10		
XXXV.	Pears, in two sorts, nine of each; dessert	1	0	0	10		

In addition to the above C. W. Dilke, Esq., V.P.H.S., offers a prize of 5*l*. for the Best Pine Apple of any kind. In order to be admitted to competition for this prize Queens and Jamaicas must weigh not less than 4 lbs., Cayennes 6 lbs., Providence, Black Prince, and other large kinds not less than 8 lbs. Since Pines can be carried safely for long distances it is hoped that Scotch, Irish, and Continental growers will compete.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—NOTICE is hereby given that an ELECTION of FOUR PENSIONERS on the Funds of this Society will take place in January next. All persons desirous of becoming candidates are requested to send in their petitions, accompanied with certificates and testimonials, to the Committee on or before Tuesday, November 17, after which time they will not be received.

Printed Forms of Petition to be admitted a Candidate may be had upon application to the Secretary.

By order Edw. R. Cutler, Sec.

14, Tavistock Row, Covent Garden, W.C., Oct. 17.

SCOTTISH ARBORICULTURAL SOCIETY.—The Fourth Annual Meeting was held at Edinburgh on the 8th inst., Mr. Brown, President, in the chair.

Office Bearers for 1857–8 were elected as follows:—

President—The Right Hon. the Earl of Ducie.

Vice-Presidents.

Rt. Hon. T. F. Kennedy, Dunure
Sir John Villiers Shelley, M.P.
Sir John Ramsden, Bart., M.P.
John I. Chalmers, Esq., Aldbar
Mr. W. M'Corquodale, Scone Palace.
Mr. James Brown, Wood Commissioner to the Earl of Seafield

Secretary.

Mr. James Alexander, Nurseryman, Leith Walk, Edinburgh.

Vice-Secretary—Dr. George Lawson, Demonstrator of Vegetable Histology to the University.

Treasurer—Mr. John Anderson, Nurseryman, Perth.

Auditor.

Mr. Thos. Methven, Nurseryman, Stanwell Lodge, Edinburgh.

General Committee.

Mr. Thomson, Chopwell Wood
Mr. Thomson, Forester, Culhorn
Mr. Walter Sang, Nurseryman, Kirkcaldy
Mr. Balden, Forester, Lennox-love
Mr. Cowan, Forester, Arniston, Gorebridge
Mr. J. Black, Factor, Robertland House, Stewarton
Mr. Robert Philip, Forester, Aldbar, Brechin
Mr. Jas. Smith, Forester, Donibristle
Mr. M'Laren, Forester, Hopetoun
James Smith, Esq., Factor, Dunglass
Mr. Dickson, Forester, Charlton, Fife
Mr. E. J. Ravenscroft, 1, George IV. Bridge
Mr. P. S. Robertson, Golden Acres Nursery
Mr. Gardiner, Forester, Eglinton Castle

Prizes were awarded as follows:—

First Prize (Silver Medal), to Mr. John Thomson, Culhorn, for Essay on the Reclamation of Neglected Plantations. Second, to Mr. James White, Wood of Park, Glenluce.

First Prize (Silver Medal), to Mr. John M'Leod, North Broomage, near Larbert, for Essay on the Management of Coppice Woods and Cutting of Coppice Bark. Second, to Mr. James White, Wood of Park.

First Prize (Silver Medal), to Mr. J. G. Thomson, Culhorn, for Essay on Planting on Moss Lands.

First Prize (Silver Medal), to Mr. William Thomson, Chopwell, for Essay on Forest Book-keeping.

It was agreed to offer Six Silver Medals for Competitive Essays next season, particulars of which will be furnished by the Secretary on application. James Alexander, Sec.

6, York Place, Edinburgh, October 17.

CAMELLIAS.

CHANDLER AND SONS solicit attention to their large Collection of young CAMELLIAS, beautifully set with flower buds, 20*s*., 30*s*. & 42*s*. per dozen, package included.

CHINESE AZALEAS.

CHANDLER AND SONS' large stock of CHINESE AZALEAS, equally well set with flower buds, at from 18*s*. to 30*s*. per dozen.

CRIMSON RHODODENDRONS.

CHANDLER AND SONS have also to offer a large number of CRIMSON RHODODENDRONS, finely set with flower buds, at from 5*s*. to 10*s*. 6*d*. each.

Nursery, Wandsworth Road.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s*. to 10*s*. each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; **average length, 1 foot. Price per packet, 1*s*.**—James Carter & Co., Seedsmen, 238, High Holborn, London, W. C.

DOUBLE SNOWDROPS.—The Trade supplied with DOUBLE SNOWDROPS in any quantity.—Prices may be had on application to Clarke & Company, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

CABBAGE PLANTS.—Several Thousands of Enfield Market and Early Champion for sale very cheap to parties taking the lot.—Joseph May & Co., 1, Wellington St., Strand.

EARLY POTATOES.—The improved Lemon Kidney, Small quantities of this excellent variety carefully selected (see last No. of Royal Agricultural Society of England Journal) may be had on application to John Holm, the Parsonage, Morecombe. Price 5*s*. per stone.

SPANISH CHESNUTS.

FOR IMMEDIATE SALE, 80 Bushels of fine SPANISH CHESNUTS.—Apply to Mr. F. F. Fox, Melbourne, near Derby.

TO NURSERYMEN.

FOR SALE, a quantity of CHESNUTS.—Application (stating price per bushel) to be made to Mr. Harland, Belvidere Park, Erith, Kent, S.E.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s*., including package. Epps's Nurseries, Maidstone.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30*s*. per dozen; smaller plants, 18*s*. per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30*s*. per dozen.—Epps's Nurseries, Maidstone.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Oct. 17.

YOUELL AND CO.'S GENERAL PRICED CATALOGUE is now published, and may be had post free on application.—Royal Nursery, Great Yarmouth, Oct 17.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

ROSES.

THE DESCRIPTIVE CATALOGUE OF ROSES FOR 1857-8, by Thomas Rivers, is now ready for delivery. It has been compiled with much care, so as to serve as an efficient guide to the Rose Amateur. Sent free per post on application.—The Nurseries, Sawbridgeworth

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS' New and Descriptive Catalogue of ROSES, for 1857 and 1858, is now ready for delivery, and will be forwarded gratis on application.

NEW ROSE LIST FOR 1857-8;

ALSO,

A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

STRAWBERRY PLANTS can still be supplied as per Advertisements of August and September.—Address William J. Nicholson, Egglesclife, near Yarm, Yorkshire.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 3*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50*s*. per 100.—Epps's Nurseries, Maidstone.

H. CUTBUSH, Jun., Nurseries, Barnet, Herts. begs to call the attention of those engaged in planting to his fine Stock of Large GREEN HOLLIES, adapted to give immediate effect, the prices of which may be had on application.

LISIANTHUS RUSSELLIANUS.

WILLIAM CUTBUSH AND SON have a large stock of the above to dispose of at very low prices, which can be had on application.

Highgate Nurseries, London, N.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden.

NOTICE TO PINE GROWERS.

WANTED,

JAMAICA PINES | QUEEN PINES
CAYENNE PINES | MONTSERRAT PINES

First-class Fruit, not under 2 lbs. each.

Forward to George Taylor, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

WANTED, in January next, for Avenue Planting, 200 or 300 CEDAR OF LEBANON, 3 feet high, not in pots. State price to "Coniferæ," *Gardeners' Chronicle* Office.

Also 100,000 Seedling QUICK THORN, 1 year old, 6 to 10 inches long.—Oct. 17.

400,000 TRANSPLANTED LARCH FIRS, from 1 to 4 feet.
80,000 " SPANISH CHESNUTS, from 1 to 7 feet,
AND ALL OTHER FOREST TREES.

WM. WOOD AND SON will be happy to forward samples and prices of the above on application. The Plants are exceedingly luxuriant and healthy.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.

William Young, Milford Nurseries, near Godalming, Surrey.

THOMAS BARNES begs to offer to the Trade:—

ARBUTUS, 1 year, grown in pans.
ALSTRŒMERIAS, in 36's, mixed sorts, 1 year grown in pans.
LAURUSTINUS, in three sorts, 1, 2, and 3 years.
ARBUTUS BERRIES, per quart.
THORNS, 1 & 2 years; a few thousands 4 years transplanted.

Merrion Nursery, near Dublin, Oct. 17.

BERBERIS JAPONICA.—This fine hardy Shrub, see illustration in *Gardeners' Chronicle*, Oct. 10, can be supplied in any quantity at very moderate prices by Charles Noble, the Nursery, Bagshot. Prices according to height given on application.

NEW AND RARE FERNS.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire, begs to offer nice well grown plants of the following RARE FERNS, at the annexed reduced prices:

Gymnogramma peruviana argyrophylla, distinct, fronds covered with silvery white farinose powder on both sides, 3s. 6d. to 5s. each.
,, rufa, hairy green fronds, very elegant, 3s. 6d. to 5s.
,, tomentosa, hairy, dull green fronds, very fine, 2s. 6d.
Nothochlæna tenera, an elegant little tufted Fern, slightly white powdered beneath, 2s. 6d.
,, chrysophylla, new and lovely small growing gold Fern, 5s.
,, tomentosa (Cheilanthes tomentosa), white and silky hair covered, green fronds, very fine and pretty, 5s. and 7s. 6d.
Cheilanthes farinosa (Cassabeera farinosa), a silver Fern with broad triangular fronds, 3s. 6d. to 5s.
,, micromera, narrow triangular smooth and green fronds, very handsome, 2s. 6d.
Mohria thurifraga, very distinct, and well adapted for Fern cases, 3s. 6d. to 5s.
Pteris aspericaulis, spreading, purple, and slender stalked; a beautiful new Fern, 3s. 6d. to 5s.
Pteris umbrosa, long stalked, gracefully drooping, very handsome, 3s. 6d.
Hemonitis palmata, Ivy-leaf shaped, rather hairy, light green fronds, a pretty Fern, 2s. 6d.
Osmunda cinnamomea, long stalked, spreading spike-like fronds, pretty, 3s. 6d. to 5s.

The above Collection, hamper included, 42s. cash. A fine collection of well grown plants of Ferns and Lycopods (suitable for cases) may be had cheap. Post-office Orders payable at Marsden, Lancashire.

P.S. Nice plants of all the new Fuchsias, 12s. to 18s. per doz. Geraniums, several thousands, nice plants, English, French, Fancy, and show varieties, at very reduced prices. Cinerarias, nice plants of all the leading varieties. Catalogues on application.

THREE THOUSAND AZALEA INDICA.

WILLIAM BARNES has for Sale the above number of INDIAN AZALEAS, and has no hesitation in saying that for health, shape, and cleanliness, they are not to be surpassed by any collection in this or any other country. All the best kinds are worked upon vigorous healthy stocks, and can be supplied in nearly all sizes and heights, as well as those upon their own roots, which are literally covering the pots with their branches, and are finely set with bloom buds. The following list comprises a small portion of his extensive stock:—

Admiration
Adolphe
Alba meloir
,, magna
,, striata
Ardens
Ascendens
Aurora
Barclayana
Beali
Beauté d'Europe
Beauty of Reigate
Chelsoni
Constantia rosea
Countess of Stamford
Crispiflora
Criterion
Delicatissima
Duke of Devonshire
Elegans superb
Empress Eugenie
Eulalie Van Geert
Extransi
Fentoni
Gem
Gledstanesi excelsa
,, formosa
Glory of Sunning Hill
Holfordi
Impératrice Josephine
Iveryana
Juliana
Lateritia alba supreme
,, grandiflora
Lawrenciana
Leeana
Louis Napoleon
Lucens
Magnificans
Madame Miellez
Maria
Mrs. Fry
Perfecta elegans (true)
Perryana
Petuniæflora
Princess Mary of Cambridge
Queen of Perfection
Queen Victoria
Reine des Belges
Roi Leopold
Rosy Circle
Ruckeri
Sir C. Napier
Stanleyana
Striata formosissima
Symmetry
The Bride
Trotteriana
Vesta
Violacea superba

As well as every other known variety worth cultivation.

W. B. would respectfully invite intending purchasers to an inspection of his unrivalled stock, which will give them the opportunity of making their own selections. A great many are splendid specimen plants fit to exhibit at any horticultural show in the world. Prices, which are exceedingly low, can be obtained on application. W. B. would further state that his plants are perfectly free from Thrip (which is almost universal in its ravages), and that purchasers will be supplied with the most effectual method of keeping them ever free from their attacks. Camden Nursery, Camberwell, S.

FRUIT TREES.

THOMAS RIVERS begs to submit to the Public the following synopsis of his FRUIT TREE CULTURE, which is this season the most complete and extensive in Europe.

APPLES, on Crab Stocks.—Standards for orchards, pyramids, dwarfs, and dwarfs trained for espaliers.

APPLES, on Paradise Stocks, for gardens.—Pyramids, dwarf bushes, dwarfs trained for espaliers, and dwarf bushes in pots.

APRICOTS.—Standards, standards trained, half standards trained do. do. in pots, dwarfs, dwarf bushes for potting, dwarfs trained for walls, and dwarfs in a fruiting state in pots for orchard houses.

CHERRIES, on black Cherry Stocks.—Pyramids, full of bloom buds, standards, standards trained, dwarfs, and dwarfs trained.

CHERRIES, on the Mahaleb Stock.—Dwarf bushes for potting and culture as bushes, dwarfs trained for walls, and dwarf bushes in pots.

CURRANTS.—Dwarf bushes, including some new and fine varieties.

FIGS, in pots, in a bearing state.

GOOSEBERRIES.—Small, high-flavoured, old sorts, and all the large new Lancashire varieties.

GRAPES for Vineries, from eyes, in pots.—Strong plants, two and three years old; ditto, in pots, dwarf bushes for orchard houses; ditto, hardy sorts from the open ground for walls.

MEDLARS.—Standards and dwarfs.

MULBERRIES.—Standards and dwarfs trained for walls.

NECTARINES AND PEACHES.—Standards, standards trained, half standards in pots, dwarfs, dwarfs trained, and dwarfs in a fruiting state in pots for orchard houses.

NUTS AND FILBERTS.—Dwarf bushes and standards 4 feet high, grafted on the Hazel Nut.

PEARS on Pear Stocks.—Standards, standards trained, dwarfs, dwarfs trained for espaliers and walls, pyramids six years old, twice or thrice removed, in a bearing state. These are adapted for gravelly and chalky soils unfavourable to pyramids on the Quince Stock.

PEARS on Quince Stocks.—Standards trained for walls, pyramids, pyramids root-pruned, in a bearing state; dwarf bushes in a bearing state, for potting, or for culture as bushes; upright dwarf trained trees, dwarf bushes in pots, in a bearing state, for orchard houses.

PLUMS.—Standards, standards trained, dwarfs, dwarf bushes for potting or for garden culture, dwarfs trained for espaliers and walls, dwarf bushes in pots for orchard houses, and pyramidal trees in a bearing state.

QUINCES.—Standards of the common Quince, and pyramids of the large Portugal Quince.

RASPBERRIES.—Canes of the finest varieties.

STRAWBERRIES.—Runners of the finest varieties, fine plants in 4 inch pots, for forcing or for orchard houses.

WALNUTS.—Standards and dwarfs for gardens of the Dwarf Prolific Walnut, and other varieties.

The Descriptive Catalogue of Fruits, which is so arranged as to point out to those commencing fruit culture the most select varieties, is now ready for delivery. It contains 32 pages of original and useful matter, and will be sent free on receipt of six stamps, to customers gratis on application.

Nurseries, Sawbridgeworth, Herts, Oct. 17.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21s. the pair, including package and carriage to London. Good named varieties, 12s. per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12s.

Mixed seed, saved from fine double flowers, 1s., 2s. 6d., and 5s. per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots	..	First Prize
June 3, Chiswick .. 12 Roses in pots	..	Second Prize
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)		
June 18, Royal Botanic Society—50 Cut Roses	..	First Prize
Do. do. 10 Roses in pots	..	Second Prize
June 24, Brighton .. 50 Cut Roses ..	..	First Prize
June 24, Manchester .. 50 Cut Roses ..	..	Second Prize
*** The Manchester and Brighton Shows were on the same day.		
July 1, Royal Botanic Society—24 Cut Roses	..	First Prize
,, do. do. 50 Cut Roses	..	First Prize
July 2, Stamford Hill .. 50 Cut Roses	..	First Prize
,, ditto, collection ditto	..	First Prize
July 9, Diss .. 50 Cut Roses, First Prize, Silver Cup		
,, do. .. 100 Cut Roses, First Prize,		,,
July 15, Stamford .. 12 Cut Roses, First Prize,		,,
Sept. 9, Crystal Palace 50 Cut Roses, First Prize,		,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18s. to 24s. per dozen, as Standards, and from 12s. to 18s. per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, one mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara .
,, Africanus
Cedar of Lebanon
} 1 to 10 ft. The largest and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18s. per dozen, and upwards; Dwarfs, 6s. per dozen, and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

UNEQUALLED NEW STRAWBERRY—RIVAL QUEEN.—This has proved to be the very best variety ever yet sent out, possessing all the good qualities for which a Strawberry is required, viz., flavour, considered by competent judges to be superior to that fine variety the British Queen. The fruit comes to an immense size and beautifully coloured, a very heavy cropper, and bearing well throughout the strawberry season; the plants are of a dwarf habit and very hardy, will force well and continue fruiting for several successive seasons without being renewed; the above has been the admiration of all who have seen them while in fruit, and will be sure to give the greatest satisfaction to all purchasers. Now ready for sending out strong well-rooted plants, 1l. per 100; 50 for 11s., hamper and package free; 25 for 6s.; 12 for 4s., post-age free.

VIOLA ARBOREA, or Perpetual Tree Violet, small plants, 3s. per dozen; extra fine, 5s. per dozen.

DOUBLE WHITE ditto, small plants, 3s. per dozen; extra fine, 5s. per dozen.

NEAPOLITAN ditto, 2s. 6d. per dozen; or 15s. per 100.

RUSSIAN SUPERB ditto, small plants, 3s. per dozen; extra fine, 5s. per dozen.

FINE SCARLET GIANT BROMPTON STOCKS that have all been pricked out, 4s. per 100; many of the spikes this season having measured from 18 to 24 inches in length, and most of them double.

SWEET WILLIAMS grown from seed selected from the very choicest varieties, 4s. per 100.

ANTIRRHINIUMS selected from all the best spotted and striped sorts, 4s. per 100.

FINE SEEDLING HOLLYHOCKS from one of the most superb collections in cultivation, 1l. per 100; or 3s. per dozen.

DIGITALIS, or Foxglove Seed from above 24 spotted and striped varieties, 1s. per packet. Strong plants of the same, 1s. 6d. per dozen; 10s. per 100.

NEW WINTER CUCUMBER PERFECTION.—This beautiful black spine Cucumber has proved itself to be equally as good for winter as summer use; length in winter from 12 to 18 inches, 2s. 6d. per packet.

LORD KENYON'S FAVOURITE, true, 2s. per packet.

POLYANTHUS SEED from all good named sorts, 1s. per packet.

ANTIRRHINUM SEED from the best varieties, 1s. per packet.

SWEET WILLIAM ditto, 1s. per packet.

HOLLYHOCK SEED from all best double flowers, 1s. per packet.

No charge made for hamper and package. A remittance must accompany every order by cash or penny postage stamps.

Edward Tiley, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants:—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
,, ,, magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
,, ,, 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
,, Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
,, Douglasi, 5, 6, 8, and 10 feet
,, Menziesi, 6 to 8 feet
,, Lambertiana, 2, 3, and 5 feet
,, Cembra, 3, 5, and 6 feet
,, Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
,, amabilis, also from seed
,, Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
,, Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
,, Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
,, Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
,, Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
,, elegantissima, or new Gold Striped, in quantities and of all sizes
,, adpressa, 2, 3, and 4 feet; ditto worked as standards
,, Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
,, Weareana, 3, 4, 5, 6, and 8 feet
,, aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South-Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

Waterer & Godfrey, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

WM. C. & SON strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

DUTCH FLOWERING ROOTS. — Hyacinths, Narcissus, Tulips, Crocus, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c. In collections, No 1, containing 1400 assorted roots for 100s.; No. 2, 700 roots for 50s.; No. 3, 600 roots for 42s.; No. 4, 300 roots for 21s. Sent carriage paid, no charge made for package. A Descriptive Priced Catalogue of the above, with information regarding the collections, and valuable Treatises on the Culture of the Hyacinth, Gladiolus, Japan Lily, Crocus, &c., to be had on application or free by post. All orders to be accompanied with a remittance or a reference.—BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London. Established upwards of 100 years.

DUTCH FLOWER ROOTS, CHEAP AND GOOD,

OFFERED BY

WILLIAM DENYER, SEEDSMAN, &c., 82, Gracechurch Street, London, E. C.

	Per 100—s.	d.
Hyacinths mixed, all colours	21	0
Narcissi mixed, Polyanthus	16	0
Crocus, Dutch, mixed, all colours	1	6
Iris mixed, all colours	3	0
Jonquils, early flowering	4	0
Tulips mixed, early, double and single	5	0

Every other kind of Flower Roots equally low in price. Catalogues forwarded on application. No charge for packages.

BULBS! BULBS!

BASS AND BROWN have received their first and second importation of DUTCH ROOTS in fine condition. The HYACINTHS in particular, which are unusually fine, they have pleasure in offering as follows:—

HYACINTHS.	£	s.	d.
12 choice named varieties	0	6	0
12 very choice ditto	0	9	0
12 extra superb ditto	0	15	0
50 roots in 50 choice varieties	1	10	0
25 roots in 25 ditto	0	16	0

Extensive and very superior collections of Gladiolus, Early Tulips, Iris, and other Bulbs.

The No. I. CATALOGUE for the season is now complete, containing Bulbs, Herbaceous Plants, Antirrhinums, Phlox, Coniferæ, select and popular Evergreen and Flowering Shrubs, Hardy Ornamental Climbers, Roses, Fruits, &c., and will be supplied on application.

BASS & BROWN, Sudbury, Suffolk.

BULBS FOR PRESENT PLANTING.

CARRIAGE FREE, EXCEPT SMALL PARCELS.

	£.	s.	d.
HYACINTHS, the best imported by name, per dozen	0	10	6
" fine mixed, for beds (all double), per 100	1	10	0
ANEMONES " " " "	0	5	0
" " " (single) "	0	4	0
TULIPS, mixed Early Dwarf, for pots or borders "	0	7	6
CROCUSES, mixed for open ground	0	1	6

Also many other kinds of Flower Roots just imported, which are selling at lower prices, as see Lists, which may be had post free.

N.B.—NEW EARLY PEAS, RADISH, HORN CARROTS, &c., now ready.

SUTTON AND SONS,
Royal Berks Seed Establishment, Reading.

DOUBLE AND SINGLE HYACINTHS, NARCISSI, EARLY AND DOUBLE TULIPS, PARROT TULIPS, LATE TULIPS, JONQUILS, IRIS, CROCUS, SNOWDROPS, ANEMONES, RANUNCULI, IXIAS, CYCLAMENS, GLADIOLI, AMARYLLIS, SCILLAS, LILIUMS, DENS CANIS, FRITILLARIAS, TROPÆOLUMS, TIGRIDIAS, &c.

CLARKE AND COMPANY beg to announce the arrival of their Choice Assortments of DUTCH BULBS, direct from the best growers in Haarlem. Lists of Prices will be forwarded on application.

CLARKE & COMPANY, Wholesale and Retail Seedsmen and Florists, 86, High Street, Borough, London, S.E.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, AMERICAN PLANTS, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS have just received a very unique Collection of HYACINTHS, ANEMONES, JONQUILS, CROCUSES, and numerous other Bulbous Flower Roots, direct from one of the most celebrated Florists in Haarlem. Prices very moderate.—Lists gratis and post free.

MAGNIFICENT DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, & CHERRIES.

WM. WOOD AND SON have great satisfaction in directing especial attention to their remarkably fine stock of the above, which for luxuriance of growth and symmetrical training are quite unsurpassed. They have been seen and admired by scores of competent judges this season.

Pyramidal Pears on Quince well furnished are also offered in large quantities from 18s. to 36s. per dozen.

Standard and Dwarf Fruit Trees of all kinds. Catalogues on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SUPERB YELLOW ROSES,

DWARF PLANTS ON THEIR OWN ROOTS.

WILLIAM WOOD AND SON have to offer remarkably strong plants of the following ROSES:—

NOISETTE.

	Each.—s.	d.		Each.—s.	d.
Cloth of Gold, very bushy	2	6	Narcisse, sulphur yellow	2	0
Augusta, sulphur yellow	2	6	Polonic Bourdin (new), salmon, with coppery centre	2	6
Jaune Désprés, bronzy yel.	1	6	Solfaterre, extra strong plants, 3 to 4 feet high	2	6
Madame Schultz, yellow centre (new)	3	6			

TEA-SCENTED ROSES.

Barillet Deschamps, pale lemon	2s. 6d. to 3 6	Louise de Savoie	2 0
Canari, bright yel.	1s. 6d. to 2 6	Mélanie Oger	2s. to 3 0
Elize Sauvage	2s. to 3 0	Smithi, straw colr.	1s. 6d. to 2 6
Gloire de Dijon, fawn and salmon	1s. 6d. to 2 6	Vicomtesse de Cazes, orange yellow	2s. to 3 0
Le Pactôle, pale lemon	1s. 6d. to 2 6	Yellow or Jaune, pale sulphur	1s. 6d. to 2 6

N.B. The higher price will be charged for strong plants in 6-INCH pots. All other Tea Roses on moderate terms. Catalogues free on application.

*** Large and small plants have flowered here this summer in the greatest profusion.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NEW ROSES IN POTS.—H. P. Triomphe d' Avranches, General Simpson, Prince Noir, Dr. Henon, Duc d'Elchingen, Souvenir de la Reine d'Angleterre, Marquis de Murat, Belle Jardinière, Paeonia, Triomphe de l'Exposition, Lord Raglan, Duchess of Norfolk, Madame Knorr, Mathurin Regnier, General Pelissier, Madame Cambacères, Madame A. Gibbon, Souvenir du Petit Caporal, B. Comte de Montijo, Marquis Balbiano. Moss: Frederick Soulié, Baron Wassennaer, bicolor, Alfred Dalmas, Captain Ingram, Scotch Souvenir de Henri Clay. Any of the above, 24s. per dozen, or less than a dozen, 2s. 6d. each.

H. P. Bacchus (Paul's), Belle Anglaise, Madame Heraud, Etendard de Sebastopol, Gustave Coreaux, 3s. 6d. each.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

TO THE TRADE AND EXPORTERS.

HENRY MAY having an immense stock of GOOSEBERRIES AND CURRANTS in fine two-year old Trees, clean and healthy, begs to offer them as below:—

		£	s.	d.
May's Victoria, large Red Currant	per 1000	4	0	0
White Grape, White Dutch Currants	"	4	0	0
Red Dutch, Red Grape, Cherry Currants	"	3	0	0
Black Grape, Bang up, and Black Naples	"	2	10	0
Gooseberries, from a collection of 400 sorts	"	4	0	0
Fastolff Raspberries	"	5	0	0

The Hope Nurseries, near Bedale, Yorkshire.

HARDY HERBACEOUS PLANTS, ALPINES, TREES, AND SHRUBS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants, my selection, properly named, from a collection of 1000 sorts	0	18	0
100 choice ditto ditto	1	10	0
50 choice Hardy Ornamental Trees and Shrubs, one each, my selection, from a collection of 500 sorts	1	5	0
100 choice ditto ditto	2	2	0

Descriptive Catalogues of the above can be had free on application, containing all the most rare in each section for which our Nurseries have long been celebrated.

Fine Dwarf Roses	12s. per dozen	£3 per 100.
" Standard do.	18s. "	£5 "

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

FRUIT TREES.

	Per dozen.—s.	d.
APPLES, dwarf-trained	24	0
" Pyramidal	12	0
" Standard	12	0
PEARS, dwarf-trained	24	0
" Pyramidal, on Quince and Standards	12	0
PLUMS AND CHERRIES, dwarf trained	36	0
" " Standards	18	0
APRICOTS AND PEACHES, dwarf-trained	60	0
RASPBERRIES—Fastolff and Yellow Antwerp, strong, per 100	12	0
CURRANTS—Red Dutch Champagne and Victoria "	10	0
" White Dutch, White Grape "	12	0
" Black Bang-up Black Grape, Black Naples "	8	0
GOOSEBERRIES—Fine useful sorts, Crown Bob, Ashton, &c. "	8	0
" Large Lancashire prize sorts, per dozen	2	0

Descriptive Catalogues of the above can be had gratis on application.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

"CRIMSON PERFECTION" RHUBARB.

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above splendid variety of RHUBARB, trusting from its superior quality and reduced price to meet with a continuance of favours. It is very early and productive, and the interior of the stalks are a crimson colour. Price one year old roots, 1s. each; two years old, 1s. 6d.; three years old, 2s. 6d. each. With usual discount to the trade.

Orders forwarded to ROBERT SALT; or to Messrs. HURST & M'MULLEN, Seedsmen, 6, Leadenhall Street, London; BURGESS & KENT, Nurserymen, Penkhull, Staffordshire; F. & A. DICKSON, Nurserymen, 106, East Gate, Chester; CHARLES TURNER, Royal Nursery, Slough, will receive strict attention. A remittance to accompany the order from unknown correspondents.—Longton, October 17.

NEW PANSIES—1857.

DICKSONS AND CO. are now sending out the following NEW PANSIES, viz.:—

GENERAL HAVELOCK.—Rich yellow, and deep maroon, very fine form, and rich glossy texture, blotch dense and well displayed.

HYLOS.—Yellow, and deep purple; a very bold and constant flower, and of fine form and texture.

MODEL.—Very rich gold, and crimson maroon, very beautifully laced with gold round the three lower petals; first-rate form and texture, one of the most refined flowers in this class, extra fine.

PERFECTION.—Deep gold, and very rich dark maroon, nearly black, blotch large and well displayed on each petal; a first-class show flower.

The above at 5s. each. The usual discount to the Trade.

Nursery, Leith Walk, Edinburgh, Oct. 17.

SEEDLING FOREST TREES, AND ONE-YEAR QUICK.

TO THE TRADE.

THE SUBSCRIBER has a large stock, of very superior quality, of the undermentioned:—

1 year Larch Fir, very fine	1 year Silver Fir
1 year Birch, 9 to 18 ins.	1 year Scotch Fir
1 year Alder	1 year Quick
1 year Sycamore	2 year Larch Fir
1 year Ash	2 year Scotch Fir
1 year Beech	2 year Spruce Fir
1 year Pinus austriaca	2 year Silver Fir

The above Seedlings can be relied on to be strong and healthy and low in price, which can be had, with samples, on application to MICHAEL BURKE, Nurseryman, Drumlargan, Summerhill, Co. Meath, Ireland. Carriage paid to Liverpool.

POPULAR SHOW GERANIUMS.

JOHN DOBSON AND SON beg to announce that they are now prepared with a very large and healthy stock of the varieties named below to execute any orders they may be favoured with. Any 12 of the varieties may be selected for 42s. The plants are unequalled:—

Admirable	2s. 6d.	Lucy	1s. 0d.
Amethyst	5 0	Laura	2 0
Arab	5 0	Marvellous	5 0
Ardens	5 0	Mr. Beck	3 6
Alexander	5 0	Mr. White	2 6
Bianca	3 6	Miss Foster	5 0
British Queen	5 0	Matilda	5 0
Bouquet	2 6	Marion	3 0
Carlos	1 6	Meteora	2 6
Conqueror	2 6	Pallas	1 6
Conspicuum	5 0	Prince of Prussia	5 0
Delicatum	2 6	Rose Raglan	2 6
Eclipse	5 0	Rubens	5 0
Emperor	7 6	Rosamond	1 0
Evelyn	2 6	Sansparcil	1 0
Florence	5 0	Symmetry	5 0
Gem of the West	2 0	Selim	7 6
General Williams	5 0	Spotted Gem	5 0
Governor-General	1 0	Standard	5 0
King of Scarlets	5 0	Viola	5 0
		Wonderful	2 0

Catalogues may be had Post-free on application.

Woodlands Nursery, Isleworth, W.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar: the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10s. 6d. each; 12 do. do., 5l. per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Oct. 17.

NEW GARDEN SEEDS.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have just purchased the old established and extensive Business of MESSRS. WILLIAM E. RENDLE AND CO.

The Company are now harvesting and laying in their stock of NEW AND GENUINE SEEDS for the coming season.

Extensive and commodious Warehouses are now being erected for facilitating the conduct of a greatly extended trade; and with a large capital the Company will be in a position to compete with the first houses in the kingdom.

The SEED PRICE CURRENT AND GARDEN DIRECTORY (late RENDLE'S), will be published shortly, and Copies will be forwarded to all who have had transactions with the late Firm.

The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 17, 1857.

A SENTENCE in a leading article last week has produced some remarks from our correspondents to which it is as well to reply at once. "We fear," said the writer, speaking of the exhibitions at Chiswick next year, "that the committee will still delay extinguishing the very uninteresting, very costly, and now threadbare collections called MIXED STOVE AND GREENHOUSE PLANTS." Upon

this subject such entirely opposite opinions are expressed that we find it easy to reduce our correspondent's views to two heads, aye and no.

The Ayes in conveying their entire concurrence in the view we presume to take point to the entire absence, year after year, of any kind of novelty among such plants. Every season brings round the same ponderous tubs and pots, containing the identical species that we have seen for these 20 years, the only difference consisting in the tubs and pots becoming more and more ponderous, and less and less attractive. And what good purpose do they serve? asks one of our readers. Do they show great skill in gardening? Do they set an example for others to follow? Can they be taken as a proof that the growers' horticultural talents are in proportion to the size of their plants? In short, are we to regard them at a flower show as productions to divide admiration with the fat pigs and bullocks of a Christmas cattle show? "Surely not," he adds; "for there is not one gentleman in ten thousand who would wish to see such unwieldy things in his conservatory, even if he had a conservatory capable of holding them; they convey no greater evidence of high gardening powers than is evinced by the man who produces plants only half as big; all they really show is that the exhibitor has at command large houses and ample means of transport, without the power or skill to vary what he puts into them; the exhibitors of such plants may be compared to men with only one idea which they produce on all occasions, in season and out of season."

Another after expressing his gratification that the question has been raised, goes on to describe the result of his examination of the exhibitions during the past season. Of the Crystal Palace meetings he has no memoranda, but of Chiswick and the Regent's Park he has carefully prepared notes, and he gives the following as the result of his examination. "In all the meetings then in 1857 the whole of the exhibitors could produce only 74 different sorts of plants, among which but two novelties made their appearance, namely, Meyenia erecta and Sempervivum lineolare, the latter a poor thing for collections highly rewarded. Of the remaining 74 about half were Eriostemons, Polygalas, Pimeleas, Adenandras, Allamandas, Boronias, Chorozemas, Clerodendrons, Aphelexids, Ixoras, Leschenaultias, Statices, Tetrathecas, Kalosanths, and Madagascar Periwinkles, some of which the most inexperienced exhibitor can grow as easily as a Geranium; and most of which have become as common as Lilacs. Again, the total number of plants included in all these exhibitions amounted to 395, among which the Meyenia and Sempervivum above mentioned, Mussænda frondosa, Hovea Celsi, Ixora aurantiaca, Relhania squarrosa, Statice imbricata, an Acacia, Adenandra speciosa, Boronia tetrandra, Burchellia capensis, Chorozema ilicifolium, Clerodendron splendens, and Franciscea calycina, each appeared but once; on the other hand, Polygalas were shown 33 times, Pimeleas 25, Rhynchospermum jasminoides 13, Stephanotis 14, Allamandas 17, Aphelexids 30, Azaleas 26, Dipladenia 10, Epacris 10, Erica 26, and Eriostemons 13, while the trashy Vinca rosea was produced no fewer than a dozen times. Thus we see that 12 sorts of plants formed 229 out of the 395 put upon the tables, or pretty nearly two-thirds. And for this miserable want of novelty, or even variety, both Chiswick and Regent's Park are unwise enough to hold out higher prizes than for almost anything else. Surely money might be better applied." Such are the remarks of the Ayes.

The Noes say this. It is very unfair to complain that the "miscellaneous collections" are threadbare, costly, and uninteresting. They have always been thought the gardener's pride; and so they ought to be if we consider how much trouble they give, how few things suit them, and what a loss is sustained if one of the big plants dies, which is often the case. It is much more difficult to keep a fine old plant in health than a young one, and the older the specimens become the greater is the difficulty. As to the money that is paid for exhibiting them, there is nothing that a gardener gets so little by as the prizes for these large collections; for it costs no end of money to grow them and stow them away, and carry them backwards and forwards. It would not pay at all if some could not be shown three or four times each in a season. It would be very hard upon a gardener if the societies were to encourage him to grow these plants and then to say, without warning, that they would no longer have them shown. To do that would be little better than downright robbery. If they are to be shut out without notice, the growers ought to have compensation.

We have thus to the best of our ability put into words what our correspondents on either side wish to say, and having done so we may with propriety leave the question to the judgment of the public. In doing so we will, however, offer two remarks, both unfortunately on the side of the ayes. In the first place, that the collections in question are unpopular, and unable to interest the spectator, is distinctly proved by the notorious fact that no crowds collect round them, and that no one lingers to admire them. They are looked at, passed by, and forgotten. While the tents are crowded near Orchids and Ferns, and Geraniums, and fine foliaged plants, and Roses and fruit, scarcely a soul is seen near the "great collections," which men wonder to hear dignified by so inappropriate a name.

It is, however, unjust to deny that the growers of such plants are less skilful than others. On the contrary, they are among the best gardeners in the country; that is incontestable. That nobody now cares for what they show arises from the absence of novelty and variety among their plants. Year after year, and show after show, there is, as one of our correspondents says, the same Allamanda, Polygala, Pimelea, and Stephanotis, the same Heaths, the same everything. Nothing can give interest to such repetitions; for it must be remembered that the visitors to the metropolitan exhibitions are much the same persons, great and small, year after year; especially the critics among them, whose opinions form those of others. Nor can we think that the interests of Horticulture continue to be promoted by the production of floral giants. What are wanted at flower shows are examples of such first-rate gardening as any fair gardener may attain to in places of the usual magnitude, having the customary appliances. And we think it a subject of regret that horticultural talent should not be directed exclusively to that end. That it is what the country wants is proved by the unmistakable symptoms observable among visitors. See how they linger among the Roses, and Ferns, and Azaleas, and Geraniums, and similar plants; hear what inquiries they make; observe how eagerly they make notes of what they admire. And why is this? except that they too think they may have in their own gardens similar Roses, and Ferns, and Azaleas, and Geraniums. Does this occur in the neighbourhood of the "large collections?" Never.

That some money has been invested in certain collections of plants habitually admitted into exhibitions is no doubt true: and we are not prepared to deny that their owners are entitled to consideration. But here, as in everything else, private interests must give way to public advantage: and some notice of an intention to discontinue admitting them would, as it seems to us, fully satisfy the justice of the case.

We have lately received from Mr. Rivers specimens of the true old Golden Pippin gathered from a tree 80 years old planted by his grandfather. They have the same delicious smack that gave the sort so great a reputation. We understand that the young trees grafted from the old stock are more healthy than they have been for many a long year; nor, indeed, have they for some years been so subject to canker as they used to be 30 or 40 years ago.

We cannot but wonder that those who place fruit trees on a level with the supplemental noses of the great Taliacotius, should not have remarked that the so-called wearing out of races is unknown in the warm climates of continental Europe.

ON THE NORTHERN LIMITS OF VINE CULTIVATION.

(From A. De Candolle's Géographie Botanique.)

In Europe the limits of Vine cultivation on an extensive scale, and for the purpose of wine-making, have retrograded from the north-west towards the south-east during the last few centuries; but before dwelling upon the abandoned limits we shall trace the existing ones.

Portugal is famous for its Vines; but in Spain their cultivation is not universal, being wanting, wholly or in part, in the moist north-western provinces of Galicia and the Asturias; they are not even habitually cultivated in the comparatively drier mountains of the Asturias, though some intelligent agriculturists have a few acres of Vineyards. In the south-west of France the Vineyards are beautiful.

According to the Government statistical tables of France published in 1837, the extent of the Vineyards in 1834 was in the departments—

	Acres.
Loire Inferieure	8120
Morbihan	217
Ille-et-Vilaine..	56

The more exact limits are—southern Brittany, lat. 47° 30′, from whence the line is directed eastward to the department of Mayenne, where in 1834 only 304 acres were under Vineyards, to the department of L'Eure, 412 acres; of Oise, 834 acres; and of La Somme, 5½ acres. A little wine has been made to the west of this line, as at Caen, Calvados, and even in Jersey, but these are exceptional cases, which do not affect the general accuracy of the result above given. Those departments of France which did not return above 2½ acres of Vineyards in 1834 are, in the west—Finisterre, Côtes du Nord, Manche, Orne, Calvados, Seine Inferieure, Pas de Calais et Nord; in the centre—those of La Creuse and of Cantal, where the elevation of the land makes the climate too rigorous.

In Belgium the cultivation of the Vine on a grand scale ceases at Argenteau on the Meuse (lat. 50° 45′). Descending the Rhine beautiful Vineyards advance as far down as the hills extend, and below Bonn as these conditions disappear the Vine becomes rare, stopping altogether at Dusseldorf. In north-western Germany Potsdam and Berlin are the extreme limits. In Saxony Vineyards are more frequent up to Lat. 51½°, as at Weissenfeld in Prussian Saxony, and at Meissen, north of Dresden.

This line, extending from the mouths of the Loire to Potsdam (lat. 49¼° to 52⅓°), is throughout its whole extent to the south of that to which the Vineyards once attained. Not only are Vines now grown here and there to the northward of it, but there are proofs that formerly, towards the close of the middle ages and for two or three previous centuries, Vineyards were numerous to the north-west of these limits.

In Normandy it is matter of tradition that numerous Vines were destroyed in the 14th century by the English, who, from holding Guienne, were anxious to favour the Vine growth of that country. From the 12th to the 13th centuries a number of maps allude to Vines in Normandy, Brittany, and Picardy.

Tacitus (Agricola xii), speaking of England, says that the soil is fruitful in corn, but not in the Olive, Vine, and other plants of warm climates; these ripen slowly and quickly sprout, and for the same reason, namely, the humidity of the earth and sky. It is mentioned in many works that the Emperor Probus granted permission to the Britons, as well as to the Gauls, to cultivate the Vine; but this proves nothing, for we do not know whether they availed themselves of the permission, and if so whether they profited by it. In more recent times it is known that the Vine was cultivated in England. In Strutt's "Ancient England" chronicles and facts are quoted in proof of this. The county of Gloucester was famous for its Vineyards; according to Bede, Guillaume de Malmesbury, the Grapes there were sweeter than any others in England. According to Stow's "Chronicle," wine was made in Windsor Park as well as in all other parts of England. In an ancient manuscript of that date kept at the Castle may be seen the annual cost of the Vine plantation, the account (in the time of Richard the Second) of the Vines which were grown in great quantities in the Little Park, as well as of the wine made. A portion of this wine was consumed in the Palace, and the rest sold for the King's profit, whilst the duties were paid to the Abbot of Waltham, the incumbent of Old and New Windsor. Strutt gives a figure of an ancient Saxon wine press. Miller, in the "Gardeners' Dictionary," says, in 1768, that though few Vines are now grown in England, they were in former times very common. This is proved by the fact that numerous places in many parts of England derive their names from this circumstance, and that there are Acts to certify the extent of ground allotted for Vines to abbeys and monasteries. Miller further mentions the attempts made in the neighbourhood of London, and it is well known that even now Grapes are grown for curiosity or for pleasure in the south of England. These Grapes are not always bad, the wine that has been made is not always detestable; though the Chancellor of the Exchequer has no fear for the result affecting the duty on foreign wines entering England, which yields an enormous revenue.

(To be continued.)

ORCHID DISEASE.

Your Paper of Oct. 10 contains the first public notice which I have seen of disease among Orchids. I have noticed and suffered from its existence for the last two if not three years, and have no hope of remedying it so long as the present fungoid epidemic amongst plants which is nearly contemporaneous with the Potato disease prevails. I have no hesitation in saying that the causes assigned in answer to your correspondent, viz., "over-heating, over-watering, and under-ventilating," are altogether insufficient to account for the disease. I have cultivated Orchids upwards of 20 years, with considerable success. But during the last three years the same treatment which was formerly successful in the selfsame houses has failed. I have increased ventilation, admitted more light, and abated heat all in vain. My most vexatious instance of disease has progressed this summer under my own eye, in a mass of plants hanging where they have always flourished heretofore, within 4 feet of an outer door and directly under a ventilator, through which in summer there is a perpetual draught.

The plant is Barkeria spectabilis, and a group of 12 luxuriant flowering plants has within the last two months dwindled down to three, of which one is now dying, and I think the remaining two will follow. The deaths are quite sudden, 72 hours only intervening between healthful growth and death.

Barkeria Lindleyana, which I formerly grew

in extreme beauty, and which decorated my Orchid house from October till February in large masses, was the first plant to fail, but I did not then recognise specific disease. I thought that I had been growing the plant in too great luxuriance, and that the vital power had been exhausted by too much stimulus. The plants were consequently removed to a more airy house and lower temperature, receiving in fact greenhouse treatment from July to October; but still the destruction of plants proceeds, and from having a number of plants which made the house look gay through the winter, I have now only a few spikes of flower, and fear I shall soon lose these. If any insect enemy exists, it is either a small species of scale, or a very minute fly, said to have been introduced from Mexico, whence I had formerly received many plants. Its scientific name I forget, but I see it occasionally, and suspect it to be the male of some wingless insect. Something of this kind has appeared on the roots and bases of the stems of Barkeria Lindleyana, but I do not detect it on B. spectabilis, and I am inclined to think it only follows the law of parasitic animal life, assailing vegetable life when feeble.

I am trying what up-rooting all my plants will do, and replanting them on new blocks, thinking it possible that fungoid decay in the blocks may have affected the plants, but I have partially tried this already with little or no success. We labour under a great disadvantage in growing upon dead blocks plants which naturally flourish on living stems, though some species affect dead trees. I have tried to grow living stems (principally sp. Ficus), on which to grow my Orchids, but hitherto without success.

Java Hoyas have become parasitic with me, and do pretty well, which they never did in pots. The Vanilla also flourishes but most when its original stem and roots are dead, and new pendulous roots nourish its advancing branches. This however has exhibited some strange symptoms of disease this summer, and I fear for my strongest plants, which at present have some dozens of pods upon them.

The older varieties of Oncidium, such as O. guttatum, O. carthaginense, O. Lanceanum, and Cavendishi, have specially suffered with me, the two first in particular, which I have almost lost, and at first attributed this to growing the plants at a lower temperature and in a drier atmosphere than that in which they formerly flourished with me. I now recognise in their decay the same disease which has affected plants of lower temperatures. *J. R.*

Home Correspondence.

Was the Vine Disease known to the Ancients? (See p. 694.)—I think Mr. Riley's translation is an instance of the danger of inferring a peculiar meaning in a word, different from its usual sense, to suit what we imagine the author must have meant to say. I have looked in Facciolati for the senses of absumo, but can find none except consume, destroy, finish. I find three other passages quoted from Pliny in which this word is used by him. The first is in Book II., c. 9, and relates to the moon, to whose rays he attributes the power "humorem solvere atque etiam augere quem Solis radii absumant." The second is in Book II., 73, which treats of the parts where there are no shadows. He says this happens in "Meröe insulâ . . . bis anno absumi umbras." The third is in Book V., 9, where he relates a curious cause to which Timæus attributes the rising of the Nile, which took effect "a canis ortu per introitum Solis in leone . . . cum in eo tractu absumantur umbræ." Mr. Riley probably could not conceive how the telæ could destroy the Grape otherwise than by stifling it, and, therefore, instead of strictly rendering the passage "when something like cobwebs cover the fruit and waste it up," which gives in a few words a description so curiously characteristic of the appearance of the present disease, he has paraphrased it into the version you quote. *E. V. N.*——The passage from Pliny which is quoted by your correspondent with reference to the question whether the Vine disease was known to the ancients, is a translation and amplification of one in Theophrastus which merely informs us that there is a disease in the Olive trees called arachnion. "It is produced," he says, "upon them and destroys the fruit. There are also certain heats which burn Olives, Grapes, and some other fruits." Theophrastus seems to speak of two affections; one confined to the Olive, the other destructive to Grapes and some other fruits. Pliny extends the arachnion under the name of araneum to the Vine, and possibly the passage is a mere gloss, and not founded upon any information which was not possessed by Theophrastus. But supposing it to be the fact that he was in possession of additional observations, the phrase is as applicable to the work of the Vine moth, or of the "teigne de la grappe," as to any species of mould. Bosc says of this latter in his Nouveau Cours complet d'Agriculture, t. xiii., p. 507, 1809: "Its larva is known by the Vine dresser under the name of vineworm. It eats into the interior of the berry, and goes from one to another by means of a silken gallery which it spins. The berries thus attacked produce little juice, and what they produce is of bad quality, being deficient in sugar." The word araneum is used by Pliny to represent anything cottony, as, for instance, where he says that the fruit of the Willow before maturity passes into a web. Mr. Riley was certainly not justified in translating absumit "stifles," for Pliny's "absumit" is a mere rendering of the Greek word "διαφθειρει" of Theophrastus. Another disease to which the Vine is subject is mentioned by the same author under the name of κραμβος, but this is clearly the disease described by Dunal under the name of anthracnose. *M. J. B.*

Manure and Potato Rot.—From observation and experiment I am driven to the conclusion that the tendency of different kinds of manure to produce Potato rot is independent of the proportion of nitrogen, phosphorus, &c., in them. Whatever causes a succulent growth endangers the soundness of the crop. The difficulty is to apportion the proper quantity. This should be varied according to the richness of the soil and its capacity for retaining moisture, from none at all to 5 cwt. of guano to the acre. At the commencement of the rot I received much instruction from observing the cultivation of half an acre of Potatoes of an allotment tenant and the result. After a crop of Wheat the land was stifle-burnt and the quantity of red and black ashes was abundant. These were imperfectly spread, too much being left at the heaps and some parts receiving none. The whole was dug and planted with Potatoes in spring, without any addition of manure. I was present when the crop was being raised, and observed that at places equidistant from the heaps the tubers were miserably small, but sound. On approaching nearer the position of the heaps, which was known by the colour of the soil, the Potatoes were much larger, but with traces of rot. Where the heaps had been the tubers were huge, but all rotten. Here were cases of scanty, moderate, and excessive manuring. Every one therefore must be guided by the nature and condition of the soil. After all, the coming season may nullify all his care. An increase over the average moisture in the atmosphere may cause a moderate quantity of manure to be injurious, and a summer like the last may, on very dry soils, give a profitable crop with excess of manure, and even late planting. This autumn I have seen sound Regents raised at the rate of 250 bushels the acre, where in ordinary seasons there would have been a mass of corruption. But besides quantity the power of the manure to impart its virtues rapidly to the plant is to be attended to. Artificial and well rotted manures cause an early growth, and the more advanced the Potato is (*cæteris paribus*), the less the disease affects it. For this reason I always use a compound of superphosphate and guano, mixing it well with ashes, &c., some weeks before planting, and sowing it in the drill with the sets. *P. T. S.*

Horticultural Society's Fruit Show at Willis's Rooms.—From the tone of one of the questions asked by "An Occasional Exhibitor" at p. 662 of the *Gardeners' Chronicle*, it would seem that there are some persons who suppose that at the coming exhibition of fruit at Willis's Rooms, it is the intention of the Horticultural Society that kitchen Apples and table Apples are to be shown in separate collections; and the answer given by Mr. M'Ewen to the question rather tends to confirm that notion. Now, in the advertised schedule of the Society, 1st, 2d, and 3d prizes are offered for collections of 12 sorts of Apples, 6 fruit of each sort, without restricting the exhibitor to either table or kitchen varieties, and were I one of the judges I should certainly give the preference to those collections which (other points of merit being equal) consisted partly of table and partly of kitchen Apples—say 6 of each class, or 5 of one and 7 of the other. I take this view on the presumption that the desire of the Society is to make their exhibition instructive to the visitors rather than to collect together a great heap of fruit; and if such is their object, it will be best advanced by the exhibitors aiming at a selection of the best dessert and culinary sorts for supplying a gentleman's table in succession till the end of the Apple season. The winning collections might then be safely taken as guides by those who may wish to plant Apple trees, but amongst the multiplicity of sorts in cultivation are doubtful which to choose. Although "bulk" is certainly desirable in kitchen Apples, I cannot agree with Mr. M'Ewen that their comparative merit ought to be determined by this point alone, for there is as much difference in the quality of kitchen Apples as in that of dessert kinds. For example, the Alexander and the Hollandbury are two of our largest and showiest Apples; they are however bad keepers and barely second-rate in quality, so that in real value they are much below many smaller and less pretentious sorts, such as Dumelow's Seedling, which is not only "cookable" at the present time, but will continue so for 6 or 8 months to come. Because an Apple is very large it does not follow that it is also very good, therefore great size alone should not be made the criterion of merit. As regards Pears, in deciding between competing varieties we ought to take into consideration all their merits and demerits, and not found our decision upon a single property. According to this rule, then, the Seckel cannot be considered a better Pear than the Beurré Diel or the Duchesse d'Angoulême. Judging by flavour only, the Seckel certainly stands first, but there are other points to be looked at, and of these size is of some importance, especially when the difference between the competitor is so great that a well grown fruit of one would cut up into half a dozen respectable specimens of the other. Then, again, we should look at their respective periods of ripening. The Seckel comes into use at the same season as several superior sorts—Thompson's and the Jersey Louise Bonne, for instance—while the Duchesse d'Angoulême usefully succeeds the Marie Louise, and the Beurré Diel ripens still later, when Pears are much less plentiful. Besides, I maintain that the latter is a really good Pear when grown on standard trees and in a soil that suits it; and I have tasted fruit from the Horticultural Society's orchard which justified the high encomiums passed upon it in the Society's Fruit Catalogue. As I may possibly be an exhibitor in a small way, I should feel obliged by your stating whether the single dishes of Pears and Apples will be judged by flavour. The large collections, I presume, will not be tasted, as they must necessarily contain several unripe sorts. *J. B. Whiting.*——The following remarks on this subject have been received from Mr. M'Ewen. "Whether I fairly answered the letter of an 'Occasional Exhibitor,' at p. 662, it is not for me so much as the writer of the letter to affirm. Notwithstanding what Mr. Whiting has said, I see nothing to withdraw or modify. I regret that Mr. Whiting attempts to show that I lay greater stress upon the value of size of kitchen Apples than my letter warrants, and I cannot reconcile his arguments in favour of the quality of moderate sized kitchen Apples and large dessert Pears. If it is, as he supposes, that the winning stands should be a guide to purchasers of the most suitable kinds, then I surely was right in advising the 'Occasional Exhibitor' to exhibit the moderate sized Pear which he stated to be first rate, and to exclude a favourite of Mr. Whiting's, the 'Beurré Diel,' which he pronounced large yet 'worthless.' Supposing that an exhibitor had exhibited the large kind as a choice sort, why in that district it must have disappointed the purchasers, much more so than a large kitchen Apple, for that can be cooked. But there are first-rate kitchen Apples both in size and quality. The Alexander is one of such, and Mr. W. might have quoted or corrected the high opinion given of this sort in the Horticultural Society's catalogue, as he did in the case of the Beurré Diel, and not given it a second class character; as a show sort it is really good. We must gratify visitors as well as instruct. The Dumelow's Seedling, too, is not a less pretentious sort, but is, if well grown, one of the largest and most showy of Apples? It is, however, very acid, and requires more sugar than most, and it is placed first class in size and quality in the catalogue quoted. As regards the Seckel Pear, it can be grown to a medium size, and apart from this, it is as the Frontignans among Grapes; and most fruit fanciers whose opinion is worth having will willingly give up for these sorts a bunch of such as Barbarossa and Syrian, though half a dozen times larger. Without detracting from the catalogue of the Society, it is but fair to state that Beurré Diel was second and third class at Arundel (S. coast), as well as at the East coast, as stated by an 'Occasional Exhibitor.' The same may be said of Beurré Bosc and Duchesse d'Angoulême. I have tasted those sorts good in other districts, but they never came up, in my opinion, to the quality of such as Passe Colmar, Glou Morceau, Marie Louise, Winter Nelis, &c. Perhaps this will show the propriety of the judges tasting the fruits which are in season; at any rate they have full power to do so if they think necessary, both in collections and single dishes, in order that a correct verdict be given. As to whether the judges will take into account 'the sorts best adapted for supplying a gentleman's table throughout the year,' is a view upon which the schedule is silent, and must be left an open question. The only clause which treats on it runs thus, 'Fruit is expected to be as nearly ripe as circumstances will admit. Winter fruit will, of course, be unripe.' The inference from this I opine is rather unfavourable to Mr. Whiting's suggestion. I agree with Mr. Whiting as to the division of the collections as likely to combine (but not necessarily) most merit."

Fruit Show at Willis's Rooms.—Allow me to thank you and Mr. M'Ewen for the attention given to my inquiry about the conditions on which the merits of fruits would be decided at the forthcoming exhibition on the 24th inst. I may or may not be an exhibitor on that occasion; I am, however, pleased to see that flavour is not to be entirely sacrificed to bulk, lest in the case of small fruits and good ones it may lead to the same result as the great summer Flower Shows have done with regard to autumn and winter flowering plants, viz., their neglect. This is a question in which I think all lovers of good fruit must feel interested, and I trust Mr. M'Ewen's opinion may be acceptable—it at least may lead to obtaining the opinions of fruit growers on the subject. I thought the question a very fair one, generally, and he perfectly understood my meaning, and his answer I considered a very just one. *William Breadley, Somerleyton Hall Gardens, Oct. 12.*

Tilseed.—A paragraph is going the round of the newspapers, respecting a new food for bees, discovered in a department of France, being the cake or refuse of "Tilseed" from which the oil is expressed. Would you inform me what Tilseed is, and if known in England by any other name, as I have had many applications for it and do not know what it is? *W. W.* [This is no doubt the Ram-til, an East Indian oil plant, the Verbesina sativa, aliàs Guizotia oleifera, of Botanists. The only other Til we know of is a Laurel inhabiting the Canary islands.]

Jerusalem Artichokes.—Referring to Mr. Cuthill's account at p. 694, I have since I came here in 1846 had Jerusalem Artichokes in flower in two several years. In the same interval I have once seen them in flower at the Reedham Junction Station of the Yarmouth and Lowestoft Railway, and previously to 1846 (1844 or 1845, I believe), I saw them in flower in the parish of Weston, near Bath, at the very point where the road from Locksbrook to Newton Bridge diverges from the road to Kelston and Bitton. *George E. Frere, Roydon Hall, Diss.*——The Jerusalem Artichoke has flowered freely this season at Perdiswell and has attained the

height of nearly 15 feet, 6 feet of which are covered with blossom buds. Although I do not recollect its flowering here before, I remember seeing some in bloom a few years since at Dulwich. With respect to shortening the stems I beg to differ from Mr. Cuthill; I have grown it on that principle, and have diminished my crop one-half; I allowed the remainder to grow to its full height, and the plants being side by side I consider it a fair trial. I found those shortened to be quite equal in quantity and quality besides having a more tidy appearance, and they are not liable to get blown about by the wind; indeed, as a rule I generally shorten the stems about the end of July; for grow them on either principle they generally prolong their growth until put a stop to by frosty weather. *Edward Bennett, Perdiswell, Worcester.*——The flowering of the Jerusalem Artichoke is not at all a rare occurrence. I saw it bloom on three different occasions in the south of Devon between 1847 and 1852. The plants which flowered were grown in very heavy soil, and attained the height of from 8 to 10 feet, producing a good crop of first-rate tubers. *E. J. E., Roehampton.* [But S. Devon is not Middlesex.]

Filbert Pine Strawberry.—In glancing from time to time at the several articles and advertisements which have appeared in your columns respecting this excellent Strawberry, I notice that it is still advertised under two names, and that Mr. Myatt states at page 679 that "there appears some mystery respecting it." To prevent confusion I will proceed to give my experience of it, and should any arise hereafter it will be fairly chargeable to those with whom it originates. I do not question that Mr. Myatt is the raiser of this Strawberry, but unquestionably it came to this part of the country without a name, or why should it have been nameless at each of the half dozen places where it was growing previous to its being offered to the public by Mr. Turner? It certainly came here simply as a seedling Strawberry, and unnamed. The question is whether the Filbert Pine be or be not the same Strawberry Mr. Myatt sent out in 1849 as "Myatt's Seedling?" If it be so it appears strange that so good a Strawberry was not known till five years afterwards, when Mr. Turner first sent out plants of it under the name by which it is grown here, *i. e.*, the "Filbert Pine." Of course it could not be offered without a name, and Mr. Turner deserves credit for bringing it before the public at a low price. It is with a view to assist in clearing up the matter that I refer to an article of mine which appeared in the "Florist" three years ago (together with a sketch of the fruit), and which ran thus:—

"Although the British Queen, when in perfection, surpasses all other kinds, it is not without fault; firstly, the plants are tender, and very impatient of wet through the autumn and winter season; secondly, the fruit is liable to come green pointed, especially in cold summers; and lastly few soils are suitable for its cultivation. A Strawberry of fine texture, more hardy, ripening better, and of equal size and quality, is much wanted; and from what I have seen of the Filbert Pine it possesses these desirable qualities. The fruit is larger, and remarkable for its uniform shape and regular outline. The colour is dark red when fully exposed, and much paler when shaded by its foliage. Calyx small and replexed, showing a stout neck underneath; seeds regular, and slightly imbedded, flesh pinkish white, fine grained, very solid, juicy, saccharine, and rich, with an excellent Pine flavour. The plants are hardy, of fine habit, and extremely prolific; it commences to ripen with the British Queen, and produces a succession of fruit throughout the Strawberry season. The origin of this fine Strawberry is unknown. It was sent to us two years ago from Filbert House, near Maidenhead, as a new seedling unnamed; and it was therefore called the 'Filbert.' It is also known in the same locality under that title; it was exhibited at Chiswick in 1854 under the name of 'Shardiloes Pine,' as well as that of 'Filbert.'" *Vide* "Florist," Vol 4, p. 277.

It will be seen from the above that at that time the origin of the Strawberry was unknown; as will also be seen in the *Gardeners' Chronicle*, p. 677. Those of your readers who have grown a "Myatt's Seedling," previous to the time at which the article appeared in the "Florist," and are pleased to give a description thereof, will materially assist in unravelling the "mystery" to which Mr. Myatt refers. We grow a Strawberry called "Myatt's Seedling," which more resembles the "Elton" than the "Filbert"—other evidence, however, is needed. Meantime I am glad to be able to state that the "Filbert Pine" fully sustains the high character I gave of it in 1854, and is identical with the stock which Mr. Turner sends out. *J. Powell, Royal Gardens, Frogmore.*

Pine Apple Fibre.—While shifting my Pine plants a few weeks back my attention was directed to a Pine leaf that had been partly covered in the plunging materials of the bed. On examination of the decayed part I was surprised to find it to contain a quantity of fibrous substance, which I thought would be a good substitute for Hemp. From the above I was induced to try various experiments to manufacture some of the old leaves into cord to try its durability. I have enclosed a small end of cord and a leaf partly manufactured for your inspection. I should be glad to hear your opinion as to whether the numerous old fruiting plants annually thrown away in England might not be converted to some useful purposes. *D. D. Davies.* [It is well known that the fibre of the Pine Apple is very abundant as well as strong. The fine Manilla cambric is made from it. But will it pay to make string of it here, instead of buying string or cord? That is a point about which every one can judge for himself.]

"*Singular Discovery in Horticulture.*"—"In a late number of the *Emporio Italiano* we find a description of the discovery of a new process by an Italian florist in Aricia, by which it is asserted that delightful fragrance may be bestowed upon plants naturally inodorous. In order to attain this object the roots are covered with fragrant manures. Thus, with a decoction of Roses the discoverer has been enabled to give to the Rhododendron the perfect fragrance of the Rose. In order to secure a successful result it is necessary to treat the seeds of the plant to which it is desired to give fragrance. They are steeped two or three days in the required essence, then dried in the shade, and shortly afterwards are sown. If it is desired to change the natural odour of the plant for one more agreeable or more desirable, the strength of the essence is doubled or tripled, and a change must be made in the nutrition of the plant. In order to make the artificial odour permanent, the plant must be sprinkled and dampened with the essence several days in the spring for 2 or 3 years. And thus, also, it is said, a gardener may at his pleasure cause different plants or trees to share their odours with each other, by boring through the stalk, or trunk, or root, an opening into which to pour the fragrant ingredients."——I am afraid it is just possible you may not have seen the *Morning Star* newspaper of Tuesday the 13th inst., and therefore I enclose you the above paragraph from it. Ought we not to be truly grateful to the *Emporio Italiano* for giving us intimation of this wonderful discovery! Only fancy a gimlet becoming our household god, and by its help converting all living trees and plants—Deodars to Dandelions—from their evil ways. Turn out, turpentine, and enter, Frangipani! Do compliment the *Morning Star* on its botanical knowledge, and don't let its light be hidden under a bushel. Could you not make both editors contributors? *William Dean, 5, Sussex Place, Slough.*

The Large Vine at Hampton Court.—In reply to numerous questions naturally suggested by the remarks in your Notices to Correspondents of last week, I beg to inform such of your readers as may suppose me to be in fault, that I have nothing whatever to do with the large Vine. In justice however to the intelligent man who manages it, I may be allowed, on the authority of men who have lived in this neighbourhood for nearly 40 years, to say that they never saw more, nor yet better bunches than are now hanging on the tree, and certainly it could not be in better health. To prove this I appeal to the thousands who have visited Hampton Court Gardens this season; and I can assure those who have not, but might, that they will not feel disappointed if they will only come and see! *James Donald, Hampton Court.* [Does our correspondent mean to say that there is not a great many very small bunches? and that the whole number is not less than what the guide book says the Vine has borne?]

Polygonum vaccinifolium.—The present beautiful condition of my plants of this induces me to ask if it has ever been tried as an autumn flowering bedding plant. The rapidity with which it covers the surface of a bed; its easy propagation, rooting at every joint in suitable soil, *i. e.* very sandy peat or leaf-mould and a little loam; the neatness and closeness of its foliage when not in bloom; and "though last not least," its not requiring housing in winter, being perfectly hardy—all these recommendations render it, I think, a very desirable plant in gardens not exposed to early frosts, which turn the flowers rusty. It makes a gay appearance, and is in perfection when other "bedders" are exhausted. *James Moly, Hawkchurch, near Axminster, Devon.* [Your sketch is in the hands of our engraver.]

The Horse Chesnut.—Is there any one among your host of scientific correspondents who has ever subjected Horse Chesnuts to the process of analysation? If so, what amount of nutriment do they contain? I observe the deer devour them voraciously, and I have ascertained that pigs will eat them. If they could be converted into meal it would form an invaluable substitute for pig provision at the present time, when this article ranges at such high prices; especially as there is such an abundant crop of this fruit, which are this year prodigiously fine, and which in many places are trampled under foot or thrown away as waste. *G. Taylor, Whitchurch, Hants.* [Horse Chesnuts are acrid and unfit for food of any animals except deer, whose stomachs appear able to resist their action. Pigs and sheep will eat them, but do not thrive upon them. It is said, indeed, that goats like them; and we are told that the Turks grind them into flour, which they add to the food of broken-winded horses; but we find no modern confirmation of this story, which seems to have originated with the old botanist Clusius, who described and figured the plant above 200 years ago under the name of Castanea equina. Perhaps our correspondent in Turkey will some day tell us if the seeds are still so employed.]

Birds.—Although I am a humane man, and one who delights in the song of the thrush and the blackbird, I cannot allow them to carry off or destroy the whole fruit of my garden and orchard. One may pay too high a price for any luxury. Can you get me advice regarding the best mode of ridding myself of these expensive pests? *D.*

Aralia japonica.—There is a plant of this handsome shrub in full flower here at present. Aralia japonica has stood in our grounds for the last six years without any protection, but the points of the shoots are yearly cut back. The plant in flower has been grown for the last two years in light dry soil where it has suffered very slightly from the frost, and to this we attribute its flowering so well. *G. M. H., Elgin, N.B.*

Large Peaches.—Pray allow me to say that I gathered this year from an open wall four Royal George Peaches, which weighed 2½ lbs. The crop was, and generally is, a very good one. *A Lancashire Man.*

Fungi, Dead Wood, Effect of on Plants.—As an illustration of the article by "M. J. B." at p. 692, I was assured when I was in Malta some years ago that Fig trees always died if planted on or near the site of an old Fig tree that had died, and that therefore when one generation of trees had decayed it was hopeless to look for the thriving of a new generation if planted. Have we any experience of this in the Fig orchards at Tarring, in Sussex? *Geo. E. Frere, Roydon Hall, Diss.*

Mignonette Pepper.—Dolby's Cooks' Dictionary, p. 349, says this consists of "long pepper, ginger, cinnamon, cloves, coriander, and mace." *Gardener.*

Large Vegetable Marrow, &c.—I have now in my shop-window a Vegetable Marrow 4 feet 6 inches long, 5 feet in circumference, and 88 lbs. in weight; a Citrouille or Gourd, 8 feet 2 inches in circumference. A gentleman in this neighbourhood has raised in the open ground from seed which I sold him a "Honfleur Melon" which is now 14½ lbs., which I believe is the largest ever grown in England, as it has been grown without glass. *E. Persac, Exeter.*

Societies.

Horticultural, *Oct.* 13.—W. Wilson Saunders, Esq., Treasurer, in the chair. The following were elected Fellows, viz.:—

Lord Oranmore, Castle Macgarret, Mayo.
Lord Boston, Hedsor, near Windsor.
W. Landon, Esq., New Road, Hammersmith.
J. Straith, Esq., 11, Great Tower Street.
J. Tomlin, Esq., Crouch End, Hornsey.
R. Gunter, jun., Esq., Turnham Green.
Professor Henfrey, Turnham Green.
S. Carter, Esq., Battle, Sussex.
Rev. E. Nicholl, St. George's, Cardiff.
Miss E. H. Turner, Rook's Nest, Godstone.
Mr. J. Mann, Brentwood, Essex.
Mr. J. R. Challice, Newhouse, Ivy Bridge, Devon.
Mr. D. Cunningham, gr. to Sir R. Howard, Bt., Craven Cottage, Fulham.
Mr. R. Godfrey, Knap Hill, near Woking, Surrey.

As it had been intimated that the business of this meeting would be wholly confined to the election of Fellows, little was exhibited beyond what came from the Society's Garden. J. Luscombe, Esq., of Lower Knowle, near Kingsbridge, however sent two noble specimens of Arundinaria falcata, a kind of Bamboo, which lives out of doors in that part of Devonshire, attains a large size, and forms strikingly graceful objects. The specimens shown measured nearly 20 feet in height. Along with them were also furnished from the same favoured climate cut spikes of Clerodendron fœtidissimum, which is found to flower profusely and to be perfectly hardy against a south wall; Allamanda neriifolia from a conservatory where it had been in flower for many months together, requiring only the temperature of a hot pit during winter; two hybrid Veronicas in the way of decussata, whose flowers had however nearly all been shed in travelling; unripe pods of the golden yellow Bignonia Tweediana; and some specimens of Hydrangeas with flowers of a most intense and beautiful blue. These had been obtained in the following manner. It was stated that "in altering the grounds at Combe Royal a few years ago, the approach was carried through a small wood of Firs, in which among many other shrubs these Hydrangeas were planted, where, in the mould produced by the Fir leaves, flowers of deep blue were invariably borne, the parent plant being pink." A new and efficient means of altering the colour of Hydrangeas may therefore be said to have thus been discovered, for nothing in their way could possibly have been handsomer than the specimens exhibited. Mr. Toogood, of Westergate Nursery, near Arundel, showed a collection of Apples and Pears, fair specimens of these fruits from that part of Sussex. Mr. Howlett, gr. at Haverland Hall, Norwich, sent a better model of his new plan of shading and protecting hothouses than that furnished by him at the great manufacturers' show at Chiswick in June last. He covers the outside of the entire roof of the house with what may be called a Venetian blind, made of thin boards opening and shutting by means of a quadrant which can be set to any angle at which it may be thought proper to fix the louvres. Of course in this, as in most other matters connected with gardening, expense is an important item, and on this point Mr. Howlett says:—"I have had estimates made of the cost of fixing, and I find that 6*d.* per superficial foot would be about the cost. I am not," he adds, "so sanguine as to expect that at that price people would cover more than a small portion of their glass; but I think that for Fern, Orchid, and propagating houses it would be found convenient and valuable." We think so too. From the same was also a model of a shutter for protecting cold pits and frames in winter. This was a black waterproof canvas stretched over skeleton wooden frames, which are intended to be laid over mats, Frigi domo, or other protecting materials to keep them dry, and therefore add to their durability and efficiency. These frames are stiffened by means of diagonal braces.

From the garden of the Society came branches loaded with ripe fruit of the following Cratæguses, which are at present extremely ornamental, and in this respect perhaps the best of their kinds, viz., Aronia, Leeana, orientalis, macracantha, coccinea, and punctatá brevispina. Of these Leeana had fruit nearly as large and showy as that of a Siberian Crab; that of Aronia was pale yellow and tolerably good to eat; orientalis and punctata had dull red port-wine coloured fruit; coccinea

large and bright red, while that of macracantha was brilliant red with a beautifully smooth polished surface. It will thus be seen that these Cratæguses are objects of great ornament in autumn when they are in fruit. From the same establishment came the following Grapes from the open wall, viz., Port Wine or Claret, Braddick's Sweetwater, Grizzly and White Frontignan, Black Hamburgh, De Candolle, Prune d'Herault, White Corinth, grown out of all shape, and Chasselas Rouge Royale. The last is an amber-coloured sort resembling a Sweetwater, thin skinned, quite ripe and sweet, altogether an early variety deserving attention. It was received by the Society from Messrs. Baumann, of Bolwiller. From a Vinery were Black Prince, Wilmot's Black Hamburgh, Olwer, a Rhenish wine Grape, resembling the Chasselas de Fontainbleau; and from Ewing's glass wall fair bunches of Black Hamburgh and Royal Muscadine. Of Apples the Society sent handsome fruit of several well-known sorts, among which were Reinette de Laak, a valuable early kind; Tower of Glammis, an excellent kitchen fruit; a very handsome yellow fruit called Knight's No. 1, of excellent quality; and Waltham Abbey Seedling, a good kitchen Apple and an abundant bearer. In a collection of the better kinds of table Pears were the following new kinds, viz., Beurré Clairgeau, a handsome variety, which we have formerly noticed; Fondante de Malines, Epine Dumas, apparently unsuitable for our climate; Charlotte de Brouwer, a good sort with a flavour like that of Beurré Diel; and St. Michel Archange. Among stewing Pears were Gilogil, Catillac, and Verulam. The last is an abundant and sure bearer as a standard, and keeps till late in spring. The first bears plentifully either as a standard or against a wall. Fruit of the following Chesnuts were also produced, viz., New Prolific, Masters', Devonshire, Chataignier noir, Madeira, and others; of these the four first were ripe. The last, even with the fine summer we have just experienced, was little more than half ripe. Of Gourds there was an interesting collection, in which were two specimens of Potiron jaune gros, the largest of which measured 7 feet 4 inches round, and weighed 170 lbs.; specimens of Egg and Bottle Gourds, Potiron gris, Giraumon turban hâtif, true Vegetable Marrow, and a ripe Custard Vegetable Marrow, which has been lately figured and described in our columns. Finally, of Red Beets the Society sent examples of two kinds raised from seeds presented by Mr. Dancer, and four from seeds furnished by Messrs. Lawson. Of these the best were "Improved Red Beet" (Dancer), which was solid and excellent in colour, and "Red Beet" (Lawson), which was equally good and if anything even higher coloured. A Turnip Beet from seed sent by Messrs. Lawson on being cut was found to be deficient in colour.

It was announced that the next meeting would be the great fruit show at Willis's Rooms, on the 24th inst., when, as has been advertised, Florentine Camellias would be balloted for. In reference to the show at Willis's Rooms, it may be as well to add that the Society pays carriage of fruit when *sent* to 21, Regent Street; but that no fruit need be sent there if the grower or his man can bring it at once to Willis's Rooms, in King Street, St. James', on the afternoon of Friday or morning of Saturday before 9 o'clock at the very latest. Everything ought to be delivered on the Friday afternoon.

Scottish Arboricultural. — The fourth annual general meeting of this Society was held at Edinburgh on the 8th inst., when there was a numerous attendance of members, most of them from distant parts of Scotland and the north of England. This indicates an amount of interest in the Society's affairs which must be truly gratifying to all who are interested in the advancement of arboriculture in this country, for the Society's operations are not confined to Scotland alone (as its name would indicate), many of its most active members being resident in England, and a few in Ireland. At this meeting Mr. James Brown, Wood Commissioner to the Earl of Seafield, occupied the chair. Forty-one new members were admitted. The Chairman delivered a lengthy and valuable address, in which he reviewed the past history of the Society, noticing the various efforts that had been made to advance our knowledge of practical forestry, and to connect with it those branches of science to which it must owe its future development as an art. After thus freely discussing the Society's past proceedings, he concluded by pointing out the means by which its utility might be promoted in future. This elicited from the members an expression of their opinions on the topics brought under review, after which they joined in a vote of thanks to Mr. Brown for his able address, which was calculated to exercise a highly beneficial influence on the future prosperity of the Society. Mr. Philip presented an elaborate paper on the general Management of Plantations. A communication was read from John J. Chalmers, Esq., of Aldbar, in which he called attention to the importance of ascertaining the origin of the seeds of the best Larch timber growing in the country, and gave details of some fine Larches possessed by Mr. Chambers of Hatord. Members and others were invited to communicate information on this subject to the Secretary. For certain business details, such as the election of office-bearers and awards of prizes for essays, reference must be made to our advertising columns; but it may here be further stated that the Society agreed to offer prizes for essays on the following subjects, the details of which will be advertised as soon as they are adjusted, viz.—1, On Dry Rot and other Diseases in Larch and Spruce; 2, Entomology; 3, Introduction of Hardy Coniferæ; 4, Drainage and Fencing; 5, Thinning and General Management; 6, Home Nurseries. These prizes are open to competition to all practical foresters and others, whether members of the Society or not.

Notices of Books.

Lectures on Roman Husbandry. By C. Daubeny, M.D., Prof. of Botany, Oxford.

[Second Notice.]

The horticultural portion of this important work is in no degree less interesting than the agricultural. It draws a lively and no doubt exact picture of the gardening of the luxurious Romans, whether displayed in the formation of parks, or limited to the humbler kitchen garden and bee garden. Concerning these points the Georgics say little; and it is chiefly from Columella and Pliny that information is to be drawn. "In the earliest period of Roman History," says our author, "every family had its garden, and, as little animal food was consumed, it was from this source that the population principally drew its subsistence. Hence in the laws of the Twelve Tables, the term *hortus* is synonymous to *heredium* or inheritance; and the word *villa* is nowhere made use of. As a proof indeed of the honour paid to gardens by the old Romans, Pliny remarks, that men of the highest rank were willing to borrow their names from its contents, as in the Valerian family, where the Lactucarii did not think themselves disgraced by taking their names from the Lettuce. These however were mere kitchen gardens, containing such plants and trees alone as were subservient to the daily uses of life; and in Cato's work, the only notice we have of a garden is of this description, although it be true, that, according to Pliny, he recommended that plants which could be used for chaplets should be likewise cultivated in it. In proportion, however, as civilisation and wealth increased, a taste for ornamental plants became prevalent; and even in Rome itself, as we are informed by Pliny, it was the fashion of the day, among the lower classes, to have little gardens in the front of their houses, until debarred from that indulgence by the necessity of shutting out the robbers which so abounded in the city."

That they had window gardens is shown by the epigram of Martial.

> "Donasti, Lupe, rus sub urbe nobis:
> Sed rus est mihi majus in fenestra." (xi. 19.)

And that their villas were amply supplied with decorated gardens is shown by passages in Statius and the younger Pliny. It, would, however, seem from these descriptions "that the Romans, in the time of Pliny, had not advanced beyond that stiff and formal style of gardening, which prevailed a century or two ago in England, and which is still in vogue on the continent; and that their principal study was to clip their trees into strange fantastical shapes, just as in the time of Charles the Second was the case in England, and even met with commendation from such authorities as Sir W. Temple:—

> "'The suffering eye, inverted nature sees,
> Trees cut to statues, statues thick as trees;
> With here a fountain never to be play'd,
> And there a summerhouse that knows no shade;
> Here Amphitrite sails through myrtle bowers,
> There gladiators fight, or die in flowers:
> Unwater'd see the drooping seahorse mourn,
> And swallows roost in Nilus' dusty urn.
> (Pope's Epist. iv. 119, &c. vol. 3.)

"Thus in our own Botanic Garden, the two Yews which terminate either side of the central walk were clipped to represent giants, much to the admiration of the good people of that period, as we may infer from the copies of doggerel verses written at the time, to celebrate their remarkable appearance.

"It is stated that C. Matius Calvena, the friend of Julius Cæsar, and favourite of Augustus, first taught his countrymen this monstrous method of distorting Nature by cutting trees into regular shapes.

"So common did it become, that gardeners went by the name of *topiarii*, to indicate that this was their especial function. Some of their duties, however, were more consistent with good taste; for Cicero mentions that his topiarius had covered the walls, trees, and terraces of his villa with Ivy; and Pliny says the same with reference to his Tuscan retreat.

"Nor was Nature in all cases entirely banished; for we have already seen that thickets and meadows were interspersed in Pliny's garden with formal avenues; and we have an inkling of better taste in the praise bestowed by Martial upon the rural retreat of his friend Faustinus, and in the ridicule he casts upon the daphnonas, platanonas, et aëreas cyparissos—the stiff avenues of Laurels, Planes, and Cypresses—belonging to another acquaintance, more famous for his ostentation than for his hospitality; as well as in Nero's attempt to introduce into the gardens of his Imperial Palace fields, lakes, woods, and landscapes, under the guidance of Severus and Celer, two persons, says Tacitus, who had the genius and boldness to try to accomplish by art even what nature had denied.

"Still, however, the chief admiration of the Romans appears to have been lavished upon the ingenuity displayed in clipping and pruning their trees into a number of fantastic shapes—walls, figures of beasts, ships, letters, and so forth being thus imitated.

"The Box was especially tortured in this manner. The Cypress tree, too, as Pliny says, was clipped and trained to form hedge rows, or else was twisted into various forms according to the caprice of adepts in the art of gardening (*ars topiaria*), representing scenes of hunting, fleets, and various other objects, which it clothes, as it were, with a thin and short leaf, that is always green."

Such were Roman gardens. Their contents exhibited little variety, and none of that separation of ornamental from esculent plants which is usual at the present day. Plutarch speaks of Roses and Violets being planted side by side with Leeks and Onions.

The learned author does not omit to discuss the question of the possession by the Romans of forcing contrivances, a subject about which there is some difference of opinion. That they did employ some kind of artificial aid is sufficiently proved by some well-known expressions in Martial, the most remarkable of which (lib. viii. ep. 68) tells how the Vine remains in felicity, enclosed in the transparent *gemma*, where no rigours of frost can touch its berries; and seen like the female figure through her muslin drapery, or the pebble beneath the limpid stream. That some kind of transparent material was used by the Roman gardeners, under the name of *specularia*, is therefore certain, whatever the material may have been. Seneca calls it *testa*, which Dr. Daubeny translates shell; but which may have been, as he himself states in other cases, a tile of talc, the *lapis specularis* of Pliny, which he tells us the Romans obtained abundantly from Spain. These specularia would seem to have been a kind of handglass, possibly tall transparent moveable frames, such as may be seen in some of the Botanic Gardens on the Continent. The curious account given by Columella of Roman Cucumber growing is hardly intelligible upon any other supposition.

"He who wishes, he says, to have the fruit of the Cucumber before its season should, after the winter is over, introduce well manured soil into baskets and slightly water it. Then, when the seeds have come up, on warm and sunny days he should place them in the open air near his house, so as to shelter them from all cold blasts. But in cold and windy weather he should bring them under cover, and continue this position until the vernal equinox. He should let the baskets altogether into the ground, and he will thus obtain a precocious fruit. Wheels also may, if it be thought worth while, be placed under the larger vessels, in order that they may be drawn backwards and forwards with less labour. But in any case they must be covered with *specularia*, that even in calm but cold days they may be safely brought out into the sun. It was in this way that Tiberius Cæsar got Cucumbers almost all the year round."

Upon the whole, Dr. Daubeny concludes from an examination of all the evidence obtainable that Roman forcing did not go beyond the production of early Cucumbers and perhaps Melons, and a supply of winter Roses.

Of the plants known to the Romans we have a long and interesting account, in which an attempt is made to show what the species really are to which their names belong. No part of classical literature is involved in more obscurity than this, the old commentators having continually referred the names used by classical authors to wrong plants, and the confusion thus produced having been rendered still more inextricable by botanists themselves. In this part of his subject Dr. Daubeny has used a copy preserved at Oxford of a curious illustrated MS. of Dioscorides referred to the fifth century; and we observe with much satisfaction that the learned commentaries of Du Molin have been consulted with the attention they demand; for it is certain that the acuteness of the modern French critic has thrown an entirely new light upon some of the most familiar imagery of the poets. For example, we all translate the schoolboy line—

> Alba ligustra cadunt, vaccinia nigra leguntur,
> The white Privets drop, the dark Bilberries are gathered,

our notion being that Virgil refers to the flowers of the Privet, and the berries of the Bilberry. Du Molin points out not only that this cannot be the true interpretation, but that in reality the Ligustrum was the Great Bindweed, and Vaccinium, or rather Vacinium, the German Iris. This, however, opens an extensive question upon which we cannot at present enter. The classical reader will doubtless examine for himself the pages of the learned Oxford professor.

The work concludes with a catalogue of the modern botanical names supposed to belong to the plants described by Dioscorides, among which we remark that Sibthorp's supposition that the σκαμμωνια of the Greek author was Convolvulus farinosus, is received without question. There is however little doubt that this view, founded upon a disputed reading in Dioscorides, is untenable, as the writer of this notice long since pointed out in the Flora Græca itself.

Garden Memoranda.

Castle Coomb, the Seat of George Powlett Scrope, Esq., M.P.—Few places afford finer examples of natural scenery and picturesque beauty than the ancient and romantic little village of Castle Coomb, which lies about five miles north-west of Chippenham, and 12 north-east of Bath. It is situated in the extreme north-east angle of the county of Wilts, adjoining Gloucestershire, and is built in the bottom of one of those valleys which intersect and drain the western ridge of the Cotswold hills; a rapid stream runs through it, and joins the Avon below Box and three miles above Bath. The steep sides of the winding valley are clothed with a pleasing intermixture of Grass and wood. The hill on which formerly stood the ancient

castle, now reduced to mere mounds of rubbish, forms a conspicuous object, and the handsome church tower and picturesque manor house all add to the beauty of the scene. The latter is situated in a crescent-like valley surrounded by beautifully wooded slopes; on the front lawn are 25 flower-beds, which are one mass of bloom, together with a circular fountain which plays constantly, and a variety of standard Fuchsias in square boxes. On one side of the lawn is a broad walk leading to the church, and between the walk and rising ground adjoining the flower garden for a considerable distance is a very showy and attractive riband composed of the following flowers: First row, Golden Chain Geraniums; second, Lobelia Erinus ramosoides; third, Cerise Unique Geraniums; fourth, Yellow Calceolaria; fifth, Dahlia Zelinda, dark purple. Being on the side of a hill and backed with evergreens this arrangement produces an admirable effect.

Adjoining the house is a conservatory, which is gay with Balsams, Achimenes, and other summer flowering plants; a small fountain occupies the corner, the water from which rises from a rock through a dolphin's mouth into a shell, and falls from thence into a cistern below. The gardens are considerably above the lawn, leaving which you ascend a flight of steps surmounted with stone vases, which are filled with scarlet and variegated Geraniums. From the walk at the top of the steps an excellent view is obtained of the lawn with its gay beds of flowers, the river, and surrounding scenery. There is a walk 70 yards long at the base of a gently rising bank, ornamented the whole length with a serpent-like riband of flowers, which produce a splendid effect. The first (or inner) row consists of Yellow Calceolarias; second, Scarlet Geraniums; third, Blue Lobelias; fourth (or outer) row running the whole length, Koniga variegata, and between each curve has been introduced a round bed of Scarlet Geraniums. Turning to the right at the end of the walk lies the principal part of the flower garden, consisting of about 70 beds, containing a great variety of plants adapted for summer decoration. These have been very tastefully arranged, both as regards height and colour. A great many variegated-leaved Geraniums and other plants with handsome foliage are employed here for edgings and for mixing with dark-leaved objects, producing an agreeable contrast. When the whole of the beds are in full bloom, this part, both as regards beauty of situation and appearance, is very interesting. The flower garden is about 50 yards above the level of the lawn, and a commanding view of nearly the whole vale is therefore obtained. Connected with the flower garden are various walks lined with Dahlias, Hollyhocks, Asters, Phloxes, &c. In the kitchen and fruit garden are Vineries, pits, frames, &c. The whole place was in excellent condition as regards keeping, and reflected much credit on Mr. Flewelling, the gardener. *G.*

Calendar of Operations.
(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—Air should still be freely admitted whenever the weather is favourable, but it should be regulated so as to avoid draughts, which under any circumstances are injurious. Dry weather should likewise be taken advantage of to clear the surface soil of pot plants, and to wash the outsides of the pots to promote free evaporation from the soil during damp weather; great attention should likewise be bestowed in keeping the shelves, stages, and paths free from dirt, decayed leaves, &c. These little attentions give houses an agreeable look at a season when flowering plants are getting scarce. Conservatory and stove-creepers trained under the roof will require an additional cutting in to allow more light to pass to the plants underneath; such as have done blooming may be well thinned out at once, and the remaining shoots tied somewhat closer together. Hardenbergias, Kennedyas, and other early spring flowering creepers should however not be disturbed at this season or it will materially affect their beauty in spring. Before placing Gloxinias, Achimenes, and similar things to rest let each plant be labelled in order that no confusion may arise when they are wanted in spring; all the above keep much better in the pots in which they grow than anywhere else, and should be wintered in a room or shed where there is no danger to be apprehended from frost.

FORCING DEPARTMENT.

Pineries.—Where the bottom-heat is obtained from fermenting materials it is generally found to decline very rapidly on the occurrence of dull cloudy weather, and any necessary addition of tan or whatever else is used should be made directly it is wanted, so as to secure a steady temperature of about 85° for the roots. In adding fresh fermenting matter at this season it will be worth being at some trouble to have it in a rather dry state, for when used very wet it is apt to chill the roots at first, and when fermentation commences the heat often becomes so strong that the plants must be raised. Vineries.—Ripe Grapes will require to be frequently looked over, cutting out any decaying berries; and if the bunches have not been well thinned, the inside berries must be carefully examined in the event of damp weather, otherwise the bunches will be very liable to get disfigured. Avoid, if possible, having pot plants requiring watering in houses where the fruit is expected to hang for any time, and where any plants must be kept under the Vines they should be watered in the morning, using a little fire heat with air to get the atmosphere dry before night. Gentle fires will be necessary here when the weather is damp, but use no more than may be necessary to keep the atmosphere in motion, for too much warmth is nearly as injurious as damp.

FLOWER GARDEN AND SHRUBBERIES.

In some localities the cold nights we have lately experienced must have greatly damaged the appearance of the more tender kinds of plants, and such as are to be saved should be removed at once. Proceed therefore with potting such plants with as much despatch as possible, and if practicable a little artificial heat should be applied to help them to root before winter. In general a show of spring flowering plants is quite as acceptable as the more gaudy occupants of the parterre in summer, and steps should now be taken to fill up the beds as they are cleared, for the purpose of contributing to the enjoyment of spring. A miscellaneous mixture of dwarf early blooming shrubs, perennial plants and bulbs, is most commonly planted; but in regularly laid out beds, as in geometric flower gardens, the disposition of colour should be carefully considered, as there is an adundance of spring flowering plants and bulbs to form a rich and varied display if properly arranged and carried out. Lawns will now require daily sweeping to present anything like neatness; roll constantly wherever the turf is hollow to keep a firm sward. Well clean gravel walks for the winter and afterwards let them be well rolled in order that the water may pass freely off the surface. All operations of planting, relaying turf, and border-making should be actively proceeded with.

HARDY FRUIT AND KITCHEN GARDEN.

As a supply of salading is generally in request during winter a stock of nearly full grown Lettuce and Endive should at once be transferred to pits or frames. Where the protection of glass can be given in frosty or wet weather, the above should be kept in reserve for use in very severe weather. Endive is blanched for salads and kitchen use by various means, but a way we prefer after being tied up when perfectly dry is to cover as much as requires blanching at one time with leaves procured as dry as possible, throwing a little long litter over to prevent them from being blown about with wind. Sow a crop of Radish in a frame for winter; Celery, Cardoons, and Leeks should be earthed up in dry weather; Broccoli, Borecole, &c., may still be hoed between, as should also winter Spinach, thinning it out 16 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Oct. 15, 1857, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 9	21	29.553	29.248	55	40	47.5	57	56	W.	.04
Satur. 10	(	29.833	29.716	64	46	55.0	56½	56	W.	.20
Sunday 11	23	30.050	29.820	68	54	61.0	56	56	S.W	.02
Mon. 12	24	30.177	30.095	69	45	57.0	58	57	S.W	.00
Tues. 13	25	30.189	30.176	66	36	51.0	58½	56½	S.W.	.00
Wed. 14	26	30.149	30.027	64	40	52.0	58	56	E.	.00
Thurs. 15	27	30.016	30.020	58	50	54.0	58	56	N.E.	.10
Average		29.995	29.857	63.4	44.4	53.9	57.4	56.2		.56

Oct. 9—Fine; uniformly overcast; rain; overcast.
— 10—Clear; very fine; rain at night.
— 11—Foggy; very fine; overcast; slight rain.
— 12—Fine; very fine throughout.
— 13—Foggy; overcast and mild: foggy at night.
— 14—Foggy; very fine throughout.
— 15—Foggy; overcast; fine; foggy.
Mean temperature of the week 2 4-5ths deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 31 years, for the ensuing week, ending Oct. 24, 1857.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 18	58.1	41.4	49.8	14	0.85 in.	2	3	1	1	4	6	12	2
Mon. 19	59.2	39.9	49.6	13	0.61	1	2	4	3	3	6	8	4
Tues. 20	59.3	40.6	49.9	14	0.34	1	3	1	3	5	7	8	3
Wed. 21	58.7	40.3	49.5	13	0.64	2	3	2	3	5	7	8	1
Thurs. 22	59.0	44.2	51.6	18	0.66	1	—	5	1	6	11	5	2
Friday 23	58.0	41.0	49.5	18	0.56	3	1	—	3	4	11	8	1
Satur. 24	56.0	39.8	47.9	15	0.72	2	3	1	—	8	10	5	2

The highest temperature during the above period occurred on the 21st, 1826—therm. 72 deg.; and the lowest on the 21st, 1842—therm. 20 deg.

Notices to Correspondents.

Apples for Espaliers: *Diss.* Dessert Apples may be planted against your strained wire espalier at 18 feet apart; kitchen sorts, being stronger growers, at 20 feet. The following will most probably suit your climate, and will give a succession. Dessert—Devonshire Quarrenden, Wormsley Pippin, Early Nonpareil, Blenheim Pippin; 2, Court of Wick, Margil, Pitmaston Nonpareil, Hubbard's Pearmain, Baxter's Pearmain, Scarlet Nonpareil, Boston Russet, Sturmer Pippin. Kitchen—Keswick Codlin; 2, Waltham Abbey Seedling, Mère de Ménage, Dumelow's Seedling, Northern Greening, Rymer, Easter Pippin or French Crab.‖

Black Apple: Next week.

Books: *An Old Subscriber.* Loudon's Arboretum Britannicum is by far the most complete book we have on the subjects you mention. You will also find much useful information in Morton's Cyclopædia of Agriculture.—*An Enquirer* will find in any introduction to Botany that has been published of late years the information he seeks.—*J R W.* Sweet's Hothouse and Greenhouse Cultivator may possibly assist you; nothing, however, but experience will ever make you an efficient plant cultivator or properly teach you the nursery business.‡

Crasanne Pears: *W H B.* Your miserable fruit is the result of starvation, assisted by a bad climate. This variety is too tender for your latitude, and when you let Elm roots invade the border and devour its substance you must not wonder at the wretched things borne by your trees instead of fruit.

Cucumber Pits: *A W.* Your gardener is perfectly right. Never use faggots or matter liable to rot; very coarse brick rubbish is unexceptionable. There is no fear of its becoming compact if you employ it coarse enough. We should sift out the mortar or most of it.

Diseases: *J Abell.* Your Vine leaves are overrun by the Oidium or Vine mildew, concerning which and the remedies for it our columns have been more or less occupied for many years. The beetle in your Fir trees is the notorious Hylurgus piniperda. Your best remedy is to break off the *dying*, not dead, ends and burn them immediately.—*A B.* It is a case of spotting, the cause of which is not well ascertained, as it occurs under very different treatment. We should suspect from the appearance of the stem that coarse manure had been used in your beds. At least we have seen similar results from such a cause.—*K K K.* There is no mildew on your Vine leaves, nor do the Grapes exhibit the appearances which are usual where this disease has been virulent. If we are right in supposing there was no mildew it was a very injudicious step to cut off the foliage; nor, indeed, would it have been necessary, in all probability, had the disease really existed. The practice must be injurious for some time to your Vines. The circumstances which you detail are quite sufficient to account for the state of your house. Do not sacrifice the health of your Vines to the bedding plants, and guard more carefully against chilling draughts, and when your Vines have recovered their strength you may again expect a good produce. If there is any talk of "the disease" next year, be so good as to send us specimens, and we will gladly tell you whether there is any Oidium, without which it cannot exist. The case is so instructive that we shall probably make some more detailed observations upon it. *M J B.*

Glass: *T D.* It is our fixed opinion that the best glass for all plant-houses is Hartley's rough plate. If you have been rightly informed that it breaks that has doubtless been owing to its being badly annealed. If leaves are scorched through it the ventilation is in fault; under glass of any kind scorching may occur in a still atmosphere. We cannot give you prices; but as all glass is sold by a fixed tariff you can tell what you ought to pay by asking for the printed price-list. In general what is called 16-ounce glass is best. Phosphorized rat poison, which can be bought of chemists and druggists, is we believe the best remedy for such vermin. Other things are advertised, but we have no experience of them.

Names of Fruits: *R F H.* 1, Ord Apple; 2, Dumelow's Seedling; 4, Blenheim Pippin; 5, Northern Greening; 6, King of the Pippins; 7, Dutch Mignonne; 8, Rymer; 10, worthless; 12, 14, Wormsley Pippin; 13, perhaps Fearn's Pippin; 15, Downton; 17, Alfriston; 22, Glou Morceau; 23, Passe Colmar; 24, Easter Beurré; 25, Crassane; 26, Beurré d'Aremberg; 27, Marie Louise; 28, Napoleon (?); 30, Brown Beurré. Lindley's Guide to the Orchard, &c., and Rivers' Descriptive Catalogue. Your climate is evidently not well adapted for Pears, and the usual tests of fitness for gathering them will not in all cases apply. The early autumn sorts must not be allowed to hang till they readily part; the late kinds should be left so long as there is no danger from frost. With regard to keeping, a room with shelves is preferable to jars when the fruit is only imperfectly ripened. The temperature should be kept as steady as possible. If any appear not to become melting, pack them in dry straw and bring them into a warm place.—*J R.* A, C, Catillac; B, Easter Beurré: D, White Doyenné; E, G, Marie Louise; F, H, Passe Colmar; I, Gansel's Bergamot; J, not known—worthless.—*G L D.* 2, 3, Passe Colmar; 4, 10, Easter Beurré; 5, 8, Marie Louise; 6, Beurré Rance; 7, Louise Bonne (of Jersey); 9, Winter Nelis; 11, Beurré Diel; 13, Ne Plus Meuris; 14, Hawthornden; 15, "Royal Somerset," probably correct, although under that name an Apple has been cultivated which proved the same as the London Pippin. The seedling appears to be worthy of cultivation.—*C W.* 1, Glou Morceau; 2, Hacon's Incomparable; 3, Winter Nelis; 4, Marie Louise(?); 5, Glou Morceau (?); 6, Napoleon; 7, Beurré Diel; 8, Easter Bergamot; 9, Van Mons Leon le Clerc; 10, Beurré Rance; 11, Easter Beurré; 12, Duchesse d'Angoulême (?).—*W B.* The Blenheim Pippin.—*J M.* Not known at present.—*W G.* 1, an excellent Pear, much bruised, perhaps Louise Bonne (of Jersey); 2, Marie Louise; 3, Swan's Egg; 4, Beurré Rance; 5, Winter Nelis; 6, Beurré Diel; 1, Hawthornden; 2, Beauty of Kent; 3, Old Nonpareil.‖

Names of Plants.—*Alford.* Not sessiliflora, but Q. pedunculata with nearly sessile acorns, a variety constantly confounded with the true sessiliflora, which is quite different, with long yellowish slender leafstalks. We can make nothing of the fructification of the Gourd. It is all withered and unexaminable.—*W B F.* The Willows are—1, Salix alba; 2, Salix fragilis; 3, Salix petiolaris; at least we believe so; but it is difficult to name Willows without seeing their male flowers. We shall have something to say about Pampas Grass next week. Your white sort is no doubt a female.—*Annie M.* Physalis peruviana.—*Dublin Sub.* Theobroma Cacao is the botanical name of the plant to which we are indebted for the "nibs" which produce such excellent Cocoa. It is in no respect like the Cocoa Nut Tree.—*Quercus.* Your acorns appear to belong to some variety of Evergreen Oak.—*A H F C.* 1, Achillea Ptarmica; 2 are the cocoons of some insect; each contains its grub.

Pampas Grass: *E T.* It will flower when it gets old enough. It requires no particular treatment, and is perfectly hardy.‡

The Custard Vegetable Marrow: *Carolus.* You must apply to the trade for its seed. We believe it has to be imported; for it is said to be usually unable to ripen good seed in this country. It is cultivated and cooked like Vegetable Marrow. If you consult our columns of correspondence you will find plenty of information about Potatoes.

The Potato Disease: *J I.* You must excuse us. We cannot assist in any attempt to revive the nonsensical story of this disease being caused by an insect. Such opinions have been exploded for these ten years among rational people.

The White Zelinda Dahlia: We have received from *J E* a communication on this subject. He encloses statements by Mr. Heale, of Devizes, expressing his opinion that the Trentham Dahlia is the same as the Empress of the Whites raised by his father, and by Messrs. Keynes of Salisbury, Slater of Hammersmith, and Turner of Slough to the same effect. It would, therefore, appear that Mr. Pringle and Mr. Heale raised independently of each other two Dahlias as undistinguishable as the two Sosias. But we do not see how this excuses *J E* for the attack he made upon Mr. Fleming, of Trentham, who never pretended that the Dahlia was new, but who always said that he had received it from some source that he had forgotten, and only recommended it as a very useful bedding plant. If *J E* had attacked Messrs. Henderson upon the subject we should have left them to defend themselves; but we will never allow a meritorious gardener to remain under a calumnious imputation admitted into our columns by an oversight.

Vegetable Pathology: *Diss.* The subject is under consideration.

Winter Apple Pruning: *Rusticus.* When a tree of this kind has formed itself it requires no other pruning in winter than the removal of weak wood, that should be cut *clean out*, and of shoots that cross and "whip" each other, of which an inch should be left at the bottom for the chance of getting fruit spurs. Nothing ruins Apple trees more than excessive use of the knife. Wood that is too weak to form spurs ought always to be wholly removed. Over pruning inevitably leads to the formation of barren wood instead of spurs. Of course old, or dead exhausted spurs should be cut out, and if any shoot should be getting the better of others it should be reduced to due proportion by the knife.

Misc: *W P.* 1. No prize was given to boilers shown at Chiswick. 2. The small transplanting machines are to be had of Mr. M'Glashan, Cannon Mills Bridge, Edinburgh. 3. The Black Hamburgh Muscat Grape may be had through any of the trade; it is said to do for a house that does not get much fire heat, not requiring the same heat as the Muscat of Alexandria. 4. The Golden Hamburgh is a first-class Grape, and will do in the same house as other Hamburghs. 5. The best Grape for hanging a long time is West's St. Peters. The plant which you saw by the Italian Lakes was perhaps Gelseminum nitidum, a yellow trumpet-flowered climber which requires more summer heat than it can get in this country.—*H M.* Your Greenhouse would be too warm for an Apricot tree. You might, however, grow Grapes in it with tolerable success.‖

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, and MANURE COMPANY (LIMITED), General Seed and Manure Merchants, Union Road, Plymouth, late WILLIAM E. RENDLE & Co.

NATIONAL GUARANTEED MANURE COMPANY (LIMITED) is now delivering for Autumn Sowing, guaranteed by analyses, WHEAT MANURE, 7*l.* 10*s.*; concentrated, highly recommended, 9*l.* per ton, at any Wharf or Railway Station in London.—2, Moorgate Street, City.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B. Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

FOR WHEAT SOWING.

TOTTENHAM SEWAGE GUANO (HIGGS'S PATENT).—The best results are obtained by drilling in 5 or 6 cwt. per acre with the seed.—May be had direct from the Works, Page Green, Tottenham, or of most of the principal Seedsmen in the metropolis. Price 4*l.* 10*s.* per ton; 6*s.* per cwt., or for use in the garden, 9*d.* per packet.

WHEAT SOWING.

THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).

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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.

Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

DRAINAGE AND LAND IMPROVEMENT WORKS LAID OUT AND SUPERINTENDED BY MR. H. ALLNUTT, DRAINAGE ENGINEER, 49 A, Lincoln's Inn Fields, London.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

IRON HURDLES MADE BY MACHINERY.

COTTAM AND HALLEN, of Winsley Street, have invented machinery worked by steam for making Hurdles, at a great saving of manual labour and reduction in cost. They are made of superior Staffordshire iron, and will compete in price with those made by hand from cinder or common iron, which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both plain and ornamental, Conservatories, Hot-Water Apparatus, and Garden Implements. (The Paris prize medal, park entrance gates, and patent stable fittings on view at the Crystal Palace, Sydenham.)—Illustrated Catalogues free on application to COTTAM & HALLEN, 2, Winsley Street, Oxford Street.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

QUEEN'S COLLEGE, GALWAY.—
DEPARTMENT OF AGRICULTURE.

The COLLEGE SESSION for 1857-8 will commence on TUESDAY, October 20, when the Supplemental and Scholarship Examinations will be proceeded with as laid down in the Prospectus.

The First Matriculation Examination for the Session will take place on FRIDAY, October 23.

Additional Matriculation Examinations will take place before the close of the First Term.

In the Department of Agriculture Four Scholarships of the value of 15*l.* each are appropriated; two to Students of the first year, and two to Students of the second year. The College is also empowered to award at the same examination Two Prizes of 12*l.* each to Students of the first year, and two of 12*l.* each to Students of the second year.

In addition to the Scientific Education given in the Lecture Rooms of the College, the most ample means are now possessed for giving Practical Instruction to Students in Agriculture. The Professor will exhibit on his own farm, as well as on a large property of which he has the management, the best examples of land improvement, and superior cropping on waste, worn out bog and mountain land, with specimens of the crops raised thereon.

Further information may be had on application to the Registrar, from whom Copies of the Prospectus may be obtained.

By order of the President,

Oct. 17. WILLIAM LUPTON, A.M., Registrar.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

DRAINAGE ADVANCES, UNDER 12TH AND 13TH VICT., c. 1.—The Directors of the GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY beg to announce that the rate of Interest on Loans under this Act to the Owners of Settled or Mortgaged Estates, Incumbents, &c., for Drainage and Land Improvements, is now reduced, and that advances are made to any extent and charged on the property improved, without any investigation of title, inquiry into incumbrances, or any legal expenses beyond the fees of the Inclosure Commissioners for inspection.

The Company either advance money for Works of Improvement executed by Landowners or their Agents, or undertake the entire responsibility of the works and relieve Landowners of the trouble of making the weekly advances whenever required to do so. W. CLIFFORD, Sec.

52, Parliament Street, London, S.W.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

GOOD HARD, DRY, DURABLE, CLEAN, AND CHEAP FLOORS for Stables, Cottages, Washhouses, Kitchens, Yards, Pantries, Cellars, Passages, Dairies, Piggeries, Cattle-sheds, Greenhouses, Conservatories, Verandahs, Terraces, Halls, has been made with IMPROVED CEMENT CONCRETE successfully for many years that can be referred to, and is much cheaper than common stone or even paving tiles, by

JAMES PULHAM, Broxbourne, Herts.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to every part of clean gravel add one of sharp river sand. To five parts of such equal mixture add one of Portland Cement, and incorporate the whole well in the dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

NEW GIANT RYE.

CHISNELL AND SON, of Colchester, have to offer Seed of their New GIANT RYE, which is quite distinct and in every way superior to the common. A specimen of the straw was exhibited at the Royal Agricultural Show at Salisbury, and highly commended in the report of the Society. Price 1*l.* 10*s.* per peck.—Sole Agents, CHARLWOOD & CUMMINS, 14, Tavistock Row, Covent Garden, London.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. RAYNBIRD, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

WINTER TARES, GIANT RYE, TRIFOLIUM, WINTER OATS, AND WINTER BARLEY FOR GREEN CROPS IN SPRING.—The present being the proper season for Sowing the above, the undersigned beg to say they have a fine stock of this season's crop of SEED.—For prices apply to CLARKE & COMPANY, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

SEED WHEAT.—White strawed, red, good seed of this very productive variety grown on newly reclaimed land (Hainault Forest), price 8*s.* 6*d.* per bushel, sacks included, delivered free at Shoreditch Station, Eastern Counties Railway. A remittance to accompany all orders. Apply to

JAMES M'RONALD, Forest Farm, Ilford, Essex.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14, Seed Market, Mark Lane

BROWICK RED WHEAT.

MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s.* 6*d.* per bushel, including sacks.—Address to Mr. SLINGSBY BETHELL, Worting Wood Farm, Basingstoke, Hants.

N.B.—Well suited for Early or Late Sowing.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7*s.* 6*d.* per bushel for present payment only. No agent employed.

New Park, Lymington, Hants.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.* A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. POWELL, Hurst Green, Sussex.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

Annual Exhibition at Cirencester, November 26, 1857.

The Exhibition of Stock, Horses, Roots, Wheat, Cheese, &c., will take place at Cirencester on THURSDAY, the 26th November, and the Poultry Show will be held on WEDNESDAY and THURSDAY, the 25th and 26th November. All entries must be made on or before Monday, November 2. None but printed Certificates can be received, which may be had on application to me at Cirencester. EDWARD TRINDER, Secretary.

Cirencester, October 17, 1857.

THE DORSETSHIRE POULTRY SHOW will be held in Dorchester on WEDNESDAY and THURSDAY, October 28 and 29, when 14 Pieces of Plate will be offered for Competition, in addition to the Society's Prizes. A List of the Prizes to be awarded may be had by forwarding an envelope, addressed, and six postage stamps, to G. J. ANDREWS,

Dorchester, Oct. 17. Hon. Sec.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth Great Annual Exhibition of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.*, will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE November 2 next.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham, Oct. 17.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.

Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 17, 1857.

THE village shows, due in many places to Professor HENSLOW's advocacy and example, are certainly among the most useful of our rural gatherings. Among the many benefits conferred by them, it is not the least that they are the best security we have for the industrious and energetic management of allotments. We have lately seen allotments in Gloucestershire which have been now for many years in cultivation, and which have continued throughout most profitable and productive. The past year has probably been the best for their cultivators they have yet known, notwithstanding a more than ordinary failure in the Potato crop.

This unusual success is in great measure, we believe, to be attributed to the annual show of flowers, vegetables, and fruit, held in the park of the Earl of DUCIE at Tortworth, in their neighbourhood.

The prizes offered for the best vegetables, no less than those directly for the best cultivated

allotments, incite to active, clean, and liberal cultivation, and so result both directly and indirectly in profit to the cultivators. On how extensive a scale the Tortworth show is held appears from the following figures:—In 1854 72 prizes were given to the 266 exhibitors of 750 sets of specimens; in 1855 73 prizes were given to the 295 exhibitors of 1019 specimens; in 1856 76 prizes were given to the 311 exhibitors of 1126 specimens. The articles exhibited included Potatoes, Parsnips, Carrots, Onions, Cabbages, Turnips, Mangel Wurzels, Apples, Plums, Pears, baskets of mixed vegetables, sheaves of Wheat.

The show this year included a separate department for articles supplied by the boys and girls in Lord Ducie's schools—plans, maps, drawings, models, on the one side, and specimens of useful and ornamental needle-work on the other.

The day of exhibition is looked forwards to by the whole neighbourhood as a holiday: and while the influence of the gathering on intending exhibitors throughout the year is the principal fruit it bears, its excellent effect as a social meeting of all classes of the community within reach of the spot, is among the many reasons which should induce country gentlemen generally to follow an example which has now in so many instances proved in the highest degree worthy of imitation.

Land Drainage.—After having discussed in some detail those considerations which affect the depth of drains, we have now to notice points affecting their distribution—*i. e.*, the arrangement of the drains at varying intervals within the soil so as to meet those variations in the quantity of water accumulated there which have arisen from a varying structure of the land, notwithstanding the uniform supply of rain water on its surface. Take a single field and you often find that it is not altogether of uniform consistency to any considerable depth. No doubt the portion acted on by tillage (the soil) is very different in its consistency from its subsoil, but this is a uniform want of uniformity. Go deeper and you will find the subsoil, which also must be drained, varying in its consistency. It may be a sand or gravel of varying depth, lying on a floor of clay, which has been water worn and furrowed before this gravelly subsoil was brought upon it, or it may be itself a clay with porous partings or rocky beds here and there within it. All these things influence the passage of the water downwards, so that while in a soil and subsoil of perfect uniformity, it is plain that the absorbent points on which we depend for insuring the percolation of the rain water downwards ought to be perfectly equidistant; on the unequally constructed soils these absorbent points (or the drains which represent them) should be more frequent where the water naturally tends, than where, after a shower, less of it will be found. Of course as the object and the result of perfect cultivation is to bring about a uniform consistency to a greater depth than naturally exists, we ought not to accommodate our practice slavishly to the conditions which have arisen out of, or have been effected by imperfect cultivation. Still in striving after an uniform result we must not in practice put out of sight the obstacles to that uniformity which nature interposes. It is an extreme illustration of the influence which varying structure of the soil and subsoil exercises over the practice of the land drainer which is afforded by the experience of Lord Berners on his Keythorpe estate, and to which the late Mr. Joshua Trimmer gave such prominence. But we shall not refer to the Keythorpe system again just now, as it must be already well known to the readers of this Journal.

It is only necessary to say that notwithstanding the strictures to which it has been subjected, the varying structure of the subsoil does require a departure from that uniform arrangement of drains which would at first seem to be justified by the uniform abundance of the rain-water supplied, and by the uniform luxuriance of vegetation desired. And if this departure from uniformity be justified in operating on every separate field, there is still greater need of accommodating our practice to these sources of irregularity when entering on the drainage of any extent of country, for in this case these variations of structure (deeper seated than the more immediate subsoil) produce obvious differences in the quantity of water which has to be removed from particular spots. The whole theory of springs depends upon these variations of the inner structure of the land.

A porous subsoil having a connection through a porous rock with an exit at a lower level (it may be miles away), instead of being a reservoir of the water falling there upon the surface of the land, becomes a mere channel by which these waters are conveyed to a distance, where they make their appearance at a spot which has its own rain fall to receive in addition, and which therefore requires a double number of drains to lay it dry. This is the additional supply of water that was alluded to when referring to water coming into land from below. It has in places done so much mischief that the removal of spring water was at one time the sole object of land drainage, and the main topic of a paper on the subject. And Elkington, whose experience gave him great skill in ascertaining the structure of the land, and the position of those impervious beds by which the water is confined as in a basin (flowing over at the spring, which is its lowest lip), became so celebrated for his success that it was held to be the result of some secret rule of practice, which accordingly was purchased by the Government of the day. The rule was simply this—to find the position of the main spring, and to make use of the auger to tap it. The true as compared with the false spring is the outlet which runs longest in dry weather; the false spring may be above or below the true spring, in the former case, being occasioned by the bursting up of water when the supply is so abundant that the true outlet is insufficient for it, and in the latter, by the water from the true spring, having soaked into the soil, re-appearing at some lower level, where some obstruction again forces it to the surface; the object in all cases, of course, is to furnish a passage for the water from the lowest lip of the impervious basin which holds it.

This channel must be large enough to receive all the additions to the water in this basin, which would find their exit there, and so it is hindered from welling up through the soil all over the large surface which, when undrained, becomes saturated by it to the entire stoppage of the percolation downwards from water through it.

PLEURO-PNEUMONIA.

Your Leader of the 3d inst. on Pleuro-Pneumonia in Cattle is *à propos*, and calculated to effect at this juncture considerable good; but my recent observations of the disease, made at the cost of five good bullocks, lead me to conclude that even in this article popular error on the subject, fostered as it is by the scientific name, is insufficiently condemned. Pleuro-pneumonia is *not* an inflammation. One fact alone proves this—its contagiousness; no idiopathic inflammation can in this way propagate itself. True, the lung itself and its pleural envelope are in most cases seriously inflamed—so are the tonsils in scarlet fever, but scarlet fever is not inflammation of the throat; moreover, in some severe and fatal cases, the lung seems very lightly touched, the effusion of lymph and serum is trifling in amount, and the solidification of the lung so limited that hardly a tenth part of it will refuse to float in water. As in the majority of febrile diseases we are driven to infer that an animal poison, or substantive germ of disease has been introduced from without, the presence of which engenders in the blood a *quasi* fermentive disturbance, having for its object the decomposition or expulsion of the offending cause, and it is a fact well established in pathology that certain morbific germs, or disease-poisons, habitually seek their own particular channel of departure, or at all events habitually tend to associate with the general state of functional disorder which they produce some specific local change. Thus smallpox not only kindles an active constitutional fever, but converts the skin into a morbid mass; scarlatina superadds to acute general illness inflammation of the throat; measles attack the respiratory membrane, typhoid fevers the bowels, but in all cases it would be mischievous indeed to confound the local lesion with the general disease. This is the error against which I would fain, through your columns, caution those who peruse them, and for this plain reason, that the pathology and treatment of simple pleuro-pneumonia is a very different thing from the pathology and treatment of the malady before us. True unmixed inflammation of the lung and pleura occasionally befals a bullock from transition of temperature, especially as I believe from cold to hot, as when the Scot or Welch beast finds itself too abruptly transported from the bleak mountain and scanty herbage to a close lodge and fatting diet; for such an attack the remedy would be bleeding till the animal falls, antimony, nitre, and low diet; but in the epidemic form, where the pneumonia is an incident and not the essence, very active depletion would be death. I would suggest to the herdmaster who may be unfortunately visited by this scourge that he should, on discovering a stricken animal, if it be at all in condition, kill it forthwith, and make the best arrangement he can with his butcher. Should circumstances induce him to attempt its cure, let it be yarded at once, and, if the weather be wintry, lightly clad; when the breathing is quick and accompanied by much action about the flank, take from 2 to 4 quarts of blood, and insert at the same time a large issue in the dewlap, just in front of the forelegs, not, after the absurd fashion of some farriers, with a string and packing needle, but with a carving knife and cotton handkerchief. Administer every night, for 10 or 12 days, a bolus containing 15 grains each of opium, calomel, and ipecacuanha; every morning half a pint of castor oil, and through the day frequent doses of liquid food, as Linseed tea, gruel, warm milk with Gum Arabic, and so forth. Should the animal be harassed with cough I would increase the ipecacuanha, clothe it well, and keep it quiet; if on the other hand jaundice and intestinal symptoms are present, it would be well to double the calomel for a dose or two and walk the beast about. Care should be taken to procure the foregoing, and indeed all other drugs, from a really respectable source, or they will be worthless. *Stephen Monckton, Breachley, Kent, Oct.* 14.

ROYAL AGRICULTURAL COLLEGE.

SESSIONAL EXAMINATION.

Practical Agriculture—*continued.*

Question 2.—What are the uses of different kinds of root crops? What soils, what climates are best adapted to each sort? Show how far one sort of root crop can replace another. What species of root will best take the place of an early spring green crop?

Carrots are useful to give to stock of all kinds in the spring; they also sell at a high price to horsekeepers in the spring, as they act as alteratives. Mangel Wurzel keeps longer than any other root; Swedes come next, particularly the white Swede. Turnips are fit to use the earliest, and take the stock as soon as the pastures get bare. One great use of root crops is to give an opportunity for the thorough cleaning of the land during their growth. Mangels like a heavy soil, and produce 30 to 35 tons per acre in dry districts, whilst the Swede reaches this in moist situations, and in dry counties only from 15 to 20 tons; hence Swedes are much more grown in the north and Mangels in the south. If you have not sufficient well rotted manure for a large breadth of Mangels, Swedes or Turnips will do with less and take their place, and of course in laying down a system—and you cannot farm without one—those root crops which require to be sown early, as Mangels and Carrots, will have the cleanest land selected for them; if land was foul, it would be sown with green round Turnips or white Swedes. Sowing the Mangels on the heaviest land you get them carted off early, before the wet weather, and the land is not injured by treading. All these crops should be so managed as not to run into each other, and so give us too much keep at any one period. Mangels will best replace a spring crop, as they keep the longest, and also improve by age.

The uses of different kinds of root crops are twofold. First, they afford excellent food for stock in winter when all other provender is scarce, and without roots we could not fatten except during summer, and must consequently live during the winter on salt meat. Secondly, they afford us excellent opportunity for cleaning the land. Owing to their time of sowing being late, we have a good chance of ridding the soil of weeds, which always abound at the latter end of a rotation. Amongst the various kinds of roots we may first consider Mangel Wurzel, as this is the most fattening crop we have. It grows best on good rich loams, but also does well on dry light lands if well manured; several varieties are grown. The Carrot is a valuable root, requiring a well cultivated soil, deep and light, either sands or peat, and if manured at all with farmyard manure, must have it well rotten and short.

Turnips are more grown than any other roots. The white varieties grow almost any where, but are more particularly adapted for rich good land, and light rather than heavy, since upon the latter they cannot be consumed on the ground, but require storing, for which they are not so well adapted as the Swedes. This root delights in a good open soil and a moist climate, which renders it peculiarly suited to Scotland.

One sort of root can replace another in feeding properties, for instance the Swede can be used instead of the Mangel. They are mostly sown late. Carrots—Mangels earliest; hence you should place them in the cleanest land. Potatoes may also be considered as a root crop requiring early cultivation. Mangels and Carrots are good preparatory crops for corn, as they strike deeply into the soil.

Turnips are chiefly grown to feed off on the land with sheep in autumn and winter. Swedes are grown for the same purpose, but are fed off rather later; they are also carried off the land, especially on clay soils, and given to cattle. Turnips are occasionally sown after early corn crops, and fed off the next spring after they have begun to shoot up. Mangels are more adapted for heavy soils; they are never fed off on the ground, but carted off and stored until April, by which time they become much more valuable as food. Carrots are best grown on deep well pulverised land; they are very useful on a farm, and every farmer should grow if possible a certain breadth of them; it is, however, an uncertain crop, but if good is very profitable, as near all towns a ready market exists for them. Parsnips, though seldom grown, are very nutritious, and might be grown profitably, soil and climate being suitable.

Turnips do best on a light early soil; a good Turnip soil should plough easily with two horses, should neither burn in dry weather, nor offer great resistance to the growth of the bulb. The climate should be mild and damp. Much of this applies to Swedes, but they do well on stronger soils; being a quick growing plant the manure must be presented in an available form. The grand object in growing nearly all root crops is to prepare the land for the corn crop, as it is often not a paying crop in itself. Ammonia is absorbed from the air by the leaf, and deposited again in the form of manure, so that a root crop consumed on the land really enriches the soil. On tolerably heavy soils Mangels may replace Turnips occasionally if well manured for. Turnips and

Swedes may replace each other, according to the season at which the land is ready for cropping.

LOIS-WEEDON HUSBANDRY.

WE have in several numbers of our Paper reviewed in some detail the research of Mr. Lawes into the causes of the Lois-Weedon experience and the reasons of his failure.

The following from the pen of the Rev. S. Smith, and extracted from the recent number of the English Agricultural Society's Journal, goes even more fully into the subject. We have more than once of late received inquiries as to the peculiarities of his mode of cultivating Wheat, and the following extracts from his paper will be a sufficient answer. He first states the causes of his uniform success:—

1. The land at Lois-Weedon devoted to Wheat is Wheat land; one piece being Wheat land naturally, the other being made so by marling. The mineral food for the Wheat plant is thus secured, existing as it does in land of this quality and condition.

2. But as a sufficiency of this mineral food might not be in a prepared state for assimilation without exposure to the solvents of the atmosphere, a portion of the subsoil, as it is required, is brought to the surface to have a winter and summer fallow.

3. To secure this annual fallow without the loss of the annual crop of Wheat from the same acre of land, the crop is grown in strips of three rows of Wheat (or of two, as the case may demand), a foot from row to row; a fallow interval of 3 feet running between each triple or double row; the strip of one year's Wheat being the fallow for the next, and so on alternately from year to year. This fallow interval is limited to 3 feet; because, with more, the bulk of the produce of Wheat would be greatly diminished; with less it could not be worked.

4. The bringing up of the subsoil of the intervals, however, is not enough; the conditions of the system are—that this exposed subsoil be literally pulverised—actually broken to atoms and brought down to dust, and then mixed with the pulverised staple.

A few moments' consideration will show that this is at the root of the system—is its very life—without which it dies. It is, in fact, in the stead of manure. It may be said to create a certain portion of the nourishment of the Wheat crop; for, the undersoil being thus thrown open to the action of the atmosphere, fresh supplies of mineral food are constantly being liberated and becoming available to the growing plant.

The mineral food being thus provided, and the surface of the soil being always kept open, the organic elements of fertility—as many term them—come of themselves. The very process by which I gain the one admits the other. Carbon and nitrogen are wanted, and the atmosphere contains them both in the forms of carbonic and nitric acid and ammonia. I lay great stress on the contents of the rain-fall. Not for its amount of ammonia and nitric acid alone, for that has been proved by late experiments to be insufficient for our wants, but for the proof which is thus gained by easy analysis that these substances do exist in the air. Besides the rain there is the snow, which holds ammonia and nitric acid in quantities comparatively very large. And, as regards the dews and fogs, they are declared to bestow on the earth the richest treasures the atmosphere contains. With every shower of rain, then, with every descent of the dew, every fall of snow—nay, with every breath of interpenetrating air—these organic substances are brought down into the porous soil either for future use or to be taken up at once by the unconfined rootlets of the growing plant. They are brought down, I say, into the *porous* soil, for if it be not made porous and kept so—if the surface become crusted over, the treasures of the dropping atmosphere still fall on it, indeed, but only to be quickly exhaled again, while the air, with its genial and untold influences for good, passes over its closed bosom altogether and is gone.

I confine myself strictly to the fallow and crop system under discussion, when I say that this atmospheric supply of nitrogen abundantly meets the wants of my Wheat crop; so that, commencing with a year's fallow, I require beyond this no more natural or extraneous provision of this substance within the soil. Nay, I have found that over-feeding the plant with nitrogenous food is positively injurious. No report having yet been given of my Wheat crop for 1856, which was the 11th unmanured crop on the clay piece, I will, in order to illustrate my position, refer to it here. To increase the extent of my Wheat 4 years ago, a strip, rich with the remains of former dressings for roots, was added to the original plot; and every year that strip, in a marked manner, has yielded the worst Wheat; so much so that even this last year's crop, as a whole, was somewhat damaged by it in sample. The yield was upwards of 37 bushels to the (half) acre, of good, saleable Lammas Wheat: and had it not been for the thinner grains of the over-fed portion, the yield would have been greater altogether, and the sample perfect. The produce of tall bright straw amounted to the remarkable weight of 2 tons to the (half) acre. The sixth unmanured crop on the light gravel land, which has twice yielded 5 quarters to the (half) acre, gave last year (with its two rows instead of three—a diminution of rows causing the comparative loss of one-sixth of the produce) 30 bushels of superior Wheat, with bright clean straw. And there, too, four years ago, a small strip, manured for roots and unexhausted, was added to the original piece; the fresh strip always tending to over-luxuriance and mildew, which tendency, I conceive, it will never lose till the surplus nitrogen within the soil be reduced.

Such is Mr. Smith's explanation of his own success. The following is his explanation of the failure of his plan at Rothamstead, where Mr. Lawes has given it a trial:—

"If Mr. Lawes had really carried out the plan, and found by unmistakeable signs that, notwithstanding a proved abundance of mineral food, his Wheat crops failed year after year for want of available nitrogen, I could have understood and valued the well-intentioned experiment. Or, if he had erred in the execution of some minor detail, it might have been overlooked. But, I am compelled to say, that in every essential point the conditions of the plan have been so utterly disregarded as to vitiate the experiment altogether.

To come at once to the proof. In order to provide a sufficiency of available nitrogen to feed the Wheat crop, it is in the rules, it is the leading principle of the plan, it is indispensable, that the land be pulverised, and its surface kept open. And yet what does Mr. Lawes, in the paper before us, own? He owns that his trial piece was not pulverised, or its surface kept open; but on the contrary, that it became foul and crusted over during summer. Notwithstanding this avowal, by a singular process in logic, he would by implication condemn the plan because the want of available nitrogen was one great cause of his failure. But, he has a reason for not pulverising his land. He employed, he says, the same means as those in use at Lois-Weedon, but "they were insufficient for the soil at Rothamsted." He does not pretend to say, what no one could say, that his land was incapable of being pulverised, for judicious tillage is able to render "the harsh and most uncivil clay obsequious to the husbandman;" but that, using the same mechanical means, he could not attain the same end.

Did he use the same means? I have by me the first edition of the "Word in Season to the Farmer," published in 1849; and also the ninth edition, published in 1852, containing the directions before published in 1851. Mr. Lawes having entered on his experiment in 1851, we will for his first crop refer only to the edition of 1849 for the rules then laid down for pulverising the soil. Describing the digging of the intervals for my fifth crop of Wheat, I speak, in p. 5, of its being "two spits deep; and after the pan is a little moved, the staple is turned upon it, and the second spit is gently laid uppermost, in such a form that the frost may be felt right through the whole." "The winter fallow over, I give my spring stirring with the fork, which moves, without damaging, the spreading fibres; and I follow up that with the horse-hoe as often as the surface incrustates, and as long as the growing corn will permit."

These were the means in operation at Lois-Weedon from the very beginning. Did Mr. Lawes, in this turning point of system, scrupulously carry them out?

The winter fallow over, he gives the spring stirring with the fork; and after that, as long as the growing corn would permit, what followed? Two scratchings with the hand-hoe, and no horse-hoeing whatever—a very costly method of evading the rule and defeating the plan; for, for the expense of even one hand-hoeing to do the work ill, he could have horse-hoed six times and done it well. Or, if I have misunderstood Mr. Lawes, and the two hand-hoeings were only for the Wheat rows and not for the intervals, the case against him is stronger still; for then there was not even any hand-hoeing of the intervals at all, and only an occasional spudding is to be set against my deep horse-hoeing, "as often as the surface incrustates and as long as the growing corn will permit."

There are two ways, however, of defeating a rule. By coming short of it, and by going beyond it. "It is certain," says Mr. Lawes, "that the same amount of labour expended upon the Rothamsted soil as upon the Lois-Weedon one, was quite inefficient to get the same amount of staple, and of exposure of surface to atmospheric influences." I have shown how Mr. Lawes broke the rule by coming short of it,—by not tilling his land as I have tilled mine, or expending upon it the same amount of labour. I have only one thing more to do, and that is to show how fatally he erred by going beyond the rule and defeating it thus.

To explain in what way this error was committed I must go back for a moment to the first proceedings in this career of double digging for the Wheat crop. In preparation for the plan, the land, after a winter fallow, is to be ploughed and harrowed and rolled; and harrowed and rolled and stirred again, as for Barley. This thoroughly pulverises the 5-inch staple. In the second week in September the seed is in, and in a month is up. Then, when the lines of Wheat are well marked, comes the digging of the intervals. With regard to depth, the principle from the beginning was, to bring up just so much of the subsoil as could be pulverised and mellowed during the annual fallow; and the published rule in 1851 was "4 inches" if the soil be tenacious; this warning being added in italics, that "To bring up more at the outset would be *a wasteful and injurious expense.*"

By the 4 inches fixed on for tenacious soil, such as that at Rothamsted and Lois-Weedon, the intelligent farmer having caught the principle would understand that there was nothing magical in this precise number 4; but that if a depth of 3 inches, or even 2, in his unusually stiff soil, would better come down to dust than 4, he would confine himself to that and be satisfied; for he would recollect that if he brought up only 2 inches he would still, from the moiety of his acre, get 100 tons of fresh virgin soil.

In digging the intervals of clay land then at the outset, I cast the 5 inches of well pulverised staple to the bottom, and place on the top the 4 inches of tenacious clay, making altogether 9 inches to dig, either at two very shallow spits, or at one ordinary spit, only 4 inches being fresh ground for the fork. For this first operation the expense is moderate; but as the charge increases for the stubble land and for the gradually increasing but partly pulverised depth, I find the average payment, after a series of years, when enough fresh ground has been broken and I go back again for a few years to the depth of a single spit, to be 1*l.* 10*s.* or 1*l.* 14*s.*—which latter amount includes the throwing out of the stones and the weeds.

Did Mr. Lawes adopt this method of digging? or did he defeat the rule by going beyond it? Let him speak for himself. "The fallow intervals which were not sown [were] trenched 14 to 15 inches in December, 1851, forked in spring and again before sowing; occasionally spudded, but became foul and crusted over during summer." At the very outset (that is, in preparation for the second year's crop), and all through the trial, during which there were only three double diggings to receive the seed, the trenching was 14 to 15 inches deep, a spit of the raw clay subsoil for two out of the three diggings being placed on the top and the half-tilled staple below.

In thus going beyond the rule and digging too deep, Mr. Lawes did indeed incur "a wasteful and injurious expense." For, instead of the average payment at Lois Weedon, the trenching at Rothamsted cost him, he says, "on the average about once and a half as much as is estimated by Mr. Smith." And so injurious was this wasteful expenditure in doing wrong, that, in comparison, all minor errors of execution sink into insignificance. For, of all conditions of soil, there is none which the Wheat plant so loathes, and sickens almost to death in, as this deep and hollow aggregation of unmellowed clods.

I will not stop, then, to ask, why, in opposition to the rule, 4-feet intervals were used by Mr. Lawes, instead of 3, to the evident diminution of one-sixth of the produce; or why, being used, my licence is quoted, since the licence given is wholly inapplicable. Now will I dwell on the omission of the safe roller after sowing and in spring; or, in defiance of the rule, of the sowing twice out of the four times so late as October, at which time, according to the provision made in the directions for exceptional cases, the seed should have been sown "for a thicker crop." Nor need I, I am sure, apologise to Dr. Gilbert for passing by, without notice, the laborious calculations and analyses of his laboratory; for he is too sensible not to see that, where the premises of an argument are proved to be unsound, no conclusions, however ingenious, have the slightest interest or value.

I am anxious to disencumber the question of everything in the way of a clear understanding of the real point at issue. The question volunteered by Mr. Lawes is—Can the Lois-Weedon plan of growing Wheat be carried out with success at Rethamsted? And his answer, after a trial of four years, is, that with the same amount of labour and the same mechanical means as those employed at Lois Weedon, it cannot. It has been for me to show, from his own statement in this public journal, that the same amount of labour and the same mechanical means have not been employed; that the great principle has been violated; and that the result, in consequence, has been crops poor in amount, foul in growth, and in quality blighted and bad.

Had the conditions been fulfilled, the thin sowing, at a peck to the acre, might have succeeded with a high average produce, as it did for years at Lois-Weedon, where the very first crop on the light land, after Wheat, yielded 41 bushels of excellent grain, though large and somewhat coarse. It would have produced, as it did there, fine bold ears of an extraordinary size, with thick reed-like straw. It is nothing to the point, then, that, for better security against losing plant, I now sow two pecks instead of one, the smaller grain making a more remarkable sample, and the finer straw being more useful at home. It is enough that the one peck succeeded at Lois Weedon, being sown in due time on land properly tilled and pulverised, and yet well solidified with the roller at seed time and in spring; while it was certain to fail—as any amount of seed would have failed—on a spit of what was little better than raw, unmitigated, unpulverised clay. The trial-piece at Rothamsted being in this condition, I will only add, in conclusion, that I do not believe there is a farmer in England, acquainted with his business, who will not share my surprise, not that the crops were so bad, but that there were any crops at all.—*Lois-Weedon Vicarage, May*, 1857.

ON THE EXAMINATION OF THE TEETH OF CATTLE AT AGRICULTURAL EXHIBITIONS.

By GEORGE T. BROWN, Professor of Veterinary Surgery at the Royal Agricultural College.

IN my last communication the mouth of the ox was the subject of discussion, his importance justifying the priority of position. The other exhibited animals, however, require some notice as equally affording room for error or mis-statement.

In the case of the sheep it often happens that the age is not absolutely defined in any of the classes, the expressions "two teeth ewes" or "six teeth rams" being considered sufficient, meaning that the animals exhibited shall not possess more permanent or broad teeth than the number stated.

With such a system of classification no positive difficulty can exist in the mind of the examiner about the number of organs present, the indications they afford of age not being the question under such circumstances.

Upon the extreme vagueness of the above plan of arrangement it is not my province to dilate, but if the authors of the arrangement founded it upon the generally received notions of age, as expressed in the terms, "two, four, six, or eight teeth," I can only remark that they are proceeding on totally incorrect premises, the prevailing opinion among shepherds being that those pairs of teeth occur from the first pair at distances of one year; whereas six months is the ordinary period between them. As the recognition of this fact becomes more general we may expect the sheep to be subject at all exhibitions to the same system of restriction as the other animals.

At present we notice the class "Yearling Rams." This class may contain any age up to two years, at which time the animal may, and very likely will, have "six broad teeth"—the three-year-old mouth according to the old system of reckoning. The test here is the absence of any change in the three anterior molars, which, as in the ox, begin to fall shortly after two years, the process being more rapid than in that animal, six months being usually sufficient for its completion.

The dentition of the sheep may be summed up thus: The lamb of a month old has his full complement of eight temporary incisors on the bottom jaw, and three temporary molars on each side each jaw. At three months the fourth molar is cut. At one year the fifth molar is well up, and frequently the two first broad teeth, although these on the average appear at 15 months. At 18 months the sixth molar is present. At two years the second of broad teeth; and sometimes the third pair also, though these average 2 years and 6 months, by which time the three anterior temporary molars are changed for permanent. At three years the eight broad teeth are usually in the mouth, and sometimes perfectly well up.

The Pig.—The restrictions in the case of this animal do not extend beyond two years, before which time permanent dentition is completed.

I have found during my investigations a case or two of startling exception, but only in reference to part of the evidence, and I have no scruple in asserting that no excuse can be found for an erroneous judgment up to a certain time, supposing both molars and incisors be taken into account.

The pig at birth has the usual number of temporary molars, and the tusks and corner incisors up; at a month the middle incisors are well up, and shortly after two months the laterals, completing the set. At 5 months a small tooth between the tusks and the molars is cut, and is well up by 6 months, the four molars at the same time being present. At 9 months the tusks and corner teeth are changed for permanents. At 1 year the middle permanent incisors have replaced the temporaries, and the fifth molar is cut. At 15 months the three anterior temporary molars have given place to the permanents, and at 18 months, or shortly after, the lateral permanent incisors are up and the last molar is cut.

From the rapidity and number of the changes it will be seen how small is the chance of mistake, and how slight the hope of an attempted imposition succeeding.

Upon the horse it will not be necessary to remark, as the changes in his teeth have long been correctly known and admitted.

Home Correspondence.

Smut in Barley.—I have frequently noticed, and occasionally suffered from, this disease; but when the subject has been mentioned among farmers, I have more than once been met with the reply, "Oh, never mind, the thing is of no consequence; the first heavy rain washes it all off, and the crop is never the worse." With all deference, I am by no means disposed to acquiesce in the correctness of this doctrine. In the first place I have a great antipathy to the pied, mottled appearance of a crop under this disease, and would just as soon tolerate the infliction of so many blots on a page of what would otherwise be fair, clean penmanship. It is slovenly, and I hate slovenliness. But the crop is not the worse; nay, by some it is regarded as a good sign; ergo, it is the better for the blacks! One hardly knows what to say to logic like this, which amounts to the absurdity of maintaining that the

abstraction of a portion of the crop adds to the quantity of such crop, whatever be the percentage abstracted. Now suppose the black ears amount to 2 per cent., it strikes me that if it were possible to separate them from the bulk of the crop, the deficiency so separated must be 2 per cent., neither more nor less. But there is another way of looking at the matter. Suppose we could by some hocus pocus transmute these black or blind ears into sound, healthy grain, what is to prevent the 2 per cent. deficiency from becoming an increase to a similar amount? If therefore a clean untainted crop be desirable, as in my humble opinion it undoubtedly is, the next point is to ascertain how this is to be accomplished? Mr. Chas. Lawrence does not put much faith in steeps for Barley, like those he uses for Wheat; but what those steeps are he does not tell us, as he very properly observes a knowledge of the cause will in all likelihood lead to a remedy for the disease. Now in the case of Wheat we know that smut powder mixed with sound grain will produce a smutty crop. It is highly infectious, but we also know that this infectious property may be counteracted, and a perfectly clean crop obtained by the use of blue vitriol, sulphate of copper. All my experiments, and I have made many in my time, lead but to one conclusion; viz., that no man need grow smutty Wheat except he has set his mind on so doing. What I have here said applies to the smut or bladder brand. The black ears, or, as the disease is sometimes called, powder-brand, are a different affair altogether. Whether in Barley or Wheat, and they are occasionally seen in both, the powder does not appear to be infectious; I have tried to produce it in different ways, and have rung the changes on almost every variety of crop, Barley upon Wheat, Wheat upon Barley, Wheat upon Wheat, Barley upon Barley, but never have succeeded as with the bladder brand or broken smut balls. And here I must observe that agricultural writers are not always so clear in their descriptions of smut and its varieties as they ought to be. Mr. Loudon, for instance, observes, that "if the injured ear be struck with the finger the powder will be dispersed like a cloud of black smoke." This is evidently the powder-brand, which he confuses with bunts, bladder brand, or smut balls, the former comparatively innocuous and free from smell, whilst the latter is highly infectious, and of a rank fishy odour, excessively prejudicial both to the quality and colour of the flour, if threshed and mixed therewith. The pepper brand is another variety of the disease, but essentially differing from the two already mentioned. It is not a powder at all, but hard, round, and shining like shot; and though by no means so common as either of the varieties I have named, may be produced in Wheat by hard rubbing against sound healthy grains. I speak from personal experience of the fact, and greatly surprised was I at a result by me so entirely unexpected. But to return to my main object, the black ears, or powder brand in Barley. Mr. Lawrence seems to think it prevails in some years more than in others, and that it especially abounded in 1856. Now, I should like to know if it made any change of seed in that particular year, because some people have an idea—and I confess myself of the number—that certain varieties are more liable to the disease than others. Whether well or ill-founded, the American Barley got an ill name in Norfolk on this account, and it is now comparatively but little grown—I was so pestered at last with it, that I made up my mind to give it up, though not until, like Mr. Lawrence, I had at least made trial of some kind of remedy. This was washing and steeping in fair water. As large a vessel as the farm could furnish was partially filled with rain, or clean pit-water, into which the seed Barley was gently poured, or riddled with a sieve. By this process all light grains, seeds of weeds, and dust of every description, floated on the surface, and when skimmed off the mass below was well stirred up, and in fact, underwent a thorough good washing; a second skimming then removed what the first had left, and the Barley remained under water for 12 hours or so. The water was then drawn off, and the seed corn laid in a heap on the floor, and a little lime dust sifted over and well mixed with it, to fit it for the drill. A few hours sufficed for this purpose, when it was drilled along side the dry unsteeped Barley. It came up rather sooner, and certainly more regularly than the other, and was besides a better, cleaner, and more creditable crop at harvest time. On the whole I do not hesitate to give my vote in favour of washing and steeping seed Barley (if in more than one water so much the better), were it only to diminish the number of weeds in the crop; but considering the supposed innocuous property of the powder which constitutes the black ears, it appears to me unnecessary to use any steep stronger than water, except perhaps a dash of salt to increase the buoyancy of the water, the better to skim the weeds which rise to the surface. *Samuel Taylor, Gloucester.*

Farmers' Clubs.

Vale of Evesham: *Cultivation of Mangel Wurzel.*—At the late annual meeting of this Society Mr. Henry Hudson said: "With respect to the show of Mangel Wurzel in the yard to-day, I have long thought, and no doubt many persons now present have equally considered the subject, of the great difficulty farmers have to contend with in feeding stock in the spring months, that is to say, in the latter part of March, April, and May. For the last two or three seasons particularly the wind has set in the north; we lost almost every particle of green food, our hay was consumed, our Clover was gone, and we had nothing left us but a few buries of Swedes for our cattle to subsist on. The growth of these Swedes is very uncertain, for if I plant and manure, and do everything I can to procure a growth, and afterwards frost comes, the crop is destroyed; and that has been the case in many instances of late seasons. But last year farmers in the vale of Evesham tried on an extensive scale to grow quantities of Mangel Wurzel. They brought it into market last spring, and every farmer who was fortunate enough to possess any was glad that he had planted it upon his farm. Now I do not wish to hide or keep secret anything that I think may be conducive to the benefit of my brother farmers. I believe that upon the land in the vale of Evesham, or in the vale of Hinton—for we have two excellent valleys—we could grow from 25 to 30 tons of Mangel Wurzel, and it can be produced when the season is so bad that the land would not give forth Swedes. To-day Mr. Randell was the only man who dared to show Swedes. I believe if any other man had dared to show against him he would have been laughed at for bringing them into the yard. At a season when we find only one exhibitor of Swedes we find the largest and best exhibition of Mangel Wurzel at any exhibition in the county. I have been judge at Worcester, and have seen other exhibitions, but I never saw so beautiful a lot of Mangel Wurzel as was here to-day. I heard a large dealer in cattle say the other day that he would prefer to give a halfpenny a pound more for beef fed on Mangel Wurzel than upon Swedes or anything else. This proved that cattle are best fed on Mangel Wurzel. I have myself fed a beast upon Mangel Wurzel, and, when that was gone, upon green food, and I have found that it sunk in condition upon green food below that when it was fed upon Mangel Wurzel. It is the best thing you can have to feed cattle; it contains more saccharine matter; you can keep it by you without injury, and the longer it is kept the better. Some persons however may say, why not use it, then, earlier in the season? Because it disagrees with the cattle. If you take an Apple that ripens in October, and eat it in July, the chances are that you feel a pain, a sort of indigestive pain, and so it is with Mangel Wurzel. In October it has not come to its proper cultivation, but you keep it till next February, March, or April, and it increases in value and goodness. You have therefore a store of provision that wil enable you to keep all your stock, and what is more, it is of greater, almost double value to all the Swedes you can cultivate. Mr. Simpson has introduced into this district Bentall's pulping machine, and although I do not wish to speak of myself, it is my intention this winter to pulp my Mangel Wurzel, put it into pulp tubs, and feed my cattle with it, mixed with chaff. I am certain I can keep a greater number of stock upon Mangel Wurzel mixed with chaff than upon any other food. The vale of Evesham produces the largest and most productive crops of corn, but not of Mangel Wurzel. There seems to be a prejudice against Mangel Wurzel. I hope, however, you will set to earnestly in its cultivation, and I am sure you will meet with success."—In answer to a question from Mr. Workman, with reference to the steam plough, Mr. Randell said he found it could do regularly, including time for stoppages, four acres a-day. The cost of labour, coal, blacksmith's work, &c., was nearly 1*l.* per day, or 5*s.* to each acre. The steam-engine and pulley, with rope and other apparatus, cost nearly 400*l.* The question then was, what interest of money should be charged upon it, including wear and tear? That was a matter of estimate, but he put it down at 15 per cent., which would amount to 60*l.* Suppose his plough to be at work 150 days during the year, which was quite low average enough, and doing 500 acres, that would be 7*s.* 6*d.* per acre. It was not merely that the land was ploughed, it was also scarified by the same machine, and the Couch thrown completely to the surface. The fallows made by the engine were incomparable for their cleanness. This year, in fine weather, he had by means of the steam engine broken up a piece of clay land which it would have been impossible to have done with horses in fine dry weather, and if done in wet it would have been of little avail. Mr. Holland has stated it as one of the essentials to the good cultivation of land that it should have plenty of manure; but he had land upon which he had never put a cartload of that stuff, and yet it had grown 12 bags of Wheat per acre. His impression was that it had never seen a dung-cart.—Mr. Holland: There is no rule without an exception.

Reviews.

The Education of the Farmer, viewed in connection with that of the Middle Classes in general; its objects, principles, and cost. By T. D. Acland, Esq. J. Ridgway, 169, Piccadilly.

This pamphlet deserves to be generally known and read for the wise and well-considered advice which it contains.

It is the education of the man himself rather than of the professional man that is insisted on—as the only true foundation on which the professional education of actual practice can be rightly based. The following extract is a key to work itself:—

"Is there not something so peculiar in the business of farming as to require special teaching? The country and the town, land and trade, present ideas so opposite, that it may well be supposed that the education which fits for the one is not a good preparation for the other. Let us see. English society throws itself broadly into three classes—the labourers; the employers of labour for profit; and the educated classes, who live by the labour of their own brains, or by incomes derived from their predecessors. The middle class, living on profits, includes the tradesmen who supplies the bodily wants of his customer by retail; the manufacturer, who converts the raw material into a state fit for use; and the agriculturist, who supplies raw materials for food and clothing. In addition to these, there are of course many other branches of mercantile business, furnishing employment to a large class of agents and clerks.

"The occupation of the farmer, for which he is to be fitted by his education, has much in common with that of the tradesman and the manufacturer. His time will be spent in supplying the material wants of his fellow-creatures. He will look for the maintenance of his own family to the profits derived from the judicious expenditure of capital in the payment of wages, in the purchase of stock at the lowest price, to be sold again at the dearest. He will be engaged in the constant struggle with the powers of nature, and his success will in great measure depend on the employment of processes skillfully adapted to economise time, money, and labour.

"In all this there is no clear distinction to be drawn between the employments of the farmer and those of other men of business in the middle ranks; whereas the whole of the middle class is separated on the one hand from the labourers who work for wages, as other men's servants, with a view to their employer's profit or enjoyment; and on the other from what are called the independent classes and the members of the liberal professions, who are reasonably expected by all ranks to maintain as the characteristic of English gentlemen a generous disregard to mercantile profit in their transactions with their neighbours. From these considerations we may draw the conclusion that the farmer's education should take its character rather from the circumstances which attach to business in general than from the peculiarities of agriculture.

"The chief peculiarities of the farmer's business are, that he can only produce his goods at certain seasons, and that the powers of nature which he deals with are affected by the vicissitudes of weather; from which the inference is that he has the greater need for vigilant observation, attention to details, and patience. Special scientific knowledge will avail little against the seasons if these qualities be wanting.

"Another element, however, must be taken into consideration which has much effect in determining the character of the education which it is possible to give to any class, and that is the element of Time. The period of education may be divided into three portions—those of childhood, boyhood, and manhood. For convenience sake we may take the ages of 10 and 18 as the extreme points at which the second is separated from the first and the third. Speaking generally, the education of the labourer terminates with the first period; that of the middle classes rarely reaches the limits of the second.

"*Middle-class Education must prepare for Life not for College.*—At or before the age at which university life commences the youth who is destined for trade or agriculture passes from book-learning to a more practical or probationary training. It is this circumstance more than any other which gives its peculiar character to middle-class education. The classical training of the grammar school, as generally understood, is preparatory to university study. Much of the time of the public schoolboy is therefore spent, and wisely spent, in laying up materials for future scholarship, and in acquiring facility in the use of language and other instruments of thought, the value of which will not appear until he has passed through the philosophical training of his maturer powers and stepped out into the arena of public or professional life. To give the middle-class boy this long preparatory discipline would be to misapply his time; it would prevent him from receiving the training and gaining the information which will be called into play by his business as soon as he leaves school, and, what is more important, would increase the difficulty of giving him, before it is too late, a taste for reading, of a pure and elevated character, such as may serve to raise him above the depressing influences of the market. For it must be understood that the earlier stages of classical study are mere drudgery. The pleasant associations connected with the classics are not formed till after the grammatical difficulties have been mastered. How far Latin as a question of drill may enter into middle-class education shall be discussed presently, but for the refining influence of literature the young farmer must mainly depend on his own language, and his time is very limited.

"We may then consider two points as established:—1st. That a special agricultural education is unnecessary and undesirable, at least for young boys. 2d. That the middle-class education, which the farmer will usually receive, should be complete in itself, and not a truncated portion of a loftier edifice—not the first stage of a journey broken off in the middle."

Miscellaneous.

Autumn Cultivation.—Having seen frequent discussions on the autumn cultivation of land for green crops, and having been asked how I succeed so well in growing Turnips in that way, I shall very briefly detail the course which I have pursued for several years, and by which I have never failed to obtain excellent crops of Turnips. I may premise that my occupation is a very

small one, only extending to the quantity of land necessary for domestic convenience in providing food and litter for horses and cows, for the cultivation of which, and for bringing coals, &c., to the house, I have only two draught horses. My rotation affords me each year about ten acres for Turnips and Potatoes. With one pair of horses it was found difficult to manage the ordinary operations of preparing land and sowing Turnips at the usual season, the object being sometimes defeated by too great exposure of the land in a very dry season, through the dilatory process, and at other times by a heavy fall of rain, rendering more ploughing and working necessary than could be overtaken with such small means. I was glad, therefore, to provide against such contingencies, and to anticipate a part of the summer's work by beginning in the previous autumn. If, however, the principle is good, and the plan economical, on a small scale it will be equally good and proportionally economical on a large one. It is common to spread what dung has been made on a farm during summer upon stubble land, and to plough it in, leaving the land in that state through the winter. Not considering this the best mode of applying manure for Turnips, and wishing to have a part of my land in a still more advanced state in the spring, I begin as soon as the ground is cleared of corn, having left as little stubble upon it as possible, to skim plough it, or as it is called in the southern counties, "broad shearing,"—then to harrow and rake together the stubble and weeds, which are carted into a fold to make the foundation of the winter's dungheap. My land having been for many years in good cultivation, and producing large crops, is not much addicted to Couch. It is next ploughed across with a deep furrow, harrowed, and if needful, rolled; but it is not essential in this case to have it made very fine—that is, left to the mellowing of the winter's frost. The land is then made up into drill rows of 27 inches wide, the manure led out of the folds, spread into the drills, and covered over by the plough to remain for the winter. The manure having hitherto undergone no waste by fermentation, as is often the case by being led out and laid up in heaps in fields, its ammonia and other qualities are all communicated to the soil which covers it, so that in the spring the tops of the drills are found to be soft and mellow, and so fit for the reception of the seed, that it has invariably vegetated more quickly than in newly wrought soils. If any weeds appear before sowing time, a scuffler is run along between the drills and the tops, broken by a turn of the small concave drill harrows, two of which, each covering a drill, are drawn by one horse—the weeds are gathered off or left to die in the sun, as may seem fit. Just before sowing, guano or bone dust, if intended to be applied, is sown broadcast—a double mould plough is run along the intervals to make up the drills, which had been partly levelled by the light harrow, and the seed is sown by the Turnip drill. I have had manure to treat a half of my Turnip land in that way in the autumn for several years, on which portion the plants have brairded more quickly, and produced a better crop than on the remainder, which is worked and manured in the usual months of summer. I have this year Potatoes grown alternately with Turnips—namely, two rows of Turnips and one of Potatoes, over a part of the field; the two rows of Turnips sown by drill, the intervening rows of Potatoes put in by a man making a hole with a spade point, and a boy to drop the set into it, which is quickly done. This I did with a view of trying how far a mixture of vegetables might counteract the disease of the Potato. Both Turnips and Potatoes are an excellent crop. One row of Potatoes has been used at table, without finding anything of the disease, which prevails to a considerable extent all over the neighbourhood; whether they may yet be affected by it remains to be seen. *John Grey, Dilston, Sept. 21, in Bell's Messenger.*

Notices to Correspondents.

BONEDUST FOR PASTURE: *J K.* Apply 2 quarters to 20 bushels per acre now. You had better get the fine bonedust and lay it in a heap with damp ashes for a week or two. It will heat and crumble, and be more easily applied with regularity, and more immediately useful.

BOOKS: *W H.* The most recent and probably the fullest and completest work as a book of reference is the Cyclopædia of Agriculture, published by Blackie, Warwick Square, E.C.

EXPORTS AND IMPORTS: *Rugeley.* We presume you must examine the Parliamentary papers as they appear. The *Economist* gives all that is necessary.

LACTOMETER: *J T B.* For an instrument on the specific gravity principle apply to Horne & Co., 123, Newgate Street, London.

SPRING WHEAT: *A B.* Talavera Wheat may very well be planted as late as February, and as regards the risks of sowing on a wet clay soil they are not greater in the case of that variety at that time than in the case of any other sort.

TURKEYS: *J D.* We have been favoured with the following reply to your questions:—"My old Turkeys have a good run in a field and farm-yard and warm accommodation at night: they had early in the morning some meal mixed up warm, with a small quantity of graves stirred in; and at mid-day a meal of refuse Oats or Wheat, chiefly the former; this was all their food through last winter. The hen commenced laying early, and on the 1st of June she brought out 11 fine chicks. I was very careful they should have a dry clean bed, and not too close a house. A little curd, but not too much, with bread and milk and chopped Onion tops, was their food at first, but they were soon taught to eat meal mixed up with as little water as possible. 'Sharps,' a better kind of bran, are to be preferred to Barley or other meal. The 11 young Turkeys are now quite as large as the old ones, and finer birds than any others in the neighbourhood. They have had a good run in a field all the summer, and a warm airy house at night By just keeping the old birds in good healthy condition through the winter I have found the hens lay and sit early, and the young ones do remarkably well."

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

Stanley Bridge, King's Road, Chelsea. Oct. 17.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

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Hot-Water Apparatus complete, on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter; original inventor J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. MORRIS in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

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JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S reduced Tariff of SHEET and HORTICULTURAL GLASS.

Above 15 by 10, and not exceeding 18 by 12. 15*s.* 6*d.* per 100 feet. Some of the above in 21 oz. Glass at 1*s.* and 2*s.* per 100 feet extra.

6 by 4 6½ by 4½ 7 by 5 7½ by 5½	10*s.* per 100 feet.	8 by 6 9 by 7 9½ by 7½ 10 by 8	12*s.*
10½ by 8½ 11 by 9 11½ by 9½ 12 by 9	14*s.*	12 by 10 13 by 10 14 by 10 15 by 10	14*s.*
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Foreign Sheet Glass in 200 ft. cases, 32*s.* and 40*s.* per case.

Glass for Orchard Houses as supplied to Mr. Rivers.

Hartley's Patent Rough Plate Glass, ¼ to $\frac{3}{16}$ and ⅜-inch thick, in any sizes for Horticultural, Public Buildings, and Manufactories.

Propagating Glasses. Bee ,,	Fern Shades and Stands Glass Milk Pans.

Aquarium, 12 inches, 14 ins., 16 ins., 18 ins., and 20 ins. in diameter.

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Plate Glass, Rough-cast do., Patent Plate do., Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

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HENDERSON'S PATENT IMPROVED BROOMHEADS for all Horticultural Purposes, Maltsters, Stables, Scavengers, and common use. Also for Curlers.

W. HENDERSON begs respectfully to call the attention of the Public to his PATENT BROOMHEADS, which have received the approval of the most competent Judges in the country. The great advantage of the invention consists in the teeth for holding the material, and in the screws for binding the same. The sizes of the Brooms may be enlarged or diminished as required. They are light, durable, very efficient, and economical, as well as complete in their construction, and are not liable to get out of order. The simplicity of their construction and the many advantages the invention possesses, need only to be known to be appreciated, and brought into general use. Any labourer can fill them with the utmost facility in a few minutes. Printed testimonials sent post free on application.

The Brooms and Broomheads may be procured from the following agents:—

London & Edinburgh	Messrs. P. Lawson & Son, Seed Merchants.
Edinburgh	Messrs. James Dickson & Son, Seedsmen.
Glasgow . ..	Messrs. Austin & M'Aslan, Nurserymen.
Stirling & Dublin..	Messrs. W. Drummond & Son, Seedsmen.
Perth	Messrs. Dickson & Turnbull, Seedsmen.
Aberdeen	Messrs. B. Reid & Co., Nurserymen.
Dundee . ..	Messrs. W. Urquhart & Son, Nurserymen.
Dunfermline ..	Mr. J. Stewart, Ironmonger.
Belfast	Messrs. Dickson, Farrell, & Co., Seedsmen.
Fulham—Middlesex	Messrs Osborn & Sons, Nurserymen.
Birkenhead ..	Mr. W. Henderson, Nurseryman.

Printed directions for filling are sent with each Broomhead.

W. HENDERSON, Inventor of the Patent Improved Broomheads, Dunkeld.

"TIFFANY" FOR SHADING CONSERVATORIES,
MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

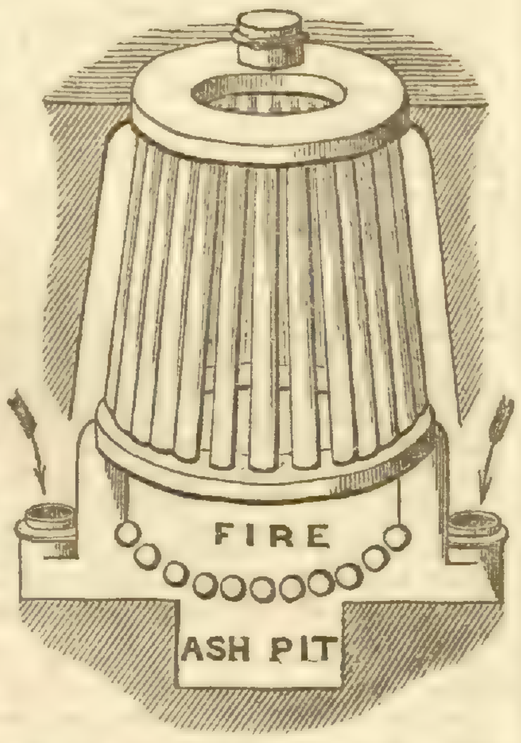
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

MECHI'S DRESSING CASES and TRAVELLING BAGS.—112, Regent Street, and 4, Leadenhall Street, London.—Bronzes, Vases, Pearl and Ivory Work, Mediæval Manufactures, Dressing Bags and Dressing Cases, Toilet Cases, Work Boxes and Work Tables, Inkstands, Fans; the largest stock in England of Papier-mâché elegancies, Writing Desks, Envelope Cases, Despatch Boxes, Bagatelle, Backgammon, and Chess Tables. The premises in Regent Street extend 50 yards into Glasshouse Street, and are worthy of inspection as a specimen of elegant outfit. Everything for the work and dressing tables: best Tooth Brushes, 9*d.* each; best Steel Scissors and Penknives, 1*s.* each; the usual supply of first-rate Cutlery, Razors, Razor Strops, Needles, &c., for which Mr. MECHI's Establishments have been so long famed.

WEEKS' ONE BOILER SYSTEM.

ADDITIONAL PROOFS OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

ENORMOUS EXTENSION OF WORKS TO BE PERFORMED BY ONE BOILER.



MESSRS. JOHN WEEKS AND CO. are favoured with orders to extend and heat the following Buildings :—

Messrs. Edward A. Henderson, the Wellington Nursery, St. John's Wood.—Various new Hot-houses and others to the extent of 400 feet long; also all various Offices, Seed Shops, and Warehouses. All these are in addition to the 800 feet of Hot-houses and Pits which have been most satisfactorily worked by *Weeks' One Boiler* for two years. The whole now to be heated by *One Boiler* will be equal to a range of Hot-houses 1200 feet long. The Messrs. Edward A. Henderson have had *Weeks' Boilers* for years in operation, and therefore are confident as to their superiority over all others.

Messrs. E. & A. Smith & Co., extensive Nurserymen at Dulwich, Surrey.—At this wonderful establishment the Hot-houses, extending over a large space, are equal to 3000 feet long, the whole of which are now being attached, and to be heated by *Weeks' One Boiler System.* To heat this village of Glass-houses Messrs. J. WEEKS & Co. are now fixing two Boilers, both in the same stoke-hole, side by side, and to be so arranged that either Boiler will heat the whole of the houses or any part of them, or that both can be worked together.

J. WEEKS & Co. also beg to call attention to their own extensive Establishment, where *One Boiler* has been for years heating Hot-houses, Greenhouses, Conservatories, Pits with both top and bottom-heat, equal to 1000 feet in length. The "New Grand Winter Garden," 70 feet square and 35 feet high, is also added to the same apparatus, and the whole is now equal to Hot-houses 1300 feet long, the whole effectually heated by ONE BOILER. Any compartment can be heated separately, and regulated at pleasure so as to obtain any required temperature.

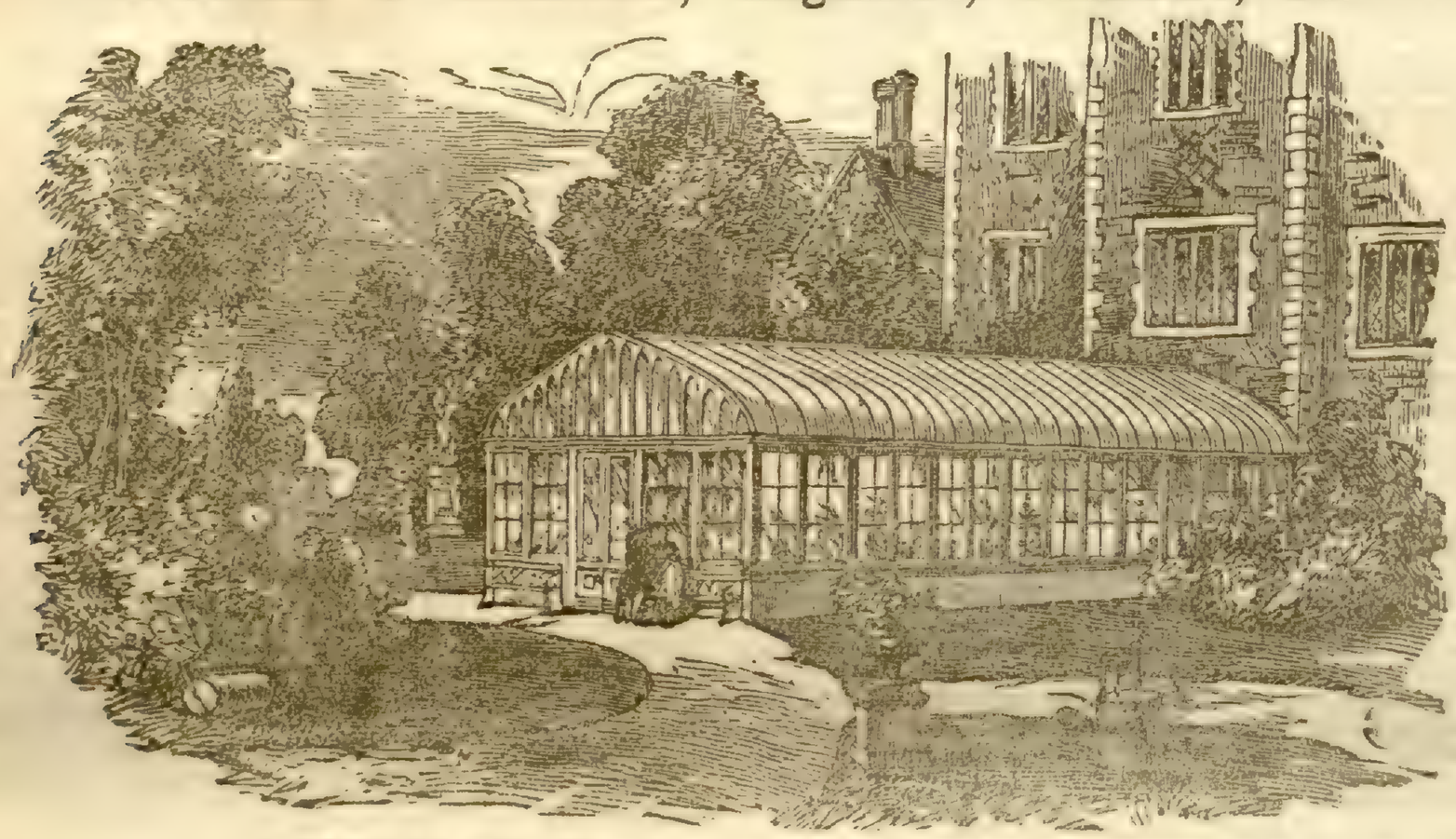
Messrs. J. WEEKS & Co. have also the honour of numerous works in hand and completed for the nobility and gentry throughout the country and on the Continent, many of which are almost equal in extent to those before mentioned. Messrs. J. WEEKS are honoured with permission to refer to several thousands of their distinguished Patrons, many of whom have written the most satisfactory Testimonials.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

CHAMPION PLOUGHS,

For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

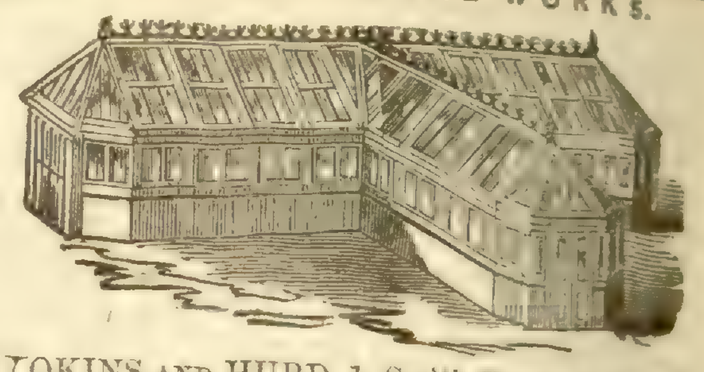
THE FIRST PRIZE FOR THE BEST PLOUGH FOR GENERAL PURPOSES.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR HEAVY LAND.
The only PRIZE ever offered by the Society for the best RIDGING PLOUGH was also awarded to J. & F. HOWARD.

P Plough, with Two Wheels (for Light Work)	£4 7 6
P P Ditto ditto (for General Purposes)	£4 12 6
Skim Coulter, extra	£0 5 6

Steel Breasts, 7s. and 7s. 6d. extra.

HOWARDS' *New Descriptive and Illustrated Catalogue sent post free on application.*

HORTICULTURAL WORKS.

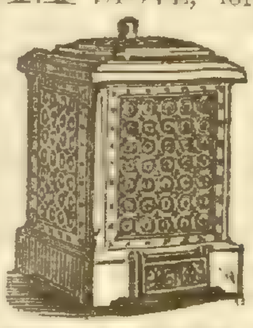


VOKINS AND HURD, 1, Smith Street, & 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges. Plans and Estimates forwarded on application.

IMPROVEMENTS IN HEATING, ETC.

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of warming a large apartment for 24 hours, at a cost of 3*d.*; and deserving special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot-water.



MUSGRAVE'S PATENT SLOW-COMBUSTION COOKING RANGE on the same plan.

MUSGRAVE'S PATENT STABLE FITTINGS.

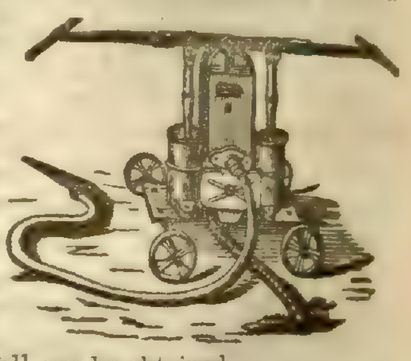
These inventions will repay public inquiry. For particulars address the makers,

MUSGRAVE BROTHERS, 59, High Street, Belfast.

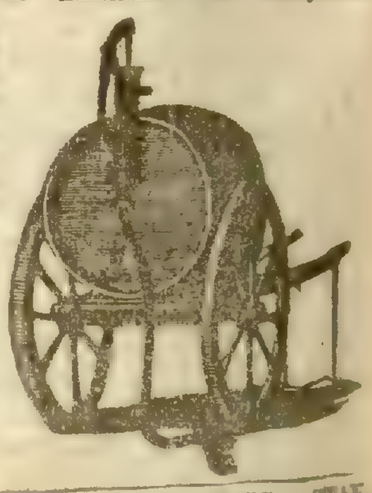
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.

These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.



WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.*

1½-inch Flexible Rubber and Canvas Suction for ditto, 2*s.* 9*d.* per foot.

1½ Gutta Percha Suction, 1*s.* 9*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 30 feet.

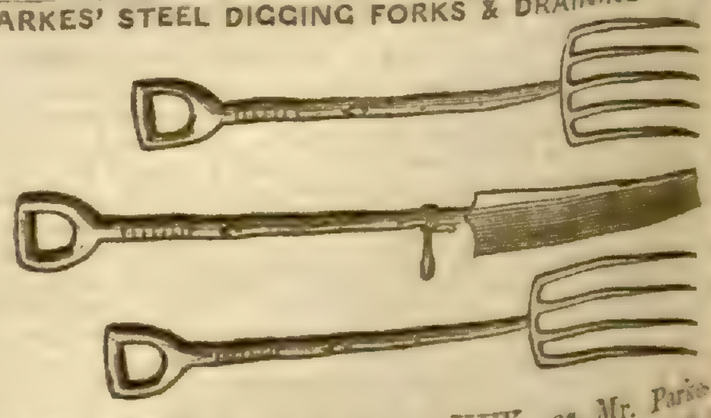
Diameter of Barrel.	Length of Barrel.		£ s. d.
2½ in.	short 1 ft. 17 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 16
2½ ,,	long 3 ,, 3 ,,		1 14
3 ,,	ditto 3 ,, 6 ,,		2 8
3½ ,,	ditto 3 ,, 6 ,,		2 12
4 ,,	ditto 3 ,, 6 ,,		3 3
½ ,,	short, with 15 feet of Lead Pipe attached, and Bolts and Nuts ready for fixing		2 14
½ in.	long ditto ditto	ditto	2 18

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER AND SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS



MESSRS. BURGESS AND KEY, as Mr. Parkes's Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogues of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

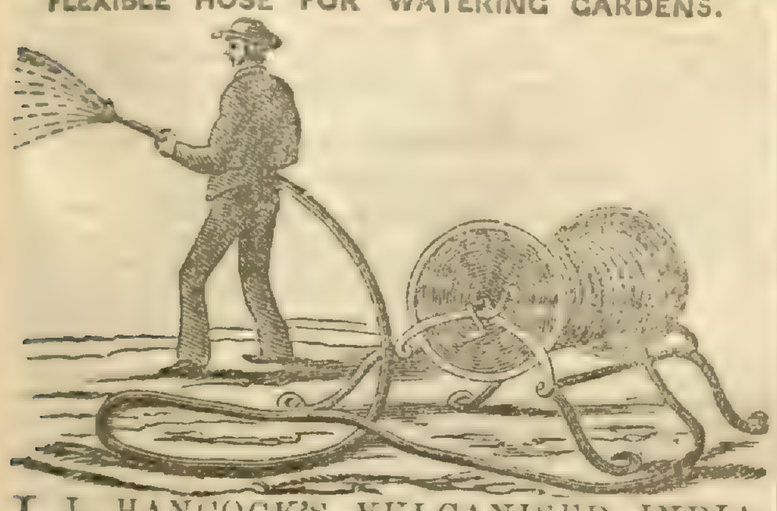
LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

21 varieties of Vases and Tazzas at prices varying from 15*s.* to 50*l.*
94 Statues and small Figures.
38 figures of Animals.
17 ,, of Birds.
16 Baskets of suitable Pedestals; prices from 12*s.* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
Garden Seats.
17 Sun-dial Pedestals
18 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau*. The prices range from 1*l.* to 400*l.*

FLEXIBLE HOSE FOR WATERING GARDENS.



J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

*All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

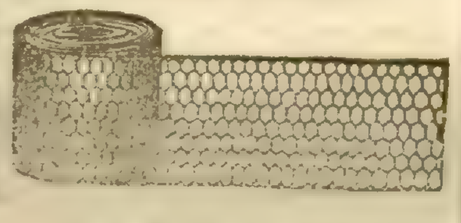
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.
Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.
The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

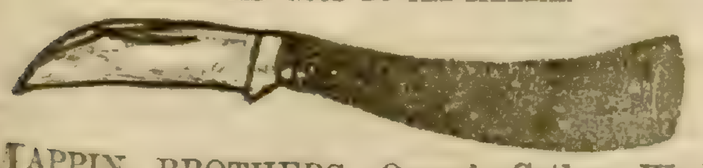
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY. WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

POULTRY, RABBIT, SHEEP, AND CAT FENCING, HARE or RABBIT NETS, on CORDS, for Covert Shooting, 12 mesh over, 4 feet wide, 2*d.* per yard; 18 mesh over, 6 feet wide, 3*d.* per yard; 24 mesh over, 8 feet, 4*d.* per yard; each edge corded, 1*d.* per yard extra. Extra stout do. 18 mesh wide, 4*d.* per yard, suitable for Poultry Fencing. Square mesh Cricketing Net, fix its full width and length, made of stout cord, 3*d.* to 4*d.* per square yard; this is the best article made for Fencing against Fowls, Cats, &c., at W. CULLINGFORD'S, 1, Edmond Terrace, Ball's Pond Road, near Kingsland Gate, London.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

AGRICULTURAL OR COTTAGE BAROMETER, price 11*s.* 6*d.* Especially designed by L. CASELLA for the Horticultural Society's Exhibition of June, 1857, as a neat, portable, and reliable Weather Glass, accompanied with plain, practical instructions, and intended as a really valuable and universal instrument.

CASELLA'S ECONOMIC GARDEN THERMOMETER to correspond, 4*s.**

CASELLA'S RELIABLE GARDENER'S RAIN GAUGE, 15*s.* 6*d.*

CASELLA'S IMPROVED PHILLIP'S MAXIMUM THERMOMETER, 15*s.* 6*d.*

"The Barometer is equal to one in our possession at ten times the price. The Thermometer, self-registering and accurately graduated, has proved upon trial to be equally efficient."—*Gardeners' Chronicle, Sept.* 19, 1857.

"These instruments should be in the hands of every farmer." "My next month's observations will be made with them."—*Mark Lane Express, Sept.* 14 *and Oct.* 5, 1857.

CASELLA'S MILK TEST FOR THE DAIRY, 4*s.* 6*d.*; Ditto, ditto, to show the per centage of Cream, 3*s.*

Manufactured only by L. CASELLA, Instrument Maker to the Admiralty, United States Government, Royal Kew Observatory, Geographical Society, &c., 23, Hatton Garden, London. A descriptive list and drawings on receipt of a stamped envelope. Sole Agent for SCHONBEIN'S OZONOMETER, 5*s.* 6*d.*

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4*l.* 14*s.* to 13*l.* 15*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 2*l.* 15*s.* to 11*l.*; ditto, with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.*; Fire-Irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth plates.

BEDSTEADS, BATHS, AND LAMPS.—WILLIAM S. BURTON has SIX LARGE SHOW ROOMS devoted exclusively to the SEPARATE DISPLAY of Lamps, Baths, and Metallic Bedsteads. The stock of each is at once the largest, newest, and most varied ever submitted to the public, and marked at prices proportionate with those that have tended to make his establishment the most distinguished in this country.

Bedsteads, from	.. 12*s.* 6*d.*	to £12	0*s.*	each.
Shower Baths, from ..	.. 7 6	,, 5	15	,,
Lamps (Moderateur), from	.. 6 0	,, 6	6	,,

(All other kinds at the same rate.)

Pure Colza Oil .. .. 5*s.* per gallon.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½-inch Ivory-handled Table Knives, with high shoulders, 12*s.* per doz.; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* per pair; larger sizes, from 19*s.* to 26*s.* per doz.; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per doz.; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per doz.; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per doz.; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 Illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Gaseliers, Tea Urns and Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London.

PERSONS OF A FULL HABIT, who are subject to headache, giddiness, drowsiness, and singing in the ears, arising from too great a flow of blood to the head, should never be without FRAMPTON'S PILL OF HEALTH, as many dangerous symptoms will be carried off by their timely use; and for elderly people, where an occasional aperient is required, nothing can be better adapted.

For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dullness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and give a healthy, juvenile bloom to the complexion.

Sold by all Medicine Vendors. Observe the name of "THOMAS PROUT, 229, Strand, London," on the Government stamp. Price 1*s.* 1½*d.* and 2*s.* 9*d.* per box.

NEAT AND DURABLE GARDEN LABEL.—A Specimen Label will be sent on the receipt of three penny postage stamps.—Address, F. H., Ludbury North, Salop.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 100 post free for 7*s.*, on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

TO GENTLEMEN, GARDENERS, ETC.

JUST LANDED, AT HART'S WHARF, GREENWICH ROAD,

PURE PEAT, a most valuable Manure for Gardens, &c., and absolutely essential to the Growers of RHODODENDRONS, and other ALPINE and AMERICAN PLANTS.

Price 5*s.* per load; a discount to Gardeners. Orders received at the Wharf, or by T. BRIGDEN, Florist and Seedsman, Railway Arcade, London Bridge.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity, upon reasonable terms, by land or water carriage.

ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

TO BE LET, A NURSERY, in the immediate neighbourhood of Clapham, containing 7 Greenhouses, a long Brick Pit, Sheds, Stabling, and every requisite for the business.—Apply to Mr. JAMES TOOTIL, on the premises, Stockwell Nursery, Stockwell Green, S.

TO GARDENERS, ETC.

TO BE LET, with immediate possession, a SEED and FLORIST'S BUSINESS, with Shop and Residence, and about half an acre of Ground adjoining the same, with two Greenhouses, Pits, &c., well stocked with various Plants. The Business is now in full operation, and is situated in the best part of London, where a good business is now being carried on. RENT LOW. Coming in, including Houses, Plants, Fittings of Shop, Tools, &c., only 60*l.*—Address to "FLORIST," *Gardeners' Chronicle* Office

WELLINGTON AND BEDFORD NURSERIES, CLAPHAM.

TO BE SOLD, very early in November, the STOCK of the above NURSERIES without any reserve.—For particulars (which will appear in next week's Paper) apply to Mr. THORP, Auctioneer, 26, Upper Albany Street, Regent's Park, N. W. N.B. The Lease to be disposed of.

Sales by Auction.

CAMELLIAS, AZALEAS, AND OTHER PLANTS FROM GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, Oct. 23, at 1 o'Clock precisely, a CONSIGNMENT OF PLANTS FROM GHENT, including Camellias of the best sorts, well set with bloom; Azaleas, Rhododendrons, Standard Bays, and Laurustinus, Deutzia gracilis, Pæonies, Dwarf Roses, Gladioli, Liliums, and other Bulbs and Plants.—May be viewed on the morning of Sale, and Catalogues had.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Oct. 20, and THURSDAY, Oct. 22, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

MR. A. RICHARDS will Sell by Auction on the premises, Marsh Lane, Tottenham, on MONDAY, October 26, and two following days, by order of Mr. Pennett, the valuable NURSERY STOCK, consisting of large Portugal and common Laurels, Evergreen Oaks, Arbor-vitæs, Laurustinus, Aucubas, Rhododendrons, Hollies, Box, Euonymus, Firs, Yews, Bays, Cedars, Junipers, Phillyreas, Berberis, with a quantity of large Ornamental Trees, Deciduous Shrubs, Fruit Trees, Climbers in Pots, &c.—Catalogues may be had on the premises; or of the Auctioneer, Tottenham.

STOKE NEWINGTON.

TO GENTLEMEN, NURSERYMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction, on the premises, Green Lanes Nursery, Stoke Newington, on MONDAY, October 19, at 11 o'Clock without reserve, by order of Mr. Bird, 1000 dozen Cyclamen persicum, 4000 flowering Myrtles, fine double Camellias from 2 to 6 feet, well set with bloom buds; 2000 Moss, Provence, and other Roses in pots; Passiflora cœrulea, 450 Vines from eyes, Honeysuckles, Acacia lophantha, with 2030 Black, Red, and White Currants, &c.—May be viewed four days prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

EVELYN VINERIES, DEPTFORD.

TO MARKET GARDENERS, NURSERYMEN, PINE GROWERS, & OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Lancaster to Sell by Auction, on the premises, Evelyn Vineries, Edward Street, close to the Deptford Station on the Greenwich Railway, on TUESDAY, October 20, at 11 o'Clock, without reserve, the land being taken for building, about 700 fine healthy Fruiting and Succession Pines; 500 Black Hamburgh, Barbarossa, Muscat, and other Vines, from eyes in pots; 5000 Linnæus, Albert, and Victoria Rhubarb, 3 years old; quantity of Asparagus, 3 years, and Mint for Forcing; Seakale, Tarragon, Rue; 1000 Chili Capsicums, sorts in pots; Dwarf Red Moss and Provence Roses; 400 bushels of Mushroom Spawn, &c. Also four Greenhouses, 3 Melon Pits, 30 Three-light Boxes; about 1500 feet of 3 and 4-inch Hot-water Pipe; 6 Saddle and other Boilers; 300 Hand Glasses, sundry Lights, Ladders, 2 Pumps, Desks, Carpenter's Bench, Carts, Barrows, Paving Tiles, &c.; together with a quantity of Home-saved Flower Seeds, Manure and sundry effects.—May be viewed three days prior to the Sale; Catalogues may be had on the premises; at the Dover Castle, Broadway, Deptford; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A reasonable time will be allowed Purchasers for the removal of the Rhubarb in the ground.

TO GENTLEMEN, NURSERYMEN, & OTHERS PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on their premises, Wandsworth Road, on TUESDAY, NOVEMBER 11, and following day, at 11 o'Clock each day, the first portion of their valuable NURSERY STOCK, consisting of Standard and Dwarf-trained Fruit Trees, Forest and Ornamental ditto, Variegated and Green Hollies, Laurels, Box, Aucubas, Chinese Euonymus, Privet, Ivies, and other Evergreens. Also handsome plants of Deodar, Araucarias, Yuccas, 200 very fine Standard Roses, including all the most approved kinds; fine plants of Crimson, Sweet-scented, and other Rhododendrons, well set with bloom buds; American Azaleas, Kalmias, Pyrus, Glycine, Lilacs, Dwarf Roses, &c.; with a fine stock of Gooseberry and Currant Trees, Vines in pots, Asparagus and Seakale, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A Sale of Camellias, Chinese Azaleas, and other Greenhouse Plants to take place towards the end of November.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

GRAPE VINES FROM EYES.

R. GLENDINNING has to dispose of an immense Stock of all the best kinds, some of which are grown for fruiting next season, strong, and well ripened; also a few magnificent plants in pots of Black Hamburgh, with two years' wood, which would at once furnish a house. Bowood Muscat and Golden Hamburgh can also be supplied.

Chiswick Nursery, W.

NEW FANCY PELARGONIUM—COUNTESS OF DEVON.

MESSRS. VEITCH AND SON beg to offer plants of the above PELARGONIUM, which was exhibited at the Royal Botanic Society's Show on the 1st of July last and received a first class certificate. The under petals are white with a lake spot on each, upper petals bright rosy purple with white margin, fine habit, a very free and perpetual bloomer, and will no doubt prove a good bedding variety. Good established plants, 7*s.* 6*d.* each.

Prices to the Trade on application.

CHRYSANTHEMUMS, LARGE-FLOWERED & POMPONE.

WOOD AND INGRAM beg to offer fine plants of the above, well-established in 5 and 6-inch pots, and full of bloom buds at from 6*s.* to 9*s.* per dozen. These plants have been grown in pots all the season, and are well furnished with healthy foliage to the very base. They consist of such kinds as Auguste Mie, Annie Salter, Berthilde, Bride, Campestrion, Madame Comerson, Perfection, Temple de Solomon, Anna Boleyn, Argentine, Bob, Calibri, Solfaterre, &c.

Nurseries, Huntingdon.

FINE ROSES FOR THE MILLION.

NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

SCILLA SIBERICA, SKY BLUE.

THE HARDIEST AND MOST BEAUTIFUL OF ALL OUR EARLY SPRING FLOWERS.

JOHN CATTELL can supply strong Bulbs of the above at 3*s.* per dozen; 21*s.* per 100; 9*l.* 9*s.* per 1000.

A Catalogue of Dutch and other Bulbs, containing lists of J. C.'s splendid Seedling Japan Lilies, &c., may be had gratis upon application. A remittance or reference must accompany all orders from unknown correspondents.—Nursery and Seed Establishment, Westerham, Kent.

N.B. Tropæolum tricolorum grandiflorum, strong bulbs, in quantities to the trade, very cheap.

CAMELLIAS, CAMELLIAS, TO BE SOLD CHEAP.

WILLIAM HARRINGTON having a large stock of CAMELLIAS, ranging from 3 to 7 feet, of all the leading kinds, respectfully solicits purchasers to come and inspect them, as they are in fine health and full of flower buds. Fine plants of Cassia corymbosa and Veronica Andersoni in full flower and very handsome. Indian Azaleas, Cytisus, Acacias, Ericas, Epacris, and other greenhouse plants in good condition.

The Nurseries, Kingsland Gate and Dalston, Middlesex.

Omnibuses from the Flower Pot, Bishopsgate Street, to the Kingsland Gate Nursery every five minutes.

PINE PLANTS.

TO BE DISPOSED OF, about 60 Fruiting, and 100 Succession, strong healthy plants, consisting chiefly of Montserrat and Enville; also 5000 strong COMMON LAURELS of various sizes, well rooted. For price, &c., apply to MOWBRAY & LOWE, Nurserymen and Seedsmen, Wolverhampton. Also a few thousands of Underhill's "Sir Harry" Strawberry, transplanted plants at 8*s.* per 100, basket included. Remittances to accompany orders from unknown correspondents.

FARFUGIUM GRANDE.—This magnificent plant, the plant of the season, for at all the Metropolitan Exhibitions it has taken first-class prizes, will be sent out the last week of the present month. Early orders are respectfully solicited, as the stock is limited, 63*s.* each. The usual allowance to the trade.

R. GLENDINNING, Chiswick Nursery, W., October 17.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2½ feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pot culture.

JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 35*s.* per 100. Many of the kinds are well suited for forming edgings to clumps of American plants.

JOHN WATERER, American Nursery, Bagshot, Surrey.

NEW HARDY HEATH.—ERICA MEDITERRANEA ALBA.

MESSRS. WILLIAM ROLLISSON AND SONS are now prepared to offer this new and interesting variety, which is a pretty and desirable addition to our hardy plants, price 5*s.* each, or 42*s* per dozen. Hardy Heaths of the best kinds, and in good plants, supplied at 50*s.* per 100. The attention of planters for immediate effect is respectfully directed to our immense stock of large American Plants.

The Nurseries, Tooting, London.

HOLLYHOCK SEED, &c.

JOHN CHATER AND SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7*s.* 6*d.*; 18 ditto, 4*s.* 6*d.*; best mixed, 200 seeds, 1*s.* 6*d.*; 400 ditto, 2*s.* 6*d.* Fine-named sorts in good plants now ready, 8*s.* per dozen.

Nurseries, Haverhill, Suffolk.

12,000 TEA-SCENTED ROSES,

ON THEIR OWN ROOTS IN POTS.

WM. WOOD AND SON have much pleasure in offering the above splendid stock of Tea Roses, which they have no hesitation in stating cannot be surpassed in this or any other country.

The plants offered are strong and bushy, in 48 sized pots, comprising all the most esteemed varieties, at 12*s.* to 18*s.* per doz.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIMEN TEA-SCENTED ROSES

IN 6-INCH POTS FOR EXHIBITION AT 30*s.* PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s.* 6*d.* to 21*s.* each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

THE BEST TWELVE HYACINTHS.—THE BEST HYACINTHS IMPORTED BY SUTTON & SONS, Seed Growers, Reading, can be supplied at 10*s.* 6*d.* per dozen by name. Also mixed DUTCH HYACINTHS (all Double) for Beds and Borders, at 4*s.* per dozen, and every other kind of Bulbous Flower Roots at low prices, as see Catalogue, which may be had gratis, post free.

NEW PELARGONIUMS.

JOHN DOBSON AND SON beg to announce that they are now sending out the following beautiful varieties, which they feel assured will attain as great popularity as any set ever offered.

	s.	d.		s.	d.
Aurelia (Beck's)	31	6	Letitia (Beck's)	31	6
Bellona (Beck's)	31	6	Julia (Dobson's)	31	6
Constantine (Dobson's) .	21	0	Octavia (Dobson's) ..	21	6
Charmer (Dobson's) ..	21	0	Signora (Beck's)	31	6
Fairest of the Fair (Beck's)	31	6	Siren (Beck's)	31	6
			Vestal (Beck's)	21	0
Fancy (Dobson's) ..	21	0	Rosalia (Dobson's) ..	21	0

The usual allowance to the Trade. Catalogues may be had on application.—Woodlands Nursery, Isleworth, W.

CAMELLIAS.—Fine home-grown healthy bushy Plants, full of flower buds.

25 choice named varieties, 2 to 3 feet	£3 10*s.*
12 " " " "	1 15
25 " " " extra plants	5 0
12 " " " "	2 10

No charge for packing.

The attention of the trade is invited to a large Stock of fine Double White, fimbriata, imbricata, and other choice varieties full of bloom buds, at 10*l.*, 12*l.* 10*s.*, and 15*l.* per 100.

JOHN HENCHMAN, Edmonton, near London.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	5*s.* 0*d.*
12 ditto ditto	2 6
Good ditto ditto	1 0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5*s.* to 21*s.*

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

AZALEA INDICA

THE GREATEST NOVELTY OF THE SEASON IS

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10*s.* 6*d.* and 21*s.* A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

NEW EXCELSIOR MARROW PEA.

W. KNIGHT, NURSERYMEN, &c., begs to call the attention of the public to the above PEA, as being a great acquisition, it being a decided improvement on the well-known Ringwood Marrow, quite as early, greater cropper, longer pod, larger Pea, superior flavour, and greener colour. Price 5*s.* per quart. Price to the trade on application. The names of the trade who order will appear in a future advertisement.

W. K. has also a few bushes of his new Gooseberry "Fillbasket," a first-rate late variety, 12*s.* per dozen.

High Street, Battle, Sussex.

TO THE TRADE.

FOR SALE, PINUS DOUGLASI, 1 year seedlings, in single pots, 3 to 6 inches (good); 2 years transplanted do.

ANDROMEDA FORMOSA, 1 year seedlings (true), in pots.

2 years seedling RHODODENDRON PONTICUM; 2, 3, and 4 years transplanted do.

RHODODENDRON Stocks, 1 foot; Standard do., 3 to 5 feet.

QUICKSETS, strong 1 year seedlings, 3 to 9 inches.

PINUS MARITIMA, 2 years (good).

Early orders solicited.

GEORGE S. ROGERS, Red Lodge Nursery, near Southampton.

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.

WILLIAM YOUNG, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

TO THE TRADE.

CUSTARD VEGETABLE MARROW.—Well ripened seeds of this extraordinary prolific, beautiful, and delicious vegetable are now ready for distribution. See engraving and Dr. Lindley's opinion in the leading article of the *Gardeners' Chronicle* of September 19:—"In the axil of every leaf there is a fruit. . . It will be evident that the mere beauty of its form would render it better adapted for a side dish than the common Vegetable Marrow, even if it were not superior in quality and more abundant in produce."

Price per 100 seeds on application. A reduction made if 1000 are taken.—DAVID THOMSON, Dyrham Park, Barnet, Herts.

CHOICE FERNS.—CASSEBEERA FARINOSA, 2*s.* 6*d.* and 3*s.* 6*d.* each; GYMNOGRAMMA PERUVIANA ARGYROPHYLLA, 2*s.* 6*d.* each; GYMNOGRAMMA PULCHELLA, 2*s.* 6*d.* each; PTERIS ASPERICAULIS, 2*s.* 6*d.* each; GYMNOGRAMMA CHRYSOPHYLLA, true, 2*s.* each. The five sorts, 10*s.* 6*d.*, package free. New FUCHSIAS of 1857, 1*s.* each; 10*s.* 6*d.* per doz., package free.

J. BESTER, Barlow Moor Nursery, Didsbury, Lancashire

HARDY HERBACEOUS PLANTS.—60 fine showy kinds for 20*s.*, strong flowering roots.

ASPARAGUS, six years old, for immediate forcing, 7*s.* 6*d.* per 100.

SEAKALE, three years old, 7*s.* 6*d.* per 100.

A reference or remittance is respectfully solicited.

WILLIAM JACKSON & Co., Bedale, Yorkshire.

WM. IVERY, Hanover Nursery, Peckham, S.E., begs to inform his Friends and the Public that he is now prepared to send out his new and beautiful AZALEA INDICA QUEEN VICTORIA; large worked plants, 21*s.*; small not worked, 7*s.* 6*d.* each. See advertisement *Gardeners' Chronicle*, Oct. 10, for new GERANIUMS, ROSES, &c.

NEW BALSAM, SPLENDID LARGE DOUBLE SALMON COLOUR, 12 Seeds, 13 stamps. GLENNY'S Improved Six Classes, 37 stamps; mixed, 13. G. GLENNY, Fulham, S.W. Glenny's Almanack reprinted, 13 stamps. Glenny's Companion, 13. Seeds for Amateurs to raise new varieties warranted first-class.

PLANTING SEASON.

10,000 SPLENDID STANDARD ROSES, &c.

MESSRS. PROTHEROE AND MORRIS most respectfully invite the public to inspect their valuable NURSERY STOCK, extending over 20 acres and in the highest state of cultivation, consisting of Fruit, Forest, and Ornamental Trees of every description, and in considerable quantities; also a large and rich assortment of American Plants, fine Evergreens, ranging all sizes, including many magnificent specimens which will give immediate effect; and from the adhesive nature of the soil, and being continually transplanted, will incur no risk from removal. The Nursery is accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street, from whence Trains leave nine times daily to Leytonstone Station, which adjoins the Nursery.

The following include a portion of their Stock. These are fine bushy plants, and beautifully furnished with blooms:—

50,000 Hybrid Catawbiense, pontica, Scarlet, and other Rhododendrons.
30,000 Ghent and other Azaleas.
5000 Kalmia latifolia, 1 to 5 ft.
2000 Andromeda floribunda, 2 to 4 feet.
3000 extra fine Dwarf-trained Peaches and Nectarines from Holland's celebrated stock.
10,000 splendid Standard and Dwarf Roses, including the finest Hybrids, Perpetuals, Bourbons, Teas, Noisettes, &c.
2000 fine Fan Yews, 3 to 12 ft.
5000 Portugal and Common Laurels, 3 to 15 feet.
3000 bushy Aucubas, from 2 to 5 feet.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Oct. 17.

CRICKHOWELL, BRECONSHIRE.

ROBERT CHALLIS begs to inform the Trade and Public generally that he has taken to the NURSERY and SEED BUSINESS of Mr. WALTER JONES, and hopes by strict attention to business, with punctuality and fidelity in executing all orders committed to his charge, to merit a share of the public patronage.

WEST OF ENGLAND ROSERIES.

JAMES MUNRO (late of Kew Gardens) begs most respectfully to inform the Nobility, Gentry, and Public generally, that he has taken the above Nursery business which was formerly carried on by Mr. Curtis (author of "Beauties of Rose"), and recently by Mr. L. Pullen. J. M. hopes by assiduous and unremitting personal attention to be honoured with a share of public patronage. Catalogues will shortly be published, and may be had on application.

N.B. The trade supplied on liberal terms.—Westbury Lodge, Trym, near Bristol. Oct. 17.

NURSERY PARTNERSHIP.

MR. JOHN WEEKS will now be happy to meet with a gentleman of energy, of thorough business habits, and with a practical knowledge of the Nursery and Seed Business. The Horticultural Buildings of this Nursery are the finest and most complete of any in the country; they have cost the Advertiser upwards of 6000*l.*, and the whole is well stocked with the choicest plants in the highest state of cultivation.

Applicants will be expected to have a fair proportion of capital at command.

Apply to Mr. JOHN WEEKS, King's Road, Chelsea.

CHARLES M'INTOSH, F.R.P.S., LANDSCAPE GARDENER, GARDEN ARCHITECT, &c., Newcome Villa, Murrayfield, Edinburgh. London address: Messrs. P. LAWSON & SON, 27, Great George Street, Westminster.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE

MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.

2, Randolph Road, Maida Hill, London, W.

TREE TRANSPLANTING BY MACHINE. PRACTICAL LANDSCAPE GARDENING, ORNAMENTAL PLANTING, DRAINING, &c., by Contract or otherwise. Designs and Estimates given on moderate terms. The Machines let by the week, with men if required.

W. H. RUMBOLD, Tunbridge Wells, Kent.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.

ASPHALTE for any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 43.—1857.] SATURDAY, OCTOBER 24. **Price Fivepence.** STAMPED EDITION, 6*d*.

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THIS DAY,

THE GRAND FRUIT EXHIBITION OF THE HORTICULTURAL SOCIETY, at Willis's Rooms. Open to the public at 1 P.M. Tickets, price 3*s*. 6*d*. each, may be had at the door.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W.C.—The next meeting of the Society will be held on MONDAY, Oct. 26, to which Members and Fruit Growers generally are invited to send Specimens for Examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock.

Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the meeting. Entrance, 10*s*.; annual subscription, 10*s*. Copies of the Rules and further information can be obtained from

WILLIAM DAVIDSON, Assistant Secretary.

TO NURSERYMEN AND GARDENERS.

TENDERS are invited for PLANTING ONE HUNDRED THOUSAND FOREST TREES at Caterham, Surrey.—Particulars may be had on application to Messrs. DREW & GRAY, Hibernia Chambers, Southwark, London.—Tenders to be sent in by November 10.

PUBLIC PARKS AND CEMETERIES can be supplied with splendid specimens of CEDRUS DEODARAS that cannot be surpassed in the trade, from 3 to 6 and 8 to 10 feet. These specimens are well calculated to produce immediate effect.—WM. MAULE & SONS, Nurseries, Bristol.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodaras, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MAULE & SONS, Nurserymen, Bristol.

LARGE FANNED YEWS, suitable for making an immediate and effectual blind.—A quantity of fine plants of the above to be disposed of; they are from 5 to 7 feet in height, and as much in width, will bear removal well, having been recently transplanted.—For further particulars and price, apply to J. SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

400,000 TRANSPLANTED LARCH FIRS, from 1 to 4 feet.
80,000 " SPANISH CHESNUTS, from 1 to 7 feet,
AND ALL OTHER FOREST TREES.

WM. WOOD AND SON will be happy to forward samples and prices of the above on application. The Plants are exceedingly luxuriant and healthy.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.

WILLIAM YOUNG, Milford Nurseries, near Godalming, Surrey.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 35*s*. per 100. Many of the kinds are well suited for forming edgings to clumps of American plants.

JOHN WATERER, American Nursery, Bagshot, Surrey.

JAMES GRIFFIN offers a large stock of the following articles from 2 to 10 feet in height, well rooted, having been frequently transplanted:—Portugal Laurels, Aucubas, Irish and Common Yews, Evergreen Oaks, Laurustinus, Arborvitæ, Larch, and Spruce Firs, English and Chichester Elms, Walnut and Quince Trees, Beech, Mountain Ash, Limes, Poplars, Acacias, Flowering Shrubs in great variety, Clematis, Jasmines, &c.—Weston Road, and 2, New Bond Street, Bath.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50*s*. per 100.—Epps's Nurseries, Maidstone.

WINTER TARES, GIANT RYE, TRIFOLIUM, WINTER OATS, AND WINTER BARLEY FOR GREEN CROPS IN SPRING.—The present being the proper season for Sowing the above, the undersigned beg to say they have a fine stock of this season's crop of SEED.—For prices apply to CLARKE & COMPANY, Seedsmen and Florists, 86, High Street, Borough, London, S.E.

EARLY POTATOES.—The improved Lemon Kidney. Small quantities of this excellent variety carefully selected (see last No. of Royal Agricultural Society of England Journal) may be had on application to JOHN HOLM, the Parsonage, Morecambe. Price 5*s*. per stone.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Oct. 24.

YOUELL AND CO.'S GENERAL PRICED CATALOGUE is now published, and may be had post free on application.—Royal Nursery, Great Yarmouth, Oct 24.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

JOHN HOLLAND, Bradshaw Gardens, Middleton, Chadderton, near Manchester, respectfully informs his patrons that his CATALOGUE of Florists' Flowers, Lancashire Show Gooseberries, &c., is now ready and may be had on application.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

NEW ROSE LIST FOR 1857-8;
ALSO,
A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS' New and Descriptive Catalogue of ROSES, for 1857 and 1858, is now ready for delivery, and ill be forwarded gratis on application.

ROSES.

THE DESCRIPTIVE CATALOGUE OF ROSES FOR 1857-8, by THOMAS RIVERS, is now ready for delivery. It has been compiled with much care, so as to serve as an efficient guide to the Rose Amateur. Sent free per post on application.—The Nurseries, Sawbridgeworth.

ROSES.

JOHN CRANSTON has now ready for distribution his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1857 and Spring of 1858. The Descriptions are full and accurately given, and the whole so arranged as to enable the Amateur to select the most choice varieties for the various purposes required. Forwarded free by post on application.

Nurseries, King's Acre, near Hereford.

12,000 TEA-SCENTED ROSES,
ON THEIR OWN ROOTS IN POTS.

WM. WOOD AND SON have much pleasure in offering the above splendid stock of Tea Roses, which they have no hesitation in stating cannot be surpassed in this or any other country.

The plants offered are strong and bushy, in 48 sized pots, comprising all the most esteemed varieties, at 12*s*. to 18*s*. per doz.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIMEN TEA-SCENTED ROSES
IN 6-INCH POTS FOR EXHIBITION AT 30*s*. PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s*. 6*d*. to 21*s*. each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WM. IVERY, Hanover Nursery, Peckham, S.E., begs to inform his Friends and the Public that he is now prepared to send out his new and beautiful AZALEA INDICA QUEEN VICTORIA; large worked plants, 21*s*.; small not worked, 7*s*. 6*d*. each. See advertisement *Gardeners' Chronicle*, Oct. 10, for new GERANIUMS, ROSES, &c.

STRAWBERRY PLANTS can still be supplied as per Advertisements of August and September.—Address WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

STRAWBERRIES.—

	Per 100—*s*. *d*.		Per 100—*s*. *d*.
SIR HARRY	10 0	Omar Pacha	3 6
Black Prince	2 6	Prince of Wales	3 0
British Queen	3 0	Scarlet Nonpareil	3 6
Filbert Pine	5 0	Trollop's Queen	2 6
Keens' Seedling	2 6		

Strong Plants as above on application to F. GODWIN, Broadfield Nurseries, Sheffield.

STRAWBERRIES.

JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10*s*. per 100; and GOLIATH, 8*s*. 6*d*. per 100, or per post per dozen, 30 stamps. Plants are now ready.

N.B. The trade may communicate by letter.

Lyncombe Vale, Bath.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. CORBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

GRAPES.

MESSRS. JOHN WEEKS AND CO., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

LISIANTHUS RUSSELLIANUS.

WILLIAM CUTBUSH AND SON have a large stock of the above to dispose of at very low prices, which can be had on application.

Highgate Nurseries, London, N.

DELPHINIUM FORMOSUM.

F. GODWIN, having a large stock of strong plants of this lovely Delphinium, begs to offer them at 6*s*. per doz. Seed of above 1*s*. per packet. Price to the trade for plants per 100, and seed per oz. on application.—Broadfield Nurseries, Sheffield, Oct. 24.

GOOD MUSHROOM SPAWN.

SUTTON AND SONS, Reading, have MUSHROOM SPAWN of superior quality just ready for use, which will be sent Carriage Free. Price 5*s*. 6*d*. per bushel.

SEAKALE AND ASPARAGUS PLANTS.—Strong plants can be supplied in any quantity (Carriage Free) by SUTTON & SONS, Royal Berkshire Seed Establishment, Reading. Also Rhubarb and Strawberries of the best sorts in cultivation.

VINES IN POTS, FRUIT TREES.

JAMES GRIFFIN begs to direct attention to his extensive stock of strong Vines in pots, Standard and Trained Fruit Trees of all descriptions,

Weston Road, and 2, New Bond Street, Bath.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s*. to 10*s*. each. A list of the sorts may be had on application

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

AZALEAS, CAMELLIAS, AND GERANIUMS.—Several Thousand of the above are now ready for Sale at GAINES's Nursery, Surrey Lane, Battersea, Oct. 24.

VEGETABLE CUSTARD MARROW, to be had of T. F. WINSTANLEY, Seedsman, Manchester, at 1*s*. 6*d*. per dozen Seeds, post free.

SIR HARRY STRAWBERRY, 3*s*. per dozen.
PTERIS ASPERICAULIS, strong plants, 2*s*. 6*d*. each.
SPIRÆA CALLOSA, strong plants, 1*s*. each.

SPANISH CHESNUTS.

FOR IMMEDIATE SALE, 80 Bushels of fine SPANISH CHESNUTS.—Apply to Mr. F. F. Fox, Melbourne, near Derby.

TO NURSERYMEN.

FOR SALE, a quantity of CHESNUTS.—Application (stating price per bushel) to be made to Mr. HARLAND, Belvidere Park, Erith, Kent, S.E.

BERBERIS JAPONICA.—This fine hardy Shrub, see illustration in *Gardeners' Chronicle*, Oct 10, can be supplied in any quantity at very moderate prices by CHARLES NOBLE, the Nursery, Bagshot. Prices according to height given on application.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, established in single pots, at 20*s*. per doz., or 6*l*. 5*s* per 100. No charge for packing.—JOHN HENCHMAN, Edmonton, near London

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 24 feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pot culture.

JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

WANTED, PYRACANTHA BERRIES.—Send price per quart to CHARLWOOD & CUMMINS, 14, Tavistock Row, Covent Garden.

WANTED TO PURCHASE, a few Thousand Roots of the RHAI RHAPONICUM, or old Green Rhubarb.—Apply by letter, Mr. USHER, Bodicott, near Banbury, Oxon.

NOTICE TO PINE GROWERS.

WANTED,

JAMAICA PINES	QUEEN PINES
CAYENNE PINES	MONTSERRAT PINES

First-class Fruit, not under 2 lbs. each.

Forward to GEORGE TAYLOR, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St John's Market, Liverpool.

PINE PLANTS.—Splendid Plants, free from scale, to fruit immediately; also SUCCESSION, chiefly RIPLEY QUEENS, from 2*s*. to 10*s*.—Apply to RICHARD NEWMAN, New Inn, Stedham, near Midhurst.

PINE PLANTS CHEAP.—Very clean and healthy, in all stages. Must be sold as the owner is leaving the country.—J. LANCASTER, Edward Street, Deptford.

N.B. Very convenient for conveyance.

PINE PLANTS.

TO BE DISPOSED OF, about 60 Fruiting, and 100 Succession, strong healthy plants, consisting chiefly of Montserrat and Enville: also 5000 strong COMMON LAUREL of various sizes, well rooted. For price, &c., apply to MOWBRAY & LOWE, Nurserymen and Seedsmen, Wolverhampton. Also a few thousands of Underhill's "Sir Harry" Strawberry, transplanted plants at 8*s*. per 100, basket included. Remittances to accompany orders from unknown correspondent.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

Wm. C. & Son strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

THE BEST TWELVE HYACINTHS.—The Best Hyacinths Imported by Sutton & Sons, Seed Growers, Reading, can be supplied at 10*s.* 6*d.* per dozen by name. Also mixed DUTCH HYACINTHS (all Double) for Beds and Borders, at 4*s.* per dozen, and every other kind of Bulbous Flower Roots at low prices, as see Catalogue, which may be had gratis, post free.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

DUTCH FLOWERING ROOTS. — Hyacinths Narcissus, Tulips, Crocus, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c. In collections, No 1, containing 1400 assorted roots for 100*s.*; No. 2, 700 roots for 50*s.*; No. 3, 600 roots for 42*s.*; No. 4, 300 roots for 21*s.* Sent carriage paid, no charge made for package. A Descriptive Priced Catalogue of the above, with information regarding the collections, and valuable Treatises on the Culture of the Hyacinth, Gladiolus, Japan Lily, Crocus, &c., to be had on application or free by post. All orders to be accompanied with a remittance or a reference.—Butler & M'Culloch, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London. Established upwards of 100 years.

EARLY FLOWERS, adapted for blooming in-doors, and in the borders in winter and early spring.—The Undersigned beg respectfully to intimate to the Nobility, Gentry, and the Public, that they have imported a STOCK of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10*s.*, viz. :—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large double Snowdrops, half a dozen double Van Thol Tulips, half a dozen Early Van Thol Tulips, one dozen double white sweet scented Narcissus, half a dozen double Jonquils, one dozen winter Aconites, 12 splendid mixed Tulips, one dozen beautiful mixed double Anemones.

Clarke & Co., Seedsmen and Florists, 86, High St., Borough, about 30 doors from London Bridge Railway Terminus.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Oct. 24.

CAMELLIAS, CAMELLIAS, TO BE SOLD CHEAP.

WILLIAM HARRINGTON having a large stock of CAMELLIAS, ranging from 3 to 7 feet, of all the leading kinds, respectfully solicits purchasers to come and inspect them, as they are in fine health and full of flower buds. Fine plants of Cassia corymbosa and Veronica Andersoni in full flower and very handsome. Indian Azaleas, Cytisus, Acacias, Ericas, Epacris, and other greenhouse plants in good condition.

The Nurseries, Kingsland Gate and Dalston, Middlesex.

Omnibuses from the Flower Pot, Bishopsgate Street, to the Kingsland Gate Nursery every five minutes.

CHAMÆCYPARIS THURIFERA.

ALEXANDER PONTEY has much pleasure in offering the above new CONIFER recently introduced by the Horticultural Society of London. They are nice bushy plants, from 4 to 6 inches in height.

A. P. having also a large stock of the undermentioned begs to offer strong plants at the following prices, carriage paid to London :—

	Each—*s.* *d.*
Biota Meldensis..	5*s.* to 10 6
,, frenelloides..	.. 5 0
,, glauca ..	.. 2 6
Chamæcyparis glauca	.. 10 6
,, thurifera ..	.. 42 0
Cupressus thurifera elegans	..2*s.* 6*d.* to 3 6
,, japonica	3*s.* 6*d.* ,, 5 0
,, majestica..	3*s.* 6*d.* ,, 5 0
,, sinensis true,	3*s.* 6*d.* ,, 5 0
,, excelsa..	3*s.* 6*d.* ,, 5 0
,, Knighti..	2*s.* 6*d.* ,, 3 6
,, Corneyana	2*s.* 6*d.* ,, 3 6
,, Lawsoniana	10*s.* 6*d.* ,, 21 0
,, species from Nepaul,	3*s.* 6*d.* to 5 0
[This is a splendid plant, between C. torulosa and C. Corneyana.]	

	Each—*s.* *d.*
Juniperus sphærica,	3*s.* 6*d.* to 5 0
,, glauca..	2*s.* 6*d.* ,, 3 6
,, japonica..	7*s.* 6*d.* ,, 15 0
,, fragrans..	3*s.* 6*d.* ,, 5 0
,, sinensis feminine,	2*s.* 6*d.* ,, 3 6
Larix Griffithi..	5*s.* ,, 10 6
Podocarpus coriacea	.. 2 6
Reinosporum cricoides	.. 1 6
Thujopsis borealis..	5*s.* to 7 6
Thuja decurrens,	3*s.* 6*d.* ,, 42 0
,, gigantea, true,	7*s.* 6*d.* ,, 42 0
Fagus macrophylla,	3*s.* 6*d.* ,, 5 0
Pocosandra coriacea,	2*s.* 6*d.* ,, 3 6
Rose, Isabella Gray,	3*s.* 6*d.* ,, 5 0

Priced Catalogues of rare Conifers and Choice Shrubs can be had free on application.

Plymouth Nursery and Seed Establishment, Oct. 24.

TO THE TRADE.

L. T. DAVIS, being desirous of forming a connection with the Trade, now offers the following in quantity :—

1-year Seedling Larch	1-year Seedling Thorns
1 ,, ,, Alder	2-years' ,, ,,
1 ,, ,, Birch	1-year Cutting Laurels
1 ,, ,, Beech	1 ,, ,, Laurustinus
1 ,, ,, Ash	1 ,, ,, Portugal Laurels

Also the following in proper condition for removal :—Laurustinus, Irish Yews, Hardy Heaths, Hybrid Scarlet Rhododendrons (and other sorts with or without flower-buds), Pernettya micronata, Azaleas (hardy sorts), Indian Azaleas, Purple Beech, Andromeda axillaris, Aristotelia Macqui, new Weeping Limes, Spiræas, Portugal Laurels, and Standard Laurels; also Standard Rhododendrons of sorts, &c.

Price Lists can be had on application (carriage free to Belfast).

Ogle's Grove Nursery, Hillsborough, County Down.

EDMUND SALSBURY, Melbourne, near Derby, begs to offer the following Nursery Stock for sale. Strong 2 and 3 years' transplanted Quick, and well rooted 3 year Seedling, prices from 10*s.* to 15*s.* per 1000. Several thousand transplanted Common Hollies, 12 to 20 inches, with good leaders and bushy roots. Evergreen Privet, 3 to 4 feet Large 2 to 3 feet. Also a large quantity of Prize and Crown Gooseberry Plants, the leading Lancashire and Cheshire varieties, as Companion, London, Dan's Mistake, Catherine, and other sorts. The following are recommended as being very heavy bearers: Companion, Melbourne Red, Lion, Leader, Gunner, Thumper, Eagle, &c. Every gardener who grows Gooseberries for market should get these varieties, price 15*s.* to 20*s.* per 100. Crown Bob, Warrington Red, Whitesmith, &c., at the usual trade prices.

The above are well grown produce, and well deserving the attention of all who may be in want of such.

CONVALLARIA PLENUM MAJOR; or Double Lily of the Valley.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

Edward Tiley, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

CHOICE FERNS.

	s. *d.*
Nephrolepis davallioides, a scarce and very noble Fern, each	5 0
Cassebeera farinosa, each	2*s.* 6*d.* and 3 6
Gymnogramma peruviana argyrophylla, each	2 6
Gymnogramma pulchella, each	2 6
Pteris aspericaulis, each	2 6
Gymnogramma chrysophylla, true, each	2 0

The Six choice and distinct species, 15*s.*

Fuchsias, such as Little Bopeep, Little Treasure, Silver Swan, &c., 1*s.* each, 10*s.* 6*d.* per dozen, sorts.

Tropæolum tricolorum grandiflorum, 1*s.* and 1*s.* 6*d.* each.

Per dozen to the Trade, very cheap.—No charge for packing.

J. Besten, Barlow Moor Nursery, Didsbury, Lancashire.

NEW AND RARE FERNS.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire, begs to offer nice well grown plants of the following RARE FERNS, at the annexed reduced prices:

Gymnogramma peruviana argyrophylla, distinct, fronds covered with silvery white farinose powder on both sides, 3*s.* 6*d.* to 5*s.* each.
,, rufa, hairy green fronds, very elegant, 3*s.* 6*d.* to 5*s.*
,, tomentosa, hairy, dull green fronds, very fine, 2*s.* 6*d.*
Nothochlæna tenera, an elegant little tufted Fern, slightly white powdered beneath, 2*s.* 6*d.*
,, chrysophylla, new and lovely small growing gold Fern, 5*s.*
,, tomentosa (Cheilanthes tomentosa), white and silky hair covered, green fronds, very fine and pretty, 5*s.* and 7*s.* 6*d.*
Cheilanthes farinosa (Cassabeera farinosa), a silver Fern with broad triangular fronds, 3*s.* 6*d.* to 5*s.*
,, micromera, narrow triangular smooth and green fronds, very handsome, 2*s.* 6*d.*
Mohria thurifraga, very distinct, and well adapted for Fern cases, 3*s.* 6*d.* to 5*s.*
Pteris aspericaulis, spreading, purple, and slender stalked; a beautiful new Fern, 3*s.* 6*d.* to 5*s.*
Pteris umbrosa, long stalked, gracefully drooping, very handsome, 3*s.* 6*d.*
Hemonitis palmata, Ivy-leaf shaped, rather hairy, light green fronds, a pretty Fern, 2*s.* 6*d.*
Osmunda cinnamomea, long stalked, spreading spike-like fronds, pretty, 3*s.* 6*d.* to 5*s.*

The above Collection, hamper included, 42*s.* cash. A fine collection of well grown plants of Ferns and Lycopods (suitable for cases) may be had cheap. Post-office Orders payable at Marsden, Lancashire.

P.S. Nice plants of all the new Fuchsias, 12*s.* to 18*s.* per doz. Geraniums, several thousands, nice plants, English, French, Fancy, and show varieties, at very reduced prices. Cinerarias, nice plants of all the leading varieties. Catalogues on application.

FIRST CLASS GERANIUMS.

JOHN CATTELL has now ready to send out a fine stock of the following very superior GERANIUMS at the prices annexed, basket, &c., included:—

Any 12 of the following very showy French Geraniums, 10*s.* 6*d.*—Susette Mallet, Chauvieri, Gustave Mallet, Medaille d'Or, Colonel Foissey, Madame Lefio, Auguste Miellez, General Eugène Cavaignac, Gloire de Bellevue, Eliza Miellez, James Odier, Adolphe Odier, Conquet, Triomphe de la Tour, Dr. Marjolin, Madame Chereau, Ferdinande de Lasteyrie, Madame Lamoricière, Adèle Odier, Eugene Scribe, Jacques Duval, Celina Mallet, Madame Laffay, Dr. Andry, Madame Andry, Auguste Odier, Monte Christo, Painter Improved.

Any of the following new French Geraniums, 2*s.* 6*d.* each, or 6 for 12*s.*, viz. : — Madame Pescatore, Perrugino, Madame Lebois, Roi des Pourpres, Madame Fertado, Madame Sueur, Van Houtti, Madame Lemichez, Hendersoni, Rubini.

Extra fine varieties of Florist or Show Geraniums, 9*s.* per dozen, warranted to give the greatest satisfaction.

NEW VARIEGATED GERANIUMS.

Attraction (Kinghorn's), 6*s.* per dozen; Alma, Annie, and Countess of Warwick, 10*s.* 6*d.* per dozen.

Scilla siberica, sky-blue, the hardiest and most beautiful of all our early spring flowers, 3*s.* per doz., 21*s.* per 100, 9*l.* per 1000.

Lilium speciosum atrorubrum, or lancifolium atrorubrum, the earliest, darkest, and much the finest of the Japan Lilies, very strong bulbs, 5*s.* to 7*s.* 6*d.* each. All the other varieties of Japan Lilies may be had in extra strong bulbs, catalogues of which may be had gratis, inclosing 1*d.* stamp.

All orders from unknown correspondents must contain a remittance or reference.

Nursery and Seed Establishment, Westerham, Kent.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

BULBS, &c.

BASS AND BROWN'S

No. I. CATALOGUE (free on application)

CONTAINS their superb Collection of BULBS AND FLOWER ROOTS, HERBACEOUS PLANTS, CONIFERÆ, SELECT EVERGREENS AND SHRUBS, ORNAMENTAL CLIMBERS, ROSES, FRUIT TREES, &c. The following choice named collections are greatly admired and will be highly approved.

GLADIOLUS.

12 splendid Early varieties, 6*s.*; 12 extra	10*s.* 6*d.*
12 splendid varieties, ramosus habit, 6*s.*; 12 extra ..	12 0
9 splendid varieties, gandavensis habit	12 0
50 splendid varieties, a selection of Early and Late ..	40 0
50 splendid varieties do., including newer	55 0

Colvilli, 2*s.* per dozen; floribundus, 2*s.* 6*d.* per dozen; gandavensis, 2*s.* 6*d.* per dozen.

HYACINTHS.

Fine selections, per dozen, 6*s.* and..	9 0
Double, in separate colours, without names	3 0

IRIS.

8 beautiful varieties of Iris pumila, flowering April and May	8 0
40 beautiful varieties of germanica, flowering May and June..	30 0
40 splendid English varieties, flowering June and July	18 0

ANEMONES.

50 superb double varieties	12 6
11 superb varieties for clumping, 6 roots of each ..	12 6
La Brillante Eclatante, extra single, bright scarlet, per 100	7 6

RANUNCULUSES.

100 beautiful varieties, superb Scotch, and others ..	20 0

Turban, per 100 :—Scarlet, 3*s.*; Golden, 4*s.*; Seraphique, 4*s.*; Hercules, White, 18*s.*

TULIPS.

30 beautiful Early varieties	7 6
60 roots, fine double, in 10 varieties	10 0

CROCUS.

20 splendid and very distinct varieties, 12 roots of each	10*s.* 6*d.*
named vars., separate, 3*s.* to 7*s.* 6*d.* per 100; in colours, per 100	2 0

Choice Ixias, Sparaxis, Oxalis, Narcissus, Liliums, and an extensive collection of other Bulbs. See Catalogue.

Roots, in mixtures of colours, of fine quality.

Gladiolus, early varieties, 15*s.* to 25*s.* per 100; per dozen	2*s.* to 3 6
Iris, English, 10*s.* to 15*s.* per 100; per dozen,	1*s.* 6*d.* to 2 6
,, germanica, 15*s.* to 21*s.* per 100; per doz.,	2*s.* 6*d.* to 3 6
Anemones, double, per 100	6 0
Tulips, early and double, 10*s.* 6*d.* per 100; late do.,	6*s.* to 15 0
Narcissus, Polyanthus varieties, per dozen	2 6
Anemones, single, 4*s.*; double, per 100	6 0

CHRYSANTHEMUMS.

Handsome grown plants, full of flower bud.

20 Pompons, best vars., 15*s.*; 12 best new	15 0
12 large flowering do., 9*s.*; 12 best new	15 0

ROSES.

100 Standards, choicest varieties	£6 to £8 8 0
100 Dwarfs, ,, ...	45*s.* to £5 0 0
Extra plants, in pots, for forcing, per dozen ..	£1 4 0

HERBACEOUS PLANTS.

100 fine showy vars., 30*s.*; 100, including new	50 0
20 fine varieties Phlox	10 0
26 superb do., including Catharine Sax, Madame Fontaine, &c.	30 0
24 superb do., of other new striking varieties	36 0
12 beautiful varieties Potentilla	6*s.* to 12 0
12 ,, Antirrhinums	6*s.* to 9 0
ROCK CISTUS, 24 beautiful varieties	15 0
GREENHOUSE PLANTS for winter and early flowering, 12 fine and choice	21 0

Remittances requested from unknown correspondents. Post-office orders payable to Bass & Brown, or Stephen Brown. Carriage free (not under 20*s.*) to all the London Termini, or to all Stations on the Colchester Line between London and Norwich.

BASS & BROWN, Sudbury, Suffolk.

DUTCH FLOWER ROOTS.

JOSEPH MAY AND Co. beg to offer the following, which are in excellent condition:—

HYACINTHS, named, from 6s. per dozen.
" mixed, 3s. 6d. "
VAN THOL TULIPS, 1s. "
CROCUS, 20 named sorts, 3s. 6d. per 100.
" yellow, blue and white, 2s. per 100.
SNOWDROPS, 2s. per 100.
GLADIOLUS GANDAVENSIS, 2s. 6d. per dozen.
" FLORIBUNDUS, 2s. 6d. "
IXIAS and SPARAXIS, 3s. per dozen.
Bulbs sent to compensate for carriage.
1, Wellington Street, Strand, near Waterloo Bridge.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.
Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, AMERICAN PLANTS, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

MAGNIFICENT DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, & CHERRIES.

WM. WOOD AND SON have great satisfaction in directing especial attention to their remarkably fine stock of the above, which for luxuriance of growth and symmetrical training are quite unsurpassed. They have been seen and admired by scores of competent judges this season.

Pyramidal Pears on Quince well furnished are also offered in large quantities from 18s. to 36s. per dozen.

Standard and Dwarf Fruit Trees of all kinds. Catalogues on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SUPERB YELLOW ROSES,
DWARF PLANTS ON THEIR OWN ROOTS.

WILLIAM WOOD AND SON have to offer remarkably strong plants of the following ROSES:—

NOISETTE.

	Each.—s. d.		Each.—s. d.
Cloth of Gold, very bushy	2 6	Narcisse, sulphur yellow..	2 0
Augusta, sulphur yellow ..	2 6	Polonie Bourdin (new), salmon, with coppery centre	2 6
Jaune Désprés, bronzy yel.	1 6	Solfaterre, extra strong plants, 3 to 4 feet high..	2 6
Madame Schultz, yellow centre (new)	3 6		

TEA-SCENTED ROSES.

Barillet Deschamps, pale lemon	2s. 6d. to 3 6	Louise de Savoie	2 0
Canari, bright yel.	1s. 6d. to 2 6	Mélanie Oger	2s. to 3 0
Elize Sauvage	2s. to 3 0	Smithi, straw colr.	1s. 6d. to 2 6
Gloire de Dijon, fawn and salmon	1s. 6d. to 2 6	Vicomtesse de Cazes, orange yellow	2s. to 3 0
Le Pactôle, pale lemon	1s. 6d. to 2 6	Yellow or Jaune, pale sulphur	1s. 6d. to 2 6

N.B. The higher price will be charged for strong plants in 6-INCH pots. All other Tea Roses on moderate terms. Catalogues free on application.

*** Large and small plants of the Cloth of Gold have flowered here this summer in the greatest profusion.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FINE ROSES FOR THE MILLION.
NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12s. per 100; or 2s. per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

NEW EXCELSIOR MARROW PEA.

W. KNIGHT, NURSERYMAN, &c., begs to call the attention of the public to the above PEA, as being a great acquisition, it being a decided improvement on the well-known Ringwood Marrow, quite as early, greater cropper, longer pod, larger Pea, superior flavour, and greener colour. Price 5s. per quart. Price to the trade on application. The names of the trade who order will appear in a future advertisement.

W. K. has also a few Bushes of his new GOOSEBERRY "FILLBASKET," a first-rate late variety, 12s. per dozen.
High Street, Battle, Sussex.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.
The Nursery, Bagshot, Oct. 24.

CRICKHOWELL, BRECONSHIRE.

ROBERT CHALLIS begs to inform the Trade and Public generally that he has taken to the NURSERY and SEED BUSINESS of Mr. WALTER JONES, and hopes by strict attention to business, with punctuality and fidelity in executing all orders committed to his charge, to merit a share of the public patronage.

CATALOGUES.

H. LANE AND SON'S CATALOGUES of their extensive NURSERY STOCK, which includes about three acres of Glass, 14 acres of Roses, and about 50 acres of Fruit Trees and General Stock, can be had on application, by post or otherwise, at the Nurseries, Great Berkhampstead, Herts.

Their Roses consist of the principal sorts for which they obtained First Prizes at the Botanic Society's Shows, Regent's Park, also Horticultural, Chiswick, Manchester, and every place they exhibited, with the exception of Royal Botanic Society's Show, July 1. They also obtained First Prizes for their Fruit Trees in pots at Manchester, Regent's Park, Chiswick, and Crystal Palace, Sydenham.

SECOND IMPORTATION.

FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting.

SUTTON & SONS, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see List.

NEW GARDEN SEEDS, GROWTH OF 1856.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Oct. 24.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

PHLOXES.—Strong Plants of the following beautiful PHLOXES, all of which are first class varieties, at 12s. the dozen, or the collection for 25s.

Addisoni	Josephine Pariart	Mdlle. Judith
Belle Jeannette	Libanus	May Queen
Candidissima	Laurence le Cerf	Mons. Guezon Duval
Countess of Home	Madame Bis	" Vallery
" of Morton	" Fontaine	Mrs. Baron
Diomede	" Goldenschuh	Osiris
Domaria	" Rayner	Queen Victoria
Etoile des Belges	" Rendatler	Purpurea nova
François Herincq	Mdlle. Fontaine	St. Jean Baptiste
Harmonia	" Victorine Vatel	St. Jenesse

For descriptions of the above, F. GODWIN begs to refer to his Catalogue of Plants, which will be forwarded post free on application.—Broadfield Nurseries, Sheffield, Oct. 24.

NEW PELARGONIUMS.

JOHN DOBSON AND SON beg to announce that they are now sending out the following beautiful varieties, which they feel assured will attain as great popularity as any set ever offered.

	s.	d.		s.	d.
Aurelia (Beck's).. ..	31	6	Letitia (Beck's)	31	6
Bellona (Beck's).. ..	31	6	Julia (Dobson's).. ..	31	6
Constantine (Dobson's) .	21	0	Octavia (Dobson's) ..	21	6
Charmer (Dobson's) ..	21	0	Signora (Beck's).. ..	31	6
Fairest of the Fair (Beck's)..	31	6	Siren (Beck's)	31	6
Fancy (Dobson's) ..	21	0	Vestal (Beck's)	21	0
			Rosalia (Dobson's) ..	21	0

The usual allowance to the Trade. Catalogues may be had on application.—Woodlands Nursery, Isleworth, W.

NEW ROSES IN POTS.—H. P. Triomphe d'Avranches, General Simpson, Prince Noir, Dr. Henon, Duc d'Elchingen, Souvenir de la Reine d'Angleterre, Marquis de Murat, Belle Jardinière, Paeonia, Triomphe de l'Exposition, Lord Raglan, Duchess of Norfolk, Madame Knorr, Mathurin Regnier, General Pelissier, Madame Cambacères, Madame A. Gibbon, Souvenir du Petit Caporal, B. Comte de Montijo, Marquis Balbiano. Moss: Frederick Soulié, Baron Wassennaer, bicolor, Alfred Dalmas, Captain Ingram, Scotch Souvenir de Henri Clay. Any of the above, 24s. per dozen, or less than a dozen, 2s. 6d. each.

H. P. Bacchus (Paul's), Belle Anglaise, Madame Heraud, Etendard de Sebastopol, Gustave Coreaux, 3s. 6d. each.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

TO THE TRADE AND EXPORTERS.

HENRY MAY having an immense stock of GOOSEBERRIES AND CURRANTS in fine two-year old Trees, clean and healthy, begs to offer them as below:—

		£	s.	d.
May's Victoria, large Red Currant	per 1000	4	0	0
White Grape, White Dutch Currants ..	"	4	0	0
Red Dutch, Red Grape, Cherry Currants ..	"	3	0	0
Black Grape, Bang up, and Black Naples .	"	2	10	0
Gooseberries, from a collection of 400 sorts..	"	4	0	0
Fastolff Raspberries	"	5	0	0

The Hope Nurseries, near Bedale, Yorkshire.

HARDY HERBACEOUS PLANTS, ALPINES, TREES, AND SHRUBS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants, my selection, properly named, from a collection of 1000 sorts	0	18	0
100 choice ditto ditto	1	10	0
50 choice Hardy Ornamental Trees and Shrubs, one each, my selection, from a collection of 500 sorts	1	5	0
100 choice ditto ditto	2	2	0

Descriptive Catalogues of the above can be had free on application, containing all the most rare in each section for which our Nurseries have long been celebrated.

Fine Dwarf Roses ..	12s. per dozen	..	£3 per 100.
" Standard do. ..	18s. "	..	£5 "

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

FRUIT TREES.

	Per dozen.—s.	d.
APPLES, dwarf-trained	24	0
" Pyramidal	12	0
" Standard	12	0
PEARS, dwarf-trained..	24	0
" Pyramidal, on Quince and Standards	12	0
PLUMS AND CHERRIES, dwarf-trained	36	0
" " Standards	18	0
APRICOTS AND PEACHES, dwarf trained	60	0
RASPBERRIES—Fastolff and Yellow Antwerp, strong, per 100	12	0
CURRANTS—Red Dutch Champagne and Victoria "	10	0
" White Dutch, White Grape .. .. "	12	0
" Black Bang-up Black Grape, Black Naples "	8	0
GOOSEBERRIES—Fine useful sorts, Crown Bob, Ashton, &c. .. .. "	8	0
" Large Lancashire prize sorts, per dozen	2	0

Descriptive Catalogues of the above can be had gratis on application.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

"CRIMSON PERFECTION" RHUBARB.

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above splendid variety of RHUBARB, trusting from its superior quality and reduced price to meet with a continuance of favours. It is very early and productive, and the interior of the stalks are a crimson colour. Price one year old roots, 1s. each; two years old, 1s. 6d.; three years old, 2s. 6d. each. With usual discount to the trade.

Orders forwarded to ROBERT SALT; or to Messrs. HURST & M'MULLEN, Seedsmen, 6, Leadenhall Street, London; BURGESS & KENT, Nurserymen, Penkhull, Staffordshire; F. & A. DICKSON, Nurserymen, 100, East Gate, Chester; CHARLES TURNER, Royal Nursery, Slough, will receive strict attention. A remittance to accompany the order from unknown correspondents.—Longton, October 24.

NEW FANCY PELARGONIUM—COUNTESS OF DEVON.

MESSRS. VEITCH AND SON beg to offer plants of the above PELARGONIUM, which was exhibited at the Royal Botanic Society's Show on the 1st of July last and received a first class certificate. The under petals are white with a lake spot on each, upper petals bright rosy purple with white margin, fine habit, a very free and perpetual bloomer, and will no doubt prove a good bedding variety. Good established plants, 7s. 6d. each.

Prices to the Trade on application.

STANDARD CHINESE AZALEAS.

J. AND J. FRASER having a number of the above, with straight stems from 2½ to 5 feet, with well shaped heads finely set with flower buds, beg to offer them to the Public at prices varying from 5s. to 21s.

J. & J. F. have also an immense stock of Azaleas, bushy plants from 1 to 2 feet high, beautifully furnished with flower-buds. Price to the Trade per doz. or per 100 on application.

Lea Bridge Road Nurseries, N.E.

AZALEA INDICA
THE GREATEST NOVELTY OF THE SEASON IS

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10s. 6d. and 21s. A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

AZALEAS FOR POTTING, such as Ne Plus Ultra, Marteri, Flamboyante, &c.; Rhododendron Jacksoni, Nobleanum, &c.; Kalmia latifolia, Andromeda floribunda, full of flower buds, strong plants, about 2 feet.

A fine lot of Standard and Dwarf Roses cheap.

Strong Dwarf Apples, Pears, Plums, and Cherries for Orchard Houses, all at very reasonable prices, which may be had on application to WM. JACKSON & Co., Bedale, Yorkshire.

The Trade can be supplied with good extra Transplanted Norway Spruce Fir, 2 feet to 3 feet, and 3 feet to 4 feet.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30s. per dozen; smaller plants, 18s. per dozen. Camellias very bushy, full of flower buds, and the leading kinds, 30s. per dozen.—EPPS'S Nurseries, Maidstone.

SCILLA SIBERICA, SKY BLUE.
THE HARDIEST AND MOST BEAUTIFUL OF ALL OUR EARLY SPRING FLOWERS.

JOHN CATTELL can supply strong Bulbs of the above at 3s per dozen; 21s per 100; 9l. 9s. per 1000.

A Catalogue of Dutch and other Bulbs, containing lists of J. C.'s splendid Seedling Japan Lilies, &c., may be had gratis upon application. A remittance or reference must accompany all orders from unknown correspondents.—Nursery and Seed Establishment, Westerham, Kent.

N.B. Tropæolum tricolorum grandiflorum, strong bulbs, in quantities to the trade, very cheap.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13s., including package.

EPPS'S Nurseries, Maidstone.

HOLLYHOCK SEED, &c.

JOHN CHATER AND SON offer the above Seed saved from the best Flowers in 36 named varieties in separate packets, the collection, 7s. 6d.; 18 ditto, 4s. 6d.; best mixed, 200 seeds, 1s. 6d.; 400 ditto, 2s. 6d. Fine-named sorts in good plants now ready, 8s. per dozen.

Nurseries, Haverhill, Suffolk.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	..	5s.	0d.
12 ditto ditto	..	2	6
Good ditto ditto	..	1	0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

NEW GARDEN SEEDS.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have just purchased the old established and extensive Business of

MESSRS. WILLIAM E. RENDLE AND CO.

The Company are now harvesting and laying in their stock of NEW AND GENUINE SEEDS for the coming season.

Extensive and commodious Warehouses are now being erected for facilitating the conduct of a greatly extended trade; and with a large capital the Company will be in a position to compete with the first houses in the kingdom.

The SEED PRICE CURRENT AND GARDEN DIRECTORY (late RENDLE'S), will be published shortly, and Copies will be forwarded to all who have had transactions with the late Firm.

The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 24, 1857.

Now that the so-called PAMPAS GRASS (*Gynerium argenteum*) has become dispersed through the country, its value as an ornamental plant begins to be thoroughly appreciated, and those who raised it in quantity from the seed given away by the Horticultural Society have formed clumps and masses, than the effect of which nothing can be more striking. It is probable that it will be even in request as a game cover, for which its long arching leaves forming tussocks 6 or 7 feet in diameter render it very suitable. About Rome, indeed, it is reported to be so much haunted by

the foxes that its beauty is greatly impaired by the operations of those animals.

Being perfectly hardy and indifferent to soil or situation, at least in the midland districts of England, and moreover growing with singular rapidity, it soon rewards us with the display of its floral beauty. For example a small plant, raised from seed early in 1856, and turned into a border at the Midsummer following, is already (October, 1857) twelve feet high, covers a circle 9 feet in diameter, and is bearing eleven of its beautiful plumes of silver flowers. Thus a few blades of worthless Grass in four months had formed a tuft large enough to be trusted to the unprotected ground; in four months more it had formed a great hemisphere of gracefully curving leaves; when winter came it went to rest; with warm weather it roused itself and immediately commenced a gradual overflow of beautiful foliage, till in six months more it stood revealed in all the grace and majesty of its nature. It might be described as a fountain of vegetation acquiring more and more force from day to day, till at last the gushing fluid sprang up into jets of living silver.

If such is the result of a few months' growth what is to be expected after the lapse of further time? "I have a Pampas Grass," says a correspondent, "with over 40 flower-stems 10 to 12 feet high. The flowers are very light coloured, almost white when seen in some positions; if this is a male, which you say is inferior to the female, the latter must be beautiful indeed, for mine is very striking." This leads us to a further statement of some importance.

It was long since mentioned in our columns that the Pampas Grass is one of those plants, some individuals of which are males and others females, the two sexes being absolutely separated: in the same way as in our native Sallows and Poplars. We added, as our correspondent observes, that the male was not so handsome as the female. When this remark was made little was known of the former, or indeed of any other peculiarities of this novelty. Now that so many specimens have produced flowers in all sorts of places and soils, it has become more evident than ever that the male Pampas should be discarded, the female alone being preserved for cultivation. It should be absolutely discarded for two reasons. Its flowers are browner, or even tinged with dull red, and form a narrower plume; so that it is much less ornamental. In the second place, if it comes in contact with the female the latter soon loses her beauty; her flowers, which when in perfection resemble little flakes of mother-of-pearl fringed with white silk, close up, and lose their transparency; and thus not only is the intrinsic beauty of the flowers impaired but the duration of their beauty is much curtailed. In this our Pampas conforms to the universal rule observed through the whole vegetable kingdom, that as soon as a flower is set its lustre becomes dim, and its gay leaves wither and fall off, or fold over the seed-vessel as shrivelled dingy scales. It is doubtless because the act of setting is so difficult among epiphytal Orchids that those plants retain their brilliancy so much longer than others. And it certainly is a principal reason why perfectly double flowers are so universally preferred in gardens; being incapable of setting, their beauty is far more durable than that of their single originals. So that when pseudo-botanists sneer at gardeners for the love of double flowers, they only display their own ignorance of the circumstances which tender plants best adapted to purposes of decoration.

It may then be asked how the males and females can be distinguished by purchasers. To this we are unable to give any satisfactory reply. The leaves of the two are so much alike that the sexes may be said to be undistinguishable till in flower. Buyers should therefore endeavour to procure offsets from specimens which have produced their flowers. The correspondent to whose description we have already referred possesses a female; all the offsets from the original Dublin plant are, as far as we have seen, females also. And doubtless the nurserymen will soon be able to offer for sale plants warranted to be female. For the information of those who desire to know whether they have males in flower or not we need only add that the quantity of pollen shed by the flowers, whenever they are struck in dry weather after their first opening, unmistakeably denotes the males.

It is a general complaint this year amongst Apple growers that the fruit will not keep when gathered, and that a large portion even rots upon the trees. The complaint is not without foundation, though there are few years in which it would not be just in a greater or less degree. The fact is that Apples, like so many other vegetable productions, are liable to a host of diseases and enemies, and it is pretty certain that, whatever the season may be, it will be favourable to the attacks of some one or more of these internal or external evils. If insects or animals invade the fruit, it is sure to be the prey sooner or later of those parasitic fungi which attack exposed tissues, and which from the moment the spores germinate dive deeply into them, decomposing their walls, and in a few days or hours producing decay. It is only when the exposed surface acquires from favourable conditions of the soil and atmosphere a coat of cells, capable like cuticle or bark of resisting moisture, that the fruit passes on to maturity without decay. Where however no animal has been at work decay may take place from superficial injury. Nothing, for instance, is more common than for the whole surface to be covered with dark round spots, caused by a minute fungus of the genus *Cladosporium*, which is developed immediately beneath the true cuticle, and which fructifies about the time when it bursts, in the shape of an impalpable olive-coloured dust. Decay sometimes takes place at these spots, and sometimes the fruit dries up and adheres to the tree through winter, causing canker in the spring.

There are other cases in which the evil is more deep seated. Either the whole mass of tissue turns brown, and while the fruit still hangs on the tree round cushion-like mealy spots disposed in rings appear upon the surface, the evidence that the spawn of *Oidium fructigenum* has been traversing the tissues. Sometimes the decay is more partial, appearing in broad patches, through which a species of *Glœosporum* makes its way to the surface. Sometimes, again, the fruit is subject to a sort of bletting, inducing a dark umber tint, and though accompanied by fungal threads not evidencing their presence on the surface, which remains entire, while the flesh is scarcely moister though softer than usual.

The most extraordinary form of decay which we have seen is one which has lately been communicated by an anonymous correspondent. It appears to be a variety of the last, but is distinguished by its jet black tint, and shining surface, which looks exactly like polished patent leather. The tissues as before are traversed in every direction by mycelium, even to the cells of the cuticle, and these last and the two or three subjacent layers are filled with a dark brown pigment, which as seen through the thick firm cuticle yields a rich black. The true cuticle is so firm that thin slices can be obtained with the greatest ease, which show every inequality impressed upon them by the instrument with which it has been divided. At present we have not been able to ascertain what the fungus is which has produced the curious appearance, but we have seen a similar affection caused by a species of *Sphæropsis*.

Besides all these affections, fruit decays from mere constitutional causes without any parasite. Injury may be traced in the cores themselves, from whence it spreads to the soft tissue which surrounds them, or it takes place in isolated spots, presenting a singular resemblance to the Potato disease, a form of mischief extremely prevalent in many varieties of Apples this year; or, thirdly, it appears in the guise of minute superficial spots, which decompose without any apparent cause. It is impossible perhaps to guard against these affections, but wherever they appear the affected fruit should be carefully separated, and if the sound individuals are thinly spread out they will in all probability keep their proper time, and will not acquire that musty taste which is so prevalent where fruit is carelessly stored, for even where inoculation does not take place, the flavour is sure to be impaired by contact with unsound fruit. Above all, if unsound fruit should remain upon the tree from the stalks not disarticulating, it should be scrupulously removed, as it is one prolific source of canker. *M. J. B.*

When this reaches the earliest of our readers, there will be on view at Willis's Rooms, King Street, St. James's, such an exhibition of fruit as has never before been collected within the walls of a London room. Four immense tables, occupying about 1400 square feet, not to mention side tables, will be covered with the finest produce of the fruit garden which modern skill can furnish.

The Horticultural Society is thus enabling our gardeners to show what they can do in a month hitherto excluded from Horticultural Exhibition on a great scale, and there is no doubt that the noble display will justify the experiment.

Visitors are admitted at 1 p.m., and the Exhibition will remain open as long as may appear necessary. We shall fully report on it next week.

New Plants.

211. Phygelius Capensis, *E. Meyer, B. M. t.* 4881.

Of this beautiful herbaceous plant there is a capital figure in the Botanical Magazine, representing it as having a long branching raceme of brilliant scarlet trumpet flowers, something like the handsomest of the scarlet Pentstemons. Having been raised by Messrs. Veitch from seed gathered in Caffreland on the Wittebergen, a little known mountain, it was feared that it would prove no hardier than a Calceolaria, and would have to be treated as a greenhouse plant. We can now, however, state that it lived in a peat border unprotected through last winter, that it came up in the greatest vigour about the end of May, that it has been a beautiful bush about 2½ feet high all the summer, and that it still (October 20) remains in flower after ripening seed. It will, therefore, take rank henceforward amongst first-class ornamental herbaceous plants.

MY VINERY.

With this description of my Vinery I send you some Black Hamburgh Grapes. It is of no use to be too modest and mince the matter, but they are just about the best that can be grown—colour deep purple, skin thin and melting, flavour racy and delicious. I feel obliged to say this, because it is all done by not taking too much care. [We quite confirm this statement: the Grapes in question were unsurpassable in quality.] I call my house a "sans souci" Vinery; it has no heating apparatus, the Vines are never syringed, and no coddling is allowed, for on the 16th July every season the front shutter and all the back ones are opened and never closed till the fruit is gathered. A net is placed over the apertures when the Grapes become coloured to keep out the blackbirds. Now let me tell how I built it.

Posts at back 5 feet apart, 5 inches by 2½, of Oak (if it can be bought cheaply as mine were, small trees full of heart), 8 feet out and 2 feet in the ground; posts in front 5 feet apart, of same dimensions as those at back, 3 feet out of the ground and 20 inches in; the ground must be well rammed around the posts. Rafters 14 feet long, 3 inches by 2¼; mine were ready cut for glazing at Montgomery's saw mills, Brentford; they have been in their present places eight years, and have neither warped nor sagged; they may be placed 15 inches apart. These 14 feet rafters give me ground width inside of about 12½ feet, so that my house is 8 feet high at back, 3 feet at front, and 30 feet long. To give more head room I have a sunken path in its centre, 15 inches deep and 2 feet wide. My walls are formed of ¾-inch Deal boards, not feather-edged or rebated, nailed as closely together as possible (they shrink and let in air all the better); they are as well as the rafters and other parts of the house painted with anti-corrosive paint of a bright stone colour, and the effect is neat and good. Three sliding shutters, each 3 feet long and 10 inches wide, are in the back wall, or rather boards, within about 18 inches of the top. One 10-inch board at front is on hinges forming a shutter, so as to give a continuous opening there 10 inches wide. The roof itself is fixed; a matter of some importance in cost. My soil is dry and sandy, so I have not prepared any border, but merely forked in some rotten dung, mixing it with the soil to about 20 inches deep. I prune the Vines on the spur method, do not grow large bunches, and always have a nice crop. I have 14 Black Hamburgh Vines in my house, for I reckon that a Vine on the spur system, and the summer shoots well shortened in, ought not to occupy more than 2 feet in width; they give me in round numbers about 1 cwt. of Grapes annually. The Vines are planted inside the boarded wall in front, and as there is no brickwork their roots have full liberty to go inside or out. Air is my great ally. I believe that our summer's sun gives heat enough to ripen all the fruits of temperate climates under glass, and that the vast increase of heat by day when the sun shines is quite enough without endeavouring to "shut it in" at night, as the old gardeners used to say, which only gives Grapes with thick skins and without colour. I am now only alluding to the ripening of fruits at their natural season; forcing to have them early is quite another affair.

Grapes, particularly Black Hamburghs, are so easily grown under glass that I should wish to see every good Englishman with "a fowl in the pot" and a Vinery in his garden. I have not yet said the cost of my Vinery; I am almost fearful it will, by the builders, be thought too cheap. My 30-feet house did not cost 15*l*., and I have a strong suspicion that a man fond of doing his own carpentry might do it for 10*l*. or 12*l*. 16 oz. sheet glass is cheap, rafters are cheap, and ¾-inch boards for the walls are not more than 15*s*. per 100 superficial feet. *Vigneron.*

THE ORANGE CROP AND WEATHER AT CORFU.

Mr. D. Mackenzie, the well known Corfu meteorologist, writes me:—"The Pomme d'Or never was of a worse quality than this year. The hailstorm in June destroyed the first crop, and the unusual early rain in August produced a disease in the plants which rendered the second almost useless. We were indebted for this storm to Santa Decca, whose lofty peak broke the cloud which otherwise would have passed overhead to Albania. The wind being S.W. the storm swept across the lake, embracing the plains of Potamo and Ascension. Every green herb, from the One Gun to the town, was completely swept away. The priests were the only gainers;

they reaped a good harvest at the confessional." Further particulars are supplied in an extract from Mr. Mackenzie's Meteorological Diary sent to me, in which it is observed: "The remarkable and extraordinary cold and wet weather in June, 1857, has no parallel in the records of any former period. The quantity of rain which fell was more than the total amount during the same month for the last 12 years! A violent and destructive thunderstorm occurred on the morning of the 12th, which continued for two hours. The hailstones, or rather pieces of ice, were of an incredible size, angular in shape, with sharp edges, and destroyed every tender plant within their range. Several Vineyards more exposed than others were literally stripped bare of their foliage and fruit. Fortunately this terrific storm was local, its ravages being confined to one district. Those sceptics who doubt the truth, as recorded in the book of Joshua, chap. x., should have witnessed this storm. The more credulous of the natives had been for some time in a state of great excitement and alarm, in consequence of a prevailing rumour that a comet, commissioned to overwhelm the earth, was to appear on the 13th June. When, about 10 o'clock on the morning of the 12th, the southern sky became dark, lowering, and threatening, the more timid became terrified, and their consternation reached its meridian when the first loud peal of thunder burst over the city. Peal after peal, louder and louder, followed in rapid succession, while rain mingled with hail fell in torrents, accompanied by vivid flashes of forked lightning darting in every direction in brilliant sinuous streams amidst the contending elements. The scene was, in truth, awfully grand and impressive, and no doubt existed in the minds of the terrified people that the unwelcome visitor had actually arrived, bearing in its train the advent to the consummation of all things. Panic gave place to despair, and the desponding portion of the community rushed *en masse* to their churches. The covenant made with Noah and his posterity, on the appearance of the first rainbow, seems to have been unknown or disregarded by those formal worshippers."

To these details may be added a notice of the usual state of the weather, and of the customary rural operations in Corfu in the month of June: "The corn and hay harvest begins and ends with this month, and the gardener's labour commences. Everything in the vegetable line requires irrigation, and when the water has to be brought from a distance this work is tedious and laborious, and considerably reduces his profits. Tobacco and Beet are now transplanted. The sky is pure and serene, and the barometer seldom varies four-tenths. Although the heat is great, the sun remaining nearly 16 hours above the horizon, yet there is sufficient moisture in the ground to render this month pleasant and agreeable, and to good constitutions it is one of the healthiest months in the year." Mr. Mackenzie has made careful daily observations during the last 19 years. *George Lawson, Ph. D., Edinburgh, Oct.* 12.

ON THE NORTHERN LIMITS OF VINE CULTIVATION.

(From A. De Candolle's Géographie Botanique.)

Continued from p. 708.

Analogous facts regarding the retrogression of limits of Vine cultivation are presented in the north-west of Germany. Meyen states that in the 14th century the Vine was introduced into Prussia, and that it was cultivated there long since that epoch. M. J. G. Bujach has published in a Kœnigsberg journal an article on the ancient Vine culture in Prussia, when that country was under the Teutons. The wine made was acid, and now-a-days would be undrinkable compared with more southern wines. The climate of the shores of the Baltic, between Dantzig and Kœnigsberg, is not very unfavourable to the Vine, and we find that even now it is sometimes cultivated there. Lastly M. Streicher assures me that Grapes are not grown now near Cracow, though there are localities named after the Vineyards which once grew there.

To return to the present limits of the Vine, there are extensive Vineyards in Bohemia (notwithstanding the elevation of that country), in Moravia, and more still in Hungary. The chain of mountains called successively Riesengebirge and Carpathians define its limits in that part of Europe, and it does not extend beyond them, except eastwards under the 48th degree. Thence it passes to the province of Bukovina where there are Vineyards in favourable localities, but there are none in Galicia. At Kiew Grapes ripen badly and in gardens only, no wine being made. Descending the Dniester, the first Vines are met with at Mohilow under the 48th degree, on the Dnieper under the 49th degree, on the Bug under the 47th degree. On the banks of the Don the culture of the Vine is extensive from Axais to Tcherkask. On the Volga it is cultivated at Sarepta, lat. 48½°, and probably as far north as 50½°.

In southern Russia it is customary to bury the Vines during winter to protect them against the great cold, and the frosts of September sometimes destroy the crop.

In central Asia Vines are grown here and there in low populous valleys. Humboldt mentions their being found at Hamil (lat. 43°), and at Lhassa in 29° 41′. The height and extent of the mountain chains in the centre of that continent are an evident obstacle to this culture. Bunge informs me that Vines are grown in North China, in the environs of Pekin, and in great abundance, even as far north as Gouan-gou, beyond which he saw no Vineyards; but the plants were everywhere covered with manure during the winter, the cold often descending to 5° Fahr.

In North America, at least in the United States, the *Vitis vinifera* has wholly failed. It was first attempted by Swiss on the banks of the Ohio, lat. 39°, but the wine was sour, did not keep, and did not pay its expenses, and the Vineyards have since given place to corn fields. Fine but limited crops of Grapes are said to have been obtained near Cincinnati, but other attempts have failed; of these the most remarkable is that of Lakanal, who resorted to various expedients in several of the States, changing the localities, plants, &c. Again, a Mr. Longworth, of Ohio, pursued his attempts for 30 years with remarkable zeal but no success, and it has been found necessary to use the Catawba Grape, an original wild Grape of America, of which 1500 acres are cultivated in Ohio, 300 to 400 in Cincinnati, and about 1000 in Missouri, Indiana, and Ohio. These Vineyards are increasing and profitable.

In New Mexico and California the climate is more favourable, and the European Vine is cultivated, but it has not been introduced into the more recent settlements, and it is impossible to say what its future limits may be in Oregon.

In the southern hemisphere the Vine thrives in Chili, and excellent wine is made to the east of the chain of the Andes at Mendoza, Saint Juan, and La Rioja, but its southern limit is not known. Schouw mentions the Vine at Conception under the 37th degree.

Wine of the best quality is sometimes produced at the Cape of Good Hope; that of New South Wales resembles the wines of the banks of the Loire; and in general the dry climate and light soils of Australia are well adapted to Vine cultivation. That of Tasmania is too humid.

[In the above excellent *resumé* the extensive Vine cultivation of the North Western Himalayas, Affghanistan, and Persia is not mentioned. The reported cultivation at Lhassa is open to doubt; Huc and Gabet, the only Europeans who have visited Lhassa, make no allusion to it; and the testimony of recent Himalayan travellers who have questioned the Tibetans upon the subject seems to prove that the climate is much too rigorous and arid.]

Home Correspondence.

Wood formed by the descending Sap.—The accompanying drawing was made in the churchyard of Kirk Braddan, in the Isle of Man, a few days ago, and represents an Ash tree which, growing in contact with a tomb-stone, accidentally affords a good example of the deposition of wood by the descending sap. The fluid ascending through the central portion of the tree has met with no opposition to its course, but, during the last few years of the growth of the Ash, the latter has come into contact with the edge of the tomb-stone, and the flow of the descending current has been impeded, so that wood has been deposited in a rounded mass upon the upper surface of the flat slab. The dates inscribed

upon the stone are respectively—January 7, 1808; November 21, 1811; January 3, 1836; from which it is evident that when the last tenant was added to the tomb the tree could not have begun to encroach upon its surface; and had it done so to any extent, growing as it does within the iron railing of the place of interment, the plant would probably at that time have been cut down or mutilated. *John Topham, Wolverhampton, Sept.* 23.

Bees and Fertilisation of Kidney Beans.—Mr. Swayne in the 5th volume of the Horticultural Transactions incidentally speaks of the advantage of artificially fertilising the early Bean. Can you tell me to what sort of Bean he refers? [We presume to the Early Mazagan; but we have no special information.] and who has followed this plan, and how has it been effected? My motive for asking is as follows: every one who has looked at the flower of the Kidney Bean must have noticed in how curious a manner the pistil with its tubular keel-pistil curls like a French horn to the left side—the flower being viewed in front. Bees, owing to the greater ease with which they can reach the copious nectar from the left side, invariably stand on the left wing-petal; their weight and the effort of sucking depresses this petal, which, for its attachment to the keel-petal, causes the pistil to protrude. On the pistil beneath the stigma there is a brush of fine hairs, which when the pistil is moved backwards and forwards, sweeps the pollen already shed out of the tubular and curled keel-petal, and gradually pushes it on to the stigma. I have repeatedly tried this by gently moving the wing petals of a lately expanded flower. Hence the movement of the pistil indirectly caused by the bees would appear to aid in the fertilisation of the flower by its own pollen; but besides this, pollen from the other flowers of the Kidney Bean sometimes adheres to the right side of the head and body of the bees, and this can scarcely fail occasionally to be left on the humid stigma, quite close to which, on the left side, the bees invariably insert their proboscis. Believing that the brush on the pistil, its backward and forward curling movement, its protrusion on the left side, and the constant alighting of the bees on the same side, were not accidental coincidences, but were connected with, perhaps necessary to, the fertilisation of the flower, I examined the flowers just before their expansion. The pollen is then already shed; but from its position just beneath the stigma, and from its coherence, I doubt whether it could get on the stigma, without some movement of the wing petals; and I further doubt whether any movement, which the wind might cause, would suffice. I may add that all which I have here described occurs in a lesser degree with Lathyrus grandiflorus. To test the agency of the bees, I put on three occasions a few flowers within bottles and under gauze: half of these I left quite undisturbed; of the other half I daily moved the left wing-petal, exactly as a bee would have done whilst sucking. Not one of the undisturbed flowers set a pod, whereas the greater number (but not all) of those which I moved, and which were treated in no other respect differently, set fine pods with good seeds. I am aware that this little experiment ought to have been repeated many times; and I may be greatly mistaken, but my belief at present is, that if every bee in Britain were destroyed, we should not again see a pod on our Kidney Beans. These facts make me curious to know the meaning of Mr. Swayne's allusion to the good arising from the artificial fertilisation of early Beans. I am also astonished that the varieties of the Kidney Bean can be raised true when grown near each other. I should have expected that they would have been crossed by the bees bringing pollen from other varieties; and I should be infinitely obliged for any information on this head from any of your correspondents. As I have mentioned bees, a little fact which surprised me may be worth giving:—One day I saw for the first time several large humble-bees visiting my rows of the tall scarlet Kidney Bean; they were not sucking at the mouth of the flower, but cutting holes through the calyx, and thus extracting the nectar. I watched this with some attention, for though it is a common thing in many kinds of flowers to see humble-bees sucking through a hole already made, I have not very often seen them in the act of cutting. As these humble-bees had to cut a hole in almost every flower, it was clear that this was the first day on which they had visited my Kidney Beans. I had previously watched every day for some weeks, and often several times daily, the hive-bees, and had seen them always sucking at the mouth of the flower. And here comes the curious point: the very next day after the humble-bees had cut the holes, every single hive bee, without exception, instead of alighting on the left wing-petal, flew straight to the calyx and sucked through the cut hole; and so they continued to do for many following days. Now how did the hive-bees find out that the holes had been made? Instinct seems to be here out of the question, as the Kidney Bean is an exotic. The holes could scarcely be seen from any point, and not at all from the mouth of the flower, where the hive-bees hitherto had invariably alighted. I doubt whether they were guided by a stronger odour of the nectar escaping through the cut holes; for I have found in the case of the little blue Lobelia, which is a prime favourite of the hive-bee, that cutting off the lower striped petals deceived them; they seem to think the mutilated flowers are withered, and they pass them over unnoticed. Hence I am strongly inclined to believe that the hive-bees saw the humble-bees at work, and well understanding what they were at, rationally took immediate advantage of the shorter path thus made to the nectar. *C. Darwin, Down, Bromley, Kent, Oct.* 18.

Honfleur Melon.—I have now a fruit of this Melon weighing 18 lbs. 10 oz., which has been grown entirely in the open ground as you would Cucumbers; this has

been produced near Exeter. Is it not the largest that has ever been grown in England? *E. Persac.*

Potatoes.—In the year 1850 you performed a kind service to the public by informing them of the names and qualities of various vegetables, but the Potato was omitted. Of late years the disease has drawn attention to this valuable product of the field and garden, and new and valuable kinds have been raised from seed. Your journal and other similar publications have been the means of making many known to the public, but still this has been only partially done. A catalogue of the best kinds would be a boon to all Potato growers. They should be informed of the—1, name; 2, size; 3, colour; 4, shape; 5, flavour; 6, mealy or waxy; 7, early or late; 8, sets to be whole or cut; 9, productiveness; 10, power of resisting the rot. Perhaps some one residing in town might undertake to make such a list. Amateurs and other Potato growers would, I presume, not object to send, carriage paid, a peck of any variety not generally known, with a description, and its truth might be tested by planting them in a field of average soil. By some such method much knowledge might be gained, and erroneous notions corrected. In my own neighbourhood two different Potatoes are called Farmers' Glory, one red and waxy and the other white and rather mealy, and which I cannot distinguish from the Bread-fruit. I may, perhaps, be allowed to give a hint to the producers of new kinds, not to give them names from their qualities or appearance. White Blossoms, Long Reds, Pink Eyes, and such names are applied to totally different kinds. *P. T. S.*

Arundinaria falcata.—Observing in your Paper some account of this hardy Bamboo having reached the height of 20 feet in Devonshire, I beg to inform you that I have two of them in my garden, raised from seed sent home by Major Madden, some 10 or 12 years ago, that have never had the slightest protection, and are now 14 or 15 feet high, and full 10 feet in circumference; some of the shoots this year are 15 feet, and there are about a dozen on each plant. I have seen them in hot days grow as much as 4 inches. *Hy. Wooler, Upper Tulse Hill, Brixton.*

Horse Chesnuts.—I observe in your Paper of the 17th inst. an inquiry from a correspondent as to the amount of nutriment contained in the Horse Chesnut. I cannot state the exact amount, as this must necessarily vary, but it is considerable, and I was informed by a late eminent physician who resided at Derby, that when ground into powder the bitter principle was easily extracted by repeated washings in cold water, after throwing away which a wholesome and nutritious starch remained, which he had frequently given to his patients, and had found that it had all the good qualities of arrowroot. *Oswald Mosley, Rolleston Hall.*

Birds.—The wisest course to pursue in regard to these is to scare them from the garden during the fruit season, or from those portions of it in which they can do damage in spring, when the buds are open to their attacks; and afterwards, when fruit is ripening, a boy might be employed to drive them away. In order to keep them from Gooseberries and Currants interlace the bushes thickly with worsted, and to keep them from attacking Peas, &c., just emerging from the soil, a similar display of thread fastened to pegs just above the surface is sufficiently deterring. Nets where available are also effectual guards. By these aids, but more especially by watching during certain seasons, any one may protect his crops at a very trifling expense, without at the same time depriving himself of the services of the most sharp-sighted of all insect killers. The most destructive birds which make no returns for their depredations are the goldfinch, yellow hammer, the reed and corn bunting, the skylark, the woodlark, the linnet, the chaffinch, the bullfinch, the house and tree sparrows. The following are fruit-eating birds, which also feed on insects—the black cap, the garden warbler, the white throat, the missel and the song thrush, the starling, and blackbird. *Mark Austin, Forest Hill.*

Welbeck Seedling Pine Apple.—Mr. Dale, gardener at Brancepeth Castle near Durham, has had a plant of this that produced two fruit on one stem; the latter split or divided itself into two about 15 inches from the top, and on each point ripened fruits which weighed respectively 2lbs. each. The plant in question was raised from a sucker and about three years old; it has been seen by many gardeners, all of whom pronounced it to be a rarity. Along with this I send a rough sketch of this singular freak, which may better enable you to understand my description of it. Is it worth figuring? *W. B. Tillery, Manager for Viscount Boyne, Burwarton Hall, Oct.* 14. [We think not; the peculiarity is quite intelligible from the above description.]

Flowering of the Jerusalem Artichoke.—In reference to this matter Mr. Cuthill is evidently wrong in saying that it has not flowered for 30 years, as I well recollect it in bloom in Suffolk in 1846. The year (1846) however was so peculiar for heat, that a meteorological friend of mine, Mr. Whistlecraft, published a pamphlet on the notably hot summer, in which he mentioned the excessive heat from May 21st to Sept. 21st, that the thermometer on July 5th was 93°, and that persons died that year in consequence of the exceeding and long continued high temperature. I certainly however do not recollect seeing the plant in bloom except in this very exceptional year for heat and dryness, but have never since grown the tuber to any extent. In 1846, on account of the Potato disease of the preceding year, I tried the Artichoke as a substitute. About five rods of ground were set with it, the rows 3 feet apart. The plant grew splendidly, exceeding 10 feet in height, and about the beginning of autumn expanded its small yellow star-like flowers, but did not perfect its seed, nor have I heard of an occasion that it had done so in England. On account of the long continued hot and dry weather the crop was large and of first-rate quality, amounting to a sack per rod. But as there was great difficulty in disposing of them, and the price realised not amounting to but half that of Potatoes, viz., 7*s.*, while Potatoes were 14*s.* per sack, the experiment was not repeated. The soil was a rather light loam, the locality near Bury St. Edmunds. *R. W., October* 19. [We have other letters on this subject which we think unnecessary to publish. The question raised by Mr. Cuthill was a needless one. This plant does not flower in England because the summers are generally too short and too cold. Whenever, or wherever it is otherwise, the plant flowers always.]

Fruit Judging.—As my motive for commenting upon Mr. M'Ewen's answer to "An Occasional Exhibitor" was not to praise or condemn any particular sort of Pear or Apple, but to advocate a principle, you will perhaps permit me to make my meaning more clearly understood than I seem to have done in the remarks you published at p. 709. The impression left upon my mind after reading Mr. M'Ewen's answer to your correspondent's inquiries was, that he had laid down too narrow a law for the guidance of the judges, by stating that bulk was to be considered the chief criterion of merit in the case of kitchen Apples; and flavour, irrespective of bulk, in the case of dessert Pears; and I attempted to show that judges ought to take a broader view, not founding their decision upon one or two points only, but upon the preponderance of general good qualities in a variety or a collection. Possibly my choice of an Apple, by way of illustration, may have been unfortunate, although I still venture to think that as both kinds are usually grown, Dumelow's Seedling is as inferior to the Alexander in size and showiness as it is superior in real merit; however, I am by no means prejudiced against the Emperor, whose good looks will always make him popular. Most men have their favourites in Apples and Pears, as well as in other things. I must confess to this weakness myself, although I am neither fascinated by the Beurré Diel nor over head and ears in love with the Duchess. Mr. M'Ewen's fancy is evidently the plump, little, rosy-cheeked Seckel, and yet there are some who say that the Seckel is no better than it should be; so, as even the Seckel does not please everybody (on account of its strong muskiness) it cannot be called perfection. These fancies often insensibly bias one's judgment, both in the matter of fruit and of plants, and possibly to this cause may be attributed in some degree the too frequent disagreement between the censor and the exhibitor, each party having his own particular fancy for some different kind of fruit or plant. As regards fruit, I think that a remedy might be found by devising some scheme of judging by points, after this manner in the case of Pears:—

Flavour	Points.
Butteriness	Points.
Colour } or appearance	Points.
Form }	
Size	Points,

adding any other property that might be thought desirable. Then, that sort or that collection which gains the greatest number of points must be the best beyond all cavil. This is merely a crude amplification of the principle to which I adverted at the beginning of these remarks; but if the idea is considered worth notice it might easily be worked out in a more practical form. *J. B. Whiting.*

Potato Disease.—Our loss this year is greater than that of 1846 or any subsequent year. The disease made its first appearance among very forward plants the first week in June (its usual appearance having been not earlier than the second week in July), spread rapidly, and reduced the crop to nearly a quarter of what was expected, the sound tubers being very inferior in flavour. The disease soon reached the fields, attacking plants according to their earliness, but by the end of July scarcely a leaf was to be seen. The consequence is that in most cases scarcely the value of the seed planted has been taken up; some favourite varieties cultivated for many years have hardly borne any fit for seed, and I have seen and heard of many cases where there has not been a single sound tuber under a root. The earliness and virulence of the attack have struck us generally, and we have also noted that as in all previous years it seemed to spread fastest after a low, close, foggy atmosphere with wind from south to south-west, succeeded by scorching sun. The varieties which have done best are the Flukes, and a late White Round imported into Falmouth from France a few years ago. I have a very fair crop of both (while Regents and Early Kidneys in the same plot have been very bad). The Flukes are excellent at table. The others require keeping before it is fair to try them. You will remark that both these sorts have not been long in cultivation here. *P. Vyvyan Robinson, Landewednack Rectory, Helston, Cornwall, Sept. 26th.*——On the 12th ult. this district was visited with heavy rains, and on Monday the 14th and two following days the rot made rapid progress, and has eversince continued to spread, but with less virulence. The early sorts which had fully ripened in the haulm have not suffered much; but the later kinds, which were still showing a green, healthy growth, have been injured to the extent of a third, and in many instances to a half of the crop. *A. B., Renfrewshire, September* 23.——The Potatoes in this county (Lincolnshire) are very bad indeed—half and in some places a third bad, and are getting worse every day. *J. D., Stoke Rochford, Sept.* 14.——In this district (North Lincolnshire, extending from Grimsby to the river Trent, including some Potato growing districts of great extent), the disease has manifested itself to a greater extent than it has in any year since its commencement in 1845. All sorts of land are nearly equally affected, from the poor sandy peat to the strong clayey loam, and the rich warp land on the banks of the Trent. In many places they are completely rotten, unfit to boil for pigs, and consequently will not pay the expense of digging. Flukes have been found as yet more sound than any other. *H. P.*——The quantities grown by each of the under-mentioned persons are stated in acres; it is the practice in this part generally to adopt what is called the Cheshire acre, which is near two statute acres, so that the quantities grown by each may be set down at nearly double, if the statute acre is meant. Speke and Hale are townships lying on the bank of the Mersey, extending about 12 miles from Liverpool:—John J. Blackburn, Esq., Hale Hall, 11 acres, Kemps, two-thirds gone; Californias, a late var., a few diseased. Mr. Thomas Bramall, Speke, 7 acres, Kemps, half gone; Protestants, late, 2 bushels in 20 gone. Mr. W. Atherton, jun., Speke, 12 acres, Kemps, half gone; Seedlings, late, almost free from disease. Mr. John Jenkinson, Speke, 7 acres, Kemps, half gone; late sorts a little diseased. Mr. Joseph Boyes, Speke, 3 acres, Kemps, more than two-thirds gone; no late sorts. Mrs. Jenkinson, Speke, 10 acres, Kemps, more than half gone; later sort, only a little diseased. Mrs. Edwards, Speke, 20 acres, Kemps, more than half gone. It will be seen from the above that Kemps or early kinds have suffered most; strong growing and later varieties, such as Arrowsmith's Seedlings, Protestants, Flukes, are only partially affected. Early kinds grown are about half, in some cases more than half, the quantity planted. *J. Tynan, Liverpool.*

Anæsthetics.—A very curious passage from a medical work of the 15th century entitled the Book of Dystyllacions was lately quoted by Mr. Augustin Prichard, at the Bath and Bristol Branch annual meeting of the Medical Association, with a view to show that "four hundred years ago there were experiments and efforts made to destroy the pain of surgical operations." Mr. Prichard has kindly sent the title of this book, which is a treatise on Botany and Materia Medica, with the quaintest woodcuts in illustration of the subjects; such as a man dying among tombs to illustrate the *Pulvis Momiæ* or mummy powder formerly used in medicine. At the end of the volume is a work on Surgery, also much illustrated. The anatomical woodcuts are very curious, especially one giving the situations of the organs of the brain according to some system of phrenology. Something similar is given by Hartshorne in his book Rarities of the University of Cambridge. The author is speaking especially of wounds containing thorns or splinters, and writes as follows: "The second manner is that ye shall cutte the wounde wyder with a payre of cysars or with sheres thereto belongynge, as here is fygured, but that is dredfull to the woundyd person for to beholde. Therefore it is my counsell for to occopy the fornaymd tentes. But if those can nat eas, and that the diseasyd persone can nat for great feer abyde the cutting, Than must ye make this sleep drynke, and geve it him to drynk, whereof he shall fall in slepe and fele nother cuttynge nor payne; and thus must ye make it. Take the rote of Solatrum mortale and semen jusquami, of eache an ounce; whyte popy sede and black popy sede, opium thebaicum a dragma; croci orientalis, corticis mandragoræ, lignum aloes, cinamomi, castorum a dragma of eche. And of all these make a course powder, and of this powder make 2 dragmas and sethe it with malvesye, and give it him at a droght. And whan he is in slepe, then cut up the wounde as moche as nedyth, till it be wyde ynough. . . . And whan thou wylt have hym wakend agayne, than put a pece of sponge in his nose that hath been wet in vinegre or in the joyst of rewe or fenell and therwithall he wakeneth again." See British Medical Journal, July 25, 1857, p. 632. I find neither Solatrum nor Jusquamum in the ancient books of medicine. The Solatrum mortale is probably the same with Atropa Belladonna, and the Semina Jusquami with the seeds of Stramonium, so that considering the dose included $2\frac{1}{2}$ grains of solid opium, and about 3 grains of extract of Stramonium, besides the Belladonna and Mandragora, it is not wonderful that so dangerous a medicine did not find many persons bold enough to administer it. Dr. Sylvester pointed out in the Pharmaceutical Journal the ancient uses of Mandragora as an anæsthetic. The administration of the seeds of the Stramonium by the poisoners of India, with a view to produce temporary stupor, though often with fatal results, is well known to be a common practice in the East. Some interesting details are given by Dr. Hooker in his "Himalayan Journals," which may be quoted here:—"The poisoners all belong to one caste, of Pasie, or dealers in Toddy; they go singly or in gangs haunting the travellers' resting place, where they drop half a rupee weight of pounded or whole Datura seed into his food, producing a twenty hours' intoxication, during which he is robbed and left to recover or sink under the stupefying effects of the narcotic." About 80 grains of the seed is in this case administered, or about four times as much as in the old prescription. In those cases, therefore, where recovery takes place it is scarcely possible that the greater portion of the food can have been consumed. A full dose of the extract is about 2 grains, and the seeds yield about 14 per cent. of extract. *M. J. B.* [Semen Jusquiami is no doubt Henbane seed.]

Societies.

COTTAGERS' HORTICULTURAL SHOW, SUDBURY, SUFFOLK.—This interesting exhibition took place in the Corn Exchange, Sudbury, on Tuesday, Oct. 13. It is connected with an Agricultural Association for rewarding cottagers and labourers, which is in a flourishing condition, and distributed on this day about 100*l.* in prizes to the deserving peasantry. The High Sheriff of the county in the chair. The President of the Association is the respected Chairman of the Quarter Sessions at Chelmsford, R. C. Barnardiston, Esq.; and the Honorary Secretary the Rev. Edwin Sidney. For some time at each anniversary there has been a show of the produce of the cottagers' gardens, and the amount of encouragement given has caused them to be brought to an extraordinary perfection. A large body of the ladies and gentlemen of the vicinity constantly attend on the occasion, and the winners of the prizes are presented to their kind notice by the Rev. E. Sidney. Between 50 and 60 prizes for vegetables were distributed on this day with many kind remarks by the worthy High Sheriff, and well indeed were they merited. The objects exhibited were regarded by all who saw them as extraordinary specimens of cottage horticulture. The Potatoes were extremely good, large, clean, and entirely free from disease. They realised large prices for seed after the show. Carrots and Parsnips were of marvellous size, some of the latter being about 18 inches in length and of a most superior quality. There were about 12 bushels of Onions, and parcels of 24 each as bright and beautiful specimens as could be imagined; and Savoys, Celery, and some autumn Cauliflowers were very good. They were remarked upon as admirably grown by the gardeners present. An interesting portion of the exhibition consisted of a series of tastefully arranged baskets of cottage produce for prizes. They contained Gourds, Celery, Onions, Cucumbers, Lettuces, Endive, Cabbages, Cauliflowers, Grapes, Apples, and a variety of cut flowers. One cottager obtained seven capital prizes, and he was said to have purchased out of his earnings last year a waggonload of manure, of which the discreet use well repaid him. The owner of the best basket won eight prizes, and the vegetables he exhibited would have been considered as excellent in any show in the kingdom. It was a most interesting sight to see these poor people receive not only their money prizes but a quantity of extra prizes, in four-pronged forks, spades, and watering-pots, offered by the ladies, gentlemen, and farmers for competition. One or two gentlemen also sent some fine roots, and amongst them there were some of Mangel Wurzel weighing from 20 lbs. to 21 lbs. each from Captain Bence, a zealous member of the association. Also Messrs. Bass & Brown sent a superior supply of specimens of Turnips and other roots, and a fine plant in blossom of Holcus saccharatus, which added much to the appearance of the room. The chief object, however, was the Cottagers' Show. The appearance and manners of the poor exhibitors was in itself a manifestation of the effect of such a happy way of filling up their spare hours as attending carefully to their gardens affords them. The parish of Bures gives great encouragement to its poor in this way, under the auspices of the Rev. Arthur Hanbury, and it may be questioned whether such results are to be met with anywhere as proceed from the gardens there. A long series of tables extending from one end of the Sudbury Corn Exchange to the other was covered with the specimens of the poor man's horticultural skill, for this and other parishes, as Waldingfield, Cornant, and Trinstead. There was nothing like a shabby or inferior example to be seen, and the care bestowed on getting the various specimens ready for the show indicated a laudable pride on the part of the humble exhibitors. In this exhibition there is afforded a proof of what may be done in the gardens of the poor by such a stimulus as is here applied. Prizes alone will not effect it, but prizes given as these were in the presence of the ladies and gentry of the neighbourhood, kind remarks, and friendly encouragement, will produce great results. A labourer who spends his spare hours in his garden does not frequent the resorts of idle persons, and is happy at home. Vigilant over every bed in his allotment he knows every plant he has, and marks its growth and nurtures it from day to day. The consequence is that he excels; and during the show we are now reporting many gentlemen remarked that such produce could not be found in their larger gardens. The Rev. Edwin Sidney, in his address at the dinner of the anniversary which took place after the show, remarked that he strongly advocated allotting to the youths of the several parishes from the age of about 16 to 20, or till 21, pieces of garden ground with the offer of prizes for their produce. Many an idle boy might thus be made industrious and careful, and when his daily work ended would be attracted from places they had better avoid to the laudable employment thus afforded them. He had tried it for a short time with success in Norfolk. Nothing will more tend to the welfare of our villages than causing the poor to love their gardens. A poor man, attentive to his religious duties, exemplary in his family, and having a neat clean dwelling, with a nicely tilled plot of garden, if he has a kind employer, need not envy any other lot. The appearance of the cottagers rewarded on Oct. 13 struck everybody, and their manners were also very superior. Let cottage gardens be encouraged, and good will ensue; and in the hope that they will be more and more extended we notice the Sudbury Exhibition, as we did the other day that of Professor Henslow in the same county.

Notices of Books.

M. Eugène Verdier Fils aîné has sent us his Catalogue of the Roses and other plants cultivated by him for sale in the Rue des trois Ormes, Paris. We find in it 30 new Roses, varying in price from 5 francs to 25 francs, with this rather important notice—that he does not answer for the exactness of the characters assigned to them, which characters rest, he says, entirely upon the responsibility of those who have sent them to him; he himself knowing nothing about them. In addition to this, he offers for sale 825 sorts of this flower alone. Nor is his collection less rich in other things, the catalogue containing above 170 sorts of Phlox, 169 of Tree Paeonies, and 172 of herbaceous Paeonies; of these last he offers the yellow Wittmanniana at 3 fr. each.

The *Pharmaceutical Journal*, a most useful monthly periodical published by the youngest and most vigorous of our Medical Corporations, having reached 15 volumes, the Council have issued a complete Index to the whole work. For this they deserve public thanks, for although each volume had itself a good index, yet the incoporation of them all into one revised and enlarged as this is, is exceedingly convenient to its numerous readers. It gives us much pleasure to add that the result of our tests of its accuracy has been perfectly satisfactory.

The following trade catalogues have been received—*Wood & Son's Catalogue of Roses and Ornamental Trees and Shrubs for the ensuing season* grown at Maresfield. Mr. Tiley of Bath certifies to the Duchess of Norfolk being a first-rate Pot Rose for early forcing or for greenhouse culture.—*Catalogue No. 7, of Bulbs, sold by John Cattell.* This contains some very excellent instructions for managing bulbs.—*The trade Nursery List of John Stewart & Sons, Dundee.—Descriptive Catalogue of Roses, &c., sold by A. Campbell & Sons,* of Glasnevin, near Dublin. A long list of good horticultural varieties suited to the climate of Ireland, with useful preliminary advice to growers.

Garden Memoranda.

MESSRS. PAUL'S NURSERY, CHESHUNT.—It is well known that Hollyhocks as well as Roses are largely cultivated here, and that Mr. William Paul has spent much time and labour in the improvement of the first-named showy class of plants. Our object now is to direct attention to a valuable feature in the Hollyhock which Mr. Paul believes he has succeeded in fixing many stages in advance of what has hitherto been met with. It has often been observed that the Hollyhock exhibits a disposition to push small spikes of flowers from the base of the plant after the first flowering is over, and Mr. Paul has long noticed among some of his seedlings an increasing tendency in that direction. This he has endeavoured to strengthen and develope. A certain number of plants was selected and "seeded" from year to year, taking the seed from those which flowered abundantly a second time in preference to those which did not; the result is as follows:—Early in June when the flower spikes had pushed about 18 inches from the ground, all except one were cut back to immediately below the first flower bud. This one spike produced a magnificent column of flowers and grew 8, 9, and in some instances 10 feet in height. By the end of July the last flowers had dropped, when the spike was cut off nearly level with the ground, in order to prevent the plant becoming exhausted by seeding. A few days after this operation had been performed, the young shoots and eyes from the base and sides of the main flower-stems which had been cut down in June became sensibly excited, and flowered abundantly a second time in September and October. A great many plants had been treated in this manner, and the effect produced by them was all that could have been desired. Many of them bore six or eight spikes or spikelets, forming elegant and close bushes 3 feet in height, and were really very showy. The blooms individually were equal in form and colour to those produced in summer, but smaller. To Perpetual Roses and Carnations may, therefore, now be added the Hollyhock; the same plants which bloom so brilliantly in July and August can now be induced to bloom a second time in October.

The kinds in which this tendency is apparently most strongly exhibited are Avalanche, white; Bouquet de Flore, pink; El Dorado, yellow; Lady Franklin, pink; Lizzy Improved, peach; Pearl, flesh; Pink Perfection; Primrose Perfection; Queen of the Yellows; Rosy Morn; Waterloo, deep red; White Globe; and several Seedlings not yet named.

The coolness of the season when the second crop of flowers expands should not be overlooked; for that greatly favours their duration. A plant which goes out of bloom in a few days in summer may remain handsome for weeks in autumn; the garden may therefore thus be made gay with dwarf Hollyhocks, after Pelargoniums, Verbenas, and other bedding plants have been killed by frost.

Miscellaneous.

Peat and Peat Charcoal. It would probably startle many tourists in Ireland, were they told, when traversing vast bog-districts in that country, that those dreary places may, before long, be converted into shining lights, which will go forth to irradiate the halls of beauty. And were it not that chemistry is a marvellous worker, in comparison with whose magic wand that wielded by the necromancer of old was but a contemptible affair, scepticism, if not entire disbelief, might very naturally follow such an announcement. But the chemist is a mighty man;—at his bidding, substances disclose properties and assume appearances stranger than the wildest dreams could imagine: and it is one of his especial merits and triumphs, that by combinations which may be almost pronounced endless, he is enabled to make his knowledge applicable to the most useful purposes. One of these high achievements has been accomplished within the last few years. Dropping metaphor, candles of the most exquisite transparency, rivalling the best wax-lights in brilliancy of combustion, have been produced from the bogs of Ireland; and so successfully has the experiment answered that works on a very large scale have been erected for the purpose of manufacturing candles from Peat, which are expected to realise a good profit, and to be of great benefit to that part of Ireland where they are situated. I was on my way to visit Lord Rosse, at Parsonstown, when, happening to hear of the existence of these Peat works, I devoted a day to their examination. They are situated at Kilberry, about eight miles from Monasterevin, and four from Athy, and are very accessible by means of the Dublin and Athy railway. But, before describing what I saw, it may be well to say a few words respecting the nature of bogs. Those Irish fuel mines, for hitherto they have been chiefly valuable as fuel, are estimated to extend over 2,900,000 acres. They differ greatly in their exterior nature, being sometimes soft and spongy, sometimes firm and hard. Occasionally they undergo great and rapid changes, and, with little warning, swell and burst. A remarkable case of this kind occurred in the autumn of 1835, when the Sloggan bog, in Antrim, which occupies an area of 11,000 acres, burst. The bog, at the point of rupture, was observed to rise gradually during the morning of the 17th of September, until it attained a height of 30 feet, when about five in the afternoon a loud noise, like that of a rushing wind, was heard, and the morass suddenly opening discharged a great quantity of mud and water. The eruption, with slight intermission, continued until the 28th of September, overflowing the country to the distance of many miles, and doing incalculable damage. The loss of property would have been much larger than it was but for the circumstance that the river Maine, which falls into Lough Neagh, diverted the progress of the mud flow, which was carried down the river, causing it in some places to overflow. When the eruption ceased, which occurred suddenly, the bog sunk at the point of the outbreak 20 feet below its original level, and a small circular pool of water occupied the hollow caused by the depression. But however bogs differ in their exterior nature, in one respect they are similar, for all contain a great quantity of a peculiar substance called Peat, of the average thickness of 25 feet, nowhere less than 12, and never exceeding 42. This substance varies materially in its appearance and properties, in proportion to the depth at which it lies. The upper portion contains vegetable fibres, chiefly of the *sphagnum palustre*, or bog moss, considerably decomposed: while below, the colour of the Peat changes from light brown to black, and the substance is much more compact. When dry it assumes the appearance of pitch or bituminous coal, having a conchoidal fracture in every direction, with a black shining lustre, and being capable of receiving a high polish. Now, chemists long ago informed us that Peat might be made to yield sulphate of ammonia, acetate of lime, naphtha, paraffine, and oil; and they also stated that paraffine is an admirable substance for making candles. If we inquire what paraffine is, the truth of this statement becomes evident. Turning to Brande's Chemistry, we read, under this head: "When Beech tar is distilled, three liquids pass into the recipient—1, a light oil: 2, an aqueous acid; 3, a heavy oil. The heavy oil is subjected to several re-distillations, and then sulphuric acid is gradually added to it, till the mixture becomes a black and thin liquid, and if it does not spontaneously rise in temperature to 212°, it is to be heated up to that point. The mixture is then kept for 12 hours or more at a temperature of about 122°, when a colourless oil will be found floating upon its surface. This is to be carefully poured off, and, on cooling, paraffine concretes upon its surface." I may add that the name of this curious substance is derived from *parum affinis*, on account of its inertness as a chemical agent, or want of affinity: resisting the action of acids and alkalies. It, however, readily dissolves in oil of turpentine and in naphtha. From this account, it is evident that if Peat can be made to yield paraffine at a remunerative profit, a new and vast field of commercial enterprise is at once opened. As to the feasibility of the undertaking, considered without reference to financial returns, no doubt exists. The only question was, whether paraffine could be manufactured at a remunerative cost. On reaching the works, which are visible from a great distance, towering over the vast expanse of moorland, I inquired for Mr. Reece, the intelligent and scientific manager of the establishment. He was at home, and undertook at once to conduct me over the premises. The first objects to which my attention was directed were four huge furnaces of the form of inverted cones, each capable of consuming no less than 25 tons of Peat in 18 hours. When filled, the furnaces are closed, and a fierce hot-blast being driven through the mass of turf, ignition is rapidly effected. The smoke evolved escapes through a pipe leading from the upper part of the furnace to a condenser. The magnitude of this con-

denser may be estimated by the fact that it will contain 8,000,000 cubic feet of gas. Here the first change in the conversion of Peat into paraffine occurs, the smoke being condensed, and precipitated in the form of tar. The lighter or more gaseous portion is conducted by pipes to another reservoir. The result of many experiments shows that 100 tons of Peat yield as much tar as will produce about 350 lbs. of paraffine, and 300 gallons of oil. But to obtain the paraffine, many delicate chemical operations are requisite. For a long time it could not be extracted without using ether, which made the operation far too costly for commercial purposes. At length—for what will chemistry not achieve?—Mr. Reece discovered a less expensive mode of proceeding, which is at the same time fully as efficacious as when ether was employed. Sulphuric acid is the principal agent used: the tar being boiled for about half an hour, with three per cent. of this acid, becomes decomposed, and all impurities fall to the bottom of the vessel. Oil and paraffine now remain, which after undergoing the process of distillation, separate. The paraffine then appears in crystalline flakes; but is of so dark a colour, and emits such an unpleasant odour as to be quite unfit for use. The processes of bleaching and deodorising are next performed, and it is really most startling to see the dusky and foul-smelling compound issue from powerful hydraulic presses, steam baths, and the action of chloro-chromic acid, pure, scentless, clear, and perfect paraffine. The combustion of this beautiful substance is precisely like that of refined white wax; and, bearing in mind how it is obtained, you will admit that chemistry is a wonder-worker. Well and wisely wrote old Ashmole respecting chemistry, that "'tis an universal and all piercing science and spirit: which spirit a true artist knows how so to handle (though its activity be as it were dull'd and streightly bound up in the close prison of grosse and earthie bodies,) as take it from corporeity, free it from captivity, and let it loose that it may freely worke."* And do not imagine that when the paraffine is extracted all that remains is valueless; for independently of oils from which gas may be generated, and which in the Irish Peat works is used as fuel for the steam-engines and other purposes, several highly valuable commercial and agricultural products may be obtained from the residue. Indeed, the various substances which may be extracted from Peat are extraordinary; among others, it yields excellent black pigment darker than ivory black, and by an ingenious process of distillation, eight gallons of powerful spirit have been obtained from a ton of peat.† As may be supposed, four huge furnaces, each of the capacity described, require a great supply of turf to keep them going. To meet this demand, canals to the extent of five miles have been cut through the bog adjoining the works, and about 200 persons are kept constantly employed in cutting and conveying the turf to its destination. At the last annual meeting of the shareholders of the Irish Peat Company, held in December of the past year, a very favourable report of the progress of the works was made. Various improvements have been effected in the mode of cutting, drying, and drawing turf, by which the cost of feeding the furnaces will be considerably diminished. "With regard to the manufacture of paraffine," says the report, "great improvements have taken place, and are still continuing, though less perceptibly, and to such an extent that whereas, previous to August, the average produce of tar per kish of turf was about half a gallon, that of the whole period since the improved workings began is one and one-third gallon per kish; and for the last six weeks one and one-half gallon per kish: by this we have gained still further experience, and ascertained that with our present number of furnaces not more than about 2300 kish or 200 tons can be burned to procure its adequate products, which now are nearly double that obtained when twice the quantity of Peat was consumed. The result of the last six weeks' workings to Nov. 30 has been such an average produce of oil that your directors consider may be fairly calculated to continue; add to which, from improvements made by Messrs. Field in purifying paraffine, they have been able to enter into a contract with those gentlemen to supply them with all the paraffine produced in a brown state, which at last realises the hopes of the original projectors. The candles made from this substance equal wax, and there is no doubt will come into regular consumption. From a very careful statement made of the selling price of all their products when realised, and deducting the real expenses paid, of wages, repairs, &c., during that period, with the *pro rata* amount of rent, salaries, and other fixed charges, they will yield a profit of not less than 75*l.* per week, from which alone the interest on the loans and advances to the Company would have to be taken." It further appears, from the report, that in consequence of the improvements which have been made in the manufacture of paraffine, the substance in its brown or unrefined state sells for 1*s.* per lb., which is as much as the Company anticipated realising by their purified paraffine. At the proposed rate of consumption, vast as is the area of bog near the works at Kilberry, it will be exhausted in the course of a few years. This, however, will not affect the establishment, as there are other large bogs in the neighbourhood; and it must not be forgotten that one of the advantages held out is, that the very destruction of the bog will develop a soil available for the purposes of the agriculturist. All friendly to the prosperity of Ireland must desire that the expectations of the Irish Peat Company may not be disappointed. I know that their managers have laboured zealously to establish the works on a sound and at the same time profitable basis. It is a good sign that no advertising puffing has been used to dispose of the shares, which, I am informed, have been taken up mostly by practical men. This augurs well for the success of the undertaking, and the Irish tourist may yet see the fitful will-o'-the-wisp, which haunts Irish bogs, spirited by the chemist's potent wand into the substantial reality of brilliant candles, and thus realise the hope that the bogs of Ireland are her California, *Weld's Vacations in Ireland.*

* Thea. Chem. Brit.

† Nor should the antiseptic property of Peat be overlooked. Professor Davy, of the Royal Dublin Society, who has made many experiments on the deodorising effects of Peat, declares that its disinfecting properties are superior to those of wood charcoal.—*Essay on the use of Peat*, Dublin, 1850.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

Conservatory, &c.—If not already done see that all plants belonging to this structure are housed forthwith. If unfavourable weather should occur do not hesitate to use a little fire heat at times, especially where many plants are in bloom, as by these means a free ventilation may be indulged in to expel damp and stagnant air. Stove and Orchids.—Little moisture will suffice at this period even for the growing Orchids. Keep the temperature progressively on the decline, more especially in dark weather. Ventilate freely whenever the weather will permit. Hybrid Perpetual, Tea, and other Roses, as well as Chrysanthemums, if attended to will render this structure as well as the conservatory most interesting for the next two months. Let these have weak manure water perfectly clear; it should be administered about 5° or 10° warmer than the atmosphere of the house; if given at every watering it is almost impossible to give it too weak or too clear. If the water is just barely coloured it will be sufficient. An ounce of guano with a handful or two of soot will make a large bucket or canful strong enough for anything. Cold Pits.—These will now be in request. Sawdust forms a good plunging material if new and dry, and coal ashes are also very good. Whatever material is employed, keep the plants within a foot of the glass unless perfectly dormant. Endeavour to keep the soil in the pots in a somewhat dry state.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit and those in bloom should be assisted by a rather warm temperature, but excess of moisture in the atmosphere must be avoided at this dull season, particularly where the plants are in flower, or the fruit approaching maturity. Use strong clean manure-water in a tepid state for plants swelling fruit, but do not get the soil too wet. The temperature for the growing stock should now be regulated very much by circumstances; keeping them growing gently where it can be done without drawing and weakening the foliage. Keep the soil about the roots in as equable a state as to moisture as possible, for letting the soil get too dry at this season often results in the plants showing fruit prematurely in spring, and the same is true with regard to the bottom-heat, which must also be carefully attended to, keeping it moderate and as regular as can possibly be done. Vineries.—Where forcing is commenced about this time a rather higher and moister temperature will be necessary to induce the buds to start than would be the case at a more natural season. There is no better means of securing abundance of moisture and a gentle warmth than by placing a moderate quantity of stable manure on the inside border, and turning this, &c., as may be required; but where the forcing houses are visited by the family, and are expected to be neat and orderly, this method is out of the question, and the syringe and whatever other means of a less objectionable character may be at command must be used instead. The night temperature, to begin with, should range about 50° by fire-heat, raising it to 60° by day, or to 70° with the assistance of the sun. Also endeavour to secure a little warmth for the roots in the outside border, and if fermenting materials are used, watch these narrowly, and endeavour by timely additions and frequent turnings to secure a regular gentle warmth of 60° or 65° at a foot below the surface of the soil. If fermenting materials are employed, there will be a great saving of labour, &c., by thatching them with a good coat of something to throw off wet, and preserve them from the weather. If plants in pots and boxes are used for forcing at this season, they should be placed in a mild bottom heat, so as to excite a healthy root action, which will cause them to break more freely and in less time than can be done without bottom heat.

FLOWER GARDEN AND SHRUBBERIES.

The condition of the autumn struck cuttings should be ascertained, and wherever indications of damping appear remove the pots to drier quarters; give air liberally to young plants in pits and frames. Scarlet and bedding out Geraniums should be kept in houses where fires can occasionally be lighted, by which they will grow gently through the winter. As the Vineries are cleared of Grapes, fill them (unless they are otherwise occupied) with the more choice things; reserving the pits and frames for the Calceolarias, Lobelias, and similar plants, which do not suffer so much from cold and damp. Wherever alterations are in progress lose no time in completing the transplanting of evergreens, the present, mild damp weather being favourable for their removal. As soon as the greater part of the leaves are off the trees let the pleasure ground be thoroughly cleaned and swept; the leaves (if of sufficient quantity) should be stacked up for forcing purposes, covering borders, and the like. Such parts of the lawn as are contiguous to the mansion should be swept daily to remove leaves and worm-casts, and the gravel walks should be frequently rolled to preserve a smooth surface. The present is a good time for re-arranging the herbaceous ground, which is rendered necessary every two or three years by many of the free growing plants getting too large. Let the borders have a dressing of well rotted cowdung before replanting.

HARDY FRUIT AND KITCHEN GARDEN.

This is an excellent period for laying spring Broccoli. It is best performed by two persons, one on each side the drill or row. Keep a good trench and sink all the heads to the north, burying the stems with soil up to, and even amongst some of the lower leaves. This process will protect them considerably against a severe winter. It is no uncommon practice for good kitchen gardeners to throw their overgrown Lettuce or Cauliflower plants on the ground to shrivel before planting them. Plants in this state will endure hard weather better than those in luxuriant growth. Potatoes might now be planted in dry soils, taking care to cover them sufficiently deep to be out of the reach of frost. Most people however still prefer planting about the middle of February.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON,
For the week ending Oct. 22, 1857, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 16	28	30.002	29.947	63	40	51.5	58	55½	E.	[illegible]
Satur. 17	●	29.897	29.780	64	44	54.0	59	56	S.	[illegible]
Sunday 18	1	30.048	29.445	56	50	53.0	57½	55½	E.	[illegible]
Mon. 19	2	29.761	29.529	64	39	51.5	57	55½	E.	[illegible]
Tues. 20	3	29.818	29.796	63	50	56.5	57	55	N.E.	[illegible]
Wed. 21	4	29.743	29.647	56	41	48.5	56	55	N.	[illegible]
Thurs. 22	5	29.687	29.603	51	42	46.5	56	55	N.W.	1.6
Average..		29.851	29.678	59.5	43.7	51.6	57.1	55.3		2.7

Oct. 16—Foggy; hazy; fine; slight fog.
— 17—Dense fog; very fine; overcast.
— 18—Rain; overcast; rain at night.
— 19—Rain; cloudy; fine; slight rain.
— 20—Fine; very fine; overcast.
— 21—Uniformly overcast; rain at night.
— 22—Incessant cold and heavy rain throughout.
Mean temperature of the week 1¾ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK.
During the last 31 years, for the ensuing week, ending Oct. 31, 1857.

October.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 25	55.2	38.0	46.6	15	0.72 in.	4	3	5	3	4	5	4	3
Mon. 26	54.7	37.0	45.8	12	0.52	5	3	3	1	6	7	4	2
Tues. 27	54.7	39.1	46.9	22	0.92	3	4	3	—	5	5	7	4
Wed. 28	54.0	36.8	45.4	17	1.06	1	5	3	—	6	8	4	3
Thurs. 29	53.4	35.4	44.4	15	0.63	3	5	3	1	6	10	1	2
Friday 30	55.0	39.1	47.0	15	0.98	3	6	1	3	4	12	1	1
Satur. 31	53.8	38.9	46.4	18	0.88	3	1	4	1	5	6	8	3

The highest temperature during the above period occurred on the 29th, 1833, 26th, 1853, 29th and 30th, 1833, and 31st, 1854—therm. 67 deg.; and the lowest on the 28th, 1836, 29th, 1842, and 30th, 1856—therm. 23 deg.

Notices to Correspondents.

Boilers: *H C, Ashburton.* We do not think that any means at present exist of deciding which of the many boilers now advertised is the best. They will be again exhibited in the Horticultural Society's Garden next June, and it is then intended to devote a day at the Garden to the discussion of the subject. We can only say that many are excellent, and that the cheapest would probably be quite good enough for the purpose you describe. What you have to be cautious about is employing any complicated contrivance.

Books: *Henry.* There is no book that we know of which teaches how to make bouquets. We believe there is some publication on the art of making sentimental—that is to say nonsensical—bouquets; but we really cannot undertake to remember such folly.—*D B.* The work you mention is, we understand, in progress. When ready it will be advertised.

Espaliers: *Diss.* We see no necessity for altering the distance of the horizontals. A foot is as good as 15 inches apart.

Grafting: *C D.* Other cases are Apples on Whitethorn and Mountain Ash, Cherries on common Laurel; all different, though not impossible, as is said. We do not recollect any others; but when plants strike freely from cuttings grafting is not resorted to, and therefore there may be many instances. Can a Gooseberry be made to take upon a Currant? They will not cross.

Insects: *A Subscriber.* Your moth is the common humming bird moth, Sphinx (macroglossa) Stellatarum. Damp Moss in the corners of your frames will entice the wood lice. The Moss should be searched every morning.—*Skirmisher.* Your pill-box was smashed, and the insect escaped; so that we cannot give you its name. *W.*

Lychnis: *L C.* We cannot discover in what your seedling differs from the common Scarlet Lychnis.‡

Names of Plants.—*A R A.* Rhus Cotinus, the Venetian Sumach.—*D T.* Lycopodium denticulatum.

Passion Flowers: *A Lady.* The fruit of several species is eaten in hot countries; and P. edulis is cultivated in England for that purpose. You therefore incur no risk in employing the fruit of P. cœrulea if you find it advisable.

Pawlovnia: *Burleigh.* They are the young flower buds of this plant. They pass the winter covered with thin brown wool and open in the spring. The plant now flowers not uncommonly in curious collections; its blossoms are like little Foxgloves.

Pine Apples: *W H S.* If Queen Pines are not cut until they are "all yellow," they will not keep; they must be used at once, and as it is not always convenient to do that it is best to cut them before they are *quite* ripe, *i. e.*, when they have still a slight green tinge belonging to them except on the sunny side. Cutting them in this state and allowing them to ripen afterwards also improves their flavour.‡

Pruning Vines: *R. W.* You will find the strictly close-spur system of pruning vines described in the Journal of the Horticultural Society, Vol. II., p. 218, as practised at Versailles; and at p. 234, as at Fontainebleau and Thomery. By close spurring you will have more bunches in a house to a certain extent, but on the whole not so large as by the long system. When the plants are young and vigorous, the closely-pruned spurs break very well; but after some years they are apt not to do so. In France they continue to break regularly for very many years, because they are situated on the upper side of horizontal branches.‖

Stamps: *A B.* Your draft was irregular because it had not a penny stamp upon it. Undoubtedly you rendered yourself liable to a 50*l.* penalty.

Tropæolums: *W T.* All handsome; the best, however, is the dark one, which is large and showy, and cannot fail to be a favourite.‡

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
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Diameter of Barrel.	Height.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,, long	3 ,, 3 ,,		1	14	0
3 ,, ditto	3 ,, 6 ,,		2	8	0
3½ ,, ditto	3 ,, 6 ,,		2	12	0
4 ,, ditto	3 ,, 6 ,,		3	3	0
2½ ,, short, with 15 feet of Lead Pipe attached, ready for fixing			2	14	0
2½ in. long ditto ditto ditto			2	18	0

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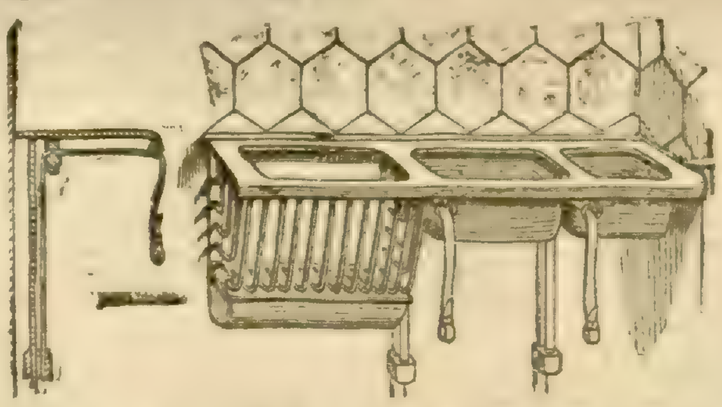

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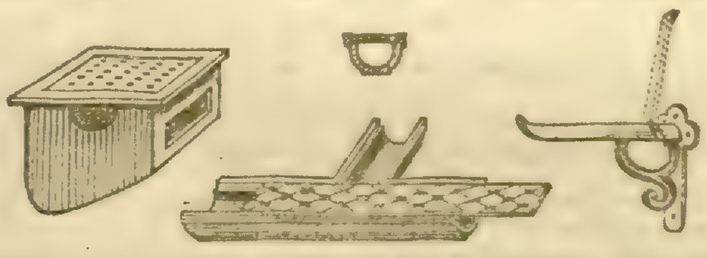

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Dorchester, Oct. 24. Hon. Sec.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.
Annual Exhibition at Cirencester, November 26, 1857.

The Exhibition of Stock, Horses, Roots, Wheat, Cheese, &c., will take place at Cirencester on THURSDAY, the 26th November, and the Poultry Show will be held on WEDNESDAY and THURSDAY, the 25th and 26th November. All entries must be made on or before Monday, November 2. None but printed Certificates can be received, which may be had on application to me at Cirencester. EDWARD TRINDER, Secretary.
Cirencester, October 24, 1857.

RUGBY AND DUNCHURCH CATTLE SHOW, THURSDAY, November 26.—A Prize of 15*l.* is open to all England for the best Fat Beast of any description, the property of the Exhibitor for six months prior to the Show. Entrance, 10*s.*, to close on Nov. 17.—For form of Certificate, &c., apply to the secretaries, Messrs. W. & E. HARRIS, of Rugby.
N.B. Covered Booths will be provided for the beasts shown for the above prize.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth Great Annual Exhibition of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.*, will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE November 2 next.
JOHN MORGAN, Secretary.
Offices, Bingley Hall, Birmingham, Oct. 24.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non-Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.
Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

The Agricultural Gazette.

SATURDAY, OCTOBER 24, 1857.

MR. HALL MAXWELL'S report to the Board of Trade on THE AGRICULTURAL STATISTICS OF SCOTLAND, dated Oct. 21st, has since been published. It intimates a diminished acreage of Wheat, Beans, Peas, Potatoes, Mangel, and Flax; and an increase in every other crop. The whole extent in cultivation is this year 3,556,572 acres: last year it was 3,545,191 acres. The following figures give the acres for the two years respectively under some of the more important crops. Wheat, 223,152 and 263,328; Barley, 188,387 and 165,738: Oats, 938,613 and 918,644: Beans, 39,186 and 40,470; Potatoes, 139,819 and 149,351; Turnips, 476,691 and 460,131; Bare fallow, 18,582 and 15,464; the first-named figures being in every case the acreage of 1857. The largest increase, it will be seen, is in the Barley crop. The number of horses in Scotland has increased this year from 179,853 to 185,409; of cattle from 193,703 to 195,198: of sheep the number has diminished from 5,816,560 to 5,683,168; of swine the number has increased from 126,924 to 146,354. We shall give further details next week.

ON Thursday last the guideway system of steam culture referred to in another column received a first experimental illustration at

Wandsworth in the presence of several gentlemen interested in agricultural progress. This method of applying steam power to cultivation, which Mr. HALKETT, its inventor, has patented, consists essentially in laying down throughout the farm or district to be cultivated a series of parallel permanent rails some 50 feet apart. A platform covering the interval, and therefore 50 feet in width, resting on two adjacent rails, is driven by the engine which it carries, at any velocity desired, and furnishes the means of carriage and of draught for any implements, whether ploughs or cultivators, rollers, harrows, reapers, hoes, or merely carts and waggons that may be needed, whether for the cultivation of the interval thus traversed, or for the carriage of manure upon it or of produce from it. The advantage derived is that a minimum of force is wasted in the mere carriage of the implement that is worked, and no pressure, excepting where as in rolling it is desired, is put upon the land.

The probability of Mr. HALKETT's success depends simply on the cost of the rails which he lays down. This, at intervals of 50 feet, will amount to some 20*l.* an acre. The engines and their platform, and the implements which they draw or work, may cost 2000*l.* or more; so that except upon a large scale, and except in such cases as those of the market gardener, where an enormous expenditure per acre in labour is now incurred, the scheme is not likely to be adopted. The figures given elsewhere are calculated for a 1000-acre occupation.

Of the trial itself, given at Wandsworth on a mere plot of land, it is only necessary to say that a very clumsy apparatus and inefficient tools and untoward circumstances are not the best adapted for the illustration of a novelty. Mr. HALKETT has displayed great ingenuity in devising cultivators and contrivances for comminuting and manuring soil; but these are all beside the essential principle of his scheme, which, as he has himself described it, consists in the provision of a permanent "guide-way" for the steam culture of the land. As a matter of fact he has ploughed, cultivated, manured, drilled, hoed, and reaped: it now remains for him to prove the asserted economy of his plans to some wealthy agriculturist who, not content to leave well alone, will provide the means necessary for the trial, on a sufficient scale, if so great an agricultural novelty. At present his illustrations are confined to the merest plot and the roughest means imaginable. They are so far successful, however, that it is probable the scheme might be profitably carried out upon a larger scale in localities where labour to the extent of 10*l.* or 15*l.* per acre is spent upon the land, and produce worth 40*l.* or 50*l.* per acre is taken from it. And there is a great extent of land in the neighbourhood of the experiment, of which all this is true.

THOSE of our readers interested as exhibitors at the annual meetings of the Smithfield Club will observe the announcement in our advertising columns that Monday, November the 2d, is the last day on which certificates of live stock to be exhibited can be received by the Secretary.

It has been determined to have a fixed day every year for receiving the entries, namely, November 1st, but that day this year is a Sunday, and the period therefore lasts over the following day.

LEASEHOLD occupation of the land and a yearly tenure of it by the cultivator have, each, their liabilities to injustice and abuse; and each of them has its merits and advantages. The latter ordinarily bears the fruit of a kindly feeling and relationship between a landlord and his tenantry; it generally exhibits ordinary farm management; instances of energetic or unusual cultivation under it are rare; it often results in listless careless management; it enables and it sometimes witnesses cases of the very grossest injustice on the part of the owner of the land.

Under a leasehold tenure of his farm, upon the other hand, the intelligence and energy of the tenant may be safely exercised; and the ordinary result is exhibited in the best cultivated districts of the island, which are for the most part held on lease. But, we must add, the landlord parting with his land for years is liable to take diminished interest in the people on his property; and this extends downwards into the relations of the classes under him, for it bears its fruit through a changing tenantry in a diminished interest taken in the labourer and his family. The leasehold system, too, is liable to such injustice, whether on one side or the other, as the contrast between a verbal or literal interpretation of the lease and the spirit in which it was framed may permit.

There can, however, be no doubt that so far as this one point—injustice by or to a tenant—is concerned, a leasehold occupation is preferable to one dependant on the will or the caprice of the owner of the land. Take the following instances as illustrations. About a month ago the *Aberdeen Herald* reported the trial of a case in which certain trustees sued the tenant of their land for cropping some of his fields contrary to the custom of the country, and they brought an action against him in the Sheriff's Court for miscropping, and demanded damages of 70*l.* The tenant held under a lease for a term of which eight or nine years were unexpired. By lease he is not tied to any specific rotation, "but is bound to comply with the rules of good husbandry established in that part of the country."

From the report of this case it appears that the result of this "miscropping" has been an increased fertility of the land—and no doubt a largely increased profit to the tenant. This "miscropping" has consisted in the adoption of the 4-field course on certain portions of the estate, which, as it was not according to the custom of the country there, was believed to be forbidden by the terms of the lease. That it was not really miscropping was proved by the increasing fertility of the land under this tenant's management—but it seems to us that the pursuers in the case believed that the terms of the lease would enable them to fine their tenant, and so participate in that extra profit with which his energetic cultivation was rewarding him. The sheriff before whom the question came held their claim to be palpably unjust, and therefore dismissed it.

But how would such a tenant under such a landlord have fared under the tenant at will system? The following case in point is a sufficient answer to the question. We take it from the Leicester papers.

Mr. EVERARD, of Groby Hall, on the property of Lord STAMFORD, has been forced to leave his farm—by a six months' notice to quit of which no explanation is offered, nor given when requested. He gives a most instructive history of his occupation, which we extract from the speech delivered by him before the meeting at his house after his sale of farming stock. On that occasion he said:—

"In the year 1838 I commenced business on a small farm attached to this house, and adjoining the one occupied by my father. In a few years I brought it into a very high state of cultivation. The infirmities of my father increased, and in the autumn of 1852 he retired from business, and his farm came into my occupation, which was then augmented to upwards of 300 acres. In the spring of 1853, my Lord STAMFORD offered a prize of 25*l.* in plate for the best cultivated farm upon his estates, which prize I obtained. He likewise offered a prize of 10*l.* for the best green crops, which I likewise obtained; and 10*l.* for the best corn crops, which I was not qualified to compete for, in consequence of not having a sufficient breadth of Wheat sown, the wet autumn preventing. I was now disqualified from competing for his 25*l.* prize for a period of four years, but during the succeeding years of 1854, 1855, and 1856, I obtained all the prizes offered in the first class, amounting to 20*l.* per annum. This year I again obtained the 25*l.* prize for the best cultivated farm upon the estate, 10*l.* for the best crops of corn, and 10*l.* for the best green crops, beating off all competition. I have likewise succeeded this year (which you well know) in obtaining Mr. PACKE's prize of 20*l.*, for the best cultivated farm in Leicestershire, accompanied by one of the highest compliments ever paid to a tenant farmer. Excuse me if I indulge myself by repeating the words. 'This farm,' (says Mr. MASON, the gentleman appointed by the Leicestershire Agricultural Society to award the prizes), 'is not naturally first-rate land; but the spirited outlay and excellent management of the tenant have made it a model farm in every sense of the word.' And during the very month in which I vainly thought I had arrived at the summit of my ambition, so far as agricultural matters are concerned, I received a notice to quit my home, and that farm which, up to this time, had been my idol; the greater portion of which had been made into a farm by my forefathers, and occupied successively by my great grandfather, my grandfather, and my father, and upon which I had expended in improvements in the space of five years the sum of 3000*l.* I so little expected what was coming upon me that if Lord Stamford had sent me word that he was so well pleased with me that it was his intention to give me my farm, I should not have been more astonished than I was when I received notice to quit. I immediately wrote to Lord STAMFORD a most respectful letter, soliciting an interview; telling him that I must have been very much misrepresented; and telling him, likewise, that I could not call to mind anything, either by word or deed, that I had said or done to incur his displeasure, and trusted he would reconsider my case. To this letter I received no answer. This was on the 31st August. On the 28th September, I waited on my lord at his own residence; and he not only refused to see me, but he likewise refused to assign any reason for taking so extraordinary a step: and I remain to this day as ignorant of his motive as any of you. . . . . All my sources of income have been expended upon my farm, and when I was remonstrated with by my family and friends for so doing, my reply invariably was, 'How could I make a better investment; my money is perfectly safe for my children, and for their children.' When Lord STAMFORD had offered prizes for good cultivation four years, and gave instructions for the revaluation of his estates, I did not remonstrate. Feeling myself perfectly sure that I should have justice done me, I did not hesitate in my improvements to learn what my increased rent would be, but proceeded with deep draining, building, carting manure from Leicester and lime from Breedon. I had likewise applied to the agent of my landlord for materials to erect some new stables and sheds for 20 extra cows, at my own expense; the increased capabilities of my farm rendering increased accommodation necessary. And at the time I received the notice, I had lying upon my farm 700 tons of night soil carted from Leicester, and 120 tons of Breedon lime, and was in the act of erecting the new entrance approach to my house. On the day that Mr. MASON (the gentleman before alluded to) went over my farm, he complimented me very highly upon my management, and made this remark: 'Of course, Mr. EVERARD, you are farming here under a lease.' My reply was, 'Oh, no, Mr. MASON; I have such confidence in my landlord, that I would as soon be a yearly as a leasehold tenant.' I only mention these things to prove to the world that I did not deserve the treatment I have received."

It is plain that Lord STAMFORD's prizes for good farming, should they be quadrupled in amount, cannot in future do so much to enhance the cultivation and fertility of his land as this instance of reckless conduct towards an energetic tenant will do to discourage any other style of farming than the merest annual, hand to mouth, expenditure permits.

BALANCE SHEET OF WHEAT GROWING.

A COMPARATIVE view of two systems of growing Wheat year after year, totally opposed to each other, viz.:—1st, The Rev. S. Smith's plan, who stirs his land some 14 or 15 inches deep, sows about half the land, sowing a ridge or yard, then skipping a yard, which interval is to be sown with Wheat next year, and for 10 years has not used any manure. 2d, J. D. Piper's system, who sows moderately thin, keeps the land clean, but never has it ploughed, dug, or subsoiled, not having had it turned over for 14 years, but uses manure as a top dressing.

THE REV. S. SMITH'S PLAN.

Alternate ridges of Wheat and fallow with no manure, 1855.

EXPENSES.	£	s.	d.
Cost, up to drilling ..	0	5	6
Seed, 2 pecks	0	4	0
Digging	1	1	0
Beer, 1*s.*	0	1	0
Hoeing	0	15	6
Rolling	0	1	3
Moulding up the Wheat, to keep the wind from blowing it down ..	0	3	3
Harvesting	0	7	0
Threshing, 3*s.* per qr.	0	7	6
Beer	0	2	6
Drilling about	0	1	6
Rent, tithes, and rates	2	0	0
	£5	10	0

PRODUCE.	£	s.	d.
Five sacks of Wheat at 18*l.*	9	0	0
Half ton of straw at 1*l.* 10*s.*	0	15	0
Chaff, at least	0	2	6
	£9	17	6
Expenses	5	10	0
Clear profit per acre	£4	7	6

Alternate ridges of Wheat and fallow with no manure, 1856.

EXPENSES.	£	s.	d.
Cost before sowing ..	0	4	6
Seed, 2½ pecks per acre	0	5	0
Hoeing in March ..	0	3	0
Hoeing up to June ..	0	9	3
Digging	1	1	0
Reaping	0	8	0
Threshing, 3*s.* 6*d.* per qr.	0	8	9
Beer	0	1	6
Drilling and carting at harvest time ..	0	5	0
Rent, tithes, and rates	2	0	0
	£5	6	1

PRODUCE.	£	s.	d.
Five sacks of Wheat at 16*l.* per load ..	8	0	0
¾ ton of straw, at 15*s.* per ton (1*l.* 5*s.*) ..	0	18	9
	£8	18	9
Expenses	5	6	1
Clear profit per acre	£3	12	8

Mr. Piper's averages for the last eight years.

Profit 5th year	£6	6	3	
,, 6th ,,	7	3	3	
,, 7th ,,	3	5	3	
,, 8th ,,	4	11	0	
,, 9th ,,	11	13	9	
,, 10th ,,	8	19	8	
,, 11th ,,	10	1	0	
,, 12th ,,	10	6	2	
8)	£62	6	4	
	£7	15	9	

Average quantity per acre, 9 sacks, 3 bushels.
Average price per load, 13*l.* 16*s.*
Average profit per acre the last eight years, 7*l.* 15*s.* 9*d.*
Average profit per acre the last four years, 10*l.* 5*s.* 1*d.*

J. D. PIPER'S SYSTEM.

Wheat after Wheat, without ploughing or digging, 11th year 1855.

EXPENSES.	£	s.	d.
Rent	2	0	0
Tithes	0	7	0
Rates	0	3	0
Hoeing	1	15	0
Sowing	0	7	0
Seed	0	1	0
Threshing	0	14	0
Reaping	1	2	0
Manure, nitrate of soda	2	0	0
	£8	9	0

RECEIPTS.	£	s.	d.
9 sacks Wheat, at 17*l.*	15	6	0
Straw, about 2 tons ..	2	15	0
Chaff	0	9	0
	£18	10	0
Expenses	8	9	0
Clear profit per acre	£10	1	0

Twelfth year of Wheat after Wheat, 1856.

EXPENSES.	£	s.	d.
Rent	2	0	0
Tithes	0	7	0
Rates	0	3	0
Hoeing	3	0	0
Sowing	0	6	0
Seed, 2¼ pecks ..	0	5	7
Threshing, 3*s.* 6*d.* p. qr.	0	19	3
Reaping	0	14	0
Manure, lime	2	0	0
	£9	14	10

RECEIPTS.	£	s.	d.
11 sacks of Wheat at 15*l.* 10*s.* per load ..	17	1	0
Straw, 2 tons at 30*s.*	3	0	0
	£20	1	0
Expenses	9	14	10
Clear profit per acre	10	6	2

Comparative averages of the last two years.

1855 ..	£10	1	0	£4	7	6
1856 ..	10	6	2	3	12	8
2)	£20	7	2	£8	0	2
	£10	3	7	£4	0	1

	£	s.	d.
Mr. Piper's	£10	3	7
Rev. S. Smith's ..	4	0	1
Balance of profit in favour of Mr. Piper's plan, per acre ...	£6	3	6

J. D. Piper, Colne Engaine, Essex.

STEAM CULTIVATION.

THE steam plough is now a constant attendant at our agricultural meetings, and the subject is constantly in the mouths of agricultural speakers.

At the *Long Sutton Agricultural Meeting* last week it was the subject of a toast. In the course of the evening, Mr. J. A. Clarke proposed "Success to Steam Cultivation," coupling with it the name of Mr. John Fowler. The experiments they had made that day in regard to weighing coal, measuring land, taking the time of work, &c., in connection with the steam plough, had been impeded by the novelty of the apparatus, and that being the first day of the trial of the machine, the observations of the judges were so obstructed that he did not feel called upon to state the results at which they arrived, but they had all observed that the plough advanced at the rate of 2½ miles per hour; that it had taken three 10-inch furrows, and could have taken four if the machinery had been in proper order; and that it had gone 6 or 6½ inches deep. He could not say that the work had been done well; but at the same time they must all see that had the implement been in proper order, there was great power and capability in it. And at Uppingham last week he saw ploughing done by steam in the most beautiful manner, at the rate of one acre in one hour. The toast was drunk with great enthusiasm.

Mr. Fowler, who was warmly greeted, said it gave him great pleasure to have to respond to the toast last given. He believed it was the first time such a toast had been proposed at any agricultural meeting. "Success to Ploughing" had often been proposed; "Success to Agriculture" was a common toast. But "Success to Steam Cultivation" was a recognition of the principle of steam cultivation. It gave him additional pleasure to respond to the toast, because he felt that it was not by any means personal. He had done something, he hoped, considerable towards solving this great problem, but he had many co-workers and assistants in that direction. There were some whom many would consider rivals, but he regarded them as co-workers, who were equally interested in the toast with himself—Mr. Boydell, Messrs. Crosskill, and others. Three or four of them were all endeavouring, to the best of their ability, each in his own way, to solve this great problem. That its solution was close at hand he had no hesitation in saying was his full belief. The result of that day's trial was pretty much the same as if they were to take a new engine of the best principle and set it on the first day it left the workshop to run an express train from London to Manchester; the train would be sure to be late at its destination. So it had been with the steam plough that day. The failure of that day they attributed to its right cause, and, therefore, he would say no more about it. As regarded the results of steam cultivation, he had no hesitation in saying that his experience during the last 12 months clearly showed they must be of the highest importance. On heavy clay land, the difference between the use of steam and of horses was beyond calculation. From the manner in which the last toast was given and received, he had great pleasure in believing that they were fully prepared to receive steam as a cultivator as soon as it was ready to their hands. But a very short time would elapse before that day arrived. So far as his own plans were concerned, they required but little amendment, and he believed would receive but little amendment. Both Mr. Boydell and Mr. Crosskill had brought out machines which, under certain circumstances and on certain kinds of lands, would achieve very important results; and on their behalf, as well as his own, he had great pleasure in thanking the company for the very cordial manner in which they had received this toast.

Mr. Aveling being called upon, stated that last April he ploughed about 100 acres with Fowler's steam plough. The land was exceedingly heavy, but when they had a good day's work, they ploughed 8 acres in 10 hours; and then the expense did not exceed 5*s*. per acre. That was not a statement made by guess; there were numerous farmers who kept an account of the work, and this fact would be borne out by any of them—that the cost did not exceed 5*s*. per acre when they got on well. A voice: What depth did you go? Mr. Aveling: We never plough shallow in Kent—never less than 8 inches. Mr. Fowler: And when you did not get on well, it was owing to imperfect machinery. Mr. Aveling: We are very anxious in Kent to have the steam plough. I hope we shall very shortly get it, for our land is much heavier than it is here; and I am certain that if we could plough it by steam, we should grow one-third more produce per acre.

Mr. Wm. Mawby followed, stating that in January, 1856, he attended a lecture on steam cultivation; and he then heard it stated that 159,000,000*l*. a year was expended in agricultural pursuits, and that the agriculturists consumed a quarter of the produce of the land. On hearing this, he thought it was time something should be done to improve the present system. It was also stated that it was of no use going on the land with a less power than a 40-horse steam engine. He thought that if it was not to be done without that it was useless trying it at all. At present, a ploughman had to walk 11 miles to plough an acre of ground, and not with the most comfortable shoes. They would excuse him, but the question of agricultural labourers' shoes ought to be considered. He thought the Royal Agricultural Society of England should offer a prize of 50*l*. for the best pair of high shoes. Remarking on the footprints he had noticed on land ploughed by horses, Mr. Mawby said he had calculated that nearly 150,000 reservoirs for stagnant water were thus produced on a single acre. He had always understood that those reservoirs were very injurious, and that a quantity of bad grain was always grown there. Now farmers were always careful to select their seed, and why should it not grow all alike if it were ploughed alike and treated alike? With the steam-plough they would have no reservoirs for stagnant water, and the men instead of "driving their teams a-field," would ride like gentlemen. After mentioning an instance in which the produce of a piece of land had been almost doubled by the use of Mr. Fowler's plough, the speaker concluded by expressing his belief that the time would come when all the chief operations of agriculture would be performed by steam.

At the late meeting of the *Vale of Stour Farmers' Club*, where agricultural machinery was the subject of discussion, Mr. Joseph Lander referred to the steam plough trials at Salisbury, praising Boydell and Forster for the efficiency of their machinery and the excellence of their performance, but declaring that we must yet wait for a farmer's cultivating implement driven by steam power.

And at the recent meeting at Acton, where the S. W. Middlesex Society held their annual ploughing match and show, Boydell's Traction Engine drawing Fowler's framework of ploughs round and round the field was one of the principal attractions.

Home Correspondence.

Lois-Weedon.—It does seem that many have undertaken a Lois-Weedon corn culture without due attention to its practical economy and with but little regard to the principles upon which it is based, nay, sometimes overlooking them altogether; hence failure and unsatisfactory results. Under these circumstances I may perhaps be permitted to intermeddle in it, and the more so as I enjoy in some degree Mr. Smith's good opinion in the way in which I take it. In the first case it should not be overlooked that Mr. Smith does not propose to grow Wheat without manure on soils not adapted to it; but in such case, where it is wished to produce it, he admits, and does apply, such matters as alter the texture of the soil and fit it for bearing Wheat. To the success of the Lois-Weedon plan it is then necessary to choose on the farm a proper Wheat soil—soil on which under ordinary culture a man would sow Wheat—the next thing is to bear in mind that two objects are to be kept in view, the preparatory and the actual tillage. The first, which is effected only in the 3-feet intervals, is to raise fresh mineral matters, to break them down by continuous workings, and so to expose frequently fresh and large breadths of surface to atmospheric action, and thus render soluble the largest possible amount of them; and, as the greater the length of time they are so exposed the larger will be that amount, it is advisable, as Mr. Smith indicates, that the first and deepest forking should take place before winter, indeed as soon as possible after the rows of corn are distinctly to be seen. The second is so to work and keep from weeds the surface as to promote the growth of the existing crop, and enable the soil to drink in all fertilising fallings from the skies. We now come to the tillage of the crop, and here as in all thin sowings early cropping is indispensable, and in nothing is it more so than in Wheat, as it is very desirable that the plants should tiller before winter, "to," as Mr. Smith says, "give every stem an equal start in the spring," and as to tillered Wheat he remarks: "Tillered Wheat has a bad name. But that has reference only to Wheat which has tillered late in the spring." This early sowing is also necessary to allow time for forking the intervals to the required depth before winter sets in, that the fresh matters brought up may be exposed to the severe disintegrating actions of frosts and thaws as well as longer exposed to atmospheric influence. But in this early sowing there is a further object, which Mr. Smith does not notice, but which I think renders it, if possible, even yet more desirable. I have observed that a very superficial stirring of the ground, as soon as the appearance of the plants permits it to take place, greatly promotes the luxuriance of cereals, and conveys to them a strength and rapidity of growth that they carry on through the whole period of their being. At this time the nutriment contained in the seed is exhausted, and in its weaning state the plant suffers; the stimulant afforded by the breaking up of the surface conveys a vigour to it that it ever after retains. The forking cannot effect this, for in the first case it is only operative in the intervals, and in the next place being an operation of time, the larger portion of the ground must remain unmoved till the period has passed for obtaining the contemplated effect. The working of the 3-feet intervals has then a distinct and determinate object beyond that of promoting the actual growth of the existing crop. It is the preparation for an ensuing crop, and scarcely anything more. We are to look upon it solely as a fallow, unless we admit of leaf feedings by evaporation. The air feeding is matter of space, and not of working. The roots of the plants may, however, as Mr. Smith supposes, derive nourishment from and luxuriate in the broken ground, though I have doubts on that head. Still it is as fallow we must regard it. But it is more than a common fallow, it includes the raising to the surface a small quantity of that soil that has never seen the light of day, with a view of obtaining fresh mineral food; how much of this it may be necessary to raise we know not, much must depend on the mineral contents of the subsoil; but as the quantity of inorganic matters found in plants is very small we are to suppose that very little is needed, and I am in some doubt whether so continual a raising of subsoil as Mr. Smith practises is necessary; even it admits of question whether the deepening of the soil is absolutely required for the full development of the Wheat plant, for Mr. Piper obtains full crops and never deepens; it is true he manures, but we are not treating of food but space for roots, the working being deep enough to afford food. Perhaps it might be found that even in the most worn land, after an inch or two of fresh stuff had been spread over the surface in the first two years, we might dispense with the deep forking for some time, but we have no experience of this, and we have ascertained facts in Mr. Smith's treatment. After this deep forking the surface should be frequently worked, not only to prevent the growth of weeds, but with the main object of breaking up the crust which prevents the access of air, dews, and light rains, and exposing of fresh surfaces. I am not sure that deeper working is necessary than what is required to effect this and the stirring up to the full depth of the soil newly brought up. If deeper than this it should not be done nearer the rows than Mr. Smith directs. I think it would be ill done to disturb the roots. I ascribe to this deep working between rows a failure in Mummy Wheat; it was kept growing so long that it never filled and scarcely ripened. Mr. Smith directs the first forking should approach within 3 inches of the rows, the subsequent workings receding from the rows to the distance of 9 inches, thus the concluding ones would only be 18 inches wide in the centres of the intervals. To promote the growth of the actual crop both between the rows and on the outsides of them that have not been stirred by the interval workings, the ground should be broken and kept clean of weeds. *J. M. Goodiff.*

Thin Seeding, late Ripening, and Rust.—A capital text to preach from; one from which the whole tribe of incorrigible thin seeders may derive a vast amount of benefit if they will but incline their ears to hear instruction and be wise. No five words can be more redolent of truth and common sense. Thin seeding produces late ripening; late ripening produces rust, and rust as naturally produces anything but a good sample of Wheat. By rust I understand mildew, with all its concomitant evils of thin, lean, shrivelled grain, an unseemly proportion of bran to flour, and a corresponding diminution in the weight per bushel. I do not mean to say that even a full allowance of seed will at all times insure exemption from mildew, but this I think I may safely affirm, that take the crops of any given district, the proportions attacked by mildew (and there always will be some even in the best of seasons) will generally be those sown the thinnest, the latest, and on the rankest and richest seed bed. Did you ever notice a few scattered plants of Wheat growing on a dunghill? You have. Well, they were thin enough, and luxuriant enough during their growth, but what were they at harvest time? Not worth gathering. Like wayward children, they were spoiled by over indulgence, late hours, and an injudicious mode of treatment, each and all forming a sufficient answer to the query of your correspondent "F. L.," why the stronger and apparently more healthy thin sown plants should be more liable to disease, rust for example, than the slighter and apparently weaker broadcast plants? Why, indeed! Like many other natural phenomena we know the fact, but little or nothing beyond it. As to the failure complained of by "F. L." I cannot say I am much surprised at it, and only rejoice that the thin-seeding experiments were not likely to have many advocates among practical farmers; for if all the Wheat lands of England were put upon the short allowance of "1 to 2 pecks per acre" I suspect the result of the harvest would fall very short of what it ought to do, and what with a reasonable amount of seed (say 5 to 10 pecks per acre, according to the season and time of sowing) it most probably will do. I have no intention to enter upon a discussion on the relative merits of dibbling *v.* broadcast. As, however, "F. L." incidentally mentions both, I would respectfully suggest that in future he should sink the broad-cast, and, where he does not dibble, adopt the drill. Nobody, except he be of the oldest of the old school, broadcasts his corn now-a-days. The choice lies between the dibble and the drill. In large occupations indeed, the drill must of necessity be most in request, because the process of dibbling is comparatively so slow, and the number of hands so inadequate to the work to be done that it would be next to impossible to get through the Wheat sowing in any reasonable time; but rely upon it that wherever practicable the dibble stands A 1, especially where, as in "F. L.'s" case, it is required to make the most of a small quantity of seed. In fact, but for the dibble the thin seeders would cut even a worse figure than they do, a result by no means desirable to behold. In conclusion, I would by all and every means, wherever possible, do nothing that is likely to retard the progress of the corn to maturity, and so delay the harvest operations. Nothing is more likely to produce this effect than either late sowing or thin sowing; but as the whole crop, whether of Wheat or any other grain, cannot be sown all at once, there must necessarily be an interval of time between the first and last sown. Now during this interval the practice in Norfolk used to be, and I suppose still continues, for it is a most judicious one, to increase the quantity of seed, as the season advanced and the weather became colder. I have seen a crop of early sown (by sown I mean dibbled), at 5 pecks an acre, as good and strong a plant as 10 pecks an acre would produce, drilled or dibbled at the fag end

of the season; nor is this all a matter of wonder, when in the former case the seed might germinate in 7 or 8 days. whilst in the latter it might not make its appearance in as many weeks, especially on cold, thinskinned, clay soils, where not unfrequently a portion never vegetated at all. *Samuel Taylor, Gloucester.*

Carrots.—In p. 90 of the "Dictionary of the Farm," by the Rev. W. L. Rham, revised and re-edited by W. H. Raynbird, published in 1853, I find it stated that Carrots may be sown in spring amongst Barley, in the same manner as Clover usually is, with this difference—that the roots are taken up before winter, and the land may be sown with winter corn the same year. This is commonly practised in Belgium. The Barley, amongst which the white Carrots are sown, is chiefly winter Barley, which is reaped early. As soon as the Barley is cut the land is well harrowed to pull up the stubble, the weeds are carefully taken out, and liquid manure is poured abundantly over the surface. The Carrots, which were scarcely visible, of which the tops were cut off in reaping the Barley, now shoot rapidly, and where they grow too thick are thinned out by hoeing. By the end of autumn a good crop of Carrots is obtained, and if they are carefully forked up the ground may be sown with Rye without any other preparation. As the above inviting method of taking two crops from the ground in one summer looks profitable and remunerative, I am surprised to find that it is unknown and unpractised in my neighbourhood. I should be obliged to any one who would enlighten me on this subject, state if this mode of culture has been tried in England, give details, or the reason why it is not practised here. Would the sowing of the Barley and Carrots now in the autumn or in the spring be preferable? At what distance should the Barley drills be, if a row of Carrot is to be between them? *An Amateur Cultivator and Subscriber, Christchurch, Hants.* [The two crops are not very compatible with each other. In the only case in which we have seen the plan imitated here the Carrot crop was nearly valueless.]

Farmers' Clubs.

Haddington: *Road Reform.*—This subject was discussed at a late meeting of the Club, in order that an opportunity might be had for expressing the feeling of the body on a surveyor's report on the East Lothian roads. The following resolutions were carried unanimously:—"The Club, having considered Mr. M'Connell's report on the turnpike and statute labour roads of the county, and assuming that he has given a correct statement of the present condition of these roads, and made a fair estimate of the sums necessary to maintain them in future, resolves—1st. To adhere to its former resolution in favour of a rate on horses and on lands and heritages conjunctly, and condemnatory of the present toll-bar system, as alike 'expensive and inconvenient,' and most unjust in operation. 2d. To condemn in the strongest possible manner Mr. M'Connell's proposal to consolidate the different road trusts, and at the same time to extend the present system by placing new bars at points best calculated to intercept the traffic, as this would merely assess those residing in the immediate neighbourhood of these bars, and other parties might constantly use a greater extent of road without paying anything. That at present the North District toll-bars produce 700*l.* a-year, while Mr. M'Connell calculates the expense of maintaining these roads at 800*l.*; yet out of the 15 new places where the traffic has been checked, and which are indicated by Mr. M'Connell as points for new toll-bars, eight of them, which he calculates will raise 1500*l.* a-year, are situated in the North District—clearly showing the short distance of the general traffic on these roads, and the injustice that would be committed were the funds raised there taken to other parts of the county, as they would, or might be, were this proposal carried out. 3d. The Club observes with much satisfaction that resolutions have been proposed at a recent meeting of the road trustees by Sir Thomas Hepburn and by Lord Elcho, either of which would be infinitely preferable to the existing system, and still more to any extension of it." [Since this meeting a county meeting has discussed the same subject, and resolutions the reverse of the above were carried by a casting vote. Lord Elcho moved the adoption of a county-rate as the best and most cheaply collected fund for the maintenance of the roads—Mr. Hamilton Nisbet moved the continuance of the present system of collecting funds by toll-bars—the latter motion was carried by the casting vote of the chairman.]

West Kent.—The Rev. W. M. Smith Marriott, who was in the chair, said he recollected that it had been said by Washington Irving, that in his rambles in England, whenever he came to a secluded village, with nice cottages and gardens, and saw through the trees the squire's house; whenever he saw a good parsonage, a good church and churchyard, neatly kept, and the cells of the forefathers neatly observed and due honour paid to them—in such villages he observed and found that the people were happy and contented, that they were generally moral and well conducted; and he (the Chairman) did believe that if a little more attention were paid than generally was the case to the dwellings of the poor, a very great change would be made in their habits. Much had been done in the way of improving cottages in England, and they could bear comparison not only with the sister country, but with any country in the world. Still there was more yet to be done. There was one thing much to be condemned, and it was the system of persons purchasing a little land, and building a lot of ill-conditioned cottages, with no gardens, and charging a high rent. If a little more attention was paid to this subject, the landlords would feel convinced of the benefits which they might confer upon the poorer classes, and the very great social change which they might be the means of bringing about by giving them comfortable homes.

Mr. J. Whatman, M.P., said that it was quite extraordinary, in looking over the country, to consider on the one hand to whom the great bulk of the land belonged, and to see, on the other hand, to whom the great proportion of cottage dwellings belonged. The land belonged comparatively to a few of the rich; but he believed the far greater proportion of cottage property belonged to that class of persons, who, however able to appreciate comfort in the dwellings, and however disposed to make them convenient, had not the means to make proper cottages. They were, to a very great extent, labourers themselves, and servants in actual service. The chief reason of this was, that cottage property was supposed to give a high rate of interest for investment. Consequently, those who had saved a little money invested it in this way. When people asked his advice in this matter, he told them not to buy or build anything of the sort, giving them a reason with which they were generally perfectly well satisfied. He told them, "It is very true you get a large return in the shape of interest in rent on your purchase money, but you forget to look forward to the repairs which sooner or later will be necessary." If they looked through the parish they would generally find that when the houses possessed by these people became out of repair, they were tenanted by a class of people more or less troublesome. He did think that it was the duty of owners of property, so far as they could, to pay more attention to this subject, with a view to provide better house-accommodation for the labouring classes cheap.

Vale of Stour: *Agricultural Machinery.*—The following report of a lecture on this subject is abridged from the *Dorset Chronicle*:—

Mr. Joseph Lander said he should endeavour to show the important results which were now attained and likely to be extended by steam machinery. He would commence with the plough. With all the new inventions they had not found as yet anything to supersede this ancient implement. No doubt many present had seen the old-fashioned plough, with its wooden turn-furrow, as formerly used in this neighbourhood; and the remembrance of it would only convince them of the fact that in no inplement had there been more important improvements made within the last half century than in the plough. There were now a great variety offered to the agriculturist. For many districts the Scotch swing plough was considered the best, though not much used in this neighbourhood, where the favourites were those manufactured by Messrs. Howard, of Bedford; Messrs. Ransome & Sims, of Ipswich; Mr. Pearce, of Poole; and Messrs. Tasker & Fowler, of Andover. He believed there were more of the make of the last two firms used in this locality than of any other; and they were found to answer very well indeed. But by referring to the prizes awarded at the last show of the Royal Agricultural Society, it would, he thought, there be seen that Messrs. Howards of Bedford stand as A 1 for the manufacture of the best iron plough, it having gained 13 first prizes at the Royal Agricultural Society's shows, which must be a proof of its superiority as a plough for light land, for deep ploughing, and for general purposes. Mr. James Withers, in a lecture to the Botley Farmers' Club, stated that, in a comparison with other ploughs used in his neighbourhood, Messrs. Howards went through the land as a hot knife goes through butter, leaving a beautiful smooth and even furrow, which is turned first a little, and then a little more, every part rubbing the turn-furrow as it passes along, until it is completely turned, with the grassy part underneath, thus leaving a beautiful seed bed on the top, and earth for the harrow to work upon. The other ploughs, he said, were dragged along through the soil with the long point of the share first raking up the furrow, instead of cutting it; the breast of the turn-furrow first taking the edge of the furrow, instead of the underneath of it, and pushing it away edge-ways, and not turning it until it was almost out of the reach of the hinder part of the turn-furrow, which is generally much too short with the old ploughs, the consequence of which was that it left a great portion of the furrow not turned at all. The turn-furrow was also frequently seen with a hole worn through it by the pressure of the furrow, which would easily explain how it was that Howards' ploughs, and ploughs of a similar make, were of so much easier drought. He would now make some allusion to steam ploughing, a subject on which, no doubt, they all felt considerable interest. Most of the gentlemen present had the opportunity of witnessing the trial of those implements, or machines, at the past Salisbury show, and he thought they would agree with him that until they became much more modified or less burthensome they would not suit the practical farmers. His opinion and that of many others was, that Fowler's plough did its work best. But there is a great deal of improvement to be made before these articles are to be brought into general use; although all observers must have been greatly pleased to have seen to what perfection they are already brought. They must also have been greatly pleased to see Boydell's patent traction engine, or steam horse, as it is justly termed, drawing its load after it, regardless of ascending or descending the hill. But for the present they must make up their minds to wait a little longer, and see further trials made by some of the most practical engineers before they could recommend steam ploughing for economical and practical use; although he did not think the time far distant when it would become general in this country. The next machine to which he called attention was the reaping machine, which had now been nearly brought to perfection. The prejudices which generally oppose a new invention in this case, as in many others, are generally being overcome, and reaping machines will shortly be indispensable to the practical farmer. It appeared that the expense of cutting by machine and tying per acre, including horse hire and wear and tear, is about 5*s.* 3*d.* or 5*s.* per acre, and the work is done in a very satisfactory manner. Then there is the advantage of being enabled to have whole fields of corn cut down, at the very point of maturity, and of harvesting whole fields with dispatch, especially in those districts where the difficulty of procuring hands, even at enormous wages, aggravates the danger from the uncertainty of the weather.—The threshing machine he considered had been improved upon more than any other. The three different descriptions of machines which he should call their attention to were:—First, the horse-power machine. Secondly, the four-horse power steam threshing machine, with steam shaker. And, thirdly, the combined steam threshing and winnowing machine. His object was to show the advantages, as near as his practice and experience would admit, and also the expense of threshing per sack by each machine. To do this he had drawn up a list of expenses by each system of threshing. But before going into that matter it would be well to mention that the circumstances as to how corn has been harvested, its yield, and whether it was very long in the straw, had a tendency to make a material difference in the amount threshed per day. After entering into the items, he proceeded to observe that they would see, according to his calculations, that it would cost to thresh a sack of Wheat and winnow fit for market by manual labour about 2*s.*; with four-horse power threshing machine, 1*s.* 7½*d*; with four-horse power engine and machine 1*s.* 2*d.*; and with combined machines, about 1*s.*, according to the yield. Now they would perceive by this that each step or progress in machinery had had a tendency to decrease the cost of threshing and preparing corn fit for market. Now, besides the advantages in the cost of threshing per sack, with the portable combined machine, there was a saving of 3½*d.* per sack by avoiding the labour and expense of taking the rick into the barn, which would reduce the actual cost per sack to from 8½*d.* to 10*d.* There was another consideration, whether the use of portable combined threshing and winnowing machines was of more advantage to the practical farmer than the process of rough winnowing. He considered that if they could winnow by the first method fit for the market, under all ordinary circumstances, it would be of great utility; but, if not, he could not see the advantage, because there would be no saving of cost. Although portable machines were mostly used in this neighbourhood, he was quite aware that fixed machinery, such as used in the north of England on large farms, was the most advantageous to the agriculturist, as he had the opportunity of driving many descriptions of machines by the same engine, at great advantage in the first cost, and also with greater economy afterwards.

Reviews.

Guideway Steam Agriculture. By P. A. Halkett. J. Ridgway, Piccadilly.

This pamphlet contains a letter by Mr. Halkett, of West Hill Farm, Wandsworth, to the Secretary of the Agricultural Society of England, written some months ago, in which the method of applying steam power in cultivation and in reaping which he has devised and carried out is described. "It consists in laying down, at wide intervals, permanent guideways or rails, by which means a platform, carrying the motive power, is supported and guided, and to the under-side of which are attached the various implements to be used. The whole of the weight being carried, without bearing in any way on the land, culture can be forwarded in any weather and state of the ground without injury, even on the heaviest clay soil, leaving it in a state of lightness impossible to arrive at where the weight of men, implements, horses, or tractive power is constantly consolidating or poaching it, added to which, by consecutive ploughings in the same furrow, it can be cultivated to a depth hitherto unattainable except by the costly operation of deep spade trenching, while fresh soil to an exact quantity required may be brought up and intermixed with the top soil."

The land is in fact laid out in beds some 50 feet wide, and in every furrow is a single permanent line of rails—the platform carrying ploughs, cultivators, rollers, reaping machines hanging from it and drawn by it is thus 50 feet wide, and travels on two adjacent rails. As Mr. Halkett says:—

"The weight also of other things besides that of the engines and implements will be carried with great advantage upon the rails, all the crops will be carried off, and the manure carried on to the land; and when the number of tons weight is considered which these constitute upon many farms or gardens, varying from 20 to 100 tons per acre per annum, and the extent of land that there is for their cartage, and it is remembered that a horse draws *twenty* times as much on a railroad as it does on a ploughed field, while in addition steam power performs work much cheaper than animal power; it will be seen to what advantage, in comparison with others, I can carry great weights. In fact varying soils may be carried from one part of a farm to another for intermixture with each other, or, if a farm abuts a railway, be brought from a distance, and deposited on the spot required, without in its transit once coming off rails. An improvement to the land may be rendered practicable by this means, where now one is impracticable, and landed estates often be increased in *permanent* value; also farms thus situated may send any of their produce to towns without the crops having been off a rail from the time of leaving the soil, and, in return, manure may come back in the trucks.

"The quantity that could be ploughed per day with power suitable to a farm of 1000 acres would be 25 acres, and two men would be all that are required to conduct the operation. This calculation, it must be understood, is based upon the work which I have repeatedly done. And, moreover, when the time presses, by a change of men double this amount, namely 50 acres, may be done in the 24 hours, because the operation can be carried on by night as well as by day. Conceive the great advantage of being able thus to break the land up in favourable weather, or for a rapid autumn cultivation. This great economy of time I may add is also available for reaping and carrying harvest.

"The rails forming a guide to the implements insure that every operation shall follow in the same line or parallel to it. Thus I have drilled by the steam machinery rows of plants, and when they have come up I have hoed them repeatedly by the same steam machine with the greatest perfection, and at all stages of their growth. In fact, I have placed the blades of the hoes on each side of the rows, so near to them as to cut within half an inch distance from the stalks without doing any injury to a single plant, as the machine hoed them."

A letter by Mr. Braithwaite, C. E., upon the details

of the plan gives the following figures as the probable cost of the 'plant' and machinery required, and of the several operations to be performed:—

"Assuming the Permanent Way upon a farm of 1000 acres to be set out at widths of 50 feet, which would involve a platform of at least the same length to carry the engines and to which the various implements would be attached, I consider the cost per acre, including the traverse rails on head lands road, would amount to 25*l.* per acre, plus 10 per cent. contingencies, 27*l.* 10*s.*

"The cost of the platform, including the engines, boilers, the auxiliary trucks, together with the agricultural implements, would amount to 2880*l.*

"The cost of wear and tear upon railway and machinery, including agricultural implements, may safely be estimated at 30*s.* per acre per annum.

"The cost of cultivation may safely be taken at your figures, except reaping and carriage of manure, which I should increase.

Ploughing	1*s.*	7*d.*	per acre.
Deep cultivation	12	0	,,
Scarifying, &c.	0	8	,,
Harrowing, rolling	0	5	,,
Hoeing	0	3	,,
Reaping, cutting and delivering ..	0	10	,,
Underground watering	1	0	,,
Surface watering	1	2	,,
Carriage of manure on to and distributed	0	1	per ton per mile.

"The cost of the Permanent Way, set out 30 feet apart with head land traverse rails, would involve too great an outlay of capital, which would not be compensated by any corresponding advantages. The cost of machinery and implements would it is true be about 800*l.* less, but the extra cost for railway would involve an additional outlay of 17,000*l.*, and therefore I do not think it necessary to remark further upon it."

Calendar of Operations.

OCTOBER.

LAMMERMUIR SHEEP FARM, *Oct.* 13.—The harvest in this district was brought to a satisfactory conclusion in the last days of September, and on the whole we have had a very favourable one. Little corn was cut before the rainy weather, and that little did not suffer much from sprout. On those farms where the cutting was later in being begun, the crop was all secured in admirable condition, and a rare thing it is on a Lammermuir farm to have no damaged corn. The crops, however, in this neighbourhood are not bulky, but have the appearance of yielding well to the stack; the grain while growing having shown a finely feathered and well filled head. The straw will also make capital fodder, which is of great importance on stock farms. The weather continues soft and open, and autumn operations are being performed quite to one's mind. Never has there been a finer season throughout for hill grazings, such abundance of Grass, and fine weather overhead, so that the flocks have got the full benefit of it; and in fine condition they are—in fact we never saw them better. Turnips are making great progress in bulbing, and give a good promise of winter and spring keep. This must be the case also in the principal Turnip growing counties in the East of Scotland, as there has been a very great local demand for lean stock. Many lots were picked up at home in the early part of the season and so never went into the public markets at all, and such lots as had been bought then by dealers and kept on till now, have been resold at very handsome profits. Lambs have advanced very much in price since the regular lamb markets, we should think from 3*s.* to 5*s.*, and can scarcely be had now. Of course the keep for two months has to be charged against the rise. But such lambs as are generally sold at this time of the year are only of second and third rate quality, and bring proportionate prices, whereas this year they have brought in many instances as much money as the tups did. Wedder sheep for Turnips have also brought high prices, and ewes have risen 2*s.* or 3*s.* since the first trysts of the season were held. It must be rather annoying to stand in a market and see the stock you have recently parted with resold at an advance of several shillings; but in many instances this has happened, and in a late market we were informed of one lot of ewes which were resold at an advance of 4*s.* 6*d.* per head, and had not been in the possession of the first purchaser above a day or two. Flockmasters have this year, however, every reason to be satisfied, as wool, lambs, and ewes have all been sold at high prices. Much benefit has been derived from the eatage of the stubbles since harvest, and as the weather has continued fine the sheep which have been turned upon them have picked up very cleanly any corn that was left. *J. S. B.*

Notices to Correspondents.

BACON: *J.* The process is little more than a singeing, and no doubt a wisp of straw on fire drawn gradually over the surface would do the thing effectually, with less liability in inexperienced hands to burn the skin.

CALVES: *F Hale.* Are you sure that the disease is not owing to ill treatment? A calf beaten about the head is like to suffer "inflammation of the eyes." Calves are very liable to simple ophthalmia or inflammation of the outer coats of the eye—the cornea and conjunctiva—which for want of care and treatment often runs its course and ends in blindness. If the vessels of the lids were scarified with a lancet, or the vein just under the eye opened and the eyes well and frequently fomented with warm water, the inflammation would generally subside. *W C S.*

CEMENT: *Wilts.* We must refer the relative merits of Portland cement and asphalte for a barn floor to our correspondents. Will any one who has had experience or knowledge of both be good enough to state the result?

COMFREY: *C R.* We have had no experience of it as a forage plant; perhaps some of our correspondents may be able to tell you if it has deserved the praise it has received.

RAPE-DUST: *Young Farmer.* Sow 6 or 7 cwts. per acre broadcast in early spring, and hoe or harrow it in on arable land. If applied to meadow land it had better be with an earthy compost and applied during winter. Will any of our Yorkshire readers give us their experience of this manure?

STRAW: *Somerset.* Hay may weigh from 8 to 14 cubic yards per ton, and straw from 10 to even 20, according to the age and size of the ricks in which it lies.

WHEAT MANURE: *C Pocklington.* You must not mix sulphate of ammonia with lime. The lime had better be thoroughly mixed with the soil in autumn, and the ammoniacal manure may be applied to the surface of the soil covered with the growing plant in wet weather during spring; or if in dry weather, at once hoed or harrowed in. 3 cwt. of common salt and 2 cwt. of sulphate of ammonia will be a good dressing per acre in the spring. Sulphate of magnesia may be 7*s.*, and sulphate of ammonia 18*s.* or 19*s.* a cwt.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Oct. 24.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots ..		FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots ..		SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)		
June 18, Royal Botanic Society—50 Cut Roses ..		FIRST PRIZE
Do. do. 10 Roses in pots ..		SECOND PRIZE
June 24, Brighton .. 50 Cut Roses		FIRST PRIZE
June 24, Manchester .. 50 Cut Roses		SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.		
July 1, Royal Botanic Society—24 Cut Roses ..		FIRST PRIZE
,, do. do. 50 Cut Roses ..		FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses ..		FIRST PRIZE
,, ditto, collection ditto ..		FIRST PRIZE
July 9, Diss .. 50 Cut Roses,	FIRST PRIZE,	SILVER CUP
,, do. .. 100 Cut Roses,	FIRST PRIZE,	,,
July 15, Stamford .. 12 Cut Roses,	FIRST PRIZE,	,,
Sept. 9, Crystal Palace 50 Cut Roses,	FIRST PRIZE,	,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Countie Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara . } 1 to 10 ft.
,, Africanus } The largest and finest stock in the country.
Cedar of Lebanon }
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Warcana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 8 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* per dozen, and upwards; Dwarfs, 6*s.* per dozen, and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

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FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

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Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

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MR. JOHN WEEKS will now be happy to meet with a gentleman of energy, of thorough business habits, and with a practical knowledge of the Nursery and Seed Business. The Horticultural Buildings of this Nursery are the finest and most complete of any in the country; they have cost the Advertiser upwards of 6000*l.*, and the whole is well stocked with the choicest plants in the highest state of cultivation.

Applicants will be expected to have a fair proportion of capital at command.

Apply to Mr. JOHN WEEKS, King's Road, Chelsea.

LANDSCAPE GARDENING, ETC.

MR. J. W. CHAPMAN begs to intimate to the nobility, gentry, and all who are contemplating the formation or improvement of PARKS, PLEASURE GROUNDS, &c., that he will be prepared to give advice in these and all subjects connected with Gardening, whether ornamental or useful, furnishing the necessary Plans and Drawings for these purposes, and superintending the execution of the works during their progress. The formation of new and alteration of other plantations in both home and distant scenery, for the purpose of rendering the views from a place as interesting as possible, are subjects to which the most careful attention is given.—Dartmouth Lodge, Dulwich, Oct. 24.

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JAMES HOLDEN, FLORIST, &c., Reading, Berkshire, begs to offer any 12 of the following, hamper and package included, for 21*s.*, viz.:—Admirable, Blonde, Aquilla, Agnes, Bianca, Cygness, conspicuum, Eva, Floretta, Josephine, King of Scarlets, Marvellous, Matilda, Mr. Hoyle, Mr. Beck, Rose Raglan, Review, Standard, Symmetry, Spotted Gem, Una, Viola.

Older varieties, 12 good sorts for 10*s.* 6*d.*, hamper included and extra plants to compensate for carriage. Selection left to J. H.

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WOOD AND INGRAM beg to offer fine plants of the above, well-established in 5 and 6-inch pots, and full of bloom buds at from 6*s.* to 9*s.* per dozen. These plants have been grown in pots all the season, and are well furnished with healthy foliage to the very base. They consist of such kinds as Auguste Mie, Annie Salter, Berthilde, Bride, Campestrion, Madame Comerson, Perfection, Temple de Solomon, Anne Boleyn, Argentine, Bob, Calibri, Soltaterre, &c.

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500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.

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10,000 SPLENDID STANDARD ROSES, &c.

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The following include a portion of their Stock. These are fine bushy plants, and beautifully furnished with blooms:—

50,000 Hybrid Catawbiense, pontica, Scarlet, and other Rhododendrons.
30,000 Ghent and other Azaleas.
5000 Kalmia latifolia, 1 to 5 ft.
2000 Andromeda floribunda, 2 to 4 feet.
3000 extra fine Dwarf-trained Peaches and Nectarines from Holland's celebrated stock.
10,000 splendid Standard and Dwarf Roses, including the finest Hybrids, Perpetuals, Bourbons, Teas, Noisettes, &c.
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5000 Portugal and Common Laurels, 3 to 15 feet.
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Mr. William Cutbush, Highgate, near London
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Messrs. J. Dickson & Son, Newton Nurseries, Chester; and at 23, Market Place, Manchester
Messrs. Dickson & Co., Nurserymen, Waterloo Place, Edinburgh
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Mr. G. Wheeler, Warminster, Wilts.

Particulars are given at p. 187 of the *Gardeners' Chronicle*; in the January No. (1857) of the "Florist and Fruitist;" and may be had on application.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE **POWERFUL BOILERS.**

THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturist to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

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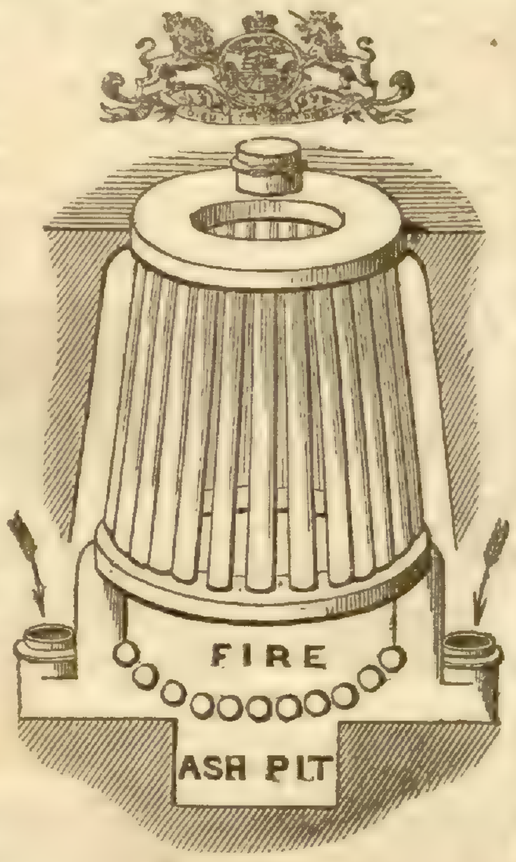
See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



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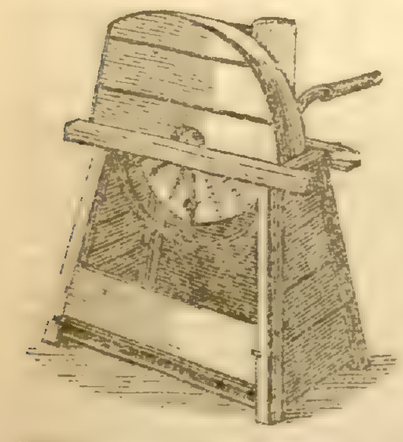
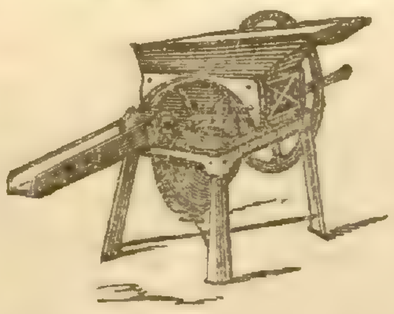
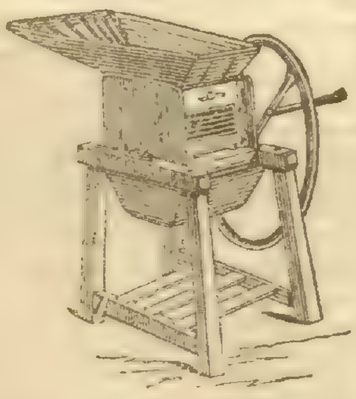
GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.

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	On wood frame.	On patent iron frame.
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
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Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
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Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power £6 10 0
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Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1 .. .. £4 10 0
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Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

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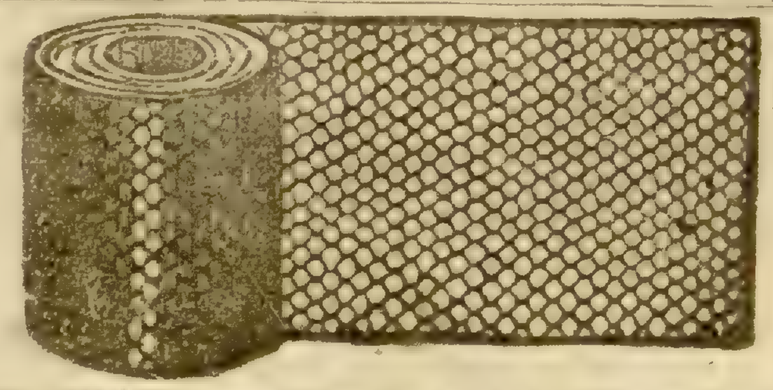
GARDEN ROLLER WANTED.—Address Mr. HARRIS, Canada Wharf, Rotherhithe, S.E. Must be cheap.



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	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong do.	6 ,,	4¾ ,,
2-inch ,, intermediate, do. ..	7 ,,	5½ ,,
2-inch ,, extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,, intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

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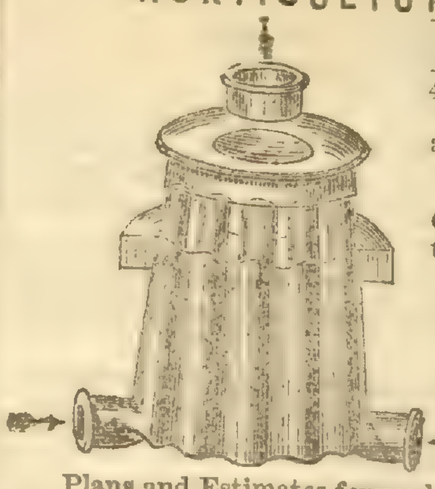

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Hot Water Apparatus of every description fixed, warranted complete in every respect, 10 per cent. under the usual charges.

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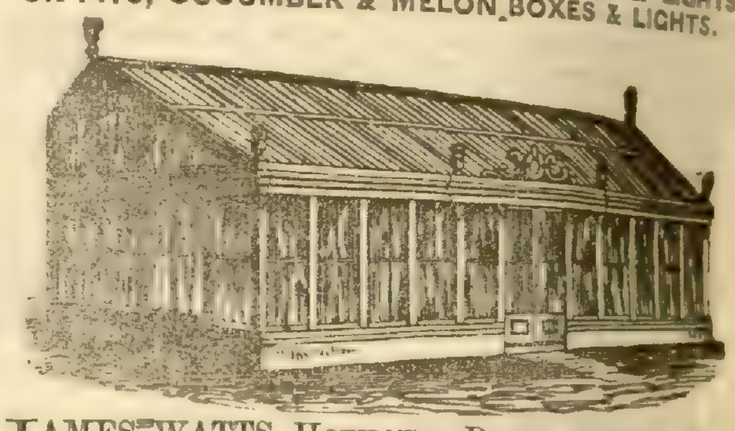
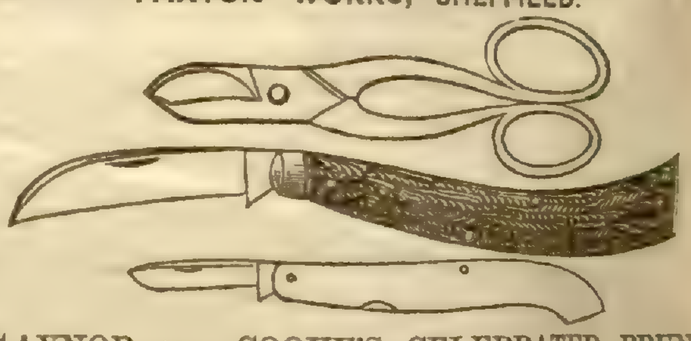


JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England.

PAXTON WORKS, SHEFFIELD.



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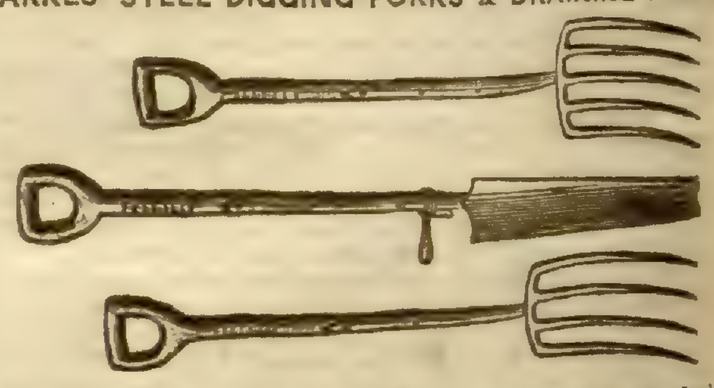

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Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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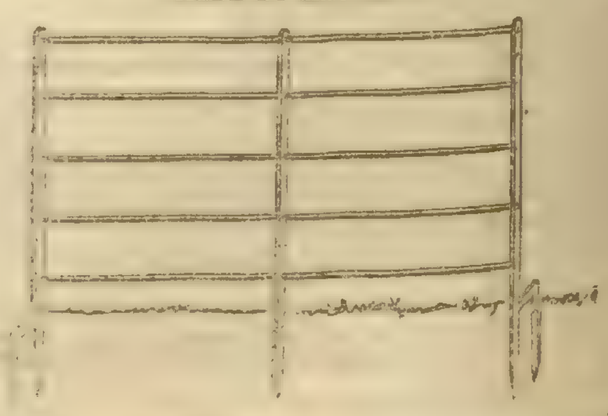
IRON HURDLES, FENCING, ETC.
MADE BY MACHINERY.



COTTAM AND HALLEN, of Winsley Street, have invented machinery for making Hurdles, &c.; the bars instead of being pointed by hand in the old-fashioned style are nippled down by the Machine, leaving a shoulder so as to more effectually tighten the standards when rivetted. They are made of superior iron only, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both Plain and Ornamental, Conservatories, Hot Water Apparatus and Garden Implements. Illustrated Catalogues free on application to COTTAM & HALLEN, Ironfounders, 2, Winsley Street, Oxford Street, W.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.
ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.* A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. POWELL, Hurst Green, Sussex.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

J. S. MORRIS, HYDRAULIC ENGINEER, 38, Upper Thames Street, City, London.

Hot-Water Apparatus complete, on low pressure principle, also erected. Improved Expansion Boxes, fitted valves, removing all pressure from the Apparatus, and striking off the various circulations. Throttle Valves, 2, 3, and 4 inches diameter: original inventor J. S. MORRIS in 1840. Conical Boilers, double or single. Tubular Boilers, with furnaces complete. Cornish Boilers. Planet Valves, 2, 3, and 4 inches diameter; originally invented by J. S. MORRIS in 1854. Pedestals, Ornamental or Plain, fitted with circulating Coils. Hot-Water Pipe and connections of all sizes at Trade prices. Plans and instructions to order for Erecting Hot-Water Apparatus.

A Treatise by J. S. MORRIS "On Warming and Ventilating Dwellings" sent free.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 8*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

JAMES PHILLIPS AND Co. beg to submit their PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ } 11*s.* 6*d.* per 100 feet.
8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½ }
10 by 8 and 10½ by 8½ .. 12 6 ,,

Larger sizes in 100 feet boxes from 14*s.* per 100 feet.

ORCHARD HOUSE GLASS,
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. } 18 0 ,,
20 ,, 13 ,, 20 ,, 15 .. }

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

HORTICULTURAL GLASS WAREHOUSE,
EXTRACT FROM "COTTAGE GARDENER."

"The good properties of really good sheet glass are various. The foreign kind especially is so indifferent, that I may caution the inexperienced to stipulate for British Sheet Glass, as much injury has been caused by substituting a low priced Belgian article for it."

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

GARDEN KNIVES.

SAYNOR AND COOKE'S KNIVES may be procured from Messrs. SUTTON & SONS, Seed Growers, Reading, who have for many years been supplied direct from Messrs. SAYNOR's Manufactory, and none others are kept on Messrs. SUTTON's Premises.

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

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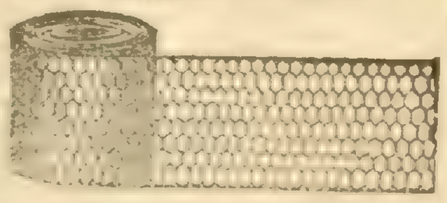

Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS or DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

AGRICULTURAL OR COTTAGE BAROMETER, price 11*s.* 6*d.* Especially designed by L. CASELLA for the Horticultural Society's Exhibition of June, 1857, as a neat, portable, and reliable Weather Glass, accompanied with plain, practical instructions, and intended as a really valuable and universal instrument.

CASELLA'S ECONOMIC GARDEN THERMOMETER to correspond, 4*s.**

CASELLA'S RELIABLE GARDENER'S RAIN GAUGE, 15*s.* 6*d.*

CASELLA'S IMPROVED PHILLIP'S MAXIMUM THERMOMETER, 15*s.* 6*d.*

"The Barometer is equal to one in our possession at ten times the price. The Thermometer, self-registering and accurately graduated, has proved upon trial to be equally efficient."—*Gardeners' Chronicle, Sept.* 19, 1857.

"These instruments should be in the hands of every farmer." "My next month's observations will be made with them."—*Mark Lane Express, Sept.* 14 *and Oct.* 5, 1857.

CASELLA'S MILK TEST FOR THE DAIRY, 4*s.* 6*d.*; Ditto, ditto, to show the per centage of Cream, 3*s.*

Manufactured only by L. CASELLA, Instrument Maker to the Admiralty, United States Government, Royal Kew Observatory, Geographical Society, &c., 23, Hatton Garden, London. A descriptive list and drawings on receipt of a stamped envelope. Sole Agent for SCHONBEIN'S OZONOMETER, 5*s.* 6*d.*

WANTED, A GREENHOUSE, either New or Second-hand, not to exceed 30 feet by 12 feet, with or without warming apparatus.—Apply to Mr. WILLIAM DAVIES, *Atlas* Office, Cardiff.

WANTED, A SECOND-HAND GREENHOUSE, about 24 feet by 12, the Boiler and Hot-water Pipes to same.—Address, T. F. WINSTANLEY, Seedsman, 28, Market Place, Manchester.

TO BE SOLD, with immediate possession, the House, Land (Freehold), Fixtures, and Stock of a Florist, doing a good business. Terms very moderate.—Apply to Mr. RICHARD SMITH, Mark House Lane, Walthamstow, Essex.

TO BE SOLD, very cheap, two FORCING-HOUSES, 63 feet long; two 30 feet long; two CONSERVATORIES, 30 feet long, and smaller ones. Some of them now standing at E. DUNCH's Patent Horticultural Works, Mornington Place, Hampstead Road, and King's Road, Chelsea. Sold in consequence of alterations being required.

TO BE LET, in a new neighbourhood, close to the town of Rugby, a SMALL NURSERY and MARKET GARDEN, with Greenhouse, Forcing Pits, and Frames. A good Collection of Greenhouse and Bedding Plants; Fruit Trees in full bearing, Shrubs, &c., also a good supply of Water.—Apply to Mr. MANNING, Surveyor, Rugby.

SOUTH DEVON.

TO BE LET, by Tender, for such term as may be agreed on from Lady day next, all the capital Barton and Farm of Stokeley, in the parish of Stokenham, in the county of Devon, late and for many years in the occupation of Mr. Maye, deceased, consisting of about 327 acres of very fertile Land, 54 of which are Orchard, 80 of Meadow and Pasture, 13 of Marshy run for young stock, and the remainder good Corn and Sheep Land; with a comfortable House and commodious Farm Buildings of modern erection, distant about 6 miles from Kingsbridge and 8 from Dartmouth, both good market towns, with good roads to them. It is well situated for Manures, being close to the Sea, and there are lime kilns near the Farm, which may be rented with it. The estate will be expected to be highly cultivated, and persons tendering will be required to show that they have ample capital for so doing.—For viewing, apply to Mr. SAMUEL CALLARD, Carpenter, Stokenham. For further particulars and the Conditions of Letting, to Messrs. MICHELMORE & SONS, True Street, Totnes, to whom Tenders must be delivered on or before Nov. 4 next.—Oct. 24.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity, upon reasonable terms, by land or water carriage.

ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

REIGATE SILVER SAND (best quality for Florists), 16*s.* per ton, or 1*s.* 6*d.* per bushel, delivered five miles, or to any London Wharf or Railway. PEAT and LOAM of various kinds, in large or small quantities. Strong sacks, 2*s.* each; or on hire, 6*d.* each.—JOHN KENNARD (Purveyor to Her Majesty), Swan Place, Old Kent Road, S.E.

Sales by Auction.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Oct. 27, and THURSDAY, Oct. 29, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, on FRIDAY, October 30, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, &c.; also a fine assortment of 200 fine Standard and Dwarf ROSES, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; selected American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c. PROTHEROE & MORRIS respectfully inform their patrons and friends that their Hyacinths and other Dutch Bulbs are particularly fine this season, and will be offered at the Mart, with a splendid and healthy assortment of Standard Roses, selected from 10,000 of their own cultivation.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

UXBRIDGE, MIDDLESEX.
TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, Victoria Nursery, Uxbridge, Middlesex, within a few minutes' walk of the Railway Station, on THURSDAY, November 5, at 11 o'Clock, (by order of Mr. Wheeler, who is leaving the neighbourhood, (the whole of the valuable and healthy Nursery Stock, consisting of fine Portugal and Common Laurels, Aucubas, Irish and Fan Yews, Arbor-Vitæ sorts, Box, Cotoneaster, Bays, Arbutus, Phillyreas, Red Cedars, Laurustinus, Green and Variegated Hollies, Privet, Ivies, Euonymus, &c., Deutzia gracilis for potting, Althæas, Ribes, fine Hybrid Catawbiense and ponticum Rhododendrons, Kalmia latifolia, Andromeda floribunda, Standard and Dwarf Apples and Pears, Dwarf-trained Moor Park Apricots, Peaches, Nectarines, Cherries, Plums, Mulberries, Ornamental and Forest Trees, &c.; also a Selected Assortment of Coniferæ, about 1500 Yards of first-rate Box-edging, a quantity of Seakale and Asparagus for Forcing, together with fine Double Camellias well furnished with bloom buds, Epacris, &c. May be viewed prior to the Sale.—Catalogues may be had on the Premises; of Mr. ASHTON, Fruiterer, High Street, Uxbridge; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

PLANTING SEASON.—FULHAM ROAD.
To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Shearman to Sell by Auction, on the premises, Rose Cottage, Queen's Elms, Fulham Road, Brompton, on MONDAY, Nov. 9, at 11 o'Clock, without reserve, the NURSERY STOCK, comprising about 1400 fine healthy Laurels, from 5 to 6 feet; Fan Yews, 3 to 5 feet; Chinese Arbor-Vitæ, Privet, Berberis aquifolia, Aucubas, Rhododendrons, Azaleas, Kalmias, Andromeda floribunda, fine Standard Roses, Dwarf Trained Peaches and Nectarines, Lilacs, Poplars; also a quantity of Asparagus 3 years old, choice Seedling Rhubarb, about 6000 Pheasant eyed Narcissus, Ivies in pots, Hoya carnosa, Primula fimbriata, &c.; together with a capital Market Cart, Wrought Iron Boiler and Furnace complete, Iron Roller, &c.—May be viewed three days prior to the Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, & OTHERS PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on their premises, Wandsworth Road, on TUESDAY, NOVEMBER 10, and following day, at 11 o'Clock each day, the first portion of their valuable NURSERY STOCK, consisting of Standard and Dwarf-trained Fruit Trees, Forest and Ornamental ditto, Variegated and Green Hollies, Laurels, Box, Aucubas, Chinese Euonymus, Privet, Ivies, and other Evergreens. Also handsome plants of Deodar, Araucarias, Yuccas, 200 very fine Standard Roses, including all the most approved kinds; fine plants of Crimson, Sweet-scented, and other Rhododendrons, well set with bloom buds; American Azaleas, Kalmias, Pyrus, Glycine, Lilacs, Dwarf Roses, &c.; with a fine stock of Gooseberry and Currant Trees, Vines in pots, Asparagus and Seakale, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A Sale of Camellias, Chinese Azaleas, and other Greenhouse Plants to take place towards the end of November.

WELLINGTON AND BEDFORD NURSERIES.
BEDFORD ROAD, CLAPHAM RISE.

MR. THORP has received instructions to Sell by Auction, on the above premises, without any reserve, on WEDNESDAY next, October 28, at 12 o'Clock precisely in consequence of the number of Lots, the entire Stock, consisting of several Lots of Camellias, Azaleas, Orange Trees, Chrysanthemums, Geraniums, and other choice plants. The whole has been arranged in Lots suitable to all purchasers.—Catalogues may be obtained on the premises, where the Stock may be viewed; the Bedford Arms, Clapham Rise; and of the Auctioneer, 26, Upper Albany Street, Regent's Park.

TURNHAM GREEN,
NEAR THE PACKHORSE LANE, LEADING TO ACTON.
To Market Gardeners, Nurserymen, Greengrocers, and Others.

MR. W. T. ATWOOD has received instructions to Sell by Auction, on THURSDAY, Oct. 29, at 12 o'Clock on the premises, 2 Horses, 4-Wheeled Spring Van, Carts, and Implements, 5 Breeding Sows, 8 Store Pigs, the remaining crops of Potatoes in the ground, about 600 bushels of Onions in lots, and other useful articles. The Land to be Let with immediate possession, subject to the approval of the landlord.—May be viewed and particulars and Catalogues obtained at the Inns in Covent Garden, on the premises, and of Mr. W. T. ATWOOD, Auctioneer and Land Agent, Mortlake, Surrey.

WINCHFIELD, HANTS.
IMPORTANT SALE OF NURSERY STOCK.

MR. ALFRED WHITE has received instructions from Mr. STEPHEN SHILLING to Sell by Auction on MONDAY and TUESDAY, November 9th and 10th, at 11 for 12 o'Clock precisely, the valuable and extensive stock of TREES, SHRUBS, &c., standing at Winchfield Nursery, which will be disposed of in consequence of Mr. Shilling's intention to give up growing them at that place. The stock, which stands on seven acres of ground, comprises 25,000 Spanish Chesnuts, 50,000 Hazels, 2500 Tall Spruce and Silver Firs, an extensive assortment of Weymouth Pine, Withy, Birch, and Standard Rose Trees, with other useful Ornamental Trees and Shrubs. The whole of the stock is in capital order, having been recently transplanted, and is well worthy the notice of Noblemen and Gentlemen about to plant. Further particulars will appear, and Catalogues of the stock may be obtained in due time.—Greywell, Odiham, Oct. 24.

NORTH WARNBOROUGH NURSERIES, ODIHAM, KENT.

STEPHEN SHILLING begs to inform the Nobility, Gentry, &c., of this and the adjoining counties, that his stock of TREES this year comprises a particularly extensive selection of fine Evergreens, Ornamental Trees and Shrubs, Conifers, Coppice Plants, and Fruit Trees, together with every article required in Gardening operations, of which he invites an early inspection. He begs also to remind the public that as the Sale by Auction of his stock at Winchfield will consist of only one-fifth of his extensive Nursery, it will in no way affect his general trade as carried on at North Warnborough and Hartley Row.—North Warnborough Nurseries, October 24.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea,

HORTICULTURAL BUILDER AND HOT-WATER APPARATUS MANUFACTURER,

BEGS most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY and ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.

STANLEY BRIDGE, KING'S ROAD, CHELSEA.—Oct. 24.

Editorial Communications should be addressed to "The Editor;"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—Saturday, October 24, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 44.—1857.] SATURDAY, OCTOBER 31. {Price Fivepence. {Stamped Edition, 6d.

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STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S ELEVENTH ANNUAL EXHIBITION will be held at the Manor Rooms, Stoke Newington, on TUESDAY and WEDNESDAY, November 17 and 18, when Prizes, including Four Five-Guinea Cups, will be awarded. Open to all England.—Doors open at 12 o'clock on First Day, entrance One Shilling; Second Day, 10 o'clock, entrance Sixpence.
ARTHUR WORTLEY, Hon. Sec., Stoke Newington.

GARDENERS' ROYAL BENEVOLENT INSTITUTION.—NOTICE is hereby given that an ELECTION of FOUR PENSIONERS on the Funds of this Society will take place in JANUARY next. All persons desirous of becoming candidates are requested to send in their petitions, accompanied with certificates and testimonials, to the Committee on or before TUESDAY, November 17, after which time they will not be received.
Printed Forms of Petition to be admitted a Candidate may be had upon application to the Secretary.
By order EDW. R. CUTLER, Sec.
14, Tavistock Row, Covent Garden, W.C., Oct. 31.

PUBLIC PARKS AND CEMETERIES can be supplied with splendid specimens of CEDRUS DEODARAS that cannot be surpassed in the trade, from 3 to 6 and 8 to 10 feet. These specimens are well calculated to produce immediate effect.—WM. MAULE & SONS, Nurseries, Bristol.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodara, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MAULE & SONS, Nurserymen, Bristol.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 35s. per 100. Many of the kinds are well suited for forming edgings to clumps of American plants.
JOHN WATERER, American Nursery, Bagshot, Surrey.

LARGE FANNED YEWS, suitable for making an immediate and effectual blind.—A quantity of fine plants of the above to be disposed of; they are from 5 to 7 feet in height, and as much in width, will bear removal well, having been recently transplanted.—For further particulars and price, apply to J. SALTMARSH & SON, Moulsham Nurseries, Chelmsford.

TO PURCHASERS OF QUICK.
TO BE SOLD, 100,000 strong 3 years old 100,000 2 years old Transplanted, also about 500,000 superior Seedling Quick.
Apply to ROBT. DICKINGS, Gosberton, Spalding, Lincolnshire.

400,000 TRANSPLANTED LARCH FIRS, from to 4 feet.
80,000 ,, SPANISH CHESNUTS, from to 7 feet,
AND ALL OTHER FOREST TREES.
WM. WOOD AND SON will be happy to forward samples and prices of the above on application. The Plants are exceedingly luxuriant and healthy.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.
WILLIAM YOUNG, Milford Nurseries, near Godalming, Surrey.

10,000 PRIVET, 3 feet, 25s. per 1000, or the lot for 10l., warranted fine and healthy
1000 fine GOOSEBERRIES, £6, best sorts.
1000 fine CURRANTS, £6, best sorts.
Standard and Dwarf-trained APPLES and PEARS, by the hundred or dozen, at low prices. Terms cash.
Apply to Mr. THORNHILL, Nurseryman and Seedsman, Bristol.

WANTED, Thirty or Forty large handsome PLANE TREES, from 12 to 15feet high; also a large quantity of SPRUCE FIRS, from 6 to 8 feet.—Apply by letter only to W. V., *Gardeners' Chronicle* Office.

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND PLANTERS.
MR. W. SHORT, LANDSCAPE GARDENER, SALESMAN, &c., begs to offer by Private Sale 60 millions of First-class NURSERY PRODUCE at the lowest possible prices for cash payment.—Samples may be seen and prices had on Tuesdays and Fridays at 9, Love Lane, Eastcheap, London.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2½ feet in height, can be supplied in any quantity. **Price forwarded on application.**
☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, as being grown out of doors, and never cramped by pot culture.
JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

SUTTON'S AUTUMN CATALOGUE is now ready, and will be sent to their Customers gratis and post free on application.—Royal Berkshire Seed Establishment, Oct. 31.

TRADE FERN CATALOGUE.
ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*
Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.
ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.
*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*
Nursery, Foot's Cray, Kent, S.E.

TO THE TRADE.
JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.
Bardney Hall, near Lincoln, Oct. 31.

HENRY MAY'S New CATALOGUE for 1857–8 of Hardy Herbaceous and Alpine Plants, Ferns, American Plants, Ornamental Trees and Flowering Shrubs, Evergreens and Coniferæ, Fruit Trees, &c., is now ready and can be obtained free on application.
The Hope Nurseries, near Bedale, Yorkshire.

NEW ROSE LIST FOR 1857–8;
ALSO,
A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSE NURSERIES, HERTFORD.
E. P. FRANCIS' New and Descriptive Catalogue of ROSES, for 1857 and 1858, is now ready for delivery, and will be forwarded gratis on application.

A DESCRIPTIVE CATALOGUE OF ROSES.
JAMES MITCHELL begs to say that his new CATALOGUE is now ready and will be forwarded by application post free.—Piltdown Nurseries, Maresfield, Sussex.

ROSES.
JOHN CRANSTON has now ready for distribution his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1857 and Spring of 1858. The Descriptions are full and accurately given, and the whole so arranged as to enable the Amateur to select the most choice varieties for the various purposes required. Forwarded free by post on application.
Nurseries, King's Acre, near Hereford.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.
Woking Nursery, Surrey.

ROSES.
GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

FINE ROSES FOR THE MILLION.
NEW ROSE STOCK, SURPASSING ALL OTHERS.
J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12s. per 100; or 2s. per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

THE LARGEST AND FINEST STOCK OF
TEA-SCENTED ROSES IN EUROPE.
WM. WOOD AND SON have much pleasure in offering the above, all well-grown plants, in any quantity.
Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WANTED IMMEDIATELY, DWARF ROSES, on their own roots, of the following kinds:—HYBRID CHINA CHENEDOLE, PERPETUAL WHITE MOSS.
N.B. They must be on their own roots, and good plants.
Address, with price, to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

NOTICE TO PINE GROWERS.
WANTED,
JAMAICA PINES | QUEEN PINES
CAYENNE PINES | MONTSERRAT PINES
First-class Fruit, not under 2 lbs. each.
Forward to GEORGE TAYLOR, Jun., Choice Fruit and Vegetable Salesman, The Grand Stand, St. John's Market, Liverpool.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50s. per 100.—EPPS's Nurseries, Maidstone.

CAMELLIAS.—FINE HOME-GROWN PLANTS FULL OF FLOWER-BUDS.
12 choice named varieties, 2 to 3 feet .. .. £1 15s.
Double white and fimbriata very fine, and if desired just showing colour at 30s. and 36s. per dozen.
JOHN HENCHMAN, Edmonton, near London.

TO BE SOLD, a large quantity of SWEET-SCENTED LILY OF THE VALLEY ROOTS, at 2s. 6d. per bushel.—Mr. J. NOY, Market Gardener, London Road, Brentford, Middlesex.

WANTED, PYRACANTHA BERRIES.—Send price per quart to CHARLWOOD & CUMMINS, 14, Tavistock Row, Covent Garden.

BERBERIS JAPONICA.—This fine hardy Shrub, see illustration in *Gardeners' Chronicle*, Oct 10, can be supplied in any quantity at very moderate prices by CHARLES NOBLE, the Nursery, Bagshot. Prices according to height given on application.

GRAPES.
MESSRS. JOHN WEEKS AND CO., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.
Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

NEW FANCY PELARGONIUM—COUNTESS OF DEVON.
MESSRS. VEITCH AND SON beg to offer plants of the above PELARGONIUM, which was exhibited at the Royal Botanic Society's Show on the 1st of July last and received a first class certificate. The under petals are white with a lake spot on each, upper petals brilliant rosy purple with white margin, fine habit, a very free and perpetual bloomer, and will no doubt prove a good bedding variety. Good established plants, 7s. 6d. each.
Prices to the Trade on application.

STRAWBERRY PLANTS can still be supplied as per Advertisements of August and September.—Address WILLIAM J. NICHOLSON, Egglescliffe, near Yarm, Yorkshire.

STRAWBERRIES.
JAMES KITLEY begs to offer again to the public his two Seedlings—CAROLINA SUPERBA, 10s. per 100; and GOLIATH, 3s. 6d. per 100, or per post per dozen, 30 stamps. Plants are now ready.
N.B. The trade may communicate by letter.
Lyncombe Vale, Bath.

SECOND IMPORTATION.
FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting.
SUTTON & SONS, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see List.

GOOD MUSHROOM SPAWN.
SUTTON AND SONS, Reading, have MUSHROOM SPAWN of superior quality just ready for use, which will be sent Carriage Free. Price 5s. 6d. per bushel.

FIRST-RATE MUSHROOM SPAWN.
WILLIAM BARNES can now supply the trade with any quantity of MUSHROOM SPAWN, home made and warranted of the best quality. Price on application.
Camden Nursery, Camberwell, S.

EARLY CUCUMBER.
CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

VINES IN POTS, FRUIT TREES.
JAMES GRIFFIN begs to direct attention to his extensive stock of strong Vines in pots, Standard and Trained Fruit Trees of all descriptions,
Weston Road, and 2, New Bond Street, Bath.

VINES IN POTS FOR FRUITING.
J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5s. to 10s. each. A list of the sorts may be had on application.

FRUIT TREES.
J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

WM. IVERY, Hanover Nursery, Peckham, S.E., begs to inform his Friends and the Public that he is now prepared to send out his new and beautiful AZALEA INDICA QUEEN VICTORIA; large worked plants, 21s.; small not worked, 7s. 6d. each. See advertisement *Gardeners' Chronicle*, Oct. 10, for new GERANIUMS, ROSES, &c.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, jasminoides, &c.: these are splendid young healthy stock. Sample basket containing 12 for 14s., including package.
EPPS's Nurseries, Maidstone.

CHARLES DOLTON, SEED GROWER, begs to offer to the Trade:—
NONPAREIL CABBAGE. | SOUTHAMPTON BROCCOLI
DOLTON'S FINE DWARF-HEADED RED BEET.
DOLTON'S RED GIANT CELERY.
Speenhamland Seed Establishment, Newbury, Berks.—Established 1800.

DICKINSON'S ITALIAN RYE-GRASS SEED is now ready for delivery, 7s. 6d. per bushel for present payment only. No agent employed.
New Park, Lymington, Hants.

SEAKALE AND ASPARAGUS PLANTS.—Strong plants can be supplied in any quantity (Carriage Free) by SUTTON & SONS, Royal Berkshire Seed Establishment, Reading. Also Rhubarb and Strawberries of the best sorts in cultivation.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. RAYNBIRD, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

BROWICK RED WHEAT.
MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8s. 6d. per bushel, including sacks.—Address to Mr. SANGSTER BETHELL, Worting Wood Farm, Basingstoke, Hants.
N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK. Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices.—Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14 Seed Market, Mark Lane.

CHAMÆCYPARIS THURIFERA.

ALEXANDER PONTEY has much pleasure in offering the above new CONIFER recently introduced by the Horticultural Society of London. They are nice bushy plants, from 4 to 6 inches in height.

A. P. having also a large stock of the undermentioned begs to offer strong plants at the following prices, carriage paid to London :—

	Each—s. d.		Each—s. d.
Biota Meldensis..	5s. to 10 6	Juniperus sphærica,	3s. 6d. to 5 0
,, frenelloides..	.. 5 0	,, glauca..	2s. 6d. ,, 3 6
,, glauca ..	.. 2 6	,, japonica..	7s. 6d. ,, 15 0
Chamæcyparis glauca	.. 10 6	,, fragrans..	3s. 6d. ,, 5 0
,, thurifera ..	.. 42 0	,, sinensis feminine,	2s. 6d. ,, 3 6
Cupressus thurifera elegans	..2s. 6d. to 3 6	Larix Griffithi..	5s. ,, 10 6
,, japonica	3s. 6d. ,, 5 0	Podocarpus coriacea	.. 2 6
,, majestica..	3s. 6d. ,, 5 0	Reinosporum ericoides	.. 1 6
,, sinensis true,	3s. 6d. ,, 5 0	Thujopsis borealis..	5s. to 7 6
,, excelsa..	3s. 6d. ,, 5 0	Thuja decurrens,	3s. 6d. ,, 42 0
,, Knighti..	2s. 6d. ,, 3 6	,, gigantea, true,	7s. 6d. ,, 42 0
,, Corneyana	2s. 6d. ,, 3 6	Fagus macrophylla,	3s. 6d. ,, 5 0
,, Lawsoniana	10s. 6d. ,, 21 0	Pocosandra coriacea,	2s. 6d. ,, 3 6
,, species from Nepaul,	3s. 6d. to 5 0	Rose, Isabella Gray,	3s. 6d. ,, 5 0
[This is a splendid plant, between C. torulosa and C. Corneyana.]			

Priced Catalogues of rare Conifers and Choice Shrubs can be had free on application.

Plymouth Nursery and Seed Establishment, Oct. 31.

TO THE TRADE.

L. T. DAVIS, being desirous of forming a connection with the Trade, now offers the following in quantity :—

1-year Seedling Larch	1-year Seedling Thorns
1 ,, ,, Alder	2-years' ,, ,,
1 ,, ,, Birch	1-year Cutting Laurels
1 ,, ,, Beech	1 ,, ,, Laurustinus
1 ,, ,, Ash	1 ,, ,, Portugal Laurels

Also the following in proper condition for removal :—Laurustinus, Irish Yews, Hardy Heaths, Hybrid Scarlet Rhododendrons (and other sorts with or without flower-buds), Pernettya micronata, Azaleas (hardy sorts), Indian Azaleas, Purple Beech, Andromeda axillaris, Aristotelia Macqui, new Weeping Limes, Spiræas, Portugal Laurels, and Standard do.; also Standard Rhododendrons of sorts, &c.

Price Lists can be had on application (carriage free to Belfast).

Ogle's Grove Nursery, Hillsborough, County Down.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants :—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
,, ,, magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
,, ,, 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
,, Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
,, Douglasi, 5, 6, 8. and 10 feet
,, Menziesi, 6 to 8 feet
,, Lambertiana, 2, 3, and 5 feet
,, Cembra, 3, 5, and 6 feet
,, Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
,, amabilis, also from seed
,, Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
,, Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
,, Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
,, Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
,, Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
,, elegantissima, or new Gold Striped, in quantities and of all sizes
,, adpressa, 2, 3, and 4 feet; ditto worked as standards
,, Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
,, Wareana, 3, 4, 5, 6, and 8 feet
,, aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and, as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South-Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

F. GODWIN begs to offer the undermentioned in strong plants :—

	Each—s. d.		Each—s. d.
Acacia armata, per doz.,	6s., 12 0	Cytisus racemosus, per dozen	6s., 9 0
Amarantacea, species ..	2 6	Dendrobium chrysanthum	7 6
Anæctochilus argenteus	3 6	,, devonianum ..	7 6
Azalea alba magnifica ..	1 6	,, nobile ..	3s. 6d., 10 6
,, Empress Eugenie ..	2 6	Echites crassinoda	1s. 6d., 2 6
,, Eulalie Van Geert..	5 0	,, Houtteana	3 6
,, Exquisite	1 6	Epacris, in sorts, per doz.	12 0
,, fulgens	1 0	,, ,, ,, strong	15 0
,, lateritia formosa ..	1 6	Ericas ,, ,, from 12s. to	30 0
,, optima	1 0	Eugenia Ugni ..	1s., 2 6
,, Stanleyana	1 6	Ferns, fine collection, per dozen, from	24 0
Begonia opuliflora miniata	1 6	Goodyera discolor ..	2 6
Boronia Drummondi ..	3 6	Hoya picta ..	2s. 6d., 3 6
Bossiæ Hendersoni ..	1 6	,, variegata ..	2s. 6d., 3 6
Cattleya crispa	7 6	Ixora coccinea	1 6
,, Mossiæ	7 6	,, javanica	1 6
Chrysanthemums, strong flowering plants, per dozen ..	6s. and 8 0	Lycopodium plumosum..	1 6
Chorozema cordata elegans	1 6	,, umbrosum	1 6
,, ,, splendens	1 6	Medinella magnifica	2s. 6d., 5 0
,, Lawrencianum	1 0	Maranta regalis	15 0
Croton pictum	2 6	Meyenia erecta	1 0
,, variegatum	1 6	Oncidium flexuosum ..	5 0
,, ,, longifolium	1 6	,, papilio ..	5s., 7 6
Cypripedium barbatum..	7 6	Sanseviera zonata ..	5s., 7 6
,, insigne ..	3s. 6d., 5 0	Styphelia tubiflora ..	1 6

Dahlias, pot roots of all sorts.

Catalogues of Plants, Bulbs, Roses, Trees, and Shrubs on application to Broadfield Nurseries, Sheffield.

FIRST CLASS GERANIUMS.

JOHN CATTELL has now ready to send out a fine stock of the following very superior GERANIUMS at the prices annexed, basket, &c., included :—

Any 12 of the following very showy French Geraniums, 10s. 6d.—Susette Mallet, Chauvieri, Gustave Mallet, Medaille d'Or, Colonel Foissey, Madame Leflo, Auguste Miellez, General Eugène Cavaignac, Gloire de Bellevue, Eliza Miellez, James Odier, Adolphe Odier, Couquet, Triomphe de la Tour, Dr. Marjolin, Madame Chereau, Ferdinande de Lasteyrie, Madame Lamoricière, Adèle Odier, Eugene Scribe, Jacques Duval, Celina Mallet, Madame Laffay, Dr. Andry, Madame Andry, Auguste Odier, Monte Christo, Painter Improved.

Any of the following new French Geraniums, 2s. 6d. each, or 6 for 12s., viz. : — Madame Pescatore, Perrugino, Madame Lebois, Roi des Pourpres, Madame Fertado, Madame Sueur, Van Houtti, Madame Lemichez, Hendersoni, Rubini.

Extra fine varieties of Florist or Show Geraniums, 9s. per dozen, warranted to give the greatest satisfaction.

NEW VARIEGATED GERANIUMS.

Attraction (Kinghorn's), 6s. per dozen; Alma, Annie, and Countess of Warwick, 10s. 6d. per dozen.

Scilla siberica, sky-blue, the hardiest and most beautiful of all our early spring flowers, 3s. per doz., 21s. per 100, 9l. per 1000.

Lilium speciosum atrorubrum, or lancifolium atrorubrum, the earliest, darkest, and much the finest of the Japan Lilies, very strong bulbs, 5s. to 7s. 6d. each. All the other varieties of Japan Lilies may be had in extra strong bulbs, catalogues of which may be had gratis, inclosing 1d. stamp.

All orders from unknown correspondents must contain a remittance or reference.

Nursery and Seed Establishment, Westerham, Kent.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION at WILLIS'S ROOMS, October 24, 1857.

AWARD OF THE JUDGES.

CLASS I. COLLECTIONS OF FRUIT. (Fruiterers only.)
1st, Mr. Webber, Covent Garden.
2d, Mr. L. Solomon do.

CLASS II., *a.*—GRAPES. THREE BUNCHES OF MUSCATS.
1st, Mr. Drewett, Gr. to Mrs. Cubitt, Denbies, Dorking.
2d, Mr. Hill, Gr. to R. Sneyd, Esq., F.H.S., Keele Hall, Staffordshire.
3d, Mr. Little, Gr. to A. Darby, Esq., Stoke Court, Slough.

CLASS II., *b.*—GRAPES. THREE BUNCHES OF OTHER WHITE KINDS.
1st, Mr. Fleming, F.H.S., Gr. to his Grace the Duke of Sutherland, F.H.S., Trentham, Staffordshire.
2d, Mr. Drewett, Gr. to Mrs. Cubitt, Denbies, Dorking.
3d, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.,

CLASS II., *c.*—GRAPES. THREE BUNCHES OF BLACK HAMBURGH.
1st, Mr. Hill, Gr. to R. Sneyd, Esq., F.H.S., Keele Hall.
2d, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.
3d, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park.

CLASS II., *d.*—GRAPES. THREE BUNCHES OF OTHER BLACK KINDS.
1st, Mr. Hill, Gr. to R. Sneyd, Esq., F.H.S., Keele Hall.
2d, Mr. Allport, Gr. to Henry Ackroyd, Esq., F.H.S., Doddington Park, Cheshire.
3d, Messrs. Lane & Son, Nurserymen, Great Berkhampstead.

CLASS II., *f.*—GRAPES. BOXES OF 15 LBS. WEIGHT. (Market Gardeners only.)
1st, Mr. Davies, Oak Hill, East Barnet.
2d, Mr. Spary, Queen's Graperies, Brighton.
3d, Mr. J. Bell, Thorpe, Norwich.

CLASS III., *a.*—PINE APPLES. IN THREES.
1st, Mr. Spencer, F.H.S., Gr. to the Marquess of Lansdowne, F.H.S., Bowood, Wilts.
2d, Mr. Page, Gr. to W. Leaf, Esq., F.H.S., Park Hill, Streatham.
3d, Mr. Bray, Gr. to J. B. Lousada, Esq., Park House, Sidmouth.

COMMENDED BY THE JUDGES.
Mr. Eckford, Gr. to the Earl of Radnor, Coleshill, Highworth, Wilts.
Mr. Ogle, Gr. to the Earl of Abergavenny, Eridge Castle.

CLASS III., *b.*—PINE APPLES. SINGLE SPECIMENS.
1st, Mr. Temple, Gardener, Dowlais, Merthyr Tydvil.
2d, Mr. H. Williams, Gr. to A. Fairie, Esq., Liverpool.
3d, Mr. Bray, Gr. to J. B. Lousada, Esq., Peak House, Sidmouth.

COMMENDED BY THE JUDGES.
Mr. Dods, Gr. to Sir John Cathcart, Bart., F.H.S., Cooper's Hill, Surrey.
Mr. Whittaker, Gr. to Lord Crewe, Crewe Hall, Cheshire.
Mr. Sparrow, Gr. to Lord Ebury, Moor Park, Rickmansworth.
Mr. Forsyth, Gr. to Baron de Rothschild, Gunnersbury.
Mr. Davies, Gr. to T. W. B. Blakemore, Esq., F.H.S.
Mr. Ogle, Gr. to the Earl of Abergavenny, Eridge Castle.

CLASS IV., *a.*—PEARS, OF HOME GROWTH. TWELVE SORTS, SIX OF EACH.
1st, Mr. Ingram, F.H.S., Gr. to Her Majesty, Frogmore.
2d, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.
3d, Mr. Harrison, Oatlands Palace Gardens, Weybridge, Surrey.

COMMENDED BY THE JUDGES.
Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S., Preston Hall, Maidstone.
Mr. Spivey, Gardener, Hallingbury, Bishop's Stortford.
Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.
Mr. Anderson, Gr. to the Earl of Stair, Oxenford Castle, Dalkeith.
Mr. Sorley, Gr. to E. Zwilchenbart, Esq., Roseland, Aigburth, Liverpool.

CLASS IV., *b.*—PEARS, HOME GROWTH. SIX SORTS, SIX OF EACH.
1st, Mr. Sorley, Gr. to E. Zwilchenbart, Esq., Roseland, Aigburth, Liverpool.
2d, Mr. Wood, Gr. to C. R. Scott-Murray, Esq., F.H.S., Danesfield, Great Marlow.
3d, Mr. Fowle, Gr. to G. W. Cooke, Esq., Beesthorpe Hall, Newark.

COMMENDED BY THE JUDGES.
Mr. Ingram, Gr. to J. J. Blandy, Esq., V.P.H.S., Highgrove, Reading.
Mr. Mortimer, Gr. to Miss Browne, Wallington Bridge, Surrey.
Mr. Parsons, Gr., Danesbury, Welwyn, Herts.
Mr. Cox, F.H.S., Gr. to Wm. Wells, Esq., Redleaf, Kent.
Mr. W. Fox, Gr. to J. Sanders, Esq., Taplow House, Maidenhead.

CLASS IV., *c.*—PEARS, HOME GROWTH. SINGLE DISHES OF DESSERT KINDS OF ONE SORT CONTAINING SIX FRUIT.
1st, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.
2d, Mr. Fowle, Gr. to G. W. Cooke, Esq., Beesthorpe Hall, Newark.
3d, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.

COMMENDED BY THE JUDGES.
Mr. Tillyard, F.H.S., for a new Pear.

CLASS IV., *d.*—PEARS, HOME GROWTH. SINGLE DISHES OF KITCHEN KINDS OF ONE SORT CONTAINING SIX FRUIT.
1st, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.
2d, Mr. Lane, Gr. to John H. Palmer, Esq., F.H.S., Fulham.
3d, Mr. Cox, F.H.S., Gr. to Wm. Wells, Esq., Redleaf, Kent.

COMMENDED BY THE JUDGES.
Mr. Elliot, Gr. to Sir G. J. Palmer, Bt., Wanlip, Leicestershire.

CLASS V., *a.*—PEARS, FOREIGN GROWTH. TWELVE SORTS, SIX OF EACH.
1st, Mr. Solomon, F.H.S., Covent Garden.

CLASS V., *b.*—PEARS, FOREIGN GROWTH. SIX SORTS, SIX OF EACH.
1st, Mr. L. Solomon, F.H.S., Covent Garden.

CLASS VI., *a.*—APPLES, HOME GROWTH. TWELVE SORTS, SIX OF EACH.
1st, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.
2d, Mr. Ingram, F.H.S., Gr. to Her Majesty, Frogmore.
3d, Mr. Cox, F.H.S., Gr. to Wm. Wells, Esq., Redleaf, Kent.

CLASS VI., *b.*—APPLES, HOME GROWTH. SINGLE DISHES, DESSERT KINDS, ONE SORT, SIX FRUIT.
1st, Mr. Simpson, Gr. to Lady Molyneux, Stoke Farm, Slough.
2d, Mr. Hope, Gr. to Miss Gurney, West Ham, Essex.
3d, Mr. Carmichael, Gr. to the Countess of Dunmore, Falkirk, N.B.

CLASS VI., *c.*—APPLES, HOME GROWTH. SINGLE DISHES, KITCHEN KINDS, ONE SORT, CONTAINING SIX FRUIT.
1st, Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S., Preston Hall.
2d, Mr. Whiting, Gr. to H. T. Hope, Esq., F.H.S., The Deepene, Surrey.
3d, Mr. Wells, Gr. to Sir E. S. Stanhope, Bart., Holme Lacy, Herefordshire.

CLASS VII., *a.*—APPLES, FOREIGN GROWTH. TWELVE SORTS, SIX OF EACH.
1st, Mr. Solomon, F.H.S., Covent Garden.

CLASS VII., *b.*—APPLES, FOREIGN GROWTH. SINGLE DISHES, DESSERT KINDS, ONE SORT, SIX FRUIT.
1st, Messrs. Hovey & Co., Nurserymen, Boston, Mass., U.S.

CLASS VII., *c.*—APPLES, FOREIGN GROWTH. SINGLE DISHES OF KITCHEN KINDS, ONE SORT, SIX FRUIT.
1st, Messrs. Hovey & Co., Nurserymen, Boston, Mass., U.S.

CLASS VIII., *b.*—ORANGES, LEMONS, AND CITRONS, COLLECTIONS OF. HOME GROWTH.
1st, Mr. Robinson, Gr. to Lord Boston, F.H.S., Hedsor, Great Marlow.
2d, Mr. Elliott, Gr. to the Earl of Ilchester, F.H.S., Melbury.
3d, Mr. Lane, Gr. to J. Horsley Palmer, Esq., F.H.S., Fulham.

CLASS IX.—PEACHES. SINGLE DISHES, CONTAINING SIX SPECIMENS.
1st, Mr. Little, Gr. to A. Darby, Esq., Stoke Court, Slough.
2d, Mr. Hill, Gr. to R. Sneyd, Esq., F.H.S., Keele Hall.

CLASS XI.—MELONS. SINGLE FRUIT.
1st, Mr. John Watson, F.H.S., Ealing, Middlesex.
2d, Mr. Munro, Gr. to Mrs. Oddie, Colney House, St. Albans.
3d, Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S., Preston Hall, Maidstone.

CLASS XII., *b.*—PLUMS AND PRUNES, ENGLISH OR FOREIGN. SINGLE DISHES, CONTAINING TWELVE FRUIT.
1st, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.

CLASS XIII.—FIGS.
2d, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.

CLASS XIV.—ALPINE STRAWBERRIES.
1st, Mr. Ingram, F.H.S., Gr. to Her Majesty, Frogmore.
2d, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.

CLASS XV.—CURRANTS.
1st, Mr. Tillyard, Gr. to Viscount Eversley, F.H.S.
2d, Mr. Frost, Gr. to E. L. Betts, Esq., F.H.S., Preston Hall.
3d, Mr. Snow, Gr. to Earl De Grey, F.H.S., Wrest Park, Beds.

CLASS XVI.—RASPBERRIES.
1st, Mr. Mortimer, Gr. to Miss Browne, Wallington Bridge.
2d, Mr. Tillyard, F.H.S., Gr. to Viscount Eversley, F.H.S.
3d, Mr. Chester, Gr., Hollyridge Place, Woking.

CLASS XVII.—EUGENIA UGNI.
1st, Mr. Gaines, F.H.S., Nurseryman, Surrey Lane, Battersea.
2d, Mr. H. Williams, Gr. to A. Fairie, Esq., Liverpool.

*** N.B. In addition to the above the large Silver Medal was awarded to M. LIRON D'AIROLES, of Nantes, for the excellent quality of his Pears; and to Messrs. Hovey & Co., of Boston, U.S., for their very instructive collection of the same kind of fruit.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C

12,000 TEA-SCENTED ROSES,
ON THEIR OWN ROOTS IN POTS.

WM. WOOD AND SON have much pleasure in offering the above splendid stock of Tea Roses, which they have no hesitation in stating cannot be surpassed in this or any other country.

The plants offered are strong and bushy, in 48 sized pots, comprising all the most esteemed varieties, at 12*s.* to 18*s.* per doz.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPECIMEN TEA-SCENTED ROSES
IN 6-INCH POTS FOR EXHIBITION AT 30*s.* PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s.* 6*d.* to 21*s.* each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SUPERB YELLOW ROSES,
DWARF PLANTS ON THEIR OWN ROOTS.

WILLIAM WOOD AND SON have to offer remarkably strong plants of the following ROSES:—

NOISETTE.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Cloth of Gold, very bushy	2 6	Narcisse, sulphur yellow..	2 0
Augusta, sulphur yellow ..	2 6	Polonie Bourdin (new), salmon, with coppery centre	2 6
Jaune Désprés, bronzy yel.	1 6	Solfaterre, extra strong plants, 3 to 4 feet high..	2 6
Madame Schultz, yellow centre (new)	3 6		

TEA-SCENTED ROSES.

Barillet Deschamps, pale lemon	2*s.* 6*d.* to 3 6	Louise de Savoie	2 0
Canari, bright yel.	1*s.* 6*d.* to 2 6	Mélanie Oger ..	2*s.* to 3 0
Elize Sauvage	2*s.* to 3 0	Smithi, straw colr.	1*s.* 6*d.* to 2 6
Gloire de Dijon, fawn and salmon	1*s.* 6*d.* to 2 6	Vicomtesse de Cazes, orange yellow	2*s.* to 3 0
Le Pactôle, pale lemon	1*s.* 6*d.* to 2 6	Yellow or Jaune, pale sulphur	1*s.* 6*d.* to 2 6

N.B. The higher price will be charged for strong plants in 6-INCH pots. All other Tea Roses on moderate terms. Catalogues free on application.

*** Large and small plants of the Cloth of Gold have flowered here this summer in the greatest profusion.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

TO THE NURSERY TRADE.

JOHN HARRISON, Darlington Nursery, having a large healthy stock of the under-mentioned plants, begs to offer them at the following prices. His STANDARD AND DWARF ROSES are unsurpassed in Europe for health and vigour, and their roots are in proportion to their growth;—

Manetti Rose Stocks, 1-year old, per 1000	60*s.*	0*d.*
Do. 1-year bedded, 2-years old, fine for potting, &c., per 1000	80	0
Northumberland Fillbasket Raspberries, fine, per 100	10	0
Gooseberries, all the useful common sorts ,,	8	0
Do. Lancashire Prize .. .. ,,	40	0
Victoria Currants, 1-year old, 5*s.*; 2-years old ,,	10	0
Houghton Castle do., 1-year old, 6*s.*: 2-years old ,,	12	0
Black, of sorts, 1-year old, 4*s.*; 2-years old ,,	8	0
Standard Roses, unsurpassed for health, &c. ,,	100	0
Delphinium Barlowi, strong .. .. .. ,,	28	0
Teas, Noisettes, Bourbons, and Hybrid Perpetual Roses, in small pots on their own roots, fine plants .. .. ,,	60	0
Larch, transplanted, 1 foot to 15 inches per 1000	7	6
Do. do. 1½ foot, 10*s.* 6*d.*; 1½ to 2 feet ,,	15	0

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots ..	FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots ..	SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)	
June 18, Royal Botanic Society—50 Cut Roses ..	FIRST PRIZE
Do. do. 10 Roses in pots ..	SECOND PRIZE
June 24, Brighton .. 50 Cut Roses	FIRST PRIZE
June 24, Manchester .. 50 Cut Roses	SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.	
July 1, Royal Botanic Society—24 Cut Roses ..	FIRST PRIZE
,, do. do. 50 Cut Roses ..	FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses ..	FIRST PRIZE
,, ditto, collection ditto ..	FIRST PRIZE
July 9, Diss .. 50 Cut Roses, FIRST PRIZE, SILVER CUP	
,, do. .. 100 Cut Roses, FIRST PRIZE, ,,	
July 15, Stamford .. 12 Cut Roses, FIRST PRIZE, ,,	
Sept. 9, Crystal Palace 50 Cut Roses, FIRST PRIZE, ,,	

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

EARLY FLOWERS, adapted for blooming in-doors, and in the borders in winter and early spring.—The Undersigned beg respectfully to intimate to the Nobility, Gentry, and the Public, that they have imported a STOCK of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10*s.*, viz.:—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large double Snowdrops, half a dozen double Van Thol Tulips, half a dozen Early Van Thol Tulips, one dozen double white sweet scented Narcissus, half a dozen double Jonquils, one dozen winter Aconites, 12 splendid mixed Tulips, one dozen beautiful mixed double Anemones.

CLARKE & Co., Seedsmen and Florists, 86, High St., Borough, about 30 doors from London Bridge Railway Terminus.

CATALOGUES.

H. LANE AND SON'S CATALOGUES of their extensive NURSERY STOCK, which includes about three acres of Glass, 14 acres of Roses, and about 50 acres of Fruit Trees and General Stock, can be had on application, by post or otherwise, at the Nurseries, Great Berkhampstead, Herts.

Their Roses consist of the principal sorts for which they obtained First Prizes at the Botanic Society's Shows, Regent's Park, also Horticultural, Chiswick, Manchester, and every place they exhibited, with the exception of Royal Botanic Society's Show, July 1. They also obtained First Prizes for their Fruit Trees in pots at Manchester, Regent's Park, Chiswick, and Crystal Palace, Sydenham.

MESSRS. J. AND H. BROWN offer the following, which they will forward to any part of the kingdom:—

25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, on their own roots	20*s.*	0*d.*
25 Azaleas, do., American varieties, do.	16	0
12 Hardy Rhododendrons, scarlet, rose, and white ..	12	0
Hardy scarlet Rhododendrons, 2 feet .. per doz.	15	0
Hardy Heaths, Ledums and Kalmias .. .. ,,	6	0
Greenhouse Azaleas, new varieties per doz. 12*s.* to	15	0
Camellias, choice sorts with buds .. per doz.	30	0
50 choice Greenhouse Plants, one of a sort	45	0
24 Ericas, one of a sort, small pots	16	0
Choice Chrysanthemums, large and small, per dozen	8	0
Violets, fine double winter flowering, per dozen ..	6	0

CHOICE FRUIT TREES.

Standard and dwarf trained Peaches, Nectarines, Apricots, Cherries, Plums, and Pears, 2*s.* 6*d.* each, or, per dozen	28	0
Fine Dwarf Plants of all the above grown, especially for pot culture, per dozen	18	0
Figs, Apples, Medlars, Mulberries, and Walnuts, each	2	0
Gooseberries, Currants, and Raspberries, per dozen	3	0
Filberts, new, thin shelled and red skinned do., do.	4	0
Choice Grape Vines, in pots, per dozen..	20	0

Fine Ornamental Trees and Evergreens supplied in any quantity.

Albion Nursery, Stoke Newington, London, Oct. 31.

POPULAR SHOW GERANIUMS.

JOHN DOBSON AND SON beg to announce that they are now prepared with a very large and healthy stock of the varieties named below to execute any orders they may be favoured with. Any 12 of the varieties may be selected for 42*s.* The plants are unequalled:—

Admirable	2*s.*	0*d.*	Lucy	1*s.*	0*d.*
Amethyst	5	0	Laura	2	0
Arab	5	0	Marvellous	5	0
Ardens	5	0	Mr. Beck	3	6
Alexander	5	0	Mr. White	2	6
Bianca	3	6	Miss Foster	5	0
British Queen	5	0	Matilda	5	0
Bouquet	2	6	Marion	5	0
Carlos	1	6	Meteora	2	6
Conqueror	2	6	Pallas	1	6
Conspicuum	5	0	Prince of Prussia ..	5	0
Delicatum	2	6	Rose Raglan	2	6
Eclipse	5	0	Rubens	5	0
Emperor	7	6	Rosamond	1	0
Evelyn	2	6	Sanspareil	1	0
Florence	5	0	Symmetry	5	0
Gem of the West ..	2	0	Selim	7	6
General Williams ..	5	0	Spotted Gem	5	0
Governor-General ..	1	0	Standard	5	0
King of Scarlets ..	5	0	Viola	5	0
			Wonderful	2	0

Catalogues may be had Post-free on application.

Woodlands Nursery, Isleworth, W.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

JOSEPH MAY AND CO., having a large stock of the following, beg to offer them in large or small quantities:—

GARLIC. | SHALOTS.
MUSHROOM SPAWN, best quality.
CROWN IMPERIALS.
PHEASANT'S EYE NARCISSUS.
WALNUT and ASH-LEAVED KIDNEYS. } Free from disease.
EARLY MANLEY POTATOES. } Free from disease.
SODEN'S OXFORD ditto } Free from disease.
EARLY SHAW ditto } Free from disease.

The above can be seen and prices had at 1, Wellington Street, Strand, near Waterloo Bridge.

"CRIMSON PERFECTION" RHUBARB.

ROBERT SALT, GARDENER and SEEDSMAN, Longton, Staffordshire, has great pleasure in again recommending the above splendid variety of RHUBARB, trusting from its superior quality and reduced price to meet with a continuance of favours. It is very early and productive, and the interior of the stalks are a crimson colour. Price one year old roots, 1*s.* each; two years old, 1*s.* 6*d.*; three years old, 2*s.* 6*d.* each. With usual discount to the trade.

Orders forwarded to ROBERT SALT; or to Messrs. HURST & M'MULLEN, Seedsmen, 6, Leadenhall Street, London; BURGESS & KENT, Nurserymen, Penkhull, Staffordshire; F. & A. DICKSON, Nurserymen, 106, East Gate, Chester; CHARLES TURNER, Royal Nursery, Slough, will receive strict attention. A remittance to accompany the order from unknown correspondents.—Longton, October 31.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

WM. C. & SON strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

DUTCH FLOWERING ROOTS for present planting, comprising Hyacinths, Narcissus, Tulips, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c., for house and garden culture, a Descriptive priced Catalogue of which, with valuable Treatises on their culture, may be had on application or free by post. Collections of Bulbs 20*s.* and upwards sent carriage paid. Named Hyacinths for pots and glasses, 6*s.*, 7*s.* 6*d.*, 9*s.*, to 12*s.* per dozen; showy Double Tulips for beds or borders, 3*s.* 6*d.* to 13*s.* 6*d.* per 100; Polyanthus Narcissus, 3*s.* per dozen; Crocus, 1*s.* 6*d.* to 3*s.* 6*d.* per 100. All orders to be accompanied with a remittance or a reference.—BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Oct. 31.

THE BEST TWELVE HYACINTHS.—THE BEST HYACINTHS IMPORTED BY SUTTON & SONS, Seed Growers, Reading, can be supplied at 10*s.* 6*d.* per dozen by name. Also mixed DUTCH HYACINTHS (all Double) for Beds and Borders, at 4*s.* per dozen, and every other kind of Bulbous Flower Roots at low prices, as see Catalogue, which may be had gratis, post free.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

NEW GARDEN SEEDS.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have just purchased the old established and extensive Business of MESSRS. WILLIAM E. RENDLE AND CO.

The Company are now harvesting and laying in their stock of NEW AND GENUINE SEEDS for the coming season.

Extensive and commodious Warehouses are now being erected for facilitating the conduct of a greatly extended trade; and with a large capital the Company will be in a position to compete with the first houses in the kingdom.

The SEED PRICE CURRENT AND GARDEN DIRECTORY (late RENDLE'S), will be published shortly, and Copies will be forwarded to all who have had transactions with the late Firm.

The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

The Gardeners' Chronicle.

SATURDAY, OCTOBER 31, 1857.

LAST Saturday's Fruit Exhibition more than answered every expectation. The tables were loaded with a prodigious quantity of the noblest specimens which it is possible for skill to produce, and we may fairly congratulate our horticultural friends upon such an achievement. Our other columns contain ample details of this gorgeous display; our own notes, before looking at the awards of the judges, or consulting others, were to the following effect.

In the first place the exhibition proved to demonstration that foreign gardeners cannot contend with our own. The Pears from Nantes were indeed of wonderful quality, especially the Duchesse d'Angoulême, rich as a Brown Beurré, but they were so sunburnt as to look like swarthy Spaniards by the side of fair-haired Saxons, and were eclipsed in appearance by the English exhibitions; while

the fruit from the United States, interesting as it was in some respects, did not rank higher than third rate. Undoubtedly the White Calville Apples and foreign Pears produced by Mr. Lewis Solomon were magnificent, but it must not be forgotten that they may have been picked from the produce of many growers, nor indeed is the White Calville well suited to our climate.

We want language wherewith to describe such Pears as the Van Mons and Beurré Rance from Frogmore, or the Forelle from Preston Hall, or the Marie Louise from the Deepdene, or the Beurré Clairgeau from Redleaf, or the numerous exquisite specimens from other gardens. Nor should we omit a special notice of some Marie Louise from a standard at Beesthorpe, near Newark, or a very fine collection from Oatlands Palace Garden, the merit of which was enhanced by the good taste shown in preparing them for exhibition. In fact the only thing which seemed to invite unfavourable criticism was the clumsy way in which the collections were too often named or displayed. A nice lot of Scotch Pears was completely spoiled by the names having been *pasted on the fruit!*; one of the best collections in the room was so slovenly in the tickets that one was tempted to overlook the fruit; another ingenious exhibitor had expended much trouble in writing his labels in illegible Gothic letters, among which **Marie Louise** was an amusing blunder. On the other hand we must especially except from these remarks Sorley, Gardener at Roselands, near Liverpool, and Newton, Gardener to Mr. Graham, of Enfield Chase, whose excellent collections were a model of neatness. Let us add that the well known Uvedale's St. Germain Pear was too frequently decorated with the fine name of Belle Angevine, an error which we should have wished to see exposed in the new and valuable Catalogue of Mr. Rivers, who sent for exhibition a choice collection of 48 new or little known sorts.

What we said of Pears may be equally applied to Apples. It is not indeed in the nature of things to surpass such collections of large well-ripened unblemished fruit as came from Lord De Grey's, the Palace Gardens Weybridge, Stourton near Knaresborough, or from Staplehurst. They were magnificent, as were the Blenheim Oranges from Redleaf, which indeed deserved their name, for they glowed with all the fire that might be drawn from a Mediterranean sun. To these we must add two most interesting collections of Apples from Ribston Hall, and from Belvoir Castle, the state of which although wholly from orchard trees was scarcely inferior to any in the rooms. It was with no little agreeable surprise that we found among the Apples from Enfield Chase, Cornish Gilliflowers in most beautiful condition. This is by many regarded as the best Apple in the world, but is thought to be hardly worth growing out of Cornwall; yet here it completely beat a very nice dish from Trevarno, near Helston. The Enfield specimens had even thrown off their usual brown coat for a dress in which bright orange glowed through russet; an advantageous exchange. We should like to learn from the skilful gardener at Enfield Chase, how he managed to secure these specimens.

For the Grapes—to appreciate the merits of the White Tokay from Trentham, the Muscats from Dorking and Keele Hall, or the Black Hamburghs and Black Princes from many another place, they must have been seen. But we failed to remark any novelty; for the noble bunches unnamed from Lord Eversley's garden appeared to be only the White Nice browned by approaching the state of raisins; and the Trebbiana from Mrs. Cubitt, of Dorking, the largest in the room, was surely no more than the Syrian.

The fruit of Eugenia Ugni, called *Mutilla* in Chili, its native country, where the name Ugni seems to be obsolete, was produced by several exhibitors, in consequence of special prizes having been offered for it by one of the Vice-Presidents of the Society. It is not a little remarkable that every one of the specimens was very inferior to those originally sent up from the Messrs. Veitch's nursery at Exeter; the latter were as large as the largest-sized Black Currants, and coloured like chocolate, or the berry of a brown Hamburgh Grape. These on the contrary all wanted colour and size, some in a remarkable degree. The real merit of this delicious fruit was therefore not shown, and it remains for Gardeners to discover what means are really necessary to produce it in perfection. The best specimens came from the Garden at Chiswick and that of Mr. Fairie, of Liverpool.

We should hope on some future occasion that prizes may be offered for the best groups of fruit arranged as centre pieces for a dinner-table, no material being used beyond such as any garden can furnish. That something extremely useful in this way might be done was shown by a beautiful little group sent up from the Chiswick Garden. Nothing of any value was employed in its composition; the whole being formed of Apples, Pears, small Gourds, Grapes of different colours, and Cratægus berries, among which hung bunches of the Snowberry, whose pure white berries drooping gracefully over the basket and sides formed a charming contrast with the rich glowing colours of the other fruit. Something similar was contributed from the Cheshunt Nursery in the form of a pyramidal half circle formed by a row of Vaccinium Vitis idæa resting on the side of a basket, behind which stood branches of Pernettya mucronata loaded with pink coral-coloured berries, supported at the back by a larger bush of the redder fruited Pernettya phillyreifolia. The effect was admirable.

Of other matters our notes are scanty; we observed a Queen Pine, perfect in shape, and weighing 6 lbs. 6 oz., from Mr. Temple, the Gardener at Dowlais; Mr. Lewis Solomon's Pomegranates were almost black with ripeness; Mr. Webber's collection of English fruit, charming in itself, was very tastefully shown in baskets decorated with bunches of Berberries, autumn flowers, and Ferns: extraordinary collections of Gourds were produced by Messrs. Charlwood, rich in Squashes, and by Messrs. Lee of Hammersmith, who covered about 100 square feet of table; a ripe specimen of the pod of the Chocolate tree and its newly expanded flowers came from Syon; and some very fine Citrons and Limes from Melbury.

We regret to add that several parcels of fruit arrived so late that they could not be unpacked, among which were an important collection from Brussels, consisting of 25 sorts of Pears from M. de Jonghe; a most interesting set of Oranges, Citrons, &c., from the Gardens at Eardiston, near Tenbury; and some superb Pears from Bodorgan.

We understand that the number of Fellows, ivory tickets, and visitors present amounted to more than 700, exclusive of the large body of exhibitors.

It might seem altogether superfluous to say another word about the external appearance of the Vine Mildew, if instances were not perpetually coming before us which prove that there are still many gardeners who have no clear perception of its most obvious characters. We have no right, perhaps, to expect them to be able to distinguish it under the microscope, but they might at least know that unless the leaves and other outward parts of the Vine appear as if lightly sprinkled with Wheat flour, there is no reason to suspect its presence. If, however, the leaves look yellow, the berries become spotted and inclined to shank, or the shoots are weak and unfruitful, they fly to sulphur or some other nostrum, and lay the blame upon the mildew which is really due to their own mismanagement or that of their predecessors, or sometimes to peculiar requirements of their employers over which they have not sufficient control. A case is now before us which is pronounced a case of mildew, but there is not the slightest indication of its presence under the closest inspection. The bunches are excessively small and weak, the berries insignificant, but their surface healthy and free from rust or cracks, though they are disposed to wither, as is not unlikely in such miserable productions.

The history of these Vines is quite sufficient to account for the circumstances, without having recourse to any theory of mildew. The roots seem now to be healthy, though it should be observed they were originally planted too deep, and were obliged to be brought nearer to the surface some few years since. The crop till lately was good in quality and abundant, but for the last two years the Vinery has not been thrown open to the weather after the fruit was off, owing to the space being much wanted for housing the usual bedding plants for the flower garden. At the period of blossoming there was a long course of easterly wind, and the door of the house facing the east was at times left open so long as to chill that end of the house. It was not surprising, therefore, in the first place, that the Vines should be unhealthy, since they had been sacrificed to the flowers, or that there should be a marked difference between the western end of the house and the eastern. The Vines were in a bad condition from appreciable causes, without having recourse to the notion of Vine mildew, and the application of the approved remedies for that disease was only calculated to draw off attention from the real source of mischief.

The cracking and rotting of the berries is one of the consequences of the disease, but it is worthy of observation that severe rust will often produce the same effects, and we have seen this year some most virulent cases, where the eaves of a house or the spouting have dripped upon the young bunches.

M. J. B.

A Leamington paper reports the committal for trial of a person named Mander, described as a tradesman, but apparently a gardener, upon a charge of stealing plants. It appears from the evidence, that in consequence of frequent and very extensive robberies committed in the nursery of Mr. Hitchman, of that place, suspicion fell upon Mander, whose premises were searched, when some young plants of Abies Pinsapo, Deodar, Juniperus excelsa, and varicus others, were identified as forming part of the property stolen. The prisoner was admitted to bail in 200*l.*, with two sureties in 100*l.* each.

New Plants.

212. Cypripedium Fairieanum.

C. foliis loriformibus concoloribus apice obliquis apiculatis, scapo piloso, bracteâ brevi pallidâ apiculatâ, ovario glanduloso-piloso, sepalis glanduloso-pilosis dorsali erecto subrotundo apice recurvo antico breviore concavo oblongo obtusissimo, petalis lanceolatis obtusis decurvis reflexis margine crispis et basi intus fimbriatis, labello sepalo antico duplò longiore glabro oblongo basi convoluto, stamine sterili lunato proboscideo piloso margine antico utrinque unidentato.

An exquisitely beautiful little species in the way of C. insigne, than which the flowers are much smaller. The leaves are narrow and whole coloured, the bract pale green, the ovary deep purple; the back sepal white, richly veined with green and crimson; the petals pale green with a rich purple crisp edge; the lip dull dirty green. It seems nearest to *C. superbiens* of Reichenbach, but is much smaller in every part, has no warts on the involute sides of the lip, is quite differently coloured, and has a long proboscis-like appendage arising from the middle of the concave side of the crescent-shaped sterile stamen. It was shown at the late exhibition of the Horticultural Society in Willis's Rooms by Mr. Fairie, of Liverpool, an enthusiastic collector of Orchids, who we think may fairly claim the union of his name with that of the vegetable gem before us.

VINE GROWING AT TRENTHAM.

A house of Vines, 60 feet long, which were taken up and replanted in Sept., 1856, have borne so well this year that numerous inquiries have been made as to the mode of treatment adopted; and as writing letters, necessarily of some length, is a serious tax on a gardener's time, I shall be glad to reply through the medium of the *Chronicle*, if the matter be considered worthy of insertion.

Most of the Vines having been planted 16 years, and the soil having become close and much exhausted, the Grapes were no longer so good as formerly. To remedy this we took up all the roots in the latter part of September, the leaves being still on the Vines, but the wood ripe and hard. The work of removing the soil lasted several days, as it would not have been by any means economical to have hurried an operation of so much importance. While the work was going on every root and fibre that could be saved was kept as much as possible from exposure to the air by means of mats which were damped when necessary; and when all the soil was removed the roots were tied carefully up in as small a compass as possible without over-bending the stronger ones. Damp Moss was then laid round them, and the whole enclosed in mats and tied up against the front of the house. That part of the floor of the border which was concreted was well swept, and the front part consisting of open drainage of broken bricks was loosened up to make all perfect. Upon this was laid to the depth of a foot a mixture of rough material, such as broken bricks, charcoal, bones, and lumps of fibry turf; and upon this again another foot of turfy loam, with charcoal, rough lime rubbish from an old building, and some charred turf with the ashes of the wood used in the charring all mixed well together. The roots were then laid nicely on the surface, and the longer ones shortened in so as only to cover about two-thirds of the space which they formerly occupied, that being the extent of the new border, which was not then made up to its full width. Some of the same mixture as the last was then laid over the roots to the depth of 6 inches, and the border was finished.

The weather being warm, and the soil in the most favourable state for the roots to work in it, I felt sure that they would begin to establish themselves immediately, and that by covering the border a foot thick with dry Fern, and putting wooden shutters over the whole, we should not only secure them against rain, but keep the soil warm through the winter. In a week or ten days the temperature had risen by a slight fermentation in the new soil, and I was quite satisfied about the success of the Vines as to leaving a slight crop this year. The leaves of course drooped for a time, and some of the bottom or oldest ones never revived; but those near the tops of the spurs and the laterals recovered, and a slight growth took place in some of the young laterals which was quite satisfactory. The Vines were closely pruned in December, but not shortened in the main rods or stems. The house was kept cool till the buds began to move, in March, by the natural warmth of the season, when some fermenting material was laid all over the border and in front of it so as to raise the

temperature to 70°, which heat was maintained throughout the months of April and May, after which nothing more was done to them for a month. In July the greater part of the litter was removed, and the border watered; and by placing the shutters close on the surface of the border, the heat was prevented from escaping. The Vines, of course, broke weakly, but gradually gained strength, and by keeping a moist atmosphere constantly the young shoots and shows, of which there were abundance, were well supported during sunny days. No shading was used, lest it should have a tendency to make the leaves less able to endure the heat of July and August, which is so trying to all Vines, especially in houses not ventilated on a natural and efficient plan, which but few are. From 8 to 12 bunches were left on the longest Vines, and the fruit was well ripened, and of a fine amber colour. They have made fine spurs, which are hard as Oak, and promise well for another year; and the border which has been this day uncovered is teeming with young healthy roots. We are now adding two feet more to the front of the border, top-dressing with turfy loam, small bones, and broken sandstone. The covering will be put on again for the winter as last year, but no warm litter will be required in the spring, the house being intended for a late crop. Some of the bunches on the Muscat Vines in this house were over 3 lbs. weight, and we obtained first prize for three sorts of Grapes at the Crystal Palace, two of which, viz., Cannon Hall and Muscat of Alexandria, were selected from among them. We also exhibited a dish of Muscats from the same house at the Horticultural Meeting on Saturday last, but were beaten, as we all ought to be sometimes, as an additional inducement to try again. [Nevertheless the bunches shown were excellent.]

With regard to ventilation, I am of opinion that ridge and furrow roofs will speedily supersede the lean-to. The ridges should be 4 feet wide, with a Vine to each ridge. The ridge-pieces should be double and 6 inches apart, with a cap to raise and fall the whole length of the ridge by a simple movement; thus giving air, or rather letting out the over-heated air, exactly at the most suitable place. In wide flat houses the air is stagnant in still hot weather, and the leaves scorch. There are more Vines and Grapes injured by this than any other cause. We are now having a house built on the plan just described, which we hope will prove an efficient one as regards ventilation. It will be 140 feet long and 20 feet wide, and is intended for a late Vinery. There are three old flat lean-to houses in the situation where this new one is to be, the Vines in which have always been more or less scorched.

While on the subject of Vines I may remark that the excellent paper of "M. J. B." has led me to examine our Vine and Peach borders, in search of the destructive fungus described at page 692. I am sorry to say that in some of the Vineries, and also in the Peach houses, I have found masses of it, particularly under and near the arches of the front walls, where there is generally a vacancy caused by the sinking of the soil, and where it is kept rather dry by the arch. From this it would appear that the fungus spreads most in loose and moderately dry soil, and where it is not liable to get thoroughly wetted at any time. I believe that heavy watering or much rain will destroy it, and I also find that diluted gas-water, or soot in water, kills it, but these remedies must be carefully applied. The presence of this pest may in general be detected by the growth of a small flat light-coloured Mushroom, many of which have been noticed on the borders here.

I send you some of the fungus, and you will see that the Peach root to which the threads are attached is quite destroyed by it. The lump of loam, which is full of the spawn, was taken from the surface of a border which has been left dry nearly all the autumn on account of there being a crop of Grapes on the Vines which we wished to preserve to as late a period of the season as possible. We shall try the gas-water upon it again, and report the result in due time. *G. Fleming.*

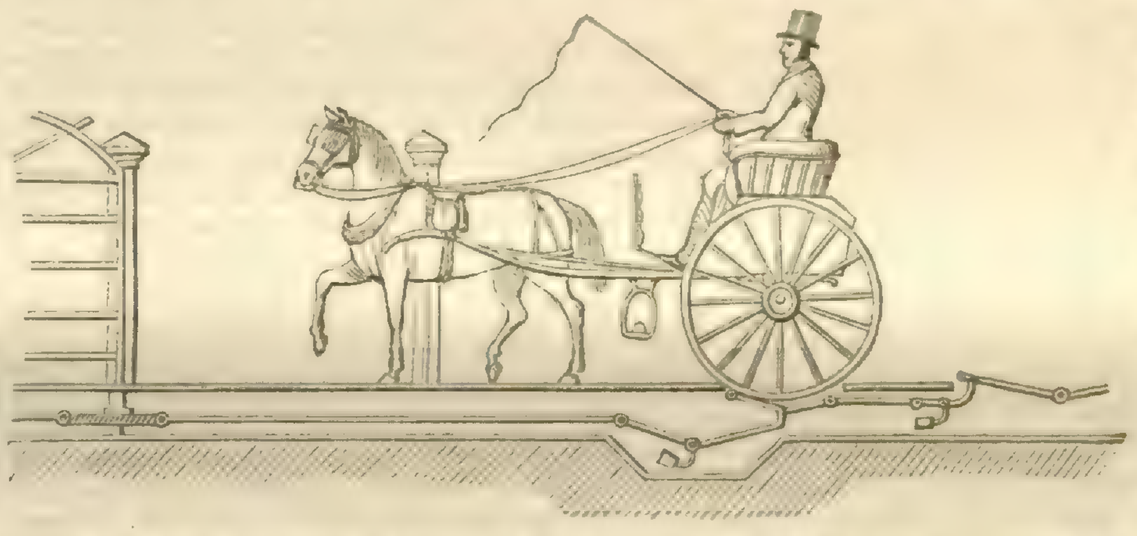
Home Correspondence.

Apple Disease.—Since our observations on the diseases to which Apples are subject were printed, we have received a very singular form from Perthshire which is deserving of an especial notice. The greater part of the fruit is affected by this singular malady while still hanging on the tree. Externally the Apples are marked with a suborbicular flat spot an inch or more broad, of a rich chesnut, changing here and there to jet black, and surrounded by a definite slightly raised border, beyond which is a bright red halo. Within the flesh is perfectly dry, in parts discoloured, in part pure white, and having under a pocket lens the appearance of the crumb of white and brown bread mixed together. The subcuticular cells are either entire or broken down, and are perfectly free from fungal threads. They contain an unusual quantity of starch grains. Those portions however of the cells of the cuticle which are blackened contain the reticulated dark mycelium which is so common in Sphæriaceous Fungi, but whether this be a consequence or cause is very doubtful. This mycelium does not penetrate beyond the layer of cells, which lies immediately beneath the true cuticle. The only specimen we have seen had been attacked by a wasp or some other animal, and had rotted in consequence on the side opposite to the spot just described, but the mycelium which always attends decay arising from exposure to the atmosphere had not penetrated so as to modify the disease. The Apples would in all probability dry upon the trees if affected by no other malady.* *M. J. B.*

Rhus typhina, or the Stag's Horn Sumach.—In these days of admiration of fine foliage, permit me to call attention to this plant, which, beautiful as its pinnated leaves are in the growing season, is when approaching the sear and yellow leaf perhaps one of the most lovely plants which imagination can picture. Staying the other day at Chippenham Station, I walked into the town, and was much struck with the above-named Sumach. Standing in the centre of a small garden, belonging, I believe, to Mr. Collen, a miller of that place, is a single specimen of it backed by a border of evergreen shrubs. A more gorgeous display of colouring I never beheld than was presented by this plant, the hues varying from pale gold to orange, from orange to scarlet, intermingled here and there with leaves preserving the deep green colour of a June leaf, the whole presenting a glorious object. I have for many years admired the Sumachs for their beautiful leaves, and feel sure that this plant only wants to be seen to obtain hundreds of admirers. Plants of this introduced into our generally very formal borders of Rhododendrons or clumps of other dark foliaged plants would form a light and pleasing relief to the eye in summer, and in autumn surpass our gayest summer flowers in brilliancy of colour. *P. Wallace.*

The Compass, or Polar Plant.—This plant (*Silphium laciniatum*), grows from 1 to 5 ft. high. The flower is like that of the Sunflower. The plant is celebrated for the peculiar property of its leaves, pointing due north and south. Some have said the leaves do not always point north and south, but go with the wind. From many and careful observations, I can say that its polarity can be as much relied on as the magnetic needle. I have often seen the stock bent near to the ground by the force of the winds, while the leaves were still pointing north and south. (From a Report by Assistant-Surgeon Keene, dated Fort Dodge, Iowa, U.S., lat. 48° 28′, and forming part of the Official Statistical Report on Sickness and Mortality in the U. S. Army. See American Journal of Medical Sciences, July 1857, p. 125.) [Credat Judæus.]

Opening Gates.—The Agapemone and some other places have a plan by which a carriage driving in opens the gates, and after entering, shuts them without any one moving. If you would publish a plan of this you would, I am sure, be conferring a great favour. *Somerset.* [The gates mentioned by our correspondent are in all probability constructed on a similar plan to one that was figured and described upwards of 20 years ago in Loudon's Gardener's Magazine, vol. x., p. 80, under the name of Parker's sympathetic-gate. As many of our readers may not have an opportunity of referring to that work, we subjoin a sketch and the following



extract for their information:—"On the approach of a carriage the gate opens apparently by its own volition, and closes again after the carriage has passed through, without any apparent cause. The effect is produced by small plates let into the ground at short distances from the gate, which, when the carriage wheels roll over them, descend like a weighing-machine, and act upon certain levers concealed under ground. By means of these levers a toothed wheel is made to revolve and to turn a toothed pinion affixed to the swinging post or axle of the gate, and thus to throw it open or close it." *B.*]

Hornets.—When I was at Ouchy, on the lake of Geneva, in September, 1855, I observed in a frequented part of the gardens† of Mr. Haldimand great numbers of hornets employed at the base of a small Birch tree in reducing the bark to powder. I had then no time to observe them, but being at Ouchy in the same season of the present year, and finding the hornets employed on the same tree, I watched them attentively for a considerable time. As I could find no hole or appearance of a nest in the tree or around it, I concluded that the hornets had their nest elsewhere, and came to the tree for their food. They worked singly, and in parties up to the number of five. Their employment seemed to be to remove the bark, which lay reduced to a damp powder all around the base of the tree in a considerable quantity, and having done so to cause the sap to flow, on which they seemed to feed greedily. I killed one and threw it amongst the others, but they took no notice of it. Although the place was frequented by many people, who often disturbed the hornets, yet they always returned to their work. The tree was frequented by numerous insects, of which the hornets took no notice, as flies and ants, and also by great numbers of the brilliant Red Admiral butterfly (Vanessa Atalanta), which swarmed about the tree, and then alighting on the trunk they crawled down the bark in the direction of the hornets; these then attacked them and drove them away, and although I often saw a hornet strike a Red Admiral on the wing, yet I could never see one killed; the hornets would pursue them for some distance, but the Red Admirals always immediately returned to the tree. I have seen as many as six of these butterflies crawling down the stem at once, and many more hovering around. Although very many other species of butterflies were common in the garden, yet I never saw a single one of another species alight on the tree. I concluded that these Red Admirals were attracted by the sap, as the Birch is not the plant on which they deposit their eggs. It is difficult to account for its being the only species attracted to the Birch tree; one might at any moment have seen many more of these butterflies on and around this tree than one could have met with in the remainder of the gardens. Westwood, in his British Butterflies and their Transformations, page 55, says that the Red Admiral is a remarkably bold insect. The Birch tree appeared in good health, though to my knowledge this was the third summer it had been attacked by the hornets, yet in time the destruction of the bark and the flow of sap must affect it. *Helvetius.*

To Destroy Sound.—Can any one tell me the most effectual way to destroy sound? I have an inn of recent erection; the timber in the floors and roof has been laid into the wall of a corn mill. The sound from the latter destroys the comfort of the house. My own ideas are, a wall built up to carry independently the timbers of the house. Should the space be left open, or filled in with sawdust, or any other material? Or is there any other plan to be adopted that experience could suggest? *A Constant Reader.*

* We should be obliged to our correspondent if he would watch the fruit, and should it remain dry, forward us a specimen in the course of two or three months that we may ascertain what the parasite is.

† These gardens, the most beautiful on the Lake of Geneva, are, with almost unexampled liberality, always, and in their full extent, open to the public.

Societies.

Great Exhibition of Fruit at Willis's Rooms, *Oct.* 24.—Collections of fruit were furnished by Mr. Webber and Mr. Lewis Solomon, both of Covent Garden. That from the former was set out with considerable taste. It included six Queen Pine Apples, Beechwood and Golden Perfection Melons, and choice specimens of the following Pears, viz., Beurré Diel, Glou Morceau, Marie Louise, Crassane, Old Colmar, Passe Colmar, Bezi des Vétérans, Duchesse d'Angoulême, Beurré Bretonneau, Jean de Witte, Vicar of Winkfield, and Léon le Clerc de Laval. Of these the last is a promising new Pear which comes into use in March, and lasts till May. This collection also contained the following Apples, viz., Fearn's Pippin, Old Nonpareil, Old Golden Pippin, Hollandbury Pippin, a large showy Apple; King of the Pippins, Cockle Pippin, Ribston Pippin, Appleton's Favourite, a new kind; and Golden Perfection. Of fruits of English and Foreign growth Mr. Lewis Solomon had a Queen and a Jamaica Pine Apple, Valentia Melons; Black Hamburgh, Muscat, and Frontignan Grapes; Belle Angevine, Glou Morceau, and Easter Beurré Pears; White Calville and Ribston Pippin Apples, Green Figs, Pomegranates, and fruit of the Prickly Pear. The Belle Angevine (Uvedale's St. Germain) Pears were remarkably large and attractive—12 of them are stated to have weighed 25 lbs.

Of French Pears, M. Liron d'Airoles, of Nantes, sent a collection in which were Belle Angevine, small compared with what have just been quoted; Bezi de Heri, Poire de Curé, Beurré Clairgeau, of a rich reddish brown, without the pink colour which this variety acquires in England; fine specimens of Beurré Diel, covered with brown russetty spots; Alexandrine d'Ouillard, a pale, yellow, good-looking Pear; Bergamotte Crassane d'Automne, Green Crassane, Winter Bon Chrétien, Bergamotte de la Pentecôte, a large green variety, thickly spotted with brown; Beurré de Luçon, a handsome fruit; and Duchesse d'Angoulême. The last were large and fine, and like the Beurré Diel and others, richly spotted and flaked with cinnamon. Their flavour is reported to have been more rich than is ever the case with our own growth. In short, the whole collection had a sunburnt aspect, very different from that of English fruit.

Grapes were particularly good, more especially Muscats, the best of which came from Mr. Drewitt, gr. to Mrs. Cubitt, The Denbies, near Dorking. The next in point of merit came from Mr. Hill, gr. to R. Sneyd, Esq., Keele Hall, Staffordshire; three bunches of the latter weighed together 8 lbs. Mr. Little, gr. to A. Darby, Esq., Stoke Court, Slough, also sent fine bunches of this variety. Mr. Snow, gr. to Earl de Grey, had well-coloured but smaller bunches of Muscat; and we noticed good bunches of this kind from Mr. Fleming, gr. to the Duke of Sutherland at Trentham, who stated that they were from Vines which had been lifted in September last year, concerning which see another column. Messrs. Sparrow, Wortley, Frost, and Thomas also showed in this class. Beautiful bunches

of White Tokay were furnished by Mr. Fleming, and the same variety also came from Mr. Hill. Mr. Drewitt had a large somewhat loose bunch of the Welbeck Trebbiana. Mr. Tillyard, gr. to Viscount Eversley, at Heckfield, sent a huge bunch in the way of the Syrian of some Grizzly Grape which is said to have been raised by Mr. Mitchell, of Brighton. We also noticed specimens from Mr. Spary of a large green Grape called Marchioness of Hastings, a kind reported to have also been obtained from the same raiser. Of Black Hamburgh Mr. Hill contributed splendid bunches as regards size both of bunch and berry; but hardly so well coloured as we have seen them from that excellent grower. Mr. Tillyard showed fine specimens of Mill Hill, but they were disqualified on account of their having been wrongly entered. Mr. Snow, gr. to Earl de Grey, likewise showed Black Hamburgh, as did also Messrs. Allport, Eckford, Bousie, and Thomas. Of Black Prince Mr. Hill sent three capital bunches, black as Sloes, and covered with a beautiful bloom. Mr. Bousie, gr. to the Right Honble. H. Labouchere, also sent good bunches of this variety. Fine specimens of West's St. Peter's were exhibited by Mr. Allport, gr. to H. Ackroyd, Esq., Doddington, near Nantwich, and good bunches of Black Hamburgh and Black Prince came from Messrs. Lane, of Berkhampstead, from a house reported to have been open on all sides but one. In the Market Gardeners' Class of boxes of 15 lbs., Mr. Davis, of Oak Hill, carried off the first prize with fine examples of Black Hamburgh and Muscat. Mr. Spary, of Brighton, had a capital basket of Black Hamburgh, and the same kind of Grape was also exhibited by Mr. Bell, of Norwich.

Of Pine Apples there were some admirable specimens. The best came from Mr. Spencer, gr. to the Marquess of Lansdowne at Bowood, who furnished a very fine Providence. The best Queen came from Mr. Temple of Dowlais; it weighed 6 lbs. 6 oz. Mr. Page, Park Gardens, Streatham, also sent a good Queen, which weighed 4½ lbs.; Mr. Forsyth, gr. to Baron Rothschild, had one 5 lbs. 1 oz.; and Mr. Bray, gr. to E. Lousada, Esq., Peak House, near Sidmouth, a Ripley Queen which weighed 4 lbs. 11 oz. A good Moscow Queen came from Mr. Dods, gr. to Sir J. Cathcart, Bart.; a very fine Black Prince from Mr. Whittaker, gr. at Crewe Hall; Mr. Sparrow sent an Enville, and Mr. Bray a good Cayenne.

In the class of Pears of home growth, 12 sorts, six of each, the first prize was nobly won by Mr. Ingram, Royal Gardens, Frogmore, with fruit which for size and beauty were truly matchless. These were, as they well deserved to be, the admiration of everybody. They consisted of Beurré Diel, large, and finely coloured; Van Mons Léon le Clerc, an immense Pear; Glou Morceau and Marie Louise, two Flemish varieties of well known excellence; the latter is in use at Frogmore for 3 months; it is found to hang well on the tree, therefore by gathering at different periods the season of this fine Pear is greatly extended. In addition to these there were Seckel, of large size and fine colour, from a north wall; this is the very best of the American Pears; Knight's Monarch, a truly valuable sort, ripening gradually through the winter months, and affording a supply for the table from November to March; Beurré de Capiaumont, large, and beautifully coloured, a very hardy kind for growing as standards (its season is very short); together with Beurré Rance, fine specimens from a north wall; Vicar of Winkfield, a large second-rate Pear; Beurré Bosc, Hacon's Incomparable, and Brougham; the latter, one of the late Mr. Knight's seedlings, is a very hardy variety. From Viscount Eversley's garden, at Heckfield, Mr. Tillyard sent good specimens of Marie Louise, Winter Nelis, Beurré de Capiaumont, Forelle or Trout Pear, Ne Plus Meuris, Hacon's Incomparable, Beurré Diel, Louise d'Orleans, Easter Beurré, Calebasse, very large and fine fruit of Duchesse d'Angoulême, and Beurré Rance. From Mr. Harrison, of Oatlands Palace, Weybridge, came the following:—Marie Louise, Duchesse d'Angoulême, Beurré Diel, Beurré Rance, Easter Beurré, Hacon's Incomparable, Winter Nelis, Passe Colmar, Monsieur le Curé, Ne Plus Meuris, Chaumontel, Glou Morceau. From the Earl of Stair's, Oxenford Castle, near Edinburgh, came very fine fruit of Marie Louise, Flemish Beauty, Althorp Crassane, Gandesheim, Winter Nelis, Napoleon, Beurré Diel, Gansel's Bergamot, Crassane, Louise Bonne of Jersey, Easter Beurré, and Duchesse d'Angoulême. These were from trees which at one time were comparatively worthless, but which by means of root pruning and concreting and renovating the borders in which they were growing have been brought into an excellent bearing state. Mr. Snow, gr. to Earl de Grey, sent beautiful examples of Beurré Diel, Easter Beurré, Chaumontel, Crassane, Marie Louise, Napoleon, Glou Morceau, and Winter Nelis. From Mr. Whiting, gr. at The Deepdene, near Dorking, came Glou Morceau, Winter Nelis, Passe Colmar, Marie Louise, Beurré Bosc, Shobden Court, Croft Castle, Althorp and Winter Crassane, Duchesse d'Angoulême, Beurré Diel, and Ne Plus Meuris. Of these the first three were from a wall, the rest from pyramids. The latter were stated to be growing in poor sandy soil, which is anything but suitable for fine Pears; nevertheless those shown were equal to many we have seen from good loamy ground, and as regards flavour, they were reported to be excellent. Mr. Chesher, of Woking, sent Marie Louise, Brown Beurré, Beurré Rance, Crassane, Beurré Diel, Winter Nelis, Easter Beurré, Van Mons Léon le Clerc, and fine fruit of Duchesse d'Angoulême and Chaumontel. Messrs. Lane & Son also showed in this class; they sent Soldat d'Esperen, Nouvelle Boussock, a kind like Urbaniste; Poire Belge in the way of Beurré Rance; Marie Louise, Duchesse d'Angoulême, Gloire de Cambronne, Crassane, Easter Beurré, Gilogil, Passe Colmar, Dr. Capron, and Beurré Rance. Mr. Spivey, gr., Hollingbury, Herts, sent Eyewood, Glou Morceau, Beurré Diel, Duchesse d'Angoulême, Crassane, Easter Beurré, very fine Beurré Bosc, Louise Bonne of Jersey beautifully coloured, Beurré Gris d'Hiver, Winter Nelis, Passe Colmar, and Gansel's Bergamot. Mr. Carmichael, gr. at Dunmore Park, in the Carse of Stirling, sent fair fruit from that part of Scotland of Brown Beurré, Marie Louise, an unnamed French Pear, Beurré Rance, Crassane, Easter Beurré, Althorp Crassane, Bezi de la Motte, Dunmore, Urbaniste, Winter Nelis, and Glou Morceau. Mr. Selkirk contributed good examples of Passe Colmar, Winter Nelis, Duchesse d'Angoulême, Beurré Bretonneau, Bergamotte d'Esperen, Beurré Diel, Parmentier, Susette de Bavay, Glou Morceau, Beurré de Malines, Easter Beurré, and Beurré Rance. In a collection contributed from Preston Hall, by Mr. Frost, were famous specimens of Duchesse d'Angoulême, Beurré Diel, Marie Louise, and Forelle, the latter beautifully coloured.

In the class of Pears of home growth, six sorts, six of each, the first prize was awarded to Mr. Sorley, gr. to E. Zwilchenbart, Esq., Roselands, near Liverpool, whose varieties were Winter Nelis, Marie Louise, Beurré Diel, Easter Beurré, Brown Beurré, and Glou Morceau. The next six in point of merit came from Mr. Wood, gr. to R. Scott Murray, Esq., and consisted of very fine specimens of Vicar of Winkfield, Van Mons Léon le Clerc, Beurré Diel, Ne Plus Meuris, Duchesse d'Angoulême, and Easter Beurré. The third best lot in this class came from Mr. Fowle, gr. to G. W. Cooke, Esq., Beesthorpe, near Newark, whose sorts were Easter Beurré, Marie Louise, Passe Colmar, Buchanan's Spring Beurré, Althorp Crassane, and Glou Morceau. Mr. Baldwin, of Turnham Green, sent six good dishes of the following kinds:—Beurré Diel, Marie Louise, Vicar of Winkfield, Beurré Rance, Beurré de Capiaumont, and Beurré Bosc. Mr. Parsons, of Welwyn, contributed Winter Nelis, Seckel, Comte de Lamy, Passe Colmar, Glou Morceau, and Belle Lucrative. Mr. Kinghorn, of Richmond, had Neill's Colmar, Brown Beurré, Duchesse d'Angoulême, Passe Colmar, Glou Morceau, and Beurré Rance. Mr. Mortimer furnished Marie Louise, Beurré Diel, Chaumontel, Winter Crassane, Brown Beurré, and Beurré d'Hiver. Mr. Chesher sent Marie Louise, Chaumontel, Duchesse d'Angoulême, Beurré Diel, Glou Morceau, and Crassane. From Maidenhead Mr. Fox sent Easter Beurré, Glou Morceau, Winter Nelis, Van Mons Léon le Clerc, Soldat d'Esperen, and Napoleon. Mr. Cox, gr. to W. Wells, Esq., of Redleaf, showed old Colmar, Glou Morceau, Beurré Clairgeau, beautifully coloured; Passe Colmar, Easter Beurré, and Winter Nelis. Mr. Hope, West Ham, Essex, contributed Chapman's Pear, Hacon's Incomparable, Passe Colmar, Easter Beurré, Louise Bonne of Jersey, and Chaumontel. Mr. Newton, of Enfield Chase, also showed a well selected and neatly arranged collection.

In the class of single dishes Mr. Tillyard had the first prize for Seckel, beautifully grown and highly coloured; and in every respect nearly as good as the fine specimens of the same variety in Mr. Ingram's collection. The next dish in point of merit was one of Marie Louise, from Mr. Fowle, gr. to G. Cooke, Esq.,; and Mr. Snow had a very fine dish of the Doyenné Gris. Other single dishes were Duchesse d'Angoulême, from Mr. Brown, Rockingham Castle; Beurré Diel, from Mr. Daniels, of Ruthin Castle; Chaumontel from Mr. Mortimer; Hacon's Incomparable from Mr. Evans, Nuneaton, Warwickshire; Marie Louise, small and green, from Mr. Chesher; good Beurré Bosc from Mr. Ingram, gr. to J. J. Blandy, Esq.; Bergamotte d'Esperen, from Mr. Roberts; Marie Louise, from Mr. Saul, of Stourton, and others; Beurré Diel, from Mr. Elliott; handsome specimens of Beurré Clairgeau from Mr. Cox, Redleaf; and a large yellow Pear called Hitton's Seedling from Mr. Hitton.

In single dishes of kitchen kinds, the first prize was awarded to Mr. Snow for Uvedale's St. Germain, six fruit of which weighed 8 lbs. 10½ oz. Other sorts were Catillac, from Mr. Lane, gr. to J. H. Palmer, Esq., Fulham; Warden, from Mr. Elliott; and Winter Bon Chrétien, from Mr. Carmichael.

In the class of Pears of foreign growth the first prize was awarded to Mr. Lewis Solomon for very fine fruit of the following, viz., Duchesse d'Angoulême, Easter Béurre, Glou Morceau, Crassane, Beurré Diel, Winter Nelis, Winter Bon Chrétien, Bon Chrétien d'Espagne, Belle Angevine, Marie Louise, Mons le Curé, Uvedale's St. Germain, Brown Beurré, Colmar, and Gilogil. Messrs. Hovey, of Boston, showed a collection of American Pears in this class; they had a warm brown look with them, but in point of growth were greatly inferior to English fruit. We understand, however, that this has been a bad season with the Americans for Pears, and those exhibited were likewise damaged very much from travelling, all which in some measure served to detract from what merit they would otherwise have possessed. They consisted of Beurré d'Anjou, Beurré Gris d'Hiver, Beurré Bosc, Beurré Superfin, Beurré Diel, Duchesse d'Angoulême, Paradise d'Automne, Swan's Orange, Beurré Clairgeau, Passe Colmar, Van Mons Léon le Clerc, Glou Morceau, Nouveau Poiteau, Marie Louise, Edwards' Elizabeth, Sheldon, Winter Nelis, Colmar d'Aremberg, Louise Bonne of Jersey, and others.

If the Pears were interesting the Apples were not less so. Of the latter there was a large and extremely good exhibition, and the great size and large amount of colour in many of them rendered them objects of universal admiration. In the class of home-grown fruit, 12 sorts, six of each, Mr. Snow, gr. to Earl de Grey, carried off the first prize with beautiful specimens of the following kinds, viz., Old Golden Pippin, Fearn's Pippin, Blenheim Pippin, Normanton Pippin, Court Pendu Plat, Scarlet Nonpareil, Bull's Golden Reinette, Spanish Pearmain, Selina, Golden Noble, Royal Russet, and Hanwell Souring. The second prize was awarded to Mr. Ingram, Royal Gardens, Frogmore, who furnished fine fruit of Blenheim, Old Nonpareil, fine examples of this old favourite; Small's Golden Pippin, King of the Pippins, Jefferson, which is a new American variety of excellent quality and great beauty; Taylor's Seedling, a new Apple resembling Manks Codlin in appearance, said to be of better quality; Rosemary Russet, a useful winter kind; Syke House Russet, Scarlet Russet, and Scarlet Nonpareil, also all useful winter table Apples; Fearn's Pippin, and Cox's Orange Pippin; the latter is not altogether new, but its excellent qualities are now only beginning to be known and appreciated. Mr. Cox, gr. at Redleaf, sent Ribston Pippin, Royal Russet, Norfolk Paradise, Golden Knob, Blenheim Orange, with an unusual amount of colour in it; Old Nonpareil, King of the Pippins, Claude, a large showy Apple; Winter Queening, Norfolk Beaufin, Yorkshire Greening, Northern Greening, and Emperor Alexander. Mr. Baldwin, of Turnham Green, furnished Holland Pippin, Blenheim, Hoary Morning, Wellington, Scarlet Nonpareil, Queen Pippin, and Red Everlasting. Mr. Harrison, of Oatlands, near Weybridge, sent Blenheim Orange, Ribston, Pearmain, Rosemary Russet, Deux Ans, Salopian Pippin, which in Hertfordshire is called Monster Reinette; Alfriston, Yorkshire Greening, Norfolk Beaufin, very fine specimens of Wellington, and Scarlet Nonpareil. Mr. Tegg, gr. to A. Prior, Esq., Roehampton, produced highly polished fruit of Golden Pippin, Margil, King of the Pippins, Lemon Pippin, Wellington, Norfolk Storing, excellent specimens of Minchall Crab and Blenheim Orange. Mr. Parsons sent from Welwyn Dumelow's Seedling, Bur Knob, Alfriston, large and fine Blenheim Orange, Round Winter Nonsuch, King of the Pippins, Lucombe's Seedling, and Red Streak. Mr. Divers contributed handsome examples of King of the Pippins, Fearn's Pippin, a showy kind; Padley's Pippin, Lord Nelson, Emperor Alexander, Golden Knob, Red Winter Queening, Northern Greening, Grahame's Russet, large and showy; Ribston and Lemon Pippins, and Fulwood—the last a large green cooking Apple. Mr. Lane, gr. to J. H. Palmer, Esq., sent Brownlee's Russet, Sturmer Pippin, White Admirable, King of the Pippins, Manks Codlin, Seedling, Reinette du Canada, New Hawthornden, said to be much better than the old one; Cockle Pippin, Pine-apple Pippin, green with russety spots on the sunny side; Dumelow's Seedling, and Prince Albert. Mr. Mortimer, gr., Wallington, produced Scarlet Nonpareil, Braddick's Nonpareil, Ribston Pippin, Northern Greening, large specimens of Flower of Kent, Phillip's Selina, Beauty of Wilts, a pale yellow variety; Gloria Mundi, Golden Knob, Downton Green Nonpareil, and Herefordshire Pearmain. Mr. Wood, gr. to R. Scott Murray, Esq., showed Court Pendu Plat, Ribston Pippin, Wyker Pippin, King of the Pippins, Adams' Pearmain, Newton Pippin, small and green, evidently requiring a warmer summer than ours to bring it to perfection; Brabant Bellefleur, Dumelow's Seedling, Easter Pippin, Blenheim, Baxter's Pearmain, and Alfriston. From Mr. Saul, gr. at Stourton Park in Yorkshire, came fine fruit of King of the Pippins, Reinette du Canada, Blenheim Pippin, and Orange, White Calville, Ribston Pippin, Dumelow's Seedling, Hoary Morning, Greenup Pippin, Gloria Mundi, Manks Codlin, with an unusual amount of colour in it; Yorkshire Greening, and Royal George, a handsome Codlin-like Apple. Mr. Spivey contributed Woodstock (Blenheim) Orange, Ribston Pippin, Normanton Wonder, Court Pendu Plat, Winter Pearmain, Bedfordshire Foundling, Sturmer Pippin, Winter Peach, a pale green sort spotted with brown; Tower of Glammis, Manks Codlin, Norfolk Beaufin, and Royal Russet. Mr. Newton, of Enfield Chase, sent Pomme de Neige, a handsome red and white Apple; Ribston Pippin, Holland Pippin, large, and beautifully coloured; Yorkshire Greening, Golden Pippin, Margil, English Codlin, Hollandbury, Cockle Pippin, Cornish Gilliflower, Brabant Bellefleur, and Beauty of Kent. Mr. Frost, gr. to E. L. Betts, Esq., had fine examples of Court of Wick, Pearson's Plate, Sykehouse Russet, Reinette du Canada, Scarlet Nonpareil, Alfriston, glowing specimens of Fearn's Pippin, Blenheim Orange, Sturmer Pippin, and Dumelow's Seedling. Mr. Wortley sent Birmingham Pippin, a pale yellow medium-sized fruit; Court Pendu Plat, Golden Russet, Fearn's Pippin in beautiful condition, Scarlet Pearmain, Emperor of Morocco, Hoary Morning, Scarlet Nonpareil, King of the Pippins, Catshead, a huge green Apple, and Five Crowned Pippin, a variety somewhat resembling the last in shape, but handsomer.

In the class of single dishes of dessert kinds, the first prize was awarded to Mr. Simpson, gr. to Lady Molyneux, Stoke Farm, Slough, for Cox's Orange Pippin, a medium-sized warm looking brownish red variety, with a yellow crisp flesh of most exquisite flavour. This was found on this occasion to be greatly superior to the Ribston, with fine specimens of which from Mr. Hope, of West Ham, it was carefully compared. These last were therefore placed second in point of merit. The third best was Dunmore Pearmain, from

Mr. Carmichael. From Mr. Geo. Stevens, gr. at Trevarno, near Helston, came Cornish Gilliflowers, which were, however, inferior to the fine specimens of this kind in Mr. Newton's collection already mentioned. This is the best Apple that is known, if high flavour combined with a very rich subacid saccharine juice be the qualities we most desire in fruit; but it is an uncertain bearer. Its merit, however, is of so decided a character, that no one who is aware of its excellence would wish to be without a tree or two, for the sake of the chance of adding so valuable a variety to his winter dessert. It ripens in November, and will keep almost till Apples come again.

In the class of single dishes of kitchen kinds, Mr. Frost, gr. to E. L. Betts, Esq., obtained the first prize for fine specimens of Dumelow's Seedling; Mr. Whiting, of The Deepdene, near Dorking, had the next best, which was Bedfordshire Foundling; and a third prize was awarded to Mr. Wells, Holme Lacy Gardens, for Blenheim Orange. Other sorts were Hall Door from Mr. Roberts, Willesden; German Spa, a huge red Apple, which attracted universal notice, from Mr. Cope, of Combermere Abbey; very large and fine Alfristons from Mr. Wood, gr. to R. Scott Murray, Esq.; Glory from Mr. Drummond; Dumelow's Seedling and Winter Peach, a pale yellow Apple, from Mr. Brown of Rockingham; Blenheim from Mr. Evans, Nuneaton; Grey Leadington from Mr. Daniels; Batchelor's Seedling from Mr. Mortimer; Golden Noble from Mr. Snow, and Hollandbury from Mr. Newton. We also noticed a basket of large handsome Apples called Mellor's Pippin, from Mr. Wood, of Camden Town; Shilling's Seedling, a variety related to the Ribston Pippin, but not equal to that kind in flavour; and a basketful of a seedling Apple from Mr. Monro, which was conical in shape and beautiful in colour, being pale yellow, and finely streaked and mottled on the sunny side with red. Mr. Harrison had a seedling from the American Newtown Pippin.

In the class of Apples of foreign growth, the first prize was awarded to Mr. Lewis Solomon, who contributed among others magnificent White Calvilles, Reinette du Canada, Pomme d'Amerique, Reinette Gris, Pomme d'Api, or American Lady Apple; Ribston Pippins, Pomme d'Or, Fearn's Pippin, Woodstock Pippin, and King of the Pippins. In point of colour these were greatly superior to English grown fruit, and most of them were remarkably large and showy.

Of American Apples Messrs. Hovey & Co., of Boston, sent Rhode Island Greening, a green looking fruit, which, notwithstanding its unfavourable appearance, proved when cut crisp, juicy, and excellent; similar good properties also belonged to the Baldwin, a medium-sized variety, with a warm red colour. These were by far the best Apples in the American collection. Among others Porter, a long-shaped yellow kind; Northern Sweet, a green sort; Cogswell, and Roxby Russet were worthy of favourable mention.

Of Oranges there were some beautiful little bushes of the Mandarin and Otaheite loaded with fruit from Mr. Robinson, gr. to Lord Boston, at Hedsor. Mr. Elliott, gr. to the Earl of Ilchester, Melbury House, Dorsetshire, sent some noble Pomplemouses, Cedratier gros, and some very nice Limes. Mr. Lane, gr. to J. H. Palmer, Esq., sent a dish of Seville Oranges.

Peaches were shown even thus late in the season. Mr. Little, gr. to A. Darby, Esq., of Stoke Court, Slough, sent a dish of late Admirable, still in good condition; the same variety was also contributed by Mr. Hill, gr. to R. Sneyd, Esq.; and Mr. Turner, of Slough, had one fruit of the Salway Peach, a highly promising orange-coloured variety.

Melons came from Mr. Watson, of Ealing, who had a first prize for Seamore's Green-fleshed. The Pine-apple variety, which was second in point of merit, came from Mr. Monro, Colney House, St. Alban's; the third best, which was a hybrid Bromham Hall, came from Mr. Frost, of Preston Hall, near Maidstone.

Of Plums, Mr. Snow, gr. to Earl de Grey, sent good fruit of the Blue Imperatrice, and we also noticed a dish of Coe's Fine Late Red.

Figs—Brown Turkey—came from Mr. Snow and others; but it was evident that the best season for such fruit was past.

Alpine Strawberries both red and white were contributed in good condition from Mr. Ingram, of the Royal Gardens, Frogmore, and Mr. Tillyard, gr. to Lord Eversley at Heckfield.

A beautiful dish of White Currants was also shown by the last named exhibitor. Of red kinds Mr. Frost, of Preston Hall, had excellent fruit, and so had Mr. Snow, gr. to Earl de Grey.

Of Cherries, Mr. Tillyard exhibited a beautiful dish of Morello, still in a state of excellent preservation.

Raspberries came from Mr. Mortimer, of Wallington, Mr. Tillyard, and Mr. Chesher; and branches loaded with fruit of the Four Seasons came from Messrs. Lee, of Hammersmith.

With regard to Eugenia Ugni, the prizes offered for it by Mr. Wentworth Dilke were not very satisfactorily contested. What fruit of it was produced by the different competitors was not above half-ripe. The first prize was gained by Mr. Gaines, of Battersea, and the second by Mr. Williams, gr. to A. Fairie, Esq., of Liverpool.

Of Miscellaneous Fruit Mr. Ivison, gr. to the Duke of Northumberland at Syon, sent examples in flower and fruit of Theobroma cacao, the tree whose seeds are the Cocoa of the grocers, a dish of Guavas, and some Shaddocks.

In a large room apart from that in which the different subjects were arranged for competition were placed such things as were sent for exhibition only. There was a large assortment of Gourds from Messrs. Lee, of Hammersmith. These, on account of their grotesque forms and variety of colours, attracted considerable notice. Other collections of Gourds were also contributed by Messrs. Charlwood and Cummins of Covent Garden, and Mr. May of Wellington Street. On one of the tables here were large collections of Apples from Yorkshire and Lincolnshire, which served to illustrate to what perfection such crops can be brought on different soils, even in the Midland Counties. Those from Ribston Park and Stourton quite equalled many of the same sorts grown in the more favoured climate of Middlesex. From Messrs. Paul and Rivers were large collections of Pears. Those from the latter especially were extremely interesting. They were grown under different systems of cultivation. One box was appropriated to Pears grown on Ker's trellis, the glass lights removed in June; these consisted of Duchesse d'Angoulême, Glou Morceau, Passe Colmar, Easter Beurré, Beurré Langelier, and others; they were large, and remarkable for their colour and clearness. Another box contained Pears from bushes (under the biennial removal system) removed last November; these were not quite so large as the Pears from walls shown for prizes, but were full sized and well grown specimens. Among them were Alexandre Lambré, a most excellent new variety, ripening in December; Bellissime d'Hiver, a very handsome stewing Pear; Beurré Clairgeau, very handsome; Winter Nelis, Beurré de Capiaumont, Onondaga or Swan's Orange, an American Pear of a bright orange colour when ripe, very melting and juicy, perhaps too vinous for some palates; Beurré d'Aremberg, and others. Three boxes were filled with "select and new varieties of Pears" from pyramids and bushes in the open ground; these contained Bergamotte d'Esperen, a medium-sized and excellent late Pear, very hardy and a great bearer, ripening from March to May; Beurré d'Anjou, a large and fine melting January Pear; Beurré Gris d'Hiver Nouveau, very large, covered with a thick russet; this is a February Pear, melting, with a rich aroma, but inclined to be gritty; is better from a wall; Beurré Superfin, a most delicious melting Pear, likely to supersede Marie Louise, as it comes in nearly at the same season, and is certainly more rich in flavour, and is hardier, bearing well as a pyramid or standard; Comte de Flandres, a large and very handsome melting December Pear—a profuse bearer; Josephine de Malines, a medium-sized and very pretty Pear, of the most delicious flavour, ripening generally in spring, but some of the specimens were already approaching maturity; Leopold the 1st, a new, medium-sized, melting, January Pear; Prevost, a very handsome medium-sized Pear, in season in April and May; Zephirin Gregoire, rather below medium size, and peculiar in its shape, being round like some kinds of Apples—this is a melting Pear, ripening in January, and very rich and good; Beurré Bachelier, a very large new melting Pear, something like Morceau, but hardier; Beurré Sterckman, a medium-sized melting Pear, which ripens in January and February; Duc de Brabant (Millet), a new and very large late Pear; those exhibited were the first that have been produced in England; Poire d'Avril, a very large Pear, which although classed with the stewing Pears is often exceedingly good as a dessert Pear in spring; Léon le Clerc de Laval, a very large and handsome Pear classed with the preceding, but quite deserving of extra culture from pyramids; it is in May often half melting and very agreeable; it would therefore, if planted against a south or south-west wall, very probably prove a valuable late dessert Pear. The specimens of Beurré Clairgeau from Quince stocks were very handsome and brilliant in colour. Those from Pear stocks were much smaller and covered with russet.

From Gowran Castle, Kilkenny, Ireland, were some Beurré Diels, which were stated to weigh from 11 to 13 oz. each. Of this sort the total weight of fruit from one tree on a west aspect was said to be 196 lbs. 8 oz.

In addition to the above we noticed some good specimens of Dutch Medlars, two varieties of Quince from Messrs. Veitch; specimens of African Cotton, and fibre prepared from Rushes, from Mr. Wicks; nicely fruited plants of Vaccinium Vitis Idæa, and two Pernettyas from Messrs. Paul; beautifully ripened but not very large bunches of Black Hamburgh Grapes, from an orchard house, from Mr. Woolley, gr. to H. B. Ker, Esq., who also sent a fine dish of Guavas; and finally from Mr. Beaton was a dish of Black Hamburgh Grapes, from a south wall at Surbiton, near Kingston, Surrey. They were well coloured and apparently fit for table, affording another proof to the many already obtained of the favourableness of the past summer for out-door fruit.

Specimens of Straw coverings shown by Dr. Guyot, though nothing new, deserve a passing remark. They consist "of a weft of straw, held between two pairs of longitudinal or warp iron wires, the latter being coated with a suitable substance to protect them from rust." The breadth of these coverings, which can be made of any desired length, varies from 12 inches to 2 feet, and for frames in winter, wall trees in spring, or in fact anything that needs temporary protection, they are efficient, and are easily made. They have been long used in the gardens at Chiswick, where they are made in the very same way as those now under notice, except that tar twine was employed to hold them together instead of wire. When not wanted they roll up into small compass, and may thus be readily moved to some out-of-the way place. Some useful illustrations of different modes of applying them accompanied the specimens exhibited.

At 3 o'clock a ballot took place for the seedling Florentine Camellias, formerly mentioned, when 140 prizes were drawn by the successful applicants.

We have only to add that the exhibition rooms were tastefully decorated with variegated and other plants kindly supplied by Messrs. Veitch and Lee, and that the arrangements appeared to give entire satisfaction.

The official list of prizes awarded on the occasion will be found advertised in another column.

Notices of Books.

Rivers' Catalogue of Fruits, October, 1857.—As usual this contains much useful information in addition to descriptions of the varieties offered for sale. We select the following:—

"*Conseiller de la Cour*, or Maréchal de la Cour (Van Mons). Large, a new hardy melting Pear, which grows most vigorously, even on the Quince, and forms a diffuse pyramid or spreading bush. The Duc d'Orleans (Van Mons) if not the same is much like it. End of November. This has a most delicious and peculiar aroma, and deserves extensive cultivation. It grows so vigorously on the Quince that it requires annual removal to bring it into early fruitfulness. No Pear better deserves extra care. Almost the last words of Van Mons about Pears were on the label attached to some grafts of this Pear, sent to a friend just before his death, viz.: 'Maréchal de la Cour, gain de 1841, la meilleure existant.'"

"*Prince Albert*. Medium size, a new hardy melting Pear of great excellence, like Beurré Rance, but smaller; succeeds admirably on the Quince, and forms a handsome pyramid and prolific bush; deserves a wall in cool climates. March and April. Like the Conseiller de la Cour this is a most vigorous grower on the Quince, and requires annual removal at the end of October to make it fruitful; this is much preferable to the excessive summer pinching recommended by foreign cultivators; in our moist climate this practice only leads to the production of numerous shoots, which never ripen. It forms a charming pyramid, and deserves the most extensive cultivation."

Speaking of Peaches, we have the following directions how to prepare a Peach tree border in light soils:—"In our southern counties, where light sandy soils abound, the difficulty of making Peach and Nectarine trees trained to walls flourish is well known; in spring they are liable to the curl and the attacks of aphides, in summer they are infested with the red spider, so that the trees are weakened, and rarely give good fruit; they seem, indeed, to detest light soils. The following method of preparing borders for them in such soils may be 'as old as the hills,' but I have not seen it described by any gardening author. The idea has come to me from observing Peach trees, trained to walls, refuse to do well in the light sandy soil forming a part of my nursery, except near paths, and to grow and do well for years in the stiff tenacious loam forming another part; my bearing trees in pots, for which I use tenacious loam and dung, rammed down with a wooden pestle, also bear and flourish almost beyond belief; and so I am induced to recommend that in light soils the Peach-tree border should be made as follows:—To a wall of moderate height, say 9 or 10 feet, a border 6 feet wide; and to a wall 12 feet high, one 8 feet wide should be marked out. If the soil be poor and exhausted by cropping, or if it be an old garden, a dressing of rotten dung and tenacious loam, or even clay, equal parts, 5 inches in thickness, should be spread over the surface of the border; it should then be stirred to 2 feet in depth, and the loam and dung well mixed with the soil; the trees may be planted during the winter, and in March, in dry weather; the border all over its surface should be thoroughly rammed down with a wooden rammer, so as to make it like a well-trodden path; some light half-rotten manure, say about from 1 to 2 inches in depth, may then be spread over it, and the operation is complete. This border must never be stirred, except with the hoe to destroy weeds, and of course never cropped; every succeeding spring, in dry weather, the ramming and dressing must be repeated, as the soil is always much loosened by frost. If this method be followed, Peaches and Nectarines may be made to flourish in our dry southern counties, where they have hitherto brought nothing but disappointment."

The Salway Peach, which was found so good at the great Exhibition last Saturday, is thus described:—"Medium size; flesh yellow, melting, sweet, and agreeable. Like all the yellow-fleshed Peaches it has a slight Apricot flavour. Raised by Colonel Salway from a stone of one of the yellow Peaches so common in the South of France and Italy. End of October."

The following rather important hint to the possessors of Orchard Houses is new:—"I must now also take this opportunity of telling my orchard-house friends to top-dress all their potted trees the middle of October, instead of in spring, as recommended in the 'Orchard House,' 4th edit., p. 38; this will prevent failures from the blossoms dropping. After being top-dressed they should have abundance of water till the middle of November. The great success with which Peaches and Nectarines are cultivated in pots here is owing to the loam employed in the compost being unctuous and tenacious. If only sandy loam can be procured, it must be rammed into the pots with a pestle, if tolerably moist all the

better; when the soil in my pots becomes dry it is as hard as an earthen floor; the trees seem to revel in it."

The large and interesting collection of Pears shown by Mr. Rivers on the occasion above referred to should have been studied, as they well deserved, with this catalogue in the hand.

Cranston's Descriptive Catalogue of Selected Roses grown in his nursery at King's Acre, near Hereford, consists of 20 pages filled with short descriptions of the sorts. It seems to be a considerable collection. The spelling of the names is, however, in need of some improvement. Such mistakes as Berberifolia, mycrophilla, *Amié*, Solliville are not now usually found in nurserymen's lists.

Catalogue et Prix Courant des Rosiers, &c. (Catalogue and price list of the Roses grown at Lyons, Rue du Béguin, by J. B. Guillot). The prices here vary from 1 fr. to 15 fr. Three "novelties" are offered, viz., M. Jard and Mademoiselle Joséphine Clermont, Bourbons; and Ma Ponctuée, a Hybrid Moss. The number of sorts in the catalogue is 407. Customers must write in French.

A new edition has appeared of Mrs. Loudon's *Amateur Gardener's Calendar* (8vo., Longmans, pp. 400). Although little has been added to the first edition, some changes, which we think improvements, have been made in the arrangement of the matter. If the form of a Calendar has its inconveniences it also has advantages which no other way of pointing out what the amateur should do, or should not do, can possess; and for that reason this little volume will be found a very useful addition to such a garden library as amateurs usually form. But it has higher merits. It contains some brief but capital information respecting garden enemies, from the pens of Mr. Spence and Mr. Westwood, and monthly cautions contributed by Mr. Ogle, an excellent practical gardener. To all amateurs then, who do not possess the work we feel justified in recommending it, in addition to such works as do not adopt the calendarial arrangement.

Miscellaneous.

The Arctic Flora.—The collections of plants brought by Dr. E. K. Kane from his two voyages to the polar regions comprehend 148 species—77 of which are Dicotyledonous; 29 Monocotyledonous, and 42 Cryptogamous plants: all from the western coast of Greenland, between the 64th and 80th north parallels. Although compelled, by the casualties of his voyage back to the United States, to sacrifice several of his packages, Dr. Kane's collections are yet among the richest ever brought by arctic and polar explorers. They not only afford a great accession to our previous knowledge of the polar vegetation, but they almost complete the flora of northern Greenland, by adding 27 new species to the 49 alloted by Sir J. Richardson, in his statistical tables, to the polar section of that vast island, from the 73d parallel. They, moreover, develop facts of great importance in a physico-geographical point of view: first, by exhibiting throughout the range of coasts between the arctic and polar circle no perceptible change in the number and species of plants therein collected; which seems to establish that the third or polar zone of Sir J. Richardson, as far at least as Greenland is concerned, might as well begin at the 67th as at the 73d degree of north latitude. Secondly: by the reappearance, beyond the limits of Smith's Sound, of two plants, Hesperis Pallasi and Vesicaria Arctica, belonging rather to the milder parts of the arctic zone. Both these plants were gathered with a few others on the newly discovered lands of Washington and Humboldt, on the very verge of that mysterious polar sea which Dr. Kane's expedition had the chance to espy and ascertain to be free from ice as far as the eye could reach. Such a fact indeed, although limited to two species, seems to indicate the existence of peculiar isothermal influences, depending either on warm currents, greater depth of water, or actual depression of our globe at its poles. Another remarkable feature of Dr. Kane's collection is: That, dividing into two equal parts the extent of coast, explored by him, and each section presenting about the same number of stations at which herborisations were made—the northern section, from Uppernavik, 73°, to Washington Land, has yielded more Dicotyledonous, but fewer Monocotyledonous species than the southern section from Fiske Fiord to 73° north parallel. These unexpected results show that the polar zone cannot properly be compared with the alpine regions of the more temperate climates. The uninterrupted action of light and heat during the whole period between the rising and setting of the sun, which make the day or summer season of the poles; a purer and damper atmosphere, aided perhaps by a greater accumulation of electric fluid, must necessarily and more promptly (in the lowest levels) actuate and perfect the vegetation, not only of the plants already inured to those hyperborean regions; but also of those the seeds of which may have been transported either from milder climates, by currents, migration of birds, or otherwise. Unlike the snow-capped and barren summits of alpine regions, at all times destitute of verdure, it is probable that vegetation is permitted to extend to the very pole itself, wherever it meets with proper soil, favourable solar exposure and protection from the blasts of winds. *Proceedings of the American Philosophical Society.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—As the display of flowers in the open air is nearly over for a season endeavour to make the conservatory as attractive as possible, more particularly as it will prove an additional source of enjoyment to those who cannot take outdoor exercise. Fires by night may be requisite, but regular admissions of air should be kept up both to keep the house moderately dry and the atmosphere in a pure healthy state. Chrysanthemums should be introduced as they come into bloom. Early flowering Camellias (a few of the earliest started), Orange trees, Daphnes, and the varieties of Epiphyllum truncatum may also soon be had in flower and will form an agreeable addition to such stove plants as yet remain in beauty. Great care should be taken to provide sufficient ventilation at this season both to stove and greenhouse plants during damp weather, and artificial heat even in greenhouses may perhaps soon be necessary to dry up damp and to permit a free ventilation by day. It should in fact be a point to get the wood of hard-wooded plants ripened as soon after this as can be done even by the help of fires, as it will save a great amount of after trouble and loss during the ensuing winter; use sulphur freely wherever indications of mildew appear, which will not be very troublesome if the directions above are acted upon; keep every part of the houses clean and frequently wash the glass to admit every ray of light, which at this season is invaluable. Advantage should also be taken of wet weather to thoroughly wash infected plants. Pelargoniums if pot-bound should be potted at once or they will lose their lower leaves. Keep the fancy kinds, however, rather under than over potted, and allow them the warm end of the house.

FORCING DEPARTMENT.

Pineries.—Plants swelling their fruit and those in bloom should be assisted by a rather warm temperature, but excess of moisture in the atmosphere must be avoided at this dull season, particularly where the plants are in flower, or the fruit approaching maturity. Use strong clean manure-water in a tepid state for plants swelling fruit, but do not get the soil too wet. The temperature for the growing stock should now be regulated very much by circumstances; keeping them growing gently where it can be done without drawing and weakening the foliage. Keep the soil about the roots in as equable a state as to moisture as possible, for letting the soil get too dry at this season often results in the plants showing fruit prematurely in spring, and the same is true with regard to the bottom-heat, which must also be carefully attended to, keeping it moderate, and as regular as can possibly be done. Vineries.—Where forcing is commenced about this time a rather higher and moister temperature will be necessary to induce the buds to start than would be the case at a more natural season. There is no better means of securing abundance of moisture and a gentle warmth than by placing a moderate quantity of stable manure on the inside border, and turning this, &c., as may be required; but where the forcing houses are visited by the family, and are expected to be neat and orderly, this method is out of the question, and the syringe and whatever other means of a less objectionable character may be at command must be used instead. The night temperature to begin with should range about 50° by fire-heat, raising it to 60° by day, or to 70° with the assistance of the sun. Also endeavour to secure a little warmth for the roots in the outside border, and if fermenting materials are used watch these narrowly, and endeavour by timely additions and frequent turnings to secure a regular gentle warmth of 60° or 65° at a foot below the surface of the soil. If fermenting materials are employed, there will be a great saving of labour, &c., by thatching them with a good coat of something to throw off wet, and preserve them from the weather. If plants in pots and boxes are used for forcing at this season, they should be placed in a mild bottom-heat, so as to excite a healthy root action, which will cause them to break more freely and in less time than can be done without bottom-heat.

FLOWER GARDEN AND SHRUBBERIES.

The condition of the autumn struck cuttings should be ascertained, and wherever indications of damping appear remove the pots to drier quarters; give air liberally to young plants in pits and frames. Scarlet and bedding-out Geraniums should be kept in houses where fires can occasionally be lighted, by which they will grow gently through the winter. As the Vineries are cleared of Grapes fill them (unless they are otherwise occupied) with the more choice things; reserving the pits and frames for the Calceolarias, Lobelias, and similar plants, which do not suffer so much from cold and damp. Wherever alterations are in progress lose no time in completing the transplanting of evergreens, the present mild damp weather being favourable for their removal. As soon as the greater part of the leaves are off the trees let the pleasure ground be thoroughly cleaned and swept; the leaves (if of sufficient quantity) should be stacked up for forcing purposes, covering borders, and the like. Such parts of the lawn as are contiguous to the mansion should be swept daily to remove leaves and worm-casts, and the gravel walks should be frequently rolled to preserve a smooth surface. The present is a good time for re-arranging the herbaceous ground, which is rendered necessary every two or three years by many of the free growing plants getting too large.

HARDY FRUIT AND KITCHEN GARDEN.

Carrots and Parsnips having finished their growth should be taken up and stored away for use. Throw some fine earth among them in the pit to keep them plump and fresh. A part of the Parsnip crop may remain in the ground longer if other work intervenes. Go over the winter Spinach with the hoe on a dry day, and follow with a dressing of soot; this useful winter vegetable requires strong stimulating manures to have it in perfection in winter. As Cauliflowers are easily damaged by frost, go over them frequently and tie the leaves over the advancing heads. A portion of the less forward may be removed to spare pits or frames to succeed, or laid in deeply in a sheltered place with their heads inclining towards the north, to be protected with straw or mats in frost. Clear the ground of crops as they go out of use, and trench or dig over roughly immediately. Cauliflowers under glasses and in frames may now have air freely. Attend to the preparation of Rhubarb, Seakale, and Asparagus for forcing. Later crops of Rhubarb may be forced in the open ground where it grows, using pots or boxes for covering the crowns, and leaves or leaves and dung for the heating material. Seakale may be either forced on the ground as advised for Rhubarb, or taken up and the roots put thickly in a frame on a gentle bottom heat. Pot a supply of Mint and other herbs for winter use

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STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Oct. 29, 1857, as observed at the Horticultural Gardens.

October.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 23	5	30.081	29.852	63	38	50.5	56	55	S.W.	.05
Satur. 24	6	30.050	30.045	62	38	50.0	56	55	E.	.00
Sunday 25	7	29.891	29.790	60	37	48.5	55½	55	N.E.	.[illegible]
Mon. 26	☽	29.833	29.753	63	38	50.5	55	54	S.E.	.[illegible]
Tues. 27	9	29.866	29.721	64	38	51.0	55	54	S.E.	.00
Wed. 28	10	30.011	29.962	64	34	49.0	56	52	S.W	.02
Thurs. 29	11	29.939	29.843	60	38	49.0	56	52	S.W.	.[illegible]
Average		29.953	29.852	62.3	37.3	49.8	55.6	53.8		0.06

Oct. 23—Overcast; fine throughout.
— 24—Overcast; fine throughout.
— 25—Misty; fine; fine with slight fog.
— 26—Dense fog; very fine; overcast.
— 27—Fine; very fine; fine.
— 28—Foggy; very fine; fine and clear.
— 29—Fine; very fine throughout. A remarkably large and distinct white lunar halo which disappeared at 10 P.M.

Mean temperature of the week 3 1-10th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Nov. 7, 1857.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 1	54.7	38.0	46.4	17	0.38 in.	1	2	5	3	3	11	2	4
Mon. 2	54.5	38.9	46.7	13	0.61	2	1	7	1	5	7	[illegible]	1
Tues. 3	53.1	37.2	45.1	15	0.82	3	4	5	2	3	7	5	[illegible]
Wed. 4	50.9	36.4	43.6	16	0.44	2	4	5	2	5	6	5	[illegible]
Thurs. 5	52.7	38.0	45.3	14	0.23	1	2	3	2	6	10	5	[illegible]
Friday 6	53.2	39.3	46.3	14	0.76	1	2	2	4	4	11	3	4
Satur. 7	52.4	38.3	45.4	17	1.02	1	3	2	3	4	11	4	[illegible]

The highest temperature during the above period occurred on the 1st, 1847—therm. 65 deg.; and the lowest on the 3d, 1845—therm. 20 deg.

Notices to Correspondents.

Acorns: *S H F.* Select the largest. Sow them any time between now and March in beds, on good loamy soil. Make the bed level with a rake. Place the Acorns on it from 4 to 6 inches apart. Pat them down evenly with the back of a spade. Then cover them *not less* than half *nor more* than 1 inch deep, according to the soil, covering them deepest when the soil is light. Look sharp after mice.

Boilers: *W P.* The deposit that causes your boilers to burn into holes could not form if you employed rain water. All boilers perish if that internal crust is allowed to form. Plant Beurré Clairgeau, Louise Bonne of Jersey, Marie Louise, Beurré Diel, Glou Morceau, and Duchesse d'Angoulême.

Names of Fruits: *C Ross.* 2, St. Germain; 3, Beurré de Capiaumont; 4, Beurré Rance; 5, Easter Beurré; 6, Winter Nelis; 7, Marie Louise; 8, Brown Beurré; 9, Crassane; 10, Beurré Diel.—*W M.* 1, Beurré Rance; 2, Easter Beurré; 3, Bishop's Thumb; 5, Wormsley Pippin; 6, Downton.—*H Baddard.* 5, Fearn's Pippin; 9, Old Nonpareil; 10, Beauty of Kent; 11, Royal Russet; 12, Hollandbury; 14, Red Streak.—*J E G.* 1, Sweet Russet; 3, Northern Greening; 4, Blenheim Pippin.—*R L.* 1, Fearn's Pippin; 2, Brichley Seedling; 3, Court of Wick; 4, Kerry Pippin; 5, Old Nonpareil; 6, 8, Golden Reinette.—*E T Archer.* Beurré Diel.

Names of Plants.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*A Sub.* 1, Berberis Darwini; 2, Cassia levigata; 3, Kaulfussia amelloides; 4, apparently a bit of Stenactis annua.—*J O B.* Liparis longipes.—*J S P.* 1, Agaricus brevipes, Bull., a long-stalked form, the same with A. blandus, Eng. Fl.; 2, Agaricus dealbatus, Sow.; 3, Agaricus cuneifolius, Fries. *M J B.*—*M Van Houtte.* The great sameness in the characters of the 50 to 60 species of Angiopteris, as described by Presl and de Vriese, renders it impossible to determine with certainty to which species your two specimens belong. The narrow one appears to agree with A. Hugeliana of Presl, and the broad one with A. latifolia of the same author; they are both distinct from A. evecta by not having the intermediate pellucid vein that characterises the latter species. Your third specimen appears like a Pteris, but not being in fructification we cannot make it out. *S.*—*Sub.* Melianthus major. Lonicera Xylosteum, Euonymus europæus.—*J W.* Schizanthus pinnatus, one of the many varieties. We do not recognise the leaf.

Pampas Grass: *Constant Reader.* It is not likely to be of any agricultural value. The Honfleur Melon is a Melon, not a Gourd.—*N B R.* We have no more experience with it than what we described the other day. It would hardly thrive in dry sand: for it evidently likes strong rich soil. It may be had of any of the great nurserymen.

Vines: *A Novice* cannot grow Grapes in a miserable pit which is cold and damp. As soon as he has removed those evils they will do as well as his neighbours', if he has the same skill.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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The Company has been duly registered, and the following is a Copy of the Certificate of Incorporation:—

"Limited Company: Certificate of Incorporation of the Plymouth Seed, Agricultural Implement, and Manure Company, Limited, under the Joint Stock Companies Acts, 1856 and 1857.

"I, George Taylor, Esq., Assistant Registrar of Joint Stock Companies, do hereby certify that the Plymouth Seed, Agricultural Implement, and Manure Company, limited, is incorporated under the Joint Stock Companies Acts, 1856 and 1857, and that it is a Limited Company. Given under my hand this 21st day of August, 1857, GEORGE TAYLOR, Assistant Registrar of Joint Stock Companies."

It will be thus seen that the Company was incorporated on the 21st of August last, and commenced business on the 1st day of September following.

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THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY; Offices, 52, Parliament Street.

HENRY KER SEYMER, Esq., M.P., Chairman.

George T. Clark, Esq.	William Fisher Hobbs, Esq.
John C. Cobbold, Esq., M.P.	Edward J. Hutchins, Esq., M.P.
Sir William Cubitt, F.R.S.	Sir Samuel Morton Peto, Bart.
Henry Currie, Esq.	William Tite, Esq., M.P.
Thomas Edward Dicey, Esq.	William Willshere, Esq.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.* A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. POWELL, Hurst Green, Sussex.

"TIFFANY" FOR SHADING CONSERVATORIES, MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 24, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

SHORT-HORNED BULL on SALE in PRIVATE.—"BRIDESMAN," rich roan, calved July 8, 1854, by Bridegroom (11203 in Coates' H. B.), dam Marion, by Fitzwalter (10232, H. B.), &c. "Marion" bred by F. H. Fawkes, Esq., Farnley Hall; for her pedigree see Herd Book, Vol. II., p. 566. He has not been fed up for Sale, but is in fair working condition.—Apply to J. N. DICKINSON, Ullock Mains, Cockermouth, Cumberland.

GLOUCESTERSHIRE AGRICULTURAL SOCIETY.

Annual Exhibition at Cirencester, November 26, 1857.

The Exhibition of Stock, Horses, Roots, Wheat, Cheese, &c., will take place at Cirencester on THURSDAY, the 26th November, and the Poultry Show will be held on WEDNESDAY and THURSDAY, the 25th and 26th November. All entries must be made on or before Monday, November 2. None but printed Certificates can be received, which may be had on application to me at Cirencester. EDWARD TRINDER, Secretary.

Cirencester, October 31, 1857.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.—The Ninth Great Annual Exhibition of CATTLE, SHEEP, PIGS, DOMESTIC POULTRY, and ROOTS, will be held in Bingley Hall, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next; when PRIZES, CUPS, or other articles of Silver Plate, and GOLD and SILVER MEDALS, to the amount of 1200*l.*, will be awarded.

Prize Lists and Certificates of Entry may be obtained from the Secretary. The ENTRIES CLOSE November 2 next.

JOHN MORGAN, Secretary.

Offices, Bingley Hall, Birmingham, Oct. 31.

SMITHFIELD CLUB FAT CATTLE SHOW, 1857.—The Annual Christmas Show of FAT CATTLE, SHEEP, and PIGS, will be held on TUESDAY, December 8, and three following days, in the usual spacious premises of the Bazaar, King Street, Portman Square, London, when Prizes and Medals will be awarded to the amount of 1200*l.*, being an increase of 400*l.* over former years.

The Cattle Classes have also been greatly extended, and in addition to Devons, Herefords, and Short-horns, separate prizes are now offered for the following breeds:—Sussex, Norfolk or Suffolk polled, Long-horned, Scotch-horned, Scotch polled, Irish, Welsh, and Cross or Mixed. Exhibitors of Stock and members of the Club who are not in arrear have the privilege of a private view of the Show. Non-Members have to pay an entrance fee of one guinea to entitle them to exhibit. All entries must be made on the printed forms of certificates.

The ENTRIES CLOSE on NOVEMBER 2 (the 1st falling on Sunday), and none will be received after that day. Lists of Prizes, forms of Certificates, and full particulars sent free by post on application. B. T. BRANDRETH GIBBS, Hon. Sec.

Corner of Half Moon Street, Piccadilly, London, W.

N.B. It is particularly requested that all communications on the Club's business bear outside the words "Smithfield Club."

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.

SATURDAY, OCTOBER 31, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY, Nov. 2—London Farmers' Club ..... 6 P.M.
WEDNESDAY, — 4—Agricultural Soc. of England .. Noon.

IT is now many years since the commencement of our correspondence with Mr. BURCHAM, then of Lynn, on the subject of STEAM CULTURE. His letter in another column justly claims for him the originality of Mr. HALKETT's plans for applying steam power in cultivation, so far as they involve the use of a platform carrying the means to be employed, whether men or tools. But if we understand Mr. HALKETT's scheme aright it does not hinge on the use of a platform carrying men,

machinery, and tools; *that* is merely subsidiary to the characteristic feature of the guideway system of applying steam power agriculturally. Mr. HALKETT claims as his own the use of permanent parallel rails between the beds which are to be cultivated—and across these beds, resting on adjacent rails, his working platform stretches. Mr. BURCHAM on the other hand has not thought of a guideway for steam cultivation at all. His platform carries an engine at one end of it, and it rotates around the other end, which is fixed; travelling over the land in circles—a fresh centre for the stationary end being taken every time the circuit is completed. They are both of them as yet mere ideas, the latter more entirely so than the former, because Mr. HALKETT *has* submitted his method to a trial, though in a very rough and insufficient manner. And treated as mere ideas the former must be considered as more entirely revolutionising than the latter. Mr. BURCHAM applies steam power merely for the purpose of economising that portion of power now wasted in the ordinary agricultural processes. He carries men wielding garden tools upon his platform, and believes that the labour of locomotion which he undertakes for them is so much power saved, and added to their efficiency as labourers on the soil.

We don't believe it is. We do not think that a man is likely to dig one bit the more for being carried by machinery from spit to spit as he proceeds, and even where his direct weight forms no part of his power to work, as in hoeing and singling Turnips, we do not think that the saving of the muscles of the leg will much increase the power of endurance and of stroke which the operation of hoeing requires in those of the arm. Mr. BURCHAM's rotating platform carrying the labourers, who complete circle after circle of the land as it revolves, is an entirely different idea from Mr. HALKETT's "guideway" plan, in which the platform is a necessary, though it may be unforeseen, result of the characteristic idea. Labourers *may* travel on his platform, no doubt, but there will be an even greater fitness in its use as mere tackling for the draught, and gearing for the working, of a series of machines which shall comminute, subvert, aërate, and fertilise the soil over which it passes, to any depth that may be required.

THE offer of a premium by the Highland and Agricultural Society for the steam plough capable of efficient work at a cost less than that incurred by horse-power has been widely advertised during the past summer, and it was hoped that at the time appointed we should have had BOYDELL, CROSSKILL, FISKEN, FOWLER, SMITH, and WILLIAMS, all upon the trial ground ready to illustrate the merits of their several plans of operation. The trial was confided by the Highland Society to a committee of the Stirling General Agricultural Association—the fields selected were large and level, and so far well adapted for the operation, and everything bid fair for a useful and trustworthy comparison of the rival schemes for cultivating land by steam.

As the reporter states:—"A considerable competition was anticipated, especially as the three favourite classes of schemes, represented by a locomotive traction engine, a travelling engine with rotary digger attached, and haulage by wire-ropes, are now taken in hand by our most influential manufacturers. However, at the time appointed, Tuesday, Wednesday, and Thursday of last week, owing to a variety of causes, Mr. FOWLER's steam plough alone made its appearance,—an unfortunate circumstance for the public, as in spite of the prolonged and thorough testing to which the machine was subjected the element of simultaneous comparison has been entirely wanting."

Mr. FOWLER's implement consists, as our readers know, of a combined 10-horse engine and windlass at one end of the field, and an anchorage at the other, both travelling very slowly, so as to keep always opposite to the ploughing, and dragging the implement to and fro by means of wire ropes. The ground under operation on Wednesday was a level Clover lea, of tenacious carse land, in an unfit state for ploughing until mellowed by frost before the usual ploughing season of February. Yet the quality of the work was superior to that of ploughing done by horses for the sake of comparison. At 5½ inches deep two horses were unable to work a common plough, three being required at an expense of at least 15*s.* per acre. Tried against time, first for two hours and again for one hour, the steam plough drove four furrows at that depth at the average rate of seven acres in a working day of 10 hours, stoppages included, the length of the furrows being 330 yards. The total cost was computed not to exceed 9*s.* per acre, and in order that this estimation may be understood the following particulars are given:—Taking the average size of the fields to be about 17 acres, there will be two and a half days' work and one removal of the machinery for each field, each removal occupying half a day, so that two fields, or 34 acres, will be the amount of work for one week. The daily expense of coal, oil, water, and labour is reckoned at 35*s.*; the two shiftings require four horses half a day each time, costing—say, 20*s.*, but a deduction of say 10*s.* may be made for the two half days' saving of fuel, water carrying, &c. Then, for wear and repairs, of course much depends upon the number of days worked annually and the soft or stony character of the country: but, taking the outlay required at 120*l.* per annum, and the time of working 30 weeks, we have the heavy item of 4*l.* per week. Adding these various sums and dividing by the number of acres ploughed weekly we get 9*s.* as the utmost cost of the heavy land work referred to.

On Thursday the machine was tried on somewhat lighter soil, a Wheat stubble partly overspread with farmyard manure. The length of furrow varied from 220 to 236 yards, thus necessitating frequent changings of widening gear, &c., at the ends of the work, which, however, were accomplished in an average space of half a minute. In one hour nearly an acre was turned over 7 inches deep. With the above stated conditions as to dimensions of fields, &c., this is equivalent to about 48 acres per week, at a total expense of only 6*s.* 3*d.* per acre, whereas the common cost in the district of such laborious pair-horse ploughing is 12*s.* an acre. The excellence of the work was, however, still more the theme of universal approval than the great economy with which it was performed.

A trenching plough, taking only two furrows' breadth, but lifting up a stratum of subsoil and laying it upon the buried top-slice, was also tried, and the effect of its action was considered equal to that of manual digging, whether for depth, which averaged 12½ inches, or for the complete pulverisation of the dry soil by the rapid progress of the implement. To perform such work by horse-power would cost, it is said, 35*s.* per acre; that is, if it could be done at all. But the steam-plough, without trampling or injuring the soil or subsoil, effected nearly half an acre of this deep trenching in an hour; or say 22 acres per week, at a total cost of 13*s.* 9*d.* per acre.

On Friday and Saturday a considerable concourse of spectators assembled in the various trial fields, the many farmers and landowners present expressing themselves with one voice as fully persuaded not only of the profitableness of the steam plough, but of the great value of its work over that done by horse teams. "Mr. FOWLER," says the reporter in the *Times*, "has been fortunate in at last obtaining a sufficient trial, in a suitable district, by men of business thoroughly intent upon doing justice to a novelty like the steam engine in plough harness; and whether or not the Highland Society may withhold its reward for want of greater competition, there is no doubt that the judges' report, after another day's trial at Edinburgh, will thoroughly awaken the agricultural public to the great advances which have lately been made in steam culture."

IN our report of the meeting of the Croydon Farmers' Club it will be seen that Mr. WOOD is represented as opening a paper on weeds with the following remark. "I cannot help thinking that weeds are increasing rather than diminishing, and that Thistles are much more numerous than they were." This melancholy state of things he accounts for as follows. "This, I believe, arises from the plan of successive cropping without clean fallows; and in many cases they gain strength by not being cut up when the land is in corn." That these are fertile sources of weed growth in the hands of careless farmers few will dispute, still there are other causes which operate to encourage the spread of weeds, which though less understood are perhaps on that very account more certain and constant in their operation, and as amongst these are the absolute sowing of weeds by the farmer himself, we would now make a few observations on this mode of weed propagation.

Weeds are sown in various ways: amongst others the following may be worthy of attention.

1st. Weeds sown with the seed for the crop.

2nd. Weeds sown in manure.

3rd. Weeds sown by defective agricultural processes.

4th. Weeds sown from preserves in way sides and waste places.

1. In our Number for August 15th of the present year will be found a census of the amount of weed seeds observed by a careful investigation in several samples of crop seeds which had been sent at our request from different parts of the country, these being such samples as are sent to buyers, such as would be termed "fair average samples," some of them indeed being marked with terms expressive of superior quality. From this list we now extract the following examples of Clover seeds, adding a column to express the quantity of weeds that would be sown to an acre in using the samples to be commented upon, as also another expressive of the number of weed seeds the use of these would cause to be sown in every square yard of ground on which they were employed.

Names.	Number of weeds in a pint Imperial.		Number of pints sown to an acre.		Number of weeds sown to an acre.	Number of weeds sown to a square yard.
Broad Clover	7,840	×	13*	=	100,920	21†
Ditto.	8,400	×	13	=	109,200	22
Cow Grass Clover	6,400	×	13	=	83,200	17
Ditto.	12,000	×	13	=	156,000	32
White Dutch Clover	26,560	×	12	=	318,720	66
Ditto.	70,400	×	12	=	844,800	17†

This table gives us a startling notion of the immense quantity of weeds absolutely sown by the farmer in what he terms his artificial Grasses, enough in some cases to be more than as much as is necessary to crop the soil, and we must remember with regard to the weeds that they generally grow faster than the crop and many of them finish their course and even produce a second generation before the crop is gathered, thus acting as robbers during their whole life and besides by their fecundity taking at last complete possession not only of the surface but of the food below. It is quite true that all these weed seeds would not germinate. With weeds and with crops we may sow much more than ever comes up, but we must remember that weeds are for the most part natural to the soil whilst crops have to be wrung from it by management; the former therefore has usually the best chance, and it amounts to a proverb that "Ill weeds grow apace," and the worst are so ill in fact because they grow faster and are more cosmopolite than others.

If we inquire how it is that weeds get into the seeds, we cannot say (except in a few cases) that it is the result of direct adulteration, though this is undoubtedly the case when Charlock is found in Turnips; at the same time there is reason to think that the process which contributes so much to dirty seed is scarcely more honest; for if a farmer seeds a dirty patch as the "best thing to do with it," he must be extremely ignorant if he does not know that he is thus entailing a large accession of weeds to the purchaser. Sometimes indeed he honestly tells the purchaser that it is not quite clean, and agrees to sell it a less price accordingly; in such instances we must conclude that the purchaser is but ill acquainted with the nature of weeds, or he would be aware that in this way new and most troublesome examples are constantly being added to his already too redundant stock, and he is moreover not only paying for what detracts from the quantity of his seed, but he implants an enemy which robs that which he does sow.

It would take up too much time to descant upon the kinds of weeds which thus are allowed to exert their mischievous tendencies on every crop of seeds, but it may not be amiss to glance at the method of growth of one of the commoner weeds in what are called "seeds," that is, mixtures of Clovers and Trefoils. This one shall be the Ranunculus arvensis, Creeping Crowfoot, a specimen of which we have now before us.

The example was taken from a field of Wheat, and may therefore be said to be about 12 months old; it had four principal runners ramifying from the central or parent plant, presenting the following proportions:—The principal runner 6 feet long, the next 5 feet, the others 4 feet. The whole possessing 36 well rooted *scions*.

So that here was a plant which steadily increased in the quantity of ground it covered not only by its increase from Scions, for each of these would flower and seed; no wonder therefore that in seeds this should take possession of patches of ground which would consequently be bare of the crop plant.

MEMORANDA FOR THE AGRICULTURAL STUDENT.—No. X.

THE MEAT MANUFACTURE.—We come now to the subject of making meat, the best mode of applying the raw material of it in order to bring out the largest and most valuable manufactured result. The question—What is the worth of a ton of Turnips?—is one to which

* These numbers are expressive of the quantity of seed usually sown to an acre, pounds being almost equivalent to pints.

† These are round numbers, fractions more or less being omitted.

half a dozen men will give half a dozen answers. Its power to produce meat, on which its value depends, is due not only to its composition, which varies in the half dozen different cases, but on the character of the machines through which it is passed, and on the skill with which the process is conducted.

I suppose that two lots of rags of equal quality may be served out to two paper-makers, and the one shall make more profit of them than the other, owing to the two last considerations. But if the rags are of different quality to begin with, the difference in the result would be greater still, and such is the position of the farmer. The food he grows differs wonderfully in its quality, according to soil and climate; the machines he uses differ exceedingly in their character; the judgment and skill he employs vary between the extremes of positive folly and experienced wisdom. No wonder then that we have not yet agreed as to what is the value of a ton of Turnips, or of any other article of food. Mr. Mechi tells us in the south that no profit is to be made of feeding meat, that the meat manufacture is, in fact, as regards the farmer useful merely as a manufacture of manure. There is many a farmer, both south and north, who knows better. Mr. Finnie, of Swanston, near Edinburgh, had last year 140 cattle feeding on roots, and distillery wash, and Bean-meal, and Rape-cake, and he makes a profit on the process independently of the store of manure he thereby provides; and there are many who parallel his experience, not perhaps in the degree, but in the character of it. They too make a profit on feeding, though not such a profit. Probably the first particular rule connected with the subject is to have special regard to the capabilities of your machines for converting the raw material, the food which you are to manufacture, into flesh.

It is only a well-bred animal which can make the full use of liberal feeding. You must be acquainted with the needs and the powers of the breeds you feed, as well as with the general rules and truths of animal nutrition. And now let us consider what those general rules and truths are. It is only within the past few years that the theory of food in relation to growth has been fully developed, and growth has been recognised as a simple building up and aggregation of the materials which the food contains.

The chemist divides the constituents of food into three great classes. The first two include all that may be burned away; the incombustible part—the ash—is the third. This ash is soluble or insoluble; the latter part consists chiefly of phosphoric acid and lime, which, constituting two-thirds of the bones of animals, is called bone earth. This earthy part of the ash thus supplies the animal with the materials for the formation of its bony skeleton. The saline soluble part of the ash of food is made up chiefly of common salt and phosphate of soda, which two combinations enter largely into the composition of blood. It also contains salts of potash, which abound in the juices of flesh. The saline matters thus supply the blood, the flesh, and various animal juices with their necessary mineral constituents. The organic part of food which burns away is made up of a number of organic substances, as starch, gum, sugar, fibre, albumen, &c., and these may be grouped into two classes—the first including constituents rich in nitrogen, and the second constituents free from nitrogen.

The nitrogenised ingredients include albumen, gluten, casein, legumin—substances nearly identical with each other. The second class includes oily matters, starch, sugar, gum, pecten—a jelly-like substance found in Carrots, Mangel Wurzel, Turnips, and other roots—and cellular fibre. The nitrogenised compounds generally contain about 16 per cent. of nitrogen and small quantities of sulphur, or phosphorus, or both, and are hardly, except in this last particular, distinguishable from each other. They are all made up of a substance, protein, and this sulphur or phosphorus, and so they are called protein compounds.

These protein compounds are necessary to the food of animals. Dogs fed on starch alone will die. A sheep fed with food perfectly free of protein compounds died on the 20th day. The practical value proved of oilcake, Beans, grain, &c., as compared with foods poorer in nitrogenous matter, proves the assertion that protein compounds are needed. The non-nitrogenous compounds are also necessary. A goose was fed on albumen—white of egg—without the addition of any other food, and died in about six weeks, having lost a great deal of weight. All classes of ingredients are needed to make a perfect food.

The non-nitrogenous compounds contain large quantities of carbon, and their use is to be burned as fuel in the lungs, and so maintain the heat of the body, or to be placed as fat in the fatty tissues of the growing body, or to be converted into fat and placed there. The protein compounds on the other hand, which are almost identical in composition with flesh, go to build up the flesh of the animal. That, then, is the theory of growth. You have, as stated by Dr. Voelcker:—

1. The earthy substances in food, phosphates of lime and others—the bone materials. The saline substances—chlorides of sodium and potassium, sulphate and phosphate of potash and soda, and some other mineral matters occurring in food—supply the blood, juice of flesh, and various animal juices with the necessary mineral constituents. Albumen, gluten, legumin, and other nitrogen containing principles of food, furnish the animal with the materials required for the formation of blood and flesh; they are called, therefore, flesh-forming substances. Fats and oily matters of the food are employed to lay on fat, or to support respiration and animal heat. Starch, sugar, gum, and a few other non-nitrogenised substances, consisting of carbon, hydrogen, and oxygen, are used to support respiration—(hence they are called elements of respiration), or they produce fat when given in excess. Starch, sugar, and the other elements of respiration alone cannot sustain the animal body. Albumen, gluten, or any other albuminous matter alone does not support the life of herbivorous animals. Animals fed upon food, deficient in earthy phosphates or bone-producing principles, grow sickly and remain weak in the bone. The healthy state of an animal can only be preserved by a mixed food which contains flesh-forming constituents as well as heat-giving principles, and earthy and saline mineral substances in proportion, determined by experience and adapted to the different kinds of animals, or the particular purpose for which they are kept.

That then is the theory of growth, and the practice agrees with it. Thus: a child grows ricketty, its bones are not well built and vigorous if fed perpetually on arrowroot and starch food; milk containing the phosphate of lime, its bone earth, must be supplied along with such food. Again: food rich in albuminous matter, in protein compounds, as Bean-meal, oilcake, &c., is in practice found the most productive of rapid and muscular growth. Again: food rich in oily and starchy matters is in practice found the most fattening of any sorts of food.

Again: animals exposed to cold—breathing a colder and therefore a denser air, containing more oxygen or fuel-burner per cubic foot—animals exposed to cold, requiring therefore greater expenditure of fuel to maintain the animal heat—do not in practice prosper as if kept in warmth and dryness; most of their food goes as fuel; a great deal of their food is wasted and burned up within them.

Again: animals allowed to run about and take muscular exercise, thereby increasing the rapidity of respiration, keeping the bellows blowing at the fire within the lungs, do in effect not increase in fat or flesh so fast as when kept within bounds and hindered from running to and fro. In all these particulars, then, the experience of the farmer tallies with the theory of growth as laid down by the chemist and animal physiologist.

AGRICULTURAL STATISTICS FOR SCOTLAND, 1857.

MR. HALL MAXWELL'S Report to the Board of Trade gives an abstract of the returns of acreage and stock, obtained under the Statistical Inquiry. The only point in which this report differs from that of 1856 is that in Caithness and Orkney tenants rented at from 10*l.* to 20*l.* have been brought within the scope of this inquiry, which will account for the considerable increase on the returns from these counties. The rule limiting the inquiry in Highland districts to persons paying not less than 20*l.* of rent now operates only in Argyle, Arran, Inverness, Ross, and Sutherland.

In addition to the results reported, there must be included about 220,000 acres of tillage, and 320,000 head of stock, estimated in 1854 to be in the hands of the small occupants not embraced by this inquiry. Mr. Maxwell regrets that it has not been in his power to complete these tables at an earlier date; but there were circumstances which impeded the initiatory arrangements in spring, while the alteration in Caithness and Orkney has also caused delay. He has requested the enumerators to furnish him with their estimation of produce as soon after the 11th of November as possible, and he will then lose no time in transmitting the final report, with such general observations as may be necessary.

The following figures give in detail the acreage of the several crops throughout Scotland.

Number of Occupants, 43,432.	Acreage, 1856.	Acreage, 1857.
Total acreage under crop	3,545,191	3,556,072
Wheat	263,328	223,152½
Barley	165,738¾	18,387¾
Oats	918,644½	938,613¼
Rye	4,620	5,989½
Bere	15,388¼	21,607¼
Beans	40,470¾	39,186
Peas	4,817¼	3,687½
Vetches..	18,231¼	18,418¼
Turnips..	460,131	476,691¾
Potatoes	149,351	139,819
Mangel Wurzel	3,531	2,803½
Carrots	1,532¾	1,401½
Cabbage	1,485	1,704
Rape	1,407	2,032¾
Flax	2,723¼	1,534¾
Turnip Seed	1,754¼	2,576½
Other Crops	795¾	577½
Bare Fallow	15,464½	18,582¼
Grass and Clover	1,475,775¾	1,459,805¾

LIVE STOCK.

	1856.	1857.
Farm Horses over 3 years old	122,967	126,471
Farm Horses under 3 years old	33,384	34,947
Other Horses	23,502	23,991
Total Horses	179,853	185,409
Milk Cows	299,969	303,912
Other Cattle	473,384	475,327
Calves	193,703	195,198
Total Cattle	967,047	974,437
Sheep for breeding	2,714,301	2,632,283
Sheep for feeding	1,146,427	1,181,782
Lambs	1,955,832	1,869,103
Total Sheep	5,816,560	5,883,168
Swine	126,924	146,354
Total Stock	7,090,384	6,989,368

Home Correspondence.

Circular Steam Tillage.—It is long since I wrote to the *Agricultural Gazette*—this has arisen not from want of will, but want of heart. For 10 years or more I have studied and written for the advancement of farming and the farmer, but neither man nor art care much about me or my "ideas;" probably my "executors" may one day do me justice. I regret to say I must now appear before your readers as an agricultural "Engineer with a grievance." I have just read your account of Mr. Halkett's "guide-way steam cultivator," tried last week at Wandsworth. You describe steam engines mounted on a platform 50 feet in length, &c., to the under surface of which various species of tilling implements are attached. I also read the description about the method or line of direction in or by which it is worked. I now beg to say the first is my invention, the second is not; that is, the machine (with emendations by me) would be mine—the "method" is not. After inventing a machine (the special mechanical combination of which Mr. H. has copied) I was requested, times without end, to employ it after the "method" you describe him as now operating by at Wandsworth. To this I replied with an emphatic "No!" and for reasons only thoroughly known to myself, have never deviated from that negative, nor ever shall; and I here record that until I have my way, and my "method" of circular tillage be adopted, steam will never be effectively or profitably employed in the field. I discover from Mr. Braithwaite's C. E. report that Mr. Halkett has patented this system of tilling land and also the machine, which is simply absurd; for all that he has done has been known and shown throughout the length and breadth of Norfolk and elsewhere these 10 years; beside to attempt to patent a system of steam cultivation would be just as wise as a farmer patenting his farm. By writing thus people may think I am angry; it is not so—I am only vexed, annoyed, because from the estimates of expense you give us, I see the "child" of my invention is in danger of being badly "brought up," or out. I do not care (since I have not the means of "training" him myself) who may be his introducer into the world of English farming, but I do wish him to be brought in as my "son," and in a way that will cause him to prosper and prove a blessing, not a loss, to his countrymen. The way he is being introduced at Wandsworth is only an evasion of the right way. Whilst giving Mr. Halkett every praise for attempting to carry out my ideas, without my aid, I wish it to be remembered that Mr. H. is only an imitator, and I need scarcely impress on the minds of your readers that no imitator—no follower—ever thoroughly understood his original, or was anything else than a reduced and bad copy. *C. Burcham, 8, Upper John Street, Golden Square, W. C.* [As we understand it: Mr. Halkett's method—the provision of a permanent guideway on which a platform driven by steam power, and carrying tools, may travel at a minimum of cost for mere movement—is the subject of the patent. The machinery attached is another and subsidary subject for consideration, regarding which no claim is made.]

Sigma's Corn-planter.—As I believe it is your desire to bring forward any really useful invention connected with agriculture, I beg to give you the results of my experience of Sigma's corn-planter, from a trial this season. I have found it a most useful implement, exceedingly simple in its arrangement, and not liable to get out of order, any labourer can work it, and the distribution of seed is very equable. The seed having been measured, and equal quantities placed in each compartment at each time of replenishing, and the residue being measured after sowing half an acre, there was no perceptible difference in four, and in the fifth trial we had sown 1 oz. more than the others (which could be easily remedied by placing the brush closer to the sliding bar). With regard to the saving of labour, I find that it costs me 2*s.* for the same extent of ground that I paid 10*s.* for last season. I send a woodcut of an extraordinary prolific Wheat I have grown this season. I have some heads I am keeping for exhibition, which would more than cover this drawing, which was however taken from a head above the average, which being shorter are also closer set. This was dibbled in. *An Amateur Farmer.* [The ear was 7½ inches long, containing 100 to 120 grains.]

Mangel Wurzels.—Yesterday morning we had here (West Cumberland) a rather severe hoar-frost, the fields being quite white with it, but there was no ice, and no appearance of frost on the roads; but it is causing me much trouble and anxiety on account of a large portion of my Mangel Wurzel having been lying cut and covered by it. I observe that the skin peels easily off many of them, but there is no discolouration; and the question is—will it keep sound till spring if properly stored? It has been principally carted home these two days, and in a very dry state; and is laid up in one continuous heap on dry ground in an airy situation, about 5 feet broad by 3½ feet deep, covered with straw or dry offal collected from "dike backs," over which a little soil is thrown merely to prevent the wind blowing the straw off until the stack has thrown off any superabundant moisture that may exist or be generated inside, when it will be covered with 3 or 4 inches of mould and thatched over all with good Wheat straw. Will you kindly favour me with your opinion of my plan, and the prospects of having sound Mangels in spring? *J. N. D.* [We do not expect that your roots will keep. We never knew Mangels on which even hoar frost had lain kept through the winter. Do not

cover them with earth. Let the freest ventilation pass through the heap.]

Evening Reading-room.—Although a neighbouring small town has been obliged to give up their reading-room, mine is regularly attended, though only in a very small village, because no payment is required. We use the infant school-room, and keep it open from six till half-past nine in the evening. The room is warm from previous use, combined with the present fire; whereas mostly such places are uninviting from cold. *Somerset.*

County Cavan—Potatoes.—Still our report in this neighbourhood is favourable to the Potatoes; the amount of diseased tubers is noways alarming, not more than in ordinary years, varying from scarcely a tenth to a fourth, and the latter but rarely. The crop is not, however, a full one, the rain prevailing so late in the spring caused much planting to be effected when the ground was in too wet a state, and this has told against the crop in heavy undrained land. The very dry summer has also perhaps tended to lessen the crop on the gravelly soils. *J. M. G.*

Farmers' Barometers.—Notwithstanding a wholesome dread of advertised apparatus, I ventured some time back to buy one of Casella's barometers for farmers, and as it is desirable to support and recommend any one who offers to the public a good thing at a cheap rate, I must report through your columns that I have fairly tried Casella's barometers, costing 11*s.* 6*d.*, against two other barometers (by first-rate makers) and costing each four guineas; and the result is that Casella's is as rapid and accurate in its indications as either of the more expensive instruments, and it is also particularly neat in appearance. Mr. Casella's endeavour to supply farmers with a cheap and good barometer should be supported. ***Martyn Roberts, Pendarren, Crickhowell.*** [See the remarks at p. 614.]

Farmers' Clubs.

Witham, *Oct.* 8.—At the annual meeting of this Society, which was somewhat thinner than usual owing to untoward weather, Lord Rayleigh gave the following account of a field cultivated on the Lois-Weedon system. It was one of 2 acres, lying near the side of the road, and having read the pamphlet on the system adopted by Mr. Smith, at Lois-Weedon, he thought this a good field to try the experiment on this system. He resolved to have it forked up and cultivated without any manure at all, on the plan of Mr. Smith. The whole field in 1852 was Wheat, which went with the other crops, and he could not tell the produce per acre. In 1853 he began Mr. Smith's plan; he forked half of it, which was Wheat stubble, and there had been no summer fallow for the sun to play on; he was not, therefore, surprised that the produce was only 2½ quarters. They would find how it increased when the atmosphere acted on the maiden earth. The result was as follows:—

	qrs.	bush.
1854. The half produce .. .. Sold Oct. 1854, at 14*l.* the load.	5	5
1855. The other half produced .. .. .. Sold Sept. 21, for 19*l.* 6*s.* 5*d.*	5	1
1856. The alternate half produced .. .. Sold Sept. 26, for 17*l.* 13*s.* 3*d.*	5	3
1857. The half produced .. .. Sold Sept. 18, for 15*l.* 17*s.* 3*d.*	5	5
If they added the sum at which the corn sold together it came to	£67 11*s.* 11*d.*	
Divided by 4 it made per acre	£16 17*s.* 10*d.*	

That field had been six years without manure, with no cattle on it; and instead of diminishing in produce it had 5½ quarters, though under the old system it was only 2½ quarters. But then came the old story, that it was an old pasture, as Mr. Hutley had stated, but in the memory of man it had not been pasture, though it looked as if it had been.—Mr. Smith gave "The health of Mr. Blood," which was drunk with cheers.

Mr. Blood said he could not conceive why they should propose his health at this agricultural meeting, for he was not an agriculturist, and indeed he might say he had ceased to have an interest in agriculture since stubbles had become matters of history, and Turnips were set in such vulgar rows that there was no pleasure in walking over them. The agriculturists seemed now only to think how they could get the most money out of their farms,—they were falling into the errors of the Manchester and manufacturing school, and were endeavouring to get as much as possible out of the ground, not caring one straw for the sport that the land might be made to produce. He would ask them—he would ask Mr. Smith, for his land laid most convenient, just to leave his stubble 4 inches from the ground, and then he should think that gentleman was really sincere in wishing him well.

Mr. Joseph Hutley being called on for a statement as to a new stock of Wheat he was raising, said he selected an ear of Wheat in a field from which he obtained 108 kernels; he sowed them, and had a pint and a half; this produced 7 bushels, and now he had 7 acres of the Wheat.—Mr. Foster, on being called upon by the President, said he was sorry to state he had no experiments the results of which he could lay before them. Formerly he, like Mr. Hutley, made experiments in Wheat growing from a single ear, when he produced a variety which Lord Rayleigh called "Foster's pup." He continued to cultivate this Wheat till it out-grew him. It was now grown largely in Devonshire; and it answered well on some lands about here, but with him at last it lost in quantity, and he gave it up. Mr. Hutley had mentioned the number of kernels he had found in an ear; with his own—Foster's Imperial Wheat—it was not an uncommon thing to find 108 kernels in an ear—he had had a handful that averaged 108, and one with 111; but he had never seen it in any other Wheat except Rivets. As to the working of the 2 acres of land referred to on the Lois-Weedon system, he had thought his lordship gave it as 1 acre that had produced this, but, having heard the explanation, he fancied that if his lordship would sow the field every year with Wheat, it would produce almost what it had done, without the expense of forking. He had thought, from Mr. Smith's statement, that they were to have 5 quarters an acre; but it was something like Mr. Blood's statement, who once came there and said he had 7 bushels of Potatoes off a rod of ground, but then it came out that they were in a single row, and thus had plenty of air. His lordship's crop was a paying crop, but it was not so advantageous as he thought it was.—Lord Rayleigh: My bailiff will tell you I cannot grow a quarter of Wheat so cheaply as in that way.—Mr. Foster: But if you go on in that way you will starve the public by cultivating only half the land.—Lord Rayleigh: That is another question.—Mr. Foster said he thought it was better to lay money out for manure and grow a full crop, as on the Lois-Weedon system the country would be starved, and could not go on. A few years ago he made an observation here on woodland, and stated he should lose 51*l.* by the woodland on his farm in 21 years. In 1850 he also addressed a letter to his lordship on the subject containing the following:—

"I need hardly call your lordship's attention to the great loss the tenant farmer sustains from every acre of unproductive woodland, when rented with his farm. In my case I consider I shall in the 20 years' time lose 50*l.* or over per acre, and that without charging compound interest (as I will endeavour to show your lordship), as well as considerable loss from roots and shading the adjoining lands, and once in 14 years from carting (there is nothing cuts the land about more than carting wood), and probably injury to drains from roots. Another inducement, which I am sure will tell with your lordship, is the employment of unemployed labourers.

Loss upon 1 acre of woodland in the term of 20 years.

Dr.—14 years' rent, tithes, rates, and property tax, at 40*s.*	£28	0	0
Interest upon yearly payments, commencing with 2d and ending with 14th	9	2	0
	37	2	0
Cr.—Value of underwood of 14 years' growth (this is the highest price made per acre for the last 30 years)	6	10	0
	30	12	0
Dr.—6 years' rent, tithes, rates, and property tax (the remainder of term), at 40*s.*	12	0	0
Interest upon yearly payments	1	10	0
6 years' interest upon 30*l.* 12*s.* (the loss at end of first 14 years)	9	3	6
	53	5	6
Cr.—Value of underwood, 6 years' growth	2	10	0
Loss at end of 20 years at 5 per cent. interest ..	£50	15	6

At compound interest upon yearly payments the loss is 54*l.* 16*s.* 10*d.*, but greater if upon half-yearly payments, which is usual."

His lordship gave him leave to stub it, which he had since done, and it had yielded immensely. Let a landlord take a bad piece of wood land, value it, take the timber down, and put the money in the funds at 3 per cent., then put a little more on the tenant, who would readily pay it, and it would be for the advantage of all parties, for woods cut down after 14 years would often not pay 5*l.* per acre. Another observation that struck him was this—he fatted a number of hogs, and after heavy rains like those of to-day, the manure in the yard was flooded, the goodness was washed out, and he did not think that two loads of it was worth what one made under a covered homestall would be. He thought covered homestalls were amazing good things. The dung made in them was of much more value. Then as to drainage into tanks it did not answer his purpose—farmers, he thought, did not find it answer, for he had not used his for 4 or 5 years, though it cost him a considerable sum.—Mr. J. Hutley said on 18 acres of wood land he had 112 quarters of Wheat the first time it was cultivated; he had now planted it again with a dressing of guano, &c., and he thought it would answer well.—Mr. Speakman said when the Mildmay estates were sold from Moulsham Hall, there was a 5-acre field that he bought, and it had an awfully bad character; they said he never would get a crop of corn on it, but he pipe-drained it, mended it with town muck, and he had a first rate piece of Turnips. After the Turnips it was seeds, so that he had two crops off it; then came Wheat, a useful piece, then Wheat again and Wheat again. He Wheated it four times and never grew less than 6½ quarters an acre; and next year, if nothing happens, it should grow a great deal more. He had mended it with town muck from Braintree, 4 cwt. of Rape and 2 cwt. of guano, and he meant to put it in Rivets. He was sure land would pay if they farmed it well. This being his own land he had taken some liberties with it, but he should not take such liberties with his lordship's.—Mr. William Hutley: If you show his lordship you do as much to his land as you do to your own, he will let you take the same liberty with his.

The President gave "The health of Mr. John Hutley," and asked him what he had to say as to draining in Dengie Hundred.—Mr. J. Hutley said he had drained nearly 40 acres, and he found it answered very well indeed when they could get a draft, but in most of their fields they could not get ditches deep enough to take the water away. He had done most of the charity lands, which his lordship knew, and found it answered very well. He had gone 24 inches and piped it. I think if you went deeper you would not get the water to draw to the drains.—Lord Rayleigh: What do you think of rolling the heavy land in Dengie Hundred?—Mr. Hutley: It will not do at all. I was for rolling, and my man said you must not; I said you shall; we rolled a part and left a part, and there were two or three quarters of Oats difference an acre. I can only say I find the more stock I keep and the more muck I make the more the crop of corn.—Mr. Blood said there was a field of Wheat of 3 acres belonging to Mr. Pattison, on which a fox was killed, and the master of the hounds observed he never saw a field so cut up before. He should like to know the result.—Mr. Pattison said the result had been that the crop was a very good one, and he found not the slightest damage. He should be glad to see the hunters on any field of his in future.—Mr. Wm. Hutley said the horses never did any hurt.

Reviews.

Items on Clamping or Storing Mangels and other Roots. By Ben Giles. London: Whittaker & Co.; Bewdley: T. E. Dalley, Load Street, and all Booksellers.

This little tract has been written by a correspondent of the *Agricultural Gazette* in consequence of a correspondence and discussion in our columns in which he took a part. It is inscribed to the members of the London Farmers' Club, and well deserves their perusal, and that of farmers generally. The following gives the point on which he chiefly insists:—

"Why I was prompted to become an author in this case was the following, at page 44 of the *Agricultural Gazette*, 1857 (combined with the probability of my lucubration not being allowed to appear, save in disguise, in the agricultural press of the present time), 'I need not touch on the question of storing Mangels, for that seems settled by general consent in favour of pies or clamps, similar to those of Potatoes, which have a light covering of straw or stubble; but the sheet-anchor against frost is a few inches of soil well clapped down with the spade.' Now here is an error; this well clapped down with the spade proves fatal to the Mangels, Swedes, or Potatoes whenever a severe frost sets in, say, down to zero, immediately after rain. I have had, more than once in my life, demonstrative proof of the truth of this statement. If my memory serves me correctly, it was in the winter of 1838-9 that a serious loss was sustained by those who clamped their roots, and who left them 'well clapped down with the spade;' while those who left the earth well pulverised—broken down to the finest state of division (unclapped), and in the form of an inverted V, thus Λ, the roots were unscathed. The same law of Nature which is capable of application by the hoe (to a much greater extent than is generally practised—it is too often entirely neglected, or the harrows passed over the Turnips instead of a judicious hoer, and frequently the Turnips are left to 'shift for themselves,' not for want of knowledge, but from the force of circumstances), follows the roots to the clamps, where its influence may be enforced by the skill of the operator, either for good or evil.

"What I stated at page 12 in the *Agricultural Gazette* of the present year, with reference to radiation and conduction of heat under different conditions of the earth I here quote, by way of illustrating the dangerous state of the Mangels when the clamps are 'well clapped down' and visited by that degree of cold called zero. 'All solid bodies are better conductors of heat than when the same materials are shivered to pieces; the more slightly the particles touch each other the worse conductors they become. Hence a well trodden path or a strong clayey soil becomes so hot on a cloudless day in summer, that a Turnip plant would, if not burnt to death, soon be very sick: Why? because the sun's rays impinge upon it, and stream into it. When the sun goes down, leaving a clear sky, this heated, solid, clayey soil streams off its heat with the same facility as it received it: Why? because there was nothing to prevent the streams of heat from going off. Now, let this path be knocked to atoms before the sun rises, and a wonderful change will have been effected in its conducting powers; it will neither be heated so soon, nor cooled so quickly: Why? because the soil is now composed of parts innumerable; these parts admit air through their interstices, which is a non-conductor. And here is a proof worked out that 'The better the culture of the surface of the ground the less the evolvement.' These, what I shall call the mechanical chambers in the soil, filled with air, work wonders in the winter also, with respect to water. When a well pulverised surface is attacked by rain the fine particles of earth soon dissolve, and the more aluminous the better for this occasion, and the surface is sealed as it were. After this sealing, no water sinks generally—the air in the soil prevents it; it casts it off into particular places, hollow solid parts, and there sinks, or runs off to the furrows: it also prevents frost from entering so deeply as it otherwise would by the same law of conduction."

"There are soils which go under various titles, such as 'brashy,' 'clayey rotch,' 'rotchy clays,' which almost defy the cunning of the farmer, as in some seasons the frost 'kicks out' the Wheat, do what one will. The water enters this kind of surface by surrounding the stones which are in it, and there sinks, and drives out the air, till the whole cultivated surface becomes one mass of water, stones, clayey loam, and perhaps roots of late sown Wheat; let a severe frost attack it in this state, and, from the great amount of water held in the soil, the expansion is so great that every root is loosened, and the future crop spoiled. There appears no better remedy for these lands when obliged to be ploughed, than that of early sowing on late lands, so that the surface soil may get well filled with roots before winter sets in, and roll and tread the land firmly down so that it may hold the least possible amount of

water, when the least possible amount of expansion will take place, when it is attacked by zero. On early lands of this kind spring sowing is a remedy.

"In the above quotation, the reason why the clamps of Mangels should not have the earth 'well clapped down' is plainly indicated. The trodden path represents the clamps 'well clapped down:' but those who maintain that the earth should be well clapped down will say, 'What have we to do with heat in this case? It is cold—a very low temperature, say zero, that we are likely to have to deal with when protecting our Mangels for the winter.' Apparently true; but as hot and cold, or burning and zero, are only different degrees of the same power, we shall find that when the action, and say, reaction, of the extremes are laid bare, the clapper of soil to prevent zero from entering it will be found in a false position.

"It is patent to every one who walks on a hard path in thin shoes on a cloudless day in July, that the path is hot, and he feels disposed to trespass on the Grass, if that cool carpet should present itself; the sun's rays, having a smooth and hard surface to act upon, stream into it, something like the heat which streams up a solid rod of iron when one end is placed in the fire; because the iron is solid there is nothing to break the flame of heat from keeping its course through the mass of iron. So it is with the hard earth so long as the sun shines.

"When the sun sets there is a reaction takes place. The heat streams off till a uniformity of temperature of the earth and the atmosphere is established. This state of things seldom lasts long; radiation goes on so rapidly when the sky is clear during a frosty period in winter and the ground bare, that the hard path is not merely cool, but the flame of cold (heat under another title) streams into it in the same manner as did the streams of heat. This may be said to be abstracting heat, or charging with cold; that, to be abstracting cold or charging with heat; in either case, a hard surface 'well clapped down' is in the most favourable position for receiving both extremes of that power called hot and cold; the one being injurious to Mangels and Swedes when growing, and the other to the stores in winter when the clamps are 'well clapped down with the spade,' and left in the form of a flattened ellipsis.

"At page 683 of the *Agricultural Gazette*, 1856, I stated that 'an ignorant hoer is a dangerous subject amongst green crops during hot dry weather though it is undoubtedly the proper time for the hoer to go to work, providing that the work is done as it ought to be. If the land be scratched over, instead of hoed, and left in little hillocks, alternating with hard and bare patches, radiation goes off so rapidly between those hillocks that the best crop of Barley that ever grew would be spoiled during three hot, dry, and cloudless days; but if the hoeing be done by a good workman who strikes swiftly with his hoe, he spreads the pulverised soil pretty evenly over the surface, and the crop is wonderfully improved at the end of three hot, dry, and cloudless days: the fine earth that the hoe has left in this manner acts as a veil to the roots, and arrests radiation from the surface, by which means moisture is condensed amongst the fibres and thereby the crops grow astonishingly. In this case satisfaction is the result, in that disappointment.' It may appear strange to young readers of agricultural items that an account of hoeing should be dragged in when treating of storing the roots; yet, such is the fact, what is good for the one (as to the state of the earth) when growing in the field in hot weather, is also good for the roots when stored in clamps during the winter; and though I might have given my plan of operation when storing Mangels, and criticised the plans of others without mentioning the hoe, I do it that I may the better instil a knowledge of these simple laws of Nature into those minds which have not been trained to think of such seeming trifles, and who are engaged in clamping Mangels; but when properly understood, and acted upon in the field, proves of immense importance, and when not applied on the clamps have often presented a deplorable loss by zero having paid them a visit; as it is only when the frost is severe that the roots are in danger, and that is the time when the protection should be in proper condition for resisting it. Hence, an ignorant clamper is as 'dangerous a subject' amongst the roots as an ignorant hoer amongst the plants."

Notices to Correspondents.

IRISH MOSS: *X.* Can any one give his experience of it as cattle food?

MANGEL FOR PIGS: *Ravenswood.* If pulped by Bentall and Philipps and mixed with a little "sharps" or coarse meal of any kind, it will be good food without cooking.

PIPING AND DRAINAGE: *Reader.* Whether the half mile of leaden pipe of the requisite size can be laid down and completed at both ends for 10*l.* we do not know, but we are quite sure that a continual supply of water in a yard for a large dairy is quite worth 5*l.* a year. The occasional washings out by rain will not keep the drains sweet and innocent.

ROAD REFORM: *R.* At the annual meeting of the Fifeshire Trafalgar Agricultural Society held last week the subject of discussion was road reform. On the motion of Mr. Bethune the following resolutions were unanimously adopted:—"1. This society is desirous that tolls should be abolished, and that a more economical and equitable assessment should be raised for the purpose of maintaining roads. 2. This society has much pleasure in recording their appreciation of the exertion of Mr. Pagan and Lord Elcho in the cause of road reform." It was resolved by 26 to 2 on the motion of Mr. Landale:—"3. That an assessment on lands and heritages within the county and an assessment on the rental of burghs, together with a rate of 30*s.* on all taxable houses, would be the most equitable mode of raising funds for maintaining and keeping in repair the present turnpike and statute labour roads of the county." The minority on the last resolution did not propose any tax upon horses.

NEW AND RARE FERNS.

HENRY WALTON, Edge End, Marsden, near Burnley, Lancashire, begs to offer nice well grown plants of the following RARE FERNS, at the annexed reduced prices:

Gymnogramma peruviana argyrophylla, distinct, fronds covered with silvery white farinose powder on both sides, 3*s.* 6*d.* to 5*s.* each.
,, rufa, hairy green fronds, very elegant, 3*s.* 6*d.* to 5*s.*
,, tomentosa, hairy, dull green fronds, very fine, 2*s.* 6*d.*
Nothochlæna tenera, an elegant little tufted Fern, slightly white powdered beneath, 2*s.* 6*d.*
,, chrysophylla, new and lovely small growing gold Fern, 5*s.*
,, tomentosa (Cheilanthes tomentosa), white and silky hair covered, green fronds, very fine and pretty, 5*s.* and 7*s.* 6*d.*
Cheilanthes farinosa (Cassabeera farinosa), a silver Fern with broad triangular fronds, 3*s.* 6*d.* to 5*s.*
,, micromera, narrow triangular smooth and green fronds, very handsome, 2*s.* 6*d.*
Mohria thurifraga, very distinct, and well adapted for Fern cases, 3*s.* 6*d.* to 5*s.*
Pteris aspericaulis, spreading, purple, and slender stalked; a beautiful new Fern, 3*s.* 6*d.* to 5*s.*
Pteris umbrosa, long stalked, gracefully drooping, very handsome, 3*s.* 6*d.*
Hemonitis palmata, Ivy-leaf shaped, rather hairy, light green fronds, a pretty Fern, 2*s.* 6*d.*
Osmunda cinnamomea, long stalked, spreading spike-like fronds, pretty, 3*s.* 6*d.* to 5*s.*

The above Collection, hamper included, 42*s.* cash. A fine collection of well grown plants of Ferns and Lycopods (suitable for cases) may be had cheap. Post-office Orders payable at Marsden, Lancashire.

P.S. Nice plants of all the new Fuchsias, 12*s.* to 18*s.* per doz. Geraniums, several thousands, nice plants, English, French, Fancy, and show varieties, at very reduced prices. Cineraria, nice plants of all the leading varieties. Catalogues on application.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, **canadensis, 1 to 7 ft.**
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara. } 1 to 10 ft.
,, Africanus } The largest and finest stock in the country.
Cedar of Lebanon }
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, **Portugal, 1 to 6 ft.**
,, ,, **Standards, 4 to 6 ft. stems**
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 2 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, **Llaveana, 1 to 2 ft.**
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pinaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, **sylvestris argentea, 6 ft.**
,, **strobus nivea, the Snow Pine, 1 to 3 ft.**
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, **Golden, 1 to 4 ft.**
,, **Irish, 1 to 6 ft.**
,, Cheshuntensis, 1 to 6 ft.
,, **12 other sorts, 1 to 6 ft.**
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* per dozen, and upwards; Dwarfs, 6*s.* per dozen, and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages **free to London; if a ton weight or** upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

GLASS.

THOMAS MILLINGTON'S present Tariff of HORTICULTURAL GLASS.

Packed in 100 feet boxes, averaging 15 to 16 oz. to the foot.

6 by 4, & 7 by 5	11*s.* 3*d.* per 100 feet.	9½ by 7½, & 10 by 8	12*s.* 6*d.* per 100 feet.
8 by 6, & 9 by 7		11 by 9, & 12 by 8	

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

Orchard House squares as supplied to Mr. Rivers.

	COMMON.	SUPERIOR.
20 by 12, and 20 by 14	16 oz. at 16*s.* per 100 feet	18*s.*
20 by 13, and 20 by 15	21 oz. at 24*s.* ,,	27*s.*

Foreign Sheet Glass, in 200 feet cases, at 32*s.* and 40*s.* per case.

HARTLEY'S IMPROVED ROUGH PLATE GLASS,

Of ¼, 3/16, ⅛, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings.

Pan Tiles, Propagating and Bee Glasses.
Fern Shades, Glass Milk Pans.
Aquaria, 12, 14, 16 to 18 inches diameter.
Ruby, Blue, Green, and Ornamental Glass.

PAINTS

Genuine White Lead, Colours of all kinds
Linseed Oil, Turpentine, Varnishes, Brushes, &c.
All packages charged, but allowed when returned.

87, Bishopsgate Street Without, same side as Eastern Counties Railway.

HARTLEY'S PATENT ROUGH PLATE GLASS.

For Ridge and Furrow Roofs, Conservatories, Manufactories, Sky lights, Workshops, Public Buildings, Railway Stations, Offices, Mills, Market Halls, &c. Particularly adapted for Verandahs, Carriage Entrances, &c.

CUT TO THE SIZES ORDERED.											
Under 8 by 6											
8 by 6 and under 10 by 8											
10 by 8 ,, 14 by 10											
14 by 10 ,, 1½ ft. sup. if not above 20 in. long											
1½ ft. sup. ,, 3 ft. or if above 20 and not above 30 in.											
3 ,, 4 ,, 20 ,, 30..											
4 ,, 5 ,, 30 ,, 35..											
5 ,, 6 ,, 35 ,, 40..											
6 ,, 8 ,, 40 ,, 45..											
8 ,, 10 ,, 45 ,, 55..											
10 ,, 12 ,, 55 ,, 65..											
12 ,, 15 ,, 65 ,, 75..											
15 ,, 20 ,, 75 ,, 90..											
20 ,, 25 ,, 90 ,, 100.											
QUARRIES											
BENDING, ordinary curves ..											

Packed in Boxes of 50 feet each.

6 by 4, and 6½ by 4½ ..	10*s.* 6*d.*	8 by 6, and 8½ by 6½ ..	13*s.* 6*d.*
7 by 5, and 7½ by 5½ ..	12*s.* 0*d.*	9 by 7, 9½ by 7½, & 10 by 8	15*s.* 0*d.*

For large quantities special prices.

From Gardeners' Chronicle.

"By all means use Hartley's Rough Plate Glass, and pay no attention to those who advise you to the contrary."

JAMES PHILLIPS AND CO., LONDON AGENTS,
116, Bishopsgate Street Without. E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

CARSON'S ORIGINAL ANTI-CORROSION PAINT, specially patronised by the British and other Governments, the Hon. East India Company, the principal Dock Companies, most public bodies, and by the Nobility, Gentry, and Clergy, for out-door work at their country seats. The Anti-Corrosion is particularly recommended as the most durable out-door Paint ever invented, for the preservation of every description of Iron, Wood, Stone, Brick, Compo, Cement, &c., work, as has been proved by the practical test of upwards of 60 years, and by the numerous (700) testimonials in its favour, and which, from the rank and station in society of those who have given them, have never yet been equalled by anything of the kind hitherto brought before the public notice.

Lists of Colours, Prices, together with a Copy of the Testimonials, will be sent on application to WALTER CARSON & SON, No. 9, Great Winchester Street, Old Broad Street, Royal Exchange, London. No Agents.—All orders are particularly requested to be sent direct.

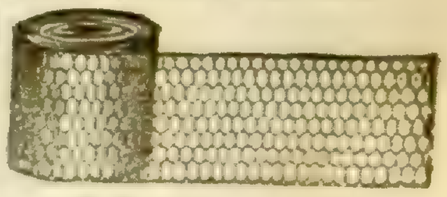
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS or DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

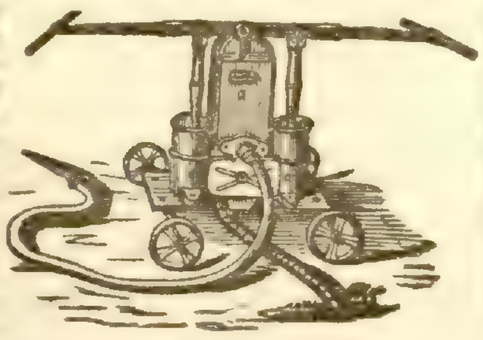
WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

NEAT AND DURABLE GARDEN LABEL.—A Specimen Label will be sent on the receipt of three postage stamps.—Address, F. H., Lydbury North, Salop.

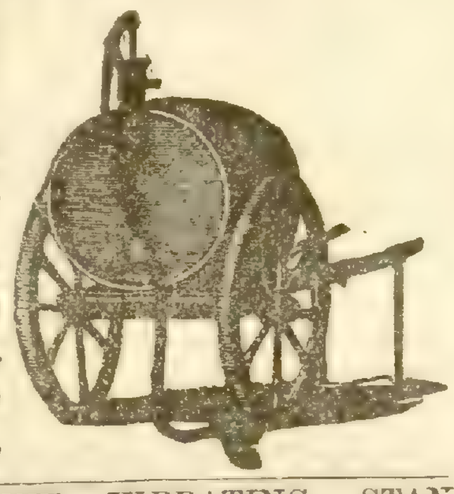
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra.

2-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 0*d.* per foot.

1¾ Gutta Percha Suction, 1*s.* 11*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2¼ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, ready for fixing		2	14	0
2½ in.	long ditto ditto ditto		2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of copper and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

21 varieties of Vases and Tazzas at prices varying from 15*s.* to 50*l.*
94 Statues and small Figures.
38 figures of Animals.
17 ,, of Birds.
16 Baskets of suitable Pedestals; prices from 12*s.* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
Garden Seats.
15 Sun-dial Pedestals
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

Austin & Seeley having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau.* The prices range from 10*l.* to 400*l.*

COTTAM & HALLEN, Engineers, Founders, &c.

2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	,, Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	,, Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

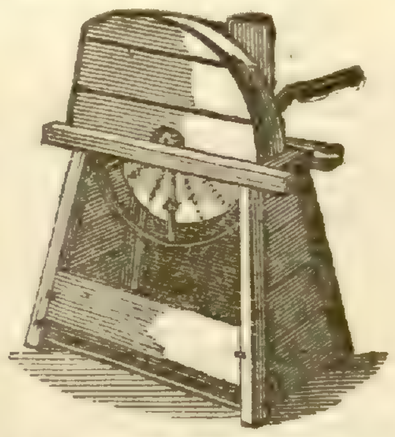
AGRICULTURAL LIST UPON APPLICATION.

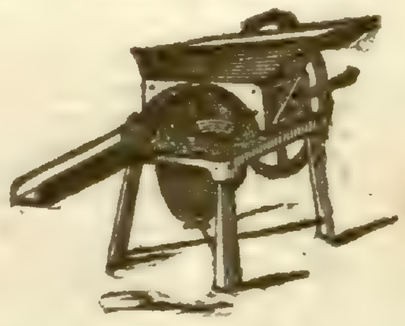
Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

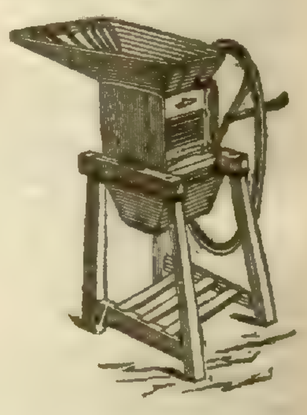
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.







B. SAMUELSON,

BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S.

	On wood frame.	On patent iron frame.
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
,, ,, Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7 6

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power £6 10 0
,, No. 2, for Horse Power, or may be worked by a man and boy 9 0 0

Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1 .. .. £4 10 0
,, Pulper No. 2, for power or man and boy 5 10 0
,, Pulper No. 3 (Disc principle) 4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

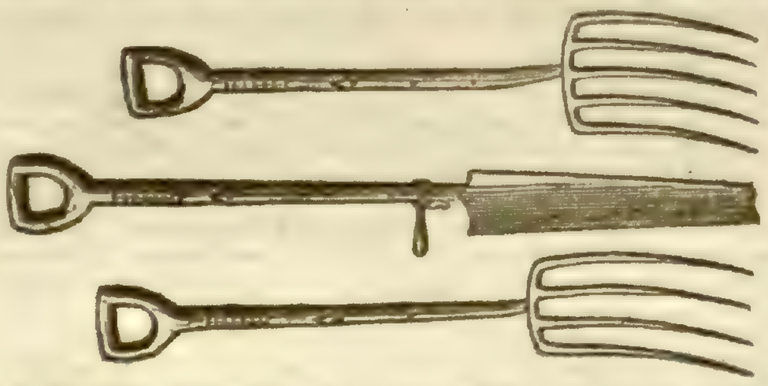
Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.

GARDEN KNIVES.

SAYNOR AND COOKE'S KNIVES may be procured from Messrs. Sutton & Sons, Seed Growers, Reading, who have for many years been supplied direct from Messrs. Saynor's Manufactory, and none others are kept on Messrs. Sutton's Premises.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

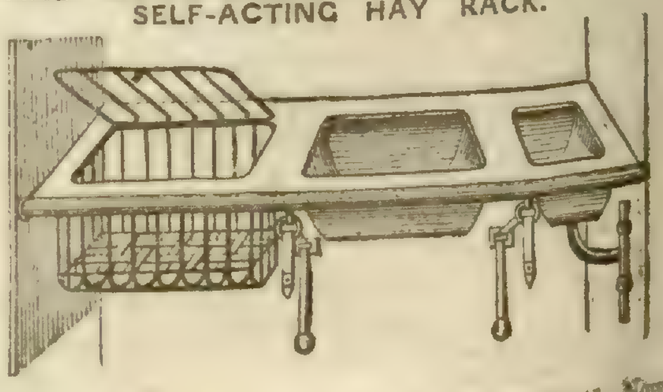
Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

INDIAN OUTFITS.

THRESHER AND GLENNY (next door to Somerset House, Strand), manufacture the following articles especially for India. Thresher's Kashmir Flannel Shirts; Thresher's Military Shirts; Thresher's India Gauze Waistcoats; Thresher's India Tweed Suits; Thresher's Overland Trunk. N.B. Lists of prices, with particulars of the necessary outfit for India, may be had on application.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—James Barton, Iron Founder, &c., 379, Oxford Street, London.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE **POWERFUL BOILERS.**

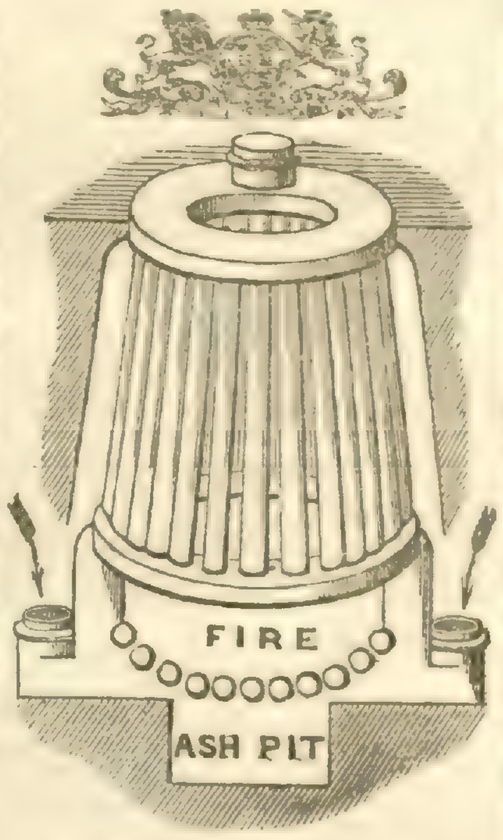
THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturist to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & CO.'S Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*:—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & CO., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

SEE MESSRS. EDWARD HENDERSON'S NURSERY,
WELLINGTON ROAD, ST. JOHN'S WOOD, LONDON.

WEEKS' ONE BOILER SYSTEM, NOW COMPLETED.—ONE BOILER effectually heating Hothouses 1200 feet long, besides all the Offices and Seed Warehouses. The one Boiler is perfect master of the Work, the hot water circulating through 5500 feet of Cast Iron Pipe.

JOHN WEEKS & Co., King's Road, Chelsea, London.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

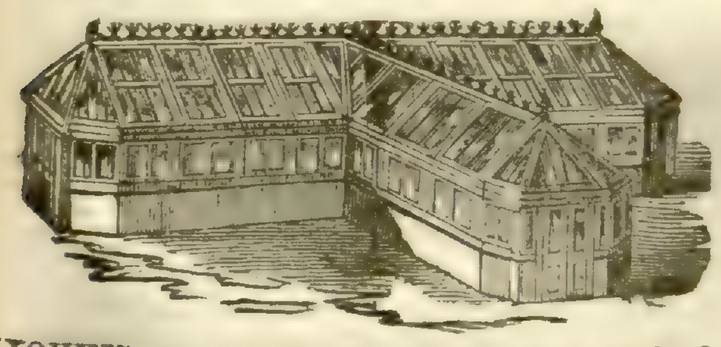
MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HORTICULTURAL WORKS.



VOKINS AND HURD, 1, Smith Street, & 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

Plans and Estimates forwarded on application.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Oct. 31.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.
ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

TO NURSERYMEN, SEEDSMEN, AND FLORISTS.

TO BE DISPOSED OF, a short distance from London, an old-established NURSERY, with extensive Grounds well stocked and fitted with capital Greenhouses and Pits, all heated with Hot-water; together with a convenient Dwelling-house and Seed-shop, well arranged for business, with Stabling, Chaise-house, and Sheds attached. The Premises are eligibly situate, and are held on a Lease of which 25 years are unexpired at Christmas next, at a low Rent.—For further particulars apply to Messrs. PAGE & CAMERON, Land Agents and Surveyors, 64, Old Broad Street, and St. Albans.

TO NURSERYMEN AND GARDENERS.

TO BE LET, with immediate possession if required, a NURSERY and FRUIT GARDEN, adjoining the high road, Peckham, between two and three acres, Greenhouse, &c., with 14 years of unexpired lease, the present occupier retiring from business.—For particulars apply to Mr. BEADLE, Queen's Road Nursery, Peckham, S.E.

TO MARKET GARDENERS.

TO BE LET, with immediate possession, about 25 Acres of richly cultivated LAND, fully cropped with STRAWBERRIES, ASPARAGUS, &c., situate at Brentford, about eight miles from Covent Garden. There is a Dock on the Grand Junction Canal for unloading Manure, and on the Land is a Cottage, large Shed, and Entrance Lodge.—For particulars apply to Mr. EDWARD HAWARD, 82, Oakley Street, Chelsea, S.W.

SOUTH DEVON.

TO BE LET, by Tender, for such term as may be agreed on from Lady-day next, all the capital Barton and Farm of Stokeley, in the parish of Stokenham, in the county of Devon, late and for many years in the occupation of Mr. Maye, deceased, consisting of about 327 acres of very fertile Land, 5½ of which are Orchard, 80 of Meadow and Pasture, 13 of Marshy run for young stock, and the remainder good Corn and Sheep Land; with a comfortable House and commodious Farm Buildings of modern erection, distant about 6 miles from Kingsbridge and 8 from Dartmouth, both good market towns, with good roads to them. It is well situated for Manures, being close to the Sea, and there are lime kilns near the Farm, which may be rented with it. The estate will be expected to be highly cultivated, and persons tendering will be required to show that they have ample capital for so doing.—For viewing, apply to Mr. SAMUEL CALLARD, Carpenter, Stokenham. For further particulars and the Conditions of Letting, to Messrs. MICHELMORE & SONS, True Street, Totnes, to whom Tenders must be delivered on or before Nov. 4 next.—Oct. 31.

Sales by Auction.

MONTHLY POULTRY SALE.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, November 3, at 12 o'Clock precisely, a very choice Stock of POULTRY and PIGEONS. The Fowls consist of Spanish, Cochins, Dorkings, Hamburghs, Polands, Brahmas, Rouen Ducks, &c., from the yards of the Rev. F. Thursby and G. Gilbert, Messrs. Joshua, Holland, and others; and some very superior Creve Cœurs from Mr. Tegetmeier. The PIGEONS include a second draft of Mr. Bult's Pouters, and some Carriers and other sorts from W. W. Hayne, Esq., and several well-known breeders.—May be viewed on the morning of Sale, and Catalogues had by inclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden, W.C.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Nov. 5, and THURSDAY, Nov. 3, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10s. and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

UXBRIDGE, MIDDLESEX.
TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will submit to an unreserved Sale by Auction, on the premises, Victoria Nursery, Uxbridge, Middlesex, within a few minutes' walk of the Railway Station, on THURSDAY, November 5, at 11 o'Clock, (by order of Mr. Wheeler, who is leaving the neighbourhood, (the whole of the valuable and healthy Nursery Stock, consisting of fine Portugal and Common Laurels, Aucubas, Irish and Fan Yews, Arbor-Vitæ sorts, Box, Cotoneaster, Bays, Arbutus, Phillyreas, Red Cedars, Laurustinus, Green and Variegated Hollies, Privet, Ivies, [illegible] for potting, Altheas, Lilacs, [illegible] and particular Rhododendrons, Kalmia latifolia, Andromeda floribunda, Standard and Dwarf Apples and Pears, Dwarf-trained Moor Park Apricots, Peaches, Nectarines, Cherries, Plums, Mulberries, Ornamental and Fruit Trees, &c.; also a Selected Assortment of Conifers, about [illegible] Yards of Excellent Box-edging, a quantity of Seakale and Asparagus for Forcing, together with Fine Double Camellias well [illegible] with Bloom buds, Epacris, &c. May be viewed prior to the Sale.—Catalogues may be had on the Premises of Mr. [illegible], Druggist, High Street, Uxbridge; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, on FRIDAY, November 6, at 12 o'Clock, a first class collection of DUTCH BULBS, consisting of the Finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Crocus, &c.; also a fine assortment of 200 fine Standard and Dwarf ROSES, comprising Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; selected American Plants, comprising Azaleas and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromeda floribunda, beautifully furnished with Flower buds, &c. PROTHEROE & MORRIS respectfully inform their patrons and friends that their Hyacinths and other Dutch Bulbs are particularly fine this season, and will be offered at the Mart, with a splendid and healthy assortment of Standard Roses, selected from 10,000 of their own cultivation.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

PLANTING SEASON.—FULHAM ROAD.
TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Shearman to Sell by Auction, on the premises, Rose Cottage, Queen's Elms, Fulham Road, Brompton, on MONDAY, Nov. 9, at 11 o'Clock, without reserve, the NURSERY STOCK, comprising about 1400 fine healthy Laurels, from 5 to 6 feet; Fan Yews, 3 to 5 feet; Chinese Arbor-Vitæ, Privet, Berberis aquifolia, Aucubas, Rhododendrons, Azaleas, Kalmias, Andromeda floribunda, fine Standard Roses, Dwarf Trained Peaches and Nectarines, Lilies, Poplars; also a quantity of Asparagus 3 years old, choice Seedling Rhubarb, about 6000 Pheasant eyed Narcissus, Ivies in pots, Hoya carnosa, Primula fimbriata, &c.; together with a capital Market Cart, Wrought Iron Boiler and Furnace complete, Iron Roller, &c.—May be viewed three days prior to the Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, & OTHERS PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on their premises, Wandsworth Road, on TUESDAY, NOVEMBER 10, and following day, at 11 o'Clock each day, the first portion of their valuable NURSERY STOCK, consisting of Standard and Dwarf-trained Fruit Trees, Forest and Ornamental ditto, Variegated and Green Hollies, Laurels, Box, Aucubas, Chinese Euonymus, Privet, Ivies, and other Evergreens. Also handsome plants of Deodar, Araucarias, Yuccas, 200 very fine Standard Roses, including all the most approved kinds; fine plants of Crimson, Sweet-scented, and other Rhododendrons, well set with bloom buds; American Azaleas, Kalmias, Pyrus, Glycine, Lilacs, Dwarf Roses, &c.; with a fine stock of Gooseberry and Currant Trees, Vines in pots, Asparagus and Seakale, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A Sale of Camellias, Chinese Azaleas, and other Greenhouse Plants to take place towards the end of November.

KILBURN.—TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER begs to announce that he will submit to Public Auction, on the premises, Carlton Nursery, Carlton Road, Kilburn, on MONDAY, November 16, and following day, at 11 o'Clock each day, by order of the proprietor, the STOCK of the above NURSERY, which comprises striped and green Hollies, green Box, Cupressus funebris, Taxus fastigiata, Arbor-vitæ, Phillyrea, Laurels, Portugal Laurel, Laurustinus, Cedrus Deodara, Aucubas, Rhododendrons, Kalmia latifolia, Azalea Euonymus, Evergreen Privet, Yews, Berberis aquifolia and dulcis, Lilac, Guelder Rose, Standard, Dwarf, and Climbing Roses, Clematis, Jasmine, Irish Ivy, Standard and Dwarf Apples, Dwarf Pears, Plums, Standard Mulberries, Currant, Gooseberry, Raspberry, Seakale and Asparagus Plants, Herbaceous Plants, &c.—May be viewed three days prior to the sale, and Catalogues had on the premises; at the Auction Mart; and of the Auctioneer, Sunbury Mead, S.W.

WINCHFIELD, HANTS.
EXTENSIVE SALE OF NURSERY STOCK.

MR. ALFRED WHITE has received instructions from Mr. Stephen Shilling to Sell by Auction, at the Winchfield Nursery, on MONDAY and TUESDAY, November 9 and 10, at 11 for 12 o'Clock precisely, the whole of the valuable STOCK growing thereon, consisting of upwards of 160,000 Trees and Shrubs, peculiarly suitable for Planting purposes, and well worthy the attention of Landowners, Horticulturists, &c. Amongst the Stock will be found 50,000 Hazels, 25,000 Spanish Chesnuts, 2000 Tall Spruce and Silver Firs, together with a large quantity of Birch, Withy, Weymouth Pine, Larch, Beech, Mountain Ash, Scarlet and English Oak, Alder, Ash, and Sycamore, in addition to 2000 American Plants, comprising Rhododendrons (of sorts), Azaleas (do.), Kalmias, Ledums, &c., also 2000 Standard Rose Trees, and an assortment of other Trees, Shrubs, Plants, &c.—May be viewed 10 days prior to the days of sale, and Catalogues obtained at the Broad Face Hotel, Reading; White Hart, Newbury; White Swan, Winchester; Swan, Alresford; Swan, Alton; Feathers, Basingstoke; George, Odiham; Lion and Lamb, Farnham; Swan, Chertsey; White Lion, Guildford; Bush, Wokingham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Greywell, Odiham, Hants. The Nursery is situated about one mile from the Winchfield Station, on the South-Western Railway. The sale will take place under a spacious Marquee erected in the centre of the Nursery.

NORTH WARNBOROUGH NURSERIES, ODIHAM, KENT.

STEPHEN SHILLING begs to inform the Nobility, Gentry, &c., of this and the adjoining counties, that his stock of TREES this year comprises a particularly extensive selection of fine Evergreens, Ornamental Trees and Shrubs, Conifers, Coppice Plants, and Fruit Trees, together with every article required in Gardening operations, of which he invites an early inspection. He begs also to remind the public that as the Sale by Auction of his stock at Winchfield will consist of only one-fifth of his extensive Nursery, it will in no way affect his general trade as carried on at North Warnborough and Hartley Row.—North Warnborough Nurseries, October 31.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. May & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

GEORGE JACKMAN begs to announce to the Public in general that he is an extensive Grower of Choice CONIFERÆ, AMERICAN PLANTS, HARDY EVERGREENS, and ORNAMENTAL TREES and SHRUBS, all of which are well grown and constantly removed; also ROSES, FRUIT, and FOREST TREES. He has a large stock. Also particularly wishes to call attention to his clean-grown and well-trained DWARF FRUIT TREES, which include all the leading kinds.

G. J. respectfully invites an inspection of his stock, which will give purchasers the opportunity of making their own selection.—Woking Nursery, 1½ mile from the Woking Station, S.W.R., where all trains stop and conveyances can be obtained.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety ever yet sent out, possessing all the good qualities for which a Strawberry is required. Now ready, strong well rooted plants, 1*l.* per 100; 50 for 11*s.*, hamper and package free; 25 for 6*s.*; 12 for 4*s.*, postage free. A Post-office Order or 1*d.* postage stamps must accompany all orders. For further particulars of this and other sorts see advertisements in this Paper of the 10th Oct., page 690.—Edward Tiley, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

T. LOCKHART, Jun., Florist, Fulham, S.W., near London, will forward 100 Roots of his early TULIPS in 25 sorts of the most brilliant colours for 30*s.*; 100 ditto RANUNCULUS in 25 sorts of the most varied edgings and colours for 30*s.* The Early Tulips flower in the open border during March and April; they also force well in pots. These and the Ranunculus are warranted of superior quality. The mode of treatment if required will accompany the collections. —Post-office Orders payable to Theodore Lockhart, Jun., Walham Green, Fulham.

CHOICE GERANIUMS.

JAMES HOLDER, Florist, &c., Reading, Berkshire, begs to offer any 12 of the following, hamper and package included, for 21*s.*, viz.:—Admirable, Blonde, Aquilla, Agnes, Bianca, Cygness, conspicuum, Eva, Floretta, Josephine, King of Scarlets, Marvellous, Matilda, Mr. Hoyle, Mr. Beck, Rose Raglan, Review, Standard, Symmetry, Spotted Gem, Una, Viola.

Older varieties, 12 good sorts for 10*s.* 6*d.*, hamper included, and extra plants to compensate for carriage. Selection left to J. H.

CAMELLIAS, CAMELLIAS, TO BE SOLD CHEAP.

WILLIAM HARRINGTON having a large stock of CAMELLIAS, ranging from 3 to 7 feet, of all the leading kinds, respectfully solicits purchasers to come and inspect them, as they are in fine health and full of flower buds. Fine plants of Cassia corymbosa and Veronica Andersoni in full flower and very handsome. Indian Azaleas, Cytisus, Acacias, Ericas, Epacris, and other greenhouse plants in good condition.

The Nurseries, Kingsland Gate and Dalston, Middlesex.

Omnibuses from the Flower Pot, Bishopsgate Street, to the Kingsland Gate Nursery every five minutes.

AZALEAS, CAMELLIAS, AND GERANIUMS.—Several Thousand of the above are now ready for Sale. Also strong Plants of the New Fruit EUGENIA UGNI, that obtained the First Prize at Willis's Rooms, on Saturday last.—Exhibited by T. Gaines, Florist and Nurseryman, Surrey Lane, Battersea, S. W., October 31.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30*s.* per dozen; smaller plants, 18*s.* per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30*s.* per dozen.—Epps's Nurseries, Maidstone.

AZALEA INDICA

The Greatest Novelty of the Season is

IVERY'S PERPETUAL AZALEA, "ROSY CIRCLE."—Small Plants of this fine variety have flowered here two and three successive times this season. Several plants may now be seen in bloom, and others will continue so to do throughout the year (see National Floricultural Society's Report of September, where one Plant was exhibited in bloom the third time this season). Price per Plant, 10*s.* 6*d.* and 21*s.* A splendid lot of blooming plants of the best kinds to offer to the Trade, price or sample on application.—Dorking Nursery.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Oct. 31.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. Joseph May & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Oct. 31.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21*s.* the pair, including package and carriage to London. Good named varieties, 12*s.* per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12*s.*

Mixed seed, saved from fine double flowers, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

HOLLYHOCKS.—Seed saved from William Chater's celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	..	..	.. 5*s.* 0*d.*
12 ditto	ditto	..	.. .. 2 6
Good ditto	ditto	..	.. .. 1 0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

FINE SHOW CINERARIAS.—Magnum Bonum, Rose of England, Purple Standard, Duchess of Wellington, Sir Charles Napier, Brilliant, optima, Admiral Lyons, Fascination, picturata, Lady Paxton, Cerito, 9*s.* per dozen, or 1*s.* each.

Fine named HOLLYHOCKS, in pots, good, per dozen .. 8*s.*
12 finest sorts ANTIRRHINUMS, from a large collection 3*s.*
12 finest sorts PHLOXES " " 3*s.*

Henry May, The Hope Nurseries, near Bedale, Yorkshire.

HARDY HERBACEOUS AND ALPINE PLANTS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants ..	0	18	0
100 choice ditto ditto	1	10	0
50 choice Shrubs and Flowering Trees	1	5	0
100 choice ditto ditto	2	2	0
12 fine named Perpetual Roses, Dwarf	0	12	0
12 fine named " Standards	0	18	0
White, Red, and Black Currants, fine plants, per 100 ..	0	8	0
Fine sorts of Lancashire Gooseberries, per 100	0	8	0

Fine Dwarf-trained and Standard Fruit Trees, &c.

Henry May, The Hope Nurseries, near Bedale, Yorkshire.

CHOICE PINKS, PICOTEES, ETC.

WILLIAM HUSSEY begs to offer the undernamed fine healthy Plants true to name.

	s.	d.
24 pair Pinks, one pair of each	10	0
24 pair Picotees	12	0
Delphinium formosum, per dozen	6	0
Hardy Ferns, sorts	6	0
Choice Show Geraniums .. .. .. 6*s.* to	9	0

Horticultural Gardens, Norwich.

GEORGE SMITH, Florist, &c., Lorrimore Road, Walworth, begs to refer to his List of CARNATIONS, &c., which contains all the leading varieties, warranted true to name, and in extra fine health:—

Carnations left to G. S. selection	18*s.*, 24*s.*, 30*s.* per doz. pairs.
Picotees " " "	18*s.*, 24*s.*, 30*s.* " "
Pinks " " "	6*s.*, 9*s.*, 12*s.* " "
Chrysanthemums " "	6*s.*, 9*s.*, 12*s.* per doz.
Cyclamen persicum, fine plants, 12*s.*	
" Coum " 12*s.*	

Catalogues can be had by enclosing postage stamp.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

GERANIUMS.

F. GODWIN having a large Stock of the undermentioned new Horse-shoe leaved GERANIUMS, offers them at 12*s.* per dozen, except those priced.

British Flag	Lady Downes
Countess of Bective	" Turner
Duchess of Kent	" Dorothy Neville, 2*s.* 6*d.*
Emile Dufoy	" of Loretto, 2*s.* 6*d.*
Ernest Lalle	Le Titien
Florian	Madame Guadillet
General Pelissier	" Marsaux
" Simpson	Princess Royal (Ingram's)
" Sir F. Williams, 1*s.* 6*d.*	Rose d'Amour
Gloire de Bagatelle	Rosy Morn
Indispensable	Spitfire
John Cowan, 2*s.*	Symmetry

Choice Show Geraniums, from 9*s.* 0*d.* per dozen
" French " " 12 0 "
" Fancy " " 9 0 "

For colours of the above see F. G.'s Descriptive Catalogue.

Broadfield Nurseries, Sheffield, Oct. 31.

NEW EXCELSIOR MARROW PEA.

W. KNIGHT, Nurseryman, &c., begs to call the attention of the public to the above PEA, as being a great acquisition, it being a decided improvement on the well-known Ringwood Marrow, quite as early, greater cropper, longer pod, larger Pea, superior flavour, and greener colour. Price 5*s.* per quart. Price to the trade on application. The names of the trade who order will appear in a future advertisement.

W. K. has also a few Bushes of his new GOOSEBERRY "FILLBASKET," a first-rate late variety, 12*s.* per dozen.

High Street, Battle, Sussex.

Providence Nursery, Boston Spa, Yorkshire.

NEW VERBENAS—QUEEN OF ROSES & SUNSET.

J. C. PADMAN has great pleasure in offering the above superb Verbenas for next season's display.

QUEEN OF ROSES, for bedding purposes, will be found unequalled, and of which the *Gardeners' Chronicle* of the 8th August last says, at page 551: "Amongst Verbenas was a seedling which, for massing, is certainly unsurpassed in its class; the colour is a deep purple, lilac tint: it is good in habit and a profuse bloomer, several beds of it were remarkably effective." Plants ready in December, to enable purchasers to propagate stock for next season's display. Price 3*s.* 6*d.* each, or three plants 10*s.* post free.

SUNSET.—An immense and compact truss of superb form, quite new, and distinct in colour, being a beautiful rosy pink. No stand will be perfect without this flower. Ready in May 1858, post free, 5*s.* each; only a very limited supply.

HOLLYHOCK and PANSY SEEDS carefully gathered from the best named varieties.—40 Seeds for 1*s.*, 100 Seeds 2*s.*, 200 Seeds 3*s.* 6*d.*

MAGNIFICENT DWARF-TRAINED PEACHES, NECTARINES, APRICOTS, PEARS, PLUMS, & CHERRIES.

WM. WOOD AND SON have great satisfaction in directing especial attention to their remarkably fine stock of the above, which for luxuriance of growth and symmetrical training are quite unsurpassed. They have been seen and admired by scores of competent judges this season.

Pyramidal Pears on Quince well furnished are also offered in large quantities from 18*s.* to 36*s.* per dozen.

Standard and Dwarf Fruit Trees of all kinds. Catalogues on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SURPLUS STOCK OF FRUIT TREES, BUSHES, ETC.

TO BE SOLD, at extremely moderate prices, consisting of Standard Apples, Pears, and Plums, of 12 years' growth and upwards, several thousand Fastolff Raspberries, and some hundreds Red and White Grape Currants, and Roberts Gooseberries.—Apply to Mr. Mitton, Lampton, near Hounslow, 1 mile from either the Hounslow or Isleworth Railway Stations.

JAMES GRIFFIN offers a large stock of the following articles from 2 to 10 feet in height, well rooted, having been frequently transplanted:—Portugal Laurels, Aucubas, Irish and Common Yews, Evergreen Oaks, Laurustinus, Arborvitæ, Larch, and Spruce Firs, English and Chichester Elms, Walnut and Quince Trees, Beech, Mountain Ash, Limes, Poplars, Acacias, Flowering Shrubs in great variety, Clematis, Jasmines, &c.—Weston Road, and 2, New Bond Street, Bath.

Double and Single Hyacinths, Narcissi, Early and Double Tulips, Parrot Tulips, Late Tulips, Jonquils, Iris, Crocus, Snowdrops, Anemones, Ranunculi, Ixias, Cyclamens, Gladioli, Amaryllis, Scillas, Liliums, Dens Canis, Fritillarias, Tropæolums, Tigridias, &c.

CLARKE AND COMPANY beg to announce the arrival of their Choice Assortments of DUTCH BULBS, direct from the best growers in Haarlem. Lists of Prices will be forwarded on application.

Clarke & Company, Wholesale and Retail Seedsmen and Florists, 86, High Street, Borough, London, S.E.

NEW BALSAM, SPLENDID LARGE DOUBLE SALMON COLOUR, 12 Seeds, 13 stamps. Glenny's Improved Six Classes, 37 stamps; mixed, 13. G. Glenny, Fulham, S.W. Glenny's Almanack reprinted, 13 stamps. Glenny's Companion, 13. Seeds for Amateurs to raise new varieties warranted first-class.

CHRYSANTHEMUMS, LARGE-FLOWERED & POMPONE.

WOOD AND INGRAM beg to offer fine plants of the above, well-established in 5 and 6-inch pots, and full of bloom buds at from 6*s.* to 9*s.* per dozen. These plants have been grown in pots all the season, and are well furnished with healthy foliage to the very base. They consist of such kinds as Auguste Mie, Annie Salter, Berthilde, Bride, Campestrion, Madame Comerson, Perfection, Temple de Solomon, Anna Boleyn, Argentine, Bob, Calibri, Solfaterre, &c.

Nurseries, Huntingdon.

BRASSAVOLA DIGBYANA.—The undersigned solicit inspection of an importation of the above-named rare and beautiful Orchid. The plants are recently to hand in the finest possible condition, and are well worthy the attention of purchasers, many of the specimens being of much larger size than any to be found in existing collections.

Hugh Low & Co., Clapton Nursery, N.E.

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.—William Young, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity, upon reasonable terms, by land or water carriage.

Robert Neal, Nurseryman, Wandsworth Common, Surrey.

THE CELEBRATED REIGATE SILVER SAND, 15*s.* per ton, a less quantity 1*s.* 6*d.* per bushel; WIMBLEDON PEAT and MOULD, delivered to any Railway Station in the Metropolis, or within five miles of the Depôt. Sacks, 1*s.* 6*d.* each. The above Sand is warranted. Orders immediately executed.—Address to John G. Bryan, Nine Elms Wharf (Depôt), Vauxhall, or to Messrs. May & Co., Seedsmen, Wellington Street, Strand.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Oct. 31.

CRICKHOWELL, BRECONSHIRE.

ROBERT CHALLIS begs to inform the Trade and Public generally that he has taken to the NURSERY and SEED BUSINESS of Mr. Walter Jones, and hopes by strict attention to business, with punctuality and fidelity in executing all orders committed to his charge, to merit a share of the public patronage.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.

2, Randolph Road, Maida Hill, London, W.

PARTNERSHIP.

MR. JOHN WEEKS will now be happy to meet with a gentleman of energy, of thorough business habits, and with a practical knowledge of the Nursery and Seed Business. The Horticultural Buildings of this Nursery are the finest and most complete of any in the country; they have cost the Advertiser upwards of 6000*l.*, and the whole is well stocked with the choicest plants in the highest state of cultivation.

Applicants will be expected to have a fair proportion of capital at command.

Apply to Mr. John Weeks, King's Road, Chelsea.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to

GARNOCK, BIBBY, AND CO.,

Patent Cordage and Wire Rope Manufacturers, Liverpool.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps.—Manufactured by John Fisher & Co., Label Works, Boston, Lincolnshire.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London: and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, October 31, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 45.—1857.] SATURDAY, NOVEMBER 7. [Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—1858.

GREAT LONDON SPRING EXHIBITION, APRIL 6.

SCHEDULE OF PRIZES.

Class		Prizes offered £	s.	£	s.	£	s.
I.	Hyacinths, twelve distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
II.	Do. eighteen distinct sorts, named; in pots .. (Nurserymen)	2	0	1	0	0	10
III.	Do. six new and distinct kinds, named	2	0	1	0	0	10
IV.	Do. twelve, in glasses	2	0	1	0	0	10
V.	Tulips, eighteen, in six distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
VI.	Do. twenty-four, in eight distinct sorts, named; in pots (Nurserymen)	2	0	1	0	0	10
VII.	Narcissus, twelve, in six distinct sorts (Amateurs)	2	0	1	0	0	10
VIII.	Do. twenty-four, in six distinct sorts.. .. .. (Nurserymen)	2	0	1	0	0	10
IX.	Do. eighteen, mixed .. .. The greatest variety will have the first consideration in this class.	2	0	1	0	0	10
X.	Amaryllis, in twelves; two of a sort admitted .. .. *Note.*—As the bulbs will be exhibited in groups, and no pots to be seen, it is requested that competitors in these classes will furnish sufficient Moss for that purpose.	4	0	3	0	2	0
XI.	Camellias, in sixes	4	0	3	0	2	0
XII.	Roses, in sixes; in pots of any size ..	4	0	2	0	1	0
XIII.	Do. in twelves, in three distinct colours; in pots not exceeding 8 ins. in diameter	4	0	2	0	1	0
XIV.	Dwarf Moss Roses, in twelves	3	0	2	0	1	0
XV.	Rhododendrons, four distinct kinds (Amateurs)	3	0	2	0	1	0
XVI.	Do. six do. (Nurserymen)	3	0	2	0	1	0
XVII.	Azaleas, four distinct kinds	4	0	3	0	2	0
XVIII.	Do. six do. (Nurserymen)	4	0	3	0	2	0
XIX.	Forced Shrubs, in sixes (Hardy, as Lilacs, Deutzias, &c.) .. .. .. No plant admitted to this class which can be exhibited in separate classes	2	0	1	0	0	10
XX.	Six Plants of fine and remarkable foliage, in flower or not; variegated plants admissible	4	0	3	0	2	0
XXI.	Annuals, six distinct sorts; in pots ..	2	0	1	0	0	10
XXII.	Cinerarias, in sixes, correctly named .	2	0	1	0	0	10
XXIII.	Auriculas, in twelves	2	0	1	0	0	10
	FRUIT.						
XXIV.	Pine Apples, any sort	2	0	1	0	0	10
XXV.	Grapes, black; three bunches	3	0	2	0	1	0
XXVI.	Do. white do.	3	0	2	0	1	0
XXVII.	Do. retarded do.	3	0	2	0	1	0
XXVIII.	Vines, in pots; in twos	3	0	2	0	1	0
XXIX.	Peaches, in sixes	3	0	2	0	1	0
XXX.	Nectarines, in sixes	3	0	2	0	1	0
XXXI.	Cherries, white	2	0	1	0	0	10
XXXII.	Do. black	2	0	1	0	0	10
XXXIII.	Strawberries	2	0	1	0	0	10
XXXIV.	Apples, in 2 sorts, nine of each; dessert	1	0	0	10		
	Do. do. do. kitchen	1	0	0	10		
XXXV.	Pears, in two sorts, nine of each; dessert	1	0	0	10		

In addition to the above C. W. Dilke, Esq., V.P.H.S., offers a prize of 5*l.* for the Best Pine Apple of any kind. In order to be admitted to competition for this prize Queens and Jamaicas must weigh not less than 4 lbs., Cayennes 6 lbs., Providence, Black Prince, and other large kinds not less than 8 lbs. Since Pines can be carried safely for long distances it is hoped that Scotch, Irish, and Continental growers will compete.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY'S ELEVENTH ANNUAL EXHIBITION will be held at the Manor Rooms, Stoke Newington, on TUESDAY and WEDNESDAY, November 17 and 18, when Prizes, including Four Five-Guinea Cups, will be awarded. Open to all England.—Doors open at 12 o'clock on First Day, entrance One Shilling; Second Day, 10 o'clock, entrance Sixpence.

Arthur Wortley, Hon. Sec., Stoke Newington.

BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W. C.—The next Meeting of the Society will be held on THURSDAY, November 12, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'Clock.

Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the Meeting. Entrance, 10s.; Annual Subscription, 10s. Copies of the Rules and further information can be obtained from

William Davidson, Assistant Secretary,
2, Randolph Road, Maida Hill, London,

The next following Meeting will be held on THURSDAY, December 3.

SECOND IMPORTATION.

FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting.

Sutton & Sons, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see List.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.

Bardney Hall, near Lincoln, Nov. 7.

HENRY MAY'S New CATALOGUE for 1857–8 of Hardy Herbaceous and Alpine Plants, Ferns, American Plants, Ornamental Trees and Flowering Shrubs, Evergreens and Coniferæ, Fruit Trees, &c., is now ready and can be obtained free on application.

The Hope Nurseries, near Bedale, Yorkshire.

A DESCRIPTIVE CATALOGUE OF ROSES.

JAMES MITCHELL begs to say that his new CATALOGUE is now ready and will be forwarded by application post free.—Piltdown Nurseries, Maresfield, Sussex.

NEW ROSE LIST FOR 1857–8;

ALSO,

A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to Wm. Wood & Son, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

JOHN CRANSTON has now ready for distribution his DESCRIPTIVE CATALOGUE OF ROSES for the Autumn of 1857 and Spring of 1858. The Descriptions are full and accurately given, and the whole so arranged as to enable the Amateur to select the most choice varieties for the various purposes required. Forwarded free by post on application.

Nurseries, King's Acre, near Hereford.

ROSES.—STANDARD ROSES of all the popular kinds .. .. 18s. 0d. per doz.
HALF STANDARDS .. .. 15 0 ,,
DWARFS & DWARF WORKED (clean straight stems, and well grown) .. .. .. 9 0 ,,
SPIRÆA CALLOSA, strong .. .. .. 12 0 ,,

Packed well for any part of the country.

Joseph May & Co., 1, Wellington Street, Strand, Waterloo Bridge, London.

The Largest and Finest Stock of
TEA-SCENTED ROSES IN EUROPE.

WM. WOOD AND SON have much pleasure in offering the above, all well-grown plants, in any quantity.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

NEW PELARGONIUMS.

CHARLES TURNER is now sending out the beautiful new varieties of Large and Fancy PELARGONIUMS, exhibited by him during the past season. The finest older varieties at moderate prices per dozen, strong established plants.—Royal Nursery, Slough.

STRAWBERRIES.

CHARLES TURNER can supply strong Plants of the following, either in or out of pots:—

FILBERT PINE | SIR HARRY | CAROLINA SUPERBA,

as also all the older leading kinds.—Royal Nursery, Slough.

STRAWBERRY PLANTS can still be supplied as per Advertisements of August and September.—Address William J. Nicholson, Egglescliffe, near Yarm, Yorkshire.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75s. per 100. Price to the trade on application.—Highgate Nurseries, London, N.

VICTORIA RASPBERRIES.

GEORGE CORNWELL is now sending out Canes of the above at 12s. per 100; Fastolff, Large Autumn Fruited, and White at 12s. per 100 or 2s. 6d. per dozen.

Market Gardener, Barnet, N.

TO EARLY CUCUMBER GROWERS, ETC.

H. SHERMAN has now ready for sale a quantity of strong plants, including the best early sorts in cultivation, at 1s. per pot. Seeds 1s. per packet.

Gooseberry Gardens, Hendon, Middlesex.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—James Carter & Co., Seedsmen, 238, High Holborn, London, W. C.

GRAPES.

MESSRS. JOHN WEEKS AND Co., King's Road, Chelsea, beg most respectfully to inform their patrons that they have got a fine collection of GRAPE VINES, all the best sorts struck from Eyes, very strong and healthy.

Catalogues on Horticulture in all its branches, with numerous Designs for Building and Heating by Hot water.

AZALEAS, CAMELLIAS, AND GERANIUMS.—Several Thousand of the above are now ready for Sale. Also strong Plants of the New Fruit EUGENIA UGNI, that obtained the First Prize at Willis's Rooms, on Saturday last.—Exhibited by T. Gaines, Florist and Nurseryman, Surrey Lane, Battersea, S. W., Nov. 7.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Nov. 7.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5s. to 10s. each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 50s. per 100.—Epps's Nurseries, Maidstone.

SURPLUS STOCK OF FRUIT TREES, BUSHES, ETC.

TO BE SOLD, at extremely moderate prices, consisting of Standard Apples, Pears, and Plums, of 12 years' growth and upwards, several thousand Fastolff Raspberries, and some hundreds Red and White Grape Currants, and Rifleman Gooseberries.—Apply to Mr. Mitton, Lampton, near Hounslow, 1 mile from either the Hounslow or Isleworth Railway Stations.

PINE PLANTS FOR SALE.—To be seen at Wood House, Dulwich. Ask for the Gardener. 10 Pines in fruit. 24 succession ditto; 25 stools of ditto with strong suckers fit for potting.

WANTED, PYRACANTHA BERRIES.—Send price per quart to Charlwood & Cummins, 14, Tavistock Row, Covent Garden.

SPRUCE FIRS.

WANTED, 500 handsome SPRUCE FIRS, 2 feet high; 250, four feet; 250, five feet.—Address, stating price delivered in London, to H. P., J. May & Co., Seedsmen, 1, Wellington Street, Strand, London.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST for the season of FOREST TREES and SHRUBS, AURICULAS, FERNS, &c., may now be had on application.—Nov.

TWO MILLIONS OF TRANSPLANTED QUICKS.

GEORGE CHIVAS invites the attention of planters to his stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 15s. His general list of Nursery Stock will be forwarded on application.—Chester.

10,000 PRIVET, 3 feet, 25s. per 1000, or the lot for 10*l.*, warranted fine and healthy.
1000 fine GOOSEBERRIES, 6s., best sorts.
1000 fine CURRANTS, 25s., best sorts.

Standard and Dwarf-trained APPLES and PEARS, by the hundred or dozen, at low prices.—Apply to Jno. W. Thornhill, Nurseryman and Seedsman, Bristol.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.

William Young, Milford Nurseries, near Godalming, Surrey.

LARGE FANNED YEWS, suitable for making an immediate and effectual blind.—A quantity of the plants of the above to be disposed of; they are from [illegible] feet in height, and as much in width, well hair-pruned, and having been recently transplanted.—For further particulars and price, apply to J. Saltmarsh & Son, Mortlake Nurseries, Surrey.

HARDY HEATHS.—A very complete collection of this beautiful tribe, under first rate names, [illegible] a specimen in itself, may be had by the [illegible] application to Waterer & Gourlay, King's Hill, Wokingham.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, [illegible] per 100. Many of the kinds are well suited for forcing or plants to clumps of American plants.

John Waterer, American Nursery, Bagshot, Surrey.

PUBLIC PARKS AND CEMETERIES can be supplied with splendid specimens of CEDRUS DEODARA that cannot be surpassed in the trade, from 5 to 7 and 8 to 10 feet. These specimens are well calculated to produce immediate effect.—Wm. Maule & Sons, Nurseries, Bristol.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, [illegible] in single pots, at 30s. per doz., or 6*l.* per [illegible]. No charge for packing.—John Henchman, Edmonton, near [illegible].

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 24 feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pots or tubs.

John Waterer, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

PLANTING SEASON.

10,000 SPLENDID STANDARD ROSES, &c.

PROTHEROE AND MORRIS most respectfully invite the public to inspect their valuable NURSERY STOCK, extending over 20 acres and in the highest state of cultivation, consisting of Fruit, Forest, and Ornamental Trees of every description, and in considerable quantities; also a large and rich assortment of American Plants, fine Evergreens, ranging all sizes, including many magnificent specimens which will give immediate effect; and from the adhesive nature of the soil, and being continually transplanted, will incur no risk from removal. The Nursery is accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street, from whence Trains leave nine times daily to Leytonstone Station, which adjoins the Nursery.

The following include a portion of their Stock. These are fine bushy plants, and beautifully furnished with blooms:—

50,000 Hybrid Catawbiense, pontica, Scarlet, and other Rhododendrons.
30,000 Ghent and other Azaleas.
5000 Kalmia latifolia, 1 to 5 ft.
2000 Andromeda floribunda, 2 to 4 feet.
3000 extra fine Dwarf-trained Peaches and Nectarines from Holland's celebrated stock.
10,000 splendid Standard and Dwarf Roses, including the finest Hybrids, Perpetuals, Bourbons, Teas, Noisettes, &c.
2000 fine Fan Yews, 3 to 12 ft.
5000 Portugal and Common Laurels, 3 to 15 feet.
3000 bushy Aucubas, from 2 to 5 feet.

American Nursery, Leytonstone, Nov. 7.

STRONG SEAKALE ROOTS for forcing; crowns from 1½ to 2 inches diameter, price 8*s.* per 100; selected single crowns, 10*s.* per 100.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

One Thousand PLUMS for sale, consisting chiefly of "Victoria" and a seedling largely grown at Deptford; also Jefferson, Prince of Wales, and Downing's new seedlings Standard of England, Angelina Burdett, and Woolston's Black Gage. Maiden stock, 50*s.* per 100 or 8*s.* per dozen; 2-year old rough standards, 75*s.* per 100, or 12*s.* per dozen; these have been removed last season and previously, and will come up with good fibrous roots. To persons planting a large quantity liberal terms would be offered.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

MYATT'S SEEDLING STRAWBERRY, 2*s.* 6*d.* per 100, packed and delivered free to any address in London.

Manor Farm, Deptford, Nov. 7.

PROVIDENCE NURSERY, BOSTON SPA, YORKSHIRE.

NEW VERBENAS—QUEEN OF ROSES & SUNSET.

J. C. PADMAN has great pleasure in offering the above superb Verbenas for next season's display.

QUEEN OF ROSES, for bedding purposes, will be found unequalled, and of which the *Gardeners' Chronicle* of the 8th August last says, at page 551: "Amongst Verbenas was a seedling which, for massing, is certainly unsurpassed in its class; the colour is a deep purple, lilac tint: it is good in habit and a profuse bloomer, several beds of it were remarkably effective." Plants ready in December, to enable purchasers to propagate stock for next season's display. Price 3*s.* 6*d.* each, or three plants 10*s.* post free.

SUNSET.—An immense and compact truss of superb form, quite new, and distinct in colour, being a beautiful rosy pink. No stand will be perfect without this flower. Ready in May 1858, post free, 5*s.* each; only a very limited supply.

HOLLYHOCK and PANSY SEEDS carefully gathered from the best named varieties.—40 Seeds for 1*s.*, 100 Seeds 2*s.*, 200 Seeds 3*s.* 6*d.*

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained Fruit Trees of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 and 4 year old Currants of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch Gooseberries, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Nov. 7.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity, upon reasonable terms, by land or water carriage.

ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Countie Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara. } 1 to 10 ft.
,, Africanus } The largest and finest stock in the
Cedar of Lebanon } country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* p. doz., and uparwds; Dwarfs, 6*s.* do. and uparwds. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

FINE ROSES FOR THE MILLION.

NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

PINES AND VINES CHEAP.—PINES in all stages. VINES from eyes in Pots, 1 year old. ASPARAGUS (3 years old), and SEAKALE for Forcing. Cheap for Cash.

LARGE VINES for Sale. — Early and Late Forced Vines from 4 to 10 years old, strong and well ripened; these, if taken up carefully, would produce fruit next season. See Mr. Fleming's article last week. Must be cleared soon.

J. LANCASTER, Edward Street, Deptford.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishi, aristata, vittata, Juliana, jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s.*, including package.

EPPS'S Nurseries, Maidstone.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety ever yet sent out, possessing all the good qualities for which a Strawberry is required. Now ready, strong well rooted plants, 1*l.* per 100; 50 for 11*s.*, hamper and package free; 25 for 6*s.*; 12 for 4*s.*, postage free. A Post-office Order or 1*d.* postage stamps must accompany all orders. For further particulars of this and other sorts see advertisements in this Paper of the 10th Oct., page 690.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

SUTTON'S BERKSHIRE CHAMPION CUCUMBER.

To the Editor of the GARDENERS' CHRONICLE.

"SIR,—From a last year's plant of SUTTON'S Berkshire Champion, growing in a small two-light pit, 8 ft. by 9 ft., the plant occupying but one light, I have cut, from May 4th of this year, 112 feet of fine fruit; and there are six growing on the plant at the present time that measure 11 feet 2 inches in length. The pit is heated by dung linings only. I cut two fruit the latter end of March from the same plant, which measured upwards of 3 ft. in length each."—(Signed) THOMAS POLLINGTON, Gr. to Wm. Hervey, Esq., Bradwell Grove.

SUTTON & SONS, Reading, have confidence in recommending their Berkshire Champion Cucumber as the handsomest, best flavoured, and most prolific Cucumber in cultivation. Price 1*s.* 6*d.* per packet, post free.

Royal Berkshire Seed Establishment, Reading.—Nov. 7.

CHAMÆCYPARIS THURIFERA.

ALEXANDER PONTEY has much pleasure in offering the above new CONIFER recently introduced by the Horticultural Society of London. They are nice bushy plants, from 4 to 6 inches in height.

A. P. having also a large stock of the undermentioned begs to offer strong plants at the following prices, carriage paid to London:—

	Each—*s.*	*d.*
Biota Meldensis..	5*s.* to 10	6
,, frenelloides.. ..	5	0
,, glauca	2	6
Chamæcyparis glauca ..	10	6
,, thurifera	42	0
Cupressus thurifera elegans ..2*s.* 6*d.* to	3	6
,, japonica 3*s.* 6*d.* ,,	5	0
,, majestica..3*s.* 6*d.* ,,	5	0
,, sinensis true, 3*s.* 6*d.* ,,	5	0
,, excelsa.. 3*s.* 6*d.* ,,	5	0
,, Knighti.. 2*s.* 6*d.* ,,	3	6
,, Corneyana 2*s.* 6*d.* ,,	3	6
,, Lawsoniana 10*s.* 6*d.* ,,	21	0
,, species from Nepaul, 3*s.* 6*d.* to	5	0
[This is a splendid plant, between C. torulosa and C. Corneyana.]		

	Each—*s.*	*d.*
Juniperus sphærica, 3*s.* 6*d.* to	5	0
,, glauca.. 2*s.* 6*d.* ,,	3	0
,, japonica.. 7*s.* 6*d.* ,,	15	0
,, fragrans.. 3*s.* 6*d.* ,,	[illegible]	[illegible]
,, sinensis feminine, 2*s.* 6*d.* ,,	[illegible]	[illegible]
Larix Griffithi.. 5*s.* ,,	10	0
Podocarpus coriacea ..	2	6
Reinosporum ericoides ..	1	6
Thujopsis borealis..5*s.* to	7	6
Thuja decurrens, 3*s.* 6*d.* ,,	42	0
,, gigantea, true, 7*s.* 6*d.* ,,	42	0
Fagus macrophylla, 3*s.* 6*d.* ,,	5	0
Pocosandra coriacea, 2*s.* 6*d.* ,,	3	0
Rose, Isabella Gray, 3*s.* 6*d.* ,,	5	0

Priced Catalogues of rare Conifers and Choice Shrubs can be had free on application.

Plymouth Nursery and Seed Establishment, Nov. 7.

BRASSAVOLA DIGBYANA. — The undersigned solicit inspection of an importation of the above-named rare and beautiful Orchid. The plants are recently to hand in the finest possible condition, and are well worthy the attention of purchasers, many of the specimens being of much larger size than any to be found in existing collections.

HUGH LOW & Co., Clapton Nursery, N.E.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodara, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MALLE & SONS, Nurserymen, Bristol.

NOTICE.

WILLIAM DEAN, late with Mr. Charles Turner, Royal Nursery, Slough, is about to commence business as a Florist and Seedsman at Bradford, Yorkshire, and requests that all Communications and Catalogues for him may be sent to that address.

LANDSCAPE GARDENING, ETC.

MR. J. W. CHAPMAN begs to intimate to the nobility, gentry, and all who are contemplating the formation or improvement of PARKS, PLEASURE GROUNDS, &c., that he will be prepared to give advice on these and all subjects connected with Gardening, whether ornamental or useful, furnishing the necessary Plans and Drawings for these purposes, and superintending the execution of the works during their progress. The formation of new and alteration of other plantations in both home and distant scenery, for the purpose of rendering the views from a place as interesting as possible, are subjects to which the most careful attention is given.—Dartmouth Lodge, Dulwich, S., Nov. 7

JAMES CUTHILL, Camberwell, London, S., has still fine Plants of his three sorts of STRAWBERRIES. The Public and the Trade can be supplied with his three CUCUMBERS; also his three PAMPHLETS. In a short period will be published, A Shilling PAMPHLET on the Cultivation of the Mushroom round London; detailing a 30 years' successful practice by J. C.

N.B. CUTHILL's Cucumbers were proved by Mr. M'Ewen at the Horticultural Society to be the best for general purposes.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10s. 6d. each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Nov. 7.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30s. per dozen; smaller plants, 18s. per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30s. per dozen.—EPPS's Nurseries, Maidstone.

CHOICE PINKS, PICOTEES, ETC.

WILLIAM HUSSEY begs to offer the undernamed fine healthy Plants true to name.

	s.	d.
24 pair Pinks, one pair of each	10	0
24 pair Picotees	12	0
Delphinium formosum, per dozen	6	0
Hardy Ferns, sorts	6	0
Choice Show Geraniums .. .. .. 6s. to	9	0

Horticultural Gardens, Norwich.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

WM. C. & SON strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

DUTCH FLOWERING ROOTS for present planting, comprising Hyacinths, Narcissus, Tulips, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c., for house and garden culture, a Descriptive priced Catalogue of which, with valuable Treatises on their culture, may be had on application or free by post. Collections of Bulbs 20s. and upwards sent carriage paid. Named Hyacinths for pots and glasses, 6s., 7s. 6d., 9s., to 12s. per dozen; showy Double Tulips for beds or borders, 3s. 6d. to 13s. 6d. per 100; Polyanthus Narcissus, 3s. per dozen; Crocus, 1s. 6d. to 3s. 6d. per 100. All orders to be accompanied with a remittance or a reference.—BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London.

NEW BALSAM, SPLENDID LARGE DOUBLE SALMON COLOUR, 12 Seeds, 13 stamps. GLENNY'S Improved Six Classes, 37 stamps; mixed, 13. G. GLENNY, Fulham, S.W. Glenny's Almanack reprinted, 13 stamps. Glenny's Companion, 13. Seeds for Amateurs to raise new varieties warranted first-class.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4s. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

T. LOCKHART, JUN., FLORIST, Fulham, S.W., near London, will forward 100 Roots of his early TULIPS in 25 sorts of the most brilliant colours for 30s.; 100 ditto RANUNCULUS in 25 sorts of the most varied edgings and colours for 30s. The Early Tulips flower in the open border during March and April; they also force well in pots. These and the Ranunculus are warranted of superior quality. The mode of treatment if required will accompany the collections.—Post-office Orders payable to THEODORE LOCKHART, Jun., Walham Green, Fulham.

CATALOGUES.

H. LANE AND SON'S CATALOGUES of their extensive NURSERY STOCK, which includes about three acres of Glass, 14 acres of Roses, and about 50 acres of Fruit Trees and General Stock, can be had on application, by post or otherwise, at the Nurseries, Great Berkhampstead, Herts.

Their Roses consist of the principal sorts for which they obtained First Prizes at the Botanic Society's Shows, Regent's Park, also Horticultural, Chiswick, Manchester, and every place they exhibited, with the exception of Royal Botanic Society's Show, July 1. They also obtained First Prizes for their Fruit Trees in pots at Manchester, Regent's Park, Chiswick, and Crystal Palace, Sydenham.

EARLY FLOWERS, adapted for blooming in-doors and in the borders in winter and early spring.—The Undersigned beg respectfully to intimate to the Nobility, Gentry, and the Public, that they have imported a STOCK of DUTCH and other FLOWER BULBS, of the finest possible quality, and take the liberty of offering the following assortment for 10s., viz.:—Half a dozen best Hyacinths for glasses, half a dozen good Hyacinths for pots, 50 Crocuses (four separate colours), 50 large double Snowdrops, half a dozen double Van Thol Tulips, half a dozen Early Van Thol Tulips, one dozen double white sweet-scented Narcissus, half a dozen double Jonquils, one dozen winter Aconites, 12 splendid mixed Tulips, one dozen beautiful mixed double Anemones.

CLARKE & Co., Seedsmen and Florists, 86, High St., Borough, about 30 doors from London Bridge Railway Terminus.

SEED POTATOES!

JOHN W. THORNHILL'S unrivalled assortment is now ready for delivery. The following sorts 14s. per cwt., cash, no charge for bags.—EARLY ASH-LEAF KIDNEY, sound and genuine. EARLY QUEEN, fine new Early. THORNHILL'S INCOMPARABLE, fine early round, dry and floury.—Bristol, Lawrence Hill Nursery, and 27, Bath Street.

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.—WILLIAM YOUNG, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Nov. 7.

CUCUMBER SEEDS (TRUE), 1s. per packet, FREE BY POST.

Lynch's Star of the West	Ward's Great Western
Lord Kenyon's Favourite	Hamilton's Hero of Thornfield
Sion House "	" Botcherby Hybrid
Green's Lady Antrobus	Manchester Prizefighter
Cuthill's Black Spine	Sir Colin Campbell
Bird's Improved Sion House	Lancashire Witch
Strathfieldsaye Black Spine	Ipswich Standard
Victory of Bath	Queen of England
	Mill's Jewess

SUTTON & SONS, Seed Growers, Reading, can supply the above sorts of Cucumbers, true to their kinds, at 1s. per packet, post free. Also the world-wide known SUTTON'S BERKSHIRE CHAMPION, at 1s. 6d. per packet.

VINES IN POTS, FRUIT TREES.

JAMES GRIFFIN begs to direct attention to his extensive stock of strong Vines in pots, Standard and Trained Fruit Trees of all descriptions,

Weston Road, and 2, New Bond Street, Bath.

CHARLES DOLTON, SEED GROWER, begs to offer to the Trade:—

NONPAREIL CABBAGE. | SOUTHAMPTON BROCCOLI.
DOLTON'S FINE DWARF-HEADED RED BEET.
DOLTON'S RED GIANT CELERY.

Speenhamland Seed Establishment, Newbury, Berks.—Established 1800.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	5s.	0d.
12 ditto ditto	2	6
Good ditto ditto	1	0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

JAMES GRIFFIN offers a large stock of the following articles from 2 to 10 feet in height, well rooted, having been frequently transplanted:—Portugal Laurels, Aucubas, Irish and Common Yews, Evergreen Oaks, Laurustinus, Arborvitæ, Larch, and Spruce Firs, English and Chichester Elms, Walnut and Quince Trees, Beech, Mountain Ash, Limes, Poplars, Acacias, Flowering Shrubs in great variety, Clematis, Jasmines, &c.—Weston Road, and 2, New Bond Street, Bath.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY HERBACEOUS AND ALPINE PLANTS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants ..	0	18	0
100 choice ditto ditto	1	10	0
50 choice Shrubs and Flowering Trees	1	5	0
100 choice ditto ditto	2	2	0
12 fine named Perpetual Roses, Dwarf	0	12	0
12 fine named " Standards	0	18	0
White, Red, and Black Currants, fine plants, per 100 ..	0	8	0
Fine sorts of Lancashire Gooseberries, per 100	0	8	0

Fine Dwarf-trained and Standard Fruit Trees, &c.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

R. M. STARK having recently greatly enlarged his Stock of HARDY and EXOTIC FERNS begs to invite the attention of cultivators to his collection of this interesting family of Plants. Among the more interesting may be enumerated the following:—

	s.	d.		s.	d.
Asplenium viviparum ..	2	6	BRITISH.		
" fœniculaceum ..	2	6	Cystopteris montana ..	5	0
Nothochlæna chrysophylla	3	6	Lastrea Filix-mas cristata	2	6
Pteris aspericaulis ..	3	6	" Filix-fœmina multifida	2	6
" scaberula fine ..	10	6	Polystichum lonchitis 1s. to	1	6

A priced Catalogue may be had on application.

R. M. S. would also draw attention to his large and fine stocks of Forest, Ornamental, and Fruit Trees, and Shrubs, Herbaceous, Alpine, and Greenhouse Plants, Florists' Flowers, &c., of which Priced Lists may be had on application.—Edinburgh, Edgehill Nursery, Nov. 7.

SPECIMEN TEA-SCENTED ROSES

IN 6-INCH POTS FOR EXHIBITION AT 30s. PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10s. 6d. to 21s. each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots ..	FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots ..	SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)	
June 18, Royal Botanic Society—50 Cut Roses ..	FIRST PRIZE
Do. do. 10 Roses in pots ..	SECOND PRIZE
June 24, Brighton .. 50 Cut Roses	FIRST PRIZE
June 24, Manchester .. 50 Cut Roses	SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.	
July 1, Royal Botanic Society—24 Cut Roses ..	FIRST PRIZE
" do. do. 50 Cut Roses ..	FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses ..	FIRST PRIZE
" ditto, collection ditto ..	FIRST PRIZE
July 9, Diss .. 50 Cut Roses,	FIRST PRIZE, SILVER CUP
" do. .. 100 Cut Roses,	FIRST PRIZE, "
July 15, Stamford .. 12 Cut Roses,	FIRST PRIZE, "
Sept. 9, Crystal Palace 50 Cut Roses,	FIRST PRIZE, "

The sorts which obtained these prizes are offered, strong healthy plants, from 18s. to 24s. per dozen, as Standards, and from 12s. to 18s. per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. JOS. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

ROBERT M. STARK, Edgehill Nursery, and 31, Castle Street, Edinburgh, is now prepared to send out strong plants of the following beautiful PANSY, which, during the warm months of the past summer, has proved quite superior to any other yellow ground in cultivation, "Empress Eugenie," (Hampton), golden yellow ground, with broad margin of dark maroon, large, smooth, and very constant, extra show flower, 5s.

A liberal allowance to the trade when three plants are taken.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 11 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2s. 6d. to 21s. each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Nov. 7.

BERBERIS JAPONICA.

CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established; it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Nov. 7.

CINERARIAS.

CHARLES TURNER can now supply strong healthy Plants of the above, including the new varieties—Baroness Rothschild, Mr. Colman, Regalia, Prince of Wales, Lady Gertrude Vaughan, Mrs. Hoyle, Lord Eversley, &c.; also all the leading named but older kinds at moderate prices per doz. Catalogues may be had on application.—Royal Nursery, Slough.

FINE SHOW CINERARIAS.—Magnum Bonum, Rose of England, Purple Standard, Duchess of Wellington, Sir Charles Napier, Brilliant, optima, Admiral Lyons, Fascination, picturata, Lady Paxton, Cerito, 9s. per dozen, or 1s. each.

Fine named HOLLYHOCKS, in pots, good, per dozen ..	8s.
12 finest sorts ANTIRRHINUMS, from a large collection	3s.
12 finest sorts PHLOXES " "	3s.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

NEW CHRYSANTHEMUMS.

JOHN SALTER informs the growers of Chrysanthemums that he has several fine new varieties to send out next spring, among them a beautiful Golden Queen of England. These, together with the unrivalled collection of named flowers, may be seen in his Winter Garden every day except Sunday during November.—Versailles Nursery, Hammersmith Turnpike.

CHRYSANTHEMUMS.—An extensive collection of the above, both large and small varieties, is now in flower at CHANDLER & SON'S Nursery, Wandsworth Road. Good flowering plants from 6s. to 12s. per dozen.

Camellias, Chinese Azaleas, and Crimson Rhododendrons, well set with flower buds, at moderate prices

CHRYSANTHEMUMS, LARGE-FLOWERED & POMPONE.

WOOD AND INGRAM beg to offer fine plants of the above, well-established in 5 and 6 inch pots, and full of bloom buds at from 6s. to 9s. per dozen. These plants have been grown in pots all the season, and are well furnished with healthy foliage to the very base. They consist of such kinds as Auguste Mie, Annie Salter, Berthilde, Bride, Campestrion, Madame Comerson, Perfection, Temple de Solomon, Anna Boleyn, Argentine, Bob, Colibri, Solfaterre, &c.

Nurseries, Huntingdon.

NEW GARDEN SEEDS.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have just purchased the old established and extensive Business of MESSRS. WILLIAM E. RENDLE AND CO.

The Company are now harvesting and laying in their stock of NEW AND GENUINE SEEDS for the coming season.

Extensive and commodious Warehouses are now being erected for facilitating the conduct of a greatly extended trade; and with a large capital the Company will be in a position to compete with the first houses in the kingdom.

The SEED PRICE CURRENT AND GARDEN DIRECTORY (late RENDLE'S), will be published shortly, and Copies will be forwarded to all who have had transactions with the late Firm.

The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 7, 1857.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, Nov. 12—British Pomological ..... 2 P.M.

BLUE HYDRANGEAS seem to be generally preferred to pink ones, if we are to judge from the desire everybody manifests to possess them. And yet they are scarcely so handsome, the blue being usually neither very pure nor very intense; so that we may perhaps infer that it is rarity more than beauty that has brought them into vogue. It must, however, be owned that the above remark did not apply to some blue specimens from Devon exhibited the other day in Regent Street, for they were really of a deep distinct colour, and must have had a most attractive effect when growing. The manner in which they were obtained was described by Mr. LUSCOMBE, who produced them in his celebrated garden at Combe Royal, as having

consisted in nothing more than planting them in a small wood of Firs, in the mould formed by the accumulated Fir-leaves. So far as we remember this is an entirely new statement, and it naturally leads us to inquire what action on the Hydrangea could have been caused by the Fir leaves.

Among the many agents said to cause blueness in the Hydrangea the following may be more particularly noticed. Norwood loam; common red sand; alum water; iron filings or iron scales from a forge mixed with the soil; Wimbledon peat and silver sand; iron water such as is common in soils highly charged with that metal; water in which a red hot poker has been plunged; poor sand below a pan of gravel; lime-water; marl, &c. Upon the whole some kind of iron salt in solution, or else lime or alum, are supposed to be the most certain agents. But none of these substances occur in such quantity in the leaves of Fir trees as to account for Mr. LUSCOMBE's success; and indeed both iron and lime have been proved experimentally to be incapable *per se* of turning Hydrangeas blue. In 1842 Professor E. SOLLY reported as follows on the subject to the Horticultural Society:—

"Two perfectly similar plants of the Hydrangea were taken and placed under the same general conditions with respect to light, air, &c., and watered with dilute solutions, the one of carbonate of soda, the other of muriatic acid, commencing with very small quantities and gradually increasing the doses. At the beginning of the experiment it was difficult to distinguish the one from the other; they had both the same number of leaves, were nearly of the same size, and alike in colour and general vigour, being both remarkably healthy plants. The solutions taken consisted of 1 drachm of concentrated muriatic acid, and 1 drachm of carbonate of soda, each dissolved in 50 drachms of water; of these at first 1 drachm diluted with 2 ounces of water was given to each plant daily, but the dose was gradually increased to 12 drachms of each solution, so that in a month the one had received nearly 5 drachms of concentrated muriatic acid, and the other plant more than half an ounce of carbonate of soda. Under this mode of treatment both plants continued to thrive and flourish and the blossoms were large and perfect, those formed by the plant treated with muriatic acid being rather the most forward of the two: they were, however, both of the same colour, nearly blue, although it was believed that had they been left untouched, the blossoms would have been pink. It is evident that the acid would have a tendency to render certain matters in the soil more soluble than others, whilst the carbonate of soda would have an opposite effect; the acid would render lime, magnesia, bases, and metallic-oxides more soluble, whilst the carbonate of soda would facilitate the solution of silica, acids, and organic substances in the soil. The result of these experiments is rather against those views which have been formed respecting the blue and red flowers of the Hydrangea, in which it is supposed that the absorption of iron or lime was essential to the change." This was confirmed by the experiments of Mr. FORTUNE who could obtain no blue tint from the use of mere iron, which he thought rather heightened the pink colour; but he found that alum, whether dissolved in water or powdered and mixed with the soil, produced the desired effect. Yet alum can be furnished in no considerable degree by rotten Fir-leaves.

It will be found, upon looking over the statements made upon this subject, that a large proportion of the writers attribute their success to the use of peat. "In cottage windows near Heath-growing moors, quite away from iron ore, I often remark the blue Hydrangea," says a recent correspondent; and this, which corresponds with our own observation, is analogous to the effects produced by Mr. LUSCOMBE's Fir mould. May it not, therefore, be possible that the blue is the result of some modification of tannin acting upon a solution of peroxide of iron found in the tissues of the flowers of Hydrangea? Such a form of tannin undoubtedly exists in some kinds of peat, and probably in the leaves of Fir trees. If so the mystery would seem to be explained, and blue ought to be producible artificially by watering the soil of the Hydrangea first with a weak solution of peroxide of iron and after a few days with a weak infusion of tannin, such as may be obtained by steeping peat earth or the wood, leaves, or bark of the common Oak in water for a few weeks.

This, however, is a mere suggestion. And it would seem to be irreconcileable with the assurance of another correspondent, at p. 486 of our present volume, that in the island of Guernsey, so celebrated for the beauty of its Hydrangeas, the blue and pink sorts grow indiscriminately in the same border, no attention whatever being bestowed on their culture beyond pruning to keep them within bounds. That statement complicates the question, and is hardly consistent with the suggestion just offered. Nevertheless, since in a case like the one before us neither accident nor constitutional peculiarities, such as bring about fixed variations in the plumage of birds, or the petals of flowers, or the foliage of some trees, can possibly explain the change of colour, we can entertain no doubt that a little intelligent experimentation would speedily solve the mystery. We, therefore, recommend the subject to such of our chemical readers as are thoroughly well grounded in the science; the only warning we give being to use their materials in a state of extreme dilution.

FEW questions are more frequently put to us than those which regard the DISEASED condition of VINES in forcing houses, and our answer is almost uniformly the same—"look to the roots." A highly illustrative case has just come under our notice which deserves some details, as it bears upon one or two points in the successful cultivation of these important plants. Three Vines, said to be White Hamburgh, which had been planted deep and so *liberally* supplied with whole carcases of carrion as to be extremely luxuriant, during two years had not borne a single bunch of fruit. Other Vines in the same house, 62 feet in length, produced fruit, of which the Muscats and Frontignans shanked every year, while the Black Hamburghs succeeded better, but not in proportion to the luxuriance of the Vines. Black Hamburghs were inarched in 1855 on the three White Hamburghs, and formed rods more than 20 feet in length. This year they produced several bunches, far less however in size than those on the plants of the same variety which had been long established. The leaves meanwhile were of an extraordinary size, some attaining a diameter of 17 inches. The colour along the main ribs was of the deepest green, while in the interstices the cells were entirely devoid of chlorophyll, or so weak as to be quite unable to resist the heat of the sun. They were, therefore, either variegated with pale radiating lines, or disfigured with burnt spots between the ribs. The under side, especially in the greener parts, was a mass of spongy warts, in a degree which we have scarcely ever before witnessed, while the fruit showed symptoms of shanking, which would naturally increase with cold and damp weather.

The Vines had in all probability suffered from deep planting before the carrion was applied. From both causes a part of the roots had died, while the rest were supplying fluid highly charged with nutritious matter, which was causing an extraordinary development of coarse but not healthy leaves and watery stems filled with damp dark-coloured pith. The supply of fluid, though highly stimulating in itself, was not sufficient for the exigencies of such shoots and leaves. The consequences of which were first, the development of warts upon the under surface in search of a supply of moisture from air within the house; and secondly, the formation of imperfect chlorotic cells between the main ribs of the leaves, by which sap flows. The energies of the plants were, therefore, mainly exhausted upon the stems and foliage, and the fruit was either small in quantity or liable to fail prematurely.

Coarse manuring is rarely if ever useful where fruit is the object of cultivation, and in the case of perennial plants like the Vine, a diseased state may be established by such treatment, which the future withholding of any fresh supply may not be able to counteract. With every attention to the temperature and ventilation of the best constructed house it is a very difficult matter to get good Grapes if the roots are not healthy. It is to these attention must first be paid. A perfect drainage must be secured, and the roots must not be sunk too deeply in the soil. A little mulching in summer, or a coat of manure in winter, according to the cultivator's judgment, will protect the roots from injurious heat or cold, if protection be necessary. The soil should be kept in moderate condition, but all putrid matter should be carefully withheld. As the supply of nutritive fluid will be greater and more uniform, from the healthy condition of the roots, the houses will not require to be kept so damp; the black mould* which is often so troublesome will in consequence be less likely to appear, together with some other plagues of the same category, and the fruit be less liable to shank. In fact the cultivator may reckon with some certainty on the result of his labours, which he can never do so long as the roots are diseased.

M. J. B.

* *Cladosporium herbarum* in its various forms.

New Plants.

213. ROGIERA UROPHYLLA.

R. urophylla; glaberrima, foliis ovalibus longè acuminatis brevè petiolatis, paniculis trifidis axillaribus terminalibusq. foliis brevioribus, calyce calvo 5-dentato, corollæ lobis 5 undulatis obtusis.

A half twining evergreen stove or warm greenhouse plant, with small yellowish white flowers in loose clusters, having a rather pleasant smell. It differs from all the species mentioned by Prof. Planchon in its taper pointed leaves, and perfect smoothness in every part. The corolla is about a quarter of an inch long, while the divisions of the calyx are mere teeth. A specimen flowered in the nursery of Mr. Glendinning, of Turnham Green, obtained from some of Botteri's unnamed seeds received by the Horticultural Society.

VENTILATION OF HOTHOUSES, &c.,

AT the exhibition of horticultural contrivances in the Chiswick Garden last June was a plan for effecting ventilation by means of an electro-magnetic apparatus, so as to insure a fixed temperature; by M. Carbonnier, Rue de Bondy, 70, Paris. The following statement will explain the manner in which this ingenious cultivator proposes to effect his object.

In order to effect this, M. Carbonnier says:—"I establish an electric current in the same way as in the electric clock, that is to say, by two principal currents traversing one or more apartments. From these currents I establish two branches or weaker currents as often as I wish to obtain currents of ventilation. When the circuit of these two weaker currents is completed, an electro-magnet, A, which is placed near a ventilator or luffer board, B, attracts a piece of soft iron placed upon the ventilator, and consequently makes an opening which permits warm air to get out or cold air to get in.

"The disposition of these currents having been established, the next step is to prepare an apparatus which at any given temperature closes or breaks the circuit of the electric current. With this view I construct a bottle, full of air, curved at the bottom with an U tube, C. In this tube I introduce a quantity of mercury, which, by the influence of the air contained in the bottle, rises or falls according to the temperature. On the mercury I place a small glass globe, D, or float, having a metal stem with a cross piece at the top, which, on the float rising, closes the circuit of the two currents above the float. It is necessary that the stem of the float should be in two parts, sliding within each other, in order that it may be lengthened or shortened at pleasure.

"Supposing now that I want a steady temperature of 60° to be maintained in a house, I lengthen or shorten the stem of the float (on which degrees are marked), so that at 60° the current shall be closed. As soon as the air of the bottle is of a higher temperature than 60°, the warm air presses upon the mercury sufficient to raise the float and close the circuit, the ventilator will immediately open; as soon as the temperature falls the current will be broken, and the ventilator closed. In the same way if I wished to introduce heat, I establish another current communicating with a hot air valve, which shall open as soon as the float is lowered to a certain degree."

ORNAMENTAL GARDENING.—No. III.

MR. OWEN JONES, in his lectures delivered before the Art students at Marlborough House, has laid down the proposition that "all work of the decorative arts should possess fitness, proportion, harmony, the result of all of which is repose." To this every one who is at all capable of forming an opinion on the subject will, I think, readily subscribe; and as ornamental gardening is in many respects a decorative art, the laws laid down in that proposition may very justly be applied to it. Now as the grounds of a residence, no less than the interior arrangements and decoration of the residence itself, should, however limited or extensive, be characterised by unity of design, by a general fitness and harmony of parts to the whole, it follows that to extend the characteristic embellishments of the garden, beyond its legitimate boundaries, is to act in direct opposition to this, the result of which is to destroy rather than to produce repose, and to create in its place harshness and incongruity.

It is thus that I object, as a principle, to the decoration of the entrance front of a residence with flowers. The road to the house being simply a matter of convenience, common alike to the owner and to strangers, should receive only such embellishments as are in keeping with its implied uses. To make it a rival of the flower garden, as is sometimes done, is, I conceive, in bad taste, and offers a glaring example of incongruity in the general keeping of the grounds of a residence wherever it occurs. The only condition that will warrant such an arrangement is in the case of small

suburban residences where, from the position of the house and the bad arrangement of the rooms combined (but principally from the latter circumstance), the entrance door, the living rooms, and the flower garden are all on the same side or front of the building. But it is obvious that this arrangement need never be imperative if the garden and the residence were considered in connection when they are designed.

It seems to me that the furniture and ornaments of the drawing-room may with equal propriety, as a matter of taste, be displayed in the entrance hall of a residence, as that its entrance door should be decorated with a portion of its flower garden. Where decorations are indiscriminately scattered without any regard to fitness of position there can be no repose. And, as we have seen, upon this quality depends much of the real beauty of a garden, as well as of the interior appointment of a residence, or in fact in any attempt at ornamentation whatever; and it should always be borne in mind that beauty as a whole in any work of art does not necessarily follow from the existence of that quality in detached parts alone. Pope in his essay on criticism has well observed that—

> "In wit, as Nature, what affects our hearts
> Is not th' exactness of peculiar parts;
> 'Tis not a lip or eye we beauty call,
> But the joint force and full result of all."

And Knight in "The Landscape," when insisting on the importance of preserving that almost indescribable quality, repose, in every scene, however extensive or circumscribed, says:—

> "Whate'er its essence, or whate'er its name;
> Whate'er its modes, 'tis still in all the same;
> 'Tis just congruity of parts combined
> To please the sense and satisfy the mind."

I am aware that the entrance front of a first class country mansion is happily not often open to the objection named in this article, but nevertheless examples are too frequently met with; and in residences of less pretension, with grounds of comparatively limited extent, they are plentiful enough. Of the former class I, a few months since, had presented to me a forcible example. The mansion, a handsome stone building, was approached through a park abounding in fine groups and masses of timber, and the views, both from the approach road and from the entrance front, were varied, pleasing, and park-like. An iron fence, a continuation of that which separated the pleasure ground and flower garden proper from the park, was extended along the entrance front, inclosing, besides the sweep of gravel there, a considerable portion of lawn. Upon this were various innovations (for there they certainly *were* innovations) in the shape of flower-beds of the most common-place forms, filled with the ordinary occupants of the flower garden. I need hardly say that their appearance was wholly antagonistic to the scenery, and that they destroyed that repose which, but for them, would really have existed. For what purpose they had been placed there I could not imagine. The principal object, however, was, I found, to occupy the inclosed space of lawn. It might with much greater propriety have been thrown into the park.

The principle which I have above briefly discussed in its relation to a very limited portion of the grounds of a residence should be kept prominently in view, not only in every detached scene, but in the grounds as a whole. Many a garden, otherwise demanding our warmest admiration, from failing in this one particular loses its greatest charm. It matters not that the component parts of beauty are there, if the hand and eye of taste have been wanting in their disposition. The same objects which under one arrangement would gratify alike both the eye and the mind, appealing through the former to the latter, impressing us with the ideas of fitness and harmony—those inseparable components of beauty—might, by a different disposition, excite totally opposite emotions. Every scene, however limited or expensive, whether avowedly artificial as in a garden, or more or less natural and extensive, as in a landscape, must, to be pleasing, be easily comprehended and examined by the eye as a whole. It may have intricacy and variety at pleasure, but must not be allowed to degenerate to a mere labyrinth without order or consistency. In a word, if in its composition it does not form a consistent whole, it lacks its most important essential. *George Lovell, Bagshot.*

THE CINERARIA.

FOR autumn, winter, and early spring decoration few plants are more useful than the Cineraria, or make a greater display when in blossom. Although easily cultivated, however, it is seldom brought to that state of perfection which it ought to be in that respect; even our provincial, and in some instances our metropolitan exhibition tables, afford no exceptions to this remark. A few words, therefore, as to the way by which good specimens of this plant may be obtained may not be out of place.

As most people are fond of raising seedlings, when the plants are in bloom a few of the best varieties should be selected for saving seeds from, bearing in mind that those chosen should be of the best possible form and clear and well defined colours, as much depends upon this in reproducing new and first-rate varieties. When this is done care should be taken to keep them away from inferior sorts, by which they might be accidentally crossed. When the seeds are ripe let them be sown as soon as they are gathered in pans, and raised on a very slight hotbed. When the plants have germinated and have become large enough to handle, prick them out thinly in shallow pans or wide-mouthed pots, and keep them close for a few days; then gradually harden them off and keep them in a cold frame till they are sufficiently large to put into pots singly. When large plants are required they should be stopped when about 2 or 3 inches high.

As soon as the seeds are gathered the old plants should be cut down, or partly so, as in some instances the crowns rot if too closely cropped. Remove them to some shady place until they push fresh shoots, when they should be potted into larger pots in a light compost, or planted out in the open ground in light soil, where they will furnish strong cuttings from which good specimens can only be obtained. When they have grown about an inch or two remove the cuttings and place them in a compost prepared for the purpose, composed of equal parts of loam, leaf mould and silver sand, taking care at the same time to secure effective drainage. When rooted, which will be in a fortnight, pot them off into 3-inch pots in light soil. As first-rate plants are required, great care should now be paid to keep them in a growing and healthy condition; they should therefore be shifted every few weeks until they receive their last potting, which should be about January; by no means permit them to become pot-bound while they are in small pots, as that would induce them to bloom too early, and thus prevent their ever being such fine plants as they otherwise would be.

The best kind of soil for specimen plants is two parts good turfy loam and equal parts well decomposed dung and leaf-mould mixed with a little silver or river sand. As the plants increase in growth thin out all superfluous leaves, so as to admit air and light freely and prevent mildew, which is often very troublesome, and which can only be kept in check by means of timely applications of sulphur to the parts affected.

The Cineraria should only be stopped once, or at most twice, more stoppings are only productive of weak wood. As soon as the shoots are long enough tie them out widely, keeping the outside branches as low as possible, and set the plants close to the glass, which will keep them dwarf and compact. Fumigate occasionally to keep down green-fly, and water very sparingly during the winter months; the supply may, however, be increased as spring advances, when weak liquid manure may also occasionally be given.

The following list comprises a few of the best and most useful varieties that have been exhibited this year:

> Asmodeus, bluish purple self; fine habit.
> Baroness Rothschild, white, violet edge; very fine.
> Charles Dickens, purplish puce; very dwarf.
> Estelle, white, light purple edge, dark disc; very large.
> Electra, violet, pale disc; dwarf habit.
> Lablache, deep blue; dwarf habit.
> Kate Kearney, large white self; strong grower.
> Lady Camoys, white blue edge; dwarf.
> Loveliness, bright rosy lake; fine habit.
> Mrs. Sidney Herbert, large violet purple self.
> Mrs. Beecher Stowe, white, purple edge and disc.
> Scottish Chieftain, white, deep violet edge.
> Rosy Morn, white, with broad crimson edge.

These will answer either for "show flowers" or for purposes of ordinary decoration. *M.*

Home Correspondence.

Cornish Gilliflower Apple.—The specimens of this Apple, which were exhibited by me at Willis's Rooms, were gathered from a standard in our orchard. The tree was not thinned, nor were any artificial means employed to produce the specimens in question. It has a clear straight stem 6 feet high, measures 18 inches round the bole at 3 feet from the ground, and forms a most beautiful head resembling a Weeping Willow more than an Apple tree. It bears at the extreme ends of its numerous slender branches, and therefore requires very little pruning. We have got about 3 bushels of Cornish Gilliflowers in the fruit room, the produce of two trees, and I could pick out a bushel as good as those shown. I have sent a few of them that you may try their flavour. Our orchard consists of 1 foot of turfy loam on a subsoil of strong yellow clay; in extent it is somewhat less than an acre. It was top dressed in 1855 with 16 loads of farm-yard manure. The trees have some Lichen upon them. We intend to drain it 4 feet deep this winter. The number of trees in the orchard is 78 standards and five dwarfs, and 33 in the kitchen garden by the side of the walks; the quantity of Apples gathered from such of those as bore this season is 398 bushels; the 46 sorts of Apples shown by me at the Society's rooms and at the Crystal Palace were all picked out of the produce of these trees unaided by any thinning or other means of giving an advantage to the specimens shown. The Cornish Gilliflower has the character of being a shy bearer, but here we find it better in that respect than Sykehouse Russet, Pearson's Plate, Pennington's Seedling, and many others; we have two small trees, one a dwarf and the other a standard on which the Apples sent were grown; they are in the middle of the orchard; they bear on an average 1½ to 2 bushels each. Even in 1856, when many sorts failed altogether, we still had a few Cornish Gilliflower. *John Newton, Gardener to G. J. Graham, Esq., East Lodge, Enfield Chase.* [The two Apples that accompanied this note, in addition to the beautiful Gilliflowers, are supposed to be the Beachamwell Seedling.]

Bees.—Mr. Darwin's very interesting observations regarding humble bees perforating the calyx of the Kidney Bean blossom, remind me of what I witnessed myself some years ago in Kew Gardens. The plant thus treated was, in this case, the common red Salvia; numbers of the hive bee were busy upon it, but as in the case of Mr. Darwin's Bean blossoms they were sucking the honey from a hole cut in the calyx; that blossom has a long narrow opening, and possibly the abundant nectar contained within it might be lost to both the humble and honey bee were it not for the perforation in the calyx. This hole was made near the extreme end of the blossom, through the upper part of the calyx. Several years previously to my observing this curious circumstance, it struck me that the nectar contained in the double Columbine might be out of the reach of the hive bee, from the fact of the petals being double; and I separated some blossoms, placing the fragments with their sweet juices upon the small board at the entrance of the hive. For some time the bees passing out paused and greedily sucked out the nectar, and then two of them took up the empty cup, flew with it to a considerable height, and let it fall. This was repeated perhaps half-a-dozen times, when, apparently, a message from the queen put a stop to such an irregular proceeding, for what our gardener called "a spiteful bee" came among us, and fairly drove us away, following first one and then another of a party of five for about two hundred yards, when we retreated indoors fairly defeated, and we never repeated the experiment. *Jane Emmett, Riverdale House, Richmond.*

Flue Covers.—Will any of your readers inform me of the best description of flue covers that is to be had in the neighbourhood of London? I am about restoring an old flue to a hothouse where several of the covers are broken; the latter are of stone, and I think common York floor paving stone. I should also like to hear some opinion given on the subject of flue building which has of late years been much neglected, though I am far from maintaining the utility of flues against a well arranged system of hot-water. There are many cases in which their merits are much under-rated, and as I would like to build one embracing all the improvements of the day, some of your readers will perhaps be kind enough to inform me of the best material for covers, whether brick, stone, or fire clay. *K. L. M.* [Well made tiles dished so as to hold water make very good covers.]

Hornets.—A circumstance similar to that mentioned by your correspondent "Helveticus" was noticed by myself in August last, as well as for a year or two previously; so similar, indeed, was it, that it would not be worth repeating, but for this dissimilar fact, viz., that while at Geneva the tree which attracted the insects was a Birch in apparent good health, the trees on which I saw them so busy on my premises were starved, sickly-looking Elms. The butterflies in my case were "peacocks," against which the hornets showed a strong animosity, by darting at them and striking very audible blows, but which merely dislodged them for a few seconds. Wasps, too, they clutched and carried off bodily, but the flies they did not interfere with. I took it for granted that the unhealthiness of the trees occasioned a sweetness which was palatable to the insects, though I was not able myself to detect that or any other taste. *O. P.*

Will the Gooseberry take on the Currant?—I have repeatedly tried this experiment and have never succeeded, but on reversing the operation, some years ago, I was successful in several instances. I have also succeeded in producing three sorts on the same tree, red, white, and black, which had a very pleasing effect when the fruit was ripe. *Wm. Godsall, Hereford.*

Aralia japonica.—There are two plants of this in full flower here at present; they stand 10 feet and 11 feet 6 inches high; they were planted in the spring of 1852, and have stood the winter without any protection whatever. *John Rennie, Island of Raasay, Inverness-shire.*

Vine Growing.—If Grapes were so easily cultivated as Vigneron says, gardeners would not be wanted in this country; but all English gardeners know that we cannot grow Grapes quite so easily as your correspondent mentions. I do not agree with him in permitting a draught through the house, for if Grapes would grow well in a draught why are not our Vines on our south walls better in quality than they are? It is quite a new thing to give front air; that should not be given till the Grapes begin to colour, and I like to shut up while the sun is on the house, and sprinkle with the syringe, but not the Vines. I give air in the morning as early as I can, and add a little fire-heat if the morning is dull, to keep up the temperature, so that I can admit fresh air every morning. Gardeners will not have fire-heat any more than they can help; you cannot call this treatment coddling Vines. I had a friend whose idea was that he could grow Grapes without fire-heat, but he found he could not get the mid-France temperature in this country; if Grapes were so easily cultivated we should not hear of gentlemen not having them for three years, as I observed in one of your Numbers of 1854. Your weekly Calendar will have to be altered in reference to late Vineries if Grapes are so easily cultivated. "Vigneron" says the old gardeners' shutting the house up at night caused a thick skin, and the Grapes did not colour; Grapes will, however, colour if they have the right treatment and are not overloaded. *J. Ellis, Gardener, Woodford, Essex, Nov. 4.* [Be well advised. Follow the practice of "Vigneron," and abandon your own. What he says is strictly true.]

Potato Disease.—Whatever some enthusiasts may affirm we have not as yet mastered the Potato disease, and all we can yet do, (or at least have hitherto done) is to accumulate facts, and have faith in their ultimate generalisation for a cure. I used sulphur this season, both the yellow and blue, but without effect; I had done so—knowing it to be inimical to fungi—ere the

recommendation appeared in the *Chronicle*, and in an experiment not merely dusted the sets with it but strewed it pretty liberally in the furrows when planting: these latter turned out the worst I had. So much for sulphur pure. Next year I intend to soak the sets in dissolved sulphur or sulphuret of lime; yet how little this fatal disease depends on the condition of the seed, the following case will show. Last season my Ashleaf Kidney and Green Ashleaf (the latter the earliest and best of all earlies I have ever grown) were very bad with the disease; so much so that I had great difficulty in preserving as many as I required for seed. Half of a break was planted with these, the rest with Fortyfolds and other sorts. Being in want of the ground, I took up the Ashleaf as soon as ripe, and before we had any thunder showers—not one bad Potato has been found to the present time. The rest of the Potatoes adjacent to these immediately after a thunderstorm began to spot in the leaves. I had the haulm removed, and in course of 10 days or so took up the Potatoes; at this time they were all sound. In less than a fortnight almost every one got diseased, and soon after had entirely to be thrown into the dung-hill as useless. The seed from which these were grown was comparatively healthy. Thus I had entirely sound Potatoes from very unsound seed, and entirely diseased Potatoes from sound seed. They were grown in the same plot of ground, the same manure, planted at the same time, received the same treatment in every way; the circumstances, in fact, were alike in every respect except one—the sound Potatoes escaped a thunder shower, to which the diseased ones were subjected. The accumulation of facts of this nature may in time clear up the subject, and put us in the way of a remedy. *J. Lyell, M.D., Newburgh, Fife.*

Eugenia Ugni.—I fear that many who saw the specimens of this fruit exhibited at the meeting of the Horticultural Society at Willis's Rooms on Saturday, the 24th ult., will be inclined to form an erroneous opinion of its real merits, and probably think that as a fruit it has been considerably overrated. To all such I would say wait, for when it *is* properly cultivated it deserves all that has been said in its favour. With regard to the specimens exhibited, not one was in proper character, and I believe all had been forced, or at all events prematurely ripened for the occasion. About two years since I was at Exeter early in December, and Mr. Veitch then had a plant growing out of doors in a warm nook close by his dwelling house, on which were well ripened berries, and I shall not easily forget the delicious aromatic flavour they possessed, and the perfume that clung to my fingers for some time after handling them. I am satisfied that when well done it is a most delicious fruit, but it is not yet understood, and I am inclined to think we must not look to free growing plants for fine well-coloured fruit, but to plants that have well ripened wood, or rather that have been grown in a hardy manner. I think the plants should be grown out of doors in pots all the summer, and remain out in some shaded place until the end of September or October, and then place them in a little warmth to ripen them, and probably a little manure-water would be beneficial at this stage. I think its season for ripening is November. Perhaps any persons who may have ripened it well will communicate their experience. *W. Dean, Bradford, Yorkshire.*——At the recent fruit exhibition objection seems to have been taken to the pale colour of the fruit of the Eugenia. Is it not always pale when ripe? [No.] The berries on my plant were coloured in July, but as they ripened became paler and paler and are now almost white. I should not have supposed that, exhaling the strong odour they do, they would hang on the bush for weeks like a Currant. I much doubt their coming into use at dessert; probably they might be employed in flavouring Apple tarts or other sweet dishes. *O.P.* [We entertain no doubt that our correspondent will see cause to think otherwise hereafter.]

Potatoes.—As you have occasionally desired to have information about Potatoes, I will add my mite in the way of observation. Till the beginning of August we had no symptoms of disease, nor much till after the thunderstorms which then occurred. In my kitchen garden, which lies very low, the disease soon afterwards destroyed the foliage, and when taken up more than half the crop was found to be bad, but half an acre of them in a field, which lies much higher and had received no manure, seemed to continue in good health till they were taken up, when 2 or 3 bushels where the land had been deluged by the thunder showers were diseased. The rest appeared perfectly sound, but when they were examined two or three weeks afterwards the disease had developed itself largely in the yellow blossomed sort, but not much in the others. A month afterwards they were examined again, and about 44 bushels out of 96 were found to be bad, but of the yellow-blossomed hardly any. *L. V. H., Royston, Oct.* 21.

Singular Scotch Fir.—The accompanying is a sketch of a curious specimen of Pinus sylvestris growing in this neighbourhood. It is on an eminence, and has a charming effect, reminding one of the picturesqueness of that favourite of artists, P. pinea. The shattered state of the old head was caused by the—in these parts—memorable ice-storm in February, 1855, when hardly a tree escaped more or less damage. The dense tuft in the centre appears to have grown with its growth, as the head has never shown any indication of unhealthiness more than is usual with the same kind of its size and age. What could have occasioned this singular excrescence, this beautiful deformity? *J. Moly, Hawkchurch, near Axminster, Devon.*

Straw Protection.—As your reporter's remarks upon my Patent Protective Matting are likely to do me serious injury unless contradicted, I shall feel much obliged by your allowing me to state that my matting is not the same as that which has been in use in the Gardens of the Horticultural Society. That straw matting in itself is not new I grant you; but all matting hitherto made has been produced by hand, and each separate bunch or bundle has been secured by a knot or knots made in the binding cord. Now my matting is produced in a cheap wooden loom; no knotting takes place, but the bundles are held together by the wires being made to cross each other after each successive bunch has been fed into the loom. The advantages of the machine-made straw matting consist—in the regularity of the fabric; in the rapidity with which it is produced, and especially in its little cost compared with the straw matting heretofore made by hand. In my own country my matting has been so highly esteemed as to be very generally adopted, and it has secured me the honour of one of the gold medals at the Paris Exhibition as well as several other medals in the departments where it has been most used. *Guyot, Sablonière Hotel, Nov.* 3.

Mildness of the Season.—Since the rains a large Whitethorn growing about 3 miles from Epping has flowered a second time; the whole bush is covered with bloom, but much smaller than the spring flower. I enclose a branch. *Henry Doubleday, Epping, Nov.* 4. [Rhododendrons and other plants are behaving in the same way.]

Paxton on Potato-planting.—Sir Joseph Paxton's well known Cottager's Garden Calendar has reached the 123d edition. Now, of its numerous readers the great

majority see no other book on the subject. An error, therefore, should there be one, will produce an immense result of false gardening, and ought to be corrected. I conceive that this occurs with respect to the cultivation of the Potato. The instructions for growing this prince of vegetables were written before the appearance of the Potato rot, and therefore there is an *à priori* reason for expecting erroneous directions, and the perusal of the book shows that this is unfortunately the case, and as these rules are acted upon by many the result is a quantity of rot which would not occur had Sir Joseph re-written the articles on the Potato. The earliest time for planting is said to be March, and we are told that very early planting is to be avoided! I presume it is now denied by none that as soon as the soil is tolerably dry the set is to be committed to it, and that planting ought to take place in February, if the state of the land will allow. In the April calendar it is intimated that late Potatoes require late planting, although the acknowledged rule now is that all kinds should be planted as soon as circumstances will allow. Again, the "lazy-bed" system is recommended—the very method which produces the most disease. Whilst the narrow ridges of those planted the common way are soon dry, the greater mass of the bed retains the moisture and increases the rot. I conceive this a subject to which attention should be drawn, for on account of the favourable seasons of 1855 and 1856 a notion began to prevail that the malady was gradually disappearing, and that the convenient late planting of days past might be again adopted. No doubt early planting and early moulding up is followed by the necessity for removing the weeds which have so much more time for growing, but this expense must be submitted to as long as the disease remains, if we are to hope for Potato crops tolerably free from the rot. *P. T. S.*

Stickney Potato.—Having obtained several kinds of Potatoes for trial from the East Riding of Yorkshire which were in repute there, I planted them in March 1856 in a highly manured garden. All except one called "Stickney's Pate" became a prey to the disease. This withstood the rot, and attracted attention to the height and thickness of its branching stems. Thinking it likely to suit the dry stonebrash soil of my allotment farm where the Potato tops are generally of a stunted growth, I planted all there last spring, except the smallest, cut to single eyes. The crop was at the rate of 440 bushels the acre, without a single rotten one, whilst Regents planted in the same way scarcely produced 200 bushels the acre of sound tubers, with about ten bushels rotten. The very small ones I gave for planting to an allotment tenant whose crop was at the rate of between 300 and 350 bushels the acre. I ought to mention that the seed I planted had been strung up all the winter in a warm room, which no doubt increased the quantity and tended to cause the perfect soundness of the crop. The Stickney is a red Potato, the size of the Regent, more globular, and the eyes are not so deep. It is dry and apt to break in boiling, and of good flavour. When cooked the exterior is reddish, which will be a drawback to its sale. *P. T. S.*

Societies.

ENTOMOLOGICAL, *October* 5.—W. W. Saunders, Esq., F.R.S., President, in the chair. Amongst the donations received since the last meeting were the publications of the Royal Society, Society of Arts, Berwickshire Naturalists' Club, and Royal Agricultural Society, the Transactions of which last-mentioned body contain another (and, we regret to say, the last of the series) of Mr. Curtis's excellent papers on agricultural insects. Mr. Samuel Stevens exhibited specimens of the larvæ of Deilephila Galii and several plants of the wild Sea Cabbage, the stems of which are attacked by two species of Curculionidæ. A specimen of Zuphium olens, a native of the South of France, was exhibited by Mr. Newman, which he had taken alive at Forest Hill, Surrey, on the 19th September last. A new British Acrolepia from Darlington was exhibited by Mr. Sang. Dr. Power and Mr. Janson exhibited specimens of Drypta dentata (emarginata), which they had taken in profusion at Alverstoke, Hants; also a new species of Aleocharidæ from the nest of the black ant, and a new British Chlœnius from the Isle of Wight. Mr. Dossiter exhibited living female specimens of a large black species of Aphis, some of which had produced living young and others eggs. Various instances of the capture of the locust in different parts of the country were also mentioned. Mr. F. Smith gave an account of the discovery of four new British species of ants. Mr. Westwood exhibited both sexes of a new British species of Forficulidæ (F. maritima) found in some plenty by Mr. Wailes on the coast of Northumberland. He also exhibited a specimen of the destructive fly called the Tsetse by the natives of Central Africa, which Mr. Bracy Clark had affirmed to be identical with Œstrus Bovis, but which from the descriptions of Dr. Livingstone, Gordon Cumming, Major Vardon, and other travellers, was certainly a species of the genus Glossina. The Rev. Hamlet Clark exhibited an extensive series of Chrysomelidæ lately captured by himself in Brazil. A quantity of the remarkable moving seeds called Tassee by the natives of Mexico were forwarded to the Society by Mr. Lettsom, of the British Legation in that country; the movement was produced by a caterpillar inclosed in each seed. Mr. Bond exhibited some fine varieties of the purple Emperor butterfly, and Mr. Edwin Sheppard a specimen of the rare Quedius dilatatus from the New Forest. Mr. Saunders mentioned a remarkable instance of the avidity with which the common Notonecta glauca and Acilius sulcatus seize their prey on the surface of the water, rising up to it like fishes to an artificial fly; in this manner his children had captured a great number of both insects. Mr. Douglas stated that Colias Edusa and Thecla quercus had lately been taken near Dumfries. Mr. F. Moore communicated a monograph of the eastern species of Adolias, containing descriptions of 52 species, 30 of which were new. Mr. S. Stevens read some extracts from a letter from Mr. Wallace, giving an account of the entomology of one of the islands of the New Guinea group.

Notices of Books.

A Series of Nine Botanical Diagrams, by the Rev. Professor Henslow, of the University of Cambridge. Day & Son; issued for the Committee of Council on Education, Department of Science and Art.

These are coloured figures printed on paper 40 inches by 30, from drawings on zinc by Mr. Fitch. We cannot do better than bring them before the public in our learned friend's own words:—

"In the notice given of his Ten Zoological Diagrams, Mr. Patterson has justly remarked on the importance of natural history as a branch of school education. In accepting the word 'education' in its proper signification, as implying the 'educing' or 'bringing out,' and rendering active, mental faculties which, if uncultivated, would lie dormant, or be comparatively useless, the utility of attaching a classificatory science to the ordinary curriculum of school and university instruction appears at length to be pretty generally recognised. For such purpose 'structural botany' is admirably adapted. But it must not be regarded as mere playwork, consisting entirely in ascertaining the names of plants, and their position in a natural or artificial system. Students must be taught 'how to observe' for themselves those peculiarities of structure upon which all classification depends. The chief difficulty which beginners experience is in learning how to recognise important resemblances, often obscurely indicated amidst the more obvious differences with which they are associated. There are a few technical terms (hard words) to which it is very essential that scientific ideas should be attached as soon as possible. This once accomplished, progress will be comparatively easy, and the student will be allured along a flowery path which, at first, appeared strewed with nothing but Thorns.

"The nine diagrams are intended to teach beginners how certain important technical terms are employed. The illustrations repeat, as much as possible, the application of the same terms to parts exhibited under those different forms and associations by which plants are either naturally or artificially grouped into large classes, and their subordinate divisions and sections. For each diagram, common plants of certain prominent orders have been selected, as types of eight groups into which all flowering plants may be conveniently thrown, for the purpose of exposing the present state of the science. It must be impressed on students, that botanists have long been engaged in ascertaining the scheme upon which the Creator has planned the vegetable kingdom; although, as yet, the results at which they have arrived can only be regarded as rude approximations to that natural system they are so desirous of comprehending. The character selected for designating a particular group is not necessarily applicable to every plant included in it; but the few in which it may not exist will form a very trifling percentage of the whole. The specimens selected for the diagrams also illustrate the classes and orders of the artificial system of Linnæus. Although this system is at variance with the natural system, it has its use. It is not that beginners can so readily employ it for ascertaining the names of plants, as they are generally induced to imagine; but it serves to direct attention to the flower and fruit, and to familiarise them with certain important, though not the most important, characters upon which a natural classification depends.

"With the exception of one, which requires two sheets, each of the eight groups is illustrated by a single diagram. A general key to the whole is printed on each sheet: so that a short acquaintance with its symbols (always the initial letters of the parts represented) will prevent the inquirer having to refer to and fro for an explanation of every figure. Any botanical character specially illustrated is also noticed on the margin of the several sheets on which it occurs. As many of these characters are repeated, they will not be found so numerous as at first sight might be imagined.

"The scale on which the principal illustrations are drawn is sufficiently large for class instruction. They mostly represent a longitudinal section of the flower, and figures of the fruit, seed, and embryo. A portion of the plant in flower (its inflorescence) and also an entire fruit, are drawn of the natural size, for contrast with the magnified illustrations of the dissections. Certain details, figured on a smaller scale than the principal illustrations, can be consulted by nearer approach to the diagrams when the class is dismissed."

The diagrams have been perfected by Mr. Fitch from rough sketches prepared for his guidance. His name, as a strictly botanical artist, is sufficient warrant for their scientific accuracy and general artistic effect. He has drawn them immediately on the zinc plates from which they have been struck off, and they have been admirably coloured from copies he had prepared for the purpose.

The following is the classification adopted and printed on the margin of each sheet. The names of the plants selected are likewise given in English and Latin:—

CLASS 1. DICOTYLEDONS. *(Dicotyledones.)*	
DIVISION 1. ANGIOSPERMOUS. *(Angiospermæ.)*	
Section 1. THALAMIFLORAL. *(Thalamifloræ.)*	Sheet 1.
2. CALYCIFLORAL. *(Calycifloræ.)*	Sheets 2, 3.
3. COROLLIFLORAL. *(Corollifloræ.)*	Sheet 4.
4. INCOMPLETE *(Monochlamydeæ.)*	Sheet 5.
DIVISION 2. GYMNOSPERMOUS. *(Gymnospermæ.)*	Sheet 6.
CLASS 2. MONOCOTYLEDONS. *(Monocotyledones.)*	
DIVISION 1. PETALOID. *(Petaloideæ.)*	
Section 1. SUPERIOR. *(Epigynæ.)*	Sheet 7.
2. INFERIOR. *(Hypogynæ.)*	Sheet 8.
DIVISION 2. GLUMACEOUS. *(Glumaceæ.)*	Sheet 9.

For schoolroom purposes nothing can be better contrived; it will indeed be a great advance in school teaching if boys and girls should only be made to understand thoroughly the meaning of the drawings, for few have any idea of the numerous all-important organs that lie hidden within the recesses of a tiny flower. In large lecture rooms however these drawings can only be used in aid of the indispensable larger diagrams.

The Botany of the Voyage of H.M.S. Herald. By B. Seemann. Part X. 4to.

This part completes Dr. Seemann's task, by giving the Flora of Hong Kong and figures of plants in illustration of it. The work now consists of 100 excellent plates and 483 pages, to which must be added seven leaves of cancels. We have so frequently on former occasions spoken with approbation of the manner in which, upon the whole, the author has fulfilled the task entrusted to him, that we have the less scruple in now expressing our regret that the Hong Kong Flora should not have been rendered as complete as the very copious materials formed by the researches of so many recent collectors and travellers would now have permitted. Hong Kong is but a small place, and there cannot be much of importance to add to our knowledge of its vegetation; what is known is found in works accessible to everybody, and an exact collection of these scattered materials would have been most useful. Unfortunately Dr. Seemann has not taken this view; for we find, upon comparing only two or three pages of Hooker's Journal with the work before us, Glochidion macrophyllum, Bentham's 3d species of Quercus, Quercus Fyrei, and as many as 10 species of Orchidaceæ out of 33 omitted. In the latter order we also remark that the name Sturmia is employed instead of Liparis, which has the right of long priority as well as that of general adoption. And this is the more surprising since Prof. H. G. Reichenbach, with the good sense which so eminently characterises him, has himself as long since as March last most properly rejected the name of Sturmia in the Bonplandia newspaper of which Dr. Seemann is the indefatigable editor. We fear these are not the only points open to criticism in the number before us, for misprints are numerous, two pages only containing the following, viz., purgens, Nisuri, ereocarpum, Sceparеæ. In so costly a publication as this, appearing as it has at long intervals, such errors ought not to have occurred. Let us add that the work has a good and complete index.

Garden Memoranda.

TEMPLE GARDENS.—Seldom has a finer display of Chrysanthemums been seen out of doors than there is here at the present time. The borders round three sides of a large square are literally a blaze of blush, yellow, orange, and red, and most of the blooms are as large and perfect as they could possibly be even under glass. The best border, which is 60 yards in length and 7 feet in width, is well worth travelling miles to see, illustrating as it does in a remarkable degree how much can be effected by means of skill and perseverance even in smoky London. The plants are covered with foliage, healthy and green, to the very ground: and the blooms, which are under a temporary awning to keep the "blacks" off them, are large and truly beautiful. In order to attain increased size, we understand that the plants *are disbudded* before the blossoms expand, leaving only three or four flowers on each, and in the case of the large sorts all laterals are carefully removed; the effect of this is more perfect blooms than could otherwise have been looked for. The whole of the plants have been admirably arranged as to height, and along the front is a row of Pompones whose dwarf bushy habit and small neat looking flowers serve to set off the larger kinds behind them to excellent advantage. In short Mr. Broome, the intelligent gardener here, deserves the greatest credit for his management of this best of hardy early winter flowers. One plant of C. lucidum alone in a pot we observed had no fewer than 218 blooms on it all large and perfect, and beautifully white and clean.

Of large incurved kinds all free bloomers and early we remarked charming examples of Queen of England, blush; Alfred Salter, pink; Anaxo, red and orange; Arigina, amaranth; Auguste Mie, red and yellow; Cassy, orange; Cardinal, golden amber; Christopher Columbus, reddish violet; Christine, peach; Defiance, white; Dupont de l'Eure, orange and carmine; formosum, sulphur; Golden Cluster, yellow; Hermine, blush tipped with purple; King, peach; Leon Leguay, lilac; Lysias, orange red; Madame André, rose tinged with white; Madame Poggi, brownish crimson; Nonpareil, bright lilac; Phidias, Rose; Plutus, yellow; Racine, yellow

and brown; Globular Star, carmine; Temple of Solomon, yellow; Themis, rose; Trilby, blush; and Vesta, white.

The following are 24 free blooming Pompones that may be relied on as the best for pot or border culture:—Cedo Nulli, white, brown points; Brilliant, crimson; Bob, brown; Dr. Boisduval, dark brown; Mustapha, dark crimson; General Canrobert, yellow; Drin Drin, yellow; Solfaterra, yellow; President Decaisne, rosy carmine; Madame Roussillon, pretty rose; Surprise, white tipped rose; Comte Achille Vigier, mottled salmon; Lilliputian, reddish brown; Bijou de l'Horticulture, blush white; Argentine, silvery white; Colibri, nankeen; Turris Eburnea, white and purple; Dame Blanche, white; Model, white; Aurora Borealis, orange and yellow; La Vogue, golden yellow; Sacramento, orange and red; Helène, rosy violet; and Berrol, pale yellow.

It may be mentioned that the borders in which these Chrysanthemums now are, are by no means devoted exclusively to them; on the contrary, when their beauty is over they are moved and put in by "the heels" in some suitable corner out of the way to be replanted next summer; the borders are then rough dug for the winter and in spring are filled with Mignonette, Scarlet Geraniums, and other gay bedding plants. In this way a fair display of bloom is kept up almost throughout the year.

These gardens, we may add, are at all times open to respectable visitors, and that the public appreciate the liberality thus shown is proved by the fact that in summer between 7000 and 8000 people young and old visit them daily. Let us hope that our London squares may some day be rendered equally gay and attractive. Surely the good example thus so forcibly set by Mr. Broome in the pretty gardens now under notice will not be lost on those who have the care of them. Now that factories are compelled to consume their own smoke, there can be no reason why some corresponding improvement should not take place in town gardening.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The summer flowering twiners which usually get unsightly at this season should be cut back somewhat freely, as should also any others that will submit to that kind of treatment. The slight shade which they afford in summer to plants underneath them it need scarcely be stated is not now required. Give air freely on all favourable occasions, but guard against damp by using gentle fires. Let pot specimens in bloom be frequently rearranged, so as to make the most of them, for the finest plants become too familiar to be interesting when allowed to remain too long in one place. COLD PITS.—If not already done, get straw shutters or whatever else it may be intended to use for coverings for these prepared and put in readiness for use without delay. Straw shutters, if well made, are somewhat expensive in the first instance, but they are considered by many to be the most efficient of any kind of covering in use, and taking into account the time they last they are, perhaps, as cheap as any. Expose the stock here freely to air on every favourable opportunity, so as to check growth and get the wood firm, in which state the plants will be less liable to suffer from the confinement which may soon be necessary than if kept close and coddled with too much warmth and moisture. Very little water will be required at the root, but look over the stock every few days, withholding water until it is absolutely wanted, and then give a moderate soaking, which is the only safe method of watering at this season. If green-fly makes its appearance on any of the soft-wooded things apply tobacco smoke, and see that this pest is extirpated at once, otherwise it will disfigure if not ruin the plants upon which it is allowed to harbour. Heaths and other things subject to the attacks of mildew must be closely watched, and sulphur applied the moment the enemy is perceived, but neither this nor green-fly will be very troublesome, unless the plants are kept too close and damp; therefore be careful to keep the stock rather dry, giving plenty of air whenever that can be done with safety.

FORCING DEPARTMENT.

PINERIES.—The trying period for those who have to winter their young stock in pits heated by fermenting materials has now arrived, for with sunless weather, such as is common at this season, it is a very difficult matter to preserve Pines in a healthy state, where warmth must be accompanied by excessive moisture. Keep the linings sufficiently strong to maintain the temperature at about 65°, which will allow of giving air rather freely on fine days, and a little must also be given in all states of the weather, when doing so does not cause the thermometer to sink below 55°. There should be no attempt made at inducing growth with the present amount of light, but the linings should be kept rather strong, so as to be prepared against the occurrence of severe weather, and also to allow of giving sufficient air to prevent excess of moisture. See that efficient coverings are prepared previous to the occurrence of sharp frost, and endeavour to keep the bottom-heat steady at about 75°, and the soil in a rather dry state. This system of Pine growing is now, however, but little practised, and it would be economy on the part of those who adopt it to supersede it at once by means of an efficient hot-water apparatus.

FLOWER GARDEN AND SHRUBBERIES.

Choice plants in borders intended to be protected for the winter by slightly covering their roots, &c., should be seen to at once. Moss, where it can be obtained in good thick flakes, is by no means a bad protecting material; but unless it can be procured in pieces of considerable thickness it is not so efficient or useful as spent tan, coal-ashes, or half decayed leaves. Also see to getting Fuchsias, and such things as are usually protected for the winter by covering, secured against frost before it is too late. Dry Fern is an excellent material for covering the stems, &c., of plants that require a slight protection in winter, and is, doubtless, the least objectionable as regards colour of anything at command; but this is not easily procured in many neighbourhoods, and probably the best substitute is straw that has been exposed to the weather sufficiently long to darken its colour. Choice sorts of Hollyhocks, of which there is not sufficient stock of well-established young plants in pots, should be taken up, potted and placed under glass; these cannot with safety be trusted to the mercies of a severe winter, and plants taken up, potted now, and wintered in a cool house will be exceedingly useful for furnishing cuttings, and these if got in early in spring will make excellent plants for next season. Where alterations are in hand, push these forward with all possible dispatch while the weather continues favourable for out-door operations. Be very careful to secure transplanted things against wind, especially large plants, which should never be left until they are properly staked or otherwise made fast, for when this is put off it frequently happens that the roots get injured through the tops being rocked about by the wind. Get any projected alterations among the shrubbery or herbaceous borders done in readiness for cleaning up as soon as the leaves are down; also get ground intended to be planted with Dahlias and Hollyhocks next season deeply trenched and ridged up so as to expose the soil as much as possible to the weather, putting in plenty of good rotten manure, especially where the Hollyhocks are to stand, for these require a deep rich soil.

HARDY FRUIT AND KITCHEN GARDEN.

A sowing of Peas and Beans to afford the chance of a very early crop may now be made, choosing a sheltered piece of ground for the purpose; the soil should be of a light dry character. For Peas use an early hardy sort, such as Sangster's No. 1, or Daniel O'Rourke. The forcing of Seakale and Rhubarb must now be attended to; and where there is a good stock of strong roots, a supply of these will be easily kept up. Where there is room to spare in the Mushroom-house, this forms a very suitable and convenient place for forcing them. The roots should be placed on a slight bed of warm dung, filling up the spaces between them with old tan, or the soil and manure mixed from an old Mushroom bed, giving a good watering to wash it in amongst the roots. The bottom heat should not be allowed to exceed 70°, as too much heat is not favourable to securing strong growth, and, except for the first crop, it may be dispensed with altogether. Take advantage of wet days for making fresh Mushroom beds, and clearing out those that are spent; also collect and prepare droppings for forming fresh beds, by spreading them in a shed, and turning them every day until they are sufficiently dried to prevent excessive fermentation after putting up. Clear up all decaying leaves, &c., and stir the surface of the soil on dry days among growing crops, as Cabbage, Spinach, &c.; also get all vacant ground manured and ridged. Endive is blanched for salads and kitchen use by various means, but a way we prefer after being tied up when perfectly dry is to cover as much as requires blanching at one time with leaves procured as dry as possible, throwing a little long litter over to prevent them from being blown about with wind. If not already done sow a crop of Radish in a frame for winter; Celery, Cardoons, and Leeks should be earthed up in dry weather; Broccoli, Borecole, &c., may still be hoed between, as should also winter Spinach, thinning it out 16 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Nov. 5, 1857, as observed at the Horticultural Gardens.

October. and Nov.	Moon's Age.	Barometer.		Temperature					Wind	Rain.
				Of the Air.			Of the Earth			
		Max.	Min.	Max.	Min.	Mean	1 foot deep.	2 feet deep.		
Friday 30	12	30.015	29.664	58	27	42.5	55	56	S.W.	.02
Satur. 31	13	30.111	30.028	60	31	45.5	53	56	S.W.	.00
Sunday 1	14	29.962	29.715	59	36	47.5	55	56	S.E.	.01
Mon. 2	○	29.668	29.654	64	49	56.5	56	56	S.W.	.01
Tues. 3	16	29.765	29.667	60	51	55.5	56	56	S.	.56
Wed. 4	17	29.798	29.767	61	51	56.0	56	56	E.	.22
Thurs. 5	18	29.864	29.811	60	50	55.0	55½	56	E.	.00
Average ..		29.883	29.615	60.3	42.1	51.2	55.2	56.0		.92

Oct. 30—Overcast; fine: very fine and clear at night
— 31—Dense fog: fine; very fine and clear.
Nov. 1—Cloudy; fine: occasionally overcast at night.
— 2—Rain; overcast; fine.
— 3—Drizzly; cloudy and mild; heavy rain.
— 4—Dense fog; foggy and drizzly; overcast.
— 5—Foggy throughout.

Mean temperature of the week 5½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK

During the last 31 years, for the ensuing week, ending Nov. 14, 1857.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds.							
						N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 8	51.0	35.2	43.1	16	0.58 in.	1	3	1	2	2	12	6	4
Mon. 9	51.0	35.7	43.3	13	0.28	2	1	3	3	5	9	3	5
Tues. 10	51.1	36.1	43.6	18	0.67	3	3	1	4	6	8	2	4
Wed. 11	51.3	37.2	44.3	14	1.02	3	5	3	—	7	8	4	1
Thurs. 12	51.0	35.3	43.2	14	0.50	3	4	4	2	3	6	7	2
Friday 13	50.4	36.3	43.3	17	0.66	—	3	3	3	5	9	3	5
Satur. 14	48.6	34.2	41.4	16	1.24	6	4	3	5	2	5	3	3

The highest temperature during the above period occurred on the 12th, 1841—therm. 63 deg.; and the lowest on the 9th, 1854—therm. 18 deg.

Notices to Correspondents.

ACORNS: *W M, Young Reader, J R.* These may be sown any time between now and March in beds on good loamy soil. Make the beds level with a rake. Place the acorns on it from 4 to 6 inches apart. Pat them down evenly with the back of a spade. Then cover them not *less* than half nor *more* than 1 inch deep according to the soil, covering them deepest where the soil is light. Spanish Chesnuts and Beech Mast may be treated just in the same way. Look sharp after mice.‡

AUTUMNAL TREES: *A Sub.* Red and other Maples, especially Acer macrophyllum and eriocarpum, Scarlet Oaks, Liquid-ambars, Pontic Rhododendrons, Venetian and Stagshorn Sumachs, Tulip Trees, Dogwoods. *Circumspice.*

BLACK HAMBURGH GRAPES: *Tadcaster.* Pray do. You shall have an honest judgment. Address to 21, Regent Street, Waterloo Place.

BLIGHT: *A Sub.* Your trees are covered with the insect called American Blight, the offspring of neglect. Many methods of cure have been proposed; the following answers if applied *carefully.* Take half a peck of quicklime, ½ lb. of flowers of sulphur, and ¼ lb. of lampblack. Mix with boiling water enough to form a thick paint. With this, in the winter when the leaves are off, paint the branches and stems, having first removed all loose bark. In doing this be sure to remove the soil from the bottom of the stem down to the main roots, and paint all that underground part. February is a good time for this. But the trees must be looked over again in August. If one application is insufficient, repeat another. Use the paint *warm.*

CINERARIAS: *Novice.* Cold and damp have injured them. They want a warmer and drier atmosphere.‡

DOUBLE CUCUMBERS: *Anon.* These are by no means uncommon. When the tissues are young and soft, such unions often take place.‡

INSECTS: *R J B.* We believe that the elongated slender excrescences on the Lime leaves are not galls, but that they are either a disease of the vessels of the leaves or the result of the punctures of some suctorial insect, possibly an aphis, which in some cases does produce gall-like excrescences. We know no better remedy against centipedes than to lay slices of Turnip or sinking little baskets of Moss in the ground or near the roots of Strawberries, examining them every morning and destroying the insects then found. They delight in decaying vegetable matter, and if they should be very abundant in any particular spot, burning the soil would be effectual. *W.*

LABOUR: *D W.* Price depends on place and other circumstances. Consult your neighbours. It is impossible to say what you should plant, since you do not give one word of explanation. Under ordinary circumstances a man would employ Oak, Ash, Elm, Beech, Spanish Chesnut, mixed with Scotch, Larch, and Spruce. The best size is 1½ to 2 feet.

MAPS: *W G.* You can get Wyld's Map through any bookseller; if uncoloured it only costs a few shillings. Your bookseller will tell you the exact price. The best is Arrowsmith's, but it is dearer.

NAMES OF FRUITS: *A B.* 2, King of the Pippins; 3, 8, Dutch Mignonne; 4, Kirke's Lord Nelson; 5, Beauty of Kent; 6, Blenheim Pippin; 7, King of the Pippins; 9, Yorkshire Greening; 10, probably also Yorkshire Greening; 11, worthless; 12, Round Winter Nonsuch. —*C B.* 1, 5, Thompson's, and so is probably 13; 3, Winter Nelis; 4, Passe Colmar; 6, 8, Easter Beurré; 7, Glou Morceau; 9, Ne Plus Meuris; 10, Althorp Crassane; 12, like Beurré Bosc, from an unfavourable situation.—*W Muir.* 1, Beurré Diel; 3, 12, Easter Beurré; 5, White Doyenné; 6, Duchesse d'Angoulême; 7, Glou Morceau; 8, Brown Beurré; 9, Winter Nelis; 10, Bishop's Thumb; 11, Beurré Rance; 12, Easter Beurré.—*J S.* The Glou Morceau.—*G S.* 1, 3, Beurré Diel; 2, Passe Colmar; 4, Marie Louise; 6, Lewis's Incomparable; 7, Blenheim Pippin.—*Belladonna.* 1, Duchesse d'Angoulême; 2, bruised, probably Althorp Crassane; 3, Glou Morceau; 4, Beurré Diel; 5, Easter Beurré; 6, Passe Colmar.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Iota.* 3 is not the eatable Service, but Pyrus Aria, the Beam Tree; the Constantinople Thorn is Cratægus odoratissima. You shall hear about the Gourd very soon; we do not know it.—*T B.* There is no plant that we know of called P. Montpensieri. It is probably P. monspeliensis, otherwise called Salzmanni, a light, green-leaved species, like a Scotch Fir.—*C P.* Eupatorium glandulosum.—*Z S.* 1, Cratægus coccinea. 2, Mespilus grandiflora; 3, Pyrus arbutifolia.—*A G.* Stenbergia lutea. It is impossible, without further information on the subject than your letter supplies, to say why your fruit trees have ceased to bear.‡—*O P.* Romulea is Trichonema, once Ixia. Orchis Robertiana has no other name, and is a fine thing in its way; it will probably flower early in spring. The fruit of Eugenia Ugni when properly ripened is chocolate colour, or with the deep tint of an ill-coloured Black Hamburgh Grape.

PAMPAS GRASS: *A R G* It will flower when it gets old enough. It requires no particular treatment, and is perfectly hardy.‡

PEARS: *F N.* No doubt it is Van Mons Léon le Clerc.

ROSES: *Oxon.* Why seek for supplies at a distance when you have so excellent a nursery as that of Messrs. Wood of Mareshfield almost at your own door?—*R G G.* We have no cause whatever for complaint; beyond that we can say nothing.—*Dakrua.* Your tears are natural, for it *is* provoking to lose the names of your Roses. But sorrow would have been avoided had you employed zinc labels, written on with nitro-muriate of platinum. "Little bits of stick" are very bad tallies.

SAWDUST: *G H.* You will ruin your land if you dig in this material. If you can reduce it to charcoal it then becomes invaluable. On your heavy land mix it with clay, and burn the two together.

SKELETON LEAVES: *W S.* Steep them for weeks in rain water in a warm place freely exposed to air; when nearly ready add a small quantity of muriatic acid to it. A great deal of care is however required in picking out with needles the parts that are not rotted away. Hard kinds of leaves are most suitable for the purpose.‡

THE FILBERT STRAWBERRY: *Mr Myatt* has sent us a long letter on this subject for which we cannot find room. Nor is there any use in keeping up the discussion. Had the name now employed been sent out with "the seedling" (one out of many be it observed, which Mr. Myatt says he distributed with no names), no dispute need have arisen.

WORMS ON LAWNS: *F N.* A solution of caustic lime (formed by pouring water over fresh burnt lime, stirring it well, and allowing it to stand till clear,) applied from a watering pot with a coarse rose, will soon bring the worms to the surface when they can be raked or swept up and destroyed. As to Plantain nothing will remove it so well as the spud, followed by a top dressing of soot and guano applied now.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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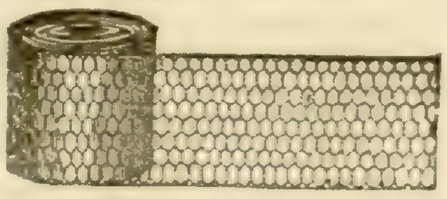

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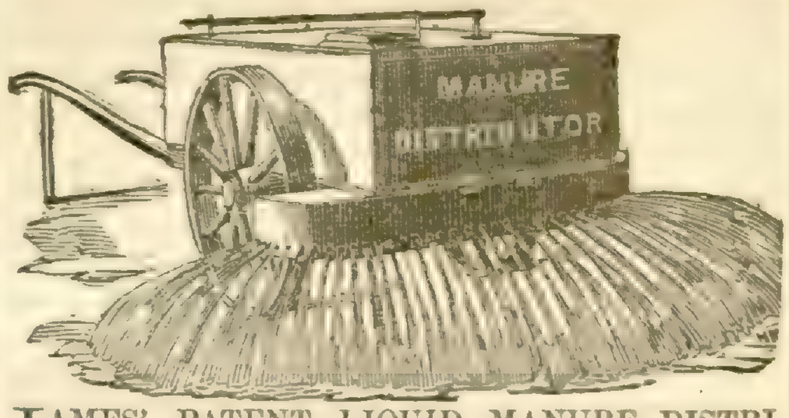

JAMES' PATENT LIQUID MANURE DISTRIBUTOR OR WATER-CART, warranted not to choke up or otherwise get out of order. It is thoroughly adapted for Drill Crops, or Pasture Land, or for Watering Streets; has been awarded SIX FIRST PRIZES. Full Particulars and Testimonials may be obtained of the Patentee, ISAAC JAMES, Tivoli Waggon Works, Cheltenham.—Improved LIQUID MANURE PUMPS supplied.

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PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

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These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 3*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra. The barrel is 27½ in. long, and the legs are 5 ft. high.

1¾ inch Gutta Percha Suction Pipe, 1*s.* 11*d.* per foot.

2 inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 0*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2¼ in. short	1 ft. 7 in.	Fitted for lead,	1	10	0
2½ ,, long	3 ,, 3 ,,	gutta percha,	1	14	0
3 ,, ditto	3 ,, 6 ,,	or cast iron	2	8	0
3½ ,, ditto	3 ,, 6 ,,	flanged pipe,	2	12	0
4 ,, ditto	3 ,, 6 ,,	as required.	3	3	0
2½ ,, short, with 15 feet of Lead Pipe attached, ready for fixing			2	14	0
2½ in. long ditto ditto ditto			2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of copper and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

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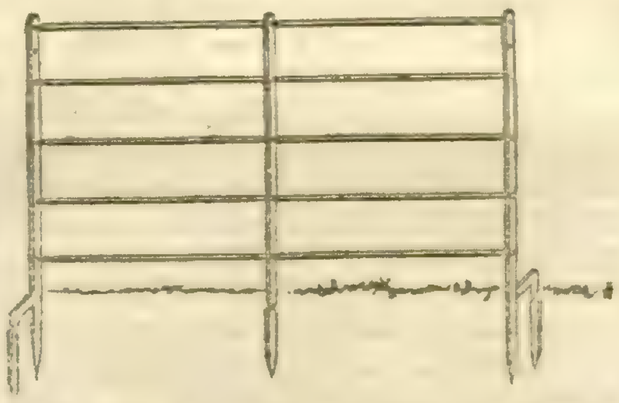
IRON HURDLES, FENCING, ETC.
MADE BY MACHINERY.



COTTAM AND HALLEN, of Winsley Street, have invented machinery for making Hurdles, &c.; the bars instead of being pointed by hand in the old-fashioned style are nippled down by the Machine, leaving a shoulder so as to more effectually tighten the standards when rivetted. They are made of superior iron only, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both Plain and Ornamental, Conservatories, Hot Water Apparatus and Garden Implements. Illustrated Catalogues free on application to COTTAM & HALLEN, Ironfounders, 2, Winsley Street, Oxford Street, W.

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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

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ADVANCES ARE MADE UNDER THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY'S ACT, of the full amount required by the Owners of Settled Estates, Incumbents, Trustees, Bodies Corporate, &c., for the erection of Farm Buildings, designed by their own agents and sanctioned by the Inclosure Commissioners. The advances are repaid by a rent-charge on the estate for any term the landowner may fix, not exceeding 31 years.

No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.

The Company furnish designs of every description, and undertake the entire responsibility of the works wherever desired by landowners. WILLIAM CLIFFORD, Sec.

52, Parliament Street, London.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY; Offices, 52, Parliament Street.
HENRY KER SEYMER, Esq., M.P., Chairman.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

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THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

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MR. BAILEY DENTON undertakes the Drainage of Land, the making of Roads, &c., by commission or contract. He also furnishes Reports on the capabilities of Estates for profitable and permanent improvements.—52, Parliament Street, Westminster, S.W.

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MR. THOMAS SCOTT, LAND AGENT & VALUER, continues to value and report on Estates and Farms, for Purchase, Sale, or Letting. Also to lay off Drainage, and contract for its execution. Mr. SCOTT is daily engaged in the Valuation, Purchase, and Sale of Estates and Farms, and he would respectfully call attention to his extensive practical experience in the occupation, management, and improvement of land. Several Estates and Farms in hand for sale by private treaty.—18, Parliament Street (late of 5, Charing Cross).

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MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s.* 6*d.* per bushel, including sacks.—Address to Mr. FAULKES, Bailiff, Worting Wood Farm, Basingstoke, Hants.

N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14 Seed Market, Mark Lane.

NEW EARLY WINTER TARE.—The NEW IMPERIAL TARE, ten days earlier than any other cultivated variety, may be had of H. RAYNBIRD, Basingstoke. Also carefully selected samples of Seed Wheat, &c.

The Agricultural Gazette

SATURDAY, NOVEMBER 7, 1857

WE are unable to give a full report of the discussion which took place before the Central Farmers' Club on Monday last on the Education and Condition of the Agricultural Labourer. It was opened by the Rev. C. T. JAMES, of Ermington, Devonshire, in a paper unnecessarily dogmatic and ambitious in style, but of more than usual completeness and sparkling with terse maxims and quaint proverbs. It took as its text that "the soul to be without knowledge is not good." It argued that the education of the lower classes is a duty imposed upon the educated, and that it is our policy as well as duty on the ground that prevention of crime is better than its cure. It referred to the immense

influence of agricultural employers, arising out of the dependence upon them of so large a body of the labouring population. And as showing their interest in the subject it enumerated many of the improved agricultural processes and methods which required skill and therefore education in the labourers conducting them, so that without these qualities they could not be adopted. It defined education as including not merely nôr even chiefly storing the memory with information, but rather training the whole man in Christian principles and good habits. The system of middle-class education, it said, had proved a failure, as shown in the results of examinations for situations in the civil service. The schools on the National and British system provided for the working classes were proving failures in a great measure also, and especially in agricultural districts, owing to the early age at which children were taken from them and put to work. Mr. JAMES's paper referred to the want of parental authority and asserted the need of Parliamentary interference in order to ensure the adequate education of labourers. The education offered to them is both defective and redundant — it should turn out handy boys and girls able to assist their parents. Instead of this, our soldiers, courageous and enduring in the battle-field, have proved useless in the camp; they cannot dig, nor saw, nor mend their clothes. Our female servants are ignorant of domestic management and household economy, and accordingly the labouring man is often driven to the beer-shop and destruction by the slovenly and reckless management of his wife at home. Besides home duties and handiness, and besides the reading, writing, and arithmetic more generally taught, Mr. JAMES recommends that our agricultural labourers should have their children taught the imperial weights and measures, to keep accounts, and to measure land. He would retain an influence over the young men of his parish by patronising hardy manly games in summer months and evening schools in winter time, and over young women by taking them in rotation into the households of the farmers and the clergy one day in the week for instruction in domestic management. And as they grew up men and women he would provide good cottages and gardens for them as they married, and good schooling for their children.

In the discussion that followed the introductory lecture the principal points insisted on were—(1) the fact that that early period when the boy is most apt to learn is the time when on that account he ought to be at work; (2) the policy of evening schools, on which every one was agreed; (3) the desirableness of sending children from the workhouse as soon as possible—and (4) the danger of our reformatory institutions proving a premium upon vice by the disability of our honest poor as compared with the advantages thus offered to the children of depraved and dishonest parents.

A good deal of useful information was given on the subject of evening schools—and the result of the meeting will no doubt be to encourage those who have such schools already in operation through the country, and to induce many others to establish them elsewhere.

WE referred last week to the various methods of weed propagation in actual practice around us. They include the direct sowing of weed seeds with those of the crop—their deposit in the land along with manure—their distribution by the hoe, and from wayside preserves. Our remarks last week related more *especially* to the first of these sources of mismanagement. We have now to consider the manure heap as a weed bed.

2. The manure heap is at all times a fertile source of weed distribution, all sorts of seeded plants are unhesitatingly mixed with manure—either on the farm or in town refuse where weeds are nearly always consigned to the Ash hole, under the impression that as the leaves and stems of weeds decay, so must the seeds also; but let any one examine the plants that grow on the top of an exposed manure heap, and he will see weeds seeding in sufficient quantity to stock his farm, and if but a few plants seed in this position, how regularly it becomes sown when the manure is spread. In no other way can we account for the frequent introduction into a Turnip field of such plants as *Anthemis*, stinking Chamomile, *Chenopodium*, "Fat hen" of some counties, *Stellaria media*, Chickweed, *Capsella bursa pastoris*, Shepherd's Purse, and others of a like kind which are almost wholly confined to manure tillage. Again if we examine a spot of ground from which a manure heap has been cleared, weeds of this kind will spring up in the greatest abundance, thus presenting a patch of weeds totally distinct from those of the surrounding field, as though the more clearly to show the fact we are contending for.

The farmyard is again a source from whence weeds are sent to the muck heap, in that refuse from threshing which is often thrown out under the impression that fowls will eat these useless seeds, and though it is true that they do in reality destroy some, yet not one half are picked up by them, and of those that are so, only a small portion becomes destroyed in the process of digestion.

The following case will illustrate this better than argument. Some few years since we commenced the growth of Flax, our first crop introduced to the field in which the Flax was grown a large crop of *Sinapis nigra*, Black Mustard, a plant to which the field was before a stranger—*Sinapis arvensis*, or Charlock, being the previous Mustard which was too plentiful in the rotation. The seed of this Flax was afterwards sown in another part of the farm, thus introducing the Black Mustard in a new place in an aggravated degree. Afterwards some of the Linseed was threshed at the farm buildings, and in various ways its weeds got to a manure heap which was traced to a field of Beans of which they were seen to occupy a large strip in the middle, the boundary lines circumscribing the growth of Black Mustard; and this is now the general Charlock of the farm, it having nearly expelled the former common Sinapis arvensis—a circumstance which we think partly accounted for by the greater fecundity of the former, when compared with the latter, our census of weed seeding giving us the following calculation of increase:—

Sinapis arvensis, Charlock, 4000 seeds to a plant.
,, *nigra*,* Black Mustard, 8000 ,, ,,

The manner in which weeds are spread over some farms may be observed in the increase of exotic species from the use of foreign seeds, a circumstance which accounts for the increase of plants in our English Flora within the last few years. However these, as being wholly foreigners, seldom make rapid progress, whilst there is too much reason to believe that foreign seed of an indigenous species is often more prolific than that grown at home.

3. That weeds are often multiplied by the very processes employed to get rid of them there can be but little doubt. This may easily be done, either by subdivision of creeping forms, such as Coltsfoot and Couch, or by sowing seeded weeds in hoeing. A few seasons back we had a dirty piece of Beans containing amongst other weeds three circular patches of Coltsfoot; this was ploughed and scuffled, and the next summer Coltsfoot was tolerably evenly spread over its whole extent. Thus it is that the rhizome of patches of Couch is cut into bits by the plough, and though much is picked off the surface, enough of it usually is buried in some instances to increase the evil, and in all to ensure its continuance.

As regards sowing weeds in hoeing, it may be remarked that it is too much the practice to treat all weeds alike, and so attack them all at once in a regulation time of hoeing, and thus as some will be in seed while others are progressing to that point, though we may destroy the latter, yet at the same time we sow the former; and in reference to this subject we would remark that the horse hoe, though an expeditious implement, yet disturbs the soil to too great an extent for weed eradication, burying the seeds of ripe ones out of harm's way, and frequently stirring up the soil to such an extent that new seeds are brought to the surface, and heaped up so close round the roots of the crop as to be sometimes mischievous unless followed by the hand hoe. A case in point came under our observation during the past year. A piece of Wheat contained much of the Ivy-leaved Speedwell, the only horse hoeing of which so piled the soil around the roots that the crop was nearly choked in June by the enormous increase of the pest. It cannot be too strongly urged that as different soils and districts present weeds of different species which do not all arrive at their most mischievous point of growth at the same period, so there can be no uniform plan of action adopted in dealing with weeds either as regards the method or the time of action, but this should be regulated by a knowledge of the nature and habits of our enemies, without which it is vain to think of beating, much less extinguishing them.

4. That waste places and neglected waysides are so many weed nurseries may be noted by all who will observe how fields in their proximity are overrun with their peculiar species in spite of the most careful farming; thus if we have Thistles in a wild hedge row or neglected corner, we shall never be free from them in our fields. We cannot have Coltsfoot or Dandelion by the roadside, without these weeds causing us the greatest trouble both in adjoining and in far-off fields.

It would make this article too long to dwell upon this fact, but it is the less necessary as all are aware of it; and yet strange to say though it has more than once been attempted both for England and Ireland to get a clause introduced in local acts of Parliament making weeding compulsory in such situations, yet it has remained for our colonists in Melbourne to make a state law compelling under penalty the eradication of Thistles.

Here then we must content ourselves for the present with having shown some of the most common instances of weed cultivation by the farmer. From the regularity with which weeds are so sown it is no wonder that so many men have come to look upon them as a necessity. Let, however, more correct knowledge become general as regards the nature and habits of weeds, and processes of weed destruction be devised in accordance therewith, and we feel quite sure that our enemies will be exterminated, or at least it will never be said that they are on the increase.

* To our register of this fact is appended the following note. "The Black Mustard is fast taking possession of the farm before which the Charlock is giving way: the former was introduced with Flax."

FARM NEAR CHELMSFORD.

SINCE the termination of harvest everything as regards the weather has been propitious to the farmer; autumnal fallowing has proceeded vigorously, and with as much benefit as can be sometimes accomplished in an entire summer.

All the land on this farm upon which Rye was sowed and Tares mown green—about 30 acres—received two ploughings, and sundry scarifyings and harrowings between, was manured with guano or other portable manures, and is now cropped with Turnips, Cabbages, and Coleseed, which to some extent have suffered from the continued drought, but since the late rain has fallen have again rallied and now appear promising; the Swedes sown early and late in June have suffered severely from drought. and are also attacked with a species of fungus, in some respects similar to that which has affected the Potato, and with like result, as the bulbs have for the most part become worthless for feeding.

It is quite evident that the Swede Turnip is wearing out—whether from too frequent repetition or from the plant becoming weaker, it is impossible to tell—but for several years past upon this farm it has gradually been declining, and when brought into comparison with Mangel Wurzel exactly under the same treatment, and growing on part of the same field, it is not of half the value; the weight of the former not exceeding half that of the latter, whilst the quality is reduced also in about a like proportion.

So far as our experience leads us to conclude from having cultivated it nearly 40 years, we now feel certain that for every purpose it is equal to the Swedish Turnip, whilst for feeding oxen and cattle of every description it is vastly superior. Independent of this the certainty of obtaining a plant, and the small degree of hazard that attends it during its growth, either from insects or drought, renders it far more valuable; and the facility with which it is obtained, even during severe frost, places it incomparably before the Turnip.

For a long time the prejudice of farmers was difficult to overcome. Its best mode of application was not then thoroughly understood, and from giving it too plentifully to cattle before Christmas arrived, scouring followed in addition to paralysis of the limbs, from which they recovered slowly, but upon this farm it is now used throughout the whole year without any of those disadvantages becoming apparent. Throughout the autumn the leaves are cut up and the roots pulped or cut into pieces, and mixed invariably with cut chaff composed of one part hay and three parts straw; and cows, oxen, and young cattle are fed upon the mixture, the whole secret of properly feeding lying in this description of management. The dry food counteracts the superabundant amount of moisture contained in the roots, and also diminishes the acrid qualities which at that season, when given alone, act upon the stomachs and bowels of neat stock, and produce the disorders before mentioned; and even when later in the season it can be given without producing these results, it is always advisable to combine it with dry food as a means of not only economising it but also of rendering it of greater utility. When it was applied for the manufacture of sugar it was found that the sugar could not be extracted after the second vegetative process had commenced in the root, and therefore it was necessary to complete that process before January arrived, and it was found from that period to become decidedly better for feeding purposes, the saccharine at that time becoming fixed and not capable of extraction, proving that a chemical change in the root had taken place, rendering it more palatable and nutritious, and consequently more highly beneficial for cattle.

The quality is this year uncommonly fine, a high temperature with a dry atmosphere being most congenial to its production; the weight has also been ascertained, and found to exceed that of any previous year very considerably. The varieties grown both upon the clay and loamy soils, portions of the farm, are the Long and Globe Red and the Long and Globe Orange; the first and second varieties are decidedly the most pro-

ductive, the latter rather earlier in maturity, the quality equal, so far as any attempts to ascertain the difference have been hitherto made. The Long varieties are, however, the most portable in use and easier pulled and stored; the Orange is doubtless better adapted to the lighter descriptions of soil, succeeding best on lands otherwise well calculated for growing Swede Turnips.

The Rye sown about the middle of September has grown so vigorously that the late rains have beaten it down in various places in the field, and it is feared that the crop before the spring may be injured to a considerable extent, especially if much snow succeeds. It is very difficult to obtain Rye very early in the spring, for if sown forward and highly manured, it is apt to become lodged in the autumn, and whenever it so happens the quality and quantity become greatly diminished for spring use. The proper time to sow or drill appears to be about the middle of September having deep and fine tilth, and to dress in February with guano in preference to highly manuring in the autumn.

The Wheat sowing is progressing very favourably; the heavy rain that occurred on the 22d having rendered the land compact and solid and suitable for Wheat seeding. In some districts of Essex near it was so heavy as to wash away acres of the entire surface where it had been recently ploughed, and the highest flood, with one exception, for 20 years has been the consequence.

During the last fortnight one of Fowler's patent draining ploughs has been for some time in full occupation upon this farm. It is worked by a very clever application of a common locomotive engine mounted upon a platform on wheels, beneath which is the windlass driven from the engine above by a strap and pinion-wheel; the drains are put in 8 yards apart, and the pipes are of 1½-inch bore. 2½ acres per day is about the average quantity performed, and the work is undoubtedly better executed than by the ordinary process of digging the drains, whilst the operation is sooner got over and the superintendance disposed of; one pair of horses is required for carting water and for dragging the plough back where required, as well as for drawing the ropes from the pipes after the completion of the drain. The entire cost is nearly 5*l.* per acre—a large outlay for a tenant without receiving any direct assistance from the landlord, the lease being for 14 years certain, although extending to 21 years altogether.

The quantity of Grass that has clothed the pastures of late has been most useful; from a parched and desert-looking appearance the brightest and most luxuriant herbage has followed and still exists.

The crops of the last harvest are prolific, Wheat being fully 6 bushels beyond the ordinary average of this farm; Barley about 48 bushels per acre; Oats, Peas, and Beans not an average; Potatoes have decayed greatly since they have been stored, a moiety at least have already rotted, and some varieties even more. Grasses look strong and luxuriant, and are full in plant.

The high price of lean stock has of late surprised us—with a very deficient crop of Turnips and of indifferent quality. Sheep have lately been bought in at extraordinary high prices—within a period of 35 years the price has varied for Hampshire ewes from 16*s.* to 46*s.* each, for such breeding sheep as we generally purchase. The fact is that dealers now transact *all* the business, either by commission or otherwise, and it becomes almost a rule in the great western fairs for a preference of offer, present commissions being more looked after than future profits, and it is quite certain that whatever good fortune may attend them that the latter will be *nil*. Store neat stock are also equally high, and the pleuro-pneumonia is again very prevalent. Vessels are freighted with sound and unsound animals together, and thus the disease becomes perpetuated; and even should no unsound ones happen always to be present, still the tainted vessel doubtless communicates the disease to those that follow.

EXPERIMENTS WITH FARM-YARD MANURE.

IN November last year I was induced to try some experiments with farm-yard manure, in order to test practically in the field the accuracy of experiments made by Dr. Voelcker, and published in the Royal Agricultural Society's Journal. From a series of careful and prolonged investigations, he came to the conclusion that farm-yard manure might be exposed on the surface of the land without loss from evaporation, especially during the winter months, and that on soils containing a sufficient amount of clay a positive advantage was likely to follow such treatment, inasmuch as the soluble portions washed in by the rains would be more evenly distributed through the surface soil and more readily available for the young plant than if the manure was immediately ploughed in. The land selected was of a useful nature, rather heavy than light, of considerable depth, though in places the brashy substratum of the forest marble was turned up in deep ploughing. Our land was divided into three equal parts, each containing 49,820 links, or nearly half an acre. On November 22, 1856, ten cart loads of fresh manure made by store cattle, weighing 5 tons 6 cwt., was applied to each plot.

No. 1 plot.—The manure was carefully spread at once, and allowed to remain unburied for 83 days, till February 13, 1857, when it was ploughed in 7 inches deep.

No. 2 plot.—The manure was placed in small heaps, as it is commonly pulled out from the cart, and left in this way till February 13, 1857, when it was spread and ploughed in 7 inches deep.

No. 3 plot.—The manure was carefully spread and ploughed in at once (November 24) 7 inches deep.

The Swedes were drilled May 18th, 21 inches apart, with 2 cwt. of superphosphate and 30 bushels of ashes per acre. The crop looked very promising until attacked by mildew, which greatly interfered with the growth, and accounts in great measure for the small crop. The Swedes were taken up, carefully topped and cleaned, and weighed:—

	Tons	cwt.	qrs.	lbs.		Tons	cwt.	qrs.	lbs.
No. 1 produced	5	18	0	0	per acre =	11	16	3	11½
No. 2 „	5	16	1	20	„ =	11	13	2	22¼
No. 3 „	5	18	0	1	„ =	11	16	3	11½

So far as it is fair to deduce from the result of a single experiment, we have evidence here in favour of Dr. Voelcker's views; for although the same weight of roots are produced where the manure was buried at once as where it was exposed for 83 days, the lot No. 1 must have suffered from the non-exposure to frost, &c., during that period, and therefore had the manure been applied previously to that lot, and subsequently to the lot 3, and both ploughed at once, with equal exposure to atmospheric influence, it is probable that lot No. 1 would have produced the best crop. The lot No. 2 turns out, as we should expect, less than the others, a considerable portion of soluble material being probably washed into the ground where the heaps laid, and a less even distribution would be the consequence. I need not point out the importance of a practical question of this sort, or the change of opinion which a more correct science has brought about; but a few years since, and the system of spreading manure upon the surface for a lengthened period before covering it in would have been condemned as the most wasteful and ignorant practice; but here, as in other cases, a more practical acquaintance with facts proves that there are often sound reasons, though possibly not understood, for practice which at first sight appears the very opposite to correct. If future experiments should merely prove that no loss occurs from exposure of manure on the surface of the land an advantage will be gained, inasmuch as the farmer will have the choice according to season or circumstances of adopting either course. *John Coleman, Farm Manager, Royal Agricultural College, Oct. 29.*

Home Correspondence.

Superphosphate, active and cheap.—In your last "Notices to Correspondents," p. 701, are given Mr. Spooner's instructions for preparing superphosphate, perhaps the most manageable of those in common use, but surely inferior, both in economy and activity, to those of Dr. Müller (below); which should therefore be as widely distributed as possible. The following is a practical abstract: the full details may be seen in the *Agricultural Gazette*, 1856, No. 27, p. 459:—He professes to give, with less acid, a better article, of lighter carriage; and obviates all pretext for gypsum adulteration. When sulphuric acid is mixed with rough crushed bone, it first acts upon the finer part; and unless there is enough to decompose the whole (which is seldom employed), leaves the coarser part unaffected. But this is just wrong: the coarser part most needs the acid, the fine part being most readily dissolved in the soil. To remedy this the author, Dr. Müller, sifts the crushed bone; first through a fine sieve to get out the fine powder; next through one of perhaps ¼-inch or more to get out a gritty powder; and leave about 40 per cent. of the roughest. He reckons 36 lbs. of sulphuric acid of S.G. 1840 (equal to 39 of S.G. 1800) sufficient for 100 lbs. of bone dust, and that much less may suffice when the finest powder is first withdrawn. To this 40 lbs. of rough then he adds 25 lbs. of acid; too much for it, but intended to act also on the coarse powder afterwards. Having mixed the whole 25 parts acid with the 40 parts of rough, he lets it soak without any water. He then adds 13 parts of water, by little and little, stirring it well all the time. The heat produced favours the action, rendering artificial heat unnecessary. In 24 hours the rough bone is softened, so that it can be crushed with the fingers. He then kneads in the coarse powder and lets it work together some days; and then works in the fine powder, by which the moisture is soon absorbed, and the whole becomes crumbly. The mass is easier kneaded with more than 13 parts of water; but then it requires artificial drying. In this way 100 lbs. of crushed bone, with 25 lbs. strong acid and 13 lbs. of water, give about 130 lbs. of whitish crumbly superphosphate; which does not become damp in dry air, and has so mild acidity that it may be kept in sacks. The advantages of the process just described over those already in use he says are:—1. The acid acts most powerfully upon the portion which is most difficult of solution. 2. Only a very small quantity of sulphuric acid is required. 3. Unnecessary increase of weight is avoided, and distant transport is thus facilitated. *I. Prideaux.*

Till Seed.—Below is the article referred to by your correspondent "W. W.," p. 709 *c*. Is it probable that the "Ram-till" should be pressed in France in such quantities as to manure Potatoes with the cake? or must we rather look to some provincial name? I have failed of tracing the French original to see what is the word there used:—"New Food for Bees. Two agriculturists of the department of the Var observed one day, in the month of May last, that all their bees had left their hives, although the latter were well filled and exceedingly heavy. Towards evening the fugitives returned heavily laden, but on the following morning set out again in a direction which was this time carefully noted by the farmers, who had been watching their doings. They immediately followed them, and soon arrived at a farm where cakes of Tilseed, which had been previously subjected to the oil press, were being beaten up into a paste with water, to be used as manure for Potatoes. There, to their surprise, they saw their bees clustering round the tubs containing the paste, evidently enjoying a luxury hitherto unknown to them. The lesson was not lost upon the agriculturists, who immediately procured their bees abundance of this food, and have now been rewarded with nearly ten times the usual quantity of produce, besides an immense increase in the reproduction of the insect." But what is this Tilseed? Dill seed is well known as yielding distilled oil resembling that of Caraways, but it seems too dry and too costly to be used for pressing and manure. And another, provincially named Dill seed, I think a kind of Lentil, seems quite unlikely to yield oil by pressure. Nor can I find any account of the Tilia (Lime tree, in French Tilleul), yielding any oily seed, although oil is abundantly pressed from the Beech-nut. Can any of your readers throw light on this subject? The cake seems much too valuable to go for manure; for what is so good for making honey promises to be both wholesome and nourishing for feeding cattle. *I. Prideaux.*

Mangel Wurzel.—Perhaps some light land farmer will kindly state in the columns of the *Agricultural Gazette* the greatest weight (per acre) of Mangel Wurzel that he has grown, with the cost, and manner of cultivation. We have just stored our Mangel and the crop appears to be considerably over an average one. It was grown on a thin, sharp soil, but liberally manured, and the produce of two acres (after the roots had been cleaned) having been carefully weighed, amounted to 96 tons. No doubt a much greater weight has been obtained from deep loams, but the land on which this crop was grown is, as I have stated, of a totally different description; and if desired, I shall be happy to mention the method and cost of its cultivation. *J. B. Maunsell, Thorpe Malsor.* [Please to do so.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Nov.* 4.—Lord BERNERS, President, in the Chair. The names of 23 candidates for election at the next meeting were read.

FINANCES.—Mr. Raymond Barker, Chairman of the Finance Committee, presented the report on the accounts of the Society to the end of the previous month, from which it appeared that at that date the current cash-balance in the hands of the bankers was 665*l.* He also laid on the table, for the information of the Members, the usual quarterly statement of accounts.

EXPENSES.—Lord Portman, Chairman of the Expenses Committee, reported the progress made by that Committee, and the postponement of their final recommendations until the accounts of the Salisbury Meeting had been audited. His lordship expressed his intention of calling the deliberate attention of the Council at their next Monthly Meeting to the appointment of the Judges for the Country Meetings.

JOURNAL.—Mr. Thompson, Chairman of the Journal Committee, presented suggestions from that committee on the subject of communications connected with that department of the Society's proceedings.

AGRICULTURAL CHEMISTRY.—Mr. Wren Hoskyns, Chairman of the Chemical Committee, reported suggestions from that committee on the subject of the Chemical Papers and Transactions furnished to the Society.

CONDITIONS OF MACHINERY.—Colonel Challoner, Chairman of the Implement Committee, reported a careful examination of the various suggestions received from implement makers in reply to the circular addressed to them, by order of the Council, in September last. He was glad to find that the greater number of those suggestions were almost identical with the conditions included in previous prize-sheets of the Society. The committee had carefully selected certain portions of the new suggestions submitted to them, having reference chiefly to scientific details of construction, and had submitted them to the consulting engineer of the Society for his opinion. The committee would make their general report on this subject at the ensuing monthly Council in December.

SHOW-YARD ADMISSIONS.—Lord Portman presented to the Council the joint report of Colonel Challoner and himself, as the Stewards of Admission to the Show-yard at Salisbury. The arrangements made in that department had proved most satisfactory. On the motion of Mr. Thompson, seconded by Mr. Fisher Hobbs, the suggestions for future adoption contained in that report were referred to the Chester Committe, and a vote of the best thanks of the Council passed to Lord Portman and Colonel Challoner, for the great personal attention they had given to promote the efficient working of the department they had undertaken at the Salisbury Meeting.

PRIZE-SHEETS.—On the motion of Mr. Fisher Hobbs, seconded by Mr. Caldwell, the Committees of last year for the preliminary arrangement of the Prize-sheets and the recommendation of their suggestions to the Council, were renewed for the purpose of taking into consideration the Prizes to be offered in the department of Live Stock and agricultural Implements and machinery, for the Chester Meeting of 1858.

MISCELLANEOUS.—A report was received from Mr. Cother, Steward of Poultry at the Salisbury meeting.—The Council appointed a general Chester Committee, of

which Lord Portman, at the request of the Council, undertook the chairmanship. The December General Meeting of the Society was fixed to be held at 11 o'clock on Friday, the 11th of December.—Mr. Raymond Barker, Chairman of the Veterinary Committee, reported the steps taken by Prof. Simonds in reference to the inspection of diseased cattle in Worcestershire and Warwickshire, and Prof. Simonds was requested to report at the next monthly Council the nature and result of the treatment. He was also instructed to visit Sir Henry Muggeridge's flock of sheep in Surrey, and report upon the inflammatory distemper which Mr. Fisher Hobbs reported had broken out among them.—Mr. Pollen reported from Wiltshire cases of ophthalmia in cows.—Lord Kinnaird transmitted reports on reaping machines.—Mr. Howard's suggestions connected with details of the Chester Meeting were referred to the General Chester Committee.—Communications on Guano and Inoculation for Pleuro-pneumonia were received from the Foreign Office, and on Guano from the Board of Trade.

Reviews.

Hainault Forest, being an Extract "from the Report of the Commissioners of Woods for the Year ending the 31st day of March, 1857, containing a Statement of the Proceedings adopted by the Commissioners of Woods, &c., for bringing the Crown's Hainault Allotment into a State for Cultivation.

Those who look upon 20*l.* an acre, the estimated cost of bringing Mr. Halkett's guideway scheme of applying steam power to the cultivation of the land, as at once fatal to its pretensions, and involving the impossibility of its ever being profitably carried into execution, may be interested in the following account of an instance in which a sum very nearly as much has been expended in bringing land into cultivation by ordinary means, and in an ordinary manner:—

"In accordance with the recommendation contained in the Report of the Commissioners of Woods in 1849, an Act was passed in the session of 1851 entitled 'An Act for disafforesting the Forest of Hainault, in the County of Essex.'

"In pursuance of that Act three Commissioners were appointed to adjudicate on the various claims submitted to them; and on the 6th Nov., 1852, they executed an award, by which an allotment of 1873A. 0R. 21P. became the property of the Crown, in severalty, freed and discharged from all claims.

"In May 1853," says the reporter from whose statement we take the following extracts, "when the allotment was transferred to my charge, although estimates had been framed for the construction of the roads, fences and arterial drains, the only portion of the works required by the disafforesting Act which had been commenced was the preparation of the timber for the fences; but tenders were immediately obtained, as stated in the 32d Report (1854), for the formation of the roads and of the main drains.

"These several works were commenced in August 1853, and the contract was completed in October 1854. Their cost, as well as the expenses of the Disafforestation Commissioners and of their officers, have been defrayed under the provisions of the Act before referred to out of a fund which has arisen from the sale of the timber upon the portions of the forest that were not allotted to the Crown.

"The sale of the Oak timber and Hornbeam Pollards was pressed forward with as much rapidity as possible, and within a period of one year from May, 1853, 280 acres were cleared of timber and Pollards, and about 770 acres were cleared of timber only.

"For the under-drainage of the portions of the land which had been cleared arrangements were made with responsible tradesmen, who entered into contracts by which they undertook to purchase a large quantity of stackwood and other produce, which would otherwise have been unsaleable, and to manufacture pipes for the drainage of the estate, and also to cut and fill the drains, as well as to lay the pipes at certain specified prices.

"These works were commenced in April, 1855, and are now completed. Shortly after their commencement, an offer was made by Messrs. John and Alexander Alison to take on lease a portion, containing 1235 acres, or about two-thirds of the allotment, for a term of 31 years, from the 10th October, 1854, at the following rents, viz.:—

	£	s.	d.
For the first year of the term..	309	0	0
,, second ,, ...	618	0	0
,, residue ,, ...	1421	8	0

and upon the understanding that they should pay interest on all sums expended by the Crown in drainage, and in the erection of farm buildings, at the rate of 5 and 6 per cent respectively.

"This offer was accepted, and in the first year of their tenancy Messrs. Alison had 250 acres in cultivation, in addition to which 700 acres were cleared by the Crown, and partly ploughed by the lessees. In the second year ended at Michaelmas last (1856), the residue of the land comprised in the letting was cleared by the Crown, and Messrs. Alison had 1165 acres in cultivation, of which upwards of 600 acres were cropped with Potatoes. About a year after the agreement with Messrs. Alison for the letting of the larger portion of the allotment had been completed, an application was made by Mr. John Alison, one of the lessees, to take an additional portion of the allotment, containing 554A. 1R. 11P., comprising the land which had been considered to be available for building purposes, but for which no offer had been received, and two small parcels of land in the vicinity, formerly part of the waste of the forest, containing 50A. 2R. 19P. for a term of 30 years, from Michaelmas 1855, so as to expire at the same time as the former letting, and an agreement was accordingly entered into for that purpose, at the undermentioned rents:—

	£	s.	d.
For the first year of the term..	252	5	0
,, second ,, ...	390	15	5
,, residue ,, ...	1196	5	0

The lessee also agreed to pay interest, at the rate of 5 per cent., on all sums expended upon the under-drainage of the land comprised in this further letting; but, under the terms of the agreement, the Crown undertook to erect, at its own cost, a homestead, overseer's house, and four cottages for labourers, and also to form an accommodation road of 1½ mile in length.

"Further lettings of small parcels of land within the forest boundaries have also been effected, by which means the whole of the allotment, with the exception of some detached strips of land, is now let and under cultivation; and in the present year about 850 acres are under Wheat, 580 acres under Potatoes, 150 acres under Oats, and the residue under other crops.

"The reclamation of a property which, in the spring of 1853, comprised upwards of 1850 acres of open forest, has not been effected without a considerable outlay; but it is satisfactory to add that the proceeds of the sales of timber, &c., which stood upon the allotment, have realised a sum more than sufficient to pay the whole of the expenses incurred in clearing and draining the land, as well as in the erection of buildings, and in otherwise preparing the land for cultivation.

"In the 31st and 32d reports (1853 and 1854) will be found a detailed valuation made by Messrs. Clutton and Driver of the Oak and Hornbeam timber and Pollards standing upon the allotment at the date of the award. That valuation amounted to 36,749*l.* 8*s.*, and the following statement shows the result of the sales which have been effected of the timber and Pollards included in that valuation:—

	£	s.	d.
Received for the sale of Oak timber and bark, and Hornbeam Pollards, including the value of timber used for fences	£43,813	5	11
Amount due by purchasers of Oak timber ..	1,293	17	3
Value of Oak timber still unsold, and of the Hornbeam Pollards sold and upon the ground ..	3,212	8	1
	48,319	11	3
Deduct,			
Cost of hewing timber, stripping bark, commission, and expenses of sales	2,085	4	1
Net produce of the Oak and Hornbeam timber and Pollards	46,234	7	2

"The works which have been undertaken by the Crown, and of which the cost will be defrayed out of the monies arising from the sale of the timber, which stood upon the Crown allotment, comprise—1, The preparation of the produce, and the clearing and grubbing of the land, in order to render it fit for cultivation; 2, The arterial drainage and subdivision fencing; 3, The pipe drainage; 4, The erection of the requisite farm buildings; 5, The construction of an accommodation road; 6, Various works of maintenance."

We do not extract the details of these several items of expenditure, but the general result of the disafforestation may be summed up in the following statement:—

"In November, 1852, a forest of 3000 acres in extent, from which, in consequence of the conflicting rights of the Crown, the hereditary Lord Warden, and the Commoners, but little profit had been derived, as will be seen by the account of the receipt and expenditure during the previous five years, inserted in the Appendix, p. 10, was disafforested, and the Crown received in compensation for its rights an allotment of 1873 acres of land available for letting. The proceeds of the timber felled from the allotments awarded to the Commoners form a fund out of which all the expenses of the disafforestation, of the roads across, and of the boundary fences round the Crown allotment, have been paid; and after discharging some further claims of trifling amount, there will remain a balance of upwards of 7000*l.*, which is estimated to be sufficient to pay the compensation which may be awarded to the Lord Warden, as well as those which have already been granted to the other forest officers for the loss of their respective appointments. The Crown allotment, in May 1853, when it was placed in charge with me, was covered with 24,714 Oak trees, 3377 Oak Pollards, and 86,679 Hornbeam Pollards, being upwards of 114,000 trees in all; and, in addition, many portions of it were covered with a close growth of underwood. In the space of three years and a half from the date of the award, the timber upon this allotment has been felled; and the allotment, as well as 50 acres of land adjoining, belonging to the Crown, has been fenced in, cleared, drained, and furnished with roads and farm buildings, under the immediate superintendence of Mr. John Clutton, the receiver for the county of Essex. The cost of these works will be covered by the proceeds of the sales of the timber and underwood, as shown by the following account; and, in addition to a surplus of 4000*l.* to arise from those sales, the sum of upwards of 5250*l.* will be derived from grazing and other rents, accruing due up to Michaelmas next, as shown by the following statement, from which date, when the whole of the works in respect of which interest is charged to the lessees will be completed, the Crown will be in the receipt of a rental of 4248*l.* per annum, which is equal to 2*l.* 4*s.* 6*d.* per acre.

Account of Receipt and Expenditure in the Clearing and Preparation for Cultivation the Crown Allotment in Hainault Forest.

	£	s.	d.	£	s.	d.
RECEIPT:						
Gross proceeds of the sales, and value of Oak and Hornbeam timber and pollards, &c.				48,319	11	3
Deduct,						
Cost of hewing timber, stripping bark, commission and expenses of sales				2,085	4	1
Net produce available to meet the under-mentioned outlay				..		
EXPENDITURE:						
1. Arterial drainage and sub-division fencing				3,332	4	10
2. Preparation of produce, clearing and grubbing, gross expenditure	15,586	0	10			
Deduct—						
Receipts from sales and value of produce in hand	9,461	16	11			
Net cost, (equivalent to about 3*l.* 5*s.* 6*d.* per acre)				6,124	3	11
3. Pipe drainage (equivalent to 8*l.* 19*s.* per acre)				16,680	17	7
4. Farm buildings and labourers' cottages (equivalent to 7*l.* 11*s.* 3*d.* per acre)				13,918	18	10
5. Accommodation road				1,123	10	5
6. Repairing roads, fences and ditches, and miscellaneous charges				835	19	1
					42,015	14 [illegible]
Surplus					4,218	12 [illegible]

Some of these items seem sufficiently remarkable—18,300*l.* spent in the arterial and pipe drainage of 1900 acres of land is one of them. "The original estimate for the drainage," we are told, "which did not contemplate the laying of pipes at closer intervals than 30 feet, amounted to between 6*l.* and 7*l.* an acre; but for the reasons stated above, the pipes in many places were laid at intervals of only 20 feet, and these causes, combined with the unusually short period of time in which the work was executed, and with the price of labour, owing to the vicinity of the estate to the metropolis, and to the cost of excavating the drains in a soil intersected with roots, have raised the total cost of the drainage to the sum of 16,680*l.* 17*s.* 7*d.*, being at the rate of 8*l.* 19*s.* per acre."

But this does not include a sum of 1761*l.* paid to Mr. G. Siddons for arterial drainage. The lines of drains, it appears, were only laid "in many places," at intervals of 20 feet; and it appears to us that the sum expended is enormously large. The total length of pipe drainage executed was as nearly as possible a million yards; the total extent drained was as nearly as possible 8 millions of square yards; whence it appears that the average interval of drain must have been 8 yards. That it was more than this is proved by the fact that main drains are included with the others in this measurement. And certainly 9*l.* an acre is much beyond what any ordinary estimate of 4-feet drainage supposes. Besides, some of the extent drained was done by steam power and Mr. Fowler's machinery, the merit of which arises from its cheaper execution of the work. We should like to know the causes of the excessive expenditure under this head. In addition to the drainage of the land, the other items for buildings, roads, and repairs amount to a charge of 22*l.* an acre, an amount, as we have said, equal to Mr. Halkett's proposed expenditure in carrying out his guideway system of steam culture.

Calendar of Operations.

NOVEMBER.

NORTH RIDING OF YORKSHIRE, *Nov.* 2.—In this district the last month was remarkably dry and fine. In fact we had too much of dry weather, which in many instances retarded the sowing of Wheat, and on some lands where sown before the rain the braird looks anything but well. From the 1st to the 18th the drought was continuous and unbroken; on that day and the two following we had some fine rains, which rendered the fallows in excellent condition for seeding. From that date to the end of the month we again had a succession of fine days, and Wheat sowing was proceeded with most vigorously, and we were enabled to make a most satisfactory finish. So far we have had no frost, and the pastures have borne much eating. Cattle did indifferently in the beginning and middle of summer, but with the late fine weather and plenty of Grass they have got on much better lately, and are coming to the stall in fair condition. Turnips on many farms are a failure, and on the best we fear they are small and will bear little eating. During the dry weather they suffered much from mildew, but the rain had an ameliorating effect, and if the weather now keeps open we may yet hope to see the bulbs considerably enlarge. Store stock has been bringing exorbitant rates, and even with the present high range of fat prices the profit to the feeder cannot be much. In general Potatoes are very much diseased; our own have not been so bad since 1846. *"Carabas," Farm near Guisbro.*

WESTER ROSS, *Nov.* 2.—Ever since that severe storm passed away which overtook us in the middle of our late harvest work, and which left so much wreck behind, we have been favoured with something like a continuation of fine summer weather, which has admitted of the crops in the higher districts being gathered in in excellent condition, and which we in the lower districts have also been taking advantage of for the purpose of sowing, with an eye to the coming harvest, the autumn sown Wheat; and finer weather for this purpose we could scarcely desire. Already have we sown about 25 acres of lea, well manured, and ploughed with one furrow, in all of which the soil was well pulverised and the seed satisfactorily harrowed in. Were it not that we have once again run short of manure—a predicament by no means uncommon—we would have been a good way farther on. It is no easy matter to get the supply of manure one would like for a farm the superficies of which sometimes the same; but it is a greatly more difficult thing, indeed it is nearly impossible, to get a sufficient supply for a farm to which is being added, by trenching and draining, about one third of its original size. A large proportion of the Wheat grown in this district is sown after Turnips and Potatoes, and consequently a very small proportion has as yet been sown down. Our extravagant seeding, according to southern ideas,

of about 3 bushels per acre, is still continued, and we are far from supposing that as many pecks would suit equally well; but to those that dwell in a part of the country and enjoy a climate in which a peck is tantamount to a bushel we would humbly whisper, "You can scarcely be sufficiently thankful." Our crop threshes out well, and all that was secured previous to the storm is of superior quality. At our grain competition a few days ago the parcels exhibited were of very fine quality, and of great weight. The prize sample weighed from 65 to 66 lbs. per bushel. There is much of the Wheat in this county, however, unfit for human food, and will be consumed by the stock. The fine weather has been greatly improving our turnip crop; yet, except in fine damp soil, they will remain somewhat under an average. The report from the south of the great demand for, and the enhanced price of cattle, completely filled our last Muir of Ord market. Every farmer who had any cattle which he could possibly spare sent them to the market, expecting exorbitant prices, but the market being thus greatly overstocked, prices were lowered, and many returned home unsold. For sheep the demand continues brisk, and prices are surprising.

WEST SUSSEX, *Oct.* 27.—We are now in the middle of Wheat sowing and have rather changeable weather, and altogether too wet for our heavy land. There is more early sowing this year than usual, as many have almost done, though formerly they did not begin till after the 13th. There is a good deal up, and growing had the weather so mild it looks very strong, perhaps on good land too much so. Grass is so plentiful that few of our cattle are yet put in the house to fat, but get a little hay at night, as Grass at this season has little proof in it. The summer upon the whole has been one of the worst for fatting beasts that has been for many years, and the result is now seen in the state of those brought to market, which are very far from fit for the butcher, and I suppose they must turn out at their proper time, fit or not. But beef as it is is very dear and rather scarce. And so with mutton; but lean sheep are dearer than they have been for many years; in fact few remember them so high. Ewes in lamb (Downs) that we have bought at Appleshaw for 34*s.* to 40*s.* have this year cost from 48*s.* to 57*s.*, while Somerset ewes, which are now lambing, have cost from 58*s.* to 66*s.*, so where is our profit to be even with mutton at 5*s.* per stone? Our Wheat market is now fuller than usual at this season, and nothing can exceed the quality of the samples that are free from smut, but I never saw so much of it before; I think one might find 20 samples more or less affected, and some of them very bad. But though I have made inquiry, I have not found that any have it that had the seed dressed with blue vitriol, but this method of preparing the seed is not yet common here. Swedes and Turnips have kept pretty well here; in some parts we hear complaints of their rotting, especially the white Turnips. We found among the earliest sown Swedes a few that lost their tops, and showed signs of decay, but seem to have recovered and sent out young tops; but there is no doubt that the quality of the root is impaired. Unless we have a very severe winter there will be no scarcity of food, and we may expect that stock will be high priced all the season. *G. S.*

Notices to Correspondents.

AGROSTOGRAPHIA: *Alpha* can obtain the pamphet by applying to Messrs. Lawson, of Edinburgh.

CORN AVERAGES.—MICHAELMAS RENTS: *Landlord.* Mr. Willich informs us that the average prices of Wheat, Barley, and Oats, for 52 weeks up to Michaelmas are—

Wheat	59*s.* 3½*d.*	per imperial quarter
Barley	43 3½	,, ,,
Oats	25 8¾	,, ,,

The following is the annual average price of Wheat per imperial quarter, in England and Wales, from Michaelmas, 1845, to Michaelmas, 1857, together with the highest and lowest weekly average price in each of the respective years ending Michaelmas-day:—

Average price for the Year ending			Highest price for the Week ending				Lowest price for the Week ending			
Michælmas	*s.*	*d.*			*s.*	*d.*			*s.*	*d.*
1846 ..	54	1	Nov. 1	..1845	60	1	Aug. 14	..1846	45	1
1847 ..	71	3	May 29	..1847	102	5	Sept. 18	..1847	49	6
1848 ..	51	3	Sept. 9	..1848	56	10	June 17	..1848	46	10
1849 ..	46	7	Nov. 18	..1848	52	3	Sept. 22	..1849	41	9
1850 ..	40	3	Aug. 10	..1850	44	1	May 4	1850	36	11
1851 ..	39	5	July 12	..1851	43	6	Sept. 27	..1851	36	7
1852 ..	39	10	Sept. 4	..1852	44	9	Oct. 11	1851	35	6
1853 ..	45	7	Oct. 1	1853	59	5	Oct. 16	1852	37	10
1854 ..	72	10	Jan. 28	..1854	83	3	Sept. 16	..1854	52	2
1855 ..	71	10	Aug. 4	..1855	78	2	Oct. 7	1854	56	7
1856 ..	73	1	Dec. 1	..1855	83	1	Sept. 27	..1856	64	4
1857 ..	59	2	Oct. 25	..1856	66	4	April 18	..1857	53	0

EXTRAORDINARY WHEAT: *S N.* The *Clonmel Chronicle* thus refers to the specimen you name:—"We have just had an opportunity of examining a specimen of a wonderful growth of Wheat, raised from imported seed by Major Quentin, Old Court, near Waterford, and appropriately designated '*Giant* Wheat.' One single grain produced 72 stems, each bearing an ear from 5½ to 7¼ inches long! The ears, on being rubbed out, were found to contain from 87 to 102 grains each; thus making a total of 5600 grains to *one* stem!"

GEOLOGICAL SPECIMENS: *A B, Whitland.* It is often impossible to say to what formation in the geological series a hand specimen belongs. You should apply to Mr. Tennant, the mineralogist, in the Strand.

HIGHLAND SOCIETY: *Delta.* We understand that this Society's premium of 200*l.* has been awarded to Mr. Fowler for his steam-plough.

HOMŒOPATHIC TREATMENT OF LUNG DISEASE: *Vet.* asks for the address of C. W., who wrote on this subject on January 31, 1857, page 75.

HORSE: *J D.* Your remarkable specimen is forwarded to the Cirencester College, from which we shall shortly receive a report upon it.

LIME FOR PASTURE: *An Old Subscriber* should obtain about 60 bushels of hot lime for every acre of his pasture, make it at once into compost, with as much (up to 20 cart-loads per acre) as he can obtain of any vegetable earth; turn it over and mix it thoroughly as it slakes, and spread it broadcast over his Grass land when dry enough, or hard enough (by frost) to be carted over without injury. Gas-lime will not do so well.

MANGEL WURZEL: *J Driver.* Will any one tell us what an acre of Mangel seed ought to yield? The only case in point we know was the produce (about ¾ of a cwt.) from 18 perch of ground, and it was not a good crop.

MILK AS FOOD: *E L S.* The only information on this subject we can give you is to the effect that you cannot make so much per quart in general of milk when used in fatting veal as you can in making either butter or cheese. We will, however, ask for the experience of any of our readers who can tell us what skim milk is worth per gallon for feeding pigs, and how much milk is needed to make 1 lb. of bacon or pork. As to your other questions, (1) it will not pay "as a rule" to fatten hogs on all corn; indeed, "as a rule," it is hard to make a profit of feeding bacon at all. (2) It is necessary for you to have some farmyard manure, and the more the better; but if you have already a tolerable supply you will more cheaply add to its efficiency by purchasing guano and superphosphate than by giving corn to feeding stock. (3) It is well to lay drains in the furrows, simply because they are thus more cheaply laid at a given depth; but the efficiency of your drains should be altogether irrespective of the surface of the land.

GLASS.

JAMES PHILLIPS AND CO. beg to submit their PRICES OF GLASS FOR HORTICULTURAL PURPOSES. Packed in boxes containing 100 feet.

6 by 4, 6½ by 4½, 7 by 5, 7½ by 5½ } 11*s.* 6*d.* per 100 feet.
8 ,, 6, 8½ ,, 6½, 9 ,, 7, 9½ ,, 7½ }
10 by 8 and 10½ by 8½ .. 12 6 ,,

Larger sizes in 100 feet boxes from 14*s.* per 100 feet.

ORCHARD HOUSE GLASS.
As supplied by us to Mr. Rivers.

20 by 12 and 20 by 14 .. } 18 0 ,,
20 ,, 13 ,, 20 ,, 15 .. }

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough-cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

HORTICULTURAL GLASS WAREHOUSE,

EXTRACT FROM "COTTAGE GARDENER."

"The good properties of really good sheet glass are various. The foreign kind especially is so indifferent, that I may caution the inexperienced to stipulate for British Sheet Glass, as much injury has been caused by substituting a low priced Belgian article for it."

116, Bishopsgate Street Without. E.C.

GLASS.

THOMAS MILLINGTON'S present Tariff of HORTICULTURAL GLASS.

Packed in 100 feet boxes, averaging 15 to 16 oz. to the foot.

6 by 4, & 7 by 5 } 11*s.* 3*d.* per 100 feet. | 9½ by 7½, & 10 by 8 } 12*s.* 6*d.* per 100 feet.
8 by 6, & 9 by 7 } | 11 by 9, & 12 by 8 }

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

Orchard House squares as supplied to Mr. Rivers.

	Common.	Superior.
20 by 12, and 20 by 14	16 oz. at 16*s.* per 100 feet	18*s.*
20 by 13, and 20 by 15	21 oz. at 24*s.* ,,	27*s.*

Foreign Sheet Glass, in 200 feet cases, at 32*s.* and 40*s.* per case.

HARTLEY'S IMPROVED ROUGH PLATE GLASS,

Of ¼, 3/16, ⅛, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings. 10 per cent. allowed off prices advertised.

Pan Tiles, Propagating and Bee Glasses.
Fern Shades, Glass Milk Pans.
Aquaria, 12, 14, 16 to 18 inches diameter.
Ruby, Blue, Green, and Ornamental Glass.

PAINTS.

Genuine White Lead, Colours of all kinds.
Linseed Oil, Turpentine, Varnishes, Brushes, &c.
All packages charged, but allowed when returned.

87, Bishopsgate Street Without, same side as Eastern Counties Railway.

GLASS FOR CONSERVATORIES, GREENHOUSES, PIT FRAMES, ETC.

HETLEY AND CO. are supplying 16-oz. Sheet Glass of British Manufacture, packed in boxes, containing 100 square feet each, at the following REDUCED PRICES for cash. A reduction made on 1000 feet.

Sizes.—Inches.				Inches.				Per foot.		Per 10 feet.
			Under 6	by	4	at	1½*d.*	is	£0 12 6
From 6	by	4	,, 7	,,	5	,,	2*d.*	,,	0 16 8
,, 7	,,	5	,, 8	,,	6	,,	2¼*d.*	,,	0 18 9
,, 8	,,	6	,, 10	,,	8	,,	2½*d.*	,,	1 0 10
,, 10	,,	8	,, 12	,,	9	,,	2¾*d.*	,,	1 2 11

Larger sizes, not exceeding 40 inches long.
16 oz. from 3*d.* to 3½*d.* per square foot, according to size.
21 oz. ,, 3½*d.* to 5*d.* ,, ,, ,,
26 oz. ,, 3½*d.* to 7½*d.* ,, ,, ,,

PATENT ROUGH PLATE, THICK CROWN GLASS, and PATENT PLATE GLASS, for Horticultural purposes, at reduced prices, by the 100 square feet.

GLASS TILES AND SLATES made to any size or pattern, either in Sheet or Rough Plate Glass.

Propagating Glasses, Beehive Glasses, Cucumber Tubes, Glass Milk Pans, Glass Water Pipes, and various other articles not hitherto manufactured in Glass.

PATENT PLATE GLASS.—The present extremely moderate price of this superior article should cause it to supersede all other inferior window glass in a gentleman's residence. No alteration connected with the sash is required.

GLASS SHADES, as ornamental to, and for the preservation of every description of goods susceptible of injury by exposure. Prices, since the removal of the excise duty, reduced one-half. List of Prices and Estimates forwarded on application to

JAMES HETLEY & Co., 35, Soho Square, London.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

AGRICULTURAL OR COTTAGE BAROMETER, price 11*s.* 6*d.* Especially designed by L. CASELLA for the Horticultural Society's Exhibition of June, 1857, as a neat, portable, and reliable Weather Glass, accompanied with plain, practical instructions, and intended as a really valuable and universal instrument.

CASELLA'S ECONOMIC GARDEN THERMOMETER to correspond, 4*s.**

CASELLA'S RELIABLE GARDENER'S RAIN GAUGE, 15*s.* 6*d.*

CASELLA'S IMPROVED PHILLIP'S MAXIMUM THERMOMETER, 15*s.* 6*d.*

"The Barometer is equal to one in our possession at ten times the price. The Thermometer, self registering and accurately graduated, has proved upon trial to be equally efficient."—*Gardeners' Chronicle, Sept.* 19, 1857.

"These instruments should be in the hands of every farmer." "My next month's observations will be made with them."—*Mark Lane Express, Sept.* 14 *and Oct.* 5, 1857.

CASELLA'S MILK TEST FOR THE DAIRY, 4*s.* 6*d.*; Ditto, ditto, to show the per centage of Cream, 3*s.*

Manufactured only by L. CASELLA, Instrument Maker to the Admiralty, United States Government, Royal Kew Observatory, Geographical Society, &c., 23, Hatton Garden, London. A descriptive list and drawings on receipt of a stamped envelope. Sole Agent for SCHONBEIN'S OZONOMETER, 5*s.* 6*d.*

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Nov. 7.

SEE MESSRS. EDWARD HENDERSON'S NURSERY,

WELLINGTON ROAD, ST. JOHN'S WOOD, LONDON.

WEEKS' ONE BOILER SYSTEM, NOW COMPLETED.—ONE BOILER effectually heating Hot Houses 1200 feet long, besides all the Offices and Seed Warehouses. The one Boiler is perfect master of the Work, the hot water circulating through 5500 feet of Cast Iron Pipe.

JOHN WEEKS & Co., King's Road, Chelsea, London.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS AND HOT WATER APPARATUS MANUFACTORY.

SHACKLEWELL LANE, KINGSLAND, LONDON, N. E.

J. OVERALL begs to call the attention of the Nobility, Gentry, and Nurserymen to the superior style in which he builds, ventilates, and heats Greenhouses, &c., combining durability of materials, workmanship and design. His ventilating system is light and durable, and does not weigh the roof down with great masses of iron work. His Coil Boilers can be made to suit any sized building; there are now several at work with the greatest satisfaction. List of Prices sent on application.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBER, 1857.

DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

THOMSON'S RETORT BOILERS.—I continue to Manufacture the above most powerful and economical Boilers, with recent improvements effected under Mr. Thomson's inspection. The enormous sale they have already met with is the best possible evidence of their great superiority.

The Improved Triple Retort, to heat 3000 ft. of 4-in. pipe. £9.
The Single Retort, to heat 1000 feet, £4.
The Amateur's Retort, to heat 500 feet, £2 10*s.*

In every case a Boiler Plate and free delivery to ship or rail is included in the above prices.

I also Manufacture and keep in Stock every sort of Casting for Heating by Hot water, and supply Estimates and execute such work to any extent by the most experienced mechanics.

JOHN MEIKLEJOHN, Westfield Foundry, Dalkeith, N. B.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE **POWERFUL BOILERS.**

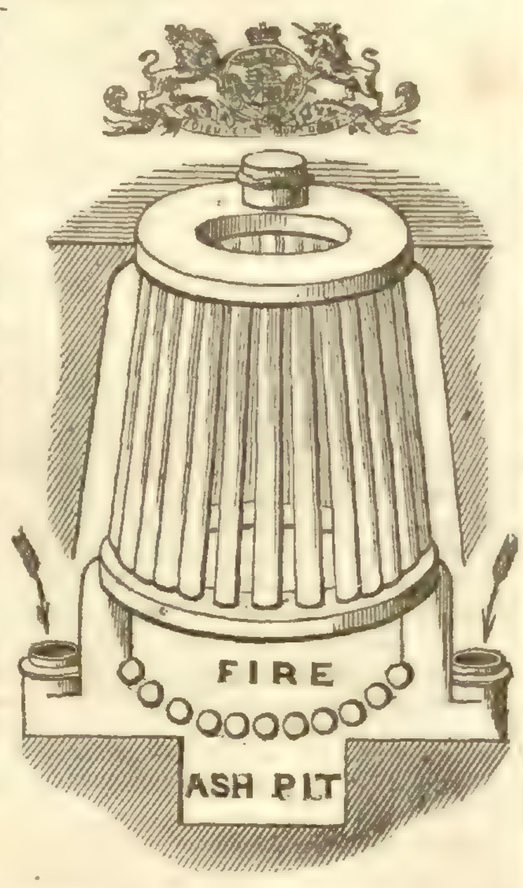
THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturist to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders:*—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

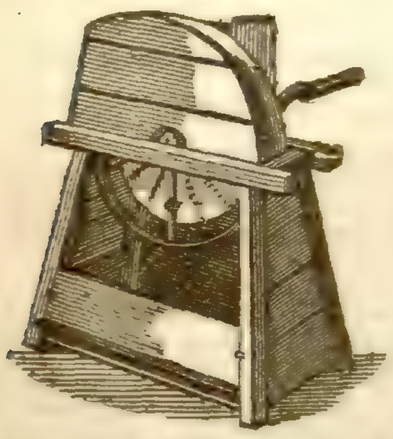
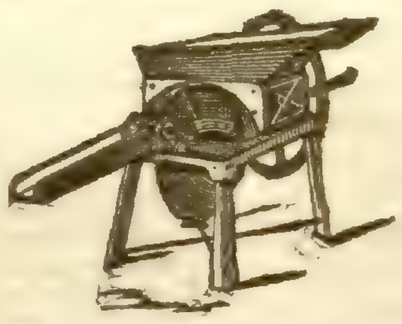
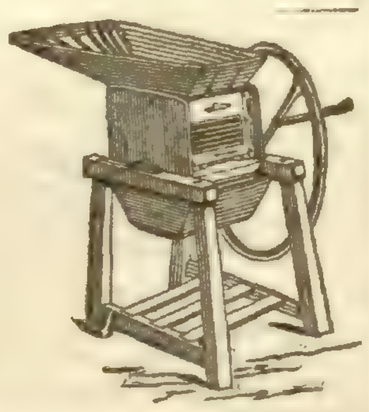
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.

B. SAMUELSON,
BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S.

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
" " Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7 6

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power	£6 10 0
" No. 2, for Horse Power, or may be worked by a man and boy	9 0 0

Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1	£4 10 0
" Pulper No. 2, for power or man and boy	5 10 0
" Pulper No. 3 (Disc principle)	4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.

HORTICULTURAL WORKS.

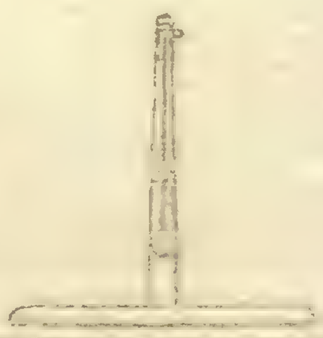
HURD AND VOKINS, 1, Smith Street, and 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS.

Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-Water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges.

Plans and Estimates forwarded on application as above.

WEIR'S SPIRIT DRAINING LEVEL. Price 30*s.*; Case 1*s.*



WEIR'S PENDULUM WORKMAN'S LEVEL. Price 15*s.* Terms cash.

296, Euston (late the New Road), London, N.W.

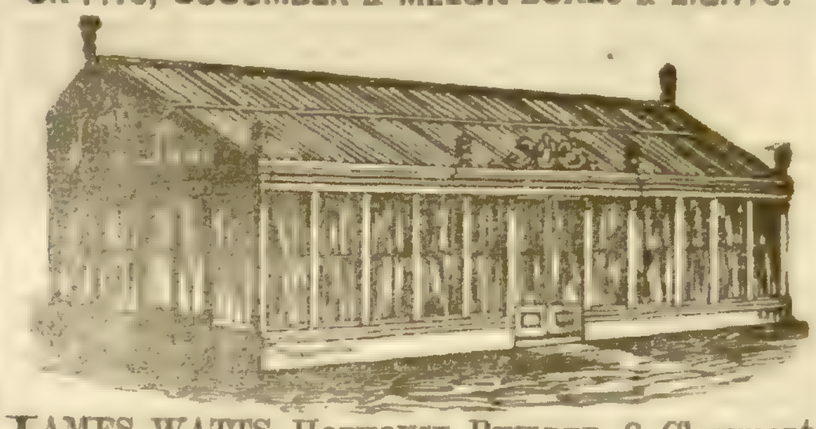
TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to GARNOCK, BIBBY, AND CO., Patent Cordage and Wire Rope Manufacturers, Liverpool.

VENTILATING STOVES! SUSPENSION STOVES!—The two Best, Cheapest, and most Economical. Prospectuses with prices post free.

DEANE, DRAY, & Co., London Bridge. A.D. 1700.

HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England. Heating on the best and most approved principles, and guaranteed to act efficiently.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.*; the DRAW SHAVE STEEL HOE, 4*s.* 6*d.* A Pamphlet, "The New System of Seeding Wheat, &c., with engravings, sent on application to Mr. C. POWELL, Hurstpierpoint, Green, Sussex.

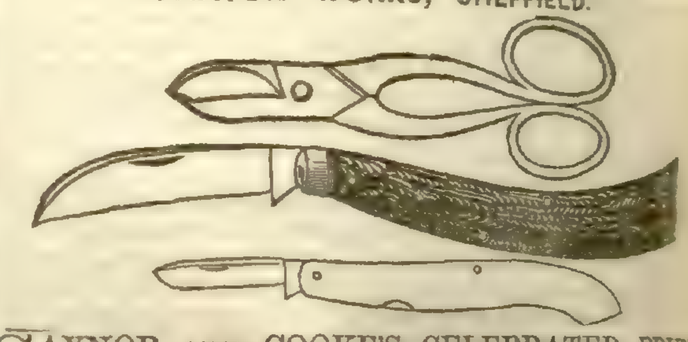
FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies new Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

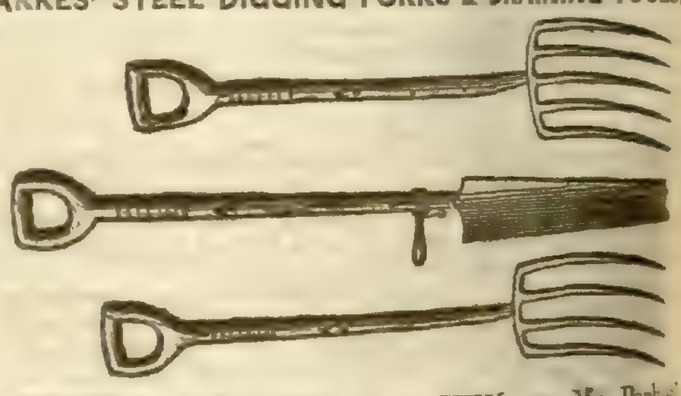
JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.

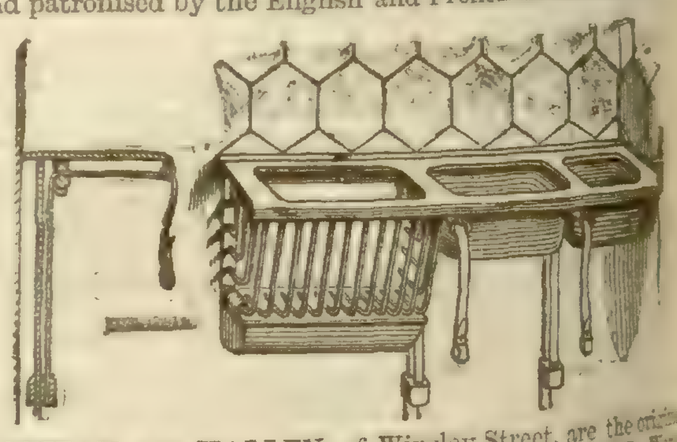


MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogues of the best Farm Implements on receipt of eight postage stamps.

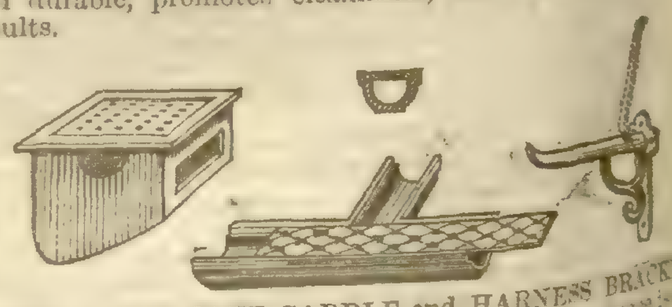
95, Newgate Street, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, which is taken to the back of the manger, and works with ease and freedom up or down the guide bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET, combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out.

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.

ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

IMPROVEMENTS IN HEATING, ETC.

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of warming a large apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot-water.

MUSGRAVE'S PATENT SLOW-COMBUSTION COOKING RANGE on the same plan.

MUSGRAVE'S PATENT STABLE FITTINGS.

These inventions will repay public inquiry. For particulars address the makers,

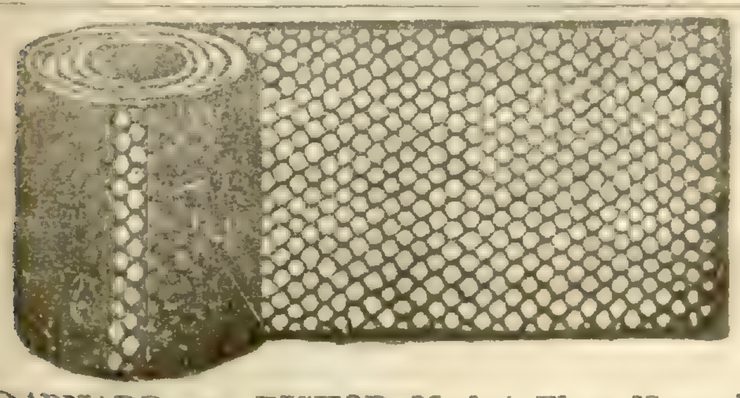
MUSGRAVE BROTHERS, 59, High Street, Belfast.

LIST OF GARDEN ORNAMENTS MANUFACTURED IN AUSTIN'S ARTIFICIAL STONE, at Nos. 1 to 4, Keppel Row, New Road, Regent's Park, London.

21 varieties of Vases and Tazzas at prices varying from 15*s.* to 50*l.*
94 Statues and small Figures.
38 figures of Animals.
17 „ of Birds.
16 Baskets of suitable Pedestals; prices from 12*s.* to 30*l.* Some of these are beautiful ornaments for lawns.
12 different patterns of Flower Boxes for Windows, &c.
Garden Seats.
15 Sun-dial Pedestals
16 Shells for either Water or Rock Plants; the largest size is 12 feet diameter.
Pedestals, square, circular, and octagonal, of almost every size. N.B. These are always perforated, to allow drainage from a vase.
43 Groups of Figures, single Figures, or Architectural Flowers, designed for centre ornaments of fountains.
Ornamental Copings to Ground Basins of Fountains, from 37 feet diameter to any smaller size.

FOUNTAINS.

AUSTIN & SEELEY having erected 218 of these works in various parts of the kingdom since the year 1836, may be presumed to have more experience than any other persons engaged in such work. Their collection now comprises about 200 designs, some of which are of the highest class; and they are now paying special attention to this department of the business, in the expectation that the local water works in course of erection will facilitate the supply of *jets d'eau.* The prices range from 10*l.* to 400*l.*



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch „	strong do.	6 „	4¾ „
2-inch „	intermediate, do. ..	7 „	5½ „
2-inch „	extra strong, do. ..	9¼ „	7½ „
1½-inch „	24 inches wide	5¼ „	4½ „
1½-inch „	strong, do.	6¼ „	5¼ „
1½-inch „	intermediate, do. ..	7½ „	6 „
1½-inch „	extra strong, do. ..	10 „	8 „

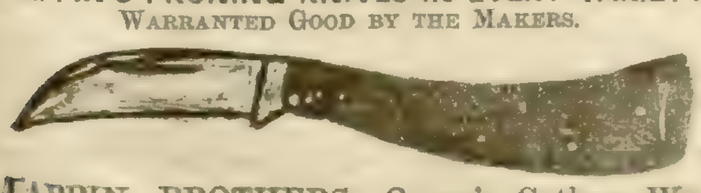
All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

PARTNERSHIP.

MR. JOHN WEEKS will now be happy to meet with a gentleman of energy, of thorough business habits, and with a practical knowledge of the Nursery and Seed Business. The Horticultural Buildings of this Nursery are the finest and most complete of any in the country; they have cost the Advertiser upwards of 6000*l.*, and the whole is well stocked with the choicest plants in the highest state of cultivation.

Applicants will be expected to have a fair proportion of capital at command.

Apply to Mr. JOHN WEEKS, King's Road, Chelsea.

FARM IN LEICESTERSHIRE.

TO BE LET, with possession at Lady-day, a FARM, consisting of 200 acres of very superior Grazing and Arable Land, situate within eight miles of Rugby, and one mile from a station on the Midland Railway.—For particulars, apply to Mr. BAILEY DENTON, 52, Parliament Street, Westminster, S.W.

TO BE LET, in a new neighbourhood, close to the town of Rugby, a SMALL NURSERY and MARKET GARDEN, with Greenhouse, Forcing Pits, and Frames. A good Collection of Greenhouse and Bedding Plants; Fruit Trees in full bearing, Shrubs, &c., also a good supply of Water.—Apply to Mr. MANNING, Surveyor, Rugby.

TWO LEAN-TO ROOF GREENHOUSES TO BE SOLD A BARGAIN, Price 12*l.* each. Greenhouses, &c., warmed by Patent Hot Water Apparatus from 6*l.*, warranted. May be seen in operation at SMITH'S Greenhouse and Hot Water Apparatus Manufactory, 121, Pentonville Road, London.

FOR NOBLEMEN'S AND GENTLEMEN'S PARKS.

IRON POSTS AND RAILINGS FOR SALE.

By command of the Commissioners in charge of Her Majesty's Land Revenues, &c.

TO BE SOLD by Private Bargain, the whole of the IRON RAILING taken down at the top of the Long Walk, Windsor Great Park, before the recent alterations. The materials consist of 225 Cast-iron Ornamental Posts, 5 feet high; 110 16 feet long Wrought-iron Rails, 1½ inch square; 6 Scroll Irons; 1 pair Wrought iron Gates. Can be seen any day at the Timber Yard, Windsor Park.—Application to be made to Mr. MENZIES, Parkside, Englefield Green, Chertsey.

Sales by Auction.

KILBURN.—TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MR. J. WILLMER begs to announce that he will submit to Public Auction, on the premises, Carlton Nursery, Carlton Road, Kilburn, on MONDAY, November 16, and following day, at 11 o'Clock each day, by order of the proprietor, the STOCK of the above NURSERY, which comprises striped and green Hollies, green Box, Cupressus funebris, Taxus fastigiata, Arbor-vitæ, Phillyrea, Laurels, Portugal Laurel, Laurustinus, Cedrus Deodara, Aucubas, Rhododendrons, Kalmia latifolia, Azalea Euonymus, Evergreen Privet, Yews, Berberis aquifolia and dulcis, Lilac, Guelder Rose, Standard, Dwarf, and Climbing Roses, Clematis, Jasmine, Irish Ivy, Standard and Dwarf Apples, Dwarf Pears, Plums, Standard Mulberries, Currant, Gooseberry, Raspberry, Seakale and Asparagus Plants, Herbaceous Plants, &c.—May be viewed three days prior to the sale, and Catalogues had on the premises; at the Auction Mart; and of the Auctioneer, Sunbury Mead, S.W.

CAMELLIAS, AZALEAS, ETC., FROM GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, November 20, at 1 o'Clock precisely, Plants from M. Augt. Van Geert, of Ghent, including 1000 Camellias, well set with buds, of the best leading varieties, from 1 to 4 feet high; 400 Indian Azaleas, well set with bloom; and 500 Lilium lancifolium rubrum, strong roots.—May be viewed the morning of Sale and Catalogues had.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Nov. 10, and THURSDAY, Nov. 12, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

PLANTING SEASON.—FULHAM ROAD.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Shearman to Sell by Auction, on the premises, Rose Cottage, Queen's Elms, Fulham Road, Brompton, on MONDAY, Nov. 9, at 11 o'Clock, without reserve, the NURSERY STOCK, comprising about [illegible] healthy Laurels, from 5 to 6 feet; Fan Yews, 3 to 5 feet; Chinese Arbor Vitæ, Privet, Berberis aquifolia, Aucubas, Rhododendrons, Azaleas, Kalmias, Andromeda floribunda, fine Standard Roses, Dwarf Trained Peaches and Nectarines, Lilacs, Poplars; also a quantity of Asparagus 3 years old, choice Seedling Rhubarb, about 6000 Pheasant-eyed Narcissus, Ivies in pots, Hoya carnosa, Primula fimbriata, &c.; together with a capital Market Cart, Wrought Iron Boiler and Furnace complete, Iron Roller, &c.—May be viewed three days prior to the Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, NURSERYMEN, & OTHERS PLANTING.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on their premises, Wandsworth Road, on TUESDAY, NOVEMBER 10, and following day, at 11 o'Clock each day, the first portion of their valuable NURSERY STOCK, consisting of Standard and Dwarf-trained Fruit Trees, Forest and Ornamental ditto, Variegated and Green Hollies, Laurels, Box, Aucubas, Chinese Euonymus, Privet, Ivies, and other Evergreens. Also handsome plants of Deodar, Araucarias, Yuccas, 200 very fine Standard Roses, including all the most approved kinds; fine plants of Crimson, Sweet-scented, and other Rhododendrons, well set with bloom buds; American Azaleas, Kalmias, Pyrus, Glycine, Lilacs, Dwarf Roses, &c.; with a fine stock of Gooseberry and Currant Trees, Vines in pots, Asparagus and Seakale, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.—N.B. A Sale of Camellias, Chinese Azaleas, and other Greenhouse Plants to take place towards the end of November.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, on FRIDAY, November 13, at 12 o'Clock, a first-class collection of DUTCH BULBS, consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Ranunculus, Gladiolus, &c.; also a fine assortment of 200 fine Standard and Dwarf ROSES, comprising Hybrids, Bourbons, China, Perpetuals, Noisettes, &c.; selected American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c. PROTHEROE & MORRIS respectfully inform their patrons and friends that their Hyacinths and other Dutch Bulbs are particularly fine this season, and will be offered at the Mart, with a splendid and healthy assortment of Standard Roses, selected from 10,000 of their own cultivation.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HAMMERSMITH.

4000 FINE HEALTHY FRUIT TREES.

MESSRS. PROTHEROE AND MORRIS are instructed to Sell by Auction on the premises, Grove Road, Hammersmith, on MONDAY, November 30, at 11 o'Clock, a fine Collection of Dwarf-trained, Untrained, and Pyramidal FRUIT TREES, comprising Peaches, Nectarines, Apricots, Apples, Pears, Plums, Cherries, Gooseberries, and Currants, &c.; also a quantity of Linnæus and Royal Albert Rhubarb, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

IMPORTANT SALE OF NURSERY PLANTS

AND A GOOD GREENHOUSE, 30 FT. BY 10 FT., AT BROMLEY, KENT.

MESSRS. BAXTER are directed to Sell by Auction, on TUESDAY, November 10, and following day, the entire stock on 6 Acres, including Forest and Fruit Trees, Evergreens, &c., of any description, 800 Greenhouse and other Plants in Pots, fine thriving plants, and some younger kinds suitable for bedding-out.—May be viewed 10 days preceding the Sale, and Catalogues had at the Inns in the neighbourhood; and of the Auctioneer, Bromley, Kent.

WINCHFIELD, HANTS.

EXTENSIVE SALE OF NURSERY STOCK.

MR. ALFRED WHITE has received instructions from Mr. Stephen Shilling to Sell by Auction, at the Winchfield Nursery, on MONDAY and TUESDAY, November 9 and 10, at 11 for 12 o'Clock precisely, the whole of the valuable STOCK growing thereon, consisting of upwards of 160,000 Trees and Shrubs, peculiarly suitable for Planting purposes, and well worthy the attention of Landowners, Horticulturists, &c. Amongst the Stock will be found 50,000 Hazels, 25,000 Spanish Chesnuts, 2000 Tall Spruce and Silver Firs, together with a large quantity of Birch, Withy, Weymouth Pine, Larch, Beech, Mountain Ash, Scarlet and English Oak, Alder, Ash, and Sycamore, in addition to 2000 American Plants, comprising Rhododendrons (of sorts), Azaleas (do.), Kalmias, Ledums, &c., also 2000 Standard Rose Trees, and an assortment of other Trees, Shrubs, Plants, &c.—May be viewed 10 days prior to the days of sale, and Catalogues obtained at the Broad Face Hotel, Reading; White Hart, Newbury; White Swan, Winchester; Swan, Alresford; Swan, Alton; Feathers, Basingstoke; George, Odiham; Lion and Lamb, Farnham; Swan, Chertsey; White Lion, Guildford; Bush, Wokingham; and of Mr. ALFRED WHITE, Auctioneer, Estate Agent, &c., Greywell, Odiham, Hants. The Nursery is situated about one mile from the Winchfield Station, on the South-Western Railway. The sale will take place under a spacious Marquee erected in the centre of the Nursery.

NORTH WARNBOROUGH NURSERIES, ODIHAM, KENT.

STEPHEN SHILLING begs to inform the Nobility, Gentry, &c., of this and the adjoining counties, that his stock of TREES this year comprises a particularly extensive selection of fine Evergreens, Ornamental Trees and Shrubs, Conifers, Coppice Plants, and Fruit Trees, together with every article required in Gardening operations, of which he invites an early inspection. He begs also to remind the public that as the Sale by Auction of his stock at Winchfield will consist of only one fifth of his extensive Nursery, it will in no way affect his general trade as carried on at North Warnborough and Hartley Row.—North Warnborough Nurseries, Nov. 7.

NOW IS THE TIME TO PLANT TREES, &c.

D. FERGUSON, Landscape Gardener and Contracting Planter, &c.,

OFFERS on reasonable terms a splendid lot of CEDRUS DEODARA, 2 to 9 feet, not cropped like those to be met with in the grounds of the rule and thumb gentlemen, but allowed to assume their own natural graceful habits. Fine CEDARS of LEBANON, do. ARAUCARIA IMBRICATA, PINUS INSIGNIS, CEMBRA, EXCELSA, ABIES PINSAPO, &c; CUPRESSUS LAMBERTIANA, GOVENIANA, WELLINGTONIA GIGANTEA, &c.; do. SPRUCE, SCOTCH FIRS, LARCH, OAKS, ELMS, LIMES, CHESNUTS, SYCAMORES, ASH, HAZEL, &c.; Bushy COMMON LAUREL, do. PORTUGAL, TREE BOX, AUCUBAS, COMMON and IRISH YEWS, GREEN and VARIEGATED HOLLIES, JUNIPERS, ARBOR-VITÆ, PHILLYREAS, BERBERIS AQUIFOLIA and DULCIS, COTONEASTER MICROPHYLLA, EVERGREEN PRIVET, new DOUBLE PINK and SCARLET THORNS, LABURNUMS, splendid WEEPING ASH, fine STANDARD CYTISUS, a quantity of STANDARD, HALF STANDARD, and DWARF BUSHES of PEACH and NECTARINE TREES, warranted good varieties, and very suitable for planting in the ground or for potting; ROSES, HOLLYHOCKS, HERBACEOUS PLANTS, &c.

D. F. when employed as Garden Architect and Landscape Gardener where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for the charge made for his own time and plans, his object being to dispose of his plants, which he has in large quantities, both for present and future effect.——**Stowe, Buckingham.**

P.S. To save trouble, and in answer to a Madam Ferguson who writes, "Can I give references as to my abilities as an L. G. G. A.?"—as it is somewhat 30 years since I was asked for such, she must excuse me in saying that as I have got through so far without bothering ladies, gentlemen, tailors, *fiddlers*, and tea-dealers, &c., that have employed me, I think it now too late to begin, and would advise Madam F. and others it may concern to employ two L. G., to meet them either in the Crystal Palace grounds, or any of the public gardens, such as Kew, the Horticultural Society, Regent's Park, &c., ask their opinions, which are sure to be at variance, and then choose for themselves, as the L. G. are as plentiful now-a-days as Blackberries. If money is no object to her or them, why not try a dozen? I am also asked, "What are your charges?"—£2 2*s.* per day, with expenses; and I may add, where there is a gardener to be mixed up in the affair I only give advice, and will have nothing to do with carrying on the works. I am sorry to say that from many letters received lately I find there are a number of really good Gardeners now out of Situations; that if I am applied to I shall be glad to have the power to assist them to others.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	**CROCUS**	**ANEMONES**	**IRIS**
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Besides many other Bulbs of a curious and interesting description.

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XX.	Six Plants of fine and remarkable foliage, in flower or not; variegated plants admissible	4	0	3	0	2	0
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XXII.	Cinerarias, in sixes, correctly named .	2	0	1	0	0	10
XXIII.	Auriculas, in twelves	2	0	1	0	0	10
	FRUIT.						
XXIV.	Pine Apples, any sort	2	0	1	0	0	10
XXV.	Grapes, black; three bunches	3	0	2	0	1	0
XXVI.	Do. white do.	3	0	2	0	1	0
XXVII.	Do. retarded do.	3	0	2	0	1	0
XXVIII.	Vines, in pots; in twos	3	0	2	0	1	0
XXIX.	Peaches, in sixes	3	0	2	0	1	0
XXX.	Nectarines, in sixes	3	0	2	0	1	0
XXXI.	Cherries, white	2	0	1	0	0	10
XXXII.	Do. black	2	0	1	0	0	10
XXXIII.	Strawberries	2	0	1	0	0	10
XXXIV.	Apples, in 2 sorts, nine of each; dessert	1	0	0	10		
	Do. do. do. kitchen	1	0	0	10		
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TO BE SOLD, at extremely moderate prices, consisting of Standard Apples, Pears, and Plums, of 12 years' growth and upwards, several thousand Fastolff Raspberries, and some hundreds Red and White Grape Currants, and Rifleman Gooseberries.—Apply to Mr. MITTON, Lampton, near Hounslow, 1 mile from either the Hounslow or Isleworth Railway Stations.

TO SEEDSMEN AND OTHERS.

ABOUT 100 BUSHELS OF BEECH MAST FOR SALE, delivered to any part of London.—Apply, stating price, to EDMUND WINGROVE, Tree Seed Collector, Penn, near Amersham, Bucks.

ERICAS Five Pounds per 100, consisting of obbata umbellata, tricolors of all the leading kinds, ampullacea, ventricosa, Parmenteri rosea, Cavendishii, aristata, vittata, Juliana, jasminoides, &c.; these are splendid young healthy stock. Sample basket containing 12 for 13*s.*, including package.
EPPS's Nurseries, Maidstone.

BROWICK RED WHEAT.

MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s.* 6*d.* per bushel, including sacks.—Address to Mr. FAULKES, Bailiff, Worting Wood Farm, Basingstoke, Hants.
N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14 Seed Market, Mark Lane.

SEED POTATOES!

JOHN W. THORNHILL'S unrivalled assortment is now ready for delivery. The following sorts 14*s.* per cwt., cash, no charge for bags.—EARLY ASH-LEAF KIDNEY, sound and genuine. EARLY QUEEN, fine new Early. THORNHILL'S INCOMPARABLE, fine early round, dry and floury.—Bristol, Lawrence Hill Nursery, and 47, Bath Street.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety :—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonia gigantea, 1 to 1½ foot.
Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants :—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
,, ,, magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
,, ,, 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
,, Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
,, Douglasi, 5, 6, 8. and 10 feet
,, Menziesi, 6 to 8 feet
,, Lambertiana, 2, 3, and 5 feet
,, Cembra, 3, 5, and 6 feet
,, Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
,, amabilis, also from seed
,, Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
,, Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
,, Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
,, Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
,, Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
,, elegantissima, or new Gold Striped, in quantities and of all sizes
,, adpressa, 2, 3, and 4 feet; ditto worked as standards
,, Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
,, Wareana, 3, 4, 5, 6, and 8 feet
,, aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and, as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South-Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity, upon reasonable terms, by land or water carriage.

ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

A LIST OF FRUIT TREES GROWN BY

CLARKE AND COMPANY, NURSERYMEN and SEEDSMEN, 86, High Street, Borough, London, and at Camberwell.

		s.	d.
Apples, Standard, various sorts ..	each	1	6
,, Dwarf, very strong ..	,,	1	0
,, ,, trained	,,	3	0
Apricots, dwarf trained	,,	5	0
Cherries, Standard	,,	2	0
,, dwarf trained	,,	3	6
Currants, Black Grape	doz.	4	0
,, Black Naples	,,	4	0
,, Black, white-fruited	,,	4	0
,, Red Dutch	,,	4	0
,, Red Grape	,,	4	0
,, Red Provence	,,	4	0
,, Victoria or Raby Castle ..	,,	4	0
,, White Dutch	,,	4	0
Damsons, Standard	each	2	0
Figs, in pots, of sorts, from	,,	4	0
Filberts, white and red ..	,,	1	6
Grape Vines, in pots, strong, each 2s. 6d. to		3	6
Gooseberries, best Lancashire sorts, doz. 4s. to		6	0
Medlars, Nottingham and Monstrous, fine Standards ..	each	2	0
Peaches and Nectarines, dwarf trained ..	,,	5	0
Pears, Standard, various sorts	,,	1	6
,, Dwarfs ..	,,	1	0
,, dwarf trained	,,	3	6
Plums, dwarf trained fine	,,	3	6
,, Standard ..	,,	2	0
,, Pyramidal Trees, very fine	,,	2	0
Quinces, Standard	each	2	0
,, Portugal	,,	2	0
Raspberries, Red Antwerp,	p. doz.	2	0
,, Yellow Antwerp	,,	2	0
,, Fastolf	,,	2	0
,, Ratter's Giant	,,	3	0
,, large fruiting monthly ..	,,	3	0
,, Turban, fine ..	,,	3	0
Strawberries, Black Prince, Cuthill's ..	p. 100	3	0
,, Elton Pine ..	,,	3	0
,, Hautbois, Myatt's new fertilised	,,	5	0
,, Hooper's Seedling .. .	,,	3	0
,, Kitley's Goliah, fine	,,	3	0
,, Princess Alice Maude ..	,,	8	0
,, British Queen ..	,,	3	0
,, Comte de Paris	,,	3	0
,, Keens' Seedling	,,	3	0
,, Myatt's Eleanor	,,	3	0
,, Ingram's Prince of Wales ..	,,	3	0
,, Sir Harry ..	,,	20	0
Mulberries, standard,	each	5	0
Asparagus, Grayson's, 2 years, per 100		3	0
Seakale ,, ...		8	0
Mushroom spawn, per bushel		4	0
Myatt's Victoria Rhubarb,	each	0	9
,, Linnæus do. ..	,,	0	9
Mitchell's Albert do., fine forcing	,,	0	9
Mats, large Russia ..	,,	1	6

Early Peas, early Radish Seed, Long Pod Beans, Ash-top Kidney Potatoes, &c.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara, ,, Africanus, Cedar of Lebanon — 1 to 10 ft. The largest and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Avacahita, 1 to 8 ft.
,, Benthamiana, 1 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft
,, insignis, 1 to 8 ft
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 8 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Plane, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 100 species and varieties, including Althæas, Berberis, Cistus, Deutzias, Daphnes, Cilicas, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18s. p. doz., and upwards: Dwarfs, 6s. do. and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year :—

May 30, Crystal Palace.—12 Roses in pots .. FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots .. SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)
June 18, Royal Botanic Society—50 Cut Roses .. FIRST PRIZE
Do. do. 10 Roses in pots .. SECOND PRIZE
June 24, Brighton .. 50 Cut Roses .. .. FIRST PRIZE
June 24, Manchester .. 50 Cut Roses .. .. SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.
July 1, Royal Botanic Society—24 Cut Roses .. FIRST PRIZE
,, do. do. 50 Cut Roses .. FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses .. FIRST PRIZE
,, ditto, collection ditto .. FIRST PRIZE
July 9, Diss .. 50 Cut Roses, FIRST PRIZE, SILVER CUP
,, do. .. 100 Cut Roses, FIRST PRIZE, ,,
July 15, Stamford .. 12 Cut Roses, FIRST PRIZE, ,,
Sept. 9, Crystal Palace 50 Cut Roses, FIRST PRIZE, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18s. to 24s. per dozen, as Standards, and from 12s. to 18s. per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15s. per 100; 50 for 9s.; and 25 for 5s.; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

THE SALWAY PEACH.

CHARLES TURNER has much pleasure in calling attention to this very valuable new variety, raised by Colonel Salway, Egham Park, Surrey. It has been fruited at the Royal Gardens, and Mr. Ingram has forwarded the following testimonial to its merits :—

(Copy) THE SALWAY PEACH.

"I am pleased to bear testimony to the excellence of this new LATE YELLOW PEACH. It is a variety quite distinct from other late kinds, both in appearance as well as in the texture of the fruit. The flesh is of a deep orange colour, like that of an Apricot, soft, melting, and juicy, very saccharine, highly aromatic, and separates clean from the stone. The fruit is of good size, and ripens on the open wall the beginning of November. The Salway Peach will be found a valuable acquisition, owing to its lateness and good quality.

(Signed) "THOMAS INGRAM.

"Royal Gardens, Frogmore, Sept. 23, 1856."

In the "Florist" for December, 1854, Mr. J. Powell, of the Royal Gardens, writes :—"The fruit is round, skin deep orange, tinged and mottled with red on the sunny side; flesh orange tinged with red at the stone, melting and juicy, with a highly perfumed flavour. It is a perfectly hardy variety."

(Extract from the Transactions of the British Pomological Society, No. 1.)

"A seedling Peach raised in the garden of Colonel Salway, from a stone brought from Italy, was exhibited by Mr. TURNER, of Slough. The fruit was of medium size, and of a deep golden yellow colour; the flesh also of a rich deep yellow colour; very melting, juicy, and vinous, with somewhat of the flavour of an Apricot. Although this was gathered from the wall on the 4th of November, it was in as great perfection and as highly flavoured as any of the September varieties, and was highly recommended by the Society as a valuable late Peach."

There is every reason to believe it will be an excellent forcing variety, as it sets freely and is a good bearer, and as it can be had so late in the season it is an invaluable variety.

DWARF-TRAINED TREES .. 10s. 6d. each.

The usual discount to the trade, with a further allowance if 12 plants are taken.

Royal Nursery, Slough.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are :—

Well furnished plants, 10s. 6d. each; 12 do. do., 5l. per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Nov. 14.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

SPECIMEN TEA-SCENTED ROSES

IN 6-INCH POTS FOR EXHIBITION AT 30*s.* PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s.* 6*d.* to 21*s.* each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FINE ROSES FOR THE MILLION.

NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

UNEQUALLED NEW STRAWBERRY RIVAL QUEEN.—This has proved itself to be the best variety ever yet sent out, possessing all the good qualities for which a Strawberry is required. Now ready, strong well rooted plants, 1*l.* per 100; 50 for 11*s.*, hamper and package free; 25 for 6*s.*; 12 for 4*s.*, postage free. A Post-office Order or 1*d.* postage stamps must accompany all orders. For further particulars of this and other sorts see advertisements in this Paper of the 10th Oct., page 690.—EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

DUTCH ROOTS, &c.

WILLIAM CUTBUSH AND SON beg to intimate that their first importation of HYACINTHS have arrived in excellent condition. Descriptive Catalogues post free on application.

WM. C. & SON strongly recommend to Amateurs and others their CASES of BULBS at TWO GUINEAS and FIVE GUINEAS, delivered free to any Railway Station.

Highgate Nurseries, London, N.

DUTCH BULBS.

MESSRS. PARKER AND WILLIAMS beg to inform their friends and patrons that they have received their annual importation of HYACINTHS and other BULBS, and are pleased to say they are particularly fine this season. Early orders are solicited, as their successful cultivation depends in great measure on early planting.—PRICED and DESCRIPTIVE CATALOGUES are now ready, and will be forwarded post free upon application. A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters Road, Holloway, London, N.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. JOS MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

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J. C. PADMAN has great pleasure in offering the above superb Verbenas for next season's display.

QUEEN OF ROSES, for bedding purposes, will be found unequalled, and of which the *Gardeners' Chronicle* of the 8th August last says, at page 551: "Amongst Verbenas was a seedling which, for massing, is certainly unsurpassed in its class; the colour is a deep purple, lilac tint: it is good in habit and a profuse bloomer, several beds of it were remarkably effective." Plants ready in December, to enable purchasers to propagate stock for next season's display. Price 3*s.* 6*d.* each, or three plants 10*s.* post free.

SUNSET.—An immense and compact truss of superb form, quite new, and distinct in colour, being a beautiful rosy pink. No stand will be perfect without this flower. Ready in May 1858, post free, 5*s.* each; only a very limited supply.

HOLLYHOCK and PANSY SEEDS carefully gathered from the best named varieties.—40 Seeds for 1*s.*, 100 Seeds 2*s.*, 200 Seeds 3*s.* 6*d.*

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MESSRS. P. J. AND J. PERRY beg to offer to the Nobility, Gentry, the Trade, and extensive planters, 500,000 Mahonia or Berberis aquifolia; 10,000 English Elm, all sizes; 10,000 extra fine Spruce, 4 to 10 feet; Oak, Larch, Poplar, Lime, Hornbeam, and other Forest and Ornamental Trees in large quantities; Yews, 3 to 7 feet; Laurels of all sizes; Cedars of Lebanon, 3 to 10 feet; Irish Yews, 2 to 7 feet; Phillyreas, Weeping Hollies, and a very extensive stock of Evergreen and Flowering Shrubs, an inspection of which is earnestly requested. Their Catalogue containing a first-rate collection of Conifers, Ferns, &c., may be had post free on application.

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JAMES LAKE begs to offer for sale 1000 dwarf-trained Fruit Trees of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 50,000 strong 3 and 4 year old Currants of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch Gooseberries, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, standard worked Thorns and Laburnums.

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Lynch's Star of the West	Ward's Great Western
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Sion House "	" Botcherby Hybrid
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Cuthill's Black Spine	Sir Colin Campbell
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SUTTON'S BERKSHIRE CHAMPION CUCUMBER.

To the Editor of the GARDENERS' CHRONICLE.

"SIR,—From a last year's plant of SUTTON'S Berkshire Champion, growing in a small two-light pit, 8 ft. by 9 ft., the plant occupying but one light, I have cut, from May 4th of this year, 112 feet of fine fruit; and there are six growing on the plant at the present time that measure 11 feet 2 inches in length. The pit is heated by dung linings only. I cut two fruit the latter end of March from the same plant, which measured upwards of 3 ft. in length each."—(Signed) THOMAS POLLINGTON,

Gr. to Wm. Hervey, Esq., Bradwell Grove.

SUTTON & SONS, Reading, have confidence in recommending their Berkshire Champion Cucumber as the handsomest, best flavoured, and most prolific Cucumber in cultivation. Price 1*s.* 6*d.* per packet, post free.

Royal Berkshire Seed Establishment, Reading.—Nov. 14.

TO THE TRADE.

DAVIES AND FRANCIS beg to offer the following articles:—

	Per doz.—*s.*	*d.*
Gompholobium barbigerum, 6 to 9 inches, in 3-inch pots, fine healthy stuff	9	0
Ditto, dwarf bushy species, fine	36	0
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The above may be relied upon as being fine healthy plants. Reference or Post-office Order from unknown correspondents.

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The objects of the Company are to supply everything required for the Garden and Farm, of the best description, at moderate prices.—Address,

Plymouth Seed, &c., Company, Plymouth, Devon.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 14, 1857.

MEETINGS FOR THE ENSUING WEEK.

THURSDAY, November 19—Linnean..... 8 P.M.

IT is to be hoped that the valuable lesson in practical gardening lately read to the world by Mr. FLEMING, of Trentham (see p. 740), will be carefully remembered. It is full of wise advice, founded upon long experience, and supported by results that no man can gainsay. How many there are who want such counsel must be evident to all who are conversant with VINE GROWING. It is indeed inconceivable how men of average intelligence can possibly commit the folly of which we see examples in all directions, and which, in one of our most valuable and costly crops, inevitably leads to vexatious failure.

Some people think that the pruning knife is the gardener's "Great Apollo;" that with such a weapon, applied according to well-established pruner's law, success is certainly to be achieved. "Do show me how you cut your Vines," is a continual petition from the unsuccessful to the successful; or "I don't know how it is, but my Grapes never colour well, and set badly, and are always shanking, and yet I defy a man to be more careful than I am in pruning; in fact, my Vines are cut exactly as at Frogmore." Another experienced gentleman claims to be an unexceptionable Vine grower, "having learned how to cut Vines under the great Mr. CRAWSHAY," and yet he fails more even than those who have been taught by smaller men.

There was not long ago a gardener, one SIMON TONGUE, skilful enough in many things, who planted a new Vinery with Muscat Grapes, and never obtained a bunch out of the house, although in another Vinery close by, prepared before he came to the place, the crops of Black Hamburgh were first-rate. And it would not be difficult to point out a country garden where the Vines bore well for five or six years, then began to shank and fail, and at last ended in absolute sterility, to the confusion of the poor gardener, who really thought his Vines bewitched. Hundreds of cases of this last kind, a little modified by local circumstances, are to be found all over the kingdom.

If gardeners would consult the spade as well as pruning knife they would avoid such disasters. To prune skilfully a Vine planted unskilfully is like richly furnishing a house built on sand; the foundations give way and the decorations are crushed in the general ruin. So far as Vines are concerned it would be better to leave them unpruned than to plant them in earth they cannot feed upon, or in places where their roots gangrene at the extremities. The Vine requires a strong dry warm soil, and people plant it in a light, wet or cold border. How can the knife make such Vines thrive?

Mr. SIMON TONGUE and his house of Muscats is one of a class, now we hope becoming scarce. He made a border 4 feet deep, with a little loam and a great quantity of sweepings from a plantation, consisting of Fir leaves, bits of stick, rotten wood and similar materials; finishing off with a good dose of rotten dung. "There," said SIMON, triumphantly, "that is the way to grow Grapes; there'll be no such Muscats in this part of the country, I expect. What can master know about Vines?" This was in allusion to an objection to Mr. TONGUE'S way of making a Vine border, about which Sir EDWARD OAKWOOD, a sensible country gentleman, had presumed to express his doubts. Well,—the Vines were planted and grew away famously; to their "splendid wood, and immense leaves" Mr. SIMON pointed with admiration. By degrees a few blossom bunches appeared—not many—but somehow they didn't set, and the wood was shy of ripening. "That's the new glass," said SIMON; "I thought how 't would be. If I had the famous old houses I left at Scramble Hall we should have had better luck than this. We must change the glass." Here, however, the worthy baronet stepped in with a peremptory NO. He thought that as his Hamburgh Vinery glazed with exactly the same glass did remarkably well, Mr. TONGUE'S opinion upon that point must be wrong. So on they went as before; and Grapes began to set—not many however. But set though they did there was no persuading them to ripen, for when half-grown they shanked worse than any in the neighbourhood. Time went on, the Vines grew weak, the wood was spindling, and Grapes came none, but there was plenty of mildew. Mr. TONGUE was astonished; thought it must be the air, or else the water, or else the boiler, or else the fuel. At last, ashamed no doubt of such an end to all his boasting, he discovered that the place did not suit him so well as it had done, and a successor was found. The new gardener thought he might as well look at Mr. SIMON'S Vine border: and what did he find? Roots? Very few, half rotten and deep below the surface. In their place was a sodden mass of sour mould and plenty of "fungus."

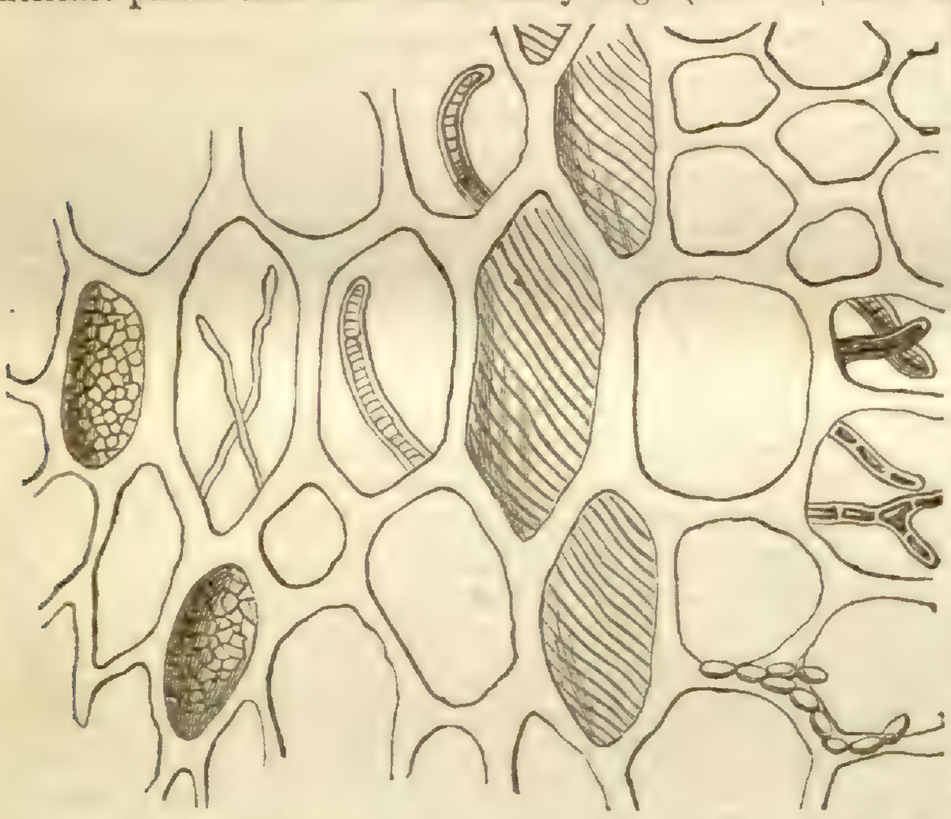
The case with our East Country friend who thought his Vines bewitched was not quite the same, for the border had been good so far as materials were concerned, as indeed had been shown by the crops of Grapes obtained for the first few years. It however had been made 4 feet deep on a bed of cold sour clay; the Vines so long as the roots were near the surface did very well, but by degrees they got down into the lower part of the border, and from that time the Vines were ruined. Not wholly however in either this or the other case. It was only necessary to remove the bad material and construct the border properly, in order to restore the Vines to health. But how to do this was the question. It is that which Mr. FLEMING has told so plainly in the communication we lately printed; and it is to it that we invite attention.

One thing only demands a word of explanation. The Vine borders at Trentham are made upon a bed of concrete two feet below the surface, a method rendered indispensable from the nature of the soil and the low situation of the garden, and always advisable in similar places. It is to this that Mr. FLEMING refers when telling how he replanted his old Vines. Of course where concreting is not required the processes connected with it are not to be insisted on.

LIKE every other department of the garden the Orchis house is subject occasionally to bitter disappointment. The plants will flourish for years under some given treatment, when all at once the leaves spot, the roots wither, and there is in a few months perfect desolation, where everything before was health and beauty. We do not doubt that in the large majority of instances the cause consists in "overheating, overwatering, and underventilation," but we are perfectly willing to allow that such mal-practice is not always chargeable where disease appears. Still it must be remembered that

the conditions of the atmosphere are by no means invariable, and that some of these, though extremely subtle and inappreciable under our existing state of knowledge, may be of the utmost importance to health, and may demand proportionate variations of treatment. Besides, species from various climates are congregated in the same house, so that at the very moment when damp is necessary to one it may be fatal to another, and though the evil effects may not appear at once, after a few years' cultivation the constitution may fail, and death ultimately ensue. It is however possible that an injurious degree of damp may really exist sometimes where it is not suspected. Some roots of *Barkeria spectabilis* have just been submitted to us, with a view to ascertain whether there is any parasite upon them which might be injurious, when every precaution has been taken to give the proper degree of air, moisture, and ventilation. The house is said to be too dry for Mexican Stanhopeas, such as *S. oculata*, and yet there are appearances about the roots which indicate a considerable degree of moisture. The tissues of the plant meanwhile are not without traces of fungi, but of such only as may have arisen after death, and to which disease could not be attributed with any degree of probability.

The singular point in the case before us, and one which we have not hitherto noticed, is that the tissues of the roots are extensively traversed by three kinds of Algæ. One of these is the common *Chroolepus aureus*, a frequent inhabitant of damp walls and wood in stoves, and is present on the roots in such abundance that they have the scent of Violets, which is characteristic of many orange-coloured parasites; a second the infant state of some unknown Alga, not merely occupying the cavity of the cells, but penetrating in the shape of necklace-shaped threads between the layers of which their walls are composed; a third, some Alga allied to *Scytonema*, but too imperfectly developed to say what it is. Now it is very possible that these productions may have penetrated the tissues after partial decomposition had taken place, but if they were developed at all upon the roots while growing there can be no doubt that they would be highly injurious to health. It is well known that there is not a more fatal pest to young delicate plants than the black slimy Alga (*Micro-*



coleus repens) which so often covers the surface of the mould, and it may easily be conceived that such production may be highly detrimental to the tissue of the roots, while the external cells are in active vegetation, nor less so when they have assumed a different condition, and are simply reservoirs of air. Such productions are the creatures of damp, and cannot flourish without it, and though the degree of moisture may be only such as is necessary for the health of the greater part of the inmates of the stove, it may still occasionally be fraught with mischief, in accordance with the imperfection which is attendant more or less on all human efforts. Still the surest step to the remedy of an evil is the knowledge of its cause, and it may, therefore, not be useless to record the information which the microscope has unexpectedly afforded on a disputed point. Its real importance must be estimated by the cultivator.

Our figure presents a highly magnified longitudinal section of one of the roots. Two of the more deep-seated cells are filled with some half-grown fungus of the sphæroid group; the adjoining cell contains threads of some common mould, probably *Botrytis vulgaris;* two neighbouring cells and one of the outermost contain threads of *Scytonema*, or some allied genus, while two others are affected with *Chroolepus*, and an imperfectly developed unknown Alga. Had the section been extended to the surface the cells would have been far more plentifully furnished with the Algæ. It is to be observed that the component layers of the walls have been omitted to avoid confusion. *M. J. B.*

New Plants.

214. CHEILANTHES BRACHYPUS, Kunze, Lin. xxiii, 307. C. SQUAMOSA, ? β. BRACHYPUS, Hooker. NOTHOCHLÆNA SQUAMATA, Hort. Ang.

Caudex short, erect; fronds short-stalked, oblong lanceolate, pinnato-pinnatifid, hoary-villous on both surfaces with loose white entangled hairs, and clothed beneath, especially on the ribs and rachides, as well as on the stipes, with ovate acuminate fimbriated rufous scales; pinnæ oblong obtuse, deeply pinnatifid, the lower short, entire, or three-lobed; segments oblong, blunt, subfalcate; sori distinct punctiform, with a continuous indusium.

A rare and elegant Fern, forming a compact somewhat rosulate tuft around the erect crown. Fronds 4 to 8 inches long, hoary with long white entangled hairs on both surfaces, and clothed on the under surface, especially on the rachides and ribs, with imbricated, ovate acuminate, reddish-brown scales, having a jagged or fimbriated margin. The very short stipes is also scaly. It is a true Cheilanthes (though figured by Lowe as Nothochlæna squamosa) related to C. squamosa, but

essentially distinct from that plant in being not bipinnate, but pinnato-pinnatifid, its segments entire, and not sinuately-lobed as are the pinnules of that species, which latter again is of a different outline, smooth above, more densely scaly beneath, and without the woolly hairs which entirely envelope C. brachypus. It is a species requiring care in its cultivation, being damaged by too much or too long-continued dampness either about the hairy fronds, or at the root. It should be planted in sandy peat, with potsherds intermixed, and kept in a greenhouse temperature, with a dryish atmosphere, such as is required by many other species of Cheilanthes and Nothochlæna of similar cultural habit. It is a native of Mexico.

215. CHEILANTHES FRIGIDA, Linden, Catalogue 1856. MYRIOPTERIS FRIGIDA, J. Smith, Cat. Ferns, 29.

Rhizome creeping; fronds long-stalked, triangular-ovate, trisubquadri-pinnate, smooth above, beneath as well as on the stipes and rachides everywhere clothed with long shaggy pale-coloured hairs; pinnæ spreading, the lower unequalsided; secondary pinnules distinct, roundish, shortly-stalked, the terminal ones obovate-cuneate; indusium intra-marginal, continuous around the small roundish segments.

This plant is similar to the true Cheilanthes lendigera (not lendigera of most gardens, which is elegans) in many respects, having like it a creeping rhizome, and hairy, not scaly, fronds; but as a garden plant, at least, it is quite dissimilar, being of larger growth and more vigorous appearance. The fronds are triangular, the pinnæ spreading at nearly a right angle from the rachis, with remarkable regularity, which, together with the distinctness of the pinnules and pinnulets, gives the plant altogether a different appearance. The ultimate pinnules are also larger. These pinnules, small in comparison with those of Ferns in general, have the indusium so continued around them near their margin that their under-surface becomes pouch-like or pocket-shaped, as in the other allied species, and hence the name of Marsupianthes proposed for one of them by Prof. Fée. The whole group has been separated from Cheilanthes by the same author under the name of Myriopteris, but there seems to be no necessity for, nor advantage arising from their separation. The fronds in average sized specimens of C. frigida are about a foot and a half in height, including a stipes of 8 or 10 inches; the lamina is from 7 to 8 inches long, and upwards of 4 inches across the base. It was introduced by Mr. Linden from some part of South America, probably Mexico. It is one of the most ornamental species of the group, and tolerably free-growing with careful treatment. The true C. lendigera, to which the plant is undoubtedly closely related, is often known in gardens as C. tenuis. *M.*

MANURE FOR CONIFERS.

Is it true that manure is injurious to Conifers, as you have stated at page 662, or are we blindly paying homage to preconceived notions and antiquated prejudices, which have no foundation except mere fancy to support them? I have lived long enough to know that many of our fears in relation to the use of certain soils and manures in plant cultivation are absolute prejudices, and I venture to assert that this outcry against the use of manure for Conifers is one of them. More than 20 years ago the late Mr. Knight (I quote from memory) detailed a very successful experiment which he had made with liquid prepared from pigeons' dung for the growth of Heaths, but his facts were thrown on desert land; routine knew that Heaths grew on poor sandy peaty soil, and could not require such stimulants as pigeons' dung, which at that time was not considered fit for use until it had rotted two or three summers, or until in fact the goodness was washed or dried out of it.

But how stands the matter now? Ask the great London exhibitors, the Dods, and Greens, and Taylors, and they will tell you that they find a still stronger manure, guano in a liquid form, excellent for Heaths and all Ericaceous plants; and that in fact it and similar manures form the groundwork of the marvellous success which they attain in plant cultivation. In fact I know no exception to the rule, that all plants like liquid manure if applied at the right time, and that for 8 months in the 12 it in a very diluted state may be used without the slightest fear of doing injury. For nearly 15 years I have been obliged to use hard water for almost all plants, and frequently direct from a cold spring, but I always softened it by an admixture of manure water, and hence I may assert for nearly the whole of that period I have used manure water daily, sometimes weak, sometimes strong, but always manure water.

Now during that time I have grown a tolerably extensive collection, in fact almost all the leading plants in cultivation; Heaths and other hard-wooded plants, Ferns and Orchids, soft-wooded plants and fruits, and yet I have never known any one of them injured by the application of liquid manure. I know Ferns and Mosses delight in it, and the same may be said of Dendrobiums, Stanhopeas, Cattleyas, Aerides, Saccolabiums, &c., while when in a pot-bound state the more hardy varieties of Heath, and such delicate Azaleas as Lateritia variegata, &c., may, in the growing season, be allowed to stand in weak guano water for days together, and with very decided advantage to their growth. True, it may be asked, what has this to do with the growth of Conifers? I might answer by another question, viz., in what special peculiarities of constitution or organisation do Conifers differ from other plants? It may be said they delight in Alpine or mountain scenery, they or at least some of them grow on rocky or shallow soils, sticking in the craggy precipice where few other plants attempt to brave the storm; but others grow in swamps, the mammoth of the forest, Wellingtonia gigantea, among the rest, and as far as my experience extends not one of them refuses a good soil. They may grow on a shallow soil or a poor shaly rock, but they delight in rich sandy turfy loam, enriched by an admixture of leaf mould or perfectly decayed cow-dung, and still further enriched when the plants are thoroughly established by an occasional washing in the growing season of weak manure water. Go to the Bagshot nurserymen and ask them if they are afraid to enrich the ground for this class of plants. If they were it is quite certain they would not be able to supply the choice kinds so fine and so abundantly as they do. When they enclose a piece of ground for nursery purposes what do they do? They do not dig or trench and plant immediately with nursery stock; they know the ground is too poor for that; but they first give a good heavy manuring—Waterers use stable dung, Standish that of cows—and then take a crop of Turnips or Mangel; and that crop cleared the ground is in excellent condition for general stock, as fruit trees, Roses, American plants, Conifers, &c. I have had American plants and Conifers from the Bagshot nurseries with the roots completely imbedded in pieces of half-decomposed cow-dung, and in my own practice I have used cow-dung for these plants with very manifest advantages. The caprices of plants in relation to manures are very singular. Take and throw in a handful of cow-dung with the soil you are going to pot an Erica or Epacris in, and a thousand to one the plant will die, but steep the dung in water and give the essence to the plant, and it will reward you by assuming its brightest livery and most healthy look. How is this? It would appear that it is the mechanical, not the chemical constituents which the plants object to, and hence the reason why the edict "manure not at all" for Conifers has been so widely, I might almost say universally, spread. Acrid dung has been digged in and the plants planted immediately, but had the Bagshot plan been followed, or the essence instead of the solid been used at the proper season, rest assured a very different result would have been attained.

In offering these observations, which I do in opposition to what I believe to be a prevailing error, I would beg that my object may not be misconstrued, and that persons will not rush to manure their sickly or stinted Conifers as they would an Asparagus bed or crop of Cabbages. Many Conifers are no doubt suffering from being pot bound, and improperly planted, and numbers, too, I am quite convinced, are dragging out a miserable existence from inanition—pure want of food. To such I say, apply the watering pot once a week with weak manure-water from April to October, and tell me this time next year if they are not improved by the application. Where it can be done a top-dressing of perfectly decayed cow or horse dung, intermixed with leaf-mould and applied immediately, will be found of equal advantage. Let no one imagine that Conifers

form an exception to the general rule; they delight in rich, well-drained land, and if it is not naturally rich it may be made so by artificial applications, so long as raw fresh dung is not used and brought into immediate contact with the roots. *A. P. W., Orchardleigh Park.*

ON THE DEVELOPMENT OF THE FLORAL ORGANS IN THE PEAR,

PRECEDED BY SOME REMARKS ON THE VALUE OF CERTAIN SPECIFIC CHARACTERS, BY M. J. DECAISNE.

(Translated from Bulletin de la Société Botanique de France, Session of April 3, 1857.)

IN presenting to the Society the first numbers of the Jardin Fruitier du Muséum, I explained the object I had in view, viz., to describe the species and varieties of our fruit trees, and at the same time to attempt to ascertain, amongst the innumerable modifications which they present in form, colour, and flavour, more solid characters than those which are at present assigned, and if possible characters which are really specific. I asked myself whether the globular fruit, no larger than a Cherry, which is produced by some wild Pear trees, could be reduced to the same specific type as those enormous fruits known under the names of Belle Angevine, Bon Chrétien d'Auch, &c., which attain or even exceed the weight of two kilogrammes (near 4½ lbs). It is true that the specific identity of these different varieties is possible, though it is at the least very doubtful, and proper data are wanting to solve the difficulty. In studying the flowers of our cultivated Pear trees, we easily recognise two types; the first with flat elliptic petals, diverging the one from the other; the second with broad rounded petals, hollow like a shell and imbricated at the borders. Do these differences then of the floral organs always correspond with different habits in the trees on which they occur, as also with distinct forms in the fruit, as conical or globular? This question I cannot decide, nor does any one seem to have entertained the notion. In calling the attention of the Society to this and allied questions, I expressed the desire to see botany enter upon the path of experiment, as a sure means of ascertaining what are really species. The cultivation of plants difficult of determination, their reproduction from seed during several generations and artificial crossings, furnish in the greater number of cases the means of removing all uncertainty. The following are examples:—The observations which I made as long ago as from 1829 to 1832 on the genus Isatis have shown that a multitude of plants described as distinct species, and apparently well characterised, gradually subside in our gardens into a single species, the well-known Isatis tinctoria. The same is the case with a genus of Crucifers discovered in Dahuria, Tetrapoma, remarkable for the curious structure of its fruit, which in the Jardin des Plantes resumed in a few years the normal form of a Camelina. The monograph of the genus Cucurbita, which will soon be presented by the author, M. Naudin,* to the Society, will furnish other perhaps still more remarkable examples of the variation of forms in certain species, and of the no less remarkable constancy of some of these secondary forms, taken frequently for distinct species.

I conceive indeed that natural history in general, after having so long been merely a science of observation, must strive to become a science of experiment; and that botany in particular must have recourse to direct proof to fix in a certain and definite manner the characters of an immense number of ill determined species. I might add that it would be a great acquisition if describers of plants would condense their species by reducing them to really stable and natural types instead of dividing and multiplying them *ad infinitum*, as has been the custom for the last 30 years. This opinion is not exclusively my own; it is also that of my excellent friend Dr. J. D. Hooker (Flora Indica, Introductory Essay, &c.), I might say indeed of all sober monographists, who feel instinctively that the path in which science is engaged, and the remark is as applicable to zoology as well as botany, will end sooner or later in chaos, which would be its death.

Like many others I have myself more or less participated in these narrow conceptions of species, but time and experience have modified my ideas, and if I were going to recommence the monograph of Plantagineæ, and to publish it in some other work than the Prodromus, I should not hesitate to reduce, more than I have already done, the number of species, and perhaps to refer some entire sections to a single specific type. It would suffice to cast a glance upon the series of plants in the section Arnoglossum, Psyllium, Coronopus, and some others to convince oneself that there would be nothing rash in making these reductions, and that an incontestible advantage would result, viz., that of simplifying the study of the Plantains, which is sufficiently difficult in itself without adding the luxury of artificial difficulties.

In offering to-day a new number of the Jardin Fruitier du Muséum to the Society, I shall ask permission to bring before it the subject of the development of the flower and fruit of the Pear tree. My organogenic researches on this subject date from the end of 1855, and they have been followed up almost to the present moment. I have been able to observe the flower bud from its first appearance, and I believe that no phase of the development of the different parts which it contains has escaped me. My observations moreover will be easily verified.

When we examine very young flower buds of the Pear, towards the month of October, that is to say, in the buds which will not be developed till the following year, we find that they are ovoid, sessile, scarcely so big as the head of a little pin, and crowned with fine appendages converging towards each other, which are the rudiments of the divisions of the calyx. On dividing these longitudinally, we remark at the base and on the walls of the cup, circumscribed by the nascent calyx, slight projections or papillæ, of which five, more interior and ranged symmetrically round the ideal centre of the cup, are presently distinguished from all the others by their more rapid development. These are the carpels, which at first are independent of each other, and also free from all adherence with the organs which are formed around them. Almost immediately after the moment of their appearance we perceive a slight channel developed upon the face which is turned towards the centre of the bud, which indicates the line of juncture of the edges of the carpellary leaf. A little later the chamber or cavity which is formed between the folded edges becomes discernible, and still later the two ovular papillæ, springing at the base of the cavity from the very edges of the carpel.

I have just said that at first the carpels are free in the receptacular inclosure of which they occupy the centre; nevertheless, when the fruit is perfect we find them deeply immersed in the parenchymatous and succulent tissue of the fruit. How then does this investiture take place which seems in contradiction to what was first observed? I will endeavour to explain this in a few words.

Almost at the time when the young ovaries spring from the bottom of the receptacle under the form of obtuse cones, we see a new cellular tissue arise upon the walls of the receptacle, which becomes every day more deep, and, if the phrase may be permitted, more bell-shaped, which thickens them gradually and forms what is called the perigynal disc of the flower. This newly-formed parenchym reaches presently the central whorl, moulds itself upon it, and glues together the carpels by penetrating into the extremely minute interstices which are left between them. Nevertheless, it does not envelop them completely, for their inner borders, which correspond to the suture, remain always free. We recognise easily, even in ripe fruit, this additional tissue; it is what is called the heart of the Pear, and is situated within the inclosure marked out by the gritty bodies which characterise the fruit. I need not add, that at the very time when this phenomenon is accomplished, the top of the carpellary cones is lengthened into a style, and the disc, increased in height as well as thickness, carries the stamens and petals far beyond the point where these organs originated.

But these are not the only changes which take place in the flower or in the very young fruit. There is another which is not less worthy of attention, and without which the fruit would remain incomplete. We have seen that the bud at first was nearly or quite sessile. By degrees the rudimentary peduncle elongates, and assumes the well-known form, but at its upper extremity it gradually and insensibly passes into the young fruit, which in truth is nothing more than a continuation of it. It is in fact in this dilated portion of the peduncle, which we have called the receptacle of the flower and which is situated below and around the disc of which there was lately mention, that the principal increase takes place, at least in a great number of Pears. It is the peduncle itself then which is here transformed into fruit, using this term for the succulent and eatable tissue, absolutely as in Anacardium or Hovenia. If any doubt remained on this point, it would be removed by the examination of those purse-shaped or abnormal fruits, such as M. Naudin has represented in his note on the structure of the flower in Cucurbitaceæ, and which are true Pears formed at the expense of the peduncle, since having neither heart, nor carpels, nor trace of calyx leaves, they have never been terminated by a flower.

If I have made myself understood, it will be recognised that the structure of the ovary in the Pear differs in nothing from that of the ovaries of other plants, and that it is altogether conformable to the general plan of organisation explained by our illustrious masters R. Brown, De Candolle, and Jussieu. It is not then necessary to call into account that axis, which is at the present day so often and so willingly appealed to, when it is necessary to explain the structure of flowers and fruits. I go further, and unless I deceive myself, it is not impossible to bring under the common law of organisation the ovaries with a central free placenta, whose differences from ordinary ovaries are more apparent than real. A strong presumption in favour of this notion, if not an absolute proof, is furnished by the very homogeneous family of Melastomaceæ, in which the most opposite modes of placentation occur.† Thus, for example, in the suborder of Melastomaceæ, properly so called, in which the ovary has from two to 20 cells, the placentæ are axile, that is to say, entirely adherent to the central columella which results from the line of junction of the carpellary leaves; in Euryckia, where the ovary has four cells, they are, on the contrary, parietal, or if the phrase is preferred, fixed on the middle of the cells. Between these two modes of placentation, we find that which characterises the group of Astroniæ (Astronia and Microplacis, Bl.) in which the placentæ are situated at the bottom of each of the two cells of the ovary at the base of what may be called the columella. From thence to the unilocular ovary with a free central placenta there is but a step. If the carpellary margins of Astronia, instead of being reflected towards the centre of the ovary, are simply soldered by their edges, while they are ovuliferous at the base, we reconstruct the unilocular ovary, and the central placenta of Memecyleæ and of Spathandra. The great affinity which exists between the different members of the family of Melastomaceæ does not allow us to admit amongst them differences of placentation so radical as those which would result from the prevalent theory on the organogenic nature of the free liberal placenta; to suppose, for example, that in this same family of Melastomaceæ, the placentæ spring indifferently, sometimes from the carpellary leaf, sometimes from the prolonged axis of the floral whorl. It appears to me more natural, and at the same time more probable, that in all the plants of this vast and beautiful family, the placentation is always, in spite of appearances, a dependance of the ovarian leaves. I might quote modifications altogether similar in the different groups of the families of Aroideæ, Caryophylleæ, Portulaceæ, &c., and if the hypothesis is well founded in the families I have just named, why should it not be so in Myrsineæ and Primulaceæ?

* See *Gard. Chron.* 1857, p. 563.

† See Rumphia, in which I published in 1834 the analysis of this family.

ON THE VITALITY OF SEEDS TRANSPORTED BY MARINE CURRENTS.

BY M. C. MARTINS.

BOTANISTS, struck by the facts establishing the transport of seeds by marine currents, have thought that the latter must have played a great part in the diffusion of the disjoined species of plants which form isolated colonies upon islands or continents separated by vast extents of sea. Geologists, surprised at the uniformity of the vegetation of the great archipelagos scattered in the ancient seas, were still more disposed to consider marine currents as the principal agents in the dissemination of seeds upon the surface of the globe. These *à-priori* conclusions have never been directly verified by experiment—it has never been tried (1) whether many seeds are sufficiently light to float upon salt water; and (2) whether these seeds, after floating for a long time at the surface of the sea, still retain their germinative faculty.

To settle this question experimentally, the author selected some fresh seeds of which the germination never fails, taking them from the principal families, and generally preferring those of large size, furnished with a hard and thick episperm, or those of littoral plants. The former should resist the action of salt water, from their volume and the impermeability of their envelopes; the other should have more chance of germinating if they fell upon a sandy shore.

Of 98 species, 55 floated, and 39 were specifically heavier than the water of the Mediterranean, the density of which off Cette is 1·0258. Four seeds had a specific gravity equal to that of salt water; these are, *Nelumbium speciosum, Datura Stramonium, Juglans nigra*, and *Gingko biloba*. Thus, of a certain number of seeds taken by chance, we may say that two-thirds float.

To try the action of sea water upon floating seeds, the author endeavoured to place them in the same physical conditions to which they would be subjected when floating at the surface of the sea. A wrought-iron box, measuring 0·30 m. square by 0·03 m. in depth, divided into 100 equal compartments, received 98 species of seeds; each compartment contained 20 seeds of the same species. Of some large seeds there were only 6, 12, or 18, and of the small ones a large pinch was put in. The lid was then soldered on, and the walls of the box pierced with small holes, through which the water would pass easily.

The apparatus was fixed upon a buoy at the entrance to the harbour of Cette. By the rising and falling of the buoy, the box was alternately raised out and immersed in the water, so that the seeds were exposed to the action of air and water, as if they were floating on the surface of the sea. The box remained attached to the buoy from the 14th February to the 1st April 1856, or for six weeks; 41 of the 98 species of seeds were completely rotten. The other 57 were immediately sowed in pots of turf-mould, and placed under frames. Only 35 germinated, and from these 17 must be deducted, which, being heavier than salt water, could not have floated at the surface; this reduces to 18 the number of seeds which, after six weeks of floating, would be capable of germinating when placed in the most favourable circumstances. These are—*Cakile maritima, Nelumbium speciosum, Linum maritimum, Paliurus aculeatus, Cucurbitapepo, Eryngium maritimum, Scabiosa maritima, Xanthium macrocarpum, Asclepias Cornuti, Rumex aquaticus, Salsola Kali, Beta vulgaris, Euphorbia paralias, Ricinus communis, R. africanus, Gingko biloba, Ephedra distachya. Pancratium maritimum*, and *Asphodelus cerasiferus*. These are the species which, after a navigation of six weeks, would have had some chance of establishing themselves upon the shore.

Six weeks being a very short time compared with that which some seeds must occupy in their voyage from one continent to another, the author resolved to replace in the sea the 35 seeds which had germinated after six weeks' exposure; of each of these 20 were placed in the same box, which was fastened to the buoy on the 17th June, 1856, and remained attached to it until the 18th September, that is to say, 93 days, or three months. At the end of this period, 11 seeds were rotten. The remaining 23 were sowed under frames, when 9 germinated; but from these two must be deducted, viz.

Acacia Julibrissin and *Canna gigantea*, which do not float upon sea-water. There remain therefore 7 species which might float upon the surface of the sea for three months without losing their germinative power, and these are only $\frac{1}{14}$th of the total number operated upon. They are, *Cucurbita pepo, Xanthium macrocarpum, Rumex aquaticus, Beta vulgaris, Ricinus communis, R. africanus*, and *Ephedra distachya*.

Considering the extraordinary concurrence of circumstances necessary to enable a seed thrown upon a shore to fructify and become the centre of a vegetable colony, we may conclude with Alph. De Candolle that this mode of transport, which is so frequently referred to, can have taken only a very small part in the diffusion of the plants of the present and geological epochs; and yet the number of identical species separated by vast seas, and which marine currents alone could have transported from one continent to another, is so considerable, that the idea of the multiplicity of centres of creation will every day acquire more probability. *Comptes Rendus*, 24 Aug., 1857, p. 266, *as translated in the Annals of Natural History*.

Home Correspondence.

Large Melons.—One of your correspondents has asked whether a Melon 16 lbs. weight is not the heaviest that has been grown in this country? I am sorry I cannot find the memorandum taken at the time, but I have a very distinct recollection of a fruit (the plant was raised by myself) grown by a neighbour of mine, which weighed 32 lbs., and measured full 3 feet 6 inches in circumference. The same plant produced another fruit of 14 lbs. It was a red flesh, rather smooth skin, and very fair flavour. I believe I took the seed from a fruit served at a table d'hôte in Switzerland. This was about 20 years since. I have since grown a fruit 14 lbs. weight, a green flesh, something like the Ispahan, but flatter in shape, and beautifully netted. The flavour of this was excellent. I do not however now grow any variety but one called after my gardener, Austen's Incomparable, which is a most delicious fruit, and I think superior to any other; it is of a medium size, green flesh, of the Hybrid Persian kind, and most exquisite flavour. I can strongly recommend it. *T. Phillpotts, Porthywidden, Truro.*

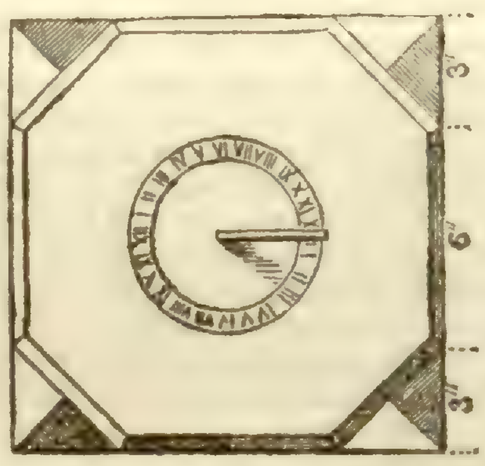
Flue Covers.—At this place I have used both stone and tiles for these. The latter are by far the best, both for the bottom and sides as well as for the top—the covers that I use are 18 inches long and rather more than 15 wide; they are dished and hold about 3 pints of water; they are made of a clay that stands the fire equally as well as Stourbridge. Should "K. L. M." wish it, I could forward him a cover as a pattern. Your correspondent says that the construction of flues has been much neglected. The fact is, there are few places where they are properly constructed. I have had the management of flues where they were little better than smoke drains; those that I have had constructed at this place answer well. *Robert Cassillis, Gr. to Mrs. Price Jones, Elm Green, Cirencester.*

Dioscorea Batatas.—In May last I planted in my nursery four Dioscoreas; two were taken up about a month since, one was cut in pieces by being taken up carelessly, the other weighed 15 oz.; each of them when planted weighed 1 oz. To-day the other two were taken up. One weighed 16 oz., having started into two at 12 inches from the eye, resembling a man's thumb magnified; its length was 17 inches. The other weighs 20 oz., has branched from the eye into three, the one measuring 24 inches in length, the second is 21 inches, the other is small and is 6½ inches long; the tubers varied when planted from 6 to 8 inches long. The one cut in pieces was boiled and tasted by several persons good judges of Potatoes, and was pronounced by most to surpass the best they had had. The ground in which they grew was trenched 2 feet deep two years since. *Stourbridge.*

Spawn or Mycelium of Fungi attacking living roots.—We have just had an opportunity of inspecting a specimen of the loam mentioned by Mr. Fleming in the *Gardeners' Chronicle* of Oct. 31, 1857. We find not only that the loam is full of mycelium, but that the mycelium proceeds from half decomposed organic matter mixed up with the soil, a fact which confirms our notion of the danger of using compost in which half decomposed sawdust, shavings, and fragments of wood form an appreciable part. It is not, however, to be supposed that in every case where the roots or base of a plant are attacked by fungi, the fault has been in the soil or anything which it might contain. We have just taken up two Rose trees, whose roots we felt sure were attacked by fungi, in the hope of illustrating Mr. Fleming's specimen. We found indeed that the whole structure was impregnated with spawn, which was breaking out in every direction, but there was not the slightest indication of its being derived from any external source. The roots in fact of both the trees were clubbed, and we have uniformly found that plants in which this is the case perish within one or two years and that they are infested with fungi. Such stocks in fact should never be worked for Roses, for though the buds will in the first instance take upon them as well as upon others, the plants are almost sure to be short-lived. Though however in the instance before us there was no evidence to show that the fungi which attacked the Rose-roots were extraneous, we believe that few plants suffer so much as Roses from this cause. We some years since called the attention of one of the most eminent Rose-growers to the extent to which plants sent out from nurseries were attacked by the mycelium of some fungus, and the evils which it produced. It is obviously the interest of every nurseryman that the plants which he sends out should be healthy, for if any considerable proportion fails, a fresh supply will be procured from some different quarter. We would advise Rose-growers therefore to attend to this point. A close examination may show that the evil arises principally where the ground has had no change. They should also be careful to avoid the use of club-rooted stocks as much as possible, as they are a prolific source of mycelium, in addition to the disappointment which they often cause to the amateur. *M. J. B.*

Late Grapes.—Can any of your readers inform me what are the usual causes of failure in preserving Grapes? In two of our houses they are grown with Pines, whose proper warmth is probably too great for the Vines; but three other houses ought to find us in Grapes beyond the third week in September: the gardener has never been out of the parish, and we do not like to part with him. Is the presence of wasps and flies enough of itself to account for the early finale of our fruit? If so, what is the best way to exclude them without cutting the ventilation too short? Will some one refer me to any printed Vade Mecum for the management of hothouses? *S. P. A.*

Sundial.—The following is a very simple and very



cheap stone sundial, suitable for a corner between two paths; its design, as far as it goes, is Gothic. *Somerset.*

Churchyard Draining.—Can any of your readers inform me how to drain a very wet churchyard? The soil is a strong clay, but any amount of fall may be had. The difficulty is to avoid interference with the graves. The churchyard is intersected by a foot path under which a main drain might be carried. *G. W.*

Pampas Grass.—Will you be kind enough to inform me what is the proper soil for this Grass? I had two plants last year about 4 feet apart, near a pond; one died last winter, the other is in vigorous health, but I dread the winter. *G. W.* [We believe it to be as hardy as a Reed. But it evidently likes stiff soil.]

Late Peas.—What is the latest period Green Peas can be grown for table in the open air? and what sorts do you recommend for late cultivation? *A Constant Reader.* [October may be considered as the latest month, but in favourable situations they may be obtained late in November. The following are good for late crops:—Flack's Victory, Hair's Dwarf Green Mammoth, Thurston's Reliance, Victoria Marrow, and Tall Green Mammoth. But to secure the latest crops it is better to sow very late an early kind, as Dan. O'Rourke, Emperor, or Sangster's No. 1, on a south or warm situation. Late Peas grow all to straw, and will not pod, when the sun heat gets weak.]

Edgings for Garden Walks.—Will some of your correspondents be good enough to state what is the best edging for a garden where Box will die off? If a tile or brick moulding is recommended, where is the best to be had? *J. B. D.* [Excellent edgings moulded in Portland cement were exhibited last June at Chiswick by Messrs. Bazley, White, & Co. of Milbank. Any handy plasterer could make them for you.]

Fruiting of Aralia japonica.—I have noticed this year that the flowers of the Aralia japonica in my garden are succeeded by numerous black berries, giving a striking effect. I enclose you a specimen. *Richd. Ward, Salhouse Hall, Norwich, Nov.* 10. [The berries are small, black, and contain some good seeds. If you have plenty we should be glad of a further supply.]

Berkshire Champion Cucumber.—Seeing this spoken well of in your columns, I wish to bear witness to the fact that it is the best Cucumber with which I am acquainted. I have grown all the leading sorts for these last two years, along with Berkshire Champion, and not one of them equals it. It grows on an average from 18 inches to 2 feet in length, handsome and straight. It is early, hardy, a good setter, and crisp. It continues long in bearing. I cut the first fruit on the 16th of March, and the last on the 10th of October, out of the same frame. Nurserymen should send out good things that will satisfy both gardener and master; and this I am sure Sutton's Berkshire Champion will do. *A. Arnold, Gardener to J. H. Gills, Esq., Bickham, Plymouth.*

Eugenia Ugni.—Every one that I have seen has been slightly disappointed with the Eugenia, and I believe it is not a good year for it. But I verily believe that had I sent up mine I should have had a prize, from what I read. My principal plant is 21 inches high and the same through; in its fourth year, grew out-of-doors last year from June 1 till Michaelmas, and had its wood thoroughly ripened—hard and brown. In the spring when growth commenced I put it in a Cucumber pit, where it flowered and remained till June 1, when it was put out-of-doors in a warm corner made for it, exposed to the sun, with some smaller plants; one also in fruit, of the same size, but a year younger, and with wood less ripened. This latter shed all its fruit on the frost of June 12, but not a leaf on any of them suffered, though those of common Myrtles did close by. The oldest plant did not lose a berry, but ripened out of doors about 160, which I have dispersed about the country through many counties of England; and the plant itself, with about 40 berries remaining, was exhibited at our agricultural dinner on Friday last. The fruit are about the size of a Haw, and not unlike one; the colour best described by mahogany, but lighter on the under side; the fragrance very peculiar and grateful, though so strong as to pervade the room in a few minutes; the flavour something like the fragrance, but not quite equal to it; the flesh lusciously sweet. There is a spicy taste remaining in the mouth exactly resembling that produced by the seed of a common Myrtle. One grown under glass here had its berries larger and much paler, turning at last to a dirty white; but the flavour differed little, if anything, from mine which grew out of doors. The out-door plant ripened first, but possibly because it was started by heat. *Iota.*——It may be interesting to know that the Eugenia is growing out of doors at Torquay, and bearing fruit as fine or finer than any I saw at the show at Willis's Rooms in London. I have tried several kinds of plants out of doors here, which have stood the winter and done well, and which may be gradually acclimatised. Experiments with half-hardy shrubs, &c., should be tried in sheltered parts of England and the result made known. *A. B., Torquay.*

Blue and Pink Hydrangeas.—The perusal of your interesting article of last week respecting the above has induced me to forward a few particulars which have come under my notice. In the shrubbery of this place, four years ago, were growing indiscriminately very large bushes of blue and pink Hydrangeas, in exactly the same kind of soil, which is a sharp red sandy loam. I observed that the blue ones were growing in the most shady and the pink in the open situations. I am a great admirer of the Hydrangea, which when well grown is a beautiful and useful plant for the conservatory or greenhouse in early spring, its handsome heads of flowers remaining a long time in perfection. I took a great quantity of cuttings early in October, with well formed buds, from the blue plants only; these were struck in 3-inch pots in the same soil the plants were growing in and kept in a cool house where they made abundance of roots. In February they were again potted in the same soil from the shrubbery, and placed in a warm Vinery, where they grew rapidly, and soon showed for bloom; in due time they were taken to a cold house to expand their blossoms. I felt interested at that period, expecting I should have a fine show of blue ones; but out of 100 plants there were only two of the desired colour; all the rest were pink. They had previously been watered with pure rain water, afterwards they were abundantly supplied with manure water, formed splendid heads, and were greatly admired. I still continue to take cuttings annually from the blue plants in the shrubbery, but they invariably produce pink flowers. After their removal from the greenhouse into the open air their faded blossoms are sprinkled with water "in bright sunshine;" they then assume the same colour as the enclosed flower, and remain so all the season. *R. Thomas, Gardener, Melton Constable, Norfolk.* [The colour is singularly rich.]

Gigantic Pears.—At the Guernsey Horticultural Society on May 1, 1834, a prize for six Chaumontel Pears grown against a wall, was awarded to Mr. Baldock. The largest weighed 24 oz., the next 20 oz., and another 16 oz. these three grew upon the same spur. The other three

weighed 46 oz., making altogether 106 oz. A Duchesse d'Angouleme weighed 21½ oz. Six other Chaumontels grown against a wall weighed 112½ oz; the largest 24½ oz. Some Chaumontels were exhibited by Mr. P. Langelier, 50 of which weighed 41lb.; two weighed 96 oz. Twelve Beurré d'Aremberg, by Mr. James Hammond, weighed 9¼ lb.; 12 Crassane 7 lb. 14 oz.; 12 Duchesse d'Angouleme 13½ lb. *Extract from Newspaper of the above date.*

The Potato Disease appears to have been unusually fatal in many districts this year. In 1856, after taking up, I lost one third of my crop. This season I have not had two sacks of bad tubers in two acres. I attribute the improvement to the care I take of my seed Potatoes and the manner in which I prepared the manure for dressing the land last winter. I shall pursue the same system for the next crop, and whether successful or not, the *Chronicle* shall hear the result if I live to house the valuable esculent in 1858. So many *infallible* remedies have been proposed to get rid of the blight, and all failed, I do not wish to add to the number of "nostrums" without another year's experience. *Falcon.*

Pentstemon Torreyi.—The *Pentstemon* figured in *Gardeners' Chronicle*, No. 36, p. 664, with beardless or nearly beardless flowers, deeper coloured than *P. barbatus*, is doubtless a form of that species, as suggested. But it is *P. Torreyi*, of Bentham, from New Mexico, and is very showy in cultivation. *A. G.*

Gardens in Eaton Square—I am glad to see that something, at last, is being done to improve these gardens. In this rich quarter nothing should be wanting to make them superior to anything of the sort in London. May we hope that this will be the case. My object in writing to you, however, is to suggest that a row of Limes, or Planes (which would perhaps be preferable) be immediately planted on each side of the road (the King's Road), to the full extent of the gardens on each side; these in a few years, if planted sufficiently near to the railings, would become a very pretty sight, and a most agreeable shade to trampers from Chelsea to Buckingham Place and *vice versâ*; anything in fact would be better than the wretched trees now standing—Laburnums, the ugliest of all trees in such a situation, Thorns, stunted Elms, and other rubbish. *Amateur, Belgravia.*

Preservation of Timber.—A process patented by the inventor in France has, I believe, been recently imported into this country, for the purpose of rendering timber durable. This process was carefully described in the *Gardeners' Chronicle* about 12 months ago; the undersigned would feel obliged if some gentleman would afford him some information upon the subject. The process is in use in Scotland, I am aware, in preparing telegraph poles. Some account of it, and the cost of erection of apparatus for a small estate, is what it is desired to ascertain. *A Welsh Squire.*

Late Strawberries.—I send herewith a few Strawberries gathered this morning from open ground, sloping to the south-west. I have been gathering about half a dozen berries every three or four days for the last three weeks. *Geo. Brightwen, Stamford Hill, Nov.* 12. [They are too acid to be agreeable to all; but they are good fruit.]

Societies.

LINNEAN: *Nov.* 5.—Prof. Bell, President, in the chair. Dr. Seemann read a report, addressed to the Secretary, of his mission as representative of the Linnean Society at the meeting of the American Association for the Promotion of Science at Montreal. The thanks of the Society were unanimously voted for the readiness with which Dr. Seemann had undertaken, and the ability with which he had executed this important mission. The following papers were read:—1. "The Phyllosoma commune, a native of the British sea," by J. Crouch, Esq. The specimen described and sketched by Mr. Crouch, was taken in August last, in a drift net engaged in the pilchard fishery off the coast of Cornwall. It attracted the particular notice of the fishermen from the sparkling brilliancy of its eyes, while the rest of its body was almost as transparent as glass. Mr. Crouch, into whose possession the specimen came, immersed in a bottle of glycerine, mentioned that this was the best fluid he was acquainted with for ensuring the preservation of many small subjects of Natural History, effecting this object without changing their colour, or in any material degree their transparency. 2. "On the Agamic reproduction and morphology of Aphis," by T. H. Huxley, Esq., F.R.S. A very elaborate memoir, illustrated by drawings, controverting the opinions held by Prof. Owen on this subject.

BRITISH POMOLOGICAL: *Nov.* 12.—Mr. J. Fraser in the chair. Of Grapes Mr. Charmes, of Exeter, sent an oval berried, dark amber-coloured variety, which was fleshy, tender, and promising; but the specimens shown were bruised and not in such a condition as to give an opportunity of fairly testing its merits. A seedling Black Grape of little value came from Mr. Melville, gr. at Dalmeny, near Edinburgh. It was the result of a cross between the Black Constantia and Black Prince. Of Pears Mr. McKelvie sent from North Devon a seedling which considerably resembled Beurré de Capiaumont. It was reported to be a great bearer and to possess qualities sufficient to render it worthy of general cultivation. From Mr. Rivers came an American Pear called Onondager, a variety with a brisk refreshing juice, but stated to vary greatly on different soils; also Orpheline d'Enghien, a kind in the way of Beurré d'Aremberg; Beurré d'Anjou, a showy Pear; Howell, over ripe: Beurré Langelier, not even second rate in point of flavour; and one or two other varieties. Mr. Lane sent Dr. Capron, a showy Pear, but in this instance very middling in point of flavour: Poire Belge, not at all good; Beurré Van Mons, somewhat coarse, and poor in flavour, and the same remark applies to Beurré Magnifique, Gilogine, and Gloire de Cambronne from the same grower. From Limerick Mr. Unthank sent some large and fine fruit of some of our best Pears, such as Beurré Diel, Glou Morceau, Duchesse d'Angoulême, together with Passe Colmar Doré, a very sweet Pear; Fondante de Malines, a large fine looking Pear, melting, sugary, and excellent; and Colmar d'Aremberg. From Dr. Davis, of Pershore, came the American Apple Baldwin, which fully bore out the good opinion given it in our report of the fruit show at Willis's Rooms; the same grower also sent small fruit of Rhode Island Greening. Mr. Lane showed Wadehurst Pippin and White Admirable, two valuable kitchen Apples, more especially the latter, which is a good keeper. Messrs. Garaway & Mayes also furnished some beautiful Apples, chiefly with local names. Of these Glory of Fairfield and Enamel appeared to be good kitchen sorts.

Notices of Books.

A Month in the Forests of France. By the Hon. Grantley Berkeley. Longmans, 8vo, pp. 286.

This book is scarcely what it professes to be. *The* forests of France turn out to be one place in the Nivernois, which Mr. Grantley Berkeley reached as fast as steam could carry him by way of Havre and Paris. His experience, therefore, is of the smallest, and, considering that his knowledge of the French language was so slender that he could not count French money, his opinions concerning what he saw and heard are not entitled to very great weight. The deeds of a sportsman hunting wolves and boars in a French forest will be only read with pleasure by those lovers of rough life, who prefer danger and violent excitement to such carpet work as coursing, hare hunting, or battuing (may the word be forgiven). Our author does not entertain a high idea of the French mode of conducting this sylvan pastime; on the contrary his chief object is to criticise it. That a French country gentleman may profit by the advice of an English sportsman we can readily believe. We have no doubt indeed that our author is better acquainted with the brute creation than his French friends; but we are equally persuaded that they could give him useful advice in the amenities of society. If they visited him they would not write a book, in miserable French, puffing themselves and their doings, and abusing his dogs, keepers, servants, and country habits. Whatever they might wish to say would be expressed in the language of gentlemen, not in the slang of the ring. Unfortunately there is a class of travellers who contrive to make an Englishman detested wherever he goes, quarrelling with national usages, bullying custom-house officers, abusing waiters, getting into disreputable disputes with cabmen, watermen, porters, every one in short except the soldiery, dictating, squabbling, and brawling on all occasions. Such people are bad enough even while their peculiarities are limited by the narrow circle in which they move. When they rush into print they become intolerable.

Mr. Baumann of Bollwiller, in the Upper Rhine, has issued a Catalogue in English of the plants he has for sale. It is rich in fruit trees cultivated on the continent of North Europe in a bad climate, and it has the reputation of the sorts being correctly named.

Journal of the Linnean Society, Vol. II., part 6, just published, continues to vindicate the good sense of the modern Council who, in the face of a powerful opposition, succeeded in substituting a regular issue of the present useful and inexpensive publication for the tardy, costly quartos which were very seldom better adapted to the legitimate ends of science. It is however understood that the old quarto Transactions are not wholly abandoned, but are to continue to appear when the funds of the Society will permit—to which there can be no objection. The present Journal was a necessity; the Transactions are a luxury for which we are content to wait. The part before us contains some elaborate systematical accounts of Malay Hymenoptera, and Indian plants, which are invaluable to working naturalists. The latter record the important discoveries of Drs. Hooker and Thomson in Saxifrageæ, Parnassieæ, Drosereæ, Grossularieæ, Hamamelideæ, Philadelphceæ, and Crassulaceæ.

Garden Memoranda.

MR. SALTER'S, VERSAILLES NURSERY, HAMMERSMITH.—The Chrysanthemums at this establishment are now in full beauty; a large house about 30 feet in length has been formed into a kind of winter garden in which some hundreds of varieties have been tastefully arranged and intermixed with Araucarias, Ferns, and other plants possessed of fine foliage; therefore as may be supposed an excellent effect has been produced. Of late years few flowers have made greater progress than the Chrysanthemum. Those who remember the little variety called Chusan Daisy, introduced by the Horticultural Society through Mr. Fortune, would now hardly believe that to be the parent of the beautiful Pompones now cultivated, and that in so few years its character could be so completely changed; such is however the fact, and Mr. Salter, who every season imports many new kinds from the continent, has each succeeding year flowers even more perfect in shape and brilliant in colour than their predecessors. In short there appears to be no limit to the varieties of colour and form which this flower assumes.

Of finely bloomed large varieties not mentioned in our report of the Temple Gardens, we noticed Alfred Salter, delicate pink, one of the largest flowers in cultivation and beautifully incurved; Antigone, finely incurved white; Arigina, amaranth, a good show flower; Beauté du Nord, large rosy crimson; Beauty, peach, incurved and showy; Campestroni, rose; Defiance, white; Duke, blush; Etoile Polaire, golden yellow; Golden Cluster; Le Prophète, large fawn; Madame Lebois, delicate pink and yellow, incurved and fine; Miss Kate, delicate lilac; Nell Gwynne, rosy peach, very full and showy; Ne plus ultra, in the way of Christine; Pio Nono, red, tipped with golden yellow; Plutus, bright yellow, large showy flower; Queen of England, blush, a most useful flower and a profuse bloomer; Rolla, purplish lilac with a purplish shade; Two coloured Incurved, orange and salmon; and Versailles Defiance, bright rosy lilac.

Among Pompones were nice plants of Alexander Pélé, bronzy salmon; fimbriatum luteum, yellow; Francis I., reddish orange, very full and fine; Il Brasiera, brassy red; Le Nain Bébé, rosy lilac, reported to be violet scented; Marceau, white with a rosy border; Mignonette, very fine red with an orange edge; Mr. Dale, fawn and purple; Pluie d'Or, canary, very dwarf and fine; Pouledetto, rose and white; Princesse Mathilde, sulphur; Riquiqui, plum coloured; Rosinante, pale peach; and Zebra, mottled lilac and white.

Of Anemone flowered kinds we noticed, Ariadne, amaranth with golden centre; Daphnis, carmine; Margueridetto, very fine rosy lilac; Marguerite de Wildemar, sulphur and gold; Mrs. Gush, bright rose; Reine des Anemones, fine white; and Toinette, rose with a light centre.

Among new sorts of this season with large flowers we particularly noticed Golden Queen of England, large golden canary, and in size and form the counterpart of Queen of England; Louis, large rose lilac anemone with very full centre; Madame Domage, pure white; King of Anemones, large dark crimson anemone; Cardinal, large golden orange; Aimée Ferière, incurved white with rose tips; Progne, splendid bright crimson, approaching the colour of the Rose Géant des Batailles; Louisa, paper white; Augustine, large rose; Persanne, bright yellow.

Of Pompones we remarked Polycarp, orange and red, of exquisite form; L'Escarboucle, golden yellow; Madame Fould, beautiful blush, a perfect ball; Salamon, carmine; Pandore, chesnut; Ida, clear yellow; Crésus, orange and carmine.

Among the new and increasingly attractive class of Pompone anemones were Madame Sentir, white and sulphur; Madame Molinie, purple and rose centre; Flavia, golden yellow; Madame Montel, cream and yellow centre; Mr. Astie, bright gold; Mr. Dutour, pure white.

We have only to add that the Chrysanthemums are skilfully backed up by Orange trees in fruit, Camellias, and other plants whose folinge serves to set off the mass of variously coloured flowers to much advantage. In addition to the last named shrubs hardy Bamboo, Holcus saccharatus, and Pampas Grass have been introduced with good effect, together with the white-leaved Centaurea candidissima, the polished orange fruited Solanum capsicastrum, a variegated Myrtle loaded with fruit oval in shape, black in colour, and covered with a fine bloom; and Hydrangeas with both yellow and white variegations. The pathway which winds through the house among the Chrysanthemums is edged with Box, and here and there encircles a clump of variegated plants bordered with Isolepis gracilis and the common toothed Lycopod. Common Beet has even been used for the sake of variety of foliage, and altogether the arrangement does credit to Mr. Salter's taste.

Miscellaneous.

Horticultural Society of London.—An important address to all lovers of horticulture has been just issued by this Society, for the purpose of opening new channels of communication with every part of the United Kingdom. The address, which is signed by the Duke of Devonshire, the Bishop of Winchester, and all the other members of the Council, and also by Lords Ilchester and Digby, Sir Charles Lemon, Sir Philip Egerton, Sir Thomas Acland, Sir John Ramsden, Sir William Middleton, Sir Walter Trevelyan, Mr. Lawrence Sulivan, Mr. Fox Strangways, Sir Joseph Paxton, Professor Lindley, Mr. Sheriff Mechi, and other Fellows, shows that in the course of 53 years the Society, by its importations and distributions of rare plants and seeds from all countries, by its publications, by its exhibitions of plants and fruits in London and at Chiswick, by giving prizes (alone amounting to above 20,000*l.*) to gardeners for conspicuous merit, and by its continued investigation of the qualities of new esculents and fruits, has so changed the whole aspect of English horticulture, that it is now as unusual to see even a badly grown plant as it formerly was to see a good one. The document then proceeds to show that the Society has also expended considerably more than 40,000*l.* upon an experimental garden at Chiswick, which is the only

public establishment in the kingdom especially devoted to practical horticulture, and is now maintained for the purpose of showing how high cultivation may be carried out with economy, of bringing to the knowledge of the public whatever is most important in fruits, esculent plants, and objects of decoration, and of exhibiting (in use when practicable) the principal implements employed in gardening. It has been through this establishment that a very large proportion of the most beautiful plants, hardy and half hardy, which have been added to our gardens since 1816 was originally introduced, and it is felt that with an increased income consequent on an increased number of Fellows, new countries might be still explored with undiminished advantage. The Society therefore earnestly invites the co-operation of all lovers of gardening in the United Kingdoms by greatly diminishing the cost of fellowship, and infusing fresh activity into every department. The public has already expressed its approval of these measures by adding no fewer than 197 to the number of Fellows since the 23d September, 1856, in addition to which a sum of considerably more than 3000*l.* has been recently subscribed by Fellows and their friends for the purpose of enabling the Society to enter upon a new course of undiminished vigour. The long existence of the Society has rendered this the more desirable because there is now a serious diminution in the number of its supporters, owing to deaths alone; it appearing that it has thus lost as many as 322 in 10 years. The circular is accompanied by a detailed description of the plans of the Society for the ensuing season. We understand that the country is responding to this appeal with great spirit.

Under-ground Manuring.—We have on previous occasions described Mr. Wilkins' plan of applying liquid manure to growing crops under ground. The following results of the system are taken from the *Berkshire Chronicle* of Nov. 7. "Early this month the roots at Mr. Wilkins' Garden, Caversham Road, grown respectively on the old and on his improved system, were taken up in the presence of several gentlemen from London. On comparing the weights of the crop grown upon this new system, in no case was it found to be less than double that grown in the ordinary method, and in several instances it even reached three to one. The white Beetroots sown in the latter part of July, after a previous crop, were specially noticed. They weighed, on the new system, 9¼ lbs., and on the old, 3 lbs. Ten roots of Celery weighed 35½ lbs. against another rank of 10 roots, on the old system, which weighed 14¾ lbs. Mr. Wilkins handed round some wine, which he said had been manufactured from his roots of Mangel Wurzel, and was but 10 months old. This, for a light wine, was certainly very excellent, and Mr. Wilkins assured us could be retailed at a profit at 6*d.* per quart bottle. A practical chemist from London stated his opinion that all it wanted was an astringent, which Mr. Wilkins said he had discovered in the Hop root, and which would render it a wholesome beverage. We also tasted bread made of one-third of Mangel Wurzel and two-thirds flour, and which was certainly fully equal to the average quality.

Guinea Grass.—From inquiries which I made on first coming to Malta, I was assured that the Guinea Grass was unknown here; I therefore procured a box of plants from Barbadoes, five roots of which only arrived here alive. These five roots were soon multiplied to many thousand plants, and I have had the pleasure of introducing it into the island of Sardinia, the province of Tripoli, into Corfu, and different parts of Greece. Its value in these latitudes is greatly enhanced from the Guinea Grass commencing to flourish with the heats of summer which burn up all native Grasses. I am now sending a further supply of plants to the Consul-General and Vice-Consul at Tripoli, Colonel Herman and Mr. Reade, who are growing it there successfully, and are in hopes it may succeed even in some parts called "Desert," where its roots can reach moisture. I have since its introduction here been informed that the French attempted for many years to grow it in the south of France, a climate probably too cold for it, but that it has been long known in Tunis. After it multiplied here, I found there had been a root in the island, carefully preserved for 30 years as a curiosity, but never propagated. From whence it came is now unknown. The most interesting experiments with the Guinea Grass in this part of the world are those making in the low moist lands of the island of Sardinia, and in the deserts of Tripoli. This tropical Grass came originally from the coast of Guinea, and may succeed better as it is carried south from the coast of Barbary. In Greece and in Corfu it will probably be killed by frosts. *Hooker's Journal.*

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Chrysanthemums in most instances will be the chief feature of attraction here at present, and where these are largely grown, which they should be wherever there is a demand for flowers at this season, they make a fine display, and are worth every necessary attention to preserve them in beauty as long as possible. They are very impatient of a close rather warm atmosphere, and if the house contains plants requiring this treatment the Chrysanthemums should, as far as is practicable, be placed in the coolest part where air can be given freely on every favourable opportunity; for except they can be rather freely exposed to air their foliage soon gets attacked and disfigured by mildew, especially if the plants are bushy and well grown. See also that they are kept well watered at the root. Use fire only when absolutely necessary either to prevent the temperature from falling too low or to dry the atmosphere. Endeavour to have everything neat and clean, and set off the plants in bloom to as much advantage as possible. If such things as Geraniums, Cinerarias, and Calceolarias must be wintered in the same house with Heaths and other hard-wooded plants, they should be kept as much as possible by themselves as they will require a somewhat closer temperature than hard-wooded plants; but where circumstances admit of it these should occupy a house or pit by themselves. Cinerarias and Geraniums intended for late flowering will do very well in a cold pit until severe weather sets in; but those intended for flowering early should be placed at once where fire heat can be used at will so as to be able to preserve the foliage from damp. Roses for early forcing should be pruned by this time and placed where they will at least be safe from heavy rains. Where American and other shrubs are used for forcing these should be taken up and potted without delay, placing them in a cold pit until they are wanted for forcing or in a turf pit where they can be protected from severe weather by straw mats, shutters, or other covering.

FORCING DEPARTMENT.

PINERIES.—The plants expected to show fruit early next year will be greatly benefited by being kept in a comparatively dry state for a few weeks previous to subjecting them to a warm moist temperature. The atmosphere should be kept dry, also allowing the soil about the roots to become as dry as can be done with safety; do not, however, subject the plants to a very low temperature, but keep this at from 60° to 65° by means of fire-heat, for although the plants will bear a considerably lower temperature without any apparent injury, those not subjected to any unnecessary extremes will produce the finest fruit; and a short period of comparatively dry treatment will ripen the growth, and just as effectually induce a tendency to show fruit as checking the energies of the plant by an unnaturally low temperature, and without any of the ill effects of the latter method. No dependence can be placed on the weather at this season, therefore see to plants in pits with insufficient means of heating being well protected by means of covering at night, and maintain the command of a rather high temperature by frequently renewing the linings, &c., so as to be prepared for any sudden decrease of the external temperature; avoid anything approaching excess of atmospheric moisture among young stock, whether in pits heated by linings, or in better arranged structures, which only tends to promote a too free rate of growth for the amount of light, and weakly blanched foliage is the result. VINERIES.—Where forcing is commenced, attend to previous directions as to keeping the atmosphere moist, as there will be some difficulty in getting Vines to break freely at this season except this is attended to. If circumstances allow of having a bed of fermenting manure inside the house, this will be found the best means of keeping the atmosphere regularly moist, but if this cannot be used the house must be sprinkled with the syringe frequently, and the evaporating troughs kept full. Also see that the roots are afforded a steady gentle warmth until the buds are fairly swelled; keep the temperature about 50° by fire heat at night, and 60° by day, letting it rise to 70° on the forenoons of sunny days. Get succession houses cleaned, the Vines pruned, painted and put into order for work, and see that the heating apparatus is in perfect order, for if this or anything else about the house requires any repairs this should be done while the house is not in use.

FLOWER GARDEN AND SHRUBBERIES.

If the beds are not yet filled with their occupants for the winter lose no time in geting them furnished with them, as frost may now soon be expected. Where the land is not too wet alterations of grounds and planting should be carried on with dispatch; but on no account attempt planting when the soil is in a state of puddle; the drier soil is when placed round the roots of newly planted trees (provided they are judiciously watered in), the sooner they will emit fresh roots. Mulching is, however, requisite to keep out frost, and earlier in the season to prevent evaporation. As tree leaves are always in request either as a fermenting material or for leaf soil, they should at this season be carefully collected; if they are required only as a manure they may be stowed away in any bye place, and left to rot; but if, as is generally the case, they are in demand as a cheap mode of furnishing bottom-heat to Pines as well as for forcing different kinds of vegetables, some pains should be taken to keep them dry; for this purpose they should be stacked up in some back place, or behind the garden walls where access can be had to them at all times; and after allowing time for them to settle put on a coat of thatch to effectually secure them from rains. By these means they will be found in a state fit for use for a twelvemonth to come.

HARDY FRUIT AND KITCHEN GARDEN.

Any planting of young trees, or removing of others which may yet remain to be done, should be proceeded with as expeditiously as possible, for the sooner this kind of work is finished for the season the less trouble will be required in watering next spring and summer. Pruning and nailing should now be proceeded with every fine day, even although it should delay some of the other work, which can be done with more comfort in bad weather than nailing; it is most important to get the latter done while the weather is mild. Nailing is a cold enough job for even a warm winter's day; but to turn men out to it in very cold or wet weather, and expect them to do a fair day's work indicates bad management. Look over fruit stores frequently to see that all is keeping well, and remove any fruit that may show symptoms of decay so as to prevent the mischief from spreading. A good stock of Lettuces fit for use should be put into cold frames or turf pits where they can be protected from frost by means of straw mats or some other efficient covering; also take care to secure a good supply of salading for winter use. Cauliflowers coming in must be frequently examined; those not wanted for use should be taken up and stored till wanted; for these cannot be safely trusted to the weather after this season. Take advantage of frosty mornings to get manure wheeled on quarters where it will be wanted, and get all spare ground trenched and ridged as soon as possible. Endive is blanched for salad and kitchen use by various means, but a way we prefer after being tied up when perfectly dry is to cover as much as requires blanching at one time with leaves procured as dry as possible, throwing a little long litter over to prevent them from being blown about with wind. If not already done sow a crop of Radish in a frame for winter; Celery, Cardoons, and Leeks should be earthed up in dry weather; Broccoli, Borecole, &c., may still be hoed between, as should also winter Spinach, thinning it out 16 inches apart.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Nov. 12, 1857, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 6	19	30.043	29.919	57	48	52.5	55½	56	W.	.05
Satur. 7	20	30.183	30.122	56	40	48.0	55½	55½	N.E.	.00
Sunday 8	0	30.284	30.187	54	45	49.5	56	55	N.E.	.00
Mon. 9	22	30.401	30.294	54	47	50.5	55½	55	N.E.	.00
Tues. 10	23	30.559	30.389	53	35	44.0	55½	55	E.	.07
Wed. 11	24	30.668	30.628	54	25	39.5	54½	54½	E.	.00
Thurs. 12	25	30.694	30.591	53	32	42.5	52½	54½	E.	.00
Average..		30.404	30.304	54.4	38.8	46.6	55.0	55.1		.13

Nov. 6—Dense fog; foggy throughout, slight rain at night.
— 7—Foggy; clear; fine.
— 8—Fine; overcast throughout.
— 9—Hazy; overcast at night.
— 10—Foggy; hazy; overcast.
— 11—Hazy; fine; foggy; frosty at night.
— 12—Foggy; fine; foggy.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Nov. 21, 1857.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 15	48.6	35.1	41.9	16	0.34 in.	2	4	3	2	5	9	5	1
Mon. 16	48.9	33.4	41.1	12	0.41	6	3	1	3	5	7	4	2
Tues. 17	48.3	35.2	41.7	16	0.40	6	6	1	1	6	7	2	2
Wed. 18	48.3	34.3	41.3	19	0.56	3	6	1	2	3	10	3	3
Thurs. 19	49.0	35.3	42.2	16	0.87	1	4	3	4	3	9	3	4
Friday 20	49.0	36.0	42.5	13	0.35	1	7	2	—	6	4	6	5
Satur. 21	49.4	38.0	43.7	20	0.37	6	4	4	3	1	6	5	2

The highest temperature during the above period occurred on the 16th, 1840—therm. 62 deg.; and the lowest on the 16th, 1841—therm. 15 deg.

Notices to Correspondents.

BANKS: *Amateur.* We could not possibly answer such a question in times like these.

BLACK POTATOES: *Dyn. y Gwent.* Before 1845 these were as common as their bad colour when cooked would allow them to be. Your black Negro seems to be identical in colour and quality with a sort then known near Aberdeen. The black Potatoes suffered more than others from the rot, and have in many places disappeared.

BOOKS: *J W.* Kemp's "How to lay out a Small Garden."‡

DISEASES: *J Lyell.* Your Pear leaves are infested with the curious fungus *Ræstelia cancellata.* Wherever it appears the leaves should be carefully picked and burnt. It is one of the instances to which the maxim *Principiis obsta* is applicable. As far as we know handpicking is the only remedy, and that should be adopted the moment the fungus makes its appearance, as it will increase year by year till the pest is intolerable. You will see from Sowerby's Fungi that in 180[illegible] it was very prevalent.—*Ananas.* Your Pines are affected chiefly in one particular portion of the house; you must therefore look to that particular locality for the cause. It does not appear that it arises from sunburn, but it is very possible that there may be some partial draught in that part of the house, or some admission of impure air, which no one can discover without personal inspection. We once saw a whole house unhealthy from the penetration of impure air. These hints may possibly lead you to the discovery of the cause, and when that is detected its removal may not be difficult. We do not believe that scale has anything to do with the matter. *M. J. B.*

GARDENERS' PLACES: *G R.* If you do not like your place, why do you stay in it?

INSECTS: *S R.* The caterpillar which has bored into your Pear tree is that of the Wood Leopard Moth (Zeuzera Æsculi), the transformations of which are figured in an early volume of the *Gard. Chron.*, 1846, p. 236. A puff or two of tobacco smoke blown into their holes will dislodge them. *W.*

LAPAGERIA: *Amateur.* You will find the information you seek for at p. 347 of our present year's volume.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*Ipswich.* Maxillaria picta.—*J G E.* Salvia mexicana—*Cottager, Dublin.* Some Asclepiad; nothing more can be said in the absence of the leaves and flowers.—*T G.* 1, Berberis Darwini; 2, Pilea muscoides; 3, Sabbatia annua.—*T H M.* Lavandula dentata.

TIMBER MEASURING: *Young Forester.* You will find excellent instructions on this subject at pp. 301 and 405 of our volume for 1854.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.

Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, and MANURE COMPANY (LIMITED). General Seed and Manure Merchants, Union Road, Plymouth, late WILLIAM E. RENDLE & Co.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED.

Capital 30,000*l.*, in 3000 Shares at 10*l.* each.
Deposit 2*l.* 10*s.* per Share.

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Mr. Henry Holman, Mannamead, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
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Manager.—Mr. Geo. H. Lamoureux.
Secretary & Cashier.—Mr. R. W. Clark.

The above Company has been formed at Plymouth with limited liability under the Joint Stock Companies Acts 1856 and 1857, for the supply of all kinds of Garden and Farm Seeds, Manures, Agricultural Implements, and every requisite for the Farm and the Garden. Arrangements have been made with the old established and well known firm of Messrs. William E. Rendle & Co. for the transfer of their extensive business to the Company.

The objects for which the Company is established are the purchase, growing, or otherwise procuring, and the sale of Farm, Garden, and other Seeds, Plants, and Trees; also the manufacture, purchase, and sale of Agricultural Implements, Draining Tiles, and other articles used in the cultivation of Land; also the manufacture, purchase, and sale of Manures; also the manufacture, purchase, and sale of any other articles and things used in or requisite for the cultivation or improvement of Land, with power for the Company, in furtherance of the above objects, from time to time to purchase, take on lease, or otherwise acquire any Land or Buildings, to acquire any Patents, and generally to do all other things that may conduce to carrying into effect the objects of the Company, or be incidental thereto.

The Company has been duly registered, and the following is a Copy of the Certificate of Incorporation:—

"Limited Company: Certificate of Incorporation of the Plymouth Seed, Agricultural Implement, and Manure Company, Limited, under the Joint Stock Companies Acts, 1856 and 1857.

"I, George Taylor, Esq., Assistant Registrar of Joint Stock Companies, do hereby certify that the Plymouth Seed, Agricultural Implement, and Manure Company, limited, is incorporated under the Joint Stock Companies Acts, 1856 and 1857, and that it is a Limited Company. Given under my hand this 21st day of August, 1857, GEORGE TAYLOR, Assistant Registrar of Joint Stock Companies."

It will be thus seen that the Company was incorporated on the 21st of August last, and commenced business on the 1st day of September following.

The business will be considerably extended, so as to make it one of the most important concerns in the kingdom. About 2700 Shares have been already taken up and allotted, and it has been decided to distribute the remaining THREE HUNDRED SHARES to those who will have transactions with the Company, or who by their influence can benefit the business.

These Shares will be placed in the hands of the present Shareholders for distribution, and application should be made to

Mr. R. W. CLARK, Secretary to the Company,

Or to the following Shareholders;—

Mr. William E. Rendle, Mount View, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. Thomas Vosper, Merafield, Plympton.
Mr. George Sercombe, Seed Merchant, Exeter.
Mr. William Coaker, Charleton, near Kingsbridge.
Mr. Henry Holman, Mannamead, near Plymouth.
Mr. George Witty, Land Agent to Neville Grenville, Esq., Butleigh, near Glastonbury.
Miss Gregory, Mr. R. Gregory, Merchant, Barnstaple.
Mr. Edward Mortimore, Seedsman, Ashburton.
Mr. John Watson, Shirburn Castle, Tetsworth, near Oxon, Land Agent to the Earl of Macclesfield.
Mr. Thomas W. Eales, Merchant, Dartmouth.
Mr. John Rendle, Seedsman, St. Austle.
Mr. Arthur Parlew, South Devon Place, Plymouth.
Mr. Thomas Husham, Chemist, Dartmouth.
Mr. John Gidley, Chipley Park, near Wellington, Somerset, Land Agent to E. A. Sandford, Esq.
Mr. Charles Hodson, Land Agent to the Rev. J. R. Hogg, Bagdon Barton, near Totnes.
Mr. P. P. B. Newcombe, Seedsman, Oakhampton.

LONDON MANURE COMPANY (Established 1840).

Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY; Offices, 52, Parliament Street.

HENRY KER SEYMER, Esq., M.P., Chairman.

George T. Clark, Esq.	William Fisher Hobbs, Esq.
John C. Cobbold, Esq., M.P.	Edward J Hutchins, Esq., M.P.
Sir William Cubitt, F.R.S.	Sir Samuel Morton Peto, Bart.
Henry Currie, Esq	William Tite, Esq., M.P.
Thomas Edward Dicey, Esq.	William Willshere, Esq.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

GUTTA PERCHA TUBING FOR SPREADING LIQUID MANURE.

THE GUTTA PERCHA COMPANY have been favoured with the receipt of the following Letter:—

From JAMES KENNEDY, ESQ., *Myremill, by Maybole, Ayrshire.*

"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."

Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

NEAT AND DURABLE GARDEN LABEL.—A Specimen Label will be sent on the receipt of three postage stamps.—Address, F. H., Lydbury North, Salop.

"TIFFANY" FOR SHADING CONSERVATORIES, MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

SIGMA'S GRAIN PLANTERS, with five depositors, 3*l.* 3*s.*; the DRAW SHAVE STEEL HOE, 4*s.* 6*d.*

A Pamphlet, "The New System of Seeding Wheat, &c.," with engravings, sent on application to Mr. C. POWELL, Hurst Green, Sussex.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Milbank Street, Westminster.

"FRIGI-DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observations accompanied an additional order.—Oct. 22, 1856.

COLLEGE OF AGRICULTURE AND CHEMISTRY AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857

President—The Right Honourable LORD WARD.

The NINTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, and ROOTS, and the various kinds of DOMESTIC POULTRY, will be held in Bingley Hall, Broad Street, Birmingham, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next, when PRIZES will be awarded to the amount of 1250*l.*

The PRIVATE VIEW on MONDAY, November 30.

Admission to the Public:—Monday, 5*s.*; Tuesday, Wednesday, and Thursday, 1*s.* each.

The Doors will be open at 9 o'Clock each morning.

JOHN MORGAN, Secretary.

The Agricultural Gazette.

SATURDAY, NOVEMBER 14, 1857

THE announcement in our columns last Saturday that the Highland Society had given to Mr. FOWLER their premium of 200*l.* for a successful adaption of steam-power to the purposes of cultivation leads us once more to refer to the recent trial of his steam machinery at Stirling. On several late occasions this apparatus has been in most successful operation: at Uppingham the conditions of quantity and character of work were fully complied with; at Long Sutton the objection as to the power wasted in moving the ropes and heavy implement was set at rest; and in the five days at Stirling, and on the adjourned day at Edinburgh, the various capabilities of the apparatus received a thorough testing, with the most gratifying results.

The apparatus need not be again described in these columns; it being enough for our readers to state that the engine was of 10-horse power with double cylinders, having winding drums attached beneath the boiler, and gradually moving itself along the headland while the work proceeded. The self-shifting anchorage, the rope carriers, and steerage plough are sufficiently well known. At the Stirling trial the four-furrow plough was used, the trenching implement being also worked at intervals.

The land on Stewarthall Farm was tolerably level, presenting only gentle inclines, and the roads from field to field were of an average order. The fields were perhaps 16 to 18 acres in size, varying from 200 to 350 yards in length, and were partly Clover lea and partly mown Wheat stubble. The soil ploughed the first day was a stiff clay or "till," a Clover lea, requiring a winter's frost before being in a fit condition for

ploughing, and requiring three horses to a furrow 5½ inches deep; the stubble ground subsequently worked on was not quite so heavy, being considered hard work for pair-horse ploughing.

Owing to an accidental breakage, the engine was not able to exhibit its locomotive powers, six horses being therefore required to take it from one field to another; and it was found that the taking up, removal, and laying out of tackle occupied about half a day, so that for fields of the dimensions usual in the Carse of Stirling, these shiftings must necessarily be frequent. A less number of horses will suffice when the engine uses its own power as an auxiliary in travelling. The hands engaged were four men and a boy, besides a horse and man fetching water; and the daily expense of labour, coal, oil, and water was reckoned at 35*s*.—rather a high estimate. The difficult figure was the "wear and tear." But Mr. FOWLER has had long experience of the working of wire-rope with his draining-engines; and considering that the ground was free from stone or gravel, and the rope was supported upon friction rollers, we are prepared to receive his statement that the rope would last over 2000 acres, and still be of considerable value. The best way of making sure of an uncertain quantity is to take care and state enough—so take 120*l*. as the annual item for wear and repairs. Now, in computing the total daily cost, we must remember that the machine will be worked only during part of the year, say for 30 weeks, or 180 days; and thus we have 4*l*. per week or 13*s*. 4*d*. a day for wear, &c., to be added to the 35*s*. of working expenses. The simplest way is to take the cost per week, in order to include the time lost in say two removals, there being thus five clear days of work and one day occupied in removals, at a total weekly outlay of say 15*l*. What extent of land can be ploughed for this amount?

On the heavy land at Stewarthall, the implement (going 5½ inches deep) made 27 half-bouts of 330 yards each in three hours taking four furrows at a time, or a breadth of 40 inches. The extent of land ploughed is therefore equivalent to an area of 3300 square yards per hour, or 6¾ acres in a working day of 10 hours. Thus there will be 34 acres ploughed in a week, at a total expense of 8*s*. 10*d*. per acre. The cost by horse labour, according to the opinion of farmers present, and the custom of the district, would not be less than 15*s*. an acre.

On the milder soil the plough made 19 half-bouts per hour of 220 yards each. The area was 4644 square yards per hour, or 9½ acres per day; equivalent to 48 acres a week, at a total cost of 6*s*. 3*d*. per acre. The ploughing was at 7-inch depth, and being strong work for two horses in a plough, the cost by horses was estimated at fully 10*s*. an acre.

The trenching implement, going 12½ inches deep in this soil, and taking two furrows breadth at once, ploughed 1167 square yards in half an hour; equivalent to 4¾ acres a day, or 24 acres in a week, at an expense of 12*s*. 6*d*. per acre. It was considered that at least 6 horses would be needed to perform an acre a day of such deep work.

The machine, then, showed its ability to effect a saving in the cost of ploughing per acre, of 37 per cent. on the strong loam, 42 per cent. on the heavy land, and say 60 per cent. in trenching. It is observable here that the economical advantage of steam over horse power is in proportion to the difficulty of the operation arising from the stubbornness of the ground or the depth of tillage. And this is precisely what we should wish, in order to relieve our teams of the severer labours, and at the same time induce us to practise deep husbandry.

But the advantage is not confined to the pecuniary saving. Suppose a farm, having 300 acres arable, to employ 15 horses. About one-third of the animal power will be engaged during the year in ploughing and scarifying or grubbing; and a steam machine adapted for the processes will take the place of these 5 horses, leaving 10 for the lighter tillage work, for carrying, and performing the general tasks required on a farm. At times, it is true, the whole animal force might have been brought to bear upon a single field, and so plough perhaps 7 acres in a day; but the steam machine will plough more land every day, for as many days as the farmer pleases, and yet he will have 10 horses to harrow, drill, manure, etc., so that he may save 40 or 50 per cent. in *time*, as well as very considerably in outlay. Who will venture to limit the value of being able to "get in" a great extent of cropping, or clean a large breadth of fallow just in the critical few days intervening between times of unfavourable and delaying weather?

Now, as to the quality of the work: are we going to sacrifice efficiency to mere rapidity? At Stewarthall there was but one opinion expressed, namely, that the stubble was turned down and the manure buried as neatly as by horse-ploughing; that the furrow slices were so broken and pulverised by the quick pace of the ploughs as not only greatly to lessen the amount of after-preparation needed, but also to leave the soil in a far better state to receive and nourish the roots of plants than can be attained by the most beautiful horse-ploughing with clean cut slices. Still farther, there was the very great advantage of freedom from horses' iron-shod hoofs, thrust by their great weight down upon the already too hardened subsoil, and consolidating the moist upper soil in every one of the thousands of foot-prints on each acre; and delivery from this not only secures a far more favourable seed-bed, but enables us in an emergency to plough when the land is not sufficiently dry to bear the tread of a team.

But the trenching-plough excited the greatest enthusiasm. Everybody knows the difficulty and expense of ploughing two furrows deep, and the time and labour necessary to reduce enormous furrow slices into a comminuted state. But this implement, drawn at a speed of three miles an hour, turned down not a tough whole slice but one of loose mould into the trench left by the preceding bout, and lifted up from an average depth of 12½ inches (though it might have worked considerably lower) and spread upon the top not heavy unwieldy masses, but divided and pulverised a stratum of subsoil. The effect was generally admitted to be equal to that of good digging by hand, though accomplished at one-third or perhaps one-fourth the price. The machinery required for the clays, and desirable for augmenting the fertility of deep loams, appears thus to be already devised and constructed; and it will be a reproach to British agriculture if deep soils remain any longer undrained and untrenched by the new power placed in our hands.

In concluding this report, we must express our admiration of the manner in which our agricultural friends north of the Tweed have investigated the merits and powers of the machinery competing for their prize. They have not tried it upon ground so utterly unsuitable and so badly laid-out as to suggest a doubt to censorious lookers-on whether some devoted "venerator of the plough" had not chosen it on purpose to baffle the steam-engine and make it ridiculous before the expectant world. Instead of the Salisbury plan of taxing young inventions to the uttermost at the very outset of their career, these men of business adopted the wiser course of testing at first under favourable considerations, assured that a principle once demonstrated to be of value will work its way in practice into more difficult circumstances if we only give it time. Three days' private and one day's public trial on the Carse land by men of known practical ability, under Mr. MILLER as engineer, a gentleman equally familiar with steam machinery and good husbandry, and a subsequent day's experiment upon lighter soil near Edinburgh, have enabled the Scotch farmers to approve of Mr. FOWLER's Steam-Plough, and the Highland Society's award of their prize will doubtless hasten our more deliberate "R. A. S. E." to declare their mind upon the Salisbury competition.

CALCULUS FROM THE BODY OF A HORSE.

By the term calculus are indicated various hard concretions occurring in the stomachs, intestines, or bladders of animals; a tendency to such accumulations being the result of a combination of causes, referrible to the food, condition of system, and a number of external circumstances. Among cattle, hair balls are frequent in the (rumen) paunch, the hair forming them being licked off the hides of other cattle and swallowed; the motion of the food in the stomach defining the form, while the mucous secretion furnishes an adhesive material by the aid of which a perfect combination between the hairs is effected. From length of residence these masses are occasionally covered with phosphatic deposits, giving them a hard exterior. Their presence is not generally productive of injury, as from the arrangement of the stomachs in cattle there is little probability of their escape into the intestines where their arrestation in a small part of the tube would cause severe spasm and probably death. Concretions of the triple-phosphates are also found in cattle. As many as 20 have been taken from one (rumen), these of various sizes, from a Bean up to an Orange; they are never round, however, when present in numbers, the friction that goes on among them causing a roughly triangular form. That this shape is entirely dependent on the movements that take place was beautifully shown by the discovery a few months back of six or eight large musket balls in the rumen of an ox; every bullet had lost its globular form and assumed the invariable outline of the calculi found in the same situation.

The formation of these bodies may be thus explained. Their usual components, principally phosphate of magnesia and ammonia, are found in the Grasses, in bran extensively, and most of the articles of food of the herbivora. For the deposit of these salts a nucleus or starting point is required; this may consist of a small stone, piece of a nail, wire, or indeed any non-digestible matter swallowed by accident, or in mixture with the food. The accumulation round the nucleus is by successive layers giving to the section of the concretion a concentric appearance. The amount of deposit is regulated by time and the position in the digestive canal; in the stomach they rarely reach any great size from the constant disturbances to which they are subjected; in the intestines, however, when they become located in a part where movement is slight they attain an enormous bulk; 25 lbs. is the largest at present known—5 to 10 lbs. is a common size.

In the horse, from the simplicity and singleness of the stomach, calculi are even more serious than in cattle, although not so frequently found, nor in such numbers; a fact explicable by the arrangement of the digestive canal which permits a ready escape of matters from the stomach to the intestines, by which many calculi at their commencement are probably got rid of, without even a suspicion of their presence being excited. This easy passage from stomach to intestines is the reason why so much more mischief follows the accumulation in the horse than in cattle, in whom the rumen affords an immense space practically isolated from the intestines as far as heavy bodies are concerned.

Whether the concretions are always formed in the stomach and carried on to the large intestines, or sometimes originated in the latter position, is of no material importance; the reasons in favour of either position are about equal; it is in the large intestines, certainly, that the deposit advances most rapidly, from the greater space and more decided rest afforded by those organs. These favourable conditions render it likely that calculi frequently commence here and progress. On the other hand, it is doubtless the case that many are formed in the stomach, and in their recent condition carried backwards with the ingesta; occasionally one slips into some convenient intestinal fold, where it remains until too large to escape, but where at the same time it may not produce immediately serious effects on account of the great space still permitting the free passage of the food. The calculus gaining new layers from time to time becomes more incapable of passing off with the evacuations, but in obedience to the intestinal movements or to some more than commonly violent action it is slightly shifted, and in its new situation producing irritation, occasions an attack of spasmodic colic (gripes). These attacks may be repeated again and again by successive changes of position, or it may be that the calculus never moves at all during years; no indication of its presence is perceived, until at a moment it becomes shifted, passes on to some narrower part of the gut that just grasps it, the food continuing backwards increases the obstruction, mortification ensues, and the animal is found dead in his stall—the termination sooner or later of most of these cases.

The specimen forwarded to me is an instance of the triple-phosphate deposit, smooth on the outside, quite round, and about 5 pounds weight; its section shows the usual concentric deposit, the nucleus being a large mass of hardened dung, from which I conclude that the concretion commenced in the large intestines, where it must have remained for some years. The animal's death was undoubtedly caused by the shifting of it to some smaller part of the tube, where its presence obstructed the passage of the feculent matter. My colleague, Dr. Voelcker, has kindly given me a rough analysis, which I subjoin:—

"Phosphate of magnesia and ammonia, some phosphate of potash and soda with
Lime and Silica .. } a mere trace.
"The organic matter amounts to about 34 per cent."

The peculiarities in this concretion are the large amount of organic matter, the large mass of feculent matter combined with the mineral layers, and the absence of any hard body as a nucleus. *G. T. Brown, the Royal Agricultural College.*

HIGH FINISH IN FARM MACHINERY.

THOSE interested in agriculture may have observed that the judges at Salisbury, whilst awarding a prize to my reaping machine, remarked that it was not equal to others in workmanship, or in other words not highly finished. Giving premiums for highly finished machines is a great mistake, as the efficiency of the machine when applied to agricultural purposes should undoubtedly be the chief point considered. The identical reaping machine which I exhibited, and was thus found fault with, has now been worked on a farm two seasons, besides being sent to other places for trials, and has never once had occasion to be stopped; nor has it cost a sixpence in repair except for a new cloth. As an instance of the merits of finished machines purchased from exhibitors at these shows I may mention that I bought a root-pulper I had seen exhibited. On sending it to Scotland, my manager wrote me that from the deficiency in parts of its construction he did not think it would stand the work, but trusting to the respectability of the maker I went to the expense of having the machine fixed up, but sure enough the second day it broke to pieces. I wrote to the maker informing him of the fact, and he promised to send me a portion of the machine to replace that which gave way. This, however, I never received, and after waiting some time I had the part repaired; however it again gave way in another weak point, and

I was obliged to lay it aside, thereby incurring a very serious loss, besides all the expense I had been put to in repairing the machine. The framework being totally useless I proposed that the maker should make me an allowance accordingly. This he has refused, and has placed the matter in the hands of the London Trade Protection Society, and as I do not wish to incur legal expenses I have paid the money with the additional charges. I believe, however, I should have done well to have resisted this claim, and exposed the imposition I have been subjected to. I do think that the farmers require a society to protect them from agricultural machine makers, and also manure vendors, from both of whom I and others have suffered; at any rate I should recommend farmers before buying root-pulpers to get some guarantee that they will stand the work required. KINNAIRD, *Veitch's Hotel, Edinburgh.* [We have omitted the name given in Lord Kinnaird's letter. This statement of his lordship's experience will be none the less generally influential, though we do not give its personal bearing.]

Home Correspondence.

Mr. Piper's Balance Sheet.—Mr Piper must not imagine I impute any intentional mis-statement to him in the tables he has published in the *Gazette* of the 24th October of his and the Reverend Mr. Smith's systems of Wheat growing, but I must think there does exist an error in the amount of produce put down to Mr. Smith's account—five sacks—can it be that it should be five quarters, which appears to tally more nearly with all Mr. Smith's former returns? I have not a later pamphlet of his than that of 1852, but up to that date, and I believe according to returns since published in periodicals, his returns have been from 34 bushels to 40, or even over; should there have been no falling off in the years 1855 and 1856 there would evidently be shown a large balance in favour of Mr. Smith's system. Half-a-ton of straw, too, is so very much under what Mr. Smith has usually had, that it throws further doubt on the statement. He used to have from a ton and a half to two tons. We must under such discrepancies, without casting any suspicion on Mr. Piper's honesty, be anxious to have Mr. Smith's own statement of these two years' products. It is barely possible that Mr. Smith's returns of these two years may have fallen short of those of former years, but, whether they have or not, Mr. Piper in giving his own averages for the last eight years ought also to have given those of Mr. Smith's for the same years. As far as my observation goes the returns of the two plans had previously been much upon a par. The two systems are of so much interest, bearing on two such opposite principles, both being conducive to the production of such vast amounts of our staple food, that their merits cannot be too much discussed. It is curious to find so small an amount of manure compensating for all the inorganic substances brought into play by the deep working of Mr. Smith. Mr. Piper's plan shows the mistake we are in, in supposing a change of crop necessary, at least in cereals; as constituting the staff of life this is a matter we should be thankful for, but then he is dependent on foreign supply of manures, which if his plan were brought into general practice might fail, while Mr. Smith's rests on those within the soil which thousands of years may not and cannot exhaust.—*J. M. Goodiff.*

Thin Seeding, Late Ripening, and Rust.—Thin seeding produces late ripening—true, it does delay the period of ripening and so do high manuring and deep working; but is it not jumping to a rather hasty conclusion that it is therefore a cause of rust, which generally attacks the Wheat plant long before the ripening process commences?—it will be seen even in Grass corn. The deep and well fertilised lands are always longer in bringing on plants to the ripening stage than shallow poor land; are we therefore to abandon high farming and our prime lands to other products and only sow Wheat on weak soils? Is not water at the roots a main cause of rust? Is not late sowing also, as Mr. Smith says, in producing a late and spring tillering, a further cause? Do the Hardys find their thin sown grain more liable to rust than their neighbours' thicker sown? Does Mr. Piper find his 2½ pecks more subject to rust or later in ripening even than his neighbours? Does not Mr. Smith produce a plump full grain of Wheat? But in Ireland Wheat is almost all sown broadcast and thickly sown—over two bushels to the acre—and yet for several years very immediately subsequent to the general attacks of mildew on the Potato crop, it so suffered from rust as to throw it very generally out of culture, the rust affecting the leaves when in Grass corn; and although at the same time I believe it prevailed very much in England we do not find that the Hardys or Mr. Smith or Mr. Piper were more severe sufferers from it than their neighbours. In the year 1850 a crop of Wheat was sown in rows four feet apart with Cabbages interlined on a wet, cold, undrained clay—this Wheat promised well but was so severely attacked by mildew that it became of little value; this was a nice bone for the thick seeders, but it unfortunately happened that at the same time another crop of Wheat about a mile off sown broadcast with a full complement of seed on a very superior land—a warm dry limestone soil—suffered so much from rust, that the owner of it, a strong farmer, abandoned sowing Wheat for several years after. The period in which mildew attacks prevail is so dependent on other causes, chiefly atmospheric, that it is very questionable whether we should ascribe it to a late ripening, and indeed during the prevalence of Wheat mildew in Ireland it was observed that the spring-sown Lammas Wheat suffered much less from it than the autumn sown; and this would probably be the case with late planted Potatoes did not the destruction of the tops prevent the growth of the tubers. While noticing the Potato crop I may observe that drilled and consequently thinly-planted Potatoes do not suffer more severely from disease than the thicker sown lazy bed. If to those causes which procrastinate the ripening of our grain we are to attribute a greater prevalence of mildew, we must, then, to avoid a chance danger, sacrifice a certain large produce, abandon high tillage, and be content with the scanty returns of our forefathers. But what are thick and thin sowing? Are they not relative? On poor land that would be thin sowing which on rich land would be thick. If the land is capable of giving a tillering of 80 stems to a plant surely it would be absurd to sow it as thick as land that would only throw up a single stem. But thick seeders like shallow drainers are all verging away from their old practices, few now would sow the quantities of seed they used to do; even the poorest lazy-bed tiller of Potatoes in Ireland eschews the nine-inch distances of his forefathers and plants his sets a foot or more apart, and who now thinks of making his *gridiron* drains but two feet deep? It looks very like a catching at straws this last resource of the thick seeders in mildew, but even were there some little more of liability to disease in thin sown crops the thin seeder rests his practice on so broad a basis, as not to fear its being upset by such a casualty. He finds reckless and wasteful extravagance in throwing into the ground more seed than will healthfully vegetate. He sees that a saving equal to about one-twentieth part of the entire produce of the country may be effected, and he maintains that it is the duty of the agriculturist of a state, which cannot produce sufficient for the demands of its population, to effect such a saving, letting alone his own individual interest in it. In poor land, however, thick seeding may be advisable, and in dirty ground it is absolutely necessary, that our cultivated intruders may keep down the denizens of the soil; the ground must be occupied by one or the other, and these dirty fields I willingly give up to the thick seeders and trust they will make the most of them, as they do in Ireland, and perhaps elsewhere.—*J. M. Goodiff.*

Acorns.—The crop of Acorns this season is in this neighbourhood unprecedently large. Many women and children have made large sums by selling them at prices varying from 1*s.* to 1*s.* 6*d.* per bushel. At the suggestion of my servant (Joseph Bowyer) I have tried boiling them for pigs, and find it very successful. Much of the astringency and acridity natural to the Acorn seems to be dissipated in cooking them. At first we boiled them till they burst into a kind of jelly; now we boil them about 20 minutes, till they resemble a cooked Chesnut, and then pound them, and having sifted some of the flour from them for the fat pigs, boil the other part again for the lean. We mix the flour, or powdery part, for the fat pigs with pollard. They eat it greedily, and then lie down, which seems to prove that it is good for fattening them. Many of my neighbours have tried this plan at my recommendation, with the same result. Can you inform me what are the principal constituents of the Acorn, and what should be added—Barley-meal, Indian Corn, bran, Pea-meal, &c., to make them most suitable for fat pigs and for lean and growing pigs respectively? *E. G., Runham Vicarage.* [We have no analysis of Acorns. The specimen of Acorn flour sent is sweet and palatable.]

Productiveness of Foreign Seed.—Will the writer of the highly remarkable article on weeds in your last Number have the kindness to state why he supposes that "there is too much reason to believe that foreign seed of an indigenous species is often more prolific than that grown at home?" Is it meant that the plant produced from the foreign seed actually produces more seed, or merely that the introduced stock is more vigorous than the native stock? I have no doubt that so acute an observer has some good reason for his belief. The point seems to me of considerable interest in regard to the great battle for life which is perpetually going on all around us. The great American botanist, Dr. Asa Gray, believes that in the United States there are several plants now naturalised in abundance from imported seed, which are likewise indigenous; and my impression is (but writing from home I cannot refer to his letter to me) that the imported stock prevails over the aboriginal. So again, Dr. Hooker in his admirable Flora of New Zealand has told us that the common Sonchus has spread extensively from imported seed, whilst the same species is likewise an aboriginal; the natives in this instance being able from trifling differences to distinguish the two stocks. Might I further ask whether it is now some years since the seed of Sinapis nigra was accidentally introduced on the farm described; and if so, whether the common Charlock still remains in lessened numbers owing to the presence of the invader, and without, as far as known, fresh seed of the invading S. nigra having been introduced?—whether, in short, it was a fair fight between the two species, ending in the victory of the Black Mustard? Would it be trespassing too much on the kindness of the writer of the article to ask whether he knows of any other analogous cases of a weed introduced from other land beating out, to a greater or lesser extent, a weed previously common in any particular field or farm? *C. Darwin, Down, Bromley, Kent.*

The Preservation of Corn and other Ricks.—How much better and cheaper would it be in the long run if a farmer had erections or sheds of a simple and inexpensive kind under which ricks, whether of corn and other cereals, hay, &c., might be safely housed, and thus be free from the effects of storms, but also from incendiarism. There is little doubt that, despite the thatching, much of the rick corn is considerably deteriorated by its exposure, especially crops that are in an inferior condition in bad seasons. A farmer can have no difficulty in knowing how many ricks his acres will raise, and should allow housing accommodation for a maximum number. Lightning conductors might probably be more serviceable and effective if detached from buildings at the distance of a few feet. Wood erections are possibly the cheapest kind, but where present economy is not a primary object, cast iron girder houses (that will also admit plenty of light where desirable), after the system of Sir Joseph Paxton's, as seen on a monster scale in our Crystal Palace at Sydenham, but also successfully made use of in smaller buildings by him on the Duke of Devonshire's estate. Many hundreds, if not thousands, of quarters of grain, &c., are lost to the stock of our produce, the staple food of the majority of our population, from want of due care and management, especially in bad and wet seasons, as is seen in the large proportion of damaged and inferior grain and other crops. This to the farmer bent upon self-interest alone is a matter of indifference, as any deficiency of bulk is made up by increased price, but to the hard-working classes, generally underpaid, this is a matter of serious consequence. I hope the day is not very remote when some means may be devised by our legislature to compel farmers to take efficient means to preserve the hitherto abused bounties of Nature by having ricks under house covering, a system also beneficial in preventing crime by removing the liability to incendiarism from discontented men, who suffering, whether justly or unjustly, from want and destitution, in their ignorance purpose ruining the farmer, whereas they are injuring the community generally, and most of all their own class. I may add that I believe lightning conductors would be more efficient if the top were fluked like an anchor, and it would thus attract the electric fluid more certainly than by a single point. "*Scintilla.*"

Lead Pipes.—One of your correspondents wishes to know if a lead pipe to convey water to farm buildings half a mile would be reasonable at 100*l.* Instead of lead pipe I have used common 2-inch pipes of brick earth set in Portland cement, at one-third of the cost, and though I have not yet fully proved the work I trust it will answer, and be so much better than lead that there will be no danger of the water being poisoned. Does any one know of Portland cement having been previously used for a similar purpose? *W. E. H.*

Farmers' Clubs.

LONDON: The following are passages from the Rev. C. James's opening paper on the education of the agricultural labourer:—*The "position" of the British Farmer.*—I maintain that it is a high and dignified one, fraught with immense responsibility, both by precept and example, influencing for good or evil 800,000 families of labourers in husbandry, forming the interest that wields the power, originates the wealth, cherishes the manly freedom, and promotes the happiness of the entire people; and that it is from this interest that the greatest part of the public burdens are borne, and from which the State derives the greatest portion of her subsistence. As to "the holdings" of the British farmer, there are, it is calculated, 78 millions of acres, at a rental of 127 millions of pounds sterling per annum, in the area of these kingdoms; 14 millions of which are unimproveable waste, and 12½ millions uncultivated, but improveable land. The farms occupy two-thirds of the land of England. The number of farms is 225,318; the average size is 111 acres. Two-thirds of the farms are under this size; but there are 771 of above 1000 acres, the large farms abounding in the south-eastern and eastern counties, the small farms in the north. There are 2000 English farmers holding nearly 2,000,000 acres, and there are 97,000 English farmers not holding more. There are 40,650 farmers who employ five labourers each. 16,501 have 10 or more, and together employ 311,707 labourers; 170 farmers have above 60 labourers each, and employ together 17,000. What an enormous trust held by such a body of men, over such a multitude of workmen! And are they alive to their position? Do they know their duties—and, knowing them, dare to perform them? I answer unhesitatingly, for the most part, Yes; and desire to promote and advance the physical, moral, and intellectual training of the labouring classes. True there was a time when, in some parishes and districts of our country, the education of the labouring classes was viewed with distrust, and encountered opposition; but men now begin more fully to appreciate the words of the excellent Dean of Hereford, in his "Suggestive Hints on Secular Education." "The farmers," says the Dean, "and those of the same class in our rural districts, may rest assured that, until they get that education it is desirable they should have, and until they feel that interest in the labourer which is right, they only augment the evil which they dread. The one is advancing in intelligence; the other is standing still; and I cannot but think that, in a very few years, the employers of labour will be the class which, of all others, will take the greatest interest in those very schools of which they now think so little."

Need of increased Skill in the Labourer.—I say that the more artificial position of agriculture, arising from the progress made in machinery, chemistry,

and mechanism; the extended use of complicated machinery and scientific appliances to farm work; the wondrous power of steam, which has effected an almost incredible revolution in the pre-existing modes of life, beneficial to the producer of food no less than to the consumer—whose utility in application consists in the addition which it makes to human power, its economy of human time, its conversion of substances almost worthless in themselves into articles of great value and nourishing food for cattle, as also in the increased command which it gives society over the necessaries and comforts of life—I say that the forces derived from wind, water, and steam are so many vast additions to human power; and M. Dupin has calculated that the amount of inanimate force thus obtained is equivalent, in Great Britain alone, to an addition of twenty million of labourers. Again, the enormous demand made upon our limited soil for the people's food, and our bounden duty to supply that food at the cheapest possible cost to the utmost possible extent—the advantage, which in a few exceptional cases is sure to be taken of the present level of high prices in letting and renting farms—the unsettled state and ever-doubtful position of the corn-supplying countries on the shores of the Baltic and Black Seas—the bondage of antiquated statutes, which in many cases still cripple the agricultural resources of the country, forbidding just and ample security for capital invested in the land through the non-acknowledgment of tenant-right (cheers), and impeding it in supplying its own wants—the duty to ourselves, and to the community who rely on us for food, to cheapen produce, to increase its quantity, to improve the tillage of the soil, and to look to advancing knowledge to aid us in developing to the utmost the latent powers of those fields which we have now in hand—the artificial modes of stall-feeding, and the richer food supplied to cattle, rendering the health of our stock far more precarious, and attention to the economy of manures and sanitary measures far more absolutely essential—the race which is now being run between mechanical ingenuity and manual industry, the one not puffing and panting to supplant and destroy the other, but being its most valued helpmate and ally—all these things, I say, make it now absolutely essential to the farmer to have skilled and clever workmen for skilled labour, sharp-thinking and intelligent men for modern appliances and pursuits; or else he must be content to leave it to better men to avail themselves of all the modern improvements in farming, and struggle against a competition from which activity, skill, and enterprise can alone expect to reap advantage.

NORTH KERRY: Mr. Christy spoke at the late annual meeting of this society on the capabilities of Kerry as a butter-producing and green-crop growing county. He objected to the great portion of the best Grass land being kept for meadow, and the total absence of Clover. "This," he said, "I look upon as your great drawback, as I hold that any farm over 50 Irish acres in extent, with the aid of Turnips, Oat-straw, and Clover-hay, can supply itself with sufficient winter keep. This will at once bring us to look for a general system of improved mixed husbandry, which, doubtless, in any country, takes time to accomplish, but which, had we once thoroughly established it in this country, I have no hesitation in saying, would place Irish agriculture the foremost in the world, especially in the breeding, rearing, and fattening of stock. Indeed, the advances we are making in this respect are being invariably admitted. Mr. Strafford tells us that Ireland is the best adapted country in the world for the propagation and improvement of the short-horn, and when we take into consideration the fact that we have in this country some of the very best tribes of them, I think it is not going too far to say we bid fair to be the first breeding country in the world. You must not understand that I consider the natural advantages we possess of soil and climate are of themselves sufficient to enable us to go through the English and Scotch show-yards with flying colours now; for the parent stock of the short-horns are in England, and in the hands of men who bestow a degree of care and attention on them that, even had they a far more ungenial clime and soil than that of England to contend with, would still prove competitors that no ordinary exertions could overcome. But, taking us as a breeding country from Cape Clear to the Causeway, we will give them something to do to keep pace with us. The truth of this was never so forcibly brought to my mind as on reading an article about this time twelvemonths in the *Mark Lane Express*, complaining of the still unimproved state of the stock in many of the backward English districts, and comparing this with the vast improvement which has taken place within the last ten years in the large lots of Irish stock which have been daily imported to the English markets; thus bearing ample testimony to the improvement we are making in this respect. We must not, however, rest satisfied here: little has been done to what still may be done, and it is the landlords of the country who can now make the great advance in this particular. This reminds me of one thing that struck me in your show-yard to-day. I take the liberty to suggest that where you make three classes of your farmers, I think, at least in the third class, the money given for bulls would be far better applied by increasing the premium for their cows and heifers, and let the landlords supply them with bulls. Because it is impossible for those farmers to lay out capital to supply a pure bred beast; and I hold that no landlord can confer a greater benefit on his tenants, and do himself more good, than by bringing into the country pure bred sires of every class and stock, and letting them have the free use of them. When we take into consideration that the benefit which the landlord could thus so essentially confer would be of such vast importance to the tenants, I think it is not going too far to say it is his duty to do so. But to make the country tell to the full extent, our whole system of agriculture must be remodelled. We must adopt those systems of cropping which would enable us to grow the greater amount of green crops. Much of our land must be so managed as to carry large herds of dairy cows, stores, or fattening stock. The due proportion of tillage must be so arranged as to afford the greatest possible amount of winter feeding. But to bring the country under an improved system of mixed husbandry, much, very much, has to be done, and can never be accomplished without the most hearty co-operation of landlord and tenant. Our lands must be drained, our occupations squared and well fenced, our land cleared, so as to admit of the use of all the new and improved machinery. We must have comfortable and well arranged homesteads, with well roaded farms. We must be alive to the use of artificial manure, not neglecting to keep an eye to the guano vendors, and be wary of the article, and we must not be slow in adopting all the new and improved machinery which the wonderful spirit of invention is daily calling into existence. In most of these particulars we are far behind our English and Scotch neighbours. But even this we can now turn to advantage. We can select, from among the myriads of improved implements their skill and industry have invented, those best adapted to our soil and climate, and from among their most improved systems of husbandry we can select those best suited to this country. We can in fact, make short cuts to all their great improvements. We are, as it were, following in their lee, steering our course by them, and this saves the delay of having to make our own soundings. We are daily coming nearer and nearer to them, and now, with the spirit of agricultural improvement roused in the country, may we not hope soon to steer alongside? And I hope you will not deem me altogether visionary when I say I hope the day is not far distant when we shall freely shake our sheets to the wind, put our helm about, and stand boldly away in the great ocean of agricultural improvement, and even hope soon to leave our late pilots far upon our lee."

Reviews.

A Letter on Steam Cultivation, addressed to the Right Hon. B. D'Israeli, M.P. By William Smith, of Woolston, Bucks. J. Wesley & Co., 54, Paternoster Row.

The decision of the Highland Society to award their premium of 200*l.* to Mr. Fowler will greatly quicken the public decision on the merits of the several methods of applying steam power to cultivation. We have Mr. Williams, of Wiltshire, with his combined horse-power for guidance and steam power for draught; Mr. Collinson Hall, with a light steam engine working at enormous pressure, travelling, as Boydell's does, across the land; Boydell's self-acting railway-placing steam machine drawing ploughs behind it; Romaine's rotatory cultivator, brought out at Beverley; Fowler's stationary engine, drawing ploughs by wire ropes passing round a travelling anchorage; and Smith's, of Woolston, working on a similar principle, but using cultivators and grubbers rather than ploughs as his tillage implements. This last-named gentleman asserts indeed that he was the originator of this plan, and that in the summer of 1855 he commissioned the Messrs. Ransome and Mr. Fowler to make the first apparatus of the kind that had been thought for himself. And he says:—

"All the attempts to apply steam to the cultivation of the soil previous to the year 1855 had been failures. During the year 1855 I invented mine, had it made, and brought to a successful trial at the close of that year; my success brought forth competitors, but not one that has a shadow of pretence to success was made, or attempted to be made, till after the beginning of the year 1856. The means of connecting the power with the plough which I adopted was the well known system of windlasses; with them I have worked my steam plough to great advantage, and I find this plan and my plough so much appreciated, that several of my countrymen have adopted it and are using it; and I believe it is the only economical substitute for the horse plough or the spade that has hitherto been invented."

The following passages from his recently published pamphlet explain his method and describes his success. He says:—

"My farm consists of not quite 200 acres; of the arable, 40 acres are hilly cold clay more than a mile from home, but with a field barn and yard; 70 acres are mixed gravelly clay near home. The Clover leas, and the piece steam ploughed the previous year on which the Turnips failed, with the headlands and the Turnips, make up the 110 acres. On this I formerly worked five horses and a stout pony, and they were fully employed. I now keep two horses and a pony, and for these I do not find anything like full work. At times, it is true, I am forced to borrow a horse from my other farm, but I certainly repay in kind far more than I borrow. I am therefore applying steam at a great disadvantage, compared with what I should if I occupied more arable land. On from 200 to 300 acres of arable land, there would be from 50 to 60 days' work at steam ploughing in the autumn; then there would be required only just sufficient horses to cart the corn, and these at other times would be profitably employed at seeding and in other agricultural operations. Thus, with only double the number of horses and the same steam power which I now have, I could cultivate more than double the number of acres."

"In the spring of 1855 the inquiry as to the feasibility of using steam power instead of horses, for the cultivation of the land, which before had been spreading had become general. The report of the Royal Agricultural Society on implements awakened my attention; and on due consideration I thought it to be more practicable through the medium of my mode of cultivation than of the ordinary one. Now came the inquiry as to the respective advantages of the locomotive and the traction plan, with a stationary engine. The success of the locomotive on our railways seemed to turn almost all attention to that means of applying steam; and even now it is not despaired that success may attend the ingenious combinations of some of our engineers. But when we consider the enormous loss of power even of a team of horses (a weight of from two to three tons) in carrying themselves across a field, as well as the waste of power in counteracting their own exertions, by consolidating that which they are employed to render porous, I was led to believe that the loss of power in a locomotive engine, weighing probably from seven to nine tons, would be considerably greater even in proportion, when it was moving itself across a ploughed field or up even a slight acclivity. How much power would be wasted in opposing its own object would of course depend upon the manner of its movement and the mode of its application. The friction too of the different parts of the engine, great as this is in stationary engines and in engines moving on tram-ways, must be immensely increased when moving over rough and uneven surfaces. But by adopting the traction system with a stationary engine, the power lost would be only that which was required to overcome the weight of the ropes and the friction over the soil, which would be much less than that required to carry the locomotive engine; and little or no power would be wasted in counteracting its own efforts, and the friction might be reduced to the minimum. Besides this, there would be great advantage in using an engine which could be applied to many other agricultural purposes, such as threshing, grinding, chaff-cutting, &c.

"Bearing these things in mind I formed my plan, and in the spring of 1855 I constructed my plough and tested it as far as I could by horse power. I went to the Royal Agricultural Society's meeting at Carlisle, in the hope of meeting with manufacturers to aid me in carrying out my designs. I there engaged with Messrs. Ransomes to make me a seven-horse power engine, and with Mr. John Fowler to make me the other necessary apparatus to effect my object. These I received in December, 1855. I immediately commenced my experiments, and after some alterations in detail, I proved that a powerful implement, which could trench and break up the soil in straight lines, or nearly straight lines, at the will of the guide, could be easily drawn across a field, and with the greatest facility *turned to go back again*. My experiments have been continued with the greatest success up to the present time; and I believe that the result will clearly show that the great object of the farmer will be more readily obtained by this breaking up and admixture of the soil, and leaving it in a state of porosity, with the weeds and obnoxious Grasses on the surface, to be removed or to perish, than by the action of the common plough, which cuts them to pieces and places them under the soil to germinate and increase year after year, till a fallow becomes a matter of absolute necessity.

"In the season of 1855-56, I applied steam power to the cultivation of about 100 acres. Here is the result of the crops on the cold clay:—Oats 9 quarters, 2 bushels; Peas 5 quarters, 1 bushel; Beans 6 quarters, 3 bushels to the acre. My other crops of this year were equally satisfactory, but not being the result of steam cultivation, it is unnecessary to record the amount of the produce."

Farm Memoranda.

LISMANY.—We got here at 9 next day. We went to see the monster steading which is intended for the home farm to be worked by the landlord. It is enormous, and got up in good handsome style, and most substantial. The limestone there is exceedingly well adapted for building, and is, indeed, a rather coarse black marble. The entire establishment appeared to me arranged by a master-hand, with a view to economy in working the whole thing. There is water-power for threshing, grinding bones (we saw a large cargo of bones from the Crimea), and pumping water, which is afterwards distributed by pipes from a very large tank on the roof to all parts of the place, for the use of the cattle, &c., and arranged so as to be used for extinguishing fire. This steading is adapted for a farm of from 3000 to 5000 acres. The grand thing is the reclamation of the land. Such immense fields, and such crops! The land is very level, with slight slopes, and when you look over the vast tract you see the new farm-steadings, like large factories with their chimneys, and their immense stackyards—"haggards," as Paddy calls them. You are told that in some of these fields, now Turnips, there were hundreds of "cabins," now entirely obliterated, and that, notwithstanding, there are 100 or 500 more people on the estates now than there were when purchased. Every woman and girl is employed at barn or out-door work, and the men at ditto, earning all of them nearly double the wages they nominally had ever before. This wage is paid in cash

once a-week into their hands, instead of getting an acre of land to till for themselves, and grow "the lazy root," the failure of which brought famine and death to thousands, the landlords seeing it, and having no means whatever to help the famishing people. One kind-hearted man (Lord Clonbrook), who had a pack of hounds and horses to match, said, "Am I feeding dogs, and the people starving?" put away his dogs and horses, and has never taken them up again, but is doing all he can to improve. The Potato disease brought the Encumbered Estates Commission. This has brought new blood and treasure into the country, by making the land a good, profitable, and safe investment; for, after all, no great good is ever done, or can be done, by unprofitable giving away of money or labour. These estates of Mr. Pollok will be immensely profitable, and very deservedly. The idea of Mr. Arthur Pollok was a grand one, and it has been most manfully and heroically carried out by his son-in-law. I say heroically, for in the face of warnings by all who dared to speak to him, and intimations of intended murder from the police, who on several occasions sent special messages to him to be out of the way, he did his duty in spite of it all, and has triumphed; and may God spare him many years to carry out what is so judiciously and magnificently begun. I should tell you that when the famine or other cause depopulates a "townland," the cabins are left to time and the elements to do the work of destruction, and the poor creatures have to look at their former houses going slowly to decay. Mr. Pollok takes a better way; he is a leveller; and, as I said on the other page, obliterates them. He buys the people's cow, goat, horse, pig, geese, ducks and hens, corn, and hay, and gives them money; many have got as much as 200*l.* or more, but most of them less; many have emigrated with this cash in their pockets, and the greater number have stayed and become workers on the land. Mr. Pollok has taken some, and made them foremen with the charge of farms, and they have turned out very good and faithful. Keep the poor people away from the leading of the gentry who have nothing to do, or rather will do nothing themselves, and are jealous of any one doing better, and they will be all right.

The steading for the home farm has stalls for 500 head of cattle and 26 horses. It is calculated for 1100 acres tillage land, and 500 permanent pasture; in all 1600 acres, exclusive of bog. Wages paid on the two estates Lismany and Glinsk—farm labour, 775*l.*; building and other improvements, 345*l.*—1120*l.* per week. The whole cattle on the estate at present, 2860, of which 1020 are tied up for feeding; 4900 sheep; 120 pairs working horses; 60 horses carting stones, &c., for building and other improvements; and 170 horses under three years old. There are this year 1700 acres Turnips, and 150 acres of Mangel Wurzel, and 400 of Potatoes. I think I said in my former letter there were upwards of 30,000 acres of land in the two estates. On this land before they had probably not 10 acres of Turnips in all, consequently they could not winter any cattle; and now, though Mr. Pollok has not possessed any of the land more than four, and a large part of it less than two years, it already feeds more than four times the cattle it ever did before; and much as Mr. Pollok is said to like the sight of bullocks and sheep, he has not altogether discarded the human race, for there are now upwards of 400 more persons on the estates than when he bought them. These facts tell their own story. Nearly 60,000*l.* a year spent in wages, four times more cattle kept within an average of two years, and 400 more men and women than formerly, and all paid weekly, and their wages nearly double. Multiply Mr. Pollok by 30, and think of the change that would be wrought upon "Ould Ireland." As our correspondent wisely says, "No great good is ever done, or can be done, by unprofitably giving away of money or labour;" and Mr. Pollok is not the less of a patriot that he benefits himself as well as a whole country side; he is not the less benevolent that he is so largely and nobly beneficent.—*From the Scotsman.*

Calendar of Operations.

NOVEMBER.

CHESHIRE, *Nov.* 9.—Since our last communication a very important and anxious period of the year has passed away, and what we predicted with regard to the prospect of the harvest, viz., average crops of all kinds of grain is, we think, fully borne out (by close observation of what has already been threshed) in our own immediate vicinity, and the opinions of many of the leading agriculturists from distant parts of the country; but we cannot admit that the yield of grain generally exceeds an average of the last few years. Portable steam threshing machines, with winnowing apparatus combined, have for the first time been introduced into the neighbourhood, and from the facilities thus rendered, and the fine condition of the grain, a much larger quantity than usual at this time of the year has been threshed out and sent to market, whereby a liberal supply has been kept up, and prices have receded very considerably since the close of the harvest. The weather has been most propitious for preparing the land intended for Wheat and a large portion has been sown in the finest possible condition; the heavy rain which has just fallen put a stop to many of the field operations, and it will be several days before they can be satisfactorily resumed. The storing of Potatoes commenced very early, and some of the winter kinds are keeping better than was expected, but many of the early and second early crops left for seed were a great failure, and it is to be feared all kinds will be very scarce during the spring months. Mangel Wurzel, of which there are fine crops, has to a great extent been secured without the least damage from frost, and Turnip pulling has been commenced in good earnest upon many farms. We cannot speak so highly of the Turnip crop as we could have wished, many fields which have come under our observation being much injured by mildew, club, and other diseases which have of late years become so prevalent, and baffled the skill of the most intelligent farmers. As an antidote to some of these diseases, especially the "club," we have a high opinion of good clay marl well incorporated with the soil, but in many situations it would be very expensive. Lime is also recommended, and would be much cheaper, but we cannot speak positively of its beneficial effects on that score. Turnips are a most valuable crop, but are an expensive one to grow, and failures of every kind, either from bad seed, unsuitable land, or manure, should be guarded against as much as possible, therefore it is desirable that farmers should make a series of experiments with the greatest possible accuracy, for the purpose of ascertaining the causes of these frequent failures, and the most certain method of preventing them. There has been a good supply of Grass for the cattle throughout the summer, and dairy stocks have generally done well, but we are sorry to observe that "pleuro-pneumonia" is still raging fearfully on some of the best dairy farms, and the occupiers appear at a loss how to manage their land to enable them to pay their rents; store sheep of every description have been so dear in the market that very little if any profit has been realised upon them. Small pigs are much reduced in value, and what a few weeks ago was considered a profitable stock is now a very losing one. *W. P., Chester.*

ISLE OF ELY, *Nov.* 11.—Since our last report the weather has been very variable, but upon the whole mild and genial. We never remember an autumn with so little frost as we have experienced this year; indeed, up to the present date (Nov. 11) we have not had a single sharp night. We have however had very copious rains, and during the last three or four weeks have had two decided floods, which have filled all our rivers, and compelled our Fen-farmers to start all their drainage mills and engines, to prevent their lands being placed under water, which, but for these pumping machines, they must inevitably have been. We have now a higher barometer, the waters are rapidly passing down to sea, and we hope the worst is over, and are anxiously desiring a continuance of open and dry weather to enable us to complete our autumnal field work satisfactorily. At a meeting of the Middle Level proprietors held at Chatteris last week, it was stated that by another autumn the works now in progress for affording the waters an opportunity of running down more quickly to sea were expected to be completed, and it is earnestly hoped that when the widening and deepening of Walker's cut are finished, and the whole of the rivers and drains throughout the level are properly roded, we shall find a much more rapid flow of our waters to the sea, and shall not see our rivers fill so quickly or remain so long full in times of flood and high water. The Wheat seeding upon the whole has progressed favourably, especially upon our fen soils. Upon the high lands the heavy rains have occasioned some slight interruptions, and upon the strong tenacious clays have not only retarded sowing, but made the land work badly, and it is doubtful if a good plant will be secured. The first sown Wheats are looking splendid; in fact they are too fine, and are in danger of becoming "winter proud." We never remember Wheat coming up so quickly from sowing throughout an entire season as it has done this year. Potatoes are even more diseased than our last report intimated, and are keeping very badly. We think they must be very scarce, and very dear for seed in the spring. Mangels are a very full crop, and of superior quality, and are now being stored in fine condition. The American crisis, and the consequent effect upon the Money Market, not only here but everywhere, has exerted a powerful influence upon the prices of agricultural produce generally. Everything partakes of the dullness, and prices are daily drooping. Meat is lower, pork especially. Store cattle and sheep are difficult to dispose of, even at lower prices. The corn trade, if there is really a trade, is very bad. Prices get lower every day, and the demand is as sluggish and heavy as could well be experienced. The markets are not so liberally supplied as they were a few weeks since, but the supply even now is fully equal to the demand. We venture not to predict what is to be, but rather report what is and has been, and leave the future to disclose its own secrets. *A. S. R.*

Notices to Correspondents.

BLASTING TREES: *G, Leicestershire,* says: "I am thinking of going to Canada to farm, and I see that the average cost of cutting down timber on an English acre, and dividing them into logs of from 10 to 15 feet, costs in labour, two men for four days, which at 5*s.* per man per day, would cost 2*l.* Now, suppose that instead of cutting the trees down, they were to be blasted by gunpowder. What would that cost an acre, at gunpowder at 10*d.* per lb., labour at 5*s.* per day? I now come to the roots or stumps, and on that point my books give me no intelligence that to me is satisfactory. They say that the farmers let them rot till they can be easily grubbed up: now I don't like that at all. I should like to clear well and let the plough pass, instead of mere ground and all stumps. I therefore beg to ask what the stumps or roots would cost by blasting by gunpowder, when the trees cost 2*l.* cutting down?" [Read Mr. Russell's (Kilwhiss) book on North America. Perhaps our Canadian correspondent at Plymouth may be able and willing to give you further information.]

BOOKS: *Falfield.* Low's "Elements of Practical Agriculture" is probably the best book at its price.—*X Y.* For a work of reference on farming generally, "Blackie's Cyclopædia of Agriculture." For information on light land farming, see Mr. Haxton's paper in the Journal of the English Agricultural Society. For information on Flax growing, read Demann's pamphlet on Flax.

DITCH MUD: *A Sub.* Pile it in a heap and let it drain and dry; then turn it over and give a summer's chance to all its weed seeds to grow. Kill them down, and afterwards use it in compost with farm dung.

FOOT ROT: *J Mitchell.* Apply a little muriate of antimony to the sore surface once or twice by means of a feather; remove the horn sufficiently for the matter to escape; afterwards tar may be applied. *W. C. S.*

GAS LIME: *W W.* It is an impure lime containing sulphur and caustic lime, and carbonate of lime. It is said to become, by exposure to air, mild lime mixed with a litttle gypsum. In its recent state it is destructive of vegetation. You should therefore make it into a compost with other matters, and turn it once or twice before use. It may be used afterwards at the rate of 2 or 3 tons per acre, and has rather more than the effects of ordinary lime.

GUIDEWAY STEAM CULTURE: Mr. Halkett's letter has been received, and will appear next week.

HOMŒOPATHIC TREATMENT OF LUNG DISEASE: *Vet* must now give us his own address that we may forward to him that of "C. W."

MANGEL WURZEL: *Vet as Agricola.* The alleged justification of the spelling rests on the meaning of the German word "Mangel."

MILDEW: *Hanford.* At present we must merely say that the Wheat mildew and Berberry mildew are believed to arise from two different fungusses. The same circumstances may sometimes favour the attack of both.

PAMPHLET ON SHORTHORNS: *Chipstow.* We have inquiries as to a pamphlet by Mr. Willoughby Wood. Will he kindly say if he has carried out an intention expressed some time ago (Nov. 12, 1855)?

PIG FOOD: *Ravenswood.* It is the better for being fermented so long as it does not get into the putrefactive fermentation.

THE MOST USEFUL PLANT: *Regular Subscriber.* We shall be happy to give you an opportunity of justifying any opinion of your own on the subject.

WORKS ON LAND DRAINAGE: *W Green.* Mr. Girdwood in Morton's Cyclopedia of Agriculture, and Mr. Bailey Denton's pamphlet, published, we think, by Metchim, of Parliament Street, Westminster.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.
KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Nov. 14.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to
GARNOCK, BIBBY, AND CO.,
Patent Cordage and Wire Rope Manufacturers, Liverpool.

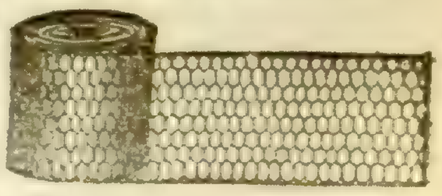
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS or DRY and WET FOOD.

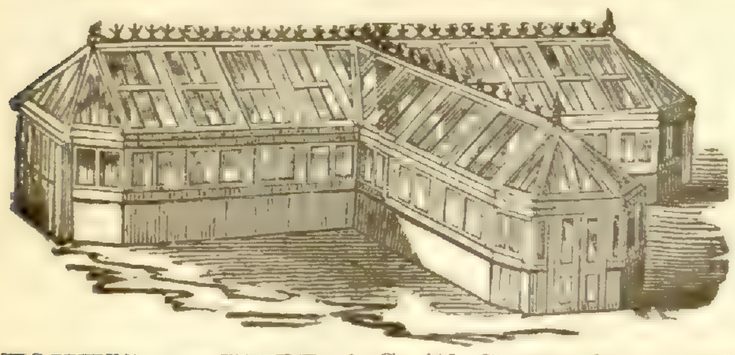
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

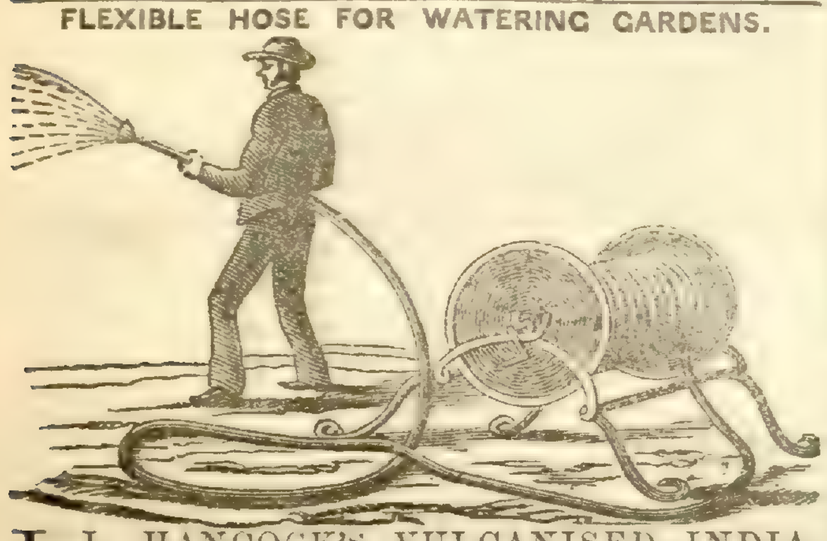
HORTICULTURAL WORKS.



VOKINS AND HURD, 1, Smith Street, & 44, Radnor Street, Chelsea, S.W., HORTICULTURAL BUILDERS and HOT-WATER APPARATUS MANUFACTURERS. Hothouses, Greenhouses, Conservatories, &c., built at the lowest possible prices consistent with good materials and workmanship.

Hot-water Apparatus of every description fixed warranted complete in every respect, 10 per cent. under the usual charges. Plans and Estimates forwarded on application.

FLEXIBLE HOSE FOR WATERING GARDENS.

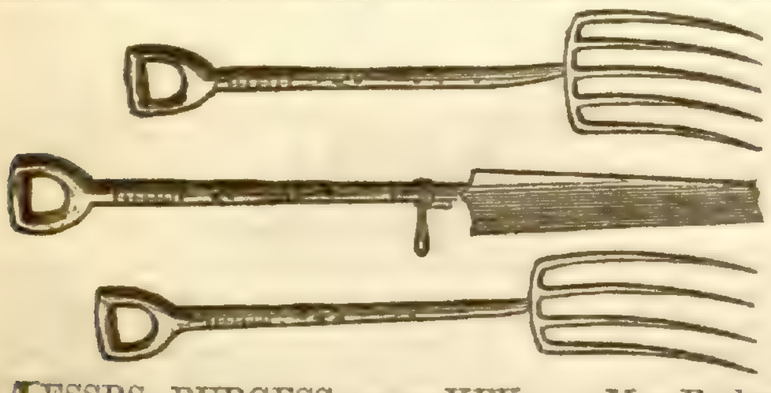


J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

WEIR'S SPIRIT DRAINING LEVEL. Price 30*s.*; Case 1*s.*

WEIR'S PENDULUM WORKMAN'S LEVEL. Price 15*s.* Terms cash.

296, Euston (late the New) Road, London, N.W.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

GLASS.

THOMAS MILLINGTON'S present Tariff of HORTICULTURAL GLASS.

Packed in 100 feet boxes, averaging 15 to 16 oz. to the foot.

6 by 4, & 7 by 5 } 11*s.* 3*d.* per 100 feet. | 9½ by 7½, & 10 by 8 } 12*s.* 6*d.* per 100 feet.
8 by 6, & 9 by 7 } | 11 by 9, & 12 by 8 }

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

Orchard House squares as supplied to Mr. Rivers.

	Common.	Superior.
20 by 12, and 20 by 14	16 oz. at 16*s.* per 100 feet	18*s.*
20 by 13, and 20 by 15	21 oz. at 24*s.* ,,	27*s.*

Foreign Sheet Glass, in 200 feet cases, at 32*s.* and 40*s.* per case.

HARTLEY'S IMPROVED ROUGH PLATE GLASS,

Of ½, 3/16, ¼, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings. 10 per cent. allowed off prices advertised.

Pan Tiles, Propagating and Bee Glasses.
Fern Shades, Glass Milk Pans.
Aquaria, 12, 14, 16 to 18 inches diameter.
Ruby, Blue, Green, and Ornamental Glass.

PAINTS.

Genuine White Lead, Colours of all kinds.
Linseed Oil, Turpentine, Varnishes, Brushes, &c.
All packages charged, but allowed when returned.
87, Bishopsgate Street Without, same side as Eastern Counties Railway.

GLASS.

JAMES PHILLIPS AND CO.

HAVE the pleasure to submit their PRICES of HORTICULTURAL GLASS, SASHES and FRAMES, TILES and SLATES, AQUARIA, &c.

British Sheet Glass, 3rds quality,
In Boxes of 100 feet each.

					s.	*d.*
11 by 9,	12 by 9,	13 by 9,	14 by 9 ..	..	15	0
12 ,, 10,	13 ,, 10,	14 ,, 10,	15 ,, 10 ..	..		
16 ,, 10,	17 ,, 10,	18 ,, 10,	12 ,, 11 ..	..	16	0
13 ,, 11,	14 ,, 15,	15 ,, 11,	16 ,, 11 ..	..		
13 ,, 12,	14 ,, 12,	15 ,, 12,	16 ,, 12 ..	..	17	0
17 ,, 12,	18 ,, 12,	19 ,, 12,	20 ,, 12 ..	..		
16 ,, 13,	17 ,, 13,	18 ,, 13,	20 ,, 13 ..	..	18	0
22 ,, 13,	20 ,, 14,	22 ,, 14,	24 ,, 14 ..	..		
20 ,, 15,	22 ,, 15,	24 ,, 15	..	..		

Small Sheet Squares, in 100 feet Boxes.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11	6
8 ,, 6	8½ ,, 6½	9 ,, 7	9½ ,, 7½		
10 ,, 8	10½ ,, 8½ ..	..	..	12	6

Boxes 2*s.* each extra, returnable at full price.

Horticultural Glass, in Crates,
Of superior quality.

16 oz. to the foot ..	2½*d.* per foot.
21 oz. ,, ..	4*d.* ,,
26 oz. ,, ..	5*d.* ,,

Glass for Orchard Houses,
As supplied by us to Mr. Rivers.
20 by 12, 20 by 10, 20 by 14, 20 by 15 .. 18*s.* per 100 feet.

Glass Tiles, quarter of an inch thick,
Packed in cases containing Fifty.
£1 17*s.* 6*d.* per Case net.

3/16 in. Cases of 60	£2 1 3
⅛ in. Cases of 60	1 17 6

Cases 2*s.* each extra.

Glass Slates of all dimensions.

Greenhouse Lights.
Painted and glazed with 16-oz. Sheet Glass.

1½ inch	0*s.* 7½*d.* per foot
2 inch	0 9 ,,
2½ inch	1 0 ,,

Lean-to Greenhouse.

15 feet by 9 feet	£20 0 0
20 feet by 12 feet	31 10 0
30 feet by 14 feet	60 10 0
40 feet by 15 feet	73 10 0
50 feet by 16 feet	101 5 0
60 feet by 18 feet	123 10 0

Span Roof, with sides & end sashes.

£25 0 0
37 0 0
66 5 0
73 3 0
113 5 0
140 0 0

Sashes and Frames for Dwelling Houses. Doors for ditto made to order.

Iron Tank Aquarium, with slate bottom, plate-glass front and ends, and sheet-glass tops.

30 inches long, 17 wide, 15 deep ..	£3 10 0
26 inches long, 16 wide, 15 deep ..	3 0 0
20 inches long, 13 wide, 9½ deep ..	1 18 0

Metal Tank Aquarium,
With slate bottoms, glazed with sheet glass, from 18*s.* each. Very ornamental, and suitable for Fern Cases as well as Aquaria. Fern Cases of various patterns.

Glass for Horticultural as well as Domestic purposes, a List of which will be sent on application.
Linseed Oil, White Lead, Lead Pipe, and every Article in the Trade.

JAMES PHILLIPS & CO., 116, Bishopsgate Street Without, London.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE POWERFUL BOILERS.

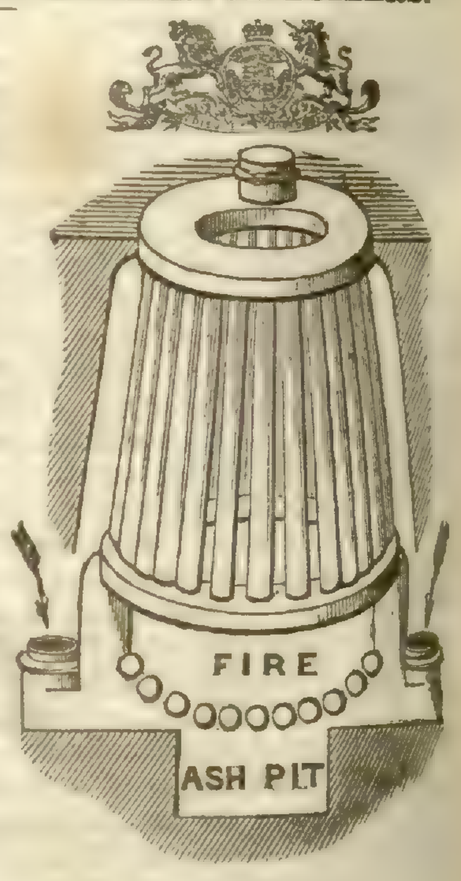
THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturist to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*:—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

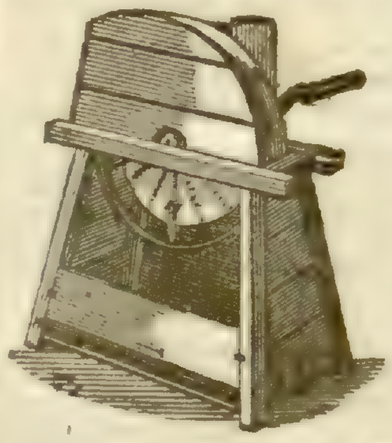
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

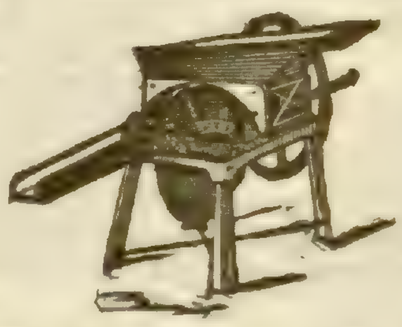


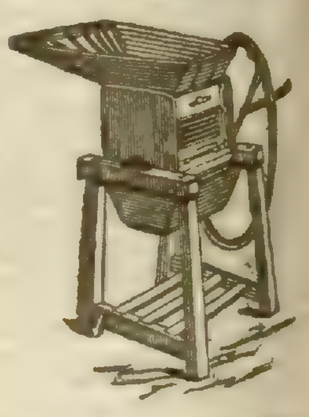
JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.







B. SAMUELSON,

BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to cut RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
,, ,, Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7 6

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power	£6 10 0
,, No. 2, for Horse Power, or may be worked by a man and boy	9 0 0

Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

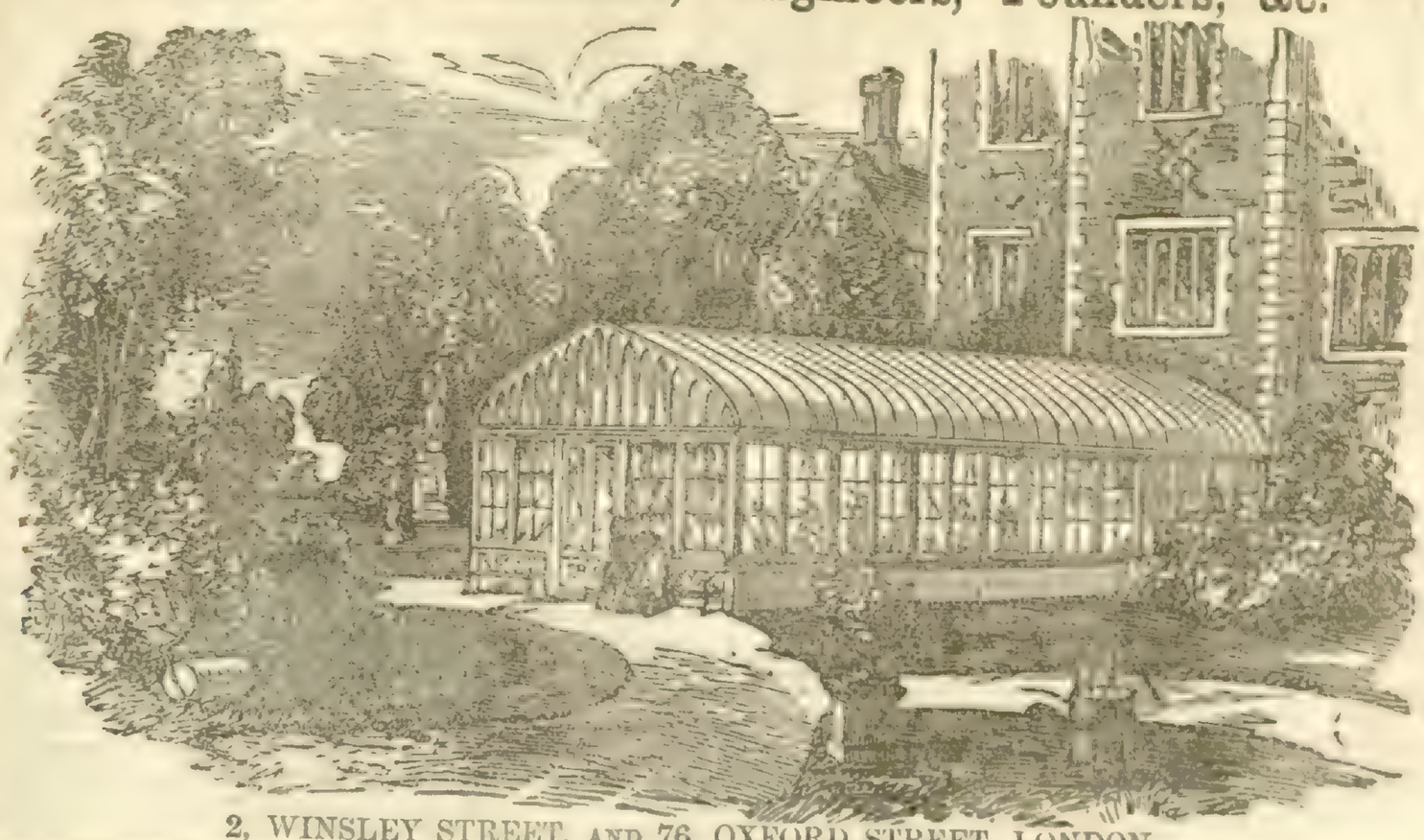
Price—Pulper No. 1	£4 10 0
,, Pulper No. 2, for power or man and boy	5 10 0
,, Pulper No. 3 (Disc principle)	4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	" Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	" Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

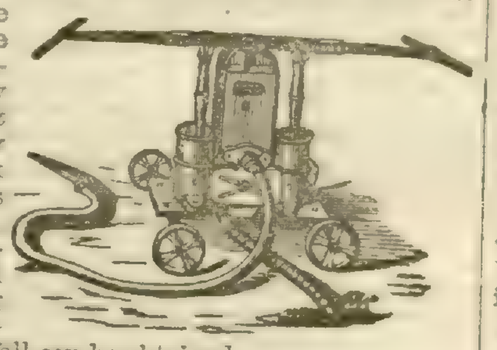
AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,

with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 60s. If with planished copper barrel and galvanised iron handle, &c., 14s. extra.

2-inch Flexible Rubber and Canvas Suction for ditto, 3s. 0d. per foot.

1¾ Gutta Percha Suction, 1s. 11d. per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,, long	3 ,, 3 ,,		1	14	0
3 ,, ditto	3 ,, 6 ,,		2	8	0
3½ ,, ditto	3 ,, 6 ,,		2	12	0
4 ,, ditto	3 ,, 6 ,,		3	3	0
2½ ,, short, with 15 feet of Lead Pipe attached, ready for fixing			2	14	0
2½ in. long ditto ditto ditto			2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

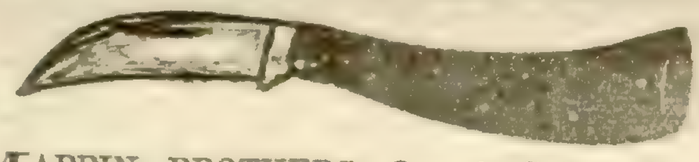
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

GOOD NEWS FOR THE AFFLICTED.—The wife of Mr. Thomas George, of No. 4, Plaistow Marsh, near Victoria Docks, Essex, had been a great sufferer for eight years with an ulcerated leg. She attended at Bartholomew's Hospital seven weeks without receiving any benefit; she had also tried a number of reputed medicines, and finding medical aid of no avail, she considered herself past cure. She was urged by a friend to try the Poor Man's Friend and Pills, which she purchased from Dr. Kernot, Crisp Street, Poplar. One pot effectually cured her. Notwithstanding her advanced age, she is restored to the highest state of health and vigour by their use. April 4, 1857.

Dr. ROBERTS'S POOR MAN'S FRIEND and PILULÆ ANTISCROPHULÆ have been proved, by 60 years' experience, successful in the cure of eruptions and wounds of every description.—Price 1s. 1½d., 2s. 9d., 4s. 6d., 11s., and 22s. each.

Sold wholesale by the Proprietors, BEACH & BARNICOTT, at their Dispensary, Bridport, and by the London houses; and retail by all respectable Medicine Vendors in the United Kingdom and the Colonies.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

TO THE NERVOUS AND DEBILITATED.—CHARLES WATSON, M.D., Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted.

"The first man of the day in these complaints."—*Medical Review.* "The true guide to those who desire a speedy and private cure."—*University Magazine.*

BLAIR'S GOUT AND RHEUMATIC PILLS, price 1s. 1½d. and 2s. 9d. a box.—Thirty years ago to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine are so fully demonstated by testimonials from persons in every rank of life, and public opinion proclaims them to be one of the most important discoveries of the present age. These Pills require neither attention nor confinement, and are certain to prevent the disease attacking any vital parts.—Sold by PROUT & HARSANT, 229, Strand, London, and all Medicine Vendors.

OPENING FOR A NURSERY.—Wanted, a promising locality for the above purpose. Capital moderate.—Address Mr. W. A. BILLITER, Post Office, Hampstead, N.W.

NOTICE.—TO NURSERYMEN, ETC.

TO BE DISPOSED OF, BRERETON NURSERY, near Rugeley, in consequence of the death of the late Thomas Phillips.—Application to be made at the Nursery; or to Mr. S. J. HIGGS, Albert Terrace, Wheeler Street, Birmingham.

TO NURSERYMEN, SEEDSMEN, AND FLORISTS.

TO BE DISPOSED OF, a short distance from London, an old-established NURSERY, with extensive Grounds well stocked and fitted with capital Greenhouses and Pits, all heated with Hot-water; together with a convenient Dwelling-house and Seed-shop, well arranged for business, with Stabling, Chaise-house, and Sheds attached. The Premises are eligibly situate, and are held on a Lease of which 25 years are unexpired at Christmas next, at a low Rent.—For further particulars apply to Messrs. PAGE & CAMERON, Land Agents and Surveyors, 64, Old Broad Street, and St. Albans.

TO GENTLEMEN'S GARDENERS AND SERVANTS.

TO BE DISPOSED OF (a Bargain), a Genuine FRUITERER'S, GREENGROCER'S, and COAL MERCHANT'S BUSINESS. It has been carried on by one person successfully for the last 55 years. There are spacious premises, handsome Shop, and every necessary convenience, including Horse, Van, Carts, &c.; to which might be added with advantage the Seed and Corn Trade.—Apply to R. M., 1, Clifton Terrace, West Brompton.

TO BE LET, in a new neighbourhood, close to the town of Rugby, a SMALL NURSERY and MARKET GARDEN, with Greenhouse, Forcing Pits, and Frames. A good Collection of Greenhouse and Bedding Plants; Fruit Trees in full bearing, Shrubs, &c., also a good supply of Water.—Apply to Mr. MANNING, Surveyor, Rugby.

TO GARDENERS, ETC.

TO BE LET, with immediate possession, a SEED and FLORIST'S BUSINESS, with Shop and Residence, and about half an acre of Ground adjoining the same, with two Greenhouses, Pits, &c., well stocked with various Plants. The Business is now in full operation, and is situated in the best part of London, where a good business is now being carried on. RENT LOW. Coming in, including Houses, Plants, Fittings of Shop, Tools, &c., only 60*l.*—Address to "FLORIST," *Gardeners' Chronicle* Office.

FOR NOBLEMEN'S AND GENTLEMEN'S PARKS

IRON POSTS AND RAILINGS FOR SALE.

By command of the Commissioners in charge of Her Majesty's Land Revenues, &c.

TO BE SOLD by Private Bargain, the whole of the IRON RAILING taken down at the top of the Long Walk, Windsor Great Park, before the recent alterations. The materials consist of 225 Cast-iron Ornamented Posts, 5 feet [illegible]; 180 18 feet Long Wrought-iron Rails, 1¼ inch square; 6 Scroll Irons; 1 pair Wrought-iron Gates. Can be seen any day at the Timber Yard, Windsor Park. Application to be made to Mr. MENZIES, Parkside, [illegible] Green, Chertsey.

GREENHOUSES FOR SALE, including Hot-water Apparatus:—12 ft. long by 8 ft. wide, 30*l.*; 16 by 10, 35*l.*; 21 by 12, 55*l.*; 36 by 13, 100*l.*—Apply at SMITH'S Greenhouse and Hot-water Apparatus Manufactory, 121, Pentonville Road, London.

Sales by Auction.

EALING GROVE.

MESSRS. KING AND SON will Sell by Auction, on MONDAY, November 16, a GREENHOUSE (second-hand, in good repair), 23 feet long, 13 feet wide.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Nov. 17, and THURSDAY, Nov. 19, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

POULTRY SALE (EXTRA).

MR. J. C. STEVENS begs to announce that he will hold an Extra Sale of POULTRY, at his Great Room, 38, King Street, Covent Garden, on TUESDAY, November 17, at 12 o'clock precisely. In it will be included very choice Cochins from the yards of Mr. Bridges, of Croydon, and Captain Snell, and a general selection of good stock from Mr. Breavington, of Hounslow, and other breeders of note; and some very choice Rouen and Aylesbury Ducks.—Catalogues by enclosing a stamped directed envelope to Mr. J. C. STEVENS, 38, King Street, Covent Garden.

CAMELLIAS, AZALEAS, ETC., FROM GHENT.

MR. J. C. STEVENS will Sell by Auction, at his Great Room, 38, King Street, Covent Garden, on FRIDAY, November 20, at 1 o'Clock precisely, Plants from M. Augt. Van Geert, of Ghent, including 1000 Camellias, well set with buds, of the best leading varieties, from 1 to 4 feet high; 400 Indian Azaleas, well set with bloom; and 500 Lilium lancifolium rubrum, strong roots.—May be viewed the morning of Sale and Catalogues had.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, on WEDNESDAY and FRIDAY, Nov. 18 and 20, at 12 o'Clock, a first class collection of Dutch Bulbs; also a fine assortment of 400 choice Standard and Dwarf Roses, fine American Plants, comprising Ghent and other Azaleas, Rhododendrons, Kalmias, Andromeda floribunda, beautifully furnished with bloom buds, &c.—May be viewed the morning of Sale. Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

COVENTRY.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Ogden to Sell by Auction on the premises, Warwick Road, Coventry, on MONDAY, Nov. [illegible], at 11 o'Clock, a portion of his valuable NURSERY STOCK, consisting of a large assortment of Evergreen and Deciduous Shrubs; Ornamental, Fruit, and Forest Trees; Standard and Dwarf Roses; fine specimen Weeping Plants [illegible] Hollies, Phillyreas, a quantity of Herbaceous Plants and Roots, Vines in Pots, &c.; also Camellias, and other Greenhouse Plants, together with a pair of large Wrought-iron Folding Gates, &c.—May be viewed four days prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HOLLOWAY:

TO NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Rishon to Sell by Auction on the premises, Holloway Nursery, Upper Holloway, Middlesex, on WEDNESDAY, November [illegible], at 11 o'Clock, the valuable Nursery Stock, consisting of fine large Evergreens, Ornamental Trees and Deciduous Shrubs, comprising Chinese and Siberian Arbor Vitæ, Aucubas, Bays, Phillyreas, Arbutus, Laurustinus, Alaternus, Green and Variegated Hollies, Chinese and Evergreen Privet, Kalmia latifolia, &c., &c.; also fine Standard Roses, Standard and Dwarf Apples, Pears, Mulberries, Peaches, Nectarines, &c.—May be viewed prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HAMMERSMITH.

4000 FINE HEALTHY FRUIT TREES.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Trotman to Sell by Auction on the premises, Grove Road, Hammersmith, on MONDAY, November 30, at 11 o'Clock, a fine Collection of Dwarf-trained, Untrained, and Pyramidal FRUIT TREES, comprising Peaches, Nectarines, Apricots, Apples, Pears, Plums, Cherries, Gooseberries, and Currants, &c.; also a quantity of Linnæus and Royal Albert Rhubarb, 2 and 3-years Asparagus, choice Pinks, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on the premises, Wandsworth Road, on TUESDAY, December 1, at 11 o'Clock, about 600 fine Double CAMELLIAS, from 1 to 6 feet, including all the best varieties, beautifully furnished with bloom buds; also the finest kinds of Chinese Azaleas, and very choice crimson Rhododendrons, well set with flower buds; Cacti, Ferns, and various other valuable Greenhouse Plants.—May be viewed prior to the Sale. Catalogues (when ready) may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21*s.* the pair, including package and carriage to London. Good named varieties, 12*s.* per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.
Nurseries, Cheshunt, Herts.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12*s.*

Mixed seed, saved from fine double flowers, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

CHOICE HOLLYHOCK SEED.

BIRCHAM AND WARD can supply packets at 2*s.* 6*d.* and 5*s.* each of very select quality; a great portion of which is saved from their superior Seedlings of this year, not yet out. Also from older sorts at 1*s.* 6*d.* per packet. By the oz. to the trade. Price on application.—Hedenham Rosary, Bungay, Suffolk, Nov. 14.

HOLLYHOCKS.

BIRCHAM AND WARD are now prepared to send out all the leading kinds in fine healthy condition; for prices, &c., see Catalogue. Also they beg to offer Extra sized Plants of unbloomed Seedling Hollyhocks, raised from show varieties, quite free from disease, fit for immediate planting, at 5*s.* per dozen, or 30*s.* per 100.—Hedenham Rosary, Bungay, Suffolk.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	..	..	.. 5*s.* 0*d.*
12 ditto	ditto	..	.. .. 2 6
Good ditto	ditto	..	.. .. 1 0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Nov. 14.

THE FINEST AND LARGEST STOCK OF AZALEAS AND CAMELLIAS IN ENGLAND.—Azaleas consisting of Perryana, Prince Albert, Iveryana, Reine des Belges, Exquisite, Duke of Devonshire, &c., worked on single stems, with heads from 12 to 18 inches over, covered with flower-buds, 30*s.* per dozen; smaller plants, 18*s.* per dozen. Camellias very bushy, full of flower-buds, and the leading kinds, 30*s.* per dozen.—EPPS's Nurseries, Maidstone.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Nov. 14.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodara, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MAULE & SONS, Nurserymen, Bristol.

PLANTING SEASON.

10,000 SPLENDID STANDARD ROSES, &c.

PROTHEROE AND MORRIS most respectfully invite the public to inspect their valuable NURSERY STOCK, extending over 20 acres and in the highest state of cultivation, consisting of Fruit, Forest, and Ornamental Trees of every description, and in considerable quantities; also a large and rich assortment of American Plants, fine Evergreens, ranging all sizes, including many magnificent specimens which will give immediate effect; and from the adhesive nature of the soil, and being continually transplanted, will incur no risk from removal. The Nursery is accessible by Railway in 20 minutes from Fenchurch and Bishopsgate Street, from whence Trains leave nine times daily to Leytonstone Station, which adjoins the Nursery.

The following include a portion of their Stock. These are fine bushy plants, and beautifully furnished with blooms:—

- 50,000 Hybrid Catawbiense, pontica, Scarlet, and other Rhododendrons.
- 30,000 Ghent and other Azaleas.
- 5000 Kalmia latifolia, 1 to 5 ft.
- 2000 Andromeda floribunda, 2 to 4 feet.
- 3000 extra fine Dwarf-trained Peaches and Nectarines from Holland's celebrated stock.
- 10,000 splendid Standard and Dwarf Roses, including the finest Hybrids, Perpetuals, Bourbons, Teas, Noisettes, &c.
- 2000 fine Fan Yews, 3 to 12 ft.
- 5000 Portugal and Common Laurels, 3 to 15 feet.
- 3000 bushy Aucubas, from 2 to 5 feet.

American Nursery, Leytonstone, Nov. 14.

FINE SHOW CINERARIAS.—Magnum Bonum, Rose of England, Purple Standard, Duchess of Wellington, Sir Charles Napier, Brilliant, optima, Admiral Lyons, Fascination, picturata, Lady Paxton, Cerito, 9*s.* per dozen, or 1*s.* each.

Fine named HOLLYHOCKS, in pots, good, per dozen .. 8*s.*
12 finest sorts ANTIRRHINUMS, from a large collection 3*s.*
12 finest sorts PHLOXES " " 3*s.*
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

CHRYSANTHEMUMS.—An extensive collection of the above, both large and small varieties, is now in flower at CHANDLER & SON'S Nursery, Wandsworth Road. Good flowering plants from 6*s.* to 12*s.* per dozen.

Camellias, Chinese Azaleas, and Crimson Rhododendrons, well set with flower buds, at moderate prices.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

DUTCH FLOWERING ROOTS for present planting, comprising Hyacinths, Narcissus, Tulips, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c., for house and garden culture, a Descriptive priced Catalogue of which, with valuable Treatises on their culture, may be had on application or free by post. Collections of Bulbs 20*s.* and upwards sent carriage paid. Named Hyacinths for pots and glasses, 6*s.*, 7*s.* 6*d.*, 9*s.*, to 12*s.* per dozen; showy Double Tulips for beds or borders, 3*s.* 6*d.* to 13*s.* 6*d.* per 100; Polyanthus Narcissus, 3*s.* per dozen; Crocus, 1*s.* 6*d.* to 3*s.* 6*d.* per 100. All orders to be accompanied with a remittance or a reference.—BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London.

HARDY HERBACEOUS AND ALPINE PLANTS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants ..	0	18	0
100 choice ditto ditto	1	10	0
50 choice Shrubs and Flowering Trees	1	5	0
100 choice ditto ditto	2	2	0
12 fine named Perpetual Roses, Dwarf	0	12	0
12 fine named " Standards	0	18	0
White, Red, and Black Currants, fine plants, per 100 ..	0	8	0
Fine sorts of Lancashire Gooseberries, per 100	0	8	0

Fine Dwarf-trained and Standard Fruit Trees, &c.
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

CHOICE FERNS.

	Each.—*s.* *d.*		Each.—*s.* *d.*
Nephrolepis davallioides..	5 0	*Gymnogramma peruviana	
Cassebeera farinosa, 2*s.* 6*d.* &	3 6	" argyrophylla	2 6
*Pteris aspericaulis	2 6	" chrysophylla (true)	2 6
Adiantum concinnum ..	2 6	" pulchella	2 6

The seven choice and very distinct species, basket included, 17*s.* Those marked thus *, per dozen to the trade very cheap. Post-office orders payable at Manchester.
J. BESTER, Barlow Moor Nursery, Didsbury, Lancashire.

T. LOCKHART, JUN., FLORIST, Fulham, S.W., near London, will forward 100 Roots of his early TULIPS in 25 sorts of the most brilliant colours for 30*s.*; 100 ditto RANUNCULUS in 25 sorts of the most varied edgings and colours for 30*s.* The Early Tulips flower in the open border during March and April; they also force well in pots. These and the Ranunculus are warranted of superior quality. The mode of treatment if required will accompany the collections.—Post-office Orders payable to THEODORE LOCKHART, Jun., Walham Green, Fulham.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2½ feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pot culture.

JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.—WILLIAM YOUNG, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

STRONG SEAKALE ROOTS for forcing; crowns from 1½ to 2 inches diameter, price 8*s.* per 100; selected single crowns, 10*s.* per 100.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

One Thousand PLUMS for sale, consisting chiefly of "Victoria" and a seedling largely grown at Deptford; also Jefferson, Prince of Wales, and Downing's new seedlings Standard of England, Angelina Burdett, and Woolston's Black Gage. Maiden stock, 50*s.* per 100 or 8*s.* per dozen; 2-year old rough standards, 75*s.* per 100, or 12*s.* per dozen; these have been removed last season and previously, and will come up with good fibrous roots. To persons planting a large quantity liberal terms would be offered.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

MYATT'S SEEDLING STRAWBERRY, 2*s.* 6*d.* per 100, packed and delivered free to any address in London.

Manor Farm, Deptford, Nov. 14.

FIVE THOUSAND CAMELLIA STOCKS in excellent health, established, stout, and very clean, 30*s.* per 100.—EPPS's Nurseries, Maidstone.

CAMELLIAS.—FINE HOME-GROWN PLANTS FULL OF FLOWER-BUDS.

12 choice named varieties, 2 to 3 feet .. .. .. £1 15*s.*
Double white and fimbriata very fine, and if desired just showing colour at 30*s.* and 36*s.* per dozen.
JOHN HENCHMAN, Edmonton, near London.

NOTICE OF REMOVAL.

NUTTING AND SONS, SEEDSMEN, late of 46, Cheapside, and 26½, Upper Thames Street, beg to acquaint their Friends and Customers that they have REMOVED to their New Premises, 60, Barbican, where they hope to be favoured with future commands.—60, Barbican, London, E.C.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.
The Nursery, Bagshot, Nov. 14.

NOTICE.

WILLIAM DEAN, late with Mr. Charles Turner, Royal Nursery, Slough, is about to commence business as a Florist and Seedsman at Bradford, Yorkshire, and requests that all Communications and Catalogues for him may be sent to that address.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.

MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.
2, Randolph Road, Maida Hill, London, W.

LANDSCAPE GARDENING, ETC.

MR. J. W. CHAPMAN begs to intimate to the nobility, gentry, and all who are contemplating the formation or improvement of PARKS, PLEASURE GROUNDS, &c., that he will be prepared to give advice on these and all subjects connected with Gardening, whether ornamental or useful, furnishing the necessary Plans and Drawings for these purposes, and superintending the execution of the works during their progress. The formation of new and alteration of other plantations in both home and distant scenery, for the purpose of rendering the views from a place as interesting as possible, are subjects to which the most careful attention is given.—Dartmouth Lodge, Dulwich, S., Nov. 14

THOMAS PHILLIPS, DECEASED.

ALL PERSONS INDEBTED to the late THOMAS PHILLIPS, of Brereton Nursery, near Rugeley, are requested to PAY the AMOUNT to me; and all persons to whom the said Thomas Phillips was INDEBTED at the time of his decease are requested to FORWARD the PARTICULARS to me, in order that they may be examined and discharged.—S. J. HIGGS, Albert Terrace, Wheeler Street, Birmingham, Sole Executor to the late Thomas Phillips.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.

ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S RETORT BOILERS.—I continue to Manufacture the above most powerful and economical Boilers, with recent improvements effected under Mr. Thomson's inspection. The enormous sale they have already met with is the best possible evidence of their great superiority.

The Improved Triple Retort, to heat 3000 ft. of 4-in. pipe, £6.
The Single Retort, to heat 1000 feet, £4.
The Amateur's Retort, to heat 500 feet, £2 10*s.*

In every case a Boiler Plate and free delivery to ship or rail is included in the above prices.

I also Manufacture and keep in Stock every sort of Casting for Heating by Hot-water, and supply Estimates and execute such work to any extent by the most experienced mechanics.
JOHN MEIKLEJON, Westfield Foundry, Dalkeith, N.B.

CHUBB'S LOCKS AND SAFES.

CHUBB'S LOCKS, with all the improvements; of all sizes and for every purpose. Street-door Latches with small and neat keys.

CHUBB'S FIRE-PROOF SAFES are constructed of strong Wrought Iron, and the Detector Locks which secure them are GUNPOWDER PROOF.

Complete Illustrated Lists of prices and sizes sent free on application.

CHUBB & SON, 57, St. Paul's Churchyard, London; 28, Lord St., Liverpool; 16, Market St., Manchester; and Wolverhampton.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. ALLEN, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS.
(See separate Catalogue).—18 and 22, Strand.

INDIAN OUTFITS.

THRESHER AND GLENNY (next door to Somerset House, Strand), manufacture the following articles especially for India. THRESHER'S Kashmir Flannel Shirts; THRESHER'S India Gauze Waistcoats; THRESHER'S Military Shirts; THRESHER'S India Tweed Suits; THRESHER'S Overall Trunk. N.B. Lists of prices, with particulars of the necessary outfit for India, may be had on application.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—SATURDAY, November 14, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 47.—1857.] SATURDAY, NOVEMBER 21. **Price Fivepence.** STAMPED EDITION, 6*d*.

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HORTICULTURAL SOCIETY, 21, REGENT STREET, S.W.—Notice is hereby given, that two Special General Meetings will be held in this house for the ELECTION of NEW FELLOWS, at 2 P.M., the first on TUESDAY, December 1, and the second on TUESDAY, December 15.—By Order of the Council, W. B. BOOTH, Librarian.

HORTICULTURAL SOCIETY OF LONDON.—1858.

GREAT LONDON SPRING EXHIBITION, APRIL 6.

SCHEDULE OF PRIZES.

Class		Prizes offered £	s.	£	s.	£	s.
I.	Hyacinths, twelve distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
II.	Do. eighteen distinct sorts, named; in pots .. (Nurserymen)	2	0	1	0	0	10
III.	Do. six new and distinct kinds, named	2	0	1	0	0	10
IV.	Do. twelve, in glasses	2	0	1	0	0	10
V.	Tulips, eighteen, in six distinct sorts, named; in pots .. (Amateurs)	2	0	1	0	0	10
VI.	Do. twenty-four, in eight distinct sorts, named; in pots (Nurserymen)	2	0	1	0	0	10
VII.	Narcissus, twelve, in six distinct sorts (Amateurs)	2	0	1	0	0	10
VIII.	Do. twenty-four, in six distinct sorts.. .. .. (Nurserymen)	2	0	1	0	0	10
IX.	Do. eighteen, mixed .. .. The greatest variety will have the first consideration in this class.	2	0	1	0	0	10
X.	Amaryllis, in twelves; two of a sort admitted .. .. *Note.*—As the bulbs will be exhibited in groups, and no pots to be seen, it is requested that competitors in these classes will furnish sufficient Moss for that purpose.	4	0	3	0	2	0
XI.	Camellias, in sixes	4	0	3	0	2	0
XII.	Roses, in sixes; in pots of any size ..	4	0	2	0	1	0
XIII.	Do. in twelves, in three distinct colours; in pots not exceeding 8 ins. in diameter	4	0	2	0	1	0
XIV.	Dwarf Moss Roses, in twelves	3	0	2	0	1	0
XV.	Rhododendrons, four distinct kinds (Amateurs)	3	0	2	0	1	0
XVI.	Do. six do. (Nurserymen)	3	0	2	0	1	0
XVII.	Azaleas, four distinct kinds	4	0	3	0	2	0
XVIII.	Do. six do. (Nurserymen)	4	0	3	0	2	0
XIX.	Forced Shrubs, in sixes (Hardy, as Lilacs, Deutzias, &c.) .. .. .. No plant admitted to this class which can be exhibited in separate classes	2	0	1	0	0	10
XX.	Six Plants of fine and remarkable foliage, in flower or not; varieged plants admissible	4	0	3	0	2	0
XXI.	Annuals, six distinct sorts; in p ..	2	0	1	0	0	10
XXII.	Cinerarias, in sixes, correctly na .	2	0	1	0	0	10
XXIII.	Auriculas, in twelves	2	0	1	0	0	10
	FRUIT.						
XXIV.	Pine Apples, any sort	2	0	1	0	0	10
XXV.	Grapes, black; three bunches	3	0	2	0	1	0
XXVI.	Do. white do.	3	0	2	0	1	0
XXVII.	Do. retarded do.	3	0	2	0	1	0
XXVIII.	Vines, in pots; in twos	3	0	2	0	1	0
XXIX.	Peaches, in sixes	3	0	2	0	1	0
XXX.	Nectarines, in sixes	3	0	2	0	1	0
XXXI.	Cherries, white	2	0	1	0	0	10
XXXII.	Do. black	2	0	1	0	0	10
XXXIII.	Strawberries	2	0	1	0	0	10
XXXIV.	Apples, in 2 sorts, nine of each; dessert	1	0	0	10		
	Do. do. do. kitchen	1	0	0	10		
XXXV.	Pears, in two sorts, nine of each; dessert	1	0	0	10		

In addition to the above, a V.P.H.S. offers a Prize of 5*l.* for the BEST PINE APPLE of any kind.—In order to be admitted to competition for this Prize Queens and Jamaicas must weigh not less than 4 lbs., Cayennes 6 lbs., Providence, Black Prince, and other large kinds not less than 8 lbs. Since Pines can be carried safely for long distances it is hoped that Scotch, Irish, and Continental growers will compete.

TO ROSE GROWERS.—Professor LINDLEY offers Two Prizes of 3*l.* and 2*l.* respectively, for the best 12 ROSES in 32-sized pots, that may be shown at the Great Chiswick Exhibition on the 9th of JUNE next. Two Roses of a sort may be exhibited. Open to both Amateurs and Nurserymen.

NOTICE.

MR. EPPS respectfully requests that NO ACCOUNT due to him be paid to his late traveller, Mr. Jno. Kington. Bower Nurseries, Maidstone.

TULIPS FOR SALE.—A valuable Collection of nearly 500 Bulbs, including 170 distinct varieties, the property of a deceased Amateur, who during the last 20 years spared no trouble or expense in collecting and rearing the choicest Tulips. The six drawers in which they are numbered and named may be had with them; also two stout wooden frames and canvass for sun shades.—For further particulars apply to Mr. E. SMITH, 11, Crimea Cottages, Durham Road, Seven Sisters Road, N.

SECOND IMPORTATION.

FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting. SUTTON & SONS, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see List.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*
Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.
*** *The new Priced and Descriptive Supplement* (15 *pages*) *gratis with the above, or separately for one stamp.*
Nursery, Foot's Cray, Kent, S.E.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS' New and Descriptive Catalogue of ROSES, for 1857 and 1858, is now ready for delivery, and will be forwarded gratis on application

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.
Woking Nursery, Surrey.

NEW ROSE LIST FOR 1857-8;
ALSO,
A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

BIRCHAM AND WARD respectfully invite attention to their SELECT LIST of ROSES and HERBACEOUS PHLOXES, which may be had free on application. Their Stock consists of well grown plants of the leading varieties in the finest condition. Orders carefully packed and carriage paid to London and Peterborough. The Trade supplied on the most liberal terms.—Hedenham Rosary, Bungay, Suffolk, Nov. 21.

HENRY MAY'S New CATALOGUE for 1857-8 of Hardy Herbaceous and Alpine Plants, Ferns, American Plants, Ornamental Trees and Shrubs, Evergreens and Coniferæ, Fruit Trees, &c., is now ready and can be obtained free on application.—The Hope Nurseries, near Bedale, Yorkshire.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.
Bardney Hall, near Lincoln, Nov. 21.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s.*—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

NEW PELARGONIUMS.

CHARLES TURNER is now sending out the beautiful new varieties of Large and Fancy PELARGONIUMS, exhibited by him during the past season. The finest older varieties at moderate prices per dozen, strong established plants.—Royal Nursery, Slough.

CINERARIAS.

CHARLES TURNER can now supply strong healthy Plants of the above, including the new varieties—Baroness Rothschild, Mr. Colman, Regalia, Prince of Wales, Lady Gertrude Vaughan, Mrs Hoyle, Lord Eversley, &c.; also all the leading named but older kinds at moderate prices per doz. Catalogues may be had on application.—Royal Nursery, Slough.

STRAWBERRIES.

CHARLES TURNER can supply strong Plants of the following, either in or out of pots:—
FILBERT PINE | SIR HARRY | CAROLINA SUPERBA,
as also all the older leading kinds.—Royal Nursery, Slough.

RASPBERRIES.

CORNWELL'S VICTORIA, FASTOLF, large Autumn-Fruited and White, at 12*s.* per 100. Sweet scented Double White Narcissus in any quantity, roots from the ground, at 3*s.* per 100. A quantity of fine Laurustinus, 2 to 4 feet.
GEORGE CORNWELL, Market Gardener, Barnet.

CHOICE HOLLYHOCK SEED.

BIRCHAM AND WARD can supply packets at 2*s.* 6*d.* and 5*s.* each of very select quality; a great portion of which is saved from their superior Seedlings of this year, not yet out. Also from older sorts at 1*s.* 6*d.* per packet. By the oz. to the trade. Price on application.—Hedenham Rosary, Bungay, Suffolk, Nov. 21.

HOLLYHOCKS.

BIRCHAM AND WARD are now prepared to send out all the leading kinds in fine healthy condition; for prices, &c., see Catalogue. Also they beg to offer Extra-sized Plants of unbloomed Seedling Hollyhocks, raised from show varieties, quite free from disease, fit for immediate planting, at 5*s.* per dozen, or 30*s.* per 100.—Hedenham Rosary, Bungay, Suffolk.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	.. ..	.. 5*s.*	0*d.*
12 ditto	ditto	.. 2	6
Good ditto	ditto	.. 1	0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of GRAPE VINES, struck from eyes, for Planting or Forcing in pots, from 5 to 8 feet long.
Shacklewell Road, Stoke Newington, N.E.

FRUITING GRAPE VINES.—Eight young healthy Vines in pots, with fine roots, to be sold on account of a removal. They have borne some fruit, and are excellent sorts. —Address W. TURNER, Florist, Sefton, Liverpool.

LARGE VINES FOR SALE.—Ten young strong BLACK HAMBURGH VINES that have been gradually broke into early forcing, if treated carefully, would bear a light crop of early Grapes next season.
MYATT'S LINNÆUS and VICTORIA RHUBARB, SEA-KALE, and ASPARAGUS for forcing.
One-year old VINES from Eyes in pots. Cheap for cash.
J. LANCASTER, Edward Street, Deptford.

GRAPE VINES FROM EYES.

JOHN AND CHARLES LEE having recently-erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT-BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

VINES IN POTS FOR FRUITING.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, beg to offer fine strong Vines from Eyes with well ripened wood 10 or 12 feet long. Price from 5*s.* to 10*s.* each. A list of the sorts may be had on application.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.
LORD RAGLAN and GENERAL WILLIAMS.
For description see Catalogue, which will be sent free on application.—Dorking, Nov. 21.

BERBERIS JAPONICA.

CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established; it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Nov. 21.

EARLY SOWING FOR 1858.

EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. Every description for present sowing may be had of JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

WANTED, a few good STANDARD DAMSONS.—Apply, stating price, to LITTLE & BALLANTYNE, Carlisle.

WANTED, BOX EDGING; must be good, and not taller than 6 inches.—Apply, stating quantity and price per yard, to RICHARD SMITH, Nurseryman, Worcester.

TO NURSERYMEN.

WANTED TO PURCHASE IMMEDIATELY, 50,000 Plants of SPANISH CHESNUT; to be well rooted, and of not less than 2 years' growth.—Application stating price, delivered at the Dorking Railway Station, to be made to T. PAGE; or Messrs. PAGE & LEES, Land Agents, &c., Dorking.

PINE PLANTS always on Sale at RICHARD NEWMAN'S, Stedham, Midhurst.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST for the season of FOREST TREES and SHRUBS, AURICULAS, FERNS, &c., may now be had on application.—Nov. 21.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first rate plants, every one being a specimen in itself, may be had by the 100 or 1000 on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 15*s.* per 100. Many of the kinds are well suited for planting edgings to clumps of American plants.
JOHN WATERER, American Nursery, Bagshot, Surrey.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.
WILLIAM YOUNG, Milford Nurseries, near Godalming, Surrey.

50,000,000 First-class Seedling and Transplanted FOREST TREES, Seedling Ornamental Trees and Shrubs, Hedge Plants, Fruit Tree Stocks, Ornamental Trees, Evergreen and Deciduous Shrubs Fruit Trees, and every other kind of Nursery produce.—On sale, by W. SHORT, 9, Love Lane, Eastcheap, London.

SURPLUS STOCK OF FRUIT TREES, BUSHES, ETC.

TO BE SOLD, at extremely moderate prices, consisting of Standard Apples, Pears, and Plums, of 2 years' growth and upwards, several thousand Espalier Apple trees, and some hundreds Red and White Grape Currants and Rifleman Gooseberries.—Apply to Mr. MITTON, Lampton, near Hounslow, 1 mile from either the Hounslow or Isleworth Railway Stations.

DUTCH FLOWERING ROOTS for present planting, comprising Hyacinths, Narcissus, Tulips, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c., for house and garden culture, a Descriptive priced Catalogue of which, with valuable Treatises on their culture, may be had on application or free by post. Collections of Bulbs 20*s.* and upwards sent carriage paid. Named Hyacinths for pots and glasses, 6*s.*, 7*s.* 6*d.*, 9*s.*, to 12*s.* per dozen; showy Double Tulips for beds or borders, 3*s.* 6*d.* to 13*s.* 6*d.* per 100; Polyanthus Narcissus, 3*s.* per dozen: Crocus, 1*s.* 6*d.* to 3*s.* 6*d.* per 100. All orders to be accompanied with a remittance or a reference. —BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London.

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained Fruit Trees of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong rooted 4 year old Currants of the following sorts: —Black Naples, Baby Castle, Wilmot's Superb Red, White Grape, and White Dutch. Gooseberries, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHODODENDRONS annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
,, ,, 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possibly desired.
,, africana, 3 to 4 and 5 feet, fine plants.
,, Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
,, ,, ,, larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet,
,, Goveniana
,, Lambertiana
,, macrocarpa
} 2 to 3 and 4 to 5 feet, from seed. The large sized plants are very handsome.
,, Lawsoniana Seedlings.
,, variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens.
,, japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
,, chinensis, 3 to 4 and 5 to 6 feet.
,, common English, 2 to 3 feet.
,, Irish, 3 to 4 feet.
,, ,, 4 to 6 and 7 to 8 feet, very handsome close grown specimens.
,, recurva, 3 to 4 and 5 feet
Libocedrus chilensis, 3 to 4 feet
,, gracilis, 1 to 2 feet.
,, ,, 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
,, Beardsleyana (new), about 1 foot.
,, Benthamiana, 1½ to 2 and 3 feet.
,, Brunoniana, 2 to 3 feet.
,, Cembra, 3 to 4 and 5 to 6 feet.
,, Douglasi, 4 to 5 and 6 feet.
,, ,, 6 to 8 and 10 feet, most magnificent plants.
,, excelsa, 4 to 6 and 7 feet.
,, insignis, in any quantities, 2 to 3 feet.
,, ,, ,, 3 to 4 and 5 feet.
,, Jeffreyana (new), about 1 foot.
,, Lambertiana, 2 to 3 and 4 feet.
,, ,, very fine, 5 to 6 and 8 feet.
,, Morinda, 4 to 6 and 7 feet.
,, nobilis, from seed, 1 and 2 years.
,, Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
,, Sabiniana, 2 to 3 feet.
,, taxifolia (of Jeffrey), 1 to 1½ foot.
,, tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora obtusa, 1 to 2 feet.
Sequoia Gigantea (new), 3 to 4 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 feet.
Taxus (Yew), Common, 3 to 4 and 4 to 5 feet.
,, Irish, 3 to 4 and 5 to 6 and 6 feet.
,, gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
,, ,, larger, 1½ to 3 feet.
,, chilensis, 2 to 4 feet.
,, gigantea, 1 to 2 and 3 to 4 feet.
,, occidentalis, a very dense growing species.
,, Wareana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
,, ,, finest, very handsome, 1½ to 2 and 3 to 4 feet.
This plant is admirably adapted for forming Avenues.

Nearly the foregoing are gentlemen, with the exception of Pinus Lambertiana, which these very reasonable prices are been conveyed by the economic system of pot culture.

AMERICAN PLANTS.

Azaleas, good assortment of sorts, fine, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
,, Of best Ghent and other varieties, 1 to 2 feet.
,, Standard, of the leading kinds.
Kalmia latifolia, 1 to 2 feet, by the 100.
,, ,, 2 to 3 and 4 feet, large very handsome specimens.
,, ,, Standards, with fine symmetrical heads.
,, ,, myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Groves.
,, Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
,, Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
,, Standard, 3 to 4 feet stems, with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved popular varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens: we would therefore suggest the importance of purchasers making a visit of inspection, which may be readily done by Great Western Railway to the Station, Staines, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75*s.* per 100. Price to the trade on application.—Highgate Nurseries, London, N.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chilensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 15 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesii, 1 to 4 ft.
,, nobilis, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 3 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara
,, Atlantica
Cedar of Lebanon
} 1 to 10 ft. The largest and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 8 ft.
Juniperus chinensis, 1 to 6 ft.
,, bermudiana, 1 to 6 ft.
,, 10 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 1½ ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Pinus nobilis, 1 to 3 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinaster, 1 to 3 ft.
Pinus austriaca, 1 to 3 ft.
,, Austrialis, 1 to 3 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Lindleyana, 1 to 2 ft.
,, maritima, 3 ft.
,, monophylla, 1 to 1½ ft.
,, montezumæ, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pinea, 2 to 3 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 1 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, Chinensis, 1 to 2½ ft.
,, Warreana, 1 to 3 ft.
,, 18 other sorts, 1 to 4 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yew, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 13 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 4 to 8 ft.
Chestnut, Spanish, variegated, 4 to 6 ft.
,, Horse, scarlet, 8 to 10 ft.
Cypress Deodara, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschia, of sorts, 4 to 8 ft.
Laburnum, 4 to 8 ft.
Lime, Portugal, 4 to 8 ft. stems.
Linden, 4 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 4 to 8 ft.
Oak, Pedunculate, 8 to 10 ft.
,, Sessile, 8 to 10 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 4 to 8 ft.
Thorns, of sorts, 4 to 8 ft.
Tulip Trees, 4 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* p. doz., and uparwds; Dwarfs, 6*s.* do. and uparwds. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots .. FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots .. SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)
June 18, Royal Botanic Society—50 Cut Roses .. FIRST PRIZE
Do. do. 10 Roses in pots .. SECOND PRIZE
June 24, Brighton .. 50 Cut Roses .. FIRST PRIZE
June 24, Manchester .. 50 Cut Roses .. SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.
July 1, Royal Botanic Society—24 Cut Roses .. FIRST PRIZE
,, do. do. 50 Cut Roses .. FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses .. FIRST PRIZE
,, ditto, collection ditto .. FIRST PRIZE
July 9, Diss .. 50 Cut Roses, FIRST PRIZE, SILVER CUP
,, do. .. 100 Cut Roses, FIRST PRIZE, ,,
July 15, Stamford .. 12 Cut Roses, FIRST PRIZE, ,,
Sept. 9, Crystal Palace 50 Cut Roses, FIRST PRIZE, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

TO THE TRADE.

DAVIES AND FRANCIS beg to offer the following articles:—

	Per doz.—*s.* *d.*
Gompholobium barbigerum, 6 to 9 inches, in 3-inch pots, fine healthy stuff	
Ditto, dwarf bushy species, fine	9
Leschenaultia biloba superb	36
Ditto do. grandiflora	20
Boronia serrulata, fine healthy plants	24
Staphylea tubiflora	12*s.* and 18

The above may be relied upon as being fine healthy plants. Reference or Post-office Order from unknown correspondents.

Stanley Nurseries, Old Swan, Liverpool.

MESSRS. J. AND H. BROWN offer to the Nobility and Gentry the following CHOICE PLANTS, &c., which they will forward to any part of the United Kingdom:—

Andromeda floribunda, 1 to 2 feet, fine, per 100, 6*d.*, or per doz.	13*s.* 6*d.*
25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, by name, on their own roots	20
100 Azaleas, do., do.	70
25 Azaleas, do., American varieties, do.	16
Hardy Heaths, Ledums, and Kalmias .. per doz.	6
25 Hardy American Plants, one of a sort, by name	10
12 Rhododendrons, including scarlet, white, and rose, hardy varieties	12
Hardy purple Rhododendrons, 2 feet .. per doz.	14
Blue Rhododendrons, best hardy varieties, including all the above sorts .. per 100	80
Hardy white Rhododendrons, fine .. per doz.	12
New yellow Rhododendrons .. each	5
Roses, Standard and Half standard per doz.	15*s.* to 18
Best bedding sorts .. per 100	100
Climbing Roses, best sorts .. per doz.	6
12 Greenhouse Azaleas, best sorts, two sizes	10*s.* to 15
Camellias, choice sorts, well set with buds, per doz.	30
50 Choice Greenhouse, one of a sort, for	45
Orchidaceæ, choice species and good plants, including Dendrobiums, Oncidiums, Lycaste, Stanhopeas, Cattleyas, Vanda, &c., &c., per dozen	42
Herbaceous Pæonies, choice new kinds, including gold and silver, per dozen	12
Lilium speciosum, flowering bulbs, each	7
24 Choice Erica, one of a sort, in small pots	16
Prize Chrysanthemums, large and small, per dozen	8
Violets, fine double winter flowering, per dozen	6

CHOICE FRUIT TREES.

Fine Standard and dwarf-trained Apricots, Peaches, Nectarines, Cherries, Pears, and Plums, 2*s.* 6*d.* each, or per dozen	25
Fine Dwarf Plants of all the above grown, especially for pot culture, in orchard houses, &c., per doz.	18
Figs, Medlars, Medlars, Mulberries, and Walnuts, each	2
Gooseberries, Currants, and Raspberries, per dozen	3
Filberts, new, thin shelled, red skinned, and Cob, do.	4
Choice Grape Vines, in pots, per dozen	18

Fine Ornamental Trees and Shrubs supplied in large quantities.

Albion Nursery, Stoke Newington, London, Nov. 21.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

"CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and perfectly hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says "It was the handsomest tree seen in the whole expedition. It was the handsomest tree seen in the whole expedition: the foliage grows about two feet high and 2 feet in diameter: the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodara; the timber is good, clear, and workable." This is no mere passing remark, but one as it did in such company as P. nobilis, Douglasii, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen.

The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Nov. 21.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO CLERGYMEN PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where the cheaper and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as it is impossible to quote the value of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few specimens of the larger size and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

SUTTON'S BERKSHIRE CHAMPION CUCUMBER.

To the Editor of the GARDENERS' CHRONICLE.

"SIR,—From a last year's plant of SUTTON's Berkshire Champion, growing in a small two-light pit, 8 ft. by 9 ft., the plant occupying but one light, I have cut, from May 4th of this year, 112 feet of fine fruit; and there are six growing on the plant at the present time that measure 11 feet 2 inches in length. The pit is heated by dung linings only. I cut two fruit the latter end of March from the same plant, which measured upwards of 3 ft. in length each."—(Signed) THOMAS POLLINGTON,
Gr. to Wm. Hervey, Esq., Bradwell Grove.

SUTTON & SONS, Reading, have confidence in recommending their Berkshire Champion Cucumber as the handsomest, best flavoured, and most prolific Cucumber in cultivation. Price 1*s.* 6*d.* per packet, post free.

Royal Berkshire Seed Establishment, Reading.—Nov. 21.

SEED POTATOES.

JOSEPH MAY AND CO. beg to inform their friends and customers they have succeeded in obtaining a good supply of the following desirable kinds, which seem to be very free from disease, most of them being early sorts which have entirely escaped it:—

Soden's Early Oxford, true.	Ash-leaved Kidneys.
Early Ten-week.	Lapstone ditto.
Early Queen, as early as any, produced 4 bushels per rod.	Fluke ditto
Walnut-leaved Kidneys.	Red Ash-leaved ditto.
	Early Shaw.

All other kinds can be had, but the above having generally escaped the disease, J. M. & Co. would recommend parties to plant chiefly of those kinds, whether obtained of them or elsewhere.—1, Wellington Street, Strand, Waterloo Bridge.

SEED POTATOES!

JOHN W. THORNHILL'S unrivalled assortment is now ready for delivery. The following sorts 14*s.* per cwt., cash, no charge for bags.—EARLY ASH-LEAF KIDNEY, sound and genuine. EARLY QUEEN, fine new Early. THORNHILL'S INCOMPARABLE, fine early round, dry and floury.—Bristol, Lawrence Hill Nursery, and 27, Bath Street.

SPECIMEN TEA-SCENTED ROSES
IN 6-INCH POTS FOR EXHIBITION AT 30*s.* PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s.* 6*d.* to 21*s.* each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FINE ROSES FOR THE MILLION.
NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12*s.* per 100; or 2*s.* per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

LUPINUS PILOSUS ALBUS.

W. THOMPSON, Tavern Street, Ipswich, begs to announce that he has purchased the entire Stock of the above fine new white variety of the large ROSE LUPINE, of Mr. Burridge, Colchester, the raiser, and is now prepared to supply it to the Trade at a price unusually low for so desirable a novelty. It preserves its purity to the last, never changing to blush, as does the white variety of Hartweg's Lupine, and is undoubtedly the best white Lupine yet offered. Price may be had on pre-paid application; the stock being limited, early orders are respectfully solicited

FINE SHOW CINERARIAS.—Magnum Bonum, Rose of England, Purple Standard, Duchess of Wellington, Sir Charles Napier, Brilliant, optima, Admiral Lyons, Fascination, picturata, Lady Paxton, Cerito, 9*s.* per dozen, or 1*s.* each.

Fine named HOLLYHOCKS, in pots, good, per dozen .. 8*s.*
12 finest sorts ANTIRRHINUMS, from a large collection 3*s.*
12 finest sorts PHLOXES ,, ,, 3*s.*

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 35*s.* per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

STRONG SEAKALE ROOTS for forcing; crowns from 1½ to 2 inches diameter, price 8*s.* per 100; selected single crowns, 10*s.* per 100.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

One Thousand PLUMS for sale, consisting chiefly of "Victoria" and a seedling largely grown at Deptford; also Jefferson, Prince of Wales, and Downing's new seedlings Standard of England, Angelina Burdett, and Woolston's Black Gage. Maiden stock, 50*s.* per 100 or 8*s.* per dozen; 2 year old rough standards, 75*s.* per 100, or 12*s.* per dozen; these have been removed last season and previously, and will come up with good fibrous roots. To persons planting a large quantity liberal terms would be offered.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

MYATT'S SEEDLING STRAWBERRY, 2*s.* 6*d.* per 100, packed and delivered free to any address in London.

Manor Farm, Deptford, Nov. 21.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, established in single pots, at 30*s.* per doz., or 6*l.* 5*s.* per 100. No charge for packing.—JOHN HENCHMAN, Edmonton, near London.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2½ feet in height, can be supplied in any quantity. Price forwarded on application.

☞ Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock of the larger sizes, all being grown out of doors, and never cramped by pot culture.

JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

HARDY HERBACEOUS AND ALPINE PLANTS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants ..	0	18	0
100 choice ditto ditto	1	10	0
50 choice Shrubs and Flowering Trees	1	5	0
100 choice ditto ditto	2	2	0
12 fine named Perpetual Roses, Dwarf	0	12	0
12 fine named ,, Standards	0	18	0
White, Red, and Black Currants, fine plants, per 100 ..	0	8	0
Fine sorts of Lancashire Gooseberries, per 100	0	8	0

Fine Dwarf-trained and Standard Fruit Trees, &c.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Nov. 21.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 21, 1857.

THE result of this year's VINTAGE in Portugal is believed to be disastrous, although there is every reason to suppose that in France, at least about Bordeaux, a considerable quantity of wine of good quality has been obtained. It would be extremely interesting to learn the real causes of this difference in two of the greatest wine districts in Europe, for whether the vintage is good or bad depends entirely upon the health of the Vines, and nothing concerns gardeners everywhere more than causes that affect so important a fruit tree. We have as yet no sufficient means of answering the question, but some particulars happen to be already in our possession which seem worth recording although imperfect.

In Portugal sulphur, in the form of the flowers and the pentasulphide of calcium, has been very largely employed, and upon the whole it seems that the latter has been attended with most success, as was predicted by Mr. FORRESTER in the able pamphlet he published last spring (see p. 435). When flowers of sulphur were employed the Vines produced considerable quantities of Grapes, as much we hear as five times the quantity obtained last year from the same vineyard, without sulphur. The plants grew with extraordinary luxuriance, but the Grapes ripened ill, were deficient in sweetness, and contained some sulphurous principle in such abundance that the wine they yielded has proved undrinkable, having, instead of the usual flavour and fragrance of Port wine, the qualities of Harrowgate water, only in a more intense degree; and what is perhaps worse, the Vines continued to grow to so late a period that the wood could not ripen.

This result is unexpected; and seems to have been brought about by the formation of sulphuretted hydrogen or hydrosulphuret of ammonia. At least the symptoms observed by the Portuguese farmers are such as would arise from the presence of those compounds in the soil. Scanty as the information is respecting the action of these sulphuretted compounds on plants, enough is known to teach us that in small quantities, instead of being a poison as THENARD, DUPUYTREN, CHRISTISON, and TURNER asserted, and as LIEBIG repeated, they act as energetic manures. This was experimentally proved some years ago by Prof. EDWARD SOLLY, who in one of his reports to the Horticultural Society gives the following account of some experiments with sulphuretted hydrogen:—

"In the course of experiments, I was led to make trial of the action of some of the compounds of this gas on growing vegetables, and the results I obtained were very different from what I had expected. I made use of the hydrosulphuret of ammonia, the very compound described by LIEBIG as being a 'deadly poison;' but in place of killing plants I found that in small quantity it produced decidedly beneficial effects; in some cases, when it was applied to plants in an unhealthy state from the action of other substances, it had the effect of invigorating them, and of restoring their leaves to a healthy, green, and crisp condition. The plants with which these effects were best observed were the garden Lettuce and the common Windsor Bean. The solution of the hydrosulphuret of ammonia employed was prepared by mixing a saturated solution of the compound with fifty times its bulk of water: such a solution had a most nauseous disgusting smell, and contained of course a large quantity of sulphuretted hydrogen. The plants under experiment were selected from many, and were of the same age, and size, and as far as possible in the same healthy state of growth. Some were watered with common water, others with a dilute solution of hydrosulphuret of ammonia. At first only a few drops of the solution were given, but finding that this produced little or no effect, the dose was increased, and as much as half an ounce a day, and sometimes even more, was given to each plant; it was found that those thus treated became stronger and sturdier, their leaves were of a bright deep green, the space between the nodes, or the distance from leaf to leaf, was shorter, and the stems were stronger, and the whole plant more flourishing than in those watered in the ordinary way, although all other circumstances were alike, and care was taken to place all under the same condition, by exposing them equally to air and light, and giving them the same quantity of water every day. Plants in a languid state from over doses of nitrate of potash, or soda, or other saline manures, if not too much injured by their previous treatment, appeared to recover more rapidly when watered with the solution of hydro-sulphuret of ammonia, than when merely treated with common water. In some of these latter cases a much stronger solution was employed than that already mentioned, containing two drachms of the saturated solution of hydrosulphuret of ammonia in 50 of water, and of this eight drachms were given daily. For some time after thus watering the plants, the earth retained a strong smell of sulphuretted hydrogen, and the water which drained through, when tested by a salt of lead, evidently contained a large quantity of that gas."

"I may add one fact which has considerable interest in connexion with this matter. It is the custom in most parts of England to form the manure intended to be used for the land into a heap and leave it exposed to the air for some time; in certain counties, and more particularly in the south-west, it is a common practice to plant such manure heaps with Cabbages. These plants, then, grow in a soil rich in sulphuretted hydrogen and its compounds, and they are generally very large and of a fine deep green colour. They have it is said a bad taste and are only used for feeding cattle; this bad taste has, however, nothing to do with the health and vigour of the plant, and involves another question."

It seems as if the question thus involved were exactly that which the Portuguese have answered. The sulphur they have employed has given rise to sulphuretted hydrogen or some of its compounds, and communicated an atrocious taste to their wine; for we all know that Grapes, even unfermented, are greatly deteriorated in quality by putrid matters in the soil. "It is remarkable," says MULDER, "that fetid manures, such as fecal matters and the mud of great towns, exercise a very prejudicial influence on the odour of wine, while, on the contrary, manures which are inodorous, and putrefy slowly, such as wool, horn, and bone-black, conduce very much to its fragrance."

But how did it happen in Portugal that flowers of sulphur produced such bad effects upon wine, although they were found innoxious elsewhere? Was it because the Vine-growers adopted the doubtful advice of M. MARÈS not to spare the sulphur? Undoubtedly they employed so much in some places that the ground was coated with it. Is the temperature of the Alto Douro, where in the month of August the thermometer rises to 104°, peculiarly favourable to the formation of sulphur compounds? or has the soil some part in the action? Or is it possible that the Portuguese, like our own Hop bleachers, have been using bad sulphur obtained from the decomposition of sulphurets, and always highly charged with sulphuretted hydrogen, instead of the pure sulphur obtained in the countries of native sulphur? We have no means of answering these inquiries.

When what is called the pentasulphide (more correctly, we believe, pentasulphuret) of calcium, a compound of sulphur and lime, was employed, Mr. FORRESTER, who seems to have preferred this agent, found that after its first application the Vines vegetated beautifully, the leaves already attacked by mildew became verdant, the fruit made progress, and everything promised a good crop. But when, after three applications of this liquid, water failed, heat became excessive, and labourers scarce, the disease re-appeared with the greatest virulence. Flowers of sulphur again checked it, but in the end two-thirds of the Grapes burst and withered.

We understand, however, that in the course of the numerous experiments which Mr. FORRESTER'S

DUTCH FLOWERING ROOTS for present planting, comprising Hyacinths, Narcissus, Tulips, Ranunculus, Anemones, Gladiolus, Japan Lilies, Snowdrops, &c., for house and garden culture, a Descriptive priced Catalogue of which, with valuable Treatises on their culture, may be had on application or free by post. Collections of Bulbs 20*s.* and upwards sent carriage paid. Named Hyacinths for pots and glasses, 6*s.*, 7*s.* 6*d.*, 9*s.*, to 12*s.* per dozen; showy Double Tulips for beds or borders, 3*s.* 6*d.* to 13*s.* 6*d.* per 100; Polyanthus Narcissus, 3*s.* per dozen; Crocus, 1*s.* 6*d.* to 3*s.* 6*d.* per 100. All orders to be accompanied with a remittance or a reference. —BUTLER & M'CULLOCH, Seedsmen, South Row (opposite Southampton Street), Covent Garden Market, London.

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained Fruit Trees of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 and 4 year old Currants of the following sorts: —Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch Gooseberries, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHODODENDRONS annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
,, ,, 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possible desired.
,, africana, 3 to 4 and 5 feet, fine plants.
,, Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
,, ,, ,, larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet,
,, Goveniana
,, Lambertiana
,, macrocarpa
} 2 to 3 and 4 to 5 feet, from seed. The large sized plants are very handsome.
,, Lawsoniana Seedlings.
,, variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens.
,, japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
,, chinensis, 3 to 4 and 5 to 6 feet.
,, common English, 2 to 3 feet.
,, Irish, 3 to 4 feet.
,, ,, 4 to 6 and 7 to 8 feet, very handsome close grown specimens.
,, recurva, 3 to 4 and 5 feet
Libocedrus chilensis, 3 to 4 feet.
,, gigantea, 1 to 2 feet.
,, ,, 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
,, Beardsleyana (new), about 1 foot.
,, Benthamiana, 1½ to 2 and 3 feet.
,, Brunoniana, 2 to 3 feet.
,, Cembra, 3 to 4 and 5 to 6 feet.
,, Douglasi, 4 to 5 and 6 feet.
,, ,, 6 to 8 and 10 feet, most magnificent plants.
,, excelsa, 4 to 6 and 7 feet.
,, insignis, in any quantities, 2 to 3 feet.
,, ,, ,, 3 to 4 and 5 feet.
,, Jeffreyana (new), about 1 foot.
,, Lambertiana, 2 to 3 and 4 feet.
,, ,, very fine, 5 to 6 and 8 feet.
,, Morinda, 4 to 6 and 7 feet.
,, nobilis, from seed, 1 and 2 years.
,, Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
,, Sabiniana, 2 to 3 feet.
,, taxifolia (of Jeffrey), 1 to 1½ foot.
,, tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora ericoides, 1 to 2 feet.
Saxe-Gothæa conspicua, 2 to 3 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 to 10 feet.
Taxus (Yew), Common, 2 to 3 and 4 to 5 feet.
,, Irish, 3 to 4 and 5 to 6 and 8 feet.
,, gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
,, ,, larger, 1½ to 3 feet.
,, chilensis, 2 to 4 feet.
,, gigantea, 1 to 2 and 3 to 4 feet.
,, Hookeriana, a very dense growing species.
,, Wareana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
,, ,, larger, very handsome, 1½ to 2 and 3 to 4 feet.
This plant is admirably adapted for forming Avenues.

None of the foregoing are grafted, with the exception of Pinus Lambertiana, which does well, neither have any been cramped by the ruinous system of pot culture.

AMERICAN PLANTS.

Azaleas, good varieties of scarlet, rose, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
,, Of best Ghent and other varieties, 1 to 2 feet.
,, Standard, of the leading kinds.
Kalmia latifolia, 1 to 2 feet, by the 100.
,, ,, 2 to 3 and 4 feet, large very handsome specimens.
,, ,, Standards, with fine symmetrical heads.
,, ,, myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Game Covers.
,, Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
,, Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
,, Standard, 3 to 4 feet stems, with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved perpetual varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens; we would therefore suggest the importance of purchasers making a visit of inspection, which can be readily done by South-Western Railway to the Sunningdale Station, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75*s.* per 100. Price to the trade on application.—Highgate Nurseries, London, N.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara. } 1 to 10 ft.
,, Africanus } The largest and finest
Cedar of Lebanon } stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18*s.* p. doz., and uparwds; Dwarfs, 6*s.* do. and uparwds. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots .. .. First Prize
June 3, Chiswick .. 12 Roses in pots .. .. Second Prize
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)
June 18, Royal Botanic Society—50 Cut Roses .. .. First Prize
Do. do. 10 Roses in pots .. .. Second Prize
June 24, Brighton .. 50 Cut Roses .. .. First Prize
June 24, Manchester .. 50 Cut Roses .. .. Second Prize
*** The Manchester and Brighton Shows were on the same day.
July 1, Royal Botanic Society—24 Cut Roses .. .. First Prize
,, do. do. 50 Cut Roses .. .. First Prize
July 2, Stamford Hill .. 50 Cut Roses .. .. First Prize
,, ditto, collection ditto .. .. First Prize
July 9, Diss .. 50 Cut Roses, First Prize, Silver Cup
,, do. .. 100 Cut Roses, First Prize, ,,
July 15, Stamford .. 12 Cut Roses, First Prize, ,,
Sept. 9, Crystal Palace 50 Cut Roses, First Prize, ,,

The sorts which obtained these prizes are offered, as healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

TO THE TRADE.

DAVIES AND FRANCIS beg to offer the following articles:—

	Per doz.—s.	d.
Gompholobium barbigerum, 6 to 9 inches, in 3-inch pots, fine healthy stuff	9	0
Ditto, dwarf bushy species, fine	36	0
Leschenaultia biloba superb..	20	0
Ditto do. grandiflora	24	0
Boronia serrulata, fine healthy plants ..	12*s.* and 18	0
Staphylea tubiflora	18	0

The above may be relied upon as being fine healthy plants. Reference or Post-office Order from unknown correspondents.

Stanley Nurseries, Old Swan, Liverpool.

MESSRS. J. AND H. BROWN offer to the Nobility and Gentry the following CHOICE PLANTS, &c., which they will forward to any part of the United Kingdom:—

Andromeda floribunda, 1 to 2 feet, fine, per 100, 6*l.*, or .. .. per doz.	18*s.*	0*d.*
25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, by name, on their own roots ..	20	0
100 Azaleas, do., do.	70	0
25 Azaleas, do., American varieties, do.	16	0
Hardy Heaths, Ledums, and Kalmias .. per doz.	6	0
25 Hardy American Plants, one of a sort, by name ..	10	6
12 Rhododendrons, including scarlet, white, and rose, hardy varieties	12	
Hardy scarlet Rhododendrons, 2 feet .. per doz.	14	
Rhododendrons, best hardy varieties, including all the above sorts .. .. .. per 100	80	0
Hardy white Rhododendrons. fine .. per doz.	12	0
New yellow Rhododendrons .. .. .. each	5	
Roses, Standard and Half-standard per doz.	15*s.* to 18	
Best leading sorts .. .. per 100	100	
Climbing Roses, best sorts .. .. per doz.	6	
12 Greenhouse Azaleas, best sorts, two sizes	10*s.* to 15	
Camellias, choice sorts, well set with buds, per doz.	30	
50 choice Greenhouse, one of a sort, for	45	
Orchideæ, choice species and good plants, including Dendrobiums, Oncidiums, Lycaste, Stanhopeas, Cattleyas, Vanda, &c. &c., per dozen	42	0
Hothouse Ferns, choice new kinds, including gold and silver, per dozen	12	0
Lilium giganteum, flowering bulbs, each	7	6
24 choice Ericas, one of a sort, in small pots	16	0
Prize Chrysanthemums, large and small, per dozen..	8	0
Violets, fine double winter flowering, per dozen ..	6	0

CHOICE FRUIT TREES.

Fine Standard and dwarf trained Apricots, Peaches, Nectarines, Cherries, Pears, and Plums, 2*s.* 6*d.* each, or per dozen	28	
Fine Dwarf Plants of all the above grown, especially for pot culture, in orchard houses, &c., per doz.	18	
Figs, Apples, Medlars, Mulberries, and Walnuts, each	2	
Gooseberries, Currants, and Raspberries, per dozen	4	
Filberts, new, thin shelled, red skinned, and Cob, do.	4	
Choice Grape Vines, in pots, per dozen..	18	

Fine Ornamental Trees and Shrubs supplied in large quantities.

Albion Nursery, Stoke Newington, London, Nov. 21.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE.

"CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says "it was the handsomest tree seen in the whole expedition; grows about 100 feet high and 2 feet in diameter; the foliage most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MACKAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Nov. 21.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in Britain, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finest specimen plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

SUTTON'S BERKSHIRE CHAMPION CUCUMBER.

To the Editor of the GARDENERS' CHRONICLE.

"SIR,—From a last year's plant of SUTTON'S Berkshire Champion, growing in a small two-light pit, 8 ft. by 9 ft., the plant occupying but one light, I have cut, from May 4th of this year, 112 feet of fine fruit; and there are six growing on the plant at the present time that measure 11 feet 2 inches in length. The pit is heated by dung linings only. I cut two fruit the latter end of March from the same plant, which measured upwards of 8 ft. in length each."—(Signed) THOMAS POLLINGTON,

Gr. to Wm. Hervey, Esq., Bradwell Grove.

SUTTON & SONS, Reading, have confidence in recommending their Berkshire Champion Cucumber as the handsomest, best flavoured, and most prolific Cucumber in cultivation. Price 1s. 6d. per packet, post free.

Royal Berkshire Seed Establishment, Reading.—Nov. 21.

SEED POTATOES.

JOSEPH MAY AND CO. beg to inform their friends and customers they have succeeded in obtaining a good supply of the following desirable kinds, which seem to be very free from disease, most of them being early sorts which have entirely escaped it:—

Soden's Early Oxford, true.
Early Ten-week.
Early Queen, as early as any, produced 4 bushels per rod.
Walnut-leaved Kidneys.
Ash-leaved Kidneys.
Lapstone ditto.
Fluke ditto
Red Ash-leaved ditto.
Early Shaw.

All other kinds can be had, but the above having generally escaped the disease, J. M. & Co. would recommend parties to plant chiefly of those kinds, whether obtained of them or elsewhere.—1, Wellington Street, Strand, Waterloo Bridge.

SEED POTATOES!

JOHN W. THORNHILL'S unrivalled assortment is now ready for delivery. The following sorts 14s. per cwt., cash, no charge for bags.—EARLY ASH-LEAF KIDNEY, sound and genuine. EARLY QUEEN, fine new Early. THORNHILL'S INCOMPARABLE, fine early round, dry and floury.—Bristol, Lawrence Hill Nursery, and 27, Bath Street.

SPECIMEN TEA-SCENTED ROSES
IN 6-INCH POTS FOR EXHIBITION AT 30s. PER DOZEN.

WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.

Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10s. 6d. to 21s. each. Catalogues and all particulars on application.

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

FINE ROSES FOR THE MILLION.
NEW ROSE STOCK, SURPASSING ALL OTHERS.

J. J. FOSTER, of Edgware, after eight years' trial, has found the fine Rose "DESCARTES" to grow readily by cuttings, and answer beautifully for budding, especially on the new green wood.—Post-office Orders in favour of his Manager, JOHN MORGAN, Edgware, will be duly executed at the low price of 12s. per 100; or 2s. per dozen. The usual trade allowance. There is also a fine stock of Laurels and Evergreens. Manetti Stocks given away.

LUPINUS PILOSUS ALBUS.

W. THOMPSON, Tavern Street, Ipswich, begs to announce that he has purchased the entire Stock of the above fine new white variety of the large ROSE LUPINE, of Mr. Burridge, Colchester, the raiser, and is now prepared to supply it to the Trade at a price unusually low for so desirable a novelty. It preserves its purity to the last, never changing to blush, as does the white variety of Hartweg's Lupine, and is undoubtedly the best white Lupine yet offered. Price may be had on pre-paid application; the stock being limited, early orders are respectfully solicited.

FINE SHOW CINERARIAS.—Magnum Bonum, Rose of England, Purple Standard, Duchess of Wellington, Sir Charles Napier, Brilliant, optima, Admiral Lyons, Fascination, picturata, Lady Paxton, Cerito, 9s. per dozen, or 1s. each.
Fine named HOLLYHOCKS, in pots, good, per dozen .. 8s.
12 finest sorts ANTIRRHINUMS, from a large collection 3s.
12 finest sorts PHLOXES " " 3s.
HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 35s. per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15s. per 100; 50 for 9s.; and 25 for 5s.; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

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STRONG SEAKALE ROOTS for forcing; crowns from 1½ to 2 inches diameter, price 8s. per 100; selected single crowns, 10s. per 100.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

One Thousand PLUMS for sale, consisting chiefly of "Victoria" and a seedling largely grown at Deptford; also Jefferson, Prince of Wales, and Downing's new seedlings Standard of England, Angelina Burdett, and Woolston's Black Gage. Maiden stock, 50s. per 100 or 8s. per dozen; 2-year old rough standards, 75s. per 100, or 12s. per dozen; these have been removed last season and previously, and will come up with good fibrous roots. To persons planting a large quantity liberal terms would be offered.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

MYATT'S SEEDLING STRAWBERRY, 2s. 6d. per 100, packed and delivered free to any address in London.

Manor Farm, Deptford, Nov. 21.

WELLINGTONIA GIGANTEA.—Stout Seedling Plants of this magnificent new hardy Conifer, established in single pots, at 30s. per 100, or 4l. 5s. per 1000. Next charge for packing.—JOHN HENDERSON, Pineapple, near London.

WELLINGTONIA GIGANTEA.—Handsome well-grown plants, from 1 to 2 feet in height, can be supplied in any quantity. Price forwarded on application.

Persons desirous of obtaining really well-grown specimens would do well by inspecting our stock, of the larger sizes, all being grown out of doors, and never cramped by pot culture.

JOHN WATERER, American Nursery, Bagshot, Surrey, near Sunningdale Station, South-Western Railway.

HARDY HERBACEOUS AND ALPINE PLANTS.

	£	s.	d.
50 choice Hardy Herbaceous and Alpine Plants ..	0	18	0
100 choice ditto ditto	1	10	0
50 choice Shrubs and Flowering Trees	1	5	0
100 choice ditto ditto	2	2	0
12 fine named Perpetual Roses, Dwarf	0	12	0
12 fine named " Standards ..	0	18	0
White, Red, and Black Currants, fine plants, per 100 ..	0	8	0
Fine sorts of Lancashire Gooseberries, per 100 ..	0	8	0

Fine Dwarf trained and Standard Fruit Trees, &c.

HENRY MAY, The Hope Nurseries, near Bedale, Yorkshire.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Nov. 21.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 21, 1857.

THE result of this year's VINTAGE in Portugal is believed to be disastrous, although there is every reason to suppose that in France, at least about Bordeaux, a considerable quantity of wine of good quality has been obtained. It would be extremely interesting to learn the real causes of this difference in two of the greatest wine districts in Europe, for whether the vintage is good or bad depends entirely upon the health of the Vines, and nothing concerns gardeners everywhere more than causes that affect so important a fruit tree. We have as yet no sufficient means of answering the question, but some particulars happen to be already in our possession which seem worth recording although imperfect.

In Portugal sulphur, in the form of the flowers and the pentasulphide of calcium, has been very largely employed, and upon the whole it seems that the latter has been attended with most success, as was predicted by Mr. FORRESTER in the able pamphlet he published last spring (see p. 435). When flowers of sulphur were employed the Vines produced considerable quantities of Grapes, as much we hear as five times the quantity obtained last year from the same vineyard, without sulphur. The plants grew with extraordinary luxuriance, but the Grapes ripened ill, were deficient in sweetness, and contained some sulphurous principle in such abundance that the wine they yielded has proved undrinkable, having, instead of the usual flavour and fragrance of Port wine, the qualities of Harrowgate water, only in a more intense degree; and what is perhaps worse, the Vines continued to grow to so late a period that the wood could not ripen.

This result is unexpected; and seems to have been brought about by the formation of sulphuretted hydrogen or hydrosulphuret of ammonia. At least the symptoms observed by the Portuguese farmers are such as would arise from the presence of those compounds in the soil. Scanty as the information is respecting the action of these sulphuretted compounds on plants, enough is known to teach us that in small quantities, instead of being a poison as THENARD, DUPUYTREN, CHRISTISON, and TURNER asserted, and as LIEBIG repeated, they act as energetic manures. This was experimentally proved some years ago by Prof. EDWARD SOLLY, who in one of his reports to the Horticultural Society gives the following account of some experiments with sulphuretted hydrogen:—

"In the course of experiments, I was led to make trial of the action of some of the compounds of this gas on growing vegetables, and the results I obtained were very different from what I had expected. I made use of the hydrosulphuret of ammonia, the very compound described by LIEBIG as being a 'deadly poison;' but in place of killing plants I found that in small quantity it produced decidedly beneficial effects: in some cases, when it was applied to plants in an unhealthy state from the action of other substances, it had the effect of invigorating them, and of restoring their leaves to a healthy, green, and crisp condition. The plants with which these effects were best observed were the garden Lettuce and the common Windsor Bean. The solution of the hydrosulphuret of ammonia employed was prepared by mixing a saturated solution of the compound with fifty times its bulk of water: such a solution had a most nauseous disgusting smell, and contained of course a large quantity of sulphuretted hydrogen. The plants under experiment were selected from many, and were of the same age, and size, and as far as possible in the same healthy state of growth. Some were watered with common water, others with a dilute solution of hydrosulphuret of ammonia. At first only a few drops of the solution were given, but finding that this produced little or no effect, the dose was increased, and as much as half an ounce a day, and sometimes even more, was given to each plant; it was found that those thus treated became stronger and stouter, their leaves were of a bright deep green, the space between the nodes, or the distance from leaf to leaf, was shorter, and the stems were stronger, and the whole plant more flourishing than in those watered in the ordinary way, although all other circumstances were alike, and care was taken to place all under the same conditions, by exposing them equally to air and light, and giving them the same quantity of water every day. Plants in a languid state from over doses of nitrate of potash, or soda, or other saline manures, if not too much injured by their previous treatment, appeared to recover more rapidly when watered with the solution of hydro-sulphuret of ammonia, than when merely treated with common water. In some of these latter cases a much stronger solution was employed than that already mentioned, containing two drachms of the saturated solution of hydrosulphuret of ammonia in 50 of water, and of this eight drachms were given daily. For some time after thus watering the plants, the earth retained a strong smell of sulphuretted hydrogen, and the water which drained through, when tested by a salt of lead, evidently contained a large quantity of that gas."

"I may add one fact which has considerable interest in connexion with this matter. It is the custom in most parts of England to form the manure intended to be used for the land into a heap and leave it exposed to the air for some time: in certain counties, and more particularly in the south-west, it is a common practice to plant such manure heaps with Cabbages. These plants, then, grow in a soil rich in sulphuretted hydrogen and its compounds, and they are generally very large and of a fine deep green colour. They have it is said a bad taste and are only used for feeding cattle; this bad taste has, however, nothing to do with the health and vigour of the plant, and involves another question."

It seems as if the question thus involved were exactly that which the Portuguese have answered. The sulphur they have employed has given rise to sulphuretted hydrogen or some of its compounds, and communicated an atrocious taste to their wine; for we all know that Grapes, even unfermented, are greatly deteriorated in quality by putrid matters in the soil. "It is remarkable," says MULDER, "that fetid manures, such as fecal matters and the mud of great towns, exercise a very prejudicial influence on the odour of wine, while, on the contrary, manures which are inodorous, and putrefy slowly, such as wool, horn, and bone-black, conduce very much to its fragrance."

But how did it happen in Portugal that flowers of sulphur produced such bad effects upon wine, although they were found innoxious elsewhere? Was it because the Vine-growers adopted the doubtful advice of M. MARÈS not to spare the sulphur? Undoubtedly they employed so much in some places that the ground was coated with it. Is the temperature of the Alto Douro, where in the month of August the thermometer rises to 104°, peculiarly favourable to the formation of sulphur compounds? or has the soil some part in the action? Or is it possible that the Portuguese, like our own Hop bleachers, have been using bad sulphur obtained from the decomposition of sulphurets, and always highly charged with sulphuretted hydrogen, instead of the pure sulphur obtained in the countries of native sulphur? We have no means of answering these inquiries.

When what is called the pentasulphide (more correctly, we believe, pentasulphuret) of calcium, a compound of sulphur and lime, was employed, Mr. FORRESTER, who seems to have preferred this agent, found that after its first application the Vines vegetated beautifully, the leaves already attacked by mildew became verdant, the fruit made progress, and everything promised a good crop. But when, after three applications of this liquid, water failed, heat became excessive, and labourers scarce, the disease re-appeared with the greatest virulence. Flowers of sulphur again checked it, but in the end two-thirds of the Grapes burst and withered.

We understand, however, that in the course of the numerous experiments which Mr. FORRESTER'S

active mind led him to institute in Portugal, that gentleman had the happiness to discover a method of treating the Vine so successfully, without the use of sulphur, that he saved not only all the bunches on his own Vines but also those of many poor farmers who sought his instruction—and unfortunately most of the Portuguese farmers are poor in the strictest sense of the word, the wealthy proprietors of the Alto Douro being absentees who wholly neglect their estates. What the remedy may be we are not informed; it is, however, said to be cheap, harmless, and certain in its action. Should this be so indeed, there is nothing that the proprietors of Vineyards or the Portuguese Government could do which would be beyond the merits of its intelligent discoverer.

It seems as if the French Vine-growers had also hit upon some method of cure, independent of sulphur. At least we collect as much from the information given us by a visitor to the neighbourhood of Bordeaux, where he spent two afternoons with some friends amongst the Vineyards at the time the vintage was commencing, and where he met with some small proprietors who were excessively interested about the question. He was surprised to hear that sulphuring had not been so generally practised there, and was not supposed to be uniformly successful. One of them was priding himself upon his success, and the fine show of Grapes he had (to which the visitor testifies), and it is reported that his produce turned out above the average crop obtained before the disease was known. The proprietor alluded to had not chosen to sulphur at all, and attributed his success to the great care he had bestowed on the cultivation—working, pruning, &c., his Vines. It is very certain that all the slovenly Vineyards had a very diseased crop, and the best cared ones had generally a good crop; but whether the neglect promoted the disease, or the disease induced the neglect we have no means of judging—probably a little of both. From all our informant saw at Bordeaux and on the Loire, he was convinced that the great improvement in the crops this year was not owing entirely, or even in a great proportion, to sulphuring; but that there was something in the season which was less favourable to the development of the oidium and more so to that of the Grapes.

On the other hand, persons connected with Montpellier all agree that the application of sulphur, when properly put on at the time when the first symptoms of the disease showed themselves, was in all instances successful; but that in a few cases where people had waited till the disease was advanced, the sulphur did not check it and gave a bad taste to the wine.

These statements, drawn up from the reports of gentlemen to whose evidence no objection can possibly be taken, show that although the cure for Vine mildew in this country may be regarded as beyond denial, yet that in Wine districts, where circumstances are different, the question is still very far from its solution.

A CORRESPONDENT at Bagenal's Town in Ireland asks whether the plants recommended in CHEVREUIL's work on colours can be procured from nurserymen in this country under the names given to them in his work; for instance Tourette (Turritis verna), Saxifrage, Leopard's Bane, Persian Iberis, Alyssum saxatile, which are all named as suitable flowers for spring. One would have expected such an inquiry to be answered easily enough, yet strange to say we are stopped at the very outset of a reply by the word Tourette.

What can Tourette be? You may search French books on garden plants from end to end without finding it. Question the Bon Jardinier, that most useful history of plants grown in France; the name does not appear. Apply to LE MAOUT and DECAISNE, or GRENIER and GODRON; they are silent. Search DE CANDOLLE and no such vulgar name is discoverable; he has indeed an Arabette tourette, but that is hardly what is meant, for its flowers are scarcely handsome enough for gardens, and are a bad colour. Besides CHEVREUIL himself translates his Tourette printanière Turritis verna. Now, modern botanists have no knowledge of a plant bearing this name. There is indeed an old Turritis annua verna of TOURNEFORT, the great French botanist, but it is an annual now called Arabis verna, has poor purplish blossoms, and therefore must be rejected. The Bon Jardinier says, indeed, that Arabis verna is now called Arabette printanière, but the editors add that another of its names is Arabis caucasea. Here however we gain a clue to CHEVREUIL, for this A. caucasea is no other than A. alpina, a fine variety of which under the name of A. grandiflora is a beautiful thing during all the early spring. We therefore venture to translate Tourette Arabis grandiflora.

The other plants are less difficult. His Saxifrage he himself tells us is the common pink flowered Saxifraga crassifolia; Leopards' Bane he also explains by Doronicum caucaseum, a dwarf yellow flowered perennial. Iberis de Perse is Iberis sempervirens, another common white flowered dwarf perennial. As for Alyssum saxatile it decorates English gardens commonly enough in early spring with its gay golden blossoms. The English translator of CHEVREUIL's book must have been dozing when he came to the part of his task now in question, for instead of clearing up CHEVREUIL's obscurity he makes it darker, by omitting some of that author's words and misrendering others. Imagine for example a translator referring Lunaria annua, common "Honesty", to Saxifrage!!

What CHEVREUIL meant to recommend, in the paragraphs to which our correspondent refers, as good groups of colour was plainly this:—

1. *White.*—Arabis grandiflora.
2. *Rose colour.*—Saxifraga crassifolia.
3. *White.*—Arabis again.
4. *Yellow.*—Doronicum caucaseum.
1. *White.*—Arabis again, and so on.

And in the other case,

A. 1. *White.*—Iberis sempervirens.
2. *Yellow.*—Alyssum saxatile.
1. *White.*—Iberis again.

B. 1. *White.*—Iberis again.
2. *Violet.*—Pulmonaria virginica.
3. *Yellow.*—Alyssum again.
1. *White.*—Iberis again.

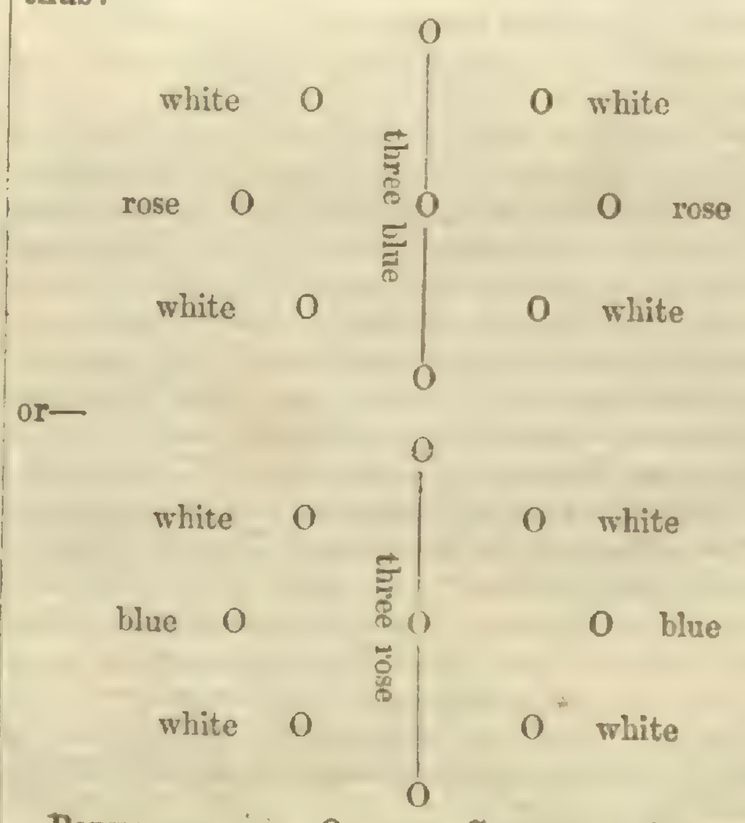
C. 1. *White.*—Iberis again.
2. *Purple.*—Phlox verna; or
Red.—Anemone pavonina; or
Blue.—Anemone apennina.
3. *Yellow.*—Alyssum again.
4. *Purple*, or Phlox again; or
Red.—Anemone pavonina; or
Blue.—Anemone apennina.
1. *White.*—Iberis again.

These are doubtless good combinations, and should produce a pretty effect.

It would be very interesting to know whether the other combinations of spring flowers suggested by CHEVREUIL have been found to equal expectation. Should any of our correspondents have tried them a report of their experience would be extremely valuable. If not, perhaps some may be willing to seize the present moment, a very favourable one, for preparing for the trial. In order to enable them to do so we give a few more of his combinations.

CROCUSES he places thus:—1. Yellow, violet, yellow, and so on; 2. Yellow, violet, white, yellow, and so on; 3. Yellow, white, violet, white, and so on; 4. Yellow, violet, yellow, white, yellow, and so on; 5. Violet, yellow, violet, white, violet, &c.

HEPATICAS thus:—1. *As edging*: white, blue, white, rose, white, and so on. 2. As groups, thus:—



POLYANTHUSES, OXLIPS, COWSLIPS, for *straight edging*, to follow this order, viz.: red, white, orange, lilac, yellow, violet brown, white, red, and so on repeating the sequence. For a *circular* or *elliptical edging*, white, self red, white, orange or orange edged with brown, violet or lilac, yellow (Cowslips, not Primroses, as CHEVREUIL's translator says), violet or lilac blue, orange or orange edged with brown, white, and so on.

HYACINTHS. Series I. Blue, Yellow Narcissus (common Daffodil), blue and so on. Series II. White, rose, white, &c.; Series III. White, blue, white, rose, white, and so on.

These indications must suffice. It should however be remembered that the contrasts of colour must be placed precisely as CHEVREUIL directs. For example he says that he ascertained by experiment that the effect of his series of Oxlips, &c., in a close circle was much impaired by leaving out the orange, that is to say the Polyanthuses. Surely some public garden might form for exhibition some illustrations of CHEVREUIL's principles. They would not only be very instructive if prepared by a man of taste, but doubtless highly attractive.

New Plants.

216. TORREYA GRANDIS, *Fortune.*

When Mr. Fortune was last in China he was happy enough to meet with a beautiful evergreen tree, with the following interesting account of which he has favoured us:—

"This fine evergreen tree was discovered on the mountains of Chekiang in China, when I was searching for cones of the "Golden Pine," *Abies Kæmpferi.* My head-quarters at this time was a Buddhist temple situated high up amongst the mountains. The following description of this part of the country and its productions is taken from my recent work 'A Residence amongst the Chinese.'

"'Taking an early breakfast, we ascended the pass behind the temple, and soon reached the vale of Pooinchee and the little village of that name. Here I observed for the first time two very fine Yew trees, which apparently were quite new. They were evidently nearly related to *Cephalotaxus*—a genus perfectly hardy in England and very highly prized. But they were too young to have seeds upon them, and too large to dig up and carry away. While my servants and myself were looking at them, the person to whom they belonged came up to us and kindly gave us their name and history. He told us he had received the seeds from a place about 10 or 15 miles distant amongst the mountains, where the trees grew to a great size and produced seeds annually in abundance. It is called 'Fee-shoo' by the natives and its seeds are found in a dry state in all the doctors' shops in Chinese towns. They are considered valuable in cases of coughs, asthma, and diseases of the lungs and chest. Being very anxious to procure fresh seeds of this valuable tree, I offered a considerable sum to one of the villagers, providing he would go with us and act as our guide through the mountains. * * *

"'Our road led us over the highest ridges, which are here fully 3000 feet above the level of the sea. The tops of these mountains are so cold in winter that nothing but an alpine vegetation can exist; the strange tropical-looking forms, such as the Bamboo, the Chusan Palm, and plants of that kind met with at a lower elevation, give place to wiry Grass, Gentians, Spiræas, and other hardy plants of a like description. Here and there on our journey we came upon fine examples of the Golden Pine-tree (*Abies Kæmpferi*), growing a little way down on the mountain-slopes. *Cephalotaxus Fortuni* and *Cryptomeria japonica* were also found at high elevations.

"'The journey was long and toilsome; sometimes we were on the top of the highest ridges, and at other times we seemed to go down and down until we were nearly on a level with the sea. But the views of scenery, which were ever shifting as we went along, were grand in the extreme, and richly rewarded us for all our toil. While on the tops of the highest ridges we looked round upon barren mountains, which lay about us like the waves of a stormy sea, and here and there we got glimpses of the distant and fertile plain of Ningpo stretching far away to the eastward. At other times our way led us through pleasant and secluded valleys, each of which looked like a little world of its own, shut in by rugged mountains, and having no connection with the great world outside.

"'About 4 o'clock in the afternoon we reached the "Valley of the Nine Stones," to which we were bound. Numerous fine trees of the new Yew were growing on the sides of the hill above the town. Many of them were from 60 to 80 feet in height with fine round heads, and altogether had a striking and ornamental appearance. There were no seeds to be seen on any of them, but our guide informed us they had been lately gathered, and were still in the town, where we could purchase them. Some noble trees of the "Golden Pine" were also met with here, and, to my delight, were loaded with ripe cones.'

"A goodly supply of the seeds of the new Torreya were purchased from an old farmer, and we returned highly satisfied with our journey to the 'Valley of the Nine Stones.' These seeds appear to be vegetating freely in Mr. Glendinning's nursery at Chiswick, and the species, ere long, will no doubt form an attractive object in our parks and pleasure grounds—one more amongst the many for which we are indebted to the Celestial Empire. Beautiful as the two species of Cephalotaxus formerly introduced from China undoubtedly are, they must yield the palm to *Torreya grandis.* The latter is no doubt equally hardy, if not more so, and will thrive in any part of England."

Wild specimens of the female plant in flower, and of the ripe fruit are before us. In some respects the foliage is like that of the plant known in gardens under the name of *Cephalotaxus drupacea*, which we suspect will prove not to be a *Cephalotaxus*, but the *Taxus cuspidata* of Siebold and Zuccarini. The leaves are ¾ inch long, linear, terminated *abruptly* with a *small short* point, so placed in two rows, that the upper side of every leaf is turned to the sky and the under to the

earth. On their under side they have the usual narrow furrow on each side of the midrib, and seem from young seedling plants to be glaucous. The loose fruits are oval, scarcely an inch long, pointed, and covered with a soft pulp. Their stone has a rather soft shell, and the kernel is not ruminated like a Nutmeg, as in *Torreya Myristica.*

At first sight it might be taken for the *Torreya nucifera* figured in Kæmpfer, with the Japanese name *Fa* or *Kaja*, a tall tree common in the northern provinces, and in many respects corresponding in structure. Of this Kæmpfer says that the kernels are oily and sweet, but remarkably astringent, so much so indeed when fresh as to be uneatable. They are, however, said to be very wholesome, although somewhat purgative. An oil is pressed from them in request for cooking purposes, especially among the Chinese monks at Nagasaki. But on a comparison of Mr. Fortune's plant with an authentic specimen of the *Fa*, sent us by the late Prof. Zuccarini and which corresponds well with Kæmpfer's figure, the following differences are observable. The leaves of *Fa* are further apart, more fleshy and shining, and instead of terminating abruptly with a short inconspicuous point they gradually taper into a kind of curved claw. These differences give a different aspect to the Japanese tree, which moreover is according to Kæmpfer "procerus" in the north of Japan, a term that would not be applicable to Mr. Fortune's plant, although so far to the southward as the Chinese province of Chekiang, where it does not grow higher than an English Pear tree.

Another question is whether the Chinese plant may not have a station on the mountains of the Eastern Himalaya. In reality Dr. Wallich has described and figured in his Tentamen a Taxus nucifera, from Tibet, Sirinuggur and Sheopore. What this may be we want the means of judging; one of Wallich's specimens in our herbarium in flower is a male, and may possibly be Kæmpfer's plant; but another from Kumaon is nothing more than the Indian form of the common Yew, as is proved by a fruit attached to one of the branches.

Such being the state of our information on the subject, we adopt Mr. Fortune's name, adding only that if the plant called Torreya nucifera in gardens is correctly named, that species will be further known by having two deep parallel furrows on the upper side of each leaf.

Home Correspondence.

The Metropolitan Parks.—There are few of the readers of the *Gardeners' Chronicle* who remember the state in which Hyde Park and Kensington Gardens used to be some 20 or 30 years ago, and contrast it with their present condition, but will agree with me in opinion that those places of public resort have not only undergone vast alterations since that time, but have been very much improved in their general appearance, and rendered more easy of access to the community. The late Mr. Loudon took great interest in these favourite places of resort, and for many years availed himself of every opportunity to direct public attention to the various ways in which he thought they might be made more interesting and enjoyable by the great mass of society. Although his views were often regarded as of too speculative a character to be practicable, still it is due to his memory to state that some of the most important improvements that have been effected of late years are little more than an execution of the identical plans of which he was the originator. So long ago as 1826 he recommended the thinning of the timber trees forming the belt from the Marble Arch to the gate leading into Kensington Gardens at Bayswater, and the erection of an open palisade from the old dilapidated wall that excluded the view of the Park from the Bayswater Road. But as this would in some degree have destroyed the privacy of the interior road and gravel walk, it was suggested that in order to preserve this and increase the beauty of the whole, it should be planted with Box, Holly, Yew, Laurel, Juniper, and similar evergreens. So slow, however, was the progress of taste in those days at the Woods and Forests, or at least with the parties who had the direction of such matters, that it was not until eight or nine years had elapsed, and after several representations had been made by the inhabitants of Bayswater for the abatement of what was acknowledged to be a public nuisance, that the wall was removed and the present iron railing erected in its place. As regards the belt of trees, I believe little or nothing was done to it except an occasional thinning until last spring, when the happy idea occurred of making this part of Hyde Park a little more ornamental as well as useful to those residing in its immediate neighbourhood. With this view the belt was enclosed by a light iron fence, and a nice gravel walk about 15 feet wide carried the whole length nearly through its centre. This has been well executed, and now offers to all who can avail themselves of it one of the most delightful promenades for exercise and recreation in the vicinity of the metropolis. The spaces between the trees on both sides of the walk are filled with various evergreen and dwarf-growing shrubs; and among them are interspersed large patches of some of the more common kinds of annuals and other flowering plants, such as Mignonette, Marigold, Sweet Alyssum, Persicaria, Clarkia, Nasturtiums, Wallflower, and Sweet-williams, &c. Besides these I noticed some plants of Indian Corn, which, with their erect green stems and large broad Grass-like drooping leaves, have rather a singular appearance at this season of the year, and for some time past have attracted much attention, and been the subject of general remark. Some of the plants have attained the height of 6 or 7 feet, and put forth their panicles of male blossoms at the top. Possibly some heads of corn may have been formed, but in such a situation it is hardly to be expected they should reach maturity. I have been amused at hearing the various opinions that have been given respecting this supposed vegetable prodigy. Some persons set it down as a new kind of Reed Grass; others look upon it as something like a Bamboo; while not a few will have it to be the new giant Grass, about which some wonderful accounts have lately been published; only a very small number have I found sufficiently acquainted with botanical matters to be able to say it was Indian Corn. In passing along this beautiful walk and admiring its pleasing outline, I could not help regretting that shrubs of a more healthy and better description had not been selected instead of those that have been introduced. I am ignorant of the establishment from which they were obtained, and I rather think there are few that will lay claim to the honour of having supplied them. No doubt the shrubs that are planted, small and scrubby though they be, will some day answer the purpose intended, but it will be years before they produce any striking effect. What has been done, however, is admitted by all to be a decided improvement, and it occurred to me that without much difficulty or expense this splendid walk might be made highly entertaining and instructive, if an assortment of shrubs with names attached were planted on each side of it. There are many of those in the belt near the new entrance to Kensington Gardens at Craven Hill that could very well be spared, and if removed would be far more interesting than in their present situation where they are of little use, owing to the distance between the iron railing and the border rendering it almost impossible for any one to make out the names that are placed against them. If the suggestion I have ventured to offer were adopted, I feel confident it would be appreciated by the public, and enable thousands to derive a degree of enjoyment from trees and shrubs which they never knew before. I presume from the alterations now in progress that it is intended to form a new walk and shrubbery from the Marble Arch along by Park Lane, similar to what I have noticed above as having been done by the Bayswater Road. I trust those who are responsible for the work being properly executed will be more fortunate in their selection of shrubs than they were last season. *B.*

Injecting Timber.—In answer to a "Welsh Squire," who asks for information as to the expense of injecting in the French fashion, as described in one of your late Numbers, I beg to inform him that I went to see the process the other day successfully carried on, and all that was used was a tall tree with a tub in its branches, 60 feet of Gutta percha, a stop-cock and some tow, the expense of which could not exceed 45*s.*, allowing about 6*d.* a foot for the Gutta percha pipe. On the cock being turned the sap ran out of both ends of the tree in less than three minutes. The water was hoisted up in buckets to the cask up in the tree, because no higher stream could be had, but in Wales this great expense might be of course overcome by leading water to any height of 40 to 60 feet above the felled tree. *Somerset.*

Border Edgings.—Some years since a correspondent asked for an edging which would not require the expense of Grass. I have used for five years the Saxifraga hypnoides; it only requires cutting over once or twice in the year, and of course cutting in as many or more, and is at this time and all through the winter a beautiful bright green instead of a nasty dull blue brown, such as the Grass is during that time. It has never been renewed and is as full as ever. *M.*

Orchards.—A correspondent intends draining his orchard 4 feet deep. Will he next year give us the results? I recommend his rolling it in wet weather with a very heavy roller and keeping the Grass fed down very short. Our farmers allow, purposely, their cattle to "pound" the orchard, and in America they plough the orchard, all which is, I conceive, to give the small-rooted trees a good hold on the ground and to hinder Moss growing at the roots and cooling the ground. The big top-heavy heads of the Apple kinds do loosen the roots in the ground; this is "met" by the above-named processes. *Somerset.*

Orchard Houses.—This new notion of Mr. Rivers about giving orchard-house trees, after top-dressing them, an abundance of water till the middle of November—(will a stiff soil, well rammed down, absorb much water?)—of course runs directly contrary to his former advice. Still it seems to carry reason with it, and no doubt is right. But will it not have some bad effect on the trees in winter? Because it appears to me that the earth in the pots will never become properly dry, and the frost will have great power on the roots embedded, as they will be, in wet soil. I wish some of your correspondents would give us a little of their experience of this year. *K. O.*

Out-door Grapes.—I have in a cold orchard-house a bush of the Early Malingre Grape, and also one of the Royal Muscadine. Now the former ripened a month before the latter, and it would therefore appear to be far preferable to the Muscadine for external walls. Has any one tried it? *O. P.* [What is the Early Malingre?]

Strawberries.—I received a few days ago three sorts of Strawberries named as follows:—Wilmot's Superb, Seedlet's Goliath, and the Empress. Can any one tell me anything about them? The last is said to have been sold in London in 1856 by some Frenchmen, and has a good character where it has been grown, especially for forcing. *A. Z.*

Melon Pits.—I have a large Melon pit with 3-inch pipes all round in chamber (inch thick Elm fitted rather too close, I conceive), but instead of having a 4-inch space as you advise, I have several small flues or chimneys carried up in the front wall, thinking it would give more room for the earth. There is plenty of top heat, but my gardener complains there is not sufficient bottom-heat, therefore he stops up the flues with paper, but even that does not give sufficient bottom-heat to satisfy him. I shall therefore feel much obliged by some advice on the subject, and also what is the best description of winter covering for Melon frames. In my opinion all straw mats are very injurious to the putty, paint, and timber. *Constant Reader.*

Late Grapes.—Your correspondent "S. P. A." asks what are the usual causes of failure in preserving Grapes. The causes are so various that it is impossible to be successful unless due regard is paid to the management of the Vines throughout the whole season. With respect to the Grapes grown with the Pines, "S. P. A." will not succeed in preserving them to a late period of the season, as they require treatment very different from the Pines. In three other houses, adds "S. P. A.," he ought to have Grapes beyond the third week in September. It would appear that the three houses are subjected to exactly the same treatment, the consequence of which is that the Grapes are all ripe together (the varieties grown are not named in his communication). Probably the houses are closed early in March, as he finds the buds are swelling fast at that time; presuming this to be the case, the Vines will have a tendency to break annually at that period; your correspondent must, therefore, adopt quite a different course. May I beg to direct his attention to the following, by which he will perceive that Grapes can be had as easily during the winter months as in August. Here we have a large house of Black Hamburghs, which are successfully retarded (or preserved), as the dates will show. I commenced cutting Dec. 22, 1854, and finished Feb. 6th; I again commenced Jan. 4th, 1856, and finished Feb. 14th; this last season I commenced Jan. 15th and finished Feb. 6th; the same course will be carried out this season also. I enclose a leaf to show the colour of the foliage [the leaf sent was green and healthy], and in January or February I will forward you a sample of the Grapes for opinion. On the 5th of last February some of the Grapes were exhibited to the Members of the Pomological Society, who were pleased to express themselves as follows:—"Grapes came from Melton Constable, in Norfolk, as an example of retarded Black Hamburgh. The berries were well coloured and plump, the fruit stalks healthy, green, and full of sap. They were in excellent condition, and such as would be creditable to any gardener in August." As to my method of management, if "S. P. A." will send me his address, I shall be happy to furnish him with all details. *R. Thomas, Gardener to the Right Hon. Lord Hastings, Melton Constable, Thetford, Norfolk.*—— Presuming that your correspondent's Vines are in a healthy condition, and that his accommodation for growing Grapes amounts to three Vineries, and the spare space in two Pine stoves, he may reasonably expect to have Grapes at his table from nine to 10 months in the year. The Vines in the Pine stoves should be planted to take out or in at pleasure, so as to give every facility for resting them, and they may be introduced at intervals according to the required consumption, as Grapes cannot be expected to hang long in the moist warm atmosphere of a Pine stove. Your correspondent says his Grapes are all gone by the third week in September—why, that is about the time his late house should be ripe; and then, supposing the border to be all that can be wished, and that proper attention is paid to ventilation, and fires lighted when necessary to keep away damp (always remembering to keep a circulation of air through the house while the fire is going), the Grapes in ordinary cases will hang in good condition till February. Some light airy material should be fixed inside the ventilators sufficient to exclude wasps or flies, until all fear of their depredations is past. Every pot plant should be cleared from the house previous to the Grapes ripening, as the atmosphere should be kept perfectly dry after they are ripe. Your excellent "Calendar of Operations" will furnish "S.P.A." with all necessary information for the management of his hothouses. *G. Blake, West Wickham Hall, Kent.*—— In reply to "S. P. A." allow me to state that the large flesh fly and wasp are particularly destructive to Grapes, and the most effectual mode that I have found to preserve my Grapes from their attacks is by placing several small bottles containing a mixture of beer and sugar or grounds of treacle in different parts of the Vineries. In this manner a great many may be destroyed before the fruit is fully ripe. The fly makes its appearance much earlier than the wasp. The bottles should be emptied as often as they fill with the pests just named. In order to preserve late Grapes, examine them carefully and frequently, removing any decaying berries, and at this season of the year when the fruit is still hanging fires will occasionally be required and air admitted sufficient to keep the house and fruit dry, and where the roots are in the open border they should be thoroughly protected from wet. The Barbarossa is a valuable late Grape, but many prefer the West's St. Peter's. Another mode of keeping Grapes is by cutting them when ripe with some wood attached to the bunch, sealing the cut end over with sealing wax, and hanging

them in a dark but dry room, where a temperature of 40° can be maintained. Take care to examine them frequently, removing any decaying ones. In this way I have kept Grapes until the early forced ones have been ready for use. *Mark Austin, Forest Hill.*—"S. P. A." might have Grapes in perfection till January. If wasps and flies are the only hindrance, some fine netting, such as is used to protect Peach trees from frost in spring, fastened so that the lights will slide up and down without interruption, will be an efficient remedy; but improper ventilation and a damp atmosphere are the greatest evils to contend against. With a free circulation of air and a fire lighted in a morning occasionally to expel damp, and looking after any berries that are decayed, Grapes might be had in perfection till the middle of January. *J. James, Rossall Hall, Fleetwood, Lancashire.*

Pear Rot.—All the crop off my only Easter Beurré Pear Tree was pulled perfectly dry, but most of the fruits were very much spotted, and they are all turning mouldy at the spots, and some have decayed. The other fruit in the same loft is keeping very well. Can any of your readers tell me the cause, or advise me how to prevent a recurrence of this? The soil is on gravel, but other trees in its immediate vicinity have borne healthy fruit, and the Easter Beurré crop was a good one in quantity. *A Young F. H. S., Croydon.*

Cheap Vineries.—I was so taken with "Vigneron's" description of his cheap Vinery that I commenced at once to erect one, 50 feet long, but on seeing J. Ellis's remarks in a late Number, I was startled into almost an abandonment of my project, and now begin to think mine a hopeless affair to expect to get ripe and good-flavoured Grapes in a cold Vinery in North Staffordshire, when opinions on this point differ even in the warm climate of Essex. However, if you say I may go on with a fair chance of success I will at once do so, and shall be glad also of your advice in construction. My garden is rather a steep slope from east to west, and as the Vinery must face the south would you advise the house to slope from end to end, or would you build it in steps (which would increase the expense), say 10 feet on a level, then a rise of 15 or 20 inches, then 10 feet level again, and so on to 50 or 60 feet? A reply will much oblige. *J. B.* [The climate of North Staffordshire is so different from that within 30 miles of London, where "Vigneron's" Vinery is situated, that some caution should be exercised. Build a house 20 feet in length, and try if Grapes will ripen in it; and then if it succeeds make it 100 if required. It may slope from end to end without "steps."]

Mice.—Can any of your correspondents advise me how to preserve Crocus roots from the ravages of mice in spring, which have hitherto destroyed the arrangement of my spring garden, and detracted much from its beauty? I know that rosin applied in a liquid state to Peas and Beans before sowing effectually prevents their being attacked by this little pest. I propose using it in a powdered state mixed with sand round my Crocus roots. *Carrick.* [Any country lad can trap mice. We have a great many Crocuses, and one French cat keeps off all the mice.]

Blue Hydrangeas.—I cannot agree with those who think that there may be any peculiarity in Mr. Luscombe's plants having produced deep distinct blue coloured flowers from being planted amongst Fir trees, and for the following reasons. At Enys, in Cornwall, where I lived for a number of years, they had the Hydrangeas by hundreds in the home plantations, and there they grow very well indeed, and under Fir, Elms, Oaks, Yews, Laurels, Beech, &c., the plantations being of a mixed character, and the greater part of the ground of a good rich deep loam, generally resting upon a rotten flat, inclining to clay—a bottom through which water soon found its way, and the land seldom if ever suffered from lengthened dry weather in summer, and to see the Hydrangeas as they flower there is quite a treat to any person who may not have seen them in such perfection. The most essential thing in assisting them there to become a deep distinct blue was that they were well shaded all through the summer from the sun, as those growing in shady situations were always of the deepest blue. One season some trees were cut down, thus exposing some of the Hydrangeas while in full flower, the colour of which was a pleasing blue, but after being exposed for ten days to the rays of the sun, they soon turned to an unpleasant rusty colour. I have seen some bushes of them there producing yearly between 60 and 100 large heads, measuring on an average over 7 inches in diameter, and all of a beautiful blue; and there, where frost seldom if ever injures them before January, they produce along with the Leycesteria formosa a very pleasing effect throughout the whole of the autumn months. *George Dawson, Fulham.*

Bread Fit to Eat.—On reading Dr. Letheby's Annual Report and statistics upon disease and death, I find from his investigations "All classes have their peculiar diseases, phthisis being the malady of bakers," and the *Times* observes, "But surely the fact that particular complaints can be so easily apportioned among particular trades, justifies the hope that with ordinary care their prevalence can be very much diminished." After reading Dr. Letheby's Report I calculated how many journeyman bakers have died who had worked for me within the last 10 years. The result to me was saddening. My men have generally lived with me some years, but I can count 15 young men, none 40 years of age, who have fallen victims to the "baker's malady" in one form or other of the disease. Now, sir, I know that if bakers would do away with the present unhealthy, dirty, and barbarous manner of kneading bread, our trade would soon show a more encouraging account in the future Report of the City medical officer. I have taken the liberty to enclose you a little pamphlet of mine upon the subject, and would particularly direct your attention to pp. 50, 54. Also a loaf of bread that has never come in contact with the human hand at all in the manufacture. *E. Stevens.* [London bread is so bad an article that we willingly report the loaf received from Mr. Stevens to be excellent.]

Flue Covers.—It is now some years since I conceived a great antipathy to the common dished flue cover, recommended to "K. L. M." by Mr. Cassillis. I had observed that when the flues were covered with dished tiles for holding water the draught was not so good as when common plain tiles were used, and the same amount of fuel did not produce the same effect in the one as the other. This was, no doubt, caused by the absorbent nature of the dished covers, and which kept the interior of the flue continually damp, and from which, where there was an accumulation of soot, a very unpleasant smell was emitted. The use of the dished covers is to give off moisture by evaporation. Now I do not hesitate to say, that the absorption of the dished covers usually in use is so great, that not one-quarter of the water used is given off by evaporation to the atmosphere of the house, the remainder being carried off within the flue, where it is not only doing no good but is positively detrimental. To obviate these objections, about 14 years since, I had some flue covers made with common tile earth, of the annexed form and size; length 14 inches, width 7½ inches, and 2 inches thick at the ends. The dished part is about half an inch deep, and which I had glazed, so that no absorption of water could take place. The tiles, as may be perceived, are not separately dished, but they form a continuous gutter. The end tiles are plain, so as to prevent the escape of water; but in these plain flat tiles I have had a narrow channel made, and which I have fitted with a piece of cork, so that if I wish to draw off the water, I can do so. Of course if these covers are used the flue must be level, but the common dished covers, if glazed, will answer the purpose equally well, and there will not be that nicety required in keeping the flue level. Flue covers, of whatever sort, should be very carefully put on. Mine were carefully bedded with fine mortar, gauged with a little plaster of Paris. Previous to bedding, each of the tiles was rubbed down at the edges, and closely fitted, so as to have as small a joint as possible, not more than $\frac{1}{16}$ of an inch. They were jointed with lime, putty, and very fine sand. No plaster of Paris must be used in the joints. I have had a flue thus fitted in use for 12 years, and it is now in as good condition as when put up. If "K. L. M." would like to have one of my flue covers, I will with pleasure forward one to him, if he will write me a line to that effect. While speaking of flues, I can fully corroborate the observations of Mr. Cassillis as to their general construction. They certainly are rarely built as they should be, and yet in some cases I believe they are preferable to hot-water pipes; at all events I prefer them for keeping late Grapes, as heated brickwork absorbs moisture to a much greater extent than pipes, and this, in the dull days of winter, is of the utmost importance. *Henry C. Ogle, Gardener to the Earl of Abergavenny, Eridge Castle, Tunbridge Wells.*

The Carolina Poplar at Dauny Park, near Brighton.—Can any of your readers obligingly inform me where I may find an engraving of this tree? *E. W. S.*

Oaks.—Is Quercus robur, or, as it is called by the nurserymen in Scotland, Red-twigged Oak, superior to the green leaved variety or Quercus sessiliflora? Although I ordered Quercus robur, when planting some years ago, there are a great many of the green leaved kind amongst them. Perhaps I may be mistaken in supposing that the red twig is the Quercus robur, and there may be something else to mark the distinction of which I am ignorant. It appears to me however that the green leaved sort is the freest grower. A considerable portion of my young Oaks and other trees has been injured by rabbits breaking them and probably from the extreme carelessness of people when cleaning them in the home nursery. Will this be injurious to the trees afterwards, although the wounds are almost all healed over? The forester here says that it will not be any disadvantage, seeing that the trees are now in a healthy state. *G. F. H.* [The wounds are unimportant. We know nothing of Red-twigged and Green-leaved Oaks. For the real differences between Q. pedunculata and sessiliflora we must refer you to the very numerous discussions that have already appeared in our columns.]

Societies.

STOKE NEWINGTON CHRYSANTHEMUM SHOW.—This took place on Tuesday and Wednesday last in Manor House, Church Street, where there was assembled a very fine display both of plants and cut blooms. The six examples of large kinds from Mr. Argent and Mr. James were particularly well grown and flowered. Mr. Argent's sorts consisted of Albyn, Defiance, Phidias, Christine, Plutus, and Madame Camerson. Mr. James had Vesta, Albyn, Christine, Mount Etna, Plutus, and Pilot. Of single specimens the last-named exhibitor had a magnificent example of Annie Salter, which though an old kind has few equals yet in the class to which it belongs. The next best specimen was Madame Camerson, from Mr. Argent. In addition to the above, Mr. Scruby sent Defiance, Madame Camerson, Gen. Havelock, Salter's Annie, and Dupont de l'Eure.

In the class of Pompones six admirable specimens came from Mr. Holland, of Hounslow. A plant of Bob from this grower presented a flat surface quite 3 feet in diameter, covered with rich crimson scarlet flowers, which were the admiration of everybody. In addition to this he had fine plants of Duruflet, Cedo Nulli, Brilliant, Pluie d'Or, and Comte Vigier. Mr. Wortley showed compact handsome plants of this class. The sorts were Duruflet, Brilliant, Drin Drin, Riquiqui, Cedo Nulli, and Sainte Thais. These were quite bouquets of flowers. Mr. Scruby sent Trophée, Drin Drin, Duruflet, Madame Roussillon, Bob, and Graziella.

Of cut blooms, Mr. Wortley furnished 24 beautiful specimens of the following:—Themis, Plutus, Arigina, Beauty, Annie Salter, Lysias, Goliath, Nonpareil, Madame Miellez, Pio Nono, Aristée, Dupont de l'Eure, Rosa Mystica, Hermione, Madame André, Racine, Versailles, Defiance, Elizabeth, Stella globosa, Miss Kate, Marquis de Molleville, Stafford, L'Emir, formosum. The next best blooms in this class came from Mr. Bird, who sent among others Anaxo, Arigina, King, Themis, Trilby, Goliath, Queen of England, Nonpareil, Madame Lebois, Hermione, Stafford, Versailles, Defiance, Plutus, Pio Nono, formosum, Stella globosa, Miss Kate, Voltaire, Albyn, Warden, and Dupont de l'Eure.

In the class of 12 blooms the best were contributed by Mr. Monk, who showed Alfred Salter, Themis, Queen of England, King, Anaxo, Goliath, Nonpareil, Beauty, Plutus, Christopher Columbus, Trilby, Dupont de l'Eure. Mr. Oubridge sent Nonpareil, Arigina, Themis, Madame André, Queen of England, Plutus, King, Miss Kate, Dupont de l'Eure, Voltaire, and Hermione. Mr. James had King, Queen of England, Themis, Beauty, Goliath, Nonpareil, Dupont de l'Eure, Anaxo, M. Miellez, Plutus, and formosum.

Of six blooms Mr. Monk sent Queen of England, Themis, Beauty, Nonpareil, Dupont de l'Eure, and Plutus. Mr. James showed King, Queen of England, Beauty, Plutus, Dupont de l'Eure, and Nonpareil.

In the interesting class of six Anemone flowered kinds, Mr. Wortley had M. Godderau, King of Anemones, Gluck, Marguerite d'Anjou, Fleur de Marie, and Nancy de Sermet. Mr. Bird produced in addition to the sorts just named Marguerite de York and Eclipse. Mr. James sent Rose Marguerite.

At the head of the room, which was tastefully arranged, was an immense plant of Vesta which could not measure less than 5 feet in height and as much through. This formed a good centre piece for the exhibition, which on the whole was highly satisfactory.

Notices of Books.

Cultural Directions for the Rose, with Select Lists of Sorts, &c., and a Calendar of Operations. By John Cranston. Houlston & Wright (a pamphlet, pp. 34).

The author of this useful little treatise is a nurseryman at King's Acre, near Hereford, of whose catalogue a short notice was given a week or two ago (p. 744). In the pages of the pamphlet before us he tells what his experience as a nurseryman has shown him to be advice needed by many of his customers who, after buying Rose trees, scarcely know what to do with them. Although we have other treatises on the same subject, it is due to Mr. Cranston to say that his instructions may be studied with advantage by amateurs of all classes. His advice is strictly practical, and that is what 99 people in a hundred chiefly care for. A few extracts will we trust lead to the purchase of the book itself, for a sixpence can hardly be better expended.

"SELECTING VARIETIES.—This is an important point to be observed, yet is but rarely attended to, and is, I doubt not, a more frequent cause of failure and disappointment to the amateur than any other. The first thing the amateur does is to fix upon the varieties he wishes to grow; for this purpose the catalogue is taken in hand, and those varieties described as being the most beautiful and perfect in form are chosen, without any regard to the habit or hardiness of the kind, or the nature of the soil in which they are to be planted, and the climate in which they are to grow. Their destination may be a smoky atmosphere and a light porous soil, or perhaps a cold, wet, tenacious soil, in combination with a damp atmosphere; many of the sorts which are chosen are dwarf, bad growing kinds, or tender, and such as should only be grown in the most favourable soils and situations: the result is, as may be expected, nearly the whole of them die, or if they survive the operation of planting, fail to produce a bloom, and are quite gone before another season comes round. The amateur of course is disappointed, and wants to know 'the reason why' his Roses do not grow; and not unfrequently the nurseryman is blamed for having sent poor plants, and has to take the whole brunt of the burden upon his own shoulders.

"SOIL.—The Rose is capable of being grown in a variety of garden soils, but that is best which contains the greatest proportion of loam; and a deep stiff loam is what Roses most delight in. The worst of all is the black porous soil usually seen in town gardens, and which contains a superabundance of humus or decomposed organic matter; here the Rose will rarely thrive without a liberal admixture of stiff loam, or even clay. In such cases the better plan is to plant in beds, which should be prepared as follows. Remove the soil to the

depth of 18 inches or 2 feet. Then—if the subsoil be dry—first put in a layer, 6 inches in depth, of good stiff loam, and fill up to the surface with a compost containing about one-third of the original soil and two-thirds of loam with which a small proportion (say one part in five) of well rotted manure has been previously mixed. But if the subsoil is not thoroughly dry, instead of the stiff loam, put in a layer of brick-bats or any other rough material to act as drainage, and fill up as before. Light, sandy, boggy and peaty soils may be treated in the same manner. Low, wet ground is also unfavourable for the growth of Roses, and if planted in such soils, without the aid of artificial drainage, they soon become mossy and die away. Where your soil is of this character, you must proceed thus:—first of all have the whole of the ground well drained, then trench it over to the depth of 18 inches or 2 feet, throwing the mould up in ridges to allow the frost and winds to act upon it; when thoroughly dry, level it down, and where the plants are to be placed, take out the soil 2 feet deep; put about 6 inches of brickbats in the bottom, then mix some well rotted manure with the soil, and fill in as before. With a deep stiff loam and dry subsoil, which is the natural soil of the Rose, little more than trenching and manuring will be required, excepting for the Tea-scented and China tribe, for which the addition of sand and leaf mould will be necessary.

"MANURE.—Pig-manure is undoubtedly the best for Roses. Let it lie in a heap for 6 months, by which time it will have become pretty well rotten; a small quantity of this applied to each plant, and forked in during the winter or early part of the spring will have a most beneficial effect. Stable manure is the next best and should be applied when rotten. Guano and superphosphate of lime are also recommended by some, but these I have not found to answer in my soil, which is of a deep, stiff, loamy nature, naturally good for Roses. I find the application of these manures produces gross succulent wood, and not the firm hard wood which is necessary for the production of fine blooms. Wherever they are used, they should be applied in a liquid state, and perhaps when judiciously employed upon light sandy soils, would prove very beneficial. Liquid manures are best used in the spring when the plants are in a growing state, and again to the Perpetuals after the first bloom is over. The drainings from dung heaps I have found the most efficacious, and good liquid manure may be made with either horse, cow, sheep, or pig dung.

"PROPERTIES OF A GOOD SHOW ROSE.—The first and most essential point to constitute a good Rose is that the variety be hardy, and of a healthy and moderately robust habit; for be its blooms ever so good, if it refuses to grow under proper treatment, it is almost worthless. Next to this is fine form, fulness, large size, good substance, fragrance, freeness to bloom, decision and distinctness of colour. The form of the flower, whether it be cupped, globular, or expanded, should be symmetrical; the petals even and regularly placed, smooth, and free from all indentures; full, but not crowded, the outer row being broad and closely folded, to hold the flower firm for several days. The petals should be thick and leathery in texture, and not (as we see them in too many instances) thin and flimsy. The colour, whatever it be, should be decided, distinct, and lasting, and not changing to a dull, cloudy, or objectionable shade. The flowerstem should be stout, to hold the bloom partly erect, so that it may be seen without the necessity of applying the hand. Every Rose should be fragrant, and the more highly so the better; whether summer-blooming only, or perpetual, it should be free to flower; in the former case yielding abundance of blooms in June and July, and in the latter from June till November, allowing for an occasional rest between each period of blooming. A Perpetual Rose, to justify its name, should always produce bloom buds at the end of each shoot. As examples of finely formed and perfectly shaped Roses, two varieties may be instanced, viz., Hybrid Perpetuals Madame Vidot and Prince Léon, each absolute models of perfection: in my opinion these are two of the most finely formed Roses grown."

Mr. Cranston concludes his treatise with a very useful Calendar of operations, from which we select, by way of specimen, his instructions for November and December.

"NOVEMBER.—Having made the selection required, proceed with planting whenever the soil is sufficiently dry, and by no means let it be done when the soil is wet or heavy; it is better to let the plants remain in by the heels for a month or two than to do this. See to the directions given for soil and planting. Remove any plant that is sickly, or that does not appear to thrive properly; examine the roots and trim them: take out all the old soil and replant in fresh soil and a small quantity of manure. Ill health may arise from various causes, such as deep planting, sour soil, too much manure, or unhealthy stock. In the latter case it will be better to throw the plant away and replace it with another. Briers for budding next season may be procured and planted this month.

"DECEMBER.—Let the necessary materials for protecting the tender varieties be prepared and had in readiness to apply the moment that frost has fairly set in. The severe winter of 1854 proved so destructive to the tender Roses where no protection was applied, that every precaution should in future be taken to avoid a similar occurrence. If the weather continues open and dry, finish planting if possible, otherwise let it be deferred until February. Have the Standards which are planted properly staked, that they may not be moved by the wind. Mulching should also be applied to newly planted Roses. It is better to put it on the surface now than in spring."

We have just received Messrs. *Lawson's list of the Forest Trees and Shrubs*, grown in their nursery at Edinburgh. In addition to a choice selection of other plants it is very rich in Conifers.

Garden Memoranda.

ORCHARDLEIGH PARK, NEAR FROME.—This, for many centuries the family residence of the Champneys, has lately passed by purchase into the hands of W. Duckworth, Esq., who is now renovating the estate, erecting a new mansion, and forming new gardens. Orchardleigh is situated 10 miles south of Bath, and two miles from Frome Selwood, and is consequently in what has been justly considered the "prettiest part of England." The estate is not a large one, but so beautifully situated and magnificently planted and wooded, as to lead the casual observer into the belief that it is of very considerable extent. The park has a fine undulating surface, with bold prominences and deep ravine-like valleys; in the bottom of one is a lake of about 50 acres in extent. The old mansion, like many old residences, is situated in one of these ravines, and though close to the lake, is so completely planted out as scarcely to have a glimpse of the water. The new mansion is situated on a bold prominence north of the lake, and is flanked east and west by an avenue of magnificent Elms. It is in the mixed mediæval style, with towers and richly carved embellishments, having terrace gardens, and when completed will be in excellent keeping with the style of mansion. The designs are from the pencil of T. H. Wyatt, Esq., and we think will generally be considered a very successful creation. The view from the principal tower is extensive, and commands all the principal sights or landmarks in the west of England, such as Alfred's Tower, Glastenbury, Lansdowne Tower, Farleighdown, Ammerdown, &c., with a complete amphitheatre of richly wooded country. The estate improvements and the new gardens are under the direction of Mr. W. P. Ayres, whose successful practice has long been well known to many of your readers. The terrace gardens are newly completed, and are remarkable for the avoidance of the frippery which too frequently accompanies the terrace style of embellishment, Mr. Ayres evidently having more faith in good gardening for real substantial gratification than in the usual "little prettiness" of elaborate designs or jimcrack tracery work. The flower beds are few but of considerable amplitude, and are to be surrounded with substantial carved stone edgings, and when skilfully filled, will have a rich and imposing effect.

The ground falls very rapidly from the mansion to the lake. At one time it was proposed to form the terraces with Grass slopes, but this idea was fortunately abandoned, and substantial walls, with rich coping, piers, and vases, not only form a very appropriate base to the mansion but also afford a south aspect of several hundred feet in length, upon which no doubt many of the finer greenhouse plants will find in that western climate a congenial home. Tea Roses may abandon their usual caprices, and perhaps Mandevilla and some of the finer Ipomœas will not refuse to produce their lovely flowers. At the west end of the mansion adjoining the drawing-room, and with an entrance also from the vestibule, a spacious conservatory is in the course of construction. The style of architecture is made to harmonise with the whole, but yet such advantage has been taken, by introducing large glass, as to leave the horticulturist no room to complain of the want of light. In the back of the conservatory Mr. Ayres explained to me that he had made arrangements to heat the border with hot-water, and thus expects by restricting the ventilation in the dome roof to grow the finer kinds of stove Passiflora, Ipomœa, Stephanotis, Poivrea, Allamanda, Beaumontia, Bignonia venusta, and others. If he succeeds, quite a new feature will be introduced into cool conservatory scenery. The gardens commenced 12 months ago are now in a very forward state, and, though not extensive, promise to be of a very complete description.

Already the main features beyond the terraces are developing themselves; the walks have been formed, most of the ground drained, trenched, levelled and turfed, and preparation is being made for planting. A ravine runs through part of the pleasure ground, and there a rock garden has been formed of rather a novel description. The estate, though rich in stone, did not yield any of sufficient massiveness, and which at the same time would resist the destructive power of frost, but in one part of the terrace garden a large quantity of the sandstone boulders of singular formation, and some of them of large size, were found, and these have been brought together and so arranged as to present a natural and interesting appearance. Some of the stones are of singular shape, and might be taken for petrified animals of the Silurian formation; these have been appropriately placed near the water, the gentle ripple of which has a pleasing and refreshing sound. The banks are to be planted with American and fine-foliaged plants, where no doubt the now well-known Pampas Grass, New Zealand Flax, Arundinaria, Yuccas, &c., will find appropriate homes. The Osmunda and other Ferns will be made to lend their aid to beautify this little corner, and should Mr. Ayres succeed in always obtaining a plentiful supply of water it will be the most complete and unique thing of its kind.

This appears to be a land of Ferns, about 20 species and some remarkable varieties being found in the park. Some of the sunk fence walls are really Ferneries of themselves, being clothed with Scolopendriums, Asplenium, Cistopteris, Woodsia, Lastræas, &c., whilst on some of the large trees the common Polypody may be seen luxuriating from 50 to 80 feet from the ground. But to return to the garden—independent of the Ferns in the ravine, a separate Fernery is in the course of formation in the centre of a very pretty clump of trees; the inner one having been removed, the others form the boundary line, thus sufficient light will be admitted with a few rays of sunshine, and the plants will be quite free from drip.

In the part devoted to pleasure ground, the surface is beautifully varied, and some excellent sites have already been prepared for specimen plants of evergreen shrubs, and the finer species of Conifers. One prominent bank was pointed out, where the soil varied from 3 to 5 feet in depth of very superior loam. This place is intended for Wellingtonias, Thujas, Libocedrus, Thujopsis, &c., nice plants of which are already in preparation. We believe it is Mr. Ayres' intention not to plant till the spring, but plants as they are bought in are put into temporary shallow boxes or frames and will receive protection during the winter, and be planted out in the spring without receiving any check in their growth. From the fine quality of the soil and the preparation it has received Conifers will doubtless grow here with more than their accustomed vigour and success.

The kitchen garden as far as the walls are concerned is not new, but it has been enlarged and planted and the trees are growing well. In form this garden is octagonal, which presents a great variety of aspects for training upon, and on the south-east Peaches are trained and are found to ripen of very superior size and quality. Apricots also ripen well on an east aspect. From the great variety of aspects presented it is very questionable whether this is not a desirable form for a kitchen garden, for the easy transition from the meridian to the various points of the compass would, if properly planted, yield a better succession of fruit than when the simple square or parallelogram form is assumed, while, as a matter of taste, the octagonal form is more artistic.

On the north wall a range of excellent Vineries has been erected, not "lean-tos," but span-roofed houses 20 to 25 feet wide, and proportionately lofty. It would be impossible to do justice to these houses without a plan, but the roofs are fixed and glazed with large glass (Hartley's 21-oz. sheet, not rough plate); the heating is by hot water and quite out of sight; the ventilation is by the apex of the span, the back wall, and very ample air drains under the borders; these air drains are so arranged as to admit of the borders being heated from the hot-water apparatus, should in early forcing such a precaution be necessary or desirable. The ladders are by Cockey and Son of Frome, and if not the best in the market at the present time are certainly not second to any. But we must not discuss this vexed question, though at the same time we may hope that Messrs. Cockey will enter the list of candidates at Chiswick next June. The Vines in these houses were planted a few weeks back and possess some excellent wood. In front of the Vinery are two ranges of span-roofed forcing houses, also heated by hot water, having bottom-heat from dung linings. Mr. Ayres says, after all that has been said in favour of tanks, the best and most congenial heat for all the finer operations of gardening is from fermenting material, and looking to Meudon and the success of the Welch Pine-growers, we cannot say he is wrong. It may demand more labour, but the manure is in the garden, and few gardeners complain of getting too much of that material, whilst some, since the introduction of tank heating, find great difficulty in procuring enough.

The back space of two of these houses are planted with Ayres' Perpetual Black Spine Cucumber, and for the end of October and the dull weather they have had here for some time, we never saw more beautiful fruit. The borders in which these plants are growing are covered with Moss, which not only looks remarkably neat, but is found most useful in bringing the heat to the surface roots. Peach houses, and, we believe, orchard houses are to be erected as soon as the trees are sufficiently advanced, and when completed, this, for the extent, will be one of the most complete groups of forcing houses in the country. Contiguous to the garden is a spacious farm house, destined for the residence of the gardener, and at the back of that the coach stables are being erected. From these it is proposed to collect all the liquid manure into a tank in the garden, from thence raise it to an elevated tank at the back of one of the walls, and then by means of a union joint and hose to distribute it over the Vine and other borders, Strawberry terraces, and open quarters of the kitchen garden. The desirability of such an arrangement will be at once appreciated by every gardener, and will afford facilities for growing summer crops rarely met with.

This notice is perhaps extending too far, though there is left a deal unsaid which well merits mention. At least let us take another glimpse at the park with its magnificent Elms, Oak, Planes, Beeches, Hornbeam, and Larches, and perhaps some of the largest Abies, and perhaps some of the glorious groups of Poplars in the country; while the glorious groups of Thorns just assuming their autumn livery, and darkened with their mantle of red berries, are really beautiful to behold. Any one looking at Orchardleigh can only have one regret, that is, the absence of evergreen trees, such as Cedars, Oaks, &c. But this we trust will soon

be remedied, as preparations are already made for planting groups of Cedars, &c. When these get into growth and the present trees are judiciously thinned, so as to bring some of the finer trees into view, Orchardleigh will be one of the finest parks in the west of England. The estate has been for the last 20 years much neglected, but arrangements are being made for draining and renovating, and the farms will doubtless become a pattern of their kind. A reading society has already been established by Mrs. Duckworth for the use of the workmen on the estate, which is liberally supplied with books and periodicals, and she is also erecting spacious schoolrooms, which will prove a real blessing to the neighbourhood. *From an occasional Correspondent.*

TEMPLE GARDENS.—When we gave some account at p. 759 of the fine display of Chrysanthemums in the Gardens belonging to the Inner Temple, we were not aware that Mr. Dale, the gardener in the Middle Temple, had at that time an equally grand exhibition of this useful flower. We now find however that such was the case, and we regret that we have not been able earlier to notice the fact. Here are not only handsome borders crowded with Chrysanthemums still in full bloom; but they are also bedded out on the lawn with excellent effect. For the latter purpose Pompones are chiefly employed, and when well matched as to heights and colours as they are here, they form masses both showy and striking even long after ordinary bedding plants have become shabby. Of this ample proof is still to be found in the gardens now under notice. But in addition to those planted out in the open ground Mr. Dale has some beautiful kinds against a wall and housed in with mats, under which the blooms come much larger and finer than those fully exposed. On some of the plants thus protected and *disbudded* the flowers attain an extraordinary size. Some of those on King and Alfred Salter could not measure less than 5 inches in diameter. The London public have therefore not only an opportunity of seeing the Chrysanthemum growing in great beauty in a comparatively natural state, but also of observing what it may become under skilful artificial culture. Those therefore who have not already witnessed this excellent display should lose no time in doing so.

In the shape of a small pamphlet Mr. Dale has given lists of all the best kinds for outdoor work, together with some excellent cultural instructions, which to amateurs in particular will be found both interesting and useful.

Miscellaneous.

Death of Mr. Purdie.—On Saturday, October 10, at the cottage at St. Ann's Gardens, Trinidad, William Purdie, Esq., for many years Government botanist of this colony. The deceased gentleman was well and widely known for his exertions in his peculiar province—in making which he has visited nearly every portion of the island, and carried out long and extensive investigations with no small degree of perseverance and endurance. The science of botany owes much to him; the culture and development of the vegetable productions of the island more.—*Port of Spain Gazette.*

THE HORTICULTURAL SOCIETY.

[THE following is the circular to which we alluded last week.]

We, the undersigned, the President, Vice-Presidents, Members of Council, and Officers of the Society, anxious that the important art of gardening should continue to be followed with the same success and advantage as heretofore, and convinced that that object can in no way be so efficiently promoted as through a Society possessing a garden and enjoying the confidence of the public, think it our duty to draw your attention as one interested in the promotion of horticulture to the following considerations. The Horticultural Society of London was established in 1804, and was incorporated by royal charter in the year 1809, for the improvement of horticulture in all its branches. It has now existed for 53 years, during which time, by its importations and distributions of rare plants and seeds from all countries, by its publications, by its exhibitions of plants and fruits in London and at Chiswick, by giving prizes (alone amounting to above 20,000*l.*) to gardeners for conspicuous merit, and by its continued investigation of the qualities of new esculents and fruits, it has succeeded in so changing the whole aspect of English horticulture, that it is now as unusual to see even in local horticultural meetings a badly grown plant as it formerly was to see a good one. In the year 1822 the Society commenced the formation of the present experimental garden at Chiswick, upon which considerably more than 40,000*l.* have been expended. This garden, which is the only public establishment in the kingdom especially devoted to practical horticulture, is now maintained for the purpose of showing how high cultivation may be carried out with economy, of bringing to the knowledge of Fellows and their gardeners whatever is most important in fruits, esculent plants, and objects of decoration, and of exhibiting (in use when practicable) the principal implements employed in gardening. We regard it as a matter of great public importance that such an institution should be maintained with the energy and efficiency that becomes this great country. It seems needless to say that a very large proportion of the most beautiful plants, hardy and half hardy, which have been added to our gardens since 1816, was originally introduced by the Society; and we feel that with an increased income consequent on an increased number of Fellows new countries might be still explored with undiminished advantage. The Society have therefore resolved to invite the co-operation of all lovers of gardening in the United Kingdoms, in order to secure which they have greatly diminished the cost of Fellowship, having decided that instead of confining membership to those paying an entrance fee of 6*l.* 6*s.*, and an annual subscription of 4*l.* 4*s.*, for the future no entrance fee shall be required, and that there shall be an additional class of subscribers contributing two guineas a year only, to whom fewer privileges are awarded in the way of plants, &c. The public has already expressed its approval of these measures by adding no fewer than 197 to the number of Fellows since the 23d September, 1856, in addition to which a sum of considerably more than 3000*l.* has been recently subscribed by the Fellows and their friends, with the view of enabling the Society to enter upon a new course of undiminished vigour; and we entertain a confident belief that if the progress lately made were more generally known, a still more rapid accession of new Fellows might be calculated upon. The long existence of the Society has rendered this the more desirable because there is now a constant and serious diminution in the number of its supporters owing to deaths alone. The last return shows a loss under this head of so very large a number as 322 in ten years. What the plans of the Council are for the ensuing season is explained by the papers enclosed herewith. In addressing this letter to you for the purpose of inviting your co-operation in what we conceive to be a work of great social importance, we have to state that it is our intention only to send it to well known lovers of horticulture; we are prepared, in the event of your being willing to join the Society, to take the necessary steps to secure your election as a Fellow, and we now inclose a form of proposal, in case you should desire to insert your name.—Devonshire, *President;* C. Winton, L. Vernon Harcourt, J. J. Blandy, C. Wentworth Dilke, *Vice-Presidents;* W. Wilson Saunders, *Treasurer;* J. Forbes Royle, *Secretary;* Henry G. Bohn, C. B. Challoner, John Lee, Conrad Loddiges, Sigismund Rücker, John Spencer, J. R. Scott, James Veitch, jun., *other Members of Council;* Ilchester, Digby, Charles Lemon, Wm. Grey Egerton, Thos. Dyke Acland, William Middleton, John William Ramsden, W. C. Trevelyan, Bart., W. Fox Strangways, Laurence Sulivan, Joseph Paxton, George Rushout, John Lindley, J. R. Reeves, J. Kirby Hodges, Geo. Thos. Davy, George Charlwood, R. J. Webb, Edwd. Barnard, M. W. Thizts, George R. G. Ricketts, Thos. Ingram, Philip Secretan, William Phillipps, W. E. D. Cumming, Robert Allfrey, Ab. Henderson, M.D., I. J. Mechi, Proby T. Cautley, H. Falconer, Chas. B. Warner.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

CONSERVATORY, &c.—The stock of plants to bloom at Christmas, consisting partly of stove plants grown for the purpose, and partly of forced shrubs and bulbs, should now receive some attention, particularly the latter, which should be undergoing a slight amount of forcing to get them into bloom by that time. Chinese Azaleas and Oranges may be assisted by a little extra heat, being careful, however, to apply it gradually. At the same time, if a forcing house is at command a portion of the stock of Roses, Lilacs, Syringas, Deutzias, and other hardy shrubs from the reserve pit may be placed in the cool end of it, or in a light situation in an early Vinery or Peach house; if they can be afforded a slight bottom-heat all the better. A few of the more easily forced American plants, including some of the earliest flowering Rhododendrons, should be added; they will greatly enhance the display in January. Bring forward Hyacinths and Early Tulips in a gentle bottom-heat. Double Roman Narcissus, Crocuses, Neapolitan Violets, Mignonette, and Cyclamens bloom early without much forcing, and answer best placed on shelves at the back of Vineries to catch every ray of light, and to insure them from damp.

FORCING DEPARTMENT.

PINERIES.—Plants in bloom will require very careful management to prevent their being injured by damp, and the atmosphere must be kept dry, with a rather brisk temperature, admitting a little fresh air on every favourable opportunity; if means exist of admitting air over the pipes, so that it may get warmed before coming in contact with the plants, a little should be admitted constantly. Plants in bloom should also be near the glass, and where they will catch every ray of sunshine. It is nearly impossible to get fruit to swell anything like properly at this season; therefore unless a succession of ripe fruit is indispensable, and cannot be secured except by driving plants that bloomed late in autumn, these had better be kept rather quiet until the sun gains a little more power. Where an attempt must be made at present to get fruit to swell, a moist warm temperature of about 70° at night and 75° by day must be maintained, allowing it to rise to 80° with the assistance of sunshine, and the bottom-heat must be kept regular at about 85°, taking care to keep the soil in a healthy state as to moisture. But it is difficult to get the fruit to make much progress at present, and a little time lost now will be easily overtaken in spring when the plants will enjoy a high moist temperature, and the fruit will increase more in weight in one month then than in two at present.

VINERIES.—As soon as the early house is closed for forcing, be careful to secure a thoroughly moist state of the atmosphere by frequently sprinkling the floors and every available surface, but as observed previously, a regular moist state of the atmosphere is most effectually secured by means of a slight bed of fermenting materials in the house, which will also afford a little warmth, and the moisture from this is much more congenial to vegetation than anything that can be effected by the most careful use of the syringe or evaporating pans. The most essential point, however, in successful early forcing is securing a healthy and vigorous root action, and unless this is provided, the best and most careful management of the atmosphere will be of but little importance.

FLOWER GARDEN AND SHRUBBERIES.

The beds being now filled with spring flowering plants, a regular cleaning up of Grass and gravel walks should take place in order that the whole may have a neat appearance through the winter; if the walks are much soiled a surfacing of fresh gravel should be spread over the principal ones in connection with the flower garden, which will keep up a degree of freshness at a season when good keeping and neatness are the only equivalents for floral beauty that can now be offered. The stock of cuttings and newly potted plants will require care to prevent them from damping off; a good plan is to raise the sashes up at the back and front, and to let them remain in that condition. As the weather may change suddenly, be prepared with plenty of covering material for use when wanted.

HARDY FRUIT AND KITCHEN GARDEN

A good stock of roots should always be kept at hand in the vegetable shed. Carrots, Parsnips, Turnips, Jerusalem Artichokes, Horse-radish, Beet, Scorzonera, and Salsafy should be thus kept in readiness for use. If the vegetable shed is, as it ought to be, several feet below the ground level, and have a close fitting door, the above named vegetables may be merely laid in heaps. If, however, they are likely to shrivel, store in layers of clean sand. Let all remaining Cabbage plants still in the seed beds be pricked out forthwith. If time will permit Rhubarb, Seakale, and Horse-radish may be planted now instead of in spring. In all these cases be sure to trench deeply, and loosen the bottom of the ground on the subsoiling principle. Some early frame Radishes may be sown in a week or so. Some plant Kidney Potatoes now on raised beds. In such cases soil them 6 inches deep and sow early Radishes on the surface. The straw covering necessary protects both crops. If not already done let Figs be protected immediately with straw coverings. Let all superfluous nails be drawn from wall trees, and proceed on every favourable opportunity with pruning and nailing, except perhaps in the case of south walls, which had better remain till the end of January, as the buds are apt to become unseasonably excited.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Nov. 19, 1857, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 13	26	30.504	30.368	54	31	42.5	52	53½	N.E.	.01
Satur. 14	27	30.302	30.170	52	38	45.0	52	53	N.E.	.00
Sunday 15	28	30.271	30.199	50	38	44.0	52	53	N.E.	.00
Mon. 16	○	30.149	30.133	51	27	39.0	51½	52	E.	.00
Tues. 17	1	30.177	30.027	49	31	40.0	50½	51½	E.	.00
Wed. 18	2	30.222	30.182	54	40	47.0	50½	51½	E.	.00
Thurs. 19	3	30.252	30.256	46	32	39.0	50½	51	E.	.00
Average..		30.268	30.190	50.8	33.8	42.3	51.3	52.3		.16

Nov. 13—Foggy; fine throughout.
— 14—Foggy; overcast; rain at night.
— 15—Fine; very fine; overcast.
— 16—Overcast; foggy; fine; slight frost at night.
— 17—Foggy; hazy; fine.
— 18—Foggy; fine; fine.
— 19—Overcast; uniformly overcast; fine.
Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Nov. 28, 1857.

Nov.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 22	49.0	35.3	42.1	19	0.62 in.	3	3	5	2	4	6	7	1
Mon. 23	47.7	35.4	41.5	13	0.36	—	5	3	1	4	10	5	3
Tues. 24	47.6	32.8	40.2	10	0.51	5	5	2	2	3	7	4	3
Wed. 25	46.0	32.9	39.4	15	0.34	5	4	3	3	4	7	2	3
Thurs. 26	46.4	32.9	39.6	15	0.70	1	4	6	1	3	11	1	4
Friday 27	46.3	34.9	40.6	14	0.88	1	4	4	1	4	9	5	3
Satur. 28	47.7	35.5	41.6	16	1.21	2	3	2	2	8	5	6	3

The highest temperature during the above period occurred on the 28th, 1828—therm. 60 deg.; and the lowest on the 26th, 1849—therm. 18 deg.

Notices to Correspondents.

ACORNS: *K.* The directions given in a former page are equally applicable to Walnuts and Sweet Chesnuts. Frost will do no harm. You can shake a few leaves over the beds if you are apprehensive of cold; but it is not necessary. The real danger is from mice, which any country lad will trap.

CAMELLIAS: *E S.* The plants given away by the Horticultural Society do not require to be worked. If you are anxious to hasten the appearance of the flowers grafting may do that, but it can do no more. Take care that the grafter knows his business.

HEATING: *Oyamel.* You will find next week ample details concerning Thomson's gas heating. It matters nothing what the source of heat is provided it is cheap, pure, and easily manageable.

ICE HOUSE: *Cavanensis.* We see no objection to your plan of surrounding the stone wall with a boarded screen, and filling the interspace with sawdust. Rather the contrary.

NAMES OF PLANTS: *W M B.* Euonymus europæus.—*A B.* 1, Cratægus coccinea; 2, Cornus rossica, we suppose; 3, Acer opulus; 4, Ruscus racemosus.—*J L A.* The large leaf is Quercus pedunculata. The other is probably one of the varieties of the same species, with acorns nearly stalkless. The specimen is however insufficient to enable us to speak positively.—*F N.* Anagyris indica; 2, Escallonia rubra.—*F. P.*, 1, Lantana Selloi; 2, Isolepis gracilis; 3, Canna indica.

NEW GARDEN: *X Y Z.* Gardeners prefer a rectangular form, chiefly because the interior can be most easily set out into beds for Kitchen Garden produce. It is, however, a question whether an octagon would not be better, because of the greater variety of aspect. In the south we should have the greatest diameter of a parallelogram run north and south, for the sake of avoiding as much as possible the north aspect; but in a bad climate a garden running east and west may be advisable on account of its presenting a greater surface to the sun. Your present trees are probably not worth preserving. If you wish to keep them you must take them up carefully and plant them provisionally. It is, however, impossible to advise you on that point without seeing the garden. Espaliers are an excellent form for dwarf trees. We should imagine that a well-managed Orchard-house would be useful; only it must be remembered that more fruit will be had from a well-managed wall. Orchard-houses are most useful where there are no walls, or very few. If possible form your garden on the slope of a hill, with south wall lower than the north.

SIDFORD HOUSE: Will a correspondent writing from this place be so obliging as mention its post town? A letter addressed there has been returned through the Post Office, after travelling to Sidford, Sidmouth, Torquay, Tavistock, Bridestone, and Exeter. It would be a great convenience if correspondents who ask for a reply by the post would take care to give their address fully and distinctly.

SUNDIAL: *G Nelson.* It is a design—not a working plan. Any body who understands sundials can execute one from the sketch. Of course the column must have the usual dial-plate and gnomon.

THE LATE FRUIT EXHIBITION: *Anon.* The Apples you mention were collected and exhibited by Mr. Abbott from the limestone of Yorkshire; after the exhibition they were delivered to Mr. Veitch for the instruction of the visitors and young men of his establishment. We ought to have stated in our report on the Exhibition that Mr. Abbott showed them for the purpose of illustrating the suitability of limestone to the culture of the Apple.

TRANSPLANTING MACHINES: *P J N.* Apply to Mr. M'Glashan, sculptor, Edinburgh.

YEW TREE AT CROM CASTLE: *Clicquer* wishes to know whether the ancient Yew tree at Crom Castle, the seat of the Earl of Erne, in Fermanagh, is still alive, and in what state?

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

LONDON MANURE COMPANY
(Established 1840).
Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
URATE.
SUPERPHOSPHATE OF LIME.

The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, and MANURE COMPANY (LIMITED), General Seed and Manure Merchants, Union Road, Plymouth, late WILLIAM E. RENDLE & Co.

WHEAT SOWING.
THE PATENT NITRO-PHOSPHATE OR BLOOD MANURE COMPANY (LIMITED).
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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.
Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

IMPROVED GAS WORKS of all sizes for the use of Private Houses, Mansions, Railway Stations, Mills, Collieries, Mines, Villages, &c., fixed complete, with greatly improved means for purifying the gas and retaining the ammonia and phosphates, which are now used as valuable agricultural manures, &c. Works from 10 lights to 300 lights estimated for. The construction is so simple that the Works can be entrusted to the management of an ordinary labourer or servant.—Apply for particulars to HENRY J. MORTON & Co., Galvanized Iron Works, 2, Basinghall Buildings, Leeds.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.
ASPHALTE
For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.
THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.
Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.
"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
From Sir Watkin W. Wynn's Gardener.
"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*
Hose Pipe of all kinds.
YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*
Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,

WHITEFRIARS STREET, FLEET STREET, London.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.

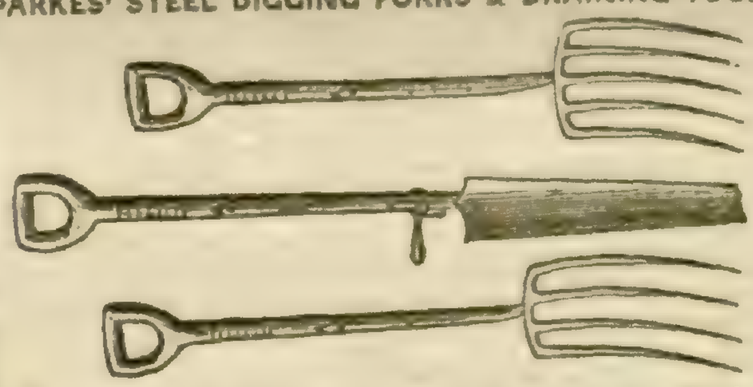
These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.
Price of 4½ in. Pump, with legs, 3*l.* 3*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra. The barrel is 27½ in. long, and the legs are 5 ft. high.
1¾ inch Gutta Percha Suction Pipe, 1*s.* 11*d.* per foot.
2 inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 0*d.* per foot.
May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. Engravings sent on application.

WARNER'S PATENT VIBRATING STANDARD PUMPS.
PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2½ in.	short 1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
2½ ,,	short, with 15 feet of Lead Pipe attached, ready for fixing		2	14	0
2½ in.	long ditto ditto	ditto	2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.
May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.
Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS.



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.
Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.
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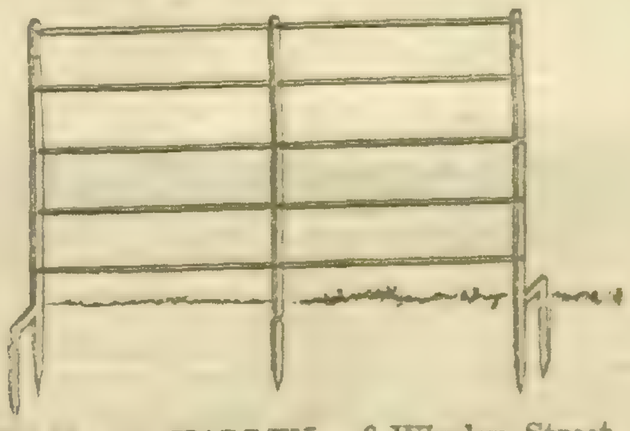
IRON HURDLES, FENCING, ETC.
MADE BY MACHINERY.



COTTAM AND HALLEN, of Winsley Street, have invented machinery for making Hurdles, &c.; the bars instead of being pointed by hand in the old-fashioned style are nipped down by the Machine, leaving a shoulder so as to more effectually tighten the standards when rivetted. They are made of superior iron only, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both Plain and Ornamental, Conservatories, Hot Water Apparatus and Garden Implements. Illustrated Catalogues free on application to COTTAM & HALLEN, Ironfounders, 2, Winsley Street, Oxford Street, W.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY, Offices, 62, Parliament Street.
HENRY KEE SMITH, Esq., M.P., Chairman.
1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.
2. In no case is any investigation of Title necessary.
3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.
4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.
5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

COLLEGE OF AGRICULTURE AND CHEMISTRY AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.
The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts, for the Naval and Military Services, and for the Universities.
Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.
Mr. Nesbit is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next fortnight.

BRITISH AGRICULTURAL SOCIETY.—The Committee of the above Society have much pleasure in announcing that their FIRST EXHIBITION OF IMPLEMENTS, CEREALS, FRUITS, ROOTS, AND FLOWERS, will take place at New Malden, Surrey, S. W., on WEDNESDAY November 25th. Applications for space and all communications to be made to the Honorary Secretary, Mr. H. T. DOBSON, Woodbine Cottage, Acacia Grove, New Malden.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.
President—The Right Honourable LORD WARD.
The NINTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, and ROOTS, and the various kinds of DOMESTIC POULTRY, will be held in Bingley Hall, Broad Street, Birmingham, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next, when PRIZES will be awarded to the amount of 1250*l.*
The PRIVATE VIEW on MONDAY, November 30.
Admission to the Public:—Monday, 5*s.*; Tuesday, Wednesday, and Thursday, 1*s.* each.
The Doors will be open at 9 o'Clock each morning.
JOHN MORGAN, Secretary.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of PRIZE CATTLE, SEEDS, ROOTS, IMPLEMENTS, &c., commences on TUESDAY morning and closes on FRIDAY evening, December 8, 9, 10, and 11. Bazaar, King Street, and Baker Street. Open from daylight till 9 in the evening. Admittance 1*s.*

The Agricultural Gazette.
SATURDAY, NOVEMBER 21, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, Dec. 1		
WEDNESDAY, — 2	Midland Counties Show at Birmingham.	
THURSDAY, — 3		
WEDNESDAY, — 2	Agricultural Soc. of England ..	Noon.

AT the reopening on Thursday last of the agricultural lectures in the Edinburgh University, Professor JOHN WILSON very opportunely took for the subject of his introductory discourse, THE EDUCATIONAL SCHEME OF THE HIGHLAND AND AGRICULTURAL SOCIETY. He could not have selected one of more general agricultural interest. It ought to have been made the topic of addresses at all our provincial agricultural meetings, for there is no agricultural district that is not interested in its prosecution and development, and no agricultural society that would not be most usefully and properly engaged in urging it upon the attention of its members. The scheme proposes the conferring of the Society's diploma and certificate of competency as agriculturists on all who may pass its examination into their knowledge of the theory and art of agriculture, after a certain curriculum of study and of practice shall have been accomplished. The particulars of this curriculum are specified in a recent report by the Council of the Society—they include all that is necessary to a complete agricultural education. It does not tie the student down to residence at any particular school of agriculture or in any particular agricultural locality. It is this entire liberality of arrangement which makes it the interest of all schools of agriculture, and of all engaged in agricultural education, whether they be farmers or professors, to co-operate with the Highland Society in making this diploma as widely known and striven for as it deserves.

Prof. WILSON calls special attention to this important feature in the arrangements which have, as it seems to us, been most wisely made by the committee of the Society to whom the subject was submitted. We extract the following passage on this educational movement from the lecture with which he has commenced the labours of the session:

"My object now is not to anticipate any alterations or additions that may probably suggest themselves as the machinery gets to work, but to call attention to two clauses which more immediately interest those who may be desirous of obtaining the Society's diploma. By the one it will be seen that candidates are not

tied down to any particular college for their lectures, nor restricted in their attendance to any particular part of the country or style of farming for their practical knowledge; while the other clause gives power to the Council to receive candidates and grant diplomas at once to any who shall be found to be possessed of the necessary amount of knowledge, without calling upon them to produce certificates which are prescribed in the regular curriculum—a strict adherence to which might probably have delayed the effective working of the scheme for some two or three years from the present time. These I hope will be received by all friends to agricultural progress in the spirit in which they were framed, and that candidates will be found from all parts of the country—Ireland as well as England—who will, on the faith of these statements, without fear or prejudice, present themselves for examination, with the full assurance that the decisions of the examiners will be based upon the broad principles which govern a systematic agriculture, and not upon the limited practices of even Scotland's farming. That this feeling should be known by others and observed and respected by ourselves I hold to be most important to the success of the measure, and to its value to the community at large. We have a large area of supply open to us if the movement is followed up with energy and its details carried out with liberality and judgment. At present, so far as I know, agriculture is honoured nowhere, either in this country or abroad, with any characteristic distinctions—no standard of value has as yet been established for agricultural acquirements; and although we stand very low in the scale of teaching as compared with our continental friends, still we have in this country several educational institutions in which agriculture is professionally taught. That which none of these could do singly might be readily accomplished by the concert and assistance of several or of all working together for the same end—and thus a standard of value would be established for an agricultural diploma, and the public recognition of its importance obtained. Their policy clearly is to aid us in our present attempt; and I have every reason to believe that, if our details are approved of, and they have confidence in the liberality of our views and integrity of our judgments, we shall have no lack of candidates, bringing with them knowledge of principles acquired in various schools, and of the practices successfully carried out in different well farmed districts of the country."

MR. HORSFALL'S paper on Dairy Management in the recent number of the Journal of the English Agricultural Society has not received the attention in these columns which it deserves.

There are a great many points of direct agricultural interest involved in his dairy experience, of which we are indebted to him, through it, for a satisfactory decision and explanation. The impolicy of green manuring, or rather of using as manure any vegetable substance also capable of being used as food for stock, seems set at rest. In the course of a half-year's record and examination of the food and produce of six dairy cows:—

	£	s.	d.
The materials used as food are found to have cost ..	70	0	9
The value of these materials as manure consists of 888 lbs. nitrogen = 1061 lbs. ammonia at 6d. ..	26	10	6
Phosphoric acid and potash	9	15	4
Value of food if employed as manure	£36	5	10
The 16,072 quarts of milk, at 2d. per quart for new milk, at which price it enters largely into consumption as food for man, amount to	£133	18	8
The nitrogen in the milk 316 lbs. = ammonia 378 lbs., at 6d. per lb.	£9	9	0
Phosphoric acid in do. 45½ lbs. at 1½d. per lb.	0	5	8
		£9	14	8

The inference is plain that the materials "used as food for cattle represent double the value they would do if used for manure, whilst that portion converted into food fitted for the use of man represents a value 13 to 14 times greater than it would as manure. It thus appears clear that it is for the feeder's profit to use his produce as much as possible as food for cattle, with the view to convert it with the utmost economy into food for man, and thus increase rather than enrich his manure heap."

This is a very useful fact to bear in mind, and one to which we do not remember any previous testimony so direct and unquestionable.

It is, however, a subordinate result of the research in question, and not the one for which this experiment was prosecuted or arranged. The object was to determine the most profitable method of feeding dairy cows. The following table gives the dates of calving of three cows, together with their weights and yield of milk at the commencement and termination of the experiment:—

When calved.	Yield at Calving.	January 1.				March 5.			
		Weight.			Yield.	Weight.			Yield.
	Qts.	Cwt.	qrs.	lbs.	Qts.	Cwt.	qrs.	lbs.	Qts.
Mr. Smith's—Nov. 12 ..	17	8	3	0	15½	8	0	0	9¼
Mr. Pawson's—Oct. 6 ..	16	7	2	0	12	7	1	0	6¼
My own—Oct. 8 ..	18	9	3	0	15½	10	1	0	12½

"Mr. SMITH'S cow lost in weight in nine weeks 84 lbs., being 9⅓ lbs. per week, with an average yield of 12½ quarts per day. Mr. PAWSON'S lost 28 lbs.; this loss, together with the diminished yield of milk, occurred almost wholly after her feed of Oats had been withdrawn. Her weight on the 6th of February being still 7 cwt. 2 qrs., and her yield of milk 11 quarts per day.

"My cow," says Mr. HORSFALL, "has gained in the nine weeks 56 lbs., being 6¼ lbs. per week, with an average yield of 14 quarts, the diminution being regular. January 1st, 15½; Feb. 4th, 14; March 4th, 12½; making an average yield of 14 quarts per day. The whole loss and gain of weight will be in flesh and fat, the cows having kept up their consumption of food and their bulk."

This is a very remarkable result, and is made still more striking when the valuation of the food and treatment in the several cases is compared with the values of the produce which they severally yield. We give the account in detail, as the nature and quantity of the food supplied are among the particulars recorded.

	s.	d.
Mr. Smith's cow, average yield for nine weeks, 12½ quarts per day, at 2d. per quart	14	7
Deduct loss in flesh 9⅓ lbs., at 6d.	4	8
	9	11
Cost of 14 stones hay, at 6d. per stone	7	0
Profit	2	11
Mr. Pawson's cow, average during the first five weeks, 11½ quarts per day, at 2d. per quart	13	5
Cost of 9 stones inferior hay (at 4d. per stone) per week .. .. 3 0; Cost of 63 lbs. ground Oats, 4s. 8d.; Turnips, 1s. 6d. 6 2	9	2
Profit	4	3
Mr. Horsfall's average yield for 9 weeks, 14 quarts per day, at 2d. per quart	16	4
Gain of flesh, 6¼ lbs. per week, at 6d.	3	1½
	19	5½
Cost of food:— Hay, 63 lbs., at 6d, per stone; straw and shells of Oats, 1s. 3d.; Mangel, 1s. .. .. .. 4 6½; Rape-cake, 35 lbs.; bran, 10½ lbs.; malt-combs, 10½ lbs.; Bean-meal, 10½ lbs... .. .. 4 0½	8	7
Profit	10	10½

"The richer quality of the manure will probably compensate for the extra labour, cooking, and attention bestowed upon Mr. HORSFALL'S cow."

We give one additional extract from this valuable paper, containing particulars of six other cows, whose weights were registered on the 8th of October, and which remained on hand not in calf and in a state fit for comparison during the same period of time. The following tables give some details in addition to the particulars specified above:—

No.	When Calved.	Greatest Price.		Greatest Yield per Day.	Oct. 8. Weight.			February 4. Weight.			Yield per Day.	March 4. Weight.			Yield per Day.	Computed Average per Day during	Gain. Oct. 8 to Feb. 4.	Gain in Weight per Week.
		£.	s.	Quarts.	Cwt.	qrs.	lbs.	Cwt.	qrs.	lbs.	Quarts.	Cwt.	qrs.	lbs.	Quarts.	Wks. Qts.	lbs.	Lbs.
1	July 28 ..	14	9	12	9	2	0	10	0	0	8	10	1	0	8	20 = 10	84	4
2	August 25 ..	15	14	18	10	0	0	11	1	0	14	11	1	0	14	27 = 16	140	6¾
4	July 28 ..	15	9	18	8	2	0	10	1	0	15	10	0	0	15	31 = 15	168	8
6	September 8..	16	15	16	10	2	0	10	2	0	14	10	3	0	14	25 = 15	28	1⅓
7	September 8..	17	9	16	10	2	0	11	0	0	10	11	0	0	10	26 = 13	56	2⅔
11	August 25 ..	15	9	16	9	1	0	9	2	0	11	9	2	0	11	27 = 18¼	28	1⅓
Average		..	..	16	..	..		..	..		12	..	..		12	27⅓ = 14	..	..

During the period of the experiment these cows were treated as follows:—

"During August and September they were on open pasture by day and housed by night; evening and morning they were supplied with mown Grass and two feeds of steamed mixture. Towards the close of September green Rape was substituted for the mown Grass, with the same allowance of steamed mixture; from the 8th October, when they were wholly housed, they were supplied with steamed food *ad libitum* three times per day. After each meal 10 to 12 lbs. of green Rape plant were given, and 9 lbs. hay per day till November; from that time steamed food with Cabbages or Kohl Rabi till the early part of February, when Mangel Wurzel was substituted."

The whole result of the comparison and record is to justify that higher style of feeding which Mr. HORSFALL has all along adopted, which has produced a yield of milk above the average along with a rapidly increasing weight of flesh.

On this latter point—the weight of meat gained in fattening cattle—a great deal of light is thrown by Mr. HORSFALL'S experience as described in his recent paper—but we must refer to this hereafter. Meanwhile we add that the value of Mr. HORSFALL'S results is greatly increased by his detailed statements of composition, given on various chemical authorities, by which the records of food, produce, growth, &c., have a clear and definite character and value impressed upon them.

THE SHORT-HORN BREED.

IN reply to the inquiry of your correspondent "Chepstow," I have not published anything on short-horns since the period alluded to, except the letters which have appeared in *Bell's Weekly Messenger*, and which have been noticed with much kindness in the columns of the *Agricultural Gazette*. If "Chepstow" will write to me I shall be glad to give him any information in my power. I may add that I am collecting materials with the view to publication on this subject, and that every day strengthens my conviction that the views I expressed two years ago respecting the milking powers of pure bred short-horns were correct. I shall feel obliged if any of your readers will furnish me with evidence on this important point, by giving me the names of well-bred cows and their pedigrees, or a reference to them in the Herdbook, which are more than ordinarily good milkers.

I take this opportunity of offering a few words of comment on one part of Mr. Christy's speech, as reported in your last number. With the greater part of it I cordially agree, but I consider that the following sentence requires considerable qualification:—"I hold that no landlord can confer a greater benefit on his tenants, and do himself more good, than by bringing into the country pure bred cows of every class and stock, *and letting them have the free use of them.*" If by the expression which I have marked in italics Mr. Christy advocates the expediency of a landlord allowing his tenants the gratuitous use of pure bred males, I consider such a policy would be a complete mistake, and would tend to defeat the very object for which he is contending. It is a matter of universal experience that men, and above all ignorant men, set small store on that which they can obtain gratuitously, especially when it is pressed upon their notice by those above them in the social scale. I know of several instances in England in which the gratuitous use of highly bred bulls has been declined by farmers on some such frivolous ground as that such stock was too tender for ordinary treatment, or if cows were sent, it was "to please his lordship." In their own estimation, the recipients of the favour evidently thought they were conferring one by falling in with "his honour's whim." Such is human nature; difficulty, expense, effort, in one shape or another is absolutely necessary to the appreciation of any good. If the small Irish farmers, of whom Mr. Christy is speaking, could be enticed to attend agricultural meetings, where they would see the competition for prizes by men not much above them in circumstances; if they could be shown the anxiety on the part of purchasers to obtain good stock and the high prices they were willing to pay for it, they would compare this with the difficulty they found in disposing of their own inferior animals. If at this stage some person in whom they had confidence would explain to them that the readiest way of improving their stock was by using superior males, then very probably the idea would arise—how can we procure the use of a good bull? Who has got one? Would he allow us to send a few cows to him? When this frame of mind had been once arrived at, the rest would be easy. Where there is a will, the means are seldom wanting. The landlord or his agent might then inform them that a high bred bull would be allowed to serve their cows at a rate considerably lower than the public at large would gladly pay; but a charge ought always to be made. I have a great dislike to that system which leads farmers to depend on Government, or their landlord, or anybody but themselves. With the peculiar circumstances which may in Ireland render the intervention of the landlord necessary I am not acquainted, although I must say that in the matter of high bred stock, there is in that country no lack of spirit. But in England I am convinced it would answer better as a rule for a few neighbours to join in the purchase of a bull, where the holdings are not sufficiently large to render it practicable for each to keep one, than for tenants to be dependant upon their landlord. The interest in the former case would be far greater than in the latter—there would be the discussion as to the points, the pedigree, and the price; the opinion would be taken of those knowing in such matters; sales would be attended, and in all these ways much valuable experience would be gained. Emulation would spread; public

spirit would be the order of the day; the example would be followed; *our* bull would be matched against your bull, and thus in time the district would become famous for its stock. I have never found want of means the principal obstacle to the acquisition of pure bred males of high character. It is not an obstacle to the purchase of implements of proved utility, even of the most expensive class. Drills, clod crushers, threshing machines, and steam engines are every day more and more used, because in spite of their heavy first cost they are well known to pay. Let the farmer be as well convinced that a good bull will repay him as he is now of the value of these implements, and he will never hesitate in making the necessary outlay. It is for want of understanding this that many farmers with ample means keep a bull not worth 10*l.* for a herd of 50 cows; and yet no investment would be more judicious than under such circumstances to give a liberal price for a really good animal. *Willoughby Wood, Holly Bank, Burton-on-Trent.*

THE MANUFACTURE OF MEAT.

I WISH to direct your attention to a department of agriculture which I think much neglected at the present day, and which yet is more imperatively pressed upon our attention than almost any other point in our common occupation—I mean the subject of stock farming. Do we at the present day meet the demand for butchers' meat with a sufficient supply? That is a great question for us to consider. We are the men upon whose skill, energy, and judgment the answer depends. Do we make everywhere the land we occupy produce as many pounds of beef and mutton as it ought to produce? Time was when we entered upon a farm the only questions we asked ourselves were, what Wheat we could grow, and what was the price of it in the market. But it very different now. If a man means to succeed as a farmer now he must neglect no department of agriculture; he must study and attend to every branch of it, and must neglect nothing, not even poultry.

Now, then, let me again ask whether we can answer this question satisfactorily? Unfortunately, we have no agricultural statistics in this country, at least what we have are so imperfect that we cannot tell from day to day, or from year to year, what is the consumption of butchers' meat. We ought to know that; an ironmaster or a manufacturer can tell what is the consumption of iron or cotton; and it would be a very great thing for us if we knew, in our business as agriculturists, what is the increase or decrease in the consumption of butchers' meat in this country, in order that we might regulate our sales or purchases of stock, and increase or decrease our production of meat accordingly. Mr. M'Culloch has published a table giving the consumption of meat at Smithfield Market for 100 years, from 1733 to 1833, and that table shows that within the century the increased consumption amounted to 100,000 animals in the year. The returns from Glasgow have been well kept, and they show what is a singular fact, and which I should seriously doubt if it were not well authenticated, namely, that the consumption of meat there and in some other provincial towns is equal to what it is in London. There are other singular facts disclosed in the statistics of Glasgow. It is said that as late as 1780 it was the custom about the month of November for a family to purchase a half-fed ox or heifer, upon the salted carcass of which they would live the year round, and it would form the only butchers' meat they consumed. That was also the case in many towns in the north of England so late as 1780.

Now just consider for a moment the consumption of meat at the present day. I hear very frequently, "It is very well to speak of the increase of stock, but will the demand for meat continue?" Well, what is that demand based upon at the present moment? I am happy to say that it is based upon the general prosperity of the country. Long may it continue. We know that in every department of industry at the present day there has been an increase—a very important increase—in the wages of labour. We know too, that whenever English labourers as a rule get good wages they spend their money abundantly in supplying themselves with the best of food. That is a good ground for believing the demand will continue. "Do we meet that demand by our supply?" If in answering that question I venture to bring before you the result of my own experience upon my own farm, I trust no gentleman here will suppose I do it from any desire for vain display, but rather from an anxious wish to cast into the common fund the information I have derived from my own experience.

I have been anxious to increase the amount of stock upon my farm, which at no time has exceeded 450 acres. I have proceeded in this way. I have been anxious to rear upon the farm all the animals I meant to keep as stock, or to sell fat, or to use in any way on the farm. I have worked up the number of calves reared yearly from about 20 to 35. I have reared 35 calves this year. They are cross-bred animals I admit, but always from a thorough-bred male. That is one reason why, I assure you, I do not forget the services of the gentlemen who breed good male animals. The way in which the calves are reared is this:—The stock is always well kept from the time it is calved. The stirks, as we call them, come in with a calf at their feet at two years old, a year earlier than is usual in this district. All they do that year is to run with a calf in the pasture and rear it. The next year each heifer rears two calves. I consider that an average cow for milk should have milk enough to rear four calves, and we do not find it necessary to give more than a fourth of a cow's milk to each calf. Then they have Linseed cake. I give Linseed cake because chemists have proved that it is nearer in its constituent parts to milk than any other food. They have, of course, in the winter, as well as oilcake, Turnips and Mangel Wurzel, and this carries them on until there is sufficient pasture to turn out to. I never saw 35 calves in better condition than those I am fortunate enough to possess at the present time. The calves are all reared, whether oxen or cows; a portion of the heifers are selected to put to the bull so as to come in at the age I have stated, and the remainder, with the oxen, go away fat at three years old. Now, with regard to sheep. My farm is light land, resting for the most part on red sandstone; and unless we have the ground well covered by sheep we fail in our crops, notwithstanding all the manure we can put upon it. My object has been to put upon the land as many sheep as it will bear; and I believe I have not yet arrived at that point, though some of my neighbours think I have gone beyond it. I never have less than 1000 sheep upon the farm; at this moment there are 1100; and as regards their condition, there is a gentleman in this room, one of the judges, who did me the kindness the other day to select 400 ewes to put to the ram, and I will ask him to say whether they were not in as good condition for stores as any ewes he ever met with. Then comes the question of food.

I have difficulties to contend with, like other farmers, more especially in the summer, when upon the sandstone the land will burn up. Italian Rye-grass, well manured in the winter, is our chief resource. There is one point which, though simple in itself, I have often found very beneficial, and will, therefore, venture to lay it before you. We all know the importance of Barley, and that at least one year in three a great deal is damaged, so as to become second-glass grain, which we call "grinding Barley." Now, it is too much the custom, in my opinion, to give to others the benefit of this grain. It is generally sold for very little. I have bought it in the market at 1*s.* a score; you may get more for it now; but even now you would get a very inferior price for it. And that same Barley you purchase back again from the miller at 5*s.* per bushel. Thus the miller gets the profit, and not the farmer. Therefore I say, 'Sell that Barley in the shape of beef and mutton; don't give it away under the name of 'grinding Barley.'" You all have now your lists of prices of cattle food before you, of every kind, and there is no doubt we have nothing like Linseed cake for general use. But a farmer anxious to support his stock will go over the list and satisfy himself what he can best supply his stock with, in addition to the food he grows upon his own farm. I am quite certain, from my own experience, that we might produce many more pounds of beef and mutton per acre than we do; and that we might meet the demand for butcher's meat, which I believe will continue, in a better manner than we hitherto have done. *Mr. Chawnor, at a meeting of the Cannock Farmers' Club.*

GUIDEWAY STEAM AGRICULTURE.

I OBSERVE a letter in your *Gazette* of Oct. 31 from Mr. Burcham, a gentleman quite unknown to me, and who has no knowledge of me or, as I take it from his letter, of any of my inventions: it accuses me of copying him. I beg to say that I have not copied, nor have I taken a single idea of my invention from him. I beg to say further that I am not in the habit of making solemn declaration before a magistrate to that which is not true. "I do solemnly and sincerely declare" is a declaration which I have made "that I am in possession of an invention, which invention I believe will be of great public utility; that I am the first and true inventor thereof, to the best of my knowledge and belief, and I make this declaration, conscientiously believing the same to be true."

I am obliged to you for stating so clearly the difference in the principles of the two schemes. With reference to my having a large platform, I make no claim to such a thing in my patent, only I use a platform; in the same way that I make no claim to a plough, although I use a plough: but neither is a large platform any more than a plough a new thing. Every cart or chariot is a platform on wheels, and Garrett's hoes and Hornsby's drills are platforms on wheels; and as far as size is concerned, which cannot properly enter into the question, an American railway carriage supported on a few wheels at each end is a platform of great length. Sir J. Lillie in his patent shows a platform for steam cultivation; one to which many implements are attached, and engines on the top and endless rails round the wheels, the whole apparently of huge dimensions; and so also in the drawings at the Petty Bag Office of Heathcote's patent for steam ploughing, I suppose taken 30 years ago, there is a platform to carry the engine and windlasses of large dimensions.

In the same manner with the operations that I do, whether ploughing, hoeing, drilling, or comminuting the soil and mixing at the same time artificial manure, whether old or new operations I claim none. I claim one thing, and keep to that one distinctly. In my specification I say, "I declare that I do not claim any of the implements, or any of the several parts or elements of the machinery or apparatus described and referred to, when taken separately, or otherwise than when adapted and applied for the purposes of my invention; nor do I claim the use of railways, either portable or fixed," which of course I could not do, "except when applied in the manner and for the purposes hereinbefore set forth;" what I do claim is "permanent ways, dividing the fields or pieces of land in a number of parallel lines, the whole being placed equidistant from each other. To the travelling platforms I apply or attach the implements to operate on the soil," "whereby the said implements are in their operations always kept at a regulated height, independent of the small undulations or unevenness of the ground or the firmness or softness of the soil, and whereby they are also kept from varying to the right or left of the line of onward motion."

This is the invention which I claim in my patent, and whether the invention be a good one or not, the claim is a perfectly sound one in the opinion of a counsel second to none in England on patent affairs, howsoever Mr. Burcham may sneer at a "man taking a patent for his farm." I think that Mr. Burcham cannot have made himself acquainted with my patent, which by paying 1*s.* 2*d.* he might have purchased at the Government Patent Office, Southampton Buildings, or he might have walked into the office and read it for nothing, and this he ought to have done before he attacked a man perfectly unknown to him in the following manner:—"I have just read your account," to the Editor he writes, "of Mr. Halkett's Guideway Steam Cultivation." "I discover from Mr. Braithwaite's (C.E.) report"—I therefore infer that he had not read the specification of my patent—"that Mr. Halkett has patented this system of tilling land and also the machine, which is simply absurd; for all *that he has done* has been known and *shown* throughout the length and breadth of Norfolk and elsewhere these 10 years." It is much to be regretted that they do not have newspapers in Norfolk, or that you do not keep a correspondent there; we should then have heard before this that they had reaped for the last 10 years by steam, that they drilled their seed and hoed their plants by steam, and carried their crops and took out their manure by steam, besides ploughing, subsoiling, rolling, harrowing, clod crushing, and all other field operations by steam. "Whilst giving Mr. Halkett every praise for attempting to carry out my ideas without my aid, I wish it to be remembered that Mr. Halkett is only an imitator, and I need scarcely impress on the minds of your readers that no imitator, no follower, ever thoroughly understood his original, or was anything else than a reduced and bad copy" (terse and nervous language this). A little above he says, "People may think that I am angry;" I think he is; "it is not so—I am only vexed and annoyed." Why, I do not know; I have given him no cause. If I succeed I ought to give him great pleasure instead of anger, for he says that he has the farming interest at heart. "For 10 years and more I have studied and written for the advancement of farming and the farmer, but neither man nor art care much about me or my ideas"—I sincerely hope that this is not the reason of his anger. "Probably my 'executors' may one day do me justice," he adds, and I may say I hope that they will, and do *nobody* injustice.

Some persons however may say, although Mr. Halkett denies having copied Mr. Burcham, he may have reinvented some of Mr. Burcham's inventions. What is Mr. Burcham's system? they may ask. What resemblance is there in it to Mr. Halkett's? I distinctly say, none. It is impossible for me to refer your readers to his letters, for they are scattered over many volumes of the *Agricultural Gazette*, and many of them are several columns in length, but while deprecating, as barely sober, the discussion of who invented this system, while the invention is not yet acknowledged by the public as of any value, or even generally known, allow me to show how completely this is the reverse of the case; and that both in the general principles of the scheme and in the details I have in no way copied or reinvented anything of Mr. Burcham's. But as this necessarily requires some length, allow me in a future letter to enter into this subject; while I beg to say that I would not enter into it at all were it not that the value of a patent may be injured by an uncontradicted assertion of a want of novelty in the invention. *P. A. Halkett, West Hill, Wandsworth.*

Circular Steam Tillage.—I am much obliged for the impartial manner in which you have commented on the difference of plan between Mr. Halkett's "guide-way" system of culture and my circular method. I am also glad you have written, since it may enable me to remove a misconception which you, and probably many others, have laboured under, as to the utility of the platform, or steam medium invented by me. I was taken somewhat aback on reading in your leading article for Oct. 31st:—"We don't believe this" * * * "We do not think that a man is likely to dig one bit the more for being carried by machinery from spit to spit, as he proceeds," in fact, "we do not think that the saving of the muscles of the leg will much increase the power of endurance or of stroke, which the operation of hoeing requires in those of the arm." Most decidedly not—but I now discover that your supposition hitherto has been that I merely intended to carry the man to save him from the labour of carrying his own weight, whilst tilling, hoeing, or executing other labours of the field? This is your error. I not only propose to draw him over the land, but his spade (or tilling tool) through the land. To carry him would be only half an advantage, unless by mechanic aid I enabled him to do the work required, without strain on arm or body. All that I require from the man is a moderate amount of skill to depress or elevate a lever attached to the platform, so as to keep his hoe or spade in the ground. So let it be understood whilst I carry him

over, I draw his spade obliquely through the soil. Again, you remark, "Mr. Burcham has not thought of a guide-way for steam cultivation at all." My invention and use of the "fixed point" renders this unnecessary; in fact the "guide-way" is only an expensive mode of fulfilling a "condition" which my plan cheaply accomplishes. As to permanent rails, for steam cultivators or carts to run upon on farms, it is quite out of the question, and although absolutely needed under Mr. Halkett's plan, is wholly unnecessary under my method of circular tillage. In conclusion, I offer this doctrine for the reflection of inventors, namely, that nothing permanent, whose first cost is very high, will ever pay in a business like agriculture, where the operations are temporary and intermittent. *C. Burcham, 8, Upper John Street, Golden Square, W.C.*

Home Correspondence.

Mangel Seed.—I observe in your Notices to Correspondents an inquiry as to what an acre of Mangel seed should produce. This depends very much upon the soil, climate, size of plants, and quantity of manure applied, the produce varying from 6 or 7 cwt. per acre to as much as 20 cwt., which is the highest I have reached on a mixed soil liberally supplied with guano, applied during rain in the month of May, and hoed in, bringing the soil, with the guano, to the row, moulding it up somewhat in the form of Potatoes. The most suitable soil is a very rich strong loam or London clay, but it may be given on any rich soil in a tolerably dry climate. The application of fish as a manure for this crop has been found very beneficial, thus proving a portion of salt to be equally beneficial to the growth of seed and root. The crop this year, owing to the dry summer, and more especially to the hot days in the early part of August, is very short, the average not being more than about 12 cwt. to the acre, and in some instances not exceeding 6 to 8. The best size for producing seed would appear a well formed bulb of a Globe variety the size of a small Orange, of a Long variety the size of a small Carrot, and if these plants are raised from seed grown from well selected large sorts, it will not fail to give good satisfaction. The cost of growing and planting out large sorts would render the growing of seed unremunerative, although sometimes a prodigious crop is produced from such sorts. It is, however, very necessary that the seed should not be repeatedly grown from small plants, as in such a case instead of a root with one tap root there would be many, thus rendering the cost of lifting a crop much heavier, and causing the carrying away of a much larger portion of soil. My practice is to grow my stock seed from the finest sorts both as regards shape and size, and from such seed to grow bulbs of the size mentioned before for my general crop of seed. *John Moss, Jun., Feening, Kelvedon.*

The Breeding and Management of Sheep.—The pregnancy of the ewe extends over five months: consequently if served in October she will bring forth in March. The food and treatment before and after parturition demands not a little of the farmer's care. It is a mistake too common among farmers to let their breeding stock almost, as it were, make a shift for themselves. Any rough coarse Grass which has been too unpalatable for consumption during the summer months generally makes the pasturage and the home of the ewes during the winter. In no part however of rural economy is the adage of "penny wise, &c.," so fully exemplified as in this. If it pay to keep ewes at all it will pay to keep them well. Unless she be in a healthy condition, she can never produce a healthful progeny, and unless she be at the period of parturition in such condition as to bring forth without exhaustion, the chances are two to one but she is attacked with inflammation and dies. Or escaping that, her milk will be poor in quality and scant in quantity, and tolerably inadequate to rear a strong and vigorous lamb, and we all know the irremediable effects which insufficient nutrition entails on animals stinted during the early stages of their existence. I remember that during the lambing season of 1854 an unusual fatality occurred among the lambing ewes in this district—many farmers being losers to the extent of 10 per cent. in their flocks. The losses more or less were general, and many the surmises as to the cause. To me it seemed perfectly capable of explanation. In cold weather to keep animals up in condition they must have an extra supply of heat—if artificially, in the shape of warmer housing; if naturally, by an increased supply of food. If warmth be not supplied artificially it is forthcoming naturally by an increased consumption of the tissues of the body—giving off internally an increased supply of carbonic acid gas—and if the animal is not provided with a larger supply of food than would suffice in warmer weather, a waste of the system and emaciation of body ensues, and in sheep a deterioration of wool, numerous diseases, and should the neglect extend over a sufficiently long period, death itself will inevitably follow. In the season above referred to we had a severe and protracted snow storm, during the period of which my ewes had daily a regular supply of Swedes, care being taken to give no more at one time than what they could consume in the day—a portion of hay was given thrice, and each sheep allowed ½ pint Oats per diem. This with their usual supply of salt kept them up in condition and healthy, and in a flock of 130 I had only one death in lambing. I have profited by my experience of that season, and in addition to supplying them liberally with food I have had a large shed erected in their field, which to them in inclement weather is a source of comfort, and to me a saving of food. Mangel I have heard recommended as good food for ewes during lambing season. My experience however is not such as to recommend it much. For two seasons I commenced feeding my ewes on it, and in both cases I was obliged by fatality among the lambs to discontinue its use. They got well lambed and the lambs generally strong and healthy, but at two and three days old their well-doing failed. They seemed a little swelled, lost the power of their legs, and finally death ensued in about six hours from the time first observed to be amiss. Whither the secretions induced by the Mangel were too rich for the tender stomach of the young lambs, or what was the predisposing cause I cannot pretend to say, but at all events a change to Swedes in both years was the means of checking the disease in the flock. After lambing, if the ewe and her produce be healthy, and the weather favourable, they should be confined to the house as little as possible through the day. They will be better if they are sheltered at night; until at least the lambs get strong enough to resist any sudden change of weather which might occur during the night. Nothing is so good as Grass for promoting the flow of milk, but if it is not to be had they should be liberally supplied with cut Swedes and a few bruised Oats, say ½ pint per ewe per diem. The disease most fatal to ewes at this period is that known as "inflammation," which occurs generally in sheep that are poor in condition, and have a hard time of labour. Nothing is so good a preventive as having them in a good fresh condition. When a sheep is attacked I generally administer a little laudanum in Oatmeal gruel, which tends to deaden the pain, while the gruel affords nourishment and gives nature a chance of overcoming the shock received by the system. In a case of death it is most essential that the man in charge of lambing the ewes should not skin or have anything to do with that dead in inflammation. The disease is infectious, and it has frequently been known that a person skinning a diseased sheep, and afterwards assisting a ewe in lambing, carried the seeds of disease on his hands, and caused the death of the ewe. *Carabas.*

Superphosphate.—It should be stated that the quotation on which Mr. Prideaux somewhat animadverts was from the writer's prize essay, written so long ago as 1845, and he would be sorry indeed if no improvement had been made in the process since that time. The plan recommended by Dr. Muller is very good, but it does not apply to the bones which farmers very frequently purchase for the purpose of dissolving, viz., *half-inch bones,* as they are commonly called. For these bones I much prefer the practice of wetting the bones previous to the application of the acid. We have, however, at present far more effective means of dissolving bones than those suggested, but as they involve expensive machinery and steam power it would be useless to describe them more particularly, as any farmer can purchase both soluble and insoluble phosphate at a cheaper rate in "Superphosphate of Lime," if he takes care by means of analysis to secure a good article, than he can gain by burning his own fingers in the process. *W. C. Spooner.*

Mangel Wurzel.—Relative to your last week's correspondent's inquiry as to the tillage for, and the weight of a crop of Mangel, I beg to contribute the little experience I have had in its culture, not however with the view of holding up my practice as a rule, but rather to bring out and elicit the experience of others. I have been in the habit for a number of years of cultivating a few acres of Mangel, and though I have generally been satisfied with my crops, yet they have never approximated to what your correspondent states as the produce of his. From 28 to 32 tons have been about the range of my crops, and I always considered them good ones. This season I have above my usual average crop, and after seeing your last week's Paper I determined to measure and weigh half an acre, and with this result—that my crop, topped, tailed and cleaned, weighs 25 tons of bulbs per acre. This I consider to be a very superior crop, yet it is so much short of your correspondent's that I fear I have not yet got the proper mode of culture, and will with much interest wait for his promised description of treatment in your valuable columns. In the meantime, as nothing tends more towards the advancement of the science than a recorded experience of facts, I will shortly state what has been my practice, with the hope of inducing others who are more successful growers to throw a little light on the subject. My soil may be classed as a fair description of loam, pretty well adapted to the growth of roots. I plough deep and early in autumn, and follow up in spring with the general mode of ploughing, grubbing, harrowing, &c., until the soil is clean and in proper tilth. The dung, which in the winter months is carted out into a heap and well covered with soil, is turned about a fortnight before being wanted for sowing. I cultivate on the ridge which is first made, the dung spread between, the ridge afterwards split to cover in the manure. I omit however to say that I sow Peruvian guano broadcast over the dung after it is spread in the ridges at the rate of 2 cwt. per acre. Along with the seed I drill bones at the rate of 12 bushels per acre. The bones I treat after this manner: I have them ground early in spring, and formed into a large heap which, after thoroughly saturating with water, I cover well up with ashes: by this means they heat and ferment, and in a little time are partially dissolved, and when wanted to sow the heap is turned over and the ashes mixed among the bones, which are then drilled along with the seed as aforesaid. This mode I have for some years followed with success. Last season I sowed broadcast, with the guano, 3 cwt. salt per acre, but whether my present superior crop can be attributed to the mixture I cannot as yet positively assert. In another season I shall experiment on it. *"Carabas."*

Ægilops.—Allow me to observe to you respecting an article which I submitted to you a few weeks ago on the plant Ægilops squarrosa, and which appeared soon after in the *Agricultural Gazette,* that I doubt as to that species of Ægilops taking the true form and characters of our common Wheat, Triticum vulgare. Although there is observable a great similarity in external form between the seeds of Ægilops squarrosa and our common Wheat, still there is great difference between the external form of the ears of the one plant compared with the other, and great difference in the plants themselves, especially in height; moreover a far greater difference in the structure of the stem or rachis of each ear. In the ear stem or rachis of Ægilops squarrosa we have the stem jointed at distances about four lines from each other; each portion bearing a seed placed in alternating order on the ear from bottom to summit of the ear. When ripe this ear readily divides at the joints, and each joint is seen internally to be articulated on its surface, which accounts for the easy separation of the ear into portions about four lines in length. All these characters appear to be so foreign to what we observe in our common Wheat, Triticum vulgare, as to preclude the idea of our common Wheat being a cultivated variety of Ægilops squarrosa. Every one knows that the ear stem of our common Wheat is not at all jointed, and that cultivation can only modify, it cannot fix a permanent character. The above is the result of the fourth year of cultivation of Ægilops squarrosa; I still intend to see what further cultivation will do, and shall report further progress when opportunity offers. *John Brown, Stanway, Essex, Nov. 9.*

Societies.

CHEMICO-AGRICULTURAL: BELFAST.—At the recent annual meeting of this society Dr. Ritchie, the secretary, read the report, from which we take the following extracts:—

"During the past year 78 new members have been added to the society. In addition to the ordinary monthly meetings of last year, several special meetings were held for the purpose of considering the means by which the machinery of the society might be most effectually applied to arrest the sale of spurious and adulterated manures. The exposures which were made by the chemist in the public papers of several attempts to introduce adulterated manures were found to be productive of the most excellent results, and the council have reason to believe in no small degree contributed to convince the public that the operations of the association were of real service both to the farmer and the honest merchant. By the existence of the laboratory many farmers were protected from serious loss, and in several cases, dealers were obliged to refund money obtained from members for spurious and inferior manures. In order to render the assistance of the laboratory of use to all persons interested in the prevention of adulteration in manures, or food, it was lately resolved that the Laboratory Journal, with the names of the vendors of all manures and articles of food examined, should, as heretofore, be open for consultation, without charge to the members of the society, and to all persons on the payment of a small fee. By the adoption of this plan, the council consider that, in the ensuing year, when, owing to the increased demand which may be expected for artificial fertilisers, attempts to introduce inferior and adulterated manures may be made, the farmers of the country may protect themselves from imposition.

"In the twelve months which have elapsed since the last annual meeting, a greater number of analyses of manures have been made than in any former year of the society's operations. Samples of guano and of artificial manures have been forwarded from all parts of Ulster, and also from England, for the opinion of the society's chemist; and it is satisfactory to observe, from the extended correspondence which Dr. Hodges has carried on, that every year an increased conviction of the practical value of the association appears to be experienced by all classes, and also to find that both the farmers and the vendors of manures are becoming generally aware that it is their interest to avail themselves of the facilities which the laboratory offers for obtaining a correct estimate of the qualities of the various fertilisers offered for sale, and to imitate the judicious course pursued by the bleacher, who refuses to purchase his soda-ash, bleaching powder, and other chemical agents, unless supplied with a statement of their actual value, as determined by the analysis of the chemist."

WEST KENT.—At the meeting of this Society the other day an interesting discussion took place, in which Colonel Cator, the chairman, Mr. Norman, and Mr. Caird, M.P., took part, on the relative wages of labour in England and Scotland:—

Mr. Norman, who said he had lately visited some of the Border counties in Scotland, had made the subject of the wages of the Scottish labourer a special object of his attention and inquiry. He read from a paper the various quantities of corn and other produce which were paid to the Scotch farm labourer, and contended that it was owing to the comparatively cheap labour, and consequently at the expense of the labourer, that the rent

of land in Scotland was higher than in England. He deprecated the system of "bondagers" which he described as existing in Scotland, which he thought a great hardship on the Scotch labourer, and though advantageous to the farmer, yet one which he should not desire to see introduced into this country.—Mr. Caird, on the other hand, showed by taking Mr. Norman's figures, and applying to them the prices of the last three years, that the Scotch farm labourer was really better paid than the Englishman, for he had a sufficiency of the necessaries of life laid down to him at his door, while the Englishman had to pay retail price for everything at the village shop. The Scotch ploughman, moreover, lived rent free, while the Englishman, out of his field money wages of 12*s.* to 14*s.* a week, had to pay 2*s.* 6*d.* to 5*s.* a week for his cottage. The "bondager" system, which had been referred to, and very properly deprecated, was peculiar to the counties (Scotch and English) lying along the Tweed, and was unknown in other parts of Scotland. He was satisfied, after an experience of both countries, that the Scotch farm labourer was more comfortable and better off under a mixed system of payment in kind and money, than the Englishman with his fixed money wages. And the result of the two systems was shown in the fact, that while it was common in England, as had been done there to-day, to give a prize to the labourer who brought up his family without parish aid, it was quite unknown in Scotland for a ploughman to ask parish relief for himself or his family. He agreed, however, with Mr. Norman that the cost of labour on an English farm in that neighbourhood very much exceeded the average cost in Scotland, not as he supposed from the higher rate of individual wages, but because the Scotch labourer was better fed, better educated, and more intelligent, while his labour was much more effectively applied on land specially laid out for the production of crops. He found no fault with landlords who preferred the beauty of woodland scenery, with small enclosures, wide hedgerows, and a good head of game, to open unpicturesque corn fields. On the contrary, within so short a distance of the metropolis, and with the prospect of turning their land to far more profitable purposes than farming, he thought they were right. But they ought not to complain if under such circumstances labour was more expensive and less productive, and rents proportionally low.

HEREFORDSHIRE.—At the late annual meeting of this Society Mr. King King said he had attended most of the agricultural meetings within the range of the county, and having witnessed these exhibitions of stock, it occurred to him that agricultural societies had, as far as the breeding and rearing of stock goes, attained that eminence anticipated for them by the most sanguine of those who assisted in their institution. There was scarcely a farmer in the county who had not a good bull and some decent stock in his possession. The fame of the Hereford breed was now world-wide, and all they had to do was to take care that they were not surpassed by any other breed, which he thought would not be easily done. But while much had been done in improving the cattle, improvement on their farms had not kept pace with it, and this he admitted applied to his own farm, which was partly attributable to the difficulty of obtaining labour, which had been felt to a great extent this harvest by many farmers in Radnorshire and that side of the county of Hereford. Formerly they were visited by large bodies of Welshmen in harvest time, but now he was told the lead mines had increased to such an extent as to give good employment to large numbers, while they also found increased occupation in cultivating their own soil. Other reasons for this scarcity were emigration and enlistment, which had drafted off some of our most energetic men. But whatever might be the principal cause, the subject was one that required their grave consideration, and he strongly recommended every farmer who had good workmen to take care how he parted with them, for he would find it a most difficult matter to replace them. A good workman he regarded as one who could turn his hand to every department of husbandry, and not one who excelled in one particular branch, as in ploughing or thatching. They heard complaints of the want of cottage accommodation, and, as far as his knowledge went, there was a deficiency in this respect; but he did not go the length of some philanthropists who got up on those occasions and made stirring speeches about labourers' cottages, but who, upon inquiry, were found to have no cottages, and no labourers to put into them if they had. Before going any great lengths in building model cottages the labourers should be prepared for them. Four or five years ago he had several cottages erected, and as he was told by some that it was a monstrous thing that the woman should boil her clothes in the same pot that she boiled her potatoes, he had small coppers put up; but going there six months after he found that one woman had used his copper as a receptacle for every sort of abomination, while another never used hers at all, because it would cause her to light two fires instead of one (daughter). He earnestly recommended these matters to the attention of farmers, so that, instead of everybody merely drinking everybody's health at those annual gatherings, some practical and useful object might be accomplished. —The Chairman said, although he farmed between 700 and 800 acres, he had had no occasion to employ one additional labourer during the late harvest; the reason was, that he gave his men full employment in draining, and so forth, during the winter, and they would not, for the sake of an additional shilling a week, leave what they considered a good comfortable situation. As for difficulty in finding labourers in harvest he rejoiced that such was the case, for it was quite impossible there could be a sufficiency of labour during harvest if there was not a redundancy in the winter season. Indeed he thought that a master having occasionally to look for his labourer, instead of the labourer looking for his work, had a salutary effect, and made the labourer better appreciated. As to the subject of cottages, he agreed that it was not only the duty but the interest of every proprietor of land to have sufficient cottage accommodation for those who tilled the land. In order to make the labourer properly observe the decencies of life, and appreciate his position in the social scale, he must be furnished with a good education—must be taught to know his duty to God, to his fellow man, and to himself; then, having acquired self-respect, we might expect to see a change in his mode of life. Another matter was the inconvenience arising from the difference in the weights and measures that were in use throughout the country. It was a matter of great importance to know the prices in other counties. For instance, he wished to know the price of corn in Dublin, Liverpool, or Norfolk, or the price of Oats in Edinburgh, that he might be enabled to calculate whether it would be prudent to sell immediately or to hold on. Well, he looked at the newspapers and he found that in Ireland it was sold at so much per barrel, in Scotland at so much per boll, in Lancashire by the bushel of 75 lbs., and in Hereford by the 8 gallon and 10 gallon bushel. Again, in Yorkshire a "bag" has no uniform capacity or weight —a bag of Wheat meaning one thing, of Oats another, and of Potatoes a third. All this monstrous confusion would be remedied by a little pains; and any one present, with half an hour's study, would be able to master a system by which agricultural produce might be bought and sold at a uniform standard throughout the country. If, again, we look to smaller things, we find the same confusion. A "stone" sometimes meant 16 lbs., sometimes 12 lbs., and sometimes 8 lbs.; and in some places we find the "score," or 20 lbs. adopted. This might easily be remedied by adopting a simple method of subdivision; and he sincerely trusted some steps would be taken to adopt one legal measure throughout the kingdom.—Mr. Gough—taking up the remarks of Mr. King as to the scarcity of labourers—argued that it was an evidence of the prosperity of the nation, and he rejoiced to see the working man in a position to ensure to himself a fair day's wages for a fair day's work. If labour was scarce, farmers must have recourse, in every practical way, to the use of machinery, or assuredly they would be left behind in the great race of competition which so pre-eminently distinguishes Englishmen of the present day.

Calendar of Operations.

TYNESIDE FARM, *Nov. 13th.*—The weather during most of October was dry and favourable for farm operations. Our sowing of winter Beans was completed on the 9th of October. After preparing the land by several ploughings and harrowings, and cleaning it as well as possible, we raised drills as for Turnips about 26 inches wide, spread about 14 loads of well-rotted manure, sowed the Beans broadcast (nearly 3 bushels per acre), and then split the drills; finishing by slightly harrowing them down a week after, and they have now a remarkably vigorous appearance. This management admits of a free use of horse and hand hoes in spring, and we succeeded last year in growing about 46 bushels per acre, of beautiful quality, weighing close upon 70 lbs. per bushel. Our Wheat on last year's Bean stubble, sown on 22d October, came up thick and strong, and we are now preparing a field where Turnips have been partly eaten on with sheep, which will be sown in a day or two. Fallow Wheats in general have a forward appearance for the season. Stubble ploughing is well advanced, and storing of Swedes will now occupy our attention. Turnips in general have improved very much in outward appearance during the late mild weather, but it is to be feared the quality of the bulbs must be a good deal deteriorated by the excessive aftergrowth of the leaves. Stock on Turnips is doing well, and the ewes have great abundance of food on the one-year old seeds, which are uncommonly fresh and green. *W. C. T.*

Notices to Correspondents.

A DURABLE PAINT FOR OUTDOOR WORK: *R.* Any quantity of charcoal powdered, a sufficient quantity of litharge as a drier, to be well levigated with Linseed oil, and when used to be thinned with well boiled Linseed oil. The above forms a good black paint, and by adding yellow ochre an excellent green is produced, which is preferable to the bright green used by painters for all garden work, and does not fade with the sun. This composition was first used by Dr. Parry, of Bath, on some spouts, which, on being examined 14 years afterwards were found to be as perfect as when first put up.

ARTIFICIAL MANURES: *X Y Z.* Mr. Way's memoir was published in a past number of the English Agricultural Journal (Murray). It was not, that we are aware, published separately.

CANADA: *W H.* We should think that a man in the following circumstances is the right sort of person to obtain employment:—He has worked for several years in a gentleman's garden as labourer, having the care of cows, pigs, and sheep. Is intelligent and active. He has a wife and three children, all under 12. Work being scarce here, he has been for a year employed in a foundry in London, but wishes to emigrate. We do not think that any assistance in the passage to Canada is given as to Australia.

CIDER: *Fulfield.* The best way to hinder its going on to sourness is to bung it down pretty early in the cask.

COW: *W S P.* To milk three times a day, at intervals of eight hours, is probably your best remedy; but we have sent your letter to Mr. Spooner.

POSITION OF THE LABOURER: *Scottish Rustic.* Many thanks.

PURCHASE OF LAND: *Iota.* The arrangements for the payment of the purchase money are matters for special agreement. A portion is often left on mortgage on the property.

RAPE: *E W.* It is eaten or mown down and immediately ploughed up for a subsequent corn crop. Your earliest green food for spring will be either Turnip-tops or Rye, and then Vetches, followed by Cabbages and successions of Vetches and Clover all through the summer. These, early Turnips, Swedes, and Mangel Wurzel will be a continuous succession through the year.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

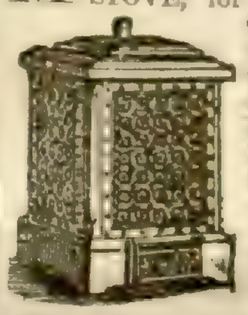
The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Nov. 21.

IMPROVEMENTS IN HEATING, ETC.

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of warming a large apartment for 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot-water.



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These inventions will repay public inquiry. For particulars address the makers,

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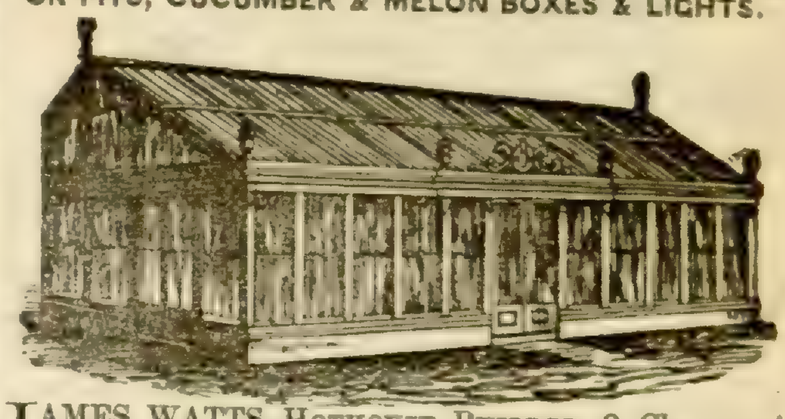
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England. Heating on the best and most approved principles, and guaranteed to act efficiently.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

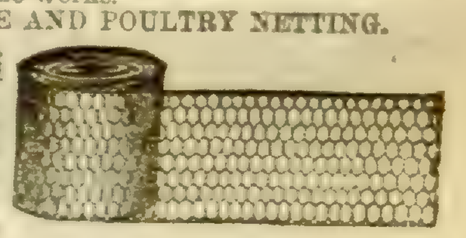
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS or DRY and WET FOOD.

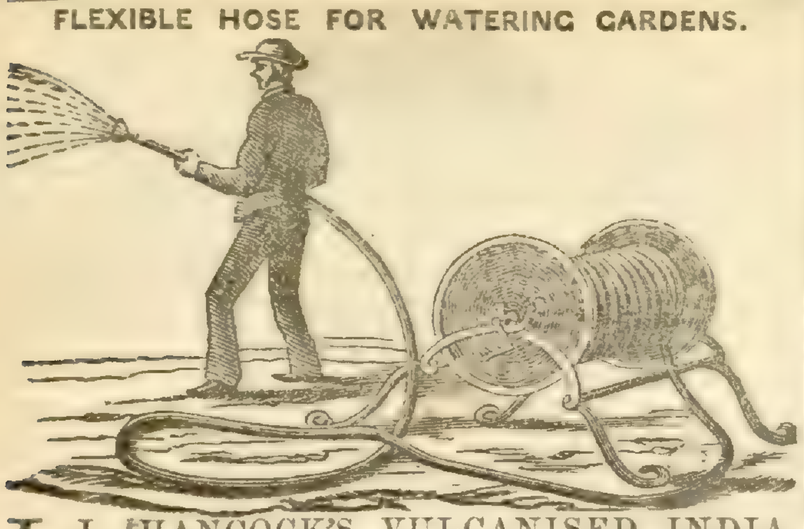
GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

FLEXIBLE HOSE FOR WATERING GARDENS.

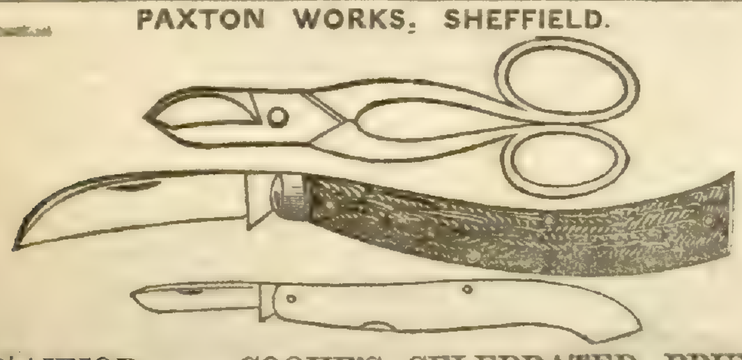


J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

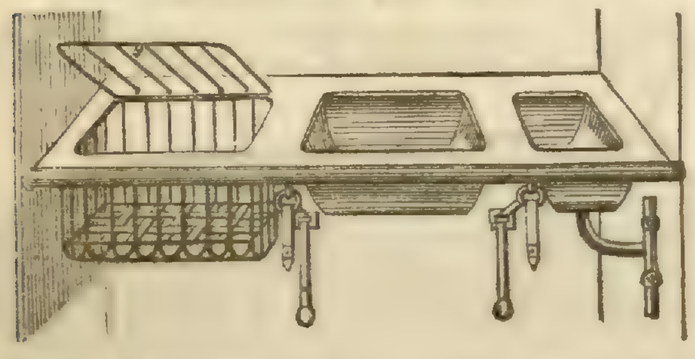
JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch.*

PAXTON WORKS, SHEFFIELD.



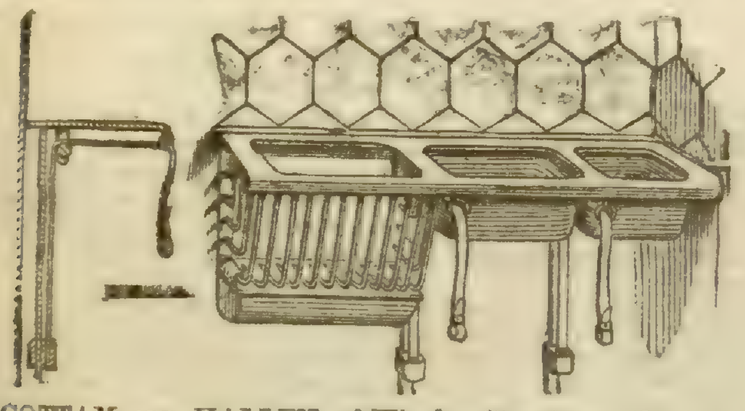
SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



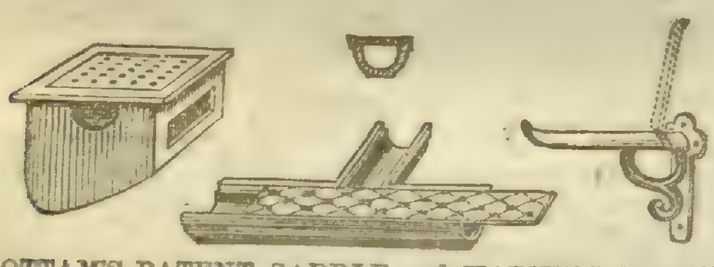
THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 370, Oxford Street, London.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

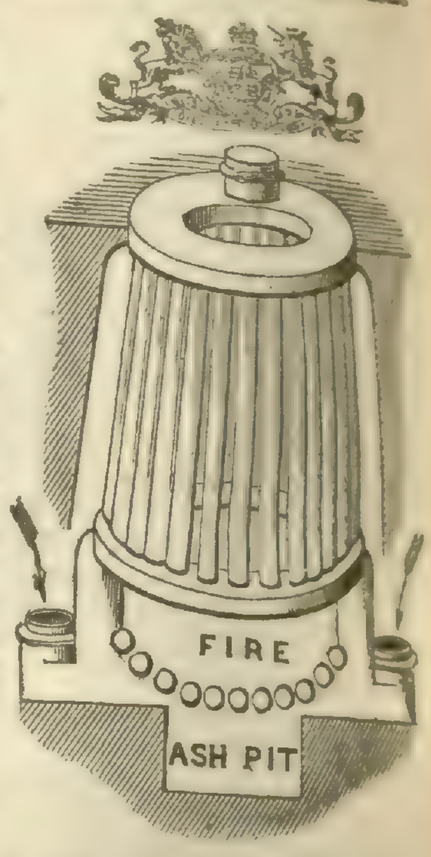
PATENT LOOSE-BOX FITTINGS, and every article for the harness-room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE POWERFUL BOILERS.



THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturist to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*:—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

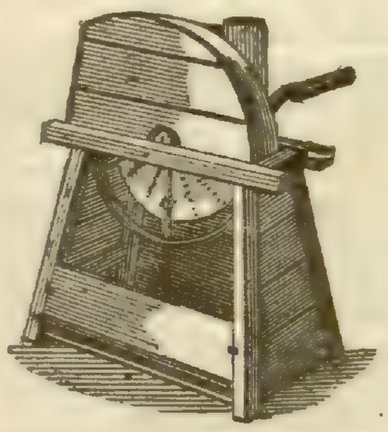
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.

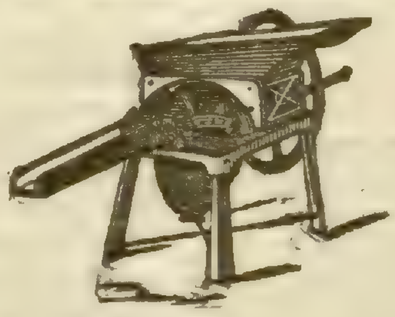
JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

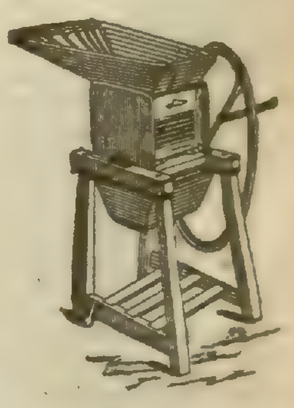
STAND No. 301, SMITHFIELD SHOW, December 9th, 10th, & 11th.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.







B. SAMUELSON,
BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame.
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
" " Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power £6 10 0
" No. 2, for Horse Power, or may be worked by a man and boy 9 0 0

Machines for Pulping only,

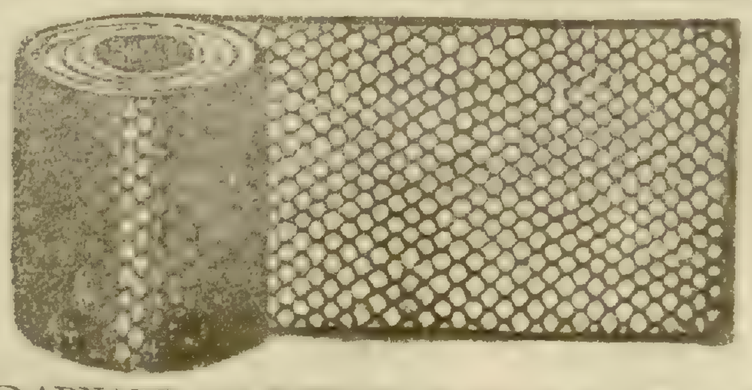
As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1 .. .. £4 10 0
" Pulper No. 2, for power or man and boy 5 10 0
" Pulper No. 3 (Disc principle) 4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide ..	..	5*d.* per yd.	4*d.* per yd.
2-inch " strong do.	.. ..	6 "	4¾ "
2-inch " intermediate, do.	..	7 "	5½ "
2-inch " extra strong, do.	..	9½ "	7½ "
1⅝-inch " 24 inches wide ..	..	5½ "	4½ "
1⅝-inch " strong, do.	.. ..	6½ "	5¼ "
1⅝-inch " intermediate, do.	..	7½ "	6 "
1⅝-inch " extra strong, do.	..	10 "	8 "

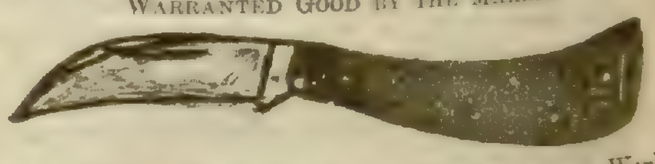
All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

SMOKY CHIMNEYS.—The best Cure is KITE'S PATENT VENTILATING & SMOKE-CURING ALBERT CHIMNEY CAPS, suited to any style of Architecture.—200 on Buckingham Palace; 150 on St. James's Palace; 50 on Claremont Palace: 50 on Windsor Castle; 200 on the Western Heights Barracks, Dover; in use also on the Halls and Mansions of the Nobility, Government Offices, Club Houses, &c.; also extensively adopted by the public in general. Price 25s., 30s., and 35s. each. Drawings and Testimonials forwarded on application to JAMES BARTON, Iron Works and Manufactory for the Patent Stable Fittings and Enamelled Mangers, 370, Oxford Street, London.

VENTILATING STOVES! SUSPENSION STOVES!—The two Best, Cheapest, and most Economical. Prospectuses with prices post free.

DEANE, DRAY, & Co., London Bridge. A.D. 1700.

CUNDY'S PATENT PURE WARM AIR VENTILATING STOVES.—The only Pedestal Stove which gained a Prize Medal (Class 476) at the Great Exhibition, 1851. Especially adapted for warming Churches, Chapels, Schools, Entrance Halls, Libraries, Warerooms, &c., with great economy. Sold by CUTLER & SONS, Licencees and Manufacturers, 16, Great Queen Street, Lincoln's Inn Fields, London, W.C., and all Ironmongers.

SUPERIOR GAS-COOKING APPARATUS, WARM CLOSETS, and TABLES of every description; improved Warming and Ventilating Gas Stoves, for every kind of room or hall, Manufactured by CUTLER & SONS, Founders and Gas Fitters, 16, Great Queen St., Lincoln's Inn Fields, London, W.C.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 22*l.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 2*l.* 15*s.* to 11*l.*; ditto, with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.*; Fire-Irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth plates.

CUTLERY, WARRANTED.—The most varied assortment of TABLE CUTLERY in the world, all warranted, is on SALE at WILLIAM S. BURTON'S, at prices that are remunerative only because of the largeness of the sales. 3½ inch Ivory handled Table Knives, with high shoulders, 12*s.* per doz.; Desserts to match, 9*s.* 6*d.*; if to balance, 6*d.* per doz. extra; Carvers, 4*s.* 3*d.* per pair; larger sizes, from 14*s.* 6*d.* to 26*s.* p. doz.; extra fine Ivory, 32*s.*; if with silver ferrules, 37*s.* to 50*s.*; white bone Table Knives, 7*s.* 6*d.* per doz; Desserts, 5*s.* 6*d.*; Carvers, 2*s.* 3*d.* per pair; black-horn Table Knives, 7*s.* 4*d.* per doz.; Desserts, 6*s.*; Carvers, 2*s.* 6*d.*; black wood-handled Table Knives and Forks, 6*s.* per doz.; Table Steels, from 1*s.* each. The largest stock in existence of Plated Dessert Knives and Forks, in cases and otherwise, and of the new plated Fish Carvers.

THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced 20 years ago by WILLIAM S. BURTON, when PLATED by the patent of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver.

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern.
Table Spoons and Forks, per dozen	38*s.*	48*s.*	60*s.*
Dessert ditto and ditto ,,	30*s.*	35*s.*	42*s.*
Tea ditto ,,	18*s.*	24*s.*	30*s.*

Tea and Coffee Sets, Cruet and Liqueur Frames, Waiters, Candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

CHEMICALLY PURE NICKEL NOT PLATED.

	Fiddle.	Thread.	King's.
Table Spoons and Forks, per doz.	12*s.*	28*s.*	30*s.*
Dessert ditto and ditto	10*s.*	21*s.*	25*s.*
Tea ditto	5*s.*	11*s.*	12*s.*

DISH COVERS AND HOT-WATER DISHES.—In every material, in great variety, and of the newest and most recherché patterns. Tin-dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 3*d.* to 28*s.* 9*d.* the set of six; elegant modern patterns, 34*s.* to 58*s.* 6*d.* the set; Britannia Metal, with or without silver-plated handles, 76*s.* 6*d.* to 110*s.* 6*d.* the set; Sheffield plated, 10*l.* to 16*l.* 10*s.* the set; Block-tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 77*s.*; Electro-plated on Nickel, full size, 11*l.* 11*s.*

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 Illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Gaseliers, Tea Urns and Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London. Established 1820.

KNOW THYSELF.—The secret art of discovering the true CHARACTER of INDIVIDUALS from the peculiarities of their HANDWRITING has long been practised by MARIE COUPELLE with astonishing success. Her startling delineations are both full and detailed, the style of description differing from anything hitherto attempted. All persons wishing to "know themselves," or any friend in whom they are interested, must send a specimen of their writing, stating sex and age, inclosing 13 penny post stamps, to Miss COUPELLE, 69, Castle Street, Oxford Street, London, and they will receive, in a few days, a minute detail of the mental and moral qualities, talents, tastes, affections, virtues, failings, &c., of the writer, with many other things hitherto unsuspected.

HOLLOWAY'S PILLS FOR THE CURE OF DEBILITY, BILE, LIVER AND STOMACH COMPLAINTS.—This medicine is so well known throughout the world, and the cures performed by its use are so wonderful, that it now stands pre-eminent above all other remedies, more particularly for the cure of Bilious and Liver Complaints, Disorders of the Stomach, Dropsy, and Debilitated Constitutions. In these diseases the beneficial effects of the Pills are so permanent that the whole system is renovated, the organs of digestion strengthened, and a free respiration promoted.—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GUIDICY, Smyrna; and E. MUIR, Malta.

MECHI'S DRESSING CASES and TRAVELLING BAGS.—112, Regent Street, and 4, Leadenhall Street, London.—Bronzes, Vases, Pearl and Ivory Work, Mechanical Manufactures, Dressing Bags and Dressing Cases, Toilet Cases, Work Boxes and Work Tables, Inkstands, Fans; the largest stock in England of Papier-mâché elegancies, Writing Desks, Envelope Cases, Despatch Boxes, Bagatelle, Backgammon, and Chess Tables. The premises in Regent Street extend 50 yards into Glasshouse Street, and are worthy of inspection as a specimen of elegant outfit. Everything for the work and dressing table; best Tooth Brushes, 9*d.* each; best Steel Scissors and Penknives, 1*s.* each; the usual supply of first-rate Cutlery, Razors, Razor Strops, Needles, &c., for which Mr. MECHI's Establishments have been so long famed.

PRIZE MEDAL, PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d.* each, of METCALFE's celebrated Alkaline Tooth Powder, 2*s.* per box; and of the New Bouquets.—Sole Establishment 130B, and 131, Oxford Street, 2nd and 3rd doors west from Holles Street, London.

INVIGORATING AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—C. & A. OLDRIDGE, 13, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3*s.* 6*d.*, 6*s.*, and 11*s.*; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

DO YOU WANT LUXURIANT HAIR, WHISKERS, &c.—ROSALIE COUPELLE'S CRINUTRIAR is guaranteed to produce Whiskers, Moustachios, &c., in a few weeks, and restore the Hair in baldness from whatever cause, strengthen it when weak, prevent its falling off, and effectually check greyness in all its stages. For the nursery it is recommended by upwards of 100 physicians for promoting a fine healthy head of hair, and averting baldness in after years. Sold by all Chemists, price 2*s.*, or sent post free on receipt of 24 penny stamps, by Miss COUPELLE, 69, Castle Street, Newman Street, Oxford Street, London.—Mrs. Carter writes, "My head, which was bald, is now covered with new hair."—Sergt. Craven, "Through using it I have an excellent moustache."

THE SUCCESSFUL RESULTS OF THE LAST HALF CENTURY HAVE PROVED BEYOND QUESTION THAT

ROWLANDS' MACASSAR OIL possesses peculiarly nourishing powers in the growth, restoration, and improvement of the Human Hair. It prevents it from falling off or turning grey—strengthens weak hair—cleanses it from scurf and dandriff—and makes it beautifully soft, pliable, and glossy. In the growth of the Beard, Whiskers, and Moustachios it is unfailing in its stimulative operation. For Children it is especially recommended as forming the basis of a beautiful head of hair. In dressing the hair nothing can equal its effect, rendering it so admirably soft that it will lie in any direction, and imparting a transcendent lustre. A small pamphlet accompanies each bottle of ROWLANDS' Macassar Oil, wherein important hints and advice will be found on the Culture of the Hair of Infancy, and on its preservation and beauty through the several stages of human life.—Price 3*s.* 6*d.* and 7*s.*; family bottles (equal to four small), 10*s.* 6*d.*; and double that size, 21*s.* CAUTION.—On the wrapper of each bottle are the words "ROWLANDS' Macassar Oil," &c., in white letters on a lacework ground, and their signature, "A ROWLAND & SONS," in red ink.—Sold at 20, Hatton Garden, London; and by Chemists and Perfumers.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory,

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.

TO THE NERVOUS AND DEBILITATED.—CHARLES WATSON, M.D., Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted.

"The first man of the day in these complaints."—*Medical Review.* "The true guide to those who desire a speedy and private cure."—*Universities Magazine.*

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

GOOD NEWS FOR THE AFFLICTED.—The wife of Mr. Thomas George, of No. 4, Plaistow Marsh, near Victoria Dock, Essex, had been a great sufferer for eight years with an ulcerated leg. She attended at Bartholomew's Hospital seven weeks without receiving any benefit; she had also tried a number of reputed medicines, and finding medical aid of no avail, she considered herself past cure. She was urged by a friend to try the Poor Man's Friend and Pills, which she purchased from Dr. Kernot, Crisp Street, Poplar. One pot effectually cured her. Notwithstanding her advanced age, she is restored to the highest state of health and vigour by their use. April 4, 1857.

Dr. ROBERTS'S POOR MAN'S FRIEND and PILULÆ ANTISCROPHULÆ have been proved, by 60 years' experience, successful in the cure of eruptions and wounds of every description.—Price 1*s.* 1½*d.*, 2*s.* 9*d.*, 4*s.* 6*d.*, 11*s.*, and 22*s.* each.

Sold wholesale by the Proprietors, BEACH & BARNICOTT, at their Dispensary, Bridport, and by the London houses; and retail by all respectable Medicine Vendors in the United Kingdom and the Colonies.

PERSONS OF A FULL HABIT, who are subject to headache, giddiness, drowsiness, and singing in the ears, arising from too great a flow of blood to the head, should never be without FRAMPTON'S PILL OF HEALTH, as many dangerous symptoms will be carried off by their timely use; and for elderly people, where an occasional aperient is required, nothing can be better adapted.

For females these Pills are truly excellent, removing all obstructions, the distressing headache so very prevalent with the sex, depression of spirits, dullness of sight, nervous affections, blotches, pimples, and sallowness of the skin, and give a healthy, juvenile bloom to the complexion.

Sold by all Medicine Vendors. Observe the name of "THOMAS PROUT, 229, Strand, London," on the Government stamp. Price 2*s.* 1½*d.* and 2*s.* 9*d.* per box.

TO NURSERYMEN, SEEDSMEN, AND FLORISTS.

TO BE DISPOSED OF, a short distance from London, an old established NURSERY with extensive grounds, well stocked and fitted with capital Greenhouses and Pits, all heated with Hot water, together with a convenient DWELLING HOUSE and SEED SHOP, well arranged for business, with Stabling, Chaise-house, etc. Shed attached. The premises are eligibly situate, and are held on a lease, of which 2 years are unexpired at Christmas next at a low rent.—For further particulars apply to Messrs. PAGE & CAMERON, Land Agents and Surveyors, 64, Old Broad Street, and St. Albans.

TO NURSERYMEN, GARDENERS, AND OTHERS.

TO BE LET, for a Term, if desired, the PARK END COTTAGE and GARDEN, situated one mile from the Macclesfield Railway Station. The House is well calculated for a small genteel family, and the Garden is upwards of four acres in extent, laid out in walks, and planted throughout with ornamental shrubs and evergreens, in a most healthy state; the soil is not to be equalled for its adaptation to the growth of shrubs and gardening purposes. The whole of the plants and shrubs to be disposed of according to agreement. It has been carried on as a nursery and pleasure garden for upwards of 10 years, is situated in the most healthy part of the neighbourhood, and will be a most eligible residence either for a private family or a nurseryman and gardener.—For further particulars, and to treat for the same, apply to Mr. POOLE, residing on the premises.

Sales by Auction.

COVENTRY.—To GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Ogden to Sell by Auction on the premises, Warwick Road, Coventry, on MONDAY, Nov. 23, at 11 o'Clock, a portion of his valuable NURSERY STOCK, consisting of a large assortment of Evergreens and Deciduous Shrubs; Ornamental, Fruit, and Forest Trees; Standard and Dwarf Roses; fine specimen Weeping Pinus excelsa, Hollies, Phillyreas, a quantity of Herbaceous Plants and Roots, Vines in Pots, &c.; also Camellias, and other Greenhouse Plants, together with a pair of large Wrought-iron Folding Gates, &c.—May be viewed four days prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HOLLOWAY.

To NOBLEMEN, GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are directed by Mr. Rishon to Sell by Auction on the premises, Holloway Nursery, Upper Holloway, Middlesex, on WEDNESDAY, November 25, at 11 o'Clock, the valuable Nursery Stock, consisting of fine large Evergreens, Ornamental Trees and Deciduous Shrubs, comprising Chinese and Siberian Arbor Vitæ, Aucubas, Bays, Phillyreas, Arbutus, Laurustinus, Alaternus, Green and Variegated Hollies, China and Evergreen Privet, Kalmia latifolia, &c., &c.; also fine Standard Roses, Standard and Dwarf Apples, Pears, Mulberries, Peaches, Nectarines, &c.—May be viewed prior to the Sale. Catalogues had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, City, on FRIDAY, Nov. 27, at 12 o'Clock, a first class collection of Dutch Bulbs; consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Gladiolus, &c.; also a fine assortment of Standard and Dwarf Roses, including Hybrids, Perpetuals, Chinas, Noisettes, &c.; choice American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromeda floribunda, well set with bloom buds, &c.—May be viewed the morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

HAMMERSMITH.—4000 FINE HEALTHY FRUIT TREES.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Trotman to Sell by Auction on the premises, Grove Road, Hammersmith, on MONDAY, November 30, at 11 o'Clock, a fine Collection of Dwarf-trained, Untrained, and Pyramidal FRUIT TREES, comprising Peaches, Nectarines, Apricots, Apples, Pears, Plums, Cherries, Gooseberries, and Currants, &c.; also a quantity of Linnaeus and Royal Albert Rhubarb, 2 and 3-years Asparagus, choice Pinks, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on the premises, Wandsworth Road, on TUESDAY, December 1, at 11 o'Clock, about 600 fine Double CAMELLIAS, from 1 to 6 feet, including all the best varieties, beautifully furnished with bloom buds; also the finest kinds of Chinese Azaleas, and very choice crimson Rhododendrons, well set with flower buds; Cacti, Ferns, and various other valuable Greenhouse Plants.—May be viewed prior to the Sale. Catalogues (when ready) may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Nov. 24, and THURSDAY, Nov. 26, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

TO GENTLEMEN, NURSERYMEN, AND OTHERS.

MESSRS. BARNARD, THOMAS, AND CO. have received instructions from the Proprietor (for the purpose of clearing some portions of the Plantation and thinning others), to Sell by Auction, at Lawrence Hill Nursery, Bristol, on MONDAY, November 30, without reserve, an assortment of NURSERY STOCK, comprising about 30,000 FOREST TREES, of Beech, Birch, Elm, Larch, Oak, Poplar, Spruce, Sycamore, Thorns, &c.; 4000 FRUIT TREES—Apple, Pear, Plum, Cherry, Peach, Currant, and Gooseberry; 6000 EVERGREENS—Arborvitæ, Aucuba japonica, Box, Cedrus Deodara, Cedar Lebanon, Cypress, Holly, Eucalyptus, Laurel, Laurustinus, Mahonia Aquifolium, Privet, Oak, Rhododendrons, Yew, &c.—The whole will be on view, with Catalogues, on Friday and Saturday, the 27th and 28th inst. Sale to commence at 11 o'clock.—Albion Chambers, Nov. 21.

TO PLANTERS, NURSERYMEN, AND OTHERS.

UNRESERVED SALE OF 800,000 FOREST TREES AND SHRUBS.

MR. POYSER has received instructions from Mr. Smith to Sell by Auction at the Tansley Nursery, near Matlock, on TUESDAY, WEDNESDAY, and THURSDAY, Dec. 8, 9, and 10, a portion of his NURSERY, the Land having been sold for other purposes. The stock consists of 50,000 Transplanted Oaks, 80,000 Evergreen Privets, 40,000 Hazels, 20,000 Yews, 50,000 Larch, 20,000 Mahonia, with large quantities of Ash, Alder, Spanish and Horse Chestnuts, Spruce, Limes, Maples, Silver Firs, Pines, Willows, and Poplars in various sorts, Rhododendrons, and American Plants, &c., in quantity and various sizes. Catalogues may be had free on application.—Matlock Bridge Station, on the Midland Railway, 1 mile from the Nursery.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	**CROCUS**	**ANEMONES**	**IRIS**
NARCISSUS	**TULIPS**	**RANUNCULUS**	**LILIES, &c. &c.,**

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUEf or this season may be had on application, inclosing one stamp, or gratis at Messrs, Jos. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions n the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s.* per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. COBBETT's Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

CHRYSANTHEMUMS.—An extensive collection of the above, both large and small varieties, is now in flower at CHANDLER & SON'S Nursery, Wandsworth Road. Good flowering plants from 6*s.* to 12*s.* per dozen.

Camellias, Chinese Azaleas, and Crimson Rhododendrons, well set with flower buds, at moderate prices.

BROWICK RED WHEAT.

MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s.* 6*d.* per bushel, including sacks.—Address to Mr. FAULKES, Bailiff, Worting Wood Farm, Basingstoke, Hants.

N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14, Seed Market, Mark Lane.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

---

500 ABIES DOUGLASI, 10 to 12 feet; 500 CEDRUS DEODARA, 6 to 8, and 10 to 12 feet, all removed last year, and may now be transplanted with the greatest safety, together with an immense stock of fine specimens of all the new and rare CONIFERS which can be confidently recommended. Prices and particulars may be had on application.—WILLIAM YOUNG, Milford Nurseries, near Godalming; two miles from the Godalming Station, South-Western Rail, and four from Shalford Station, South-Eastern Rail.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Nov. 21.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Nov. 21.

PUBLIC PARKS AND CEMETERIES can be supplied with splendid specimens of CEDRUS DEODARAS that cannot be surpassed in the trade, from 3 to 6 and 8 to 10 feet. These specimens are well calculated to produce immediate effect.—WM. MAULE & SONS, Nurseries, Bristol.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodara, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MAULE & SONS, Nurserymen, Bristol.

LANDSCAPE GARDENING, ETC.

MR. J. W. CHAPMAN begs to intimate to the nobility, gentry, and all who are contemplating the formation or improvement of PARKS, PLEASURE GROUNDS, &c., that he will be prepared to give advice on these and all subjects connected with Gardening, whether ornamental or useful, furnishing the necessary Plans and Drawings for these purposes, and superintending the execution of the works during their progress. The formation of new and alteration of other plantations in both home and distant scenery, for the purpose of rendering the views from a place as interesting as possible, are subjects to which the most careful attention is given.—Dartmouth Lodge, Dulwich, S., Nov. 21.

H. AND R. STIRZAKER beg to offer some of the principal sorts of their extensive NURSERY STOCK, all Transplanted, and of first-rate quality.

ft.		Per 1000. *s. d.*	ft.		Per 1000. *s. d.*
100,000	Alder, 1½ to 4,	from 14 0	600,000	Larch, 1 to 4,	from 8 0
50,000	Ash, 2 to 5	,, 10 6	60,000	Scotch Fir, 1 to 2½,	,, 9 0
60,000	Beech, 1½ to 3	,, 15 0	3,000	Balm of Gilead, 2 to 3 ft. ..	,, 50 0
10,000	Chesnut, Horse, 1½ to 5 ft. ..	,, 20 0	2,000	Pinus Weymouth, 2½ to 3 ft. ..	,, 50 0
10,000	do. Spanish, 2 to 5,	,, 25 0	5,000	Poplar Italian, 2 to 4 ft. ..	,, 20 0
35,000	Elm, Wych, 2 to 4,	,, 10 6	80,000	Sycamore, 1 to 5	,, 9 0
2,000	Hornbeam, 2 to 5,	,, 25 0	500,000	Thorns, 2, 3, & 4 yrs,	,, 15 0
60,000	Oak, English, 1½ to 3 ft. ..	,, 13 6	5,000	Willows, 2 to 5	,, 20 0

Priced Catalogues gratis on application. The Trade liberally dealt with where quantities are wanted.—Lancaster Nurseries.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants:—

	Per dozen.—*s.*		Per dozen.—*s.*
Acacia Drummondi	42	Herbaceous & Alpine Plants,	,, 4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties ..	,, 12
Cyclamens .. .. from	12	Phloxes, Herbaceous ..	,, 9
Ferns, Stove & Greenhouse	,, 12	Pinuses	,, 18
,, Hardy	,, 9	Roses, Hybrid Perpetuals, Teas, &c., in pots ..	,, 18
		Do. Teas, &c., Standards	,, 21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6*s.*
,, ,, seed, per packet .. .. 1*s.*

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

NEAT AND DURABLE GARDEN LABEL.—A Specimen Label will be sent on the receipt of three postage stamps.—Address, F. H., Lydbury North, Salop.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is better to write upon than parchment or canvas, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

GREENHOUSES, including HOT-WATER APPARATUS:—12 ft. long by 8 ft. wide, 30*l.*; 16 by 10, 35*l.*; 21 by 12, 55*l.*; 36 by 13, 100*l.*—Apply at SMITH'S Greenhouse and Hot-water Apparatus Manufactory, 121, Pentonville Road, London.

THOMSON'S PATENT HOT-WATER GAS-HEATING APPARATUS.

MANUFACTURERS AND AGENTS FOR THE PATENTEE, ROBERT THOMSON AND SONS, PLUMBERS, BRASSFOUNDERS, and GAS FITTERS, Dalkeith, N.B.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS AND HOT WATER APPARATUS MANUFACTORY.

SHACKLEWELL LANE, KINGSLAND, LONDON, N. E.

J. OVERALL begs to call the attention of the Nobility, Gentry, and Nurserymen to the superior style in which he builds, ventilates, and heats Greenhouses, &c., combining durability of materials, workmanship and design. His ventilating system is light and durable, and does not weigh the roof down with great masses of iron work. His Coil Boilers can be made to suit any sized building; there are now several at work with the greatest satisfaction. List of Prices sent on application.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

HORTICULTURAL GLASS, STOCK SIZES, packed in Boxes of 100 feet each.

					s. d.
11 by 9,	12 by 9,	13 by 9,	14 by 9 ..	..	15 0
12 ,, 10,	13 ,, 10,	14 ,, 10,	15 ,, 10 ..	..	
16 ,, 10,	17 ,, 10,	18 ,, 10	..	..	16 0
12 ,, 11,	13 ,, 11,	14 ,, 11,	15 ,, 11,	16 ,, 11	
13 ,, 12,	14 ,, 12,	15 ,, 12,	16 ,, 12 ..	..	16 6
17 ,, 12,	18 ,, 12,	19 ,, 12,	20 ,, 12 ..	..	17 0
16 ,, 13,	17 ,, 13,	18 ,, 13,	20 ,, 13 ..	..	
22 ,, 13,	24 ,, 13,	20 ,, 14,	22 ,, 14 ..	..	
24 ,, 14,	20 ,, 15,	22 ,, 15,	24 ,, 15 ..	..	18 0

SMALL SQUARES.—Per 100 feet.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	
8 ,, 6	8½ ,, 6½	9 ,, 7	9½ ,, 7½	11 6
10 ,, 8	10½ ,, 8½ ..	..	.. ..	12 6

SHEET GLASS FOR ORCHARD HOUSES, As supplied by us to Mr. Rivers.

20 by 12, 20 by 13, 20 by 14, 20 by 15, 18*s.* per 100 feet.

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ½-inch in thickness.

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Plate Glass, Rough-cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

JAMES PHILLIPS AND CO.,
HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without, E.C.

GLASS FOR CONSERVATORIES, ETC.

HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER-PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

See *Gardeners' Chronicle* first Saturday in each month.

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Packed in 100 feet boxes, averaging 15 to 16 oz. to the foot.

6 by 4, & 7 by 5	11*s.* 3*d.* per 100 feet.	9½ by 7½, & 10 by 8	12*s.* 6*d.* per 100 feet.
8 by 6, & 9 by 7		11 by 9, & 12 by 8	

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

Orchard House squares as supplied to Mr. Rivers.

	Common.	Superior.
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20 by 13, and 20 by 15	21 oz. at 24*s.* ,,	27*s.*

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Of ¼, 3/16, ⅛, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings. 10 per cent. allowed off prices advertised.

Pan Tiles, Propagating and Bee Glasses.
Fern Shades, Glass Milk Pans.
Aquaria, 12, 14, 16 to 18 inches diameter.
Ruby, Blue, Green, and Ornamental Glass.

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Genuine White Lead, Colours of all kinds.
Linseed Oil, Turpentine, Varnishes, Brushes, &c.
All packages charged, but allowed when returned.

87, Bishopsgate Street Without, same side as Eastern Counties Railway.

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EDWARD BECK MANUFACTURES in SLATE a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

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SIGMA'S CORN PLANTERS, five depositors, 3*l.* 3*s.* The DRAW SHAVE STEEL HOE, 4*s.* 6*d.* Prospectus sent.

Mr. C. POWELL, Hurst Green, Sussex.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to

GARNOCK, BIBBY, AND CO.,
Patent Cordage and Wire Rope Manufacturers, Liverpool.

TO NURSERYMEN, &c.

10,000 NEW ARCHANGEL MATS, large size.—Apply to JOHN JAMIESON, Sail Cloth and Linen Factor, 13, Bishopsgate Street Without, E. C.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 48.—1857.] SATURDAY, NOVEMBER 28. {Price Fivepence. Stamped Edition, 6*d*.

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BRITISH POMOLOGICAL SOCIETY, St. Martin's Hall, Long Acre, W.C.—The next meeting of the Society will be held on THURSDAY, December 3; following Meeting THURSDAY, February 4, to which Members and Fruit Growers generally are invited to send specimens for examination of such Fruits as are in season, and especially of new and little known varieties and Seedlings for opinion. The carriage of parcels is paid by the Society. The Chair will be taken at 2 o'clock. Gentlemen desiring to be elected Members are respectfully invited to intimate their wish previous to the Meeting. Entrance, 10*s*.; Annual Subscription, 10*s*. Copies of the Rules and further information can be obtained from
WILLIAM DAVIDSON, Assistant Secretary.
2, Randolph Road, Maida Hill, London.

TO ROSE GROWERS.—Professor LINDLEY offers Two Prizes of 3*l*. and 2*l*. respectively, for the best 20 ROSES in 32-sized pots, that may be shown at the Great Chiswick Exhibition on the 9th of JUNE next. Two Roses of a sort may be exhibited. Open to both Amateurs and Nurserymen.

SOLICITING INDULGENCE.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WILLIAM WOOD AND SON embrace this opportunity of SOLICITING THE INDULGENCE of their NUMEROUS CORRESPONDENTS, whose very obliging orders have been so unavoidably delayed, a circumstance which W. W. & S. extremely regret, and which they will take care to remedy in future.
THE INFLUX OF BUSINESS has been so great this season that several orders have been necessarily delayed.
W. W. & SON beg to observe that they have entered into some entirely new Business arrangements, which will enable them to expedite their orders, so that no time will be lost in executing the numerous commissions they have been so liberally favoured with.
W. W. & SON respectfully crave the kind indulgence of their friends for a few days.

LANDSCAPE GARDENING & GARDEN ARCHITECTURE.
MR. DAVIDSON respectfully offers his services to noblemen, gentlemen, and the public, in designing and directing New Works and Improvements in Parks, Gardens, and Cemeteries, &c. His engagements in various parts of the country enable him to reduce considerably the cost of travelling expenses on long journeys.
2, Randolph Road, Maida Hill, London, W.

NOTICE OF REMOVAL.
NUTTING AND SONS, SEEDSMEN, late of 46, Cheapside, and 26½, Upper Thames Street, beg to acquaint their Friends and Customers that they have REMOVED to their New Premises, 60, Barbican, where they hope to be favoured with future commands.—60, Barbican, London, E.C.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.
The Nursery, Bagshot, Nov. 28.

BERBERIS JAPONICA.
CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established; it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Nov. 28.

EARLY SOWING FOR 1858.
EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. Every description for present sowing may be had of JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

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CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1*s*.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

BROWICK RED WHEAT.
MR. BETHELL can supply large or small quantities of this celebrated prolific Wheat for Seed at 8*s*. 6*d*. per bushel, including sacks.—Address to Mr. FAULKES, Bailiff, Worting Wood Farm, Basingstoke, Hants.
N.B.—Well suited for Early or Late Sowing.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14, Seed Market, Mark Lane.

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IN 6-INCH POTS FOR EXHIBITION AT 30*s*. PER DOZEN.
WM. WOOD AND SON are offering superbly grown plants of the above on their own roots, either for Greenhouse culture or forcing for early blooming in 24-sized or 6-inch pots.
Extra-sized magnificently grown specimens of the above, very large plants with well-ripened wood adapted for exhibiting for prizes at horticultural shows, from 10*s*. 6*d*. to 21*s*. each. Catalogues and all particulars on application.
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ROSES.
GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.
Woking Nursery, Surrey.

NEW ROSE LIST FOR 1857-8;
ALSO,
A GENERAL CATALOGUE of NURSERY STOCK, to be had free on application to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

ROSE NURSERIES, HERTFORD.
E. P. FRANCIS' New and Descriptive Catalogue of ROSES, for 1857 and 1858, is now ready for delivery, and will be forwarded gratis on application.

TO THE TRADE.
JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.
Bardney Hall, near Lincoln, Nov. 28.

TRADE FERN CATALOGUE.
ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*
Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.
ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.
*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*
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MR. THEODORE BÖTTNER, SEED GROWER and NURSERYMAN, Greussen, near Erfurt, Germany, begs to inform Amateurs and the Trade that his CATALOGUE OF FLOWER AND VEGETABLE SEEDS for 1858 is Now Ready, and may be had gratis on application to his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

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H. J. OLDROYD, NURSERYMAN, Shrewsbury, offers fine plants of the above at 24*s*. per dozen. A reference required from unknown correspondents.

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PINE PLANTS FOR SALE,—Six dozen of sturdy robust QUEENS, in 6-inch pots, well rooted, and thoroughly clean.—For prices, &c., apply to J. P., Post Office, Fairford, Gloucestershire.

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BLACK GRAPE CURRANTS, extra fine, do. .. 2 6
APPLE "Lord Suffield," extra fine, do., 12*s*. and 18 0
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WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75*s*. per 100. Price to the trade on application.—Highgate Nurseries, London, N.

RASPBERRIES.
CORNWELL'S VICTORIA, FASTOLF, large Autumn-Fruited and White, at 12*s*. per 100. Sweet scented Double White Narcissus in any quantity, roots from the ground, at 3*s*. per 100. A quantity of fine Laurustinus, 2 to 4 feet.
GEORGE CORNWELL, Market Gardener, Barnet.

BERNARD SAUNDERS, NURSERYMAN, Jersey, has splendid Stocks of Quince Pear Trees, Flemish Carnations, Yellow and White-ground Picotees, &c., to offer to his numerous patrons and friends this season. Prices moderate, to be obtained on application.
B. S.'s Priced List of Cape Bulbs is now ready for delivery.

SEED ESTABLISLMENT, SLEAFORD.
CHARLES SHARPE AND CO., beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

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JOHN AND CHARLES LEE having recently erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

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JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT-BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

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BERBERIS DULCIS, 2 to 3 feet, 12*s*. per 100. This plant makes a capital hedge.
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J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

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TO NURSERYMEN.
WANTED TO PURCHASE IMMEDIATELY, 50,000 Plants of SPANISH CHESNUT; to be well rooted, and of not less than 2 years' growth.—Application stating price, delivered at the Dorking Railway Station, to be made to T. PAGE; or Messrs. PAGE & LEES, Land Agents, &c., Dorking.

CHESNUTS FOR SALE.—A quantity of clean selected ENGLISH NUTS of this year's growth, at 5*s*. per bushel, for cash. Also strong one year's Seedlings, and about 20,000 three and four years' transplanted Chesnuts, 2½ to 3½ feet, for planting out.—Inquire (prepaid) of Mr. W. PUTTICK, Easebourne, Petworth, Sussex.

RHODODENDRON PONTICUM and KALMIA LATIFOLIA; superb bushy plants, from 1 to 2 feet high, completely covered with bloom buds and admirable adapted for potting.—Prices on application to WM. WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

SPLENDID STANDARD PORTUGAL LAURELS FOR PLANTING ON LAWNS.
WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.
WILLIAM WOOD AND SON have to offer magnificently grown plants of the above, varying in height from 3 to 6 feet, with compact bushy heads. Some of the largest plants they are offering have heads measuring 6 feet in circumference, in fact perfect pictures.

	Each—*s*.	*d*.
Young plants	5*s*. to 10	6
Large ditto	15*s*. to 21	0

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TWO MILLIONS OF TRANSPLANTED QUICKS.
GEORGE CHIVAS invites the attention of Planters to his Stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 15*s*. His General List of Nursery Stock will be forwarded on application.—Chester.

1,000,000 TRANSPLANTED LARCH; 500,000 TRANSPLANTED SCOTCH; 500,000 TRANSPLANTED SPANISH CHESNUT, and other FOREST TREES for Underwood or Cover, in fine condition.
WILLIAM YOUNG, Milford Nurseries, near Godalming, Surrey.

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HARDY HEATHS.—A very large quantity of all the esteemed varieties, in good plants, 35*s*. per 100. Many of the kinds are well suited for forming edgings to clumps of American plants.
JOHN WATERER, American Nursery, Bagshot, Surrey.

PUBLIC PARKS AND CEMETERIES can be supplied with splendid specimens of CEDRUS DEODARAS that cannot be surpassed in the trade, from 3 to 6 and 8 to 10 feet. These specimens are well calculated to produce immediate effect.—WM. MAULE & SONS, Nurseries, Bristol.

NOBLEMEN AND GENTLEMEN improving their grounds can be furnished with handsome well-grown specimens of Cedrus Deodara, Cedars of Lebanon, Pinus excelsa, Taxodium sempervirens, and other desirable Conifers, together with most of the choicest and ornamental Deciduous Trees, so indispensable in Park scenery; large supplies of Rhododendrons and Azaleas, and other Americans, which are cultivated in natural loam, and extend over some acres of the nurseries.—WM. MAULE & SONS, Nurserymen, Bristol.

DOUBLE ROMAN AND PAPER WHITE NARCISSUS, 4*s*. per dozen.—The above Bulbs, the former of which is so justly esteemed for its early blooming and excessive fragrance, and the latter for its purity and elegance, have just arrived, and may be obtained at A. PERRY'S Italian and Foreign Warehouse, 18, Pall Mall, near Waterloo Place, London.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity upon reasonable terms, by land or water carriage.
ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

STRONG SEAKALE ROOTS for forcing; crowns from 1½ to 2 inches diameter, price 8*s.* per 100; selected single crowns, 10*s.* per 100.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

One Thousand PLUMS for sale, consisting chiefly of "Victoria" and a seedling largely grown at Deptford; also Jefferson, Prince of Wales, and Downing's new seedlings Standard of England. Angelina Burdett, and Woolston's Black Gage. Maiden stock, 50*s.* per 100 or 8*s.* per dozen; 2-year old rough standards, 75*s.* per 100, or 12*s.* per dozen; these have been removed last season and previously, and will come up with good fibrous roots. To persons planting a large quantity liberal terms would be offered.

Apply to Mr. W. MYATT, Manor Farm, Deptford.

MYATT'S SEEDLING STRAWBERRY, 2*s.* 6*d.* per 100, packed and delivered free to any address in London.

Manor Farm, Deptford, Nov. 28.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Nov. 28.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHODODENDRONS annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
,, ,, 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possibly desired.
,, africana, 3 to 4 and 5 feet, fine plants.
,, Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
,, ,, ,, larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet.
,, Goveniana, ,, Lambertiana, ,, macrocarpa — 2 to 3 and 4 to 5 feet, from seed. The large sized plants are very handsome.
,, Lawsoniana Seedlings.
,, variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens.
,, japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
,, chinensis, 3 to 4 and 5 to 6 feet.
,, common English, 2 to 3 feet.
,, Irish, 3 to 4 feet.
,, ,, 4 to 6 and 7 to 8 feet, very handsome close grown specimens.
,, recurva, 3 to 4 and 5 feet.
Libocedrus chilensis, 3 to 4 feet.
,, gigantea, 1 to 2 feet.
,, ,, 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
,, Beardsleyana (new), about 1 foot.
,, Benthamiana, 1 to 2 and 3 feet.
,, Brunoniana, 2 to 3 feet.
,, Cembra, 3 to 4 and 5 to 6 feet.
,, Douglasi, 4 to 5 and 6 feet.
,, ,, 6 to 8 and 10 feet, most magnificent plants.
,, excelsa, 4 to 6 and 7 feet.
,, insignis, in any quantities, 2 to 3 feet.
,, ,, ,, 3 to 4 and 5 feet.
,, Jeffreyana (new), about 1 foot.
,, Lambertiana, 2 to 3 and 4 feet.
,, ,, very fine, 5 to 6 and 8 feet.
,, Morinda, 4 to 6 and 7 feet.
,, nobilis, from seed, 1 and 2 years.
,, Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
,, Sabiniana, 2 to 3 feet.
,, taxifolia (of Jeffrey), 1 to 1½ foot.
,, tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora ericoides, 1 to 2 feet.
Saxe-Gothæa conspicua, 2 to 3 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 to 10 feet.
Taxus (Yew), Common, 2 to 3 and 4 to 5 feet.
,, Irish, 3 to 4 and 5 to 6 and 8 feet.
,, gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
,, ,, larger, 1½ to 3 feet.
,, chilensis, 2 to 4 feet.
,, gigantea, 1 to 2 and 3 to 4 feet.
,, Hookeriana, a very dense growing species.
,, Wareana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
,, ,, larger, very handsome, 1½ to 2 and 3 to 4 feet.

This plant is admirably adapted for forming Avenues.

None of the foregoing are grafted, with the exception of Pinus Lambertiana, which does well, neither have any been cramped by the ruinous system of pot culture.

AMERICAN PLANTS.

Azaleas, good varieties of scarlet, rose, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
,, Of best Ghent and other varieties, 1 to 2 feet.
,, Standard, of the leading kinds.
Kalmia latifolia, 1 to 2 feet, by the 100.
,, ,, 2 to 3 and 4 feet, large very handsome specimens
,, ,, Standards, with fine symmetrical heads.
,, ,, myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Game Covers.
,, Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
,, Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
,, Standard, 3 to 4 feet stems with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved perpetual varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens; we would therefore suggest the importance of purchasers making a visit of inspection, which can be readily done by South-Western Railway to the Sunningdale Station, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Nov. 28.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara, ,, Africanus, Cedar of Lebanon — 1 to 10 ft. The largest and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection)—Standards, 18*s.* p. doz., and uparwds; Dwarfs, 6*s.* do. and uparwds. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon). 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree.
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants:—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
,, ,, magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
,, ,, 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
,, Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
,, Douglasi, 5, 6, 8, and 10 feet
,, Menziesi, 6 to 8 feet
,, Lambertiana, 2, 3, and 5 feet
,, Cembra, 3, 5, and 6 feet
,, Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
,, amabilis, also from seed
,, Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
,, Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
,, Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 5 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
,, Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
,, Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
,, elegantissima, or new Gold Striped, in quantities and of all sizes
,, adpressa, 2, 3, and 4 feet; ditto worked as standards
,, Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
,, Wareana, 3, 4, 5, 6, and 8 feet
,, aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South-Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

SECOND IMPORTATION.

FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting. SUTTON & SONS, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see below :—

per doz.—s.d.		per 100—s. d.	
Dutch Double Hyacinths, mixed	4 0	Anemones, large Double	5 0
Do., Single do. ..	4 0	Do. do. Single..	4 0
Double Jonquils, Sweet..	2 6	Ranunculuses	3 6
Polyanthus Narcissus ..	2 6	Hyacinths, Dutch Double, mixed	30 0
Double Roman do. ..	3 6	Do., Parisian Double ..	15 0

SUTTON & SONS are now prepared to execute orders for all kinds of Garden Seeds from this year's crops.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows :—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE or this season may be had on application, inclosing one stamp, or gratis at Messrs. JOS. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants :—

Per dozen.—s.		Per dozen.—s.	
Acacia Drummondi	42	Herbaceous & Alpine Plants,	4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties .. ,,	12
Cyclamens .. .. from	12	Phloxes, Herbaceous .. ,,	9
Ferns, Stove & Greenhouse ,,	12	Pinuses .. .. ,,	18
,, Hardy .. .. .. ,,	9	Roses, Hybrid Perpetuals, Teas, &c., in pots .. ,,	18
		Do. Teas, &c., Standards ,,	21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6s.
,, ,, seed, per packet .. .. 1s.

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

LUPINUS PILOSUS ALBUS.

W. THOMPSON, Tavern Street, Ipswich, begs to announce that he has purchased the entire Stock of the above fine new white variety of the large ROSE LUPINE, of Mr. Burridge, Colchester, the raiser, and is now prepared to supply it to the Trade at a price unusually low for so desirable a novelty. It preserves its purity to the last, never changing to blush, as does the white variety of Hartweg's Lupine, and is undoubtedly the best white Lupine yet offered. Price may be had on pre-paid application; the stock being limited, early orders are respectfully solicited

BANBURY NURSERY.

MESSRS. P. J. AND J. PERRY beg to offer to the Nobility, Gentry, the Trade, and extensive planters, 500,000 Mahonia or Berberis aquifolia; 10,000 English Elm, all sizes; 10,000 extra fine Spruce, 4 to 10 feet; Oak, Larch, Poplar, Lime, Hornbeam, and other Forest and Ornamental Trees in large quantities; Yews, 3 to 7 feet; Laurels of all sizes; Cedars of Lebanon, 3 to 10 feet; Irish Yews, 2 to 7 feet; Phillyreas, Weeping Hollies, and a very extensive stock of Evergreen and Flowering Shrubs, an inspection of which is earnestly requested. Their Catalogue containing a first-rate collection of Conifers, Ferns, &c., may be had post free on application.

LANCHEDGE NURSERY.

C. WOOLVEN invites the attention of Fruit Growers and the public generally to his very superior STOCK of Fruit Trees, Florist and Ornamental Trees and Shrubs, Standard Apples, Pears, Plums, and Cherries, from 12s. per dozen; ditto trained, from 30s. per dozen. A fine Stock of Peaches, Nectarines, and Apricots, from 30s. per dozen. Also a large quantity of very fine Weeping Ash, Purple Beech, &c., at equally low prices. About 5000 Gooseberries and Currants of all the leading sorts now in fine condition, from 2s. per dozen. C. W. has now on hand about 10,000 very fine Evergreens, consisting of Arbor-Vitæ from 2 to 7 feet high, Aucubas, Laurustinus, Portugal and Common Laurels; Standard Roses, &c., equally good.—C. WOOLVEN, Nurseryman, Edmonton.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15s. per 100; 50 for 9s.; and 25 for 5s.; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

HORTICULTURAL SOCIETY OF LONDON.

EXHIBITION AT THE GARDEN, June 9th & 10th, 1858.

SCHEDULE OF PRIZES.

Class.	Prizes offered £ s.	£ s.	£ s.
I. Groups of 20 Stove and Greenhouse Plants, consisting of plants in flower, plants with fine foliage, and plants with variegated leaves.. N.B. That collection will be regarded as the best in which the greatest *variety* and *novelty* shall be found combined with the highest cultivation.	20 0	15 0	10 0
II. Ten Mixed Stove and Greenhouse Plants in flower, in pots not exceeding 13 inches in diameter .. Novelty and variety are to be most especially considered by the Judges of this Class	10 0	8 0	6 0
III. Single Specimen, in flower, of the best plant introduced within the last 10 years	3 0	2 0	1 0
IV. Single Specimen, in flower, of the best old plant not now usually seen in Exhibitions..	3 0	2 0	1 0
V. Fifteen Orchids .. .. (Amateurs)	15 0	12 0	10 0
VI. Ten Orchids .. .. (do.)	10 0	8 0	6 0
VII. Six Orchids .. .. (do.)	6 0	4 0	2 0
VIII. Fifteen Orchids .. (Nurserymen)	15 0	10 0	7 0
IX. Twelve Stove and Greenhouse Ferns	5 0	4 0	3 0
X. Six Stove and Greenhouse Ferns ..	3 0	2 0	1 0
XI. Newly introduced or extremely rare species of ornamental plants, in flower; not introduced by the Society			
XII. The same, not in flower .. .. These must be well-grown specimens, showing the habit of the plant, or they will not be entitled to a prize			
N.B. The prizes in XI. and XII. will be awarded by the Society's officers, and not by the usual judges. Nothing will be regarded as new that has been exhibited in a previous year.			
XIII. Twelve Variegated Plants	5 0	4 0	3 0
XIV. Eight Chinese Azaleas	8 0	7 0	6 0
XV. Six Chinese Azaleas .. (Amateurs)	6 0	5 0	4 0
XVI. Eight Rhododendrons, to be shown on Grass	5 0	4 0	3 0
XVII. Eight Roses, in 13-inch pots (Amateurs)	6 0	4 0	2 0
XVIII. Six Roses, in 13-inch pots (do.)	4 0	3 0	2 0
XIX. Ten Roses, in 13-inch pots (Nurserymen)	7 0	5 0	3 0
XX. Ten Roses, in five distinct sorts, brought out since 1852; in pots not to exceed 8 inches in diameter ..	5 0	3 0	2 0
Dr. LINDLEY also offers for			
XXI. The 20 best Roses, in 32-sized pots; two of a sort may be exhibited ..	3 0	2 0	
XXII. Six Cape Heaths, in 8-inch pots ..	3 0	2 0	1 0
XXIII. Six Aphelexids, in 10-inch pots ..	3 0	2 0	1 0
XXIV. Six Tall Cacti	3 0	2 0	1 0
XXV. Six Pelargoniums, in 8-inch pots, (Amateurs)	5 0	4 0	2 0
XXVI. Six Pelargoniums, do. (Nurserymen)	4 0	3 0	2 0
XXVII. Six French spotted varieties	5 0	4 0	2 0
XXVIII. Six Fancy Pelargoniums (Amateurs)	5 0	4 0	2 0
XXIX. Six Fancy Pelargoniums (Nurserymen)	4 0	3 0	2 0
XXX. New Garden Hybrids .. .. .. From this Class all Florists' Flowers are excluded.	Certificates only.		
XXXI. Florists' Flowers. (See Rule XXX.)..			

Class.	Prizes offered £ s.	£ s.	£ s.
XXXII. Miscellaneous .. .. No objects but those of decided merit will be admitted.			
CUT FLOWERS.			
XXXIII. Roses, in fifties, three trusses of each in loose bunches as they are gathered, so as to exhibit as far as possible the habit of the variety (Nurserymen)	3 0	2 0	1 0
XXXIV. Roses, in twenty-fives, gathered as in the preceding class .. (Amateurs)	2 0	1 0	1 0
XXXV. Pinks, in twenty-fours	1 0		
XXXVI. Pansies do.	1 0		
FRUIT.			
XXXVII. Collection; to consist of eight distinct sorts	7 0	5 0	3 0
XXXVIII. Pine Apples; collection of three distinct varieties, not more than two of a sort..	3 0	2 0	1 0
XXXIX. Pine Apples; Providence or other large sorts, single specimens ..	2 0	1 0	1 0
XL. Pine Apples; Queens, single specimens	2 0	1 0	1 0
XLI. Grapes, miscellaneous .. .. .. A V.P.H.S. offers a prize of 5*l.* for the best basket of Grapes of any kind weighing not less than 8 lbs.			
XLII. Grapes; Black Hamburgh, one basket	3 0	2 0	1 0
XLIII. Grapes; Royal Muscadine, or any white sort exclusive of Muscats and Frontignans, one basket	3 0	2 0	1 0
XLIV. Grapes; Muscats, one basket ..	3 0	2 0	1 0
XLV. Grapes, Frontignans, one basket ..	3 0	2 0	1 0
XLVI. Vines in pots, in twos	3 0	2 0	1 0
XLVII. Melons, green-fleshed	1 0	1 0	
XLVIII. Melons, scarlet-fleshed	1 0	1 0	
XLIX. Peaches, two baskets	3 0	2 0	1 0
L. Peaches, one basket	2 0	1 0	1 0
LI. Nectarines, two baskets, distinct sorts	3 0	2 0	1 0
LII. Nectarines, one basket	2 0	1 0	
LIII. Apricots	2 0	1 0	
LIV. Figs, in sixes	1 0	1 0	
LV. Cherries, two dishes, distinct sorts ..	2 0	1 0	1 0
LVI. Cherries, white, in single dishes ..	1 0	1 0	
LVII. Cherries, black, do. ..	1 0	1 0	
LVIII. Plums, two dishes, distinct sorts ..	2 0	1 0	1 0
LIX. Strawberries, three baskets, distinct sorts	3 0	2 0	1 0
LX. Strawberries, British Queen, single baskets	2 0	1 0	1 0
LXI. Strawberries, not British Queen, single baskets	2 0	1 0	1 0
LXII. Seedling Fruits (Certificates only) *Note.* Extra Prizes may be awarded to objects of merit not specified in the Schedule.			
*** EXHIBITORS OF FRUIT *are earnestly requested to discontinue the use of boxes or dishes, and to substitute baskets, patterns of which are in preparation for their guidance.*			
VEGETABLES.			
LXIII. Collections .. .. Market Gardeners and Amateurs compete separately.	5 0	3 0	2 0

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year :—

May 30, Crystal Palace.—12 Roses in pots .. FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots .. SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)
June 18, Royal Botanic Society—50 Cut Roses .. FIRST PRIZE
Do. do. 10 Roses in pots .. SECOND PRIZE
June 24, Brighton .. 50 Cut Roses .. .. FIRST PRIZE
June 24, Manchester .. 50 Cut Roses .. .. SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.
July 1, Royal Botanic Society—24 Cut Roses .. FIRST PRIZE
,, do. do. 50 Cut Roses .. FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses .. FIRST PRIZE
,, ditto, collection ditto .. FIRST PRIZE
July 9, Diss .. 50 Cut Roses, FIRST PRIZE, SILVER CUP
,, do. .. 100 Cut Roses, FIRST PRIZE, ,,
July 15, Stamford .. 12 Cut Roses, FIRST PRIZE, ,,
Sept. 9, Crystal Palace 50 Cut Roses, FIRST PRIZE, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18s. to 24s. per dozen, as Standards, and from 12s. to 18s. per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

BERKSHIRE CHAMPION CUCUMBER.

Extract from Oxford Journal, March 17, 1855.

"There is now growing in the Garden of William Hervey, Esq., of Bradwell Grove, in a small two-light pit, 9 feet by 5, heated by dung linings only, a brace of Cucumbers measuring upwards of 3 feet, on the same plant which was in bearing in March, 1854; the sort is SUTTON'S Berkshire Champion, which is a most prolific bearer; the plant is still in a luxuriant state."

From Gardeners' Chronicle, Nov. 14, 1857.

"MR. EDITOR,—Seeing the Berkshire Champion Cucumber spoken well of in your columns, I wish to bear witness to the fact that it is the best Cucumber with which I am acquainted. I have grown all the leading sorts for these last two years, along with Berkshire Champion, and not one of them equals it. It grows on an average from 18 inches to 2 feet in length, handsome and straight. It is early, hardy, a good setter, and crisp. It continues long in bearing. I cut the first fruit on the 16th of March, and the last on the 10th of October, out of the same frame. Nurserymen should send out good things that will satisfy both gardener and master, and this I am sure SUTTON'S Berkshire Champion will do.—A. ARNOLD, Gardener to J. H. Gills, Esq., Bickham, Plymouth."

SUTTON & SONS, Reading, can supply Seed of the above Cucumber at 1s. 6d. per packet.

The Gardeners' Chronicle.

SATURDAY, NOVEMBER 28, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, December 1—Horticultural ..... 2 P.M.
THURSDAY, — 3—Pomological ..... 2 P.M.

THE state of the POTATO crop has become such as to render any method of saving the tubers for consumption a matter of universal interest. Even in such a season as this there was a large quantity of sound Potatoes at first, but their proneness to rot forced them into the market, caused their rapid consumption, and thus assisted to increase the existing scarcity. We are therefore glad to point out a method by which Potatoes may be secured when cheap against decay, and be thus rendered capable of being preserved without change for long periods of time.

Various schemes have been proposed for reducing the Potato to a pulp, then drying the pulp, and afterwards preserving it for use in dry places. Most of these methods have come under our observation; but in none has the preparation been quite satisfactory except that to which we are about to advert. Some became mouldy, some would not cook, all had a more or less unpleasant taste, which distinguished them from fresh Potatoes. It was reserved for Mons. CHOLLET, the celebrated Paris manufacturer of compressed vegetables and preserved meats, to apply MASSON'S patent to the Potato in such a way as to leave nothing to be desired. Before expressing an opinion on the subject we have thought it right to give the preparation a fair trial, it has now been in daily use with one of us for some time, and we think no one could possibly tell that the mashed Potatoes when brought to table were otherwise than prepared from fresh tubers. Perhaps in taste they resemble roasted

Potatoes more than boiled ones, a merit undoubtedly, not a defect. The preparation may be kept in canisters with a perfect certainty of there being no waste, nor any chance of deterioration.

The present price of Potatoes of the best quality in Covent Garden Market is about 7*l.* a ton. One ton of prepared Potatoes is equal to four tons raw; if then, as we understand, the manufacturers offer their preparation at 25*l.* 10*s.* a ton wholesale, it is obvious that it is 2*l.* 10*s.* a ton cheaper than the raw material; besides which it is liable to no waste, or loss otherwise. We should therefore think it, as regards mere cost, an acquisition, independently of its other important good qualities.

Let us add that nothing can be more simple than the way of cooking. You put 1*lb. of these Potatoes into a saucepan, pour about three pints (rather less) of boiling water on the same, cover it (to prevent cooling) for a quarter of an hour, then add salt, &c., mash well; this will make about 4lbs. of excellent mashed Potatoes.* Any cook can, it is to be hoped, follow out these directions, although so few have any skill in boiling a Potato.

We presume that CHOLLET's usual agents are ready to supply the preparation; but of that we have no information. Their wholesale house is at 123, Fenchurch Street.

OUR advertising columns now contain the Horticultural Society's announcement of the Prizes offered at the Great Garden Exhibition to be held at Chiswick in June 1858. Many improvements have been introduced, as will be apparent from a comparison of the schedule with that of last year.

It has also been decided to introduce Orchids and Pelargoniums into the Great London Exhibition in April, which is moreover to be kept open for two days, there being evening admission on the first day. This has rendered necessary a change from Tuesday, April 6, to Wednesday and Thursday, April 21 and 22.

Finally the plan of a July meeting has been altered to that of a great Exhibition of Fruit, &c., in London on Wednesday and Thursday, Nov. 3 and 4.

WE understand that Messrs. VEITCH & SON, the eminent nurserymen of London and Exeter, have presented the Horticultural Society with the whole of the money due to them for prizes gained in the present year, and amounting to 33*l.* 10*s.*, upon the condition that it be applied to such purposes in the Garden as Mr. M'EWEN may prefer.

So signal a mark of liberality on the one hand, and on the other of confidence in the superintendent of the Chiswick Garden, cannot fail to be appreciated by all who are interested in the progress of horticulture.

THE greatest difficulty experienced by the residents in large towns who desire to cultivate plants on their balconies, or, as some say, who would wish to have HANGING GARDENS, is to find some satisfactory manner of heating them. Common hot-water apparatus is much too powerful for such small places, to say nothing of cost, or the great difficulty of applying it; and when gas, the obvious substitute, has been employed the atmosphere has been rendered unfit for the respiration of plants. This has been so notoriously the case, notwithstanding many ingenious contrivances, some of which may be found described in former volumes of the *Gardeners' Chronicle*, that all idea of applying gas to greenhouses has for some time been abandoned. It appears however from the following account, for which we have to thank our very intelligent correspondent at Trentham, that the difficulty has been wholly over come. This announcement is of such universal interest that we feel it a public duty to give the invention all the publicity in our power.

"Having occasion," he writes, "to pass through Edinburgh a short time since, I availed myself of the opportunity thus afforded of visiting Dalkeith, and among other things which particularly interested me was a method of heating living rooms and greenhouses by means of gas. The apparatus consisted of what may be called a heater or stove containing water, through which the air heated by a gas jet underneath the stove is carried by a pipe, coiling round and round in the water until it arrives at the top, from whence it is conveyed into the chimney. The warmth may be perceived the moment the gas is lighted, and can easily be regulated by means of a tap. There is not the slightest smell of gas perceptible, and an entire absence of dust or sulphurous smell as from coals. The cost of heating a large living room apparently about 16 feet square and proportionately lofty, is I am informed only about threepence per day. The advantages of this plan in an economical point of view are undoubtedly great, and with regard to cleanliness I will merely remark that the lady of the house informed me it had been in use more than a year, and that she should feel very sorry were she obliged again to have recourse to coal fires, as there is no dust or dirt of any description from the gas apparatus, and when a room is not required the gas can be turned off in a moment without any fear of accident.

"The inventor and patentee, Mr. THOMSON, of the Dalkeith Gardens, in whose house the trial was first made and with perfect success, explained the manner of fitting up the apparatus, and from his remarks and my own observations I have not the slightest doubt either of the efficiency of its heating powers or of its cleanliness. The temperature of a greenhouse heated in this manner was 75° when I was shown into it, and the gas had then been turned off about half an hour. The stove stood on one side of the entrance, and from it a flow and return pipe 2 inches in diameter was carried round the house. It is however needless to attempt a further explanation of a system at once so simple and so effectual as to cause surprise that the same kind of thing has not been put in operation before.

FIG. 1.

"I understand that Messrs. THOMSON and SONS, plumbers, of Dalkeith, are preparing to manufacture this apparatus in quantities, and I feel sure that when it has had time to become more generally known it cannot fail to be properly appreciated. Dwelling houses, small greenhouses, offices, warehouses, &c., particularly in towns or their vicinity, where gas can easily be obtained, may thus be thoroughly warmed at a very cheap rate. Portable greenhouses also, in one of which I saw this method of heating in operation, may now be manufactured either for exportation or otherwise, with the gas stove and pipes complete.

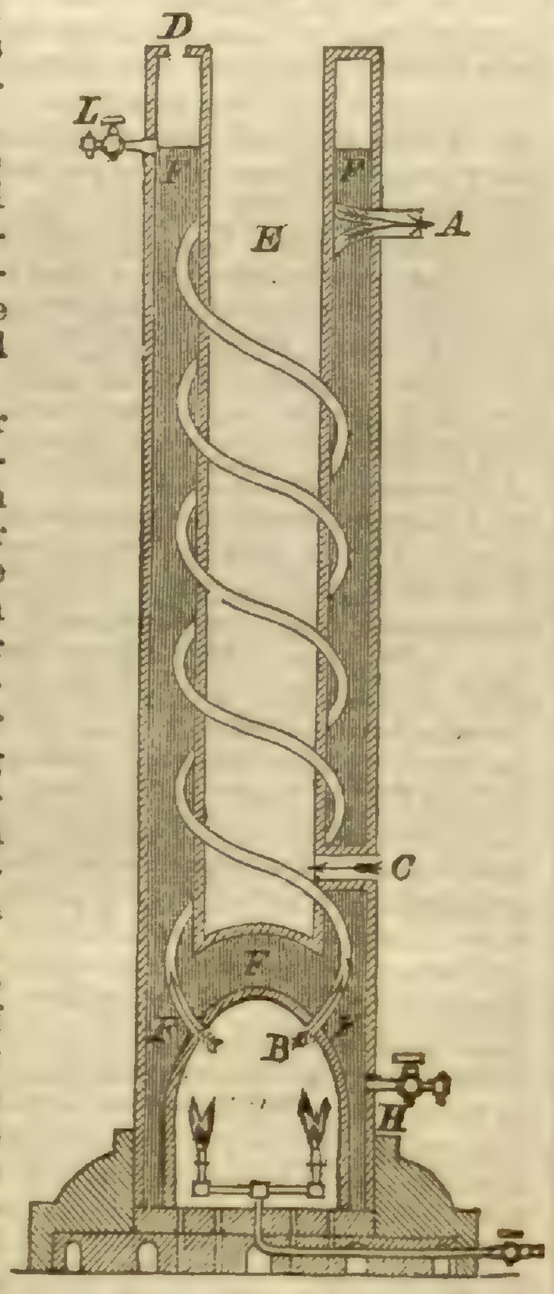


FIG. 2.

"In every other plan of this description which has come under my notice there have always been complaints either of the gas escaping, or of the air of the place being burned or otherways rendered impure or deleterious; but in this instance, owing to the small quantity of gas used, the low situation of the burners (on what would be the hearth of a common fire), and the effectual but simple manner of getting rid of the heated and impure air, these objections are entirely obviated."

That some such contrivance as this had been used near Edinburgh we had previously heard, but in the face of so many former failures, we declined making any statement on the subject until satisfactory horticultural evidence could be obtained. This now appears to be sufficient.

Upon making inquiry concerning the apparatus in question, we find that it is the invention of Mr. THOMSON, gardener to his Grace the Duke of BUCCLEUCH, Dalkeith Park, who is also the inventor of "THOMSON's Retort Boilers," now coming into general use for heating forcing houses, &c. The apparatus is described as consisting of a zinc or copper column, containing from 5 to 20 gallons of water, having an inverted copper cone as a bottom, on which the jet or jets of gas play, and from which the heat ascends and exhausts itself in the water in a series of helical tubes, collecting into a larger tube at the top; by which means all unconsumed gas and noxious products of combustion are carried, either into a chimney, or through an aperture in the wall to the external air. Thus a large body of hot water is obtained, from which a perfectly pure and wholesome heat is radiated.

Another important point is that its management is as simple as lighting a common gas jet, requiring no regulation beyond turning down the gas when the temperature is rising too high.

The accompanying figures will further explain the nature of the contrivance:—

Fig. I. represents the external appearance of one of the handsomer patterns; Fig. II. a section common to all, the only differences among them consisting in decoration and size. The letters in the latter explain details, viz.—*A*, exit of hot air from gas burner to vent; *B*, entrance for hot air from gas burner to spiral tubes; *C*, entrance for cold air to expel heated air from chamber; *E*, hot air chamber; *D*, opening for the supplying water to boiler *F*; *G*, gas burners; *H*, aperture for emptying boiler; *L*, gauge for water level.

The price of the apparatus will necessarily vary with circumstances. A stove like Fig. 1 holding 6 gallons of water is 5*l.* 5*s.*; this we suppose is exclusive of fixing, &c. But upon such matters inquiry must be addressed to the makers.

The only probable source of failure that occurs to us at present is that the apparatus may be imperfectly constructed, in order to meet the exigencies of the numerous worshippers of low price under the mistaken idea that they are sacrificing at the shrine of cheapness.

YEAST PLANT.

ONE of our correspondents inquires whether the different sorts of yeast consist of the same species of fungus, and especially whether German yeast differs in this respect from other varieties. We can give no decided answer to this question, as we have not succeeded ourselves in obtaining perfect fruit from all the varieties which we have submitted to examination, and we know of no extensive series of experiments on the subject. Thus much, however, is clear: that more than one species of fungus may arise from the same sample of yeast, though it is equally clear that the majority of the spores belong to some species of Penicillium. Why the different varieties of yeast act in different ways, or why the Penicillium when advanced beyond the vesicular stage promotes the acetous rather than the vinous fermentation, is wholly unknown. The mycelium of Mucor clavatus, as we know from experience, may exist in wine in the form of enormous fleeces without promoting in the slightest degree acetous fermentation; therefore we cannot attribute the acetifying powers of the vinegar plant to the filamentous in contradistinction to the vesicular state of the plant, but more probably to some peculiar chemical conditions of the contents of its threads, due to the situation in which it grew, which enables it to act as an acetic ferment.

Our correspondent inquires further whether the yeast plant is found in other situations besides yeast. The Penicillium, of which the yeast plant is a condition, is one of the most widely diffused fungi, and occurs under an infinite variety of circumstances, but it probably never occurs in the vesicular form which constitutes yeast, except where fermentation is going on. Under such circumstances it may be found in decaying fruit, vegetables, and other substances; but in such situations it soon assumes the filamentous form, and loses its character of yeast. It is, however, to be observed, that we judge of the identity of such bodies from external characters only. The raising fructifying plants from these vesicular bodies requires a good deal of time, together with nice manipulation, and unfortunately is extremely precarious. Sometimes they germinate readily enough, while at other times, however tenderly they may be coaxed, they remain perfectly immoveable. Such observations moreover require an intimate knowledge of species, and of the different forms which these Cryptogams assume, and would lead but to imperfect results in the hands of mere microscopists.

As regards a third question. How is it supposed that the yeast plant is generated by the process which forms yeast?—the answer is simple enough if we eschew all notions of spontaneous generation. The spores are

accidentally mixed up with the fermentible substance, in which they are propagated under the peculiar vesicular form which promotes fermentation. How they promote it is one of the secrets which perhaps will never be perfectly known. It has been ascertained that where endosmose and exosmose take place, chemical change is always present, but the reason of this change is amongst the other mysteries connected with life, which human knowledge will in all probability never penetrate. It is sufficient perhaps for our purposes to know the fact, and to avail ourselves of it, while, as in ten thousand other instances, we are obliged to rest contented in our partial knowledge. There are however parts of the subject on which investigation, properly conducted, would undoubtedly throw light, and we should rejoice to see inquiries instituted in this direction by competent persons. *M. J. B.*

CHEAP VINERIES.

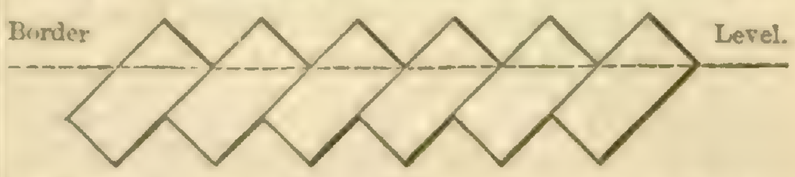
WHEN I penned "My Vinery" I had only one object in view: that of making known to many lovers of gardening how easily good Grapes may be grown. I forgot, however, to say that I live in the south, and to caution those of your readers who live in the cold districts of England against trying the experiment too extensively in climates too cold to ripen Grapes under glass without fire heat. I have reason to believe that in a very large district of England and Wales the Black Hamburgh Grape may be cultivated with success in a Vinery such as I have described in p. 724. A line stretched across the map of England and Wales, from Lynn in Norfolk to Radnor, and then taking all the country south and west of it (except, perhaps, the extreme west) as fit for cold Vineries, will give a large extent. There may be many sunny slopes north of this line on which the experiment may answer well (south of it there is no doubt), and as it is not costly some of the sunny sides of the hills in Nottinghamshire and Derbyshire, and even the southern part of Yorkshire, north of my line may yet have cheap Vineries built on them. In those too cool counties a remedy may now be found, for fuel is cheap, so if the sun lacks power coal must supply it. A flue built in a Vinery, such as I have described, will do all that can be required; the fire should be lighted about the end of February, kept burning gently all day through March and April, and suffered to go out at night. In May it should go out in the afternoon, and in June be discontinued. Air may be admitted just as stated in the article "My Vinery," and the Grapes Black Hamburgh will ripen about the same time they do in the south in houses without fire-heat—that is, in September; the crevices in the boards are most favourable to ventilation in early spring, and the gentle fire increases the circulation through them.

A border for a Vinery is generally a terrible thing to think of—drainage, concrete, carrion, lime-rubbish, brick rubbish, bones, charred refuse; all of these have their advocates, and really alarm a poor gentleman. I have nothing to say against them; where very large leaves and very large bunches, if not very rich berries, are required, they with much gardening skill will do well. My universal panacea is simple to weakness—for in a stiff soil I use sand and manure, in a sandy soil manure only—my Vine border is also sadly simple, for if the soil be wet and require drainage, I make a drain with 3-inch pipes 4 feet deep and 4 feet from my front wall, and I then mark out my border 4 feet from the front outside, and 2 feet inside, so as to make a border 6 feet wide. If the soil be stiff I give this border a dressing 5 inches thick of sand (I prefer pit sand) and rotten manure, equal quantities, and then stir it and mix it with the soil to 18 inches in depth, both outside and inside, avoiding the posts, so as not to loosen them; if the soil be light and dry, I give the border 4 inches of rotten manure only, mixing it with the soil to the above depth. I never afterwards stir my border, but generally give it a slight dressing of manure on the surface annually in November, leaving it to make its way into the soil after its own fashion. I have one border of which the soil is cool, so in addition to the autumnal manure I give it a slight coat of soot—merely enough to make the surface black—in May. I am inclined to think this is very beneficial and I should recommend it to be given annually in all cool sites and soils. I am not quite sure that I should not—if I were Vigneron to all England—recommend it universally. And now having told how I built my Vinery and how I made my borders, I beg to add that for eight successive years my Grapes have ripened perfectly and leave your readers to think over the matter and try and do likewise. I regretted to see in p. 757 my careful Essex neighbour—but Essex is very slow—recommending the coddling system; I am quite sure that his method would bring up Michaelmas chickens, and bring on mildewed Grapes. *Vigneron.*

Home Correspondence.

Metropolitan Parks: Battersea.—Perhaps you can find room for the views of another correspondent respecting this new park, now that it is assuming something like form. Like "B." I am under the necessity of criticising severely the state of the plants which Government is permitting the contractors to use.—The handsome suspension bridge connecting the Chelsea side of the Thames with this park is nearly completed; the approaches are formed, and the embankment of the Thames on the Middlesex side is all but finished. The bridge may therefore be expected to be open to the public early next year. The formation of the park itself is rapidly progressing. The enclosed portion of it contains, I am told, rather more than 70 acres, of which about 20 are said to be occupied by water in the shape of a lake, interspersed with islands of considerable size. Round the water is a well-made gravel walk, nearly 20 feet in width, flanked here and there with masses of Rhododendrons and other American plants, which, if they flower well, must have a pretty effect. On the north side of the lake the walk just mentioned suddenly assumes the form of an avenue, which runs in a straight line from this point towards Battersea, and is lined on each side by Elms 21 feet apart and 9 feet from the side of the walk. These young trees are pretty well matched as to height, which is about 12 feet, and when large enough will render this part of the park a cool and agreeable promenade in summer. A broad drive encircles the whole or nearly so immediately within the boundary fence, and in a serpentine form connects the lake with the river pier. At the latter point this drive runs nearly parallel with the avenue just mentioned, in a straight line along the bank of the Thames, in the direction of Battersea. From the pier to the Suspension Bridge, it is what some call serpentine, but, in other words, has an ugly bend in it, and gradually rises to the latter, in the neighbourhood of which are fine sloping banks, which, in the hands of a skilful artist, might be laid out with excellent effect. That portion however which has been completed I cannot say is at all satisfactory. Well placed, bold clumps, with sweeping and graceful outlines might, I should think, have been expected in a park of the dimensions indicated above. Such however must not be looked for here. Clumps there are in abundance, but their numerous sprawling points and odd shapes befit them more for a cockney garden than a public park. Ample illustrations of this kind may be found on the bank between the Suspension Bridge and the landing pier, but everywhere the same want of taste and judgment presents itself. These however may be regarded as matters of detail, and may be improved hereafter. The general plan may be good, but on that I will not at present venture an opinion, as it is not yet more than half completed. As far as can at present be judged, the water and its islands do more credit to the artist than the rest of the groundwork. The islands especially appear to be tolerably well managed. The water, though partly supplied from the Thames, is clear, and the margins of the lake beyond the grassy bank, where they are covered with shallow water, being gravel and bricks—the latter to keep the ground from slipping—the whole has a warm and comfortable appearance. On the south side runs a deep open ditch, which is divided from the lake by a raised Grass-covered embankment. This I trust will some day be covered over, so that the Grass may slope from the walk to the water's edge. What walks have been made appear to have been done pretty well, as far as formation is concerned; their convexity is not so great as to render them inconvenient to walk on, and they are tolerably dry and firm under the foot. In addition to the 20 feet broad walk above alluded to, there are others 9 feet in width, which wind through the grounds diagonally, and in other directions. I now come to the planting, and although this has been done a little more skilfully, as far as position and distances apart are concerned, than in Kennington Park, of which so many unfavourable notices appeared in your volume for 1854, yet it is very far from being what one might reasonably have expected to find it. The deciduous trees that have been employed are not perhaps so bad; but with the exception of some Rhododendrons near the lake and at the end of the drive near Battersea Bridge, what evergreens have been used do not deserve that name, so little foliage do they possess. The Hollies, Box, Alaternus, Arbor-vitæ, Laurels, and Aucubas that have been put in are miserable things and already have a half dead look about them which they will not probably lose for years. In short, the whole place has a cold, comfortless appearance, which might have been greatly improved, even at this season, by the liberal introduction of healthy, well-grown evergreens. Such clumps as have been planted are chiefly confined to the sides of the walks and drives, and such is the present condition of most of them that, looking at them from the middle of the park, they appear to be nothing more than grotesquely-shaped masses of bare earth. Nor are the islands in a better state. Nothing in the way of immediate effect has apparently been attempted, and therefore though the soil appears good it will be years before the place can possibly assume a park-like character. Let us hope that in what planting remains to be done better materials may be employed. The interior has been reserved chiefly for Grass, and what has not already been laid down is being ploughed preparatory to being sown in spring. The east side of the grounds is at present apparently receiving most attention. Here the sloping bank along the boundary fence and its immediate neighbourhood afford an excellent opportunity for a fine display in the way of ornamental planting. Let us trust that advantage may be taken of it to render this portion of the grounds at least bold, striking, and effective. Beds are being prepared apparently for American plants, than which I should think nothing could be introduced with better effect. It will be seen from the above that I do not by any means approve of the way in which the operations now in progress in this park are being conducted. Much however yet remains to be done, and I hope that next time I have occasion to inspect it I may have to record a great alteration for the better. The public has a right to expect that such matters will be carried out with judgment and efficiency, and that it will have some tangible return for the large sums of money that have of late been voted for the extension and improvement of our public parks. *Accipiter.*

Edgings.—In a late Number one of your correspondents inquires what is the best edging for a garden where Box will not grow. Permit me to state that a very good plain edging may be made with common bricks, as



in the annexed sketch. Your correspondent will have to prepare his ground the same as for Box, and if he will go to the expense of having the bricks neatly jointed with cement, and afterwards painted, it would greatly improve their appearance. *Lincoln.*

Blue Hydrangeas.—I tried what effect alum had on Hydrangeas last season, and though rather late before I commenced the experiment, there was a marked difference between those operated on and those not. At flowering time the blue became visible. This I brought out by means of alum and soda dissolved in water; they must not, however, be watered with any other kind of water. *J. Divers, Springfield, Hastings.*

Spawn, or Mycelium of Fungi, attacking Living Roots.—I wish to corroborate what was stated by your correspondent "M. J. B." a fortnight ago with respect to the club-rooted standard Roses, which are so constantly sent out from the Rose gardens. I have bought a few in my time, but they have died, or are gradually doing so. The growers must be more particular, or people will give up buying standards. I believe one great reason for the preference of the Manetti stock is because it throws out healthy roots, and the plants live and thrive. *A. A.*

Top Dressing of Orchard-house Trees.—Your correspondent "R. O." has done good service in calling attention to the change of season I have recommended for this annual operation. The wonder is that some of your clever correspondents did not long ago tell me in your columns that a tree removed in November is more likely to bear fruit the season after removal than one transplanted in February, and that thus reasoning, autumnal top dressing must be more advantageous than the same operation done in spring. The tree planted in early autumn at once commences to form fresh roots and thus repair its loss of fibres in removing, and prepare itself for its work in spring, of blossoming and bearing fruit. A potted tree top-dressed in autumn, in which operation a large number of fibrous roots are removed, at once also commences to put forth fresh roots, and is thus soon prepared for its spring labours. It now appears strange to me that this idea did not occur to me earlier, but my crop of Peaches and Nectarines has always been good, and so I hope to be pardoned for having been dull and backward. I fear being thought tedious, and yet perhaps I ought here to tell how at last I have come to the conclusion that autumnal top-dressing is much to be preferred. I have a near neighbour who has a lean-to orchard house built against a brick wall with a southern aspect; this is so warm as to ripen fruit a fortnight earlier than my fruiting house, which is span-roofed and in an exposed situation. The trees in my neighbour's house have been under my management, and have been top-dressed about the middle of February at the same time as my own. In 1856, the spring was warm, the trees were in a forward state when dressed, but I did not fear any injury; a great portion of the blossoms dropped without setting their fruit. Last spring the trees were also in a forward state when dressed, and again the greater portion of the blossoms dropped off. I was much surprised, for I knew that abundance of air by day and a moderate quantity by night had been admitted, in short, the trees had had the same management as my own, in which the crop was most abundant. I must acknowledge that I was very slow in accounting for all this, but on looking over some young trees in the summer in one of my houses, on which I expected to see abundance of fruit, knowing that in spring they were full of bloom, I found them all bare. I then recollected that these trees were some of them repotted and the others top-dressed in March, when their blossom buds were prominent, and so I feel I rightly concluded that late top-dressing is apt to be injurious, and I then found that to the same cause I might impute the failure of my Apricots. Now it seems to me that it will be much safer to top-dress in autumn rather than in February, for although in a cool house no injury may accrue, the contrary may be the effect in warm sheltered places. As soon as I thus saw the advisability of top-dressing orchard-house trees in the autumn, I made it known to my friends and neighbours, and then published it only because I thought it my duty. The loam I employ is unctuous but not clayey; the water runs through it freely, owing to the manure mixed with it making it sufficiently porous, and I can now tell your correspondent "R. O." that the soil in my 13-inch pots is in a most satisfactory state, for the trees being bare of leaves the air of the orchard house is so dry that evaporation goes on rapidly. I top-dressed my trees the last week in October; they have had two abundant waterings, and are now rapidly making fresh roots; they will be dry and safe before severe frost comes on. Two good waterings are quite enough after top-dressing; one immediately after, the other before the middle of November. "Abundance of water," as

quoted from my catalogue, is a strong expression which I failed to correct in proof. *T. Rivers.*

The Pomegranate Ripens in England.—I have just had given me a very handsome, well-grown fruit of the Pomegranate. It is from the garden of G. D. Tyrer, Esq., of Upton, Essex. The plant which produced the fruit grows on a south wall in a sheltered situation, is about 10 to 12 feet high, flowers freely, but this is the first time it has ever borne fruit. The fruit is perfectly well formed, about 2½ inches diameter, of a golden yellow colour, blushed with bright pink on the side towards the sun. It has every appearance of being ripe or nearly so. Has any one knowledge of the Pomegranate ripening out of doors in this country? *W. W. S.*

Elm Tree Disease.—Can you tell me of any remedy for a disease that has lately attacked my Elm trees. The leaves appeared very yellow and sickly, and on examining the trunk I find the bark perforated all over by small holes (each hole containing a white maggot), and infested by woodlice. The trees are Guernsey Elms, and some of great age; one tree is already dead, and unless you can tell me of some remedy I fear I shall lose the rest. *M. E. M.* [Your Elm trees are evidently suffering from the attacks of a small beetle called Scolytus destructor, respecting which some interesting particulars will be found at pp. 342 and 344 of our volume for the present year. We believe no remedy has yet been discovered for this destructive pest, whose ravages in some instances are almost incredible, especially when it happens to fix itself on old trees that are just beginning to exhibit symptoms of decay. Some of our readers may probably remember the great mortality that occurred among the Elms around the metropolis in 1825, which for a time attracted considerable attention, and to many was a subject of deep regret. Various reasons were assigned as the cause of the disease; but the general impression was that it arose from an escape of gas from the mains that had been laid down near the trees, which had impregnated the earth and poisoned their roots. So strong was this belief, that a Bill in Chancery was actually filed against a Gas Company to restrain them from laying on or conducting any gas through the mains that had been laid down by them in a suburban village. A great deal of evidence was adduced *pro* and *con*, but ultimately the injunction was refused, although leave was given to the plaintiff to bring an action by which he might establish before a jury the alleged connexion between the introduction of the gas and the disease in question. This would probably have been done, if the testimony of some of the great scientific men of that day had not clearly shown that the injury which the trees had sustained was not attributable to an escape of gas, but to the boring and burrowing the bark by a tiny insect. Of a similar nature was the disease mentioned in the *Gardeners' Chronicle* above quoted, as having attacked the Elms in the Champs Elysées at Paris. When we visited that place last winter we were astonished to see so many trees having a narrow strip of bark removed from top to bottom of their stems, and the space covered over with a soft substance resembling a composition of tar, resin, and some fatty matter mixed up together. On making inquiry as to the object for which this was done, we were informed that it was intended as a remedy against the attacks of some insects that had rendered them unhealthy. As might be supposed the plan was not found to answer, and in April another of a bolder description was commenced which very much surprised us—this was nothing less than chipping off the whole of the outer bark (and in numerous instances large portions of the inner bark also), from the main trunk of the trees. The process was carried on until the beginning of June when the result became but too evident, and hundreds of those trees that underwent the operation of barking are now, we understand, being cut down for firewood. In the course of a few years, we doubt whether an Elm tree of any size will be found to exist in the Champs Elysées, unless some better plan is discovered for curing the evil than either of those which have been hitherto adopted, and which evince in our neighbours across the Channel a total want of knowledge, in this case at least, both of entomology and vegetable physiology. *B.*]

Toads.—How often do we find these really useful creatures persecuted and pitilessly maltreated, and to judge from the great antipathy generally exhibited towards them, one might be led to imagine they are among the most loathsome of cold-blooded animals; but this is a mistake. When found in Strawberry beds it is not fruit they are seeking, as many suppose, but slugs and worms, which prove destructive enemies to the gardener. What better friend than a toad can we introduce into stoves, Mushroom houses, and other structures, for the eradication of those pests which are perpetually injuring vegetation? By transferring them to the warm temperature of forcing houses their appetites soon acquire vigour. It is erroneous to suppose toads to be venomous. Those who are well acquainted with their habits will pet and even fondle them in their hands. The sceptic can be convinced of their harmlessness by a little observation. Slugs, grubs, and various insects they greedily devour. Some interest and encouragement should therefore be afforded them, not only in the garden, but wherever vegetation is expected to flourish. *T., the Gardens, Moulton Grange, Northamptonshire.*

Guavas.—Is it an unusual thing for Guavas to ripen well without artificial heat? We have some now quite ripe and richly coloured, grown under glass in a south exposition with no heat but that of the sun. Encouraged by their success I shall try other tropical fruits in the same way. *Novitia, Wexford.* [Very unusual, but "one swallow does not make a summer," as we English say.]

Plant Exchanging.—It would greatly forward the science of horticulture if some means could be devised for enabling amateurs with small purses to obtain rare and valuable plants. Some might exchange plants with others if they knew each other's wants. If others fall in with this view, they might state from time to time in your columns (might they not?) what plants they could part with, and what they were in want of. It should be solely a matter of exchange, and each party should pay the carriage of the plants they receive, and be at the expense of carefully packing those they send. *Novitia, Wexford.* [We really could not spare space for such matters, except in our advertising columns.]

Late Peas.—In the *Chronicle* of Nov. 14 one of your correspondents asks about late Peas. Definite answers that would be applicable to the case can scarcely be given, except by experienced gardeners in your correspondent's own neighbourhood. My own experience in the matter is as follows:—Peas fit for table can seldom be gathered here (centre of Aberdeenshire) after the middle of October, as frosty nights generally destroy them about that time. The sorts that I find best for coming in for use in October are Knight's Dwarf Green Marrow, Knight's Tall White Marrow, and Auvergne—the two first sown in the last week in May and again in the first week in June, and Auvergne sown about the 10th, 17th, and 24th of June. My experience is unfavourable to Dan. O'Rourke, Emperor, and Sangster's No. 1 for very late crops; but the last is the best early Pea I have seen. Neither is Mammoth Marrow suitable for a very late crop, being liable to split before it is too old, if the season is wet. Peas for a late crop should only be sown in an open situation, in deeply worked well conditioned ground. *J. Robertson, Aberdeenshire.*

Orchid Disease.—I quite agree with what you say as to the cause of spot in Orchids, viz., that it is to be attributed to over heating, over watering, and under ventilation, to which I would add over ventilation. There is, or ought to be, a medium in all things, and there can be no doubt that this is often disregarded in the case of Orchids. The latter when old, however, fail even after they have grown luxuriantly in the same house and under the same treatment for years; but this is nothing but what is natural; old plants of all classes must die some time. Orchids are also sometimes ruined by unskilful potting, but now this is attributed to an epidemic disease, like that which affects the Potatoes, some leaves get spotted and gradually die away, while the roots at the same time are clean and healthy; in another case the roots rot and wither away, without the least indication of spot on the leaves. Experience tells us this must be the result of mismanagement. In the first case the plants must have been exposed to sudden changes of temperature, or else they must have been watered with water much colder than the mean temperature of the house ought to be; the latter I know often happens in more places than one. We scarcely ever hear of cases of spot in summer; it generally begins with the cold autumn months, and continues more or less until late in spring, when all at once the fire heat is raised to excess, and all the plants receive a regular saturating with water, perhaps once or twice a week, without regard to the condition in which any particular plant may be; whether growing or dormant, sickly or healthy, all receive the same quantity. Perhaps the gardener has only got a limited time to bestow on his Orchids; if however he has other things to attend to he ought to instruct some young person how to sprinkle their roots and attend to the temperature as often as such is required, and who might in time understand their nature as well as his master. I think if some such attention was afforded little would be heard about Orchid disease. *Gleanings.*

The Culture of the Chrysanthemum.—Little has been said this season respecting the Chrysanthemum, and yet we must confess that it is the best plant we have for autumn and winter decoration. Those, however, who will not bestow upon it the attention it requires through the summer months will be disappointed in autumn. Having grown this plant this season to an extraordinary size, I beg to send you the following remarks upon its culture. The cuttings were placed under my charge in March. I immediately inserted them in pans filled with light soil with a sprinkling of silver-sand on the top, and placed them in a pit on a gentle bottom-heat, where they remained until I was quite satisfied of their being well-rooted. I then potted them off into 4-inch pots, using a light compost, and replaced them where they could still enjoy a little heat, giving a little air on favourable occasions. As soon as I observed their roots round the sides of the pots, I again shifted them into 6-inch, using a little richer compost this time than before. We then placed them in an open greenhouse, giving them abundance of air when the weather would permit. Stopping was frequently resorted to after they had filled their pots with roots. I gave them their final shift into 10-inch pots, using the following compost:—Three barrow-loads of rich loam, one barrow-load of leaf-mould, one barrow-load of well decomposed manure, and one barrow-load of burnt ashes, with charcoal, incorporating all well together. This was done the third week in May. I then plunged them out of doors (where they were fully exposed to the sun); stopping was still attended to. They were staked as soon as the plants required it, in order to prevent the branches from being broken down by wind. They were never allowed to flag through the summer months. By the end of September they had made fine bushy plants; when they were taken up the roots connected with the ground were cut away, the pots then placed in pans and stood in an open shed for some few days or a week, after which they were removed to a cold greenhouse until the flowers began to expand. Liquid manure was given them occasionally during the time they were plunged, and after they were taken up clear weak manure water was given at every watering. The earliest of them are now moved to the conservatory to finish flowering, and there they are, the admiration of all who see them. The following is the diameter and number of blooms of 3 of the Pompones (which I have only fairly selected from the collection), viz., Dr. Drin, Sacramento, and Button Lilac. The first measured 5 feet in diameter, and had 1796 blooms on it; Sacramento, 4 feet 6 inches diameter, and had 1456 blooms; Button Lilac, 5 feet 3 inches diameter, and had 1195 blooms. Strong growing varieties were equally good; one, the old Queen, grown in an 8-inch pot, was 5 feet in diameter, and had 376 blooms on it, with foliage clean and healthy down to the pot. *George Scutt, Foreman, Stoke Rochford.*

Effect of Sulphur Fumigations on Gardeners.—I am informed through a physician of eminence that numbers of gardeners are sent to him by their employers in a paralysed state from fumigating their Vineries with sulphur. This ought to be generally known, and some preventive or antidote used to enable them to fumigate without injury to themselves. *Novitia, Wexford.* [????]

Large Morello Cherry.—At Whalley Abbey, Lancashire, died during the last autumn the celebrated Morello Cherry, which was considered one of the finest trees of the kind in the north of England. Symptoms of decay had been noticed in it for several years, to the regret of all who knew it, and the proprietor, under the advice of Mr. Pontey, had spared no expense to prolong its life, but to no effect. This stately tree sank rapidly at last, and the Abbey has lost one of its well known and noblest ornaments. It has been conjectured to be nearly as old as the dissolution of the Abbey, and many and sad since that time have been the changes and vicissitudes which it has witnessed. When in full growth and health, in the month of May, it was singularly beautiful. Rising to 90 feet high, with a proportionate and graceful diameter, the whole covered with pure white blossoms, like a spotless pyramid of snow, it contrasted most favourably with the Ivy-covered ruins, the dark foliage of the Scots Firs and Elms, and other adjoining trees. From its branches the Mistleto hung down, a plant almost unknown in other parts of East Lancashire, and its huge limbs cast a shadow over the high altar of the conventual church, the last resting-place of all that is mortal of the abbots who designed and executed the surrounding beautiful buildings. It contained 253 solid feet of wood, 100 of which have been sent to Messrs. Bell & Copeland, to be wrought up into appropriate furniture, to be kept as memorials of this splendid tree. *Cliviger.*

The Potato Disease.—As every new fact relative to this disease is of importance, I will relate my experience of this year. In August last I was staying with a friend and met a gentleman from Yorkshire, and in the course of conversation he started the idea that the disease appeared generally at the time of the heavy electrical showers which often occur in August, and he maintained that the only way to save the crop was to take up the Potatoes immediately the tops showed the slightest appearance of disease. I went home, and at once, on the 24th August, took up my crop of Pink Kidneys. I felt, however, unwilling to touch the Flukes, as they were stated to be able to resist the disease better than any other sort, and they remained in the ground nearly a month longer. And now for the result. A few days ago my Pink Kidneys were looked over, and not more than half a dozen bad ones were found—but alas! more than half the Flukes were rotten, and more are going. My advice, therefore, is to take up the crop very early, immediately after the heavy summer showers. *W. M. A.*

Large Puff Ball.—A few days ago I found a specimen of a Puff-ball (Lycoperdon Bovista), weighing 7½ lbs. The plant is in the form of a somewhat flattened sphere, measuring 43 inches in its largest, and 38 in its smallest diameter. It is partially but not deeply divided into three lobes, but is symmetrical, and gives to the eye and to the touch the idea of a great ball covered with white leather. This is so much larger than the size of any specimen recorded in the books to which I have access here, that I think it may perhaps be worth a notice in your columns. It grew on the mountain limestone formation of the Glamorganshire coast, about five miles to the west of Swansea, springing up from short turf, amidst Gorse bushes, in a fertile and sheltered bay facing the south, and within a few feet of high water mark. *J. Dillwyn Llewelyn, Caswell Bay, Swansea.*

Tourette (See *Gard. Chron.*, 788).—I find in Poiret (Enc. Bot. Supp. v., 326) the following passage:—"TOURETTE: nom de quelques espèces d'*Arabis* (voyez ARABETTE)." Under *Arrabette*, both Lamarck and Poiret unite *Arabis* and *Turrita*. It is likely therefore that Chevreuil's Turritis verna means only one of the showy spring-flowered species of Arabis, such as A. alpina and its varieties (or nearly allied species). This goes to confirm your selection of Arabis grandiflora at the page above quoted. *M.*

Supposed Change of White to Black.—I think the following case is interesting. Three years ago the gardener of a neighbour of mine in this village made a cutting from a (white) Sweetwater Grape. He placed

the cutting himself in a pot, and in due time planted it against a south wall. This year, to his great surprise, the Vine has produced black Grapes, not of a dingy colour, but as dark as the Black Hamburgh. Is not this a most singular instance? I have no doubt whatever of the man's veracity, nor is it possible that he could have been deceived. His employer has never had a black Grape in the garden, nor is there one in the village. *W. W. S.* [We are extremely sceptical. No doubt can well exist as to there being some mistake.]

Metropolitan Parks.—Like your correspondent "B." I think the public has great cause to admire the many improvements that have lately been made in Hyde Park and Kensington Gardens, and like him, on the other hand, I cannot but regret that our approbation must be modified by the bad selection and quality of the trees and shrubs planted there. Indeed, I think the public has much reason to complain on this latter point. It is a fault that is painfully remarkable in all our parks and cemeteries, and in public planting of every kind; so that however admirable the site and laying out of these places, our satisfaction is nearly always marred by the wretched and inappropriate trees and shrubs by which they are disfigured. With regard to naming the shrubs in Kensington Gardens, I fear the experience of this plan in St. James's Park, where it was carried out upon the strong recommendation of the late Mr. Loudon, does not lead us to be very sanguine on the subject. At least several years of personal observation have failed to convince me that the public has ever taken much, if any, interest at all in the matter. However, I admit that anything tending to popularise a knowledge or study of plants is in itself deserving of consideration, and it is to be hoped that if the experiment is repeated in Kensington Gardens the daily increasing intelligence of the people will cause it to be better appreciated. *R. W.*

Spring Protection.—I wonder if any of your correspondents can and will give me any advice how to protect an espalier Marie Louise from the havoc of spring frosts. My tree is a beautiful specimen, has been planted 15 years, is 14 yards long, and the points of the branches raised the last two yards at each end about 6 feet high. Now from this really beautiful and most healthy tree I have not had 15 Pears in 15 years. Every spring it is profusely covered with blossom, and every May all promise of fruit is lost by one night's frost. I have tried Yew and Fir boughs and Frigi-domo for protection, but all in vain. I am in a low bottom on a very deep loamy soil—by no means a clay—and the tree is perfectly free from canker. *W. M. R., Bishop's Castle.*

Mice.—I have found from experience that planting a little Garlic with Crocuses or any other roots or seeds prevents mice from eating them. Newly planted Crocuses I find they destroy; they very seldom attack those that have been left in the ground, unless they are close to the surface. If people were to plant their Crocuses deeper than they do in general they need not be taken up for many years. The bedding plants in summer could be planted on them; 9 or 10 inches are not too deep. They will bloom beautifully planted much deeper than that. I believe that bulbous roots would be much better for remaining in the ground all summer. *Robert Shackell.*

Early Malingre Grape.—You ask what this is. I have grown it for about six years, having had the Vine from Mr. Rivers. It is in the open air with an eastern aspect, and here on the South Downs I have cut ripe Grapes from it on the 31st August, though they were ripe earlier, the bunch being much damaged by the flies. It is a thin-skinned very sweet Grape, smallish in size, but the Vine is a very free bearer, and does not grow very freely. It is in Mr. Rivers's catalogue of that date called "Précoce de Malingre." From its earliness it is an acquisition, as any summer here will ripen it. I have the Chasselas, but it is quite a month behind the Early Malingre. *G. S.*——In Mr. Rivers's catalogue, under the head of "Select hardy Grapes for Walls," will be found the following remarks concerning this Grape:—Berries round, white, juicy, and sweet; a new French variety, very early; the earliest white Grape; forms a most prolific bush. *A. A.*——The Early Malingre Grape is the Précoce de Malingre, a new French variety, a great bearer, and the earliest of all the hardy white Grapes; it has been introduced three or four years, and is now rather widely distributed. *T. Rivers.*

Phormium tenax.—How shall I treat this plant? I find, *Gard. Chron.*, 1852, p. 503 *a*, that it flowered at Miss Stapleton's, Grey's Court, Henley-on-Thames, in that year, but whether in the conservatory or the open border is not stated. Again, *Gard. Chron.*, 1843, p. 487 *a*, and 1847, p. 766 *b*, it is stated to have flowered in those years at Woodville, near Salcombe, Devon, but in none of these three cases is it stated whether the soil is wet or dry. Mr. Street, Beil, near Dunbar, tells us (*Gard. Chron.*, 1853, p. 534 *b*) that he flowered it in the open border in that year, that he, as well as Miss Stapleton, had had the plant 30 years, but it had never flowered before; he also adds that he had never watered it but once, and that was just before it flowered. Now Archer (Popular Economic Botany, p. 164) says that it inhabits the marshy places in New Zealand; and Dr. Royle (Fibrous Plants of India, p. 58) states on the authority of Mr. Wood, that it preferred swampy sands, and was often met with in New Zealand, thriving three or four feet under sea water. Now, I can plant it in the bottom of a pond of fresh water three feet deep, or in moist peat, or in well drained light land; but I should be thankful for advice as to where it would thrive best. *Diss.* [We believe there is little information in the country as to this point. We *know* that it will thrive for years in the open ground at the foot of a dry border under a south wall in the county of Middlesex.]

Flue Covers.—In my last week's letter your imp of darkness, alias "Printer's Devil," has taken the liberty of introducing a comma which gives a meaning to a sentence by no means intended, and which I am sure he did not find so in his copy. In speaking of the joints of flue covers, I recommended lime putty and very fine sand for the purpose, but the comma between lime and putty would lead many persons astray. For the benefit of the above-mentioned personage, and of those equally ignorant, I may state that lime putty is thus made. Water is put on fresh burnt lime, in a hole or large tub, so as to bring it to the consistence of thick cream; it is then strained through a fine wire sieve into a hole prepared for the purpose, and when the water is evaporated it leaves a fine white tough mortar; this, with the addition of a little fine white sand, will be found an excellent cement for the joints of flue covers. *Henry C. Ogle, Eridge Castle.*

Aralia spinosa.—We have taken the liberty of sending you some fruit of Aralia spinosa. The tree was planted about five years since, and at first trained with a straight stem until about 9 feet in height, then allowed to "go off" with six branches; and this summer it has been loveliness itself, with its leaves and flowers, and now fruit. I do not remember seeing any mention of A. spinosa in the *Chronicle*. Is it considered synonymous with A. japonica of last and former week's mention? [No.] Is Quercus glabra thought generally to be hardy? [No, only in some places.] It has stood the two last winters here (alongside of Araucaria Lindleyana, which does well) well, saving the extremities of its shoots, which were cut off both seasons by the cold winds of spring. This summer it has made most luxuriant growth. *Summers, Forest Hill.*

Societies.

ENTOMOLOGICAL, *Nov.* 2.—W. Wilson Saunders, Esq., F.R.S., in the chair. Amongst the donations to the library received since the last meeting was the second volume of Mr. Stainton's Natural History of the Tineidæ, containing an extensive series of illustrations and descriptions of the leaf mining species of the genus Lithocolletes. Dr. J. E. Gray exhibited living specimens of the great Australian Case-bearing larvæ of an Oiketicus, the transformations of which had been published by Mr. Saunders in the Transactions of the Society; they had been received from Sydney, and were found on the tree called the Fig tree in that country. Also specimens of a remarkable Gall found at Ischl, in Austria, by Miss Warne, on a species of Oak, of a texture somewhat like pale green kid. Also a remarkable Gall found on Rose trees, near West Wickham, armed with several small conical points, together with the species of Eurytoma reared from them. Mr. Walker stated that he had found the Devonshire Ink Gall of the Oak at Mill Hill, Middlesex. Mr. Wollaston exhibited specimens of Chrysomela cerealis from Snowdon, and alluded to the peculiarity of the wings of that and other species, suggesting the advantage of displaying the wings of Coleoptera when possible. Mr. Westwood stated that the collections of the late Mr. Stephens and his own contained specimens of great numbers of species of beetles thus arranged. Mr. Samuel Stevens exhibited various interesting exotic insects recently received from Moreton Bay, Australia (sent by Mr. Diggles, who is much occupied with the transformations of Australian Lepidoptera), and also from Delagoa Bay, South Africa, received from Mr. Plant. Mr. Hamlet Clark exhibited two new species of water beetles new to this country. Mr. F. Smith exhibited the nest of a species of mud wasp (Pelopsus), the cells of which contained immature specimens of two distinct species, P. violaceus and P. flavipes. Mr. Walker gave an account of the habits of the Aphis Quercus, one of the largest and most remarkable species of plant lice. Mr. Westwood communicated a letter from Mr. Brodie, of Swanage, Dorsetshire, relative to the recent discovery of a considerable number of fossil insect remains.

Notices of Books.

Rivers's Rose Amateur's Guide. Sixth Edition. 12mo. Longmans.

We gladly welcome the new issue of this very useful and now famous Guide. The continual changes that take place in public taste, the ever altering claims of varieties to general favour, the capital, the worthless, the useless new sorts, the results of experience in cultivation itself and many another matter most interesting to the grower, require as much vigilant attention and careful pruning as a first class Rose-bush itself. We are glad to see that Mr. Rivers has used his editorial hoe to some purpose by weeding out weeds, and well stirring the ground about the sterling varieties; nor has he been less attentive to rendering his instructions so clear and precise, that even those who run may read. There is a good deal of novelty about Roses in pots and much useful information concerning stocks, the most debateable and perhaps least satisfactory question that the Rose grower has to consider. That the eternal Dog Rose is a very bad stock for some kinds is undeniable, as Rose buyers know to their cost. But what is there better? Upon this point Mr. Rivers writes as follows:—

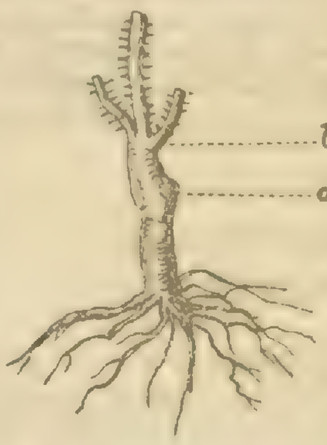
"The Celine stock, a very old Hybrid Bourbon Rose, is a most excellent stock for Bourbon, Noisette (particularly the Cloth of Gold), and many other Roses; if planted in a rich moist soil, it will make shoots from 4 to 5 feet in height, fit for low standards.

"The Rosa Manetti is a Rose I received some 20 years since, from Como, from Signor Crivelli, who recommended it as the very best of all Roses for a stock. It was raised from seed by Signor Manetti, of the Botanic Garden at Monza. All the Roses I have budded on this stock have succeeded admirably; above all the Hybrid Perpetuals, which scarcely seem to know when to leave off growing and blooming in the autumn; indeed it is remarkable for its late growth; for it may be budded during the whole of September; another excellent quality is, that it never gives any suckers from its roots at long distances from the plant, like the Dog Rose; it seems to flourish equally in light and dry as well as in stiff soils; and it will, I trust be of much value to the Rose amateur, who if the soil of his Rose garden be light and dry, is so often troubled with the numerous suckers thrown up by the Dog Rose. I am, indeed, now fully convinced that the only method of cultivating dwarf Hybrid Perpetual Roses in soils that are gravelly, sandy, or resting on chalk, is to employ the Manetti Rose as a stock.

"Since the above paragraphs were written, more experience with this has been gained; although so vigorous in growth, it does not form good standards, the stems with their side branches left on increase rapidly in bulk, but when they are budded at the height proper for standards, and the side branches cut off, the bark becomes indurated, the sap apparently ceases to circulate freely, and the stems in a year or two shrink, and the head becomes stunted in its growth and unhealthy.

"Some of the vigorous-growing Hybrid China Roses make good half-standards on this stock, but its great eligibility is for dwarfs; these should be budded close to the ground, and, when transplanted from the nursery, should be planted so as to cover the junction of the bud with the stock, placing that part about 1 inch and a half, or 2 inches below the surface of the border.

"The annexed figure will illustrate my meaning, better than a host of words. *a* junction of the bud with the stock; *b* the height to which the stem should be covered with earth. Treated in this way the covered part of the stock increases rapidly in bulk, the sap flows freely through it, and most vigorous and healthy growth is the result. I have observed a peculiarity in this stock worthy of notice; under certain circumstances the sort budded on it will entirely overpower its suckers, so that, in a year or two, the plant from the bud will gain the ascendancy, and the suckers, without being removed, will languish and die. This has occurred here in several instances with stocks planted out, for stocks for propagation, in a stiff clayey soil; some of these had dormant buds in them, which had not put forth their shoots with the usual crop of plants, and were thrown on one side as stocks. Now the curious part of the matter was, that immediately these stocks were planted out for stocks in a stiff soil, and so deeply that the dormant buds became slightly coloured with earth, they pushed forth most vigorously; and, although the stocks at the same time put forth suckers which were suffered to grow, they have, as may be seen now in most instances, overpowered them, and now form vigorous bushes of Hybrid Perpetual Roses, from three to six years old.



"To what a great extent in this respect it differs from the Dog Rose stock will be at once apparent to Rose-loving readers; for we all know that the Dog Rose carries on a fierce war with its bud in graft, and, unless most carefully attended to, destroys it by its suckers in one season. A method of growing standard Roses in dry unfavourable soils, with the aid of the Manetti stock, may be practised by those who really love Rose culture; some robust-growing, Hybrid China Roses—Madame Pisaroni and Duc Decazes are two vigorous growing varieties—should be budded on strong Manetti stocks below the surface of the soil, which should be removed for the purpose, from each bud one shoot should be encouraged and supported with a stake, and all others carefully removed, the second season of growth the stems thus formed may be budded with Hybrid Perpetual Roses and others; they soon form nice healthy stems."

We hope ourselves to have something to report on the subject by this time next year.

What a misfortune that so good a book of reference as this should have no index!

Statistical Book-keeping. By F. C. Krepp. 4to. Longmans, pp. 180.

Mr. Krepp, who appears to be an experienced accountant, recommends the substitution of his own method for that by Double Entry. He enters into an elaborate explanation of his plan, in its application to the accounts of merchants, tradesmen, farmers, and private families, assuring his readers that, if adopted, it would be a safeguard against the frauds of even dishonest bankers. We fear that the only real safeguard is to be found in vigilant and constant scrutiny, without which no book-keeping is perfect. The statistical

method is at all events better suited to great and complicated concerns than to private accounts, where a day book, a banker's book, and a well arranged ledger do all that figures can do. Let us add, that Mr. Krepp is extremely clear in his statements, so that there is no difficulty in understanding him.

The Executor's Guide. By J. C. Hudson. New Edition. Longmans, 12mo, pp. 292.

This little guide contains all the information which executors require for their guidance under ordinary circumstances. It tells them what their duties are, and points out where they will and where they will not be pretty safe in acting without professional advice. More than this is not attempted and more cannot be done. Full instructions are given as to probate, legacy, and succession duties, and coming as they do from a gentleman formerly in the Legacy Duty Office, Somerset House, this part of the work is particularly valuable.

The illustrated works published by Messrs. Black and Co. of Edinburgh are unsurpassed for the beauty of their execution. These spirited publishers have now brought out Falconer's celebrated poem "*The Shipwreck,*" with the life of the author by Mr. Carruthers, and a crowd of charming drawings by Birkett Foster, cut on wood with admirable skill by Messrs. Evans, Dalziell and Green. High as our Branstons and other artists rank in this species of engraving, we think they have surpassed themselves on the present occasion. The volume, which is printed on fine Queen's coloured paper, handsomely bound in green and gold, is the very book for a Christmas present.

A Descriptive Catalogue of Trees, Shrubs, &c., has been published by Mr. Epps, of the Maidstone Nursery. It is arranged in three columns, the first containing the scientific name, the second the common name, while the third column gives room for useful remarks upon the purposes for which the plants can best be used. It is very well done.

In the April number of the *Flore des Serres,* not published till November, is given among other things a capital view of the opened fruit of Heliconia Bihai, which reminds us of some great Iris, and of *Eucharis amazonica,* a very fine variety of the beautiful *E. grandiflora,* a white flowered Amaryllid, of which a few specimens only have as yet been seen in English gardens.

Calendar of Operations.

(*For the ensuing Week.*)

PLANT DEPARTMENT.

CONSERVATORY, &C.—Should dull weather continue occasional fires will be required for conservatory and greenhouse plants; they should be lighted in the morning in order that the houses may be thrown open during the day to promote a free circulation of air; this will dry up damp, and help to keep the plants in a healthy state. The more delicate kinds of Heaths and hard-wooded plants are often attacked with mildew, and as nothing induces this so much as a damp stagnant atmosphere, there should be some means for giving air during the night and in bad weather to plant-houses independent of the sashes. Let the surface soil of the pots be lightly stirred so as to remove Moss, &c., as well as to promote a free evaporation from the surface. Fuchsias which have been out of bloom for some time, and which have ripened their wood, should be removed to a pit or spare house where they can be protected from frost, or in the case of want of room to back sheds for the winter, and protected with Fern or straw in frosty weather. The remarks just made with regard to affording ventilation to hard-wooded plants are equally applicable to Pelargoniums, Cinerarias, and Calceolarias; these latter will require a night temperature of 45°. Place the plants as near the glass as means will permit, in order that they may get as much light as possible. Seedling Cinerarias and Calceolarias should have a shift if requisite; if the plants are strong they may be transferred at once to their blooming pots; after potting, place them at the warm end of the house.

FLOWER GARDEN AND SHRUBBERY.

Let lawns be well rolled when sufficiently dry for the purpose; every part of the turf should be frequently swept during the winter. Nothing adds so much to the enjoyment of pleasure-ground scenery as well kept turf, and when connected with evergreen shrubs an agreeable relief to the dreariness of the season is afforded which renders the loss of more attractive plants less to be regretted. At the same time see that the walks are kept dry and firm, in order that they may be traversed with comfort at all times. While the weather continues mild the planting of deciduous trees may be proceeded with, provided the state of the land will permit the operation to be profitably conducted; with the exception of the more hardy kinds the planting of evergreens had better be deferred till April. Deciduous shrubs may be pruned whenever there is time except during severe frost. Many of the larger growing plants will only require going over once in two or three years, to reduce straggling shoots to proper limits and to thin out where too thick. Smaller growing shrubs, as some kinds of Cytisus, Spiræas, Deutzias, &c., should, however, be pruned annually if a good show of flowers and uniformly shaped bushes are desired. Secure standard Cytisus, &c., by firmly staking them after pruning. The pruning and tying in of climbing plants on trellises, &c., may remain till February. Many of the above plants are partly evergreen, and when pruned at this season their supports have a somewhat naked appearance through the winter; any straggling loose growths should, however, be cut away at once.

FORCING DEPARTMENT.

PINERIES.—Where the bottom-heat is wholly dependant upon tan or other fermenting material it is very apt to decline too much at this season, when the temperature of the atmosphere is being kept rather low. If this is found to be the case a few inches of fresh tan should be put on the surface, which will generally be found sufficient, but if the beds have not been renewed lately, and have got worn out, it will probably be necessary to remove the plants and add a considerable quantity of tan or leaves. Where shed room can be spared, a quantity of tan should always be kept in readiness for such work in winter, as if used fresh from the tan-yard it is almost certain to starve the roots before fermentation commences, and then heats too violently. Let no trouble be spared, however, which circumstances may render necessary to secure a steady bottom-heat so as to preserve the roots in health, for if the roots get injured it will be in vain to expect the plants to make vigorous growth in spring. Be especially careful of those expected to start into fruit soon, for if the roots of these are injured now there will be little chance of getting the fruit to swell well.

HARDY FRUIT AND KITCHEN GARDEN.

Where orchard trees have been for some years left unpruned, the hand-saw will be required to thin out the larger branches; keep the middle of the trees open to admit air and to promote the formation of fruit buds on the interior branches. It is however a bad practice to leave any description of fruit tree to itself, as it would in all cases pay the cultivator to prune them once a-year at least. Whenever the ground becomes dry put in a second crop of early Peas and Mazagan Beans, as the first crop will most likely fail through the wet state of the soil. If Peas are sown in the open quarters the drills should be protected by a ridge of earth left to the north or east of the rows; keep down mice by trapping, they are troublesome to early sown crops of the above. On a dry warm border a few beds of early frame or short-topped Radish should be sown either singly or with the short horn Carrot; cover the beds with straw or litter till the seeds germinate, when they should be uncovered every day when not frosty. A frame should likewise be placed on a gentle bottom-heat for sowing of the above to draw early. Place some protecting material round the stems of Globe Artichokes or earth them up to keep off frost. Celery and Cardoons may have a final earthing up when the soil is dry if the weather has prevented its being done sooner. Leeks should likewise have more earth drawn to them before frost sets in; they are an excellent vegetable when well blanched. Hoe between the earliest planted Cabbages, Lettuces, &c.; this should be frequently done to growing crops through the winter, as by keeping the surface loose and open frost is prevented from penetrating to any great depth, and the roots are kept in a more active state.

COTTAGERS' GARDEN.

Any plants in a cold frame or in the window must if possible be kept from growing at this season. Therefore give them all the air you can, whenever the weather is favourable. Water only when absolutely necessary. As regards vegetables all root crops should now be stored, and in fine weather trench and ridge all vacant ground. Save all manure you can to be wheeled on in frosty weather; any alterations in the garden, such as renewal of borders, draining, formation of walks, &c., may now be proceeded with with advantage. Pruning and nailing if any may be done as soon as the leaves are off. Scrape Moss off Apple trees, and endeavour to give to everything an air of comfort and neatness.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Nov. 26, 1857, as observed at the Horticultural Gardens.

Nov.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 20	3	30.271	30.230	50	40	45.0	50	51	S.W.	.00
Satur. 21	4	30.309	30.220	53	29	41.0	51	51	S.W.	.10
Sunday 22	5	30.155	29.867	56	41	48.5	50½	50½	N.E.	.00
Mon. 23	6	29.497	29.359	52	40	46.0	50½	51	S.W.	.36
Tues. 24	☽	29.493	29.189	49	25	37.0	50½	50½	S.W.	.12
Wed. 25	8	29.555	29.512	44	32	38.0	49	50	E.	.02
Thurs. 26	9	29.575	29.479	46	40	43.0	48	50	N.E.	.10
Average		29.836	29.639	50.0	35.3	42.6	49.9	50.6		.60

Nov. 20—Dense fog; foggy; hazy and damp.
— 21—Foggy; overcast; foggy.
— 22—Foggy; cloudy and fine; clear.
— 23—Boisterous; heavy clouds; foggy; heavy rain at night.
— 24—Rain; cloudy; foggy and frosty.
— 25—Dense fog; hazy; cloudy and foggy.
— 26—Uniformly and densely overcast; rain.
Mean temperature of the week 1½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Dec. 5, 1857.

Nov. and Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 29	47.5	34.2	40.8	16	0.56 in.	4	1	4	3	4	10	4	1
Mon. 30	48.1	35.1	41.6	17	0.31	3	2	1	3	3	9	7	2
Tues. 1	48.0	35.5	41.7	13	0.25	1	2	4	2	7	9	4	4
Wed. 2	47.0	34.6	40.8	14	0.51	2	2	2	1	4	9	3	8
Thurs. 3	46.7	35.5	41.1	15	0.28	1	5	3	1	3	7	[illegible]	2
Friday 4	46.8	36.5	41.6	14	0.39	5	2	1	2	4	11	5	1
Satur. 5	47.8	35.3	41.5	19	0.25	—	1	2	1	3	12	8	4

The highest temperature during the above period occurred on the 2d, 1828—therm. 59 deg.; and the lowest on the 30th, 1836, and the 5th, 1844—therm. 14 deg.

Notices to Correspondents.

ACORNS: *F P.* We must beg you to refer to late Numbers of the *Gardeners' Chronicle,* where, in the Notices to Correspondents, the mode of sowing them has been explained. Treat your old Holly seeds in the same way, only covering them rather thinner.

AMERICAN BLIGHT: *W H S.* If you will look at our answer to a correspondent at p. 760 you will find the information you seek for.

BOTTLE GOURD: To make the Gourd useful as a bottle, as it is always used in Italy, the inside must be removed by cutting off two inches of the narrow end; then with a flat piece of iron hoop worked round and round, the inside pulp may be gradually loosened and withdrawn, provided the Gourd is ripe; if it is not you cannot clear it. When all the pulp is out you must fill the Gourd with water, shaking it occasionally, and changing the water daily till it ceases to be bitter tasted. That done, if well done, the Gourd is fit for use; but if ill done the fluid put into it will probably poison you.

GIBRALTAR BULB: *C A W.* It is a very pretty case, and we have sent a drawing to the wood engraver, in order that your little account may be properly illustrated.

HARRISON'S PIPPIN: The fruit exhibited under this name by Mr Harrison of Oatlands, as a seedling from the American Newtown Pippin, is in future to bear this name. It is a very handsome variety in appearance resembling the London Pippin, with five tolerably prominent angles at the eye, a clear warm greenish yellow skin, freckled with russet and delicately tinted with red next the sun. In quality it more resembles the White Calville, with which we think it may be ranked. The fruit having been exposed in the window of Grange, the fruiterer in Piccadilly, has attracted much attention to the variety, and deservedly.

HEATING: *A Subscriber.* You may obtain bottom heat very well by a tank upon Rendle's plan, covered over with wood, and this is perhaps the cheapest. We observe, however, that propagators prefer the heat from tan. You will never succeed with a bed heated by a pipe passing through the striking material. The floor of a greenhouse should be formed with flat red tiles, because of their capacity for absorbing moisture and slowly parting with it again.

INSECTS: *C W.* The insects you have sent are full grown larvæ or grubs of the common cock-chaffer, Melolontha vulgaris. *W*

IRON RAFTERS: *M A G.* If Vines are tied close to them they will probably be hurtful in consequence of their powerful conduction of heat. Certainly they are not preferable to wooden ones in a Vinery.

LATE GRAPES: *S P A.* Want of room this week prevents our insertion of your letter. We will endeavour to find a corner hereafter. In the meanwhile we would observe that it is impossible to keep ripe Grapes long in houses the air of which is not dry. The account of your Vinery leads us to fear that advice will scarcely avail to cure it. Gardening, like all other arts, can only be partially taught by precept. There is an elementary knowledge which must be gained by real practice, before advice becomes useful.

MICROSCOPES: *Armiger.* No instrument is more deceptive than this in unskilful hands, and even in those which are much practised error is common and differences of opinion are inevitable. A man's hand, eye, temperament, health, all contribute to the elements of error. No one should attempt to draw any conclusion from what he thinks he sees in the microscope until he has familiarised himself with its use by some weeks' diligent practice. You may see anything in a microscope, or nothing, according to the amount of skill and intelligence you bring to the aid of your observation.

NAMES OF FRUITS: *J Stewart.* 1, Royal Russet; 2, Reinette du Canada; 3, Golden Reinette; 4, Waltham Abbey Seedling; 5, Early Nonpareil; 6, Winter Pearmain; 7, Nonsuch; 9, Wyken Pippin; 11, Paradise Pippin; 13, Dutch Mignonne; 15, Bedfordshire Foundling; 2 and 17, Swan's Egg.—*Eben.* 1, King of the Pippins; 3, Blenheim Pippin; 4, Golden Reinette; 5, Crimson Queen; 6, Scarlet Pearmain; 7, Pennington's Seedling; 8, Yellow Ingestrie; 9, Bedfordshire Foundling; 10, Edinburgh Cluster; 11, Flower of Kent; 12, Waltham Abbey Seedling; 13, Braddick's Nonpareil.—*M J.* 1, Hawthornden; 3, Beauty of Kent; 6, Nonsuch; 7, Syke House Russet; 9, Crimson Queening; 10, Nonsuch; 11, Fearn's Pippin. The Pear is the Verulam.—*W T.* 1, 5, Passe Colmar; 2, Jean de Witte; 3, St. Germain; 4, Old Colmar.—*W Walmsley.* 1, Ormskirk Bergamot; 3, Colmar d'Aremberg; 4, Knight's Monarch; 5, Passe Colmar; 6, Chaptal (stewing); 1, 3, Dutch Mignonne; 2, Manks Codlin; 4, Shustoke Pippin; 5, 7, Nonpareil; 9, Cat's Head; 11, Easter Pippin or French Crab; 12, White Loaf; 13, King of the Pippins; 14, Reinette du Canada.—*C K.* 1, Old Colmar, evidently from a late blossom; 2, Doyenné Blanc.—*Z.* 2, London Pippin; 4, Waltham Abbey Seedling; 6, Wyken or Birmingham Pippin; 7, appears to be the Crimson Queening; 8, like Holland Pippin; 11, Winter Pearmain; 12, Paradise Pippin.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*X W.* Leonotis Leonurus.—*Shirley.* Pyrus melanocarpa.—*Wm Cruder.* The morsel from Hastings is no doubt a piece of the German Tamarisk.—*J S W.* Ardisia colorata, but surely it came from the East Indies, not the West.—*Curiosus* We regret our inability to satisfy your curiosity. When ignorant writers venture upon describing plants they are generally incomprehensible.—*T S P.* Apparently a specimen of Hexacentris coccinea starved by cold. It is a tender stove plant.

PINE APPLES: *J C W* wishes to know who was the raiser of the Black Prince Pine Apple.

PRESERVING FUNGI: *F M M.* There is no way in which the fleshy fungi can be preserved without pressure, so as to retain their colours. If external form only is desired, acetic acid, alcohol, Goadby's solution, and other fluids, will answer the purpose. With care they make good specimens for the herbarium dried like other plants, but the misfortune is that they are apt to mould afterwards, and to become the prey of mites, anobii, and other insects. A very dry room, the application of solutions of corrosive sublimate, and constant inspection are the only preservatives, and even these sometimes fail. *M J B.*

ZINC. *A B.* Ink for this is nitro-muriate of platinum; write with a pen, having first brought the zinc to a face with sand-paper.

ZIZANIA AQUATICA: *A Constant Reader* will hardly obtain any seed on this side of Canada. It grows very well in this country in swamps, if the seed can be persuaded to come up; but there is the difficulty. Seed is said to travel best in a bottle of water. When your seed is up we will tell you what to do next.

MISC.: *G E.* A good period of the year for cutting Ivy is April. Mushrooms should have a *little* artificial warmth now. A September heat is what they like.†

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.

Offices: 109, Fenchurch Street.—Manufactory, Plaistow Marshes, Essex.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, and MANURE COMPANY (LIMITED), General Seed and Manure Merchants, Union Road, Plymouth, late WILLIAM E. RENDLE & Co.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, LIMITED.

Capital 30,000*l.*, in 3000 Shares at 10*l.* each.
Deposit 2*l.* 10*s.* per Share.

Managing Director.—Mr. William E. Rendle, Mount View, Plymouth.

Committee of Finance.

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Mr. George Coaker, Old Newnham, Plympton.
Mr. John Rendle, Seedsman, St. Austle.

Bankers.—The Devon & Cornwall Banking Company, Plymouth.
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Auditor.—Mr. William Jacques Holmden, Plymouth.
Manager.—Mr. Geo. H. Lamoureux.
Secretary & Cashier.—Mr. R. W. Clark.

The above Company has been formed at Plymouth with limited liability under the Joint Stock Companies Acts 1856 and 1857, for the supply of all kinds of Garden and Farm Seeds, Manures, Agricultural Implements, and every requisite for the Farm and the Garden. Arrangements have been made with the old established and well known firm of Messrs. William E. Rendle & Co. for the transfer of their extensive business to the Company.

The objects for which the Company is established are the purchase, growing, or otherwise procuring, and the sale of Farm, Garden, and other Seeds, Plants, and Trees; also the manufacture, purchase, and sale of Agricultural Implements, Draining Tiles, and other articles used in the cultivation of Land; also the manufacture, purchase, and sale of Manures; also the manufacture, purchase, and sale of any other articles and things used in or requisite for the cultivation or improvement of Land, with power for the Company, in furtherance of the above objects, from time to time to purchase, take on lease, or otherwise acquire any Land or Buildings, to acquire any Patents, and generally to do all other things that may conduce to carrying into effect the objects of the Company, or be incidental thereto.

The Company has been duly registered, and the following is a Copy of the Certificate of Incorporation:—

"Limited Company: Certificate of Incorporation of the Plymouth Seed, Agricultural Implement, and Manure Company, Limited, under the Joint Stock Companies Acts, 1856 and 1857.

"I, George Taylor, Esq., Assistant Registrar of Joint Stock Companies, do hereby certify that the Plymouth Seed, Agricultural Implement, and Manure Company, limited, is incorporated under the Joint Stock Companies Acts, 1856 and 1857, and that it is a Limited Company. Given under my hand this 21st day of August, 1857, GEORGE TAYLOR, Assistant Registrar of Joint Stock Companies."

It will be thus seen that the Company was incorporated on the 21st of August last, and commenced business on the 1st day of September following.

The business will be considerably extended, so as to make it one of the most important concerns in the kingdom. About 2700 Shares have been already taken up and allotted, and it has been decided to distribute the remaining THREE HUNDRED SHARES to those who will have transactions with the Company, or who by their influence can benefit the business.

These Shares will be placed in the hands of the present Shareholders for distribution, and application should be made to

Mr. R. W. CLARK, Secretary to the Company,

Or to the following Shareholders;—

Mr. William E. Rendle, Mount View, Plymouth.
Mr. George Coaker, Old Newnham, Plympton.
Mr. Thomas Vosper, Merafield, Plympton.
Mr. George Sercombe, Seed Merchant, Exeter.
Mr. William Coaker, Charleton, near Kingsbridge.
Mr. Henry Holman, Mannamead, near Plymouth.
Mr. George Witty, Land Agent to Neville Grenville, Esq., Butleigh, near Glastonbury.
Miss Gregory, Mr. R. Gregory, Merchant, Barnstaple.
Mr. Edward Mortimore, Seedsman, Ashburton.
Mr. John Watson, Shirburn Castle, Tetsworth, near Oxon, Land Agent to the Earl of Macclesfield.
Mr. Thomas W. Eales, Merchant, Dartmouth.
Mr. John Rendle, Seedsman, St. Austle.
Mr. Arthur Pardew, South Devon Place, Plymouth.
Mr. Thomas Huxham, Chemist, Dartmouth.
Mr. John Gidley, Chipley Park, near Wellington, Somerset, Land Agent to E. A. Sandford, Esq.
Mr. Charles Hodson, Land Agent to the Rev. J. R. Hogg, Bagdon Barton, near Totnes.
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TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE'S Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

WILLIAM HOWDEN, Secretary.

26, Great George Street, Westminster.

FARM BUILDINGS.

ADVANCES ARE MADE UNDER THE GENERAL LAND DRAINAGE AND IMPROVEMENT COMPANY'S ACT, of the full amount required by the Owners of Settled Estates, Incumbents, Trustees, Bodies Corporate, &c., for the erection of Farm Buildings, designed by their own agents and sanctioned by the Inclosure Commissioners. The advances are repaid by a rent-charge on the estate for any term the landowner may fix, not exceeding 31 years.

No investigation of title being required, and the charge not being affected by incumbrances, no legal expenses are incurred.

The Company furnish designs of every description, and undertake the entire responsibility of the works wherever desired by landowners. WILLIAM CLIFFORD, Sec.

52, Parliament Street, London.

ESTATE AGENTS, SURVEYORS, ETC.

THE LANDS IMPROVEMENT COMPANY is incorporated by Special Act of Parliament for England, Wales, and Scotland.—Under the Company's Acts Tenants for Life, Trustees, Mortgagees in possession, Incumbents of Livings, Bodies Corporate, certain Lessees, and other Landowners, are empowered to charge the inheritance with the cost of Improvements, whether the money be borrowed from the Company or advanced by the Landowner out of his own funds.

The Company advance money, unlimited in amount, for Works of Land Improvement, the Loans and incidental expenses being liquidated by a rent charge for a specified term of years.

No investigation of Title is required, and the Company being of a strictly commercial character do not interfere with the plans and execution of the works, which are controlled only by the Inclosure Commissioners.

The improvements authorised comprise Drainage, Irrigation, Warping, Embanking, Inclosing, Clearing, Reclaiming, Planting, Erecting and Improving Farm Houses and Buildings for Farm purposes, Farm Roads, Jetties, Steam Engines, Water Wheels, Tanks, Pipes, &c.

Owners in fee may effect improvements on their Estates without incurring the expense and personal responsibilities incident to Mortgages, and without regard to the amount of existing incumbrances.

Proprietors may apply jointly for the execution of Improvements mutually beneficial, such as a Common Outfall, Roads through the District, Water Power, &c.

For further information and forms of application apply to the Honourable WILLIAM NAPIER, Managing Director, 2, Old Palace Yard, Westminster.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY; Offices, 52, Parliament Street.

HENRY KER SEYMER, Esq., M.P., Chairman

George T. Clark, Esq.	William Fisher Hobbs, Esq.
John C. Cobbold, Esq., M.P.	Edward J. Hutchins, Esq., M.P.
Sir William Cubitt, F.R.S.	Sir Samuel Morton Peto, Bart.
Henry Currie, Esq.	William Tite, Esq., M.P.
Thomas Edward Dicey, Esq.	William Willshere, Esq.

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

THE BIRMINGHAM CATTLE AND POULTRY SHOW, 1857.

President—The Right Honourable LORD WARD.

The NINTH GREAT ANNUAL EXHIBITION of FAT CATTLE, SHEEP, PIGS, and ROOTS, and the various kinds of DOMESTIC POULTRY, will be held in Bingley Hall, Broad Street, Birmingham, on MONDAY, November 30, and TUESDAY, WEDNESDAY, and THURSDAY, the 1st, 2nd, and 3rd of December next, when PRIZES will be awarded to the amount of 1250*l.*

The PRIVATE VIEW on MONDAY, November 30.

Admission to the Public:—Monday, 5*s.*; Tuesday, Wednesday, and Thursday, 1*s.* each.

The Doors will be open at 9 o'Clock each morning.

JOHN MORGAN, Secretary.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of PRIZE CATTLE, SEEDS, ROOTS, IMPLEMENTS, &c., commences on TUESDAY morning and closes on FRIDAY evening, December 8, 9, 10, and 11. Bazaar, King Street, and Baker Street. Open from daylight till 9 in the evening. Admittance 1*s.*

The Agricultural Gazette.

SATURDAY, NOVEMBER 28, 1857.

MEETINGS FOR THE TWO FOLLOWING WEEKS.

MONDAY,	Nov. 30		
TUESDAY,	Dec. 1		Cattle and Poultry Show of the Midland Counties Association, Bingley Hall, Birmingham.
WEDNESDAY,	— 2		
THURSDAY,	— 3		
FRIDAY,	— 4		
WEDNESDAY,	— 2	—Agricultural Soc. of England ..	Noon.
MONDAY,	— 7	—London Farmers' Club	6 P.M.
TUESDAY,	— 8		
WEDNESDAY,	— 9		Cattle Show of the Smithfield Club, Baker Street Bazaar.
THURSDAY,	— 10		
FRIDAY,	— 11		

THE reports in the *Mark Lane Express* of last week fully corroborate those of our own correspondents, given in our columns so long ago as August last, on the character of the past harvest.

Of 165 gentlemen scattered over the country, 83 put the Wheat crop as being over an average, 73 put it at an average, and 9 call it under average. The Barley crop is called over average, under average, and average, respectively by 10, 65, and 84. Of Oats the report is rather more unfavourable than of Barley; Beans and Peas are reported as being average, under average, or over average by about 60, 40, and 6 respectively. And Potatoes are declared to be under an average crop by 120 out of 168 of the reporters.

The result to which our correspondents led us during harvest time was that the Wheat crop was unusually productive; the Barley crop of unusual extent but barely average per acre; the Oat crop decidedly below its average productiveness; Pulse crops for the most part interior; Potatoes more diseased than they have been for several years.

The evidence is sufficiently alike to render it trustworthy.

The following is a tabular statement of the reports to our contemporary as regard Wheat, Barley, and Oats respectively. Over an average, quite an average, and short are here indicated by O. A. S.:—

	Wheat.	Barley.	Oats.
	O. A. S.	O. A. S.	O. A. S.
3 North-Eastern Counties with Yorkshire reports	2 13 2	2 7 5	1 10 5
3 North-Western	11 1 1	1 9 2	1 1 10
5 Eastern with Lincolnshire.. ..	23 1 0	1 14 7	2 4 11
6 Western with Somerset	15 4 0	1 11 5	1 10 6
18 Midland	36 14 1	2 24 24	1 12 28
5 South-Coast Counties	11 7 0	2 7 7	0 8 9
	98 40 4	9 73 50	6 45 69
Wales .. —	13 13 0	0 12 13	4 11 9
	111 53 4	9 85 63	10 56 78

WE learn that the entries of live stock, poultry, and vegetables for exhibition in Bingley Hall, next week, exceed in number those of almost every previous year. The shows of both the Birmingham and Smithfield Societies promise to be of unusual excellence—as might indeed have been anticipated from the greater extent and liberality of the prize-sheets which have been issued by them.

As regards the next week's meeting of the former of these clubs it appears that, comparing 1857 with 1856, the entries of cattle have increased from 109 to 135, and there is also an increase in the entries of sheep and pigs.

The entries of poultry exceed those of last year by about 90, the total number being not less than 1300 pens. There are 194 entries of pigeons, the number last year being 205. The following table illustrative of the progress of these meetings is

given in the columns of the *Midland Counties Herald*:—

	1849	1850	1851	1852	1853	1854	1855	1856	1857
Cattle	81	117	138	127	129	119	88	109	135
Sheep	40	55	71	83	59	61	64	146	53
Pigs	221	173	105	53	113	56	63	99	103
Total	342	345	314	303	301	236	215	254	291
Roots	..	..	..	..	..	..	142	119	130
Poultry	..	505	935	1138	1995	1608	1607	1210	1300
Pigeons	..	51	120	85	280	137	201	205	194
Total	342	556	1055	1223	2275	1745	1808	1415	1494

A PAMPHLET on "THE NEW MANURE," by the Rev. W. R. BOWDITCH, of Wakefield,* containing the paper on that subj ect lately read by him before the Wakefield Farmers' Club, has recently been published by that Society, and is one of the most valuable of the many useful agricultural publications for which we are indebted to its energy and public spirit.

The so called "new manure" is, as our readers already know, the result of a new purifying process to which coal gas has been subjected during manufacture. The new absorbent material is simply damped and powdered clay. It is ground between rollers, watered till damp enough to form a ball on pressure in the hand, and then spread out in trays, over and through which the gases distilled from the coal pass until it becomes saturated. "The foul clay when taken from the purifier is quite black, but on exposure to air and oxidation of some of the absorbed compounds the colour is partially restored and the clay fitted for use a second time." After this second use it is completely saturated and of no further service as a purifying material, though of great value as a manure.

Its value as a manure is the subject of Mr. BOWDITCH's pamphlet. He refers to the substances available for this purpose, (1) which exist in the clay as it is dug, (2) which are distilled from coal at the gas works and taken up by the clay, and (3) which are formed by the chemical action of these substances on each other. Mr. BOWDITCH is evidently an accomplished chemist as well as agriculturist, and a very large section of the field of agricultural chemistry is traversed by the reader of his pamphlet. We cannot give here anything like a sufficient account of its argument or its illustration; but we recommend the work for general perusal, if only as a remarkable instance of the uses of scientific knowledge as the expositor of agricultural experience.

It is, however, much more than this. It does, we believe, bring before the agricultural world a new manure of great value—one derived from hitherto wasted matters—to the efficiency of which ample testimony has already been collected—testimony in perfect accordance with what the theory of manures would lead us to expect.—For the new manure appears to contain all the substances which plants require, and it is rich in many of those in which nature is deficient. The objections to its use are either such as apply to all concentrated manures—*e.g.*, "it burns the crop if applied directly to it"—or they are really founded in mistake. Mr. BOWDITCH believes it to be especially adapted as a manure for Grass land. He recites several instances of its fertilising influence applied to pastures; and we conclude with a passage in which he recommends its use for this purpose:—

"I would fain restrict the use of my manure to Grass, so that at least a double return might be obtained from every acre within the kingdom, and yet nothing be subtracted from the manure available for land beneath the plough. I am acquainted with nothing else within the farmer's reach which can help him to raise the *present* produce of his Grass land and yet at the same time secure its progressive fertility. Farm-yard dung is out of the question. It cannot be spared from its present uses, and if employed on Grass will not pay except near towns. Nitrate of soda and guano are barred by cost as well as by the fact of their exhausting instead of improving, and until the use of the new manure I regarded the lasting improvement of our Grass as a desideratum."

THE CONDITION OF FARM SERVANTS.

I OBSERVE in a late number of your Paper some quotations from the speech of a gentleman who thinks that the British farmer is aware of his position as an employer, and that he takes an interest in the welfare of his workmen. Being a farm servant's son, I beg to say the Scotch and English farmers, as a class of employers, take comparatively little interest either in the domestic comfort or social progress of the people under their charge. In the south-east district of Scotland, such as Roxburghshire, Selkirkshire, Berwickshire, and Lauderdale, the following is the average rate of wages per year:—From 3*l.* to 6*l.* in money, five loads of oatmeal (100 imperial stones), from 3 to 4 bolls of Barley (6 imperial bushels 1 boll), 1 boll of Peas, from 1000 to 1800 yards of ground to grow Potatoes, a cow's keep, the liberty to keep a pig, a month's meat (food) during harvest, six cartloads of coals carted from the coalpits. Some farmers make the hinds pay the tolls.

Before the Potato blight became so prevalent, the Potato part of payment was very irregular to the hind, the farmer making so little effort to secure an abundant crop. Some farmers are so kind as manure the Potato ground from the same heap that they apply to the Swedish Turnips, but the majority of farmers merely allow dung which is little more than wet straw.

Some give the hinds' cows six cartloads of Turnips in the spring, commencing on the 1st of March; some allow one feed per day all the winter; some allow little else than straw, so it is nothing uncommon for cows to be so weak that they can scarcely rise in the stall. Where the cow is so poorly fed a hind's wife cannot be expected to realise much from butter and cheese. A hind with a prudent and economical wife is enabled to give his family an elementary education, by the children working a few months during summer and attending school during the winter. The children on commencing work receive from 4*d.* per day and upwards till they are able to be their "father's bondager." A hind who has no family can sell part of his grain and dairy produce, which provides him with money for clothes and incidental expenses, such as making up the bondager's wages when she is not so constantly employed as to earn them.

It is nothing uncommon for married people to have five and six children, the eldest not exceeding 10 years of age. Such a family consumes all the grain and Potatoes. It requires a very economical wife to save a few pounds of butter per week for sale. The condition of a hind with such a family (having to give board, lodging, and washing to a female called a "bondager"), who has a bad cow and a bad crop of Potatoes, is wretched in the extreme. As a Scotchman bears up under his privations so meekly, such extreme poverty would not be known were it not for his bondager speaking about it to his more fortunate fellow workmen.

It was considered by some of the speakers at the Birmingham Conference that the bothies in Scotland are a lasting disgrace to the landed proprietors of Scotland. Bothies have a degrading tendency, but as strict rules are enforced in some of them (though some throw off all social restraint) as in a well regulated household. Some bothies are mere hovels, but some have several well furnished apartments, the bed linen regularly changed, and soap, coal, and candles allowed to the men.

If any responsibility rests on the landed proprietors, the bondage system in the south of Scotland, which is as galling and oppressive to the hind as Egyptian bondage was to the Israelites, may be considered a stain and a national disgrace.

The Duke of Buccleugh is putting up a superior class of four-roomed houses on his estates, but there are a great many houses yet with only one apartment, where the hind, his wife, and family, must eat and sleep, and the female (bondager) who is generally an entire stranger from the Lothians also. Should there be three or four children, the "maiden" sometimes sleeps "aback o' the bed" or in the attic.

So long as the family are in the enjoyment of good health they are very contented with their accommodation, but when a death occurs, it is very harrowing to the feelings for the dead body to have to lie till the funeral day.

The cultivation of the Turnip requires the farmer to employ a good many men and women.

Where the rotation of crops is carried on, on the four-shift system, 80 acres of land is considered sufficient for one pair of horses; on the fifth shift 100 acres is allotted to each pair. If a hind has not a son or daughter to act as bondager he must hire one. Owing to so many country people emigrating to America these last three or four years, the farmers have had some difficulty to get servants, which has caused some not to charge the hind for house rent; but that does not benefit the hind, as he has to pay 7*l.* 10*s.* for his bondager's summer half-year's wages, 3*l.* and 3*l.* 10*s.* for the winter half-year; from 5*l.* 10*s.* to 6*l.*, and 2*l.* and 2*l.* 10*s.* being the wages in former years. It is customary for those who still charge house rent to bind the hind to find a reaper during the harvest for the rent. Should the hind's wife not be able to reap, the number of days the harvest lasts is deducted from that portion of the hind's wages which he receives for his bondager's work. Tenpence and one shilling per day is all the hind receives for board, lodging, washing, and paying the bondager's wages, except during reaping time, when the bondager receives harvest wages and her food. After the maiden's wages is paid, there is seldom much left for clothes to the family.

Much has been said and written about the education of the masses. Before the disruption in the Church of Scotland, where the parish schoolmaster took an interest in his duties the parochial schools suited the requirements of the working classes' children, as an elementary education is all that a working man can give his children. The main grievance on education in Scotland being that the heritors (landowners) and parish minister having the sole power and management of the school, and none but members of the Established Church being eligible as parish schoolmaster, although the majority of the people in Scotland are dissenters and all equally taxed. Were the landed proprietors to establish libraries composed of such books as Cassell's educational works in the rural villages, and make every reader sign an agreement to replace any book he injured or lost, young lads in the country would acquire a taste for reading and mental improvement they merely begin at school. It is seldom a working man's family education is more than learning to read and write, the elements of arithmetic, English grammar, and geography; reading in the scriptures (old and new); and committing the shorter catechism to memory. Too many soon forget that course of instruction after they commence their monotonous labours. The hinds' dwelling houses are generally placed at a convenient distance from the farm buildings. From March till autumn the hind has to be in the stable by 5 o'clock to feed his horses and clean out the stable. He returns to his house for breakfast, to be ready for his work at 6 o'clock, and works till 11 A.M., commences again at 1 o'clock, and works in the field till 6 P.M. On large farms it is generally about 7 o'clock before he can leave the stable, which is the conclusion of his day's work. In some parts of England, owing to no servants' houses being on the farm, the men must reside in the nearest village, which is in many places more than a mile from the farm. Owing to the English soil being so adhesive through wet, it requires four horses to draw the plough. The ploughman must be up at 4 o'clock to cut the horses' meat. The English ploughman does not work so long in the field as the Scotch; but it is 9 o'clock (at night) before the English ploughman finishes his day's work.

It is very hard on the English farm labourer having to pay from 3*l.* to 5*l.* rent for a small house and a small garden; the labourer working on his landlord's estate, and the labouring man's wages seldom exceeding 12*s.* per week.

The above is a true description of the working man's position. *A Scotch Rustic.*

WILL A PIG PAY?

WE are indebted for the following amusing, yet truly practical chapter, to a Magazine, the "West Buckland Year Book" (North Devon), where it has been founded and carried on by the Reverend —— Brereton, in order to teach his pupils a few common things, and stimulate their literary tastes. The author of this "Practical Paper on Pigs" is Mr. John Tyrrell, of New Court, North Devon.

"Every one says, and what every one says must be true, that pigs will not pay. Every farmer says so, and your thrifty tradesmen's wives, who occasionally fatten a pig and keep an account of the cost declare, 'their pork stands them in a shilling a pound.' Then why do we keep pigs at all? Obviously, as it appears to me, from motives of mere benevolence. What other possible motive can induce us to keep an ugly, dirty, unsavoury (except when on the table), unprofitable animal, but with the view of charitably feeding our fellow-creatures? With this view our British farmers (I glory in being one of them) breed our pigs, rear our pigs, fatten our pigs, take them to market, and sell them at a dead loss. But as charity must have its limits—as no man can prudently exceed a certain sum in alms giving (that is, preparing his pigs for market)—with the view of making this sum go as far as possible, and so conferring as great a benefit as possible on the public, I submit to my brother-farmers this 'Practical Paper on Pigs.' I shall confine myself to colour and size. There never was a good horse, they say, of a bad colour; and so it may be with pigs. Were it my practice to confine my pigs altogether to their sties, and to shelter them in the summer from the sun, I might not object to a white pig. But I have found that, when turned out to Grass in Devonshire, the sun has a very injurious effect upon the skins of white pigs; therefore, I have latterly confined myself to black.* Most farmers are inclined to select a large breed: 'Ay,' said one; 'there is some growth in that pig.' 'Yes,' says another; 'that's what I call a good farmer's pig, none of your fancy sort.' And yet I very much doubt if they are right. The native pigs both of England and Ireland were of a large breed and without any great aptitude to fatten. Our improved breeds have been produced by judicious crossing with the Chinese and Neapolitan, which have even too great a tendency to turn food into fat; the more the breed we select takes after these latter, the more profitable, in my opinion, we shall find them; and that, in nine cases out of ten, the same quantity of food, judiciously given, will add more to the weight of two pigs of a small breed than to one of the larger (improved) breed; while the quality of the increased weight will be greatly preferable in the small breed, and fetch a higher price in the market† [for pork, fresh or pickled. *Edit.*]

"*Breeding.*—Sows should be at least two years old before they are mated. They are not full grown until five or six. Highbred [especially if allowed to get too fat for want of exercise—*Edit.*] will often not breed at all, or at any rate have only half the usual number of pigs. Where, therefore, only one or two breeding sows are kept to eat up the waste of the farm [and produce suckers and small porkers], it may be well to be content with a 'farmer's sow,' but on all occasions obtain the services of a first-rate boar, especially for the first litter, inasmuch as it is said that whatever number of litters a sow may have in the course of her life, they all, to some extent, take after her first mate. 'Oh that hallowed form is ne'er forgot,' &c. But those who breed on a large scale should spare no trouble or expense in obtaining the very best animals, both male and female, that can be procured.

"*Farrowing.*—By all means arrange it, if possible, that your sows farrow in March—not earlier, on account of the very cold weather in December, January, and February—not later, lest

* On the New Manure, pp. 48. E. Farrington, 4, Farringdon Street, London.

* "A couple of Improved Berkshire, exhibited by the Rev. T. C. James at Chelmsford, weighed 12 score each at seven months old, and with that weight were of such good constitution that they were well upon their legs; but they had walking exercise every day while fattening."—*Editor, second edition.*

† "The Rev T. C. James observes to us on this:—'The small breed is very well for porkers, but not for the flitch. A good little animal is good; but we want a good and big animal. The "Improved Berkshire" realises this desideratum, as it realises the highest price from the bacon curers, cuts up wide over the back, well interlarded with fat and lean. It is also more free from lameness than any other breed. The great white Yorkshire breed, which has been exhibited at the Smithfield Club Shows, 9½ feet in length, yet not half fat, must have consumed more Barley than half the west country farmers grow on their farms.'"

you lose the chance of a second litter before the cold weather sets in. To be sure, the Royal Agricultural and the Bath and West of England Societies offer prizes for a pen of sows not exceeding six months old in June or July, farrowed consequently in December or January; and to win these prizes the pigs must be comfortably bedded during the inclement weather in woollen rags or cotton waste, and clothed in jersey jackets, which may be obtained from those union workhouses where they teach the elegant and useful accomplishment of crotchet work, and do not teach sewing, baking, cooking, washing, digging or hoeing. But I strongly recommend the practical farmer not to breed too early in the spring or too late in the autumn. The latter is by far the most serious error. You may protect your very early pigs for a month or two, and then they will have a summer's run before them, but a litter late in autumn is seldom worth rearing. Your sow about to farrow should be separated from the herd some time before parturition. You otherwise run the risk of her being injured and bringing forth dead pigs. The stye should be 12 feet by 10, with a strong pole parallel with the walls, 6 inches from the ground, and as much from the walls, to leave room for the little pigs to escape being lain upon when the mother lies down to suckle them. The straw should be cut short. When the sow is of a valuable breed and careless of her young, I have sometimes placed the young, wrapped in a blanket, in a cask half filled with straw, presenting them frequently to the mother to be suckled for two or three days, until they had acquired strength enough to avoid being lain upon. While suckling her young, the sow should be exceedingly well fed. She should be turned out of her stye for a little exercise for a short time daily, even within a few hours after parturition. When the young begin to take food from the trough (which they will do at two weeks old), they should, where there is a dairy, be supplied with milk; oil cake may be advantageously boiled in the food, both for mother and young. At about two months old the young should be weaned. In my neighbourhood they invariably separate the mother and young before sunrise on a Sunday morning, with the view of the sow having young again at the earliest possible period, about 17 weeks from the day of weaning. Immediately after weaning, the sow's food should be reduced. If kept too well, her breeding will be retarded: but when decidedly in pig, she should be kept in good condition.

"*Feeding.*—By feeding, I mean, not merely fattening, but the proper mode of nourishing the animal from the hour of its birth till the day of its death. For the first six months the young pig must be fed as well as possible on food that will make more bone and muscle than fat. Therefore I should withhold Linseed, which contains three times as much oil as the same weight of oil-cake, and should give them Oats and bran in preference to either Indian Corn or Barley meal. After six months, a pig for the next twelve months should merely be kept in growing condition, so as to be strong and healthy. Every ounce of fat laid on growing animals previous to their being put up to fat is a dead loss. [No; a pig without fat is a disgrace. *T. C. J.*] Grass in summer is the natural food for such pigs. I have at the present moment, December 24, a dozen sows, from 15 to 20 months old, that have tasted nothing but Grass for six months, and are still in the field with the shelter of only a linhay, but amply supplied with straw to run into when they please. In winter, the Grass failing, the pig would turn up the ground in search of roots—then it is upon roots we must feed him. In November I took in all my pigs under nine months old, and from that period have been keeping them in growing condition on roots and bran. As the spring advances they will have Vetches, after that their summer's run on Grass, and at the end of the year will come in for breeding sows—that is, as many of them as will breed early; many of the highly-bred animals will decline to breed at all, or delay to a period too late for the farmer's purpose. Sows ascertained to be barren, after the completion of the second year, will share the fate of the majority of their brothers, and be fattened for the market. I don't wash the roots I give my pigs—it may be right to wash for men and sheep who do not eat roots in a state of nature [and have to ruminate]; but as hogs in a state of nature find roots for themselves deeply buried in the earth, and I have never once known a tame pig take a cake or root to a stream to wash them—down they go earth and all. I question if earth be not a proper condiment for a sucking-pig's digestion. My orders are for the swineherd to throw some clay into each of the sties daily [Mr. Lawes cured two sickly pigs by giving them a mixture of coal, salt, and superphosphate—see chap. on Chemistry of Pig Feeding]. My plan with roots is this—the unwashed Carrots or Mangel I cut up small, and mix in the proportion of 1 cwt. of bran to a ton of roots. Bran contains in the same weight more than any other meal of the peculiar nourishment that is fitted for growing animals; the bran I mix well with the cut roots in a tub, or on a brick floor; it soon begins to ferment, and this is, I think, a substitute for cooking. [Pulping the roots would be more effective than slicing, to produce fermentation; but according to the Rev. T. C. James's experience, 'steaming the roots and mixing the liquor and the roots with bran produces one-third more profit,' which, of course, pays well for the fuel. *Edit.*] I should confine sows to this mixture and to Grass and Vetches, and except when in pig or suckling, not feed them more highly—even Carrots are too nutritious for a sow intended for breeding, and she must be kept on Mangel or Swedes and bran. Well-bred pigs will pay, I think, at least as well as sheep, for being depastured during summer on Grass. I put up 16 pigs, weighing about 4 stone each, one half on Carrots and bran, the other half on Mangel and bran. A ton of Carrots and a cwt. of bran produced in 18 days an increase of 90 lbs.—deducting in each case one-sixth for offal, estimating the remainder at 10*s.* a score, and deducting 5*s.* 6*d.*, the value of the bran, one lot paid me 1*l.* 12*s.* a ton for Carrots, the other 1*l.* 6*s.* 6*d.* for a ton of Mangel. During this period they consumed above 16 lbs. daily, and increased in weight upon the Carrots 10 oz., and upon the Mangel 8 oz. During a second period of 16 days they consumed daily 25 lbs. each, and increased upon the Carrots 14 oz., and upon the Mangel only 7. This mixture of bran and roots, preferring Carrots when to be had to Mangel, may be continued when pigs are put for fattening, gradually adding Indian, or Barley, or Oatmeal. Frequent changes of all kinds of food will admit the following process:—To learn how long you can increase your meal with profit, weigh your pigs weekly, and set their increased weight against their increased cost. Last year I put up 20 pigs to fatten upon roots, and a large proportional quantity of Oat and Barley meal. During the first fortnight the increased weight, compared with the food consumed, paid me 9*s.* 6*d.*; the second fortnight, 4*s.* 6*d.* In the third period of three weeks, they cost me 16 guineas, while the value of their increased weight was but 8 guineas. What happiness for a farmer to think he has bestowed 8 guineas in actual charity to pig consumers. Pigs are apt to be infested with vermin. If found they should be thoroughly well washed with soft soap, and exceedingly well dried—they may be frequently dry brushed with advantage under any circumstances.* A pig put to fatten in a thoroughly clean state need not be put to the weekly annoyance of being washed and perhaps not effectually dried.

"*Manure.*—The ox walks off to market with his whole carcase—bone, muscle, fat, and offal—containing an immense quantity of mineral ingredients of the soil, which can only be replaced by the reintroduction, at a considerable expense, of artificial or other manure. The sheep does the same, and half the live weight of a sheep is offal, which, with the carcase, is wholly lost to the farm. The pig is most frequently killed on the farm, and the whole of the offal left behind; and then a pig carries away a very small portion indeed of bone and muscle compared with his fat. And that fat is almost exclusively composed of carbon, derived principally from the atmosphere, and which need not necessarily be restored, provided the manure made in producing that fat be applied to the soil, and the young plants stimulated thereby to reimbibe from the atmosphere the same amount of carbon.† With tolerably good land, and no lack of capital, a farmer cannot do better than cultivate white crops alternatively, and with a moderate dairy, confine his stock exclusively to pigs! Let him consume his Oats, sell off both Wheat and Barley, and buy Indian Corn and bran. Indian Corn is about the same price as Barley, but 6*s.* instead of 5*s.* lbs. to the bushel. A bushel of Barley meal is generally supposed to add 10 lbs. to the weight of a pig: I have found in my latest experiments that a bushel of Indian Corn produced an increased weight to a pig of 15 lbs."‡

* Dressing once a week with oil is an effective preventive to pig-lice.

† Professor Voelcker says, "horse-dung and sheep-dung are about equal, then cow-dung; last, hog-dung. Fat is of no value as manure."

‡ "The chief merit of Indian Corn is its fattening properties: it is richer in fat-forming matters than almost any other description of food. I have recently discovered that the ready-made fat in Indian Corn amounts to from 5½ to 6 per cent. You should not feed animals entirely with Indian Corn, for the flesh-forming matters in Indian Corn are small. Bean-meal supplies the deficiency. Five pounds of Beans to one pound of Indian Corn is a mixture which contains the proportion of flesh-forming and fat-producing matters nicely balanced."—*From Professor Voelcker's Lecture at Exeter*, 1857.

WHAT IS HALF A CROP?

PEOPLE speak of Lois-Weedon tillage being a half crop or half the ground by it being under crop (in which latter fancy Mr. Smith himself even joins). 'Tis no such thing; 'tis at least a three-fifth or three-fifths of the ground are under crop. Three rows of corn are placed 1 foot apart in every 5 feet; now is it not evident that in five feet there can only be five rows at a foot apart? But we have three rows, and there remain then only space for two rows more; thus two-fifths of the ground only is unoccupied; how then is it a half crop? Again every row occupies a foot, 6 inches on each side of its line, and three rows then take all 2 feet inside and 6 inches on each outside or three feet; if the roots are examined, they will also be found to occupy this same space, that is, 6 inches from each line of plants. Yet the fallow space is still equal to nearly 3 feet, for the ground is fallowed to the line of plants, the deep forking extending in the first instance over a breadth of 2½ feet, the deep working of these intervals diminishing gradually to a breadth of only 1½ foot, but a partial fallowing yet exceeds this, for it prevails between the lines of corn till their height stops the process. Let us then hear no more of half crops. But Mr. Piper by a strange mistake makes it really only a half crop, for he gives to it 6 feet.

At the Witham meeting on the 8th October, Lord Rayleigh also appeared very well satisfied with what he considered a half crop of 21 quarters 6 bushels on two acres of ground in four years, or an average of 21¾ bushels to the acre each year. Why, Mr. Smith averages over 34 bushels. Lord Rayleigh thus gives occasion to a very fair observation that as only one-half of the ground is under crop, and that whereas by a little manure the whole could be, "that in going on in this way he would starve the public by cultivating only one-half of the land, and that it would be better to lay out money on manure and grow a full crop, as in the Lois-Weedon system the country would be starved and could not go on." But the growing of half crops is not the Lois-Weedon system; Mr. Smith asserts that his crops average per acre over the average of his neighburhood, not two acres in half crop for one acre in full crop. On Mr. Smith's estimate Lord Rayleigh's experiment is therefore a failure, if his lordship's land is capable of yielding broadcast or in rows at narrow distances 5 quarters of Wheat to the acre. Mr. Smith in his pamphlet of 1852, page 27, speaking of his one acre experiment says, "I have already had Wheat on the same acre of land for three successive years. Of the first year I took no account, but I have acurately measured the produce of the last two years, and the yield has been the same in both cases, 4 quarters 2 bushels.

	£	s.	d.
Four quarters and two bushels of Wheat at 40*s.* the quarter	8	10	0
One ton 12 cwt. of straw at 2*l.* the ton ..	3	4	0
Total amount of produce	11	14	0
Deduct outlay	4	13	6
Total amount of profit	£7	0	6

To myself, as proprietor, then, this acre of Wheat land is worth 7*l.* 0*s.* 6*d.*" Again, page 73, "Nothing can be better suited to my purpose than this four acre field;" and in page 74, "I am now enabled to give the results of my experiment on the four acre field of Wheat on which I entered in October, 1850," and this result is "Twenty quarters and a half of clean Wheat (exclusive of tail)." We have no talk here of half crops but of 20 quarters and a half of clean Wheat on four acres of land; four acres only.

Further, this so-called half crop on an acre exceeds the average whole crop on an acre in the neighbourhood of Lois Weedon. Mr Smith asserts, page 11, "One moiety of each acre is thus in Wheat and the other moiety fallow; and the average yield of that half acre is 34 bushels grown without difficulty or danger in the execution, and surpassing the average yield of a whole acre on the common plan," and again, page 9, Mr. Smith says: "I have succeeded, and seen others under my own immediate observation succeed, in gaining an average produce from half an acre, equal to a high average produce from a whole acre,"

It is strange how all persist in estimating this plan of growing Wheat at only a half crop, that only half the ground is occupied. I think I have shown that three-fifths of the ground are actually under crop, but these three-fifths derive all the benefits arising from a sole occupation of the whole; both in terrestrial supply and in aerial they take in the food of the whole. Every one, however, knows that space, air, and light will over compensate for closeness of plant in all our vegetable productions. Is Wheat an exception? There is no doubt a due medium, but this is a veil yet to be raised. Has not Mr. Smith nearly found it in Wheat growing as well as perhaps in all other Lois-Weedon culture? Is not an average rendered certain better than the chances of something more occasionally obtained? *J. M. Goodiff.*

GUIDE-WAY STEAM AGRICULTURE.

As Mr. Burcham writes a letter in your last *Gazette* in effect disallowing a similarity on all points except one between our systems of steam cultivation, I shall not enter into the proof of this dissimilarity, which I had proposed to do in my former letter to you. The point which is the exception I allude to is the carriage of men upon platforms to perform operations of hand cultivation. I have said in my patent, after enumerating about 12 operations to be done by my apparatus, "light platforms may be constructed to carry parties of labourers over the ground for the purpose of weeding, transplanting, or performing any other light operation of hand culture." On this I observe that in the first place the operation is a perfect bagatelle in comparison with, and when considering, the power and advantage of my scheme as a whole; and secondly, as I said in my former letter, I make no claim in my patent to any operation or implement, whether new or old. My invention is one purely of a system of guide-ways, made of rails or other hard-way materials, while Mr. Burcham has nothing of this kind in his invention.

I think that I have thus said enough to repel Mr. Burcham's charges. I hope that Mr. Burcham will be contented to let the matter rest; but there is another question which he tilts at in his last letter, and that is the question of the economy of my system. I gladly turn to it because I think that it is one which will interest the readers of your Journal more than the other question. He says in his letter:—"As to permanent rails for steam cultivators or carts" (trucks they are rather) "to run upon on farms, it is quite out of the question, and although absolutely needed under Mr. Halkett's plan, is wholly unnecessary under my method of circular tillage. In conclusion I offer this doctrine for the reflection of inventors, namely, that nothing permanent, whose first cost is very high, will ever pay in a business like agriculture, where the operations are temporary and intermittent." I beg entirely to differ with Mr. Burcham: there is nothing which is more grateful than the earth for the labour which is put upon it. But it is the cost of labour in the operations, amounting to 3*l.* per acre per annum on an average when done by horses, and to 5*l.* or 7*l.* when done by spade labour for farm crops, and to 10*l.* or 15*l.* when done for market garden produce—together with the difficulty of superintending and seeing that these operations are efficiently performed—which delays, deters, and prevents a large amount of labour being put upon the land, the consequence of which is that a large proportion of the produce which the earth is capable of producing is never brought forth. And it is the smallness of the cost at which the separate and repeated operations of tillage can be performed by my system, namely, 5*s.* to 20*s.* per acre per annum in opposition to the above-named prices that would allow me to multiply to a large extent the frequency and the depth of the operations, and enable the produce of the farm, as may be deduced from all experience upon the matter, to be very largely increased.

These are the advantages to be derived by my system—advantages sufficient to outbalance by several pounds per acre the extra rent of 30*s.* or 40*s.* per acre which my system entails. To prove this I have but to point to the difference which obtains between spade labour upon land for farm crops, when a man works his own ground in the country with no larger an amount of manure than the farmer has upon the same acreage, and horse labour, which difference will be found to be at least equal to 4*l.* per acre more in produce in favour of the spade (the difference in cost of labour it must be remembered is equal to 3*l.*). Now the work produced by my machine, I assert, and it has been examined by several London market gardeners and allowed to be so by them, is superior in its effect upon the ground, in the way it leaves the soil light and never trodden upon or consolidated, except where desired by the roller; in its way of mixing artificial manure; and in its way of pulverising and cleansing the land, to the highest state of garden cultivation, and far superior to common spade labour. These operations, which can be done at a great depth of soil (while the hoeings between the rows of crops, at the small charge of 3*d.* per acre, and at so large a quantity in the day as 150 acres, with a precision arriving almost at perfection, can be as often repeated as desired), would be all done, including the annual payment for depreciation and wear and tear of guide-way and machinery, and interest of money for laying down the same, at a cost equal to that for simple horse farming. Now, how does the case stand if this be true? Take land of good medium quality, rent to landlord and profit to tenant together equal to, say 2*l.* per acre. Such land produces, in fact, a certain amount of produce, from which, after paying a number of other charges which need not in this question be entered into, and paying 3*l.* per acre for field labour, a residue of 2*l.* per acre is left to be divided in

some proportion between the landlord and the tenant. In my case of the steam farm the same cost, I say, of 3*l.* per acre per annum will pay all the outgoings for field operations and rails, but the produce will be 4*l.* more, which added to 2*l.* gives 6*l.* as the amount of profit to be divided between the landlord and tenant instead of 2*l.* per acre as before stated. In other words, if a tenant on a farm of 700 acres with the present system of farming netted a profit of 700*l.* a year, with the same capital upon a guideway farm he would make a profit of 2000*l.* a year, and the landlord would also increase his income in the same ratio. If however the landlord chose to pocket the whole advantages (and eventually the advantages would wholly or chiefly go to the landlord), he could, by putting in a bailiff or raising the rent, receive the whole of the 4*l.* an acre increase, and receive instead of 700*l.* a year an income of more than 3000*l.* a year.

Where will the money arise to the hands of the landlords for laying down these permanent guideways? it may be asked. I answer by asking: Where does the money come from for the great draining operations carried on in this country? Where the dividend is, there will the money be. The estimates of profit which I have shown may appear very large, but I have considered the subject long, and soberly I hope; I have have made frequent and particular inquiry among men accustomed to spade labour, and I can conscientiously say that I am placing the estimate far lower than they do when I state the increase of produce that would be due to my machine at 4*l.* per acre.

In conclusion, I may say that should Mr. Burcham doubt whether the operations are as perfectly performed as I have stated that they are, I beg that he will be so kind as to accept the invitation which I will address to him to view my operations on the next opportunity that I am prepared and have the "steam up," when I assure him that I will give him a most hearty welcome. *P. A. Halkett*, 80, *Chancery Lane, London.*

Home Correspondence.

Alum in Bread.—More alarm may perhaps have been excited upon this subject than it requires; for when used with sound flour merely to whiten the bread, and in quantity not exceeding 1 oz. to the bushel of flour, it would not be likely much to affect a healthy stomach. But even then it is an illegal and dishonest practice, and might hurt weak digestions; and when used in larger quantity, with unsound flour to give it the appearance of sound, the unsoundness of the flour and the increased quantity of alum are likely to be very injurious in daily use, particularly to the aged and infirm poor who have little or no other strengthening diet. And this is probably the way in which most of it is used. The precise detection of the alum is a nice point. But there has just been suggested a simple method of discovering it, not only easy but rather amusing. Many housekeepers are aware that logwood strikes a purple dye with alum, but not so evidently without;—so if we put a slice of bread into a solution of logwood, and let it soak three or four hours, and then take it out, if it contains alum, it will have taken the purple dye, but not otherwise. Making therefore a logwood solution, by boiling a few chips of logwood in a good pint of soft water, in a pipkin or skillet (not iron) till the liquid becomes a deep orange colour, that one can just see through; straining it off; letting it cool in a basin; then putting in a slice of bread, without crust, between ¼ and ½ inch thick: letting it digest 2 or 3 hours; and then taking out the bread and breaking it. If it contains alum it will be dyed purple, more or less through, (not merely on the surface,) except the bread is very sour which will prevent the dye from changing colour; or on the other hand, when the baker or miller has put in too much soda to correct the sourness, in which case it will turn purple, liquor and all, without alum; so that it is not quite certain; though if bread which is not sour takes no purple die, it may generally be regarded as free from alum: and when it does take the purple, it is likely to be alumy or otherwise unsound; and if needful should be submitted to chemical examination. *I. Prideaux.*

Mr. Piper's Wheat Culture.—Your notice of the results of Mr. Piper's Wheat cultivation induced me to look to your past Volumes for particulars of his practice. The plan seems to be but meagrely adopted, as I do not find he has any disciples who appear in print. It seems he dibbles in his Wheat without ploughing. Some of my land is so bricky, being heavy land, after harvest that I could hardly expect a dibble to penetrate. Does he wait until his land becomes moistened by rain, or does he make a hole by hard force and then deposit his seed? I mean to face the contumely of my parish and try a field on his plan. My land is not drained I regret to say. *A. B.* [Mr. Piper will no doubt give you the information you desire.]

Steam Culture.—In your review of my letter on Steam Cultivation, you say that I assert that I was the originator of the windlasses and rope traction for ploughing by steam. I say Mr. Hannam made the first attempt, but failed, and that it was I who first efficiently originated and applied them. Here is some substantial proof extracted from a paper drawn up by Mr. Fowler, and read at the Institution of Mechanical Engineers, Birmingham, who, after sketching the progress of draining to maturity, goes on as follows:—"The first experiments in steam cultivation commenced in the autumn of 1855, when the tackle was arranged with the windlass on a separate frame and driven by a belt from the driving pulley of the engine, but otherwise differing only in strength from the windlass adopted in 1853 and 1854 for the draining plough. The success of this windlass seemed certain from the first, and it is being successfully worked now in exactly the same form as then made. The first trial of it was with a scarifier, which it worked perfectly, turning it round at the headlands with ease; this being acomplished by attaching both ropes to the front of the machine and reversing the pull on the ropes." Now, sir, this very windlass above referred to was contracted for by me in July, 1855, at Carlisle, and manufactured according to my instructions there given. The 17th of December, 1855, was the day I first worked it, I have worked it on my farm very successfully ever since, and it is at work there to-day. The scarifier and mode of turning above referred to are both separately patented by me. In January, 1856, Mr. Fowler sent his foreman down under the pretext of putting me up to a few little matters, who remained and for ten days watched my operations and reported results to his master, after which Mr. Fowler attempted steam tillage. I shall leave remarks to you, and content myself by claiming the honour of having originated and brought that windlass to bear as the first efficiently applied to the tillage of the soil. *William Smith, Woolston, Bletchley Station, November* 17.—P.S. The paper was read on the 29th of April, 1857. The Chairman asked Mr. Fowler how long his implements had been worked. The reply was, "Eight months." After this I think I may say his own words condemn him.

Mangel Wurzel and Beet grown on the Albert Model Farm, Glasnevin, 1857:—

No. of Lot.	Varieties.	Date of sowing.	Manure applied per statute acre.	Produce per acre—roots.	Produce per acre—leaves	Observations.
			tons. cwt.	tons. cwt. st.		
1	Orange Globe	May 6th	Farm yard.. 18 0	30 10 0	Average weight per acre, 12½ tons.	It will be seen that the Orange Globe has produced the greatest weight per acre, & the same result has been obtained on this farm for several years. It further appears that a large application of common salt (in this case) is not so beneficial for the Mangel crop as a moderate dressing. It should also be stated that the Sugar Beet, in this particular case, shows a much larger return as compared with Mangel than I have observed on any former occasion.
2	,, ,, ...	,,	,, ,, 18 0	32 6 0		
3	,, ,, ...	,,	Common salt 0 7	31 17 0		
4	Deep Orange Globe ..	,,	Farm yard.. 18 0	29 18 0		
5	Long Red	,,	Common salt 0 14	28 16 0		
6	Long Yellow	,,	Farm yard.. 18 0	28 19 0		
7	Red Globe	,,	Common salt 0 7	26 14 0		
8	Sugar Beet..	,,	Farm yard.. 18 0	30 12 0		
9	,, ,, ...	,,	Common salt 0 7	30 4 0		
			Farm yard.. 18 0			
			Common salt 0 14			

P.S. The acreable produce was ascertained by weighing the entire crop.

—*William Boyle, Agriculturist.*

Mangel Wurzel.—In accordance with the request expressed in the *Agricultural Gazette* of Nov. 7, I beg now to state the method employed in the cultivation of our "Mangel;" with the cost. It will be necessary to bear in mind that the crop of this year was grown on two acres taken from a field which formerly produced little except Gorse and weeds, and that the soil of it is extremely shallow. The preceding crop was Wheat (lightly manured), and the stubble having undergone the usual autumnal clearing, 36 cartloads of farmyard manure were ploughed in during the month of November. Nothing further was done until the latter part of April, the land was then again ploughed, harrowed, rolled, and thrown into ridges 27 inches apart. Twenty-four loads of well rotted farmyard manure, having been spread in the drills, a mixture composed of 6 cwt. Peruvian guano and 12 cwt salt was sown broadcast over the whole. The ridges were then split back over the manure, and a light roller passed along the top of them. The seed (which had been previously soaked for 48 hours) was then immediately sown, using a blunt dibble, which deposited it at intervals of 14 inches and about ¾ of an inch below the surface, The young plants appeared above ground on the eighth day after sowing; as soon as fit they were singled, the blanks filled up, and the land hand hoed. They were again hoed in June, and looked over during the month of July and all weeds removed. The field being of so shallow a nature it was not deemed advisable to subsoil, but the horse hoe might have been used with advantage. The variety grown was the Orange Globe, the seed of which was procured from Messrs Sutton and Sons, of Reading, who have always supplied with seeds of superior quality. On the 19th of October the roots were taken up, and on being weighed, after they had been cleaned, the produce of the two acres somewhat exceeded 96 tons. Those plants which had run to seed during the summer were pulled up and given to the pigs; had they been left until October the weight per acre would of course have been greater. The value of Mangel differs according to the locality—here it is worth at the least from 10*s.* to 12*s.* per ton; it will be seen that I have taken it at the lower sum. The leaves were ploughed in immediately, and the land left in excellent condition either for Wheat or Barley. The leaves should on no account be removed from the bulbs before they are taken up; it has been proved to be a most injurious practice. Next year we purpose having the drills 30 inches and the plants 18 inches apart, and although I have probably stated nothing that is not already well known to the readers of the *Agricultural Gazette*, it is as well to mention that to obtain success on a naturally poor soil, no particulars in the above method of cultivation should be omitted.

Result on Two Acres Mangel Wurzel.

96 tons Mangel at 10*s.* per ton		£48 0 0
Deduct for 36 loads farm yard manure laid on in November at 5*s.* per load	£9 0 0	
24 ditto in April	6 0 0	
6 cwt. Peruvian guano at 14*s.* per cwt.	4 4 0	
12 cwt. salt at 1*s.*	0 12 0	
Rent and taxes	3 10 0	
Seed	0 10 0	
Labour	7 0 0	
		£30 16 0
Balance		£17 4 0

The leaves, when ploughed in immediately, are certainly worth 16*s.* per acre as manure, for which I have not taken account. *J. B. Maunsell, Thorpe Malsor.*

Acorns.—Give acorns to the pigs! Why, they are good food for hungry men. On the distressing retreat of our Peninsular army, known as that from Burgos, for many days the army had scarcely any other farinaceous food—in the five days from Salamanca to the frontiers of Portugal ¼ lb. of flour and ¼ lb. of Wheat were served out per man. On my joining head quarters after mining the bridges of Toledo I found my brother officers, as well as the men, all busy grinding acorns between stones to boil with their beef and thicken their soup, and washing acorns to serve as bread for breakfast, and thus cooked we thought them very palatable, were very glad to get them, and found nothing to complain of in astringency or acridity. Nay, on the march those officers who had the luck to have kept their horses alive, and therefore rode, carried long poles to beat down the acorns for the hungry and sinking men to eat, which they were fain to do raw. Latterly we fell among Chesnuts, and were glad of the change, for we certainly found them more agreeable food. *J. M. G.*

Societies.

ROYAL DUBLIN: *Winter Show of Farm Produce.*—The same buildings which echoed on a recent occasion with one of the most brilliant lectures of the British Association for the Advancement of Science has just become the scene of one of those annual exhibitions of roots, cereals, and other articles of farm produce which form so prominent a feature in the modern proceedings of the Royal Dublin Society, and which prove beyond all doubt the peculiar adaptation of the Emerald Isle for producing remumerative crops. We paid a protracted visit to this building on Tuesday, when we saw their several exhibitors actively engaged in arranging the various specimens for the winter show which opened to the public on Thursday. Last season we beheld not only a root show, but also an exhibition of fat stock, which led us to hope that the sister island would soon enter into healthy rivalry with England in her Christmas stock shows. We regret to find that for the present the Dublin Society for very good reasons confines itself to bringing together merely articles of farm produce. The Society has, however, laudably opened a subscription list for erecting shedding suited for its various requirements, and commensurate with the character of a country rapidly advancing in agricultural prosperity; and we sincerely trust that ere another year passes, the necessary arrangements for so desirable an object will be satisfactorily accomplished. In passing we might remark that as a very large sum of money will be incurred in this undertaking, our leading English breeders and feeders who exhibit, or intend exhibiting, at Leinster Lawn, as the Royal Dublin Society's premises are called, might appropriately contribute to the coffers of this building fund. The present exhibition unquestionably excels any similar collection of former years. In anticipation of the awards of the judges, we will very briefly advert to a few of the objects of interest. We must give the most prominent place to the unrivalled collection of Mr. Lenchan, steward to Judge Radcliffe, near Dublin. These specimens, which number 100 distinct groups, occupy nearly a fourth of the entire space, and embrace every description of field crops. The Turnips are really extraordinary, and include about 20 varieties. In a future article we shall minutely detail Mr. Lenchan's experiments to test the relative merits of the several varieties; for the present we shall only observe that Marshall's Swede holds a high place in Mr. Lenchan's estimation. Skirving's and Matson's, &c., rank as highly as in our own experiments. We would briefly describe the Cabbages by saying that they are Leviathans. The specimens of Kohl Rabi are the finest we have ever seen. We have experimented largely on this root, and are in

hopes it may yet prove a most valuable adjunct in cattle feeding, and this opinion is somewhat confirmed by the experience of Mr. Lenchan. We were particularly struck with the specimens exhibited by Mr. Lenchan, and grown at an elevation of 600 feet above the sea level. And it is worthy of remark, that in this group the Kohl Rabi were about the same size and weight as those grown under more favourable circumstances. Mr. Vernon, of Clontarf Castle, Dublin, comes next in the extent and importance of his collection. The Mangels clearly illustrate what the soil is capable of yielding under liberal treatment. One Mangel Wurzel weighs 34 lbs., and six others weigh each on an average 28 lbs. We would next draw attention to the extensive collections contributed by the conductors of the School Farms in connection with the Board of National Education. We are glad to find that the Commissioners have taken an important initiatory step of this kind. Ireland and the British Government may well feel proud of the gratifying improvements which have been slowly but most steadily going forward through the instrumentality of these useful institutions, which, as Robert Chambers happily observes in an interesting article in a recent number of the Edinburgh Journal of Popular Literature, have been more progressive and successful in Ireland than in any other country. Judging from the specimens under review, we are of opinion that the Irish agricultural public will, on this occasion, have a practical opportunity of forming an opinion as to the accuracy of some statements made in certain quarters respecting the Irish agricultural school system. It must be remembered that the specimens in this department were for the most part produced by the labour of pupils. We are inclined to think, too, that the school farm collection is a truer exponent of the actual capabilities of the Irish soil and Irish climate than those contributed by parties who are accustomed to force specimens for exhibition. Another circumstance which enhances the value of this collection is, that it represents the several provinces and most of the counties. In our opinion it may be made the most valuable feature in the Royal Dublin Society's show of farm produce. May we suggest that this Society, or the Board of Education, would deal liberally with the Board's agriculturists, and instead of showing for mere exhibition, that they would compete among themselves, and reap the reward of their labours.

Miscellaneous.

Cumming Park Farm is situated about a mile from Ayr, and contains about 50 English acres, of which half can be irrigated by subterranean pipes. The soil is entirely composed of silicious sand of great depth; and is, in fact, a sort of sieve upon which vegetation can only become luxuriant by means of an abundant supply of manure. The surface is slightly undulating, and the house and farm buildings are placed upon two ridges a little above the rest of the land. We saw fine crops of Wheat, Potatoes, very fine Swedes and Mangels, and a magnificent growth of Italian Rye-grass. The farm is cultivated on the four-course system. The dairy is supplied by 48 cows of the Ayrshire breed. The steam-engine is of 12-horse power. The stock are fed on cooked food. In the yard are two large tanks, into which all the liquid manure falls on one side, and water, raised by a force pump, on the other. The liquid is well mixed. No solid manure is ever put into the tanks. The liquid is allowed to stand and settle before being used. The liquid, which is very much diluted with water, is pumped from the cisterns into the pipes by the steam-engine. The irrigation is applied immediately after a dressing of guano, which, for Italian Rye-grass, is at the rate of 4 cwt. to an acre (500 kilos. to the hectare). They manure after every cutting. The Italian Rye-grass, sown in autumn, furnishes five cuttings; an average cutting yields from 15 to 16 tons per acre. Mr. Telfer has obtained 64 tons of Rye-grass from an acre (in the course of the year). Mr. Telfer told us that he had obtained as much as 80 bushels of Wheat per English acre (query, Scotch acre). The liquid manure is only used to wash in the guano. Mr. Telfer considers that its fertilising powers were very slight. He observed, "It is only a vehicle for the guano; what there is does no harm, but it is quite insignificant." We omit Mons. Barral's description of the dairy process, and proceed to translate literally his summary of the result of his examinations:—"There are many important differences between the official report and Mr. Telfer's own account of his farm. 1. The subterranean irrigation system is only applied to half the farm; consequently the cost per acre is just double what the Board of Health report states. 2. No account is taken in the official report of the enormous application of guano, at the rate of 8 and even 16 cwt. per acre. Thus the estimated profits must be reduced by the cost of the guano, about 480*l.* per annum. It seems, then, that the Board of Health reports have given as an example of the wonderful results of the tubular system of applying liquid manure, an instance which only proves what enormous crops may be raised by the skilful application of vast doses of guano. We are, therefore, justified in looking with the greatest suspicion on all the documents issued by the first Board of Health; reliance on these documents having led our distinguished contributor, Mons. Mole, to most erroneous conclusions. A report made to the new Board of Health by Mr. Austin, without exposing the errors of the previous Board, gives a truthful statement, and suggests a system very different from Mr. Chadwick's tubular system." *M. Barral in the Journal d'Agriculture, as quoted in Bell's Messenger.*

Colombian Guano.—In the spring of 1855 there was brought into the port of Baltimore a hard, rocky substance, which was offered for sale under the name of Colombian guano. At first there was a great effort made to involve in mystery the whole history of the article, its locality being carefully kept secret. Gradually, however, it became known that it was found on Los Monges, a collection of keys at the entrance of the Gulf of Maracaibo. It has also been found on El Roncador, off the Mosquito coast, on Aves and various other keys of the Caribbean sea. On Los Monges it forms, as the captains who procured it say, a thin polished crust over the entire surface. Below this crust lies the common Mexican guano. In some instances, however, this same smooth incrustation covers thinly the jutting points of primitive and metamorphic rocks. I have before me a splinter of rock of this kind, crested with an inch-thick deposit of this guano; and I have seen many in which the white crust formed a thin lamina over the surface. Many such were brought in in the first cargo, which will account for the large amount of sand in the subjoined analysis. Only the ground guano was thus sent to me, so that the analysis represents the commercial article, not a selected specimen. The actual guano contains only about 0.5 per cent. of siliceous matter. The unusual quantity of phosphoric acid contained in this substance attracted attention, and many analyses were made of the new guano. The habit of calculating the phosphates in these Mexican guanoes, as bone earth or tribasic phosphate of lime, led some chemists into grievous errors. The new material was, in one breath, called a super-phosphate of lime, and in another said to contain from 7 to 11 per cent. of free phosphoric acid. In common with other chemists of Baltimore, on the first importation of this guano I made an analysis of it, and found it to contain a large proportion of phosphates, but expressed no opinion as to their composition. At last, however, hearing so much said about the soluble phosphoric acid in this substance I examined it more carefully, and found but little of this acid soluble in water, and none of it free. I obtained the following results:

Phosphoric acid	41.62
Sulphuric acid	3.65
Chlorine	.05
Lime	33.83
Magnesia	3.27
Iron	a trace
Fluorine	a trace
Sand (consisting chiefly of primitive rocks in powder)	5.34
Water (hygrometric)	2.15
Organic matter, salts of ammonia (containing 0.23 of ammonia), and combined water	8.62
Loss, in which are the alkalies (not estimated)	1.47
	100.00

The proportions of the phosphates vary in different samples. Thus, in one specimen recently examined, there was a very small proportion of magnesia and 4.23 per cent. of phosphate of iron. The organic matter was partly soluble in hydrochloric acid, and partly in potash. A cursory examination of it seemed to indicate that it consisted chiefly of humus and the acids of the crenic group. From this analysis I thought myself justified in announcing that the lime and magnesia in the compound under consideration are combined with the phosphoric acid so as to form a tribasic salt, in which one atom of water substitutes one atom of alkaline earth, according to the formula $2\,MO, HO, PO_5$. A subsequent examination and recalculation of my results has convinced me that the announcement was somewhat premature, and that the analysis would not fully bear the construction put upon it. I have, however, never changed the opinion then advanced, as the discrepancies are slight and easily accounted for. The statement of my views led to further investigation. Among others, Dr. Campbell Morfit examined the substance, and came to a different conclusion from that at which I had arrived. Drs. Higgins and Bickell, Chief and Assistant State Chemists of Maryland, shortly after published a paper in which they agreed with me in the main. Their analysis was more elaborate than mine, and comprised two distinct examinations; one of the white, polished crust, the other of the body of the rock. Without going into minutia, I will simply state that they found the exterior layer to contain phosphates of lime and magnesia, of the formula $3\,MO\,PO_5$ while, in the body of the rock, the salts were composed as I had previously announced. They also ascertained that in the outer layer the sulphuric acid was combined with soda, while in the body of the rock it was united to lime. *Proceedings of the American Philosophical Society.*

Notices to Correspondents.

BEANS AMONG WHEAT: *H. P.* If they are winter Beans you should hoe or pull them out now. If they are not winter Beans the frost may kill most of them, and you had better leave them till spring. A mixed crop of the kind will result in your harvesting Beans without Wheat. Mangels will not stand our winter.

MANGEL: *Novitia* says: "Our crop is at the rate of 48 tons per acre, some of the roots weighing 24 lbs."

MANURE FOR WHEAT: *Alpha.* We would sow 3 cwt. per acre of guano in February broadcast over the growing crop, or 1 cwt. of nitrate of soda and 2 cwt. of so called blood manure. This will be better policy than applying it now with the seed.

PIGS: *J James.* Your letter has been forwarded to our veterinary authority.

PIGS' FOOD: *H J O.* See a paper on the subject in another page. Their food is all the better of being boiled, and Mangels and Parsnips will be more wholesome for them after steaming.

HORTICULTURAL GLASS, STOCK SIZES, packed in Boxes of 100 feet each. s. d.

11 by 9,	12 by 9,	13 by 9,	14 by 9 ..	..	15 0
12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ..	..	16 0
16 „ 10,	17 „ 10,	18 „ 10	..	..	
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11	16 6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12 ..	..	17 0
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12 ..	..	18 0
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13 ..	..	
22 „ 13,	24 „ 13,	20 „ 14,	22 „ 14 ..	..	
24 „ 14,	20 „ 15,	22 „ 15,	24 „ 15 ..	..	

SMALL SQUARES.—Per 100 feet.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11 6
8 „ 6	8½ „ 6½	9 „ 7	9½ „ 7½	
10 „ 8	10½ „ 8½ ..	..	..	12 6

SHEET GLASS FOR ORCHARD HOUSES,
As supplied by us to Mr. Rivers.
20 by 12, 20 by 13, 20 by 14, 20 by 15, 18*s.* per 100 feet.
The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.
Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.
HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*
Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.
Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.
Rough Plate and Sheet Glass Tiles to ¾-inch in thickness.
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Plate Glass, Rough-cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.
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HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.
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See *Gardeners' Chronicle* first Saturday in each month.

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8 by 6, & 9 by 7 } | 11 by 9, & 12 by 8 }
Various sizes under 14 by 10 at 16*s.* per 100 feet.
Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.
Orchard House squares as supplied to Mr. Rivers.

	COMMON.	SUPERIOR.
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"I have received your inquiry as to my experience in the use of Gutta Percha Tubing. I had 350 yards of it from your firm, and I have used it for the last few months in distributing liquid manure from my tanks over my fields, having often a pressure of 300 feet on it, and have been able to get the liquid from the end of the Tubing by the pressure from the steam engine upwards of 40 yards. I have 350 Scotch acres laid with metal pipes under ground, for the conveyance of liquid manures over my farm, and your Gutta Percha Tubing has given me great facility in spreading it over the surface of the land. I likewise think highly of the Gutta Percha Union Joint.—May 20, 1850."
Tubing of any length and size, with Jets, Union Joints, Roses, Spreaders, &c., may be had to order, manufactured by the Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London, and sold by their Wholesale Dealers in town and country.

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N.B.—Orders from unknown correspondents must be accompanied by a remittance.

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"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."
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"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

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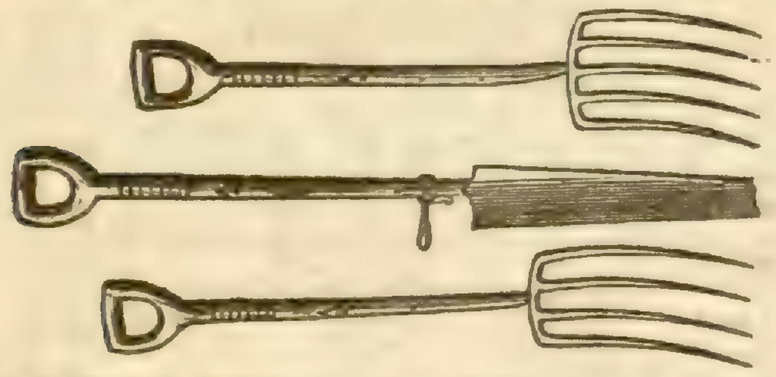

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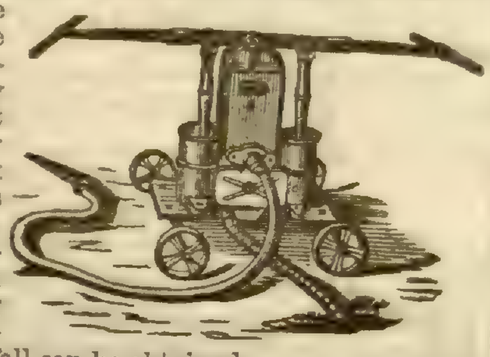

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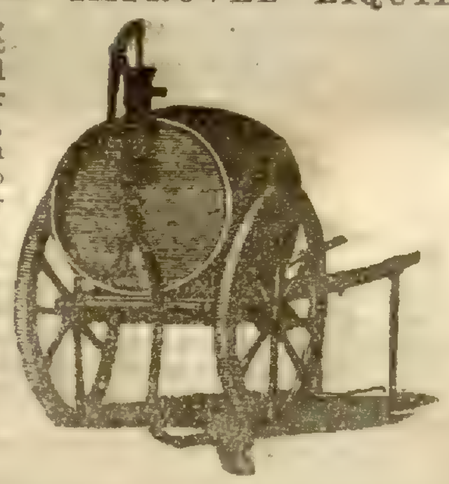

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Diameter of Barrel.	Height.		£	s.	d.
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2½ ,,	long 3 ,, 3 ,,		1	14	0
3 ,,	ditto 3 ,, 6 ,,		2	8	0
3½ ,,	ditto 3 ,, 6 ,,		2	12	0
4 ,,	ditto 3 ,, 6 ,,		3	3	0
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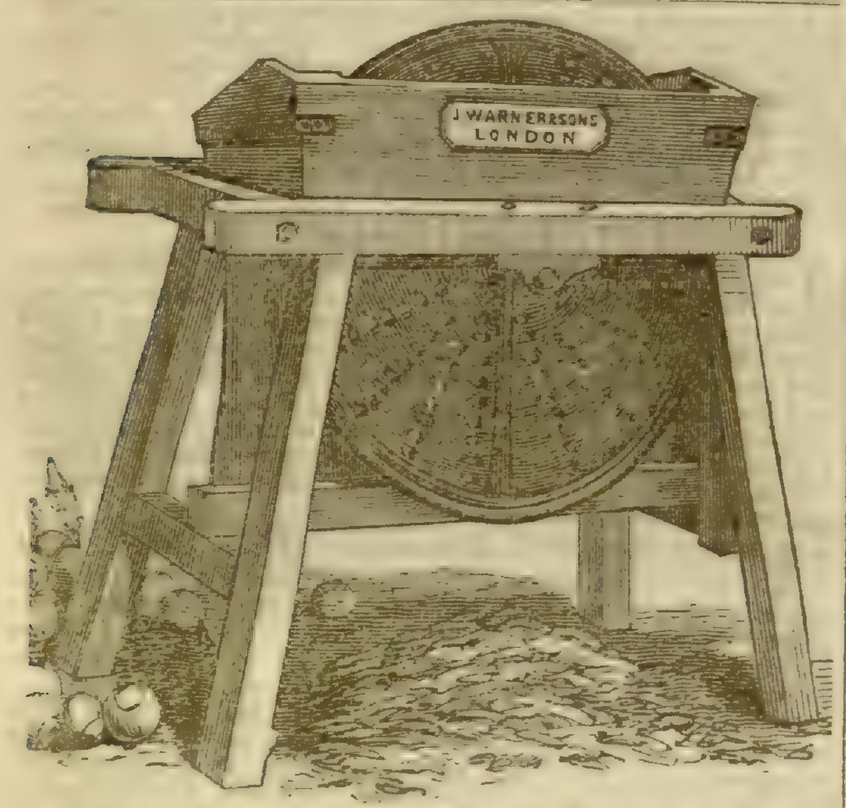

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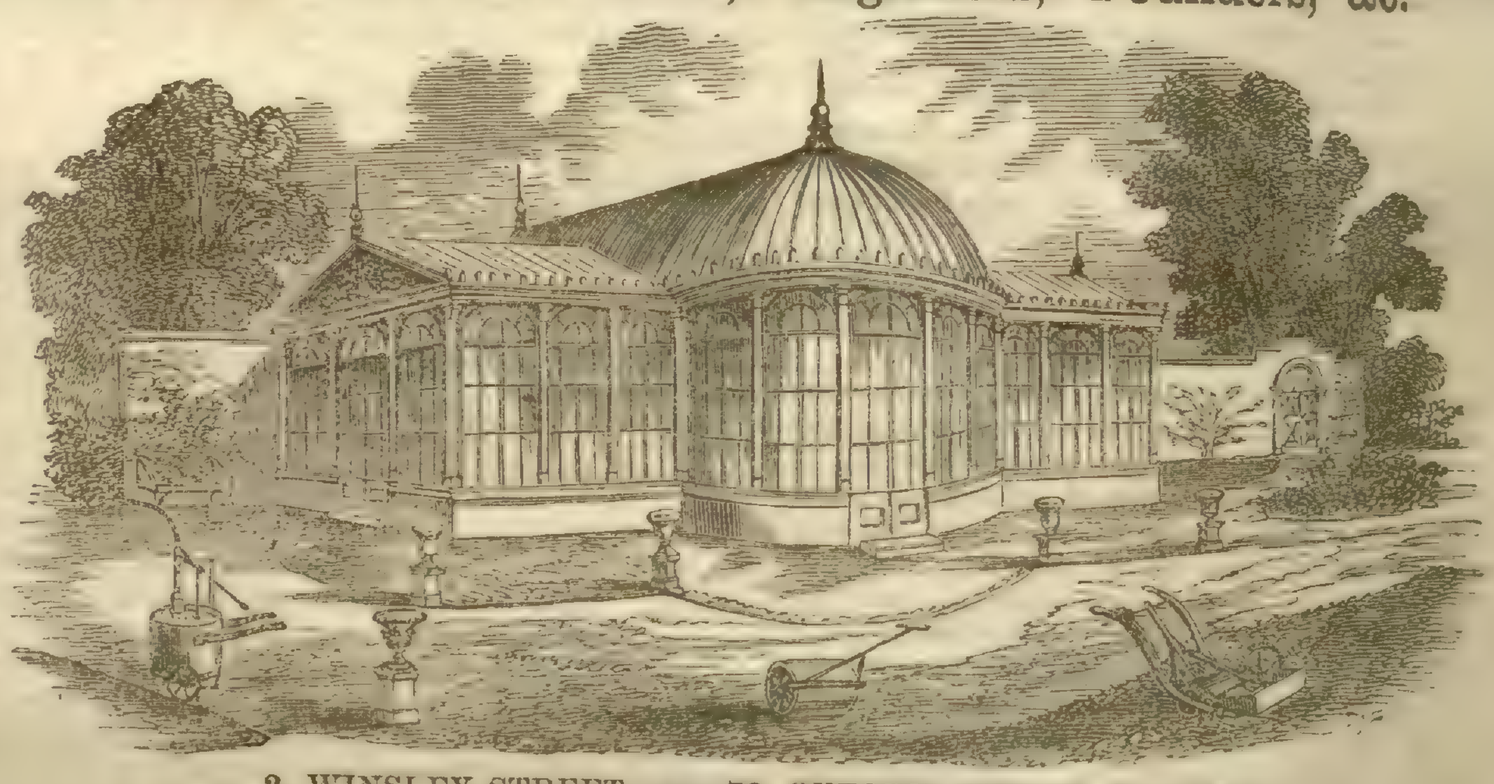

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Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

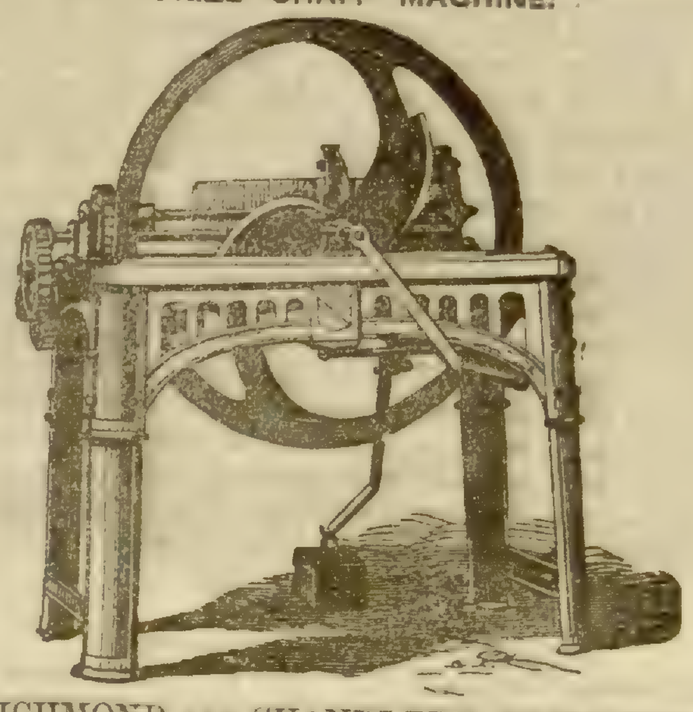
Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

AGRICULTURAL LIST UPON APPLICATION.

Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

PRIZE CHAFF MACHINE.



RICHMOND AND CHANDLER'S PRIZE CHAFF-CUTTING MACHINES possess more good qualities than any others yet produced, and with beautiful simplicity combine economy of cost with substantial workmanship.

Excellence of design and adaptation of material have induced some unprincipled makers to force the market with copies of their invention, but without regard to the working qualities of the machine.

RICHMOND & CHANDLER have repeatedly obtained Premiums from the Irish, Scotch, and English Royal Agricultural Societies for the perfect efficiency and simplicity of their Machines, and which are the only Chaff Machines having been awarded Prizes in the three kingdoms. For export they are so constructed as to be taken in pieces for close packing, and are easily put together, without the aid of skilled labour. Catalogues free on application to RICHMOND & CHANDLER, Salford, Manchester. Branch Establishment, South John Street, Liverpool.

FLEXIBLE HOSE FOR WATERING GARDENS.

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

All Communications to be addressed to the Manufactory, and will have strict attention.

JAMES LYNE HANCOCK, Vulcanised Rubber Works, Goswell Road, London, E.C.—Hose Reels of light wicker work for winding up long lengths of India Rubber Hose, *see Sketch*.

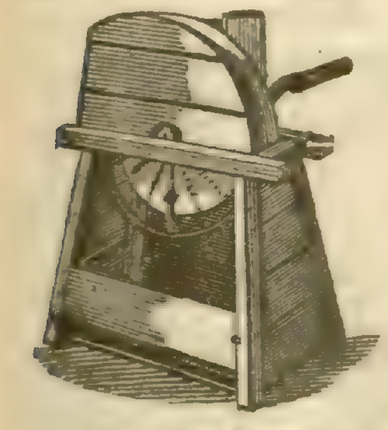
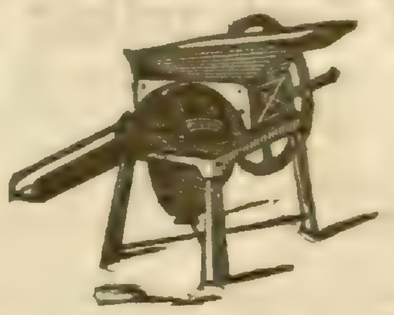
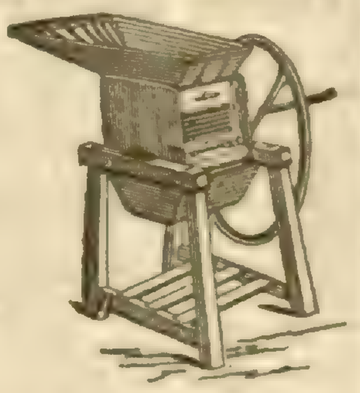
PRIZE MEDAL. PARIS EXHIBITION 1855.

METCALFE, BINGLEY, AND CO.'S New Pattern and Penetrating Tooth Brushes, Penetrating unbleached Hair Brushes, Improved Flesh and Cloth Brushes, and genuine Smyrna Sponges; and every description of Brush, Comb, and Perfumery for the Toilet. The Tooth Brushes search thoroughly between the divisions of the Teeth and clean them most effectually—the hairs never come loose. M., B., and Co. are sole makers of the Oatmeal and Camphor, and Orris Root Soaps—sold in Tablets (bearing their names and address) at 6*d*. each, of METCALFE'S celebrated Alkaline Tooth Powder, 2*s*. per box; and of the New Bouquets.—Sole Establishment 130*B*, and 131, Oxford St., 2d and 3d doors west from Holles St., London.

STAND No. 301, SMITHFIELD SHOW, December 9th, 10th, & 11th.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.

B. SAMUELSON,

BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSH & BARTLE'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
" Double Action ditto	5 10 0	6 2 6
" Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power	£6 10 0
" No. 2, for Horse Power, or may be worked by a man and boy	9 0 0

Machines for Pulping only.

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1	£4 10 0
" Pulper No. 2, for power or man and boy	5 10 0
" Pulper No. 3 (Disc principle)	4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.

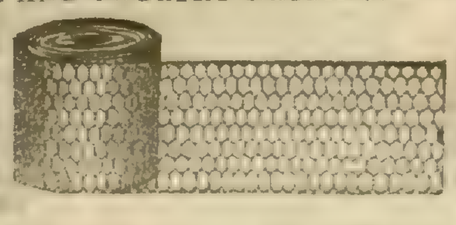
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.
WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

BLAIR'S GOUT AND RHEUMATIC PILLS, price 1*s.* 1½*d.* and 2*s.* 9*d.* a box.—Thirty years ago to speak of a cure for the Gout was considered a romance; but now the efficacy and safety of this medicine are so fully demonstated by testimonials from persons in every rank of life, and public opinion proclaims this as one of the most important discoveries of the present age. These Pills require neither attention nor confinement, and are certain to prevent the disease attacking any vital parts.—Sold by PROUT & HARSANT, 229, Strand, London, and all Medicine Vendors.

INVIGORATING AND REFRESHING REQUISITE for the TOILETTE.—OLDRIDGE'S BALM OF COLUMBIA, which has for more than 30 years been celebrated for its peculiar properties in restoring, cleansing, and beautifying the hair, promoting its growth, as well as preventing it falling off or turning grey.—C. & A. OLDRIDGE, 13, Wellington Street North, seven doors from the Strand. Sold wholesale and retail in bottles at 3*s.* 6*d.*, 6*s.*, and 11*s.*; and by all Chemists and Perfumers. Its use for whiskers and moustache is invaluable.

TO THE NERVOUS AND DEBILITATED.—CHARLES WATSON, M.D., Physician to the Bedford Dispensary), 27, Alfred Place, Bedford Square, London, continues to issue, gratis, on receipt of 6 Stamps, "The Guide to Self-cure." Medical Correspondence conducted.

"The first man of the day in these complaints."—*Medical Review.* "The true guide to those who desire a speedy and private cure."—*University Magazine.*

PERFECT FREEDOM FROM COUGHS is insured by DR. LOCOCK'S PULMONIC WAFERS. They give instant relief and a rapid cure of Asthma, Consumption, Coughs, and all disorders of the breath and lungs. They have a most pleasant taste.—Price 1*s.* 1½*d.*, 2*s.* 9*d.*, and 11*s.* per box. Sold by all Chemists.

HOLLOWAY'S OINTMENT AND PILLS INVINCIBLE REMEDIES FOR SCORBUTIC ERUPTIONS. Mr. Spivey, Chemist, Howden, states that a customer of his had suffered for 15 years with scorbutic humour in the face, and had consulted the most eminent medical men in the town and neighbourhood without deriving the slightest benefit. "A few weeks ago I advised her to give your Ointment and Pills a trial, which she did, and after taking a few boxes of Pills and using the Ointment, I am happy to say they have effected a complete cure."—Sold by all Medicine Vendors throughout the World; at Professor HOLLOWAY'S Establishments, 244, Strand, London, and 80, Maiden Lane, New York; by A. STAMPA, Constantinople; A. GRIMCY, Smyrna; and E. MUIR, Malta.

GOOD NEWS FOR THE AFFLICTED.—The wife of Mr. Thomas George, of No. 4, Plaistow Marsh, near Victoria Dock, Essex, had been a great sufferer for eight years with an ulcerated leg. She attended at Bartholomew's Hospital seven weeks without receiving any benefit; she had also tried a number of reputed medicines, and finding medical aid of no avail, she considered herself past cure. She was urged by a friend to try the Poor Man's Friend and Pills, which she purchased from Dr. Kernot, Crisp Street, Poplar. One pot effectually cured her. Notwithstanding her advanced age, she is restored to the highest state of health and vigour by their use. April 4, 1857.

Dr. ROBERTS'S POOR MAN'S FRIEND and PILULÆ ANTISCROPHULÆ have been proved, by 60 years' experience, successful in the cure of eruptions and wounds of every description.—Price 1*s.* 1½*d.*, 2*s.* 9*d.*, 4*s.* 6*d.*, 11*s.*, and 22*s.* each.

Sold wholesale by the Proprietors, BEACH & BARNICOTT, at their Dispensary, Bridport, and by the London houses; and retail by all respectable Medicine Vendors in the United Kingdom and the Colonies.

GREENHOUSES, including HOT-WATER APPARATUS:—12 ft. long by 8 ft. wide, 30*l.*; 16 by 10, 35*l.*; 21 by 12, 55*l.*; 36 by 13, 100*l.*—Apply at SMITH'S Greenhouse and Hot-water Apparatus Manufactory, 121, Pentonville Road, London.

TO BE SOLD, a NEW GREENHOUSE, Span-roofed, 20 feet 6 inches long, 15 feet wide, Glass all round, door in centre at one end, front sashes 3 feet high, made of the best yellow Deal, four times painted, and glazed with 16 oz. sheet glass. Price 40*l.*; or with Hot-water Apparatus, 52*l.* Delivered to Railway Station.—Apply to VOKINS & HURD, Hot-house Builders, Radnor Street, Chelsea, S. W.

WANTED TO RENT, for a Term, a small NURSERY and MARKET GARDEN, within easy distance of some good Market Town, and near to a Railway Station, the Midland or North-Western Counties preferred.—Address S. T., *Gardeners' Chronicle* Office.

LAND FOR A MARKET GARDEN AT ALDERSHOT.

TO BE LET, at a moderate rent, from 5 to 10 Acres of a good and light soil, close to the Artillery Barracks, where Manure may be had nearly for carting, and all kinds of Vegetables are in great demand. The land is intended for building purposes, but will not be required for a few years. Will answer for the growth of Vegetables for the London Markets.—Apply to Mr. RUDGE, Auctioneer, &c., Farnham, Surrey.

TO NURSERYMEN & FLORISTS, GARDENERS, &c.

TO BE SOLD, a bargain, all that property known as LARK HALL NURSERY, situate in Lark Hall Lane, Clapham, comprising two Greenhouses, Pits, Frames, &c., with with growing Stock therein, carried on successfully for 35 years. Good out-door labour trade attached.—Apply to J. HALE, on the premises.

AN EXCELLENT OPPORTUNITY

TO BE DISPOSED OF, at a fair valuation, (in consequence of the death to the late Thomas Phillips) the BRERETON NURSERY, near Rugeley. Part of the money may remain upon good security. Immediate possession may be had.—Apply at the Nursery, or of Mr. S. J. HIGGS, Albert Terrace, Wheeler Street, Birmingham, sole Executor to the late Thomas Phillips.

CAPITAL NURSERY AND SEED BUSINESS,
ESTABLISHED UPWARDS OF 150 YEARS, WITHIN A SHORT DISTANCE OF LONDON.

TO BE DISPOSED OF, a well STOCKED NURSERY with extensive Grounds, fitted with nearly new Greenhouses and Pits all heated with Hot Water, together with a convenient Dwelling House and Seed Shop, recently erected and well arranged for business, with Stabling, Cheese house and Sheds attached. The premises are eligibly situate and are held on a Lease of which 25 years are unexpired at Christmas next at a low rent. The Stock comprises a large collection of healthy Evergreens, Shrubs, and Fruit Trees, and choice Stove and and Greenhouse Plants. The Proprietor being in ill health is the sole cause of his disposing of the property.—For further particulars apply to Messrs. PAGE & CAMERON, Land Agents and Surveyors, 61, Old Broad Street, and St. Albans.

TO GARDENERS, ETC.

TO BE LET, with immediate possession, a SEED and FLORIST'S BUSINESS, with Shop and Residence, and about half an acre of Ground adjoining the same, with two Greenhouses, Pits, &c., well stocked with various Plants. The Business is now in full operation, and is situate in the best part of London, where a good business is now being carried on. RENT LOW. Coming in, including Houses, Plants, Fittings of Shop, Tools, &c., only 60*l.*—Address to "FLORIST," *Gardeners' Chronicle* Office.

TO NURSERYMEN, GARDENERS, AND OTHERS.

TO BE LET, for a Term, if desired, the PARK END COTTAGE and GARDEN, situated one mile from the Macclesfield Railway Station. The House is well calculated for a small genteel family, and the Garden is upwards of four acres in extent, laid out in walks, and planted throughout with ornamental shrubs and evergreens, in a most healthy state; the soil is not to be equalled for its adaptation to the growth of shrubs and gardening purposes. The whole of the plants and shrubs to be disposed of according to agreement. It has been carried on as a nursery and pleasure garden for upwards of 10 years, is situated in the most healthy part of the neighbourhood, and will be a most eligible residence either for a private family or a nurseryman and gardener.—For further particulars, and to treat for the same, apply to Mr. POOLE, residing on the premises.

TO BE LET, a Capital FARM, containing 162 Acres of rich Arable, Meadow, and Shop Land, situated near Canterbury.—To view, and for further particulars, apply to Messrs. COOPER, Estate Agents, Canterbury.

TO BE DISPOSED OF, the LEASE, STOCK, and IMPLEMENTS of a Farm of about 150 acres, chiefly Arable (in consequence of indisposition and other engagements), situated in a southern county, and within 2 miles of a Railway Station.—A. B., care of B. Page & Co., Seed Merchants, Southampton.

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STANDARD ROSES, DUTCH BULBS, ETC. ETC.

MR. HASLAM will Sell as above at the Mart, TUESDAY, Dec. 1, and THURSDAY, Dec. 3, next, and every succeeding Tuesday and Thursday till further notice.

N.B.—All goods to the amount of 10*s.* and upwards packed and delivered, free of charge, to Parcels Delivery Company. Baskets and Mats allowed for when returned.

HAMMERSMITH.—4000 FINE HEALTHY FRUIT TREES.

MESSRS. PROTHEROE AND MORRIS are instructed by Mr. Trotman to Sell by Auction on the premises, Grove Road, Hammersmith, on MONDAY, November 30, at 11 o'Clock, a fine Collection of Dwarf trained, Untrained, and Pyramidal FRUIT TREES, comprising Peaches, Nectarines, Apricots, Apples, Pears, Plums, Cherries, Gooseberries, and Currants, &c.; also a quantity of Lammas and Royal Albert Rhubarb, 2 and 3 years Asparagus, choice Pinks, &c.—May be viewed prior to the Sale. Catalogues may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS are instructed by Messrs. Chandler & Sons to Sell by Auction on the premises, Wandsworth Road, on TUESDAY, December 1, at 11 o'Clock, about 600 fine Double CAMELLIAS, from 1 to 6 feet, including all the best varieties, beautifully furnished with bloom buds; also the finest kinds of Chinese Azaleas, and very choice crimson Rhododendrons, well set with flower buds; Cacti, Ferns, and various other valuable Greenhouse Plants.—May be viewed prior to the Sale. Catalogues (when ready) may be had on the premises; of the principal Seedsmen in London; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO GENTLEMEN, FLORISTS, AND OTHERS.

MESSRS. PROTHEROE AND MORRIS will Sell by Auction at the Mart, Bartholomew Lane, City, on FRIDAY, Dec. 4, at 12 o'Clock, a first class collection of Dutch Bulbs; consisting of the finest Double and Single Hyacinths, Narcissus, Jonquils, Anemones, Crocus, Tulips, Gladiolus, &c.; also a fine assortment of Standard and Dwarf Roses, including Hybrids, Perpetuals, Chinas, Noisettes, &c.; choice American Plants, comprising Ghent and other Azaleas, Hybrid Rhododendrons, Kalmias, Andromeda floribunda, well set with bloom buds, &c.—May be viewed the morning of Sale. Catalogues may be had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

TO PLANTERS, NURSERYMEN, AND OTHERS.
UNRESERVED SALE OF 800,000 FOREST TREES AND SHRUBS.

MR. POYSER has received instructions from Mr. Smith to Sell by Auction at the Tansley Nursery, near Matlock, on TUESDAY, WEDNESDAY, and THURSDAY, Dec. 8, 9, and 10, a portion of his NURSERY, the Land having been sold for other purposes. The stock consists of 50,000 Transplanted Oaks, 80,000 Evergreen Privets, 40,000 Hazels, 20,000 Yews, 50,000 Larch, 20,000 Mahonia, with large quantities of Ash, Alder, Spanish and Horse Chesnuts, Spruce, Limes, Maples, Silver Firs, Pines, Willows, and Poplars in various sorts, Rhododendrons, and American Plants, &c., in quantity and various sizes. Catalogues may be had free on application.—Matlock Bridge Station, on the Midland Railway, 1½ mile from the Nursery.

NOW IS THE TIME TO PLANT TREES, &c.

D. FERGUSON, Landscape Gardener and Contracting Planter, &c.,

OFFERS on reasonable terms a splendid lot of CEDRUS DEODARA, averaging 3 to 10 feet in height, 7*s.* 6*d.* each; 35*l.* per 100; 300*l.* for 1000; and if 2000 are taken, 500*l.*, not cropped like those to be met with in the grounds of the rule and thumb gentlemen, but allowed to assume their own natural graceful habits. Fine CEDARS of LEBANON, do. ARAUCARIA IMBRICATA, PINUS INSIGNIS, CEMBRA, EXCELSA, ABIES PINSAPO, &c; CUPRESSUS LAMBERTIANA, GOVENIANA, WELLINGTONIA GIGANTEA, &c; do. SPRUCE, SCOTCH FIRS, LARCH, OAKS, ELMS, LIMES, CHESNUTS, SYCAMORES, ASH, HAZEL, &c.; Bushy COMMON LAUREL, do. PORTUGAL, AUCUBAS, COMMON and IRISH YEWS, GREEN and VARIEGATED HOLLIES, JUNIPERS, ARBOR-VITÆ, PHILLYREAS, BERBERIS and DULCIS, new DOUBLE PINK and SCARLET THORNS, LABURNUMS, splendid WEEPING ASH, fine STANDARD CYTISUS, ROSES, HERBACEOUS PLANTS, &c.

EXCELLENT

STANDARD, HALF STANDARD, & DWARF BUSHES of PEACH and NECTARINE TREES, warranted good varieties, and very suitable for planting in the ground or for potting, as they are now growing in leaf mould and will lift well.

VERY FINE

COTONEASTER MICROPHYLLA, for under cover-training on Cottages, &c., 3*s.* per dozen, £1 per 100 and 1*d.* each if taken by the 1000.

FINE

BERBERIS AQUIFOLIA, transplanted last spring, one farthing each if taken by the 1000.

Do. do. EVERGREEN PRIVET, BUSHY TREE BOX, 2 to 3 feet, four to six farthings each if taken by the 1000.

STRONG

SEEDLING HOLLYHOCKS from Messrs. Chater's, Turner's, and Bircham's. Choice varieties, 2*s.* per dozen; 10*s.* per 100; 1*d.* each if taken by the 1000; a large packet of Seed for 1*s.*

A Belgian Collection of CHRYSANTHEMUMS, one farthing each if taken by the 1000; less if by the 10,000 or 50,000.

D. F. when employed as Garden Architect and Landscape Gardener where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for the charge made for his own time and plans, his object being to dispose of his plants, which he has in large quantities, both for present and future effect.—**Stowe, Buckingham.**

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE OF DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing,* which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	**CROCUS**	**ANEMONES**	**IRIS**
NARCISSUS	**TULIPS**	**RANUNCULUS**	**LILIES, &c. &c.,**

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12*s.*

Mixed seed, saved from fine double flowers, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21*s.* the pair, including package and carriage to London. Good named varieties, 12*s.* per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	..	..	.. 5*s.* 0*d.*
12 ditto	ditto	..	.. 2 6
Good ditto	ditto	..	.. 1 0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 35*s.* per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway.

TO THE TRADE.

DAVIES AND FRANCIS beg to offer the following articles:—

	Per doz.—*s.*	*d.*
Gompholobium barbigerum, 6 to 9 inches, in 3-inch pots, fine healthy stuff	9	0
Ditto, dwarf bushy species, fine	36	0
Leschenaultia biloba superb..	20	0
Ditto do. grandiflora	24	0
Boronia serrulata, fine healthy plants .. 12*s.* and	18	0
Staphylea tubiflora	18	0

The above may be relied upon as being fine healthy plants. Reference or Post-office Order from unknown correspondents.

Stanley Nurseries, Old Swan, Liverpool.

BUSH VINES FOR FRUITING IN POTS.—The following kinds of GRAPES are grown in dwarf bushes for pot culture in Orchard Houses and for Forcing; they have for the most part three shoots, are 2 feet in height, and full of fruit buds; 3*s.* 6*d.* each, except those priced.

FOR ORCHARD HOUSES OR GREENHOUSES.

Prolific Sweetwater	Early Malingre
White Romain	Purple Fontainebleau
Chaptal	Muscat St. Laurent (5*s.*)
Black Hamburgh	Muscat de Sarbelle (5*s.*)

FOR FORCING OR HOUSES WITH FIRE HEAT.

Chasselas Musqué	White Frontignan
Black Frontignan	Purple Contantia

Muscat of Alexandria.

THOS. RIVERS, The Nurseries, Sawbridgeworth.

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained FRUIT TREES of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 & 4 year old CURRANTS of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch. GOOSEBERRIES, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

SEED POTATOES.

JOSEPH MAY AND CO. beg to inform their friends and customers that they have succeeded in obtaining a good supply of the following desirable kinds, which are free from disease, most of them being early sorts which have entirely escaped it:—

Soden's Early Oxford, true.	Ash-leaved Kidneys.
Early Ten-week.	Lapstone ditto.
Early Queen, as early as any, produced 4 bushels per rod.	Fluke ditto
Walnut-leaved Kidneys.	Red Ash-leaved ditto.
	Early Shaw.

All other kinds can be had, but the above having generally escaped the disease, J. M. & Co. would recommend parties to plant chiefly of those kinds, whether obtained of them or elsewhere.—1, Wellington Street, Strand, Waterloo Bridge.

EARLY POTATOES.—"THE LEMON KIDNEY." This celebrated early variety, being far superior in forwardness and flavour to the Ash Leaf (see last number of the Royal Agricultural Society of England's Journal), may be had on application to JOHN HELM, Morecombe, Lancaster. Price 2*s.* 6*d.* per stone.

Also a few stone of the "IMPROVED" LEMON KIDNEY, proved to be two weeks earlier than the Ash Leaf. Price 5*s.* p. st.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Nov. 28.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Nov. 28.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBER, 1857.

DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

C. STEPHENSON, late STEPHENSON AND SONS, 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to

GARNOCK, BIBBY, AND CO.,

Patent Cordage and Wire Rope Manufacturers, Liverpool.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.

ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

SMITHFIELD SHOW.—STANDS 276, 277, 278.

SIGMA'S PATENT CORN PLANTERS, five depositors, 3*l.* 3*s.*

The PATENT BEAN PLANTER, 3*l.* 15*s.*

The DRAW SHAVE STEEL HOE, 4*s.* 6*d.* Prospectus sent.

Mr. C. POWELL, Hurst Green, Sussex.

ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle,* Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

CHUBB'S LOCKS AND SAFES.

CHUBB'S LOCKS, with all the improvements; of all sizes and for every purpose. Street-door Latches with small and neat keys.

CHUBB'S FIRE-PROOF SAFES are constructed of strong Wrought Iron, and the Detector Locks which secure them are GUNPOWDER PROOF.

Complete Illustrated Lists of prices and sizes sent free on application.

CHUBB & SON, 57, St. Paul's Churchyard, London; 28, Lord St., Liverpool; 16, Market St., Manchester; and Wolverhampton.

INDIAN OUTFITS.

THRESHER AND GLENNY (next door to Somerset House, Strand), manufacture the following articles especially for India. THRESHER'S Kashmir Flannel Shirts; THRESHER'S Military Shirts; THRESHER'S India Gauze Waistcoats; THRESHER'S India Tweed Suits; THRESHER'S Overland Trunk. N.B. Lists of prices, with particulars of the necessary outfit for India, may be had on application.

Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.

Printed by WILLIAM BRADBURY, of No. 13, Upper Woburn Place, and FREDERICK MULLETT EVANS, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's Covent Garden, in the said Co.—SATURDAY, November 28, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 49.—1857.] SATURDAY, DECEMBER 5. {Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON.—SCHEDULES of PRIZES OFFERED at the ORDINARY MEETINGS in REGENT STREET, 1858.

	Prizes offered					
	£	s.	£	s.	£	s.
TUESDAY, FEBRUARY 2.						
Camellias, in sixes	3	0	2	0	1	0
" in threes	2	0	1	0		
Miscellaneous Groups of Flowering Plants, not Camellias, in sixes	3	0	2	0	1	0
Other objects—Certificates.						
TUESDAY, MARCH 2.						
Hyacinths, in twelves .. .. (Amateurs)	2	0	1	0		
" in eighteens .. (Nurserymen)	2	0	1	0		
Rhododendrons, in threes, three sorts	2	0	1	0		
Cinerarias, in sixes	1	0	0	10		
Chinese Primroses, double, in sixes	1	0	0	10		
" " single, in sixes	1	0	0	10		
Group of Forced Vegetables, consisting of Cucumbers, Seakale, and Asparagus	1	0	0	10		
Other objects—Certificates.						
TUESDAY, MAY 4.						
Chinese Azaleas, in sixes, in pots, not exceeding 8 inches in diameter	3	0	2	0	1	0
Miscellaneous Stove and Greenhouse Plants, in sixes, in pots not exceeding 10 in. in diameter	3	0	2	0	1	0
The best baskets or jardinières, not exceeding 3 ft. in diameter, prepared with ordinary plants fitted for the decoration of halls or drawing rooms ..	2	0	1	0		
Other objects—Certificates.						
TUESDAY, JULY 6.						
Calceolarias, in threes	2	0	1	0		
Fuchsias, in fours, in 6-inch pots	2	0	1	0		
Pine Apples, the best	1	0				
Grapes, the best basket, black	2	0	1	0		
" " white	2	0	1	0		
Strawberries, the best basket	0	10				
Melons, the best	0	10				
Peaches, the best basket, containing not fewer than six	2	0	1	0		
Nectarines ditto ditto	2	0	1	0		
Other objects—Certificates.						

SCOTTISH GARDENERS, FORESTERS, AND LAND-STEWARDS' ASSOCIATION for the Relief of Aged and Infirm Gardeners, Foresters, Land-Stewards and Seedsmen, their Widows and Orphans.—Notice is hereby given, that the General Meeting of Members for the ELECTION OF PENSIONERS will take place on JANUARY 20, 1858.

The Directors have considered it advisable, in consequence of the urgent claims upon the Funds, to defer the day of Election as above, and in the meantime to make an APPEAL to the benevolent, in the expectation that additional means may be placed at their disposal before the Election, so as to enable them in placing several additional Pensioners on the roll.

Donations and Subscriptions are earnestly solicited, and may be sent direct to the Treasurer at the Union Bank of Scotland, or to Mr. JAMES M'NAB, Curator of the Royal Botanic Gardens, Edinburgh.

WILLIAM CUTBUSH, JUN., begs to ask the favour of his Patrons not to give any orders intended for him, or to pay any money due to W. C., Jun., to his late foreman CHARLES MASON, as he is no longer in his service.

Barnet Nurseries, Herts, Dec. 5.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Conifers, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Dec. 5.

BERBERIS JAPONICA.

CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established: it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Dec. 5.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 25s. per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway, Middlesex.

TO THE SEED TRADE.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., invite attention to their two NEW ANNUALS FOR 1858, viz., CLARKIA PULCHELLA MARGINATA, *rose, with white border;* LUPINUS HYBRIDUS INSIGNIS, *rosy purple.* This Lupine is totally different from one offered under the same name by a London house at 1s. 6d. per oz. Prices of both may be obtained upon application.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

CUCUMBER SEEDS.

CUTHILL'S BLACK SPINE, Early Forcing, 1s. per packet; Do. WHITE SPINE, long, 2s. 6d. per packet; Do. HIGHLAND MARY, very best for winter, 2s. 6d. per pckt. Potato Pamphlet, &c., 2s.; Market Gardening Round London, 1s. 6d.; Vine Pamphlet, 1s. The Treatise on the Cultivation of the Mushroom will be ready and sent to those who have ordered it by the 10th inst., price 1s. post free.

JAMES CUTHILL, Camberwell, London, S.

SEEDS.

CHARLES TURNER begs to state that his ANNUAL CATALOGUE OF SEEDS is now ready, and will be forwarded to any address. His Stock comprises several valuable novelties, and is all either home grown or selected from the first sources.—Royal Nursery, Slough.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.

Bardney Hall, near Lincoln, Dec. 5.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

GLENNY'S LIST of the best 60 Flower Seeds for Amateurs will be sent on receipt of a directed envelope.

GLENNY'S Improved Balsam Seed from double flowers, 3 inches over, 6 classes, 37 stamps; superb salmon colour, new, 13; mixed, 18.—G. GLENNY, Horticultural Agent, Fulham, S.W.

MR. THEODORE BÖTTNER, SEED GROWER and NURSERYMAN, Greussen, near Erfurt, Germany, begs to inform Amateurs and the Trade that his CATALOGUE OF FLOWER AND VEGETABLE SEEDS for 1858 is Now Ready, and may be had gratis on application to his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

TRUE SHROPSHIRE DAMSONS.

H. J. OLDROYD, NURSERYMAN, Shrewsbury, offers fine plants of the above at 24s. per dozen. A reference required from unknown correspondents.

CAMELLIAS, AZALEAS, &c.

CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, Wandsworth Road, S., have for Sale a large stock of fine healthy plants of the above well set with flower buds, hardy Greenhouse Plants, Ferns, &c. Prices moderate.

N.B. Kitchen Garden and Flower Seeds of the best kinds.

SEED POTATOES.

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Soden's Early Oxford, true.	Ash-leaved Kidneys.
Early Ten-week.	Lapstone ditto.
Early Queen, as early as any, produced 4 bushels per rod.	Fluke ditto
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	Early Shaw.

All other kinds can be had, but the above having generally escaped the disease, J. M. & Co. would recommend parties to plant chiefly of those kinds, whether obtained of them or elsewhere.—1, Wellington Street, Strand, Waterloo Bridge.

SEED POTATOES (warranted true).

ASHLEAF, FLUKE, DAWES' MATCHLESS } Kidney,

REGENTS, SHAWS, and other varieties by the bushel or ton, delivered free to any of the Metropolitan Railway Stations. Price List can be had on application to JOHN BELL, Covent Garden Market (south side); or, Great Northern Railway Potato Market, King's Cross, London.

EARLY POTATOES.—"THE LEMON KIDNEY."

This celebrated early variety, being far superior in forwardness and flavour to the Ash Leaf (see last number of the Royal Agricultural Society of England's Journal), may be had on application to JOHN HELM, Morecombe, Lancaster. Price 2s. 6d. per stone.

Also a few stone of the "IMPROVED" LEMON KIDNEY, proved to be two weeks earlier than the Ash Leaf. Price 5s. p. st.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of GRAPE VINES, struck from eyes, for Planting or Forcing in pots, from 5 to 8 feet long.

Shacklewell Road, Stoke Newington, N.E

GRAPE VINES FROM EYES.

JOHN AND CHARLES LEE having recently erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT-BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

FRUIT TREES IN POTS.

J. CATTELL has a fine stock of very healthy, well-grown plants of the best varieties of Peaches, Nectarines, Moor Park Apricots, Cherries, Figs, &c., fit for fruiting this coming season. Also a fine, well-grown stock of superb Black Hamburgh and other Grape Vines.—A descriptive priced Catalogue of which may be had on application, inclosing 1d postage stamp.—Westerham Nurseries.

DWARF TRAINED FRUIT TREES.

HOOPER AND CO., Centre Avenue, Covent Garden Market, beg to intimate that they are in a position to supply excellent Trees of the above description, consisting of Peach, Nectarine, Apricot, Plum, Cherry, Apple, and Pear, at prices below the usual scale, which will be given on application. Hyacinths, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c., at low prices.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST for the season of FOREST TREES and SHRUBS, AURICULAS, FERNS, &c., may now be had on application.—Dec. 5.

TWO MILLIONS OF TRANSPLANTED QUICKS.

GEORGE CHIVAS invites the attention of Planters to his Stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 15s. His General List of Nursery Stock will be forwarded on application.—Chester.

FOREST TREES AND QUICKS, ETC., BY THE MILLIONS.

JAMES DICKSON AND SONS, Newton Nurseries, Chester, have many MILLIONS of FOREST TREES, QUICKS, as also a large and choice Stock of FRUIT TREES, EVERGREENS, &c., of all ages and sizes, suitable for present planting, and of the most healthy description. Prices, which are very low, on application.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the [illegible] on application to WATERER & GODFREY, Kings Hill, Woking, Surrey.

PINE PLANTS FOR SALE. About 100 FRUITING and SUCCESSION PLANTS to be sold very cheap.—Apply to W. MANN, Mogden Lane, Isleworth.

PINE PLANTS FOR SALE.—To be seen at Wood House, Dulwich. Ask for the Gardener. 10 Pines in fruit; 24 succession ditto; 20 stock of ditto with strong suckers fit for potting.

PINE APPLE PLANTS FOR SALE.—Two Hundred FRUITING and SUCCESSION PLANTS, clean and healthy.—For terms apply to Messrs. CUNNINGHAM & SON, Nurserymen and Seedsmen, Oak Vale, near Liverpool.

PINES—VINES, four years old, will move well; SEA-KALE, ASPARAGUS, and RHUBARB for forcing. To be sold Cheap for Cash. Must be removed before Christmas.—J. LANCASTER, Edward Street, Deptford.

CHESNUTS FOR SALE.—A quantity of clean selected ENGLISH NUTS of this year's growth, at 5s. per bushel, for cash. Also strong one year's Seedlings, and about 20,000 three and four years' transplanted Chesnuts, 2½ to 3½ feet, for planting out.—Inquire (prepaid) of Mr. W. PUTTICK, Easebourne, Petworth, Sussex.

BERNARD SAUNDERS, NURSERYMAN, Jersey, has splendid Stocks of Quince Pear Trees, Flemish Carnations, Yellow and White ground Picotees, &c., to offer to his numerous patrons and friends this season. Prices moderate, to be obtained on application.

B. S.'s Priced List of Cape Bulbs is now ready for delivery.

RHODODENDRON PONTICUM and KALMIA LATIFOLIA; superb bushy plants, from 1 to 1½ feet high, completely covered with flower buds and admirable adapted for potting.—Prices on application to WM. WOOD & SON, Woodlands Nursery, Mayfield, near Uckfield, Sussex.

EARLY SOWING FOR 1858.

EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. [illegible] for present sowing may be had of JAMES CARTER & CO., Seedsmen, 238, High Holborn, London, W.C.

TO THE SEED TRADE.

TO BE SOLD, very cheap, a few quarters of BEDMAN'S IMPERIAL and SCIMITAR PEAS; also a quantity of WOOD'S LONG RIDGE CUCUMBER, [illegible] which for hardiness and productiveness, [illegible] is unequalled.—Apply to WOOD & INGRAM, [illegible]

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained FRUIT TREES of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 & 4 year old CURRANTS of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch. GOOSEBERRIES, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

WALTON NURSERY, LIVERPOOL.

TO NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

MESSRS. J. AND H. BROWN offer to the Nobility and Gentry the following CHOICE PLANTS, &c., which they will forward to any part of the United Kingdom:—

Andromeda floribunda, 1 to 2 feet, fine, per 100, 6*l.*, or .. .. per doz.	18*s.*	0*d.*
25 Azaleas, new hardy Belgian varieties, with buds, one of a sort, by name, on their own roots ..	20	0
100 Azaleas, do., do.	70	0
25 Azaleas, do., American varieties, do.	16	0
Hardy Heaths, Ledums, and Kalmias .. per doz.	6	0
25 Hardy American Plants, one of a sort, by name ..	10	6
12 Rhododendrons, including scarlet, white, and rose, hardy varieties	12	0
Hardy scarlet Rhododendrons, 2 feet .. per doz.	14	0
Rhododendrons, best hardy varieties, including all the above sorts .. .. .. per 100	80	0
Hardy white Rhododendrons, fine .. per doz.	12	0
New yellow Rhododendrons .. .. .. each	5	6
Roses, Standard and Half-standard per doz. 15*s.* to	18	0
Best leading sorts .. .. per 100	100	0
Climbing Roses, best sorts .. .. per doz.	6	0
12 Greenhouse Azaleas, best sorts, two sizes 10*s.* to	15	0
Camellias, choice sorts, well set with buds, per doz.	30	0
50 choice Greenhouse, one of a sort, for	45	0
Orchideæ, choice species and good plants, including Dendrobiums, Oncidiums, Lycaste, Stanhopeas, Cattleyas, Vanda, &c. &c., per dozen	42	0
Hothouse Ferns, choice new kinds, including gold and silver, per dozen	12	0
Lilium giganteum, flowering bulbs, each	7	6
24 choice Ericas, one of a sort, in small pots	16	0
Prize Chrysanthemums, large and small, per dozen..	8	0
Violets, fine double winter flowering, per dozen ..	6	0
CHOICE FRUIT TREES.		
Fine Standard and dwarf trained Apricots, Peaches, Nectarines, Cherries, Pears, and Plums, 2*s.* 6*d.* each, or per dozen	28	0
Fine Dwarf Plants of all the above grown, especially for pot culture, in orchard houses, &c., per doz.	18	0
Figs, Apples, Medlars, Mulberries, and Walnuts, each	2	0
Gooseberries, Currants, and Raspberries, per dozen	3	0
Filberts, new, thin shelled, red skinned, and Cob, do.	4	0
Choice Grape Vines, in pots, per dozen..	18	0

Fine Ornamental Trees and Shrubs supplied in large quantities.

Albion Nursery, Stoke Newington, London, Dec. 5.

KALMIA LATIFOLIA MAJOR SPLENDENS.

JOHN CATTELL has now to offer fine healthy bushy plants, about 18 inches in height, of this very beautiful Kalmia, the flowers of which are almost flat, about the size of a penny piece—some even larger, and of a much deeper rosy pink colour than any other variety, which colour they retain till the flower falls; plants, 10*s.* 6*d.* each. Fine plants of J. C.'s other well known large flowering varieties of KALMIA LATIFOLIA may also be had.

New upright growing small leaved PORTUGAL LAUREL. This handsome variety is now taking its place among our first-class hardy ornamental evergreens. Young plants one year bedded 1*s.* each, or 9*s.* per doz.; or by post 1*s.* 6*d.* each. Strong plants, 1 to 2 feet, 2*s.* 6*d.* to 5*s.* each.

J. C. has also a fine stock of WELLINGTONIA GIGANTEA, 6 to 15 inches, most perfect plants, and some 2½ feet in 11-inch pots, first-rate specimens.

Thujopsis borealis, 6 to 12 inches, faultless plants on their own roots.

Cephalotaxus Fortuni, male and female, 6 inches to 2 feet, splendid plants.

Retinospora squarrosa, 9 inches to 3 feet, very handsome.

Cupressus Lawsoniana, 9 to 16 inches.

,, majestica, 1 to 3 feet.

Araucaria imbricata, 1 to 5 feet; these are all grown on a cold hill facing the north-east, and are in the most robust health.

Cedrus Deodara, 1 to 10 feet, splendid plants.

,, ,, viridis and robusta, 1 to 3 feet.

Abies Douglasi, 2 to 5 feet, exceedingly handsome plants.

,, ,, larger, up to 10 feet.

Pinus insignis, 1 to 7 feet, also grown on our cold hills; they are handsome specimens in the most robust health.

Picea nobilis, very handsome plants with leaders.

,, Nordmanniana, perfect specimens.

Thuja gigantea, 6 inches to 2½ feet, very fine plants, and a great number of other new, rare, and other Coniferæ.

J. C.'s Nurseries also contain a very large stock of Forest, Fruit, and Ornamental Trees and Shrubs. American Plants and Roses are also particularly well grown, and contain all the newest and most distinct varieties. Some splendid specimens of Andromeda floribunda, 3 feet high, very bushy and covered with flower buds. Parties about to plant any description of Nursery Stock would be amply repaid by a visit to the Westerham Nurseries.

Descriptive Priced Catalogues may be had on application, enclosing a penny postage stamp.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north-east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara } 1 to 10 ft.
,, Africanus } The largest
Cedar of Lebanon } and finest stock in the country.
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 8 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft.
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthus, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Wareana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 3 to 10 ft.
,, cut leaved, 3 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chesnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection.)—Standards, 18*s.* p. doz., and uparwds; Dwarfs, 6*s.* do. and uparwds. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots .. FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots .. SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)
June 18, Royal Botanic Society—50 Cut Roses .. FIRST PRIZE
Do. do. 10 Roses in pots .. SECOND PRIZE
June 24, Brighton .. 50 Cut Roses .. .. FIRST PRIZE
June 24, Manchester .. 50 Cut Roses .. .. SECOND PRIZE
*** The Manchester and Brighton Shows were on the same day.
July 1, Royal Botanic Society—24 Cut Roses .. FIRST PRIZE
,, do. do. 50 Cut Roses .. FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses .. FIRST PRIZE
,, ditto, collection ditto .. FIRST PRIZE
July 9, Diss .. 50 Cut Roses, FIRST PRIZE, SILVER CUP
,, do. .. 100 Cut Roses, FIRST PRIZE, ,,
July 15, Stamford .. 12 Cut Roses, FIRST PRIZE, ,,
Sept. 9, Crystal Palace 50 Cut Roses, FIRST PRIZE, ,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHODODENDRONS annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
,, ,, 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possibly desired.
,, africana, 3 to 4 and 5 feet, fine plants.
,, Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
,, ,, ,, larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet,
,, Goveniana } 2 to 3 and 4 to 5 feet, from seed. The
,, Lambertiana } large sized plants are very handsome.
,, macrocarpa }
,, Lawsoniana Seedlings.
,, variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens.
,, japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
,, chinensis, 3 to 4 and 5 to 6 feet.
,, common English, 2 to 3 feet.
,, Irish, 3 to 4 feet.
,, ,, 4 to 6 and 7 to 8 feet, very handsome close grown specimens.
,, recurva, 3 to 4 and 5 feet
Libocedrus chilensis, 3 to 4 feet.
,, gigantea, 1 to 2 feet.
,, ,, 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
,, Beardsleyana (new), about 1 foot.
,, Benthamiana, 1½ to 2 and 3 feet.
,, Brunoniana, 2 to 3 feet.
,, Cembra, 3 to 4 and 5 to 6 feet.
,, Douglasi, 4 to 5 and 6 feet.
,, ,, 6 to 8 and 10 feet, most magnificent plants.
,, excelsa, 4 to 6 and 7 feet.
,, insignis, in any quantities, 2 to 3 feet.
,, ,, ,, 3 to 4 and 5 feet.
,, Jeffreyana (new), about 1 foot.
,, Lambertiana, 2 to 3 and 4 feet.
,, ,, very fine, 5 to 6 and 8 feet.
,, Morinda, 4 to 6 and 7 feet.
,, nobilis, from seed, 1 and 2 years.
,, Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
,, Sabiniana, 2 to 3 feet.
,, taxifolia (of Jeffrey), 1 to 1½ foot.
,, tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora ericoides, 1 to 2 feet.
Saxe Gothæa conspicua, 2 to 3 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 to 10 feet.
Taxus (Yew), Common, 2 to 3 and 4 to 5 feet.
,, Irish, 3 to 4 and 5 to 6 and 8 feet.
,, gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
,, ,, larger, 1½ to 3 feet.
,, chilensis, 2 to 4 feet.
,, gigantea, 1 to 2 and 3 to 4 feet.
,, Hookeriana, a very dense growing species.
,, Wareana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
,, ,, larger, very handsome, 1½ to 2 and 3 to 4 feet.

This plant is admirably adapted for forming Avenues.

None of the foregoing are grafted, with the exception of Pinus Lambertiana, which does well, neither have any been cramped by the ruinous system of pot culture.

AMERICAN PLANTS.

Azaleas, good varieties of scarlet, rose, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
,, Of best Ghent and other varieties, 1 to 2 feet.
,, Standard, of the leading kinds.
Kalmia latifolia, 1 to 2 feet, by the 100.
,, ,, 2 to 3 and 4 feet, large very handsome specimens
,, ,, Standards, with fine symmetrical heads.
,, ,, myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Game Covers.
,, Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
,, Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
,, Standard, 3 to 4 feet stems, with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved perpetual varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens; we would therefore suggest the importance of purchasers making a visit of inspection, which can be readily done by South-Western Railway to the Sunningdale Station, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

DUTCH AND CAPE BULBS.

JAMES CARTER & CO., SEEDSMEN, &c.,

238, HIGH HOLBORN, LONDON, W.C.,

BEG to announce the arrival of their DUTCH AND CAPE BULBS, all of which are in excellent condition and, *as usual, of first-rate quality;* and invite attention to the *Twenty-Second Annual Issue* of their AUTUMN CATALOGUE of DUTCH AND CAPE BULBS AND SEEDS for *Autumn Sowing*, which will be forwarded *free of charge* and *post paid* to all parts of the world upon application. It will be found to contain *all* the *best* and *most approved* varieties of

HYACINTHS	CROCUS	ANEMONES	IRIS
NARCISSUS	TULIPS	RANUNCULUS	LILIES, &c. &c.,

Besides many other Bulbs of a curious and interesting description.

J. C. AND CO.'S ENCYCLOPÆDIC CATALOGUE OF FLORICULTURAL, VEGETABLE, AND AGRICULTURAL SEEDS WILL ALSO BE FORWARDED GRATIS AND PRE-PAID.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

SUPERB BALSAMS.

F. AND A. SMITH are now sending out Seed of their unrivalled BALSAMS, in packets containing nine colours separate, six seeds of each colour, 2*s.* 6*d.* each; do mixed, 2*s.* F. & A. S. have added some additional colours to their collection, which now comprises blush, crimson, crimson bizarre, pink, purple, purple flake, purple mottled, salmon, scarlet, scarlet flake, scarlet mottled, French or pearl white, pure white, a small quantity of cream, crimson mottled, and pink flake.

Also Antirrhinum from a splendid collection, 6*d.* per packet.

	Per packet—*s.* *d.*		Per packet—*s.* *d.*
Cineraria	1 0	Intermediate Stock ..	0 6
Calceolaria	1 0	Pansies, Fancy	0 6

N.B. A List of Agents will appear shortly.—Dulwich, Surrey.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

NEW EARLY PEAS.

BASS AND BROWN have pleasure in recommending for early sowing—

DANIEL O'ROURKE, or Sangster's No. 1, the earliest grower.
BECK'S GEM, the earliest and best dwarf for forcing.
WARNER'S EMPEROR.
RISING SUN, New Green Marrow, nearly as early as Emperor, a Pea of great produce.
DICKSON'S FAVOURITE, very long pods.

Their general stock of New Vegetable Seeds is now ready, and their usual collections of first-rate sorts can be supplied.

Choice assorted collections, 60*s.*, 40*s.*, 25*s.*, 15*s.*, and 10*s.* 6*d.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity upon reasonable terms, by land or water carriage.

ROBERT NEAL, Nurseryman, Wandsworth Common, Surrey.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Dec. 5.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

EDWARD TILEY, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

LANGHEDGE NURSERY.

C. WOOLVEN invites the attention of Fruit Growers and the public generally to his very superior STOCK of Fruit Trees, Florist and Ornamental Trees and Shrubs, Standard Apples, Pears, Plums, and Cherries, from 12*s.* per dozen; ditto trained, from 30*s.* per dozen. A fine Stock of Peaches, Nectarines, and Apricots, from 30*s.* per dozen. Also a large quantity of very fine Weeping Ash, Purple Beech, &c., at equally low prices. About 5000 Gooseberries and Currants of all the leading sorts now in fine condition, from 2*s* per dozen. C. W. has now on hand about 10,000 very fine Evergreens, consisting of Arbor-Vitæ from 2 to 7 feet high, Aucubas, Laurustinus, Portugal and Common Laurels; Standard Roses, &c., equally good.—C. WOOLVEN, Nurseryman, Edmonton.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 3*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Dec. 5.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH VINE.

JAMES VEITCH, JUN., has much pleasure in again calling attention to this SPLENDID NEW GRAPE which has fully carried out all its previous recommendations.

It is an ENGLISH SEEDLING raised at Stockwood Park, near Luton, Bedfordshire, the seat of John S. Crawley, Esq., by his late Gardener Mr. Busby, from the Black Hamburgh crossed with the Sweetwater.

The following Prizes have been at various times awarded it:—

Horticultural Society ..	October, 1853 ..	First Class Certificate
Do. do. Chiswick	July, 1855 ..	Large Silver Medal
Caledonian Society ..	Sept., 1855 ..	First Class Certificate
Pomological Society ..	Sept., 1855 ..	Declared to be in every way satisfactory.

During the present year (1857) it received at the Pomological Society's Meeting on Sept. 12th the FIRST PRIZE AS THE BEST SEEDLING WHITE GRAPE; and at the Crystal Palace Exhibition on September 9th it also received an award, thus establishing its continued excellence, which has been confirmed by the opinions of the best judges.

Strong established Plants, with well ripened wood, 2*s.* each.

One over on three to the trade, to whom special terms will be given when 25 and upwards are ordered at the same time.

Convinced of the superior quality of this Grape, and desirous of having it tested by *public competition*, J. V., JUN., offers the following Prizes:—

£5 for the Best three Bunches.
£3 for the Second Best do.
£2 for the Third Best do.

These prizes will be awarded at one of the Exhibitions of the London Horticultural Society in 1859, particulars and time of which will appear hereafter.

Royal Exotic Nursery, Chelsea, S.W., Dec. 5.

HOLLYHOCKS.—Seed saved from WILLIAM CHATER'S celebrated varieties, such as Empress, Beauty of Walden, Walden Masterpiece, &c.

20 varieties, mixed, per packet	..	..	.. 5*s.* 0*d.*
12 ditto	ditto	..	.. 2 6
Good ditto	ditto	..	.. 1 0

This Seed is warranted to produce flowers of equal merit, and may be had from the Nurseries, Saffron Walden, Essex. The Descriptive Catalogue may also be obtained by inclosing one postage stamp.

SPLENDID STANDARD PORTUGAL LAURELS FOR PLANTING ON LAWNS.

WOODLANDS NURSERY, MARESFIELD, NEAR UCKFIELD, SUSSEX.

WILLIAM WOOD AND SON have to offer magnificently grown plants of the above, varying in height from 3 to 6 feet, with compact bushy heads. Some of the largest plants they are offering have heads measuring 6 feet in circumference, in fact perfect pictures.

	Each—*s.* *d.*
Young plants	5*s.* to 10 6
Large ditto	15*s.* to 21 0

BUSH VINES FOR FRUITING IN POTS.—The following kinds of GRAPES are grown in dwarf bushes for pot culture in Orchard Houses and for Forcing; they have for the most part three shoots, are 2 feet in height, and full of fruit buds; 3*s.* 6*d.* each, except those priced.

FOR ORCHARD HOUSES OR GREENHOUSES.

Prolific Sweetwater	Early Malingre
White Romain	Purple Fontainebleau
Chaptal	Muscat St. Laurent (5*s.*)
Black Hamburgh	Muscat de Sarbelle (5*s.*)

FOR FORCING OR HOUSES WITH FIRE HEAT.

Chasselas Musqué	White Frontignan
Black Frontignan	Purple Contantia

Muscat of Alexandria.

THOS. RIVERS, The Nurseries, Sawbridgeworth.

SEED POTATOES.

CHARLES TURNER can supply the following sorts in healthy sets:—

KIDNEYS.

* Ashleaf, White	* Brockley	Lapstone
Ashleaf, Purple		Mannings

ROUND VARIETIES.

American Seedling	Flour Ball
*Early Frame	Perkins' Seedling
*Early Oxford, extra fine	Wellington
*Early Surprise	*White Forty-fold, or *British Queen.*

* These are the best EARLY kinds, and are highly recommended for first crops.

ROYAL NURSERIES, SLOUGH.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants:—

	Per dozen.—*s.*		Per dozen.—*s.*
Acacia Drummondi	42	Herbaceous & Alpine Plants,	4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties ..	12
Cyclamens .. .. from	12	Phloxes, Herbaceous ..	9
Ferns, Stove & Greenhouse	12	Pinuses	18
Hardy	9	Roses, Hybrid Perpetuals, Teas, &c., in pots ..	18
		Do. Teas, &c., Standards	21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6*s.*
.. seed, per packet .. .. 1*s.*

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE or this season may be had on application, inclosing one stamp, or gratis at Messrs. JOS. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from their Exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Dec. 5.

HEAVIEST LANCASHIRE SHOW GOOSEBERRY TREES, per dozen .. .. .. 6*s.* 0*d.*
BLACK GRAPE CURRANTS, extra fine, do. .. 2 6
APPLE "Lord Suffield," extra fine, do., 12*s* and 18 0

HOLLAND, DODWELL, & BAYLEY (late Holland), Bradshaw Gardens, Chadderton, near Manchester.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75*s.* per 100. Price to the trade on application.—Highgate Nurseries, London, N.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Pawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14, Seed Market, Mark Lane.

SMITHFIELD CLUB, BAKER STREET SHOW.—AT MESSRS. SUTTON'S STAND Nos. 75, 76, 77, will be exhibited some roots of the SUTTON'S CHAMPION SWEDES, from the two fields which gained the PRIZE CUPS presented by HIS ROYAL HIGHNESS THE PRINCE CONSORT to the "Royal East Berks," and the "Royal South Bucks" Agricultural Associations. Also roots of SUTTON'S SELECTED MANGEL WURZEL grown by RICHARD BENYON, Esq., and other customers, who took the leading Prizes at the Birmingham Show.—Royal Berkshire Seed Establishment, Reading.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 5, 1857.

SHARP eyes and good instruments seem likely to throw an entirely new light upon some of the cases of gradual decay or SUDDEN DEATH among plants. A tree loses one of its branches, and lightning is blamed. Another cankers incurably in fine rich garden ground and a warm situation, limb after limb disappearing year by year; its constitution is pronounced impaired, or it belongs to a sort that is wearing out. A third grows vigorously for a few years, then shows signs of suffering, its leaves are yellowish, its ends, especially the topmost, if a tree, die, and in a few years the tree is rotting and condemned; here the soil is thought to be exhausted. An old orchard famous in its day has become mossy, and stunted, and the trees leave off bearing; it is grubbed and replanted; and every one of the new trees is as bad as the old ones; in this case the soil is sick of such a crop, or so men say.

That lightning kills trees as well as animals is certain, but it kills them wholly, and at once, not a piece to-day and another piece next year. Nothing is more apocryphal than a diseased constitution among trees, that is to say, a mysterious, intangible, invisible, agent to which such a name might be applied. Wearing out of a race is a dream. It is very difficult, we should say indeed impossible, to exhaust soil of the materials needed for the food of trees; for they return to the earth every year the inorganic elements which may have been absorbed; their leaves being the restoratives provided by Nature. Then there is the so-called "sickness;" as if plants possessed volition as animals do, or had stomachs to be tired as the French epicure's was of partridges. Men may be homesick, or lovesick, or seasick; they may be sick of idleness, or pleasure, or study; that sort of sickness is intelligible; but how an Apple tree, or a Gooseberry bush, or a Clover plant are to be sick passes all comprehension. It is clear that our explanations are, in the cases first alluded to, mere guesses. But have we any that are better?

It is not long since we described the state of a Portugal Laurel which was dying limb by limb (see page 611), and of some other shrubs. Instances of a similar kind have since been pointed

out; that is to say, of the destructive effects of Fungus spawn (*mycelium*) upon roots. In all those cases the death of plants or of their limbs was clearly traceable to the action of subterranean parasitical fungi. We have now another, more startling, and still more instructive case, which has also come under our personal knowledge.

In the year 1856 a young plant of the rare and valuable Abies Kæmpferi, obtained from the nursery of Mr. GLENDINNING, was planted in a damp clay shrubbery, in an open space where some shrubs had formerly been cleared away. It was put into good soil, and nothing could be more satisfactory than its summer growth. Having passed the winter of 1856 and 1857 in the same place unprotected, and without sustaining any injury, it pushed strongly in the spring of the present year, and made tolerably good progress afterwards. But although it ripened its wood, yet towards the autumn it was observed to become yellow at the ends of the leaves, as if it was not quite so well as it had been; and since the place where it grew was cold and damp and rather shaded, it was resolved to remove it to a drier soil and a more exposed and sunny spot. Upon taking it up it was found to have formed good roots in all directions, and its owner began to doubt whether he had done well to transplant it; when suddenly his gardener, a quick-sighted young man, exclaimed, "What's that, sir? Look there! Why, the roots are mouldy." And so it was, sure enough. Cobweb-like Fungus spawn was filling the ground and hanging down from most of the weakest roots. Upon a more careful examination it was found that the bark of many of the fibres had been displaced by the Fungus and killed, the main roots only appearing clean and sound. The microscope showed something more. In all directions it was seen that the roots were overrun with those delicate transparent threads which are employed by this formidable enemy in invading the young parts of plants. In many cases they had formed a white felt, which quite concealed the surface; and here and there the fibres were encompassed by stout white cables of spawn made up of myriads of microscopic threads, and forming what had been visible to the naked eye. In short the roots of Abies Kæmpferi were locked in the arms of a deadly enemy, who lurked unseen and unsuspected in the bosom of the earth.

We can entertain no doubt that the roots of hundreds of thousands of sickly suffering plants, whose ailment is unintelligible, are in the same state; and that nurserymen on the one hand and gardeners on the other are blamed for losses which no prudence or skill in the actual state of knowledge could have prevented. It is clear that there is a most dangerous enemy in the soil ever ready to seize upon anything whose vitality is not high enough to resist it; and that garden ground long cropped, or in which old roots have been allowed to moulder, is most especially the resort of our subterranean foe; so that gardeners must keep a sharp look out underground as well as aboveground if they are not to become his victims.

In the case of the Abies Kæmpferi, whose melancholy state is here described, it was hard to know how to treat it. At first we thought of cutting off every root that had been attacked; but it was soon found that they had all been invaded more or less; it was therefore resolved to plant the patient in a warm sheltered place, in earth consisting of clay, sticks, roots, and leaves newly burnt or reduced to charcoal, and to trust to his there acquiring such health and vigour as would enable him to shake off his insidious and powerful enemy. Will the experiment prove successful?

IN spite of all that has been said at various times in contradiction of any connection between WHEAT MILDEW AND THE COMMON BERBERRY, the notion that they have a relation to each other as cause and effect is still very prevalent in many parts of England, and in consequence one of the prettiest ornaments of our hedges, whether in flower or fruit, is ruthlessly destroyed. There can be no doubt that this notion arose in the first place from the fact that the Berberry, like Wheat, is subject to the attacks of a parasite (*Æcidium*), with rust-coloured spores, inclining more or less in certain stages of growth to orange. It has, moreover, been further confirmed by a confusion between the white mildew of the Berberry and the rusty mildew of the Wheat, though they resemble each other in nothing save name. So long as the history of the Wheat and Berberry rust was imperfect there might be some rational ground, from the notorious changes which Fungi undergo in different stages of growth, and the various phases under which they appear, for supposing that the one might be merely a modified form of the other; but since the confirmation by TULASNE of the notion first recorded, we believe, by the elder SOWERBY, that these plants are monœcious, and more especially since his discoveries of their singular germination, there is not a spark of evidence in favour of their identity.

The question stands thus:—The leaves of the Berberry, the fruit and other parts, are often infested with *Æcidium*, a bright orange-coloured Fungus, consisting of a mass of necklaces of globose spores, surrounded by a delicate membrane, which is regularly lobed at the margin. Besides these dust-bearing spots, the several grains of which are essentially reproductive, minute pustules, known by botanists under the name of spermagones, are put forth, generally on the opposite side of the leaf, filled with minute colourless bodies, mixed with jelly, which at length ooze out from the top of the pustules. These are either a second form of fruit; or, as is more probable, the male organs of the parasite. The larger globose spores in an allied species (for we have no observations relative to the germination of the Berberry mildew) germinate readily when placed in a damp atmosphere or immersed in water, producing semi-elliptic spores, and these again spores of a similar shape and size which are in turn capable of germination.

The Wheat mildew in an early stage of growth has the same structure as an *Uredo*, consisting of simple obovate cells; these gradually increase, acquire a horizontal partition, changing from orange to a rich brown, and presenting an appearance totally distinct from the globose spores which are found in the perfect state of the *Æcidium*. Both the cells of which each perfect plant is composed germinate independently and like the beads of the necklaces in *Æcidium* produce spores of two separate orders each capable of germination. Besides these organs, spermagones, which are either real male organs or their representatives, have been found in some species of *Puccinia*, to which genus the Wheat mildew belongs, though they have not at present been found in that species. In several species, moreover, besides the perfect two-celled spores there are one-celled spores which accompany them, capable like the others of germination, and referred formerly to the genus *Uredo*.

It is clear, then, that the *Æcidium* and *Puccinia* alike are complete in themselves, and not mere modifications of each other. Had the parasite on the Berberry leaves been an *Uredo* instead of an *Æcidium* there might have been some ground for arguing the possibility of their identity, but there can be none in favour of the identity of *Æcidium* and *Puccinia*, as there is no resemblance between their spores. The botanical part of the question may, therefore, be considered as fairly disposed of. As regards other considerations, it may be true that Wheat is occasionally mildewed in the neighbourhood of Berberry bushes, but it is equally true that in their neighbourhood the Wheat is often perfectly clean. The occurrence of mildew is merely accidental, and cases are on record where many yards of Berberry hedge have been destroyed, but in spite of their destruction the crops have been as subject to mildew as ever. Indeed the Berberry in many parts of England is extremely rare, and those districts where it least abounds are precisely those where mildew is most prevalent.

It remains only to ask whether the Berberry bush, in consequence of some emanation from its leaves or excretion from its roots, has such an effect on Wheat that it is disposed to mildew. We answer, decidedly not. It may be true that the Berberry like many other trees may injure Wheat, causing it to be meagre and less luxuriant than in remote parts of the field, but then luxuriant Wheat is far more subject to mildew than that which is weak and thinly scattered, and though good observers have noticed Wheat in the neighbourhood of Berberry bushes to be more mildewed than in other parts of the field, others equally good have made precisely contrary observations. Those, therefore, who are willing to be convinced, will see that the opponents of the Berberry have no tenable ground for their opposition. As for others, no weight of evidence or force of argument affects them; they have taken their part, and will not be moved. The only course with such persons is to leave them in their unbelief. It is quite useless to do otherwise, for they are sure after the strongest and most convincing arguments to return to their old belief, in accordance with SOLOMON'S proverb:—"Though thou shouldest bray a fool in a mortar among Wheat with a pestle, yet will not his foolishness depart from him." The worst of the matter is that others suffer from his obstinacy and ignorance, and are denounced, like one of our correspondents who has laid his grievance before us, as pests of society, because they will not act in accordance with their neighbours' folly. *M. J. B.*

HOW TO RAISE SEEDLING PEARS.

Now is the time to plant Pear pips for the purpose of raising new varieties, and a very interesting employment it is. Some 8-inch pots should be kept at hand filled to within an inch of their rims with tolerably fine mould, and when a fine Pear is eaten or one decays the pips should immediately be planted in the pots about half an inch deep. A piece of perforated zinc or woven wire should then be placed over the pot, to keep out the mice and birds, and allow the rain to enter. The pots may remain out of doors all the winter. In March or April the young plants will make their appearance, the wire covers may then be removed, and as soon as the young plants have made six leaves they may either be potted into single pots and planted out in a rich border in May, or at once transplanted from the seed pot to the border. They will, if the soil be rich, each make a shoot from 1 to 2 feet in length the following season; this will make a graft or gratts, which should be grafted on strong stocks on the branches of bearing trees, and in a few years fruit may be expected.

The raising of Pears from seed may be made much more interesting, if the sorts from which they are raised be known; for this purpose only one kind should be sown in a pot and its name placed with it. In a very few years they show their origin in their leaves and shoots, and seem to go in races. I have at this moment a number of seedlings raised from Ne plus Meuris, they nearly all look alike, some of them have borne fruit exactly like their parent; one or two, however, much larger, but unfortunately they ripened in October, and were not remarkably good. I have also a batch of seedlings from Beurré d'Aremberg, these with one or two exceptions, are apparently of the same race; one of them bore some fine fruit the past season, exactly like the Beurré d'Aremberg, but they ripened on the tree the first week in September, and were of the most delicious flavour, so that if an early Pear of the same flavour were wanted it would be an acquisition. Seedlings from Passe Colmar and Glou Morceau retain their family likeness in their habits very remarkably, and this will account for many of the new Pears being so much like our older varieties; there are some eight or 10 new Pears of the Passe Colmar race, among our new sorts ripening at different periods, and nearly as many of the Glou Morceau tribe, among which Beurré Bachelier seems hardier than its parent; Victoria later, and so on.

To me, a lover of Pears, it is most interesting to watch the development of character in seedlings, and I beg earnestly to recommend the raising of them, in the manner I have directed, to those of your readers who have leisure—a garden, and are gardening lovers. Disappointment must be expected, for a fine looking seedling Pear will often prove anything but fine in flavour. When young trees give their first fruit the best method is to ask your friends to the first tasting, and then if they prove very bad indeed it gives occasion for a hearty laugh. I once had a seedling raised from Bacon's Incomparable, which was as large as a Catillac Pear, or say a moderate-sized garden Turnip, and of a bright orange colour. I watched it with intense interest, and when it ripened invited my neighbours to the tasting; in doing so I think we all burst into a roar, for it was a horrid compound, in which acid and bitter and sweet struggled hard for the ascendancy. I have had other laughable adventures with seedling Pears, but hope in gardening matters never flags. *T. R., Herts.*

DOG-ROSE STOCKS—AND SOMETHING ABOUT CATERPILLARS.

MY experience as a Rose amateur spreads over about 20 years, and I wish to communicate the result of my observations in several matters which I think may be either useful in itself or elicit useful information from others.

I find that the Dog-rose stock is in some cases all that can be desired, in other cases it does not succeed so well, in others it constantly disappoints—I am speaking of standards. Now, first with regard to club-roots. I deal with many nurserymen—Paul, Rivers, Mitchell, Lane, Wood, and Fraser, which I mention to show that from all these different localities I meet with the same result, that is, club-roots, with abundance of fine strong healthy fibres springing from all parts of these clubs; I do not see, therefore, that any failure can occur from want of good roots. If upon such stocks you bud strong-growing sorts of Roses they will in general succeed admirably, and in this case, if the tree makes a good bushy head, there will be very few suckers, and these easily removed. In proof of this I may mention that in my garden I have plants of 10 or 15 years in vigorous health and growth, some of the stocks 2 inches in diameter. If, on the other hand, you bud upon these fine healthy stocks some weak-growing Roses they may grow a little for a year or two, they will then die off; if still weaker sorts are budded on such stocks, they frequently die the first season. Now, in the majority of these latter cases I find on digging them up the root end of the stock is alive, and the root itself still healthy and sending out runners and suckers; this shows that the head and the root have not been able to balance accounts, which I apprehend to be absolutely necessary for healthy growth, as in the case of the first mentioned. I infer from all this that Rose growers should keep this in view, and not send to their customers standards with long stems, strong roots, and little heads; and here I would ask these gentlemen whether there may not be something wrong in their always advertising that on first planting the branches should be cut quite

close back to one, two, or three buds. Now, in the case of vigorous kinds, the supply of strong shoots and leaves is rapidly produced, and the balance between head and root kept pretty equal, but the poor little weak growers keep lagging behind, whilst the root finds so little reciprocity that it begins to set up for itself, and presently entirely neglects the sickly stem and head, and leaves them to die. Now, may it not be well to give these at their first pruning a little consideration, and allow 5 or 6 buds to be left instead of 2 or 3?

It seems to be admitted now that the Manetti stock is fit for dwarfs; if dwarf sorts are to be grown upon standards, then Rose growers should cultivate stocks for them, after having ascertained what will answer the purpose. I strongly recommend them to try the old Rose "La Dauphine"—it is a healthy clean grower, and I have found it to succeed in my small way admirably; at all events, it is useless and disappointing to send out long stems, with a bit of wood of the size of a straw or two at the top to form a head; if such weak growers are really wanted on high stems, it appears to me that the nurserymen should keep them at least two years before moving them, that the head may be somewhat formed under the most favourable circumstances, and then there would be some chance of their surviving removal, and if this method should require some addition in the price of such plants, their customers might have the option of paying a little more for a superior plant. If something is not done to remedy the evil I have described, then weak growers should be worked only upon stocks of such a height and such a quality as to insure success; men of experience could be at no loss to effect this. There is Mr. Cranston, whose valuable little book I have just purchased, could, I have no doubt, give us a few lines upon the subject of stocks, and the treatment of them, &c.

Now for a word or two about our great pests—the caterpillars. Where does the fly or moth deposit its eggs?—these eggs must be exceedingly small, for I have constantly looked for them, but mostly in vain, and yet it appears to me that this is the stage at which we should commence our attack upon them—no egg, no caterpillar, no fly or moth to be hatching on. Allow me to beg earnestly of your readers to communicate what they have observed on this subject—we ought all to make common cause in this war, and by acting simultaneously make a grand onslaught this next spring. [The whole history of this insect has been fully given in our volumes for 1848, p. 239, and 1850, p. 35.]

It is fitting that I should now mention a few things that I have observed, or that I have done. Towards the latter part of summer and the beginning of autumn on a close examination of the buds of a healthy plant, I have seen some of them looking dirty as I thought, but on closer inspection I found the bud was gone, and on cutting it off the part with the bark I saw that it had been eaten away. I have also found in cutting a bud for insertion in summer a very small brown maggot with a black head quite alive at the back of the root of the bud, where it appeared to be located for the winter. I conclude that the egg must have been deposited by the parent when the wood was in a very soft, succulent state; but I am not entomologist enough to know whether these insects have depositors sufficiently strong for this purpose. But to proceed: early in the spring I have, by pinching off the top of a suspected bud, found the little creature alive at the base, still this is not the only place where the eggs are deposited, for I have seen these maggots of a reddish-brown colour, in March, creeping up the branches towards the buds; they are then so exceedingly small as to be scarcely perceptible, and require very minute inspection to observe them. Arrived at the apex of the bud, which is now just opening a little, the creature begins to feed, and very soon hides itself, leaving a little powder behind it; if the bud is now pinched off there is an end of the maggot, or if it has eaten further down it must have another pinch—the bud if not much eaten is very little the worse. If the maggot has been left undisturbed it eats out the bud, and a nice observer will soon know these buds, although they still retain their shape; but on feeling them they prove to be only the shell. What becomes of the maggots that have their full swing I do not know; I suppose they enter other buds until they and the young leaves of the plant become suitable for each other, and they appear in all the mischief acquired to bring them into maturity; this is the old "worm i' the bud," and I should very much like to know if any one has discovered where the eggs have been deposited that produced these outsiders, and what they or their envelopes are like.

As I could not discover the whereabouts of the eggs, I thought I would give the plants such a coating all over—stock and head—as should either destroy the eggs or make the bark so unpalateable to the young fry as should destroy them. This I tried last spring, and those that had the caterpillar hunting to perform were fully satisfied that to a great extent the mischief had been checked. I used the following, of the consistence of good stiffish paint:—About a gallon of unslaked lime in powder, half a pound of sulphur also in powder; these were well mixed whilst dry, water was then added, and the whole boiled for an hour, as much soot moistened to the same consistence was then added, just enough to darken the colour of the compound. This was laid on with a brush in the latter part of February. I could not perceive any injury to the plants. Is there any better wash for the purpose? I noticed that some one had or has used the same compound, but without boiling.

I have used this compound on my Apple trees, and as far as I can at present judge, with success. *T. H., Stoke Newington.*

Home Correspondence.

Achimenes in Baskets.—For the decoration of a stove or conservatory during summer and early autumn, I know of no more useful plants than Achimenes, and if carefully removed to a cool temperature as soon as the blossoms expand, and shaded during bright sunshine, they will remain longer in beauty than in a hot stove. Having had these plants in great perfection in baskets, I beg to furnish a few remarks upon this plan of growing them. About the beginning of February the tubers were put in pans filled with light sandy soil and placed in a gentle heat, where they soon commenced to vegetate. After they had made shoots about an inch long they were carefully removed, selected, and finally planted. The baskets employed were square ones, 18 inches by 6 inches, stuffed with Sphagnum, the soil within being composed of about equal parts of turfy loam, leaf-soil, and decomposed manure, with a liberal admixture of sharp silver sand. The Moss being rolled tightly round the rim was kept in its place by means of wire pegs, the whole being finished off with the shears; the plants were then inserted about 2 inches apart, watered, and removed to a pit with a light moist atmosphere, where they grew freely; they were stopped at the second and fourth joints, to secure compact bushy specimens. After the second stopping they were staked, and the outer row of plants pegged close over the rim of the basket. At the same time they were furnished with a top-dressing of thoroughly decomposed manure mixed with silver sand. After that, with the exception of being regularly tied, they received the same treatment as before until such time as they should flower, when they were removed to the conservatory, care being taken to prepare them for the change by rendering it gradual. When all were fully expanded they were a complete mass of blossom, forming in short floral balls, which were greatly admired. All varieties are not alike adapted for growing in baskets, but longiflora and its varieties may be used with safety. *Geo. Westland, Carhead, Yorkshire.*

Ripening of the Pomegranate in England.—I have had this year a plant with 28 Pomegranates on it. It measures 13 feet in height, and flowers freely. The fruits, which are perfectly well formed, are from 2 to 3 inches in diameter, of a golden yellow colour and blush with bright pink on the sunny side. They have nearly all ripened perfectly. The plant is growing against a south wall, and has had no protection. *William Scorer, Gardener to H. Spencer, Esq., Woodlands, Havant, Hants.*

Puff Balls Eatable.—Your correspondent from Caswell Bay has been deprived of a delicious dish in the "Lycoperdon Bovista," which is not uncommon in some seasons in these parts. Sliced and seasoned with butter and salt fried in a pan no French omelet is half so good in richness and delicacy of flavour. I am too glad to seize upon them when I can get them; of course in the soft pulpy state. *R. Ward, Salhouse Hall, Norwich.*

Culture of the Chrysanthemum.—I have read with much interest Mr. Scutt's remarks on growing this useful plant. I must confess, however, that we London growers cannot come up to him in number of blooms at all. For years I have looked upon what I have seen at the Stoke Newington Chrysanthemum Society as A 1 in point of specimen growing; but if your correspondent had brought his plants to this Society's show he certainly would have "walked away" the Cup. It must be a remarkable plant that can be well grown in an 8-inch pot with good foliage, the pot completely hid all round with leaves, and the plant crowned with 600 blooms, all of one size, and all out at the same time, the plant 4 feet across and 1 foot 6 inches high. I earnestly recommend your correspondent to send his specimens next year to Stoke Newington. They must, however, all be in 8-inch pots (not 10); he had better not grow Sacramento nor Button Lilac as the latter is apt to show a great eye, but substitute for them Bob, Duruflet, Cedo Nulli, Vicomte de Caumont, Aurora Borealis, Brilliant, Mustapha, Alexander Pêlé, La Vogue, Madame Fould, or other modern varieties of good form. We London growers are losing our time all through the winter in starting our plants early in October and November to get plenty of "breaks" in spring and summer, when the same thing may be done in March, and all this time is labour lost. Webb's Queen, I fear, would not do to show at Stoke Newington; we only grow it in the borders. I would recommend Vesta, Annie Salter, Auguste Mie, Albin Christine, Madame Cammerson, Cardinal, Zephyr, Ruth, Plutus, and Dupont de l'Eure, &c. We don't like exposing our plants to the hot sun all the summer; this should only be done in spring and autumn; neither do we allow the roots to escape at the bottom of the pots, as when taken up they don't retain their foliage or bloom freely. I would recommend your correspondent just to show us about London what can be done by a March grower. We are never too old to learn; we only strike cuttings in March for common use, that is, for borders or late blooming for greenhouses. I have in my possession a Pompone called Nelly, sulphur and white, which was started the 2d of last November; the last shift was to an 8-inch pot, grown on one stem 3 clear inches from the pot. It was stopped four times up to the 1st of August; not a single stick was used, but it was pegged down with thin wire like hair pins. It was watered every day during spring and autumn with rabbits' and fowls' dung, and liquid guano, after well watering twice a day with plain water, independent of the liquid manure; in summer it was watered with cooling liquid, such as cow-dung, &c. It was kept from the mid-day sun in summer in a shady place, only having the morning sun to 11 o'clock. It was plunged in the ground and turned round twice a week, to prevent the roots from escaping at the bottom; it is 4 feet across, the foliage covers the pot all round; it has 400 perfect blooms on it, all out at one time (no eyes). I should like this to be shown against Sacramento. I, however, beg to thank your correspondent for his valuable hint on March growing; I shall certainly try it. Mr. Scutt must, however, understand that I do not quite agree with him in respect to specimen growing for exhibition. He starts them too late; Bob, for instance, would not be "up to the mark" early in November, four months' difference is a great deal; it may, however, answer well for specimens, early varieties for borders, or pot plants for greenhouses. *S. Broome, Temple Gardens.*

Vine Borders.—Were I to make a Vine border the following would be my plan:—First, I would commence inside the house near the front wall, and excavate to the depth of 21 inches and to the width of 9 feet. I am supposing the front wall to be on arches, which I should stop for the present with rough brickwork. On the surface of this excavation, which should have a fall of at least 6 inches, I would place a good layer of some hard material—cement, concrete, broken slates bedded in mortar, or in fact anything to prevent the roots from going downwards. A trench 9 inches or a foot should be dug here the whole length of the house, thus securing good drainage. At this point, 9 feet from the front of the house, and at the side of the trench nearest the border, I would run up a brick on edge wall, leaving openings in it through which any superfluous moisture might pass into the trench. In this way a box would be provided 9 feet wide and 18 inches deep, with good drainage the length of the house; this might be filled with a compost something like the following:—Fresh turfy loam, rather stiff than otherwise (but not clayey), about a third flakey leaf mould and good dung, not too rotten; also a liberal supply of brickbats, broken stones, or charcoal. By, say March, this would have settled, when I should plant the young Vines, one to each rafter, first soaking their balls and carefully washing all soil from their roots, which should be barely covered with compost and watered slightly with a rosed pot. I should now cover the whole border a few inches in depth with droppings from an old Mushroom bed. As the Vines commenced and continued growing the border should be watered occasionally with weak liquid manure, giving enough at each watering to wet the whole mass. I need scarcely add that the atmosphere should be kept moist. In autumn at pruning time the droppings and loose soil should be raked off down to the roots, when I would substitute a top dressing of good fresh loam and a moderate sprinkling of guano, mulching with droppings as before. This I would do annually until I found that my border was either too full of root or the Vines required more to feed upon, when I would add 3 feet more to the border outside the arches in front of the house, or at the back inside, of course filling up the trench and making another if required. It will be observed that I have not given over stimulating food to the young Vines or in great quantities, because I hold that a moderate amount well digested is better than a larger quantity and of a richer kind than the system requires. My chief object is to keep the plants and soil in a healthy state, and to have complete control over the whole, both root and branch. If these instructions are followed there need be no fear of the result. *D. D.*

Potato Disease.—The following is a report of the Potato crops in my immediate neighbourhood. The disease has been very prevalent, and in some cases to an unprecedented degree, though in others it has been scarcely felt. In my garden the Early Walnut Leaves were perfectly sound. Soden's Early Oxford extensively diseased; the same was true of this sort in the field; but it was not quite so badly injured as in the garden. Of four other sorts in the field I saved about half a good crop. Last of all I took up in my garden a few rows of Early Walnut Leaf which I had left for seed, and which I concluded I should find greatly diseased, as they were side by side with the Sodens, but on the contrary they proved a sound and magnificent crop. My garden is a deep sand made as rich as possible with manure from the pigstye; but the Potatoes were planted without manure in February, after other crops (Peas and Broccoli). The field, about 100 yards distant, is of the same soil, but in very poor condition. It was manured for the Potatoes with leaf-mould and burnt weeds, ashes, &c., but they were planted late. Side by side with my own were Potatoes planted in a strip which I let to a neighbour; his land is in much better condition than mine, and manured with pig-dung. His chief crop was the Golden Dun, a bad yielder, grown only for wealthy tables; from 16 poles the amount of sound roots was less than one bushel. The rest of the ground was set with Flukes, which had scarcely one diseased, but they were a good deal grown out. 200 yards further, on the same soil, I saw about two sacks of Regents taken from 30 poles; this ground was, I believe, manured with ordinary farm-yard manure. A little further is some ground I let as allotment gardens, in

which the crops were a grievous failure, varying from one-half to one-fifth of the expected yield. Still further, in the same soil, I saw the owner of another allotment, whose allotment I believe was manured with dung scraped from the road, digging up a crop which fell little short of a sack to the pole, with about a dozen diseased Potatoes in the whole. I conclude it is tolerably well ascertained that the disease is in the set, and that it is developed more or less according to the condition of the soil and state of the weather at the critical period when the tuber approaches maturity. *Ad Rosas*

Early Trees.—A question was asked this spring in your columns (which if my memory serves me rightly received no answer) about the habits of an early Beech tree, on the road between Tunbridge and Seven Oaks. I have noticed the tree in question now for 14 years, and can assure the inquirer that it always comes into leaf from three weeks to a month earlier than the neighbouring Beeches, of which there are many. I had not, however, until this year observed the fact that it also retains its leaf a fortnight longer than any of its neighbours. This latter peculiarity I should not have expected, but rather the reverse. I have occasionally noticed a large number of seedlings from it, but they do not retain the early habits of the parent tree. The same precocity of foliation prevails in other Beeches along the green sand range, but it is not very frequent. Nor does anything in the situation of the trees account for it in any case. It appears to be an individual and constitutional peculiarity. *J. R.*

Dioscorea Batatas.— Will some of your correspondents favour us with the results of their cultivation of this plant this warm and sunny year? I have just had a specimen sent me of a plant, a cutting of this years' growth, weighing 1 lb. 11 oz., and I learn that some of the same crop reached 3 lbs. I hear also of specimens weighing 10 lbs. grown from strong roots in this neighbourhood. *J. R.*

Orchid Disease.—Being a slight sufferer from what appears to be the so-called Orchid disease, I have been much interested in the correspondence which has lately appeared in your columns respecting it. I must however risk your correspondent "M. J. B.'s" displeasure by saying that I do not agree with him that over-heating is a primary cause of the evil, when the temperature ranges from 60° to 70°. I think your correspondent "Gleanings" has incidentally hit upon the real origin of the disease (however scientifically its action may be explained), when he says that it proceeds from cold nights immediately succeeding the heat of summer, when we are loth to give sufficient fire-heat to evaporate the moisture which from the kinds of treatment pursued hangs on and around the whole plant, after perhaps a scorching day. Such then being the case, I maintain that the proper treatment is to slightly raise the temperature and decrease the moisture, when the evil will immediately be arrested, the rotten cell walls will dry up, the cuticle or epidermis will collapse and leave a black or brown spot, and the result will be a healthy action of the roots. At the time when attention was first called to the disease, I had placed an infected plant in the hottest and dryest corner of the house, near the chimney; the plant was Oncidium Cavendishi. Another diseased plant of Angræcum eburneum was also placed in the same situation, and the result in both instances was as I have stated above; the whole collection was then placed under nearly similar conditions, and the result was in every way satisfactory. The enclosed leaf of Dendrobium Farmeri is sent to show the effect of a recurrence to moist treatment even for a few days. It will be perceived that the mischief is spreading—the centre of the spot looks as if it were punctured. In my case the disease attacks the thin leaves of such plants as Dendrobium, quite as much as the succulent ones belonging to Aerides, Saccolabium, &c. *J. W. L.*

Vine Growing.—I have about 40 Vines in Vineries, extending about 150 feet frontage, and some of them are not yet in a fruiting condition. The Vine borders have been made on principles dictated by common sense—concreted at the bottom, drained, and the soil in which the Vines are to be grown a rich maiden loam, top-spit from a field, mixed with more or less of old manure and burnt earth, and from present appearances giving every promise of doing well. Now I shall be greatly obliged by being advised whether I may take up the rafters one or two shoots from the main stem of each separate Vine, the Vines being planted from 5 to 6 feet from each other, and the borders varying from 6 to 10 feet in breadth, and of rich materials. My own experience is that one fruit-bearing branch for every 5 or 6 feet is insufficient, and I think that at least two branches pruned and trained on the spur system might be allowed without either cramping the space or overtaxing the capacities of the Vines. Mr. Fleming's account of the necessity of concreting the bottoms of Vine borders set me thinking, and resulted in the whole of my Vines being lifted, the soil in which they were growing removed and replaced after the bottoms of the borders had been concreted, the expense in labour and cement being comparatively small. I have also put up a house, 60 feet long, on "Vigneron's" plan, the expense of which even poor Mr. Hume, if he was alive, would hardly object to. The way I went to work was as follows:—I obtained from a friend of mine who had bought them and did not know what to do with them 12 (5 feet by 12 feet) lights, strongly but not ornamentally made; the whole expense of carriage, &c., was under 7*l.* I purchased rafters, supports, boarding or boarding for the front for 2*l.* 5*s.*, and with the exception of two doors for either end, here was my material to work with. I fixed on a south wall, on which I planted the rafters and placed my lights; got a jobbing carpenter, with my gardener's assistance, to put them up at an expense of a further 7*l.*, intending my gardener at any leisure time to paint it inside and out. Thus you see I have a house 60 feet long, 10 feet 9 inches wide inside, for a sum under 20*l.* I have planted inside, in raised borders made for the purpose, 12 Vines to go up the front rafters, the roots in the borders extending 5 feet inside and 4 feet outside, the whole being well concreted and drained; and against the south wall for training laterally and horizontally against the wall I have nine other Vines in borders 3 feet deep and as many feet broad, a sunk path of 2 feet being between the two inside raised borders, as usual in Mr. Rivers's Vineries. For ventilation (no mean point to be considered) I have a wooden shutter 9 inches in depth, which opens the entire length of the house, and outside the back of the brick wall I have another opening just underneath the rafters of 6 inches running the whole length of the back of the house, and which can be opened and closed at pleasure; but to secure good ventilation even when these shutters are closed the lights on the roof do not fit closely to the plates at the top of the wall and on the front upright supports, but are so placed as to allow air to circulate through an inch in space left for this purpose; no rain or snow can however possibly get in. You may doubtless say, why all this rigmarole? Be patient for a few moments and I will tell you. It is my intention (D. V.) to obtain such a crop of Black Hamburgh Grapes from these Vines as shall in the first season of their bearing a full crop enable me to pay all the expenses I have been put to in building this Vinery, which is as strong as wood and nails can make it, and outwardly the best looking and the most justly proportioned house in my garden, but if looked at closely it will be found that the woodwork has not been planed, and it is at present without paint. I do not intend to ruin my Vines by being in a hurry for a crop and shall be satisfied to wait three years from this time, but I shall at that time be really puzzled, not to say astonished, if I do not get from 2 to 3 cwt. of Grapes—the borders having been made *secundum artem*, the Vines from Sawbridgeworth, and the aspect south, drainage first-rate, and nothing more to be desired. What I have done others may do, and I would strongly recommend anybody having the requisite knowledge and the facilities at hand to set to work and knock up a strong house for Grape growing; for be assured that by paying attention to certain rules in border making materials, respecting ventilation and pruning, success is certain, the crop a highly remunerative one. I believe myself acquainted with all the above requisites for success, the pruning and training in the first instance excepted, and it is on these points I shall be greatly obliged by advice. I also wish to draw out opinions as to whether Vine borders inside Vineries should be watered at all or not, Mr. Rivers at Sawbridgeworth never I believe giving a drop of water, and any remark as to the quality or quantity of his Grapes under his system of management would be unnecessary, everybody knowing that they are first-rate. Again, will some of your correspondents be kind enough to inform me whether there is any office in London at which insurances may be effected against damage to horticultural glass structures by hail, and if so favour me with a word on the subject? *J. R. S., F.H.S.*

Societies.

HORTICULTURAL, *Dec.* 1.—At a special general meeting held this day, the following new Fellows were elected:—

The Earl of Scarbrough, Sandbeck Park, Tickhill, Yorkshire.
The Earl of Shannon, Castle Martyr, County Cork.
Earl of Erne, 95, Eaton Square, and Crum Castle, Lisnarkea.
The Duke of Buccleuch and Queensberry, Dalkeith.
The Earl of St. Germans, Port Eliot, Cornwall.
The Earl of Rosse, The Castle, Parsonstown, Ireland.
The Earl of Roden, Hyde Hall, Sawbridgeworth.
Lord Francis Conyngham, M.P., 5, Hamilton Place, W.
Sir R. B. Wm. Bulkeley, Bt., M.P., Baron Hill, Anglesey.
Sir C. Wm. Codrington, Bt., M.P., Doddington, Chippenham.
Sir Thos. Buchan Hepburn, Bart., Smeaton Hepburn.
Lady Caroline G. Legge, Forest Lodge, Keston, Bromley, Kent.
Hon. R. Windsor Clive, M.P., Oakly Park, Shrewsbury.
The Rt. Hon. Thos. Erskine, Fir Grove, Eversley, Hants.
Sir Edw. Fitzgerald, Caviegoran, County Clare.
Lady Erle, 4, Park Crescent, Regent's Park, N.W.
Sir John Orde, Bart., Kilmory, Lochgilphead, N.B.
Sir Graham Montgomery, Bart., M.P., Stobo Castle, Peebles-[shire.
Capt. Sir George N. Broke, Bart., C.B., Broke Hall, Ipswich.
Sir Robert Kane, Wickham, Dundrum, Dublin.
Sir P. Gordon Cumming, Bart., Altyre House, Forres.
Stephen Lowdell, Esq., Bedales, Lindfield, Sussex.
Robert Forster, Esq., Tottenham Green, N.
Stephen Wm. Leach, Esq., Strand-on-the-Green, W.
James Morrell, Esq., Headington Hall, near Oxford.
Geo. Greenhill, Esq., Priory Lodge, Barnes, Surrey.
Mrs. Carter, The Grove, Epsom.
J. Wm. Wardell, Esq., Abbotsfield, near Chester.
E. Kinnersley, Esq., Binfield Manor, Bracknell, Berks.
Capt. Thos. Harcourt Powell, Drinkstone Park, Suffolk.
Capt. Richard Aplin, Metton Lodge, Woodbridge, Suffolk.
Rev. L. Sneyd, A.M., Warden of All Souls College, Oxford.
H. W. Wickham, Esq., M.P., Kirklees Park, Mirfield.
Charles Parker, Esq., Binfield Grove, Bracknell, Berks.
Mrs. Chatfield, 76, Sloane Street, S.W.
Edward Highton, Esq., 5, Glo'ster Road, Regent's Park, N.W.
Henry Westcar, Esq., Burwood Cottage, Hersham, near Esher.
T. B. T. Hildyard, Esq., Flentham Hall, Newark.
Edwin Guest, Esq., LL.D., F.R.S., Sandford Park, Oxon.
Wm. Cox, Esq., Brailsford Hall, Derby.
James Cole, Esq., Berners Street, Ipswich.
Richard Ellison, Esq., Sudbrooke Holme, Lincoln.
George Knollis Jarvis, Esq., Doddington Hall, Lincoln.
Thos. Jacob Turner, Esq., Worthy Park, near Winchester.
John Copland, Esq., Chelmsford, Essex.
Ezra Eagles, Esq., Dame Alice Street, Bedford.
Horatio L. Nicholls, Esq., Summerfield, Bowdon, Cheshire.
Edmund Hamborough Joynson, Esq., St. Mary's, Ipswich, Essex.
Mr. G. W. Francis, Sup. of Bot. Garden, Adelaide, N.S.W.
Wm. Cubitt, Esq., M.P., Penton Lodge, near Andover.
Samson Ricardo, Esq., M.P., Titness Park, Sunning Hill.
Edward Brown, Esq., Oaklands, St. Albans.
Mr. James Barnes, The Gardens, Bicton.
Rowland Brotherhood, Esq., Chippenham.
G. T. W. Sibthorp, Esq., M.P., Canwick Hall, Lincoln.
David Fullerton, Esq., Rendcomb Park, Cirencester.
Thomas Evans, Esq., Lyminster House, near Arundel.
Robert Marriott, Esq., Narborough Hall, near Swaffham.
Thos. Chamberlayne, Esq., Cranbury Park, Winchester.
Geo. Sandars, Esq., M.P., 27, Sussex Square, Hyde Park.
Rev. Chas. Kemble, 18, Stockwell Villas, Stockwell.
Mr. John Waterer, Nurseryman, Bagshot.
Capt. A. Hawksley, The Dell, Chertsey.
Stephen Lewis, Esq., Roehampton, S.W.
Henry Norman, Esq., Lothbury, E.C.
Mr. James Watts, 8, Claremont Place, Old Kent Road.
Henry John Spearman, Esq., Newton Hall, near Durham.
John Robin, Esq., West Kirby, Birkenhead.
Rev. H. J. Sperling, Lattenbury Hill, St. Ives, Hunts.
Wm. H. Hawkins, Esq., Holmesdale House, Nutfield, Surrey.
Wm. A. T. Amhurst, Esq., Didlington Park, Brandon.
James Ward, Esq., Surrey Cottage, Blackheath Park, S.E.
David Martineau, Esq., South Roads, Clapham Park, S.
Richd. Headly, Esq., Stapleford, Cambridge.
Francis Darwin, Esq., Kirskill Hall, Otley, Yorkshire.
Henry Miles, Esq., The Downfield, Kington, Herefordshire.
Wm. F. L. Carnegie, Esq., Kimblethmont, Arbreath, N.B.
John Charles Fletcher, Esq., Dale Park, Arundel, Sussex.
Joseph Pease, Esq., Southend, Darlington.
John Cattley, Esq., Shobden Park, near Reigate.
Francis Edward Robinson, Esq., Old Bank, Oxford.
Thos. H. Maudslay, Esq., Knight's Hill, Norwood.
Rev. J. A. Wedgwood, Dumbleton Rectory, Evesham.
Mr. S. Finney, Gateshead Nursery, Newcastle-upon-Tyne.
Mr. Samuel Broome, The Garden, Inner Temple, E.C.
Mr. Wm. Toogood, Nurseryman, Arundel, Sussex.
W. Mercer, Esq., Grove House, Hunton, Staplehurst.
Thomas W. Maddy, Esq., Sutton Court, near Hereford.
Thos. B. Horsfall, Esq., M.P., Bellamour Hall, Staffordshire.
Wm. Tomline, Esq., Kesgrave Hall, Woodbridge, Suffolk.
Reginald Rogers, Esq., Truro, Cornwall.
Basil T. Woodd, Esq., M.P., Conyngham Hall, Knaresborough.
Capt. Thos. Waring, Waringstown House, Banbridge.
Wm. Norton, Esq., Woodbridge Lodge, Woodbridge.
General Duncan, Gattonside House, Melrose, N.B.
John Kerrick, Esq., Geldeston Hall, near Beccles.
Arthur K. Barclay, Esq., Bury Hill, Dorking.
H. G. Murray Stewart, Esq., Cally, Gatehouse, N.B.
James Dolman, Esq., Bath Lodge, Surbiton, S.W.
Thomas Hancock, Esq., Stoke Newington. [land.
Fred. J. W. Collingwood, Esq., Glanton Pyke, Northumber-
John S. C. Stevens, Esq., Furzley, Axminster.
Thomas Bewley, Esq., Newtown Park, Black Rock, Dublin.
Rev. James Williams, Tring Park, Tring, Herts.
William Jeffery Etches, Esq., The Park, Derby.
Mrs. Townley, Beaupré, Wisbeach.
Thomas Clapham, Esq., Stackhouse, near Settle.
Jeremiah James Colman, Esq., Carrow House, Norwich.

It was announced that another meeting for the election of Fellows would take place on Tuesday, Dec. 15.

THE ROYAL SOCIETY: *Nov.* 30.—The anniversary meeting was held in the new rooms at Burlington House. The President, Lord Wrottesley, in delivering his annual address, noticed the advances made by science since the previous anniversary, particularly as relates to terrestrial magnetism and geographical researches. Adverting to General Sabine's discovery of the correspondence of the decennial period of the maxima and minima of magnetism with that of the revolution of the spots on the sun's surface, and to his investigation of the law of "magnetic storms," his lordship pointed out the advantage to science that might be expected to accrue from an expedition to make a series of observations at the mouth of the Mackenzie river, on the coast of Arctic America, as in that latitude will probably be found the neutral point between the easterly "storms" or "disturbances" at Point Barrow, and the westerly at Toronto. Government are to be asked to send out a small party to settle this interesting question.

Lord Wrottesley also announced, with reference to the geographical question, that Government have promised to send a vessel to explore the Zambesi, in conjunction with Dr. Livingstone, who will return to Africa in the course of the present month.

The medals in the gift of the society were then presented; the *Copley medal* to Michel Eugène Chevreuil, for his researches in organic chemistry, particularly on the composition of the fats, and for researches on the contrast of colours. One of the *Royal medals* to Dr. Edward Frankland, for the isolation of the organic radicals of the alcohols, and for his researches on the metallic derivatives of alcohol; the other to Dr. John Lindley, for his numerous researches and works in all branches of scientific botany, and especially for his "Vegetable Kingdom" and his "Genera and Species of Orchideæ." At the close of the address the following were elected as officers and council for the year ensuing. President—The Lord Wrottesley, M.A. Treasurer—Major-General Edward Sabine, R.A. Secretaries—Messrs. William Sharpey, M.D., and George Gabriel Stokes, M.A., D.C.L. Foreign Secretary—Mr. William Hallows Miller, M.A. Other Members of the Council—Messrs. James Moncrieff Arnott, George Busk, Arthur Farre, M.D., Edward Frankland, Ph.D., John Peter Gassiot, William Robert Grove, M.A., Philip Hardwick, R.A., Joseph Dalton Hooker, M.D., Leonard Horner, James P. Joule, LL.D., Richard Owen, LL.D., John Percy, M.D., Lyon Playfair, Ph.D., Rev. Bartholomew Price, M.A., Archibald Smith, M.A., and Charles Wheatstone.

LINNEAN, *Nov.* 19.—Professor Bell, President, in the chair. C. Knight, Esq., G. G. M'Pherson, Esq., and W. D. Spere, Esq., were elected Fellows. Lady Smith presented the whole of the scientific correspondence of the late Sir J. E. Smith, arranged in 18 volumes. On the motion of Dr. Booth, seconded by C. Babington, Esq., it was resolved, "That the cordial and affectionate

thanks of the Society be given to Lady Smith, the widow of our founder, for her invaluable present." The following papers were read:—1. "Notice of Four varieties of British Plants," by John Hogg, Esq. The plants consisted of a white-flowered variety of Papaver Rhœas; a luxuriant form of Astragalus Hypoglottis, considered by Mr. Hogg to be the Astragalus purpureus of De Candolle; a curious monstrosity of Plantago major, in which the lower flowers were converted into spikelets forming a pyramidal inflorescence, all from the north of England; and some slight variations of the common Arbutus from Killarney. 2. "Notice of a monstrosity of Scabiosa succisa, and of some other vegetable monstrosities," by Professor Bentley. The outer flowers of the capitulum in the Scabiosa were stalked so as to form an umbellate inflorescence. 3. "Note on a diseased bunch of Grapes," by M. T. Masters, Esq. 4. "A short Exposition of the Structure of the Ovule and Seed-coats of Magnolia," by Dr. Asa Gray. This was a reply to the observations made at a previous meeting by Mr. Miers on the views held on this point by Dr. Gray. The paper which was wholly occupied by the details of the anatomy of the seeds, accompanied by drawings, maintained the correctness of the author's own view of the nature of the seed coats, in opposition to that held by Mr. Miers. 5. A letter from Joseph Woods, Esq., addressed to Mr. Kippist, giving some details of a late "Botanical Journey in the North of Spain, with critical observations on some of the species collected." Mr. Woods went by Bayonne and Bilboa to Santander, after some delays from the uncertainty of the conveyances. About Santander he described the general appearance of the country as very much like what is seen in England, but on closer examination the hedges were found to afford Laurus nobilis and Phillyrea media, the latter abundantly, the banks almost everywhere being covered with Scrophularia scorodonia, Smilax aspera scrambling over the bushes. There are some open spaces which might be called heaths, the largest of which seemed doomed to perpetual barrenness from the custom of paring off the turf for fuel. Two or three plants not rare with us deserve particular attention. Anthyllis vulneraria is very common, but invariably with purple flowers; Daucus Carota abounds in the meadows, but is white-rooted and larger than our English plant growing on the chalky downs; Linum angustifolium is so abundant as to form in many pastures a considerable portion of the herbage. There are two walks near Santander very beautiful in themselves, and very interesting to the botanist. The first is to a rock called Peña di Castello, or the rock of Castelle, a rugged hill, above 600 feet high, nearly a mile long but very narrow, so that from the ridge there is a rocky precipice on one hand and a steep slope on the other. This Peña di Castello affords the most beautiful views over the bay of Santander. Another delightful walk is towards the mouth of the harbour by a footpath a little way from the edge of the low cliffs which form its shore. Three or four days spent at Las Corales showed it a particularly good station for botany. The general appearance of the vegetation at Reinosa was very different from that at Santander, and the climate very different; cold in winter, with immense quantities of snow, while the summer is hot from the unclouded sunshine. Mr. Woods left Reinosa for Pozazal and Alar, at each of which stations many interesting plants were gathered. Among the advantages of Spanish travelling Mr. Woods mentions good lemonade, excellent chocolate, and nice little biscuits called galetas, and he found moreover that a traveller could there eat when he pleased —a thing not to be thought of in the country inns of France. The paper recorded the plants found at the various places at which the author stayed, many valuable critical remarks on the species observed being interspersed, one of which applied to the descriptions of the Orobancheæ in De Candolle's Prodromus, and the impossibility of recognising the species by means of them, we may quote as the opinion of a veteran of science. "It is very possible," observes Mr. Woods, "that a skilful botanist may distinguish species [so called] where the differences are inappreciable by a less practised eye, but unless he can point out some characters which would enable other botanists to identify his plants, he renders the science only the more obscure by publishing them."

Notices of Books.

On the Geographical Distribution of Fruit Trees and Berry-bearing Shrubs in Norway. By Fr. Chr. Schuebeler.

M. Schuebeler, Director of the Botanic Garden of Christiania, appears to be devoting himself with much zeal and energy to the investigation of the horticultural and agricultural capabilities of Norway, and to the promotion and encouragement of the practice of both these arts in the country. With this view he has reserved a portion of the Botanic Garden specially for applied botany, that is, for essays of useful plants suitable to the climate, and has for the last five years established in Christiania an annual exhibition of horticultural and agricultural products. The first years he found it very uphill work, the articles of exhibition came in very slowly, but the spirit of competition being once acquired the progress soon became rapid, and for the last two years he has, to his great joy, received specimens from several even remote places in the dioceses of Bergen and Drontheim, which have excited considerable interest. His attempts, however, to establish a journal devoted to the horticulture and agriculture of Norway have hitherto failed.

That there is ample room for the development of his efforts is shown by the fact that in the whole kingdom of Norway, an area of 5800 square geographical leagues, there are as yet but about 50 square leagues under cultivation, and that in the diocese of Christiania alone, an area of 1534 square leagues, there are 54½ square leagues of undrained bog within the limits of corn cultivation and 36 above that limit, and this notwithstanding the natural advantages of a country endowed with a remarkably mild and equable climate considering its high latitude. It is for the purpose of showing some of these advantages, and at the same time of correcting some traditional errors which he finds generally prevailing in foreign works on the physical condition of Norway, that M. Schuebeler has published this pamphlet, a separate impression from the Hamburgh Garten- and Blumen-Zeitung.

The fallacy of the idea conveyed by the majority of the maps of Norway published out of the country, that of one or more continuous chains of mountains running from north to south, has been exposed by Professor James Forbes, of Edinburgh, in his "Norway and its Glaciers," a work to the accuracy of which, and to the merits of the small illustrative map accompanying it, M. Schuebeler bears ample testimony. The whole country may be best described as a single mountain mass gradually sinking towards the south, where there occur considerable tracts of comparatively level land suitable for habitation and cultivation, and cleft in the remaining portions into a number of larger or smaller ravines, rather than extended valleys, in which the inhabitants fix their abode.

The greater part of the kingdom is therefore at a considerable height above the level of the sea. One 38th extends into the regions of eternal snows. Scarcely one-half is under the absolute elevation of 2000 feet which, in the greater part of the country, may be fixed as the limit of corn cultivation. In the northern part of the diocese of Drontheim that limit is not above 1000 feet.

The comparative mean temperatures of Christiania and of the few places on the coast under the moderating influence of the sea, and especially of the Gulf Stream, where any meteorological observations have been made give the following results:—

	Mean annual temperature.	Mean of three coldest winter months.	Mean of three hottest summer months.
Christiania lat. 59° 54	+ 4.8° Reaum.	— 4.0° Reaum.	+ 12.4° Reaum.
Ullensvang in Hardanger, lat. 60°	+ 5.8° „	— 0.8° „	+ 12.5° „
Drontheim lat. 63° 30	+ 3.4° „	— 3.8° „	+ 12° „
North Cape lat. 71° ..	+ 0.1° „	— 4° „	+ 5° „

The result of this extraordinary winter mildness is that the sea never freezes on the whole of the western and northern coasts. Wheat is cultivated up to Inderöen, lat. 64°; Oats to Salten, lat. 68° 30′; Rye both as winter and spring corn to Dyrö, lat. 69, and has yielded even twenty-twofold at Hassel, lat. 68° 30′. Barley ripens at Alten, lat. 70°, but one degree from the North Cape. Potatoes succeed well at Vadrö, on the Russian frontier, rather above 70°, and Turnips are there also very generally cultivated.

These results are facilitated by the great rapidity of summer growth, evidently influenced by the long duration of light at these high latitudes. At Alten, lat. 70°, the sun remains above the horizon from the 24th May to the 19th July. Barley, which on account of the night frosts (by daylight) cannot be sown before about the 20th to the 24th June, is often reaped before the end of August, yielding six or seven-fold. Mr. Thomas, an Englishman, settled there for many years, and now a member of the Norwegian Diet, has observed that Barley will grow 2½ inches in 24 hours, and Peas full 3 inches.

Owing to the abrupt termination towards the sea to the westward of the great mountain mass of Norway, the fall of the rain on the western seacoast presents a striking contrast to that of the interior. Whilst at Christiania the average annual amount of rain for the last twelve years is under 20 inches, it amounts at Bergen to about 80 inches in the year.

The summer heat is, however, so much moderated along the western coasts that it sometimes happens that in the islands and along the shores of the mainland the corn has to be cut green, when further to the north it has ripened well inland. The extremes of heat and cold in the interior are sometimes considerable. At Valle, in the Sœtersthal, lat. 59° 15′, at an elevation of 1100 to 1200 feet, and far from the coast, the maximum summer heat reaches +34° Réaum. (+108° Fahr.) and the minimum winter cold descends to —28° Réaum. (—41° Fahr.)

The following are the fruit trees and shrubs enumerated by M. Schuebeler:—

The Apple is wild as far north as Tuterõe, an island near Drontheim, lat. 63° 30′, generally as a shrub, although in the south it will grow to a tree of 20 feet. In cultivation it generally gives good crops, and about 70 varieties are known to be in the country.

The Pear is not wild, but is cultivated up to Drontheim, lat. 63° 30′, as a middle sized tree in the south, but only in espalier about Drontheim. Twenty-six sorts are enumerated.

The Quince and Medlar have only been tried in the gardens about Christiania.

The Cherry is probably not indigenous, although there is said to be an old wood of Cherry trees, near two English miles long, at Urnes, on a branch of the Sognefiord, in the diocese of Bergen. It is cultivated up to the Arctic circle. Cherries ripen well on standards at Dynnes, lat. 66° 15′, and would probably succeed on espalier much further north. Twelve varieties are known at Christiania.

The Plum is believed not to succeed beyond Drontheim, lat. 63° 30′, and it will only ripen in espalier beyond the 62d parallel. Fourteen kinds are grown at Christiania.

Peaches in espalier ripen well in sheltered places in southern Norway. Apricots are grown in espalier up to lat 63°. Under lat. 60° 30′ some varieties will ripen on small standards 6 or 8 feet high, as for example at Hardanger.

Walnuts have been but little tried, but succeed well. They ripen well up to the Sognefiord, lat. 61°. At Drontheim, lat. 63° 30′, the fruit will only ripen in favourable summers. In Rosendal, lat. 60°, there are several large trees, one 56 feet high, with a trunk of 6½ feet circumference at 4 feet from the ground. The Juglans nigra also ripens its fruit at Christiania.

The Hazel Nut, at lat. 63°, is wild up to an elevation of 1000 feet, and in the low grounds it ripens well at Alstenö, lat. 66°.

Of Chesnuts there are some small trees under lat. 58° to 59°, which ripen their fruits in warm summers.

Almonds also ripen in warm summers on standards, near Cape Lindernoes on the S.E. coast.

The Grape Vine, only cultivated in espalier, will ripen on the Sognefiord. It is usually covered up in winter at Christiania, but has not suffered from being left unprotected the last two winters. It is never covered at Lindernoes. The Isabel Grape (Vitis Labrusca) will ripen at Christiania under favourable circumstances.

The Mulberries both black and white grow about Christiania, and the former at least ripens its fruit in favourable summers.

The Elder is found in isolated spots along the west coast up to Aafiord, lat 64°, and in very warm summers will ripen its berries at Drontheim, lat. 63° 30′. It ripens habitually at Christiania, and near the sea resists the most violent storms.

The Berberry grows wild in isolated localities; the furthest north observed are near Drontheim, where the berries ripen.

The Red Currant is generally spread in a wild state over the country as far north as lat. 70°, and always ripens. The Black Currant has not been met with wild further than Söndmör, about 62°, but Wahlenberg indicates it in the Flora Lapponica up to lat. 67° 30′. Cultivated varieties ripen every year on the gulf of Ranen, lat. 66° 15′. It has been planted for some years at Alten, lat 70°, where it appears flourishing, but has not yet flowered.

Gooseberries are found wild here and there in southern Norway. Cultivated varieties are common up to beyond the Ranenfiord, lat 66° 15′.

Raspberries are everywhere wild up to lat 70°, and both the yellow and the red varieties up to the Arctic circle at least. Blackberries appear to have their northern limit at about 62° 40′.

Rubus arcticus is rare in South Norway. In Nordland and Finmark it is common up to Alten, lat. 70°, but it there requires a favourable summer to ripen its fruit. The best station for it is the Tysfiord, in Nordland, lat. 68°, on whose banks it is most abundant, and ripens every year. The Cloudberry (Rubus Chamæmorus), is in all swampy places all over Norway, to the North Cape.

The Strawberry, the two Bilberries (Vaccinium myrtillus and V. uliginosum), the Cowberry (V. Vitis idæa), and the Cranberry (V. oxycoccus), are diffused in great abundance over the whole country. The demand at Christiania for the common Bilberry (V. myrtillus), partly for exportation, has increased considerably within the last few years.

The berries of four kinds of wild Roses are collected and sold as "Hagebütte" (Hips). These are R. canina, common up to Helgeland, lat. 66°: R. cinnamomea, generally dispersed up to Alten, lat. 70°; R. rubiginosa, only on the south coast, from Christiania to Cape Lindernœs; and R. villosa, common in all southern Norway, but scarcely further north than lat 65° to 66°.

With the considerable details given by M. Schuebeler on all the above-mentioned meteorological and other points, are interspersed several long digressions on the Maelström and the idle exaggerations of its dangers by foreigners, on the Gulf Stream and the tropical seeds and fragments it brings, in which we observe that among the seeds of Entada and Mucuna transmitted to Mr. C. Darwin, one of the former has been made to germinate; and on the early expeditions of the Northmen to North America, in connection with the supposed mention of the American Vitis Labrusca by Norwegian historians before the time of Columbus.

A *Manual Flora of Madeira*, by the Rev. R. T. Lowe, M. A. (Van Voorst), forms a small duodecimo pamphlet of 106 pages occupied by the Thalamiflorals of the island. The experience of the author in Madeiran vegetation is greater than any other person's, and a complete work from such a hand would be of very great interest. We fear, however, from what is said in the preface, that there is small hope of the present publication being continued, although what lies before us is

called Part I. In the meanwhile we gladly accept the present instalment, which, as far as it goes furnishes the botanist with all that he can require.

The *British Almanac* continues to appear with its well known copiousness of information. It and the Companion, taken together, form a good sized 12mo. volume. Nor must we omit *Punch's Pocket Book*, one of the best of its class for those who have no objection to our worthy friend's mixture of *seria jocis*.

Close upon the heels of the number of the *Flore des Serres* for April appears that for May; so that the writer is making up his arrears. The new number contains several excellently drawn florist's flowers belonging to the Rose, the Tree Carnation, Early Tulips, and Hyacinths, together with a representation of the seed-vessel of a Bootan Rhododendron called macrocarpum measuring three inches in length. The Editor exclaims, What then will the flower be?

Mr. Stainton continues his elaborate description in four languages of the *Natural History of the Tineina*; the second volume having appeared with eight neatly executed coloured plates. Upon comparing the figures of these mining moths which so much disfigure leaves, we cannot avoid asking whether it is possible that the so-called species can really claim that name in its common acceptation. To us it seems like a revival of the notion that each Coccinella which has a different number of spots on its elytra, must be a distinct species. Surely L. Lantanella, vacciniella, and Bremiella at least are all forms of the same species, the colour of the grubs being affected by what they feed on.

Mr. Greville Williams' Handbook of Chemical Manipulation (small 8vo, pp. 580, Van Voorst) forms a beautifully printed volume, most abundantly illustrated by woodcuts representing apparatus. The progress of analytical chemistry is now so rapid that every year's experience ends in the discovery of new and better processes than were known before. Mr. Williams having brought the subject down to the present moment has produced a work the utility of which to the young chemist cannot be over estimated.

Garden Memoranda.

Mr. Macintosh's Nursery, Hammersmith.—The show house here has been for the last five or six weeks and is still extremely gay with Chrysanthemums, in the culture of which Mr. Macintosh is very successful. Many of his plants measure 3 feet in height, and as much through, and some even more. The best are in 10-inch pots and trained so as to hide the latter with foliage and flowers, presenting more the appearance of well grown Chinese Azaleas than of Chrysanthemums under ordinary management. This is effected by judicious training, which is commenced about the middle of August after they have received their final shift, and continued as may be requisite until they have fairly set their bloom. Under this treatment the plants are literally masses of flower, none of the buds having been thinned out. Thus a good succession is obtained and the plants have a more natural appearance, and last longer in beauty than if they had been disbudded, as is sometimes done in the case of plants for exhibition when one bloom only is allowed to a shoot. Temple of Solomon, a well known yellow kind, has been the admiration of everybody for these last five weeks, and it is still in tolerable perfection. Plutus, clear yellow, and even handsomer than the last, is still in fine condition; its flowers are beautifully incurved and being produced in clusters in great quantities the variety is a very suitable one for pot culture, Auguste Mie, of which we noticed a fine plant, was remarkable for its large clusters of carmine blossoms tipped with yellow; Hermione, white tipped with pink. is a general favourite, it is an abundant bloomer and one of the best of the early kinds; Annie Salter is still one of the best of yellows; we noticed a sport from it of a darker shade than the parent and tinged with red. This if constant may prove an acquisition. Of other kinds we noticed Trilby, delicate pink; Gluck, one of the best of the Anemone-flowered kinds; Queen of England, a fine large blush white variety; Vulcan, a good late flowering red; Jenny Lind, pale sulphur, medium sized, incurved and showy; and Marabout, fringed white tinged with pink. This is a very distinct sort, and suitable for bouquets.

Among Pompones Bob was perhaps most conspicuous; it was the finest plant of the kind we have seen this season, being literally covered with rich crimson blossoms. By some this fine variety is considered to be a shy bloomer; but in this instance every spike had from six to eight flowers on it. This Mr. Macintosh attributes to its being a two-year-old plant. Next in point of attractiveness was Aurora Borealis, a rich brown kind, mottled with bright yellow. This produces its flowers in very large clusters, on some of which we counted as many as 18 blooms, all in perfection at one time. This therefore is a kind which no collection should be without. Dr. Boisduval, a purplish red sort, was unusually well grown and loaded with flowers. This has a neat habit, and is very suitable for small pots. Others were Attila, pink and white; Bijou d'Horticulture, white and very double; Cedo Nulli, a fine white kind tipped with purple, a most profuse bloomer; Brilliant, a good red kind, smaller than Bob, but perhaps brighter in colour; Adonis, purple and white; St. Thais, cinnamon, tipped with gold; Model, white; Nelly, pale sulphur, a valuable late kind; President Decaisne, purple and white, and other sorts.

Intermixed with the Chrysanthemums were winter flowering Heaths, Scarlet Geraniums, Chinese Primulas, double and single, of different colours; early Tulips, blue and white Ageratums, and Veronica Andersoni. The last has been found to be a most useful plant for balconies and other purposes of town decoration, its fine evergreen Laurel-like foliage and gay spikes of violet and white flowers, which appear for several months in succession in autumn, after most other things are over, have a fine effect, and when better known will render it a universal favourite. It is all but hardy and will succeed perfectly with the kind of treatment usually given to Myrtles and plants of that description.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

Conservatory, &c.—In changeable weather like the present this structure will require very careful management. The best plan is to keep as low and dry a temperature as can possibly be permitted, say from 40° to 45° at night, allowing it to rise a little in the day time. In mixed greenhouses see that the young stock of Heliotropes, Cyclamens, and other flowers grown especially for winter, have nice light situations and regular attention as regards watering. This is a good time to introduce the following things into the forcing pit, provided they have received the necessary treatment through the summer:—Rhododendrons, Azaleas, Persian Lilacs, Sweet Briars, Moss and other Roses, Ledums, Kalmias, Daphnes, Anne Boleyn Pinks, Dutch Bulbs, &c. Unless, however, they are in proper trim, it will be labour in vain, and no mode of forcing or form of pit can compensate for this; the great secret of success, if the heat is wholly composed of fermenting materials, is to keep down accumulating damp and mouldiness by an almost constant ventilation, increasing the linings in order to raise the necessary temperature. Those who are fortunate enough to possess pits heated by means of hot-water will of course pursue a somewhat different course. Look well to pits and frames containing stores for next summer, and have sufficient protecting material always in readiness with which to cover them whenever the weather is unfavourable. Pelargoniums should now have their shoots thinned and neatly tied out to stakes; keep them thin to produce stocky plants, and fumigate on the first appearance of green fly. As many plants suffer from drip at this season, a careful look out should be kept and either the cause remedied or the plants removed. Orchids will more especially require frequent examination, as an exposure to its effects would be most injurious. As Camellias come into flower preserve rather a drier atmosphere in the house, as the blooms soon become spotted, and decay when the air is damp. Take cuttings of Chrysanthemums as soon as possible. By so doing you insure a good strong healthy plant for next year, and get a better bloom than if taken from suckers with roots in spring. Stop early, and keep a good foliage through the summer by attending to watering. Attend to pegging down and repotting till you get into the last shift, which should be an 8-inch pot. Give plenty of liquid manure, good drainage, and plunge the plants in a shady place in the garden in summer; by so doing you may have Pompones with from 400 to 600 blooms on them. Riquiqui, Mustapha, Drin Drin, Zebra, Madame Roussillon, Fleurette, and Model—these are first-class varieties for exhibition, and ought to be started now. Whatever you do, do not neglect watering two or three times a day in summer when very hot, to keep good foliage on your plants.

FORCING DEPARTMENT.

Pinery.—Water plants in pots as little as possible at this season; where the general stock is grown in this manner it is a good plan to cover the pots over 2 or 3 inches with the plunging material; where the bottom heat will permit that to be done it obviates the necessity of watering so frequently. Vineries.—Use fire-heat sparingly in houses where the fruit is ripe, but sufficient must be used to prevent the moisture of the atmosphere being frozen to the glass inside the house, for if this is allowed to happen the moisture on thawing is liable to drop upon the bunches, injuring the bloom and causing the berries to decay. Admit air on every favourable opportunity, and examine the bunches often and carefully, so as to make sure of removing decaying berries the moment it can be perceived they are affected. Where forcing is fairly commenced be careful to maintain a properly moist state of the atmosphere, and this must be especially attended to in the event of severe weather, particularly where the buds are bursting. The evaporating troughs must be kept constantly supplied with water, and the paths, bed, &c., should be frequently syringed, and it will also be advisable not to have the tender foliage too near the glass if the weather changes. If fermenting material is used for warming the border, this must be well covered with dry litter to protect it from frost, and turned occasionally, adding some fresh as may be necessary to keep the heat in the border regular. It will be advisable, however, to have some dung and leaves thrown up to heat, as there would be some danger of chilling the bed by turning it in the event of frosty weather, and mixing it with the dung or leaves which had not commenced fermenting. Houses which it is intended to commence forcing the beginning of next month should also have some fermenting materials placed on the borders so as to encourage the roots a little before the Vines are excited, which will be of great service towards getting the buds to push strongly and without loss of time. Strawberries.—Where these must be obtained as early as possible, say by the end of February, a lot should now be introduced. Any house or pit will do, provided a temperature of from 45° to 50° can be maintained with a moist atmosphere. Let them also have as light a situation as possible.

FLOWER GARDEN AND SHRUBBERIES.

Now that the leaves are off the trees let lawns and shrubberies have a thorough cleaning. Examine pillar and trellis Roses, and if the weather is favourable see if the soil wants renewing, or the kinds changing. For choice sorts roomy holes should be made capable of containing three or four barrow loads of well prepared soil. Turfy loam of good quality is the chief thing; to this add a portion of rich rotten manure, and if at hand a little sandy peat or leaf mould.

HARDY FRUIT AND KITCHEN GARDEN.

Trench, dig, and ridge every spare inch of ground whenever the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens, the soil of which is of a clayey nature. If frost occurs, let the manure necessary be wheeled out for the whole of the spring cropping, laying it in heaps either on the spot where it is to be used, or as near as possible to it. What is not required for immediate digging in should be piled in small mounds and soiled over, to prevent loss from evaporation. Never uncover tender vegetables after the breaking up of frost until they have become completely thawed, and even then do not uncover suddenly; leave some light protection on them for a day or two.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.

For the week ending Dec. 3, 1857, as observed at the Horticultural Gardens.

Nov. and Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 27	10	30.020	29.775	47	28	37.5	48	50	N.E.	[illegible]
Satur. 28	11	30.124	30.084	48	32	40.0	48	48½	N.E.	[illegible]
Sunday 29	12	30.102	29.980	47	34	40.5	47½	48	E.	[illegible]
Mon. 30	13	29.894	29.762	43	33	38.0	47	48	E.	[illegible]
Tues. 1	○	29.904	29.793	62	34	48.0	47½	48	S.	[illegible]
Wed. 2	1	30.012	29.941	58	43	50.5	48½	48	S.	[illegible]
Thurs. 3	2	29.751	29.712	56	44	50.0	49	48½	S.	[illegible]
Average		29.972	29.864	51.5	35.4	43.5	47.9	48.4		[illegible]

Nov. 27—Cloudy; clear; frosty at night.
— 28—Cloudy; clear and fine; slight rain.
— 29—Fine; overcast; clear.
— 30—Overcast and cold; clear at night.
Dec. 1—Dense fog; overcast; slight rain.
— 2—Fine; cloudy and mild; clear at night.
— 3—Overcast; cloudy; very mild; showers at night.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,

During the last 31 years, for the ensuing week, ending Dec. 12, 1857.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 6	47.0	35.7	41.3	16	0.30 in.	1	2	1	1	4	3	7	2
Mon. 7	47.3	36.4	41.9	18	0.52	4	2	3	2	6	3	5	1
Tues. 8	46.3	33.8	40.0	18	0.36	2	4	2	1	2	10	5	2
Wed. 9	46.0	36.0	41.0	15	0.31	2	7	2	1	2	11	3	1
Thurs. 10	46.2	34.1	40.1	11	0.33	2	4	2	1	8	7	4	1
Friday 11	45.7	32.6	39.1	8	0.62	—	3	1	4	5	10	3	1
Satur. 12	45.6	33.6	39.6	13	0.44	2	2	2	1	7	10	5	2

The highest temperature during the above period occurred on the 7th, 1856, and the 10th and 11th, 1848—therm. 60 deg.; and the lowest on the 12th, 1855—therm. 13 deg.

Notices to Correspondents.

Castor Oil Plant: *A B.* It is perfectly practicable to grow this and the Tritoma Uvaria in pots as ornamental plants for the conservatory.

Ceylon Convolvulus: *J W L.* It is the Ipomœa bona nox or Moonflower, a plant seldom seen in cultivation though well known to botanists.

Conifers: *W P.* This race does not propagate very readily by layers; but plants so obtained are far better than grafts. We doubt whether twisting the layers will not break them; cutting them half through at all events is preferable. We presume the best season is the month of September if in the open air, or just before the first shoots are made in spring, if in bottom heat.

Diseases: *G P G.* Your Pines are affected precisely in the same way as those of "Ananas" noticed in *Gardeners' Chronicle*, 1857, p. 776. In that case the roots were perfectly healthy and the soil free, therefore the bad condition of the roots and soil in your case will not account for the disease. The range of temperature again was 20° less in the former case, and yet the plants suffered equally; the notion of excessive temperature therefore may also be set aside. There was a little scale in both cases, but quite insufficient to produce extensive mischief. You must then, I think, look to the condition of the atmosphere and see whether there are any draughts in your house or impure air. If the cause is external and discoverable, you may possibly remedy the evil, but if the malady is constitutional your only course is to get fresh plants from some other quarter. In both your case and that of "Ananas" it may be observed there are sunburnt spots on the leaves, altogether distinct from the brown fatal patches. *M J B.*

Evergreens: *Notorious.* Cuttings of Aucubas and Laurels should have been in the ground a month ago; they may however yet be put in with tolerable success. Sow seeds of Sweet Briar in spring.‡

Names of Fruits: *G R C.* 1, Ormskirk Bergamot; 2, Forelle.—*J C.* 1, Cornish Aromatic; 2, Blenheim Pippin; 3, Rymer; 4, probably Beauty of Kent; 6, Forelle; 7, not known, but it is not the Wyken Pippin; 8, Beurré Diel.—*J B* The Black Worcester, a stewing or baking Pear.‖

Names of Plants: *J C.* 1, Carya porcina; 2, Carya obcordata—two kinds of Hickory nut. We never before heard of their fruiting in England. Where do you live? please say.—*J B.* Oncidium Batemannianum.

Oaks: *J L X.* The leaves now sent appear to belong really to Q. sessiliflora; it is, however, difficult to speak positively to withered leaves.

Plans of Gardens: *R Jones.* We cannot interfere in such matters. There is probably some unintentional delay. The person you name has long resided there.

Misc.: *A A.* An ozonometer is an instrument for measuring the amount of ozone in the atmosphere. Mr. Malam thinks it is ozone that has rotted the Potatoes. Unfortunately for that theory this form of matter has existed since the creation, and the Potato disease not *quite* so long.

COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.

Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

The system of studies pursued in the College comprises every branch requisite to prepare youth for the pursuits of Agriculture, Engineering, Mining, Manufactures, and the Arts; for the Naval and Military Services, and for the Universities.

Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 6*l.*—Office, 1, Adelaide Place, London Bridge.

N.B Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
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The Directors beg to inform their Friends and the Public that their Manure for Wheat Sowing is now ready, and may be obtained of any of their authorised Agents.—Price 8*l.* per ton, delivered free to Wharf or Railway in London.

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TO LANDOWNERS.

THE PERMANENT WAY COMPANY having been appointed the sole Licensees for the use of Dr BOUCHERIE's Patent Process for Preserving Timber, beg to inform Landowners and others interested in the use of English Timber that a Pamphlet, with full explanations of this cheap and most effectual process, may be had gratis on application to the undersigned. Landowners having Beech, Elm, Fir, or other Timber fit for Railway Sleepers are requested to communicate particulars of quantity, locality, and prices.

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1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

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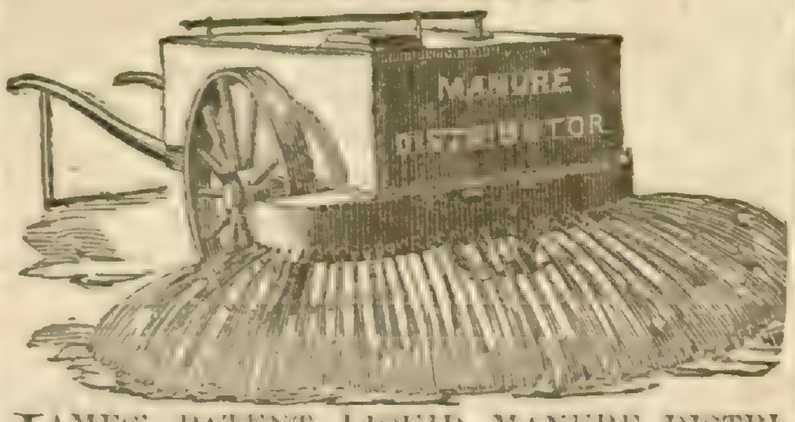

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PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

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These Pumps are fitted with J. W. & SON's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in Pump, with legs, 3*l.* 3*s* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra. The barrel is 27½ in. long, and the legs are 5 ft. high.

1¾ inch Gutta Percha Suction Pipe, 1*s.* 11*d.* per foot.

2 inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 0*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. Engravings sent on application.

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PATENT CAST-IRON PUMPS, fitted with J. W. & SON's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ ,, long	3 ,, 3 ,,		1	14	0
3 ,, ditto	3 ,, 6 ,,		2	8	0
3½ ,, ditto	3 ,, 6 ,,		2	12	0
4 ,, ditto	3 ,, 6 ,,		3	3	0
2½ ,, short, with 15 feet of Lead Pipe attached, ready for fixing			2	14	0
2½ in. long ditto ditto ditto			2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

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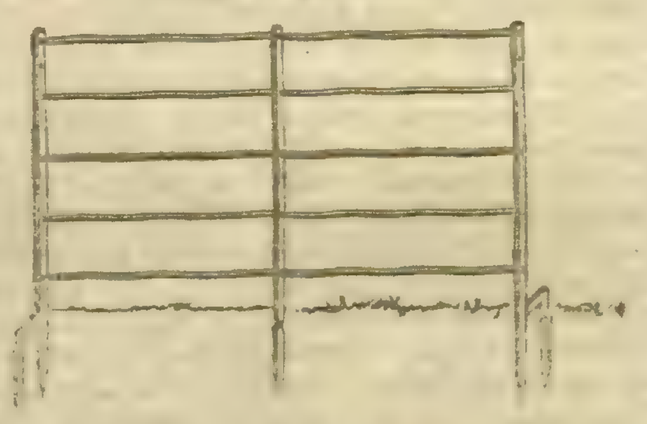

COTTAM AND HALLEN,, of Winsley Street, have invented machinery for making Hurdles, &c.; the bars instead of being pointed by hand in the old fashioned style are nippled down by the Machine, leaving a shoulder so as to more effectually tighten the standards when rivetted. They are made of superior iron only, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both Plain and Ornamental, Conservatories, Hot Water Apparatus and Garden Implements. Illustrated Catalogues free on application to COTTAM & HALLEN, Ironfounders, 2, Winsley Street, Oxford Street, W.

SMITHFIELD CLUB, BAKER STREET. (235 & 236.)

B. PAGE & CO. will exhibit SPECIMEN ROOTS, growth of H. R. H. the Prince Consort, the Government Reformatory, Parkhurst, and numerous first class Agriculturists. MANGELS are particularly fine; one (of six) Bulb, growth of W. Dickinson, Esq. weighing 44lbs.

B. PAGE & Co., Seed Growers and Merchants, Southampton.

SMITHFIELD CLUB SHOW.—STANDS NOS. 137 TO 142.

PETER LAWSON AND SON, the QUEEN'S SEEDSMEN, &c., Edinburgh, and at 27, Great George Street, Westminster.

The Collection of Seeds, Roots, Grain in the Sheaf, and Grasses shown at these Stands, have been grown in various parts of the United Kingdom.

All the Roots exhibited are the produce of ordinary field culture, not a single specimen having been subjected to the forcing or "nursing" process.

Priced Catalogues may be obtained at the Stands, or at 27, Great George Street, Westminster, S.W.—Dec 5.

SMITHFIELD CATTLE SHOW.

W. SKIRVING begs to acquaint his Friends and the Public that he will attend at the ensuing Smithfield Cattle Show on the 8th, 9th, 10th, and 11th December, to exhibit ROOTS of his IMPROVED SWEDE TURNIPS, and take orders for the Seed of it, and all other approved kinds of AGRICULTURAL SEEDS.

W. S. will also exhibit Plants of his new and most interesting Tree the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.—Liverpool, Dec. 5.

SMITHFIELD CLUB, BAKER STREET SHOW.—AT MESSRS. SUTTON'S STAND Nos. 75, 76, 77, will be exhibited some roots of the SUTTON'S CHAMPION SWEDES from the two fields which gained the Prize Cups presented by HIS ROYAL HIGHNESS THE PRINCE CONSORT to the "Royal East Berks," and the "Royal South Bucks" Agricultural Associations. Also roots of SUTTON'S SELECTED MANGEL WURZEL grown by RICHARD BENYON, Esq., and other customers, who took the leading Prizes at the Birmingham Show.—Royal Berkshire Seed Establishment, Reading.

THE BIRMINGHAM ROOT SHOW.

SUTTON'S SELECTED MANGEL WURZEL AND SUTTON'S CHAMPION SWEDES, exhibited by Richard Benyon, Esq.; A. W. Johnson, Esq.; R. Fellowes, Esq.; J. B. Starkey, Esq., and others from Seed supplied by Messrs. SUTTON & SONS, Reading, gained the Silver Cup and other principal Prizes at the Birmingham Shows in 1856 and 1857.

SUTTON & SONS are now delivering new Seeds of these sorts (carriage free), in quantities not less than 20 lbs. at 1*s.* per lb.

Royal Berkshire Seed Establishment, Reading.

THE CHAMPION SWEDE.

MESSRS. SUTTON AND SONS have the honour and gratification of announcing that their "Champion Swede," which had previously gained four Silver Cups presented to the Royal East Berks and the Royal South Bucks Agricultural Societies by H.R.H. the Prince Consort, has gained the same distinguished Prizes at these same shows this year also; besides numerous prizes in other parts of the kingdom. Messrs. SUTTON & SONS have saved some Seed this year of the same sort, which they are now sending out at 1*s* per lb. or 50*s.* per bushel for cash payment.—Address, SUTTON & SONS, Royal Berkshire Seed Establishment, Reading.

THE IMPROVED SYSTEM OF CULTIVATION, by Guideways and Steam Machinery, to complete all the operations of Field Agriculture.—The subscribed Gentlemen interested in Agriculture, having formed themselves into a Committee to enable Mr. HALKETT to state and prove if he can his "asserted large profits, to be obtained by his Patented system of Guideway Steam Agriculture," will hold a MEETING at the Freemasons' Hall, London, on THURSDAY, December 10, 1857. The Chair will be taken at ½ past 7 o'clock in the Evening.

Committee:—J. J. Mechi, Esq., Rear-Admiral Trotter, T. Pollock, Esq., Col. Reynolds, Deputy Assistant Adjutant-General, F. A Helps, Esq., William Anthony Greatorex, Esq., Preston Lumb, Esq., C.E., and Mr. Hargood, Market Gardener, Putney.

Tickets of admission (Free) of Messrs Ridgway, Booksellers, Piccadilly; Mr. Gratton, 86, Chancery Lane; and at the Freemasons' Tavern, with the privilege of a reserved seat which will be kept until 7 o'clock, after which hour the public will be admitted. Doors open at half past six.

GUIDEWAY STEAM AGRICULTURE.

MR. PEPPER will Lecture and Exhibit Implements in Steam Guideway Agriculture at the Royal Polytechnic Institution, Regent Street, daily during the Smithfield Cattle Show.

ROYAL AGRICULTURAL SOCIETY OF ENGLAND.—The December General Meeting of the Society will be held at the Society's House, 12, Hanover Square, on FRIDAY, December 11, at 11 o'clock in the forenoon.

By order of the Council

London, Dec. 11. JAMES HUDSON, Secretary.

PRIZE CATTLE SHOW OF THE SMITHFIELD CLUB.—The Annual Exhibition of PRIZE CATTLE, SEEDS, ROOTS, IMPLEMENTS, &c., commences on TUESDAY morning and closes on FRIDAY evening, December 8, 9, 10, and 11. Bazaar, King Street, and Baker Street. Open from daylight till 9 in the evening. Admittance 1*s.*

The Agricultural Gazette.

SATURDAY, DECEMBER 5, 1857.

MEETINGS FOR THE ENSUING WEEK.

MONDAY,	Dec. 7	Central Farmers' Club	6 P.M.
TUESDAY,	— 8	Cattle Show of the Smithfield Club, Baker Street Bazaar.	
WEDNESDAY,	— 9		
THURSDAY,	— 10		
FRIDAY,	— 11		
WEDNESDAY,	— 9	Agricultural Soc. of England ..	Noon.
		Society of Arts	8 P.M.
FRIDAY,	— 11	Agricultural Society of England (General Meeting)	11 A.M.

THE agricultural proceedings of the ensuing week include (1), a meeting of the Central Farmers' Club at their rooms in the York Hotel, Bridge Street, Blackfriars, Monday, 6 P.M., when a lecture will be given by Mr. NISBET on the Theory of Land Drainage: (2), the Exhibition of the Smithfield Club in the Bazaar, Baker Street, opening on Monday evening and continuing open during the

week: (3), a weekly meeting of the Royal Agricultural Society at their rooms in Hanover Square on Wednesday, at noon—the business to be transacted has not been intimated: (4), a meeting on the same day, 8 P.M., of the Society of Arts, in their rooms, Adelphi, Strand, when Mr. S. SIDNEY gives a lecture on the recent progress in Agricultural Mechanics: (5), the general meeting of the English Agricultural Society, Hanover Square, on Friday, 11 A.M.

NEWS have been received during the week from Captain ORD and the expedition to the Kooria Mooria Islands. The "Credenda" arrived at the island of Jibleea on the 20th of September along with several other vessels; Mr. FLETT, the master, says, in his letter:—"I at once landed with Mr. STANBURY, and with a bag and shovel on each of our shoulders took possession of the largest cave, and am of opinion there will be in it sufficient to load the "Credenda," and another vessel of the same size if here. There is a large quantity of good guano on the island, but it will require a deal of labour, as it is a long distance to carry it. It is impossible to form any accurate estimate of the quantity on this island, but the general opinion is 500,000 tons. It is found good on the plains, and not so damp as in the caves. I have already got several tons on board, and 200 tons ready for shipment, and so soon as Captain ORD returns with labour we shall get on rapidly; he left here for Muscat, on the 4th inst., in an open boat, to engage and bring labourers thence."

The following is an extract of a letter from Captain ORD, addressed to Mr. JOSEPH HINDSON, of Liverpool:—

"*Muscat.*—I left the islands in an open boat on the 4th inst. and reached here on the 9th, with the view of procuring labour, for the want of which we were at a stand. I shall leave for the islands with about 150 strong men, provisions, and some cattle, in a native craft I have chartered for the purpose, and hope to reach the islands in 10 days hence, by which time I hope the natives will have come from Marbat, when we shall commence shipping the guano on an extensive scale. I left at the islands her Majesty's ship Cordelia, the merchant ships Virginia, Paxton, Saxon Queen, Oceana, Credenda, and others. You may be of good cheer, our prospects are most promising; there are not less than 500,000 tons of good guano, equal to the Upper Peruvian, on the island of Jibleea alone."

ROYAL AGRICULTURAL COLLEGE.

SESSIONAL EXAMINATION, JUNE.

PRACTICAL AGRICULTURE.—*Continued.*

Question 3.—Explain the principles and use of the liquid manure drill.

The liquid manure drill is an implement which deposits the manure in a liquid condition at the same time as the seed. It is drawn by horses in a similar manner to the ordinary manure drill. It differs in having a tank in which the liquid is confined, and from which it is poured out by revolving cups, and running down the funnel into the soil is deposited immediately before the seed, which enters the soil in the same way as in the ordinary Turnip drill. The advantage of this machine is best seen on light land, where, from want of moisture, the plant is liable to suffer from the drought. In such cases this method of planting the root crop will almost invariably insure a plant. It gives them, in fact, a fair start. They come up early, get the leaves quickly developed, and in a great measure prevent the ravages of the fly. On heavy clay land Dr. Voelcker estimates liquid manure but lightly. When such land bakes up in summer fissures are formed, and by these the liquid manure finds its way into the drains and is lost. Under ordinary circumstances however the germination of the seed is so hastened by the use of this drill that it rapidly grows and soon gets sufficiently strong to send its fibres into the soil, and its leaves into the air, in search of food, and makes such rapid progress that the Turnip-fly cannot do much mischief; for when the rough leaves, which are the true absorbing ones, appear, although the flea may still feed, growth is so rapid that its ravages are unobserved. The latest improvement in the machine consists in the seed and manure being deposited at certain distances, say 9 inches apart, so that the roots could be conveniently hoed out to 18 inches apart; this would be a safer plan than putting the seed at 18 inches. The economy of this plan is very evident, seed, manure, and water being saved. This is a great consideration on hilly farms where the cartage costs a great deal. The liquid manure drill will only drill about 4 acres a day, but the slight disadvantage in this respect is as nothing compared to the advantage of ensuring a plant on light land.

Question 4.—What is the object of a rotation of crops? Describe a Three, Four, and Five field course, and state to what description of soil each is respectively adapted. Give examples from the College Farm.

A number of crops, to which there is a limit, varying in different counties, follow each other, and this is called a rotation: they are so arranged as to exhaust the land of different materials. For example let us take the four-course:—1st, Turnips; these are great air feeders, and when consumed on the ground unquestionably leave the soil richer in organic matter than they find it. 2d, Barley delights in a rich soil, which it gets in this part of the rotation from the droppings of the sheep and the manure unconsumed by the Turnips. Clover seeds are sown with this crop for the third year, and for the fourth year we have Wheat, which requires a firmer soil than Barley and a more consolidated seed bed. The roots of the Clover are the best possible food for Wheat; thus we have half the farm in food for cattle and half in corn. The three-course rotation consists of two corn and a Pulse crop, followed by bare fallow, then Wheat, Beans, Wheat, and fallow; this system is best adapted for the better description of clay soils where there is no fear of exhausting. The only thing to consider is how to get at the wealth therein; the above system would not do at all on sandy soils. The five-field course is an extension of the four-field. Seeds remain down two years. By this system you have less land to manure every year than you would have in a four-course rotation, and can keep more sheep stock. Less money is required for manual and horse labour, and rather more for stock. The five-field system would suit Nos. 11, 28, 27, 22 and 25, as upon these thin soils the four-course is rather too severe. Wheat would come too often. Nos. 30 and 31, 29, 19, and 4 are adapted for the three-field system, consisting of clay with a large proportion of lime, and being well adapted for Beans and Wheat. Since the introduction of root crops, English agriculture has been entirely altered. By their use we can keep the majority of soils constantly employed. Successful farming not only depends upon the skill of the cultivator, but on the great diversity of materials constituting the soil. Owing to this diversity in chemical and mechanical character, we require an equal variety in our mode of culture and in the crops we employ. Some lands, as the strongest clays, are particularly adapted for a three-course rotation, consisting of Wheat, Beans, Wheat, and fallow—this latter is the important feature in all clay land cultivation—the soil is allowed to remain exposed to the action of the atmosphere during a whole year, chemical changes take place, amongst others the absorption of nitrogen from the air, equal, it is calculated, to two cwt. of guano per acre. Mechanical improvement goes on at the same time, and the soil crumbles down into a fine condition.

The four-course rotation as carried out on the Royal Agricultural College farm consists of roots, Spring corn, Clover, and Wheat. This is a system applicable to good land of a moderately light character. It is often difficult to get Clover so often as this, and when necessary it must be replaced by some other forage crop. The advantages of this rotation are as follows:—1st. It is the cleanest, the land has never time to get foul. 2d. The manure applied to the roots exercises a beneficial influence on the succeeding crops. 3d. Barley and seeds, which like a rich, well pulverised, and perfectly clean soil, find these conditions after the roots, which are the cleaning crop of the rotation. 4th. The seeds afford the best possible mechanical as well as chemical preparation for Wheat, which requires a consolidated seed bed as well as the organic matter furnished by the decaying roots of the Clover.

A four-course rotation is usually obtained by leaving the seeds for two years and grazing them the second. This no doubt has its advantages and is employed successfully in Cumberland, where, for some reason or other, weeds are not so plentiful as upon our limestones. A five-course rotation allows the farmer to keep more stock than a four-course, and he has always a bite in spring on the two-year old seeds. On the Royal Agricultural College farm, No. 1 affords a good example of a five-course shift, as the Clover remained two years before being ploughed up for Wheat.

To the English farmer a rotation of crops is essential, indeed he is forced into it on account of the comparative dearness of land and cheapness of labour; in the colonies, where the circumstances are just reversed, no rotation is adhered to, the land is cropped until exhausted, and then abandoned. The object of a rotation is to so arrange the succession of crops as to obtain the greatest number of corn crops with the least exhaustion to the land. Something should always be growing; there are some crops which, when well managed, actually leave the land in better condition than they found it.

About the oldest known rotation was two corn crops and a fallow, but since the introduction of Turnip cultivation, a great revolution in the rotation of crops has taken place. The four-course, or some modification, is best adapted for tolerably light land of medium character, capable of being sheep fed. The Turnips are well prepared for, the land ploughed deep in autumn, well cleaned in spring, and manured. The Turnips are sown with artificials, eaten off with sheep in autumn and winter, shallow ploughed in early spring, Barley drilled, seeds sown; the land is cleaned by the Turnip cultivation, the Barley harvested, and seeds left till next summer, when they are mown and fed, or mown twice, ploughed up in September, and Wheat drilled. This rotation has been followed in Nos. 6 and 10; 1854, Swedes and Turnips; 1855, Barley and seeds; 1856, seeds mown and fed; 1857, Wheat. The five-field rotation is merely an extension of the four-course by allowing the Clover to remain down for two years. This is best adapted to those soils which are not good corn producers, but yet are adapted for Clover. Fields Nos. 11 and 22 on the Royal Agricultural College farm would do well under this cropping.

On clay lands totally different systems are generally advisable; the land being incapable of feeding off roots is cleaned by the occasional introduction of the bare fallow, and being adapted to Wheat we find this corn crop repeated very frequently.

Home Correspondence.

Masters and Men.—In Scotland some benevolent farmers evince an anxiety for the welfare of their labourers in the following manner. Should a hind's cow die, the farmer sometimes lends the hind money to buy another, the hind redeeming himself as the family grow up by the children working on the farm; their first wages being from fourpence per day and upwards, till they are able to be "their father's bondager." But on the other hand, owing to the hinds who have, say five children, depending on them for support, and their wages being inadequate to the demands of such a family, many a hind is in a state of serfdom, in the following manner. Should a farmer wish his men to work longer hours than he can compel them by law, an independent hind refuses to do so. The farmer falls back on the hind who is tied in a sense to the farm by debt. The several positions and circumstances of hinds' families are so widely different that anything like organisation for redress is almost impossible, owing to so many old men being afraid to throw themselves out of employment, or young men with large helpless families, who were they to throw themselves out of employment could not earn a livelihood at other employment. Hence the continued low rate of wages among farm servants. Some farmers, in the event of a servant's death, are so kind as to pay the widow her late husband's wages in full for the twelvemonth he was engaged, the farmer having to pay for a man in the deceased husband's stead besides. Previous to such benevolent acts, a kind of sympathy must exist between master and servant. There is a great difference of hinds' wages owing to the following causes. Some farmers make every effort to secure the hind an abundant crop of Potatoes; others do as little as possible. During summer some farmers set apart the best Grass field for the hind's cows; others a field which is closely eaten down by sheep. During winter some farmers allow the cows plenty of Turnips and good fodder and turn the cows in spring out to a Clover field; others allow little else than straw. Hence the farm servants upon one farm may have the means of procuring the necessaries of life, and even luxuries, while the servants on a neighbouring farm may be almost at the starving point. Owing to roast beef being one of the staple articles of food in England, some infer that the English labourer is better fed than the Scotch labourer. Since 12*s.* per week is the average rate of wages in England, I cannot see why the Englishman is better fed. I have had only one opportunity of seeing how an English labourer lived, by having to call at his door one day, and being asked into the house I was surprised to see nothing else than a loaf of bread, hog's lard, and a jug containing some cider on the table. A Scotch hind who has no animal food for dinner generally has plenty of sweet milk, butter, and home made cheese. The number of gentlemen and physicians who make their children sup off porridge in the morning may convince any Englishman that a Scotch farm servant lives on the most nutritious kinds of food. Any Englishman who reads an English provincial newspaper about Christmas may learn how the poor rustic Englishman enjoys his roast beef and plum pudding by such paragraphs as the following:—Such and such a gentleman made such a butcher give so many families 4 lbs. of beef; the grocer, the articles for plum pudding, &c. In Scotland, the spirit of the rustic is this—"Give me such wages that I may give you a hard day's work, also that I may be enabled to keep my aged parents from becoming paupers, also that I may have an opportunity through persevering industry to act as a free citizen and make provision for old age." I could name a gentleman, one with an income of 80,000*l.* per annum, who gave his home farm labourers 15*s.* per week, but being told—"Mr. ——, you are causing a spirit of discontent among our labourers by your giving such large wages," he reduced his wages to 12*s.*, but being a benevolent sort of a man, gave his men an equivalent for the reduction in various presents. Does such a practice not help to fill "unions?" The money that supports these would soon, were it paid out for labour performed, put an end to the way an English gentleman maintains his popularity or power. The Duke of Buccleugh has erected a superior class of four roomed houses on a good many of his farms, but a good many gentlemen with equally as high sounding titles are contenting themselves to let hinds still live in—and notwithstanding the improvements of the age, and general diffusion of knowledge are still persisting in patching up—rickety old houses, with only one apartment, and one or two joists across the part of the house where the family sit as a room; unless the occupiers have recourse to such a division as a piece of shirting cotton, an old bed, or some other material. Will your readers believe that some are even going to the expense of putting on new doors and new joists and a fresh coat of thatch on the roofs of these old cottages? I may also state there is seldom either a sky-light or ventilator in the roof. At the renewal of a lease or a new tenant entering on a farm, the tenant and factor not agreeing about the carting of the building materials is often the cause why such houses are not pulled down. The degrading tendency of husband, wife, and family and a female all having to eat and sleep in one room may be more easily imagined than described. Fancy a man having to undress himself in such a place, the "bond-

ager" either sitting at the fireside or going about the so-called room. The house, which is an oblong square, is divided into apartments, one being eating, sitting and sleeping-room; the other is composed of the following domestic requirements—coal-hole, likewise dairy, larder, pantry, scullery, a place for holding Potatoes and meal and other useful articles, such as a bed for some of the children and "maiden." If low wages and such accommodation were paid and continued by illiterate farmers and landlords only who were never half a mile from home it might not excite surprise, but for gentlemen who go to such expense in erecting stables and dog-kennels to be the proprietors of the farms upon which such homes are to be found is rather bad. Suffice it to say, the head of a family, in whatever sphere he may move, cannot be said to enjoy anything like domestic comfort, unless he possess the means of procuring the necessaries of life and has a few leisure hours to spend amongst his family at regular intervals. Hence the English labourer must receive a higher rate of wages, and his hours of labour be much curtailed before much is said about him, either in a domestic or intellectual point of view, at public agricultural meetings. *A Scotch Rustic.*

Mangel Seed.—In answer to your correspondent I beg to state that the growing Mangel Wurzel seed requires great attention and skill. My plan is to select the roots whilst growing, before the main portion of the crop is pulled, regard being especially had to the form and colour of the bulb, the crown, and the root; the former being compact and well placed, without neck, and the latter a clean single tap root. These points of excellence it would be impossible to obtain by planting single roots indiscriminately—a system resorted to only by mere seed growers, who take no interest in the matter beyond the amount that can be realised. With plants like those last referred to nearly a double quantity of seed can be produced, and at less than half the expense than from well selected roots; and even if the seed should be alternately grown from roots and plants, deterioration will follow to an equal extent as would have taken place if the owner of a flock alternately replenished by reserving every lamb for breeding that had been produced. I would caution every grower of seed never to depend upon any other process than by yearly selecting the very best roots for growing his seed. The difference of cost in cultivating an acre in this way will be very great, requiring from 15 to 20 tons of roots of the best description in the one instance, and about four tons of plants in the other, the plants also producing the largest quantity of seed. We need not therefore be surprised at an indifferent stock of seed being retailed so cheaply, the majority of the seed in point of quantity being thus grown for the markets, and generally distinguishable by the large amount of fibrous roots, unequally formed bulbs, and thick crowns with a large quantity of leaves on the crop. The same process pursued by growers of Mangel seed upon an extensive scale is practised with the Swede and common Turnips. In place of fine selected bulbs mere plants are substituted, so deficient in size that their quality cannot be distinguished, and are in effect worse than the crop would have produced if no selection had taken place. This root has a tendency to degenerate more than any other, and requires great care in the selection in the first instance as regards the form of the roots, as in the colour of the blossoms afterwards, as those of a deep orange colour should always be eradicated. Farmers who do not grow their own seeds are too careless in their purchase of it, frequently being tempted by a low price, in place of good quality, a few shillings in the cost per acre being met with a loss of as many pounds in the produce. *Robt. Baker, Writtle, Essex.*

Propagation of Weeds.—I am not sure whether I ever gave you the following case, showing the manner in which the seed of Charlock *(Sinapis arvensis)* may preserve its vitality. Some years ago I not only cleared out but deepened a pond at the corner of a pasture, into which one or two ditches of adjoining pieces of arable discharged the drainage, The yellow clay from below the mud was laid in a heap beside the pond, the bottom upwards, and in the ensuing summer was covered with a crop of Charlock as thick as Mustard sown for salad, although the lands adjoining had been kept clean for years, and only now and then showed a plant of Charlock. *J. G.*

Finger and Toes.—On the 27th of last June I sowed 6 acres of land with common Turnips. The whole piece is of very uniform quality, a light sandy soil in a very exhausted condition, though thoroughly tilled and cleaned except from weed seeds, which it was very full of. Well, on 4 acres I sowed superphosphate and a sprinkling of guano broadcast, and harrowed it in with the Turnip seed, which was drilled 18 inches apart in the rows; and on the other 2 acres I ploughed in a good dressing of fresh horse dung, and drilled the seed as on the other part, and very quickly the seed came up over the whole 6 acres and grew remarkably well, that on the dunged 2 acres taking the lead till the bulbs were as large as an Orange, when there was a sudden check to the crop over the whole piece, and the cause was soon ascertained to be that injurious disease called by us finger and toes or club; and to make bad worse, after standing still a considerable time from this disease, during which a great many plants had died off, a most desperate attack was made by the Black Palmer worm, till there was not a whole leaf left to be seen, and the crop at any distance looked more like a crop of weeds than a crop of Turnips. Nevertheless, after going through this severe trial, those plants that were left on the 4 acres where artificial manure was sown soon began to throw out fresh leaves, the skeletons dropping off, and to grow most vigorously, and there is now on that part a very good crop; but I observe the crop on the dunged 2 acres never rallied, but very shortly disappeared altogether, so that there was hardly a vestige left. Can it be that the fresh dung has a tendency to generate the maggot or grub which causes the grub disease, or did it act in some other way injurious to the crop? It would appear that the dung caused the failure of the crop. Perhaps some of your correspondents will be kind enough to enlighten me on these points. I may add that the same mode of dunging answered remarkably well for Swedes; to be sure they were sowed a little earlier. *James Alexander.*

Societies.

MIDLAND COUNTIES CATTLE SHOW AT BIRMINGHAM.—Bingley Hall has during the past week been crowded by many thousands daily. A show of live stock, in many of its classes of unprecedented quality, has been gathered by the announcement of a liberal prize sheet. Upwards of 1200*l.* has been given in rewards of merit to breeders and exhibitors of cattle, sheep, and pigs, roots and poultry. And the offer of so large a sum has proved sufficiently attractive. Never has there been so fine a show in the Hereford classes of cattle, and probably never so fine a show in the pig classes, especially those of large breeds. Of Poultry, too, the show, of usual number and extent, is of unusual merit; and probably so remarkable a show of roots was never before seen.

The classes of Hereford cattle were generally better fed, riper, fatter animals than those of the short-horn breed. The Gold Medal for the best ox in the yard is carried off by a Hereford steer 4½ years old, bred by Mr. Shaw, of Bawcott, Salop, and fed by Mr. Shaw, of Hornsbury Hill, Northampton—a remarkably large ox in all its dimensions, and evenly covered with first-rate quality of flesh. It girths 8 feet 8 inches, and is of the unusual length of 5 feet 8 inches. Its carcase weight probably exceeds 115 imperial stone. The second prize in this class is given to another very heavy steer not so evenly covered, nor so straight in the back, nor of such fine quality—girthing 8 feet 9 inches, and 5 feet 3 inches long—weighing probably some 6 or 7 stone less. In the younger class of oxen Mr. Naylor carries off the first prize for an animal of beautifully fine quality, only 2 years and 3 months old, and yet girthing 8 feet 3 inches, and 5 feet 3 inches long—weighing probably 98 stones, an extraordinary weight at such an age.

There is a good show of fat Hereford cows and heifers. But the gold medal for the best animal in these classes in the yard is most justly given to Lieut.-Colonel Towneley's extraordinary 4-year-old short-horn cow—she girths 8 feet 8 inches, and is 5 feet 8 inches long. These measurements indicate a weight of 117 or 118 imperial stones. She is upwards of 2 feet wide between the hook bones, and is extraordinarily thickly covered with flesh and fat, offering probably as fine a model of a perfectly fatted animal as was ever seen. The short-horn oxen generally are not so perfectly fatted as the Herefords—they stand higher, and probably as a general rule weigh heavier at the same age—but they are not so thoroughly ripe for the butcher.

There is a small show of Devon cattle of good quality. There are also some six or eight long-horned cattle with their old-fashioned, quaint-looking heads and outlines. Their weights and ages indicate the great superiority of the improved breeds. Among them is a cow shown by Mr. Gibbs, of Henley-in-Arden, 13 years old, which has had 10 calves, and was milked all through the summer—no doubt the most profitable animal in the yard whatever the faults of the breed to which it belongs.

Among the cross bred stock are some interesting specimens of crosses between Devons and Highlanders shown by the Duke of Beaufort. There is a very meagre show of the West Highland breed.

The sheep pens are more numerous and better filled than we have ever seen in Bingley Hall. In Long-wools Mrs. West, of Bletchington, maintains a reputation acquired at Poissy in the spring. Lord Walsingham is as usual very successful in South Downs, and of other Downs and cross bred sheep there is a very excellent show.

The pens of breeding pigs are remarkably good. For specimens of length, symmetry, and quality pen 230, shown by Mr. J. Smith, Henley-in-Arden, was of extraordinary merit. Mr. Sadler, near Cricklade, shows a number of pens of a similar breed (black Berkshire). In contrast with these as to colour, but rivalling and perhaps exceeding them in quality, are a very numerous show of the small white Cumberland breed. We must refer to a list of prizes for the names of successful exhibitors.

There is a very interesting show of roots. A new variety, the long White Mangel Wurzel, selected by Messrs. Sutton, bears the palm away for weight. A specimen shown by Mr. Benyon, of Reading, exceeds 40 lbs. in weight. There can be no doubt of the superiority of Mangel Wurzel over the Swede for weight and value as cattle food. Long Reds, 2 feet long and more; Orange Globes, 3 feet round, were common, and probably the average weight of the Mangels shown would be double the average weight of the Turnips.

It only remains to refer to the poultry show in a single paragraph. There was an unprecedentedly numerous show of Cochins and Dorkings, still the favourite breeds. Game fowls too were present in great force. The elegant Hamburgh and Poland fowls, in all their varieties, were also a large and numerous exhibition.

We have not room for the awards in the several classes of poultry shown. It must suffice to say that the silver cups were awarded as follows:—For golden pencilled Hamburghs, Mr. R. R. Clayton, Hedgerley Park, Slough; for golden spangled Hamburghs, Mr. J. B. Chune, Coalbrookdale; for silver pencilled Hamburghs, Mr. E. T. Archer, Malvern; and for silver spangled Hamburghs, to Mr. Richard Teebay, Fulwood, Preston; for Polish fowls, Mr. Thomas Battye, Holmbridge, Huddersfield, and Mr. J. F. Greenall, Crappenhall, Warrington. For Spanish, Mr. J. K. Fowler, Prebendal Farm, Aylesbury; for Dorkings, Captain W. Hornby, R.N., Knowsley Cottage, Prescot, Lancashire; for Cochin Chinas, Mrs. Henry Tookes, Whitechurch, Blanford, Dorsetshire; for Bantams, the Rev. G. S. Master, Welsh Hampton Parsonage, Ellesmere, Shropshire, and Mr. C. R. Colville, M.P., Lullington, Burton-upon-Trent. The silver cups for pigeons were awarded to Mr. E. A. Lingard, Birmingham, and to Mr. Harrison Weir, Peckham, Surrey.

The following is the award of the judges:—

FAT CATTLE.

Class I. Hereford Oxen or Steers.—10*l.*, with extra prize of 20*l.*, and gold medal, Mr. John Shaw, Hunsbury Hill, Northampton; 5*l.*, Mr. William Heath, Ludham Hall, Norwich, Norfolk. The class generally commended.

Class II. Hereford Steers.—10*l.*, John Naylor, Esq., Leighton Hall, Welshpool, Montgomeryshire; 5*l.*, Mr. William Child, Wigmore Grange, Leintwardine, Herefordshire.

Class III. 10*l.*, Mr. Philip Turner, The Leen, Pembridge, Herefordshire; 5*l.*, Mr. Edward Thomas, Colebatch, near Bishop's Castle, Shropshire.

Class IV. Hereford Heifers.—10*l.*, Mr. Henry Higgins, Woolaston Grange, near Lydney, Gloucestershire; 5*l.*, Mr. Samuel Walker Urwick, Leinthall Starks, Ludlow.

Class V. Short-horn Oxen or Steers.—10*l.*, Mr. William Eyton, Gonsal, near Shrewsbury; 5*l.*, Mr. John Robinson, Leckby Palace, Topcliffe, Thirsk.

Class VI. Short horn Steers.—10*l.*, Mr. Richard Stratton, Broad Hinton, near Swindon; 5*l.*, the Right Hon. the Earl Spencer, K.G., Althorp.

Class VII. Short-horn Cows.—10*l.*, with extra prize, 20*l.*, and gold medal, Lieut.-Colonel Charles Towneley, Park, Burnley, Lancashire; 5*l.*, Mr. Robert Swinnerton, Weddington, near Nuneaton.

Class VIII. Short-horn Heifers.—10*l.*, the Right Honourable Lord Feversham, Duncombe Park, Helmsley, Yorkshire; 5*l.*, Mr. Robert Gell, Grimston Hill, near York.

Class IX. Devon Oxen or Steers.—10*l.*, with 20*l.* extra prize, and Lord Ward's prize of 25*l.*, the Right Honourable the Earl of Leicester, Holkham Hall, Norfolk; 5*l.*, the Right Honourable the Earl of Leicester, Holkham.

Class X. Devon Steers.—10*l.*, the Right Honourable the Earl of Aylesford, Packington; 5*l.*, his Royal Highness the Prince Consort, Windsor Castle.

Class XI. Devon Cows.—10*l.*, Mr. John C. Halse, Molland, Devonshire; 5*l.*, Mr. William Heath, Ludham Hall, Norwich.

Class XII. Devon Heifers.—10*l.*, his Royal Highness the Prince Consort; 5*l.*, Mr. Thomas White Fouracre, Durston, near Taunton.

Class XIII. Long-horn Oxen or Steers.—5*l.*, Mr. R. H. Chapman, Upton, near Nuneaton.

Class XIV. Long-horn Cows or Heifers.—10*l.*, Mr. Joseph Holland Burbery, Kenilworth, Warwickshire; 5*l.*, Mr. W. T. Cox, Spondon Hall, near Derby.

FOR OTHER PURE BREEDS AND CROSS-BRED ANIMALS.

Class XV. Fat Oxen or Steers.—10*l.*, Mr. Richard Thomas, Ryton, near Dorrington, Shropshire; 5*l.*, Lieutenant-Colonel Towneley, Towneley Park, Burnley, Lancashire.

Class XVI. Fat Cows.—10*l.*, Mr. Robert Swinnerton, Weddington, Nuneaton; 5*l.*, Mr. Richard Machin, Papplewick, Nottinghamshire.

Class XVII. Fat Heifers.—10*l.*, his Grace the Duke of Beaufort, Badminton; 5*l.*, his Grace the Duke of Beaufort, Badminton.

Class XVIII. Scotch Oxen or Steers.—10*l.*, Ralph Sneyd, Esq., Keel Hall, Staffordshire; 5*l.*, Ralph Sneyd, Esq., Keel Hall.

Class XIX. Welsh Oxen or Steers.—10*l.*, M. William Heath, Ludham Hall, Norwich, Norfolk; 5*l.*, Mr. Richard Doig, Surrey Farm, Long Buckby, Daventry.

EXTRA CLASSES.

(For Animals not qualified to compete in any of the preceding Classes.)

Class XX. Oxen or Steers.—5*l.*, the Right Honourable Viscount Dillon, Ditchley Park, near Enstone, Oxfordshire.

Class XXI. Cows or Heifers.—5*l.*, the Right Honourable the Earl of Lichfield, Shugborough.

SHEEP.

Class XXII. Leicester.—Wethers 22 months old.—10*l.*, extra prize 10*l.*, George Saville Foljambe, Esq., Osberton Hall, Worksop, Nottinghamshire; 5*l.*, George Saville Foljambe, Esq., Osberton Hall.

Class XXIV. Long Woolled Sheep, not Leicesters.—Wethers 22 months old.—10*l.*, Mrs. West, Green Hill Farm, Bletchington, Oxfordshire; 5*l.*, Mrs. West.

Class XXVI. South and other Down Sheep.—Wethers 22 months old.—10*l.*, the Right Honourable Lord Walsingham, Merton Hall, Thetford, Norfolk; 5*l.*, the Right Honourable Lord Walsingham.

Class XXVII. South and other Down Sheep.—Wethers 34 months old.—10*l.*, extra prize, 10*l.*, the Right Honourable Lord Walsingham; 5*l.*, Sir Robert George Throckmorton, Bart., Buckland, near Faringdon, Berkshire.

Class XXVIII. Shropshire and other Down Sheep.—Wethers 22 months old.—10*l.*, Mr. Henry Smith, jun., Sutton Maddock, Shiffnal, Shropshire; 5*l.*, J. B. Green, Esq., Marlow, Leintwardine, Ludlow.

Class XXIX. Shropshire and other Down Sheep.—Wethers 34 months old.—10*l.*, W. O. Foster, Esq., M.P., Kinver Hall Farm, Stourbridge, Worcestshire; 5*l.*, T. C. Whitmore, Esq., Apley Park, Bridgnorth.

Class XXX. Cross-bred.—Wethers under 22 months old.—10*l.*, Mr. Adam Corrie Keep, Woolaston, Wellingborough; 5*l.*, the Right Hon. the Earl of Leicester, Holkham Hall, Norfolk.

Class XXXI. Fat Wethers under 34 months old.—10*l.*, Mr. A. C. Keep, Wollaston, Wellingborough; 5*l.*, Mr. A. C. Keep, Wollaston, Wellingborough.

PIGS.

Class XXXII. Fat Pigs of one litter, not exceeding 10 months old.—10*l.*, T. R. B. Cartwright, Esq., Aynho, near Brackley, Northamptonshire; 5*l.*, Henry William Dashwood, Esq., Dunstew, near Woodstock, Oxfordshire.

Class XXXIII. Fat Pigs of one litter, not exceeding 15 months old.—10*l.*, Richard Benyon, Esq., Englefield House, Reading 5*l.*, the Right Hon. the Countess of Chesterfield, Bretby Hall near Burton-upon-Trent.

Class XXXIV. Fat Pig.—Exceeding 15 months old.—6*l.*, Mr.

George Mangles, Givendale, Ripon, Yorkshire; 3*l.*, Mr. James John Whiteman, Brownsover, Warwickshire.

Class XXXV. Pigs of a large breed.—Five Pigs of one litter, exceeding 3 and not exceeding 6 months old.—10*l.*, Mr. Joseph Smith, Henley-in-Arden, Warwickshire; 5*l.*, Sir F. L. H. Goodricke, Bart., Studley Castle. Silver medals were awarded in this remarkable class to Mr. William Hewer, Sevenhampton, Highworth; Mr. T. B. Wright, Great Barr, Staffordshire; Edward H. France, Esq., Ham Hill, near Worcester; Mr. Walter John Breach Scott, Queen's Hotel, Birmingham; Mr. Henry Howell, The Firs, Green Lanes, Birmingham.

Class XXXVI.—Pigs of a small breed.—Five Pigs of one litter, exceeding 3, and not exceeding 6 months old.—10*l.*, his Royal Highness the Prince Consort; 5*l.*, Mr. Samuel Wiley, Brandsby, near York; and silver medals to the Hon. Colonel Pennant, Penrhyn Castle, Bangor; Mr. Robert Harrison Watson, Bolton Park, Wigton; Mr. Samuel Wiley, Brandsby, near York; Mr. George Mangles, Givendale, near Ripon; Mr. George Garne, Churchill Heath, Chipping Norton.

PRIZES FOR ROOTS.

Class I.—A silver cup, or other article of plate, of the value of ten guineas, is offered by his Worship the Mayor of Birmingham (John Ratcliff, Esq.), for the best collection of the four following varieties, namely:—Long Mangel Wurzel, Globe Mangel Wurzel, Swedes, and Carrots; six roots of each to be shown.—The silver cup, Richard Benyon, Esq., Englefield House, Reading, Berkshire.

Class II.—Long Mangel Wurzel.—2*l.* 2*s.*, Mr. Charles Pratt, Stratford-upon-Avon; 1*l.* 1*s.*, Mr. A. H. Johnson, Manor House, Gunnersbury, Ealing, Middlesex.

Class III.—Globe Mangel Wurzel.—2*l.* 2*s.*, Mr. J. S. Horsburgh, Bradfield, Reading; 1*l.* 1*s.*, Richard Benyon, Esq., Englefield House, Reading.

Class IV.—Swedes of any variety.—2*l.* 2*s.*, Mr. William Fletcher, Radmanthwaite, Mansfield; 1*l.* 1*s.*, Mr. Robert Harrison Watson, Bolton Park, Wigton, Cumberland.

Class V.—Common Turnips.—2*l.* 2*s.*, Mr. George Mangles, Givendale, Ripon, Yorkshire; 1*l.* 1*s.*, Mr. Samuel Druce, jun., Abbey Farm, Eynsham, near Oxford.

Class VI. Carrots of any variety.—2*l.* 2*s.*, George Saville Foljambe, Esq., Osberton Hall, Worksop, Nottinghamshire; 1*l.* 1*s.*, Mr. George McCann, Graham House, Malvern.

Class VII. Ox Cabbage.—2*l.* 2*s.*, Mr. Samuel Robinson, Shaw House, Melbourne; 1*l.* 1*s.*, Robert Fellowes, Esq., Bitteswell Hall, Lutterworth.

Class VIII. Potatoes.—2*l.* 2*s.*, the Right Honourable Lord Leigh, Stoneleigh Abbey, Kenilworth; 1*l.* 1*s.*, Mr. James Howard, Tarleton, Chorley, Lancashire.

JUDGES OF CATTLE.—Mr. John Tanner Davy, Ashtown House, South Molton, Devonshire; Mr. Charles Stokes, Kingston, near Kegworth, Derbyshire; Mr. Samuel Bloxsidge, Warwick.

JUDGES OF SHEEP AND PIGS.—Mr. John Moon, Hurstbourne Priors, near Whitchurch, Hampshire; Mr. Edward Gough, Gravel Hill, near Shrewsbury; Mr. Joseph Holland Burbery, Kenilworth, Warwickshire.

JUDGE OF ROOTS.—Mr. J. Mathews, Edgbaston House, Birmingham.

REFEREE FOR THE AGES OF PIGS.—Professor Simonds, Royal Veterinary College, London.

VETERINARY INSPECTOR AND GENERAL REFEREE.—Mr. R. L. Hunt, Cannon Street, Birmingham.

Reviews.

Observations, Physical and Agricultural, on the Vibrio of Wheat. By Dr. C. Davaine. Paris, 1857.*

The author of this excellent treatise is known in the scientific world more especially from his researches on the generation of oysters, on the general or partial paralysis of the two nerves of the seventh pair, both of which memoirs were crowned by the Institute of France, and for a series of observations on Hydatids, and the several stages of their development. The present memoir, which has likewise received the especial approval of the French Academy, presents itself therefore to the notice of the scientific cultivator with peculiar sanctions, and will be found well worth a perusal.

It would of course be far beyond the scope of our Journal to enter into any anatomical details of the structure of the little animal which produces one of the most formidable diseases to which Wheat is subject, though happily confined to certain districts. In these the diseased grain forms a considerable per-centage. In Suffolk, for instance, Professor Henslow reports that it sometimes constitutes one-eighth of the tail corn. It will not, however, be out of place to state some of the conclusions at which the author has arrived, or to give at length some of those parts of the memoir which are most interesting to the cultivator, for though there are several excellent notices and memoirs on the subject by British authors, there is none which can pretend to have gone as deeply into the matter as that before us.

If we examine a spike of corn infected with Vibrio, when it has arrived at maturity, we find a certain number of grains, and frequently all the grains of the spike extremely deformed. These are small, black, and rounded, consisting of a thick, hard shell, whose cavity is filled with a white powder. This powder contains no trace of fecula, but is exclusively composed of microscopic thread-shaped particles, which are in fact little, dry, rigid worms. When immersed in water they are at first agitated by hygroscopic motions, which, however, soon cease. If the Wheat is fresh gathered, they soon exhibit motions of a different kind, which are various, energetic, and distinctly vital; if the Wheat is old, it is only after some hours, or even days, that they resume vital motion. The number in a single grain is almost infinite. They exhibit no generative organs; they are all similar in form, size, and organisation, which latter is very simple, and altogether analogous to that which we see in the eggs of viviparous hematoids.

It is in this condition that the Earcockle has attracted the attention of the majority of observers. If, however, the examination is made some time before the maturity of the corn, we meet amongst the general mass with individuals, varying from two to 12 in number, of a larger size, provided some with male, others with female organs of generation, the parents of the general mass. From whence, then, do these individuals proceed which give birth to the others? They cannot be deposited like so many larvæ by means of a puncture in the walls, nor, as has been supposed by many naturalists, can they be carried into the grain by the vessels with the sap, nor again can they originate spontaneously. It is these questions which our author endeavours to solve, and in their solution he was naturally led to hope that he might be able to find a fitting remedy.

Omitting, therefore, the historical part of the subject, which is less suited to our purpose, we proceed to give the statements which Dr. Davaine makes upon this important and interesting part of his subject.

"It has been stated that the Vibrios which occur in such numbers in the Wheat affected with Earcockle arrived at a state of maturity have no sexual organs, and are in consequence incapable of reproduction. The researches of Roffredi, Fontana, and Bauer have shown that these asexual Vibrios arise from individuals provided with sexual organs, which existed in the Wheat before its maturity; but none of them has shown how these parent individuals entered into the grains in which they are inclosed. In order to account for their presence various theories (as we have just mentioned) have been proposed. The matter, however, admits of a very simple explanation.

"When a sound grain of Wheat is sown by the side of one affected with Vibrio, it sprouts and is developed, while the diseased grain swells, becomes soft, and ultimately decays. The Vibrios in the grain when sown were dry and in a state of apparent death. After some weeks, when they have been sufficiently moistened, they resume the signs of vitality. They penetrate the softened walls of the grain, and become free. Those which come in contact with the growing plant penetrate between the sheaths of the leaves, which then form the stem, are carried from one to the other, and at length reach the innermost †.

"They live for a long time between these sheaths, without presenting any notable change in their habit or organisation. If the season is moist, they crawl upwards in proportion as the stem rises; but if it is dry they remain between the sheaths, without motion or appearance of life, till rain, restoring their moisture, restores also the manifestation of vitality.

"The spike of Wheat, before appearing externally, continues for a long time inclosed in the sheaths of the terminal leaves. The Vibrios, inclosed in the same sheaths, come in contact with it, and insinuate themselves between the parts of which it is composed. In order that their introduction may be followed by the Earcockle, it must take place at a very early stage of the formation of the spike. When this is only a few millimetres (scarcely a line) in length, while the glumes, stamens, and ovary have yet the form of scales, and are not distinct from each other, and all are formed of very soft, nascent, pulpy cellules, which admit very easily of penetration, the Vibrios in contact with them cause the production of Earcockle by introducing themselves into their parenchym. But when these scales assume the form of the different parts which constitute the flower of Wheat, when the bifid pistil becomes distinct, the Vibrios cannot penetrate into their parenchym, doubtless in consequence of its being too firm, and the Earcockle cannot be produced, as I have ascertained by many experiments. ‡

"Before penetrating into the parenchym of the rudimentary flower, the Vibrios did not increase in size, but after their introduction, they rapidly attain their full dimensions. The female lays a great number of eggs, in which an embryo is soon manifest; this pierces the membrane of the egg, and without undergoing any further change lives in the state of a larva, in the same cavity in which its parents are enclosed.

"While the Vibrios increase in size, the parenchym which incloses them is developed into a rounded tumour which increases gradually; but the increase of the tumour which constitutes the Earcockle stops before it has reached the size of a normal grain.

"When the Wheat is ripe the Vibrios have finished laying their eggs; the eggs are developed and the embryos hatched. The parents then perish, their integuments and organs are reduced to shreds no longer capable of being recognised; the shells of the eggs are absorbed, and the Vibrios of the new generation are dried up with the grain which encloses them. If, then, we examine an Earcockle in the state of maturity, we find nothing but a white inert powder, which seems to be produced spontaneously, every trace of its origin having disappeared. The myriads of Vibrios of which this powder is formed are larvæ, which, like the eggs of certain animals or the seeds of plants, await, in a state of apparent death, the conditions which are necessary for the manifestation of their vitality, conditions which may be deferred for many months or many years, as the case may be."

There is nothing, then, in this case like the alternation of generations by means of which the admission of many of the worms which prey upon animals is effected. The mode of this admission has only been discovered within the last few years, and great praise must certainly be given to our author for the pains which he has taken to ascertain the mode of admission of those animals which act an analogous part in the vegetable world. The constitution of these animals is precisely suited to the necessities of the case. The eggs themselves, if they were not perishable, would be difficult of introduction; but as they are quite unfit for hatching except in the cavity in which they are from the first inclosed, the introduction is effected by the larvæ, which from their suspended animation, its slow resumption under certain condition, their activity when reanimated, and their capability of again apparently losing their vitality under continued drought, are peculiarly calculated, delicate as they are in themselves, to pass through the months which must elapse between their first introduction into the intervals of the sheaths, and the first formation of the spike. The doctrine of spontaneous generation, which a few years since was arrogantly appropriated by many philosophers, falsely so called, as the peculiar mark of superior minds, is now slipping from beneath our feet more surely every day, and we may hope that in a short time those mysteries which still involve the production of vegetable parasites will receive a clear and simple solution.

A short extract relative to the changes produced in the young flower by the introduction of the Vibrionic larva must for the present close our notice of this excellent memoir, but there are other points of interest which our readers will be pleased to see on a future occasion. We are obliged to pass by altogether the part which relates to the anatomy and physiology of these animals, especially as regards their suspended animation, and the effects produced on them by various chemical reagents or by change of temperature. Those, however, who are interested in such matters can easily have recourse to the original, as it is readily procurable, being published separately and at the same time moderate in price.

As regards the changes wrought by the larvæ in the young flower, we have the following observations;—

"Earcockle is not a seed which was at first normal and then subjected to change. Its tissue is composed of hypertrophied and deformed cells, similar to those which constitute the Galls produced by insect larvæ in various vegetables. The seed is not existent even in a rudimentary state, when the larva penetrates the scale which is destined to become the ovary, the stamen, or the glume. The presence of the larva produces in the parts an action which changes their normal development and structure. They are transformed into a rounded excrescence, in the centre of which the Vibrios are found. In general all the parts of the flower participate in the transformation, and we find but a single excrescence which is uni- or multi-locular. Sometimes several parts are developed separately, and the excrescence is multiple; sometimes, again, a part of the flower escapes transformation, and we find either a glume, a stamen, or the ovary itself unchanged, but always in a state of atrophy. In every case the parts into which the Vibrios have penetrated increase rapidly, and when the spike projects beyond the sheath, before the formation of the normal seed, before flowering, a round and already large Gall exists between the valves of the glumes, and will be regarded hereafter as the grain of Wheat of which it has usurped the place." *M. J. B.*

(To be continued.)

* Recherces sur l'Anguillule du Blé niellé considérée au point de vue de l'Histoire Naturelle et de l'Agriculture (Mémoire couronné par l'Institut). Par le Docteur C. Davaine. Paris, 8vo, pp. 80, tab. lithog. iii.

† The best point to search for them is where the stem, which in the young plant is extremely short, joins the root. They may easily be detected by transverse microscopical sections.

‡ Though Vibrios were found in abundance amongst the floral organs, none were ever found to penetrate, after the organs were formed.

Miscellaneous.

Scotland v. *Ireland.*—The area of Scotland is about 30,000 square miles; that of Ireland is 31,374 square miles. The quantity returned by Mr. Donelly as being under tillage in Ireland in 1857 was 5,160,089 acres. In Scotland we find by Mr. Maxwell's return that the total quantity under crops was 3,536,512 acres. The principal crops were apportioned as under:—

	IRELAND. Acres.	SCOTLAND. Acres.
Wheat	562,581	223,152
Oats	1,978,878	938,613
Barley, &c.	246,257	277,274
Total cereal crops ..	2,787,716	1,439,039
Potatoes	1,146,920	139,819
Turnips	349,964	476,691
Other green crops ..	107,994	11,093
Flax	98,074	1534
Meadow and Clover ..	1,369,421	1,459,895
Bare fallow	—	18,582
Total under crops ..	5,860,089	3,556,572

It will be seen by the above that the grain crops of Ireland are equal to about one-half the entire extent under tillage; in Scotland they are about one-third; thus showing that in Ireland the farmers adopt a four-course system, while in Scotland they seem to have a five-course shift. The Potatoes planted in Ireland are nine times as much as in Scotland, but the Scotch grow more Turnips than we do. In the other green crops Ireland is far beyond Scotland; we had nearly ten times as much as in Scotland, adding the green crops together—that is, Potatoes, Turnips, and other green crops. We have for Ireland 1,614,888, and for Scotland 627,503. In Meadow and Clover the Scotch exceed us, and they have 18,582 acres of bare fallow, of which we seem to have none. If we value the crops, after allowing for seed, at the following rates—Wheat, 3*l.* per acre; Oats, 5*l.*; Barley, 6*l.*; Potatoes and green crops, 10*l.* per acre; and meadow at 8*l.*, the total value of the crops of both countries would be for Ireland 33,456,568*l.*, and for Scotland 26,110,735*l.*, thus showing that the tillage crops of Ireland are worth about 7 millions sterling per annum more than those of Scotland. We should have expected from the greater

quantity of land in Scotland not brought under tillage, and also from the increase in Turnips and Clover and Grass land, that the Scotch had a larger quantity of live stock, but except in sheep, which are principally put on the Grass land which is not under tillage, we do not find this result. The live stock is thus classified :—

	IRELAND.	SCOTLAND.
Horses	606,693	185,409
Milch Cows	1,602,908	303,912
Other Cattle	2,015,636	670,525
Sheep	3,448,676	5,683,168
Swine	1,252,152	146,354
Total	8,920,065	6,989,368

The Census Commissioners of Ireland adopted, in 1841, the following scale of prices, and at these rates the animals of Ireland have been since valued, viz. :—For horses, 8*l.* each; cattle, 6*l.* 10*s.*; sheep, 22*s.*; and swine, 25*s.* each. The Commissioners make the total value of Irish live stock in 1857 33,684,813*l.*, and at the same rates those of Scotland would be 13,851,639*l.*; the items are as under :—

	IRELAND.	SCOTLAND.
Horses	4,805,544*l.*	1,483,272*l.*
Cattle	23,520,536*l.*	5,933,840*l.*
Sheep	3,793,543*l.*	6,251,485*l.*
Pigs	1,565,190*l.*	182,942*l.*
	£33,684,813	£13,851,639

It strikes us, with reference to the live stock, that the Scotch farm with fewer horses than we do in Ireland, and this leaves them a larger supply of food for their other stock; and when we see they have larger quantities of Turnips and Clover, we are rather surprised at the great disproportion in cattle, as they have only one-fourth of what we have in Ireland. The value of the live stock of Ireland appears to be more than double that of Scotland. The increased quantity of Potatoes in Ireland may be attributed to the much greater population which we have to support; but we think the contrast of the agricultural returns of the two countries is in favour of our own, for with nearly equal areas we have a larger extent of crops, and we have greatly enhanced value in live stock, and if the annual profit from stock be equal to their value, it would appear that the returns from that branch in this country far surpass those of our northern neighbours. We do not consider it needful to enter into much detail as to the profits from farming, but we find on minute calculation and comparison of the annual profits on cattle, sheep, and pigs, that Ireland ought on this branch of agriculture to realise nearly 20,000,000*l.* per annum more than Scotland; and although we may not possess the manufacturing advantages of the Scotch, yet, in the greater fertility of the soil of Ireland, we are capable of maintaining a population nearly three times as great as hers, and gradually increasing in wealth, in a class of property that is less liable to financial embarrassment than any other. *Abridged from the Waterford Mail.*

Notices to Correspondents.

ACORNS: *A D B* suggests that our correspondent "J. M. G." (Nov. 28) is mistaken in supposing the acorns to which he refers to be of the same kind as ours. The sweet acorn (Q. esculus?) is very commonly eaten by the poor in Spain and in some parts of Italy, and it is very nearly free from "the astringency and acridity" of the English acorn, of which our Peninsular army would certainly have complained.

BOOKS: *Thursday.* Stockhardt's Field Lectures.

BUTTER: *T* says, "The week before last my cow, which calved in June, was making 6 lbs. of butter a week. She was then being fed on the tops of the Carrots, which were being stored. Last week and this week she was turned out into a meadow by day, and at night fed on chopped Parsnips and chaff. During these two weeks no churning will produce butter. Will any one kindly suggest the cause for this, and the remedy? [The cause is plainly the change in the food.]

COW LOSING MILK: *T S P.* We recommend an India-rubber band (part of a finger stall) round each teat; that is, if three milkings daily instead of two do not succeed. *W C S.*

GORSE: *W F C.* It is cut in its second year and chopped and bruised before being given as food. See past volumes of the *Gardeners' Chronicle.* Will any one advise what to sow under growing timber in order to obtain an undergrowth?

KOHL RABI: *J J.* Next week.

MANURE FOR THE POTATO DISEASE: *F Cor.* We cannot insert here what is an advertisement of mere profession. Any proof of actual and experienced efficiency we shall be glad to receive. See Mr. Bowditch's pamphlet on the "New Manure" adverted to last week.

POTATOES: *A B.* You should have got gas lime together in compost months ago, and turned it frequently if you are going to use it now. A "waggon load" per acre is a common dressing. You may apply it broadcast, and leave it for some weeks before turning it in. You should plant early in spring, early sorts in early soils, and so you will run least risk of the disease. We should ourselves prefer a deepish planting early in March to autumn planting.

RABBITS: *North Lancashire.* Some months ago one of our correspondents mentioned his experience in rabbit breeding for family use; and "North Lancashire" now says—"I have a country place with extensive and almost useless outbuildings, and having several boys I want to try breeding and fattening rabbits on rather a large scale, and should feel greatly obliged by your correspondent's advice."

RAPE: *E W.* Rape sown in July will, in the midland counties, produce a good supply in September to October, but the roots being left in the ground during the winter will not shoot in the spring and "afford another cut or two in March to May." Some kinds of Rape are much hardier than others. Messrs. Lawson supplied us with some last year remarkable for its hardiness.

TURNIP CUTTER: *A D B.* The simplest Turnip cutter for a small farm is the lever cutter. Apply to Scoular, of Haddington, or any other Scotch implement maker.

YOUNG PIGS: *J James.* The disease appears to be peritonitis or inflammation of the outer or serous membrane of the bowels and the internal lining of the abdomen, and might be produced by lying in a wet cold place, exposure to the east wind, or partaking too much of watery food. It would be prudent to change the food, substituting for a time food of an oily character, such as Linseed or Linseed meal, and if possible to improve the locality. Would not pulping the roots and mixing meal with them be better than boiling, as by the latter process they acquire more water. *W C S.*

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12 „ 10,	13 „ 10,	14 „ 10,	15 „ 10 ..	..	16	6
16 „ 10,	17 „ 10,	18 „ 10	.. ..	..		
12 „ 11,	13 „ 11,	14 „ 11,	15 „ 11,	16 „ 11	16	6
13 „ 12,	14 „ 12,	15 „ 12,	16 „ 12 ..	..	17	6
17 „ 12,	18 „ 12,	19 „ 12,	20 „ 12 ..	..		
16 „ 13,	17 „ 13,	18 „ 13,	20 „ 13 ..	..		
22 „ 13,	24 „ 13,	20 „ 14,	22 „ 14 ..	..	18	0
24 „ 14,	20 „ 15,	22 „ 15,	24 „ 15 .	..		

SMALL SQUARES.—Per 100 feet.

6 by 4	6½ by 4½	7 by 5	7½ by 5½	11 6
8 „ 6	8½ „ 6½	9 „ 7	9½ „ 7½	
10 „ 8	10½ „ 8½ ..	.. .	.. ..	12 6

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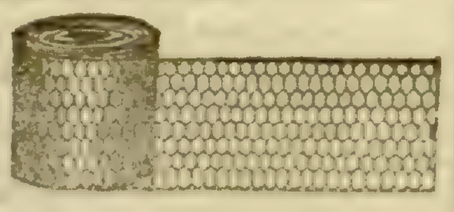

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THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced more than 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver. A small useful plate chest, containing a set, guaranteed of first quality for finish and durability, as follows :—

	Fiddle or Old Silver Pattern.	Thread or Brunswick Pattern.	King's Pattern	Military Pattern.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
12 Table Forks	1 18 0	2 8 0	3 0 0	3 10 0
12 Table Spoons	1 18 0	2 8 0	3 0 0	3 10 0
12 Dessert Forks	1 10 0	1 15 0	2 2 0	2 10 0
12 Dessert Spoons ..	1 10 0	1 15 0	2 2 0	2 10 0
12 Tea Spoons	0 18 0	1 4 0	1 10 0	1 18 0
6 Egg Spoons, gilt bowls..	0 12 0	0 15 0	0 18 0	1 1 0
2 Sauce Ladles	0 7 0	0 8 6	0 10 0	0 16 0
1 Gravy Spoon	0 8 0	0 11 0	0 13 6	0 16 0
2 Salt Spoons, gilt bowls..	0 4 0	0 5 0	0 6 0	0 7 6
1 Mustard Spoon, gilt bowl	0 2 0	0 2 6	0 3 0	0 3 9
1 Pair of Sugar Tongs ..	0 3 0	0 3 9	0 5 0	0 7 0
1 Pair of Fish Carvers ..	1 4 0	1 7 6	1 12 0	1 18 0
1 Butter Knife	0 3 6	0 5 9	0 7 0	0 8 0
1 Soup Ladle	0 13 0	0 17 6	1 0 0	1 1 0
1 Sugar Sifter	0 4 0	0 4 9	0 5 9	0 8 6
Total	11 14 6	14 11 3	17 14 9	21 4 9

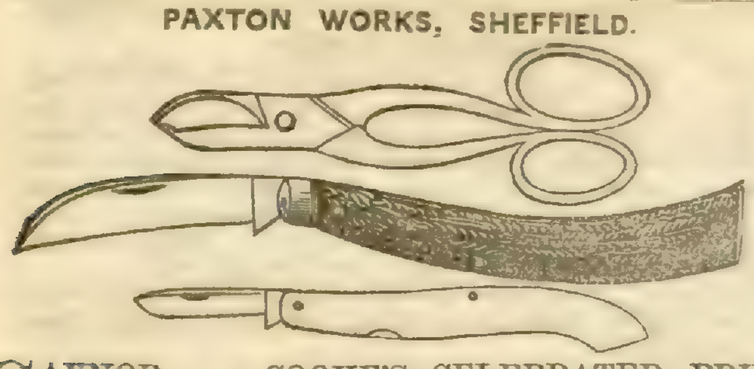
Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2*l.* 15*s.* Tea and coffee sets, cruet and liqueur frames, waiters, candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

DISH COVERS AND HOT-WATER DISHES.—In every material, in great variety, and of the newest and most recherché patterns. Tin-dish Covers, 6*s.* 6*d.* the set of six; Block Tin, 12*s.* 5*d.* to 28*s.* 9*d.* the set of six; elegant modern patterns, 34*s.* to 58*s.* 6*d.* the set: Britannia Metal, with or without silver-plated handles, 70*s.* 6*d.* to 17*l.* 6*s.* 6*d.* the set; Sheffield plated, 10*l.* to 16*l.* 10*s.* the set; Block-tin Hot-water Dishes, with wells for gravy, 12*s.* to 30*s.*; Britannia Metal, 22*s.* to 77*s.*; Electro-plated on Nickel, full size, 11*l.* 11*s.*

WILLIAM S. BURTON'S GENERAL FURNISHING IRONMONGERY CATALOGUE may be had gratis, and free by post. It contains upwards of 400 Illustrations of his illimited Stock of Electro and Sheffield Plate, Nickel Silver and Britannia Metal goods, Stoves, Fenders, Marble Mantelpieces, Kitchen Ranges, Lamps, Gaseliers, Tea Urns and Kettles, Clocks, Table Cutlery, Baths and Toilet Ware, Turnery, Iron and Brass Bedsteads, Bedding, Bed Hangings, &c., with Lists of Prices and Plans of the 16 large Show Rooms at 39, Oxford Street; 1, 1A, 2, and 3, Newman Street; and 4, 5, and 6, Perry's Place, London, W. Established 1820.

FOR THE BENEFIT OF SUFFERING HUMANITY.—A retired Gentleman having cured himself of Indigestion and Nervous Debility, accompanied with Deafness and Defect of Sight, after suffering upwards of 25 years, thinks it his duty to make the remedy known for the benefit of the afflicted; he will therefore forward the particulars for the cure of the same on receipt of a stamped envelope properly directed.—Address, Rev. J. JOHNSTONE, 1, Park Terrace, Heavitree, Exeter, Devonshire.

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1738.

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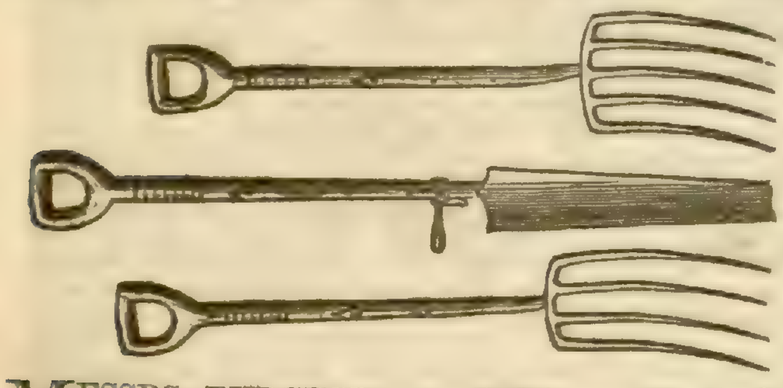

MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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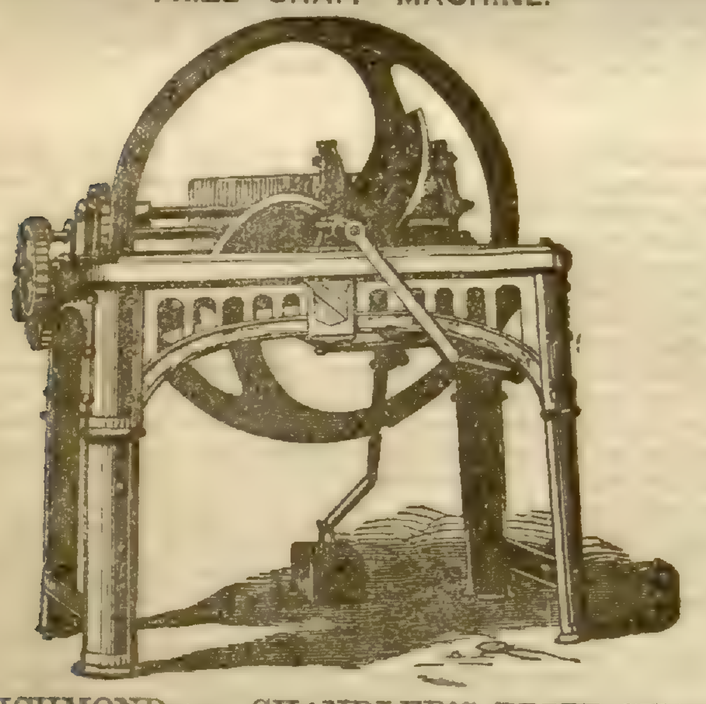
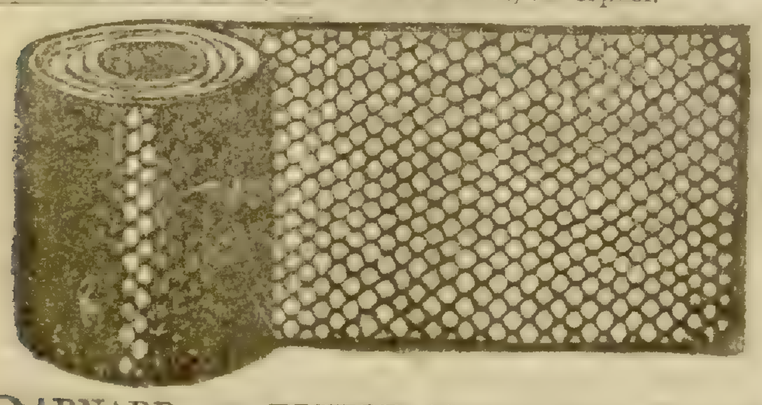
PRIZE CHAFF MACHINE.



RICHMOND AND CHANDLER'S PRIZE CHAFF-CUTTING MACHINES possess more good qualities than any others yet produced, and with beautiful simplicity combine economy of cost with substantial workmanship.

Excellence of design and adaptation of material have induced some unprincipled makers to force the market with copies of their invention, but without regard to the working qualities of the machine.

RICHMOND & CHANDLER have repeatedly obtained Premiums from the Irish, Scotch, and English Royal Agricultural Societies for the perfect efficiency and simplicity of their Machines, and which are the only Chaff Machines having been awarded Prizes in the three kingdoms. For export they are so constructed as to be taken in pieces for close packing, and are easily put together, without the aid of skilled labour. Catalogues free on application to RICHMOND & CHANDLER, Salford, Manchester. Branch Establishment, South John Street, Liverpool.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

		Galvanised.	Japanned Iron.
2-inch mesh,	24 inches wide	5*d*. per yd.	4*d*. per yd.
2-inch ,,	strong do.	6 ,,	4¾ ,,
2-inch ,,	intermediate, do. ..	7 ,,	5½ ,,
2-inch ,,	extra strong, do. ..	9½ ,,	7½ ,,
1⅝-inch ,,	24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,,	strong, do.	6½ ,,	5¼ ,,
1⅝-inch ,,	intermediate, do. ..	7½ ,,	6 ,,
1⅝-inch ,,	extra strong, do. ..	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d*. per yard, 3 feet wide; Galvanised Sparrow-proof Netting for Pheasantries, 2¼*d*. per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

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"The first man of the day in these complaints."—*Medical Review.* "The true guide to those who desire a speedy and private cure."—*University Magazine.*

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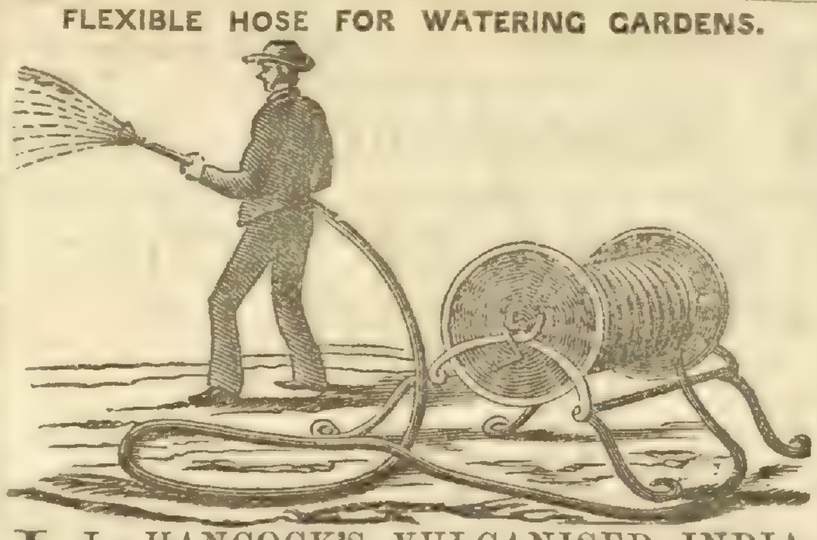

J. L. HANCOCK'S VULCANISED INDIA-RUBBER HOSE and TUBING is now much improved, is made in 60 feet lengths, and will resist the pressure of any of the Water Companies Mains. J. L. H. also supplies metal Union Joints for connecting the Hose to any length, also Taps, Roses, and Jets, complete for Gardens, Greenhouses, &c.

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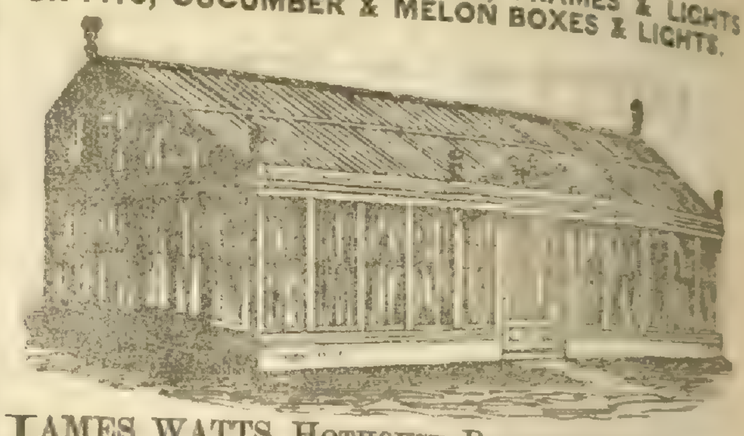
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6ft. 6in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England. Heating on the best and most approved principles, and guaranteed to act efficiently.

HOWARD'S PRIZE IMPLEMENTS,

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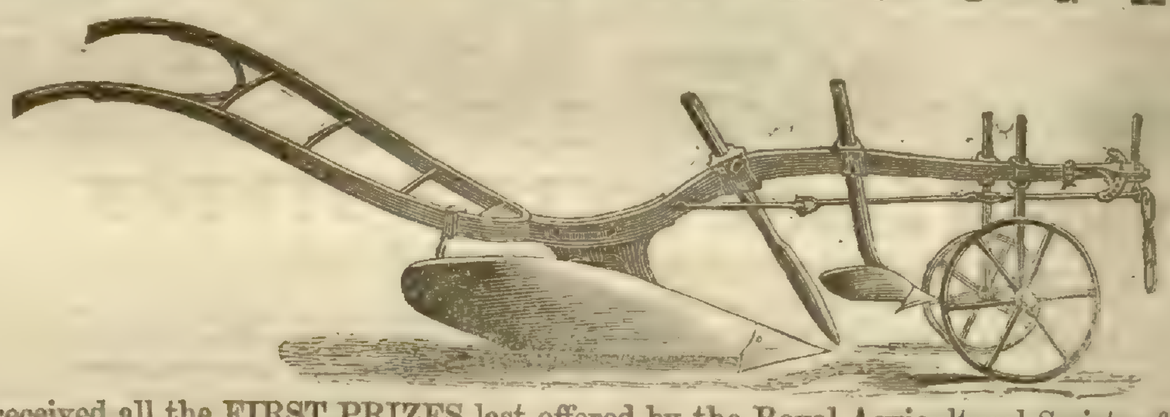
JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

CHAMPION PLOUGHS,



For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

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THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
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The only PRIZE ever offered by the Society for the best DOUBLE BREAST OR RIDGING PLOUGH was also awarded to J. & F. HOWARD.

In addition to the above Prizes, J. & F. HOWARD have also received from the Royal Agricultural Society of England, including the Salisbury Meeting, 1857:—

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FOR THE BEST SUBSOIL PLOUGH	THREE FIRST PRIZES.
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FOR THE BEST IRON HARROWS	NINE FIRST PRIZES.
VIENNA AGRICULTURAL EXHIBITION, 1857 ..	THE GOLD MEDAL FOR THE BEST PLOUGHS.
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P Plough, with Two Wheels (for Light Work)	£4 7 6
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Skim Coulter, extra	£0 5 6

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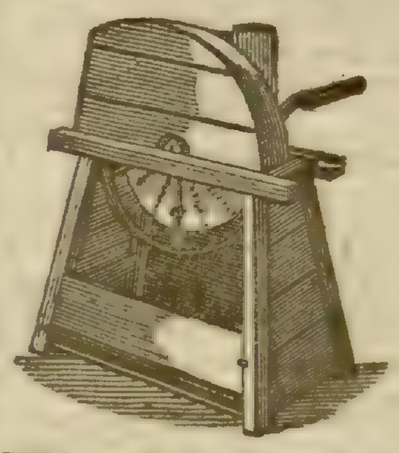
TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.



B. SAMUELSON,

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TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
,, ,, Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
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Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

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Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

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Also CHAFF-CUTTERS, on Cornes's principle, 4*l*. up to 14*l*. 14*s*.; ROLLER MILLS, CAKE-BREAKERS, &c.

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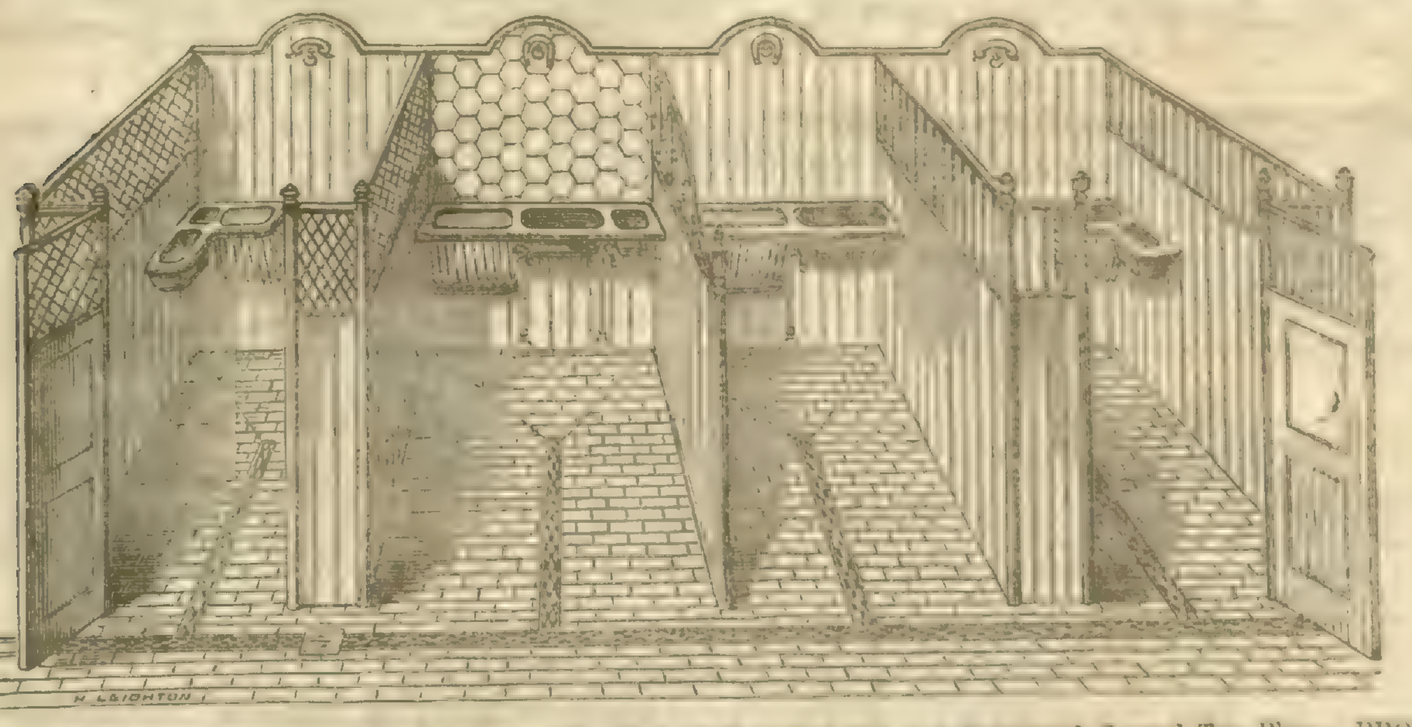

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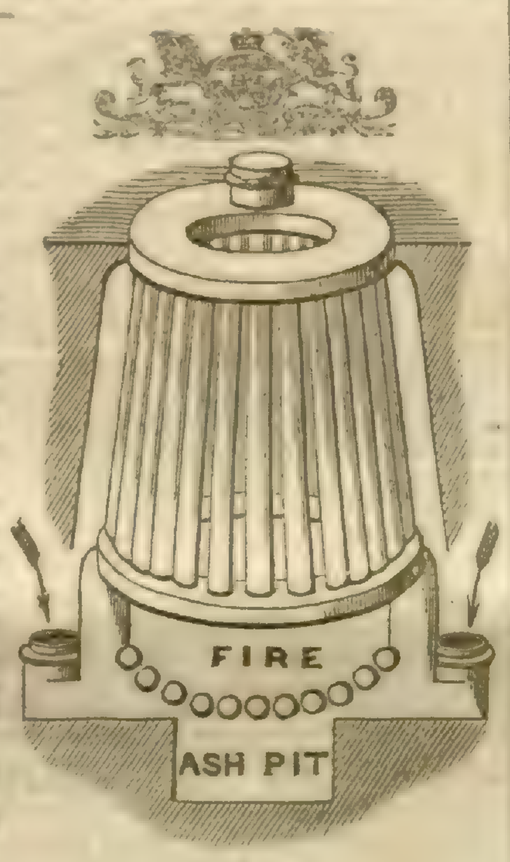
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



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SIGMA'S PATENT CORN PLANTERS, five depositors, 3*l.* 3*s.*

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MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till **Sunday evening**, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of **warming a large apartment for** 24 hours, at a cost of 3*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot-water.

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GIPSY BOY THE FOURTEENTH, bred by Mr. Hewer; sire, Champion; dam, Gipsy Queen, by a Brawn bred by Sir Robert Throckmorton; g. dam, Longwaist, by Longsides; g. g. dam, Short Tail by Berkshire Pride.

Gipsy Boy the Fourteenth is a fine breeding Pig, of excellent **quality, about 16 months old. He was the sire of the First** Pen of Breeding Pigs of a Large Breed, 31 **entries, at the late** Birmingham Show (exhibited by Mr. Joseph Smith, Henley-in-Arden), and of another pen exhibited by his owner, to which an Extra Silver Medal was awarded. Charge, 1*s.*, and 1*s.* the **attendant.—Apply to Mr. WRIGHT, the Quarry House, Great** Barr, Staffordshire. Sales cannot remain except by special arrangement. Great Barr is five miles from Birmingham and three from Walsall.

On Sale, a BRAWN and GILT, of the same litter as the pen to which a Silver Medal was awarded (all of which were sold). Price 3*l.* 3*s.* each.

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TO BE SOLD cheap, a few SHARES in a very valuable MINERAL PROPERTY, which is already yielding handsome profits, and is opening just like the neighbouring one, which paid 87,000*l.* in dividends in 12 years, upon a capital of only 6000*l.*, being no less than 150 per cent per annum—an outlay of 200*l.* thus yielding an average annual **income of 700*l.* for 12 years.—Full particulars to *bonâ fide* applications, addressed free to F. G. S., care of Mr. A. Batchelor, 5, Waterloo Place, Pall Mall, London, S.W.**

TO NURSERYMEN, GARDENERS, AND OTHERS.

TO BE LET, for a Term, if desired, the PARK END COTTAGE and GARDEN, situated one mile from the Macclesfield Railway Station. **The House is well calculated for a small genteel family, and the Garden is upwards of four acres in extent, laid out in walks, and planted throughout** with ornamental shrubs and evergreens, in a most healthy state; the soil is not to be equalled for its adaptation to the **growth of shrubs and gardening purposes. The whole of the** plants and shrubs to be disposed of according to agreement. It has been carried on as a nursery and pleasure garden for upwards of 10 years, is situated in the most healthy part of the neighbourhood, and will be a most eligible residence either for a private family or a nurseryman and gardener.—**For** further particulars, and to treat for the same, apply **to Mr.** POOLE, residing on the premises.

TO BE LET, with immediate possession, about 26 ACRES OF LAND. Rent moderate. Six miles from London, on the Surrey side.—Apply by letter, post paid, A. B., Streatham Common, Surrey.

TO BE SOLD, a NEW GREENHOUSE, Span-roofed, 20 feet 6 inches long, 15 feet wide. Glass all round, door in centre at one end, front sashes 3 feet high, made of the best yellow Deal, four times painted, and glazed with 16 oz. sheet glass. Price 46*l.*; or with Hot-water Apparatus, 52*l.* Delivered to Railway Station.—Apply to VOKINS & HURD, Hothouse **Builders, Radnor Street, Chelsea, S. W.**

TO BE SOLD for 50*l.*, a LARGE SPAN-ROOFED HOTHOUSE 100 feet long, 16 feet wide, with one **excellent Saddle-back Boiler; the wood is all new and the glass has never been used. The size of glass is 14 inch by 10 inch,** two doors, ventilators, and all ready for fixing; would be delivered free in London.—Apply J. B. W., Barnet, Post Office.

FOR SALE, a nearly new, superior Sexangular SUMMER HOUSE, with pair of glass doors, and grained Oak inside.—For further particulars apply to W. SALMON, 11, Baker's Row, West Ham, Abbey, Essex, E.

Sales by Auction.

GREENHOUSE AND STOVE PLANTS, STANDARD ROSES, &c.

MR. J. C. STEVENS will Sell by Auction at his **Great Room, 38, King Street,** Covent Garden, on FRIDAY, December 11, at 12 o'Clock precisely, a Collection of GREENHOUSE and a few STOVE PLANTS, including fine specimens of Dion edule, Cycas revoluta, Zamias; variegated foliaged plants, Conifers, Ferns, large Azaleas, Camellias, &c. Also about 500 STANDARD ROSES of the best sorts, of Hybrid Perpetuals and Bourbons, and a few lots of SIKKIM RHODODENDRONS.—May be viewed on the morning of Sale, and Catalogues had of Mr. J. C. STEVENS, 38, King Street, Covent Garden; or by forwarding a stamped directed envelope.

TO GENTLEMEN, FLORISTS, & OTHERS.

MESSRS PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, December 11, at 12 o'Clock, a fine Collection of DUTCH BULBS, consisting of double and single Hyacinths, Narcissus, Jonquils, Tulips, Crocus, &c.; also STANDARD and DWARF ROSES, including Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; choice ORNAMENTAL TREES, AMERICAN PLANTS, &c.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

NEW FOREST, HANTS.—V. R.

BY ORDER OF THE COMMISSIONER IN CHARGE OF HER MAJESTY'S WOODS AND FORESTS.

MR. CHARLES NORTON will Sell by Auction at Lyndhurst, on THURSDAY, December 17, at 2 o'Clock precisely, about 1000 loads of Round, and 100 loads of Hewn Oak Timber; 400 loads of standing Beech Timber; 10,000 Oak Poles; 10,000 Scotch Fir Poles, and 200 Chesnut Poles of large size, and 60 cords of peeled Alder Wood. The Beech timber is clean and straight, standing together on a few acres of land, and there is a 14 horse power Steam Sawing Mill, erected on the spot for converting the same, the use of which will be granted to the purchaser on conditions to be agreed upon. There is a large quantity of Beech timber close to the sawing mill, which will be sold at a future time. The lots may be viewed, and Catalogues and Conditions of Sale with further particulars had on application to **Mr. L. H. CUMBERBATCH, Queen's** House, Lyndhurst.

NOW IS THE TIME TO PLANT TREES, &c.

D. FERGUSON, Landscape Gardener and Contracting Planter, &c.,

OFFERS a splendid lot of CEDRUS DEODARA, 3 to 10 feet in height, 7*s.* 6*d.* each; 35*l.* per 100; 300*l.* for 1000; and if 2000 are taken, 500*l.*, not cropped like those to be met with in the grounds of the rule and thumb gentlemen, but allowed to assume their own natural graceful habits. Fine CEDARS of LEBANON, do. ARAUCARIA IMBRICATA, PINUS INSIGNIS, CEMBRA, EXCELSA, ABIES PINSAPO, &c.; CUPRESSUS LAMBERTIANA, GOVENIANA, WELLINGTONIA GIGANTEA, &c.; do SPRUCE, SCOTCH FIRS, LARCH, OAKS, ELMS, LIMES, CHESNUTS, SYCAMORES, ASH, HAZEL, &c.; Bushy COMMON LAUREL, do. PORTUGAL, AUCUBAS, COMMON and IRISH YEWS, GREEN and VARIEGATED HOLLIES, JUNIPERS, ARBOR-VITÆ, PHILLYREAS, BERBERIS DULCIS, new DOUBLE PINK and SCARLET THORNS, LABURNUMS, splendid WEEPING ASH, fine STANDARD CYTISUS, ROSES, HERBACEOUS PLANTS, &c.

EXCELLENT

STANDARD, HALF STANDARD, & DWARF BUSHES of PEACH and NECTARINE TREES, warranted good varieties, and very suitable for planting in the ground or for potting, as they are now growing in leaf mould and will lift well.

VERY FINE

COTONEASTER MICROPHYLLA, for under cover-training on Cottages, &c., 3*s.* per dozen, £1 per 100. and 1*d.* each if taken by the 1000.

FINE

BERBERIS AQUIFOLIA, transplanted last spring, one farthing each if taken by the 1000.

Do. do. EVERGREEN PRIVET, BUSHY TREE BOX, 2 to 3 feet, four to six farthings each if taken by the 1000.

STRONG

SEEDLING HOLLYHOCKS from Messrs. Chater's, Turner's, and Bircham's. Choice varieties, 2*s.* per dozen; 10*s.* per 100; 1*d.* each if taken by the 1000; a large packet of Seed for 1*s.*

A Belgian Collection of CHRYSANTHEMUMS, one farthing each if taken by the 1000; less if by the 10,000 or 50,000.

D. F. when employed as Garden Architect and Landscape Gardener where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for the charge made for his own time and plans, his object being to dispose of his plants, which he has in large quantities, both for present and future effect. In answer to inquiries, if taken in quantity D. F. will send them free of carriage to the Great Western Railway Station at Banbury and Oxford, or, as usual, meet parties half way when liberal orders are given.—**Stowe, Buckingham.**

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late Stephenson & Peill), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. Jones, Iron Merchant, 6, Bankside, Southwark, London.

THOMSON'S PATENT HOT-WATER GAS-HEATING APPARATUS.

Manufacturers and Agents for the Patentee, ROBERT THOMSON and SONS, Plumbers, Brassfounders, and Gas Fitters, Dalkeith, N.B.

These Stoves are now in general use in England, Ireland, and Scotland. Prospectus may be had from all Ironmongers, Nurserymen and Seedsmen, and Plumbers in the Kingdom, or direct from the Manufacturers.

HORTICULTURAL WORKS,
DANVERS STREET, CHELSEA, September, 1857.
Dissolution of Partnership.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. Ormson and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. Gray avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

MONRO'S CANNON BOILER.—Invented by Mr. John Monro, Gardener at Colney House, near St. Albans.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. Jones has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. Jones, Iron Bridge Wharf, 6, Bankside, Southwark, London.

PATENT GUTTA PERCHA SOLES.—Important to Gardeners.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. Glenny, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. Glenny."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of Elisha Thomas Archer, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, Horticultural Builder and Hot-water Apparatus Manufacturer, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of Gray & Ormson, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Dec. 5.

WALL FRUIT TREES.—Worsted Net, to protect Blossom, 7*d.* per square yard, in various widths.

RABBIT NETS, on cords, 50, 80, and 100 yards. Ready for use.

GARDENERS' CAPES, Waterproof, long enough to protect a man from wet while stooping down, 3*s.* each. Old Police Capes, 18*s.* and 24*s.* per dozen.

WATERPROOF WAGGON COVERS.—Size for millers' cart, 20*s.*; millers' waggon, 26*s.*

TRANSPARENT SHEETING, nearly 2 yards wide, 1*s.*; Canvas ditto, 1*s.* per square yard; Roofing Canvas, 1*s.* per square yard.

RABBIT-PROOF WIRE-WORK, 6¾*d.* per square yard.

R. Richardson, 21, Tonbridge Place, New Road; and White Horse Factory, Bidborough Street, Judd Street, London.

ACHROMATIC MICROSCOPES.

SMITH and BECK, Manufacturing Opticians, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps.

General Catalogue for March 1857 may be had on application.

CASELLA'S ECONOMIC WEATHER INSTRUMENTS, with plain practical instructions, forming a series of really practical portable and reliable instruments for the weather.

CASELLA'S AGRICULTURAL or COTTAGE BAROMETER, 11*s.* 6*d.*

CASELLA'S GARDEN THERMOMETER, for registering cold, 4*s.*

CASELLA'S GARDENER'S THERMOMETER, for registering heat, 6*s.* 6*d.*

CASELLA'S RELIABLE GARDENER'S RAIN GAUGE, 15*s.* 6*d.*

CASELLA'S DRAINAGE LEVEL, as strongly recommended by the Royal Agricultural Society, 4*l.* 5*s.*

CASELLA'S MILK TEST, for the Dairy, 4*s.* 6*d.*; ditto for Cream, 3*s.*

"The Barometer is equal to one in our possession at ten times the price. The Thermometer has proved upon trial to be equally efficient."—*Gardeners' Chronicle, Sept.* 19, 1857.

"They should be in the hands of every farmer; ym next month's observations shall be made with them."—*Mark Lane Express, Sept.* 14 *and Oct.* 5, 1857.

L. Casella, Instrument Maker to the Admiralty, the United States Government, Royal Kew Observatory, Geographical Society, &c., 23, Hatton Garden, London. A Descriptive List and Drawings on receipt of a stamped envelope.

WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. White & Brothers, Milbank Street, Westminster.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to GARNOCK, BIBBY, and CO., Patent Cordage and Wire Rope Manufacturers, Liverpool.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.
ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to John Pilkington, 15, Fish Street Hill, London, E.C.

SLATE WORKS, ISLEWORTH, MIDDLESEX.

EDWARD BECK manufactures in Slate a variety of articles for Horticultural purposes, all of which may be seen in use at Worton Cottage, on application to the Gardener, Sundays excepted.

Priced Lists of Plant Tubs and Boxes forwarded on application.

VENTILATING STOVES! SUSPENSION STOVES!—The two Best, Cheapest, and most Economical. Prospectuses with prices post free.

Deane, Dray, & Co., London Bridge. A.D. 1700.

CUNDY'S PATENT PURE WARM AIR VENTILATING STOVES.—The only Pedestal Stove which gained a Prize Medal (Class 476) at the Great Exhibition, 1851. Especially adapted for warming Churches, Chapels, Schools, Entrance Halls, Libraries, Warerooms, &c., with great economy. Sold by Cutler & Sons, Licencees and Manufacturers, 16, Great Queen Street, Lincoln's Inn Fields, London, W.C., and all Ironmongers.

SUPERIOR GAS-COOKING APPARATUS, WARM CLOSETS, and TABLES of every description; improved Warming and Ventilating Gas Stoves, for every kind of room or hall, Manufactured by Cutler & Sons, Founders and Gas Fitters, 16, Great Queen St., Lincoln's Inn Fields, London, W.C.

SMOKY CHIMNEYS.—The best Cure is KITE'S PATENT VENTILATING & SMOKE-CURING ALBERT CHIMNEY CAPS, suited to any style of Architecture.—200 on Buckingham Palace; 150 on St. James's Palace; 50 on Claremont Palace; 50 on Windsor Castle; 200 on the Western Heights Barracks, Dover; in use also on the Halls and Mansions of the nobility, Government Offices, Club Houses, &c.; also extensively adopted by the public in general. Price 25*s.*, 30*s.*, and 35*s.* each. Drawings and Testimonials forwarded on application to James Barton, Iron Works and Manufactory for the Patent Stable Fittings and Enamelled Mangers, 370, Oxford Street, London.

CHUBB'S LOCKS AND SAFES.

CHUBB'S LOCKS, with all the improvements; of all sizes and for every purpose. Street-door Latches with small and neat keys.

CHUBB'S FIRE-PROOF SAFES are constructed of strong Wrought Iron, and the Detector Locks which secure them are gunpowder proof.

Complete Illustrated Lists of prices and sizes sent free on application.

Chubb & Son, 57, St. Paul's Churchyard, London; 28, Lord St., Liverpool; 16, Market St., Manchester; and Wolverhampton.

INDIAN OUTFITS.

THRESHER and GLENNY (next door to Somerset House, Strand), manufacture the following articles especially for India. Thresher's Kashmir Flannel Shirts; Thresher's Military Shirts; Thresher's India Gauze Waistcoats; Thresher's India Tweed Suits; Thresher's Overland Trunk. N.B. Lists of prices, with particulars of the necessary outfit for India, may be had on application.

ALLENS' ILLUSTRATED CATALOGUE OF PATENT PORTMANTEAUS, with four compartments; DISPATCH BOXES, WRITING and DRESSING CASES, TRAVELLING BAGS, with square opening; and 500 other Articles for travelling. By post for two stamps.

J. W. & T. Allen, Manufacturers of PORTABLE BARRACK-ROOM FURNITURE and MILITARY OUTFITTERS. (See separate Catalogue).—18 and 22, Strand.

CHRISTMAS NOVELTIES FOR PRESENTATION,

Mappins' Silver-Plated Dessert Knives and Forks in Mahogany Case, containing 12 pairs, Ivory Handles	£4	0	0
Do. do. Pearl Handles	6	10	0
Do. do. Silver-Plated Handles	4	0	0
Mappin's Solid Leather Dressing Case, fitted complete	2	2	0
Mappin's Oak or Mahogany Case of Cutlery, containing 24 Ivory Handle Table Knives, 18 ditto Dessert Knives, 4 pairs of Carvers, and Steel	7	0	0

Messrs. Mappin Brothers respectfully invite buyers to inspect their unprecedented display, which, for beauty of design, exquisite workmanship and novelty, stands unrivalled. Their Illustrated Catalogue, which is constantly receiving additions of new designs, free, on application.

Mappin Brothers, 67 and 68, King William Street, London; Manufactory, Queen's Cutlery Works, Sheffield.

FOR INVALIDS, HOSPITALS, ASYLUMS, ETC.

VULCANISED INDIA-RUBBER WATER BEDS, CUSHIONS, BOLSTERS, BAGS, FEET WARMERS, and articles of this class of any size to order. The above are now made to contain hot water without injury, and are equally adapted for inflating as the ordinary Air Beds and Cushions, which are also made to any size or design to order.—Orders punctually executed, addressed to the Manufactory.

James Lyne Hancock, Vulcanised Rubber Works, Goswell Road, London, E.C.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, December 5, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 50.—1857.] SATURDAY, DECEMBER 12. [Price Fivepence. Stamped Edition, 6d.

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HORTICULTURAL SOCIETY OF LONDON, 21, Regent Street, S.W., and Chiswick Gardens, W.

LECTURES ON ELEMENTARY BOTANY, illustrated by Drawings and Living Specimens. By Professor LINDLEY.

TUESDAY, Jan. 5, at 2 P.M. | TUESDAY, Jan. 12, at 2 P.M.
THURSDAY „ 7 „ | THURSDAY „ 14 „
SATURDAY „ 9 „ | SATURDAY „ 16 „

LECTURES ON BOTANY APPLIED TO HORTICULTURE. Illustrated by Drawings and Living Specimens. By Professor LINDLEY.

THURSDAY, July 8, at 3 P.M. | TUESDAY, July 13, at 3 P.M.
SATURDAY „ 10 „ | THURSDAY „ 15 „
SATURDAY, July 17, at 2 P.M.

Open free to Fellows and the holders of Ivory Tickets. The Public admitted on payment of 10s. 6d. each Course, or 5s. if for persons under the age of 18.

*** Gentlemen desirous of becoming Fellows of the Horticultural Society will receive all necessary information on addressing a letter to the Librarian, 21, Regent Street, S.W.

TO GRAPE GROWERS.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH VINE.

JAMES VEITCH, JUN., feeling convinced of the SUPERIOR QUALITY of this GRAPE, and desirous of having it tested by public competition, offers the following PRIZES:—
£5 for the Best three Bunches.
£3 for the Second Best do.
£2 for the Third Best do.
These prizes will be awarded at one of the Exhibitions of the London Horticultural Society in 1859, particulars and time of which will appear hereafter.
[In our advertisement of this Vine last week, in consequence of a misprint, the price appeared 2s. instead of 21s.]
Royal Exotic Nursery, Chelsea, S.W., Dec. 12.

GRAND SPRING FLORAL EXHIBITION (open to the United Kingdom).—An Exhibition of HYACINTHS and other SPRING FLOWERS and SHRUBS will be held in the Music Hall, George Street, Edinburgh, on TUESDAY, March 23d next, when liberal Prizes, in terms of the published Schedule, will be awarded. The Prize Lists may be had of Messrs. Wood & Co., Waterloo Place, and at the various Seed and Fruit Shops in town.
Subscriptions received and further information given on application to the following Members of the Managing Committee:—
Mr. Wm. Thomson, Dalkeith Palace Gardens.
Mr. John Downie, West Coates.
Mr. Charles Alexander, West Register Street.
Mr. Thos. Methven, Stanwell Lodge.
Mr. William Young, South Bridge.
Mr. R. T. M'Intosh, Victoria Street.
Mr. R. M. STARK, Castle Street, Treasurer.
Mr. JOHN LAMONT, Fettes Row, Secretary.

SCOTTISH GARDENERS, FORESTERS, AND LAND-STEWARDS' ASSOCIATION for the Relief of Aged and Infirm Gardeners, Foresters, Land-Stewards and Seedsmen, their Widows and Orphans.—Notice is hereby given, that the General Meeting of Members for the ELECTION OF PENSIONERS will take place on JANUARY 20, 1858.
The Directors have considered it advisable, in consequence of the urgent claims upon the Funds, to defer the day of Election as above, and in the meantime to make an APPEAL to the benevolent, in the expectation that additional means may be placed at their disposal before the Election, so as to justify them in placing several additional Pensioners on the roll.
Donations and Subscriptions are earnestly solicited, and may be sent direct to the Treasurer at the Union Bank of Scotland, or to Mr. JAMES M'NAB, Curator of the Royal Botanic Gardens, Edinburgh.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.
The Nursery, Bagshot, Dec. 12.

NOTICE OF REMOVAL.

NUTTING AND SONS, SEEDSMEN, late of 46, Cheapside, and 26½, Upper Thames Street, beg to acquaint their Friends and Customers that they have REMOVED to their New Premises, 60, Barbican, where they hope to be favoured with future commands.—60, Barbican, London, E.C.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.
Bardney Hall, near Lincoln, Dec. 12.

TO LOVERS OF BOTANY.

TO BE DISPOSED OF, a HORTUS SICCUS, containing specimens of 300 British Plants and about 350 Exotic species, neatly arranged on white foolscap paper; also FERNS, containing nearly the whole of the British varieties, with several Exotic kinds, arranged on cartridge, correctly named.—For price, &c., address D. Y., Atlas House, Bromley, Kent, S.E.

ASPARAGUS AND SEAKALE.

YOUELL AND CO. having a large Stock of the above growing on the Sea Coast, of the finest quality, beg to offer it at the following prices:—
ASPARAGUS, GIANT, 2 years old, per 100 .. 2s. 6d.
SEAKALE, strong .. .. 7s. 6d.

RHUBARB.—Myatt's Victoria, Myatt's Linnæus, Mitchell's Royal Albert, strong roots for forcing, 9s. per dozen.
Royal Nurseries, Great Yarmouth.

AZALEA INDICA.—Fine strong Plants of the leading kinds in cultivation, well furnished with bloom buds, 12s. to 18s. per dozen; or without flower buds, fit for specimen growing, 9s. per dozen.
Finest CARNATIONS, including all the new Continental varieties, without flower buds (our own working), 21s. per doz.
YOUELL & Co., Royal Nurseries, Great Yarmouth.

FASTOLFF RASPBERRY (TRUE).—The above unequalled Raspberry, originally sent out by us, can be supplied in strong Canes, warranted true, at 10s. per 100.
Large WHITE RASPBERRY .. .. 18s. per 100.
New MONTHLY FRUITING .. .. 18s. „
BELLE DE FONTENAY .. .. .. 18s. „
YOUELL & Co., Royal Nursery, Great Yarmouth.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75s. per 100. Price to the trade on application.—Highgate Nurseries, London, N.

TO BE SOLD, some Thousand Canes of the finest RED RASPBERRY that goes into Covent Garden Market. Delivered free in London in any quantities at 10s. per 100.—Address JOHN HORWOOD, Rabbly Gardens, Barnet, Herts.

CUCUMBER SEEDS.

CUTHILL'S BLACK SPINE, Early Forcing, 1s. per packet; Do. WHITE SPINE, long, 2s. 6d. per packet; Do. HIGHLAND MARY, very best for winter, 2s. 6d. per pckt. Potato Pamphlet, &c., 2s.; Market Gardening Round London, 1s. 6d.; Vine Pamphlet, 1s. The Treatise on the Cultivation of the Mushroom, price 1s. post free.
JAMES CUTHILL, Camberwell, London, S.

VINES IN POTS FOR FRUITING.

JOHN ELLIOTT, Fulham Fields, begs to offer very strong VINES from Eyes for Fruiting or Planting.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of GRAPE VINES, struck from eyes, for Planting or Forcing in pots, from 5 to 8 feet long.—Shacklewell Road, Stoke Newington, N.E.

GRAPE VINES FROM EYES.

JOHN AND CHARLES LEE having recently erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*
Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.
*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*
Nursery, Foot's Cray, Kent, S.E.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.
Woking Nursery, Surrey.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS'S NEW ROSE CATALOGUE, containing full instructions for successfully cultivating Dwarf Roses on the Manetti Stock, may be had gratis on application.

MR. THEODORE BÖTTNER, SEED GROWER and NURSERYMAN, Greussen, near Erfurt, Germany, begs to inform Amateurs and the Trade that his CATALOGUE OF FLOWER AND VEGETABLE SEEDS for 1858 is Now Ready, and may be had gratis on application to his Agent, Mr. R. SILBERRAD, 5, Harp Lane, Great Tower Street, London, E.C.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 35s. per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway, Middlesex.

SEED WHEAT FROM THE CHALK.—Selected Samples of Chidham, White Trump, Rough Chaff, Fawlett's Imperial, Talavera, Red Browick, Red Nursery, and all the best kinds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNBIRD, Basingstoke, or 14, Seed Market, Mark Lane.

TO THE SEED TRADE.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., invite attention to their two NEW ANNUALS for 1858, viz., CLARKIA PULCHELLA MARGINATA, *rose, with white border*; LUPINUS HYBRIDUS INSIGNIS, *rosy purple*. This Lupine is totally different from one offered under the same name by a London house at 1s. 6d. per oz. Prices of both may be obtained upon application.

EARLY SOWING FOR 1858.

EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. Every description for present sowing may be had of JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W.C.

RISING SUN PEA.

FLANAGAN AND SON again beg to offer the above valuable variety of the Green Marrow class. It has been well tested during the past season, and has given general satisfaction. The stock being limited early orders are desirable. Trade price on application.—9, Mansion House Street, London.

TO THE SEED TRADE.

TO BE SOLD, very cheap, a few quarters of BEDMAN'S IMPERIAL and SCIMETAR PEAS; also a quantity of WOOD'S LONG RIDGE CUCUMBER, a variety which for hardiness and prolific bearing, combined with length, is unequalled.—Apply to WOOD & INGRAM, Huntingdon.

FIGS in pots for Forcing or Orchard house culture.—Fruiting trees, three years old, of the following sorts, are offered at 5s. each:—Brown Turkey on Lee's Perpetual, White Ischia, White Marseilles. Carriage paid to London.
THOMAS RIVERS, the Nurseries, Sawbridgeworth.

WANTED TO PURCHASE, a few Thousand Roots of the RHAI RHAPONICUM, or old Green Rhubarb.—Apply by letter, Mr. USHER, Bodicott, near Banbury, Oxon.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

CAMELLIAS, AZALEAS, &c.

CHANDLER AND SONS, NURSERYMEN and SEEDSMEN, Wandsworth Road, S., have for Sale a large stock of fine healthy plants of the above well set with flower buds, hardy Greenhouse Plants, Ferns, &c. Prices moderate.
N.B. Kitchen Garden and Flower Seeds of the best kinds.

PINE APPLE PLANTS FOR SALE.—Two Hundred FRUITING and SUCCESSION PLANTS, clean and healthy.—For terms apply to Messrs. CUNNINGHAM & SON, Nurserymen and Seedsmen, Oak Vale, near Liverpool.

PINES ON SALE, from the stock of a first-rate grower in Hertfordshire:—
82 LARGE FRUITING PLANTS,
79 LARGE SUCCESSION PLANTS,
100 SMALL SUCCESSION PLANTS.
Queens, smooth-leaved Cayenne, Providence, and Enville, perfectly clean and in splendid health.
Apply to A. PAUL & SON, Nurseries, Cheshunt, Herts.

TO BE DISPOSED OF CHEAP, the following PLANTS:—2 Epacris grandiflora, 1 Epacris miniata, 1 Erica Cavendishi, do. miniata, Eriostemon buxifolium; averaging from 3 to 4 feet. Lowest price 6 guineas.—Apply to the Gardener, A. B., King's Road Nurseries, Tottenham.

HOLLY BERRIES FOR SALE.—Persons wishing to be supplied with the above will please communicate with JAMES LAKE, for quantity and price.
The Nurseries, Bridgewater, Somerset.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

TWO MILLIONS OF TRANSPLANTED QUICKS.

GEORGE CHIVAS invites the attention of Planters to his Stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 15s. His General List of Nursery Stock will be forwarded on application.—Chester.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT-BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

FRUIT TREES IN POTS.

J. CATTELL has a fine stock of very healthy, well-grown plants of the best varieties of Peaches, Nectarines, Moor Park Apricots, Cherries, Figs, &c., fit for fruiting this coming season. Also a fine, well-grown stock of superb Black Hamburgh and other Grape Vines.—A descriptive priced Catalogue of which may be had on application, inclosing 1d. postage stamp.—Westerham Nurseries.

NURSERY TREES.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, FRUIT TREES, and SHRUBS, which they will sell on moderate terms.

DWARF TRAINED FRUIT TREES.

HOOPER AND CO., Central Avenue, Covent Garden Market, beg to intimate that they are in a position to supply excellent Trees of the above description, consisting of Peach, Nectarine, Apricot, Plum, Cherry, Apple and Pear, at prices below the usual scale, which will be given on application. Hyacinths, Tulips, Narcissus, Jonquils, Crocuses, Ranunculus, &c., at low prices.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
" canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
" " 8 to 10 feet; these are 6 feet through and very finely formed.
" Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
" " 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
" Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
" " 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
" Nordmanniana from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
" insignis, 3 to 4 feet.
" " 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
" " pendulum, 1 to 2 feet, very ornamental.
" sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
" Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
" Lobbi, 1 to 2 feet, fine plants.
" chiliensis (Libocedrus), 1 to 2 feet.
" siberica compacta, 3, 4, to 5 feet.
" Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.
Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants:—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
" " magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
" " 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
" Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
" Douglasi, 5, 6, 8, and 10 feet
" Menziesi, 6 to 8 feet
Lambertiana, 2, 3, and 5 feet
" Cembra, 3, 5, and 6 feet
" Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
" amabilis, also from seed
" Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
" Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
" Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
" Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
" Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
" elegantissima, or new Gold Striped, in quantities and of all sizes
" adpressa, 2, 3, and 4 feet; ditto worked as standards
" Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
" Wareana, 3, 4, 5, 6, and 8 feet
" aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and, as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South-Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

*** Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

JOHN GRIGOR & CO., Nurseries, Forres, N.B., beg to intimate that they have for Sale an extensive Stock of all sorts of FOREST, FRUIT, and ORNAMENTAL TREES and SHRUBS, adapted to the climate of Scotland. As great care has been taken in raising the different kinds from the most approved varieties of their species, the plants are healthy and of fine quality. J. G. & Co. have had the honour to receive the numerous Premiums hitherto awarded by the Highland and Agricultural Society of Scotland for the cultivation of the true native HIGHLAND SCOTCH PINE—(the various qualities of Scotch Fir Timber are fully detailed and accounted for in the article "Pine Tree," vol. 2, page 603, of the "Agricultural Cyclopedia," published by BLACKIE & SON)—and their present Stock of this valuable Tree, and of the LARCH, comprehends many millions of Plants, of every size and age, suitable for being transplanted. Their FOREIGN PINES, for the raising of which the Highland and Agricultural Society's Premium was also awarded, include many kinds of great beauty, strong of their age, giving promise to become valuable as Timber Trees in the climate of Britain.

Goods are carefully packed; and in forwarding Plants, &c., every information required will be readily afforded regarding their mode of treatment; and to those who may desire it advice will be furnished respecting the formation or management of Plantations by Mr. GRIGOR, author of the Highland and Agricultural Society's First Prize Essays, "On Raising Forest Plants," "On Forest Planting, and on Trees adapted to various soils and situations," "On Raising and Managing Hedges," "On Forest Pruning," "On the Native Pine Forests of Scotland," "On Planting within the influence of the Sea," "On the Deodar," and on various other subjects connected with Arboriculture. Price Lists will be furnished on application, and the Trade supplied at the wholesale rate.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHododendrons annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
" " 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possibly desired.
" africana, 3 to 4 and 5 feet, fine plants.
" Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
" " " larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet,
" Goveniana
" Lambertiana } 2 to 3 and 4 to 5 feet, from seed. The large sized plants are very handsome.
" macrocarpa
" Lawsoniana Seedlings.
" variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens.
" japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
" chinensis, 3 to 4 and 5 to 6 feet.
" common English, 2 to 3 feet.
" Irish, 3 to 4 feet.
" " 4 to 6 and 7 to 8 feet, very handsome close grown specimens.
" recurva, 3 to 4 and 5 feet
Libocedrus chilensis, 3 to 4 feet.
" gigantea, 1 to 2 feet.
" " 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
" Beardsleyana (new), about 1 foot.
" Benthamiana, 1 to 2 and 3 feet.
" Brunoniana, 2 to 3 feet.
" Cembra, 3 to 4 and 5 to 6 feet.
" Douglasi, 4 to 5 and 6 feet.
" " 6 to 8 and 10 feet, most magnificent plants.
" excelsa, 4 to 6 and 7 feet.
" insignis, in any quantities, 2 to 3 feet.
" " " 3 to 4 and 5 feet.
" Jeffreyana (new), about 1 foot.
" Lambertiana, 2 to 3 and 4 feet.
" " very fine, 5 to 6 and 8 feet.
" Morinda, 4 to 6 and 7 feet.
" nobilis, from seed, 1 and 2 years.
" Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
" Sabiniana, 2 to 3 feet.
" taxifolia (of Jeffrey), 1 to 1½ foot.
" tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora ericoides, 1 to 2 feet.
Saxe-Gothæa conspicua, 2 to 3 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 to 10 feet.
Taxus (Yew), Common, 2 to 3 and 4 to 5 feet.
" Irish, 3 to 4 and 5 to 6 and 8 feet.
" gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
" " larger, 1½ to 3 feet.
" chilensis, 2 to 4 feet.
" gigantea, 1 to 2 and 3 to 4 feet.
" Hookeriana, a very dense growing species.
" Wareana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
" " larger, very handsome, 1½ to 2 and 3 to 4 feet.
This plant is admirably adapted for forming Avenues.

None of the foregoing are grafted, with the exception of Pinus Lambertiana, which does well, neither have any been cramped by the ruinous system of pot culture.

AMERICAN PLANTS.

Azaleas, good varieties of scarlet, rose, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
" Of best Ghent and other varieties, 1 to 2 feet.
" Standard, of the leading kinds
Kalmia latifolia, 1 to 2 feet, by the 100.
" " 2 to 3 and 4 feet, large very handsome specimens
" " Standards, with fine symmetrical heads.
" " myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Game Covers.
" Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
" Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
" Standard, 3 to 4 feet stems, with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved perpetual varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens; we would therefore suggest the importance of purchasers making a visit of inspection, which can be readily done by South-Western Railway to the Sunningdale Station, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

EVERGREENS, FRUIT TREES, ETC.

WM. CUTBUSH AND SON beg to offer a large and varied Stock of EVERGREEN and DECIDUOUS SHRUBS, amongst which are very large EVERGREEN OAKS (in pots), SWEET BAYS, SCARLET RHododendrons, ARBUTUS, AUCUBA, COMMON and IRISH YEWS, Green and Variegated HOLLIES, PORTUGAL and COMMON LAUREL, &c.; and also very fine Standard and Dwarf trained PEACHES, NECTARINES, APRICOTS, PLUMS, PEARS, CHERRIES, and APPLES of the most popular varieties.

From the nature of the soil and the attention paid in the biennial removal of the stock, all risk in transplanting is obviated. The Nurseries being only five miles from the General Post Office (northwards), and easily reached by omnibus, an inspection is respectfully invited.—Highgate Nurseries, London.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each; 12 do. do., 5*l.* per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Dec. 12.

NURSERY STOCK AT REDUCED PRICES TO MEET THE TIMES.

WM. JACKSON AND CO., Bedale, will supply the following CHOICE STOCK, grown in their exposed and extensive Nurseries in North Yorkshire.

	£	s.	d.
12 best kinds Ghent and other hardy Azaleas, 2 feet, large plants covered with flower buds (£5 per 100)	0	18	0
12 best kinds hardy Rhododendrons, 2 to 3 feet, selected from 100 fine sorts	1	0	0
12 splendid hardy Hybrid Rhododendrons, 1 to 2 feet, compact dwarf growers, principally scarlet, crimson and rose, covered with flower buds, at 1*l.*, 2*l.*, and 3*l.* per dozen.			
12 Andromeda floribunda, 2½ to 3 feet, large specimen plants, covered with flower buds	4	4	0
12 Kalmia latifolia, 3 feet, with flower buds	1	10	0
12 Tree Pæonia, best kinds, flowering plants	1	10	0
12 Standard Fancy Thorns, 4 to 5 feet	0	6	0
12 " Rhododendrons, good buds, 4 to 5 feet ..	6	0	0
12 " new Persian Lilac, with flower buds ..	1	0	0
12 " Grandiflora do. do.	0	10	0
12 " Roses, on good neat stems, the best varieties, good plants (4*l.* per 100)	0	12	0
12 Dwarf Standards, of the best varieties	0	12	0
100 " Roses, good showy kinds, two of a sort ..	1	5	0
100 " " " mixed	1	0	0
100 Best showy Herbaceous Plants, two of a sort ..	1	0	0
100 Evergreen and Flowering Shrubs, two of a sort ..	1	10	0
100 Portugal Laurels, 1 to 2 feet	1	0	0
100 fine Tree Box, of sorts, 3 feet, specimens	2	0	0
1000 best Evergreen Privet, 2 to 3 feet	1	5	0
1000 new Box-leaved Privet, 2 to 3 feet	1	10	0
1000 fine Transplanted Hollies, 1 foot	2	0	0
1000 " Laurels, 1 to 2 feet	4	0	0
1000 " Laurels, 3 to 4 feet	9	0	0

Also the following, prices of which are very moderate, will be forwarded on application:—Abies Douglasi, Pinus Cembra, Pinus excelsa, and Pinus Pallasiana, 3 to 4 feet; Taxodium sempervirens, 2 to 3 feet; Cedar of Lebanon, 2, 3, 4, and 5 feet specimens, each, or per dozen.

Tyrolese Larch, 1½ to 2 feet; and Norway Spruce Firs, 2, 3, and 4 feet extra, transplanted.

FRUIT TREES, per dozen.

Apricots, Peaches, and Nectarines, dwarf-trained ..	42*s.* to 48*s.*
" " " standard trained ..	60
Apples, strong dwarf-trained	15
Cherries, Pears, and Plums	24

True Northumberland Fillbasket Raspberry, the best for market, 12*s.* 6*d.* per 100.

For large quantities low railway rates will be obtained. Goods required in the spring may be ordered now. A reference or remittance is respectfully solicited from unknown correspondents. The Trade supplied.

KALMIA LATIFOLIA MAJOR SPLENDENS.

JOHN CATTELL has now to offer fine healthy bushy plants, about 18 inches in height, of this very beautiful Kalmia, the flowers of which are almost flat, about the size of a penny piece—some even larger, and of a much deeper rosy pink colour than any other variety, which colour they retain till the flower falls; plants, 10*s.* 6*d.* each. Fine plants of J. C.'s other well known large flowering varieties of KALMIA LATIFOLIA may also be had.

New upright growing small leaved PORTUGAL LAUREL. This handsome variety is now taking its place among our first-class hardy ornamental evergreens. Young plants one year bedded 1*s.* each, or 9*s.* per doz.; or by post 1*s.* 6*d.* each. Strong plants, 1 to 2 feet, 2*s.* 6*d.* to 5*s.* each.

J. C. has also a fine stock of WELLINGTONIA GIGANTEA, 6 to 15 inches, most perfect plants, and some 2½ feet in 11-inch pots, first-rate specimens.

Thujopsis borealis, 6 to 12 inches, faultless plants on their own roots.

Cephalotaxus Fortuni, male and female, 6 inches to 2 feet, splendid plants.

Retinospora squarrosa, 9 inches to 3 feet, very handsome.

Cupressus Lawsoniana, 9 to 16 inches.
" majestica, 1 to 3 feet.

Araucaria imbricata, 1 to 5 feet; these are all grown on a cold hill facing the north-east, and are in the most robust health.

Cedrus Deodara, 1 to 10 feet, splendid plants.
" " viridis and robusta, 1 to 3 feet.

Abies Douglasi, 2 to 5 feet, exceedingly handsome plants.
" " larger, up to 10 feet.

Pinus insignis, 1 to 7 feet, also grown on our cold hills; they are handsome specimens in the most robust health.

Picea nobilis, very handsome plants with leaders.
" Nordmanniana, perfect specimens.

Thuja gigantea, 6 inches to 2½ feet, very fine plants, and a great number of other new, rare, and other Coniferæ.

J. C.'s Nurseries also contain a very large stock of Forest, Fruit, and Ornamental Trees and Shrubs. American Plants and Roses are also particularly well grown, and contain all the newest and most distinct varieties. Some splendid specimens of Andromeda floribunda, 3 feet high, very bushy and covered with flower buds. Parties about to plant any description of Nursery Stock would be amply repaid by a visit to the Westerham Nurseries.

Descriptive Priced Catalogues may be had on application, enclosing a penny postage stamp.

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained FRUIT TREES of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 & 4 year old CURRANTS of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch. GOOSEBERRIES, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chesnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

CUSTARD VEGETABLE MARROW.

MESSRS. WRIGHT, RENWICK, AND THOMSON beg to offer well ripened Seeds of this extraordinary, prolific, beautiful, and delicious Vegetable. See engraving and leading article in the *Gardeners' Chronicle* of September the 19th. "Seeds were sent to the Horticultural Society by Mr Thomson In the axil of every leaf there is a fruit. It will be evident that the mere beauty of its form would render it better adapted for a side dish than the common Vegetable Marrow, even if it were not superior in quality and more abundant in produce."

12 Seeds post free on receipt of 25 postage stamps.
6 Seeds post free on receipt of 13 postage stamps.

6 distinct varieties of Balsam, a packet of each 2s. 6d., saved from one of the finest and most carefully selected collections of Balsams in Britain, as grown by Mr. Thomson, at Dyrham Park.

The beautiful winter flowering Celosia aurea, per pckt.	2s.	6d.
Delphinium formosum .. .. .. ,,	1	0
Lobelia speciosa (the best for bedding) .. ,,	1	0
Godfrey's Black Spine Cucumber (true), per doz. Seeds	1	6
Golden Drop Melon (true) .. .. .. ,,	1	0
Thomson's Dyrham Park Hybrid Melon .. ,,	1	0
Golden Perfection Melon (true) .. .. ,,	1	0

The whole of the above, inclusive of the six Seeds Vegetable Marrow, for 12s. 6d., post free. A remittance to accompany all orders from unknown correspondents. Seed List and Catalogues of Plants sent on application.

Leith Walk Nurseries, Edinburgh, December 12.

RHODODENDRON PONTICUM and KALMIA LATIFOLIA: superb bushy plants, from 1 to 2 feet high, completely covered with bloom buds and admirable adapted for potting.—Prices on application to WM WOOD & SON, Woodlands Nursery, Maresfield, near Uckfield, Sussex.

CLEAN CARROT SEED.

WHY SOW CARROT WITH CHAFF, HUSK, AND STALKS, MORE THAN WHEAT OR OTHER SEED?

In the state in which Carrot Seed has hitherto been sold to Growers, it contains, in 100 parts—

Chaff, Husks, and Stalks .. .. .. about	45
Seed	55
	100

If, therefore, a pound of so-called "Carrot Seed" cost 2s., with a loss of 45 per cent. for waste, the cost per pound of actual Seed will be equal to ..	3s. 6½d.
To which must be added the expense and trouble of preparing it for sowing, say	0 2½
Real cost of Seed per lb.	3 9

The great desideratum hitherto has been a means of separating the seed of this most valuable plant from the hirsute covering with which it is surrounded. This can now be accomplished with facility, and at a trifling cost, by the Patent Seed Dressing Apparatus.

Of the great advantages which must arise from sowing clean Seed it is needless to speak, as these must be as self evident as are the many disadvantages resulting from its use in the rough state. It may, however, be remarked that of all the food plants in cultivation, whether on the Farm or in the Garden, the Carrot is the one in which the least progress has been made, either in the improvement of existing stocks or in the propagation of new varieties. May not this be attributable in great measure to the circumstance that growers have had no means of dividing and selecting the well-matured and robust from the weak and imperfect Seeds; and have thus been compelled to sow, along with a negatively injurious mixture of 45 per cent. of worthless refuse, a not inconsiderable quantity of immature or diseased Seed, the presence of which is positively so. All cultivators must be desirous of sowing clean, pure, and healthy Seed, and they can now have no difficulty in obtaining the article, as the use of this very utile invention is open to the trade and the public; and the Proprietor is prepared to contract to clean any quantity on moderate terms.—Apply to Mr. H. HIATT, 2, Guildhall Chambers, Basinghall Street, London.

SEED POTATOES.

JOSEPH MAY AND CO. beg to inform their friends and customers that they can supply the following desirable kinds, in large or small quantities, free from disease:—

Soden's Early Oxford, true.	Ash-leaved Kidneys.
Early Ten week.	Lapstone ditto.
Early Queen, as early as any, produced 4 bushels per rod.	Fluke ditto.
Walnut-leaved Kidneys.	Red Ash-leaved ditto.
	Early Shaw.

All other kinds can be had. Prices on application.

1, Wellington Street, Strand, Waterloo Bridge.

SEED POTATOES.

JOHN BELL begs to call the attention of the trade and others to his various assortments, which he warrants true

ASHLEAF,	REGENTS,
FLUKES,	SHAWS,
DAWE'S MATCHLESS,	FORTY-FOLDS,

And all other varieties.

Price Lists can be had on application to JOHN BELL, Covent Garden Market; or, Great Northern Railway Potato Market, King's Cross, London.

EARLY POTATOES.—"THE LEMON KIDNEY." This celebrated early variety, being far superior in forwardness and flavour to the Ash Leaf (see last number of the Royal Agricultural Society of England's Journal), may be had on application to JOHN HIRN, Mere-side, Lancaster. Price 2s. 6d. per stone.

Also a few stone of the "IMPROVED" LEMON KIDNEY, proved to be two weeks earlier than the Ash Leaf. Price 5s. p. st.

POTATOES FOR EARLY PLANTING.

MYATT'S PROLIFIC SEEDLING ASH LEAF KIDNEY.—This valuable variety, first sent out last season, and which has given such entire satisfaction, has again withstood the ravages of the disease.

For description see Dr. Lindley's report in *Gardeners' Chronicle* of August 1 at the Horticultural Society's Garden, Chiswick, wherein it is described as "a better cropper than the old Ashleaf, and one of the best early kinds."

Price per bushel 10s., bags included. The Trade on application.

Also GOLDEN DWARF, an early round variety, very prolific, ASHLEAF, EBRINGTON KIDNEY, BROCKLEY KIDNEY, &c., 7s. per bushel.

To be had of Mr. J. MYATT, Evesham, Worcestershire; or Mr. J. MYATT, Camberwell, Surrey.

NEW EARLY PEAS.

BASS AND BROWN have pleasure in recommending for early sowing—

DANIEL O'ROURKE, or Sangster's No. 1, the earliest grower.
BECK'S GEM, the earliest and best dwarf for forcing
WARNER'S EMPEROR.
RISING SUN, New Green Marrow, nearly as early as Emperor, a Pea of great produce.
DICKSON'S FAVOURITE, very long pods.

Their general stock of New Vegetable Seeds is now ready, and their usual collections of first-rate sorts can be supplied.

Choice assorted collections, 60s., 40s., 25s., 15s., and 10s. 6d.

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

BERBERIS JAPONICA.

CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established; it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Dec. 12.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Dec. 12.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH VINE.

JAMES VEITCH, JUN.,

ROYAL EXOTIC NURSERY, CHELSEA, S.W.,

HAS much pleasure in again calling attention to this SPLENDID NEW GRAPE, which has fully carried out all its previous recommendations.

During the present year (1857) it received at the Meeting of the Pomological Society, September 13th, the **FIRST PRIZE as the best SEEDLING WHITE GRAPE;** and it also received an AWARD at the **CRYSTAL PALACE EXHIBITION** on September 9, thus establishing the continued excellence which has been confirmed by the opinions of the best judges.

Strong established Plants, with well ripened wood, 21s. each, one over on three to the trade, to whom special terms will be quoted, when 25 or upwards are ordered at the same time.

For further particulars, with a List of the NUMEROUS PRIZES IT HAS RECEIVED, see Advertisement in the *Gardeners' Chronicle* of last week.

MESSRS. E. G. HENDERSON & SON

BEG TO OFFER THE UNDERMENTIONED NEW SEEDS:—

THE DALMENY BROCCOLI.

New Hardy Dwarf White May Broccoli. Half oz. pckts. 2s. 6d.

This very valuable variety was raised by Mr. Wm. Melville, Gardener to the Earl of Roseberry, Dalmeny Park, Edinburgh, who, after some years' experience in its growth and management, speaks of it as possessing such features as must render it a most invaluable kind to Gardeners generally, more especially where Early Hardy Vegetables are required in quantity and succession. In a recent communication from Dalmeny Park Gardens, he describes it as "the hardiest Broccoli extant," it having "stood the very trying winter of 1856 both in England and Scotland; and whilst very few had any left living in the spring of the year, I had not a single injured head among my variety in a whole quarter." He (Mr. Melville) further alludes to it as "fine in colour and dwarf in habit, requiring to be sown about the second week in April, and comes in for the ensuing season by the last week in April and throughout May." As an important point in its winter management it should, as soon as it arrives at maturity, be freely earthed up to the leaves, to enable it to resist severe and sudden extremes of weather, and as a preventative from the injurious effects of early or long-continued frost. As an additional testimony in favour of this most valuable vegetable, which has been a long-wished for desideratum amongst early crops, the following description of its character and utility is quoted from the "Cottage Gardener," which, coming as it does from the united testimony of skilful English and Scotch gardeners, may be received as evidence of the highest commendation.

"MELVILLE'S WHITE MAY BROCCOLI.

"We have received from Mr. Melville, Gardener to the Earl of Roseberry, Dalmeny Park, near Edinburgh, specimens of a remarkably fine late white Broccoli, which promises to be a valuable acquisition to our gardens. We all know the difficulty there is in finding, late in the season, Broccoli which is at once hardy and of a pure white colour. In the London Markets we have had, during the spring, supplies of Broccoli from Cornwall, there being nothing to be had from the extensive garden grounds round the metropolis except the old Brimstone or Portsmouth variety: and for the last month the supply from Cornwall has been completely exhausted. The specimens we received from Mr. Melville on the 10th of May were large, each weighing, when trimmed ready for the pot, 1¾ lbs; they were perfectly white and had all the appearance of Cauliflower, and when cooked were very tender, nicely flavoured, and eating as tender as Marrow. This appears to us to be totally distinct from any other variety which has come under our notice, and possesses many properties which highly recommend it, among which are—A dwarf habit of growth, the plant sent us being only about a foot in height. Self-protecting—in this respect it resembles Knight's, by the leaves closing over the head, and not only most completely and effectually enclosing them from the effects of frost, but also keeping them from the action of light and thereby preserving their very fine colour. When first we examined them, we thought there was no head at all, till after searching for it among the leaves we found such as we have described above. This variety is quite distinct from Dilcock's Bride, or any other we have seen. Mr. Melville says, 'I had Elletson's New Emperor last year; it was called a dwarf, but my variety does not grow more than half its height. The winter of 1854 was a very trying one among Broccoli with us in Scotland. The half of the Emperor gave way with me, while in my own variety I had not an injured one among them.' A pure white Broccoli, 1¾ lb. in weight, and produced in Scotland in the middle of May, is a thing our southern friends should look out after."

COLLINSIA BICOLOR CANDIDISSIMA.

1s. and 2s. 6d. packets of Seed.

A very beautiful summer-flowering Annual, greatly superior to the common cream-coloured variety, known as Collinsia bicolor alba, being entirely free from the objectionable yellow tinge in the unopened flower buds peculiar to that kind, and further distinguished from it by its more compact and short-jointed habit, both in its branches and flower stems, its tendency to bloom earlier, and its snow-white purity of colour, combined with a still darker green foliage.

As a well known, extremely neat, dwarf, compact, free, and long-continued blooming species, this variety is admirably adapted for effect *en masse*, in the smallest and most richly furnished villa flower gardens, or for drawing-room conservatory embellishment in artistic vases. The foregoing features will constitute it one of the most valuable and effective flowers in its class yet offered, and will prove a charming little object in the most select arrangements of colour or design that a cultivated taste can devise—either for small detached groups, or for portable succession by pot culture, or for marginal effect in the decorative ribbon style, in avenues, or border lines.

CHLORIS PERFOLIATA.

1s. 6d. packets of Seed.

A remarkable and singularly elegant perennial species of Grass, considered the most interesting of its genus. It was introduced to English gardens by Mr Francis, Superintendent of the Adelaide Botanic Garden, South Australia. It forms a neat, dwarf, compact, open tuft, 6 to 9 inches high, from the numerous leafy divisions or crowns of which its leafy-enveloped culms or stems rise in succession to about 9 or 12 inches in height, and from the extremity of each a series of very slender thread like rachis or flower stems radiate like the spokes of a wheel, forming a concentric ray of 12 to 18 inches in circumference. The small, green, spathaceous florets are alternately ranged on the margin of each diverging ray-like stem, and on close examination appear like an alternate twin row of saw-like teeth, with minute hair like arms to each. During the summer and autumn months the fertile organs of the plant assume a purplish tint, and it is then an attractive object by its unique and diverse structure.

The Trade will have terms given on application.

WELLINGTON NURSERY, ST. JOHN'S WOOD, N.W.

The Gardeners' Chronicle

SATURDAY, DECEMBER 12, 1857.

MEETINGS FOR THE ENSUING WEEK.

TUESDAY, December 15—Horticultural ..... 2 P.M.
THURSDAY, — 17—Linnean ..... 8 P.M.

IT will be seen from the reported proceedings of the Linnean Society that Prof. OWEN produced the other evening, in proof of the UNUSUAL WARMTH OF THE PAST SUMMER, pods of the three thorned Acacia (*Gleditschia triacanthos*), which had ripened in his garden in Richmond Park. This was undoubtedly a remarkable occurrence, there being no other recorded instance of the tree having fruited in England except one mentioned by MILLER, who saw pods in 1728 on a tree in the Palace Gardens at Fulham, where it had been planted by Bishop COMPTON in 1700. In neither Prof. OWEN's nor MILLER's specimens were the seeds perfectly ripe, although in the former the embryo was completely formed.

The production of these specimens elicited some statements of a similar kind from gentlemen who were present, and the President expressed a hope that some one would collect, before they were forgotten, the instances in which the high temperature of 1857 has affected both the vegetable and animal kingdom. That facts of this kind would be highly interesting there can be no doubt, and we venture to solicit communications upon the subject. Some indeed we have already had; for instance, one gentleman has sent the crimson keys (*samaræ*) of Ailanthus glandulosus, another the nuts of Carya porcina and obcordata, two sorts of Hickory which we never before knew to fruit. We have ourselves for 40 years been familiar with *Koelreuteria paniculata*; this year it has for the first time within our knowledge formed abundantly its great bladdery seed-vessels, both at Kew and other places near London. Catalpa trees were loaded with their

long slender pods in the Duke of DEVONSHIRE's park at Chiswick; and in the Horticultural Society's Gardens acorns have ripened abundantly on the Valonia Oak (*Quercus Ægilops*). In another column will be found an interesting letter from Gordon Castle, in which Mr. WEBSTER points out the effect of the summer upon Apples in that high latitude.

But we must remind our correspondents that to render their communications useful three points must be attended to. 1. The locality must be exactly indicated, as well as any peculiarities of soil and situation. 2. Real names and addresses must be communicated. 3. There must be no error in the names of the plants spoken of. For example, the two Hickory nuts *Carya porcina* and *obcordata* were sent us a week or two ago without any information as to the place where they ripened; which diminished the value of the statement. Then another correspondent tells us that he had seen "Hickory" nuts gathered from a tree at Cookham; but he omits to say what species of Hickory, of which there are many. These are points which we trust will be attended to in any information that may be conveyed to us. In cases of doubt the fruit itself had best be forwarded; for then the accuracy of the statement will be made unquestionable.

A PAPER on the cultivation of Truffles by the head gardener in the Royal Gardens at Herrenhausen has lately appeared in the Prussian Horticultural Transactions.* It adds little if anything to our knowledge of the subject, but as it shows at least the present condition of the question, it may not be useless to present our readers with a short abstract. A person of the name of ROUSSEAU, in the department of Vaucluse, was lately reported to have raised Truffles artificially, but, as in most similar cases, it was found on inquiry that his method could lay no claim to the title of cultivation. It was indeed nothing more than that which has long been practised in Poitou. He found that Truffles abounded under a certain Oak, which he at once concluded without a shadow of evidence to have the peculiar property of producing Truffles. He accordingly collected all the acorns that he could from it, sowed them in a plot of ground of indifferent quality, and after four years obtained some good Truffles, the crop in nine years becoming abundant. This is the practice which is constantly followed in Poitou, as appears from TULASNE's admirable work, which neither Monsieur ROUSSEAU nor his reporter, M. GASPARIN, seems to have consulted. It is quite absurd to suppose that the particular Oak had any especial tendency to favour the growth of Truffles, much less that its acorns above any other acorns should have this property. It appears however that a Monsieur RAVEL, a dealer in Truffles, has persuaded himself, and has endeavoured to persuade others, that Truffles are peculiarly the growth of the Oak. He asserts that a species of Cynips pierces its capillary roots, and that by some mysterious process the spores of the Truffles are lodged in the puncture, and are ultimately developed, and that different species of Truffles are produced by the punctures of different species of Cynips. There is evidently the greatest confusion in his notions of the real nature of Truffles, and when he speaks of spores he really means that there is some sort of equivocal generation in the production of these Fungi. Two or three pages are devoted in the journal from which we quote to this subject, but it is really worth scarcely as many paragraphs, and it has not even the merit of novelty.

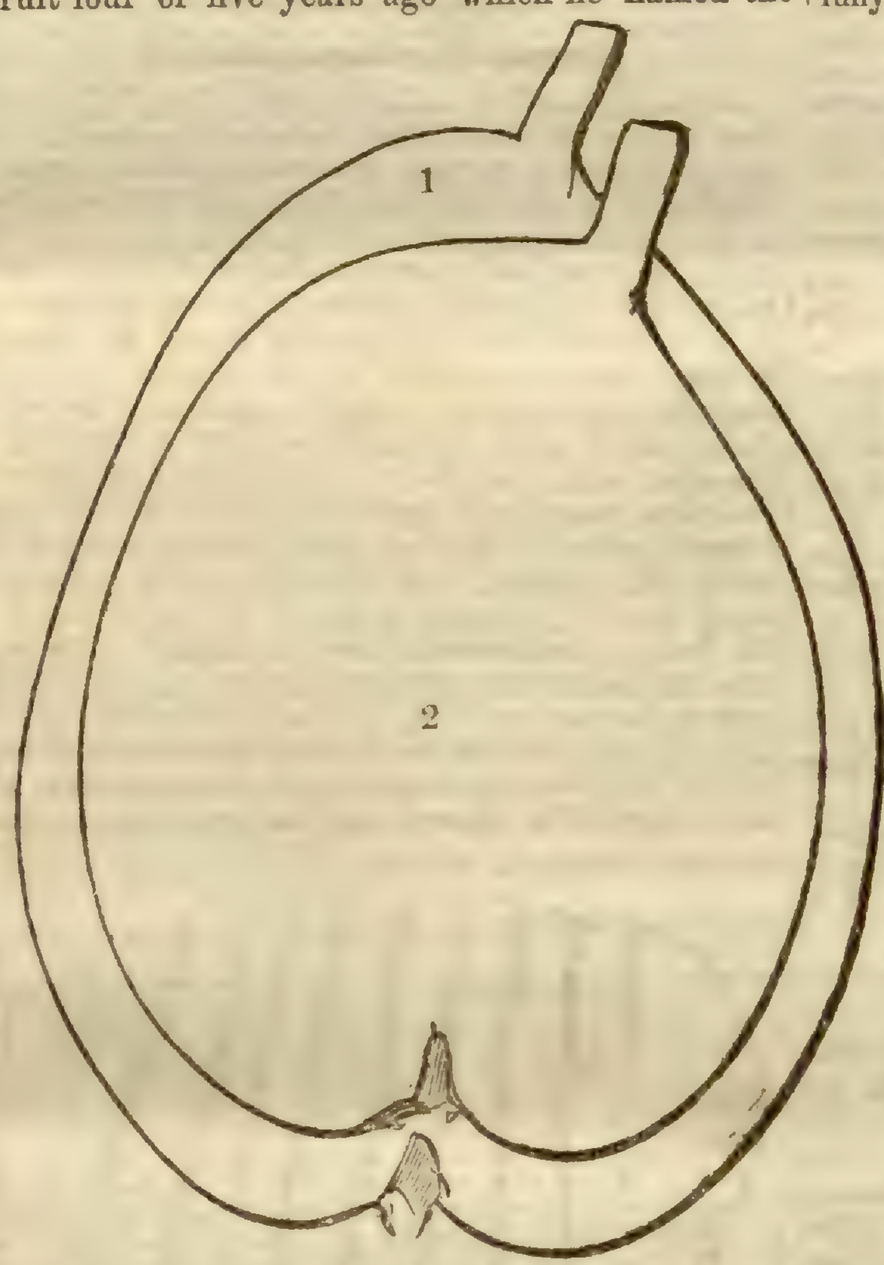
The remainder of the paper, after a few more general observations regarding the ruinous effect upon Truffle grounds of collecting the small Truffles which are unfit for the market as well as the larger ones, is devoted to the relation of certain experiments which have been made in the royal orchards at Herrenhausen. These are in fact similar to those which were conducted successfully by Count NOÉ in the South of France, and consisted in the insertion of Truffles or parts of Truffles, as their parings, in ground either naturally favourable to their growth or formed of different kinds of compost. Out of four varieties of soil, which are not particularly specified, one only succeeded, and that the heaviest. Even in this, however, the Truffles which were obtained were of small size, probably from some uncongeniality in the texture. The late Mr. DISNEY attempted something of this kind in Essex, but as he did not use fresh Truffles, but merely the refuse of an oil shop, it is not surprising that he obtained no favourable results. The best hope of succeeding in their cultivation should seem to insist in following out as closely as possible the method of Count NOÉ, and trusting to the soil itself in which they naturally appear. As far as experience at present goes, no compost, however judiciously formed, seems likely to give profitable results. *M. J. B.*

* Verhandlungen des Vereines zur Beförderung des Gartenbaues in den Königlich Preussischen Staaten. Neue Reihe. Vierter Jahrgang, p. 194, 1857. Ueber Trüffel-Anbau. Von dem Herrn Hofgartenmeister Borchers in Herrenhausen.

IT is seldom now that Pears of the highest quality are added to our collections. Some have one fault, some another. This ripens unseasonably; that is too small; a third is in need of a better climate, as happens with Duchesse d'Angoulême and Beurré Clairgeau; a fourth cankers, being tender and impatient of our rude springs.

Cross breeding seems to have once more achieved a signal triumph by producing a variety of the Pear to which none of these faults can be ascribed. Ripening at this season, portly and handsome, acquiring the highest excellence in our own climate, hardy and a free bearer, HUYSHE's BERGAMOT has taken rank among such sorts as the Brown Beurré, Gansel's Bergamot, and the Chaumontelle when it is good.

The history of this variety is as follows. The Rev. JOHN HUYSHE, a clergyman residing at Clysthydon Rectory, near Collumpton, about 25 years ago grew three plants of Pears raised from pips of the Marie Louise hybridised with Gansel's Bergamot. Of these three plants one produced fruit four or five years ago which he named the "Victoria" Pear, sending to London at the time specimens of the fruit, and also some grafts at our request for the Horticultural Society's Garden. It was there regarded as a first-class fruit, and it has since been extensively cultivated in Devonshire and elsewhere. Last year another of those three Pear trees produced two fruit, and this year a larger supply, which has enabled Mr. HUYSHE to favour us with a few for examination.



1. Huyshe's Bergamot. 2. Victoria Pear.

The seedling is worthy of its parents, which is saying all that can be said, and we are glad to find that the name of the skilful horticulturist to whom we owe the delicacy is to be associated with it. The size and form of HUYSHE's Bergamot are shown by the larger of the accompanying outlines; it is a very handsome solid fruit with a rich clear cinnamon brown skin, rather darker on one side than the other. Its flesh is like that of the Brown Beurré when in perfection, or GANSEL's Bergamot, as rich and melting as in either of those famous varieties. In this singular season, when no Pears will keep, it was ripe in the end of November. In ordinary years it may be expected to be fit for table by Christmas.

The Victoria Pear, though very good, is at the same time inferior to HUYSHE's Bergamot. It is smaller, as the inside figure in the above outline shows, with a similar form, but not so blunt next the stalk. It has the same rich cinnamon skin, but not so dark, and here and there a light green peeps through the russet. Its flesh was less buttery, and not free from grittiness in the fruit sent to us; but it was scarcely ripe, and would probably improve; even as it was, we must pronounce it an excellent variety. And we think Mr. HUYSHE deserves public thanks for having thus produced what is undoubtedly a very important addition to our dessert fruit.

What will the third of the three seedlings prove? It has not yet fruited.

A FEW years ago mention was made in our columns of the peculiar conditions under which a famous old Vine remained in robust health at Cumberland Lodge, one of her Majesty's gardens. We now learn that by the advice of Mr. INGRAM, a new house has been built over it, the dimensions being 138 feet long by 19 feet wide. The roof is entirely covered by the Vine, and we think it may be said with truth that this specimen is the Leviathan of Vines in England.

PERSIAN INSECT POWDER.*

WE are indebted to Mr. Neumann, Inspector of the Breslau railroad, for some observations on the cultivation of the plant which produces the Persian insect powder. His first acquaintance with this plant, Pyrethrum carneum, as yielding the insect powder, was derived from Dr. Koch's travels through Russia by the Caucasian Isthmus, for though it is an old inhabitant of continental gardens, its use was not suspected on the continent before the appearance of the above mentioned book. Insect vermin may be more prevalent in the East than in the West; it is however so abundant in Europe that a sure means of its destruction cannot fail to be gratefully acknowledged. On this account Mr. Neumann made some experiments to show how far Pyrethrum carneum could be acclimatised, and to open to the inhabitants of Silesia more especially a new method of procuring a livelihood.

For this end plants were procured and seed saved the first year for further experiment. It is notorious that many medicinal plants, as Rhubarb, Jalap, &c., lose their peculiar properties more or less completely, when removed from their natural soil and climate. The author attempted therefore first to ascertain the virtues attributed to the Pyrethrum, before he essayed the cultivation on a large scale. He collected a quantity of the flowers, from which he extracted the florets, which he dried and pulverised. The virtues were proved to be the same as those described in Koch's travels.

This verification induced our author to cultivate a larger quantity of the plants, to diffuse them as much as possible, and submit them to experiment. Notwithstanding, however, the favourable results, he found no one inclined to follow in his steps. The Society, which have obtained seeds from beyond the Caucasus, may possibly succeed in this respect better than the author, and to its auspices he commends the subject. New objects of cultivation are for the most part carefully avoided, especially such as cannot be sold at once when harvested, and whose preparation for the market requires some trouble. The prospect of increased gain is left to the manufacturer, under the pretext of want of time.

The seeds of the Pyrethrum were sown in April in open unmanured land, in a place protected from the meridian sun, while the surface was kept moist by a thin layer of Moss. This was removed as soon as the plants came up, to prevent their rotting or becoming lanky. As soon as the seedlings were strong enough for transplantation they were planted 6 inches asunder in beds 4 feet broad, previously trenched to a depth of 3 feet. At this depth the soil was mixed with sand and marl, and free from artificial manure, circumstances especially necessary for the successful cultivation of the plant, and answering somewhat to its native soil. After the seedlings had been amply watered, they were kept free from weeds till autumn, when most of them flowered. The following year they were planted 1 foot apart in a bed prepared in the same manner as before, and suffered to remain permanently.

The seedling plants should not be transplanted in autumn since the frost has great effect upon them, and destroys most of them, whereas scarcely one fails of those which are transplanted in spring. They should not be covered in winter, as they are apt to rot. They derive great advantage from having the ground stirred twice in the course of the year. The situation most favourable to them is one which is sunny, but at the same time exposed to all changes of weather.

As regards the preparation of the powder, it is less troublesome than might at first be supposed. The blossoms are cut off close to the stems, when the florets are just on the point of expansion, and dried in the shade. When quite dry, the florets are removed and placed in a sieve, whose apertures are just wide enough to let them pass. The calyx leaves, stems, &c., which are left behind are thrown away as useless. The florets are then placed on a plate heated to 30° R., having first been laid on paper, and left till they are dry enough to rub into powder, which requires about 10 minutes. The degree of heat, and the time of its application must be carefully noted, as too great a heat or too long an application renders the powder useless. The dust about the blossoms and the essential oil contained in it are the efficacious parts, and this latter is volatilised and lost by

* From the Prussian Horticultural Transactions, 1857. The substance is used as a preventive of fleas, bugs, and other vermin, but it is said to be equally efficacious against the insects which devastate Herbaria.

excessive heat. The other parts of the plant are without any virtue.

In the Persian drug, as brought from Caucasus in the form of balls, which are not yet powdered, all these parts are combined. It should be observed that the fleas and bugs submitted to the German powder were not killed, but immediately ran off. If a quantity of them, however, are placed in a glass and dusted with the powder, they throw themselves on their backs and cannot move from the spot, though they still move their legs when the glass is shaken. *M. J. B.*

CHEAP VINERIES FOR LATE GRAPES.

YOUR correspondent "Vigneron" says, "Essex is very slow." I have put up since living at Broomfield, near Chelmsford, three and a half years, 10 plant houses, seven of which are devoted to Orchids, and in two of these I grow good early Grapes over the Orchids. Seven of my neighbours also within that time have erected nine houses, chiefly for Grapes, and most within one mile and a half of my cottage. This for a purely agricultural district is, I think, not so very slow. My late Grape house, 33 feet long by 12 feet wide, was erected in the spring of 1855. This year from the young Vines I had more than 150 bunches, and from two Muscadines on the old wall upwards of 350 bunches. Is this equal to what is usually expected? and this house has been gay with flowers from Cl r'stmas, 1856, to Nov. 1st, when the last Grapes were cut.

I agree with "Vigneron" in condemning the worse than useless expenses often incurred in making Vine borders, when good loamy soil is all that is required—in such a case the more manure the fewer Grapes. I have seen a little of Grape growing these last few years, and must differ from "Vigneron" in believing that in the south of England it is safe to attempt to grow Grapes every year without making some provision for a little artificial heat or protection. It is however wanted not in autumn to ripen the Grapes, but in spring to prevent late frosts, sometimes as late as the 20th May, from cutting off the young shoots. In the western counties of Devon and Cornwall it may be otherwise. The amount of artificial heat sufficient to keep late frosts out is exceedingly small and very inexpensive.

A span-roofed Grape house running north and south, that is, one face of the span fronting the east and the other fronting the west, is a far better position for a late Grape-house than any other, and a much greater weight can be got out of it. I write only to induce persons of small means to put up Grape houses.

I could if wished send a plan of a late house which can be put up in a substantial manner (minus the heating) for 10*s*. per foot run, 12 feet wide, and which shall produce at least one-third greater quantity than any I have seen described at same cost. [Pray do.]

I have about 1200 Orchids, and very little disease, and that only on some which got it before coming in my houses. I can easily grow Phalænopsis out of it. *Robert Warner.*

JUSTICIA CARNEA.

THE miserable examples of this useful though old-fashioned plant which one continually meets with, not only in collections in the neighbourhood of London, but also in the provincial establishments, clearly indicates that gardeners in general either do not know how to grow it properly, or that they do not bestow upon it that amount of attention it deserves. When well grown, however, few plants better repay the care bestowed upon it than this does. That it is capable of becoming under good management highly ornamental, I may just mention that I have seen a plant of it 3 feet in height, upwards of 4 feet in width, and covered to the edge of the pot with flower-spikes, numbering in all 156. The treatment by which this magnificent result was obtained was as follows:—

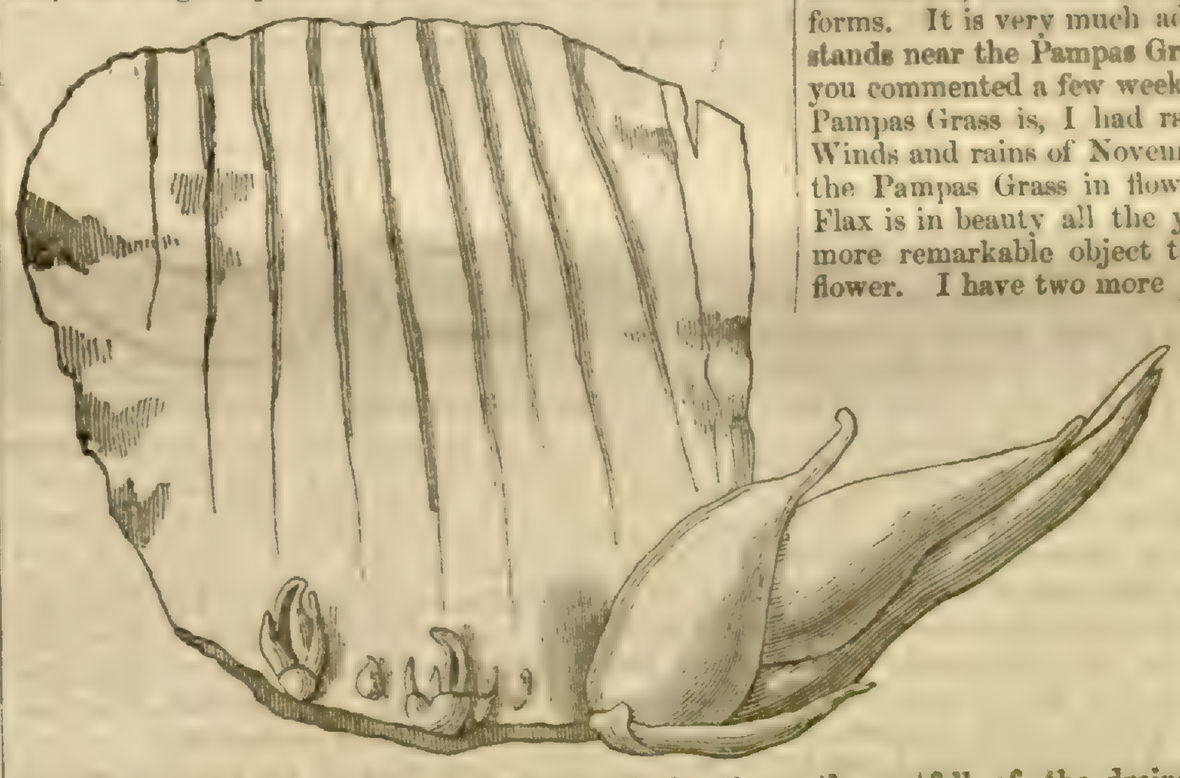
The plant was struck in April and shifted into a 7-inch pot in August, in which it was wintered, keeping it in a cool house, and rather dry at the root. In the beginning of March it was shifted into a 15-inch pot and placed near the glass in a house where the temperature ranged between 50° and 60° with fire-heat. Here it was afforded a slight bottom-heat, a moist atmosphere, and a free circulation of air whenever the weather would permit. As this plant does not like much moisture at the root, water was applied very sparingly to the soil until it was evident from the growth of the shoots that the roots had got good hold of the fresh soil; indeed, beyond syringing morning and evening very little water was given. The plant is a very rapid grower, and very much inclined to become leggy, and thin at the base, which stopping will hardly prevent, as the back buds do not break freely, and the centre shoots always have a tendency to take a decided lead. To remedy this they should be pegged down, bringing them almost close to the surface of the soil, which will cause the back buds to push, and when the points of the old shoots turn up and show a tendency to grow too fast for the others, let their points be nipped off with the finger and thumb. In short endeavour to equalise the growth as much as possible. Under this treatment early in May the plant produced 10 fine spikes of blossom, and was removed to the conservatory, taking care however to harden it off so as to prepare it for the change. When its beauty was over its flower spikes were cut off, the shoots shortened, cutting out some of the weakly ones, and it received no water at the roots for some 10 days, and was placed in a cool airy position. It was now removed to its old quarters, freely supplied with water at the root, and received the same attention as before in regard to pegging down the shoots with the view of equalising the growth. The weather being now warm the lights were entirely drawn off on bright hot forenoons; but they were replaced early in the afternoon after syringing, thus maintaining a moist growing atmosphere at night and whenever it could be done, taking care at the same time not to allow the plant to get "drawn." The buds broke freely under this treatment, and strong short jointed shoots were produced. In July it bloomed a second time, when it had no fewer than 92 flower spikes on it at one time. It was again taken into the conservatory and when its flowers had decayed it received the same kind of treatment it had after the first blooming. The only difference observed this time was to feed it while growing with clear liquid manure, which was rendered necessary through the pot having become full of roots, and the soil somewhat exhausted; as a matter of course the lights were not removed when the weather became so cool as to render this unnecessary. In September the plant produced 156 heads of bloom, which made the third time it had flowered in one year.

The soil employed was rich fibry peat and loam in about equal proportions, well mixed with sharp gritty sand, and a slight sprinkling of bone dust.

I may add that young plants grow so rapidly that except where very large specimens are required, old plants are not worth wintering. With a little skill however, this Justicia might be had in flower nearly the whole year round. Surely so useful a plant is worth attention. *M.*

Home Correspondence.

Bulbs produced by old bulb-scales.—Two ladies, relatives of mine, on their return from a tour through the south of Europe in the year 1856, remained for a few days at Gibraltar in the latter end of August in that year. One of the ladies had a book with black sheets of paper in it, in which she had placed specimens of various dried leaves of trees, plants, Mosses, &c., which she collected in the various countries through which she passed; amongst those matters her courier brought her a very beautiful bulb or white Onion (in appearance like white china), which grew in quantities wild on the rock of Gibraltar, telling her that the inhabitants had cautioned him to be exceedingly careful in handling it, as it was a "deadly poison." The lady took off three pieces of the outer skin, or scales, from the outside of the bulb, and sewed them with thread to one of the paper leaves of the book of collections I have mentioned. The book after her return to our house in 1856 was placed in a press in her dressing room, and last summer having gone upon another tour, and having only lately returned from it here, she yesterday took the book from the press, and was surprised to observe that its cover was not lying flat, but bulged up; she opened it, and to her astonishment found that from the bottom of each of the three scales small bulbs of those Onions had commenced to grow. This book has been in the press in a perfectly dry state in a dry room for more than a year, and it is now more than 14 months since the scales were put into the book. I have planted two of the productions in pots to try the result, and the matter appeared to us so curious that I send you one of the scales with its young bulb, attached to the paper, which I have cut out of the book for this purpose. *Chas. A. Walker, Tykillen House, Wexford.* [This curious case is analogous to one recorded in Lindley's Elements of Botany, p. 41.]



Spring Protection.—Should no feasible suggestion (as a preventative of frost) appear to meet the case of "W. M. R.," who constantly loses his Marie Louise Pears in spring, I beg to offer him the following hints. There can be no doubt that all thick or heavy coverings for the protection of the blossom of fruit trees are injurious, such as Fir branches, &c., for when once up they remain as fixtures for a time, the fruit sets weakly, and when the protection is taken down the sudden exposure to the weather causes quantities to fall and myriads of insects to burst into existence, thereby defeating the end in view. Instead of "W. M. R." applying protecting material to his tree when in full bloom, let him well shade it with Frigi Domo in early spring. This may counteract the effects of bright sunshine and warm days which we experience at intervals at that season, and thereby retard the development of the blossoms to a period when probably they may escape spring frosts altogether. *R. Thomas.*

Phormium Tenax or New Zealand Flax.—This is evidently a very hardy plant, and I have been informed by persons who have lived in New Zealand that it grows there in different positions, the development of the plant's vegetation depending upon the moistness of the particular locality in which it may be found. I have a plant of it growing in my nursery, which has bloomed and ripened its seeds to perfection these last three seasons. In 1855 it produced one flower stem 10 feet long; in 1856 it produced 10 flower stems averaging the same length; and in 1857, this past season, it has produced seven flower stems of the same length. The reason the plant has not been so productive of bloom and seed this season is simply because it has been ill used, and deductions have been made from it for the purposes of propagation. The particular position of this plant is moist and exposed, with a western aspect. The soil is a stiff, hungry, brown loam, a foot below the level of a public road, running north and south within 10 feet of it, which renders it wet and cold; hence the boldness of my assertion that this plant is hardy. It may be argued, and with much reason, that the Channel Islands or Jersey are not England; but I may, from my experience in this particular case, assert that a climate much less genial to vegetation would suit this robust plant. The leaves vary from 5 to 8 feet in length, and we sometimes strip them off and make use of them as "tyes," which are particularly tough and strong. If these leaves are kept for two or three years they may at any time be made pliable by steeping in water, and made as useful as if they had been taken from the plant but a few days. I think your correspondent "Diss" may put his plants in an open border, mixing a little sand with the soil in planting, without feeling in any way uneasy about their thriving. I would recommend sand so as to induce the rooting, and I do not think that the plants do so well with transplanting as when they are allowed to remain stationary. Should you wish to have it tried by some of your friends in different parts of the country, I shall be happy to send you a packet of the seed I have been so successful in saving for distribution amongst them. *Bernard Saunders, Nurseryman, &c., Jersey.*——One of your correspondents asks how to treat this Flax? In forming the approach to a house it suited to make a bank 2 or 3 feet high and 20 feet across. It was good soil on a gravel bottom, and the bank was made of the good soil out of the road, so that there was above a double depth of good soil. The Flax was planted on this among shrubs about five years ago. It is now a very fine plant, 4 feet through at the ground, and spreading out to 12 feet or more above, and 6 or 7 feet high. It has never flowered, but is very vigorous, and the mass of lanceolate leaves bursting out on all sides has a very tropical look. It is quite unlike anything else in our shrubberies, and makes a capital contrast to common forms. It is very much admired by all who see it. It stands near the Pampas Grass, on my account of which you commented a few weeks ago; and handsome as the Pampas Grass is, I had rather want it than the other. Winds and rains of November soon spoil the beauty of the Pampas Grass in flower, while the New Zealand Flax is in beauty all the year round, and it is a much more remarkable object than the Pampas Grass out of flower. I have two more plants of it in an American garden (a regular bog drained); they are a year or two younger than the other, and are not doing nearly so well. As I am writing I may as well recommend Arundinaria falcata to all who have a climate and situation fit for it. At Foaty on Cork Harbour there are some splendid plants of it, worth going a long distance to see. In a swamp that forms the outfall of the drainage of the place, and from which the tide at high water has to be kept out by sluices, some low islands of mud have been made; on these it grows, each bundle of Reeds twice as thick as a man's body, rising 12 or 15 feet high, and spreading out and falling over above in the most graceful manner; another really beautiful form quite unlike those usual in our climate. *Cork.*

Chopped Furze v. *Mice*—One of your correspondents asks for a remedy against the ravages of mice among Crocus roots. I lately saw a plan used for the purpose, which I was assured had been successful for many years in the same garden. As soon as the Crocus bulbs were laid in their place in the bed, and before any earth was put over them, chopped Furze was thickly strewed over them, and ultimately the mould laid on the top of this species of *chevaux-de-frise*. The branches of Furze chopped up for the purpose were the older and more prickly ones, throwing aside the tender shoots as useless. It is not necessary to chop up very small; the pieces may be from an inch to a couple of inches long. I saw the same device used in sowing Peas. *Flora.*

Bonapartea Juncea.—A specimen of this is now in bloom in the conservatory at Broughton Old Hall, near Manchester. It has been here about 20 years without any change in its aspect, except a small addition to the length of the decurved Rush-like leaves, of which it is composed. For the last two years however no growth whatever has been made. In July last I observed the

crown begin to swell, and eventually a flower spike about 12 feet long was thrown up, which began to bloom on the 4th September from the bottom, the flowers continuing fresh for two or three days. The stem is fully clothed with them, and when fully expanded they are as close as on a double Stock. It has continued to flower up to the present time; about 6 inches of the top have however not yet expanded. I was somewhat disappointed in the colour of the flowers; from what I had read I expected they would be either white or blue, but with me they are pale sea green. The plant seems tolerably hardy, for the recent severe frosts we have had have in no way affected it, although the flower stem touches the roof of the house. Several gentlemen and gardeners have been to see the plant, none of whom ever saw one in flower before. *Walter Morgan, Gardener to Colonel Clowes.*

Ill Effects of Sulphur Fumigation on Gardeners.—If gardeners are injured by sulphur fumes the fault is their own, for they have no real occasion to remain in the houses they are fumigating. I have seen young men come out of such places coughing and spitting as if they had performed one of the greatest feats possible, but this is only bravado. There are now much less complicated plans than a pot with hot embers and a pair of bellows, but if you were to tell them of them they would only laugh at you. Without puffing, puffing, and blowing, blowing, they think the operation could not be performed properly. *J. Divers, Springfield, Hastings.*

Garden Walks.—You notice two modes of making garden walks:—1. Concrete with washed gravel strewn lightly over it, and recommended as best by Mr. Beaton. 2. Gravel with a slight mixture of Portland cement, giving the quantities for 2-inch thickness. Can any one who has used it largely tell us his experience per superficial square yard? and whether 2 inches of thickness will support loaded wheelbarrows? also whether the sides are 2 inches, and the centre more, and how much? or whether the bed thins off to nothing? It is a very interesting subject, particularly where clean gravel is scarce, and fuller information than the last notice would be useful. *Charles Hamilton, Hamrock, Dunboyne.*

The late Summer in the Highlands.—I have sent the accompanying samples of fruit in the hope that it may interest you to see these sorts grown so far north; it will also assist in giving a further illustration of the late very remarkably fine season, in which the climate of the south of England may be said to have been transferred to the north of Scotland, as the Chaumontel Pears, Golden Pippin, and Cornish Gilliflower Apples will show. The two former are from standards growing within the walls of a large and well sheltered garden; the Cornish Gilliflower is off an espalier in the same gardens, a young and vigorous tree which had a large crop on it. The samples of Chaumontel Pears are not so large as many that were upon the tree; it stands in a row of trees which divides the quarters for cropping of vegetables, and no protection of any sort has been afforded it, but about six years ago it was root-lifted and partly trenched round. The Golden Pippin Apples are from standards between 20 and 30 years old, growing healthy and vigorous, and giving evidence that whether or not its race is degenerating and wearing out in other parts of the country it is not so here; there are three trees all equally healthy and bearing freely. The following are from espaliers:—No. 1, Brandy Apple (Golden Harvey); 2, Braddick's Nonpareil; 3, Old ditto; 4, Blenheim Orange. Nos. 5, 6, 7, have also been gathered from espaliers, but I am not certain that I have got their proper names. *John Webster, Gordon Castle, November 24.* [The specimens of Blenheim Pippin, Golden Harvey or Brandy Apple, and Braddick's Nonpareil were of fair size and well coloured. The latter was the best flavoured of all those that were received, and therefore deserves to be recommended for a northern climate. The Chaumontel was of good size for a standard, even in the south of England, and in quality little inferior. Those unnamed were: No. 5, Scarlet Crofton; 6, Fearn's Pippin; 7, perhaps the Court-pendu Plat. The Golden Pippin was genuine. Concerning the Cornish Gilliflower we have doubts; it is not like the fruit as grown in the south, and if genuine is very much altered in form as well as quality by climate.]

Yeast Plant.—Our correspondent "T. S. P." wishes for further explanation respecting the yeast plant, so far as the accidental mixing of its spores with the substance destined to undergo fermentation is concerned. There is a difficulty in understanding that the result of a certain kind of fermentation should be so uniformly the formation of yeast. It must, however, be remembered that yeast is always used in the process of brewing, and that this substance is almost entirely formed of the spores of the yeast plant, or rather of the yeast plant itself, each joint of which acts the part of a spore. If the process were conducted without the use of yeast, the result would be slow and uncertain, and we might obtain the vinegar plant instead of the yeast plant at the end of the process. The difficulty, probably, has arisen in the mind of our correspondent from overlooking this point, but even supposing that the spores were to be derived from without, the matter would admit of easy explanation. If the dust of the trade winds, falling snow, or other matters wafted about in the air, be carefully examined with the microscope, spores of fungi are found to be abundantly mixed up with them, especially where the substances are impalpable. The spores of Cladosporium herbarum, Penicillium glaucum, Aspergillus glaucus, and many other moulds are almost universally diffused, and ready to grow wherever a fitting receptacle is present. Suppose then the spores of the Penicillium of a form of which yeast is principally composed should fall upon a fermentible substance, like decoction of malt. The moisture is such that the spores could not be developed in its normal form, especially if immersed in the liquid. Under certain conditions of temperature, then, it germinates, but instead of growing into threads it produces elliptic vesicles capable of being propagated *ad infinitum* in the same vesicular form, if the conditions of moisture, temperature, &c., are the same. Under other circumstances these same spores might have assumed the peculiar, tough, felted mass of threads which constitute the vinegar plant. But though the yeast plant grows so rapidly when placed in fermentible fluid at the proper temperature, the spores of the Penicillium being few in number might not multiply fast enough to form a large mass of yeast within the time which is usually occupied in the fermentation of beer, and it is on this account that the sweetwort is not left to accident, but is at once submitted to the action of a mass of ready-grown vesicles. We do not know how long it would take for the spore of the Penicillium to produce a yeast plant, whether some hours or as many days. The spores might, indeed, at last produce good yeast, but in practice yeast already generated is more certain and manageable. *M. J. B.*

Chrysanthemums.—Being a lover of these useful flowers, I read with much interest Mr. Scutt's mode of managing them. I have travelled some miles this season to see various collections, including Mr. Holland's Pompones that gained the prizes at Kingsland and Stoke Newington; they were, indeed, the admiration of all who saw them. I have also seen Mr. Broome's Nelly, which I thought a gem, but here let me offer a remark on the difference between the old and new systems of culture. Nelly with a four months' start ahead had only 400 blooms on it; Mr. Scutt's Drin Drin had 1796, and the latter was raised from a cutting put in only in the beginning of March last. I certainly must confess that I never have had the pleasure of seeing such plants as Mr. Scutt's even from two-year-old stools. Mr. Macintosh's (of Hammersmith) were splendid plants, but I am certain they must have been much inferior to Mr. Scutt's. Now we old growers around London must certainly keep our eyes open, for we have had a four months' start ahead with our cuttings and have been beaten by upwards of 1000 blooms on each plant, a startling number to keep in view till next November show, when I hope to see the November cuttings of 1857 competing with the March cuttings of 1858. *An Old Hand.*

Ripening of the Pomegranate in England.—The Pomegranate does not ripen thoroughly in England in all seasons, but in 184 I had here a good crop, several dishes of which I sent to table for dessert, and I believe the fruit was little inferior to that of foreign growth. This year I had a good crop, a small dish of which I exhibited at the September Show in the Crystal Palace, but through some mistake little notice was taken of them. I now send you a fruit, the best I have at present, but it is inferior to what I have had this season. Through severe frost in the winter of 184 the tree was cut down to the ground; the following summer it started afresh and it is now a fine specimen. It is trained on the south front of the mansion, and covers a space of 20 feet by 10 feet. *H. Pullen, Gardener to the Hon. and Rev. H. C. Cust, Cockayne, Hatley, Bedfordshire.*

Rose Stocks.—It appears still to be a mooted question as to the merits respectively of the Dog Rose and the Manetti as a stock for budding Roses upon. As I have some little experience as an amateur in Roses for many years, allow me to state my opinion on the subject. I have little to say in favour of the Dog Rose as a stock, which I have found in the course of my residence in the neighbourhood of London, within the limits of five miles, and within the influence of London smoke, to decay and deteriorate within three or four years of its being planted, and to do at all well requiring particular attention, especially as regards rich soil and sufficient drainage, in addition to which there are some of the more tender Bourbon and Teas that cannot be persuaded to grow at all on that stock. I have therefore come to the conclusion that it is certainly not the best Rose stock for ground that has been partially "used up" or in places say within 6 or 8 miles of London. Again, the roots of the Dog Rose are most frequently tap-rooted and not generally fibrous as in the case of the Manetti, which is not club-rooted, but sends out a number of short fibrous kinds of root—the best for procuring nourishment from the ground. As a stock for potting the Dog Rose is worthless, a Rose on the Manetti may in one season be grown to double the size of one on the Dog stock, whereas for potting purposes generally there is nothing like Roses on their own roots. As regards the merits of the Manetti stock they appear to be as follows:—To thrive in comparatively poor soil and without extreme attention. To make strong healthy growth, but not at the expense of bloom. Not by any means liable to decay, the stock swelling year by year and throwing off its bark, and thus procuring a healthy action allowing it to expand and freeing it from the attacks of insects which deposit their ova in the bark; the size to which the stock in the course of two or three years will expand is altogether incredible. For pillar Roses no stock can possibly be better; and whilst I have every year to grub up Roses on the Dog stock that have "gone off" from the mycelium of fungi having attacked the clubbed roots, or from the smoky state of the atmosphere here at Crouch End being more unfavourable to the Dog than to other stocks, I find that my Roses on the Manetti, planted under exactly similar circumstances, not only do not go off, but thrive and grow most abundantly, and yield a profusion of bloom. I also find that when the head of the Rose grows (as is most generally the case) luxuriantly, the stock never throws out suckers; but if from other circumstances it does, the sucker comes from the stem, and can easily be cut off, and not as is oftimes the case with the Dog Rose, a foot or more from the stem, necessitating the grubbing up the sucker, and often in the operation disturbing the root. Moreover, by planting the Manetti stock deep, that is to say, up to where the stock is worked, all suckers from the stem may be avoided. Lastly, the Manetti encouraging healthy and luxuriant growth, the Roses on it are not so liable to the attacks of the aphis and the "worm i' the bud," and I therefore, without any hesitation, give the palm to it for all purposes of out door gardening, and where Roses on their own roots cannot be procured. I must however say that I grow none but dwarf Roses, and no standards, and it is to dwarf budded Roses more especially that my remarks have reference; although dwarf budded Roses may be grown to any height, say 10 or 12 feet or more, as pillar Roses, and which to my taste have more elegance and less formality than standards. *J. R. S., F. H. S.*

Poisoning by Monkshood.—The American newspapers record a lamentable instance of the above as follows:—"On Tuesday the 16th ult., Charles Benjamin Jones, of Acton, United States, died suddenly from having eaten the root of Monkshood or Wolfsbane (the *Aconitum napellus*). Jones had, or pretended to have, considerable skill in treating several diseases (palpitation of the heart in particular) by the administration of several herbs. His niece, Miss Jacobs, had got the root of Monkshood in a neighbouring garden and brought it to her uncle. He mistook it for some other plant, and began chewing it, when in a very short time he was taken ill. Dr. Dorling, Jun., an intimate friend and neighbour, was sent for, but ere he arrived it was too late; the unfortunate Jew lingered an hour or two and then died." The Monkshood when scraped is of a brownish pink colour. When chewed it imparts first an acrid taste and pinching sensation to the tongue, but afterwards produces insensibility, a remarkable debility of the limbs, convulsive motions of the face, vomiting, delirium, then death. If applied to a wound, its effects on the nervous system are instantaneous and most alarming. Even by holding it long in the hand, the fist being tightly clenched, very frightful and even fatal effects have been produced. [We hope the sad fate of the Provost of Dingwall and his friends, who perished two years ago in consequence of eating this virulent plant by mistake for Horseradish, is not yet forgotten.]

Orchid Disease.—I cannot exactly agree with "J. W. L." respecting my incidental hit upon what he thinks is the real origin of the disease, and respecting the not very scientific explanation of the term over-ventilation; every practical man must know how such would act, and what would be the result, of a chilling draught on a tropical Orchid. But to show that this does cause the mischief I quote an instance under my own management. Last autumn I had two fine plants of Saccolabium guttatum which stood side by side at the hottest end of the house, and at a distance of 6 feet from a sliding light, which was let down 2 to 3 inches several hours in the day; all of a sudden the plant nearest the opening became spotted as if it had been scalded; while the other, which stood at a distance of 4 feet further from the ventilation, remained firm and healthy as ever, and precisely in the same state as regards moisture, both plants being dormant, and the temperature of the house nearly even, under 70°. In the same house other plants spotted about the same time, and to show that over heating does cause disease, I have grown Dendrobium nobile in the same house as an experiment, and invariably found it as liable to spot as any other plant in the house. Dendrobiums densiflorum and Farmeri have been treated in the same manner and met with the same result, while the same species grown in a temperature suited to their nature have grown luxuriantly, and are quite free from spot. Notwithstanding this some will entertain contrary opinions on the subject. I saw an extensive collection a few days ago under the management of an old experienced grower, who had been much troubled with spot within the last two years, and which he thought until lately must be a spreading disease. "I've got," he said, "plants young and old, I've kept the house hot and cold, I've kept it moist and kept it dry, but still my plants do spot and die. I cannot," he added, "regulate my temperature as I used to do at Madeira without letting down the sashes and admitting cold air, which I do not agree with, for my houses there were all glazed with small squares of glass where moisture could escape." Use, therefore, your ventilators with care and moderation. Keep your Aerides, Saccolabiums, &c., at an average temperature of from 65° to 70°; use water very sparingly, and keep down thrips. *Gleanings.*

Blue Hydrangeas.—While the subject of blue-flowered Hydrangeas is being discussed, it may be interesting to refer to a peculiarly fine specimen of this plant which was growing at Shanklin Chine, in the Isle of Wight, a few years since, and is, I believe, still there. A recent correspondent mentions some of these plants in Cornwall, which grew in a spot much shaded by

trees. He observes that the shade was the most essential thing in producing the blue colour in the flowers. This observation has induced me to refer to the plant at Shanklin, which grew in a cottage garden in the lowest part of the Chine, and where, if I recollect rightly, it was exposed to the sun's rays in the early morning only, being for the rest of the day in the shadow of the thickly wooded rocks which rose immediately above it. As it grew in the lowest part of the Chine, and within a few feet of the sea at high water, it was fully exposed to the sea breeze, and in stormy weather the spray must have reached it. It is possible, therefore, that the salt from the sea may have had some effect in producing the blue colour, and this may also have been the case with the plants in Cornwall. The Shanklin plant, when I saw it (which is several years ago), was about 5 feet in height, and bushy in proportion, and being completely loaded with flowers of a deep rich blue colour, it is difficult to conceive a more lovely object. Perhaps some of your correspondents in the Isle of Wight could favour us with the dimensions, and further particulars of this interesting plant, if still in existence. *C., Dulwich.*

Dioscorea Batatas.—At your correspondent "J.R.'s" request, I give my experience as regards the cultivation of this esculent. My first plant I received in June, 1855; it was planted at once, and taken up the following November. With regard to its weight when planted I should be sorry to form an opinion, but when taken up, I had the satisfaction to find that it weighed from 2 to 3 ounces. Of this I made two plants the following spring, which were planted out in May and taken up in the month of November following, when they weighed 4 and 5½ ounces respectively. At the latter end of May in the present year I put out three plants, which were lifted about the middle of last month, and to my surprise I found them to weigh as follows, viz., 2 lbs., 3½ lbs., and 4¼ lbs. The two first years the plants were put into the soil with scarcely any preparation, but this season I had the ground removed 2 feet deep (nevertheless the largest tuber penetrated the gravel 3 inches below that depth) and made good with plenty of manure formed into a mound 18 inches above the surrounding soil, and as you will observe, the produce is very considerable compared with that of the two years previous. I have had an opportunity of tasting it when cooked, and it is certainly very good; indeed, I doubt whether any person could distinguish it from a Potato if mashed and served with pepper and salt. Now, presuming that the time will arrive when we shall be compelled to accept something in lieu of the Potato (as in some instances nine-tenths have been destroyed this year), I would recommend all who grow Potatoes to grow also the Dioscorea, with a view of having something to fall back upon in case of emergency. *James Harland, Belvedere.*

Seakale "Thongs."—I have applied to various Seakale growers for "thongs" (small roots), but none will sell them; they do not seem to know that "the trick" was found out and is exposed in my papers on market gardening. My order was for a young market gardener at Hamburgh, who wanted 500 thongs. These roots make far finer plants in one summer than those from seed. I merely wish to mention this to show that if Seakale growers were to advertise their surplus small roots or thongs, they might find plenty of customers for them. *James Cuthill, Camberwell.*

Societies.

LINNEAN, *Dec.* 3.—Prof. Bell, President, in the chair. T. Allis, Esq., and H. Letheby, M.B., were elected Fellows. Prof. Owen exhibited specimens of the pods of Gleditschia triacanthos, which had ripened in his garden in Richmond Park during the present season, and made some observations upon them. Several other instances of the more than usually perfect maturation of vegetable development during the past warm summer were mentioned. The following papers were read:—1, "Observations on Entozoa, with descriptions of several new species," by Dr. Cobbold. This paper was illustrated by a series of beautiful drawings. 2, "On the external anatomy and natural history of the Annelidan genus Palolo," by J. D. M'Donald, assistant-surgeon of H.M.S. Herald. This genus was founded by Dr. Gray on a species which is found in the Samoan or Navigators' Islands, and both by the Samoans and the Tonquese called Palolo, but Mbalolo by the Fijians. The animal appears in such abundance in the months of October and November, as to be collected by the natives as a dainty article of food.

Notices of Books.

The Sepoy Revolt: its causes and its consequences. By Henry Mead. 8vo., Murray.

That the author of this formidable attack upon the Government of the East India Company is a master of his subject no one can doubt. He is no dealer in generalities; facts, or what are called so, are the arms he wears; and he well knows how to use his weapons. We have no opinion to offer upon the merits of the cause between the public and the Indian Government; each has other advocates. We shall therefore best consult the interests of author and readers by admitting into our columns Mr. Mead's own language in opening his case.

"In the following pages I have condensed, to the best of my ability, the result of ten years' labour in the busy fields of Indian journalism. My opportunities of acquiring a knowledge of political and social affairs have been great; it is for the public to decide if I have made good use of them.

"Were my book to be written over again, I should like to deepen the colours in which some pictures of Indian life have been painted: but the experience which enables a man to write on the subject of Eastern government tends to blunt his sympathies, and in some degree to injure his moral sense. Torture and lawlessness, and the perpetual suffering of millions, are so familiar to me that I am conscious of not feeling as I ought to do when wrong is done to individuals and nations. The man who lives in the vicinity of the undertaker and coffin maker is not likely to join in the agitation against barrel organs and street cries.

"There is a malady common to savages in certain parts of the world, which is termed 'earth-hunger.' It provokes an incessant craving for clay, a species of food which fails to satisfy the appetite, and which impairs the power of digestion. The East India Company have laboured under its influence for a century past; and as yet the disease shows no signs of abatement. The last mail informed us that 25,000 acres, in the districts recently assigned by the Nizam, had this season been thrown out of cultivation; and current advices express the satisfaction of the Indian Government at the prospect of new confiscations. In Madras, Bombay, and the Punjaub, for every acre that is cultivated, at least three remain untilled; and still we continue to make nobles landless, and to increase the sum total of Asiatic misery.

"If Heaven had not a great work for us to do in the East, the cruelty, the oppression, and the measureless folly of our rule would before this have produced its natural fruits, and we should have been cast out from India, a scorn and example to the nations. We have been heavily punished, and there is yet a fearful blow to be endured; but after awhile we shall comprehend the nature of our responsibilities, and try to fulfil them. England's difficulty is England's opportunity. If we are wise henceforth in dealing with India, the well of Cawnpore will so fertilise the land that every corner of it will yield a crop of blessings."

The author supports these grave charges by nearly 400 pages of evidence.

The Flora of Tasmania. By J. D. Hooker, M.D., F.R.S. Part V., 4to. Reeve.

The new Part of this splendid work completes volume one, terminating with Conifers. The second volume will, therefore, include Endogens and flowerless plants. It is impossible to conceive anything more admirable than the plates in the Part before us, especially those of the singular genus Richea, and of the curious Tasmanian Conifers, to which alone, if we include Casuarina, five plates crowded with details are devoted. The letter-press is, as usual, rich in botanical criticism and elaborate researches into structure and affinity. Works like this will place our Australian possessions in a better scientific position than even the mother country.

The Chemistry of Wine, by G. J. Mulder, Professor of Chemistry in the University of Utrecht. Edited by Dr. Bence Jones. 12mo. pp. 390. Longmans.

Professor Mulder, by his long investigation of the chemical nature of vegetable products, ought to be peculiarly qualified for the important inquiry whose results are now laid before the public in an English dress. It is for chemists to say whether the work is equal to the author's reputation. For ourselves we propose to do no more than describe the contents of the volume, and examine a part of its non-chemical matter.

The subject is divided into 28 chapters, in which the author treats successively of the Grape, the fermentation of Grape-juice, the clearing of wine, the sulphurising of wine, the cellaring of wine, the diseases of wine, the constituents of wine, the amount of alcohol in wine, the tannic acid in wine, the colouring matters of wine, the iron in wine, the fatty matter in wine, the free acids in wine, the malic, citric, and racemic acids in wine; the glucic acids in wine, the formic and lactic acids in wine, the albuminous matter in wine, the œnanthin in wine; the ammonia or ammoniacal salts in wine, the odoriferous volatile alkali of Winckler, the sugar in wine, the non-volatile constituents of wine, the incombustible constituents of wine, the odoriferous constituents of wine, the analysis of wine, the tests for different wines, the adulteration of wine, and fruit wines, to which is added an appendix by the editor on the acidity, sweetness, and strength of different wines, reprinted from the Proceedings of the Royal Institution; and this, let us observe, is far from being the least interesting chapter in the work.

In his first chapter Professor Mulder lays down certain data concerning what he conceives to be the effect of external agents upon the Grape, to some of which we find a difficulty in assenting. For instance, he says that if you protect one cluster of Grapes from the sun by covering it with a dark bell-glass or a piece of oiled paper, while you leave another exposed, the fruit so covered will be much more finely scented than the latter. If by this it is meant that in Holland Grapes will only ripen under such artificial covers as are described, and not out of doors, we have nothing to object; but we certainly question the accuracy of the statement if it is intended to compare the quality of Grapes thoroughly ripened under both circumstances; we think, indeed, the fact would be the other way. Again, we are told that "in our regions," meaning Holland, "white Grapes are much sweeter than purple," a difference which the author ascribes to the easier passage of light through the colourless skin of the white Grape: but English Grape growers will never assent to such a proposition. Who, for instance, will compare the sweetness of the White Nice, or the Syrian, or the Raisin de Calabre to that of a well ripened Black Hamburgh, or Black Frontignan, or Black Muscat, or Black Sweetwater? Fortunately these statements are not the foundation of subsequent reasoning, and are therefore less important.

Again, it is observed that the Grape during the latest period of development appears to have an individual life, and to be *comparatively* independent of the plant. In this case the word comparatively must have a very wide signification, or else the statement is irreconcileable with the disease so well known under the name of "shanking," and which is undoubtedly caused by the want of vital powers independent of the plant. In another place we are told that "a Golden Reinette Apple planted in another soil and in another temperature will cease to bear Golden Pippins," that is to say, we presume, Golden Reinettes. Such a loss of individuality we are unable to believe; it may be, indeed is, true that under certain circumstances the fruit of the Golden Pippin loses its good quality, but surely that does not justify the assertion that it ceases to be a Golden Pippin.

Perhaps that which will most interest the general reader is the chapter on adulteration of wine, from which we make a few extracts.

"It is well known that the quantity of Port and Madeira drunk in England is larger than that imported. Cape wines, which are not much prized in England, are especially used for the manufacture of wine. As they are sweet, ferment is added to set the sugar fermenting, by which process many of the properties peculiar to Cape wines are withdrawn. Colouring and aromatic ingredients are then added to the fermented liquid, and thus Portuguese, Spanish, and French wines are counterfeited. Madeira, Malaga, and Alicant, are imitated by fermenting sweet Languedoc wine, and adding aromatic and colouring ingredients; and this is so well known in our country, that it is universally acknowledged that we drink very little genuine Madeira, because there are such numerous imitations which bear this name."

"Some kinds of Grapes are dried before wine is prepared from them, by which means an increase is effected in the saccharine contents, and indeed in the contents of all the ingredients of the wine to be prepared, and also that the same end is obtained when the Grape-juice is partially concentrated by evaporation. Those who call wines prepared in this manner adulterated, because they are not simply fermented, consider all Tinto and Malaga wines as adulterated."

"As to the effect on the body produced by wine, there can be no difference between wine containing 10 per cent. alchol, and wine of the same kind in which 7 per cent. alcohol exist, and to which 3 per cent. are added. The same holds good of a stronger wine, to which water is added to diminish its strength. At first it is perceptible to the taste, but after a time it combines more intimately, and unless too much has been added, can no longer be discerned."

"Adulteration with colouring matters is very common, especially when red wine is prepared from white wine and from Currants, darker from light wine, and also when the object is to impart to one sort of wine the shade peculiar to some other kind. Also in cases of spoiled wine."

"That aromatic ingredients are very generally used to improve the quality of wine is a fact we cannot conceal. Ask the druggists how much acetic ether they sell to the wine dealers. In our country these adulterations have not yet been practised to any great extent; in England they are far beyond us. But we may prepare ourselves for a terrible future, for so soon as an acquaintance with oxides of ethyl and other combinations which occur in wine spreads, we may expect a new series of adulterations of wine with aromatic ingredients. Insuperable difficulties will be opposed to their detection; and if nothing has been used except what may possibly exist in wine, the only means of discovering adulteration will be to analyse the relative proportions (as already shown in the case of alcohol and water), and such a proceeding would be very far from easy. Batilliat, who has written a book upon wine, to which we have referred several times, does not hesitate to put nitric acid and nitric ether into wine. The first speedily darkens the wine, giving it a colour which would otherwise be imparted by time (*robe d'ognon*); the other gives wines the aroma of the Golden Reinette—the smell of sweet spirits of nitre. Although he possesses a vineyard he sees nothing improper in selling such wine, and in general, in making wine as liqueurs or beer is made. If his business as wine dealer be is also a druggist—be dishonourable, he is at least honest in confessing it—since he thus puts people on their guard, and enables them to purchase wine elsewhere. His book shows what is done to wine in France."

It is not a little remarkable that in a work so elaborate as this no mention should be made of Sherry, the best and worst of white wines, and the kind most drunk in this country. It would seem indeed that Prof. Mulder is unacquainted with any Spanish wines except Malaga. The defect is remedied, but very partially, by Dr. Bence Jones in his appendix.

We learn with great regret that Sir William Hooker's very useful *Journal of Botany* has ceased to appear. Under one form or another our learned friend's scientific correspondence has been given to the public

ever since the year 1827, and we fear that the loss of it will be felt too soon. Nor indeed, with the exception of the Journal of the Linnean Society, and Taylor's Annals of Natural History, does there now remain any English medium through which short papers on systematical Botany can be communicated to the public.

Mr. Sowerby's *Grasses of Great Britain* continue to appear with regularity. Part III., now before us, contains figures of Phalaris arundinacea (very good), Ammophila arundinacea, and three Phleums. Let us add that the letterpress fully justifies the favourable account we formerly gave of it.

Prof. Ettingshausen has communicated to the Imperial Academy of Sciences of Vienna a paper *On the Nervation of the Leaves of Celastraceous Plants*, a copy of which is before us. In this memoir the learned author enters minutely into the distribution of veins in leaves, reducing them to certain typical forms, pointed out by him last year in his *Bericht über das Werk Physiotypia plantarum Austriacarum*; and thus applying his principles to a practical purpose. Ten beautifully nature-printed plates of leaves, and many woodcuts prepared by the same ingenious process, accompany the memoir. That the employment of leaves to produce their own image may be carried out successfully we cannot doubt; this is indeed sufficiently demonstrated by Von Auer and Henry Bradbury; but we entertain grave doubts whether Prof. Ettingshausen's manner of treating the subject is the best calculated to effect the end in view.

De Candolle's Prodromus, Vol. 14, *part* 2, has just arrived, comprehending Thymelæaceæ by Meisner, Santalaceæ by Alph. De Candolle, and some small allied orders. And thus we are brought almost to the borders of the great unisexual region of Endogenous plants, for there is little now to intervene between the difficult race of Laurels and the great mass of Euphorbiaceæ. We understand that in order not to delay the progress of the main work Prof. De Candolle proposes to proceed immediately with Begonias, leaving room for the others in the series, as was formerly done with Solanaceæ. Two volumes more are expected to complete Exogens. Prof. Andersson undertakes the Salicaceous order, a difficult task requiring great judgment as well as experience. It is computed that the 14 volumes actually completed contain 50,509 species, arranged in 4525 genera. The first volume was begun in 1822, and appeared in 1824. If we suppose two botanists on an average to have been incessantly engaged on the work for 36 years, then 1403 species will have been determined annually, or 701 by each—pretty good work when species have to be carefully examined and compared, as has been the case with the Prodromus, and not put together with paste and scissors, *à la Walpers*. Who but a De Candolle could have had the power to carry through so mighty a work as this, in which there will be eventually a complete systematical account of all plants known at the time of publication of the several volumes? We leave to others the task of criticising the execution of details in the part before us, especially those relating to Thymelæaceæ, in which botanists will occasionally differ from the learned author of that portion. To us it is the more grateful task of offering our humble tribute of applause at the continued progress of so great an undertaking. We learn with great satisfaction that Dr. Buek, of Hamburgh, to whom botanists were indebted in the years 1840 and 1842 for an admirable index of the first seven volumes, has now in the press, to appear next year, a second index up to the end of the 13th volume.

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Next to Camellias, Azaleas are perhaps the most showy plants that can be had in bloom at this season, and where there is a good stock to select from some of the most forward plants should be placed in heat at once, moistening them overhead two or three times a day. Unless, however, plants can be had which made their growth and set their buds early in the season, they need hardly be expected to flower so finely as under more natural circumstances in spring, and unless the buds are plump there will be some danger of the plants starting into growth instead of flowering. Dutch bulbs should be largely used for forcing at this season, and where hardy shrubs are forced for the decoration of this house, these should be got into flower as soon as circumstances admit. Do not forget to introduce into gentle heat a good batch of Roses, choosing the most promising plants of Teas, Bourbons, and Hybrid Perpetuals, which are the best kinds for winter flowering; a gentle bottom-heat will be of great service to these as also to most other plants subjected to heat in order to get them into flower as quickly as possible, and a moist state of the atmosphere must be secured, admitting a little air freely on every favourable opportunity. In greenhouses damp or insects soon do irreparable injury to soft-wooded plants at this season, and these must be very carefully attended to if they are to be wintered in first-rate condition. Pelargoniums should be kept rather cool and dry, giving whatever water may be necessary on the mornings of fine days, so that the superfluous moisture may be removed before the evening, avoiding the use of fire-heat except when necessary to prevent the temperature falling below 40°, or to dispel damp when this cannot safely be done by giving air. Calceolarias require very similar treatment, except that they are very subject to the attacks of thrips, unless afforded a moist atmosphere; they must therefore be narrowly watched for this enemy, and smoked lightly two or three evenings successively if this pest makes its appearance, keeping the atmosphere moist and giving air on every favourable opportunity to prevent the foliage from flagging. Cinerarias for late blooming must also be kept cool and airy, and should not be allowed to suffer from want of pot room. These must not be trusted in cold pits after this season, for they cannot endure much frost. Plants intended to flower early should be encouraged with a gentle heat, keeping them near the glass and admitting air on every favourable opportunity.

FORCING DEPARTMENT.

PINERIES.—If circumstances should render it necessary to subject a portion of the stock intended for fruiting to a brisk temperature at once to induce it to start, the most promising plants should be very carefully selected, and placed in a small house or pit by themselves; and, where anything like a regular supply of ripe fruit is required, several houses, or separately heated compartments, should be at command; and without this convenience no gardener can reasonably be blamed for having too many ripe at one time and none at others. It is not by any means desirable to start more plants into fruit at this early season than may be absolutely necessary, for they will produce finer fruit later in the season than can possibly be obtained from them now; and where a separate house cannot be commanded for those which must be subjected to a high temperature, we would advise that the plants selected for fruiting should be placed in the warmest part of the house at command, filling the rest of the house with young stock. The former should be afforded a bottom-heat of about 85°, and the latter about 10° or 15° lower; the atmosphere should range from 68° to 75° by fire heat, allowing it to rise 5° with the assistance of sunshine, keeping the young plants near the glass, and properly supplied with water at the root. This temperature will be considerably too high for young stock at this season, but we have seen this system practised with considerable success; and although the young plants may get somewhat drawn, they will gain substance as light increases, and the evil will be less than running the risk of starting at this early period of the season the greater portion of the plants that are at command for keeping up the supply throughout the summer. VINERIES.—Until the buds are fairly broken the points of the shoots should be kept nearly on a level with the lowest part of the Vine; and if this should not be found sufficient to induce the buds to start equally throughout the length of the Vine, the rod should be bent so as to bring the most forward buds to the lowest level, elevating those that are backward. Maintain a thoroughly moist atmosphere by frequently sprinkling the floor and passages, &c.; and syringe the Vines lightly at least twice a day until the leaves begin to appear, when the amount of moisture must be moderated. Give every attention towards securing a gentle warmth for the roots; turning the litter, and adding fresh as may be requisite, and keeping it well protected from the effects of heavy rains and severe weather. Be satisfied with a moderate night temperature until the buds begin to push, when it may gradually be raised to 60° by the time that the leaves fairly begin to open.

FLOWER GARDEN AND SHRUBBERIES.

Where the tenderer kinds of Roses are found to require protection this should be applied at once, or it may soon be too late to save the plants. Also get in the stock of Briers for budding upon next year without delay, for unless these are planted before spring they seldom furnish strong shoots for early budding. Many object to planting shrubs or trees in winter, believing that the roots if hurt at that season are liable to rot, and certainly early in autumn is a very preferable season; but with weather like the present we would not delay such work a single day, and if the soil is properly prepared by draining, &c., where necessary, as should always be done before planting, there will probably be fewer failures from planting now than if the work was delayed until March. Where however the ground to be planted is of a clayey nature, and in an unkind state at present, it will undoubtedly be better to defer planting until spring, meantime using every means to improve the state of the ground; and soils of this nature should always be dug or trenched some considerable time before planting, as neither draining nor anything but exposure to the action of the atmosphere will bring them into a fit state for planting; while, however, we would not hesitate to plant small "stuff" generally at present, things which are at all tender had better be left until the chance of severe frost is past, and the transplanting of large evergreens which has unfortunately been delayed until now should be put off until the weather becomes mild in spring, especially things which are known not to be perfectly hardy. Roll walks and lawns after frost to keep them firm and smooth. There will be comparatively little to be done in the flower garden at present, and any spare time will be well spent in going over the stock of plants in pits for next season's use, removing every decaying leaf, and where the surface soil has got green, removing this and top dressing with sandy loam. There is nothing so unfavourable to these plants at this season as damp, therefore take every opportunity you can of admitting fresh air.

HARDY FRUIT AND KITCHEN GARDEN.

It is always desirable to get as much of the pruning and nailing done before the approach of spring as possible; lose no favourable opportunity therefore of forwarding these operations; for, besides the advantage of having that kind of work done before the busy season, the garden will present a much neater appearance after the wall trees are nailed and the borders made trim, and the small fruit bearing bushes pruned, and the ground among them turned over. See that standard trees which have been recently moved or root pruned are firmly secured against injury from winds, and also get any root pruning or transplanting remaining to be done this season executed as soon as possible. Endeavour as far as circumstances will permit to have a good supply of Parsley under safe protection; for there is generally a large demand for this, and in the event of a severe winter it is difficult to save it by the ordinary protection of hoops and mats. Lettuces, Cauliflowers, &c., in frames should be freely exposed on all favourable occasions. See to maintaining a regular supply of Seakale, Rhubarb, and other forced vegetables, for which it is likely there may be a considerable demand. Look over root stores occasionally to see that nothing is going wrong, and be very careful of any Broccoli that may be fit for use or turning in. As was recommended last week, take advantage of frosty weather to get manure wheeled on spare ground, and see to keeping a good supply well rotted and fit for use when wanted. Trench, dig, and ridge every spare inch of ground whenever the weather will permit these operations to be advantageously performed. This is particularly to be observed in gardens, the soil of which is of a clayey nature.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Dec. 10, 1857, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain.
Friday 4	18	30.025	29.904	55	25	40.0	50	49	S.W.	.00
Satur. 5	19	30.242	30.116	53	27	40.0	48½	49	W.	.00
Sunday 6	20	30.2[illegible]6	30.119	56	49	52.5	48	49	S.	.02
Mon. 7	21	30.479	30.348	55	30	42.5	50	48½	S.W.	.19
Tues. 8	22	30.633	30.548	47	35	41.0	50	49	S.	.00
Wed. 9	23	30.399	30.266	50	42	46.0	49	49	S.	.00
Thurs. 10	24	30.371	30.317	54	32	43.0	49	48½	S.W.	.10
Average		30.363	30.231	52.8	34.3	43.5	49.2	48.9		.12

Dec. 4—Clear and fine; slight frost at night.
— 5—Foggy; clear and fine; slight frost.
— 6—Overcast; cloudy and mild; overcast; slight rain.
— 7—Densely clouded; clear at night.
— 8—Excessively dense fog throughout.
— 9—Overcast; cloudy; fine; overcast.
— 10—Overcast; very fine with bright sun; overcast.
Mean temperature of the week 2½ deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Dec. 19, 1857.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 13	46.7	32.8	39.8	11	0.16 in.	1	3	4	1	8	10	2	2
Mon. 14	46.3	34.3	40.3	13	0.32	2	3	2	2	8	8	5	1
Tues. 15	46.7	35.0	40.9	18	0.50	2	3	1	3	9	7	5	1
Wed. 16	46.0	34.6	40.3	14	0.68	2	3	2	2	4	7	6	5
Thurs. 17	46.1	34.1	40.1	16	0.57	4	3	1	2	4	9	4	4
Friday 18	44.9	34.0	39.4	17	0.34	3	8	—	2	5	8	5	—
Satur. 19	44.9	35.4	40.1	16	0.38	3	4	4	2	5	8	4	1

The highest temperature during the above period occurred on the 13th, 1842—therm. 61 deg.; and the lowest on the 16th, 1853—therm. 7 deg.

Notices to Correspondents.

APRICOT STONES: *R.* Sow them in spring in deep pans. On no account must they be cracked before they are sown.‡

BOOKS: *E C.* We do not recommend it.

FILBERTS: *F K.* You will find an excellent article on the pruning and management of Filberts illustrated by a woodcut in No. 7 of our volume for 1850.‡

FERNS: *Ferns.* We are not aware that well-decayed dung is ever used by Fern growers. It is now known, though long disbelieved, that Ferns can be hybridized. Williams's work upon the Cultivation of Tropical and other Ferns is an exceedingly good book.

HICKORY NUTS: *M M.* You do not say what species of Hickory it is that has ripened nuts near Cookham.

INSECTS: *A Y A.* The insects found in the excrescences at the roots of the Pinus excelsa are a species of wingless gall-fly, new to us, which will form the subject of an article in our entomological series. *W.*

NAMES OF FRUITS: *C R, Frome.* 7, Easter Pippin or French Crab; 11, Hollandbury; 16, 18, 19, 20, Blenheim Pippin; 24, 25, Nonsuch; 17, Hoary Morning; 10, probably Bedfordshire Foundling. The rest are unknown. They appear to be a lot of either seedling or cider Apples; some sour, others sweet without richness, and several are bitter-sweet, resembling some of the cider Apples which the French call Amerdoux.‖

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W G L.* Maxillaria picta.—*J W.* Leucadendron argenteum, the Silver tree, a native of the Cape of Good Hope.

PROTECTIONS: *J C B.* Perhaps the best material you can employ for covering a pit 80 feet long by 6 feet wide, that will throw off rain as well as resist cold, is asphalte felt, nailed on skeleton lights, which should also be thatched with straw in the inside. Oiled materials will throw off wet, but will not resist much cold.‡

RHODODENDRONS: *Const. Reader.* All the kinds you name are too tender for your climate.‡

MISC.: *Beta.* Your large white Funkia may possibly be induced to flower if you plant it in a moderately dry spot at the bottom of a south wall. Tritoma Uvaria will succeed in any open dry herbaceous border. To keep the roots safe, however, you might put a little straw or Fern over them in winter.‡—*Stoke Newington, Brompton.* We really cannot interfere. If one place is a bear-garden, and the other a nest of jobbers, it is for their supporters to bring about a better order of things. It is no affair of the public, which does not care two straws about either.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose communications is still delayed.

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The FIRST SESSION of 1858 will begin on FEBRUARY 3. Fees for Boarders:—Under 16 years of age, 55 guineas per annum; between 16 and 18, 70 guineas; above 18, 80 guineas. The fee for Out-students is 40*l.* per annum.

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Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, DECEMBER 12, 1857.

OUR columns are this week devoted almost exclusively to a statement of the agricultural news of the week—the greater portion of our space giving an account of the exhibition of the Smithfield Club and of the proceedings before the Society of Arts. These are among the oldest of our agricultural societies, as they may both be called. The former dates from 1798, the latter from nearly half a century earlier, and both have latterly sprung or risen into increased activity—the one term applying more properly to the Smithfield Club, the other to the Society of Arts. For a detailed and most instructive history of the Smithfield Club we are now indebted to the pen of its honorary secretary, who has just published a pamphlet containing particulars of the several shows of live stock it has held, the several office bearers and leading members who have guided it, and some of the results to which it has attained.* Among these last is the exhibition of the present year, to which the shows of preceding years have contributed by the gradually increasing reputation and celebrity of the Society for which it has to thank them. For an account of the exhibition of the past week we must refer our readers to another page.

The meeting of the Society of Arts was gathered to hear Mr. SIDNEY on recent improvements in agricultural machinery. His paper also appears in other columns. We may say of it that while it gave a full and perhaps rather tedious account of the whole subject of agricultural machinery at the dates of 1837 and 1857 respectively, it had the additional and greater merit of raising a discussion to which indeed Mr. SIDNEY himself contributed, characterised by abundance of that point and interest in which the opening paper was itself deficient. We must confess that but little service appears to us to be done by a detailed comparison of the agricultural condition of the country generally at stated intervals of time. Whatever the progress may have been, and however clear the proof of agricultural progress, it after all results in this—that we are farther now than we ever yet have been from sufficiently supplying the demands of our population. The better plan, we think, for Mr. SIDNEY, would have been to have occupied the salient points of his subject and thence to have shown how at the present date there are almost neighbouring farms and districts exhibiting at one and the same time all the contrast represented by the condition generally of the country at dates at least a quarter of a century apart.

If we had had an estimate drawn up, or an actual experience of the present day described, of the greater economy of the agricultural manufacture under the improved machinery of modern times as compared with the cost of the lest efficient processes and less efficient means in general use 20 or 30 years ago, and by no means out of general use at present—the contrast might have told effectively on some of the ears which were last Wednesday listening to the lecture. As it was, too much of the force and effectiveness of the discussion went to the defence of the former period of our agricultural history—and much less prominence was given to useful novelties and to proofs of the greater economy of existing methods than they certainly deserved. Mr. CAIRD, M.P., who occupied the chair, Mr. BAKER, of Writtle, Mr. BENNETT, of Cambridge, Mr. SCOTT, the drainage engineer, and Mr. MECHI were among the most effective speakers, and we hope next week to give a short report of their remarks.

Another meeting of some importance has taken place during the past week. The London Farmers' Club met to hear Mr. NESBIT on the theory of drainage, and for the purpose of presenting to him a well-earned testimonial to the value of his services as an agricultural lecturer. Neither the lecture of the evening nor the discussion which followed it will, we confidently believe, materially add to the high reputation and position which this Society has undoubtedly achieved. The lecture was no doubt crippled by the shortness of the time permitted to the speaker by the other proceedings of the evening. But we must submit to Mr. NESBIT that however this may excuse the deficiencies of his address it cannot cover either its errors or its inconsistencies, and of both we believe that instances were not wanting. There is no easier thing now-a-days to do, than to raise a cheer at an agricultural discussion of land drainage by the very safe and general assertions that practice must vary according to circumstances—that the interval between our drains ought not to depend upon their depth—that "*non porous*" [!] soils must be drained on very different principles from those which guide us in removing stagnant water from light and pervious land. These assertions, and the frequency and urgency with which they are insisted on, may be the fruit of a natural and appropriate reaction from the excessive dogmatism of our earlier theoretical writers on this subject, but it is certain that there is not one of them which is not a much less perfect expression of the whole truth upon the subject, than would be given by a statement directly contradicting it. The practice of the drainer is guided by the circumstances which are common to all cases much more than by the circumstances peculiar to each case—the interval between our drains ought to vary with their depth in more than five cases out of ten—there is no instance in which the term "non porous" *can* be applied to a soil, and we have no hesitation in saying that the general principles of drainage in the case of stiff soils are precisely those which guide and justify the drainage of our sands.

It is too much the custom to assume the existence of abrupt distinctions in our soils, and thus to defend abrupt differences in our agricultural practice. No such abrupt differences or distinctions are to be found in nature. A clay soil differs but in degree from a loam or sand, in so far as its mechanical relations to water, air, or gravitation are concerned. Mr. NESBIT admits the gradually increasing force of capillary attraction within the soil as its particles are fine and near to one another, and he rightly bases on the existence of this force an argument for the depth of drains below that point where we are content to leave the water stagnant: but we are at a loss to know why his theory ceases all at once to apply to the case of our more clayey fields—why, in the presence of practical men, he abandoned it on the very ground where a sound theory and a safe practice are most needed and desired. It might have been just and right for a practical man, speaking only of his own experience, to assert that clays are an exception to the operation of this theory, and that shallow drains alone will answer there—or to reply oracularly, in answer to a question about the interval between drains, that it ought not to be influenced by their depth: both of these assertions might have seemed to him borne out by the limited experience which alone any one man can have. But Mr. NESBIT particularly disclaimed all pretension to the character of a practical man, he professed to state only the conclusions to which a consideration of the several forces known

* The Smithfield Club—A Condensed History, &c. By T. Brandreth Gibbs, Esq. J. Ridgway, 169, Piccadilly.

to acurate water, earth, and air, would lead a scientific student of this subject. And how he is to justify on these grounds the rigid rules which he enunciated, and the abrupt departures which he sanctioned from the very principles which he had just asserted, we are at a loss to know. No doubt it all approved itself to the gentlemen who heard him: men of large experience cheered him; Mr. MECHI admitted the superiority of the shallow drains in clays; Mr. BULLOCK WEBSTER congratulated Mr. MECHI on this late but confidently expected recantation of his former views; Mr. BAILEY DENTON indeed protested, but the general feeling of the meeting was against him. Nevertheless it remains unquestionably true that Mr. NESBIT in the admissions and assertions which excited all this cheering was inconsistent with his own previous doctrine: he was inconsistent, we are very sure, with all rightly read and understood experience on the subject.

We have not space this week for a further reference to this discussion before the London Farmers' Club. Certainly the subject must not be allowed to remain in the position in which they have at present left it, and we do not see that Mr. NISBET can in justice to himself allow the report of that discussion to go further without some further explanation of the opinions which his audience on that occasion must have understood him to maintain.

We have left ourselves but little room for a reference to the half-yearly meeting yesterday of the Agricultural Society of England. Among the more important points on which the Council had to address the general body of the members were the satisfactory character of the Salisbury meeting, and the resignation of their chemical officer, Prof. WAY. The services of that gentleman have been of too great value to allow of a merely casual reference to them here. We must refer at greater length hereafter to the extraordinary industry, skill, and success which have characterised his labours. The Society must beware lest under another administration of his office that large portion of its great reputation which is due to the labours of Professor WAY be risked or lost. Next week we shall publish a full report of what transpired on the occasion of this half-yearly meeting. It must be also left till next week to state the results of a discussion on Mr. HALKETT's guideway scheme of steam cultivation, which took place at a meeting a few days ago.

TREATMENT OF LAND AFTER DRAINING.

IT is of little use and benefit to drain land, if afterwards the cultivator does not assist the work by rendering the condition of the land suitable to the full development of the objects of draining. These are—the regular and complete passage of surface water through the soil, the discharge of all surplus water from the subsoil, and the uniform admission of air down to the full depth of the drains.

It is very much the practice and habit of men, who having had draining done for them are expected to pay interest on the outlay, to complain that water stands in the furrows of high-backed lands. They expect that water being collected by the form of such lands in the furrows, it is to pass away as rapidly as if they did their duty and levelled the lands to the condition the surface was in before the Romans or the Saxons adopted the aboriginal means of surface draining which preceded underdraining, in the shape of ridge and furrow. The least reflection must satisfy every one that water falling on the surface will run or soak to the lowest places if there be any resistance to its passage downwards. Now when we know that half an inch fall of rain gives 50 tons of water per acre, and that lands 2 rods wide and 50 rods long—which is a common length—receive 32 tons of water which must either pass directly through the soil or flow off the sloping surface to the furrows, it must be acknowledged that the latter action is the more probable, and that 32 tons of water will make a great show in the furrows of such lands. How can it be otherwise when a narrow line of land a few inches wide is bearing the burden of a breadth 132 times its area? As well might we expect that one river should carry the waters of 132 rivers without overflowing its banks. Again, it is expected that rain water should find its way through the pan which constant ploughing at one shallow depth has formed in most soils. This is expecting too much. After draining we must have deep cultivation as well as an uniform surface. The rain will then penetrate where it falls. In the vale of Evesham, I am informed by Mr. Webb of Evesham, the levelling of high-backed lands is being carried out at a cost of from 50s. to 60s. per acre in the most satisfactory manner, and when the whole is ploughed to a depth of 10 inches, no further fault is found with the inefficiency of deep draining properly executed. At a recent meeting of the North Lancashire Agricultural Society, Mr. Pemberton, the principal tenant on Lady Shelley's estate near Preston, was called upon to return thanks as the most successful competitor, and when he rose he tersely said he did not "understand speech-making, but he was satisfied of one thing, which was that if a man sought to produce large crops he must do three things—drain deep, plough deep, and muck deep." I was as much struck with these words as I had been previously struck with the fact that in the parish of Great Addington in Northamptonshire, where high-backed lands prevail, one of the farmers there had actually been delayed in his harvest by the existence of these lands to such an extent that he actually cut and carried the corn that grew on the south sides seven days earlier than that which grew on the north sides. You will perhaps allow me to quote some doggerel lines that suggested themselves to me when I heard Mr. Pemberton's short speech. They express the observations I have made on the successful practices of good farmers on drained heavy land.

When land is drained no furrows keep,
But lay it flat and plough it deep.
Sow your seed soon, wide in the row,
And clean and stir with Garrett's hoe.
Ere the last sheaf is off the ground
Let the broad share begin its round,
With sun to scorch and wind to dry
In earnest plough and scarify.
But when the soil is fill'd with rain,
Then your labour is worse than vain;
For ev'ry footmark shod or cloven
Only stamps the dolt or sloven.

Mr. Bailey Denton, at a late Agricultural Meeting.

Home Correspondence.

Canadian Experience.—In reply to "G." I would first of all express a hope that he is not thinking of taking up a lot of wild land and clearing it himself, as it is too rough and heart-breaking a job for any but those used to it from childhood. I never recollect clearing being done for 10 dollars an acre; 14 was the lowest price I could ever get it done for, and I know it was the common price 10 years ago—now it will, as a rule, be dearer, except that this winter, owing to the state of the money market, many men will be unemployed, and consequently will be glad to earn their living at a lower rate than they usually ask. As regards blasting, I fancy the saving in labour would not be so great as "G." thinks; a small tree, say a foot in diameter, would be thrown by any axemen as quickly as it could be blasted, even after Captain Norton's plan, and larger trees, from the general straightness of the grain, would be just as likely to split as to break off from the concussion, and then to fell the pieces would be much more dangerous and troublesome than when the axe is used from the first, as the tops would lodge in the surrounding trees, and many a poor fellow has met his death under such circumstances, as the tree when cut through at the stump very often jumps off it, and pins the unfortunate man to the ground. No one who has not seen it can imagine the rapidity with which a couple of experienced axemen can fell a tree. I recollect a tough knotty old Elm about 4 feet through in one direction kissing the ground in 1¾ hours (I am not quite sure it was not the three-quarters, but prefer giving the longer time). A friend of mine tried blasting stumps, but each charge produced but one split, without loosening it at all, and though persevering and ingenious he gave it up in despair. The usual plan in clearing land is to take a crop of Wheat directly the trees are removed or burnt, and seed down with Grass. This gives one or two mowings and then provides excellent pasture for from 4 to 6 years, when some of the stumps are rotten, and when set fire to burn right into the ground; others can be pulled up with two or four oxen, and piled round other more refractory members of the community and all burnt together, care being taken to leave any very obdurate one, as a coating of charred wood is well known to be a sure preventive against decay. The small roots of all that are left are by that time decayed, so that a plough can run right up to the stumps and the field can be ploughed and presents a tolerable appearance. The stumps that are left gradually decay and get burnt or pulled out. Stump drawing machines are in use, and perform their part very well, but they are used principally in Pine districts, for the root of the Pine tree has most extraordinary powers of duration, extending to 40 years or more, according to popular account; and certainly they only get more weatherbeaten in appearance every year. I cannot tell what the cost of using them is, as my farm was pretty well worked when I bought it, and was consequently partially free from stumps; but the labour must anyhow be great, and in a country where all field work must be done say between the 1st of April and the 1st of November, there is no spare time for work of that sort; on the contrary, winter has a very disagreeable way of coming on before operations are satisfactorily concluded. Wishing "G." all success I beg him to read, if he has not read before, the one or two papers I published in your Journal before.
A Canadian Farmer, Plymouth,

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

MONTHLY COUNCIL, *Dec.* 2.—Lord Portman in the chair. 25 new members were elected.

PRIZE ESSAY.—Mr. Thompson reported the following adjudication:—To the Rev. William Beevor, of Cowbridge, Glamorganshire, the prize of 20*l.*, for the best essay on the comparative advantages of entering upon farms in spring and autumn.

AGRICULTURAL CHEMISTRY.—Mr. Wren Hoskyns read a letter from Professor Way, the consulting chemist of the Society, dated Milan, the 20th of November last, tendering his resignation of that office, which the Council accepted, and passed a vote of thanks to Professor Way for his past services to the Society in that capacity.

AGRICULTURAL IMPLEMENTS AND MACHINERY.—Colonel Challoner read a report on the conditions to be observed during the trial of steam-engines and other agricultural machinery at the Chester meeting. To this report we must refer hereafter.

Prizes for Implements—1858.

The Committee recommend the following prizes for Implements at the Chester meeting:—

	£
Portable steam-engine, above 8 and not exceeding 12-horse power	
Portable steam-engine, not exceeding 8-horse power	25
Second best ditto	25
Fixed engine, not exceeding 10-horse power	10
Second best ditto	20
Boiler for a fixed engine, not exceeding 10-horse power	10
Portable threshing-machine, not exceeding 6-horse power	10
Portable threshing-machine, not exceeding 8-horse power, for large occupations	
Portable threshing machine, not exceeding 8-horse power, that will best prepare the corn for the finishing dressing machine	15
Portable combined threshing machine, that will best prepare the corn for market, not exceeding 8-horse power	15
Fixed combined steam threshing machine, for preparing corn for market, not exceeding 10-horse power	15
Fixed combined steam threshing machine for preparing corn for market, not exceeding 8-horse power	20
Corn-dressing machine	10
Corn-dressing machine, for preparing corn for market after being riddled and screened	5
Screen for corn	5
Screen for seed	3
Chaff-cutter, for horse or steam-power	5
Second best ditto	3
Chaff cutter for hand power	5
Second best ditto	3
Grinding-mill, with steel or stone grinders, for grinding agricultural produce into meal, to be worked by horse or steam power	10
Grinding mill, with steel grinders, for grinding agricultural produce	5
Linseed or corn crusher	5
Oilcake-breaker	5
Oilcake-breaker for common cake	3
Bone-mill, to be worked by steam or other power	10
Bone-dust mill	5
Turnip-cutter	3
Turnip-cutter for hand power	3
Root-pulper	3
Churn	3
Cheese-making apparatus	3
Cheese-press	3

Miscellaneous awards for essential improvements in any of the implements or machinery exhibited—21 silver medals.

Any new implement, such sum as the Council, on the report of the judges, may think proper to award.

Should the Council decide again to offer the prize for the best steam cultivator, the Committee recommend that it be offered in precisely the same terms as last year.

(Signed) C. B. CHALLONER, Chairman.

LIVE-STOCK PRIZES.—Mr. Fisher Hobbs reported the following schedule of prizes in that division of the show at the Chester meeting:—

Shorthorned cattle	£170
Hereford cattle	170
Devon cattle	170
Cattle of other breeds	45
Agricultural horses	130
Dray horses	75
Other horses	105
Leicester sheep	90
Southdown sheep	90
Longwoolled sheep	90
Shortwoolled sheep	90
Pigs	80
Poultry	119
	£1424

AGE OF BULLS.—On the motion of Mr. Torr, seconded by Mr. Milward, it was decided that the age at which the old bulls might compete should be raised from 4 to 6 years.

POULTRY SHOW.—Mr. Milward gave notice that at the monthly council in February next he should move that after 1858 there should be no exhibition of poultry at the country meetings of the Society.

DINNER.—On the motion of Sir Watkin Wynn, Bart., M.P., seconded by Mr. Fisher Hobbs, the Council postponed until their monthly meeting in February the further consideration of the question whether any dinner should be ordered under the responsibility of the Society.

METROPOLITAN MEETING.—On the motion of Mr. Brandreth Gibbs, seconded by Mr. Fisher Hobbs, a committee was appointed to report as to how far it will be expedient for the Society to make application to the Royal commissioners for permission to hold a show, in an early year, on the admirable site which the land lying between the Kensington and Brompton roads, and adjacent to that portion of Hyde Park on which the Great Exhibition of 1851 was held, now offers for the purposes of the Society, if such permission can be obtained.

STEAM-SPADE.—Major-General Grey transmitted to the Council, by direction of H.R.H. the Prince Consort, a communication addressed to his Royal Highness on the subject of a steam-spade recently invented in the United States. The Council ordered an acknowledgment of their thanks for the favour of this communication, which they referred to the implement committee.

SMITHFIELD CATTLE SHOW.—The exhibition of the Smithfield Club in the Baker Street Bazaar is this year more crowded than ever, both in its live stock and its machine departments, and the necessity of a building erected especially for the purpose of agricultural shows at this season of the year becomes more and more apparent, as both exhibitors and spectators increase in number.

There are, as usual, a number of instructive lessons taught us by the exhibition. We have both in the pure classes and in the cross breeds evidence of how entirely the result is in the hands of the breeder. He

can, if he only perseveres, obtain just what sort of animal he desires by the use of the proper means. The cross-bred Hereford and short-horn shown by Lord Radnor and the Devon and Highland cross-bred shown by the Duke of Beaufort are as clear an illustration of this as is the extremely level and uniform character of the classes of pure-bred Devons or of pure-bred Herefords. This great uniformity of excellence and character is, we think, observable more in the several classes of these two breeds than in those of the short-horn breed.

The 1st Class (Devon steers,) did indeed contain at least one animal, Mr. Overman's, of undoubted superiority, but the 2d and 3d prizes must have been more difficult to award; and here, as in other classes, the Judges were guided by breed and quality more than by weight. This was to be seen in the classes of sheep as well as in those of cattle, and one could see in the awards made in the class of Long-woolled sheep the preference of the Judges for the fine and true Leicester breed as compared with those pens where a greater carcase of mutton was built upon a stouter framework of bone, and covered with a coarser and heavier fleece of wool.

There are throughout the show indeed many cases illustrative both of the facility and of the difficulty of awarding the prizes. There was no difficulty in awarding the first place in the class of short-horn cows, nor indeed in that of short-horn oxen, while a greater nearness in point of merit was observed between animals competing for even the first, and certainly the second prize, in the case of short-horn heifers.

The 2d class (Devon oxen) was one of extraordinary merit, indicating by their large average weight, as compared with Devon steers one year younger, the great growth of which this so-called small breed is capable, while the condition of the younger animals proved the precocity and early maturity also characteristic of it. The 13 oxen in Class 2 were, we believe, larger and heavier than the Sussex cattle shown in Class 13—they exceeded them indeed in age—but the latter we should have thought would have yielded the heavier carcase of beef notwithstanding this. Class 3 too, Devon heifers, were of very large average size, and altogether the show of Devon cattle included individual specimens and exhibited average results as good as those of any other breed exhibited.

The classes of Herefords exhibited great evenness and excellence of quality—though Class 9 (Hereford heifers) were not so much larger than the corresponding class of Devons as we should have expected from the larger frame of the breed.

The short-horn classes, though they carry off both of the gold medals for the best ox and heifer or cow in the yard, are yet not of such even quality and character as either the Devons or the Herefords. Thus 72 is neither a well made beast nor evenly nor even thickly covered with flesh; and it stands beside 73, a contrast to it in every respect, exhibited by Mr. Lynn, of Grantham, which took the 1st prize in its class. 79, again, exhibited by Mr. Barton, of Kildare, is a perfect giant, 5 feet 8 inches high, and destroying the uniformity of the class in which it stands. Class 11 contains a number of very evenly matched animals; 99, shown by Mr. Baker, of Cottesmore, standing between two other white heifers, itself undecorated between two prizes, but all of nearly equal quality. The class contains but half a dozen animals, a thing not to be lamented—as it is not a desirable thing that pure-bred heifers should be taken from their proper work of producing well-bred stock in order to furnish illustrations of the rapidity with which the breed will lay on flesh when fed up for the purpose. Even Class 12 (old cows) always in this breed contains younger animals than it ought, and one is sorry to see Colonel Towneley's splendid roan cow, 4 years and 1 month old, brought to the butcher after having produced but one calf. It receives the gold medal for the best cow in the yard as it did at Birmingham; it is indeed hardly possible to imagine any improvement in a carcase so symmetrical, of such quality, and so thick.

The Sussex breed is well represented by 8 or 9 well fatted and well made oxen, none of them four years old, and half-a-dozen well-bred cows, some of which for fineness and quality could not be distinguished from Devons. The Norfolk and Suffolk breed were represented by a couple of very fine cattle not 3 years old, having the colour and form very much of the Devon, but without horns. A few oxen and cows represented the old-fashioned long-horn breed. There was a tolerable show of Scots, both West Highland and Angus, though nothing like so large and numerous a one as we have seen. A little red cow shown by the Duke of Beaufort is a remarkably well-made and thickly and evenly covered animal.

In the Welch classes a few large well-fed black cattle competed for the prizes, but none came forward to compete for the prizes offered for Irish stock. The cross-bred classes and extra stock were numerously filled, and as we have already said extremely interesting.

There was a large show of Long-woolled and Leicester sheep, but hardly any (only two pens) of Long-wools not Leicesters. The bias of the judges towards a well bred animal, rather than one showing a heavy carcase of mutton, was very obvious in their decisions. The show of Oxfordshire Downs was of remarkable quality, and contained animals heavier, we think, as compared with their age than any other breed in the show. We must refer to the prize list for mention of the successful competitors.

In the Short-woolled (South Down) classes there was, as it appeared to us, a less entry and certainly less competition than usual. Class 35 was of very uneven quality, the prizes being taken by the Duke of Richmond (who also had the gold medal for this pen), Lord Radnor, and Mr. Rigden. The Duke of Richmond was again successful in the class restricted as to weight. In the class of old sheep, which appeared to us the best class of Downs in the yard, the first prize was taken by Lord Radnor, the second by Lord Walsingham, and the third by the Duke of Richmond.

There was a very good show of pigs arranged in classes depending upon age. Mr. Morland, of Abingdon, in the young and in the old classes took the first prizes for animals of a thick, short, white breed; and received the gold medal for the best pen of pigs in the yard. Mr. Barber, of Sunninghill, took the first prize for pigs between 4 and 8 months.

The implement galleries are more than usually full; upwards of 300 exhibitors have their stands; and these are closely packed with specimens of all the implements of the farm, from steam engines and threshing machines downwards. The lighter and smaller tools of course predominate, and while implements of tillage and cultivation have their representative specimens, those for preparing food for cattle, Turnip cutters and pulpers, corn crushers, chaff cutters, steaming apparatus, &c., form appropriately, in accordance with the nature of the show, by much the larger portion of the exhibition.

On walking round we noticed the very good and even show of roots at the stand of Messrs. Gibbs—the carts, ploughs, horse-hoes shown by Busby—the fixed engines, corn-crushers, and chaff machines shown by Wedlake—the drills, Chambers's manure-distributor, horse-hoes, and models at the stand of Mr. Garrett—the large Kohl Rabi, Chicory roots, Orange Jelly Turnips, &c., shown by George Gibbs & Co.—Mr. Biggs's sheep-dipping apparatus—Clayton's (Dorset Square) brick and tile machine—the saw-mills, fixed steam-engines, &c., shown by Clayton & Shuttleworth of Lincoln—Warner's force-pumps and steam-engines—Ball's patent portable oven and other implements shown by Lloyd of Shoreditch—the very large Mangel Wurzels (38 to 40 lbs.) shown by Messrs. Sutton & Son, of Reading—the ploughs, harrows, and horse-rakes of Messrs. Howard, of Bedford—the reaping machine (M'Cormick's), draining tools and forks, the simple American (Dennison's patent) force pump, and many other tools shown by Burgess & Key—the large assortment of farm implements, Hussey's reaper, &c., shown by Dray & Co.—drills, horse-hoes, and other tools by Priest & Woolnough, of Kingston-on-Thames—Turnip pulpers, with the spiral arrangement for cleaning their teeth, shown by Bentall, of Maldon—the corn bruisers of Turner, of Ipswich—the winnowers, chaff machines, cake bruisers, and drills, of Hornsby—the magnificent roots, including remarkable Belgian Carrots and extraordinary Kohl Rabi, and evident purity of sort characterising all the specimens at the stand of Messrs. Lawson — the large though somewhat coarse Swedish Turnips shown by Skirving of Liverpool, just as pulled out of the ground with earth still adhering to them—the root cutters, steam engine, &c., shown by Wedlake & Danby—the 2-horse threshing machine, boxed-in chaffcutters and steam-engine of Barrett & Exall, of Reading—the reaping-machine (Bell's), carts, clod-crusher, &c., of Crosskill — specimens of cattle food by Thorley—the splendid Mangel Wurzels grown by Mr. Grove, of Great Baddow, Essex, including long Mangels 3 feet in length, and Globes of unequalled quality—the well-known chaff-cutters with characteristic feed-rollers and oscillating mouth-piece, the fluted case-hardened crushing rollers of their corn bruisers of Messrs. Richmond & Chandler, Salford—the cleaning apparatus attached to corn bruisers by Snowdon of Longford near Gloucester—the drilling machines of Holmes—the warm water churn of Swift, City Road—the astonishing Mangel Wurzel, 44 lbs. in weight, and other roots shown by Page of Southampton—the disc and other cutters and graters for preparing roots for food by Barnard & Bishop, of Norwich (Mr. Holben's patent hummeller was shown at this stand). Messrs. Fowler exhibited specimens of pumps—Simpson of Petersham exhibited a simple straw-rope twister—Wright of Great Bentley exhibited roots—Greening of Manchester, wire fencing—Fry, of Templegate, Bristol, an assortment of various agricultural implements—the Royal Dublin Society showed Swedes far exceeding in weight any other in the galleries, and at this stand were specimens of the extraordinary Giant Wheat of Major Quentin, of Waterford, who has disposed of nearly all his crop of 7 quarters an acre at 3 guineas a bushel for seed. At the stand of Ransome & Sims there are chaff-cutters, horse-hoes, winnowers, ploughs, root-pulpers, &c. Mr. Lyne of Malmesbury exhibited a model of a self-acting Yorkshire stile of great simplicity permitting the passage of a person, and then closing of itself without his interference; its cost would be 36*s.* at the works, or the iron work alone 30*s.* We must merely name, as we proceed, Ball's ploughs, Wheeler's (Oxford) Moody's pulper—Smith's (Kettering) steerage horse-hoe and chaff machines—Oliver Maggs' (Wincanton) cheese-presser, chaff machine with a screen attached—Carter's (Oxford) scarifiers, cake-crushers, &c.—Samuelson's (Banbury) Turnip-cutters, chaff-cutters, and combinations of the two—Cambridge's (Bristol) rollers, threshing-machines, &c.—Smyth's (Peasenhall) drills and manure-distributors—Carson's (Warminster) pulper and chaff machine—Hunt's (Earl's Colne) Clover-cleaning machine—M'Neill's felt for roofing material—Page's (late Williams, Bedford) harrows, chaff machines, &c.—Reeve's (Bratton) drills, corn-separator, &c.

At the stand of Mr. Woods, of Stowmarket, his pulper, invented by Mr. Philipps, with its saw teeth fixed in a wooden cylinder and an oscillating breast to carry the roots to and fro as this cylinder revolved before them, was exhibited. Mr. Clark (Great Bentley) shows a double plough with wide wings intended for clearing out the furrows between ridges, and spreading the contents over the surface on either side. Mr. Warren (Maldon) shows ploughs, corn-crushers, chaff-cutters—Mr. Fisher (Thrapstone) shows corn-crushers, rakes, chaff machines—Mr. Purdie (Oxford Street) showed chaff machines, a wool-washing machine, &c.—Read (Quadrant) force-pumps, probangs, &c.—Smith & Ashby (Stamford) exhibit hay-making machine, chaff-cutters, rakes—Wallis & Haslam (Basingstoke) have threshing machines with Boby's patent corn screen, &c. This screen, which consists of an oscillating wire framework, the intervals between the wires being kept clear by rows of discs placed in them over which the grain passes, is shown at several other stands, as at Whitmee's (Clerkenwell), Stanley (Peterborough), &c.; stable-fittings were shown by Barton (Oxford Street), Cottam & Cottam (Old St. Pancras Road), &c. Besides these we saw garden tools, grinding-machines, &c., at the stand of Mr. Boyd (Oxford Street)—butter-prints at that of Bridges (Oxford Street)—iron cisterns of all sizes at that of Burn & Bellamy (Millwall)—the self-acting chain harrow at the stand of Mr. Cartwright (Shrewsbury)—weighing machines at the stands of Beyton (West Smithfield) and James (Leadenhall Street)—tarpaulin and sail-cloth and tents at that of Edgington—tile-making machines at the stand of Mr. Whitehead (Preston)—cattle gauges in abundance on Ewart's principle at Mr. Tree's stand (Blackfriars Road)—the straw elevator and corn mills at the stand of Mr. Hayes (Elton, Hunts.)—cultivators, Hanson's Potato digger, &c., at the stand of Mr. Coleman (Chelmsford)—and carts at the stand of Messrs. Cowley, of Newport-Pagnel.

Altogether it has been a very extraordinary display. From the steam cultivator of Mr. Romaine to the digging forks of Mr. Burgess—from the horse-hoes and drilling machines of Smith & Hornby, and many others, to the exceedingly ingenious, simple, and effective hoes and dibbles of Sigma at the stand of Mr. Powell, of Ticehurst, Sussex—there is hardly a kind or class of implements unrepresented—while on the ground below there stands an array of steam engines and threshing machines exhibited by Garrett, Clayton & Shuttleworth, Barrett & Exall, Tuxford & Son, Haywood (Derby), Maggs (Wincanton), Holmes, Smith & Co. (Sleaford), Cambridge, Humphries (Pershore), Hart (Wantage), Wedlake, Hornsby, & Ford (Lenham). While in a building near, Mr. Romaine exhibited and explained a model of his steam cultivator, on which we may remark that a mistaken impression has gone abroad as to the ownership and origin of certain alterations and improvements which it has of late received. The machine is essentially the same as it originally was, and to Mr. Romaine alone is due the credit of whatever position it has yet acquired in the ranks of rival steam cultivating schemes. Mr. Halkett too had a stand in the galleries, at which information could be obtained as to his guideway scheme of steam cultivation.

We now recur to the prize list of the show of live stock. We have given the measurements of most of the prize animals.

CATTLE.

Class I. Devon Steers, under 3 years.—25*l.*, John Overman, Burnham Market; length 4 ft. 8 in., girth 7 ft. 7 in. 10*l.*, H.R.H. the Prince Consort; length 4 ft. 6 in., girth 7 ft. 4 in. 5*l.*, the Earl of Leicester; length 4 ft. 6 in., girth 7 ft. 6 in.

Class II. Devon Oxen, above 3 years.—25*l.*, the Earl of Leicester; length 5 ft. 2 in., girth 8 ft. 9 in. 10*l.*, William Heath, Ludham Hall, Norwich; length 5 ft. 6 in., girth 8 ft. 6 in. 5*l.*, H. H. Bull, West Monkton, Taunton; length 5 ft. 4 in., girth 8 ft. 2 in.

Class III. Devon Heifers, under 4 years.—15*l.*, H.R.H. the Prince Consort; length 5 ft. 1 in., girth 7 ft. 6 in. 5*l.*, Walter Farthing, of Stowey Court, Bridgewater; length 4 ft. 10 in., girth 7 ft. 5 in.

Class IV. Devon Cows, above 4 years.—20*l.*, John Coate, of Hammoon, Blandford; length 5 ft. 2 in., girth 7 ft. 3 in. 10*l.*, John Bodley, Stockley Pomeroy, Crediton; length 5 ft. 3 in., girth 7 ft. 6 in. 5*l.*, J. C. Halse, South Molton; length 4 ft 11 in., girth 7 ft. 3 in.

Class V. Hereford Steers under 3 years.—25*l.*, William Heath, Ludham Hall; length 5 ft. 8 in., girth 8 ft. 10 in. 10*l.*, H.R.H the Prince Consort; length 5 ft. 2 in., girth 8 ft. 5 in. 5*l.*, John Naylor, of Leighton Hall, near Welshpool; length 5 ft. 4 in., girth 8 ft. 3 in.

Class VI. Hereford Oxen, above 3 years.—25*l.*, John Shaw, of Hunsbury Hill, near Northampton; length 5 ft. 5 in., girth 8 ft. 8 in. 10*l.*, William Heath, of Ludham Hall; length 6 ft., girth 9 ft. 2 in. 5*l.*, the Earl of Darnley; length 5 ft. 4 in., girth 8 ft. 9 in.

Class VII. Hereford Heifers, under 4 years.—15*l.*, Henry Higgins, Lydney; length 5 ft. 5 in., girth 8 ft. 4 in. 5*l.*, S. W. Urwick, Ludlow; length 5 ft. 6 in., girth 8 ft. 1 in.

Class VIII. Hereford Cows, above 4 years.—20*l.*, E. Thomas, Bishop's Castle; length 5 ft. 1 in., girth 8 ft. 1 in. 10*l.*, Richard Thomas, Dorrington, Salop; length 5 ft. 7 in., girth 8 ft. 2 in. 5*l.*, John Naylor, Welshpool; length 5 ft. 6 in., girth 8 ft. 6 in.

Class IX. Short-horned Steers, under 3 years.—25*l.*, Robert Lynn, of Stroxton, near Grantham; length 5 ft. 9 in., girth 8 ft. 8 in. 10*l.*, the Earl Spencer, K.G.; length 5 ft. 5 in., girth 8 ft. 8 in. 5*l.*, Joseph Stratton, Pewsey; length 5 ft. 5 in., girth 8 ft. 4 in.

Class X. Short-horned Oxen, above 3 years.—25*l.*, Edward Wortley, of Ridlington, near Uppingham; length 5 ft. 7 in., girth 8 ft. 11 in. 10*l.*, W. de Capell Brooke, Kettering; length 5 ft. 7 in., girth 8 ft. 11 in. 5*l.*, Henry Roberts, Moreton-in-Marsh; length 5 ft. 6 in., girth 9 ft. 10 in.

Class XI. Short-horned Heifers, under 4 years.—15*l.*, Joseph Phillips, Wantage; length 5 ft. 6 in., girth 8 ft. 3 in. 5*l.*, the Earl of Radnor; length 5 ft. 2 in., girth 7 ft. 11 in.

Class XII. Short-horned Cows, over 4 years.—20*l.*, Lieut.-

Colonel Charles Towneley; length 5 ft. 8 in., girth 8 ft. 8 in. 10*l.*, Sir Thomas Whichcote, Bart.; length 5 ft. 8 in., girth 8 ft. 7 in. 5*l.*, Edward Wortley, Uppingham; length 5 ft. 6 in., girth 8 ft. 5 in.

Class XIII. Sussex Steers or Oxen, of any age.—20*l.*, Edward Cane, Berwick, Lewes; 10*l.*, Charles Neame & Sons, Feversham.

Class XIV. Sussex Heifers or Cows, of any age.—10*l.*, Tilden Smith, Staplehurst; 5*l.*, Charles Neame & Sons, Feversham.

Class XV. Norfolk or Suffolk Polled Steers or Oxen, of any age.—10*l.*, Lord Sondes, Thetford.

Class XVI. Norfolk or Suffolk Polled Heifers or Cows, of any age.—10*l.*, G. D. Badham, Ipswich.

Class XVII. Long-horned Steers or Oxen, of any age.—10*l.*, R. H. Chapman, of Upton, near Nuneaton.

Class XVIII. Long-horned Heifers or Cows, of any age.—10*l.*, J. H. Burbery, Kenilworth; 5*l.*, J. J. Burbery, Ashby de la Zouch.

Class XIX. Scotch-horned Steers or Oxen, of any age.—20*l.*, A. Goodman, Thorney, Cambridge; 10*l.*, T. Duckworth, of Park Farm, Finchley.

Class XX. Scotch-horned Heifers or Cows, of any age.—10*l.*, the Duke of Beaufort; 5*l.*, J. Naylor, Welshpool.

Class XXI. Scotch Polled Steers or Oxen, of any age—20*l.*, W. Heath, of Ludham Hall; 10*l.*, W. M'Combie, of Tillyfour, Aberdeen.

Class XXV. Welch Steers or Oxen (Runts), of any age.—20*l.*, the Hon. Col. Pennant, Bangor; 5*l.*, I. Williamson, of Greenhill, near Pembroke.

Class XXVI. Welch Heifers or Cows, of any age.—10*l.*, J. E. Bennett, of Bosworth Grange, Rugby.

Class XXVII. Cross or Mixed-bred Steers, under 3 years old.—15*l.*, the Earl of Radnor; 10*l.*, Lieutenant-Colonel Charles Towneley.

Class XXVIII. Cross or Mixed-bred Oxen, above 3 years.—15*l.*, R. Thomas, Dorrington, Salop; 5*l.*, H. Bone, Ringwood, Southampton.

Class XXIX. Cross-bred Heifers, under 4 years.—10*l.*, the Duke of Beaufort.

SHEEP.

Class XXX. Fat Wether Sheep, of any Long-woolled Breed, under 22 months.—20*l.*, G. S. Foljambe, of Osberton Hall, Worksop; 15*l.*, C. J. Bradshaw, Burley-on-the-Hill, Oakham; 5*l.*, J. Hopper, of Brompton Green, near Pickering.

Class XXXI. Fat Wether Sheep, of any Long-woolled Breed, under 22 months (each Sheep not to exceed 220 lbs. live weight).—20*l.*, Lord Berners; 15*l.*, R. Newman, Harrowden, Bedford; 5*l.*, G. S. Foljambe, Osberton Hall.

Class XXXII. Fat Wether Sheep, of any Long-woolled Breed, not Leicesters, under 22 months.—15*l.*, William Hewer, Sevenhampton, Highworth; 10*l.*, the Royal Agricultural College, Cirencester.

Class XXXIII. Long and Short-woolled Cross-bred Fat Wether Sheep, under 22 months.—15*l.*, G. Hine, jun., Oakley, Bedford; 10*l.*, A. C. Keep, Wollaston, Wellingborough; 5*l.*, C. Howard, Biddenham, Bedford.

Class XXXIV. Cross-bred Fat Wether Sheep, under 22 months (each Sheep not to exceed 220 lbs. live weight).—10*l.*, J. Overman, Burnham Market; 5*l.*, Charles Howard, Biddenham.

Class XXXV. Fat Wether Sheep, Short-woolled Breed, under 22 months.—20*l.*, the Duke of Richmond, K.G.; 10*l.*, the Earl of Radnor; 5*l.*, William Rigden, Hove, Brighton.

Class XXXVI. Fat Wether Sheep, Short-woolled Breed, under 22 months, each Sheep not to exceed 200 lbs. live weight.—10*l.*, the Duke of Richmond, K.G.; 5*l.*, J. Kent, Goodwood, near Chichester.

Class XXXVII. Fat Wether Sheep, Short-woolled Breed, above 22 and under 34 months.—20*l.*, the Earl of Radnor; 10*l.*, Lord Walsingham; 5*l.*, the Duke of Richmond, K.G.

Class XXXVIII. Fat Wether Sheep, Short-woolled Breed (not South-downs), under 22 months.—15*l.*, J. Sharp, Remenham, Henley; 10*l.*, J. T. F. Pain, North Houghton Manor, Stockbridge; 5*l.*, W. B. Canning, Chisleden, Swindon.

PIGS.

Class XXXIX. Pigs of any Breed, under 4 months.—10*l.*, G. B. Morland, of Chilton Farm, near Abingdon; 5*l.*, G. H. Bascomb, Chislehurst.

Class XL. Pigs, of any Breed, above 4 and under 8 months.—10*l.*, W. M. Barber, of Sunninghill Wells, Berks; 5*l.*, Sir J. B. Mill, Bart., Romsey.

Class XLI. Pigs, of any Breed, above 8 and under 12 months.—5*l.*, Sir W. Booth, Bart., St. Neots.

Class XLII. Pigs, of any Breed, above 12 and under 18 months. 10*l.*, G. B. Morland, Abingdon; 5*l.*, E. L. Betts, Preston Hall, Maidstone.

GOLD MEDALS.

For the best Steer or Ox in any of the Classes, Edward Wortley.

For the best Heifer or Cow in any of the Classes, Lieut.-Colonel Charles Towneley.

For the best Pen of Long-woolled Sheep in any of the Classes, Lord Berners.

For the best Pen of 1-year old Short-woolled Sheep in the 35th, 36th, or 38th Classes, the Duke of Richmond.

For the best pen of Pigs in any of the classes, G. B. Morland, Abingdon.

SILVER MEDALS.

For the best Beast in Extra Stock, H.R.H. the Prince Consort.

For the best Long-woolled Wether Sheep in Extra Stock, Lord Berners.

For the best Long-woolled Ewe in Extra Stock, C. J. Bradshaw.

For the best Cross-bred Sheep in Extra Stock, Adam Corrie Keep.

For the best Short-woolled Wether Sheep in Extra Stock, the Duke of Richmond.

For the best Short-woolled Ewe in Extra Stock, G. S. Foljambe.

For the best Pig in Extra Stock, William Davey, jun.

JUDGES: *Cattle and Long-woolled Sheep.*—JOHN BUCKLEY, JOHN B. THOMPSON, SAMUEL ANSTEY; *Cross-bred and Short-woolled Sheep and Pigs:* EDWARD POPE, HENRY LUGAR, JOHN CLAYDEN.

SOCIETY OF ARTS, *Dec. 9.—On the Progress of the Agricultural Implement Trade during the last 20 years.* By S. Sidney.—The following are extracts from the Paper:—

1. *Ploughs.*—In England, the plough is not only required to turn over and bury the weeds and stubble, but to cut, move, and turn over a damp tenacious clay soil, often covered with a thick tough skin, the result of a crop of artificial Grasses trampled and eaten closely down by sheep.

Twenty years ago, when the Royal Agricultural Society of England commenced the annual exhibitions which form the more prominent, and, probably, the most useful part of their operations, there were two or three ploughs constructed on very good principles in use in two or three English counties, but it is a curious fact that even the plough makers had but loose, vague opinions on the comparative merits of the forms of the ploughs they manufactured. At that period the Ransomes, of Ipswich, had been manufacturers of ploughs for nearly a century; they had introduced, at the beginning of this century, several substantial improvements—for instance, cast-iron shares, case-hardened on the sole, which were not only much cheaper than wrought-iron shares, but had the essential advantage of sharpening themselves when at work, because cast-iron sides wore away more rapidly than the case-hardened sole. But in the then state of agricultural intelligence and opinion, the Messrs. Ransomes made as many as 80 different kinds of ploughshares, of which some were good and some were bad, in order to accommodate the local prejudices of every county into which they sent travellers. At present, in common with all first-class ploughmakers, they decline to make an ill-shaped plough to please any county or customer. In 1839, and at trials for prizes made at the meetings of the Society at Liverpool and Cambridge in 1841 and 1842, the greater number of ploughs tried were of wood, with the exception of the share and the coulter. In several the mould board was also of wood. The greater number were swing ploughs (in which, being without wheels, the depth is regulated by the line of draught and the skill of the ploughman); some of them had one wheel, others had two high wheels, of equal size, and a cumbrous arrangement like the old wheeled ploughs of our Saxon ancestors, called "a gallows;" while two counties only, Bedford and Rutland, afforded ploughs with the two wheels of unequal size, of a model from which all the best ploughs in England at the present time have been modelled. In 1837, and indeed up to 1842, the principal English agricultural writers wrote and argued that the swing plough worked with less labour for the horses, that is, less friction, than working with wheel ploughs. At the present day, in all the best cultivated districts of England, the ploughs in common use are almost all constructed on one principle, with more or less excellence of detail, according to the skill of the manufacturer. For many years past no other form has had the slightest chance of winning a prize at the trials of the Royal Agricultural Society, and I am not aware of any instance in which it has not been successful at local ploughing matches. The last trial took place in 1855 at Carlisle, where the local prejudice in favour of the Scotch swing plough is still strong. At the Royal Agricultural Society's show at Carlisle in 1855, the swing ploughs, which local prejudice still retains in use there, as it does in Scotland, were signally defeated.

2. *The Harrow* is as old, if not an older implement than the plough.

A modern harrow is required for covering seed, for breaking the surface clods of rough ploughed land, for loosening the surface of the soil, and thus allowing the air access to the roots of the plants growing on it, and for gathering weeds to the surface. On the Continent, where iron is made costly for the benefit of ironmasters, the harrows are entirely of wood. In the oldest English agricultural works in which harrows are delineated, we find the teeth of iron, and the frame work only of wood, and that was the construction almost universal before the exhibitions of the Royal Agricultural Society commenced, and for some years afterwards. At present harrows entirely of iron are extensively used, and are daily gaining ground in agricultural favour, not only in England, where they are, looking at their efficiency and durability, more economical than wooden frames, but even in France, in spite of the heavy protective duties on iron. The form of iron harrow most esteemed is that first introduced by Messrs. Howard—"Zig-zag; the teeth so arranged that each cuts a separate track at equal distances, and furnished with joints in the centre, which allows the frames to adapt themselves to the form of the ridges."

3. *Cultivators.*—In addition to harrows, there are a number of powerful implements, under the names of scarifiers and cultivators, with curved tiers of iron or steel fixed into a frame of wood or iron.

Among these Biddell's scarifier and Coleman's cultivator deservedly hold a high place. I mention them particularly, because, although the idea of such implements may be traced back nearly 50 years, their present form and materials, in cast-iron frames, wrought iron and steel teeth, are the result of mechanical facilities which have only been created within the period of progress sketched in this paper.

4. *Rollers.*—The soil having been ploughed and harrowed, and, if needed, scarified or dragged, rollers come into use.

Our rollers are now almost invariably made of cast iron. The first invented, and the most celebrated and most universally effective, is Crosskill's clod-crusher, which consists of "a number of cast-iron discs of two alternate sizes, placed side by side upon a round axle, from 5 to 6 feet in length, so as to revolve independently of each other. The outer surface of each roller surface being serrated with a series of sideway projecting teeth, which cut perpendicularly in breaking clods." This roller is used,—1st, for crushing clods on heavy clay land; 2d, for rolling corn as soon as sown on light land, so as to solidify it; 3d, for rolling Wheat upon light land in the spring, after frosts and winds have left the plants bare; 4th, for stopping the ravages of the wire-worm and grub; 5th, for rolling Turnips in the rough leaf before hoeing, when the plants are attacked by the wire-worm or grub, and for many other purposes in this country and on the Continent. It was by the merest accident that this valuable implement was not broken up for old iron, after being three times exhibited without obtaining any notice or honorary reward. But having at length been purchased, and tried by some score of enterprising agriculturists, the first being a clergyman, a cousin of the late Sir Robert Peel, Mr. Pusey published a chapter of testimonials to the value of the clod-crusher, and in the same year the Society presented the inventor with its gold medal. Without cheap cast-iron the construction of the clod-crusher was impossible—without cheap conveyance an extended call for an implement so heavy and bulky was still more impossible.

5. *Sowing Machines* having with the modern ploughs, harrows, scarifiers and rollers, reduced the soil, whether strong clay, rich loam, or light sand, to a condition fit to receive the seed, sowing is the next operation.

More than a hundred years have elapsed since the ingenious and unfortunate Jethro Tull invented a machine for sowing corn in regular rows, for the purpose of admitting the use of his horse-hoe. Drills made no progress in public favour until Turnip culture, with purchased portable manures, was introduced into Norfolk, in order to economise Rape-cake, the only artificial manure. Five and-twenty years ago, the drill, manufactured then as now, by the since widely-known names of Garrett of Leiston, Snoth of Peasenhall, and Hornsby of Grantham, was only to be found beyond Norfolk, Suffolk, and Beds, and in a few counties where the Norfolk rotation had extended, and was almost exclusively used for sowing Turnips. The use of the drill spread in proportion as the use of artificial manures spread. Since 1837 an enormous trade and manufacture of portable manures, applicable to both roots and corn crops, has been established, and the trade in drills followed step by step the trade in guano, nitrate of soda, and superphosphate. At the late Exhibition of the Royal Agricultural Society at Salisbury, 23 exhibitors, from almost every agricultural district of England, appeared on the ground with drills adapted for every purpose and every kind of land, with from three rows to 15 rows, able to deposit manure on one side or under the seed; to sow corn, Turnips, Mangel Wurzel, Clover, and small seeds; to broadcast artificial manures over growing crops; to wash in manures with water; to sow on hill sides; in fact, to meet every requirement of the farmer—the universal use of purchased manures having compelled the equally universal use of the economising action of the drill. Yet in 1837 the drill was scarcely used out of Norfolk, Suffolk, and Lincolnshire. In 1851 it was difficult to find a man able to broadcast; and a Norfolk farmer has been obliged to invent a broadcasting machine for top-dressing corn with artificial manures.

6. *Horse-hoes.*—The horse-hoe, to cut up weeds and stir the soil between roots or Beans, follows the drill, as a matter of course, along the mathematical straight lines of vegetation produced by the machine sowing.

The earliest horse-hoe was Jethro Tull's, but that was a sort of plough, not the least like the invaluable implement which is identified with the name of Garrett, the "Inverted Horse-hoe." The original of this implement is to be found in the inverted horse-hoe, invented by the late Francis Blaikie, nearly 50 years ago, when agricultural agent of the Duke of Leicester, to follow the rude drill already mentioned. It was one of the very many valuable contributions to agricultural progress made by Mr. Blaikie while in the service of a landlord whose extraordinary exertions and extraordinary success in establishing a new system of cultivation, and in turning a waste of sheep walks and rabbit warrens into the best corn land of England, is familiar to every student of the agricultural history of England. The horse-hoe does in time what no possible number of land hoers could do at all. The old form of plough horse-hoes buried the plants; the modern horse-hoes, whether inverted or of triangular shape, travel close between the rows, cutting up weeds and stirring the earth without doing the slightest damage, even when the rows are very near each other. One man and a boy, with his implement, can hoe from 10 to 15 acres a day, at a cost of about 6*d.* an acre. It was as intro- known as the drill, out of Suffolk and Norfolk, in 1841, when it was exhibited and rewarded at the Royal Agricultural Society's show at Liverpool. But, like the drill, the use of the horse-hoe has received a much more powerful stimulus from the invention of portable root manures, and specially from Liebig's superphosphate of lime, in 1844-5, than from any number of exhibitions or prizes. In the drill and the horse-hoe, which have made such rapid conquests over agricultural manual labour prejudices, since the age of railroads began, we find not only a saving of hand-labour that can be otherwise more usefully employed; not only a saving of time, so invaluable in our weeping uncertain climate; not only a saving of manure so costly to be wastefully distributed, but a combined mechanical war upon weeds, which under the system of broadcasting, were often sown with the seed, and there filled the place and exhausted fertility due to food-producing plants.

7. *Harvesting Machines.—The first Haymaker* in the shows of the Royal Agricultural Society was exhibited at Liverpool, in 1841, by Wedlake, and rewarded with 3*l.*, but there was no great demand before 1850; since that date the demand has been, at every show, greater than the leading traders could easily execute.

Reaping Machines stand next in time and importance to the haymakers.

These, like so many other agricultural implements, were invented long before they were needed. Although Bell's reaper was rewarded by the Highland Agricultural Society a quarter of a century ago, and worked on his father's and brother's farms for many years, it was not needed. Reapers and mowers were cheap, and clamorous for employment, so it lay forgotten in his brother's farm, until, at the Great Exhibition in 1851, an American, M'Cormick, exhibited a specimen of a reaper on a totally different plan to Bell's, which, under the strong pressure of necessity, had been invented, manufactured, and extensively sold in the thinly-peopled districts of the United States for nearly twenty years. Another American quietly followed with the reaper, now so well known as Dray's, and, lastly, Bell's was exhumed from the obscurity of the Inchmichael Farm. It is safe to affirm that the three reapers named have become standard implements, for which there is a regular and increasing demand in all the best farmed districts of England and Scotland. When properly worked with four horses and two men each, they clear off crops of Wheat and other grain at the rate of from ten to fifteen acres a-day. Machine reapers not only enable farmers to get in the corn harvest without the assistance of wandering strangers, but also to make the most of patches of fine weather, and save time for carrying out autumnal cultivation, on which the success of root crops so intimately depends. Hitherto the progress of the reaping machines has been delayed by the contradictory decisions of the Royal Agricultural Society, and by the weakness and imperfections in the workmanship of the machines manufactured during the years of 1851-2, before the requirements of our heavy crops were fully understood, but during the harvest of 1857 the doubts of the most prejudiced were dissipated by the example and testimony of tenant farmers of high and well deserved reputation, and henceforward Burgess and Key's, M'Cormick, Crosskill's Bell, and the Dray's Hussey, which have all in turn been rewarded by the Society, must necessarily follow over the ground on which modern iron-wheeled ploughs, drills, horse-hoes, and clod-crushers have preceded them.

8. *Threshing-Machines.*—Within the last 20 years the whole system for preparing corn for market has been completely changed by the inventions of our agricultural engineers.

Not only has the flail been superseded by the threshing machine, and the horse-driven by the steam-driven threshing-machine, but the threshing-machine itself, instead of being a mere box for beating out the corn in a rough way, as it was less than 10 years ago—leaving all the subsequent operations of winnowing, dividing, and dressing the corn to be performed on separate occasions by different machines—has now been so perfected and extended that Wheat is beaten out of the ears, and the straw carefully shaken, carried away into the left while the grain is winnowed, the earings separated from the chaff, the light corn from the best, and the light corn again divided into best-tail, light-tail, and whites, and the whole sacked and weighed ready for market. By the help of steam-engines, to which I shall presently allude, this complete transformation of Wheat ricks into Wheat fit for market and straw fit for use, on the farm, is performed at the rate of 100 to 150 quarters (800 to 1200 bushels) per day, at the rate of 2*s.* 6*d.* per quarter. To thresh and dress the same quantity by hand would cost 4*s.* per quarter, and occupy 10 men three weeks. The saving on the Wheat crop of England, estimated at 12,000,000 quarters, would amount to 1,500,000*l.*; and there is an enormous gain, by not perfectly threshing out corn left by the flail for pigs and fowls to pick out of the straw. Threshing-machines, driven by water or horse-power, have been in use in Scotland more than a hundred years; and as soon as steam-engines were become cheap in that country, they were employed instead of horse or water-power. When in 1839 the Royal Agricultural Society held its first meeting at Oxford, horse threshing was slowly making way against the prejudices of the labourers, the farmers, and the squires. Even in 1851 the prejudice against machine threshing was to be found lingering among squires and great farmers, but necessity conquers all prejudices. Under the old system of flail threshing corn was beaten out for market not when required, but when the labourers of the farm had nothing else to do. In wet weather, the very worst weather for so dealing with corn, the grain having previously been carted into the barn from the ricks, was knocked out on the floor, more or less

dusty, with more or less success, according to the skill of the thresher and the state of the weather. On an average, as much grain was left in the straw as would now pay for steam threshing. The grain mixed with the impurities of the floor, trodden on by the nailed shoes of the thresher, lay heaped up until the time came for hand winnowing, offering in hard times a strong temptation for each thresher to carry home as much as he could conceal for the use of his family or his pig.

9. *The Steam-Engine.*—Steam-engines were partially unknown on the farms of England 20 years ago; in the counties where they were most needed, the coal and the means of transport from the manufactory were alike wanting.

A portable steam engine was exhibited at Liverpool in 1841. Yet, in 1843, the manufacture and letting on hire of travelling engines to drive threshing machines was mentioned by Mr. Pusey, in the Royal Agricultural Society's report, as having become a regular business, although "the Fire Insurance Companies charged an extra one per cent. where they were used." In 1846-7 the demand for portable steam engines and threshing machines was so well established and steady, that a large capital was invested in erecting a large factory in Lincoln, for the sole purpose of manufacturing agricultural steam engines and threshing machines in iron and wood. This establishment has, up to the present time, turned out upwards of 2000 steam engines, lately at the rate of 500 engines per annum, and this great trade has been done without trenching upon the business of the half-a-dozen manufacturers who preceded Messrs. Clayton & Shuttleworth in that particular branch of the agricultural implement trade. In the catalogue of the show at Salisbury in 1857, I find not less than 20 exhibitors of fixed and portable engines, including the names of Hornsby of Grantham, Clayton & Shuttleworth of Lincoln; Barratt & Exall of Reading; Cambridge of Bristol; and the Ransomes of Ipswich; whose names are all identified with the more important features of the mechanical displays of the Royal Agricultural Society. The continuous supply is the best evidence of the continuous demand—a demand created and supported by easy and cheap conveyance of iron, coal, manufactured machinery, and agricultural crops, and by a labour market which has, for the last 10 years, been drained by internal and external migration from the rural districts to manufacturing towns at home and colonies beyond the sea. The agricultural steam-engine is the essential adjunct of every well cultivated farm within the influence of a railroad and telegraph station. Under the charge of an ordinary farm labourer, his smockfrock daubed, his face smutted, an engine of from five to eight horse-power to drive the barn machinery cuts chaff or roots, crushes Oats, grinds corn, pulps Mangel Wurzels, splits Beans, saws wood, pumps water, and lends its boiler for steaming Potatoes or roots, while men and horses are more usefully employed in other regular work of the farm.

10. *The Steam Plough.*—"And what," some of my auditors may at this point feel inclined to exclaim, "about steam ploughing?" Why, very little this evening.

The subject so zealously investigated at the present moment is too large to be treated in a paragraph, but I will venture to state that the farmers of England, in this year 1857, are ripe and ready to receive and support a steam cultivator, which will perform its work as efficiently, if not as economically, as the threshing machine and the drill; indeed, it is not a substitute for horse-power that is so much required as a machine which can be used at a time and under circumstances when no number of horses could do the work required. The cost of ploughing and cultivating easily or naturally drained soils is so low (from 7*s.* to 14*s.* per acre), and is performed so efficiently with modern implements and good horses, that I confess I do not see, even looming in the distant horizon, any steam arrangement which, on light-land farms, is likely "to seal the doom of the plough." But there are in this country vast tracts of retentive adhesive clays which, in the best seasons, require an enormous amount of horse-power to work, and in wet seasons cannot be touched at all. No team is strong enough to draw the plough; no horse's feet can touch such soil without permanent injury. If a machine can be contrived which can be set to work the moment the crop is off the ground—when horses and men are most busy—a machine which can execute its 10 acres in daylight—if it can work on by moon-light or lamp-light so much the better—then thousands of acres of first-rate corn land, such land as is found in the Wealds of Sussex and Kent, in Dorset and Oxfordshire, can be turned up and cleared of weeds before Christmas, thus exposed to the mellowing influences of winter frost and snow, sowed early in spring for root crops, and brought into regular rotation, which now for want of horse-power, or in consequence of a wet season, can never be touched until spring, and then grow as many weeds as roots or corn. A machine that would do all this would earn 1*l.* an acre for a clay-land farmer. Towards this desired end Messrs. Fowler and Ransome, and Mr. Smith of Woolston, have been working in a manner which holds out good hopes of success, and if they do succeed not in cultivating well—that they have done—but in cultivating economically, they will increase the value of the arable land of the country as much as it has been increased within the last 10 years by the promulgation of the cardinal agricultural improvement of this century, "the system of thorough deep drainage."

11. *Preparation of Food: the Root-slicers, Pulpers, and Chaff-cutter.*—The first and last were invented in their present shape, before the epoch I have selected for illustration, for the use of the root-growers and winter feeders in counties where Grass and hay were scarce commodities, but their use has become within 20 years universal instead of local.

The demand for meat, and the extension of drill-root husbandry (the foundation of all our high farming), has raised the sale of the machines for economising cattle food from hundreds to thousands. That mutton and beef can be sold at less than famine prices—that we are not driven back to the salt meat of our ancestors—depends, more than ordinary town-customers of the butcher would believe, on the artificial manure which Liebig suggested, distributed by the drill, to nourish the roots, which, sliced by Gardner's famous machines, help to convert lamb into mutton at an age when it used to be lamb. The pulper for preparing roots for fermentation is a modern invention for carrying out a modern process of feeding. Here my rapid and imperfect sketch of the progress of the agricultural implement manufacture since 1837 ends. It now engages an enormous fixed capital, and gives weekly wages to mechanics who have called into existence, or raised from small beginnings, at least six establishments, in each of which from 500 to 1000 mechanics, and as much more steam-power are regularly employed. The difference in ploughing drained and undrained land Mr. Denison estimates at 2*s.* an acre. I believe the difference between the use of the best modern and the old wooden swing plough is at least 6*d.* more per acre. An improved drill saves at least a bushel an acre in sowing, and gives a better and more certain crop; in fact, with artificial manure, which can only be usefully applied to a drilled root crop, it secures 25 tons an acre on what would not have yielded 5 tons without the drill. At present prices, the saving of seed alone by the use of a corn drill, instead of broadcasting, would amount to full 1*s.* 6*d.* per acre on Wheat, and 1*s.* on Barley. The saving by the steam-driven barn machinery Mr. Denison estimates at 2*s.* 6*d.* per quarter for Wheat, and 1*s.* 3*d.* for Barley. In the absence of correct agricultural statistics, I must leave to others the task of calculating the total national saving obtained by the substitution of iron for wood, horse power for man's power, and steam-power for horse power.

Reviews.

The Pig: How to Choose, Breed, Feed, Cut up, and Cure. By W. C. L. Martin. A new edition, entirely revised and edited by Samuel Sidney, author of "A Ride through North Lincolnshire." George Routledge, Farringdon Street.

This is one of a series of "Books for the Country." The work itself contains a great deal of interesting historical and scientific matter, as well as that which is strictly practical and useful. It is greatly improved by Mr. Sidney's editorship—receiving large additions from his own and other pens—the whole spiced with a touch now and then of characteristic antagonism to Mr. Edwin Chadwick and his doctrines, which it seems cannot be kept out of even a book upon pigs. We are indebted to its pages for an interesting chapter answering the question—"Will a pig pay?" which appeared at page 810, inadvertently without an acknowledgment of the source from which it had been taken. We may here take the opportunity of correcting an error in a note to that article at page 811, where 5 lbs. of Beans to 1 lb. of Indian Corn are recommended as pig food. The proportion stated should have been 5 lbs. of Indian Corn to 1 lb. of Bean-meal.

Calendar of Operations.

DECEMBER.

WESTER ROSS, *Dec.* 7.—At the same season, perhaps the labour of the farm was never farther advanced than it now is. With the exception of one day which was extremely wet throughout, and on which unfortunately the Wester Ross Farmer's Society ploughing match came off, out-door labour has scarcely been interrupted for an hour. Our Wheat sowing is completed, and a great part of it is already above ground and looking well. Our green crop lot has received its winter furrow, and leas are being turned over for Oats. The weather has been altogether so mild that the Grass has being growing vigorously, and still affords a decent bite for the cattle, and glad we are to meet with any unexpected addition to the keep for stock, for although the Turnips have been making some progress up till now, they are still far behind what they were last year, and are running greatly quicker to their finish then we could desire. The weather being both dry and warm, stock of all kinds are making satisfactory progress, sheep on Turnips having a dry bed and firm footing, and cattle finding themselves quite comfortable in the open courts. Our better harvested grain fetches a very unremunerative price, and the inferior kinds are quite unsaleable. With us the highest price for the best Wheat is 46*s.* per quarter, and the coarser varieties fetch only from 30*s.* to 36*s.*, whilst the badly harvested samples,—and of these there is a large proportion of the whole crop,—are not looked at. Barley well harvested brings 30*s.*, and Oats 25*s.* Should these prices continue the farmer will be necessitated to examine whether in those good years which have gone by, there was no unnecessary breadth of canvass raised, and if so, then the unpleasant work of reefing must needs be resorted to in order that those gales may be safely passed through which are strewing, as wreck upon the ground, banks and counting houses and manufacturing establishments. Already the wages of servants and labourers are tending downwards. The sound portion of our Potato crop, which was carefully separated, some time ago from the unsound, is keeping pretty well in the pits, and the likelihood is that we shall have in spring a sufficiency for seed.

Notices to Correspondents.

BOOKS: *A very old Reader.* Low on the Management of Landed Property.

CAPITAL: *C F.* You do not say how much is pasture and how much arable. The ordinary estimate for farm capital is 6 to 8*l.* per acre on Grass land, and 10*l.* to 12*l.* per acre on arable.

CLAY BALLAST: *Omega.* Your letter has been forwarded to Mr. Denton.

KOHL RABI: *J J.* We have no analysis of the flesh of the root. The following is the composition of the ash (Way & Ogston):—

	Water.	Ash.	Ash in the dry plant.
Bulb	88.24	0.95	8.09
Leaves	84.39	2.80	18.54

Composition of the Ash.	Bulb.	Leaves.
Silica	0.82	9.57
Phosphoric acid	13.46	9.43
Sulphuric acid	11.43	10.63
Carbonic acid	10.24	8.97
Lime	10.20	30.31
Magnesia	2.36	3.62
Peroxide of iron	.38	5.50
Potash	36.27	9.32
Soda	2.84	0.00
Chloride of Potassium	0.00	5.99
Chloride of Sodium	11.99	6.66
	100.00	100.00

MANGEL WURZEL: *A H F C.* says truly that if the exhibitors of the magnificent Mangel Wurzel shown the other day at Birmingham, and at Baker Street, would publish their method of cultivation in our columns they would confer a great benefit on their brother farmers, and we publish his opinion here in the hope that it may meet the eye of some of them, and induce them to do so. It would be interesting to know by whom the seed was supplied, how the ground was prepared and manured, the depth of available soil, the time and manner of sowing, and the after cultivation. Mangels 40 lbs. in weight and 3 feet round are quite in advance of our ordinary productions.

POTATO DISEASE: *Scintilla's* plan of sorting out the rotten tubers as soon as the disease showed itself in the growing plant and resetting the sound ones would be useless labour.

RAPE: *E W.* It will if sown in July yield a quantity of food during October and November. But you must not expect a spring crop after the autumn one. It is eaten off—or may be mown off—and the land is then at once ploughed up for Barley, Oats, or spring Wheat.

THRESHING MACHINES: *N.* It is illegal to work a machine by travelling steam engine within 25 yards of a public highway. A case was recently before the Devizes petty sessions which was decided in this way.

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See *Gardeners' Chronicle* first Saturday in each month.

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8 by 6, & 9 by 7 } | 11 by 9, & 12 by 8 }

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

Orchard House squares as supplied to Mr. Rivers.

	Common	Superior.
20 by 12, and 20 by 14	16 oz. at 16*s.* per 100 feet	18*s.*
20 by 13, and 20 by 15	21 oz. at 24*s.* ,,	27*s.*

Foreign Sheet Glass, in 200 feet cases, at 32*s.* and 40*s.* per case.

HARTLEY'S IMPROVED ROUGH PLATE GLASS,

Of ¼, 3/16, ⅛, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings. 10 per cent allowed off prices advertised.

Pan Tiles, Propagating and Bee Glasses.
Fern Shades, Glass Milk Pans.
Aquaria, 12, 14, 16 to 18 inches diameter.
Ruby, Blue, Green, and Ornamented Glass.

PAINTS.

Genuine White Lead, Colours of all kinds.
Linseed Oil, Turpentine, Varnishes, Brushes, &c.
All packages charged, but allowed when returned.

87, Bishopsgate Street Without, same side as Eastern Counties Railway.

HORTICULTURAL GLASS, STOCK SIZES, packed in Boxes of 100 feet each.

	s.	d.
11 by 9, 12 by 9, 13 by 9, 14 by 9	15	0
12 ,, 10, 13 ,, 10, 14 ,, 10, 15 ,, 10 .. .. } 16 ,, 10, 17 ,, 10, 18 ,, 10 .. .. .. }	16	0
12 ,, 11, 13 ,, 11, 14 ,, 11, 15 ,, 11, 16 ,, 11	16	6
13 ,, 12, 14 ,, 12, 15 ,, 12, 16 ,, 12	17	0
17 ,, 12, 18 ,, 12, 19 ,, 12, 20 ,, 12 .. .. } 16 ,, 13, 17 ,, 13, 18 ,, 13, 20 ,, 13 .. .. } 22 ,, 13, 24 ,, 13, 20 ,, 14, 22 ,, 14 .. .. } 24 ,, 14, 20 ,, 15, 22 ,, 15, 24 ,, 15 . .. }	18	0

SMALL SQUARES.—Per 100 feet.

6 by 4	6½ by 4½	7 by 5	7½ by 5½ }	11	6
8 ,, 6	8½ ,, 6½	9 ,, 7	9½ ,, 7½ }		
10 ,, 8	10½ ,, 8½ .	. .	.. ..	12	6

SHEET GLASS FOR ORCHARD HOUSES,
As supplied by us to Mr. Rivers.
20 by 12, 20 by 13, 20 by 14, 20 by 15, 18*s.* per 100 feet.

The GLASS is of BRITISH MANUFACTURE, 16 ounces to the foot, and selected for Horticultural purposes.

Boxes charged 2*s.* each, but returnable at full prices. Sizes differing from above cut to order in squares, 16 oz. from 2*d.* to 3*d.*, 21 oz. from 2½*d.* to 5*d.* per foot.

HORTICULTURAL GLASS, 16 oz., packed in crates of 300 feet, 2½*d.* per foot. 21 oz., 3½*d.*

Foreign Sheet Glass, in crates of 200 feet, 30*s.*, 40*s.* and 42*s.* per case.

Aquarium, 12 inches, 14 inches, 16 inches, 18 inches, and 20 inches in diameter.

Rough Plate and Sheet Glass Tiles to ¼-inch in thickness.

A variety of other articles as per Horticultural List, which may be had on application.

Plate Glass, Rough cast ditto, Patent Plate ditto, Ruby, Blue, and other Coloured and Ornamental Glass.

Genuine White Lead, Colours, Paints, and Oils of all kinds, Wholesale, Retail, and for Exportation.

JAMES PHILLIPS AND CO.,
HORTICULTURAL GLASS WAREHOUSE,
116, Bishopsgate Street Without. E.C.

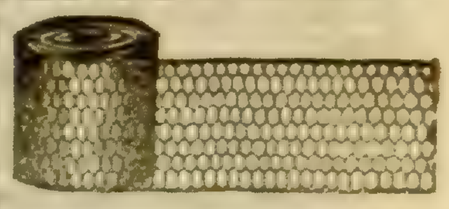
H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

GALVANISED IRON ROOFING, for Farm Buildings and other Roofs. The cheapest, most durable, and neatest Roofing in use.

GALVANISED SPOUTING, at from 10½*d.* per yard, for Farm Buildings, Houses, &c. Never requires painting.

PATENT WIRE STRAND FENCING, the strongest and neatest fence in use, will resist the largest cattle, and will not bend or get out of form by trespassing upon or over. Upwards of 600 miles of this fencing fixed by us in the last 8 years. For illustrated price apply at the Works.

GALVANISED GAME AND POULTRY NETTING.



Galvanised, 24 ins. wide, 2-inch mesh, 6*d.*, 8*d.*, and 11*d.* per yard.

Galvanised, 24 ins. wide, 3-inch mesh, 4*d.*, 5½*d.*, and 7½*d.* per yard.

The Netting made any width, and with openings of any size.

GALVANISED CHAIN CAMP STOOLS AND CHAIRS. (These are made to close up and are very neat, 6*s.* 6*d.* to 13*s.* 6*d.* each.)

GALVANISED POULTRY FOUNTAINS AND FEEDERS for DRY and WET FOOD.

GALVANISED PRONGED DAHLIA RODS and ROSE STAKES of all lengths.

WINDSOR TREE GUARDS, HURDLES, GATES, ESPALIERS, and all descriptions of WIRE-WORK AND GALVANISED IRONWORK.

WIRE FENCING for PARKS, PLANTATIONS, PLEASURE GROUNDS, &c., from 10½*d.* per yard.

For Illustrated Price Lists apply to HENRY J. MORTON & Co., 2, Basinghall Buildings, Leeds.

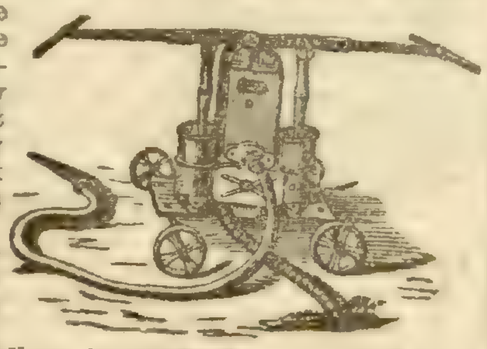
WATERPROOF PATHS.
BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARMYARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

Manufacturers of the Cement, J. B. WHITE & BROTHERS, Millbank Street, Westminster.

B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.



These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP,

with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.

Price of Pump and Union, 50*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra.

2-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 0*d.* per foot.

1¾ Gutta Percha Suction, 1*s.* 11*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£	s.	d.
2¼ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1	10	0
2½ „ long	3 „ 3 „		1	14	0
3 „ ditto	3 „ 6 „		2	8	0
3½ „ ditto	3 „ 6 „		2	12	0
4 „ ditto	3 „ 6 „		3	3	0
2½ „ short, with 15 feet of Lead Pipe attached, ready for fixing			2	14	0
2½ in. long ditto ditto ditto			2	18	0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

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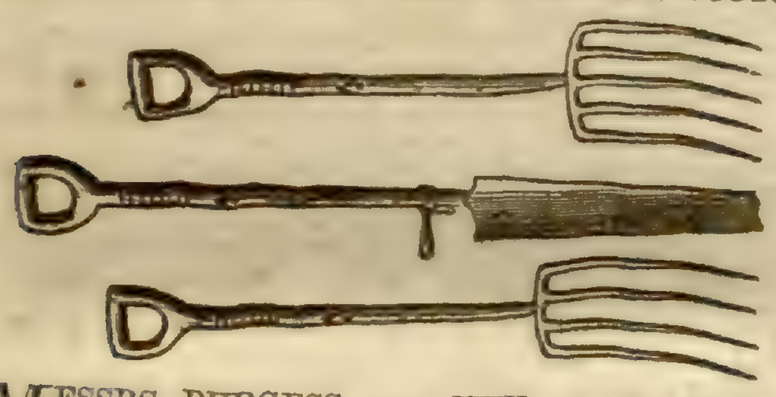

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Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

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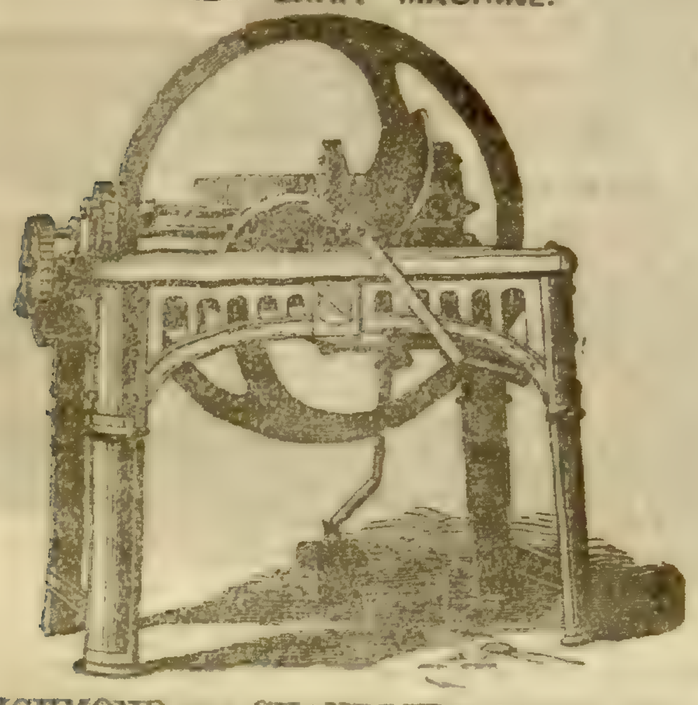
PRIZE CHAFF MACHINE.



RICHMOND AND CHANDLER'S PRIZE CHAFF-CUTTING MACHINES possess more good qualities than any others yet produced, and with beautiful simplicity combine economy of cost with substantial workmanship.

Excellence of design and adaptation of material have induced some unprincipled makers to force the market with copies of their invention, but without regard to the working qualities of the machine.

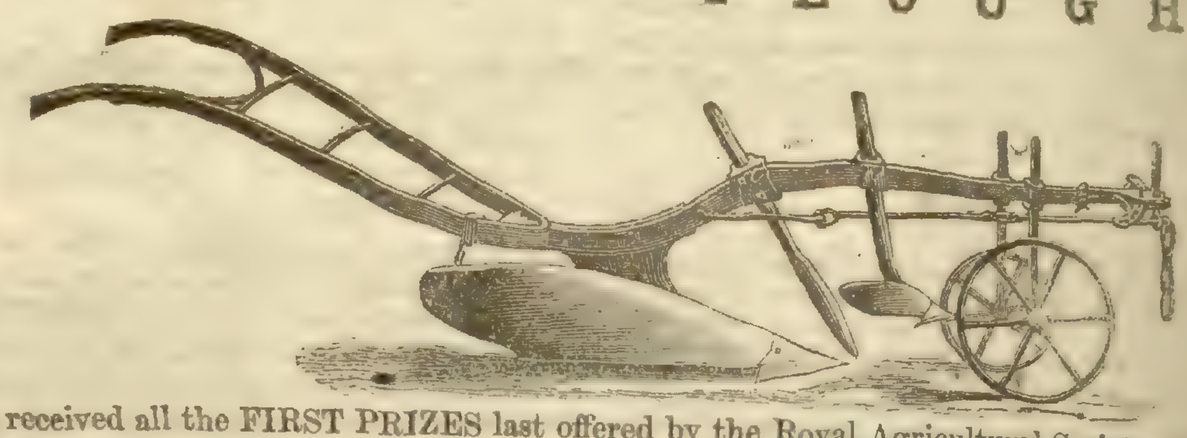
RICHMOND & CHANDLER have repeatedly obtained Premiums from the Irish, Scotch, and English Royal Agricultural Societies for the perfect efficiency and simplicity of their Machines, and which are the only Chaff Machines having been awarded Prizes in the three kingdoms. For export they are so constructed as to be taken in pieces for close packing, and are easily put together, without the aid of skilled labour. Catalogues free on application to RICHMOND & CHANDLER, Salford, Manchester. Branch Establishment, South John Street, Liverpool.

JAMES & FREDK. HOWARD,

BRITANNIA IRON WORKS, BEDFORD,

BEG TO DIRECT ATTENTION TO THEIR

CHAMPION PLOUGHS,



For which they received all the FIRST PRIZES last offered by the Royal Agricultural Society of England, viz.:—

THE FIRST PRIZE FOR THE BEST PLOUGH FOR GENERAL PURPOSES.
THE FIRST PRIZE FOR THE BEST PLOUGH FOR LIGHT LAND.
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The only PRIZE ever offered by the Society for the best DOUBLE BREAST OR RIDGING PLOUGH was also awarded to J. & F. HOWARD.

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FOR THE BEST PLOUGH	TEN FIRST PRIZES.
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VIENNA AGRICULTURAL EXHIBITION, 1857 ..	THE GOLD MEDAL FOR THE BEST PLOUGHS.
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The above are the only Meetings at which J. & F. HOWARD competed in 1857.

P Plough, with Two Wheels (for Light Work)	£4	7	6
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Skim Coulter, extra	£0	5	6

Steel Breasts, 7*s.* and 7*s.* 6*d.* extra.

Free Delivery to Birmingham, Bristol, Derby, Gloucester, Lincoln, London, Manchester, Nottingham, Retford, Thetford, Wisbeach, and Worcester.

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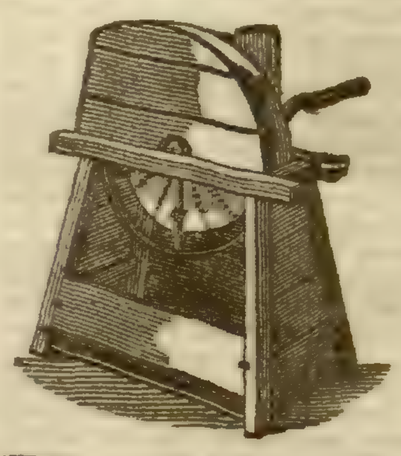
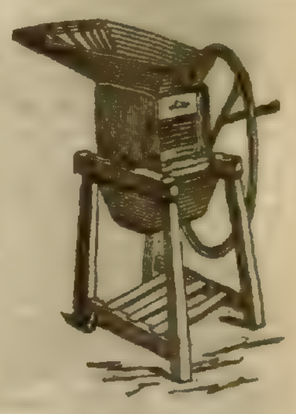
GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.





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TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
„ „ Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 8 6	0 5 0
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Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power	£6 10 0
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Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1	£4 10 0
„ Pulper No. 2, for power or man and boy	5 10 0
„ Pulper No. 3 (Disc principle)	4 10 0

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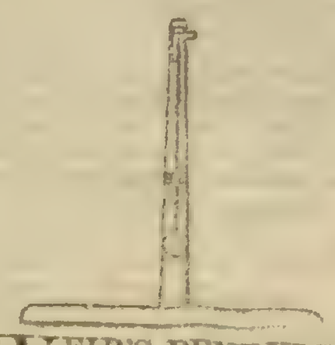
Price 30*s.*; Case 1*s.*



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VENTILATING STOVES! SUSPENSION STOVES!—The two Best, Cheapest, and most Economical. Prospectuses with prices post free.

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JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Dec. 12

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TO BE SEEN IN OPERATION.

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SEE ALSO JOHN WEEKS & CO.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Water Garden*, the whole equal to a range of Hot houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*.—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 300 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the Kingdom, a list of which may be had on application.

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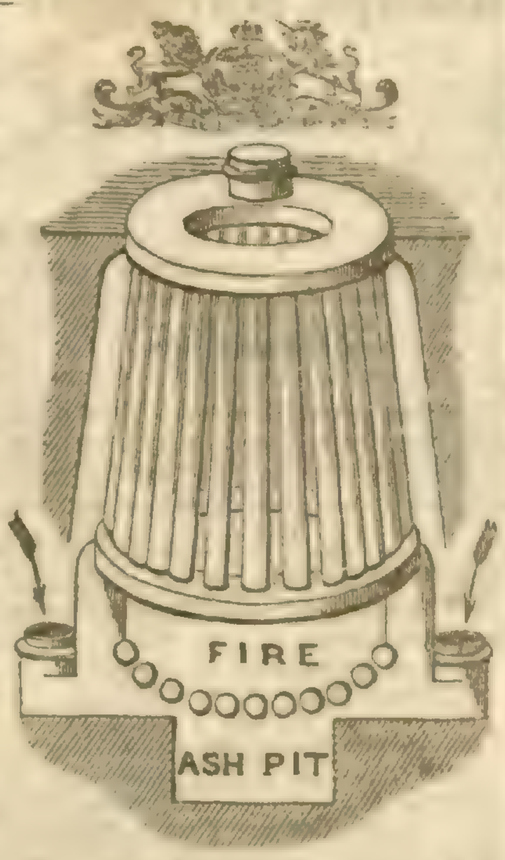
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



JOHN WEEKS & COMPANY,

Hothouse Builders and Hot-water Apparatus Manufacturers,

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Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

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Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

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J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

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JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

THOMSON'S PATENT HOT-WATER GAS-HEATING APPARATUS.

MANUFACTURERS AND AGENTS FOR THE PATENTEE,
ROBERT THOMSON AND SONS,
PLUMBERS, BRASSFOUNDERS, and GAS FITTERS, Dalkeith, N.B.

These Stoves are now in general use in England, Ireland, and Scotland. Prospectus may be had from all Ironmongers, Nurserymen and Seedsmen, and Plumbers in the Kingdom, or direct from the Manufacturers.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to merit it.

C. STEPHENSON, late STEPHENSON AND SONS, 31, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c. Improved Iron and Copper Conical Boilers and Apparatus for Warming Hothouses of every description by Hot Water.

Prices and Estimates furnished upon application.

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to GARNOCK, FIBBY, AND CO., Patent Cordage and Wire Rope Manufactories, Liverpool.

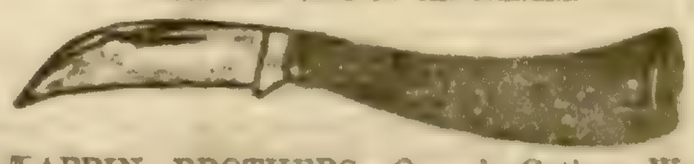
GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK

ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 16, Fish Street Hill, London, E.C.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.

WARRANTED GOOD BY THE MAKERS.



MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most elegant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs. MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

CAPTAIN HORNBY'S DORKING, SPANISH and GAME CHICKENS, or ADULT BIRDS of the same strain as those with which (in 1857) Captain Hornby has taken Cups or Prizes wherever he exhibited, at Preston, Liverpool, Kendall, Prescot, Sheffield, Salisbury, Gloucester, Warrington, and Birmingham. Can be had on application to Knowsley Cottage, Prescot. Eggs can be supplied after Christmas.

TO GARDENERS, ETC.

TO BE LET, A SEED AND FLORIST BUSINESS, with Shop and Residence, and about half an acre of Ground adjoining the same, with two Greenhouses, Pits, &c., the whole stocked with various Plants, as the present occupier has other engagements that require his immediate attention. The Coming-in, including Houses, Plants, Fittings of Shop, Seeds, Tools, &c., is reduced to only 50*l.*—Address to FLORIST, *Gardeners' Chronicle* Office.

FARMS TO LET, in Yorkshire, six hours from London, seven from Edinburgh.—Possession of the houses on the 6th of April next. The Arable Land may be ploughed in January; a considerable portion of the land is of good quality. One Farm consists of about 248 Acres; the other, adjoining it, 195 Acres; they will be let together or separately. A good capital considered essential.—Apply to Mr. CARMICHAEL, Eastrington, Howden, Yorkshire.

Sales by Auction.

PINE CONES, SEEDS, ETC., FROM CALIFORNIA, STANDARD ROSES AND OTHER PLANTS.

MR. J. C. STEVENS will Sell by Auction at his Great Room, 38, King Street, Covent Garden, on WEDNESDAY Dec. 23, at half-past 12 o'Clock precisely, a CONSIGNMENT OF PINE CONES and SEEDS, just received from California, including Cupressus Lawsoniana and Macnabiana, Pinus macrocarpa, Sabiniana, Benthamiana, Jeffreyi, tuberculata and Monticola; a new Juniper, and some plants of Darlingtonia californica. Also 500 Standard Roses of the best sorts, Skimmia japonica, and other plants.—May be viewed on the morning of Sale, and Catalogues had.

TO GENTLEMEN, FLORISTS, & OTHERS.

MESSRS PROTHEROE AND MORRIS will Sell by Auction, at the Mart, Bartholomew Lane, on FRIDAY, December 11, at 12 o'Clock, a fine Collection of DUTCH BULBS, consisting of double and single Hyacinths, Narcissus, Jonquils, Tulips, Crocus, &c.; also STANDARD and DWARF ROSES, including Hybrids, Bourbons, Chinas, Perpetuals, Noisettes, &c.; choice ORNAMENTAL TREES, AMERICAN PLANTS, &c.—May be viewed the morning of Sale; Catalogues had at the Mart; and of the Auctioneers, American Nursery, Leytonstone, Essex.

IN BANKRUPTCY.

ABBEY NURSERY, GARDEN ROAD, ABBEY ROAD, ST JOHN'S WOOD.

MESSRS. SMITH AND TAYLOR will Sell by Auction on the premises as above, on THURSDAY next, Dec. 17, and following day, at 12 for 1 o'Clock, the entire valuable STOCK IN TRADE of a Nurseryman and Florist, consisting of Choice Conservatory, Stove and Greenhouse Plants, Shrubs, Fruit trees, GREENHOUSES, Trade utensils, Building Materials, Ornamental Lawn Vases, and useful effects.—On view the day prior to Sale, and Catalogues to be had of WM. OLDERSHAW, Esq., Solicitor, 14, St. Swithin's Lane, E.C., on the premises, and of the Auctioneers, 288, Regent Street, W.

NOW IS THE TIME TO PLANT TREES, &c.

D. FERGUSON, Landscape Gardener and Contracting Planter, &c.,

OFFERS a splendid lot of CEDRUS DEODARA, 3 to 10 feet in height, 7*s.* 6*d.* each; 35*l.* per 100; 300*l.* for 1000; and if 2000 are taken, 500*l.*, not cropped like those to be met with in the grounds of the rule and thumb gentlemen, but allowed to assume their own natural graceful habits. Fine CEDARS of LEBANON, do. ARAUCARIA IMBRICATA, PINUS INSIGNIS, CEMBRA, EXCELSA, ABIES PINSAPO, &c.; CUPRESSUS LAMBERTIANA, GOVENIANA, WELLINGTONIA GIGANTEA, &c.; do. SPRUCE SCOTCH FIRS, LARCH, OAKS, ELMS, LIMES, CHESNUTS, SYCAMORES, ASH, HAZEL, &c.; Bushy COMMON LAUREL, do. PORTUGAL, AUCUBAS, COMMON and IRISH YEWS, GREEN and VARIEGATED HOLLIES, JUNIPERS, ARBOR-VITÆ, PHILLYREAS, BERBERIS DULCIS, new DOUBLE PINK and SCARLET THORNS, LABURNUMS, splendid WEEPING ASH, fine STANDARD CYTISUS, ROSES, HERBACEOUS PLANTS, &c.

EXCELLENT

STANDARD, HALF STANDARD, & DWARF BUSHES of PEACH and NECTARINE TREES, warranted good varieties, and very suitable for planting in the ground or for potting, as they are now growing in leaf mould and will lift well.

VERY FINE

COTONEASTER MICROPHYLLA, for under cover-training on Cottages, &c., 3*s.* per dozen, £1 per 100. and 1*d.* each if taken by the 1000.

FINE

BERBERIS AQUIFOLIA, transplanted last spring, one farthing each if taken by the 1000.

Do. do. EVERGREEN PRIVET, BUSHY TREE BOX, 2 to 3 feet, four to six farthings each if taken by the 1000.

STRONG

SEEDLING HOLLYHOCKS from Messrs. Chater's, Turner's, and Bircham's. Choice varieties, 2*s.* per dozen; 10*s.* per 100; 1*d.* each if taken by the 1000; a large packet of Seed for 1*s.*

A Belgian Collection of CHRYSANTHEMUMS, one farthing each if taken by the 1000; less if by the 10,000 or 50,000.

D. F. when employed as Garden Architect and Landscape Gardener where Trees and Shrubs are required in quantity, always gives fully the amount of Plants in return for the charge made for his own time and plans, his object being to dispose of his plants, which he has in large quantities, both for present and future effect. In answer to inquiries, if taken in quantity D. F. will send them free of carriage to the Great Western Railway Station at Banbury and Oxford, or, as usual, meet parties half way when liberal orders are given.—**Stowe, Buckingham.**

AMERICAN PLANTS.

GEORGE BAKER begs to announce that his CATALOGUE for the present season is now ready, and may be had on application at the Nursery, Windlesham, near Bagshot, Surrey, one mile from Sunningdale Station, S.W.R.

Gentlemen engaged in planting would do well to inspect my very extensive stock of hardy Conifers, Evergreens, &c. A very large stock of Cedar Deodars, 4 ft. high; also C. Libani.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE or this season may be had on application, inclosing one stamp, or gratis at Messrs, Jos. May & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to Waterer & Godfrey, Knap Hill, Woking, Surrey.

BANBURY NURSERY.

MESSRS. P. J. AND J. PERRY beg to offer to the Nobility, Gentry, the Trade, and extensive planters, 500,000 Mahonia or Berberis aquifolia; 10,000 English Elm, all sizes; 10,000 extra fine Spruce, 4 to 10 feet; Oak, Larch, Poplar, Lime, Hornbeam, and other Forest and Ornamental Trees in large quantities; Yews, 3 to 7 feet; Laurels of all sizes; Cedars of Lebanon, 3 to 10 feet; Irish Yews, 2 to 7 feet; Phillyreas, Weeping Hollies, and a very extensive stock of Evergreen and Flowering Shrubs, an inspection of which is earnestly requested. Their Catalogue containing a first-rate collection of Conifers, Ferns, &c., may be had post free on application.

LANGHEDGE NURSERY.

C. WOOLVEN invites the attention of Fruit Growers and the public generally to his very superior STOCK of Fruit Trees, Florist and Ornamental Trees and Shrubs, Standard Apples, Pears, Plums, and Cherries, from 12*s.* per dozen; ditto trained, from 30*s.* per dozen. A fine Stock of Peaches, Nectarines, and Apricots, from 30*s.* per dozen. Also a large quantity of very fine Weeping Ash, Purple Beech, &c., at equally low prices. About 5000 Gooseberries and Currants of all the leading sorts now in fine condition, from 2*s.* per dozen. C. W. has now on hand about 10,000 very fine Evergreens, consisting of Arbor-Vitæ from 2 to 7 feet high, Aucubas, Laurustinus, Portugal and Common Laurels; Standard Roses, &c., equally good.—C. Woolven, Nurseryman, Edmonton.

NEW WRINKLED MARROW PEA.
BURBIDGE'S STANDARD BEARER.

WILLIAM DINGLEY AND SON (Successors to Thomas Burbidge) beg to announce that they are now prepared to send out the above valuable new PEA, the best second early known, height 5 feet. It was grown in the Royal Gardens, Windsor, and thus spoken of by Thomas Ingram, Esq., Gardener to her Majesty the Queen:—"We find the Pea sent under the name of 'Standard Bearer' to be a very prolific bearer and of first-rate quality; it is the best second early out." Price 5*s.* per quart, 3*s.* per pint.—May be had of the London Agents, Messrs. Hurst & McMullen, 6, Leadenhall Street; Mr. Henry Clarke, 39, King Street, Covent Garden; or from Wm. Dingley & Son, Midland Central Seed Warehouse, 20, High Street, Birmingham.

W. D. & Son have also a few packets of Seeds of Burbidge's MONA COTTAGE CUCUMBER to offer; this is by far the most prolific Long frame kind known, 1*s.* per packet.

WALTON NURSERY, LIVERPOOL.

To Noblemen and Gentlemen Planting New Pleasure Grounds, or Improving Parks or Drives, and to Companies Planting Public Parks or Cemeteries.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

CHRYSANTHEMUMS.

W. HOLMES has an unlimited Stock of the above, including the following extra fine varieties, all at 5*s.* per dozen:—

King of Anemones	Aristée	Fanchette
Madam Sentir	Cardinal	Margueridotto
Margaret of Norway	Lothario	President Morel
Marquis de Motteville	Rose Marguerite	Perle
Ruth	Antonius	Roquelaure
Giant	Jeanne Hachette	Toinette, &c. &c.

W. Holmes, Florist, Well Street, Hackney.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants:—

	Per dozen.—*s.*		Per dozen.—*s.*
Acacia Drummondi	42	Herbaceous & Alpine Plants,	4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties .. ,,	12
Cyclamens .. .. from	12	Phloxes, Herbaceous .. ,,	9
Ferns, Stove & Greenhouse ,,	12	Pinuses .. .. ,,	18
,, Hardy .. .. .. ,,	9	Roses, Hybrid Perpetuals, Teas, &c., in pots .. ,,	18
		Do. Teas, &c., Standards ,,	21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6*s.*

,, ,, seed, per packet .. .. 1*s.*

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

JOSEPH BAUMANN, Nurseryman, Ghent, Belgium, begs to offer the following Plants:—

	s. d.		*s. d.*
12 Lilium superbum ..	9 0	12 Pæonia sinensis, with names	12 0
12 Lilium lancifolium, album and rubrum	12 0	12 Amaryllis belladonna	9 0
12 do. do. do., very strong	24 0	12 Gladiolus gandavensis	6 0
12 Lilium tigrinum ..	6 0	Large Ghent Rhododendron, with flower buds	10 0
12 Asclepias tuberosa ..	9 0	12 Large Ghent Rhododendrons, with flower buds, stronger ..	15 0
12 Glycine sinensis ..	9 0	Rhododendron arboreum, with flower buds	3 0
12 New Phloxes.. ..	9 0	Rhododendron arboreum, seedlings, with flower buds ..	3 0
12 Camellias with flower buds..	15 0	12 Tigridia pavonia ..	1 0
12 Azalea indica, with flower buds ..	12 0	12 Deutzia gracilis ..	5 0
100 do. do., stocks ..	30 0	do. do., standard ..	5 0
12 Kalmia glauca ..	6 0	12 Pimelea decussata ..	6 0
12 ,, pumila ..	9 0	12 ,, Hendersoni..	9 0
12 Ghent Azaleas, with flower buds ..	12 0	12 ,, spectabilis ..	9 0
12 do. do., stronger ..	24 0		
100 Azalea pontica, stocks	12 0		
12 Viburnum tinus, with flower buds ..	12 0		

BERNARD SAUNDERS, Nurseryman, Jersey, has splendid Stocks of Quince Pear Trees, Flemish Carnations, Yellow and White-ground Picotees, &c., to offer to his numerous patrons and friends this season. Prices moderate, to be obtained on application.

B. S.'s Priced List of Cape Bulbs is now ready for delivery.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see Bass & Brown's No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—Bass & Brown, Seed and Horticultural Establishment, Sudbury, Suffolk.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit-bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Dec. 12.

CONVALLARIA PLENO MAJOR; OR DOUBLE LILY OF THE VALLEY.—This is the finest variety of the kind that has ever yet been seen. The graceful habit, delicate appearance, and delicious perfume, which this flower possesses, renders it a most desirable plant for the garden, many of the spikes of bloom measuring more than 12 inches in height; and if cultivated in Pots for the Conservatory or Greenhouse nothing surpasses it for its striking appearance and delightful odour. No garden should be without this variety; they do not require transplanting above once in seven years, during which time it rapidly increases.

Good strong blooming roots, such as will be sure to flower well next season, 15*s.* per 100; 50 for 9*s.*; and 25 for 5*s.*; the 25 and 50 will be sent package and carriage free on the receipt of a Post-office order or penny postage stamps, which must accompany all orders.

Edward Tiley, Nurseryman, Seedsman, and Florist, 14, Abbey Church Yard, Bath.

THE CHAMPION SWEDE.

MESSRS. SUTTON AND SONS have the honour and gratification of announcing that their "Champion Swede," which had previously gained four Silver Cups presented to the Royal East Berks and the Royal South Bucks Agricultural Societies by H.R.H. the Prince Consort, has gained the same distinguished Prizes at the same shows this year also; besides numerous prizes in other parts of the kingdom. Messrs. Sutton & Sons have saved some Seed this year of the same sort, which they are now sending out at 1*s.* per lb. or 50*s.* per bushel for cash payment.—Address, Sutton & Sons, Royal Berkshire Seed Establishment, Reading.

THE BIRMINGHAM ROOT SHOW.

SUTTON'S SELECTED MANGEL WURZEL AND SUTTON'S CHAMPION SWEDES, exhibited by Richard Benyon, Esq.; A. W. Johnson, Esq.; R. Fellowes, Esq.; J. B. Starkey, Esq., and others from Seed supplied by Messrs. Sutton & Sons, Reading, gained the Silver Cup and other principal Prizes at the Birmingham Shows in 1856 and 1857.

Sutton & Sons are now delivering new Seeds of these sorts (carriage free), in quantities not less than 20 lbs. at 1*s.* per lb.

Royal Berkshire Seed Establishment, Reading

SECOND IMPORTATION.

FRESH IMPORTED BULBS bloom much finer than those which have been long exposed to the air before planting. Sutton & Sons, Reading, Berks, can supply fine BULBS, just imported, at low prices, as see below:—

	per doz.—*s. d.*		per 100—*s. d.*
Dutch Double Hyacinths, mixed	4 0	Anemones, large Double	5 0
Do., Single do. ..	4 0	Do. do. Single..	4 0
Double Jonquils, Sweet..	2 6	Ranunculuses	3 6
Polyanthus Narcissus ..	2 6	Hyacinths, Dutch Double, mixed	30 0
Double Roman do. ..	3 6	Do., Parisian Double ..	15 0

Sutton & Sons are now prepared to execute orders for all kinds of Garden Seeds from this year's crops.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Dec. 12.

SPLENDID STANDARD PORTUGAL LAURELS FOR PLANTING ON LAWNS:

Woodlands Nursery, Maresfield, near Uckfield, Sussex.

WILLIAM WOOD AND SON have to offer magnificently grown plants of the above, varying in height from 3 to 6 feet, with compact bushy heads. Some of the largest plants they are offering have heads measuring 6 feet in circumference, in fact perfect pictures.

	Each—*s. d.*
Young plants	5*s.* to 10 6
Large ditto	15*s.* to 21 0

HOLLYHOCK SEED.

A. PAUL AND SON have just succeeded in harvesting a quantity of HOLLYHOCK SEED in first-rate condition, which they offer on the following terms post free:—

12 very superior and distinct sorts, saved from named flowers in 12 separate packets, with names, 12*s.*

Mixed seed, saved from fine double flowers, 1*s.*, 2*s.* 6*d.*, and 5*s.* per packet. The trade supplied with small or large quantities on liberal terms.

Nurseries, Cheshunt, Herts.

GOLDEN YELLOW HOLLYHOCKS.

A. PAUL AND SON respectfully invite attention to their New HOLLYHOCKS EL DORADO and QUEEN OF THE YELLOWS, which are of a bright golden yellow, and very superior both in form and colour to any hitherto known. Strong healthy plants, 21*s.* the pair, including package and carriage to London. Good named varieties, 12*s.* per dozen and upwards.

For other novelties and prices of older varieties see Descriptive Catalogue just published and sent post free on application.

Nurseries, Cheshunt, Herts.

RHODODENDRONS.

RHODODENDRON PONTICUM, bushy plants.
Ditto ditto for Cover.

Fine varieties of HYBRID RHODODENDRONS.

SCARLET RHODODENDRONS, 2 to 4 feet, for immediate effect. Standard and Half-Standard ditto.

RHODODENDRON STOCKS, Dwarfs, Half-Standards and Standards, can be supplied in quantities by the hundred or thousand at reasonable prices. Also Epigæa repens, Gaultheria procumbens, Kalmia latifolia, Andromeda formosa (seedlings), and Azaleas.

George S. Rogers (late William Rogers, Sen.), Red Lodge Nursery and American Ground, near Southampton.—Unknown correspondents will please to enclose a reference, to save delay in the execution of their orders.

RICH BOG AND LOAM.—Gentlemen and Nurserymen will do well to apply early for the above to refresh their American beds. To be had in any quantity upon reasonable terms, by land or water carriage.

Robert Neal, Nurserymon, Wandsworth Common, Surrey.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is smoother to write upon than parchment or buckram, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps or Post-office Order. Ticket Labels from 2*s.* 6*d.* to 5*s.* per 1000.—Manufactured by John Fisher & Co., Label Works, Boston, Lincolnshire.

Printed by William Bradbury, of No. 13, Upper Woburn Place, and Frederick Mullett Evans, of No. 20, Queen's Road, West, both in the Parish of St. Pancras, in the Co. of Middlesex, Printers, at their Office in Lombard St., Precinct of Whitefriars, City of London; and published by them at the Office, No. 5, Upper Wellington St., Parish of St. Paul's, Covent Garden, in the said Co.—Saturday, December 12, 1857.

THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 51.—1857.] SATURDAY, DECEMBER 19. [Price Fivepence. STAMPED EDITION, 6d.

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		Wheat Vibrio	860 c

CHRISTMAS BOTANICAL LECTURES.

THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON have the pleasure to announce that DR. LINDLEY has kindly consented to deliver, in January and July, TWO COURSES OF LECTURES ON BOTANY. The first Course (January 5, 7, 9, 12, 14, 16, Elementary, and the second (July 8, 10, 13, 15, 17) on Botany applied to Horticulture.

The time of year chosen by the Council has been the holidays, in the belief that Fellows of the Society may like their children to attend. The charge for the Six Lectures in January will be 5s. for young Persons under 18, and 10s. 6d. for those above that age. The Lectures are open free to Fellows and holders of Ivory Tickets.

Application for Tickets to be made between the hours of 11 and 4 at 21, Regent Street, S.W.

LECTURE I., Jan. 5.—A Plant's *last* and *first stages* of existence; the **SEED**; of what it consists. *Second stage:* the **ROOT**; how it grows, its uses; the **YOUNG PLANT**.

LECTURE II., Jan. 7.—*Third stage:* the stem and leaves. The **STEM**; its external forms; its internal structure; how it grows; its uses.

LECTURE III., Jan. 9.—The **LEAVES**; their external form; their internal structure; their skeletons; their uses.

LECTURE IV., Jan. 12.—*Fourth stage:* the **FLOWER**; its various parts; their forms; their uses.

LECTURE V., Jan. 14.—*Last stage:* the **FRUIT** and **SEED**; how fruits are formed out of flowers; the various kinds of fruit in common use.

LECTURE VI., Jan. 16.—*Application* of the preceding facts to the study of Botany. The **CLASSIFICATION** of Plants.

(A Second Series will be given in July.)

*** Gentlemen desirous of becoming Fellows of the Horticultural Society will receive all necessary information on addressing a letter to the Librarian, 21, Regent Street, S.W.

BRITISH POMOLOGICAL SOCIETY.—The following PRIZES will be awarded during 1858, should the subjects sent in competition for them be considered worthy, on THURSDAY, February 4, at St. Martin's Hall, Long Acre (W. C.):—

1. For the best six varieties of late Dessert Pears, three specimens of each variety, offered by A. Scrutton, Esq.	TWO POUNDS.
2. Second prize for the same, by A. Scrutton, Esq.	ONE POUND.
On subsequent days of Meeting during the year, of which due notice will be given in future advertisements:—	
12. For the best Seedling Grape having a Muscat flavour	TWO POUNDS.
13. For the best Seedling Grape of any other description not having a Muscat flavour	TWO POUNDS.
14. For the best Grape not a Seedling, raised in this country, and not in general commerce	TWO POUNDS.
15. For the best Seedling hardy Grape to ripen in the open air, and which shall be superior in quality to those already cultivated	ONE POUND.
8. For the best Seedling late Strawberry, which is not in general commerce, offered by H. G. Bohn, Esq.	TWO POUNDS.
5. For the best Seedling Early Peach, offered by Mr. Rivers	TWO POUNDS.
9. For the best Seedling Late Peach, offered by the Editors of "The Cottage Gardener"	TWO POUNDS.
4. For the best Seedling Early Apricot, offered by R. Hanbury, Esq.	TWO POUNDS.
7. For the best Seedling Late Apricot, offered by R. Hanbury, Esq.	TWO POUNDS.
6. For the best Seedling Early Nectarine, offered by the Society	TWO POUNDS.
10. For the best Seedling Late Nectarine, offered by the Society	TWO POUNDS.
11. For the best dish of Golden Hamburgh Grapes, offered by Mr. Busby	TWO POUNDS.
3. For the best early Dessert Pear, offered by R. Hanbury, Esq.	ONE POUND.
For the best Seedling Late Kitchen Apple, offered by Mr. Spencer of Bowood	ONE POUND.
16. For the best dish of six fruit of the Salway Peach, offered by Mr. Turner	ONE POUND.
For the best dish of 10 fruit of Coxe's Orange Pippin Apple, offered by Mr. Turner	10 SHILLINGS.

Further information, Copies of Rules, &c., may be obtained upon application to Mr. WM. DAVIDSON, Assistant Secretary.

TO GRAPE GROWERS.

BUSBY'S STOCKWOOD GOLDEN HAMBURGH VINE.

JAMES VEITCH, JUN., feeling convinced of the SUPERIOR QUALITY of this GRAPE, and desirous of having it tested by public competition, offers the following PRIZES:—

£5 for the Best three Bunches.
£3 for the Second Best do.
£2 for the Third Best do.

These prizes will be awarded at one of the Exhibitions of the London Horticultural Society in 1858, particulars and time of which will appear hereafter.

Royal Exotic Nursery, Chelsea, S.W., Dec. 19.

ROYAL BOTANIC SOCIETY OF LONDON.—The EXHIBITIONS of PLANTS and FRUIT will take place in the Society's Garden, Regent's Park, next season, on WEDNESDAYS, May 12, June 2, and June 23, at 2 o'clock. Tickets as usual.

LYNCH'S STAR OF THE WEST CUCUMBER.—The best FRAME CUCUMBER in cultivation.
12 seeds for 2s. 6d. } Post Free.
6 seeds for 1s. 6d. }
The Plymouth Seed, Agricultural Implement, and Manure Company, Plymouth.

CUCUMBER SEEDS.

CUTHILL'S BLACK SPINE, Early Forcing, 1s. per packet; Do. WHITE SPINE, long, 2s. 6d. per packet; Do. HIGHLAND MARY, very best for winter, 2s. 6d. per pckt. Potato Pamphlet, &c., 2s.; Market Gardening Round London, 1s. 6d.; Vine Pamphlet, 1s. The Treatise on the Cultivation of the Mushroom, price 1s. post free.

JAMES CUTHILL, Camberwell, London, S.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Sion House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

NEW CUCUMBER.—Netted Cucumber from Delhi, fruited by CHANDLER & SONS, and exhibited at Willis's Rooms on the 24th of October. This curious fruit is of a brown colour covered with a beautiful white network, 2s. 6d. for six seeds or 6d. per seed, to be had at CHANDLER & SONS, Nursery, Wandsworth Road, or MESSRS. MINIER & Co., Strand.

TO THE SEED TRADE.

JAMES CARTER AND CO., SEEDSMEN, 238, High Holborn, London, W.C., invite attention to their two NEW ANNUALS FOR 1858, viz., CLARKIA PULCHELLA MARGINATA, *rose, with white border;* LUPINUS HYBRIDUS INSIGNIS, *rosy purple.* This Lupine is totally different from one offered under the same name by a London house at 1s. 6d. per oz. Prices of both may be obtained upon application.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.

Bardney Hall, near Lincoln, Dec. 19.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

CHINESE HERBACEOUS PÆONIES.—This being the season for Planting these beautiful flowers, JOHN SALTER can furnish Plants from his unrivalled collection, to which Prizes have been awarded at the exhibitions of Chiswick, Regent's Park, and Crystal Palace.—Versailles Nursery, near Hammersmith Turnpike, W.

BERNARD SAUNDERS, NURSERYMAN, Jersey, has splendid Stocks of Quince Pear Trees, Flemish Carnations, Yellow and White-ground Picotees, &c., to offer to his numerous patrons and friends this season. Prices moderate, to be obtained on application.

B. S.'s Priced List of Cape Bulbs is now ready for delivery.

EARLY SOWING FOR 1858.

EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. Every description for present sowing may be had of JAMES CARTER & Co., Seedsmen, 238, High Holborn, London, W. C.

RISING SUN PEA.

FLANAGAN AND SON again beg to offer the above valuable variety of the Green Marrow class. It has been well tested during the past season, and has given general satisfaction. The stock being limited early orders are desirable. Trade price on application.—9, Mansion House Street, London.

TO THE SEED TRADE.

TO BE SOLD, very cheap, a few quarters of BEDMAN'S IMPERIAL and SCIMETAR PEAS; also a quantity of WOOD'S LONG RIDGE CUCUMBER, a variety which for hardiness and prolific bearing, combined with length, is unequalled.—Apply to WOOD & INGRAM, Huntingdon.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Dec. 19.

RHUBARB FOR FORCING, &c.—A fine stock of extra large VICTORIA RHUBARB roots, having each from four to six fine vigorous crowns. These roots are level at the top and peculiarly adapted for immediate forcing, or they will divide safely into four ordinary roots. Price 18s. per dozen, well packed in hampers or crates, to carry any distance.

JOHN W. THORNHILL, Nurseryman and Seedsman, Bristol.

SUTTONS' SEED LIST for 1858, with Prices affixed to every article, will shortly be ready.

Royal Berkshire Seed Establishment, Reading.

GRAPE VINES IN POTS.

JOSEPH EATON has a very fine Stock of GRAPE VINES, struck from eyes, for Planting or Forcing in pots, from 5 to 8 feet long.—Shacklewell Road, Stoke Newington, N.E.

VINES IN POTS FOR FRUITING.

JOHN ELLIOTT, Fulham Fields, begs to offer very strong VINES from Eyes for Fruiting or Planting.

GRAPE VINES FROM EYES.

JOHN AND CHARLES LEE having recently erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS'S NEW ROSE CATALOGUE, containing full instructions for successfully cultivating Dwarf Roses on the Manetti Stock, may be had gratis on application.

PLANTING SEASON.

WILLIAM URQUHART AND SONS, Dundee, beg to announce that their PRICED LIST for the season of FOREST TREES and SHRUBS, AURICULAS, FERNS, &c., may now be had on application.—Dec. 19.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

DWARF TRAINED FRUIT TREES.

HOOPER AND CO., Centre Avenue, Covent Garden Market, beg to intimate that they are in a position to supply excellent Trees of the above description, consisting of Peach, Nectarine, Apricot, Plum, Cherry, Apple, and Pear, at prices below the usual scale, which will be given on application. Hyacinths, Tulips, Narcissus, Jonquils, Anemones, Ranunculus, &c., at low prices.

NURSERY STOCK AT REDUCED PRICES TO MEET THE TIMES.

WM. JACKSON AND CO., Bedale, beg to refer purchasers to their Advertisement in *Gardeners' Chronicle* of the 12th December, page 824.

TWO MILLIONS OF TRANSPLANTED QUICKS.

GEORGE CHIVAS invites the attention of Planters to his Stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 12s. His General List of Nursery Stock will be forwarded on application.—Chester.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

TO FRUIT FORCERS AND OTHERS.

TO BE DISPOSED OF, about 60 fine healthy FRUITING and SUCCESSION PINES; also some Pot VINES of excellent quality; and a few dozen STRAWBERRIES in 32 size pots, extra fine.—Address, Y., Post Office, Highgate, Middlesex, N.

FIGS in pots for Forcing or Orchard house culture.—Fruiting trees, three years old, of the following sorts, are offered at 5s. each:—Brown Turkey on Lee's Perpetual, White Ischia, White Marseilles. Carriage paid to London.

THOMAS RIVERS, the Nurseries, Sawbridgeworth.

HOLLY BERRIES FOR SALE.—Persons wishing to be supplied with the above will please communicate with JAMES LAKE, for quantity and price.

The Nurseries, Bridgewater, Somerset.

200 Healthy PINE PLANTS for 4l.; must be cleared for Christmas. Large VINES, SEAKALE &c., cheap.—J. LANCASTER, Edward Street, Deptford.

GOOD RIPE PINES (JAMAICAS) FOR SALE.—Apply to W. MACKENZIE, Kennel Park, St. Asaph.

WANTED TO PURCHASE, a few Thousand Roots of the RHAPONTICUM, or old Green Rhubarb.—Apply by letter, Mr. USHER, Bodicott, near Banbury, Oxon.

TO THE TRADE.

WANTED (this Month), of best quality, BIRCH, 2 to 2½ feet; LARCH, 2 years Seedlings.—Apply to JOSEPH TREMBLE, Nurseryman, &c. Penrith.

SCOTCH FIR.

WANTED, a few hundred fine SCOTCH FIR, 4 to 5 feet high.—Address, stating quantity and price, to FRANCIS & ARTHUR DICKSON & Co., 14, Cross Street, Manchester.

TO WILLOW ROD GROWERS.

WANTED TO PURCHASE, of the Willow Rod grower, a quantity of Threepenny and Fish Twigs, of good quality, say from 20 to 40 Bolts. Ready Money will be paid for them.—J. M., *Gardeners' Chronicle* Office.

CUSTARD VEGETABLE MARROW.

HOOPER AND CO., Centre Avenue, Covent Garden Market, are now ready to send out (for the last 7 years) New Seed of the [illegible] and excellent [illegible] advertised in the *Gardeners' Chronicle* of [illegible] in packets of six seeds for 13 stamps, post free.

Price to the Trade on application.

JOHN GRIGOR & CO., Nurseries, Forres, N.B., beg to intimate that they have for Sale an extensive Stock of all sorts of FOREST, FRUIT, and ORNAMENTAL TREES and SHRUBS, adapted to the climate of Scotland. As great care has been taken in raising the different kinds from the most approved varieties of their species, the plants are healthy and of fine quality. J. G. & Co. have had the honour to receive the numerous Premiums hitherto awarded by the Highland and Agricultural Society of Scotland for the cultivation of the true native HIGHLAND SCOTCH PINE—(the various qualities of Scotch Fir Timber are fully detailed and accounted for in the article "Pine Tree," vol. 2, page 603, of the "Agricultural Cyclopedia," published by BLACKIE & SON)—and their present Stock of this valuable Tree, and of the LARCH, comprehends many millions of Plants, of every size and age, suitable for being transplanted. Their FOREIGN PINES, for the raising of which the Highland and Agricultural Society's Premium was also awarded, include many kinds of great beauty, strong of their age, giving promise to become valuable as Timber Trees in the climate of Britain.

Goods are carefully packed; and in forwarding Plants, &c., every information required will be readily afforded regarding their mode of treatment; and to those who may desire it advice will be furnished respecting the formation or management of Plantations by Mr. GRIGOR, author of the Highland and Agricultural Society's First Prize Essays, "On Raising Forest Plants," "On Forest Planting, and on Trees adapted to various soils and situations," "On Raising and Managing Hedges," "On Forest Pruning," "On the Native Pine Forests of Scotland," "On Planting within the influence of the Sea," "On the Deodar," and on various other subjects connected with Arboriculture. Price Lists will be furnished on application, and the Trade supplied at the wholesale rate.

TO GENTLEMEN, PUBLIC COMPANIES, AND OTHERS ENGAGED IN PLANTING.

JOHN WATERER has the pleasure of recommending to the attention of those engaged in Planting the following selections of desirable Plants; the whole being in the most robust health, perfect specimens, and from being annually removed, will transplant with the greatest safety. Prices will be forwarded on application, together with a Catalogue, containing descriptions of all the celebrated collection of RHODODENDRONS annually exhibited at the Royal Botanic Gardens, Regent's Park, London.

Araucaria imbricata, 2 to 3 and 4 to 5 feet, very handsome. The larger sized plants are well calculated to give immediate effect.
Cedrus Deodara, 2 to 3 and 4 to 5 feet, very handsome.
,, ,, 5 to 6 and 8 to 10 feet, bushy to the ground, in fact, all that can be possibly desired.
,, africana, 3 to 4 and 5 feet, fine plants.
,, Libani (Cedar of Lebanon), 4 to 5 feet, bushy and handsome.
,, ,, ,, larger, 5 to 6 and 7 to 8 feet, equally bushy and well formed.
Cephalotaxus Fortuni, 1 to 2 feet.
Cupressus elegans, 4 to 6 feet.
,, Goveniana
,, Lambertiana
,, macrocarpa
} 2 to 3 and 4 to 5 feet, from seed. The large sized plants are very handsome.
,, Lawsoniana Seedlings.
,, variegata (the variegated White Cedar), 1 to 2 and 3 feet.
Cryptomeria japonica, 4 to 6 & 8 to 10 & 12 feet, fine specimens
,, japonica viridis, 3 to 5 feet, a beautiful variety of the foregoing, retaining its Grass-like appearance the whole season.
Fitz-Roya patagonica, 3 to 4 and 5 feet; this is of very graceful appearance.
Juniperus Bedfordiana, 3 to 4 and 5 feet.
,, chinensis, 3 to 4 and 5 to 6 feet.
,, common English, 2 to 3 feet.
,, Irish, 3 to 4 feet.
,, ,, 4 to 6 and 7 to 8 feet, very handsome close specimens.
,, recurva, 3 to 4 and 5 feet.
Libocedrus chilensis, 3 to 4 feet.
,, gigantea, 1 to 2 feet.
,, ,, 2 to 3 and 4 feet, very handsome. This is unquestionably one of the finest productions of California.
Pinus austriaca, extra transplanted, 1 to 2 and 3 feet.
,, Beardsleyana (new), about 1 foot.
,, Benthamiana, 1 to 2 and 3 feet.
,, Brunoniana, 2 to 3 feet.
,, Cembra, 3 to 4 and 5 to 6 feet.
,, Douglasi, 4 to 5 and 6 feet.
,, ,, 6 to 8 and 10 feet, most magnificent plants.
,, excelsa, 4 to 6 and 7 feet.
,, insignis, in any quantities, 2 to 3 feet.
,, ,, ,, 3 to 4 and 5 feet.
,, Jeffreyana (new), about 1 foot.
,, Lambertiana, 2 to 3 and 4 feet.
,, ,, very fine, 5 to 6 and 8 feet.
,, Morinda, 4 to 6 and 7 feet.
,, nobilis, from seed, 1 and 2 years.
,, Nordmanniana, 1 to 2 and 3 feet, very beautiful plants.
,, Sabiniana, 2 to 3 feet.
,, taxifolia (of Jeffrey), 1 to 1½ foot.
,, tuberculata (a new species, of very vigorous habit), 2 to 3 and 4 feet.
Retinospora ericoides, 1 to 2 feet.
Saxe-Gothæa conspicua, 2 to 3 and 4 feet.
Taxodium sempervirens, 4 to 6 and 8 to 10 feet.
Taxus (Yew), Common, 2 to 3 and 4 to 5 feet.
,, Irish, 3 to 4 and 5 to 6 and 8 feet.
,, gold striped, 2 to 3 feet.
Thuja aurea, beautiful plants, about 1 to 1½ foot, by the 100.
,, ,, larger, 1½ to 3 feet.
,, chilensis, 2 to 4 feet.
,, gigantea, 1 to 2 and 3 to 4 feet.
,, Hookeriana, a very close growing species.
,, Warreana, 2 to 3 and 4 to 5 feet.
Thujopsis borealis, in quantities, 1 to 2 feet.
Wellingtonia gigantea, about 1 foot, by the 100.
,, ,, larger, very handsome, 1½ to 2 and 3 to 4 feet.
This plant is admirably adapted for forming Avenues.

None of the foregoing are grafted, with the exception of Pinus Lambertiana, which does well, neither have any been cramped by the ruinous system of pot culture.

AMERICAN PLANTS.

Azaleas, good varieties of scarlet, rose, orange, pink, yellow, &c., 1 to 2 feet, at a low rate for extensive planting.
,, Ghent and other varieties, 1 to 2 feet.
,, Standard, of the leading varieties.
Kalmia latifolia, 1 to 2 feet, by the 100.
,, ,, 2 to 3 and 4 feet, large very handsome specimens
,, ,, Standards, with fine symmetrical heads.
,, ,, myrtifolia, 1 to 2 and 3 feet, a superior variety of latifolia.
Rhododendron ponticum, of sizes, for planting in Shrubberies or Game Covers.
,, Hybrids, of sorts, in good plants, 1 to 2 and 3 feet.
,, Superior kinds, by name, such as are exhibited at the Royal Botanic Gardens, Regent's Park, 1 to 2 and 3 feet.
,, Standards, 3 to 4 feet stems, with handsome formed heads.
Standard and Half Standard Roses, large quantities of the most approved perpetual varieties.

We feel certain any advertisement will fail in accurately describing the beauty of many of our specimens; we would therefore suggest the importance of purchasers making a visit of inspection, which can be performed by South-Western Railway to the Sunningdale Station, where excellent conveyances meet all Trains.

The American Nursery, Bagshot, Surrey.

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.

Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

PLANTING.

A. PAUL AND SON respectfully invite the attention of gentlemen improving their estates or forming new gardens to the following TREES, &c., which they are prepared to sell at the lowest remunerating prices for a good standard quality. It is their practice to transplant every second season in order that little or no loss may be incurred by removal. Many things are grown in large quantities, and will be sold on advantageous terms to the Trade. An inspection of the stock is invited. The Nurseries are 13 miles north east of London, 1 mile from the Cheshunt Station of the Eastern Counties Railway.

Abies alba glauca, 1 to 2½ ft.
,, canadensis, 1 to 7 ft.
,, clanbrasiliana and other Dwarf Firs, 1 to 1½ ft.
,, Douglasi, 1 to 8 ft.
,, Menziesi, 1 to 4 ft.
,, monstrosa, 1 to 5 ft.
,, Morinda, very fine, 1 to 10 ft.
,, 24 other sorts, 1 to 4 ft.
Araucaria imbricata, 1 to 4 ft.
Alaternus, 1 to 4 ft.
Arbor-vitæ, American, 1 to 6 ft.
,, Weare's, 1 to 5 ft.
Arbutus, 1 to 3 ft.
Aucuba, 1 to 2½ ft.
Bay, Sweet, 1 to 3 ft.
Box, green and variegated, 1 to 5 ft.
,, Minorca, 1 to 1½ ft.
Berberis dulcis, 1 to 5 ft.
Broom, White & Yellow, 2 to 4 ft.
Cedar, Red, 1 to 6 ft.
,, White, 1½ to 4 ft.
Cedrus Deodara . } 1 to 10 ft.
,, Africanus } The largest and finest stock in the country.
Cedar of Lebanon }
Cotoneaster, of sorts, 1 to 2 ft.
Cryptomeria japonica, 1 to 8 ft.
Cupressus Lambertiana, 1 to 4 ft.
,, 12 other sorts, 1 to 4 ft.
Holly, green & variegated, 1 to 6 ft.
Juniperus chinensis, 1 to 6 ft.
,, hibernica, 1 to 6 ft.
,, 40 other sorts, 1 to 6 ft.
Laurel, Common, 1 to 5 ft.
,, Portugal, 1 to 6 ft.
,, ,, Standards, 4 to 6 ft. stems
Laurustinus, 1 to 2 ft.
Mahonia aquifolium, 1 to 3 ft.
Oak, Evergreen, of sorts, 1 to 6 ft.
Phillyrea, 1 to 6 ft.
Picea nobilis, 1 to 2 ft.
,, Nordmanniana, 1 to 1½ ft.
,, Pinsapo, 1 to 3½ ft.
Pinus austriaca, 1 to 4 ft.
,, Ayacahuite, 1 to 3 ft.
,, Benthamiana, 2 ft.
,, Cembra helvetica, 1 to 3 ft.
,, Cortesi, 7 ft.
,, excelsa, very fine, 1 to 10 ft
,, insignis, 1 to 8 ft.
Pinus Lambertiana, 1 to 7 ft.
,, Llaveana, 1 to 2 ft.
,, macrocarpa, 5 ft.
,, monticolor, 1 to 3½ ft.
,, monspelliensis, 1 to 4 ft.
,, muricata, 2 ft.
,, Pallasiana, 3 ft.
,, pineaster, 2 to 5 ft.
,, pyrenaica, 1 to 2½ ft.
,, Sabiniana, 6 ft.
,, sylvestris argentea, 6 ft.
,, strobus nivea, the Snow Pine, 1 to 3 ft.
,, 40 other sorts, 1 to 6 ft.
Privet, Evergreen, 1 to 4 ft.
Pyracanthas, 2 to 3 ft.
Taxodium sempervirens, 1 to 8 ft.
Thuja aurea, 1 to 2 ft.
,, gigantea, 1 to 1½ ft.
,, Warreana, 1 to 5 ft.
,, 12 other sorts, 1 to 6 ft.
Thujopsis borealis, 1 to 1½ ft.
Wellingtonia gigantea, 1 ft.
Yews, Common, 1 to 8 ft.
,, Golden, 1 to 4 ft.
,, Irish, 1 to 6 ft.
,, Cheshuntensis, 1 to 6 ft.
,, 12 other sorts, 1 to 6 ft.
Acacia, of sorts, 3 to 8 ft.
Beech, Purple, best variety, 8 to 10 ft.
,, cut leaved, 8 to 10 ft.
Birch, Silver, 6 to 8 ft.
Chestnut, Spanish, variegated, 3 to 6 ft.
,, Horse, scarlet, 6 to 10 ft.
Cypress deciduous, 3 ft.
Elm, Huntingdon and English, 6 ft.
Gleditschias, of sorts, 2 to 8 ft.
Laburnums, 4 to 8 ft.
Lilac, Persian, 4 to 6 ft. stems.
Limes, 3 to 10 ft.
Maple, Scarlet, 8 to 10 ft.
Mountain Ash, 6 to 8 ft.
Oak, Turkey, 8 to 10 ft.
,, Scarlet, 2 to 8 ft.
Planes, 6 ft.
Poplars, of sorts, 4 to 8 ft.
Salisburia adiantifolia, 1 to 3 ft.
Thorns, of sorts, 2 to 8 ft.
Tulip Trees, 1 to 8 ft.

WEEPING TREES in very great variety.

FLOWERING SHRUBS, in 300 species and varieties, including Althæas, Berberis, Cistus, Daphne, Deutzia, Lilacs, Purple Nut, Pyrus, Ribes, Rose Acacia, Syringas, Spiræas, Sweet Brier, Weigelia, &c.

ROSES (an unrivalled collection).—Standards, 18s. p. doz., and uparwds; Dwarfs, 6s. do. and upwards. See separate Catalogue.

HARDY CLIMBING PLANTS.—A large collection.

AMERICAN PLANTS, including Azaleas, Kalmias, Rhododendrons, all the best sorts, well set with bloom, nice compact plants, suitable either for forcing or immediate effect out of doors.

HARDY HEATHS in great variety.

FRUIT TREES, including Trained Peaches, Nectarines, and Apricots; Apples, Pears, Cherries, Plums, &c.; Dwarfs, Pyramids, Standards and Trained; Gooseberries and Currants; Raspberries and Strawberries; Grape Vines from eyes, Fruiting Plants, and others very fine.

HERBACEOUS PLANTS, in 500 species and varieties.

HOLLYHOCKS.—A fine stock of healthy and well established Plants. See separate Catalogue.

Carriage of all packages free to London; if a ton weight or upwards placed free on the Railway at any London Terminus.

Nurseries, Cheshunt, Herts.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE. "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top shoot droops like a Deodar; the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. Lambertiana, Douglasi, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10s. 6d. each; 12 do. do., 5l. per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Dec. 19.

TO THE TRADE AND PUBLIC IN GENERAL.

JAMES LAKE begs to offer for sale 1000 dwarf-trained FRUIT TREES of the following kinds, viz., Peaches, Nectarines, Apricots, Apples, Pears, and Plums, all of which are of the choicest kinds, warranted true to name and of the most healthy and vigorous growth. Reference can be given to many parties who have seen them during the summer. Also, 20,000 strong 3 & 4 year old CURRANTS of the following sorts:—Black Naples, Raby Castle, Wilmot's Superb Red, White Grape, and White Dutch. GOOSEBERRIES, named varieties, strong 3 and 4 year old plants. Laurustinus, 18 inches to 2 feet. Seedling Thorns very fine. Also a large well grown stock of Weeping Beech, Ash, and Lime, Spanish and worked Chestnuts, English and worked Elms, English and Turkey Oak, Purple Beech and Silver Birch, Limes, Plane, and Poplars, Standard worked Thorns and Laburnums.

The above will be sold at very low prices, which can be had on application, especially if quantities are taken.

Nurseries, Bridgewater, Somerset.

AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following PLANTS, free of charge for packing:—

100 Camellias, different and of the choicest varieties ..	£4 0
25 Camellias, with flower buds, strong plants	2 10
100 Camellias, double white, young plants	1 0
100 Indian Azaleas, with flower buds	4 0
12 Azalea Eulalie Van Geert, with flower buds	1 5
25 Ghent Azaleas, of the best varieties, with flower buds	1 0
25 Ghent Azaleas, new varieties	1 10
25 Ghent hardy Rhododendrons, best named varieties ..	1 10
12 varieties of Yellow Rhododendrons	0 18
25 Rhododendron Javanicum, 4 inches	1 0
50 new Holland Plants, different sorts	1 10
20 varieties of choice Pæonia sinensis	0 18
6 varieties quite new, from Mr. Parmentier	1 0
12 varieties of Tree Pæonia	1 5
25 Lilium lancifolium rubrum, strong roots	1 10
25 Lilium lancifolium album, strong roots	1 0
12 new named Phloxes	0 6
12 Laurustinus, on stems, with flower buds	0 12
100 Gladiolus Gandavensis, strong roots	0 18
12 Erythrina Cristagalli, strong roots	0 18
25 choice hardy Coniferous Plants	1 5
12 fine Orange Trees, on stems	1 10
25 Otaheite Oranges	1 10
25 Magnolia macrophylla	1 0
25 Ginkgo biloba	0 10
12 Chamærops humilis	1 0
25 best Perpetual Roses	1 0
25 Bengal and Tea Roses	0 18
12 Ampelopsis quinquefolia, strong	0 12
12 fine Pear Pyramids	1 0
12 Bignonia radicans	0 6
12 Indigofera dosua, strong	0 9
25 Thuja aurea	1 5
100 Castanea vesca, 1 year Seedlings	0 3
100 ,, ,, 2 years ,, ...	6 0
12 sorts of Gloxinia erecta	0 12
25 sorts of Mamillaria and Echinocactus	1 0

CUSTARD VEGETABLE MARROW.

MESSRS. WRIGHT, RENWICK, AND THOMSON beg to offer well ripened Seeds of this extraordinary, prolific, beautiful, and delicious Vegetable. See engraving and leading article in the *Gardeners' Chronicle* of September the 19th. "Seeds were sent to the Horticultural Society by Mr. Thomson. In the axil of every leaf there is a fruit. It will be evident that the mere beauty of its form would render it better adapted for a side dish than the common Vegetable Marrow, even if it were not superior in quality and more abundant in produce."

12 Seeds post free on receipt of 25 postage stamps.
6 Seeds post free on receipt of 13 postage stamps.

6 distinct varieties of Balsam, a packet of each 2s. 6d., saved from one of the finest and most carefully selected collections of Balsams in Britain, as grown by Mr. Thomson, at Dyrham Park.

The beautiful winter flowering Celosia aurea, per pckt.	2s. 6d.
Delphinium formosum .. .. .. ,,	1 0
Lobelia speciosa (the best for bedding) .. ,,	1 0
Godfrey's Black Spine Cucumber (true), per doz. Seeds	1 6
Golden Drop Melon (true) .. .. .. ,,	1 0
Thomson's Dyrham Park Hybrid Melon .. ,,	1 0
Golden Perfection Melon (true)	1 0

The whole of the above, inclusive of the six Seeds Vegetable Marrow, for 12s. 6d., post free. A remittance to accompany all orders from unknown correspondents. Seed List and Catalogues of Plants sent on application.

Leith Walk Nurseries, Edinburgh, December 19.

WALTON NURSERY, LIVERPOOL.

To NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of Fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well-grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

BUSINESS ESTABLISHED, 1786.
COMPANY INCORPORATED, 1857.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have purchased the old-established and successful business of Messrs. WM. E. RENDLE & Co., Seed Merchants, Plymouth.

They are now in a position to execute all kinds of Vegetable and Flower Seed orders, all of which above the value of 1*l.* and 2*l.* are sent carriage free (to Broad Gauge Stations); and above 5*l.* to any Town, Steam Port, or Railway Station in the United Kingdom.

All Flower Seed orders sent free by post. Their Price Current and Garden Directory for 1858 now being published will be sent free on receipt of 6 postage labels, or gratis to all purchasers, on application to the Company's Offices, Union Road, Plymouth.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED) are now sending out their Collections of SEEDS, which have hitherto given every satisfaction:—

	£	s.	d.
No. 1. Complete Collection of Seeds for a large Garden, for one year's supply	3	0	0
No. 2. Complete Collection for a moderate-sized Garden	2	0	0
No. 3. Complete Collection for do. (small quantities)..	1	5	0
No. 4. Complete Collection for a small Garden ..	0	15	0

Nos. 1 and 2 sent Carriage Free to all the Broad Gauge Stations in the kingdom, and to Dublin and Cork by steamers.

No. 3, Free to all the Stations on the Great Western, Midland, to Birmingham and South Wales Railway.

Address, Plymouth Seed, &c., Company, Union Road, Plymouth.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have pleasure in offering the following SELECT SEEDS, all of which are worthy of a trial, and will be sent post free:—

	Per Packet.
Lynch's Star of the West Cucumber The best Frame Cucumber in cultivation	1*s.* 6*d.*
Ayres' Perpetual Black Spine Cucumber (ridge)	1 6
Hamilton's "Botcherby Hybrid"	1 6
Melville's treble curled garnishing Borecole	1 0
Conning's Reliance Superb, late White Broccoli	1 0
Melville's hardy Scotch	1 0
Penzance White (comes late in January)	1 0
Rendle's Welcome Broccoli (best late White)	1 0
New Martinique Vegetable Marrow	2 6
Early Cantaloupe Melon (very good)	1 0
Chirk Castle Black Stone Turnip	0 6

Address, Plymouth Seed, &c., Company, Plymouth.

NEW EARLY PEAS.

BASS AND BROWN have pleasure in recommending for early sowing—
DANIEL O'ROURKE, or Sangster's No. 1, the earliest grower.
BECK'S GEM, the earliest and best dwarf for forcing.
WARNER'S EMPEROR.
RISING SUN, New Green Marrow, nearly as early as Emperor, a Pea of great produce.
DICKSON'S FAVOURITE, very long pods.

Their general stock of New Vegetable Seeds is now ready, and their usual collections of first rate sorts can be supplied.

Choice assorted collections, 60*s.*, 40*s.*, 25*s.*, 15*s.*, and 10*s.* 6*d.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

BULBS.—GLADIOLUS, ANEMONES, RANUNCULI, LILIUMS, IRIS, with choice DUTCH and other ROOTS.

For FLOWER ROOTS in general, a very extensive collection of the choicest sorts, see BASS & BROWN'S No. I. CATALOGUE (free by post), which contains also choice collections of Herbaceous Plants, Roses, Fruits, &c.

For Select BULBS and HERBACEOUS PLANTS offered in collections, see *Gardeners' Chronicle*, Oct. 10, page 691, and Oct. 24, page 722.—BASS & BROWN, Seed and Horticultural Establishment, Sudbury, Suffolk.

NOTICE.

JOHN HOLLAND begs to inform his friends and the public that the melancholy sudden death of his only and beloved son having made it impossible for him alone to continue the large and increasing business with which for a long term of years he has been favoured, he has entered into partnership with Mr. E. S. DODWELL and Mr. JOHN BAYLEY, of Derby, and that his business will for the future be continued by the firm of HOLLAND, DODWELL, & BAYLEY.

J. H. has a cordial pleasure in believing that he has thus secured, not only the continuation of the business in its fullest vigour, but from the increased power of management, the ability to give attention to departments hitherto of necessity left in abeyance.

JOHN HOLLAND acknowledges with his most grateful thanks the liberal measure of patronage so kindly extended to him, and assuring his friends and the public that no effort shall be wanting to merit its continuance, he respectfully solicits their support on behalf of the new Firm.

Bradshaw Gardens, Chadderton, Manchester.—Dec. 19.

HOLLAND, DODWELL, AND BAYLEY, FLORISTS and SEEDSMEN, Bradshaw Gardens, Chadderton, Manchester (late John Holland), respectfully invite attention to their unrivalled collections of FLORISTS' FLOWERS, which comprise every rare and valuable variety.

A NEW CATALOGUE will shortly be ready, containing detailed lists of Carnations, Picotees, Pinks, Pansies, Hollyhocks, Auriculas, Polyanthuses, Primroses, Alpines, Dahlias, Fancy Dahlias, Bedding Dahlias, Variegated and Scarlet Geraniums, Verbenas, Fuchsias, Calceolarias, Petunias, Phloxes, Chrysanthemums, Ferns, Rock Plants, Bedding Plants, Belgian Daisies, Strawberries, &c.

Their collection of LANCASHIRE SHOW GOOSEBERRIES is the largest in the United Kingdom, and comprises every variety of note extant. Fine selected plants at from 6*s.* per dozen.

PHLOX SEED, saved from the finest varieties in cultivation, in packets at 1*s.* and 2*s.*

"DERBY" SCARLET TEN WEEKS STOCKS, H., D., & B. believe the finest in the world, in packets at 1*s.* and 6*d.*

Do. PURPLE, do. do. in packets, 1*s.* and 6*d.*

CUCUMBER SEED, Bayley's Favourite, an excellent variety, free bearer, fine shape, and good for table, in packets of 6 seeds at 1*s.*

DAHLIA SEED, in packets at 1*s.* and 2*s.*

NEW HARDY CONIFER.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have purchased of Mr. Robert Fortune the last importation of FORREYA GRANDIS (FORTUNE), with other novelties, and they will now be prepared to book orders for this splendid new hardy Conifer. As the stock will be limited, it will be requisite for purchasers to give in their names as subscribers as early as possible. The seed having been sown by Mr. Glendinning last May, a portion of them are beginning to push into growth.

A full description of this very beautiful Tree may be seen by referring to the *Gardeners' Chronicle*, page 788, in the Number for November 21 of the present year.

MESSRS. E. G. H. & SON continue to supply Seeds of the three valuable Novelties fully described at page 835, *Gardeners' Chronicle*, December 12.

DALMENY BROCCOLI, 2*s.* 6*d.* ½-oz packets,
COLLINSIA CANDIDISSIMA, 2*s.* 6*d.* per packet.
CHLORIS RADIATA (Mis-named C. perfoliata, p. 835), 1*s.* 6*d.* per packet.

ROSES.

A. PAUL AND SON invite attention to the following facts in reference to their position at the Rose Shows during the present year:—

May 30, Crystal Palace.—12 Roses in pots	..	FIRST PRIZE
June 3, Chiswick .. 12 Roses in pots	..	SECOND PRIZE
(The majority of these were shown in the collection which gained the first prize at the Crystal Palace three days previously.)		
June 18, Royal Botanic Society—50 Cut Roses	..	FIRST PRIZE
Do. do. 10 Roses in pots	..	SECOND PRIZE
June 24, Brighton .. 50 Cut Roses ..	..	FIRST PRIZE
June 24, Manchester .. 50 Cut Roses ..	..	SECOND PRIZE
⁂ The Manchester and Brighton Shows were on the same day.		
July 1, Royal Botanic Society—24 Cut Roses	..	FIRST PRIZE
,, do. do. 50 Cut Roses	..	FIRST PRIZE
July 2, Stamford Hill .. 50 Cut Roses	..	FIRST PRIZE
,, ditto, collection ditto	..	FIRST PRIZE
July 9, Diss .. 50 Cut Roses,	FIRST PRIZE,	SILVER CUP
,, do. .. 100 Cut Roses,	FIRST PRIZE,	,,
July 15, Stamford .. 12 Cut Roses,	FIRST PRIZE,	,,
Sept. 9, Crystal Palace 50 Cut Roses,	FIRST PRIZE,	,,

The sorts which obtained these prizes are offered, strong healthy plants, from 18*s.* to 24*s.* per dozen, as Standards, and from 12*s.* to 18*s.* per dozen for Dwarfs, or Dwarf Standards. For further particulars and general information on Roses see Descriptive Catalogue just published, and furnished post-free on application.—Nurseries, Cheshunt, Herts.

CHRYSANTHEMUMS.

W. HOLMES has an unlimited Stock of the above including the following extra fine varieties, all at 5*s.* per dozen:—

King of Anemones	Aristée	Fanchette
Virginie	Cardinal	Margueridotto
Margaret of Norway	Lothario	President Morel
Marquis de Motteville	Rose Marguerite	Perle
Ruth	Antonius	Roquelaure
Giant	Jeanne Hachette	Toinette, &c. &c.

W. HOLMES, Florist, Well Street, Hackney.

EARLY POTATOES.—"THE LEMON KIDNEY." This celebrated early variety, being far superior in forwardness and flavour to the Ash Leaf (see last number of the Royal Agricultural Society of England's Journal), may be had on application to JOHN HELM, Morecombe, Lancaster. Price 2*s.* 6*d.* per stone.

Also a few stone of the "IMPROVED" LEMON KIDNEY, proved to be two weeks earlier than the Ash Leaf. Price 5*s.* p. st.

SEED POTATOES.

JOHN BELL begs to call the attention of the trade and others to his various assortments, which he warrants true.

ASHLEAF,	REGENTS,
FLUKES,	SHAWS,
DAWE'S MATCHLESS,	FORTY-FOLDS,

And all other varieties.

Price Lists can be had on application to JOHN BELL, Covent Garden Market; or, Great Northern Railway Potato Market, King's Cross, London.

SEED POTATOES.

JOHN W. THORNHILL respectfully calls the attention of purchasers to his selected ASH-LEAF KIDNEYS, which are now in the finest condition. J. W. T. can supply them in large or small quantities at 14*s.* per cwt.; or a basket, containing 20 lbs., for 3*s.* The new Early Queen Potato, remarkably prolific, and earlier than the Ash leaf, price the same.

New Garden Seeds and every description of Nursery Stock.

27, Bath Street, and Lawrence Hill, Bristol.

TO GENTLEMEN AND POTATO GROWERS.

RICHARD RICHARDSON, of Cottenham Park, has 400 Sacks of the EARLY OXFORD POTATOES, the finest Potato in the world for quantity, quality, and early and late purposes. RD. R. has grown it for 11 years with great success. If any gentleman wishes to obtain 20 to 25 sacks at a guinea a sack of the above, the grower would be glad to purchase the same quantity in December, 1858, for change of soil.

APPLES IN POTS.—The following kinds of Apples are healthy trees on the Paradise stock; they are mostly full of bloom-buds, and adapted for growing in small gardens, or for orchard-houses in the north. 2*s.* 6*d.* each; for convenience of package they are taken out of pots and sent with their balls of earth.

Old Nonpareil	Early Julien
Golden Pippin	Boston Russet
Fall Pippin	Calville Blanche
Ribston Pippin	Sam Young
Lady Apple	Pitmaston Nonpareil
Golden Harvey	Mannington's Pearmain
Pitmaston Golden Pippin	Pennington's Seedling
Pine Apple Pippin	Summer Golden Pippin
Cellini	Northern Spy
Reinette du Canada	Sturmer Pippin

Carriage paid to London.

THOS. RIVERS, The Nurseries, Sawbridgeworth.

RHODODENDRONS.

RHODODENDRON PONTICUM, bushy plants.
Ditto ditto for Cover.
Fine varieties of HYBRID RHODODENDRONS.

SCARLET RHODODENDRONS, 2 to 4 feet, for immediate effect. Standard and Half-Standard ditto.

RHODODENDRON STOCKS, Dwarfs, Half-Standards and Standards, can be supplied in quantities by the hundred or thousand at reasonable prices. Also Epigæa repens, Gaultheria procumbens, Kalmia latifolia, Andromeda formosa (seedlings), and Azaleas.

GEORGE S. ROGERS (late William Rogers, Sen.), Red Lodge Nursery and American Ground, near Southampton.—Unknown correspondents will please to enclose a reference, to save delay in the execution of their orders.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants:—

	Per dozen.—*s.*		Per dozen.—*s.*
Acacia Drummondi	42	Herbaceous & Alpine Plants,	4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties .. ,,	12
Cyclamens .. .. from	12	Phloxes, Herbaceous .. ,,	9
Ferns, Stove & Greenhouse ,,	12	Pinuses .. .. ,,	18
,, Hardy .. .. .. ,,	9	Roses, Hybrid Perpetuals, Teas, &c., in pots .. ,,	18
		Do. Teas, &c., Standards ,,	21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6*s.*
,, ,, seed, per packet .. .. 1*s.*

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

AMERICAN PLANTS.

GEORGE BAKER begs to announce that his CATALOGUE for the present season is now ready, and may be had on application at the Nursery, Winkfieldham, near Bagshot, Surrey, one mile from Sunningdale Station, S.W.R.

Gentlemen engaged in planting would do well to inspect my very extensive stock of hardy Conifers, Evergreens, &c. A very large stock of Cedar Deodars, 4 ft. high; also C. Lawsoni.

AMERICAN PLANTS.

JOHN WATERER, the Exhibitor of the above plants at the Royal Botanic Gardens, Regent's Park, London, begs to state that his CATALOGUE of RHODODENDRONS, AZALEAS, &c., is published, and will be forwarded on application.

☞ The Colours of the Rhododendrons are described, and the Catalogue contains a selection of the most favourite kinds of Pinuses, Roses, &c.

The American Nursery, Bagshot, Surrey, near the Sunningdale Station, South Western Railway.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE of this season may be had on application, inclosing one stamp, or gratis at Messrs. JOS. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick; and the last year at Manchester.

Knap Hill Nursery, Woking, Surrey.

MESSRS. WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, in Retiring from Business beg to offer their acknowledgments to their patrons in different parts of the United Kingdom for the very liberal patronage that has been bestowed upon the Firm. They also notify that they have Transferred their Business to the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, (LIMITED), by whom in future it will be conducted, and beg to solicit a continuance of favours on the Company's behalf, feeling assured that all orders will be executed with dispatch, with goods of the best description, and of that quality for which their House has been so long noted.

Union Road, Plymouth, December 1.

GARDEN SEEDS GROWTH OF 1857.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have now warehoused the whole of their stock for the ensuing season's supply. The Stocks are all fresh and genuine, and may be depended upon as being of the best description. They are now in a position to execute orders—which orders are sent carriage free (see price current free for six stamps).—Offices, Union Road, Plymouth.

NEW GARDEN SEEDS. GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Dec. 19.

WANTED, A PLANT COLLECTOR AND GARDENER, who is sufficiently acquainted with Plants to be able to collect particular kinds, as also with the collection of Seeds and the packing of Plants in Ward's case. Salary 150*l.* to 200*l.* a-year.—Apply by letter, with necessary references, to A. B., *Gardeners' Chronicle* Office, stating qualifications, and whether acquainted with any modern language, such as French, Spanish, &c.

The Gardeners' Chronicle.

SATURDAY, DECEMBER 19, 1857.

Now that the East India Company has fallen upon evil times enemies show themselves on all sides, and the Court of Directors is charged with almost every offence that can be laid to the fault of a Government. Of this Mr. MEAD's book, noticed last week (p. 839), is a notable example. It is no business of ours to take a part in questions of public policy; but there is one subject, the cultivation of Cotton, which so entirely comes within our province, that we feel called upon to notice it; even at some length. The East India Company is accused of having done nothing to supply our manufacturers with Indian Cotton, or nothing effectual. It is alleged that under proper management India would take the place of the United States as a supplier of the Cotton market, and that the bad quality and consequently low price of Bengal Cotton is brought about by the supineness of the Indian Government. To this it might be fairly replied that it is no business of a Government to feed the Cotton market any more than the corn market; if people wish to eat bread they must themselves grow corn to produce it: and in like manner if merchants want Cotton they must themselves do what is necessary to obtain it. All that belongs to a government is to remove obstructions to such operations. We prefer however to look at the question from a different point of view; and we think we shall be able to show that the Indian Government has done too much rather than too little in this matter.

That the East India Company has not neglected such means as it possessed for encouraging the growth of Cotton wool and improving its quality is sufficiently shown by public documents. So long since as 1788 we find the Court of Directors urging the importance of the subject upon the Government of Bengal; and from that day up to the present hour the records of the Indian administration show that the efforts of the Company have been incessant, Dr. ROYLE's recent pamphlet,* closing the series

* *Review of the Measures which have been adopted in India for the Improved Culture of Cotton.* By J. FORBES ROYLE, M.D., SMITH & ELDER, a very able and full account of the result of the attempts made to grow Cotton by the Court of Directors.

for the present. They have caused experiments to be tried in every direction, the best machinery has been distributed, persons supposed to be experienced in the Cotton cultivation of the United States have been employed in India, Cotton experimental farms have been established, foreign Cotton seed introduced, in short nothing seems to have been omitted that appeared likely to bear advantageously upon the question. Never indeed was a charge more entirely unfounded than that of the Indian Government having disregarded the improvement of Cotton growing.

That Indian Cotton bears a low price in the market, and, with some exceptions, is very inferior to that from the United States, is doubtless true. Its staple is short, and it is said to be carelessly cleaned. But there is the most distinct proof that these faults are more or less susceptible of remedy. The East India Company formed a great establishment of experimental farms at Coimbatore in the Madras territory, and placed it under one of their best officers, Dr. ROBERT WIGHT. This gentleman has shown that Cotton, to compete with American, may be grown profitably in India. To use Dr. ROYLE's words—"Notwithstanding the irregularities of the seasons and the consequent difficulties which had been experienced, the result of the experiments may be briefly stated to have been, to prove the advantage of cultivating American in preference to the indigenous Cotton, wherever the soil and climate are suitable. For it succeeds well in the poorer lands, and it may be cultivated as cheaply as the other. The returns of seed Cotton are at least as great, or rather in ordinary seasons greater, while the proportion of wool to seed is certainly greater in the American than in the indigenous Cotton, to the extent of 7 to 9 per cent., as 29 to 30 per cent. of clean Cotton is generally obtained, and not more than 21 per cent. of native Cotton. But greater than all these is the good quality of the American Cotton grown in the Coimbatore district, and the certainty of its being fully appreciated by Manchester manufacturers and sold at good prices; that is, for 1*d.* or 1¼*d.* above the native Cotton, even when it did not cost more. The result of Dr. WIGHT's experiments and mercantile transactions was that American Cotton could be landed in Liverpool, all expenses included, for 3½*d.* a pound; that is, for the same price as the native Cotton, though they sold afterwards at such very different rates."

To us it seems that having established so important a fact as this, the Indian Government has accomplished its mission and deserves the thanks of manufacturers, not their reproaches.

There doubtless remains the fact that although India can produce first-class Cotton, it does not do so. But whose fault is that? Surely not the Government's. If fine Cotton is to be grown in India or elsewhere it must be made to pay; the grower, especially the pauperised Indian Ryot, must be *certain* of a market, and a remunerating price; and it will scarcely be urged that Government is to secure those conditions. If Lancashire manufacturers want Indian Cotton they must themselves do what is necessary; they must deal with Cotton as with Indigo, establish agencies, advance capital, fix a minimum price, and in short provide the greatest of all incentives to a cultivator—without which agriculture is mere gambling—steady prices and a sure market. As Dr. ROYLE well observes, "so long as the demands for ordinary Indian Cotton depend upon the larger and smaller crops of American Cotton, and the prices consequent thereon, so long will it be hopeless to have a steady and increasing import of Indian cotton; indeed as much so as it was formerly to carry on a legitimate trade in foreign corn with the uncertainties of the sliding scale."

That Indian Cotton, of excellent quality, may be produced at a low price is, as we have already observed, experimentally demonstrated. Mr. MEAD asserts that if Cotton sells for 2*d.* per lb. in India the grower will have a profit of 3*l.* 11*s.* 4*d.* an acre, and that any quantity may be produced in India and Pegu, with that result. "Madras Cotton," he adds, "was quoted at Liverpool on the 7th of November at 4¾*d.* The advance of a farthing in the price of Cotton adds a million sterling to the outlay of the manufacturers; but what would be the gain when we could not only import Cotton of the present quality at an aggregate reduction of 5,000,000*l.*, but suit at the same rate all the requirements of the spinner? It needs but a glance at the samples on view at the India House, to convince the public that water and attendance only are requisite to raise from the indigenous seed nearly all the varieties of Cotton now in use. Three years of *English culture* would set the question of Indian sufficiency in this respect at rest for ever." "We have only to give the Indian Ryot an equal interest with the Manchester spinner in the fruit of his labours."

The words *English culture* in the foregoing extract are at the root of the whole question of cultivation. After a most careful perusal of the facts condensed in Dr. ROYLE's pamphlet and of the voluminous printed evidence before us we can come to no other conclusion than that the difficulties attendant upon improving this raw material have arisen in a great degree from the want of a sound practical knowledge of cultivation in the persons employed. What is wanted in India is that kind of knowledge which enables a man to cultivate successfully such a place as the island of Ascension; or which empowers the English first-class gardener to compel the productions of every climate to thrive in his own. Such men, after a few trials, and observing the native processes, could not fail to hit upon the method of overcoming many of the difficulties so much spoken of as arising from climate or local causes; by selecting the kinds of Cotton best suited to their location, improving the native races, and meeting the peculiarities of climate by those means which a gardener fertile in resources knows how to employ. There is nothing very peculiar in the constitution of the Cotton plant. Like others it suffers in the presence of circumstances unsuited to it. When the soil is too rich and too damp and hot it runs to leaf, and produces few flowers; so does the Vine and the Wheat. If the earth is dried up it dries up also, as happens to all sorts of garden plants; if the soil is cold and wet it casts its pods, in which respect it behaves like an English Cherry tree. As to the diseases and insects that assail it, a reference to American works on Cotton cultivation show that there is no lack of such impediments in the best Cotton farms of the United States. What with "sore shin," "frenching," "rusting," "shedding," and rotting, the American planter has enough to contend with, to say nothing of "Cotton lice," grasshoppers, "cutworms," "leafhoppers," and caterpillars or "armyworms" that appear in hosts.

What amount of talent, of this essential kind, was possessed by the American Cotton planters imported into India, at a large expense, by the East India Company, under Capt. BAYLES, or what experience in difficult husbandry that gallant officer may have possessed we cannot judge. According to his own statement he had tried some experiments at a place called Hurryhur, and on one occasion had given away a load of Cotton seed among some natives: rather slender qualifications for the very important duty of studying the North American Cotton fields, and of selecting planters capable of carrying out experimental cultivation in India, where it certainly is not to the interest of New Orleans that a rival Cotton market should grow up. Nor is it easy to form an opinion of the capabilities of the many other agents entrusted with the inquiry. The numerous failures on record somewhat raise the presumption that there must have been just such a want of experience in cultivation as is to be expected from agents entirely unacquainted with practical cultivation. Nor is this impression removed by the success that attended the trials at Coimbatore by Dr. WIGHT, an officer of undoubted ability; in one of whose reports we find the whole case so well stated that we venture to extract it, notwithstanding its length:—

"The simple fact of the Bourbon Cotton of the Coimbatore and Salem districts realising 9½*d.* the pound in the English market, and the country Cotton of Tinnevelly district from 6*d.* to 7*d.*, goes far to prove that the produce of this country is considered equal to even the finer short-stapled American sorts, and answers the first question in so far as quality simply is concerned. These prices, taking as the average 6*d.* and 9*d.* respectively, allow the exporter about 140 and 180 rupees the candy of 500 lbs., for which he pays in this country only about 70 and 90; whence we may infer, that all we want to insure constant supplies of such Cotton is more competition among buyers, and somewhat higher prices to the growers. These being obtained, there is every reason to believe that great extension of this culture would follow, without any additional encouragement. For the correctness of this deduction I have the authority of Mr. Fischer of Salem, who, as agent for the merchants of Madras, has the purchasing of a large proportion of the Cotton raised in these districts. He writes, 'The natives are willing to cultivate this (Bourbon) Cotton to any extent they may expect remunerating prices for, but, at the present rates, they cannot afford to spend much time or labour either upon its culture or picking and cleaning; this is the grand secret of the wretched quality of our Cottons.'

"Such being the facts of the case in these districts as regards quality, we may conclude that there is little occasion in any of them for the aid of American workmen to teach the growers either how to cultivate or collect their Cotton. How far they might be profitably employed in teaching them the use of machinery for separating the Cotton from the seed, is a different question, and one on which we have as yet no information, but assuredly one on which it is desirable to obtain it by making the experiment.

"The ceded districts have been long celebrated for their Cotton, and formerly, when the Northern Circars were equally celebrated for their extensive manufactures of long cloths and muslins, supplied them with much of the very fine raw material required for the manufacture of their most beautiful fabrics. This single fact shows, that the deterioration which of late years the quality of the Cotton of these districts is said to have undergone, through carelessness in the collection, must have originated, not in ignorance of the proper method of preparing and gathering or harvesting the crop, but in causes similar in kind to those that have elsewhere produced the same effect, namely, inadequate demand, or a too great reduction of prices in proportion to the cost of production, and can only be corrected by the restoration of these to a remunerating standard. This, I apprehend, we can scarcely expect to effect through the operation of prizes or bounties, as suggested by the Honourable Court, but may be accomplished by agents purchasing at fairly remunerating prices (without reference to the local markets) all the really good Cotton offered for sale. These prices should, of course, be calculated according to the European, not Indian markets, so as to teach the growers the true value of the article."

Be this as it may, it appears to us needless to insist further upon the abundant proofs that exist of the indefatigable zeal shown by the East India Company in encouraging the cultivation of this important crop. But what, let us ask, have the manufacturers done for their part? No men know better than they that business does not consist in talking; and we think none will be more ready to admit that no Government whatever can do well what depends upon multiplied individual skill and energy. Government officers, be their merits what they may, can have no direct interest in the result of their proceedings. As no success adds to their remuneration, so no failure affects their pecuniary interest. If they are inefficient there is no removing them; if they are successful there are no rewards. The stimulus to success is absent. A few men of great zeal may be found to take up a scheme and push it vehemently onwards; but the success of improved cultivation depends upon the separate action of thousands. That Cotton equal to American may be grown in India we have no doubt; that it ever will be grown there in the absence of great mercantile activity we wholly disbelieve, and manufacturers if they want the article must themselves take in hand the work of development. We all know what an Anti-Corn-law League has effected; let the same energy and capital be directed to Cotton; let an Indian Cotton League be formed, and the so-called difficulties will speedily disappear. It is not a Government to which men should look, but a COBDEN; not to legislation but mercantile enterprise, industry, and perseverance.

THOSE who complain of a DISEASE that has attacked their ORCHIDS should have seen, at the last meeting of the Horticultural Society, a specimen of *Cœlogyne plantaginea* produced by Mr. LAWRENCE, Gardener to the Lord Bishop of WINCHESTER. Cœlogyne plantaginea is not thought handsome by the vulgar, but in the eye of taste it possesses that charm which graceful form and proportion always have. Imagine a plant some 18 inches in diameter, loaded with broad undulating foliage in which the quickest eye fails to detect a blemish, and pouring forth long pendulous clusters, some of which bear as many as 60 flowers: then some idea may be formed of the beautiful specimen before us. It had about 45 stems, each furnished with a pair of ample leaves; and there were 36 clusters, estimated to carry among them above 700 blossoms. Undoubtedly it was one of the most admirable examples of modern horticulture.

It is not, however, merely because of its beauty that we notice it here. Its remarkable freedom from any sign of disease was also a most important fact, especially when it is added that at Farnham Castle, where it was reared, the Orchid disease is, as we understand, unknown. What the plan of cultivation may have been we trust will be explained hereafter. The absence of disease is accounted for by the plants never being exposed to damp and cold *combined*. Dampness, with suitable warmth, does no harm; moderate cold with sufficient dryness does no harm. Both are indeed indispensable conditions of life. It is only when the leaves become too cold while wet or over-damp that the tissues decay, and the formidable black "spot" appears. It is undoubtedly the same with the affection which brings on little circular patches of decay in the Pelargonium. These causes of disease, although essentially the same in all cases and visible enough sometimes, may appear

to be absent on other occasions; but were the evidence always carefully examined we can entertain no doubt that the necessary combination of cold and damp will be found to have existed. For instance plants are syringed at night, the fires are made up, and all is thought to be secure; but during the night radiation becomes powerful, the temperature of the house is suddenly lowered, and wherever condensed water occurs, there will the surface of the plant become chilled so much as to lose its vitality; it will in fact be frostbitten without frost, if such an expression is allowable. The disease may indeed be referred to what Mr. BERKELEY calls *congelatio;* at first there may be no external appearance of this accident having occurred; but in a few days the injured tissues will have died, the colour changes, and then, when the cause has disappeared, it is first discovered that the mischief is done. The same result may be expected when a house is so unequally heated that one end has a considerably lower temperature than the other; or it may arise from tender leaves, turgid with sap, being suddenly exposed to a cold draught of air; or in various other ways the fatal combination of damp and cold may be formed. We wish our Orchid friends would consider what objection they can find to these suggestions.

ON THE CULTIVATION OF MOUTANS.

FEW flowers have been the victims of more extraordinary caprice than these most splendid ornaments of our gardens. Long known by report and Chinese drawings, their beauty was disbelieved, till at length some 70 years ago the first individual of the genus made its appearance in Europe. Its hardihood once established it bore a high price, and was the pride of the most notable horticulturists. Some 20 years later arrived another variety, P. Moutan papaveracea, which was equally and justly cherished.

Still the Chinese reports of Moutans of various colours were treated with incredulity, those already received being obviously very similar in colour, differing in fact little more than double and single varieties of the same plant might be expected to do. When China was opened to our researches, no plants were looked for with greater curiosity than the almost fabulous Moutans. At last, but not till even his patience had experienced some trial and disappointment, Robert Fortune saw, verified, and secured the many coloured Moutans which Chinese papers 70 or 80 years before had faithfully depicted to our incredulous eyes. The lilacs, the salmon-coloured, the sulphur-coloured, the whites, the rich reds, were secured, transmitted to England, and in due time met our astonished eyes. But where are they now? and in how many gardens are they to be seen? To watchful eyes they displayed their beauties imperfectly at Chiswick; still more imperfectly I suspect at Messrs. Standish & Noble's, at Bagshot, for on visiting them (a little too late in the season, I must allow,) they showed sorry remnants of indifferent flowers.

Nevertheless there exist few flowers which can at all compete with them in beauty. They may occasionally be seen in favourable situations with from 100 to 300 flowers upon them open at once, each 7 to 9 inches in diameter. I speak of course of the old varieties, as no large plants of the new ones yet exist, though there is not the slightest reason why they should not except ignorance and carelessness.

A great admirer myself of Moutans, I wish to incite others to cultivate them, and therefore gladly detail my experience of their growth.

The first and great mistake is to imagine they like a light soil. No soil is too strong for them, provided it is well drained and well manured. The soil which will grow Hops, Wheat, Beans, or Melons is the only soil in which they attain perfection. Of manure they are perfect gluttons. I give moderate-sized plants a bushel of sheep dung per annum as a top-dressing when I wish to have them in perfection. They moreover require a good deal of judicious pruning. If the branches are allowed to get too thick small flowers are the consequence, and they will dwindle at last on old plants till they are little bigger than Gum-Cistus flowers. I have seen some of the earliest propagated plants of P. papaveracea, now upwards of 40 years old, which although large plants present but a shabby appearance, and produce miserably small flowers.

Plants from 4 to 5 feet in diameter when out of leaf are large enough for all ordinary purposes; these will be between 7 and 8 feet in diameter when in flower, and produce from 100 to 120 flowers, and they may be grown to this size and well furnished in about six or seven years. I find that the ripened shoots with me vary from 6 to 10 inches in length, 8 being the ordinary growth.

I have never known the shoots injured by spring frosts but once in the last 12 years. Whenever that is the case, they should be immediately cut back to the first unopened bud, which will grow and flower, though the flowers thus produced are rather smaller than those produced by the first growth. However, as a preventive against this accident, I watch the Moutans in the early spring, and if I find the fruit buds getting so forward as to run risk of injury, I prune them all off, cutting the plant back to the second or even the third bud. This ensures a safe bloom a little later than the natural season.

Apart from this pruning, I generally cut the plants back very much, as Black Currants are pruned, immediately upon the fall of the leaf, leaving from 4 to 6 inches of wood, according to the desired size of the plant; but in this pruning regard must be had in unfavourable situations to the possible necessity of a second pruning.

With respect to situation it must be confessed that all the low grounds of the valley of London are unfavourable to this plant. At Hampstead or Norwood, or in fact on any rising ground where vegetation is somewhat retarded, it will be found in greatest beauty. Light soils also are unfavourable to it, especially sandy peat. It appears to do best in an open airy situation sheltered from violent wind, and not exposed to extreme sun; the north side of a dwarf wall suits it perfectly. It should never receive any protection, except an awning when in flower, which will tend to prolong its beauty; but I must confess I prefer it perfectly exposed.

Many of the new varieties have flowered with me; all appear quite as hardy as the old ones, but there is some difference in their earliness, and, as far as I can at present judge, great difference in their habits of growth. Some appear much more compact and dwarf than the old varieties, whilst some, on the contrary, appear to be much more erect, and probably of larger growth.

Nothing would be more gorgeous than a Moutan garden, in which beds of about 4 feet square were devoted to each single plant. Even when out of flower few plants surpass them in beauty and foliage. *J. R.*

ORNAMENTAL GARDENING,—No. 4.

THE position of the house, and the arrangement of its several apartments and offices having been decided on, the proper site for the pleasure ground becomes obvious enough, unless indeed peculiar circumstances of a local character should present themselves. But these I cannot now discuss without departing from the course which I wish to adhere to in these papers, *i. e.* to treat of general principles only.

In the term pleasure ground I include all the grounds about a residence which do not come under the denomination of either park or paddock, as the case may be, and kitchen garden. It may be of very limited extent and broken into few parts, or comprise many acres with numerous detached scenes, and include every style of gardening from the formal to the most irregular. But whatever the style of a garden or however limited or extensive, it should be immediately attached to the private rooms of a residence, and be readily and conveniently accessible from them. It should likewise be well screened from the approach or from any public road, yet be open and cheerful as circumstances will allow, and embrace as much of the outlying scenery as is consistent with a proper degree of shelter and retirement. A garden should not only be in itself beautiful, or afford situations from which beautiful views may be obtained, but it must be a spot for recreation, for meditation, for repose—a spot where the statesman or the student may with equal facility forget politics or science or meditate upon them undisturbed—a spot where friends may commune, and lovers vow—a spot in fact where one may at pleasure cast off the conventionalisms of society, and revel as it were in dressing-gown and slippers.

It would be difficult to account for the taste, or more properly fashion prevalent in the last century, of placing the garden in some obscure nook at a distance from, and scarcely connected with, the residence, a few examples of which are still to be found. I have recently met with two. In one case the garden was formed in a hollow excavated for the purpose of concealing it, in the other it was hidden by plantations. Both gardens were at a considerable distance from the residences to which they belonged, but to which they were very slightly connected. In fact it was evident they had, at their formation, been only tolerated, and had enjoyed no recognised existence. The houses—they were mansions—stood each alone in the open wildness of its park, disdaining as it were the primness of a garden scene. Modern refinement, however, very sensibly objects to a house in a Grass field, and most appropriately extends the ornaments and convenience of its dwelling to the grounds attached to it.

The amount of space to be devoted to a garden will of course depend much if not altogether upon the will of the owner, but local circumstances will in general in a great measure influence its form. If the surface is a decided flat and destitute of wood or other obstructions, the boundary lines should be principally straight and unaffected. A line whether of a fence or a walk meandering over a flat surface, without any apparent obstacle for its windings, is always offensive to the eye of taste, and should therefore be studiously avoided. The eye when challenged by an effect invariably appeals to the reason for a cause, and when in a work of art it can discover none, it is apt to be disgusted at the artifice. It is a great point in a work of art never to run the risk of this. We should always work upon a principle, no matter how apparently insignificant or important our labours may be; we shall then at least deserve the critic's respect, even if we incur his censure. The absurd notion that works of taste can have no principles for guidance is pretty well exploded; the sooner it is entirely so the better.

But an irregular outline to a garden if of any extent, and where the arrangement is not to be formal, is, I need scarcely say, an advantage, and where such can be appropriately obtained should by all means be secured. Groups of trees, masses of shrubs, or undulations in the ground will, if they are at all numerous, afford ample reasons for any irregularities of outline that may be wished or seem desirable; and, besides, such will always be found of great service in connecting the scenery of the garden with that of the surrounding country, an attainment of no mean import; but, nevertheless, one of secondary consideration when weighed against the true objects and purposes of a garden.

The boundary line of the garden naturally suggests the fence. A matter so simple and common-place as the separation of the dressed ground from that grazed by cattle would seem to be a very simple one; yet the literature of gardening abounds in allusions to it, and the amateur who is desirous of gleaning an opinion becomes perplexed by the variety submitted to his consideration.

If we start with the self-evident fact that a garden, to exist as such, must be effectually enclosed, the presence of an efficient fence becomes at once a recognised appendage, and whether, misled by a false or fastidious taste, we endeavour to ignore it altogether, or at once boldly allow it to assert its legitimate office, it must ever form an important item in a garden.

When the ancient formal style of gardening was abandoned for the more irregular and so-called picturesque, and the unhappy idea of attempting to blend the garden with the park at all hazards had taken possession of the gardening mind, all visible fences between them were contemptuously swept away, and the abomination of a ditch, or to speak more refinedly, a ha ha, was exalted to do duty instead. Now this same ha ha, when employed as a boundary between the garden and the park solely with the idea of its being an invisible fence, is to me as if one who had been educated and adorned with the refinements and elegancies of civilised life were to discard the habiliments pertaining thereto, and robe himself in the blanket and feathers of an Indian because it is more natural.

Undoubtedly there should be not only an implied but a visible boundary between the garden and the grazing ground. Of course no one would erect a fence immediately before a delightful view, or indeed in any situation where its presence would be detrimental to the scene; but it is not possible to imagine a situation where, a fence being required, it might not be adapted to the exigencies of the occasion without endeavouring to lose sight of its existence. "Garden scenery," observes Repton, "is an artificial object, and has no other pretence to be natural than what it derives from the growth of the plants which adorn it; their selection, their disposition, their culture, must all be a work of art; and instead of that invisible line or hidden fence which separates the mown turf from the lawn fed by cattle, it is more rational to show that the two objects are separated if the fence is not unsightly; otherwise we must either suppose that cattle are admitted to crop the flowers and shrubs, or that flowers and shrubs are absurdly planted in a pasture exposed to cattle, or, which is more frequently the case, we must banish flowers entirely from the windows of a house and suppose it to stand in a naked Grass field."

When however it is found that, from the low situation of the house, or other contingencies, a fence of sufficient height to be effectual cannot with propriety be placed immediately in front of the windows, a modification of the sunk fence may appropriately be employed. But in all such cases a low visible fence should be fixed on the supporting wall, and the ground on the outside be sloped away as much as possible to destroy the ditch-like appearance which is otherwise so objectionable a feature. A little careful management will effect much that is worthy of attainment in this matter.

The idea of blending the garden with the park so ably advocated by Whateley in his "Observations," as well as by many other writers whose works, admirable and invaluable as they are, are nevertheless theoretical rather than practical, seems to have been understood in a wrong sense even by the authors themselves;—that the majority of their readers should have erred in the practical application of the theory is not to be wondered at. So desirable an object is not to be obtained or destroyed solely by the mere presence or absence of a fence. A garden which should exhibit from any point of view within its boundary so much fence, and that of such a character as to mar and divide the scene, must surely be faulty in its arrangement. Where the garden is surrounded by groups and masses of wood, the artist will never experience difficulty in blending the scenery in such a manner, that from the principal points of view no boundary is perceptible; but at the same time he does not attempt to cheat himself into the idea that no fence exists or is unnecessary. Every spectator knows very well that one is present or ought to be present, and when in walking round the garden we find unmistakeable evidence, as we ever must, where the fence should be, let one boldly assert itself; it is mere affectation to dig a ditch to bury it in. *George Lovell, Bagshot*

Home Correspondence.

Potato Fungus.—The following extract from a letter just received from Bonn, dated November 28, 1857, represents a state of things relative to the Potato disease so entirely different from any experienced during the present year in England, that it is well worth placing on record. The writer, Dr. Caspary, has paid a great deal of attention to the subject, and has made some curious observations respecting the species of mould which are allied in habit and character to the *Botrytis infestans*, which has produced so much evil on the

Potato. After speaking of his being greatly occupied during the summer with the family of the Water Lilies, which he had recently studied very closely at Kew, and with the water-weeds allied to our *Anacharis Alsinastrum*, which is now so common in our streams, and which he pronounces to be nothing more than *Elodea Canadensis*, Michaux, or rather Richard, he adds:—"Being occupied by these things, my investigations of the Potato disease do not make any progress. But this year has been very remarkable as regards this disease. The Potato fungus did not appear until the beginning of August, and as we had scarcely any rain it did not prosper at all, but made only a few scattered spots on the leaves; scarcely any on the stalks, so we had the rare and extraordinary sight that even still in October the foliage of the Potato was green, a thing never seen since 1845. The tubers were nearly all perfectly healthy, and continue to be so still. The more I have been struck to read in *Galignani's Messenger* that in Ireland, Scotland, and England nearly the whole crop has been lost and the Potatoes either rotted in the ground or a few days after they had been taken out of the ground. Not having yet seen the *Gardeners' Chronicle* of this year, I do not know whether this account is true or not." *M. J. B.*

Blue Hydrangeas.—I have another recipe for blue Hydrangeas. They won't keep blue without yellow clay, so a neighbour tells me. I shall try it, and then report progress. I am no chemist, but yellow clay contains much oxide of iron. But pink or blue, the delicacy of those grown in deep peat is infinitely greater than those grown in common earth. *Somerset.*

Coal Clubs.—I should be grateful for the assistance of any of your correspondents who would communicate to me the rules of any of these clubs which have been found to work well, with any alterations they could suggest for further improvement. An annual rental of about 60*l.* in an agricultural parish has lately been restored to its proper use of providing the poor with fuel. This sum is not sufficient to furnish fuel to all the claimants the whole year round, but it may, I am certain, be made to produce a very great amount of good, if the poor can be induced to lay by their money in the spring, summer, and autumn, and avail themselves of the advantages of purchasing from the merchant at the summer prices, as well as if the manager has skill in making a bargain. If your correspondents will give me their best advice and experience, I will use my best exertions to carry the thing out for the comfort and independence of the labourers. *Binham Priory.*

Cockchafer, Melolontha.—A lawn in one of the colleges is infested by the larvæ of Melolontha. How can they be got rid of? Rooks will not come to the place owing to its publicity. *C. C. B.* [Then you will have to dig up the lawn, pick out the grubs, and relay it. There is no other remedy.]

Aralia papyrifera.—There is a fine plant of this magnificent species now coming into flower in Mr. Glendinning's nursery at Turnham Green. Its immense downy panicle has expanded, the woolly scales that cover it begin to separate, and flowers are forming. Is there any other instance of this plant having blossomed, except the specimen that did so, imperfectly, at Kew in December, 1855, and from which the figure in the Botanical Magazine was taken. *A.*

Jusquiamus, Henbane, together with a few Remarks on Wearing out of Races.—In a recent Number of your Paper an ancient recipe for an anæsthetic for surgical operations was given containing, among other narcotics, the seeds Jusquiami. This plant the editor rightly conjectured to be the Henbane. Indeed if the word be printed I-us-qui-amus, one may easily see how it has been corrupted from Hy-os-cy-amus, the Latin name of the Henbane. But I am able to give an additional proof of the identity of the two names. I have recently been favoured with a copy of the very curious collection of Mediæval Vocabularies, which by the discerning public spirit of Joseph Mayer, Esq., F.S.A, has been printed at his expense, and edited by Thos. Wright, Esq., F.S.A. In a vocabulary of the names of plants (date 1265), in which the Latin names are generally accompanied by Norman-French and English translations, the following occurs (P. 141, Col. b.), "Jusquiamus, chenille, hennebone;" and in the Pictorial Vocabulary (date 15th century), p. 265, col. b, "Hic jusquiamus, An^ce a hennebane." The same interesting volume contains a passage bearing on another subject recently discussed by you, namely, "The wearing out of races." At p. 192, col. b of the English Vocabulary (15th century) is "Hic volemum. A^ce permayne." To this the diligence of the editor has subjoined a note, showing that Drayton considered it a modern importation into our island—

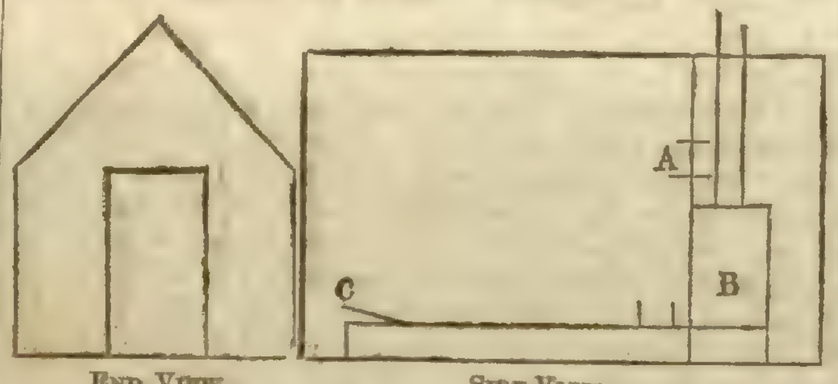
"The Pearemaine which to France long ere to us was knowne,
Which careful frut'rers now have denizend our owne."
Polyolb: Song xviii.

Now in the Rotuli Hundredorum (a record of the 2d year of King Edward I.), vol. 1, p. 509, we are told that King Henry I. gave the manor of Runham, Norfolk, to Alice Evermue for the annual payment of a tierce of wine and 200 Pearmains, "ducentorum permannorum." If the Pearmains were grown in the parish, and supposing Drayton to be right in stating that the variety had in his time been introduced, it would seem a similar instance to the Ribston Pippin mentioned by you as acquiring renewed vigour in France. But if the Pearmains, as well as the wine, were imported, then the variety must have been known in France some 300 years, and then introduced into England, and continued another 300; a tolerable proof in either case that races do not wear out. In the volume before mentioned is much curious information on the subject of plants and trees, which I have no doubt will be interesting to your readers, and with your permission, on a future occasion, I may send you some further extracts, *E. G., Runham Vicarage.* [We are sure that our readers would be much obliged by further communications.]

Gas Heating.—An amateur, a friend of mine in Cornwall, who is very fond of plants, has for years heated by gas. Some time ago, while speaking to me, he dwelt with satisfaction upon the pleasure which he derived from attendance upon his plants; his mode of management, and care bestowed upon them. I replied, "Yes, that is all very well; I can fully enter into your feelings as regards the pleasure derived from seeing them growing, but I apprehend you are keeping studiedly out of sight all about your visits to the coal fires in winter, and the danger which you sometimes run in not being able to give them their requisite and regular warmth." His ready answer was, "Oh! that never gave him any trouble, as he always heated with gas and could produce any temperature suitable for his purpose by merely turning on or off, as the case might be, the gas under the boiler." One house so heated is span-roofed, and to the best of my recollection is over 40 feet long and nearly 20 feet wide. This is only one instance of the practical application of gas to heating. *G. Dawson, Fulham Nursery.*

Large Citron.—I am desired by Lord Emlyn to forward you the accompanying Citron, and to inquire if it be an unusual occurrence for the same tree to produce in different seasons fruit of a globular, and at others of an oval form. The one sent is part of an abundant crop, many of which weighed 3 lbs., produced on a tree 4 years old, growing on the back wall of a lean-to Vinery, which had fruit of the oval form as well as of the globular this year, this being the first season it has shown a disposition to produce fruit of different forms. Last season the crop was abundant and fine, of the oval form, a specimen of which I sent you, with an account of the treatment the tree received, a part of which statement you noticed in your columns. Should you deem any further particulars necessary I shall be happy to forward them. *John Hill, Golden Grove, Llandilo.* [The beautiful fruit sent weighed 3 lbs. 7 oz., and measured one way 23 inches, and the other 22 inches in circumference. We were not aware of the changes in form to which it appears that the Citron is subject.]

Cheap Vineries.—I was like your correspondent "J. B." in one of your late Papers much taken with "Vigneron's" cheap Vinery, and was contemplating making one on that principle, but what Mr. J. Ellis said on the subject damped my ardour, which was in some measure restored by what you said to him; but your advice to "J. B." made me pause again, as the climate here in the summer is not so favourable to grow Grapes without fire heat as the locality where "Vigneron's" cheap Vinery is situated. Reading the Vine growing at Trentham, I collect from it that the house there recommended should in the place of a lean-to roof have a ridge and furrow or a ridge roof; and if it should be proved that Grapes cannot be grown without fire heat, why not adopt the Polmaise system? The following is a very plain and simple way:—



END VIEW. SIDE VIEW.
A Heated air enters. B Stove. C Air valve. | | Valve.

I have observed in your Paper that the great difficulty is in preventing the gas coming through the iron plate, on account of its cracking; but there is a new sort of iron called Howell's patent homogeneous boiler-plate metal; it is nearly as tough as copper, and will last three times as long as iron; it is a very mild steel; the British Government is adopting it in the steam navy, and it can be procured from Messrs. Harvey & Co., 12, Haymarket, London. I am not certain that my plan has been proposed before—the air going direct to feed the stove, and it can be regulated by the air-valve; if the air is not required to go through the fire it can be sent up through the chimney, and this can regulate the draught. *Isle of Man.* [Incomplete as this plan is we print it because it conveys an idea.]

Rose Stocks.—Your two last Numbers have contained many valuable hints on this subject. On one point however young Rose amateurs are greatly in want of advice, and that is as to the proper management of the Dog-rose stock, so as to prevent the destruction of buds by the dying down of the wood above them. I have seen Roses from the nurseries of many respectable growers, and have always found that in many of them the stock on the side opposed to the top bud has died back below it, and in some cases to the depth of 2 or 3 inches. I have now some plants just sent me from a very respectable nursery, in this condition, and I am anxious to know if the dead wood should be at once cut clean out—and whether that, notwithstanding the operation, will have the effect of converting the top of the stock into a long wedge—and if this should be done how is this long, deep wound to be treated to induce the bark to grow over it? Would there be any objection to my covering the place with a thick coat of paint, or grafting wax, which would at all events protect it from wet, and perhaps act as a kind of artificial bark. As a mode of prevention, I have thought that if one or two shoots were left on the top of the stock, above the shoots selected for budding on, instead of cutting all the shoots away except the latter (which is usually done), such top shoots although constantly pinched back would have the effect of keeping the stock above the buds alive and healthy, and when the heading down in May (which is I understand the proper time) takes place, there would, perhaps, be a better chance for the bark's closing over the wound, and a perfect head formed. There is one other subject on which the gardeners I have consulted greatly differ, namely, as to the propriety of moving stocks with dormant buds; provided the plants are well rooted is there any objection to its being done? and if not, would this month or February be the better time for such removal? Some information on the above points will oblige *A Bristol Subscriber.*

Orchid Disease.—About three years ago my attention was directed to a premature decline in the health of some Orchids and Anæctochilus then under my care in the west of England, and which from appearances, when compared with the complaints made by various correspondents in your columns, I am led to believe was identical with this so-called malady. All my endeavours to check the advance of this evil were for a time unavailing—a reduced and elevated temperature, superabundant moisture, excessive dryness, and such like measures were resorted to by way of experiments; but, alas, the most beautiful and costly gems day by day got disfigured. At last I was induced to look at the roots; accordingly, with as little delay as possible, I proceeded to disencumber them of all material in which they had been grown, and all the roots were carefully washed in tepid water. I found upon examination of the old material that the Sphagnum which had been used was in such a condition as to cause the failing health of my plants, this was so sour as to be quite nauseous to the smell; on the other hand, when dry this Moss was hard and impenetrable, flaked together, and very difficult to moisten again, consequently its adoption must be fraught with bad results. Repotting was commenced, and in lieu of Sphagnum the common green Hypnum was used, both for Orchids and Anæctochilus; for the latter the Moss was moistened and cut with a pair of scissors into small pieces. Pieces of good fibry peat were rubbed into it, Oak charcoal reduced to powder, and silver sand—these were all well mixed together; in this the Anæctochilus were placed, well secured with a bell-glass, and subjected along with the Orchids to a moist and close genial atmospheric heat. Symptoms of growth both of root and top quickly ensued, and the succeeding year the health of all my plants was so fairly re-established as to excite the attention of all interested in their condition; suffice it to say, that many of those which had been badly affected were among the successful collections exhibited at the West of England and Regent's Park shows in the season of 1856. May I not safely attribute the evil in this case to the ill effects of the Sphagnum, which injured the roots and arrested growth? From the root the disease passed to the leaves, on which were deep brown ulcerous blotches, very unsightly in appearance. *T., The Gardens, Moulton Grange, Northampton.* [This form of disease is, we apprehend, quite distinct from the "spot," alluded to in another column.]

Chrysanthemums.—As some of your correspondents seem to doubt the correctness of the remarks sent by my foreman respecting my Chrysanthemums, I beg to confirm his statement; they have been all he has described them to be. I think your correspondent Mr. Broome never spoke a truer word than when he said, "We London growers are losing our time all through the winter in starting our plants early in October and November." True, when such plants as mine can so easily be grown from cuttings struck in March, it would indeed be both time and labour lost to strike them in October or November. Mr. Broome thinks March-struck cuttings would not do near London, but allow me to say that I have struck them in the neighbourhood of London in April, and the same have been in full flower the beginning of November. He also says Bob, for instance, would struck in March, not be up to the mark in November. I saw this plant last week at Denton Hall, with many others, much past its best. Mr. Brown, the gardener there, informed me that the whole of his plants were struck in April last. *J. Dell, Stoke Rochford.*

Dioscorea Batatas.—Being a successful cultivator of this Yam, perhaps some of your readers may like to have the result of my experience. The weight I planted last spring was 8¼ lbs., cut into sets from 1 to 3 inches in length, according to the size of the roots. I have recently taken up the produce, except a few roots I wish to leave in the ground all winter, and the united length is above 1000 feet and the weight above 300 lbs. The largest portion of them were grown in the natural ground, a strong soil trenched 2 feet deep, resting upon solid clay, which some of the roots had penetrated 4 or 5 inches; the others, grown on a bed of decayed leaves, are fine long roots; but the best sample is from the natural ground. Not 1 in 20 of the roots were broken in getting them up. Our method was to open a trench alongside the first row a few inches deeper than was first trenched; we then undermined each row with a pickaxe, and the earth fell from the roots into the trench, which we threw out, keeping every trench open

to work in till the whole crop was taken up. We thus killed two birds with one stone. Our roots are all out, and the ground is in fine order for the next crop. *John Sibbon, Gardener to R. C. L. Bevan, Esq., Trent Park, East Barnet, Herts.*

Gardeners' Benevolent Institution.—Being a subscriber to this Institution, I have just received a "polling paper," which shows that at the next annual meeting there is to be an election of four pensioners. On looking over the list of candidates, of which there are 17, I see that no fewer than nine have never subscribed one farthing to the funds. Now surely this is very unjust; for very many of the annual subscribers have to struggle hard to spare the sum of one guinea. That effort of course is made by them all in the hope that if their lives are spared they may one day receive the fruits of their labour, but to find that the majority of the candidates for the pension are non-subscribers causes many to despair. If the benefits were confined to subscribers only, it would give general satisfaction to all who are, or ever may be in need of its support. Then it may be asked who can show reason why Susanna Gullett, William Jackson, Martha Gardiner, and William Priest, should not be elected, as they and theirs have subscribed the greatest number of years. *Alpha.*

The Season.—Observing in your last Number a request for the names of plants which have flowered and ripened seeds this year, I inclose a couple of pods of the Asclepias syriaca. The plant has flowered every year since it was planted in 1824, but I never before recollect its producing seed pods. *C. M., Cobham, Dec.* 15.——I have a plant of Aralia japonica, which this year produced an abundance of fine blossoms, and on several of the spikes they were succeeded by small berries, in which were many good seeds, whose small white kernels could be very distinctly seen; there was not, however, a sufficiency of hot weather to bring them quite to perfection. The plant stands quite in the open ground, and the soil is dry and sandy. I gathered last Saturday, December 12, in the neighbourhood of Farnham, two fine bunches of Blackberry blossoms; they were particularly large, and had some green fruit on them of considerable size. This I imagine to be rather an uncommon occurrence. *William Young, Milford, near Godalming.*——There is here an immense crop of very fine acorns on the Ilexes; some of our Bays, too, are loaded with berries, as is the Ruscus racemosus. We also have many plants growing and preparing to flower out of season. Iris alata, Roman double Narcissus, white Hyacinths, Edwardsia chrysophylla, I believe, and Rhododendrons; and Cistus crispus, Oxalis cernua, Erica codonodes in beauty; Azara is covered with flower, Teucrium fruticans, and Lithospermum rosmarinifolium. Our Grapes on Reed espaliers have ripened perfectly this year, and very fine of their sort—white Muscadine, and one I brought from Vienna, called there Burgundy Grape, a good warm tasting black Grape; also Syrian and Lacryma on walls. *S., Dorsetshire.*——I inclose you a sprig of Myrtle and Fuchsia growing now in my garden in a windy situation but with a south aspect about half a mile from the sea. I have not before observed the Myrtle ripen its berries out of doors in England. I have several bushes that have been out for a good many years, and seem perfectly hardy. I observed the narrow-leafed Myrtle in flower this year for the first time. We had hardly any rain this autumn, and the ground now is as dry as possible. There is also a sprig of yellow Jasmine just coming into flower out of doors. *W. Mitchell Dod, F.H.S.*

Mallow Fibre.—The inclosed is a piece of the stem of the White Mallow. From the tenacity of the fibre it would seem available for some useful purpose. Is it so? *J. P.* [The toughness and abundance of this material is well known; but we suspect its cultivation cannot be made to pay, or it would have come into use.]

Societies.

HORTICULTURAL, *Dec.* 15.—Mr. James Veitch, Jun., in the chair. At a special general meeting held this day, the following new Fellows were elected:—

The Hon. Sidney Roper Curzon, Grove House, Tooting.
Sir Matthew Blakiston, Bart., Sandy Brooke Hall, Ashbourn.
Sir James Watts, Abney Hall, Cheadle, near Manchester.
Major-General Edward Studd, Oxton, near Kenton, Devon.
Rev. John Huyshe, Clysthydon Rectory, Collumpton.
Mr. George Clarke, Streatham Place Nursery, Brixton Hill.
Charles R. Jacson, Esq., Barton, near Preston.
Charles Deane, Esq., 61, Lincoln's Inn Fields.
Rev. S. Reynolds Hole, Caunton Manor, Notts.
Charles F. Humbert, Esq., Watford, Herts.
John Grove Seymour, Esq., Odiham, Hants.
Rev. G. W. St. John, Rectory House, Woodstock, Oxon.
Thomas W. Tatton, Esq., Wythenshawe, Northenden.
John Himsworth, Esq., Middleton Hall, near Belford.
Rev. F. Pretyman, Great Carlton, Louth, Lincolnshire.
Miss Cuninghame, Corehouse, Lanark, N.B.
Rev. W. A. Carter, Eton College, Windsor.
Mr. John Keynes, Nurseryman, Salisbury.
Thomas Laxton, Jun., Esq., Stamford.
Samuel Ashton, Esq., Godby Hyde, near Manchester.
Robt. T. Crawshay, Esq., Cyfarthfa Castle, Merthyr Tydvil.

It was announced that at the request of the Council Dr. Lindley would deliver in the first and second weeks of January a course of lectures on Elementary Botany; and that the Christmas holidays had been selected for the purpose in order that Fellows might have the opportunity of bringing their families. (*See Advertisement* in another column.) Attention was directed to a most superb specimen of Orchid cultivation in the form of Cœlogyne plantaginea, brought from the garden of the Lord Bishop of Winchester, at Farnham Castle. Of this a separate notice will be found in another column. The next meeting was announced for February 2, at 2 P.M.

Notices of Books.

Missionary Travels and Researches in South Africa. By D. Livingstone, LL.D. 8vo, Murray, pp. 687, with numerous plates.

There is nothing in the history of geography more marvellous than the travels of Livingstone in Africa. It would not be extravagant to call him the Havelock of explorers. For 16 long years this extraordinary man braved the perils of thirst and hunger, fever and pestilence under a burning sun, amidst ferocious wild animals, and the savage inhabitants of regions never before trod by a European foot. In the character of a missionary he passed year by year from the Cape of Good Hope to beyond the Griquas, beyond the Bechuanas, till his progress was stayed at a place called Kuruman in somewhere about the latitude of the Orange River. After a pause of a few months spent in familiarising himself with the native language he plunged finally into the vast wilderness of Central Africa. First taking a northerly course he struck the great Lake Ngami till then unseen by Europeans, found his way through the very middle of the continent, and at last reached the latitude of Benguela, when bearing gradually to the west he finally arrived at the Portuguese settlement of Loanda on the west coast, broken down by sufferings which none but a frame of iron could have sustained. At this place, in direct communication with Europe, another man would have joyfully relinquished his task and sought to recover health in a salubrious climate. But no; the traveller felt there was a sacred duty to fulfil at any hazard, he had brought a party of Sekeletu's people with him, and found the tribes near the Portuguese settlement so very unfriendly, that it would be altogether impossible for his men to return alone. He therefore resolved to decline the tempting offers of his naval friends, and take back his Makololo companions to their chief, with a view of trying to make a path from his country to the east coast by means of the great river Zambesi or Leeambye.

It was now that his greatest triumph was to be achieved. Two thousand miles of forest, and desert, and mountains, and rivers, all unknown, lay between Loanda where he was and Quilimane on the east coast, to which he had resolved to repair. No one could estimate the peril of such a journey, alone, half disabled by a lion bite, and in the midst of savage nations. But on he went, with a resolute temper and a stout heart bearing up against all the dangers that beset him, and on the 20th May, 1856, finally reached his destination, having been almost four years on the journey from south to west and from west to east.

The narrative of a journey like this, given by an intelligent observer, must necessarily possess the highest interest, and there can be few readers who have not already seen copious notices of it in the daily and weekly papers. We therefore limit our further remarks to a few striking points of Natural History; not the least of which is the author's account of his sensations when in the paws of a lion and literally in the jaws of death. He had fired both barrels into the animal. "I saw the lion's tail erected in anger behind the bush, and, turning to the people, said, 'Stop a little till I load again.' When in the act of ramming down the bullets I heard a shout. Starting, and looking half round, I saw the lion just in the act of springing upon me. I was upon a little height; he caught my shoulder as he sprang, and we both came to the ground below together. Growling horribly close to my ear, he shook me as a terrier dog does a rat. The shock produced a stupor similar to that which seems to be felt by a mouse after the first shake of the cat. It caused a sort of dreaminess, in which there was no sense of pain nor feeling of terror, though quite conscious of all that was happening. It was like what patients partially under the influence of chloroform describe, who see all the operation, but feel not the knife. This singular condition was not the result of any mental process. The shake annihilated fear, and allowed no sense of horror in looking round at the beast. This peculiar state is probably produced in all animals killed by the carnivora; and if so, is a merciful provision by our benevolent Creator for lessening the pain of death."

Of the *Tsetse*, a venomous fly, we have the following extraordinary history. This insect, the *Glossina morsitans*, "is not much larger than the common house-fly, and is nearly of the same brown colour as the common honey-bee; the after part of the body has three or four yellow bars across it; the wings project beyond this part considerably, and it is remarkably alert, avoiding most dexterously all attempts to capture it with the hand, at common temperatures; in the cool of the mornings and evenings it is less agile. Its peculiar buzz when once heard can never be forgotten by the traveller whose means of locomotion are domestic animals; for it is well known that the bite of this poisonous insect is certain death to the ox, horse, and dog. In this journey, though we were not aware of any great number having at any time lighted on our cattle, we lost 43 fine oxen by its bite. We watched the animals carefully, and believe that not a score of flies were ever upon them. A most remarkable feature in the bite of the tsetse is its perfect harmlessness in man and wild animals, and even calves so long as they continue to suck the cows. We never experienced the slightest injury from them ourselves, personally, although we lived two months in their *habitat*, which was in this case as sharply defined as in many others, for the south bank of the Chobe was infested by them, and the northern bank, where our cattle were placed, only 50 yards distant, contained not a single specimen. This was the most remarkable, as we often saw natives carrying over raw meat to the opposite bank with many tsetse settled upon it. The poison does not seem to be injected by a sting, or by ova placed beneath the skin, for when one is allowed to feed freely on the hand, it is seen to insert the middle prong of three portions, into which the proboscis divides, somewhat deeply into the true skin; it then draws it out a little way, and it assumes a crimson colour as the mandibles come into brisk operation. The previously shrunken belly swells out, and if left undisturbed the fly quietly departs when it is full. A slight itching irritation follows, but not more than in the bite of a mosquito. In the ox, this same bite produces no more immediate effects than in man. It does not startle him as the gad-fly does, but a few days afterwards the following symptoms supervene: the eye and nose begin to run, the coat stares as if the animal were cold, a swelling appears under the jaw, and sometimes at the navel; and, though the animal continues to graze, emaciation commences, accompanied with a peculiar flaccidity of the muscles, and this proceeds unchecked until, perhaps months afterwards, purging comes on, and the animal, no longer able to graze, perishes in a state of extreme exhaustion. Those which are in good condition often perish soon after the bite as if affected with staggering and blindness, as if the brain were affected by it. Sudden changes of temperature produced by falls of rain seem to hasten the progress of the complaint; but in general the emaciation goes on uninterruptedly for months, and do what we will, the poor animals perish miserably. When opened, the cellular tissue on the surface of the body beneath the skin is seen to be injected with air, as if a quantity of soap-bubbles were scattered over it, or a dishonest awkward butcher had been trying to make it look fat. The fat is of a greenish-yellow colour and of a oily consistence. All the muscles are flabby, and the heart often so soft that the fingers may be made to meet through it. The lungs and liver partake of the disease. The stomach and bowels are pale and empty, and the gall-bladder is distended with bile. These symptoms seem to indicate what is probably the case, a poison in the blood: the germ of which enters when the proboscis is inserted to draw blood. The poison-germ, contained in a bulb at the root of the proboscis, seems capable, although very minute in quantity, of reproducing itself, for the blood after death by tsetse is very small in quantity, and scarcely stains the hands in dissection. I shall have by and by to mention another insect, which by the same operation produces in the human subject both vomiting and purging. The mule, ass, and goat enjoy the same immunity from the tsetse as man and the game."

Scarcely less surprising is his account of African Melons. "But the most surprising plant of the Desert is the 'Kengwe or Keme' (*Cucumis caffer*), the Water Melon. In years when more than the usual quantity of rain falls, vast tracts of the country are literally covered with these Melons; this was the case annually when the fall of rain was greater than it is now, and the Makololo sent trading parties every year to the lake. It happens commonly once every 10 or 11 years, and for the last three times its occurrence has coincided with an extraordinarily wet season. Then animals of every sort and name, including man, rejoice in the rich supply. The elephant, true lord of the forest, revels in this fruit, and so do the different species of rhinoceros, although naturally so diverse in their choice of pasture. The various kinds of antelope feed on them with equal avidity, and lions, hyænas, jackals, and mice, all seem to know and appreciate the common blessing. These Melons are not, however, all of them eatable; some are sweet, and others so bitter that the whole are named by the Boers the 'Bitter Water-melon.' The natives select them by striking one Melon after another with a hatchet, and applying the tongue to the gashes. They thus readily distinguish between the bitter and sweet. The bitter are deleterious, but the sweet are quite wholesome. This peculiarity of one species of plants bearing both sweet and bitter fruits occurs also in a red eatable Cucumber often met with in the country. It is about 4 inches long, and about 1½ inch in diameter. It is of a bright scarlet colour when ripe. Many are bitter, others quite sweet. Even Melons in a garden may be made bitter by a few bitter Kengwe in the vicinity. The bees convey the pollen from one to the other."

But our exhausted space warns us to break off. Further notice of Dr. Livingstone's narrative must be reserved for future occasions.

Miscellaneous.

Quality of Grapes. The quality of a particular vegetable is not untrequently affected by external influences so that it assumes a different character, which is distinctly imprinted upon the leaves or other parts, and may even to a certain extent be perpetuated. This property for the most part belongs to all organic bodies, and may be observed equally in the animal, as in the vegetable kingdom. The dog is always a dog, but the Newfoundland and the lap dog, the sheep dog and the greyhound, differ from one another in no small degree. The cow is everywhere a cow, but differs in form in every part of the earth in which she is found. Plants being still more dependant upon external influ-

ences than animals (which are restricted to no particular place), exhibit this peculiarity in a very high degree. The varieties of Geranium, Pelargonium, of the Rose and Dahlia, which belong nevertheless to one genus, are unlimited. The difference is often impressed still more markedly upon the fruits which the plants produce. There is, indeed, an identity in the nature of Apple-trees; but any one, however ignorant of botany, can distinguish numerous varieties of this fruit, varieties not only of form and size, but also of colour, taste, and smell. The Vine ranks among those plants which are very dependant (at least in so far as regards the fruit it produces) upon external influences: colour and size, form and taste, aroma and productiveness, vary in this case in so remarkable a manner as might lead one almost to regard the Vine as a peculiar gift of the Creator's bounty. Should the reader wish for an example of the immense variety of Vines, we will only remind him that Chaptal, when Minister of the Interior, caused 1400 different species of Vines to be transplanted out of France alone into the garden of the Luxembourg. The like variety may be observed not only in Grapes which have been grown in different parts of the earth, but even in those produced in the same country, and growing on the same spot. And, indeed, though less strongly marked, we may perceive a like difference even in the Grapes of one Vine. Protect one cluster of Grapes from too great exposure to the action of the sun, and cover it with a bell of dark glass, or with oiled paper, while you leave another exposed, and you will produce a much more finely scented fruit in the former than in the latter. It is not, therefore strange that the Grapes which grow on the sunny side of the Johannisberg should be very superior, as far as the flavour and fragrance of their juice is concerned, to those produced on the opposite side of the mountain; nor that, in general, a hotter and stronger wine is produced in warm regions than in such as are cold or temperate. If we add to this, that the peculiar nature of the soil, its constituents, the influx and drainage of water, the lightness or stiffness of the ground in which the roots spread; that further, the dryness or dampness of the air, and the change or equality of temperature, exercise a well-known influence upon plants and the fruits produced by them, we shall at least have a general idea of the varieties of the juice which constitutes the principal element in these berry-bearing fruits. It is, moreover, sufficiently known that there is a general difference in the colour of Grapes, between black, purple, or red and white; the juice of both is colourless, and colourless wine can therefore be obtained from both. If the black, purple, or red Grapes are pressed, and the skins thrown aside, a colourless wine, which in substance equals that procured from the juice of the white Grape, is obtained by fermentation. I say, substantially, for the variety in the juices, which even a slight difference in the external influences occasions, would effectually prevent the one fermented liquid from equalling the other in flavour and aroma. Or is it perhaps that the heat of the sun penetrates more thoroughly the purple Grape, while its dark skin partially preserves it from the action of light? Is then the same chemical action possible to the juice of the purple Grape (enclosed as it were in a small bladder) as that which is produced in the juice of the white Grape by the difference between these two powerful influences, heat and light? We know that in our regions the white Grapes are much sweeter than the purple, and ascribe this peculiarity to the difference of the plants, but forget that in the easier passage of the light through the colourless skin of the white Grape we possess a sufficient explanation of a more powerful chemical action, the result of which may be a larger formation of sugar. And if we generally find the purple Grapes inferior in flavour and smell, we must ascribe this circumstance to heat, which in this case penetrates more easily the skin of the Grape, and which in all living things is a powerful means of exciting chemical action. *Mulder on Wine.* [The reader will find upon referring to p. 839 that we are unable to assent to all these statements.]

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

CONSERVATORY, &c.—Attend carefully to specimen hard-wooded plants, which it may be necessary to winter in this house; many of these are impatient of fire heat and a confined atmosphere. Use no more artificial warmth, therefore, than is absolutely necessary, and endeavour to counteract its drying effects either by means of evaporating pans, or by sprinkling the borders, &c., in order to prevent anything like a dry parched state of the atmosphere. It is in many cases difficult to maintain a sufficiently moist atmosphere without causing drip, as the moisture in the house gets condensed upon the glass, and unless provision is made by means of inside gutters and pipes to catch the condensed moisture and carry it off, it is nearly impossible during frosty weather to preserve the beauty of the flowers for any length of time; and in cases where there is no provision made against this kind of moisture falling upon the plants, the temperature should be kept as low as may be consistent with safety, avoiding moisture in the atmosphere as far as possible whenever the glass is affected by frost. Plants in cold pits that may have been excluded from light and air for a few days must not be too suddenly uncovered; on the contrary, they should be very gradually inured to exposure. Take advantage, however, of mild days to give air freely and keep the plants very sparingly supplied with water at the root so as to prevent the production of weakly sappy wood. Look frequently over anything subject to the attacks of mildew, apply sulphur the moment this pest makes its appearance, and see that everything is perfectly free from insects. If there is any prospect of a scarcity of bloom next May, a portion of the Achimenes and Gloxinias should be repotted at once and placed in a warm part of the stove, choosing such as have been the longest at rest; and a few Clerodendrons, Allamandas, a plant or two of Echites splendens and Dipladenia crassinoda, may also be started for the same purpose.

FORCING DEPARTMENT.

PINERIES.—The supply of ripe fruit from May until August being usually obtained from plants that start into fruit without making growth in spring, a fair proportion of the stock should therefore be in a well matured state by or shortly after this season, and any sudden changes of temperature which might induce too many of them to show fruit at once should be carefully avoided. That portion of the stock expected to furnish the autumn supply of fruit should not be too much checked at present, indeed these may be kept growing slowly all the winter, which is perhaps the most certain method of preventing their fruiting too early in spring. Where the stock of plants likely to fruit without making farther growth is considered insufficient to meet the demand until August, the stronger plants of those for autumn fruiting should be encouraged to make growth as early as can be done without weakening the foliage, with the view of preparing them for showing fruit in April. Examine the soil occasionally about young stock growing in the open bed, and do not allow it to become unhealthily dry, for this would probably result in a great portion of the stock showed fruit prematurely, and it is also a work of some difficulty properly to moisten the bed if it is once allowed to get too much dried up. Use no more fire-heat for the present than will suffice to maintain the requisite temperature, which, for the general stock, need not be high for some time yet. VINERIES.—As soon as the buds in the early house are fairly started the temperature should be increased to 60° at night and 65° by day, allowing it to rise 10° on bright days. Take every opportunity of admitting a little fresh air, but recollect that the foliage will not bear exposure to cold drying winds, therefore air should be admitted in contact with the heating apparatus, and when it may be necessary to give back air the sashes or ventilators must be opened but very little, and if pieces of netting could be nailed over the openings this would greatly assist in preventing cold currents blowing into the house. Where the border cannot be warmed, see that it is well protected from wet, &c., by a thick covering of dry litter, or whatever more efficient covering can be recommended. Look over ripe Grapes often, removing any decaying berries, and aim at securing a dry atmosphere with the least possible application of fire-heat. PEACHES.—Until the trees are fairly on the move do not keep the night temperature higher than from 40° to 45° by means of fire-heat; but an advance of 10° early in the day, with plenty of moisture in the atmosphere, should be secured. Syringe the trees frequently, and secure a thoroughly moist atmosphere. Also see that the inside border is in a moist, healthy state, and if this is not the case, two or three applications of tepid water should be given. It is becoming very much the order of the day to have Peach trees and most other things which are wanted for very early forcing in pots; and this plan offers the advantage of being able to afford the roots a mild regular bottom-heat, which is of the greatest importance in early forcing, and excellent crops are thus obtained. But the trees must be prepared for this purpose by having been grown some time in pots; and where these are not at hand, unless they can be purchased from the nurserymen who prepare them, nothing can be done this season except to procure and pot the trees, and prepare them for next year. STRAWBERRIES.—Where ripe fruit is wanted early, a portion of the most promising plants should now be selected and placed in a pit where they can be afforded a gentle bottom-heat; or if this cannot be commanded, a Peach-house or Vinery which has just been closed for forcing will do. They must, however, be kept close to the glass, for they require all the light that can possibly be afforded them at this season, and a free admission of air on mild days, with a low temperature until the fruit is fairly set, and if these conditions can be combined with bottom-heat, success will be more certain than under any other circumstances, and this will be more easily done in a small pit than in a house, the temperature of which must be regulated to suit other things.

FLOWER GARDEN AND SHRUBBERIES.

If not already done, get all borders neatly trimmed up for the winter; in doing this, places intended for Hollyhocks, Dahlias, &c., next summer should be prepared by deep digging and working in plenty of good rotten manure; there is generally as much time to spare now for that kind of work as at planting time. See that coarse growing plants which may be encroaching upon their weaker neighbours are reduced so as to occupy their proper places. Valuable plants, as variegated Hollies, Rhododendrons, &c., if not growing as freely as it is desirable that they should do, would be benefited by a liberal allowance of rotten manure or well-decayed leaf soil applied as a top-dressing, covering it with a little fine soil, and working it into the ground around the ball towards the extremities of the roots. But Rhododendrons, and what are generally termed American plants, bear removal so well that these where not growing satisfactorily should be taken up, the ground well prepared by a liberal addition of peat or leaf soil, and replanted. Continue to give careful attention to half hardy plants in cold frames, taking advantage of every favourable opportunity to expose them freely to air. Anything of which there is but a spare supply of plants to propagate from should be placed in growing quarters at once, taking care to keep them near the glass and free from insects, mildew, &c., for soft-wooded plants in heat at this season are very subject to the attacks of insects.

HARDY FRUIT AND KITCHEN GARDEN

Do not let Pears get overripe before being used; also look over the whole stock as often as time can be spared, removing any fruit that exhibit symptoms of decay, and put them aside for immediate use. Any of the choicer varieties of Pears that do not ripen properly in the fruit room should be removed to a warm dry room for a few days, which will be found to greatly improve them. Keep all fruit as cool and dry as possible; if frost is excluded from the house, it can scarcely be too cool where the object is to preserve fruit plump and sound as long as possible. Push forward pruning, nailing, tying espalier trees, and such like tedious operations as fast as the weather and circumstances will admit. Get manure wheeled upon vacant ground when the weather is frosty and this can be done without injuring the walks, and get all spare ground turned up as soon as possible, so as to expose it to the action of the weather. For land that has been long cropped with vegetables a dressing of fresh loam would in many cases be preferable to manure, and where this is wanted and can be obtained it should be got to hand, in order that advantage may be taken of frosty days for wheeling it upon the ground. Where fresh soil cannot be obtained, charred vegetable refuse, such as prunings of shrubberies, edgings of walks, and many things which turn up in course of the season, may be cheaply made to form an excellent substitute.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the week ending Dec. 17, 1857, as observed at the Horticultural Gardens.

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temp. of the Air. Min.	Temp. of the Air. Mean	Temp. of the Earth. 1 foot deep.	Temp. of the Earth. 2 feet deep.	Wind	Rain.
Friday 11	25	30.548	30.470	49	27	38.0	48½	48½	S.W.	.00
Satur. 12	26	30.637	30.601	50	39	44.5	48½	48	S.W.	.00
Sunday 13	27	30.595	30.429	43	37	40.0	48	48	S.W.	.00
Mon. 14	28	30.362	30.140	52	40	46.0	48	48	S.W.	.00
Tues. 15	29	30.123	30.071	50	45	47.5	48	48	S.W.	.00
Wed. 16	●	30.078	30.034	54	43	48.5	49	48	S.W.	.10
Thurs. 17	1	30.131	30.089	57	48	52.5	49½	48	S.	.04
Average..		30.353	30.262	50.7	39.8	45.2	48.5	48.1		.4

Dec. 11—Low fog, clear above; fine; overcast; slight frost.
— 12—Uniformly overcast throughout.
— 13—Overcast; cloudy; overcast.
— 14—Uniformly overcast; fine; overcast.
— 15—Hazy clouds; densely clouded; overcast.
— 16—Fine; cloudy; lightning in the evening; rain.
— 17—Fine; clouds tinged with red; rain occasionally; clear.
Mean temperature of the week 5 deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Dec. 26, 1857.

Dec.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 20	44.4	33.7	39.1	11	0.76 in.	2	7	2	2	9	5	2	2
Mon. 21	43.1	33.4	38.3	11	0.20	—	7	3	1	2	11	3	4
Tues. 22	44.9	32.9	38.9	16	0.37	3	5	3	1	2	8	6	3
Wed. 23	43.7	32.1	37.9	16	1.13	5	7	2	2	1	9	1	4
Thurs. 24	43.7	31.7	37.7	13	0.30	3	4	3	2	1	12	2	4
Friday 25	43.0	28.7	35.8	7	0.22	2	7	3	—	2	8	6	3
Satur. 26	42.3	31.9	37.3	11	0.39	2	4	3	4	4	9	2	

The highest temperature during the above period occurred on the 25th, 1827—therm. 68 deg.; and the lowest on the 22d, 1855—therm. 9 deg.

Notices to Correspondents.

BOOKS: *X M.* Selby's British Forest Trees.

CHICORY: *Amateur.* Treat it as you would Endive; blanch it by placing flower pots over it, closing up the hole in the bottom either with a piece of tile or clay. Take care however not to keep it so close as to induce it to rot or damp off.‡

CUCUMBERS: *Somerset.* You should pinch off the top of the plant, but you must also pinch in the laterals as well, or the plants will run too much to wood and produce little fruit.‡

HEDGEHOGS: *Twickenham.* They are perfectly harmless; they do not suck cows.

NAMES OF PLANTS.—We have been so often obliged to reluctantly decline naming heaps of dried or other plants, that we venture to request our correspondents to recollect that we never have or could have undertaken an unlimited duty of this kind. Young gardeners, to whom these remarks more especially apply, should bear in mind that, before applying to us for assistance, they should exhaust their other means of gaining information. We cannot save them the trouble of examining and thinking for themselves; nor would it be desirable if we could. All we can do is to *help* them—and that most willingly. It is now requested that, in future, not more than four plants may be sent us at one time.—*W S.* 1, Physalis Alkekengi, the common winter Cherry, not poisonous; 2, Helleborus fœtidus, a poison; 3, Plantago Coronopus.

SORGHUM: *James Sinclair.* This is the Holcus saccharatus so frequently mentioned in our columns. It is perfectly hardy during our summers, but will not bear frost. It can only be grown as a summer crop for the sake of the stems, which are extremely rich in sugar; the juice is said to be among the best for fermentation and distillation; its fibre, remaining after pressure, ought to be good as cattle food, or as a material for paper.

MISC.: *An Old Subscriber.* The Horticultural Society has not hitherto published any catalogue of plants for distribution, the kinds fit for that purpose being so continually varied that what is distributable in one month may be exhausted in another. Information upon this subject can however be always obtained by application to the Garden Superintendent —*F J.* The bulbs you mention were rightly placed in a Pine stove, and you cannot do better than replace them there as soon as possible. The only thing to be guarded against is their growing before the proper time, but that is not likely to happen so long as you keep them dry. As regards your other question they are probably spoiled. If not, the best way of bleaching them is to put them in a covered barrel and subject them to the fumes of burning brimstone.‡

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

ARTIFICIAL MANURES, &c.—Manufacturers and others engaged in making ARTIFICIAL MANURES may obtain every necessary instruction for their economical and efficient preparation, by applying to J. C. NESBIT, F.G.S., &c., Principal of the Agricultural and Chemical College, Kennington, London. Analyses of Soils, Guanos, Superphosphates of Lime, Coprolites, &c., and Assays of Gold, Silver, and other Minerals are executed with accuracy and despatch. Gentlemen desirous of receiving instruction in Chemical Analyses and Assaying, will find ample facility and accommodation at the College.

THE FOLLOWING MANURES are manufactured at Mr. LAWES' Factory, Deptford Creek: Turnip Manure, 7*l.* per ton; Superphosphate of Lime, 7*l.*; Sulphuric Acid and Coprolites, 0*l.*—Office, 1, Adelaide Place, London Bridge.

N.B Genuine Peruvian Guano, guaranteed to contain 16 per cent. of ammonia. Nitrate of Soda, Sulphate of Ammonia, and other Chemical Manures.

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Now ready for delivery—
CORN MANURE FOR AUTUMN SOWING.
BLOOD MANURE do. do.
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The London Manure Company also supply genuine PERUVIAN GUANO (direct from the Importers' warehouses), SULPHATE OF AMMONIA, NITRATE OF SODA, and every Artificial Manure of known value.

Circulars, containing Price Lists, Analyses, and Testimonials, may be obtained at the Company's Offices, 40, Bridge Street, Blackfriars, London, E.C. EDWARD PURSER, Sec.

HIGGS'S PATENT.

TOTTENHAM SEWAGE GUANO.—This well approved Fertiliser is now ready for delivery from the Works, Page Green, Tottenham, Middlesex, in bags at 4*l.* 10*s.* per ton; or may be had of the principal Seedsmen at 6*s.* per cwt. or 9*d.* per packet. Testimonials and analysis upon application.

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WILLIAM HOWDEN, Secretary.
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for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.
GALVANISED IRON SWING WATER BARROWS
for Garden or Farm use, 32*s.* 6*d.* each.

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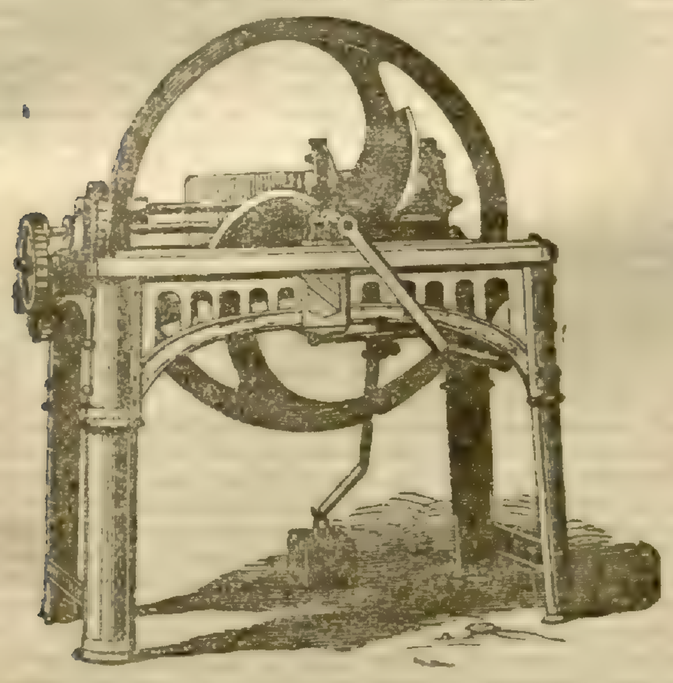

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BARN AND CATTLE-SHED FLOORS.

THOSE who would enjoy their Gardens during the winter months should construct their walks of PORTLAND CEMENT CONCRETE, which are formed thus:—Screen the gravel of which the path is at present made from the loam which is mixed with it, and to six parts of clean gravel add three parts of sharp river, brook, or road sand, then add one part by measure of Portland Cement, and incorporate the whole well in a dry state before applying the water. It may then be laid on 2 inches thick. Any labourer can mix and spread it. No tool is required beyond the spade, and in 48 hours it becomes as hard as a rock. Vegetation cannot grow through or upon it, and it resists the action of the severest frost. It is necessary, as water does not soak through it, to give a fall from the middle of the path towards the sides. The same preparation makes first-rate paving for BARNS, CATTLE-SHEDS, FARM-YARDS, & all other situations where a clean hard bottom is a desideratum. May be laid in winter equally well as in summer.

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"FRIGI DOMO."—Patronised by her Majesty the Queen, the Duke of Northumberland for Syon House, his Grace the Duke of Devonshire for Chiswick Gardens, Professor Lindley for the Horticultural Society, Sir Joseph Paxton for the Crystal Palace, Royal Zoological Society, late Mrs. Lawrence, of Ealing Park, and — Collier, Esq., of Dartford.

"FRIGI DOMO," a Canvas made of patent prepared Hair and Wool, a perfect non-conductor of Heat and Cold, keeping wherever it is applied a fixed temperature. It is adapted for all Horticultural and Floricultural purposes, for preserving Fruits and Flowers from the scorching rays of the sun, from wind, from attacks of insects, and from morning frosts. To be had in any required length, 2 yards wide, at 1*s.* 8*d.* per yard run, of ELISHA THOMAS ARCHER, whole and sole manufacturer, 7, Trinity Lane, Cannon Street, City; and of all Nurserymen and Seedsmen throughout the kingdom. "It is much cheaper than mats as a covering."

From Sir Watkin W. Wynn's Gardener.

"I have just laid out about 14,000 plants, and keep the greater part under your 'Frigi Domo,' and have done so for the last three or four years; and every one who sees my plants is astonished to see how healthy and well they are without the use of glass." These observation accompanied an additional order.—Oct. 22, 1856.

THE GENERAL LAND DRAINAGE and IMPROVEMENT COMPANY; Offices, 52, Parliament Street.
HENRY KER SEYMER, Esq., M.P., Chairman

1. This Company is incorporated by Act of Parliament to facilitate the Drainage of Land, the Making of Roads, the Erection of Farm Buildings, and other Improvements on all descriptions of Property, whether held in fee, or under entail, mortgage, in trust, or as ecclesiastical, or Collegiate Property.

2. In no case is any investigation of Title necessary.

3. The Works may be designed and executed by the Landowner or his Agents, independently of the Company's officers, or he may elect whether he will employ their staff. Equal facilities will be afforded in either case.

4. The whole cost of the works and expenses may, in all cases, be charged on the Lands improved, to be repaid by half-yearly instalments.

5. The term of such charge may be fixed by the Landowner, and extended to 50 years for Land Improvements, and 31 years for Farm Buildings, whereby the instalments will be kept within such a fair per centage as the occupiers of the improved Lands can afford to pay. WILLIAM CLIFFORD, Secretary.

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COLLEGE OF AGRICULTURE AND CHEMISTRY, AND OF PRACTICAL and GENERAL SCIENCE, 37 and 38, Lower Kennington Lane, Kennington, near London.
Principal—J. C. NESBIT, F.G.S., F.C.S., &c.

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Analyses and Assays of every description are promptly and accurately executed at the College. The terms and other particulars may be had on application to the Principal.

Mr. NESBIT is prepared to make engagements to deliver in the country a limited number of Lectures on Agricultural Chemistry during the next twelvemonth.

The Agricultural Gazette.
SATURDAY, DECEMBER 19, 1857.

WE have already commented upon the showing of roots as part of the exhibitions at our agricultural gatherings; and as we have just been reminded by the recurrence of our country meetings of the inutility of root showing upon the principles at present recognised in the bestowment of prizes, a few remarks upon this important subject may not be altogether devoid of interest.

We take it for granted at starting that the object of instituting prizes, whether for cattle or for the roots upon which cattle are fed, is in either case to encourage their best development, not only in one but in all the important points of size, form, constitution, and growth. In no case would an ox gain a prize for mere bulk, but other points would at the same time receive their due share of attention; and though it is quite true that a root is not so important as an animal, yet root growth is scarcely less so; and as good points in the parents of an animal result in a well bred progeny, so is it with plants. The latter are the food of the former, and attention to good plant growth must, therefore, exert considerable influence on the profits of the feeder.

If however we take the trouble to look in upon our seedsman at this time of the year, we see no small portion of the shop filled up with huge distorted roots with some fabulous weight affixed to them: these are produced from the seed of the establishment, but if we inquire deeper into their history, we find out that they have usually been grown in the garden, probably from plants reared early in the greenhouse, and then transplanted into rich well-prepared soil. By this means large size is attained, especially with Mangel Wurzel, but the roots are by no means symmetrical in form, and they are much fingered, whilst the heads contain buds innumerable. However, the first defect is hidden by a little trimming, and the second is usually not taken much notice of, and size, and that alone, becomes the point of admiration.

These monsters of the seedsman's shop are sometimes pointed out to us as having been grown by a farmer from seed supplied at the establishment, and such are the specimens which find their way to agricultural shows, but wherever they are from, they afford no just criterion of a root crop, as to goodness and value, nor do they encourage the growth of a better breed unless the prize be awarded with strict reference to form.

It is true that provision is made in prize schedules as to the quantity of ground from which they must be drawn. Thus, to quote from the prize list of the Gloucester Agricultural Society, we have the following:—

"For the 12 best Swede Turnips drawn from a field of not less than 4 acres.

"For the 12 best Mangel Wurzel, drawn from a patch of not less than 1 acre.

"For the 12 best Carrots, drawn from a patch of not less than one acre."

But notwithstanding these provisions, the show plants mostly come from a patch a bit better done than ordinarily, or where the manure heap has stood, which latter notion might lead to the inference that by more liberal treatment all over a field the whole crop might be equally good; but without questioning whether this might or might not be, it is a fair question—whether encouragement is given to root growth by attention to size alone. At horticultural shows the judges usually cut the roots to examine their texture before deciding about the prize; but who ever heard of Turnips being so examined at an agricultural show? An instrument has been invented for ascertaining their specific gravity—a point of no mean importance—but we have never heard of shew roots being subjected to this test. Awards are usually made upon wrong principles—a matter much to be regretted, as a good show of roots, where all the important matters connected with their growth have been well attended to, may be made both interesting and instructive, and would, we think, tend greatly to encourage a permanent improvement, because diffusing a greater knowledge of the subject. As a means then of ascertaining the best roots and thus of awarding the prizes upon what we consider proper principles, we would suggest the following system to be attended to in the examination of roots, and marks to be given for each point in accordance with the following plan:—

a. Size *b.* Form *c.* Specific gravity *d.* Solidity *e.* Pureness of sort	A maximum of (say) 20 marks for each.

These to be plus marks.

Whilst the following points should subtract from the good marks:—

a. Branched or forked roots, finger and toed *b.* Leafiness *c.* Neckiness	A maximum of 20 marks for each.

These to be minus marks.

By observing some rules founded upon this system we cannot help thinking that the awards would be more respected, and thus roots would be more shown, and the right sort of encouragement given to their growth.

But however much we may wish to see roots shown at agricultural shows, we cannot after all but think that prizes for root cultivation would be best bestowed upon whole fields. Fields of not less than 5 acres should enter into the competition, but in this case pureness of sort should always be looked to. Nothing is of greater consequence than this, as if farmers agree that trueness of seed should be a *sine quâ non* in competitive Turnip culture, seedsmen will be more particular upon this point than they are now: and nothing can be more perplexing, or often tending to great loss, than want of trueness to sort.

In reference to this subject, it would be well here to state that not only can trueness of sort be best ascertained in the field but permanency also, which is another very important element in root growth. Again, neckiness, leafiness, multiplication of buds, all being so many evidences of degeneracy, naturally lead to the inference of forked and irregular roots, which is the usual accompaniment of irregular growth of the top, and this important element can readily be examined in the field by pulling a few of the suspected roots. We conclude, therefore, that judges of roots should be well acquainted with their growth and structure, and that all points connected therewith should be taken into consideration, as the size of a few examples from a crop is no criterion of the whole,

and even these as specimens may be very defective if only bulk be taken into consideration.

THE report of the Council to the half-yearly meeting of the English Agricultural Society last week will be found in another page.

It will be seen that during the past year nearly 200 additional members have become subscribers to the association. This is the first satisfactory circumstance adverted to: the character of the Salisbury meeting and the prospects of the Chester meeting are the other topics on which the members are congratulated. They are informed of the resignation of Professor WAY, as chemist of the Society, and of the existence of the report which Professor SIMONDS had been commissioned to prepare on the character of the Steppe murrain. These together formed the subject matter of the half-yearly report to the Society. They entirely bear out the remark of one of the speakers during the subsequent discussion that the Society bears fruit but once a year—"they had but one great event in the year, and that was their annual country show."

Several members did good service during the discussion by calling the attention of the Council to the importance of a more immediate and fuller publication of the proceedings at their open meetings.

Professor SIMOND's report upon the fatal cattle disease of the continent has not even yet been published by the Society, though made so many months ago; notwithstanding that it was immediately sent to press by the Highland Society as soon as it was received, and it accordingly appears in full this week in the columns of the *North British Agriculturist.*

The discussion consequent on the reading of the report, while it will, no doubt, have the effect of justifying the past management of the Society in many important matters, must tend to correct it in others for the future. We cannot but hope that greater publicity will be permitted to the proceedings at the Wednesday meetings of the Society, and greater usefulness be thus conferred upon them.

The policy of holding the annual country meeting in the immediate neighbourhood of London must be examined anxiously and long before adoption. It is very probable that an increased annual income might be thus derived, but it is certain that by the annual change of place which has been hitherto the rule most of the important services of the Society to the agriculture of this country have been done.

WE have to acknowledge the receipt from Mr. CHADWICK of a paper on the liquid manure farms of Scotland, written in reply to certain strictures by M. BARRAL on the agricultural reports to the original General Board of Health, by whom those farms were first made publicly and generally known. These strictures were inadvertently quoted at page 813, in a paragraph taken not for the attack which it contained on Mr. CHADWICK, but for the picture which it gave of Mr. TELFER's farm. We are of course exceedingly glad to publish Mr. CHADWICK's reply upon the whole subject, though we are unfortunately hindered by the length of it from laying all of it at once before our readers.

GUIDEWAY STEAM AGRICULTURE.

THE following are some of the remarks of Mr. Halket on this subject at the meeting last week:—

In coming now to the especial topic for the evening, namely, "the large asserted profits to be derived by this system of cultivation," let me state at once the principle upon which I base them. It is simply this; spade labour is often used to cultivate the same crops as horse farming does; spade labour is far more costly than horse farming, and being more costly it must be richer in produce; this is equally true when the same amount of manure in both cases is used. My system of cultivation is performed at a cost, including depreciation of material and the interest for capital, when the work performed is equal in amount and depth of tillage to common farming, at a smaller annual charge than now is required for horse farming: while if I increase the depth of the ploughings and increase the number of hoeings, stirrings, &c., so that the cost of my system is raised to that of common farming, then all that is produced in extra crops is a pure gain of a very considerable amount, for my cultivation has then arrived at a point equal, if not highly superior to spade labour, with only the cost of horse labour.

If I take the usual computations of horse field work, I find that the average is from 2*l.* in country districts to 3*l.* near towns. If I take spade labour, I find that it varies from 5*l.* to 6*l.* per acre, a sum greater by 3*l.* an acre than that due to the horse, and the produce I find is at least 4*l.* more an acre.

In Morton's Encyclopædia, in the article "Capital," there is the comparison between a spade labour farm of 20 acres and a 240-acre horse farm, if I may so call it, both of the same rent, the results of which will be seen by reference to note B. In this example it is right for me to state that the author says that it is requisite that there should be the sale of the crops off the one-third of the land, namely, that which is in Carrots or Potatoes.

If I take other works in testimony, I find that the results mentioned are corroborative of this statement. In the account of spade husbandry in Flanders by the Society for the Diffusion of Useful Knowledge, in allusion to the cultivation of crops purely agricultural, the amount of labour which a man is capable of performing is gone minutely into, and the cost when reduced to English standard arrives at a sum above 5*l.* an acre per annum.

Again, in the Table you have below, marked C, you will perceive results confirmatory of the above; and if we ask the Rev. S. Smith, of Lois-Weedon, what his experience is, we shall find it to be the same, thus—5*l.* 16*s.* per crop when he has two crops upon the same acre, one crop being 24 tons of Mangel Wurzel, and another 16 tons of Carrots, and the amount of cost for labour for 1 acre in the year will be twice 5*l.* 16*s.*, namely, 11*l.* 12*s.* It may be here remarked, that without going into the question of the advantage of cultivating Wheat upon his system, I can with the greatest facility carry out the cultivation upon his principle if deemed advisable, while with the crops above-mentioned, Carrots and Mangels, there can be no objection made to having them in alternate rows, for this is the system common with market gardeners, and it is one which my machine is highly adapted to perform, and which in the case above, where Mr. Smith employs labour at 11*l.* 12*s.* per acre, and yet makes a large profit, I could perform the same at a cost of 1*l.* 10*s.*

The market gardener's labour cost I may also refer to in the case of such crops as they call "rough gardening," for instance, Mangels, Cabbages, Potatoes, &c., of which they grow a large acreage. This labour when done by spade work, together with the cost of carriage of large quantities of manure and very large crops (in which item carriage I make also a great saving), amounts to 8*l.* or 10*l.* per acre; but this labour is not for one crop in the year but for two crops, and the system of double cropping, I must impress upon the minds of my hearers, is one that is highly applicable to my machine.

For authority on these costs among the market field gardeners I may refer to the Penny Cyclopædia, to Arthur Young's volumes, especially the one on Middlesex by Middleton, to Mr. Cuthill's pamphlets, the works of Mr. Cuthbert Johnson, and many others.

(A.)

STEAM PLOUGHING AND HORSE PLOUGHING

Compared theoretically. Ploughing in both cases at the rate of 1 and one-fifth of an acre per hour.

STEAM PLOUGHING.

40 H.P.
× 8 lbs. of coal per hour.

320
× 8 hours

	s.	d.
2560 lbs., or 23 cwt. at 1*s.* per cwt.	23	0
Oil, &c.	2	0
Men { 1	5	0
Men { 1	3	0
	33	0

33*s.* for 8 hours and for 24 acres = 1*s.* 5*d.* per acre.
Or 44*s.* 6*d.* for 12 hours and for 36 acres = 1*s.* 3*d.* per acre.

PLOUGHING BY HORSES.

40 horses, the day's keep at 3*s.*	120*s.*
20 men, at 2*s.*	40*s.*
	160*s.*

160*s.* for 8 hours and for 24 acres = 6*s.* 8*d.* per acre.

(B.)

From "Morton's Encyclopædia of Agriculture," table in article Capital.

Acres.	Rent and taxes.	Labour per acre.	Gross produce per acre.	Remarks.
	s.	£ s. d.	£ s. d.	
240 . ..	40	2 0 0	7 18 0	Rotation,—Wheat, Carrots or Potatoes for soil; green crops for cattle.
20 spade husbandry .	40	5 10 0	12 7 0	
Difference		3 10 0	4 9 0	

(C.)

Extract from the report of the Treasurer to the Industrial Field at Farnley Tyas.

"In three years on a farm of 5 acres of poor land, the sum of 79*l.* 10*s.* has been expended in manual labour alone. The original capital remains undiminished, and a clear profit of 10*l.* 15*s.* has been gained."

This sum, 79*l.* 10*s.* = 5*l.* 6*s.* per acre per annum, and is taken at 2*s.* per day for wages, besides the carriage of manure and cartage of crops, upon which items I also save.

Annual labour = 5*l.* 6*s.*

NOTE.—The only crops in the above cultivation were Oats, Wheat, and Potatoes.

(D.)

Cost of ploughing by actual test.
Hard ground trodden on by workmen 12 months.

Engines.	Steam per inch	Revolutions.	Platform travelling.	Drawing.
Garrett's 6 h. p.	50 lbs.	110	2280 feet	Ploughs
Barret & Exall's 4 h. p.	48 lbs.	110	per hour.	12

This was upon hard ground trodden on by the workmen for a year, and equals 5.7 acres per 12 hours, from which subtract one-tenth for shifting at headlands, which gives 5.2 acres per day. Then 5.2 acres × by 4 = 20.8 acres (say 21 acres) for a 40 horse power locomotive platform. Therefore 21 acres divided by 33, as per statement A, is equal to 1*s.* 7*d.* per acre, the cost of ploughing. Upon ground that has been ploughed some time before, but which had been trodden and rammed down, I have drawn 12 ploughs at the same speed with a pressure of 32 lbs. in the 6 horse power, and 35 lbs. in the 4 horse power.

(E.)

Cost per acre of guideway upon burnt clay ballast, in which angle iron and angle tram bricks are used.

800 feet of tram brick	£3 6 4
Laying down and providing ballast and levelling for tram bricks	3 10 0
Angle iron, 1½ lb. to the foot, and 14*l.* per ton	7 12 0
Bolts	0 12 0
Fitting fish joints	0 10 0
Fishing joints	0 10 0
Punching holes in iron	0 7 0
	£16 12 4
Contingencies at 10 per cent.	1 14 0
	£18 5 4

Cost per acre, 18*l.* 5*s.* 4*d.*

THE LIQUID MANURE FARMS OF SCOTLAND.

BY E. CHADWICK, C.B.

THE *Agricultural Gazette* of the 28th ult. gave currency to a paragraph under the head "Canning Park Farm," containing imputations of misrepresentation, couched by inuendo against myself as well as the first General Board of Health, by M. Barral, the editor of the *Journal d'Agriculture Pratique* of France, and founding upon alleged misrepresentation in an account of that farm, a general allegation of the like misrepresentation as to the applications of liquified manures contained in the official minutes of information on that subject. To the several short imputations contained in that paragraph I must claim the insertion of the requisite explanatory answers.

M. Barral gives his own account of Mr. Telfer's verbal description of his farm, which M. Barral adduces as showing misrepresentation on the following points, in what he calls the official report of the Board of Health:—

"1. The subterranean irrigation system is only applied to half the farm, consequently the cost per acre," he says, "is just double what the Board of Health report states."

"2. No account is taken in the official report of the enormous application of guano, at the rate of 8 and even 16 cwt. per acre. Thus the estimated profits must be reduced by the cost of the guano, about 486*l.* per annum."

Now, if Mr. Barral has himself read the document from which he professes to quote, which, for his sake, I must presume to doubt, he cannot but have been aware that he was not quoting from the report of the Board of Health, but from one of 18 appendices—comprising the accounts and views of his Royal Highness Prince Albert, of M. De Candolle, of Bousingault, an account of the irrigations at Milan by Count Arrivabene, the estimates and plans of different inspectors—not one of whose differing particulars has M. Barral any right to assume, in the absence of a distinct recognition, that the Board adopts more than any other. Incidentally, as illustrating the superior quality of irrigated produce, mention is made that Mr. Telfer obtained 2*d.* per pound more than the current price for his butter, but no estimate is given, nothing is said in the Board's report about his profits, or about the profits of any one else. Whilst in the one account of Mr. Telfer's farm—misquoted as the Board's—that of Mr. Lee (for there is another account given of the same farm by the Hon. Dudley Fortescue), the cost of iron pipes is stated at 2*l.* 10*s.* per acre; in the Board's minutes of information, the cost of "iron pipes and steam power" is stated at 4*l.* 4*s.* per acre—whilst examples of other plans and charges are given from 3*l.* 2*s.* 6*d.* to 6*l.* 5*s.* 5*d.*, with different plans, sizes, and lengths, and the prices of pipes, &c., so as to enable any one to form estimates for himself. Indeed, Mr. Lee's paper contains plans and estimates, as well as accounts of different farms and scales of expenditure, such as would correct any mistake made in one item of account of the particular farm selected from the rest, and unwarrantably held forth as if it were one particularly selected, and presented as a general example in respect to the expense of works. Any important error in the account of this particular farm is due to Mr. Telfer himself, who, I was assured by Mr. Lee, had stated to him, at the time of its publication, that it was in the main correct, and who certainly, in his correspondence with me, never took any exception to it; nor, in the first instance, specified the extensive use of guano or artificial manures, if he did use them extensively at the commencement of his working with the new machinery. It might indeed at that time have been naturally overlooked, for the main question then was not as to the distribution of any one species of manure, but of every species of solid manure, in suspension or in solution in water. The charge against the general Board, couched, by inuendo, against myself, of having ignored the use of guano, and ascribed the whole of the production there to the common farm-yard manure, will be found to be of the same character as the rest of the representations in the paragraph.

If any competent or impartial person will read over the official minutes of information, he will perceive that the main question there treated is, as to the relative economy and efficiency of a new mode of mechanical distribution, in solution or in suspension in water, of solid manures of all sorts, of solid town manures, of solid farm-yard manures, and of guano, as well as diluted urine. By this new machinery, to use the illustration of Mr. P. W. Kennedy, "the land becomes loam, into which we put the raw materials out of which the crop is manufactured;" and it was shown that it was applicable to almost any species of materials, even to mere sands, of which Mr. Telfer's farm furnished an important example. At page 58 of the Board's Minutes, the conditions for the best application of liquified manures are specified, and it is observed that "farmers who have observed none of these conditions in the application of guano, and have laid it on in bright 'windy weather, have had their manure evaporated by the ship-load, and their money blown away. They have then reported that guano did not answer on their land, and so with other manures." The ordinary effects of guano, Mr. Kennedy states, have been doubled by distribution in solution in water at the right times, by the new distributing apparatus, &c.

In respect to Mr. Telfer's farm, I will call the attention of M. Barral to the following passage, from the statement I made at the Congress at Brussels, and republished in England, where it could scarcely have escaped the attention of his informants.

"In answer to some general observations of mine on the great advantage the system of liquified manure farming appeared to me to offer under the climate and soil of France, Mr. Telfer, writing to me in May, 1855, says, 'I am fully alive to the advantages France possesses over this country in temperature, the most important element in vegetable life. With a moderate temperature all that remains to be supplied is manure and moisture, food for the plant in suitable form. This the system of pipeage enables you to furnish in exact accordance with the requirements of the plant. I am satisfied liquid manure could be

successfully applied to grain crops in such a country as France, whereas here, from the uncertainty of the weather at harvest, it is accompanied with greater risk. Had I been favoured last year with dry weather during the time my Wheat crop was ripening, my yield would have been 100 bushels the Scotch acre (1¼ English), 'or upwards of 85 hectolitres the hectare, instead of being confined to a small piece of the field that did not lodge, but on it the average of the field was a high one, 85 bushels. This high average is in some measure to be attributed to the thorough admixture with the soil of the various manures which had been applied in former crops by means of pipes. I am supplying ammonia this season entirely through my pipes, and at one-half the cost I did formerly, as the article can only be used by those who have pipes. I find the supply of manure must be in proportion to your command of moisture, the one being of little use without the other.'

"On this I have to observe that whatsoever may be the remaining risk in England in the cultivation of cereals under this method, it is now proved on various of the new farms to be less than the risk there under the ordinary method. Count Gasparin gives an instance of the production of 70 hectolitres of Wheat per hectare in France, but he gives it as a feat. Lord Kinnaird tells me that he has had as much grown on a farm belonging to him in Scotland, as—a feat. In this feat of Mr. Telfer he used, as I understood from him, in addition to farmyard manure, a large proportion of guano, and his easy advance is due to the new instrument for its distribution in solution as liquified manure; but in other farms, which I think the most important examples, 40 and 45 bushels are given without any foreign or other liquified solid stable dung or diluted stable urine as manure."

Neither would a statement which I made at a meeting held at the Royal Agricultural Society, on the 15th of April, have probably escaped the notice of M. Barral's informant. In the course of that reported statement I observed, "I have visited the farms of forward and successful agricultural improvers during the last year, and the year before, who have put their farms under tolerably complete distributary apparatus, who were still using guano or other artificial manures, whilst they had near the cattle sheds heaps of decomposing dung, which ought not to have been there but in dilution, and incorporated in the soil, and whose liquid manure tanks were stinking with the escape of the products of decomposition, denoting the waste which is preventible by putting the manure in its right place, *i. e.*, the soil. One eminently successful improver is a guano merchant, and is to be excused for displaying to the farmers a liquified application on his farm of the powerful effect of his commodity. Another farm manager has also excusable prepossessions in favour of special manures, which he has been moved to try. But the opinion, evidence, and the particular examples to which I advert, justify the objection which I make to the addition of any imported stimuli by the managers, whilst the farmyard itself presents, in the unused dung and in the products of decomposition evolved from the stagnant contents of the tank, the demonstration of the presence" (and escape) "of unused or misused manure."

On the testimony of horticulturists practically experienced in the application of liquified manures, I felt justified in applying these observations to such management as that of Myer Mill, by Mr. James Kennedy, as well as to the management of Mr. Telfer's farm, in the condition in which they were on the occasion of previous visits. The fact stated by Mr. Mechi, that the state of the water in distant water-courses has denoted the days of his applications of liquid manures, is, I apprehend, a demonstration that he applies it wastefully, and that even he has yet to learn to do justice to the principle by more frequent applications, better adjusted to the absorbent powers of the soil. If Mr. Telfer had intended to make such statements as M. Barral reports, *e.g.*, "the liquid manure is only used to wash in the guano, Mr. Telfer considers that its fertilising powers were very slight;" "Mr. Telfer observed, 'It is only a vehicle for guano; what there is does no harm, but it is quite insignificant;'"—Mr. Telfer would have justified the supposition that he, as the chief salesman of guano, and of the artificial manures used within the district, was exalting the powers of the manures he could sell at the expense of those he could not sell. In accepting and putting forth such testimony, to the effect that the liquified manure of 50 head of cattle was of little or no effect, *presque rien*, when applied to 50 or even to 25 acres, could the editor of the *Journal d'Agriculture Pratique* have been aware of the experience of Belgium and Switzerland as to the powers of such manure? Can he have been aware of the recited experience and expositions of Schwerz, on liquified applications of manure, above all of the expositions of his own great countryman, De Candolle, who was, I believe, the first scientific agriculturist to enunciate the conclusion which I cite in his own terms?—"It is to be desired that the practical use of liquid manure, which serves at one and the same time as manure and for watering, should become more universal and popular in a great part of Europe."

(To be continued.)

Home Correspondence.

Mangel Wurzel.—I beg to give my experience respecting growing Mangel Wurzel. It will be necessary to bear in mind that the crop of this year was grown on a quarter of an acre. There was more than 12 tons on the land; it was ploughed after Wurzel, and ploughed into ridges, and in the spring the land was harrowed down, and then cast into ridges again, and in the month of April 12 cart loads of long manure were put into the ridges and then turned back on to the manure, which I consider preferable to short manure. It tends to keep our strong and cold ground open; our ridges are 24 inches apart, a light roll was then passed over the ridges previous to the seed being dibbled in. They were once hoed, and again in the month of June they were gone over again, and were then thinned, and what vacant places occurred were filled up again in August, when I began to pull the side leaves off, which I consider good, as it gives sun and air to the plant, and the bulbs grow better and bigger, and I find the leaves given to the cows produce a greater quantity of milk, and the pigs will eat them very readily and do well on them. The sort was the Orange Globe. *George Wilson, Gardener, Green Hill, near Barnet, Middlesex.*

Masters and Men.—There are some statements in the letter of "A Scotch Rustic" which I think are likely to mislead; but as I do not know much about the south of Scotland, I shall leave the main part of the letter alone, but there are one or two things that I think certainly erroneous. For instance, he says that one pair of horses work 80 or 100 acres on the four and five-shift systems respectively. Now, in the north of Scotland 50 acres is as much as a pair will work on the five-course shift; on large farms 60 acres per pair may be done by good management, but on small farms where no "orra" or extra horse is kept 50 acres will scarcely be managed. There is a statement with regard to the payment of parish schoolmaster. It is stated that "the majority of the people in Scotland are dissenters, and all equally taxed." Now, the fact is that in country parishes the established minister, together with the fabric of the church, manse, &c., and the schoolmaster and school house, are maintained altogether by the landed proprietors or heritors; the tenantry have nothing to pay in the way of tithes or church-rates. Those who send their children to school of course have to pay the school fees, which, however, are very trifling; the schoolmaster's salary being paid by the heritors. *A. H. F. C.*

Measurements of the Prize Animals at Baker St.—You have given in your last Number the measurements of the prize animals; a very useful document if correct, but I cannot think it is; and if it is not it must do harm. The 1st prize short-horn ox has the exact same measurement as the ox which got the 2d prize. This I must doubt, particularly as I saw him measured, and the measure was reported 9 ft. 4 in., instead of 8 ft. 11 in., which is much more probable. Again, the ox getting the 3d prize is reported at 9 ft. 10 in., evidently a mistake. As the 1st prize ox was a remarkable animal, far superior to any other, one must suppose there would have been more difference in the measurements of him and the other animals. Col. Towneley's animal, although very beautiful, is very small, and measures according to your account the same in length as the ox, and almost the same in girth. If these measurements are correct they are very remarkable, and it would be very desirable to learn the weight of the animals when killed. *A Short-horn Breeder.* [The only error in our report is in the girth of the 3d prize short-horn ox, class X., which should have been 9 ft., not 9 ft. 10 in., an error which escaped us when reading the proof. As to the "probability" of the greater girth stated by our correspondent as that of Mr. Watling's ox, we must maintain that the probability is always on the side of the smaller girth in the case of two *bonâ fide* measurements. It is the smallest girth of the animal which is wanted, and it is quite possible to err on the side of too great a girth. There were many instances in which the smaller of two competing animals received the prize. The measurements were taken with care, and with the above exception are accurately published.]

Societies.

ROYAL AGRICULTURAL OF ENGLAND.

HALF-YEARLY MEETING, *Dec.* 11.—The following half-yearly report of the Council to the Society was read by the secretary:—

REPORT.

The Society has gained since the last half-yearly meeting 150 new members on its list, and consists, at the present time, of—

83 Life Governors,
135 Annual Governors,
908 Life Members,
4074 Annual Members, and
18 Honorary Members.

5218

The Council have unanimously elected Viscount Eversley one of the Vice-Presidents of the Society, in the place of the late Earl Fitzwilliam.

The funded capital of the Society stands at 9364*l.* 8*s.* 11*d.* in the New Three per Cents. stock.

Professor Way, the Consulting-Chemist of the Society, having tendered his resignation of that office, which the Council have accepted, a special Committee has been appointed to report to the Council, in February next, their recommendations of arrangements to be adopted for the discharge of the duties of that appointment.

Professor Simonds, the Veterinary-Inspector of the Society, has made his report to the Council of his observations and investigations abroad, on the occurrence and nature of the Cattle-plague on the confines of Poland, Prussia, and Austria; and the Council have transmitted to the Highland and Agricultural Society of Scotland, and to the Royal Agricultural Improvement Society of Ireland, a counterpart of that report. Prof. Simonds has also made several verbal reports to the Council on his investigations into the nature of diseases which have broken out in several parts of the country among the cattle and sheep of members of the Society. He has also expressed to the Council his decided conviction of the contagious character of that fatal and prevalent malady pleuro-pneumonia.

The Salisbury Meeting has been one of the most remarkable assemblages of live-stock and implements ever held in this country. Almost uniform excellence distinguished the several classes of the animals exhibited, while the implements were marked by a high degree of simplicity combined with efficiency. The Show itself, too, was one of the largest ever held by the Society, and was attended by a greater number of visitors than on any former occasion. The success of that meeting affords to the Council a well-grounded assurance of the practical value of the Society's operations in carrying out the great national objects for which it was founded; and encourages them in their continued endeavours to render the further country meetings still more effective, if possible, in promoting agricultural improvement throughout the kingdom, without the risk of infringing to an injurious extent on the financial resources of the Society. In order to combine these objects the Council have under their consideration the adoption of several proposed plans which appear likely to lead to improved arrangements in the Country Meeting department. The Mayor and Corporation of Salisbury and the Local Committee co-operated most cordially with the Council in carrying out the details of the Meeting to so successful an issue; and the Members were indebted to the Right Hon. Sidney Herbert, M.P., for the reception he gave them at Wilton; to Mr. Rawlence and Mr. Squarey, for the inspection of their water meadows; and to Mr. Squarey for the interesting lecture he delivered on the occasion, in explanation of their construction and peculiar value; as well as to Mr. Stephen Mills for his invitation to inspect the light land system of Wiltshire farming, as carried out on his own extensive farms in that county.

The Country Meeting to be held next year at Chester will be distinguished by the unusual amount of Local Prizes placed at the disposal of the Society by the Local Committee of that city, by the triennial exhibition and trial of steam engines and agricultural steam machinery generally, and by the peculiar advantages of its position in reference to railway communication.

The local prizes may be represented by the following classification:—

Cheshire cheese (made in the district)	£420
Dairy maids and cheese makers	21
Dairy cattle	170
Horses	215
Welsh cattle	195
Established breeds (not including Short-horns, Herefords, or Devons)	30
Sheep (Welsh, Shropshire-Downs, and Cheviots)	230
	£1281

The prizes of the Society for the Chester Meeting are included in the following schedules:—

I.—LIVE STOCK.

Short-horned cattle	£170
Herefords	170
Devons	170
Cattle of other breeds	45
Agricultural horses	130
Dray horses	75
Other horses	105
Leicester sheep	90
Southdown sheep	90
Long-woolled sheep	90
Short-woolled sheep	90
Pigs	80
Poultry	119
	£1424

II.—IMPLEMENTS AND MACHINERY.

Portable steam engines	£60
Fixed steam engines	30
Boiler for a fixed steam engine	10
Portable threshing machines	55
Fixed threshing machines	30
Corn dressing machines	10
Screen for corn	3
Screen for seed	3
Chaff cutters	13
Grinding mills	15
Linseed or corn crusher	5
Oilcake breakers	8
Bone mill	10
Bone-dust mill	5
Turnip-cutters	6
Root pulper	3
Churn	3
Cheese-making apparatus	3
Cheese press	3
Steam cultivator	500
	£775

Miscellaneous awards .. .. 21 Silver Medals.

The Prize Sheets, containing the special terms in which these various prizes are offered, the conditions under which the competition for them will take place, and the general regulations for exhibition and trial, are now in the press, and, when finally corrected, will be ready for distribution. The Implement Prize Sheet will include the recommendations of the Implement Committee, in reference to the suggestions obtained by a circular issued, by order of the Council, to each exhibitor in that department, and to each of the Implement Judges, during the last three years.

By Order of the Council,
JAMES HUDSON, Secretary.

London, December, 1857.

The report was adopted on the motion of the Rev. J. Linton, after some discussion adverted to in another page.

Mr. Raymond Barker then read the balance-sheet of receipts and expenditure for the half-year ending the 30th of June last.

HALF-YEARLY ACCOUNT FROM THE 1ST OF JANUARY TO THE 30TH OF JUNE, 1857.

Receipts during the half-year.

	£	s.	d.
Balance in the hands of the Bankers, Jan. 1, 1857	438	12	8
Petty Cash Balance in the hands of the Secretary, Jan. 1, 1857	17	1	8
Dividends on Stock	129	14	1
Governors' Life-Compositions	99	0	0
Governors' Annual Subscriptions	569	0	0
Members' Life-Compositions	403	0	0
Members' Annual Subscriptions	1836	5	0
Journal Receipts	161	13	0
Sale of old Catalogues	2	3	0
Country Meeting Receipts:— Salisbury	1500	0	0
	£5147	9	5

Payments during the Half-year.

	£	s.	d.
Permanent Charges	165	0	0
Taxes and Rates	19	9	0
Establishment Charges*	1221	6	9
Postage and Carriage	26	3	11
Advertisements	14	5	0
Journal Payments	1098	11	7
Essay Prizes	150	0	0
Veterinary Grant	200	0	0
Chemical Grant	150	0	0
Chemical Investigations	100	0	0
Country Meeting Payments:— Chelmsford	464	0	10
Salisbury	525	6	0
Subscriptions over-paid by Bankers, returned	4	0	0
Sundry items of petty cash	3	10	11
Balance in the hands of the Bankers, June 30, 1857	989	8	10
Petty cash balance in the hands of Secretary, June 30, 1857	16	6	7
	£5147	9	5

(Signed) THOMAS RAYMOND BARKER, Chairman, C. B. CHALLONER, HENRY WILSON, } Finance Committee.

Examined, audited, and found correct this 4th day of December, 1857.

(Signed) GEORGE I. RAYMOND BARKER, WILLIAM ASTBURY, } Auditors on the part of the Society.

COUNTRY MEETING ACCOUNT, SALISBURY, 1857.

DR.	£	s.	d.
Subscription from Salisbury	1500	0	0
Prizes offered by the Local Committee for Hamps Down Sheep	120	0	0
Prize offered by M. Dutrône for polled bull	5	0	0
Non members' fees for the entry of live stock	146	7	6
Non-members' fees for the entry of implements	26	0	0
Implement-makers' payment for shedding required	614	2	9
Carry forward	£2411	10	3

* Under this head is included the sum of 703*l.* 4*s.* 11*d.* paid on account of repairs required in the house of the Society.

Brought forward	£2411	10	3
Admissions to show and trial-yards ..	3447	15	9
Sale of catalogues of implements and stock	324	17	0
Fines for the non-exhibition of live-stock ..	2	0	0
Sale of dinner-tickets .. .. : ..	78	0	0
Sale of Council-badges	3	0	0
Balance, chargeable on the general funds of the Society	345	12	11
	£6612	15	11

Cr.	£	s.	d.
Show-yard and trial works, poultry-coops, hurdles, entrance turnstiles	2530	9	1
Trial land for steam-cultivators, compensations, water supply, cooperage	231	7	6
Yardmen, fieldmen, clerks, money-takers, door-keepers, catalogue-sellers	217	2	3
Judges of the show	344	0	0
Judges' refreshments	56	19	0
Veterinary inspector and assistant	26	0	0
Consulting engineer	89	9	9
Hire of farm horses	56	10	0
Metropolitan police	86	4	0
Green food	139	18	0
Hay and straw	146	19	6
Poultry food	7	18	9
Coals, seeds, manure, and cream, for trials	17	18	6
Ropes, bags, paddocks, brooms	6	4	0
Stationary..	20	2	11
Advertisements	128	9	3
Postage, carriage, messengers	24	10	5
Programmes of the meeting	6	2	0
Prize-sheets, certificates, labels, admission-orders, circulars, railway-papers	149	5	3
Live-stock and implement catalogues ..	349	2	0
Live-stock and implement award-sheets ..	29	13	0
Prizes of the Society, awarded and paid ..	1594	12	0
Prizes of the Local Committee, awarded and paid	120	0	0
Prize of M. Dutrône, awarded and paid ..	5	0	0
Dinner contract	200	0	0
Dinner-tickets and toast-papers	2	5	0
Badges for council, stewards and judges ..	7	18	9
Official staff, travelling expenses, board, and lodging	17	14	2
Loss on sale of foreign and other coin ..	0	19	10
	£6612	15	11

The subsequent discussion included a reference by Mr. Hobbs, Mr. Sainsbury, and others to the absence of an annual dinner at Salisbury, and to the cost of the Council dinner that was provided; a reply by Colonel Challoner to the strictures of Mr. Sidney on the general management of the Society and to those of Mr. Moore on the management of the accounts.

Lord Feversham thought the Council would do well to consider whether it might not be an improvement to hold the meetings in London instead of in the country. Everything he heard with respect to the railways, with respect to the want of accommodation in towns, and with respect to the inconvenience sustained by exhibitors in consequence of having to send their stock to distant parts of the kingdom, convinced him that this view was correct. He was opposed to the amalgamation of the Society with the Smithfield Club. He would keep both Societies distinct, but would have a large building erected for the meetings of both Societies—one in the summer and the other in the winter. His lordship concluded by expressing his dissent from the opinion that the judges should be required to give reasons for their decisions, observing that such an arrangement would lead to great practical inconvenience, while it could produce no useful result.

The Chairman, Lord Berners, said he thought that there could not be too much publicity as regarded the accounts, and that the entire management of the Society could not be too thoroughly ventilated. It was on that principle that he had always acted in relation to his own farming operations, being convinced that it was the best mode of eliciting the truth and promoting improvement. He could not agree with his noble friend, Lord Feversham, that it was desirable entirely to do away with the migratory proceedings of the Society, because in counties which had been most behindhand in agriculture, he had seen not merely excitement for a time, but very great permanent improvements as the result of the country meetings. He admitted, however, that the holding of a meeting occasionally in London would be advantageous to agriculture, and he should be glad, so far, if his noble friend's suggestion could be carried out.

SOCIETY OF ARTS: *December 9th.—Mr. Sidney on recent improvements in Agricultural Machinery.* During the discussion which followed this paper Mr. Garrett referred to improvements in drills due to Mr. Thomas Chambers of Nolfolk and to machines for the distribution of liquid manure, introduced by Mr. Chandler and Mr. Spooner. With regard to the horse-hoe, with which his own name had been connected, he would state that the only merit to which he laid claim was the application of a lever to the hoes, so that each hoe acted independently of the rest, and adapted itself to the irregularities of the soil.

Dr. Matthew Truman differed from the author of the paper as to the utility of giving rewards for inventions. It had struck him that one of the greatest defects of which they had to complain in the present day was the alleged impracticability of turning the sewage matters of large towns to profitable account for the purpose of agriculture. He believed that arose in a great measure from the want of of proper stimulus to the investigation of the subject, in the shape of a commensurate reward. It was all very well to say that the reward would naturally accrue to the person who made the successful discovery; but in the absence of such an incentive as the offer of an adequate prize would afford, the matter could only be undertaken by the formation of a company, and it was well known that, generally speaking, scientific men were the worst commercial men n existence; and there was little inducement for them to devote their time and energies to make discoveries of that nature.

Mr. Baker, of Writtle, confessed as an Essex man he had not expected to hear the attacks which had been directed against the farming in that county; although perhaps he could not claim for the Essex people the title of the best farmers in the kingdom, they could at least enter the lists with any other part of the country in the manufacture of agricultural implements and machinery. Mr. Sidney had dated all the improvements in the plough from the year 1837. The Messrs. Bentall had invented a plough, nearly or quite equal to that which Mr. Sidney appeared to regard as the model implement, fully 20 years before that date, and it had been extensively used in Essex. The Messrs. Ransome followed in the same course, and produced excellent ploughs even at that time. The case-hardening of one side of the share gave the pre-eminence to the Essex plough. The old wooden plough had been gradually superseded by implements manufactured entirely of iron, but he was of opinion that in Essex there was as good ploughing forty years ago as at the present day. Although the implement was of a ruder character, yet it effected the object as well as the modern ploughs. Another very important point was the comparative cost between threshing by hand and steam. He believed the farmers present would agree with him, when he asserted that the difference the author of the paper had asserted to exist between the two was not borne out by practical experience. It had been stated that Wheat threshed by the flail cost 4*s.* per quarter, whilst with the steam-threshing machine it was done for 2*s.* 6*d.* per quarter, and upon that basis, Mr. Sidney calculated a saving to the farmers of the country of a million and a-half of money. He (Mr. Baker) denied that statement *in toto.* There were persons in Essex who kept threshing machines to let on hire. One person had as many as six machines in the neighbourhood in which he resided, and only last week an advertisement appeared, offering to thresh corn and perform the operations of dressing—all hands found—at 3*s.* 6*d.* per quarter—the farmer he presumed, providing the coal for the engine—whilst it could be threshed by the flail and dressed for 2*s.* 6*d.* per quarter; and, therefore, flail threshing, though not so expeditious, was the cheaper of the two.

Mr. J. J. Mechi thought it very important that no misapprehension should exist with regard to the comparative expense of hand and steam threshing. He had used a fixed steam engine on his own farm for ten years, and, practically, he found he could thresh his long-strawed mown Wheat at 1*s.* 6*d.* per quarter, including every cost. In that respect there was a great discrepancy between the statement of his friend Mr. Baker and his (Mr. Mechi's) practical experience. Working with his machine, he could thresh 30 quarters per day, in which 16 men, women, and boys were engaged, whose wages could be easily calculated, taking those of the men at 11*s.* per week, and the women and boys in proportion. The coals were at the rate of 1*s.* per cwt., about 10 cwt. per day being consumed; and, allowing the ordinary charges for the use of the machine, he could not put the expense at more than 1*s.* 6*d.* per quarter, making a difference of more than one-half between the calculations of Mr. Baker and the results of his own practice. He had even been given to understand that Mr. Hudson, of Castleacre, threshed his corn at an average of 1*s.* per quarter. Under these circumstances, he thought it ought not to go forth that hand threshing was cheaper than machine threshing.

Mr. Thomas Scott said with respect to the north (from which the reaping and threshing machines had emanated) having been distanced by the south, he did not think the meeting would agree with Mr. Sidney. With reference to the system of agriculture in Scotland, he would state that it was hardly possible to go upon the premises of an intelligent farmer there without finding a melancholy pile of discarded implements patented in the south; and they had before them the fact that, at all events, the Scotch system of agriculture realised good rents to the landowners, profitable returns to the tenants, and far better wages to the labourer than was the case in the south. With regard to steam threshing, he was of opinion, with Mr. Mechi, that with a fixed engine it could be done at 1*s.* 6*d.* per quarter, and on this matter he spoke from the results of experience over two thousand acres of Wheat. Mr. Scott complained that the name of Tuxford, who had twice received the Royal Agricultural Society's medal, had been omitted in the paper, whilst the names of several eminent drill makers had also been unnoticed.

Mr. William Bennett thought that the author had endeavoured to prove too much. The use of the drill had not been confined to the last 20 years. He had used a drill 40 years ago, and about the same period this implement was in extensive use in Norfolk. Four out of five farmers in that county employed the drill as early as the years 1819-20. He thought the saving by steam threshing had been put at too high a figure, although it was, doubtless, a great improvement, and might be more largely employed with advantage. Under ordinary circumstances he did not think the difference would be more than 6*d.* or 9*d.* per quarter. To farmers who were anxious to realise their crops speedily, the steam engine was unquestionably a great boon. He hoped his remarks would not be regarded as in opposition to the use of steam in farming operations, but he thought Mr. Sidney had put the case too strongly. He had used the wooden-breasted plough 45 years ago, and had then gained a prize cup from the Bedfordshire Agricultural Society.

Mr. Durrant Cooper said he wished to state his experience as a joint proprietor in steam threshing apparatus, in what was considered at one time the worst part of Yorkshire. The steam engine and threshing machine had been employed there with the most satisfactory results. The Wheat was threshed at a cost of from 1*s.* 6*d.* to 2*s.* per quarter. Moreover, Wheat dressed by the steam machine always bore the preference, amongst millers, to that threshed by hand labour. At the same time, those machines might not be attended with equal profit on small occupations, and on that point he did not go quite to the extent of Mr. Mechi's opinion.

The Chairman (James Caird, Esq., M.P.) thought they were open to a great deal of instruction from their grandfathers, and he felt indebted to Mr. Bennett for having shown them that 40 or 50 years ago people did know something about the plough. No doubt the great improvements effected in the manufacture of that implement had cheapened the cost of production, and although they had passed through four prosperous years for agriculture, they would yet require all the economy that the intelligence of agricultural implement makers could bring to bear. Foreigners attended our agricultural exhibitions in large numbers, and were large purchasers. The machines were thus taken abroad to compete with the English farmer. They would therefore see the necessity of doing all in their power to improve their own productions. As to the charge brought against the agricultural community by Mr. Day, that the price of meat did not keep pace with the improvements in agriculture, he begged to say that it was not the fault of the farmer that meat was at its present price, but the fault of the consumers themselves, who had increased in a greater ratio. With regard to the criticisms in which Mr. Sidney had indulged, it was some consolation to him to find that three of the most important machines—which had conferred such great benefits upon English agriculture—viz., the horse-hoe, the reaping-machine, and the threshing-machine were all the inventions of Scotchmen.

Reviews.

Davaine's Researches on the Wheat Vibrio or Earcockle. [Second notice.]

There are three principal diseases by which the grains of Wheat are attacked: 1. Bunt, which is at once known by the grains being filled with dark powder, which has a disagreeable fishy odour; 2. Ergot, in which the grain is more or less enlarged, and the internal substance white and solid; 3. Earcockle, in which the altered grain is smaller than the sound, and the cavity filled with white powder. There is no danger now of confounding these very different productions, though in early times much confusion took place, by giving the same name not only to the maladies which affect the grain, but to those of a totally different character which affect the stem and foliage.*

The habits of the little animals which produce the Earcockle were described in a former article. An attention to these affords the best mode of modifying the evil. Before we proceed, however, to the consideration of the proper remedies or preventives, a few words may be added on the effect of Vibrio on the young plant. The stem of those plants which are affected with Earcockle is generally shorter than in sound plants of the same age, and becomes knotted and twisted. The leaves are commonly of a bluish green, crumpled in every direction, and sometimes spiral like a corkscrew. The effect, however, is not always the same, and plants affected by Vibrio are sometimes almost as healthy in appearance as others, and as little deformed. Sometimes again the stems instead of being bluish are yellowish and chlorotic. The crumpled leaves are sometimes found in plants affected by Bunt and Ergot, but in these cases they are exceptional; in the Earcockle, on the contrary, they are almost normal.

As the young Vibrios cannot travel amongst the tender leaves without moisture, a dry spring is extremely unfavourable to their propagation, and as they have no power of penetrating when the parts of the flower are formed, if the weather remains dry till the spike is well advanced, the crop will be free from Earcockle. Roffredi, for example, informs us that in 1775, the spring of which was remarkably dry, he could not find a single case of Earcockle in the field, but in his garden, where sound and infected grain had been sown together in pots, the soil in which was regularly watered, there was abundance of Earcockle, It is observable moreover that all the spikes of a root are seldom affected. Those stems which are first thrown up, when the Vibrios have made their way from the cavity of the seed, are liable to be attacked, but those which grow at a later period are free, because the Vibrios do not live long in the open air, or in the soil when they have once escaped.

The Earcockle may be propagated from infected seed mixed with the sound; from diseased ears left on the surface or from bad seed thrown out on the dunghill. It is obvious therefore that it may be in great measure checked by the choice of clean seed, which is not a difficult matter as the affection is local; by a proper rotation

* Earcockle has been confounded in France with the seeds of the common Corncockle. British farmers are, however, well acquainted with the seeds of this plant, the presence of which in small quantities is not much regarded, as it yields very white meal, and does not injure the sample of flour.

of crops, as the Vibrios are not capable of living more than five or six months, when exposed to wet; and thirdly by burning the refuse corn and chaff, instead of throwing it upon the dunghill.

It appears from Dr. Davaine's experiments that a solution of lime is soon fatal to the Vibrios when exposed. It might, therefore, be presumed that the common process of dressing Wheat with lime would be effectual; but though the Vibrios when exposed are destroyed by it, those which are contained in the uninjured grain are altogether unaffected. A solution of sulphuric acid containing one proportion of acid to 150 of water on the contrary is fatal to them in either case within 24 hours, and such a solution does not injure the vegetative powers of the corn. Dr. Davaine sowed in the month of November, 1855, a garden bed with sound grain mixed with Earcockle which had been steeped in such a solution 24 hours, and in the following July there was not a single grain containing Vibrios, while sound and infected grain mixed together without any previous application of acid yield a large proportion of Earcockle.

If Wheat is to succeed Wheat every year as in some modern modes of culture, it is plain that some such precautions must be taken, but the most careful treatment in the barn will not prevent the propagation of the evil by the means of fallen ears. Where the disease then is prevalent, it will be necessary to drag the ground very carefully to avoid infection from this cause.

It might again be supposed that fowls and other birds would pick up the Earcockle when thrown out upon the dunghill, but though Wheat attacked by Vibrios is harmless, whether given raw or made up into bread, the fowls refuse to take it when thrown out, and consequently every infected grain is left to find its way into the field, and as the cultivator may not like to lose entirely the sound though shrivelled grains which may be mixed with the Earcockle, he may at once destroy the Vibrios by submitting the tailcorn to the heat of an oven, which may then be thrown out into the poultry yard without any fear of seeds infected with living Vibrios being carried out with manure into the field.
M. J. B.

Calendar of Operations.

DECEMBER.

ISLE OF ELY, *Dec.* 15.—We have little of interest to communicate in our report this month. At this season of the year the work upon the farm is very monotonous, and assumes a perfectly routine character. The men are chiefly employed in claying, threshing, and waiting upon the stock in the yards; and the horses are occupied mainly in ploughing up the stubble lands for the next spring and summer fallows, until the frost interrupts them; they then commence carting away the manure from the yards to those fields where it may be required for spring or summer use. There is one practice which prevails to a very large extent upon our Fen farms, at this season of the year, and one which we think is worthy of especial notice and remark. We refer to the practice of following the plough, and with three or four hands, as the case may require, forking out the patches of Twitch and Couch upon those fields requiring to be sown early in the spring, such as Potato, Flax, and Mangel Wurzel lands. We can scarcely over estimate the importance of this, as it not only provides employment for the women and children during the open weather of the winter, but facilitates the cleaning of those fallows so much in the spring. We commend it to the consideration and practice of every Fen farmer. Our Wheats are still very fine, and in danger, as we reported last month, of becoming "winter proud." In some instances we have seen them injured by the wireworm, and the plant has been thinned a good deal, a very unusual circumstance at this season of the year. The weather remains unusually mild and free from frost, which makes keeping for all kinds of stock plentiful. Many of our farmers are only just clearing their pastures, and putting their cattle into the yards. Grass keeping for sheep still remains abundant, which is favourable, as the Coleseeds generally are mildewed a good deal and of bad quality. Beef for Christmas was plentiful at St. Ives on Monday, and of good quality, and sold at from 8*s.* to 9*s.* per stone. Mutton was a short supply, and inferior quality. Pork is plentiful, selling at 6*s.* 6*d.* per stone—a few good things shown on Monday made 7*s.* The corn trade has not improved, but the same dullness which we reported last month still prevails. Prices get steadily lower, but we trust with a new year we shall witness a return to confidence, and the cloud which has lately overshadowed us will be dissipated, and cheaper money, and better prices, and a brisker trade will be the result.
A. S. Ruston.

Notices to Correspondents.

A CIRCULAR ACRE: *J B.* Its diameter is as nearly as possible 78½ yards. A circle with that diameter encloses about a square foot less than an acre. The diameter of a half-acre circle is about 55.6 yards.

AGRICULTURAL STATISTICS OF SCOTLAND.—Mr. Hall Maxwell's report only reached the Board of Trade on Wednesday last. It indicates a greatly diminished yield of Wheat this year as compared with last, but an increase in Barley, Oats, and Bere. We shall give the figures next week.

ALDERNEY COWS: *G R.* All cows ought now to be brought in from the fields. Carrots and Parsnips and Mangel Wurzel and Kohl Rabi are all roots which you may give in moderation, without injuring the milk. Be that as it may, however, milk will be injured in quantity, if not in quality, by letting the cow remain in the field in December.

BOX-FEEDING FOR PIGS: *H P.* Mr. Warne's mixture will no doubt feed bacon well; but the plan of box-feeding, *i.e.*, of letting the litter accumulate under the animals, does not answer with pigs. They root the straw about so much as to further fermentation more than their treading checks it. Linseed, however, makes very oily flabby bacon.

DISEASES OF PIGS: *R C L* says:—Last week we killed a sow about 4 years old, which weighed 24 score 1 lb.; when cut up, she was found to have extensive disease of the spine, the bones of which were of a darkish brown colour, and the smell arising from them of a putrid nature. The disease notwithstanding was apparently local, as the flitches, hams, and a portion of the pork were sweet and sound. The sow had been used for breeding purposes till within the last few months, when we commenced to fatten her on Indian-meal and Barley-meal in equal proportions. She ate well and fattened rapidly. I should have been more surprised at finding such extensive disease, but we killed a pig about 18 months old last winter which was affected in a similar manner. [The disease affects well-bred pigs, and we believe the disposition to produce it is hereditary. The breed should have some new blood. Youatt on the Pig is an useful work. *W C S.*]

HARTLEY'S PATENT ROUGH PLATE GLASS.

For Ridge and Furrow Roofs, Conservatories, Manufactories, Skylights, Workshops, Public Buildings, Railway Stations, Offices, Mills, Market Halls, &c. Particularly adapted for Verandahs, Carriage Entrances, &c.

CUT TO THE SIZES ORDERED.	Thickness in parts of an inch. $\frac{1}{8}$	$\frac{3}{16}$	$\frac{1}{4}$	$\frac{3}{8}$
Under 8 by 6	0 4	0 5	0 6	0 8
8 by 6 and under 10 by 8	0 5	0 6	0 7	0 9
10 by 8 ,, 14 by 10	0 6	0 7½	0 9	0 10
14 by 10 ,, 1½ ft. sup. if not above 20 in. long	0 6½	0 8	0 9½	0 11
1½ ft. sup. ,, 3 ft. or if above 20 and not above 30 in.	0 7	0 8½	0 10	0 11
3 ,, 4 ,, 20 ,, 30..	0 7½	0 9	0 10½	1 0
4 ,, 5 ,, 30 ,, 35	0 8	0 9½	0 11	1 1
5 ,, 6 ,, 35 ,, 40..	0 8½	0 10	0 11½	1 1
6 ,, 8 ,, 40 ,, 45..	0 9	0 10½	1 0	1 1
8 ,, 10 ,, 45 ,, 55..	0 9	0 10½	1 0	1 1
10 ,, 12 ,, 55 ,, 65..	0 9	0 10½	1 0	1 2
12 ,, 15 ,, 65 ,, 75..	0 10	0 11	1 0	1 3
15 ,, 20 ,, 75 ,, 90..	0 11	1 0	1 2	1 3
20 ,, 25 ,, 90 ,, 100	1 1	1 2	1 3	1 4
QUARRIES	0 6	0 7	..	..
BENDING, ordinary curves ..	0 6	0 9	1 0	1 4

Packed in Boxes of 50 feet each.

6 by 4, and 6½ by 4½ .. 10*s.* 6*d.* | 8 by 6, and 8½ by 6½ .. 13*s.* 6*d.*
7 by 5, and 7½ by 5½ .. 12*s.* 0*d.* | 9 by 7, 9½ by 7½, & 10 by 8 15*s.* 0*d.*

For large quantities special prices.

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HETLEY AND CO. supply 16-oz SHEET GLASS of British Manufacture at prices varying from 2*d.* to 3*d.* per square foot for the usual sizes required, many thousands of which are kept ready packed for immediate delivery.

Lists of Prices and Estimates forwarded on application, for PATENT ROUGH PLATE, THICK CROWN GLASS, GLASS TILES, and SLATES, WATER PIPES, PROPAGATING GLASSES, GLASS MILK PANS, PATENT PLATE GLASS, ORNAMENTAL WINDOW GLASS, and GLASS SHADES, to JAMES HETLEY & Co., 35, Soho Square, London.

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Packed in 100 feet boxes, averaging 15 to 16 oz. to the foot.

6 by 4, & 7 by 5 } 11*s.* 3*d.* per 100 feet. | 9½ by 7½, & 10 by 8 } 12*s.* 6*d.* per 100 feet.
8 by 6, & 9 by 7 } | 11 by 9, & 12 by 8 }

Various sizes under 14 by 10 at 16*s.* per 100 feet.

Larger sizes, 16 oz., at 2*d.* and 2½*d.* per foot; 21 oz., at 3*d.* and 3½*d.* per foot.

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	COMMON.	SUPERIOR.
20 by 12, and 20 by 14	16 oz. at 16*s.* per 100 feet	18*s.*
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Foreign Sheet Glass, in 200 feet cases, at 32*s.* and 40*s.* per case.

HARTLEY'S IMPROVED ROUGH PLATE GLASS,

Of ⅛, $\frac{3}{16}$, ¼, and ⅜ of an inch in thickness. Cut to any size requisite for Conservatories, Manufactories, and Public Buildings. 10 per cent. allowed off prices advertised.

Pan Tiles, Propagating and Bee Glasses.
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Genuine White Lead, Colours of all kinds.
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All packages charged, but allowed when returned.

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AGRICULTURAL OR COTTAGE BAROMETER, 11*s.* 6*d.*
GARDEN THERMOMETER, for registering cold, 4*s.*
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RELIABLE GARDENER'S RAIN GAUGE, 15*s.* 6*d.*
DRAINAGE LEVEL, as strongly recommended by the Royal Agricultural Society, 4*l.* 5*s.*
MILK TEST, for the Dairy, 4*s.* 6*d.*; ditto for Cream, 3*s.*

"The Barometer is equal to one in our possession at ten times the price. The Thermometer has proved upon trial to be equally efficient."—*Gardeners' Chronicle, Sept.* 19, 1857.

"They should be in the hands of every farmer; my next month's observations shall be made with them."—*Mark Lane Express, Sept.* 14 *and Oct.* 5, 1857.

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ACHROMATIC MICROSCOPES.

SMITH AND BECK, MANUFACTURING OPTICIANS, 6, Coleman Street, London, have received the Council Medal of the Great Exhibition of 1851, and the First Class Prize Medal of the Paris Exhibition of 1855, "for the excellence of their Microscopes." An illustrated Pamphlet of the 10*l.* Educational Microscope (see leading article in *Gardeners' Chronicle*, Nov. 24, 1855) sent by post on receipt of six stamps. General Catalogue for March 1857 may be had on application.

PATENT GUTTA PERCHA SOLES.—IMPORTANT TO GARDENERS.—The Gutta Percha Company have the pleasure to acknowledge the receipt of the following letter from G. GLENNY, Esq., the celebrated Florist:—

"420, Strand, London.

"Gentlemen,—I have worn Gutta Percha Soles and Heels these two years, and being so much in a garden as I necessarily am in all weathers, and with the ground in all states, I would on no account be without them. As a matter of economy I would recommend Gardeners to use them, for they may repair the worn part at all times by warming the material at the fire, and pressing it from the thick parts to the worn parts, as easily as if it were so much dough. I think it the duty of all persons who must occasionally wet their feet, to adopt a material that completely defies damp. Many a gardener would escape colds and rheumatism by the use of Gutta Percha Soles.

"Your obedient servant, G. GLENNY."

Every variety of Gutta Percha articles, such as Mill Bands, Tubing, Soles, Goloshes, Sheet, Pump Buckets, Fire Buckets, Bosses, Union Joints, Flasks, Bottles, Bowls, Chamber Vessels, Toilet Trays, Sponge Bags, Curtain Rings, Galvanic Batteries, Talbotype Trays, &c., &c., manufactured by the Gutta Percha Company, and sold by their wholesale dealers in town and country.—The Gutta Percha Company, Patentees, 18, Wharf Road, City Road, London.

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These Stoves are now in general use in England, Ireland, and Scotland. Prospectus may be had from all Ironmongers, Nurserymen and Seedsmen, and Plumbers in the Kingdom, or direct from the Manufacturers.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBER, 1857.
DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership heretofore existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

GALVANISED IRON GREENHOUSES, HOTHOUSES, &c.

E. DENCH, King's Road, Chelsea, and Hampstead Road, Inventor, Patentee and sole Manufacturer of Patent Galvanised Greenhouses, Hothouses, Conservatories, &c., has several of different lengths and sizes to be sold at a great reduction on account of the space being required for alterations.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought Iron is 6*l.* 10*s.* each; 36 inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

IMPROVEMENTS IN HEATING, ETC.

MUSGRAVE'S PATENT SLOW-COMBUSTION STOVE, for Warming Public Buildings, Halls, Shops, Conservatories, Factories, Drying Rooms, &c. Will burn in Churches from Saturday till Sunday evening, avoiding attention during the hours of worship. In Halls will burn day and night for weeks, with little care. Capable of warming a large apartment for 24 hours, at a cost of 5*d.*; and deserving of special attention, because of its safety, healthfulness, durability, and extreme simplicity. This stove is the nearest approach to warming by hot water.

MUSGRAVE'S PATENT SLOW-COMBUSTION COOKING RANGE on the same plan.

MUSGRAVE'S PATENT STABLE FITTINGS.

These inventions will repay public inquiry. For particulars address the makers,

MUSGRAVE BROTHERS, 50, High Street, Belfast.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Dec. 19.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is smoother to write upon than parchment or buckram, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps or Post-office Order. Ticket Labels from 2*s.* 6*d.* to 5*s.* per 1000.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE **POWERFUL BOILERS.**

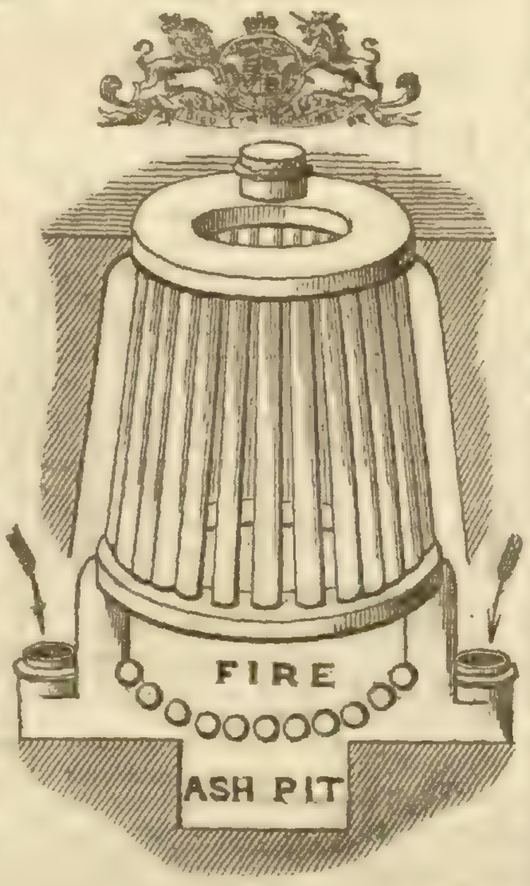
THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturists to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*:—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

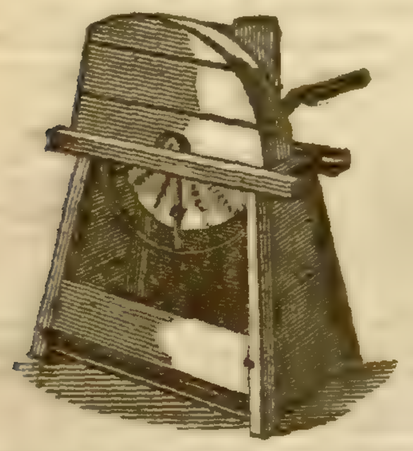
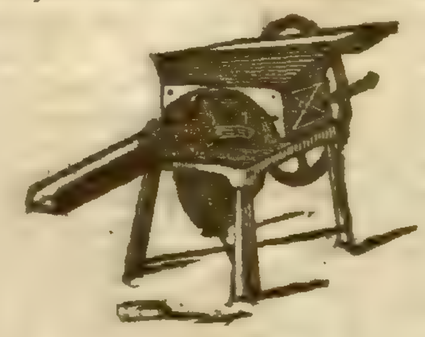
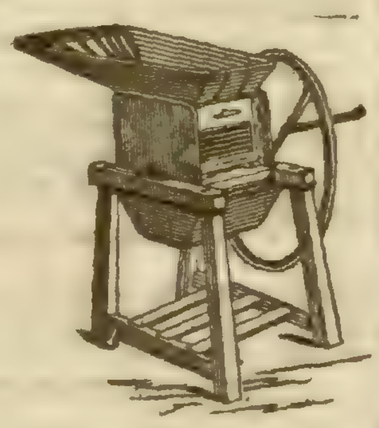
Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.

B. SAMUELSON,
BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
,, ,, Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7 6

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power	£6 10 0
,, No. 2, for Horse Power, or may be worked by a man and boy	9 0 0

Machines for Pulping only,

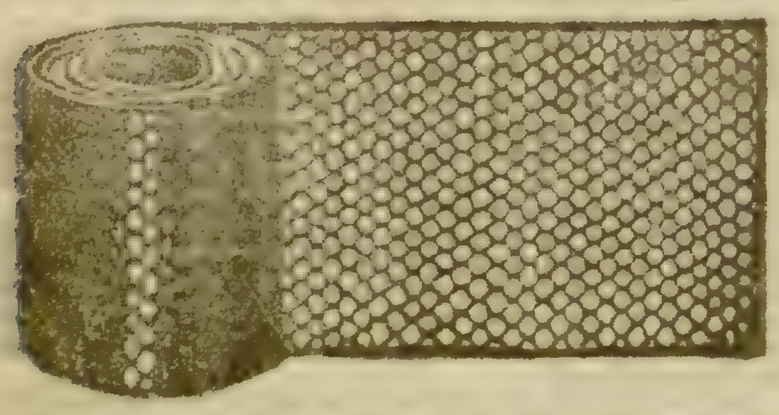
As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

Price—Pulper No. 1	£4 10 0
,, Pulper No. 2, for power or man and boy	5 10 0
,, Pulper No. 3 (Disc principle)	4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.



BARNARD AND BISHOP, Market Place, Norwich, in consequence of improvements in their machinery for the manufacture of the above article, have been enabled to make a great reduction in the prices.

	Galvanised.	Japanned Iron.
2-inch mesh, 24 inches wide	5*d.* per yd.	4*d.* per yd.
2-inch ,, strong do.	6 ,,	4¾ ,,
2-inch ,, intermediate, do.	7 ,,	5½ ,,
2-inch ,, extra strong, do.	9½ ,,	7½ ,,
1⅝-inch ,, 24 inches wide	5½ ,,	4½ ,,
1⅝-inch ,, strong, do.	6½ ,,	5½ ,,
1⅝-inch ,, intermediate, do.	7½ ,,	6 ,,
1⅝-inch ,, extra strong, do.	10 ,,	8 ,,

All the above kinds can be made of any width (under 8 feet) at proportionate prices. If the upper half is of a coarser mesh than the lower, it will reduce the prices about one-fifth.

Strong Galvanised Poultry Netting, 8½*d.* per yard, 3 feet wide: Galvanised Sparrow-proof Netting for Pheasantries, 2½*d.* per square foot.

Delivered free of expense in London, Peterborough, Hull, or Newcastle. Manufacturers of Improved Strained Wire Cattle and Deer Fencing, Iron Hurdles, &c.

Illustrated Catalogues and Patterns forwarded by post.

MAPPIN'S PRUNING KNIVES IN EVERY VARIETY.

WARRANTED GOOD BY THE MAKERS.

MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, London.

MAPPIN'S "SHILLING" RAZOR sold everywhere, warranted good by the Makers, MAPPIN, BROTHERS, Queen's Cutlery Works, Sheffield; and 67 and 68, King William Street, City, London, where the largest Stock of Cutlery in the world is kept.

MAPPIN'S SUPERIOR TABLE KNIVES maintain their unrivalled superiority—handles cannot possibly become loose; the blades are all of the very first quality, being their own Sheffield manufacture.

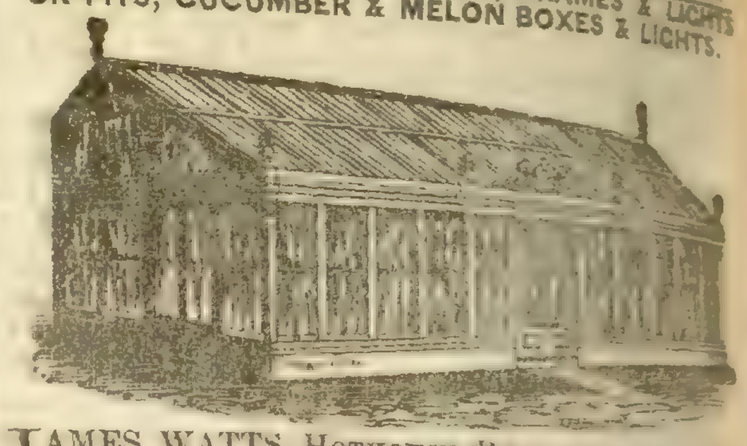
MAPPIN'S DRESSING CASES AND TRAVELLING BAGS sent direct from their Manufactory, Queen's Cutlery Works, Sheffield, to their London Establishment, 67, King William Street, City, where the largest stock in the world may be selected from.

MAPPIN'S PLATED DESSERT KNIVES AND FORKS, in cases of 12 and 18 pairs, are of the most legant designs and first-class quality.

MAPPIN'S ELECTRO-SILVER PLATE.—Messrs MAPPINS' celebrated Manufactures in Electro-plate, comprising Tea and Coffee Services, Side Dishes, Spoons, and Forks, and all articles usually made in Silver, can now be obtained from their London Warehouse, 67, King William Street, City, where the largest stock in London may be seen. A Catalogue, with List of Prices, free on application.

Manufactory, Queen's Cutlery Works, Sheffield.

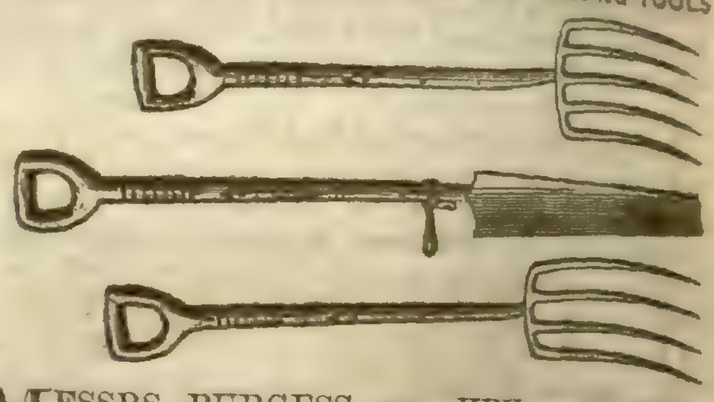
HOTHOUSES, CONSERVATORIES, FRAMES & LIGHTS OR PITS, CUCUMBER & MELON BOXES & LIGHTS.



JAMES WATTS, HOTHOUSE BUILDER, 8, Claremont Place, Old Kent Road, London.

Green and Hothouses, 9, 10, 11, 12, 13, and 14 feet wide, any length, from 16 to 100 feet. Frames and Lights for Pits, 6 ft. 6 in., 7 ft., 7 ft. 6 in., 8 ft., and 8 ft. 6 in. wide, any length, from 12 to 100 feet. Upwards of 200 Cucumber and Melon Boxes and Lights, from 4 ft. by 3 to 10 ft. 6 in. by 5 ft. 6 in., kept ready, glazed with stout sheet glass, painted four times, complete, ready for immediate use, all made of best material, packed and sent to all parts of the kingdom.—References may be had to the Nobility, Gentry, and the Trade in most of the counties in England. Heating on the best and most approved principles, and guaranteed to act efficiently.

PARKES' STEEL DIGGING FORKS & DRAINING TOOLS



MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

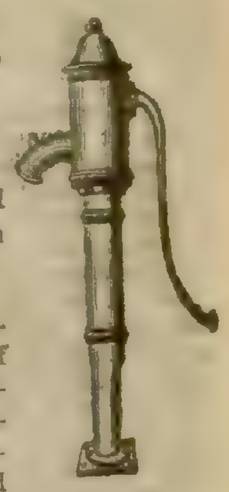
FOWLER'S PUMPS FOR ALL PURPOSES.

PORTABLE GALVANISED PUMPS on stand, with folding tripod legs, 2*l.* 10*s.*

Hose Pipe of all kinds.

YARD, FARM, and HOUSE PUMPS, from 1*l.* 7*s.* 6*d.*

Estimates for supplying or fixing any class of Pump, Warming, Boiling, and Drying Apparatus, and General Engineers Work may be had at the Manufactory,



WHITEFRIARS STREET, FLEET STREET, London.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£ s. d
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ ,, long	3 ,, 3 ,,		1 11 0
3 ,, ditto	3 ,, 6 ,,		2 8 0
3½ ,, ditto	3 ,, 6 ,,		2 12 0
4 ,, ditto	3 ,, 6 ,,		3 3 0
2½ ,, short, with 15 feet of Lead Pipe attached, ready for fixing			2 14 0
2½ in. long ditto	ditto	ditto	2 18 0

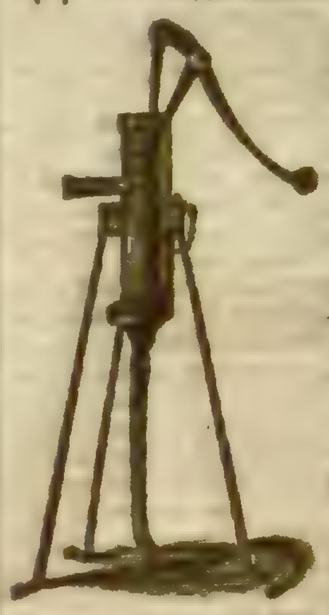
The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers,

JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

WARNER'S IMPROVED LIQUID MANURE OR GENERAL PORTABLE PUMP.



These Pumps are fitted with J. W. & Son's Patent Buckets and Suckers, and cannot clog in action. The barrel is of galvanised iron, not likely to corrode, and can be raised or lowered at pleasure. The legs will fold together, and the whole may be carried on shoulder to any pond or tank required.

Price of 4½ in. Pump, with legs, 3*l.* 5*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra. The barrel is 27½ in. long, and the legs are 5 ft. high.

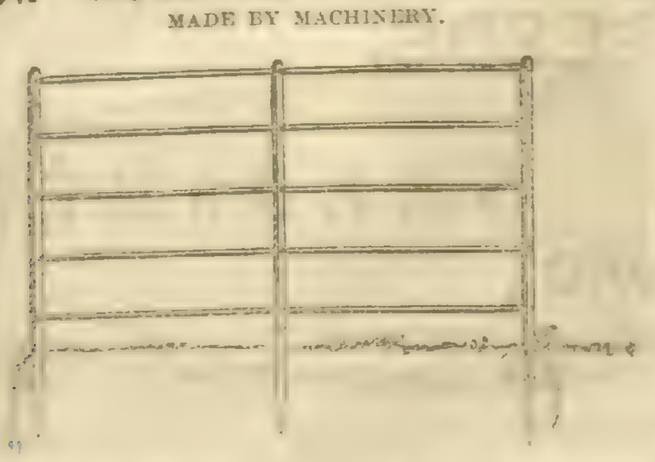
1¾ inch Gutta Percha Suction Pipe, 1*s.* 11*d.* per foot.

2 inch Flexible Rubber and Canvas Suction Pipe, 3*s.* 0*d.* per foot.

May be obtained of any Ironmonger or Plumber in town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

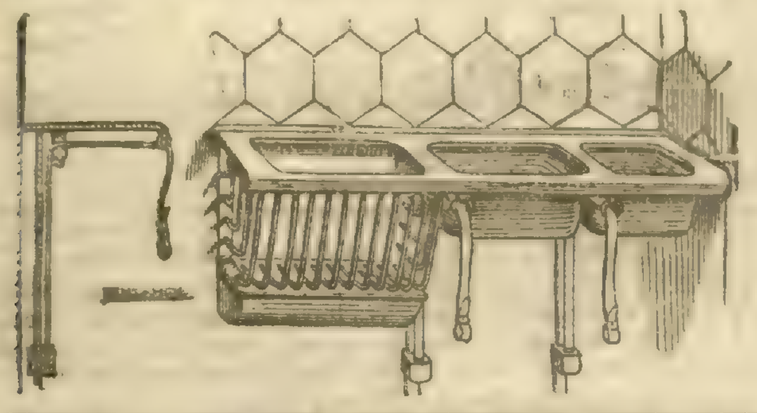
Every description of Machinery for Raising Water, by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. Engravings sent on application.

IRON HURDLES, FENCING, ETC.
MADE BY MACHINERY.



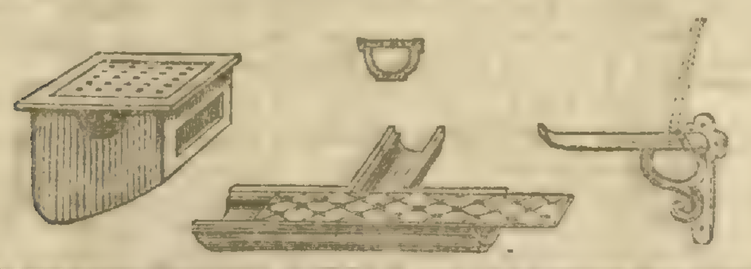
COTTAM AND HALLEN, of Winsley Street, have invented machinery for making Hurdles, &c.; the bars instead of being pointed by hand in the old-fashioned style are nipped down by the Machine, leaving a shoulder so as to more effectually tighten the standards when rivetted. They are made of superior iron only, and will compete in price with those made by hand from cinder or common iron which so frequently break. Iron Fencing, Gates, and Iron Work of all kinds, both Plain and Ornamental, Conservatories, Hot Water Apparatus and Garden Implements. Illustrated Catalogues free on application to COTTAM & HALLEN, Ironmongers, 2, Winsley Street, Oxford Street, W.

COTTAM'S PATENT INVENTIONS for STABLE REQUISITES, awarded a Prize at the Paris Exhibition, and patronised by the English and French Governments.



COTTAM AND HALLEN, of Winsley Street, are the original inventors of the PATENT ENAMELLED MANGER, Water Trough, and Wrought Iron Rack, united to an iron top-plate, and forming one complete and useful fixture, having COTTAM'S patent noiseless halter guide and collar rein attached, which is taken to the back of the manger, and works with ease and freedom up or down the guide-bar.

COTTAM'S NEW PATENT SEED-BOX, an important addition to the above fittings, being simple in construction, light, and durable, promotes cleanliness, and is economical in its results.



COTTAM'S PATENT SADDLE and HARNESS BRACKET combined, can be used with great advantage where space is an object, as it can be turned up out of the way when not in use.

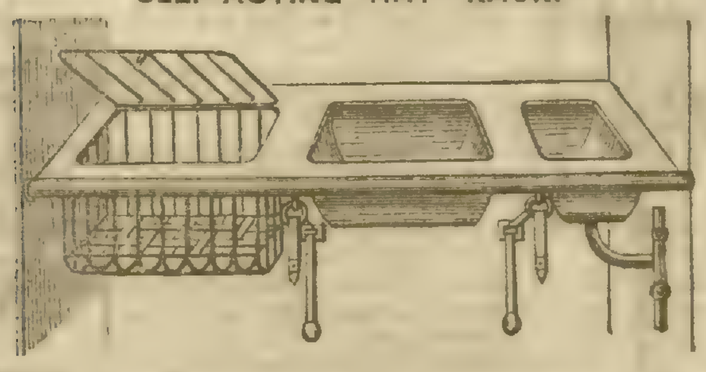
COTTAM'S IMPROVED SURFACE GUTTER, with perforated moveable cover, the use of which prevents accidents, and can be easily cleaned out

COTTAM'S CAST-IRON SANITARY TRAP, from its improved construction, gives a full water passage, and does not allow any smell to ascend from the drain.

PATENT LOOSE-BOX FITTINGS, and every article for the harness room and stable, kept in stock, plain, galvanised, and enamelled. Iron gates, fencing, hurdles, &c.

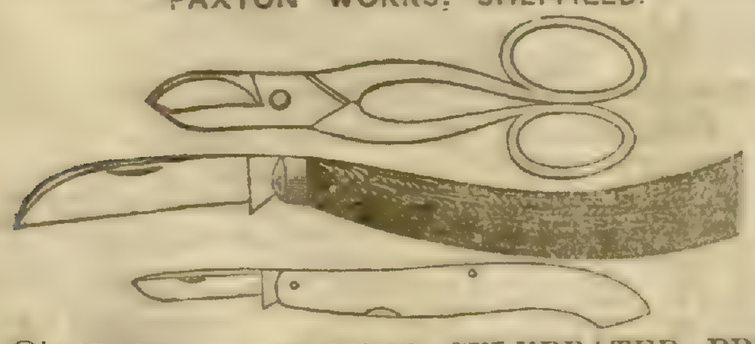
The New Illustrated Catalogue, and Estimates, gratis, upon application to COTTAM and HALLEN, 2, Winsley Street, Oxford Street

BARTON'S PATENT SAFETY STABLE FITTINGS AND ENAMELLED MANGERS, WITH NEW SELF-ACTING HAY RACK.



THESE FITTINGS are now made with the Newly Invented Self-acting Hay Rack, which prevents waste of Hay and Seeds, and is constructed so as to bring a surface of Hay at the top of the Rack however small the quantity therein, producing an effect in connection with these fittings hitherto unaccomplished, with Patent Halter and Collar Rein Guides attached, which are totally noiseless in action, thus forming the most complete and perfect Fittings ever offered to the public. Loose Box Fittings and all kinds of Stable Furniture in stock. New Illustrated Catalogues forwarded on receipt of two postage stamps.—JAMES BARTON, Iron Founder, &c., 570, Oxford Street, London

PAXTON WORKS, SHEFFIELD.



SAYNOR AND COOKE'S CELEBRATED PRUNING, BUDDING, and GRAFTING KNIVES, VINE and PRUNING SCISSORS, &c., as tested, recommended, and reported upon in the *Gardeners' Chronicle* by Dr. Lindley (see No. 47, Nov. 24, 1855), can be obtained of any Nurseryman or Seedsman in the three kingdoms. These Knives obtained the English and French Exhibition Prize Medals in 1851 and 1855. The blades warranted to carry the keen edge of a razor, and to wear through to the back. S. & C. beg also to call attention to their Garden Shears, Hoes, Rakes, Trowels, Hammers, and all kinds of Horticultural Tools.—Established 1788.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.
ASPHALTE
For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

SMOKY CHIMNEYS.—The best Cure is KITES' PATENT VENTILATING & SMOKE-CURING ALBERT CHIMNEY CAPS, suited to any style of Architecture.—200 on Buckingham Palace; 150 on St. James's Palace; 50 on Claremont Palace; 50 on Windsor Castle; 200 on the Western Heights Barracks, Dover; in use also on the Halls and Mansions of the nobility, Government Offices, Club Houses, &c.: Also extensively adopted by the public in general. Price 25s., 30s., and 35s. each. Drawings and Testimonials forwarded on application to JAMES BARTON, Iron Works and Manufactory for the Patent Stable Fittings and Enamelled Mangers, 370, Oxford Street, London.

CHILDREN'S BEDSTEADS AND BEDDING.—HEAL and SON'S Stock of CHILDREN'S COTS, CRIBS, and BEDSTEADS contains every design and size that is manufactured, both in wood and iron, which, together with their large assortment of every other description of bedstead, will be found worthy of inspection. They also beg to call attention to their show of Bed Room Furniture, of which their ware rooms enable them to keep such an assortment that customers may select all the articles for the complete furnishing of a bed room. An Illustrated Catalogue of Bedsteads, Bedding, and Bed Room Furniture, containing designs and prices of 100 Bedsteads, and 150 articles of Bed Room Furniture, sent free by post.—HEAL & SON, Bedstead, Bedding, and Bed Room Furniture Manufacturers, 196, Tottenham Court Road, W.

FENDERS, STOVES, AND FIRE-IRONS.—Buyers of the above are requested, before finally deciding, to visit WILLIAM S. BURTON'S SHOW ROOMS. They contain such an assortment of FENDERS, STOVES, RANGES, FIRE-IRONS, and GENERAL IRONMONGERY as cannot be approached elsewhere, either for variety, novelty, beauty of design, or exquisiteness of workmanship. Bright Stoves, with bronzed ornaments and two sets of bars, 4*l.* 14*s.* to 13*l.* 13*s.*; ditto, with ormolu ornaments and two sets of bars, 5*l.* 5*s.* to 33*l.* 10*s.*; Bronzed Fenders, with standards, 7*s.* to 5*l.* 12*s.*; Steel Fenders, 2*l.* 15*s.* to 11*l.*; ditto, with rich ormolu ornaments, 2*l.* 15*s.* to 18*l.*; Fire-Irons, from 1*s.* 9*d.* the set to 4*l.* 4*s.* The BURTON and all other PATENT STOVES, with radiating hearth plates.

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THE PERFECT SUBSTITUTE FOR SILVER.—The REAL NICKEL SILVER, introduced more than 20 years ago by WILLIAM S. BURTON, when PLATED by the patent process of Messrs. Elkington & Co., is beyond all comparison the very best article next to sterling silver that can be employed as such, either usefully or ornamentally, as by no possible test can it be distinguished from real silver. A small useful plate chest, containing a set, guaranteed of first quality for finish and durability, as follows:—

	Fiddle or Old Silver Pattern.			Thread or Brunswick Pattern.			King's Pattern.			Military Pattern.		
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12 Table Spoons	1	18	0	2	8	0	3	0	0	3	10	0
12 Dessert Forks	1	10	0	1	15	0	2	2	0	2	10	0
12 Dessert Spoons ..	1	10	0	1	15	0	2	2	0	2	10	0
12 Tea Spoons	0	18	0	1	4	0	1	10	0	1	18	0
6 Egg Spoons, gilt bowls..	0	12	0	0	15	0	0	18	0	1	1	0
2 Sauce Ladles	0	7	0	0	8	6	0	10	6	0	16	0
1 Gravy Spoon	0	8	0	0	11	0	0	13	6	0	16	0
2 Salt Spoons, gilt bowls..	0	4	0	0	5	0	0	6	0	0	7	6
1 Mustard Spoon, gilt bowl	0	2	0	0	2	6	0	3	0	0	3	9
1 Pair of Sugar Tongs ..	0	2	0	0	3	9	0	5	0	0	7	0
1 Pair of Fish Carvers ..	1	4	0	1	7	6	1	12	0	1	18	0
1 Butter Knife	0	3	6	0	5	9	0	7	0	0	8	0
1 Soup Ladle	0	13	0	0	17	6	1	0	0	1	1	0
1 Sugar Sifter	0	4	0	0	4	9	0	5	9	0	8	6
Total	11	14	6	14	11	3	17	14	9	21	4	9

Any article to be had singly at the same prices. An oak chest to contain the above, and a relative number of knives, &c., 2*l.* 15*s.* Tea and coffee sets, cruet and liqueur frames, waiters, candlesticks, &c., at proportionate prices. All kinds of re-plating done by the patent process.

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GOOD NEWS FOR THE AFFLICTED.—The wife of Mr. Thomas George, of No. 4, Plaistow Marsh, near Victoria Dock, Essex, had been a great sufferer for eight years with an ulcerated leg. She attended at Bartholomew's Hospital seven weeks without receiving any benefit; she had also tried a number of reputed medicines, and having spended much and of no avail, she considered herself past cure. She was urged by a friend to try the Poor Man's Friend and Pills, which she purchased from Dr. Roberts, Crisp Street, Poplar. These perfectly cured her. Notwithstanding her advanced age, she is restored to the highest state of health and vigour by their use. April 4, 1857.

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FLOWER AND VEGETABLE SEEDS.

JAMES CARTER & CO., SEEDSMEN,

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INVITE attention to the Twenty-third Annual Issue of their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, universally admitted to be the best scientifically arranged Catalogue published. It will be forwarded free of charge and post paid to all parts of the world upon application.

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BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2s. 6d. to 21s. each.

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500 AUGUSTE MIE, on their own roots.
500 BARONNE PREVOST ,,
500 LA REINE ,,
2000 MANETTI STOCKS.
3000 BLACK BOURSAULTS.
3000 CELINE ,,

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ROSES.

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Their Stock includes all the finest varieties in cultivation, all of which have been selected with the greatest care, and are warranted true to name and of the finest quality.

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F. AND A. SMITH are now sending out Seed of their unrivalled BALSAMS, in packets containing nine colours separate, six seeds of each colour, 2s. 6d. each; do. mixed, 2s. F. & A. S. have added some additional colours to their collection, which now comprises blush, crimson, crimson bizarre, pink, purple, purple flake, purple mottled, salmon, scarlet, scarlet flake, scarlet mottled, French or pearl white, pure white, a small quantity of cream, crimson mottled, and pink flake.

Also Antirrhinum from a splendid collection, 6d. per packet.

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RABBIT-PROOF WIRE-WORK, 6¾d. per square yard.

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Editorial Communications should be addressed to "The Editor"—Advertisements and Business Letters to "The Publisher"—at the Office, 5, Upper Wellington Street, Covent Garden, London, W.C.
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THE GARDENERS' CHRONICLE AND AGRICULTURAL GAZETTE.

A Stamped Newspaper of Rural Economy and General News.—The Horticultural Part Edited by Professor Lindley.

No. 52.—1857.] SATURDAY, DECEMBER 26. {Price Fivepence. STAMPED EDITION, 6d.

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Aralia papyrifera	870	c	Manure, liquid	874	b
Bee "soup"	867	c	Mice, to keep off Peas	869 c—870	c
Botany and children	870	b	Midland Florist, noticed	871	b
Botanic Garden Ootacamund	872	a	Mushroom, Cuthill on	871	c
Bread, price of	877	b	Object lessons, Lake's	871	c
Cardoons	872	c	Orange trees	868	c
Cattle breeding	877	b	Peach and Nectarine Stocks	872	c
Cattle murrain, Simonds on	874	a	Peas, to keep mice off	869 c—870	c
Chrysanthemums	870	a	Pear, Victoria	868	c
Chrysanthemum societies	870	c	Plants, new	868	c
Clay ballast	877	b	Ploughing, deep	874	b
Coal Clubs	869	c	Pomegranate	870	b
College, Agricultural	874	b	Potato disease, Caless on	871	c
Cultivation, a feat in	870	a	Rabbit breeding	876	a
Currants, pruning black	870	c	Rose stocks	869	c
Drainage	876	c	Season, the	868 b—87	b
Entomological Society	870	b	Shells, Dr. Gray on	871	c
Fallows, do they pay?	875	c	Stock, statistics of live	873	c
Farms, Scotch liquid manure	874	b	Temperature	868	a
Farm balance sheet	875	c	— ground	868	a
Farmers' Club, Central	876	c	Trade memoranda	869	c
Ferns	870	c	Vancouver Island	868	c
			Weeds	876	a

CHRISTMAS BOTANICAL LECTURES.

THE COUNCIL OF THE HORTICULTURAL SOCIETY OF LONDON have the pleasure to announce that DR. LINDLEY has kindly consented to deliver, in January and July, TWO COURSES OF LECTURES ON BOTANY. The first Course (January 5, 7, 9, 12, 14, 16, Elementary, and the second (July 8, 10, 13, 15, 17) on Botany applied to Horticulture.

The time of year chosen by the Council has been the holidays, in the belief that Fellows of the Society may like their children to attend. The charge for the Six Lectures in January will be 5s. for young Persons under 18, and 10s. 6d. for those above that age. The Lectures are open free to Fellows and holders of Ivory Tickets.

Application for Tickets to be made between the hours of 11 and 4 at 21, Regent Street, S.W.

LECTURE I., Jan. 5.—A Plant's *last* and *first stages* of existence; the **SEED**; of what it consists. *Second stage:* the **ROOT**; how it grows, its uses; the **YOUNG PLANT.**

LECTURE II., Jan. 7.—*Third stage:* the stem and leaves. The **STEM**; its external forms; its internal structure; how it grows; its uses.

LECTURE III., Jan. 9.—The **LEAVES**; their external form; their internal structure; their skeletons; their uses.

LECTURE IV., Jan. 12.—*Fourth stage:* the **FLOWER**; its various parts; their forms; their uses.

LECTURE V., Jan. 14.—*Last stage:* the **FRUIT** and **SEED**; how fruits are formed out of flowers; the various kinds of fruit in common use.

LECTURE VI., Jan. 16.—*Application* of the preceding facts to the study of Botany. The **CLASSIFICATION** of Plants.

(A Second Series will be given in July.)

*** Gentlemen desirous of becoming Fellows of the Horticultural Society will receive all necessary information on addressing a letter to the Librarian, 21, Regent Street, S.W.

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY will hold the 12th Annual Exhibition in November, 1858, when PRIZES, including FOUR SILVER CUPS, will be competed for.

OFFICERS ELECTED.

Chairman—Mr. E. Sanderson.
Treasurer—Mr. R. James.
Secretary—Mr. Arthur Wortley.

Committee.

Mr. Kendall	Mr. Lucas	Mr. Barter
,, Holmes	,, Towner	,, Broom
,, Mackay	,, Croxford	,, Cottrell
,, Drain	,, Shields	,, Baker

STOKE NEWINGTON CHRYSANTHEMUM SOCIETY.—Instituted 1846.

President—JOHN EDWARDS, Esq., F.H.S.

Manor Rooms, Church Street, Stoke Newington, Dec. 1857.

The Members of the above Society and the Public are respectfully informed that all Meetings in connection with the business of the Society will in future be held at the Manor Rooms as above, and not at the Rochester Castle as heretofore.

Committee of Management.

C. Argent	D. Monk	G. Peachey
J. Bird	J. Nichols	J. Paxton
S. Broome, F.H.S.	R. Oubridge	G. Taylor
E. Merry	J. Putman	C. Ward

WILLIAM HENRY ANGEL, Hon. Sec.

VEGETABLE AND FLOWER SEEDS.

JOSEPH MAY AND CO. beg to announce the arrival of their new Vegetable and Flower Seeds from the best growers, Catalogues of which may be had on application. They can particularly recommend the following Peas for first sowing: Early Emperor, Daniel O'Rourke, and Dickson's Early Favourite, the latter producing eight to eleven Peas in a pod. J. M. and Co. can give references to noblemen, gentlemen, and gardeners who had seeds of them last season.—1, Wellington Street, Strand, near Waterloo Bridge.

PHORMIUM TENAX, OR NEW ZEALAND FLAX.—Packets containing 100 Seeds of this valuable and Ornamental Plant. 2s. 6d. each.—May be procured of BERNARD SAUNDERS, Nurseryman, &c., Jersey.

MESSRS. WILLIAM E. RENDLE AND CO., SEED MERCHANTS, Plymouth, in Retiring from Business beg to offer their acknowledgments to their patrons in different parts of the United Kingdom for the very liberal patronage that has been bestowed upon the Firm. They also notify that they have Transferred their Business to the PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY, (LIMITED), by whom in future it will be conducted, and beg to solicit a continuance of favours on the Company's behalf, being assured that all orders will be executed with despatch, with goods of the best description, and of that quality for which their House has been so long noted.

Union Road, Plymouth, December 26.

SUTTONS' SEED LIST for 1858, with Prices affixed to every article, will shortly be ready.

Royal Berkshire Seed Establishment, Reading.

TO THE TRADE.

JOHN SHARPE'S List of Seeds of his own saving is ready, and will be forwarded on application.

Bardney Hall, near Lincoln, Dec. 26.

LOUIS VAN HOUTTE'S TRADE SEED LIST is to be had at Mr. R. SILBERRAD'S, 5, Harp Lane, Great Tower Street, London. (Seeds in London free, till the 1st of February next.)

TRADE FERN CATALOGUE.

ROBERT SIM'S WHOLESALE PRICED LIST OF FERNS, *grown in quantities for the Trade, can be had free on application, enclosing one stamp.*

Nursery, Foot's Cray, Kent, S.E.

FERN CATALOGUE AND SUPPLEMENT.

ROBERT SIM'S PRICED and DESCRIPTIVE 24-page CATALOGUE of his General Collection of FERNS can be had free for six stamps.

*** *The new Priced and Descriptive Supplement (15 pages) gratis with the above, or separately for one stamp.*

Nursery, Foot's Cray, Kent, S.E.

ROSE NURSERIES, HERTFORD.

E. P. FRANCIS'S NEW ROSE CATALOGUE, containing full instructions for successfully cultivating Dwarf Roses on the Manetti Stock, may be had gratis on application.

GEORGE JACKMAN begs to state that his PRICED CATALOGUE of GENERAL NURSERY STOCK is now ready, and can be had free on application.

Woking Nursery, Surrey.

ROSES.

GEORGE JACKMAN, Woking Nursery, Woking, Surrey, has much pleasure in acquainting his Patrons and the Public that he has this season to offer an extensive stock of well-grown STANDARD and DWARF ROSES, consisting of all the leading and most approved kinds. A Priced Catalogue will be forwarded free on application.

ROSES.—TO THE TRADE.

J. MUNRO begs to offer for Sale the following, prices of which may be had on application:—

500 AUGUSTE MIE, on their own roots.
500 BARONNE PREVOST ,,
500 LA REINE ,,
2000 MANETTI STOCKS.
3000 BLACK BOURSAULTS.
3000 CELINE ,,

West of England Roseries, Westbury-on-Trym, Bristol.

SEED ESTABLISHMENT, SLEAFORD.

CHARLES SHARPE AND CO., beg to offer the Trade their extensive Stock of GARDEN and AGRICULTURAL SEEDS, which have been grown with great care by themselves from the best stocks. List of prices on application.

BERBERIS JAPONICA.

CHARLES NOBLE can supply the above magnificent Evergreen in any quantity; its hardiness is now thoroughly established; it produces Fruit freely. Plants can be seen in his grounds with clusters of 16 flower stems, and from 60 to 70 flower buds on each stem. Prices of the different sizes given on application.—The Nursery, Bagshot, Dec. 26.

CHARLES NOBLE begs to remind his patrons that his Nursery is but six minutes' walk from Sunningdale Station, South-Western Railway. Intending planters will do well to inspect his stock of Evergreens, Rhododendrons, Coniferæ, &c. His Catalogue may be had on application.

The Nursery, Bagshot, Dec. 26.

GRAPE VINES FROM EYES.

JOHN AND CHARLES LEE having recently erected a SPACIOUS NEW RANGE, on the most improved principles, especially for the Growth of VINES, are enabled to offer a very extensive and superior Stock of this important Fruit, for the cultivation of which their establishment has been so long celebrated.—Vineyard Nursery, Hammersmith, London.

PRINCE OF WALES RASPBERRY (CUTBUSH'S).

WM. CUTBUSH AND SON can supply the above fine RED RASPBERRY, which is acknowledged as the best in cultivation, in any quantity at 75s. per 100. Price to the trade on application.—Highgate Nurseries, London, N.

MITCHELL'S ROYAL ALBERT RHUBARB.

WILLIAM MITCHELL can supply strong one year planted roots of the above, which is considered the best in cultivation, in any quantity. Also, Mitchell's Grey Eagle, Myatt's Victoria, and Linnæus at 35s. per 100. Usual allowance to the trade. Post-office Orders payable to WILLIAM MITCHELL, at Enfield Highway, Middlesex.

BERNARD SAUNDERS, NURSERYMAN, Jersey, has splendid Stocks of Quince Pear Trees, Flemish Carnations, Yellow and White ground Picotees, &c., to offer to his numerous patrons and friends this season. Prices moderate, to be obtained on application.

B. S.'s Priced List of Cape Bulbs is now ready for delivery.

FIGS in pots for Forcing or Orchard house culture.—Fruiting trees, three years old, of the following sorts, are offered at 5s. each:—Brown Turkey or Lee's Perpetual, White Ischia, White Marseilles. Carriage paid to London.

THOMAS RIVERS, the Nurseries, Sawbridgeworth.

TO THE TRADE.

WATERER AND GODFREY beg to offer unusually fine DWARF MAIDEN AND TRAINED FRUIT TREES as follows:—

APPLES.	PLUMS.	PEACHES.
PEARS.	APRICOTS.	NECTARINES.
	CHERRIES.	

A very fine lot of Standard Roses.

Prices will be furnished on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

LYNCH'S STAR OF THE WEST CUCUMBER.—The best FRAME CUCUMBER in cultivation.

12 seeds for 2s. 6d. } Post Free.
6 seeds for 1s. 6d. }

The Plymouth Seed, Agricultural Implement, and Manure Company, Plymouth.

EARLY CUCUMBER.

CARTER'S CHAMPION CUCUMBER surpasses Stow House and Lord Kenyon's Favourite for winter and early spring use. Smooth, dark green, straight, and prolific; average length, 1 foot. Price per packet, 1s.—JAMES CARTER & CO., Seedsmen, 238, High Holborn, London, W.C.

CUCUMBER SEEDS.

CUTHILL'S BLACK SPINE, Early Forcing, 1s. per packet; Do. WHITE SPINE, long, 2s. 6d. per packet; Do. HIGHLAND MARY, very best for winter, 2s. 6d. per pckt.

Potato Pamphlet, &c., 2s.; Market Gardening Round London, 1s. 6d.; Vine Pamphlet, 1s. The Treatise on the Cultivation of the Mushroom, price 1s. post free.

JAMES CUTHILL, Camberwell, London, S.; and the Office of the "Florist," 28, Henrietta Street, Covent Garden.

FRUIT TREES.

J. AND J. FRASER, of the Lea Bridge Road Nurseries, Essex, having a large Stock of Maiden and Dwarf trained Fruit Trees, beg to invite the Trade and others to an inspection of the same.—Price per dozen or per 100 may be had on application.

FRUIT TREES IN POTS.

JOHN AND CHARLES LEE beg to offer an immense stock of FRUIT BEARING TREES IN POTS of all the leading kinds of PEACHES, NECTARINES, APRICOTS, PLUMS, CHERRIES, PEARS, APPLES, AND FIGS. Priced Catalogues on application.—Nursery, Hammersmith, London.

NURSERY TREES.

FOWLER AND WRIGHT, SEEDSMEN and NURSERYMEN, Glasgow, have a fine Stock of SEEDLING and TRANSPLANTED FOREST TREES, FRUIT TREES, and SHRUBS, which they will sell on moderate terms.

TWO MILLIONS OF TRANSPLANTED QUICKS.

GEORGE CHIVAS invites the attention of Planters to his Stock of the above. He will forward a Sample Bale containing 100 of each five sizes for 15s. His General List of Nursery Stock will be forwarded on application.—Chester.

NURSERY STOCK AT REDUCED PRICES TO MEET THE TIMES.

WM. JACKSON AND CO., Bedale, beg to refer purchasers to their Advertisement in *Gardeners' Chronicle* of the 12th December, page 824.

TO THE TRADE.

THE SUBSCRIBERS have to offer:—

STRONG TRANSPLANTED ELMS, 7 to 9 feet.
Do. do. ASH, 7 to 9 feet.

Also suitable for working—

STRONG TRANSPLANTED WILLOWS, sorts, 7 to 9 feet.
Do. do. HORNBEAM, 4 to 7 feet.

Prices on application.

JAMES DICKSON & SONS, "Newton" Nurseries, Chester.

HARDY HEATHS.—A very complete collection of this beautiful tribe, and of first-rate plants, every one being a specimen in itself, may be had by the 100 or the 1000, on application to WATERER & GODFREY, Knap Hill, Woking, Surrey.

WANTED TO PURCHASE, 100 well rooted Plants of the WHITE WATER LILY (Nymphæa alba).—Apply by letter to W. E., 30, Cadogan Place, Chelsea, stating price, packed and delivered to any railway station.

PINE PLANTS FOR SALE.—To be seen at Wood House, Dulwich. Ask for the Gardener. 10 Pines in fruit, 24 succession ditto, 26 stools of ditto with strong suckers fit for potting.

ORCHIDS.

FOR SALE, the property of a Gentleman lately deceased, a valuable Collection of ORCHIDS, also a few STOVE and GREENHOUSE PLANTS.—Apply to the Gardener, 16, Highbury Park, Islington, N.

TWO LARGE MYRTLES FOR SALE, between 9 and 10 feet high.—Applications to be made to G. P., Post Office, Tamworth.

TO THE SEED TRADE.

TO BE SOLD, very cheap, a few quarters of BEDMAN'S IMPERIAL and SCIMETAR PEAS; also a quantity of Wood's LONG RIDGE CUCUMBER, a variety which for hardiness and prolific bearing, combined with length, is unequalled.—Apply to WOOD & INGRAM, Huntingdon.

EARLY SOWING FOR 1858.

EARLY PEAS, BEANS, CARROTS, &c.—Genuine Seed, warranted of growth 1857. Every description for present sowing may be had of JAMES CARTER & CO., Seedsmen, 238, High Holborn, London, W.C.

SEED POTATOES.

SUTTON AND SONS, SEED GROWERS, Reading, have a large Stock of the Early kinds of POTATOES, very true and free from disease. Prices, &c., will be forwarded upon application.

CUSTARD VEGETABLE MARROW.

HOOPER AND CO., Centre Avenue, Covent Garden Market, are now ready to send out for the 1858 season New Seed of the above named excellent vegetable, so favorably noticed in the *Gardeners' Chronicle* of September 19th, in packets of six Seeds for 12 stamps, post free.

Price to the Trade on application.

SEED WHEAT FROM THE CHALK.—Selected Samples of Cholham, White Tritoma, Rough Chaff, Paxton's Improved, Talavera, Red Brown, &c., &c., the best seeds of Wheat supplied at market prices. Samples sent on application.—Address H. RAYNTHER, Basingstoke, or 14, Seed Market, Mark Lane.

NEWSPAPER

TO INTENDING PURCHASERS.

GEORGE JACKMAN begs to announce that he can supply in quantities the undermentioned, which are well grown and constantly removed to insure safety:—

Abies Douglasi, 3, 4, to 8 feet, very fine, from seed.
,, canadensis (Hemlock Spruce), 5 to 6 feet.
Araucaria imbricata, 2 to 5 feet, well balanced.
Cedrus Deodara, 3, 5, to 6 feet, very handsome.
,, ,, 8 to 10 feet; these are 6 feet through and very finely formed.
,, Libani (Cedar of Lebanon), 2, 3, 4, to 5 feet.
,, ,, 6, 8, to 9 feet, well adapted for specimens.
Cryptomeria japonica, 2 to 5 ft., raised from my specimen tree
Cupressus Corneyana, 1, 2, to 4 feet, well furnished.
,, Lawsoniana (from seed); this is a fine, new, and graceful Californian tree.
Juniperus chinensis, 2 to 6 feet.
,, ,, 8 to 9 feet, very beautiful, quite perfect for single trees.
Picea nobilis, 1 to 2 feet.
,, Nordmanniana (from seed), 1 foot, and as thick through.
Pinus Cembra, 2 to 5 feet.
,, insignis, 3 to 4 feet.
,, ,, 5 to 9 feet, extra fine.
Taxodium distichum, 3, 4, 5, to 6 feet, nice plants.
,, ,, pendulum, 1 to 2 feet, very ornamental.
,, sempervirens, 3, 5, to 10 feet, very handsome.
Taxus (Yew), Common, 2 to 4 feet.
,, Irish, 2, 4, 6, to 8 feet, fine plants pruned to one lead.
Thuja aurea, 1 to 2 feet, beautifully formed.
,, Lobbi, 1 to 2 feet, fine plants.
,, chiliensis (Libocedrus), 1 to 2 feet.
,, siberica compacta, 3, 4, to 5 feet.
,, Meldensis (Biota), 1 to 2 feet, a new, ornamental, and distinct variety.
Thujopsis borealis, 1 to 1½ foot, very fine plants.
Wellingtonea gigantea, 1 to 1½ foot.
Besides other rare Conifers not named.

Also an extensive stock of American Plants, Hardy Evergreens, and Ornamental Trees and Shrubs, Fruit and Forest Trees, and well grown Standard and Dwarf Roses, consisting of the most approved kinds.

G. J. respectfully invites an inspection of his Nursery, which will give purchasers the opportunity of making their own selection. A Priced Catalogue of his Stock will be forwarded free on applying to GEORGE JACKMAN, Woking Nursery, Surrey, near the Woking Station, South-Western Railway, where conveyances can be obtained.

TO GENTLEMEN ENGAGED IN PLANTING.

WATERER AND GODFREY beg to offer the following desirable Plants:—

Araucaria imbricata, stout and well furnished, never in pots, 1 to 2 feet high, by the 1000.
,, ,, magnificent specimens, from 3 to 8 ft. high
Cedrus Deodara, 2, 3, and 4 feet high, most beautiful plants, by the 1000
,, ,, 5, 6, 8, and 10 feet, in large numbers, and in every way perfect specimens
Cedars of Lebanon, 3, 4, 5, 8, and 10 feet
,, Red Virginian, 3, 4, 6, and 8 feet
Pinus insignis, 1, 2, and 3 feet, and larger, up to 6 and 8 feet
,, Douglasi, 5, 6, 8. and 10 feet
,, Menziesi, 6 to 8 feet
Lambertiana, 2, 3, and 5 feet
,, Cembra, 3, 5, and 6 feet
,, Benthamiana, in quantities from seed. Also all the new Californian kinds, such as—
Picea nobilis, the finest stock in the kingdom, in quantities from imported seed. Also beautiful specimens, 1, 2, and 3 feet high; a few larger 6 to 8 feet. None are grafted
,, amabilis, also from seed
,, Pinsapo, in quantities, 1, 2, and 3 feet high. Also a fine lot of magnificent plants, 4, 5, 6, and 8 feet high
,, Nordmanniana, 1, 2, and 3 feet high and as much wide; all from seed
Variegated White Cedar, about the most beautiful variegated plant known, in large quantities from 2, 3, to 5 feet
Cryptomeria japonica, all sizes up to 10 feet
Cupressus macrocarpa, ditto ditto
,, Lawsoniana, 12 to 18 inches
Juniperus, Chinese, 2, 3, and 4 feet; a large lot of very fine plants, 7, 8, and 10 feet
Juniper, Upright Irish, 3, 4, 5, 6, and 10 feet, perfect columns
Hemlock Spruce, 3, 4, and 5 feet
Libocedrus chiliensis, 3, 4, and 5 feet
Taxodium sempervirens, 3 to 7 and 8 feet
Taxus, Yew, Common English, in large quantities, 2, 3, 4, 6, and 8 feet, very fine
,, Irish Yew, an immense stock of beautiful plants trimmed to one stem, 4, 5, 6, 8, and 10 feet high
,, Golden Yew, in large numbers and of all sizes, from 2 to 6 feet
Ditto ditto, worked as standards on the Irish and Common, 6 and 8 feet high, with large heads, very ornamental
,, elegantissima, or new Gold Striped, in quantities and of all sizes
,, adpressa, 2, 3, and 4 feet; ditto worked as standards
,, Dovaston, or Weeping Yew, worked on tall straight stems, 5, 6, and 8 feet, with fine heads
Thujopsis borealis, 1 and 2 feet high
Thuja, Arbor Vitæ, American, the best for hedges, 4, 5, 6, and 8 feet high
,, Wareana, 3, 4, 5, 6, and 8 feet
,, aurea, fine specimens and in quantity; nothing can exceed the beauty of these plants; many are of large size, forming complete globes
Wellingtonia gigantea, by the 1000, from seed; also larger plants, 1, 2, and 3 feet high
Hollies, green and variegated. Our stock of variegated Hollies is perhaps unequalled, and comprises more varieties than are usually grown; the plants are from 2, 3, 4, to 6 feet, some very large, up to 15 feet. We are also holders of a large stock of good sized plants of Lord Harrington's, or the best Gold Striped Holly
Weeping Holly, on very tall straight stems, with good heads
Box, green and variegated, in large quantity, and of all sizes up to 5 and 8 feet

All the large plants referred to in this advertisement may be seen growing in our Nursery, where they are regularly removed, and are consequently in a condition to transplant and travel with perfect safety. In addition to the above our Nursery extending over upwards of 120 acres of land, we are large growers of all the more common and general nursery stock, such as Laurels, Lilacs, Thorns, Aucubas, Phillyreas, Limes, &c. &c. Roses, Fruit, and Forest Trees are also extensively grown, and, as is well known, one of the largest collections of American Plants in Europe.

Goods delivered free to London or Reading. The Nursery is reached in 40 minutes by South Western Railway to Woking, or *viâ* Reading to the Sunningdale Station. Catalogues will be forwarded on application by enclosing one postage stamp to

WATERER & GODFREY, Knap Hill, Woking, Surrey.

☞ Plants can be sent through from Woking to almost any part of England in the same truck, saving all the expenses of package and a good deal in carriage.

EXCELLENCE, ECONOMY, AND CONVENIENCE.

SUTTON'S COMPLETE COLLECTIONS
OF
KITCHEN GARDEN SEEDS FOR ONE YEAR'S SUPPLY

GENTLEMEN who do not employ a professed Gardener, or who may prefer ordering their Seeds themselves, will find it most convenient to order one of SUTTON'S COMPLETE COLLECTIONS, which are so assorted as to contain the proper quantities of the best kinds to supply a family for the whole year.

The entire charge for the largest Collection (No. 1) is £3.
Do. do. Collection (No. 2) is £2.

And Complete Collections for Smaller Gardens may be had at proportionately lower sums.

The No. 1 Collection contains 20 quarts of the best sorts of Peas, 10 quarts Garden Beans, 5 pints French or Kidney Beans, and all other Vegetable Seeds in due proportion.

N.B. If any kinds of Seeds are already possessed they should be named, that we may omit them and increase the quantity of others in lieu of them. Those purchasers who may prefer making their own selection are recommended to apply for the GENERAL SEED CATALOGUE FOR 1858, which is now in the press. It contains all the newest and best kinds of Kitchen Garden and Flower Seeds yet introduced, many of them from the Continent, with the prices affixed to each article.

SUTTON & SONS, Seed Growers and Merchants, Reading, Berks.

FLOWER AND VEGETABLE SEEDS.

JAMES CARTER & CO., SEEDSMEN,
238, HIGH HOLBORN, LONDON, W.C.,

INVITE attention to the Twenty-third Annual Issue of their ENCYCLOPÆDIC CATALOGUE of FLORICULTURAL, VEGETABLE, and AGRICULTURAL SEEDS, universally admitted to be the best scientifically arranged Catalogue published. It will be forwarded free of charge and post paid to all parts of the world upon application.

FLOWER SEEDS.

This department of the Catalogue comprises all the novelties of the season, many rare and choice Seeds, and a total of nearly 2000 different varieties of Flower Seeds, of each of which a complete scientific description is given by means of a system of perspicuous tabular arrangement, admirably adapted for referential convenience.

VEGETABLE SEEDS.

J. C. & Co. have bestowed great attention upon this branch of the Business, and beg to intimate that all Seeds sent out from their establishment they warrant to be unadulterated and of the last season's growth. The Catalogue contains only those sorts which can be confidently recommended as well deserving of cultivation, to each of which is affixed the time of sowing, &c. &c. forming a concise and complete guide for the Kitchen Garden.

AGRICULTURAL SEEDS.

This List will be found to contain all the leading and most approved varieties. J. C. & Co. are particularly careful that all the Seeds are of growth 1857, and they can guarantee their stocks as being genuine and true to name.

NEW ANNUALS FOR 1858.

(For description see Catalogue and coloured plate.)

CLARKIA PULCHELLA MARGINATA, rose white border, 1s. per packet.
LUPINUS HYBRIDUS INSIGNIS, rosy purple, 1s. per pckt.
LUPINUS MENZIESI, bright golden yellow, 1s. per packet.
ŒNOTHERA DRUMMONDI NANA, very dwarf, 1s. per packet.

JAMES CARTER & CO., Seedsmen, &c., 238, High Holborn, London, W.C.

AUGUSTE VAN GEERT, NURSERYMAN, Ghent, Belgium, begs to offer the following PLANTS, free of charge for packing:—

100	Camellias, different and of the choicest varieties	£4	0
25	Camellias, with flower buds, strong plants	2	10
100	Camellias, double white, young plants	4	0
100	Indian Azaleas, with flower buds	4	0
12	Azalea Eulalie Van Geert, with flower buds	1	5
25	Ghent Azaleas, of the best varieties, with flower buds	1	0
25	Ghent Azaleas, new varieties	1	10
25	Ghent hardy Rhododendrons, best named varieties	1	10
12	varieties of Yellow Rhododendrons	0	18
25	Rhododendron Javanicum, 4 inches	1	0
50	new Holland Plants, different sorts	1	10
20	varieties of choice Pæonia sinensis	0	18
6	varieties quite new, from Mr. Parmentier	1	0
12	varieties of Tree Pæonia	1	5
25	Lilium lancifolium rubrum, strong roots	1	10
25	Lilium lancifolium album, strong roots	1	0
12	new named Phloxes	0	6
12	Laurustinus, on stems, with flower buds	0	12
100	Gladiolus Gandavensis, strong roots	0	18
12	Erythrina Cristagalli, strong roots	0	18
25	choice hardy Coniferous Plants	1	5
12	fine Orange Trees, on stems	1	16
25	Oraheite Oranges	1	10
25	Magnolia macrophylla	1	0
25	Ginkgo biloba	0	10
12	Chamærops humilis	1	0
25	best Perpetual Roses	1	0
25	Bengal and Tea Roses	0	18
12	Ampelopsis quinquefolia, strong	0	12
12	fine Pear Pyramids	1	0
12	Bignonia radicans	0	6
12	Indigofera dosua, strong	0	9
25	Thuja aurea	1	6
100	Castanea vesca, 1 year Seedlings	0	8
100	,, ,, 2 years ,,	0	6
12	sorts of Gloxinia erecta	0	12
25	sorts of Mamillaria and Echinocactus	1	0

WALTON NURSERY, LIVERPOOL.

To NOBLEMEN AND GENTLEMEN PLANTING NEW PLEASURE GROUNDS, OR IMPROVING PARKS OR DRIVES, AND TO COMPANIES PLANTING PUBLIC PARKS OR CEMETERIES.

W. SKIRVING begs to offer his Stock of TREES AND SHRUBS of various sizes, adapted either for immediate effect or for extensive New Plantations, where smaller sized and less expensive plants are required. In addition to his general stock of the leading kinds of Trees and Shrubs, which is allowed to be the most extensive in England, he has this season to offer several acres of Araucaria imbricata and Cedrus Deodara of various sizes, from 1 to 6 feet; also a large stock of fine Plants, from seed, of the new and most interesting tree, the WELLINGTONIA GIGANTEA, or GIANT TREE OF CALIFORNIA.

W. S. invites any one wanting Specimen Trees and Shrubs to inspect his collection and obtain prices on the spot, as the mere height of such trees (as quoted in lists) gives no idea of the value of well grown select plants for choice situations.

N.B. A few hundreds of the larger sized and finely shaped plants of the Araucaria imbricata and Cedrus Deodara have been grown in tubs, to secure their travelling in safety to great distances in this country or to any part abroad.

Strong transplanted Thorn Quicks for hedge planting, and a most extensive stock of Forest Trees, of all ages and sizes, at very moderate prices.—Catalogues on application.

THE PETURION GOURD.—This wonderful production will be found one of the most useful vegetables; it not only grows to an enormous size in this country, but when grown is really profitable; it has a beautiful thin rind and may be candied, preserved, used in pies, soups, cheesecakes, &c. &c. H. Foster, Esq., of Castlethorpe, near Brigg, in Lincolnshire (from whom I have the entire Stock of seed) first procured the seeds from the continent, and has grown several this season, varying from 120 lbs. to 130 lbs. each, from 6 to 7 feet in circumference, and grown within the space of 36 days. *Price 1s.* and 2s. 6d. per packet, and may be had at *E. P. Dixon's Seed Establishment*, 57, Queen Street, Hull.

N.B. The 2s. 6d. packets contain treble the quantity of the 1s.

THE CHAMPION OF ENGLAND BROCCOLI.—This Cauliflower Broccoli is the largest and latest known, and will grow to the weight of 27 lbs., does not run to seed, and flowers at a time when all others have ceased, viz. in May and June. Price 2s. 6d. per packet, and may be had at

E. P. DIXON'S, 57, Queen Street, Hull.

SUPERB BALSAMS.

F. AND A. SMITH are now sending out Seed of their unrivalled BALSAMS, in packets containing new colours separate, six seeds of each colour, 2s. 6d. each; or mixed, 2s. F. & A. S. have added some additional colours to their collection, which now comprises blush, crimson, crimson bizarre, pink, purple, purple flake, purple mottled, salmon, scarlet, scarlet flake, scarlet mottled, French or pearl white, pure white, a small quantity of cream, crimson mottled, and pink flake.

Also Antirrhinum from a splendid collection, 6d. per packet.

Per packet—	s.	d.	Per packet—	s.	d.
Cineraria	1	0	Intermediate Stock	[illegible]	[illegible]
Calceolaria	1	0	Pansies, Fancy	[illegible]	[illegible]

The following Firms can supply their Balsam Seed:—

Brown & Austin, Glasgow
Bass & Brown, Sudbury
Brigden, F., London Bridge
Butler & M'Culloch, Covent Garden
Chartres, J., & Co., King William Street, London Bridge
Clark, W., Bishopsgate Street, London
Clarke, Boshell, & Co., High Street, Borough, London
Cutbush, W., & Son, Highgate, Middlesex [London
Carter & Co., High Holborn,
Denyer, W., 82, Gracechurch Street, London
Dickson & Sons, South Hanover Street, Edinburgh
Downie & Laird, 17, South Frederick Street, Edinburgh
Drummond & Sons, Stirling
Drummond & Sons, Dawson Street, Dublin
Fisher, Holmes, & Co., Sheffield
Flanagan & Son, Mansion House Street, London
Francis, E. P., Hertford
Godwin, F., Sheffield
Henderson, A., & Co., Edgware Road, Middlesex
Henderson, E. G., & Sons, St. John's Wood, Middlesex
Hooper & Co., Centre Avenue, Covent Garden
Hurst & M'Mullen, Leadenhall Street, London
Keynes, J., Salisbury
May, J., & Co., Wellington Street, Strand
Osborn & Sons, Fulham
Faul, A., & Son, Cheshunt, Herts
Plymouth Seed Company, Union Road
Reid, B., & Co., Aberdeen
Rollisson & Sons, Tooting, Surrey
Reid, B., & Co., Aberdeen
Samson, W., & Co., Kilmarnock
Stewart & Mein, Kelso
Southby, C., Clapham, Surrey
Sutton & Sons, Reading, Berks
Tynan, J., Great George Street, Liverpool
Thompson, W., Ipswich, Suffolk
Turner, C., Royal Nursery, Slough
Veitch, Jas., Jun., Royal Exotic Nursery, King's Rd. Chelsea
Winstanley, T. F., Marine Place, Winchester
Wood & Son, Barbourne, Worcestershire
Wood & Ingram, Huntingdon

BUSINESS ESTABLISHED, 1786.

COMPANY INCORPORATED, 1857.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have purchased the old-established and successful business of Messrs. WM. E. RENDLE & Co., Seed Merchants, Plymouth.

They are now in a position to execute all kinds of Vegetable and Flower Seed orders, all of which above the value of 1*l.* and 2*l.* are sent carriage free (to Broad Gauge Stations); and above 5*l.* to any Town, Steam Port, or Railway Station in the United Kingdom.

All Flower Seed orders sent free by post. Their Price Current and Garden Directory for 1858 is now published will be sent free on receipt of 6 postage labels, or gratis to all purchasers, on application to the Company's Offices, Union Road, Plymouth.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED) are now sending out their Collections of SEEDS, which have hitherto given every satisfaction:—

	£	s.	d.
No. 1. Complete Collection of Seeds for a large Garden, for one year's supply	3	0	0
No. 2. Complete Collection for a moderate-sized Garden	2	0	0
No. 3. Complete Collection for do. (small quantities)..	1	5	0
No. 4. Complete Collection for a small Garden ..	0	15	0

Nos. 1 and 2 sent Carriage Free to all the Broad Gauge Stations in the kingdom, and to Dublin and Cork by steamers.

No. 3, Free to all the Stations on the Great Western, Midland, to Birmingham and South Wales Railway.

Address, Plymouth Seed, &c., Company, Union Road, Plymouth.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have pleasure in offering the following SELECT SEEDS, all of which are worthy of a trial, and will be sent post free:—

	Per Packet.
Lynch's Star of the West Cucumber } The best Frame Cucumber in cultivation } ..	1*s.* 6*d.*
Ayres' Perpetual Black Spine Cucumber (ridge) ..	1 6
Hamilton's "Botcherby Hybrid"	1 6
Melville's treble curled garnishing Borecole	1 0
Conning's Reliance Superb, late White Broccoli ..	1 0
Melville's hardy Scotch	1 0
Penzance White (comes late in January)	1 0
Rendle's Wilcove Broccoli (best late White) . ..	1 0
New Martinique Vegetable Marrow	2 6
Early Cantaloupe Melon (very good)	1 0
Chirk Castle Black Stone Turnip	0 6

Address, Plymouth Seed, &c., Company, Plymouth.

NEW HARDY CONIFER.

MESSRS. E. G. HENDERSON AND SON beg to announce that they have purchased of Mr. Robert Fortune the last importation of TORREYA GRANDIS (FORTUNE), with other novelties, and they will now be prepared to book orders for this splendid new hardy Conifer. As the stock will be limited, it will be requisite for purchasers to give in their names as subscribers as early as possible. The seed having been sown by Mr. Glendinning last May, a portion of them are beginning to push into growth.

A full description of this very beautiful Tree may be seen by referring to the *Gardeners' Chronicle*, page 788, in the Number for November 21 of the present year.

MESSRS. E. G. H. & SON continue to supply Seeds of the three valuable Novelties fully described at page 835, *Gardeners' Chronicle*, December 12.

DALMENY BROCCOLI, 2*s.* 6*d.* ½-oz packets,
COLLINSIA CANDIDISSIMA, 2*s.* 6*d.* per packet.
CHLORIS RADIATA (Mis-named C. perfoliata, p. 835), 1*s.* 6*d.* per packet.

NEW EARLY PEAS.

BASS AND BROWN have pleasure in recommending for early sowing—

DANIEL O'ROURKE, or Sangster's No. 1, the earliest grower.
BECK'S GEM, the earliest and best dwarf for forcing.
WARNER'S EMPEROR.
RISING SUN, New Green Marrow, nearly as early as Emperor, a Pea of great produce.
DICKSON'S FAVOURITE, very long pods.

Their general stock of New Vegetable Seeds is now ready, and their usual collections of first-rate sorts can be supplied.

Choice assorted collections, 60*s.*, 40*s.*, 25*s.*, 15*s.*, and 10*s.* 6*d.*

BASS & BROWN, Seed Growers, &c., Sudbury, Suffolk.

RHODODENDRONS.

RHODODENDRON PONTICUM, bushy plants.
Ditto ditto for Cover.
Fine varieties of HYBRID RHODODENDRONS.

SCARLET RHODODENDRONS, 2 to 4 feet, for immediate effect. Standard and Half-Standard ditto.

RHODODENDRON STOCKS, Dwarfs, Half-Standards and Standards, can be supplied in quantities by the hundred or thousand at reasonable prices. Also Epigæa repens, Gaultheria procumbens, Kalmia latifolia, Andromeda formosa (seedlings), and Azaleas.

GEORGE S. ROGERS (late William Rogers, Sen.), Red Lodge Nursery and American Ground, near Southampton.—Unknown correspondents will please to enclose a reference, to save delay in the execution of their orders.

BERBERIS JAPONICA.

JOHN STANDISH begs to inform his friends and the public that he has the largest stock of this fine plant in the trade, that it is as hardy as the common Holly, that in beauty of foliage it cannot be surpassed, and that it is the finest hardy fruit bearing shrub in cultivation. There is now growing in his nursery a plant 18 inches high showing a head of bloom with 13 racemes, several of which are 12 inches long, and when in bloom they will be still longer. He has no hesitation in saying that, when ripe, the berries of this single head will weigh 3 or 4 lbs. Plants from 2*s.* 6*d.* to 21*s.* each.

His Catalogue for the present season is now ready, and may be had free by post on application.—Bagshot, Dec. 26.

CUSTARD VEGETABLE MARROW.

MESSRS. WRIGHT, RENWICK, AND THOMSON beg to offer well ripened Seeds of this extraordinary, prolific, beautiful, and delicious Vegetable. See engraving and leading article in the *Gardeners' Chronicle* of September the 19th. "Seeds were sent to the Horticultural Society by Mr. Thomson. In the axil of every leaf there is a fruit. It will be evident that the mere beauty of its form would render it better adapted for a side dish than the common Vegetable Marrow, even if it were not superior in quality and more abundant in produce."

12 Seeds post free on receipt of 25 postage stamps.
6 Seeds post free on receipt of 13 postage stamps.

6 distinct varieties of Balsam, a packet of each 2*s.* 6*d.*, saved from one of the finest and most carefully selected collections of Balsams in Britain, as grown by Mr. Thomson, at Dyrham Park.

The beautiful winter flowering Celosia aurea, per pckt.		2*s.*	6*d.*
Delphinium formosum	,,	1	0
Lobelia speciosa (the best for bedding) ..	,,	1	0
Godfrey's Black Spine Cucumber (true), per doz. Seeds		1	6
Golden Drop Melon (true)	,,	1	0
Thomson's Dyrham Park Hybrid Melon ..	,,	1	0
Golden Perfection Melon (true)	,,	1	0

The whole of the above, inclusive of the six Seeds Vegetable Marrow, for 12*s.* 6*d.*, post free. A remittance to accompany all orders from unknown correspondents. Seed List and Catalogues of Plants sent on application.

Leith Walk Nurseries, Edinburgh, December 26.

AMERICAN PLANTS.

GEORGE BAKER begs to announce that his CATALOGUE for the present season is now ready, and may be had on application at the Nursery, Windlesham, near Bagshot, Surrey, one mile from Sunninghill Station, S.W.R.

Gentlemen engaged in planting would do well to inspect my very extensive stock of hardy Conifers, Evergreens, &c. A very large stock of Cedar Deodars, 4 ft. high: also C. Libani.

HARDY AMERICAN PLANTS.

WATERER AND GODFREY'S PRICED AND DESCRIPTIVE CATALOGUE for this season may be had on application, inclosing one stamp, or gratis at Messrs. Jos. MAY & Co., 1, Wellington Street, Strand. The American Plants at Knap Hill are well known from the exhibitions in the King's Road, Chelsea; for two years at the Botanic Gardens, Regent's Park; at Chiswick: and the last year in Manchester.

Knap Hill Nursery, Woking, Surrey.

AZALEA INDICA.

J. IVERY AND SON beg to say that nice plants of the undermentioned fine AZALEAS are now ready for delivery, at 10*s.* 6*d.* each.

LORD RAGLAN and GENERAL WILLIAMS.

For description see Catalogue, which will be sent free on application.—Dorking, Dec. 26.

GENUINE SEEDS.

MESSRS. PARKER AND WILLIAMS beg to announce that their select PRICED CATALOGUE of VEGETABLE and AGRICULTURAL SEEDS is now ready, and will be forwarded free upon application.

Their Stock includes all the finest varieties in cultivation, all of which have been selected with the greatest care, and are warranted true to name and of the finest quality.

Paradise Nursery, Seven Sisters and Hornsey Roads, Holloway, London, N.

CHRYSANTHEMUMS.

W. HOLMES has an unlimited Stock of the above including the following extra fine varieties, all at 5*s.* per dozen:—

King of Anemones	Aristée	Fanchette
Virginie	Cardinal	Marguerite Dotto
Margaret of Norway	Lothario	President Morel
Marquis de Motteville	Rose Marguerite	Perle
Ruth	Antonius	Romulaure
Giant	Jeanne Hachette	Tonette, &c. &c.

W. HOLMES, Florist, Well Street, Hackney.

APPLES IN POTS.—The following kinds of Apples are healthy trees on the Paradise stock: they are mostly full of bloom-buds, and adapted for growing in small gardens, or for orchard houses in the north. 2*s.* 6*d.* each: for convenience of package they are taken out of pots and sent with their balls of earth. Carriage paid to London.

Old Nonpareil	Early Julien
Golden Pippin	Boston Russet
Fall Pippin	Colville Blanche
Ribston Pippin	Sam Young
Lady Apple	Pitmaston Nonpareil
Golden Harvey	Mannington's Pearmain
Pitmaston Golden Pippin	Pennington's Seedling
Pine Apple Pippin	Summer Golden Pippin
Cellini	Northern Spy
Reinette du Canada	Sturmer Pippin

THOS. RIVERS, The Nurseries, Sawbridgeworth.

SEED POTATOES.

JOHN BELL begs to call the attention of the trade and others to his various assortments, which he warrants true.

ASHLEAF,	REGENTS,
FLUKES,	SHAWS,
DAWE'S MATCHLESS,	FORTY-FOLDS,

And all other varieties.

Price Lists can be had on application to JOHN BELL, Covent Garden Market: or, Great Northern Railway Potato Market, King's Cross, London.

POTATOES FOR EARLY PLANTING.

MYATT'S PROLIFIC SEEDLING ASH LEAF KIDNEY.—This valuable variety, first sent out last season, and which has given such extraordinary results, has again withstood the ravages of the disease.

For description see Dr. Lindley's report in *Gardeners' Chronicle* of August 1 at the Horticultural Society's Garden, Chiswick, wherein it is described as "a better cropper than the old Ashleaf, and one of the best early kinds."

Price per bushel 10*s.*, bags included. The Trade on application.

Also GOLDEN DWARF, an early round variety, very prolific, ASHLEAF, EBRINGTON KIDNEY, BROCKLEY KIDNEY, &c., 7*s.* per bushel.

To be had of Mr. J. MYATT, Evesham, Worcestershire; or Mr. J. MYATT, Camberwell, Surrey.

MESSRS. PARKER AND WILLIAMS beg to offer the following, of which they possess a large stock, in strong and healthy plants:—

	Per dozen.—*s.*		Per dozen.—*s.*
Acacia Drummondi	42	Herbaceous & Alpine Plants,,	4
Azalea indica, of sorts, well set with flower buds, from	24	Pelargoniums, Show and Fancy varieties .. from	9
Camellias, well set with flower buds, from	30	Do. spotted varieties .. ,,	12
Cyclamens .. .. from	12	Phloxes, Herbaceous .. ,,	9
Ferns, Stove & Greenhouse ,,	12	Pinuses .. .. ,,	18
,, Hardy .. .. .. ,,	9	Roses, Hybrid Perpetuals, Teas, &c., in pots .. ,,	18
		Do. Teas, &c., Standards ,,	21

Delphinium formosum, the finest variety ever offered, strong roots, per dozen .. 6*s.*
,, ,, seed, per packet .. .. 1*s.*

Price to the Trade, for roots by the hundred or thousand, and for seed by the ounce or pound.

Priced and Descriptive Catalogues of Stove, Greenhouse, and Hardy Plants, also of Hyacinths and other Bulbous Roots, are published, and will be forwarded post free upon application.

A remittance or reference to accompany all orders from unknown correspondents.—Paradise Nursery, Hornsey and Seven Sisters' Roads, Holloway, London, N.

NEW AND BEAUTIFUL HARDY CONIFEROUS TREE, "CUPRESSUS LAWSONIANA."

MESSRS. WATERER AND GODFREY beg to say they are now prepared to execute orders for this fine and distinct hardy Plant, which they have raised from Seed sent home from California by Mr. Murray, who speaking of it says, "it was the handsomest tree seen in the whole expedition, grows about 100 feet high and 2 feet in diameter; the foliage is most delicate and graceful, the branches bend upwards at the end like an ostrich feather, the top almost droops like a Deodar, the timber is good, clear, and workable." This is no mean praise, coming home as it did in such company as P. nobilis, Douglasii, grandis, Lambertiana, and others equally well known as being about the most noble as well as the most valuable really hardy trees ever introduced to our country.

As it has been attempted to confound this Plant with "Thujopsis borealis" it will perhaps be as well that purchasers take care they get the genuine article. The terms are:—

Well furnished plants, 10*s.* 6*d.* each, 12 do. do., [illegible] per dozen. The usual discount to the Trade.

*** Specimen Plants may be seen at Messrs. JOSEPH MAY & Co.'s, Seedsmen, 1, Wellington Street, Strand.

Knap Hill Nursery, Woking, Surrey.—Dec. 26.

GARDEN SEEDS GROWTH OF 1857.

THE PLYMOUTH SEED, AGRICULTURAL IMPLEMENT, AND MANURE COMPANY (LIMITED), have now warehoused the whole of their seeds for the ensuing season's supply. The Stocks are all new and genuine, and may be depended upon as being of the best description. They are now in a position to execute orders—which orders are sent carriage free (see price current) for six stamps.—Offices, Union Road, Plymouth.

NEW GARDEN SEEDS, GROWTH OF 1857.

ROYAL BERKSHIRE SEED ESTABLISHMENT

SUTTON AND SONS are now prepared to execute orders for all kinds of GARDEN SEEDS, and can warrant them genuine.

Royal Berkshire Seed Establishment, Reading, Dec. 26.

The Gardeners' Chronicle

SATURDAY, DECEMBER 26, 1857.

SOME years since an active correspondent of the *Gardeners' Chronicle* was accustomed to provide a London shop in abundance with fresh honeycomb at all seasons of the year. In the hardest winter he had as ample a supply as in the finest summer. What means he pursued was scarcely known, but it was clear that he kept his bees constantly at work, providing them at all seasons with a supply of food. Many ways of doing this suggested themselves, but people found that winter food cost as much as the fresh honey was worth, so that they gained nothing by keeping their bees at work. Feeding has therefore been adopted for the preservation of the bees in winter, and not for the purpose of turning them to profit at that season; or they are fed in bad seasons in order to strengthen them. But our friend's reason was of quite another kind, as we have said. It was his boast indeed that he wanted no flowers in order to keep bees profitably all the year;—and.

Doubtless many bee-masters know how this is done; they have an "open Sesame" that admits them to the treasury of secrets, as it once admitted ALADDIN to treasuries of another sort. But they little dream that those magical words themselves contain a precious mystery. It has never occurred to them that the famous eastern Sesame (or Sesamum) had anything to do with bees. It however appears from the following story that it is the real key to keeping bees profitably by feeding.

Two bee-masters in a village in the Department of the Var, in the south of France, were in the habit of wintering their hives in the forests of Mandelieu. When uncovering the hives the apiarians perceived, about noon on the 4th of May, 1856, that their bees were out; and yet the hives were full, and of extraordinary weight for the time of year. Surprised at the circumstance, and wondering what the bees could be at, they remained on the watch till evening. About 6 o'clock the bees began to return, loaded with an incredible quantity of the richest plunder; so heavy, indeed, were their burthens that the least experienced observer could not have failed to notice it. Astonished at such an event the bee-masters proceeded to examine the fields and mountains in the neighbourhood, but in vain; they discovered nothing in the country round them at all different from preceding years. At last they crossed a field in which the oilcake resulting from the pressure of Sesamum seed was being prepared for putting into the ground with Potato sets, as is the custom in that country, where Sesamum cake is much valued as manure.

The cakes had been steeped in a pit of water till they were reduced to the state of liquid paste; for it is thus that cakes are used with most success at Mandelieu. "Oho!" said the farmer who was planting the Potatoes, on seeing the apiarians, "You are come to see how we make bee-soup. Look there; every day for some time past we have been overrun with your swarms, and they feast famously; they take their fill I assure you." On returning to the same place next morning the mountaineers were convinced of the truth of what the farmer had said; for there were the bees in prodigious numbers buzzing about the tub, and feasting on the Sesamum cake which it contained.

The bee-masters from Mandelieu took the hint. They immediately placed near their hives some large tubs, filled with Sesamum cake dissolved in water to the consistence of pap. The bees no longer wandered from home; the tubs were kept regularly filled with "soup," as the farmer called it, and the bees stayed at home. The food has since been given in winter with perfect success; only if the weather is frosty it is necessary to use warm water in order to keep the Sesamum cake soluble.

The *Flore des Serres*, from which we borrow this, assures us that the results have been astonishing, not only in a large increase of honey-comb,

but in enabling the bees to multiply beyond all belief; nearly ten times the quantity being bred in consequence of the facility afforded of obtaining abundant and, as it would seem, excellent nourishment from this unexpected source.

If Sesamum cake can be had at our oil mills, as we suppose is the case, the rich seeds being imported from Africa and India, it would seem that cottagers have here the means within their reach of indefinitely increasing the supply of honey. If not Cotton seed cake, Linseed, Poppy seed, all free from acrid qualities likely to injure the quality of honey, could be obtained for trial, and there is no apparent reason why bees should not thrive on them as much as on Sesamum cake.

This is surely a point deserving immediate inquiry, if it were only for the sake of enabling bees to be kept in districts where natural bee food is too scarce to enable them to be managed profitably. It is the difficulty of securing bees in this country against the consequences of bad seasons, that causes these valuable insects to be so much neglected by our cottagers. It would seem that Sesamum is the safeguard.

Now that we have reached the end of a year remarkable for its unusual warmth, our readers will doubtless be glad to be furnished with the following statement prepared by Mr. ROBERT THOMPSON from observations made in the Garden of the Horticultural Society. What bearing the observations have upon vegetation we shall endeavour to show on a future occasion. For the present we would direct attention principally to the very extraordinary facts which the Geo-thermometer has indicated.

Average maximum temperature of the months of April to November, inclusive, as compared with that of the average of the corresponding months for 31 years, 1826—1856:—

Average Maximum.	April	May	June	July	Aug.	Sept.	Oct.	Nov.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
1857	56.56	66.87	77.03	77.51	78.59	71.13	62.29	52.53
1826—1856	57.61	64.44	71.62	74.36	73.20	67.50	58.85	49.83
Difference	(—1.05)	2.43	5.41	3.15	5.39	3.63	3.44	2.70

From the above it appears that, with the exception of April, the maximum temperatures of all these months in 1857 were above the average; and more especially those of June and August. The following table will be found to exhibit the average minimum temperature in the present year, comparatively with that of the last 31 years:—

Average Minimum.	April	May	June	July	Aug.	Sept.	Oct.	Nov.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
1857	34.86	39.29	47.27	49.22	52.19	45.23	40.64	37.33
1826—1856	36.62	42.44	48.89	51.74	50.83	46.26	41.24	35.80
Difference	1.76	3.15	1.62	2.52	+ 1.36	1.01	0.60	+ 1.53

It is remarkable that whilst the maximum temperature was in every month, with the exception of April, considerably above the average, the minimum temperature, on the contrary, was below the average, except in the months of August and November. From this it must be inferred that the days were unusually hot, but the nights were colder than they generally are. Owing to this the mean temperature was not remarkably high. It was below the average in April, 1°.40, and in May 0°.36. In all the other months it was above the average as follows:—In June, 1°.90; July, 0°.35; August, 3°.38; September, 1°.31; October, 1°.41; November, 2°.11. It is evident that the marked effects of the past summer with regard to vegetation are to be chiefly attributed to the high temperature during the day. In comparing this season with previous years we may therefore direct attention to the maximum daily temperature.

The most unfavourable weather for the fruit crop occurred between the 2d and 7th of May. On the 4th of that month the thermometer fell as low as 23°, and the radiating to 19°.

Taking the average maximum temperature of the months of June, July, August, and September of the present year, and comparing it with that of corresponding months in some of the hottest seasons that have been experienced since 1826, it appears that, on the average of these four months, the past season has been the hottest with the exception of 1846:—

		Degrees.
Average maximum of June, July, August, Sept.	1846	= 76.37
Do.	do. 1857	= 76.06
Do.	do. 1835	= 75.39
Do.	do. 1852	= 74.98
Average maximum of June, July, August, Sept.	1826	= 74°.27
Do.	do. 1834	= 73°.89
Do.	do. 1844	= 73°.80
Do.	do. 1842	= 73°.57

Whilst, with one exception, in no four consecutive months of the last 31 years has so high a maximum temperature been maintained as was experienced last summer, yet there have been hotter periods of one month's duration, for—

In 1835 the mean maximum of	August	was	80°.32
1846	do.	June	81°.13
1852	do.	July	81°.16
1857	do.	August	78°.59

It thus appears that the average highest temperature of the hottest month of this year has been exceeded by that of three others within the last 31 years; but if we take four consecutive months it was only exceeded in 1846.

The hottest day of last summer was the 28th June, thermometer in the shade, 92°; in the sun 123°. This has been frequently exceeded. On the 13th July, 1808, it was as high as 96°; July 18th, 1825, and July 5th, 1852, 97°; July 6th, 1852, 95°. On the whole the temperature of the seasons does not seem to decline, as some are inclined to believe, for on the authority of M. ARAGO and M. BARRAL the thermometer at Paris indicated 92°.8 in the shade only seven times during the last century, and this it has exceeded at least 18 times in the present one.

The amount of rain which fell this year in the months of April, June, August, September, and October was above the average; in May, July, and November it was below. There was a deficiency on the eight months of about ¼ inch. The following is the monthly amount compared with the average of the last 31 years.

	April	May	June	July	Aug.	Sept.	Oct.	Nov.
	inches	inches	inches	inches	inches	inches	inches	inches
Average amount, 1826—1856 ..	1.56	1.93	1.84	2.52	2.44	2.44	2.78	2.96
Amount in 1857	1.77	0.87	1.91	1.22	2.80	3.52	4.41	1.53

Instead of falling on a number of days in each month, the greater portion in this year fell in large quantities on a few days. For example, in June the amount was 1.91 inch, and of this 1.30 inch fell on the 19th and 20th; 2.89 inches fell in August, of which 2.32 inches fell on the 5th, 6th, 13th, and 15th. There were thus long intervals of dry sunny weather, in consequence of which the crops were matured to high perfection.

In consequence of long continued solar heat the temperature of the ground has been found to be higher than usual, as will be seen by the following comparison with the average of 13 years:—

	April	May	June	July	Aug.	Sept.	Oct.	Nov.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
Average ground temperature at 1 foot deep, 13 years ..	46.75	52.78	59.62	62.88	62.41	58.02	52.15	46.15
Ditto, 1857	49.55	54.01	63.80	64.32	66.22	62.65	57.39	52.08
Difference, higher in 1857..	2.80	1.23	4.28	1.44	3.81	4.63	5.14	5.93

	April	May	June	July	Aug.	Sept.	Oct.	Nov.
	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.	Deg.
Average ground temperature at 2 feet deep, 13 years .	46.43	51.74	58.00	61.55	61.51	58.18	53.26	45.88
Ditto, 1857	47.06	50.53	58.73	60.56	62.67	60.16	56.39	52.65
Differences	+0.63	—1.21	+0.73	—0.99	+1.16	+1.98	+3.13	+6.77

Higher in 1857 are marked (+); lower (—). The effects of a high summer temperature as indicated by the extraordinary heat of the ground above the average in November is very remarkable.

This shows how extremely important it is to preserve a record of the temperature indicated by geo-thermometers, that is to say, by thermometers plunged in the earth.

In the *Chronicle* lately there was a statement of Figs having ripened a second crop in the open air in Kent, a circumstance unusual even in France, except in the south.

Pears that usually become melting in March or April were this year fit for use in November; and some that do not become melting except but rarely, and that only half-melting, and as late as April, are now, in December, perfectly so.

SINCE mentioning the Victoria Pear, noticed at p. 836, we have obtained some further information respecting it. Mr. HUYSHE having been so obliging as to forward other specimens, quite ripe, we can now say that, like that gentleman's Bergamot, it stands in the highest class, the flesh being perfectly melting to the core. We understand moreover that it is a very great bearer, it having been necessary to prop up the original tree, in order to prevent the branches breaking under the weight of their crop. Its habit is thorny and very robust. Although now ripe, its season, in ordinary years, is February.

THE Foreign readers of this Paper who live in a climate where Orange trees are readily raised would find it to their advantage to open a communication with English nurserymen.

New Plants.

217. ILEX FORTUNI.

I. foliis coriaceis sempervirentibus oblongis marginatis utrinque acutis subsessilibus apice mucronatis, umbellis multifloris sessilibus pedunculis validis quartæ folii longitudine æqualibus, baccis subrotundis 4 pyrenis.

There is growing in the nursery of Mr. Glendinning, at Turnham Green, a handsome evergreen Holly raised from seeds collected by Mr. Fortune in China at a place named Hwuy-chou, where it formed a fine tree loaded with large berries in December 1853. In its young state it is much like *I. cornuta*, but in the adult condition it acquires quite another appearance, resembling a very broad-leaved entire-leaved European Holly. The flowers are unknown, the specimen before us being only in fruit. In that state there is in the axil of each leaf a sessile umbel of from 6 to 10 stalks each about three-quarters of an inch long; so that when loaded with berries it must have a glorious appearance. We can find no description of any Asiatic species, of which there are many, that will apply to this, which we therefore suggest should bear the name of its intelligent discoverer.

VANCOUVER ISLAND, A NEW PLACE FOR COLONISTS.

Now that public attention has been strongly directed to this advanced station on the N.W coast of America, as a place to be colonised by English, it will probably be useful to some of our readers to know what are the most recent reports upon the island. We therefore glean from the pages of the Proceedings of the Royal Geographical Society the following facts, communicated by Colonel Grant and others:—

"The position of Vancouver Island is between 48° 20' and 51° N. lat. and between 123° and 128° 20' W. long. It is situated on the western coast of North America, within a short distance of the mainland, the Straits of Fuca, which separate the island from the mainland on the south, forming the boundary in those parts between the British territories and those of the United States. The extreme length of Vancouver Island from north to south is 270 miles, with a general breadth of from 40 to 50 miles. The general aspect of the island is that of a broken rocky country densely covered with timber. The proportion which the available land bears to that which is totally incapable of cultivation is extremely small. The whole centre of the island as far as it has yet been explored consists of a barren rocky waste, the timber with which it is covered being, as well from its nature as from its position, unavailable for any useful purpose. Along the sea-coast a few patches of level land are to be met with, where the timber is extremely fine, and suitable either for masts and spars or for being sawn into planks. Small spots of open land, clear of trees, occasionally intervene, but seldom of more than a few hundred acres in extent; on these spots the soil is almost invariably extremely rich, and will produce abundantly every description of crop grown in Great Britain. The climate is agreeable and healthy, the summer is warm and dry; no rain falls from March till November; the remainder of the year is rather a rainy season than a severe winter; some snow falls, but does not generally lie long on the ground: and the frosts are neither hard nor of long duration.

"The deposits of coal on the island are extremely rich, and are in many places favourably situated for export. The seas by which the island is surrounded teem with fish of almost every description. The salmon and herring are particularly numerous, cod and sturgeon also abound, and several whales are annually caught by the natives at a short distance from the coast. The prevailing geological structures in the higher parts of the island are the gneiss and mica schist systems; in the lower, greywacke and clay-slate prevail. These are intersected by several dykes of igneous rock; and in the sea-coast basins of sandstone and of limestone occasionally occur. The native population of the island is calculated at from 15,000 to 20,000 souls; who are divided into numerous tribes, many of whom speak languages entirely different from each other. They are in general a harmless race, they live almost entirely by fishing, they are willing to work for the white man, but their labour cannot be depended on continuously. The island is still in its infancy as a colony; it possesses

numerous safe and commodious harbours, is favourably situated for export to Oregon, California, the Sandwich Islands, Central and South America, Australia and China; and though now but little known, Vancouver Island cannot fail eventually to be of very considerable importance.

"In answer to questions as to the climate, the adaptibility of the island for colonisation, its mineral productions, &c., Colonel Grant said the climate was delicious for travellers, as from April to September there was no wet. This absence of humidity, however, was somewhat unfavourable for agriculture. With respect to colonisation, he thought Vancouver Island fitted for it, to a certain extent. The available arable land was small in proportion to that which was useless, so that it could never support a large population. The Wheat and vegetables grown were very fine indeed. The island had not been surveyed, except a small portion by the Hudson Bay Company, and of that part about two-thirds were fit for agricultural purposes; the remaining third was useless rock. The quantity of coal discovered at present was small, but it was fitted for steam purposes.

"He had never been able to trace any real religion among the natives. They had some traditions excessively childish in their nature, and which did not point to one common object. They were scarcely aware of the existence of a supreme Being, though some had a glimmering notion of such a Being. One missionary informed him that they worshipped the sun, but he thought this too noble a superstition to exist in the breast of such a grovelling race of Indians as they were. They had a few superstitions among them. There were among them several most zealous Roman Catholic missionaries, who were incessant in their endeavours to implant Christianity. The savage was very ready to take any impression, but his mind was incapable of sustaining any fixed idea, and the missionaries had consequently been unable to make any permanent progress. There were three languages in the island; the prevailing one was the Cowitcheu. The languages again were subdivided into various dialects, so that the different tribes speaking them could, with some difficulty, understand each other. There was not the slightest trace of a common patriarchal government. Each tribe had a patriarchal government, because each tribe formed a family something like our clans in Scotland.

"He was afraid that it would not make a good convict settlement, on account of its contiguity to America. Access to the continent across the channel was easy, and to prevent the convicts escaping, a large military guard would be required.

"The Rev. Brymer Belcher, F.R.G.S., believed what had been said about the missionaries in Vancouver Island was quite correct. At present there were no missionaries in the island, except some Roman Catholics, who had been engaged there several years. The Hudson Bay Company had a chapel at Victoria, and about a year ago an unordained labourer, a catechist, was sent out by one of the great missionary societies of this country to the southern part of the island. The gentlemen who brought their geographical knowledge to bear upon the missionary work of the Church had looked on Vancouver Island as an unoccupied field, and had directed the attention of the Society for the Propagation of the Gospel to it. A grant of 250*l.* had been expended in sending out two missionaries. The population amounted to between 20,000 and 30,000 of native inhabitants, according to the last census given by the Hudson Bay Company. With respect to the climate and nature of the country, all the information that the Society had been able to obtain, went to show that there was nothing in either respect which the Anglo-Saxon race might not most easily overcome. The coal, to which allusion has been made, he had reason to believe was spread over a large field, and was of very excellent quality, well suited for furnaces and for steam purposes. With coal and wood, and with what, there was every reason to believe, would be found in mineral products as well, Vancouver Island appeared to him to be one of the most promising fields open to the English settler.

"Mr. R. Blanchard, F.R.G.S., late Governor of Vancouver Island, begged leave to offer an observation with regard to the population. Colonel Grant estimated it at 17,000, and Mr. Belcher at between 20,000 and 30,000. When he was there he took great pains to make inquiries of the people who he considered were best qualified to judge, and they stated the numbers to be, at the outside, 10,000, and that the population was decreasing."

POTATO EXPERIMENTS AT HITCHAM ON FIFTY-FIVE ALLOTMENTS.

IN order to test the efficacy of a newly imported French manure termed "Poudrette de Bondy," and to compare its effects with that of guano, three series of experiments were instituted upon two kinds of Potato, the Early Shaw and the York Regent. Acting strictly up to the directions given me, small sized whole Potatoes were laid directly upon the manures, in sets of two each, and according to the following plan:—

	Guano.		Nothing.		Poudrette.	
Early Shaw	*	*	*	*	*	*
York Regent..	*	*	*	*	*	*

In series 1st. Equal measures of the two manures were applied, that of guano weighing 280 grains, and that of poudrette 350 grains. In series 2d. The doubles of this measure were applied, viz., guano 560 grains and poudrette 700 grains. In series 3d. Twice as much, by weight, of poudrette was used as of guano, viz., guano 350 grains, and poudrette 700. The whole of the Potatoes were planted on the 17th of April under my inspection, and the results taken up on September 3d, and weighed in my presence on the spot. On account of the diseased tubers, the samples separately weighed amounted to 543. In addition we had 52 weighings for the sweepstakes competition, so that in all the scales were held up more than 595 times.

After reducing these results to a tabular form, for which we regret we are unable to find room, the report proceeds.

The following remarks will serve for examples of the manner in which this sort of raw material may be worked up into definite results.

1st Result. Entire weights, including sound and diseased:—

EARLY SHAW.

	Guano.	Nothing.	Poudrette.
	lbs. oz.	lbs. oz.	lbs. oz
1st series..	30 15 (2 f)	62 1	72 15
2d series	12 5 (13 f)	51 14	50 2
3d series	23 1 (6 f)	51 10	50 10
Totals	66 5 (21 f)	166 9	173 11

YORK REGENT.

	Guano.	Nothing.	Poudrette.
	lbs. oz.	lbs. oz.	lbs oz.
1st series..	28 8 (3 f)	69 12	63 6
2d series	12 15 (19 f)	63 6	61 3
3d series	13 7 (9 f)	61 5	56 13
Totals	54 14 (31 f)	194 7	181 6

Inferences: That the guano was injudiciously applied, from being in immediate contact with the sets. It destroyed 52 plants (f); and the destruction in both crops increased with the greater amount applied. That the poudrette produced no beneficial effect. The increase in the Early Shaw under the first series is counterbalanced by the decrease in the York Regent in that series. In all the four other cases the amount obtained with the poudrette has been less than where nothing was added to the soil.

N.B. The following experiment with the poudrette has been tried on my own meadow. In April last each of two strips of 200 square yards was manured with 23 lbs. of the poudrette, and contiguous to them were two like strips to which nothing was done. On the 26th of June 100 square yards (half of each strip) were mown from the middle of each, and the results carefully weighed. The Grass from the two to which nothing had been done weighed 69 lbs. 8 oz. and 69 lbs. separately, making together 138 lbs. 8 oz. That from the two manured strips weighed 73 lbs. and 79 lbs. separately, or 152 lbs. together. Thus the increase produced by 23 lbs. of the poudrette was 13 lbs. 8 oz., which would be at the rate of about 6 cwt. per acre. This would increase the value of the produce per acre about 30*s.*, supposing hay to be worth 5*l.* per ton. As it is recommended to apply the manure at the cost of 30*s.* per acre, the profit would therefore be nothing. A single experiment of this sort, when the increase is so small, is nearly worthless, and may even tend to mislead. It should be repeated on different lands before any just conclusion can be obtained. My eye could detect no difference between the strips to which nothing was done, and those which had been manured; but as we are all apt to have scales over our eyes in estimating the results of such experiments, it is better to trust to the scales in our hands for just conclusions. Laflin thinks the cattle have cropped the Grass closer where some of this manure was laid on other parts of the field, as though they had detected some improvement in its quality.

2d Result. The proportion of sound to diseased Potatoes in the two crops.

	Early Shaw.		York Regent.		Totals.	
	Sound	Diseased	Sound	Diseased		
	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.	lbs. oz.
Guano ..	53 8	12 13 (27*)	50 11	4 3 (23*)	104 3	17 0
Nothing..	109 8	57 1 (8*)	158 0	36 7 (11*)	267 8	93 8
Poudrette	118 12	54 15 (13*)	152 12	28 10 (13*)	270 4	83 9
Totals..	281 12	124 15 (48*)	361 7	69 4 (47*)	641 [illegible]	194 1
Per cent. nearly	30		16		23	

Inferences: That the York Regent has resisted the disease to a much greater extent (nearly double) than the Early Shaw. If any just inference could be deduced from the effect of the guano, it would seem to have diminished the influence of the disease. The poudrette also would seem to have had a slightly beneficial effect, but the difference is too little for placing confidence in such having been the case. Where nothing was done the injury from disease (93 „ 8) is 26 per cent.; that is to say, above a quarter of the unmanured crop has been affected.

N.B. On referring to the effects of disease in different allotments, I find they are very variously distributed. In some we may possibly attribute their absence to the situation with respect to the general drainage, a matter well deserving further investigation. In some cases the entire absence of disease appeared to be owing to the superior cultivation to which such allotments had been subjected. There is a prevalent idea among the allottees that the intermixture of Beans, or their proximity to the sets of Potatoes, produces a good influence; and certainly this idea seemed to be somewhat countenanced in two or three cases. It may be worth testing another year. *Hitcham Allotment Report.*

TRADE MEMORANDA.

WE again say beware of Lancashire swindlers. A gang appearing under all sorts of disguises, infests that county and victimises nursery and seedsmen as well as others. The following is collected from the *Liverpool Mercury* of Dec. 18.

At the borough sessions on Saturday last William Macadam and William Henry Chapman were found guilty of obtaining, by false pretences and conspiracy, a quantity of gun chains from Mr. M'Alpin, chain maker, of Glasgow. The Recorder said there could be no doubt that they had for some time been carrying on a system of fraud; that they had made a practice of trading under fictitious names, such as Kelly & Co., Kelly Brothers & Co., Chapman & Co., Macadam & Co., Gordon & Co., Smith & Co., and many others, by which means he (the Recorder) was well informed they had succeeded in obtaining a large amount of property; that they had been the associates of Reynolds and others now undergoing sentence for the same practices; that notwithstanding the conviction and punishment of their companions in crime, no impression had been made upon them, and they continued in their premeditated course of villany. He (the Recorder) would not be doing his duty to the public unless he put a stop to their disgraceful career for some time to come, and he was happy to find that since the conviction of Reynolds (who at that time received the maximum of punishment) an Act had been passed which enabled him to exceed that limit, and he should mark his sense of their conduct by exercising it. In reference to Chapman, he found that in 1846 he was sentenced to two years' hard labour for forging and uttering a bill of exchange. He (the Recorder) considered that offence a light one in comparison with their conduct, and therefore he should only be doing his duty in passing upon each the sentence of seven years' penal servitude. It should be added that it is to the Liverpool Guardian Society for the Protection of Trade, and to its active and intelligent secretary, Mr. James Reay, that the parties are mainly indebted for the apprehension and conviction of these swindlers. This is another instance of the benefit conferred upon trade by that society, and is, we believe, the 12d conviction obtained within a few years by its aid. Persons receiving suspicious orders from the north of England should apply for information to Mr. Reay.

We have also to warn our readers that a person, profesing to come from Messrs. Henderson & Co. of the Wellington Nursery, is attempting to victimise the public by offering for sale what he calls Australian and other bulbs. We are requested by Messrs. Henderson to say that they know nothing of the person, who has no authority from them. He was last heard of in the North of England.

Home Correspondence.

Sowing Soot with Peas.—A customer of mine states that he has saved his Peas from mice by sowing soot with them. He says this plan ought to be generally known. It has, however, long been known to some. But when the Peas do come up we round large towns are much annoyed with sparrows eating off their tops. If soot is sprinkled over them while they are damp sparrows will not touch them. Soot is also valuable for Carnations and Tulips in any ground where wireworms abound. It is not only a destroyer of insects but also a rich manure. If it was sown in wireworm eaten grounds when Potatoes were planted there would be no scabbed or punctured skinned tubers. Do not, however, buy soot with mahogany sawdust mixed with it. This is now being largely mixed with it for the country trade. *James Cuthill, Camberwell, London.*

Scale on Heaths.—I have had the disagreeable misfortune to follow a dirty gardener. We have here a Heath-house, and the plants are infested with brown scale. I am aware that immersing the plants in water 110° will destroy scale, but I fear that it will injure my Heaths if I subject them to the above-named temperature. Will some kind-hearted Heath grower give me his experience in ridding himself of, to me, the most detestable enemy. My employer intends building a Vinery; he prefers iron to wood. Which would you recommend? *Cymro.* [One is as good as the other. The difference is one of cost at first and management afterwards.]

Rose Stocks.—Your correspondent, "A Bristol Subscriber," seeks advice upon a subject of considerable importance. Nothing can be more true than that there exists in the Dog Rose a propensity to die back to, and oftentimes below the bud, as complained of. But the question as to whether the bark of a stock thus dead could, by means of certain applications, be induced to grow together and form a reunion, is one perhaps not easy of decision. As however your correspondent happens to have some of these defective stems, I would certainly recommend him to cover them, as he suggests, with grafting wax, but not to cut away the dead wood. With regard to the removal of trees with dormant buds, your correspondent need entertain no fears; they may be moved with equal propriety either now or in February, provided the weather is open. I have in a number of instances lifted trees with dormant buds from October till March, and have never detected any bad results therefrom. Although there is in the Dog Rose as a stock the defect alluded to, yet it may be in many cases prevented by due attention at the proper season. I would here observe that it is a custom by no means confined to the amateurs to allow the stem above the bud to remain on over the following summer, in order to serve as a support for tying the growing bud to and removing it only after the bud has become sufficiently strong to sustain itself. This I apprehend to be one cause of so many dead stems. If your correspondent and others in a like position will snag (or bend) their Roses in the month of March (not May) subsequent to the year of budding, they will find that in a majority of cases the bark of the stock will form a close and compact union with that of the bud. *S. B.*

Coal Clubs.—We have a coal club in our parish with the following regulations. Early in the spring subscriptions are solicited from the parishioners, and for every

2s. 6d. subscribed one card is sent to the subscriber. Some persons subscribe for as many as eight cards. These cards are then given by the subscriber to any deserving poor person they please, which poor person is limited to one card, upon which card 2s. 6d. must be paid between that time and December by instalments of 1d. or 2d. per week at the parish church on Monday afternoons. A contract is then entered into with a coal merchant to deliver 5s. worth of coals, 1 bushel or 1 cwt. to be delivered at the residence of each poor person weekly, commencing the last week in December. As your correspondent has a sum of money for that purpose he could supply them with a larger quantity of coals for the same subscription and amount paid at the church, or reduce the subscription for each card. *George Lowrey, Rochester.*——Hints to the Charitable, 1s., by the Hon. and Rev. S. G. Osborne, Boone, Hatchard, Roake & Varty, will probably meet the wants of "Binham Priory." *E. T. W.*

A Feat in Cultivation.—Mr. Richard Corke, of Maidstone, recently laid four wagers that by his system of cultivation he would produce more Grapes, Melons, Cucumbers, Strawberries, and Vegetable Marrows, or in fact any vegetable whatever, than could be done by another in the ordinary way, and won them all easily. These wagers originated in a conversation taking place in the company of several gentlemen, one of whom had presented Mr. Corke with some eyes of Grapes and some Vegetable Marrow seed of fine quality. On making inquiry how they answered, Mr. Corke asserted that the canes of the Vines would average more than 20 feet before the year came round, having been potted October 25, 1856, and planted out in a new hothouse just finished building on March 7, 1857. At first Mr. Corke wished to decline the wager, as he told the gentleman he must win to a certainty. Being however pressed, he accepted a bet for two rods to average 20 feet. This they considerably exceeded, and at the same time three other bets were made respecting the Vegetable Marrow, Mr. Epps and Mr. Bunyard, the well-known horticulturists, being appointed to survey and watch progress. The stem of the Vegetable Marrow was 8 inches round; its bine, together with leaves and stems, measured upwards of 8000 feet, the wager being that Mr. Corke would not produce more than 1600 feet. Upwards of 400 fruit were cut from this Leviathan Marrow plant. This discovery will be made public in a Treatise nearly completed. Mr. Corke's plan is so simple that a mere child after some slight instruction could produce the same effect. *J. G. Lomax.*

Chrysanthemum Growing.—Having seen some of the best collections and specimens of Chrysanthemums in the neighbourhood of London, which by competent judges were considered perfect examples of cultivation, I certainly was surprised on my return to the country to see in your columns an account of what may be called wonderful specimens of cultivation and flowering at Stoke Rochford; but as that report was furnished by the foreman there my supposition was that he had counted all the flowers that were faded, the blooms in perfection, and the flower-buds to make up the extraordinary number mentioned. If any one will take the trouble to calculate the surface from the diameter given, supposing it to be flat, it will be found that not one-half of the flowers, if fully expanded, could be accommodated, supposing each flower to occupy a space of 2 inches square, and if we allow the plants to be hemispherical, flowering to the edge of the pot, one-half of the number would cover the surface. But making every allowance for young men ardent in the prosecution of their profession, and anxious to see their names in print, we may grant them full latitude to make known their experience, and I should have let the subject rest on the foreman's authority, had Mr. Dell not come forward to substantiate his figures. I must however beg leave to ask Mr. D. whether all buds were counted, or if the numbers given were actually full-blown flowers all at one time on the plants named? The London growers, if they had had that number, would have thinned them out and only left sufficient to cover the plant, leaving them of one size as near as possible for all to be in bloom at one time. The striking of cuttings in March is no new discovery; they have been frequently struck as late as May, and have made good flowering plants; but the question is, can they be got "up to the mark" for exhibition in the beginning of November? The "Bob at Denton" might be very good with some faded flowers in the middle of December, but was that plant in a fit state for exhibition in the beginning or middle of November? Is Mr. D. certain that the Stoke Rochford plants were struck in March; for if my memory does not deceive me, I think that Mr. D. was not at Stoke Rochford in March; therefore he can only rely on the authority of others for his March information on "my Chrysanthemums." *Investigator, December* 21.——I doubt not that Mr. Scutt's statement respecting the Chrysanthemums grown at Stoke-Rochford is substantially correct; the system practised there is the same as is generally adopted by the majority of gardeners, but probably not with the same success. I account for this by gardeners in general having too much on their hands to do just at the time the Chrysanthemum requires a large share of attention. Mr. Broome strikes in autumn—Mr. Dell in spring—the latter succeeds in securing a larger plant with a far greater amount of bloom; but neither Mr. Scutt nor Mr. Dell inform us whether the huge specimens grown at Stoke Rochford were minus stakes or not. I believe it quite possible to grow the Chrysanthemum to the size of a large Gooseberry bush by supporting it with an immense quantity of stakes. Mr. Broome informs us "Nelly" was grown (if I understand rightly) without a stake; perhaps Mr. Dell will inform us whether his plants were staked or not. If the former, I as a grower would not hesitate in recording my verdict in favour of Mr. B.'s "Nelly" as being at least equal, if not superior, to Mr. Dell's "Sacramento," although it had only a fourth part of the amount of bloom upon it. *J. E., on the banks of the Mersey.*——Allow me, as having had some little experience in the growth of the Chrysanthemum, to make a few remarks upon its culture; I may add that I have read with much interest, and some surprise, the description of Mr. Scutt's extraordinary Pompones in your Paper of the 28th November last. The plants which I have grown for exhibition were (according to rule) in 8-inch pots, and allowing for the additional room of a 10-inch pot, Mr. Scutt's plants exceeded mine by 1100 blooms, and this after having struck them four months later than myself. Mr. S. does not say whether or not his plants were grown upon a single stem. Although we are much obliged to him for his information, we should be still more so if he could give us London growers any additional hints on the cultivation of the Chrysanthemum, such for instance as would enable us to grow from cuttings struck in March specimens on one stem in 8-inch pots with 850 blooms, all full and perfect at one time, and with ample foliage. In quality we hardly expect any improvement upon our own growth. My course of cultivation is to strike as soon as I can get wood to strike with, stop as soon as possible, repeating it at every opportunity the growth of the plants will allow. I never let them flag for want of moisture. I pot gradually on to the last sized pot, being careful to keep them from the mid-day sun, and to prevent the roots striking through the pots I use compost similar to Mr. Scutt's, and with every additional care I fall short of him by 1100 blooms. "While there is life, there is hope," but so great a difference is rather discouraging. However I trust Mr. Scutt and some of the country growers will avail themselves of the opportunity of staging half a dozen plants against us Londoners next season, and show us what can be done by high cultivation of this favourite plant, with a saving of four months' care and time. I should here observe that though we consider Drin Drin to be a good bloom for ordinary purposes, yet like others it has had its day. Sacramento may be considered by some worthy of cultivation, but in my opinion it is useless as a specimen compared with General Canrobert, Escarbuncle, and many others. *James Holland, Gardener to R. W. Peake, Esq., Spring Grove, Hounslow.*

Ripening of the Pomegranate in England.—In my article on this subject last week I omitted two figures, not being then quite certain of the dates, and my notebook not being at hand, I left the space to be filled up afterwards; but through the press of other business the figures were forgotten to be added. The first year should be 1840, and the year in which the tree was cut down 1841. *H. Pullen.*

Children and Botany.—My children's ages range from eight years downwards, and my governess, who is herself ignorant of botany, wishes to begin at once to learn herself and teach them. Will you kindly state if such young children can make anything of the science, and, if so, what book you would recommend. *A.* [We doubt the possibility of such young children acquiring a knowledge of botany from any kind of book. The lady who is their governess should herself learn what is necessary, and then communicate orally what she thinks suitable to them. For her we recommend Lindley's School Botany, and Le Maout's Atlas Elémentaire de Botanique, a very nice book.]

The Season.—The accompanying Nuts grew this year on a tree at Roydon Hall, near Diss, Norfolk, and I shall be much obliged by your telling me the correct name of the species. *Geo. E. Frere.* [Juglans nigra, the great black American Walnut.]——In a leading article in your Paper of the 12th inst. you state that the President of the Linnean Society expressed a hope that some one would collect the instances in which the high temperature of 1857 had affected both the vegetable and animal kingdoms, and you solicit in consequence communications on the subject. In compliance with your request I have to state that two plants, the Stephanotis floribunda and the Physianthus albus, have for the first time produced seed-pods in the garden of my sister, Mrs. Fox, at Grove Hill, in the immediate vicinity of Falmouth. The Stephanotis was removed from the hothouse to the greenhouse in the second week of May in full bloom, and remained there until the end of November, during which time two seed-pods were formed. The plant was grown in a pot, and trained to a wire trellis. The Physianthus albus is growing at the back of a greenhouse, planted in the border and trained to a trellis. This plant also produced two seed-pods. There is also growing in Mrs. Fox's garden a fine specimen of the Agave americana. It was raised by her present gardener (R. Friend) from seed brought from the West Indies in 1830. The plant was kept in the greenhouse until the spring of 1832. It was then planted in the open garden, and it has remained ever since without any protection. On the 12th October the flower-stem began to appear, and grew 2 feet each week for the first three weeks, and it is now 11 feet high. A temporary shed has been erected over the plant 22 feet in height, to protect it from frost during the approaching winter. *D. Barclay, Dec.* 17. [It is to be hoped that those who believe that the Agave blooms only once in 100 years will now form a more rational opinion.]——The enclosed grew on a Thorn-like tree in the open ground near London in bunches like French Beans. *An Old Subscriber.* [This is Gleditschia triacanthos with the seeds perfectly ripe and hard.]

Powdered Rosin v. *Mice.*—Having observed chopped Furze recommended for the protection of Peas, &c. from the ravages of mice, I have to record one objection which I had to that material. I always imagined that the decaying Furze caused a considerable quantity of the Peas to rot. I have sowed rough rosin ground to a powder in the drills amongst the Peas. Last spring I sowed some early Peas, one half with chopped Furze, the other with rosin. Of those sown with Furze few were left, while those amongst the rosin were not touched. If your correspondents would use rosin you will have no more complaints about mice devouring Peas; and what keeps them from Peas should I think keep them from bulbs. *J. B.*

Pruning the Black Currant.—In "J. R."'s article on the cultivation of Moutans (December 19,) is the following remark: "I generally cut the plants back very much as Black Currants are pruned," &c. Now neither in Lindley's Guide to the Orchard, nor in Paxton, nor in any other work that I have are there any directions for pruning the Black Currant different from other sorts, but in Delamer's "Kitchen Garden" I find the remark, page 149 (Books for the Country,) under the head "Currant:" "As to pruning gardeners differ; some think they produce as well and abundantly if suffered to run wild at will," &c. I could hardly have supposed that any practical gardener would think so, but I am probably mistaken. It would gratify many of your amateur readers if yourself or some able correspondent would give a short article on the most approved modern practice of pruning the Currant, and what difference, if any, is required in the case of the Black Currant. *J. C. M.*

Stoke Newington Chrysanthemum Society.—A rumour having been very extensively circulated that this society, after 11 years' existence and celebrated throughout England as the best of its kind for encouraging the growing and showing specimen plants and flowers, has at last been broken up, as a member I beg to contradict this statement. The history of the affair is as follows. At the last exhibition some angry words took place respecting a non-exhibitor being permitted to be in the rooms when the judges were "at work." The consequence was the parties were ordered out by some of the members; a slight quarrel ensued, the result of which was that the officers resigned, and thus temporarily put an end to the society. Immediately however two societies were formed instead of one, called the old and the new, so that in fact we have now two powerful and respectable Chrysanthemum societies. Before this division they were like a beehive ready to swarm. There were too many for one society with some 80*l.* funds to give in prizes. The two are now established on a sound and permanent basis on the most friendly terms, the nurserymen and gardeners one, the gentlemen amateurs the other; and from the number of members already entered I have little doubt that the two will surpass even the old society in encouraging Chrysanthemum culture, so that the public will derive benefit from the change. It also caused four or five others to start at Hackney, Bermondsey, Camberwell, and other places, so that next November we shall have plenty of Chrysanthemum showing. *Samuel Broome, Temple Gardens.*

Aralia papyrifera.—In last week's Number "A.," while describing the fine specimen of the Chinese Rice-paper plant now flowering in the Chiswick Nursery, asks if any plant of it except that which bloomed at Kew in the autumn of 1855 has produced flowers in this country. To this inquiry I reply in the affirmative. In the autumn of last year (1856) a plant of it grown in the Botanic Garden at Oxford flowered freely, so freely indeed that it became exhausted and died soon after. Probably this may be the habit of the species; but that I do not know. As nearly as I can recollect the dimensions of our plant were, from tip to tip of its leaves, about 9 feet in diameter, and several of the leaves measured 2½ feet across. The flower stems, seven in number (still preserved in the Sherard room in this establishment), are now 2½ feet to 2 feet 9 inches in length. I saw a plant of this species, of nearly equal dimensions to those given above, flowering at Chatsworth in the autumn of 1855. It was grown in the Victoria house there, and, with the huge floating leaves of the Victoria and other fine aquatics, its long light panicles formed a very striking and pleasing contrast. *W. H. B., Botanic Garden, Oxford, Dec.* 22.

Ferns.—I have a small Fernery; the plants grew very well at first and continued flourishing, but lately they have become seedy, evidently "coming to grief." Upon examining this Lilliputian garden I found innumerable small white lice, running with remarkable agility all over the ground. I gave these gentlemen a good dose of strong tobacco-smoke; it has not killed them. What had I better do? Where they come from I have no notion; they are much smaller than ants. Do you think their presence has blighted my Ferns? The Fernery has been going on about 8 months. *Rus in Urbe.* [It is impossible to say what it would be best to do in your case without inspection or more complete information. We have noticed the little white creatures you mention, numerous enough in covered pots used for raising Fern spores, in which the soil had become sodden in consequence of their being constantly kept in feeders of water. From this we may suppose that the soil in your Fern-case has from some cause or other become too wet, which would be quite sufficient to explain the unhealthy condition of the plants. If so, the remedy is to clear out entirely and replant in fresh

and proper soil, taking care to provide ample drainage and to exercise in future proper control over the supply of water. Perhaps, however, the true explanation is, that the Ferns are tender kinds, now, as winter draws on, pining away for want of the warmth necessary to them. *M.*]

Societies.

LINNEAN, *Dec.* 17.—The President in the chair. E. W. Cooke, A.R.A., and F. Day, Esq., were elected Fellows. The following papers were read:—1. "On the Zoology of New Guinea," by P. L. Sclater, M.A. 2. "Report on the Botany of the North Australian Expedition," by F. Müller, Ph.D. The number of plants observed during the journey of Mr. Gregory was stated to amount to nearly 2000 species, exhibiting the proportionately great number of 160 natural orders, and more than 800 genera. The Monocotyledons were found to bear to the Dicotyledons scarcely the proportion of 1 to 4, and the Acotyledons (exclusive of minute fungi) 1 to 8, but with the omission of Algæ only 1 to 12. In North, North-western, and Central Australia the Cryptogamic plants diminish in number with the decrease of atmospheric humidity to such an extent, that their relative proportion to the rest of the vegetation is probably much smaller than in any other part of the globe, Mosses and Lichens being almost entirely excluded from many extensive tracts of the country. The richest natural orders of plants observed in tropical Australia, arranged according to the preponderance of species, are those following:—Leguminosæ, Myrtaceæ, Compositæ, Cyperoideæ, Algæ, Euphorbiaceæ, Rubiaceæ, Filices, Proteaceæ, Malvaceæ, Goodeniaceæ, Solanaceæ, Convolvulaceæ, Sapindaceæ, Scrophulariaceæ, &c. This census, however, applies to the whole extent of country traversed; in the north-western portion taken alone, the Compositæ, Euphorbiaceæ, Rubiaceæ, and Filices occur in a much diminished proportion. The botanical results of the journey have not disclosed a single new type or natural order of the vegetable kingdom. Not less than 60 genera known in other countries were observed for the first time in Australia during the progress of the expedition. A number of generic forms, at least equal to this, are not referrible to any hitherto published. Nearly 800 species have been added to the Australian Flora by the explorations of this expedition. Dr. Müller computes that about 9000 species of Australian plants are now known; and from the scantiness of vegetation in Central Australia, and towards the interior in Western Australia, he assumes it is not probable that more than 1000 additional distinct species are likely to be discovered; so that exclusive of minute fungi, he estimates 10,000 species to represent the whole Australian Flora, including that of Tasmania. Amongst the plants remarkable for their geographical distribution, the Gouty-stem tree, Adansonia Gregori, deserves particular notice, since the expedition proved its generic identity with the Baobab or Monkey-bread tree of Western Africa, which hitherto remained the isolated representation of its genus. The Australian species, which resembles its prototype most strikingly in the often colossal thickness of its stem and in its singular ramification, is restricted to a range of about 4° of longitude, and about the same extent of latitude. The fruits contain a dry acidulous pulp, like that of A. digitata. Nymphæa gigantea, and a second species, both allied to the Lotus of the ancient Egyptians, everywhere adorn in a variable shade of colours the waters of the warmer zone of Australia. The seed vessels and roots of these Water Lilies form a large proportion of the vegetable food of the northern natives. The Purslane, Portulaca oleracea, which was met with everywhere, proved a valuable addition to the diet of the exploring party. Dr. Müller remarks that they found it in sandy and grassy localities, so agreeably acidulous as to use it without any preparation. He observes, "I have reason to attribute the continuance of our health partially to the constant use of this valuable plant. The absence of other antiscorbutic herbs in the north, and the facility with which it may be gathered, entitle it to particular notice." Among the other native productions used in their dietary, the following are mentioned in the Report:—The acidulous drupes of three Meliaceous trees belonging to a new genus; the Nonda fruit of Leichhardt; a small Cucumber; a species of Rose Apple (Jambosa eucalyptoides); the fruits of Mimusops Kauki and of Physalis parviflora; the small Lemon of the Brigalow scrub (Triphasia glauca); and the berries of Leichhardt's Bread-tree (Gardenia edulis). The Australian Spinach (Chenopodium erosum), the New Zealand Spinach (Tetragonia expansa), Watercresses, &c., are almost confined to East Australia. The Clustered Fig, a seemingly undescribed arborescent Ficus, proved only second in importance to the Purslane, but was rarely available except along the rivers to the east and north-east. The Report concludes with a sketch of the principal distinctive features of the vegetation—the dense coast forests, the Brigalow scrub, the open downs, the desert, the sandstone table-land, the sea-coast, and the banks and valleys of the rivers. In an appendix the range of extra-tropical Australian plants towards the north as observed during the expedition is given; and a second appendix consists of a systematical index of the genera observed, giving an approximate estimate of the number of species in each. 3. "Notes on Dr. Asa Gray's observations on the ovules and seed coats of Magnolia," by J. Miers, Esq. This paper, full of technical details, was accompanied by much enlarged coloured diagrams, showing in section the various parts of the seed, and the changes they undergo after impregnation.

ENTOMOLOGICAL, *Dec.* 7.—Dr. J. E. Gray, F.R.S., Vice-President, in the chair. Mr. Samuel Stevens exhibited Dynastes Actæon from Peru, and another distinct allied species from South America; Mr. Newman a dark variety of Argynnis Euphrosyne and a specimen of Heilipus brachypterus having several specimens of a black thread-like fungus, apparently a Sphæria, growing from various parts of the body; and Mr. Holdsworth a piece of the wood of a Scotch Fir infested by the larvæ of Sorex duplex; the insect had done considerable injury to a plantation of these trees; the ovipositor of the female was well formed for depositing the ova beneath the bark, and the larvæ eat into the solid wood. Capt. Cox exhibited a series of drawings illustrating the transformation of various British Lepidoptera, including eight species of Eupithecia. Mr. Waterhouse exhibited a series of British species of Rhizophagus and Monotoma, and read a list of their names determined from the monographs of Erichson and Aubé. The Secretary read some notes on Australian insects collected by Mr. Diggles, and a paper by Mr. A. R. Wallace on the habits and transformations of a species of Ornithoptera allied to O. Priamus, found by him in the Aca islands near New Guinea. Mr. Stainton read a paper on the aberrant species of the genus Elachista. Mr. F. Smith read an Essay on the British Formicidæ, being a supplement to his paper recently published in the Society's Transactions. He also exhibited some specimens of a species of bee of the genus Trigona from Moulmein, and a portion of the nest of this species, the cells of which are formed of a mixture of resinous gums, which when dissolved in wood-oil is said to be used in that part of India for rendering cloth and other substances waterproof.

Notices of Books.

The Midland Florist and Horticulturist, a Handbook for the Amateur and Florist. Edited by A. G. Sutton. Vol. I., new series. 12mo. Simpkin. Pp. 146.

The time is not very distant when a floricultural periodical could scarcely be found whose pages were not disgraced by coarse personalities, or rubbish scarcely less offensive. We cannot say that the race is quite extinct; but it is dying out, only now lingering in a few disreputable quarters. We take some credit to ourselves for putting down such nuisances, and the example of the *Florist*, the *Scottish Gardener*, and of the little work before us, has contributed powerfully towards the same end. Mr. Sutton has here produced a volume which does credit to him in every way; the papers are upon a great variety of gardening subjects; the information is practical and good; and the contributors are evidently under strict editorial control. We like his style, as well as his matter, and we heartily wish good speed to his little book; in doing which we are tempted to extract the following sensible remarks upon horticultural prizes by Mr. Glenny:—

"The great exhibition at Newcastle-on-Tyne produced Hollyhocks and Dahlias in perfection and profusion. The first three stands for Dahlia prizes were very superior, and too close to be pleasant. Each individual made up his mind he was first, and, as usual, it was difficult, if not impossible, to reconcile the losing men to their fate; and when it requires every point and every deficiency to be summed up fairly (and some of these points are always out of sight), to adjudge the prize rightly, it ought to be a lesson to managers never to allow their prizes to be widely different in amount. In the case of Newcastle: just imagine three stands that required all our quiet and serious judgment and a careful summing up of every point in 24 flowers to decide between first, second, and third, and moreover the difference, very small indeed, to be thus differently rewarded, first, 12*l.*; second, 5*l.*; third, 2*l.* 10*s.* Now, if anybody can say there is rhyme or reason in this, we shall be surprised. We know there are sporting gentlemen who say it is worse in horse-racing, because the first horse sweeps all; but horse-racing differs in this—there is no difference of opinion; in fact, there is no opinion, the horse that comes in first is a matter of fact—there is only one point to decide, and that is palpable. In flowers there are 20 different opinions, and although we know, without anybody's assistance, which stand is the best according to 'the Properties of Flowers and Plants,' or anything universally acknowledged, and could, after any of our judgments, show any disinterested person every point which justified our decision, there are many who are so taken by general appearances, that the material points are for the moment overlooked. Hasty criticisms on a judgment proclaim the critic to be a fool. He takes a superficial view of things, and pronounces in five minutes that a judgment, which was the work of an hour, and the examination of every flower, is erroneous. Such men are always popular with losers. They make illnatured remarks on the conduct of people their superiors in everything that makes a man respected, and grumbling, like the safety valve to a boiler, alone prevents the disaffected from bursting. The judge, therefore, who looks upon grumblers with any feeling short of thorough contempt, is scarcely fit for the office. For our own part, we satisfy ourselves. We know we are right, and are as unmoved at the remarks of losers as if they were never made. If we condescend to explain to a loser, who is civil in his inquiries, it is because we desire to improve his notions, by showing him the defects, and in nine cases out of ten he is thankful. To go back, however, to the Newcastle show. There really was not so much difference as would justify a 10*s.* fall from one stand to the other, yet there was 7*l.* difference from first to second, and 2*l.* 10*s.* difference from second to third, and something like 20*s.* to 30*s.* difference from third to fourth. Our own opinion is, that there should be less distinction in money, for then a much greater value would be put upon rank. We have another objection to wide differences between prizes, and especially to large prizes for the first. It awakens the cupidity of distant exhibitors, and they come down well fortified by the best flowers in their neighbourhood, and the local people stand no chance. Each distant man too often represents almost the best growers in the county, at all events, all the good growers in its vicinity. The last prize for a stand of 24 Dahlias ought not to be higher than 5*l.* or 6*l.*; and, instead of giving three or four to feed the cupidity of itinerant exhibitors, give 10, so that if those who make a living of showing take the first three or four prizes there shall be a reminder for home growers to compete for. At present honourable men, who exhibit their own flowers, only know they have no chance, and therefore abstain altogether. Suppose, at Newcastle, they had given the same amount of prizes, in the open class, divided in 5*l.*, 4*l.*, 3*l.*, 50*s.*, 40*s.*, 30*s.*, 20*s.*, 15*s.*, 10*s.*, 5*s.*, there would have been 20 or 30 stands put up."

Dr. Gray, of the British Museum, has just produced an edition of *Turton's Manual of the Land and Freshwater Shells of the British Islands* (12mo, Longmans, pp. 320, with numerous coloured plates and woodcuts). It is a beautiful volume from a thoroughly competent editor; and having excellent figures of every species, many coloured, while the uncoloured are represented by admirable woodcuts, it forms one of the prettiest of all volumes for presents at this season to friends in the country. Dr. Gray as a man of science could not do otherwise than employ a classification of shells according to the animals that inhabit them; but as it is not every one who can follow that method of arrangement he has added a capital artificial synopsis, showing the student how to find out the name and place of a species by inspecting the shell alone. The work is accompanied by an excellent index.

A Treatise on the Cultivation of the Mushroom has just appeared from the pen of Mr. Cutbill, of Camberwell. Like his other pamphlets it is full of good useful practical instruction, so that he must be very evil indeed who now cannot grow Mushrooms for himself. The following extract is an example of the author's way of giving directions:—"A gentleman, when he had learned from the *Chronicle* that I was about to write a treatise on the cultivation of the Mushroom, sent me the following questions to answer, saying that unless I explained my whole practice, he, for one, would break down half way, as it were, up the ladder. *Question.* In what condition should the manure be? *Answer.* I care not how the dung is for the under part of the bed, provided there are about 6 inches of droppings and unheated dung for the surface, all quite dry; if fresh dung is trodden very hard, it stops overheating, and retains the heat longer, saving all the ammonia and other salts.—*Q.* What should the thickness of the dung be? *A.* All my beds are from 1 foot to 1 foot 6 inches deep.—*Q.* How do you let out the heat? *A.* By making holes 6 inches deep and 1 foot apart, in regular rows, and when the heat is reduced to 80° these holes are filled to within 3 inches of the surface with droppings: then the spawn is inserted in each hole.—*Q.* What should be the exact temperature of a Mushroom bed? *A.* September heat, or about 60° or 70° on the bed's surface; this heat can always be maintained by hay or mats, or otherwise.—*Q.* How far will a bushel of spawn go? *A.* About 120 square feet.—*Q.* Should the bed be moulded at once? *A.* Not when made up, but immediately when spawned.—*Q.* What is the right soil? should it be dry or wet? *A.* A soft sandy, loamy, yellow, sandy soil is always best; but this light, dark sandy soil does well. Never use clay, or chalky, or limey soil. It matters not much whether the soil is dry or wet, as it must be made wet to get it very solid when finished.—*Q.* What thickness should the mould to be when put on to the bed? *A.* Four inches of a loamy soil, and when this has been trodden down and beaten with the back of the spade, it will then be about 2 inches thick: if light, sandy mould, not less than 5 inches.—*Q.* When should a bed be first watered? *A.* From six to eight weeks after formation, but that will depend upon the dryness of the dung when made up. Mind, as before said, to guard against too much heat and moisture. Soft water should be used, never pump water: in winter let the chill be taken off it.—*Q.* How much water should be given at a time, and how often? *A.* Very difficult to say, but not less than a half gallon to a square yard; liquid manure water half and half."

A Treatise on the Potato Disease by Richard Caless (12mo, G. Jones, pp. 60), belongs to a class of pamphlets which we are happy to say are dying out. It contains no information worth having, except such as is not wanted, and when we add that Mr. Caless talks of "blight" being washed from trees and hedges upon the "superincumbent O soil," we may be excused from taking further notice of his lucubration.

Lake's Book of Object Lessons (Longmans, 12mo, pp. 156) shows how a good plan may be spoiled in the execution. The plan is to inform teachers how to

instruct young people in the common facts of natural history, and in the elements of physics. That is an excellent idea, for the great difficulty experienced in introducing natural history into schools consists in the almost total absence of qualified instructors; and unless persons can be found who know *correctly* what they undertake to teach, it would be better to omit such subjects altogether, for there is no practice so pernicious as conveying error to the minds of the young. Upon turning to Mr. Lake's instructions in the Vegetable Kingdom we are at once arrested by his statements regarding Caoutchouc (Indian rubber), We are here informed that in America it is yielded by *Simphona* elastica, a mistake for Siphonia, and in India by Ficus elastica. The instructor then proceeds to state that it is found in Southern China, Singapore, the Mauritius, Madagascar, Java, Penang, in none of which is Ficus elastica known. So that the first page treating of Caoutchouc contains seven blunders. The Cocoa-nut Palm is called *Cocus*, instead of Cocos; in addition to which the children are to be taught that its juice is refreshing when taken early in the morning; *but intoxicates later in the day!!* This is really too bad. We must also add that here, as in so many schoolbooks and examination papers, the subjects are very much overlaid, a fault that inevitably results in that "cramming" system which is so incompatible with sound knowledge. The late Miss Macnab's tables for children, published we think by Constable, are a happy exception; it is a pity they should not be better known.

The 3d Part of the 4th Volume of Walpers' *Annales Botanices Systematicæ* is before us. It reaches as far as Cracca among Leguminous plants.

The following trade lists have reached us:—*Rendle's Price Current and Garden Directory for* 1858, pp. 104; *Butler and MacCulloch's lists of bulbs* sold at their shop in Covent Garden, with excellent directions for cultivation, furnished we understand by our old and experienced correspondent Alpha; *Parker and Williams's select Catalogue* of Vegetable and Agricultural Seeds, sold at the Paradise Nursery, Holloway, pp. 16.

Miscellaneous.

The Ark of the Covenant made of Acacia wood.—In some few parts of the country the remains of ancient forests of wild Olive trees *(Oleà similis)*, and of the Camel-thorn (*Acacia giraffæ*), are still to be met with; but when these are levelled in the proximity of a Bechuana village no young trees spring up to take their places. This is not because the wood has a growth so slow as not to be appreciable in its increase during the short period that it can be observed by man, which might be supposed from its being so excessively hard; for having measured a young tree of this species growing in the corner of Mr. Moffat's garden near the water, I found that it increased at the rate of a quarter of an inch in diameter annually during a number of years. Moreover the larger specimens, which now find few or no successors, if they had more rain in their youth, cannot be above two or three hundred years old. It is probable that this is the tree of which the Ark of the Covenant and the Tabernacle were constructed, as it is reported to be found where the Israelites were at the time these were made. It is an imperishable wood, while that usually pointed out as the "shittim" (or *Acacia nilotica*) soon decays and wants beauty. In association with it we always observe a curious plant, named Ngotuané, which bears such a profusion of fine yellow strong-scented flowers as quite to perfume the air. This plant forms a remarkable exception to the general rule, that nearly all the plants in the dry parts of Africa are scentless or emit only a disagreeable odour. It, moreover, contains an active poison; a French gentleman, having imbibed a mouthful or two of an infusion of its flowers as tea, found himself rendered nearly powerless. Vinegar has the peculiar property of rendering this poison perfectly inert, whether in or out of the body. When mixed with vinegar the poison may be drank with safety, while, if only tasted by itself, it causes a burning sensation in the throat. This gentleman described the action of the vinegar, when he was nearly deprived of power by the poison imbibed, to have been as if electricity had run along his nerves as soon as he had taken a single glassfull. The cure was instantaneous and complete. I had always to regret want of opportunity for investigating this remarkable and yet controllable agent on the nervous system. Its usual proximity to Camel-thorn trees may be accounted for by the *probability* that the giraffe, which feeds on this tree, *may* make use of the plant as a medicine.—*Livingstone's Missionary Travels.*

How Persons calling themselves Gentlemen behave in India.—While bearing willing testimony to the excellent conduct of the majority of visitors to these gardens, it is with regret that I have to record the following reckless actions on the part of some visitors. For several years past a notice has been posted in the grounds, but so little attention has been paid to it that on more than one occasion several gentlemen at a time have deliberately ridden their horses through our nursery grounds, over the seed-beds, and the beds of transplanted plants, to the utter destruction of many hundreds of them; and on these occasions, when the gardeners have interfered, they have been violently thrust out of the way, threatened to be horsewhipped, and ridden over. It is a matter of almost everyday occurrence for parties, in defiance of the notice, to ride over the narrow rolled walks; cutting them up to such an extent that several men are constantly employed to repair the damage, and during the past year it has cost the garden upwards of 400 rupees to put these walks in thorough repair. On many occasions persons have been found taking up plants, removing cuttings, and gathering seeds in large quantities; on one occasion I discovered that one of the gardeners had been bribed to give away seeds and cuttings, the value of which to the gardens was more than 500 rupees. *McIvor's Report on the Garden at Ootacamund.* [If this kind of conduct is pursued toward our own countrymen in India, what is it likely to be towards the natives?]

Calendar of Operations.

(For the ensuing Week.)

PLANT DEPARTMENT.

THE forcing houses and pits will now be kept in full activity to supply the various calls for plants in bloom, which at this season of the year are more or less in demand in most establishments. Care should be taken before plants are moved to sitting rooms to gradually harden them for a day or two either by placing them in the conservatory or an intermediate house. In addition to keeping the conservatory gay with blooming plants, let the arrangement of the pot plants be occasionally changed by grouping the plants somewhat differently and adding a few striking ones, as some of the hardiest Palms, &c., for effect. Pay attention to the plants intended for successive blooming. Insects should be kept down by the syringe and fumigating and every means enforced to keep the foliage clean and healthy. The number of plants brought forward will depend on the demand and must be regulated accordingly. Azaleas, Rhododendrons, &c., for forcing still out of doors should have some protection should severe weather occur, or remove them to any spare house till wanted. Narcissi, Hyacinths, &c., should be protected by a frame, as they now begin to grow; remove the plunging material down to the surface of the pots to prevent them rooting upwards. Mignonette and Neapolitan Violets will require abundance of light and air to keep them from damping. As a change from the present to severe weather may come on suddenly, be provided with ample means for covering pits, frames, &c., should it occur. As with the exception of forced plants most other things are now in an inactive state, the temperature of plant houses should fall to its minimum point consistent with the safety of their various inmates. Nothing can well be worse for the development of a healthy vigorous habit in plants than subjecting them to a high temperature at the present season of the year, when light—so important to the healthy action of vegetable life—cannot accompany it. Where Achimenes and Gloxinias are required to bloom early a few pots may now be started by plunging them in a little bottom heat.

FORCING DEPARTMENT.

EARLY VINERY.—As soon as the bunches can be discerned on the young shoots the extra buds should be removed, excepting such as may be required for producing bearing wood next season. In leaving these latter select such as are formed nearest the main stem to avoid the awkward appearance of long spurs at a stage further in their growth. Such shoots as have more than one bunch should have them reduced to that number, selecting the one likeliest to form the handsomest bunch. Tying in the young wood should be managed carefully, bringing the shoots to their proper position by degrees, to avoid the danger of their breaking. After the buds are started a few inches the syringe may be gradually withheld, as too much humidity at this season will sometimes hinder both the foliage and bunches, and a sufficient degree of moisture can easily be kept by sprinkling the floors and heating apparatus several times daily. Regulate the admission of air so as to have a gentle current at all times through the house, increased, of course, by day agreeably with the state of the weather. Gradually advance the night temperature to 60° and then to 65° by the time the flowers are ready to open, keeping the thermometer from 10° to 15° higher by day according to the amount of light you can command. Keep up the heat in the outside border by additions when necessary, bearing in mind the injurious effects any sudden check to the roots now in action will produce on the coming crop. Bring succession Vineries into work as wanted. Late Vineries in which Grapes are still hanging will require fires daily and air sufficient to keep the house and fruit dry; remove decayed berries and dead leaves, and well protect the roots from frost. For a late Grape the Barbarossa is found to possess valuable properties. PEACH HOUSES.—Peaches and Nectarines which have been forced for several years oftentimes produce a large excess of fruit buds, and this more especially on weakly trees; a natural consequence of allowing these to remain are weak flowers and inferior fruit and wood. When therefore such is the case the trees will be greatly benefited by well thinning the bloom buds, leaving the largest and those most favourably placed; of course a considerable number will be still left to allow for casualties. Syringe twice or oftener daily till the bloom is ready to expand, when it must be discontinued. The night temperature may advance to 45°, with an increase by day accompanied with a proportionate admission of air. FIG HOUSE.—Damp the trees over frequently, and if wanted early increase the heat a degree or two weekly. PINERY.—Pines are often deficient in flavour at this season, which is improved by exposing the ripening fruit to all the light you can command, and giving but little water. A good supply of air is likewise essential at all times for high flavoured fruit, and more than ever necessary at this time. Continue an increase of heat to Pines now wanted to start, employing it principally by day. Attend to linings for Pines grown in dung pits and keep the atmosphere in which they grow dry. Strawberries in bottom heat for forcing will require air daily to prevent drawing in those earliest started; when they show the truss of flower they should be removed to shelves in the Vineries and Peach houses to bloom, but the principal crop should be advancing slowly as yet.

FLOWER GARDEN AND SHRUBBERIES.

Except in particular cases little more can be done in this department than paying attention to order and neatness. The bedding stuff, however, must have attention, for in all likelihood many things are suffering from damp, and such plants as appear to suffer most should be removed to other quarters where a drier temperature is kept. Keep the stock in pits and frames well ventilated, and the surface soil of the pots frequently stirred. Dust with sulphur Verbenas and similar plants attacked with mildew. Be particular in keeping the interior of pits containing plants of the above description as dry as circumstances will permit.

HARDY FRUIT AND KITCHEN GARDEN.

Figs against walls will require some protective material placed over them in the Midland and Northern counties. Some wall trees, as Pears, Plums, and Cherries, &c., are often attacked by a species of scale insect, in which case the infected trees should be well washed with a mixture of soft soap, tobacco water, and lime; a half pint of spirits of turpentine may be added to each 4 gallons of the mixture when they are much infested. The lime is added to give body to the mixture, and to show that no parts of the trees are missed in dressing. Let this be applied during dry weather, if possible, that it may remain on for some time and before the trees are nailed.

STATE OF THE WEATHER AT CHISWICK, NEAR LONDON.
For the 6 days ending Dec. 23, 1857, as observed at the Horticultural Gardens

Dec.	Moon's Age.	Barometer. Max.	Barometer. Min.	Temperature of the Air. Max.	Temperature of the Air. Min.	Temperature of the Air. Mean	Temperature of the Earth 1 foot deep.	Temperature of the Earth 2 feet deep.	Wind	Rain
Friday 18	2	30.140	29.941	54	30	42.0	49.7	48	S.W.	.64
Satur. 19	3	30.182	30.042	48	23	35.5	50	48.5	S.W.	[illegible]
Sunday 20	4	29.989	29.786	50	40	45.0	48	48	S.W.	.17
Mon. 21	5	30.000	29.964	54	46	50.0	48	48	S.W.	.51
Tues. 22	6	30.200	30.097	56	50	53.0	48	48	S.W.	[illegible]
Wed. 23	7	30.341	30.292	57	43	50.0	50	48	S.W.	[illegible]
Average		30.300	30.040	53.3	38.6	45.8	48.9	48.1		.48

Dec. 18—Densely clouded; heavy clouds; rain at night.
— 19—Fine; slight haze; clear and fine; foggy.
— 20—Hoar frost; overcast; clear at night; rain.
— 21—Rain; densely clouded; clear at night.
— 22—Overcast; densely clouded; clear.
— 23—Fine; very mild; clear and fine.
Mean temperature of the above period 6 8-10th deg. above the average.

RECORD OF THE WEATHER AT CHISWICK,
During the last 31 years, for the ensuing week, ending Jan. 2, 1858.

Dec. and Jan.	Average Highest Temp.	Average Lowest Temp.	Mean Temp.	No. of Years in which it Rained.	Greatest Quantity of Rain.	Prevailing Winds. N.	N.E.	E.	S.E.	S.	S.W.	W.	N.W.
Sunday 27	42.4	29.5	36.0	11	0.40 in.	4	4	1	—	5	7	6	4
Mon. 28	41.6	28.7	35.1	9	0.16	3	3	3	3	3	5	7	3
Tues. 29	42.9	33.9	38.4	14	0.17	—	1	3	4	7	5	5	4
Wed. 30	44.7	32.7	38.7	10	0.30	1	5	2	2	1	9	5	1
Thurs. 31	43.9	33.0	38.4	8	0.44	—	6	—	1	1	10	7	5
Friday 1	43.0	33.3	38.2	9	0.70	3	3	2	3	4	6	5	4
Satur. 2	42.4	30.0	36.2	12	0.21	3	1	5	1	3	5	4	7

The highest temperature during the above period occurred on the 28th, 1855—therm. 58 deg.; and the lowest on the 2d, 1854—therm. 4 deg.

Notices to Correspondents.

AMERICAN BLIGHT: *Sub.* You will find the mode of destroying this given a week or two ago at p. 760.‡

CARDOONS: *H W.* Full directions for the culture of these have been given by Mr. Fleming, of Trentham, in No. 2 of our vol. for 1849. The mode of managing them is briefly this. About the middle of May form a trench as for Celery. Sow in a trench, and when up thin to 18 ins. apart. Earth up as they grow, having first enveloped the stems in hay bands. Some sow the seeds in small pots, plunge the latter in a cold frame, and when the plants are strong enough transplant them in the trench. This prevents gaps in the rows. It is said hay bands rot the plants; but Mr. Fleming did not find them so if he deferred earthing up till October. Drain pipes 7 or 8 inches in diameter well filled with sand have also been found to blanch them perfectly.‡

FORKS: *P T S.* We cannot learn that the method of using these implements is such as you describe; they are used exactly as spades, which they are superseding wherever they are known. At all events to push earth instead of turning it over is a practice not to be commended. The best fork is the "steel four-tined," which if well made is an admirable tool; but some, especially of the three-tined sort, are rubbish and bend like lead. A good four-tined fork is rather lighter than a spade, and is of the same size except that the blade part is rather wider. You can get them of any good implement dealer. What are called Parker's are much in request, but others are doubtless just as good.

HERBS: *Sub.* Seeds of the kinds you name may be had of Butler & M'Culloch, Covent Garden.‡

NAMES OF PLANTS: *W S.* 1. Physalis Alkekengi, the common winter Cherry, not poisonous; 2. Helleborus fœtidus, a poison; 3, Plantago Coronopus.

PEACHES AND NECTARINES: *A B.* These are propagated by budding them upon the Muscle and Pear Plum stock; the latter being made use of for those kinds which are among nurserymen termed French Peaches. Those budded upon the Pear Plum are said to have likewise an advantage over many of the others which are budded upon the Muscle by being much less affected by mildew, particularly those kinds which have glandular leaves. The Brompton is a bad stock for Peaches and Nectarines. Plums are propagated by budding and grafting upon the Brussels and common Plum stock.‡

SPADE: *A Sub.* We do not answer silly questions.

*** As usual, many communications have been received too late, and others are detained till the necessary inquiries can be made. We must also beg the indulgence of those correspondents the insertion of whose contributions is still delayed.

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The Agricultural Gazette.
SATURDAY, DECEMBER 26, 1857.

THE mere enumeration of the questions which have especially engaged the attention of the farmer during the past year amply suffices to show how large and full a subject agriculture is. Philanthropists, statists, scientific men, men of the legal, medical, and clerical professions, tradesmen of all classes, agriculturists of course, and the general body of consumers, all find, and during 1857 have found, matters interesting to themselves in the current agricultural topics of the day.

The Philanthropic Congress at Brussels, the Social Science Association at Birmingham, the British Association at Dublin, the National Agricultural Societies at Salisbury, Glasgow, Waterford, the Chemical Society, the Society of Arts, have all been occupied more or less in the consideration and investigation of agricultural topics. The sewage question, the cattle murrain, the guano question, the land transfer question, besides a multitude of questions of less general interest have been studied and investigated by medical men, by chemists, by mechanists, by lawyers. Commissioners have traversed Europe in reference to the diseases of cattle. Government has sent out armed vessels to protect a newly established trade in guano; private enterprise has cultivated by steam, reaped by horse-power, introduced new methods of dairy management, manufactured spirit out of Mangel Wurzel. Societies have collected implements and cattle, purchasers and sellers, spectators and exhibitors; they have published periodicals and prize essays; they have employed judges and rewarded merit.

The social relations arising out of agriculture—those of landlord and tenant, of master and servant—have been illustrated by the events of the year; they have been reviewed by the parties interested, and examined and discussed by the clergyman, the lawyer, and even the doctor.

The theory of many branches of practical farming—of manures, of cattle feeding, of dairy experience, of land drainage, of irrigation, of plant diseases, of the pleuro-pneumonia, has been examined and elucidated during 1857; and we have to thank Dr. VOELCKER, Mr. BERKELEY, Mr. HORSFALL, Mr. WAY, Professor BUCKMAN, and many others for their services.

In the details of actual farm practice the past year has seen great energy and some advance. Guano rose in price, and the expedition to the Kooryа Mooryа islands, and the largely extended use of artificial manures, have been in some measure the fruit of that rise. The very exaggerated fear of an impending cattle murrain prevalent in the spring has been dissipated by Professor SIMONDS' report of observations in the east of Europe, where it was at that time raging. The enclosure of waste lands has been progressing—the erection of good farm buildings is extending—autumnal cultivation is almost universal, at least in England—a new breed of sheep, the Oxfordshire Down, has been acknowledged—steam cultivation is a problem approaching solution—horse power reaping is one already solved.

Among the more general agricultural topics of the year may be named the question of uniformity of weights and measures, which has excited great attention in the western and midland corn markets of the kingdom, and has been discussed before the Highland Society and the London Farmers' Club. Among the most important and directly useful contributions to our knowledge of the liabilities of the farmer have been the papers by Professor BUCKMAN in these columns on the amount of adulteration with the seeds of weeds observable in agricultural seeds as supplied in the market.

Perhaps the most important agricultural novelty of the year, the one which will hereafter exert the greatest influence on agricultural progress, is the extension of their charter obtained by the Highland Society, enabling them to lend a guiding and a helping hand to the great cause of agricultural education.

On the whole, 1857 may be considered a satisfactory year both by the farmer and the mere spectator of agricultural progress. It has not seen such high prices either of live stock or of field produce as its predecessors, and it has witnessed higher prices than its predecessors given for all the means of farming—labour, manure, and land. It has been especially remarkable for the many attempts made to apply steam power to the culture of the soil—(1) SMITH, FOWLER, WILLIAMS; (2) BOYDELL, HALL; (3) ROMAINE; (4) HALKETT, have respectively tried traction from a fixed engine, traction behind a moving one, rotatory cultivation by a locomotive, and traction on a guideway—we doubt not of their ultimate success. The year has been signalised by the universal success of all the agricultural meetings: Newton, Salisbury, Waterford, York, and Glasgow have been the centres of most valuable agricultural influence. It has been also, we are glad to say, remarkable for the general excellence and abundance of the harvest, and for the profitable experience both of the breeder and the cattle feeder.

THE subjoined table gives the acreage, number of live stock, and estimated agricultural produce of Scotland during the past four years. The last column is taken from the report just published by Mr. HALL MAXWELL, to which there are appended tables giving the acreage under a rotation of tillage—the proportional acreage of the crops in each county—an estimate of the gross produce, in bushels and tons, of the principal cereal and root crops, per county—an estimate of the average arable produce of the same crops, per county—an estimate of the average arable produce, per district—and an estimate of the weight of cereals, per district. The first and third of these are included in the last column of the subjoined table. The numbers of cattle, horses, sheep, and swine also included in that column are taken from Mr. MAXWELL's previous report. In the present one an incidental but very satisfactory test of the accuracy of the results of this annual statistical inquiry is thus adverted to:—"Lieutenant-Colonel JAMES, who is at the head of the Survey, with the view of showing how the Ordnance maps may be made available for statistical purposes, selected the county of Linlithgow for an experiment, and caused the area of the different crops there to be ascertained. A comparison between the returns obtained by him, and those reported by me in October, show an excess on the part of the latter of 316 acres of grain and green crops on a total of 29,599. This difference is immaterial, and, as tenant farmers cannot be suspected of intentionally exaggerating their acreage, it may be accounted for by the more minute allowances made by the Ordnance officers for roads, fences, &c., assuming the correctness of Colonel JAMES's report."

The discrepancies in the reports from different parts of the country are shown to be consistent with the climatic differences known to distinguish them. Thus the most favourable reports emanate from Argyll, Ayr, Bute, Dumbarton, Lanark, Renfrew, and Stirling—all western counties; the most unsatisfactory from Aberdeen, Banff, Caithness, Elgin, Forfar, Kincardine, Ross, and Sutherland, on the

east coast; while the mixed—one crop greater, another less than last year—from counties principally intermediate. These results were such as might have been expected. While the western districts enjoyed propitious weather both for ripening and securing the crops, great damage along the range of the east coast was incurred, in some places from early aridity, but generally from rain during harvest; indeed, in a minor degree, there was a repetition of the disastrous weather which characterised the harvest of 1856. In several of these counties, also, Turnips are deficient and unsound; while the Potato disease has been general and disastrous. Inverness-shire, stretching, as it does from shore to shore, affords an illustration. In districts Nos. 1 and 3, lying along the Beauly and Moray Firths, and containing the best land in the county, the enumerators report that two-thirds of the cereals were exposed to unfavourable weather, and were consequently sprouted or discoloured; that Turnips are poor and affected with mildew; and that two-thirds of an inferior crop of Potatoes had been lost by disease. On the other hand, reports from the western districts of the same county represent that the cereals were secured early, and in fine condition; that Turnips are good; and that for years there has not been so sound a crop of Potatoes. Indeed, the enumerators on the west coast and in the Hebrides generally concur in stating that their population has rarely been so well prepared to encounter the wants and trials of winter.

The following is the tabular statement referred to of the results of the inquiry during four successive years:—

SCOTLAND.	1854.	1855.	1856.	1857.
Crops.	Acres.	Acres.	Acres.	Acres.
Wheat	168,216	191,300	261,842	223,152
Barley	207,507	186,080	165,663	188,387
Oats	932,994	933,364	918,258	938,613
Rye..	3,809	3,692	4,754	5,989
Bere	18,118	17,260	15,385	21,607
Beans	37,702	37,308	40,488	39,186
Peas	6,169	5,456	4,840	3,687
Vetches	13,442	15,038	19,096	18,418
Turnips	433,915	449,372	459,741	476,691
Potatoes	143,032	146,963	148,930	139,819
Mangel	1,946	2,299	3,642	2,803
Carrots	1,218	1,191	1,529	1,401
Cabbage	1,395	1,200	1,483	1,704
Rape	—	—	1,407	2,032
Flax	6,670	3,461	2,723	1,534
Turnip seed ..	1,429	1,998	1,777	2,576
Bare fallow ..	26,128	22,462	17,715	15,464
Clover	1,427,790	1,519,844	1,475,584	1,459,805
Live Stock.	No.	No.	No.	No.
Horses	156,595	..	..	..
2-year old (agricultural)	..	121,182	123,009	126,471
Under do. do. ..	..	32,099	33,391	34,947
Other horses ..	..	23,919	23,504	23,991
Milk cows	292,365	298,446	300,041	303,912
Other cattle ..	438,384	469,242	473,505	475,327
Calves	205,172	207,847	193,765	195,198
Ewes, ewe-hogs, &c.	3,360,289	..	..	..
Tups, wethers, &c	1,426,946	..	..	..
Sheep of all ages for breeding ..	..	2,707,847	2,712,950	2,632,283
Sheep of all ages for feeding ..	..	1,138,501	1,145,448	1,181,782
Lambs	..	1,848,389	1,964,080	1,869,113
Swine	163,683	134,349	126,944	146,354
Estimated Produce.	Bushels.	Bushels.	Bushels.	Bushels.
Wheat	4,848,679	5,062,540	7,270,952	6,154,986
Barley	7,645,328	6,092,904	5,581,970	6,494,534
Oats	34,093,040	30,079,714	31,966,381	32,750,763
Bere	645,418	556,876	501,106	671,778
Beans and Peas ..	1,081,263	1,183,647	1,279,440	1,037,760
Turnips .. tons	6,411,419	6,461,476	6,540,267	6,690,109
Potatoes .. tons	529,915	732,141	413,890	436,468

THE report by Professor SIMONDS upon the Rinderpest or Steppe murrain which created so much alarm in the early part of this year has been published by the Highland Society as soon as it reached their hands. It includes a history of various epizootic maladies which have at various times raged in England; it relates the rise and progress of public feeling during the spring of 1857 with reference to a reappearance and reported extension of the cattle plague of Hungary, and it gives in detail the journal and researches of the commissioners appointed by the Societies to visit the infected districts. We have thus a great deal of useful information given us on the cattle trade and cattle diseases of Belgium, Holland, Hanover, Hamburgh, Denmark, Schleswig and Holstein, and of various German States. As an illustration of the virulence of the particular disease which it was his business to investigate, Professor SIMONDS tells us that during the autumn and winter and spring of 1855-6, of 56,000 cattle in the infected districts of Austria 25,000 died. In the disease itself there is indeed enough to justify the greatest alarm when once it is established. The baselessness of the alarm which existed here regarding it was due not to any exaggeration of the character of the disease itself, but to the fact that it was then so far away and confined to that distant locality by the most rigid system of quarantine which it is possible to imagine. Among the conclusions to which Mr. SIMONDS was led by his researches are the following:—

That all the countries of Northern and Western Europe from which cattle are exported to England are perfectly free from the Rinderpest, which is a disease which specially belongs to the Steppes of Russia.

That, speaking in general terms, Rinderpest has not existed in Central and Western Europe for a period of 42 years.

That it is one of the most infectious maladies of which we have any experience.

That the ox tribe is alone susceptible to the disease.

That the deaths often amount to 90 per cent.

That all varieties of medical treatment which have as yet been tried have failed in curing the disease.

That no fear need be entertained that this destructive pest will reach our shores. Its present great distance from us would, of itself, afford a fair amount of security; but when we add to this that no cattle find their way from thence directly or indirectly to the English market, and also that in the event of the disease spreading from Galicia, it would have to break through hundreds of military *cordons*, one after the other, before it could possibly reach the *western side* of the German states, and, moreover, that for years past commerce has been unrestricted with regard to skins, hides, bones, &c., of cattle from Russia and elsewhere, all alarm, we believe, may cease with reference to its importation into the British Isles.

ROYAL AGRICULTURAL COLLEGE.

SESSIONAL EXAMINATION.

PRACTICAL AGRICULTURE.—*Continued.*

Question 3.—At what period (1) of the year (2) of the rotation would deep ploughing be advisable? What kinds of soil does it benefit, and when should it be avoided?

Deep ploughing is most effective in the autumn, thus exposing the land to the influence of frost, rain, and wind during the winter, which act upon the mineral ingredients of the soil, rendering them available for the succeeding crops, and pulverising the soil, and thus facilitating the passage of the roots into the subsoil. As regards the period of the rotation it is generally considered that deep cultivation is most beneficial after the Wheat crop, as a preparation for the root crop and the whole succeeding rotation.

At the end of every rotation it is deemed advisable that the land receive a deeper stirring than would be considered safe or expedient in preparation for a corn crop, in order to disturb the hard impenetrable stratum formed by the continuous treading of horses and the passage of the plough, and also to bring to the surface a fresh portion of unexhausted soil to be incorporated with that from which the previous rotation has derived its nourishment. Moreover, the first crop which follows requires a deep well pulverised soil; a soil, in fact, which will offer as little resistance as possible to the expansion of the bulbs. Therefore taking all these points into consideration we conclude that the most suitable time for deep ploughing is in autumn, previous to the root crop, or for the bare fallow after a corn crop in cases where the soil is unsuited for the root crop. The soils most benefited by deep cultivation are stiff clay lands, those soils resting immediately upon rock cannot be subsoiled even if it were desirable, which is very doubtful. As a rule, we may say plough deep, when the subsoil is of the same character as the surface if both are tenacious, or when the subsoil is composed of good clay only requiring atmospheric influence to sweeten it. Deep cultivation should be avoided in nearly all very light soils. It should be avoided, when preparing for corn, either for Barley after roots fed off, in which case we should by deep ploughing bury the manure beyond the reach of the crop, and in ploughing the Clover lea for Wheat it would be especially injurious. In undrained clays deep ploughing would be objectionable.

Deep ploughing benefits most clay soils, in fact to plough such heavy land as No. 4 in the autumn is equal to half a dressing of manure. Professor Way estimates a clay soil to absorb as much ammonia during the fallow as would be contained in 2 cwt. of guano; those clays containing a large quantity of insoluble silicates of potash are generally benefited. Clay, from which the air is excluded, exhibits a dark bluish colour. The frost during the winter penetrates the soil, and acts mechanically by destroying the adhesion of the particles.

After draining clay it is not advisable to bring to the surface more than 2 inches of new soil at a time, otherwise more is brought up than the winter frost, &c., can pulverise and sweeten, and the first crop that follows finding an uncongenial seed bed will not flourish.

THE LIQUID MANURE FARMS OF SCOTLAND.

BY E. CHADWICK, C.B.

(*Concluded from p.* 859.)

THIS Canning Park Farm was recently visited, with others on the liquified manure principle, by Messrs. Moll and Mille, Commissioners from the Minister of Agriculture in France, together with other French agriculturists; on which occasion Mr. Telfer authenticated by his signature a declaration—as I understand it, to the same purport as the terms of his letter to the above cited, and that he had been entirely misunderstood by M. Barral. Mr. Telfer at the same time stated that the account given of his farm by Mr. Morton, in a paper read at the Farmers' Club, was authenticated by himself (Mr. Telfer) before its publication. In my paper read at Brussels, I cited Mr Morton's account of that farm preferably to my own. In that account Mr. Morton held forth the produce of the farm (of which a higher account was given than by Mr Lee) as practically attainable, whilst it will be observed that I have classed it as a feat; yet I find that in his Abstract he expresses an opinion to which I must take exception as unwarranted—that I, whose highest example was given on the credit of his examination and in his own terms—have exaggerated the effects of liquified manure. I am assured by practical horticulturists that we are far from having determined the extent of the feeding power of plants, and that I have really understated the produce obtainable by an improved culture. In respect to the charge of having in the particular instance ignored the use of guano in the production of the results cited, I may ask what explicitness of terms will guard against misrepresentation if those I have cited may not?

The paragraph refers to a report of Mr. Henry Austin's as having established a conclusion opposed to the method of distributing manures by steam power and the jet. The French agricultural and engineering commissioners will have had the means of ascertaining for themselves that any such conclusion, for returning to any modification of the old method of distribution by the water meadow, is wholly against the evidence. They received the declaration of Mr. Harvey near Glasgow—whose liquid manure is lifted to elevations by steam power, and is distributed by shedding much after the method of water meadows, only without any expense whatsoever for surface adaptations—that he should double the effect of his manures by a complete apparatus for hose and jet distribution by steam power, and on a competent examination it was obvious that he would do so. Everywhere on the farms visited, where either sewer manures or farm-yard manures diluted and liquified were distributed, it appeared that one important result for the future was obtained, namely—that the absorbent and retentive powers of every description of soil were found to be far greater than had been imagined, and that the manures might be utilised in far narrower areas than had been provided for;—nevertheless there was not one instance where any one who had laid down the apparatus could be got to declare that if he had to do the work over again, he would restrict any portion of it, for it paid even for the distribution of plain water. Instead of restricting the application of steam power on account of its first expense, in the larger instances the parties interested declared that they would extend it on account of its assured economy. Instead of returning to the old method of distribution by submersion, which occupies the surface of the land for a fortnight at a time, with 2 or 3 inches, *i.e.*, 200 or 300 tons per acre of stagnant liquid, it was found in all the larger examples that the managers were impatient of the occupation of the surface with the process for hours, and were desirous of augmenting the steam power in order to expedite the process still more,

To any one whose own state of knowledge, applicable to the particular subject, is so low as to render him incompetent to judge of the intrinsic value of any testimony upon it, and to cause him to be held in doubt by contradictions of any kind from any quarter, I repeat that he may easily determine for himself the value of all conflicts of testimony, by trial works, which he may at little trouble and expense make for himself on his own farm, or in his own garden, by taking equal quantities of stable manure or any other manure, applying one portion in the solid form in the manner of the ordinary top dressing; by putting the other portion in solution in four or five times its bulk in water, and applying the solution to the land by the watering pot, and following up the growing crop, with food in water, in such quantities, and at such times, as a good gardener may advise.

But the increased fertilising power of manures applied in solution or in suspension in water, and at once conveyed amidst the soil, and put in chemical combination with it, or applied as food to the growing plant, I must assume to be a general elementary fact or principle placed beyond dispute, by a concurrent mass of testimony from horticulturists, and from agriculturists at home as well as abroad. The new general elementary fact or principle which I have caused to be established as a mechanical rather than an agricultural principle—is the cheap as well as rapid means of applying the fertilising power of liquified or diluted manures or simple water; the power of doing almost for shillings what by the gardener's watering-pot can only be done with the same rapidity, on the same scale, for pounds.

This elementary fact may be, as it is, evaded; but it is beyond the power of any engineer, however eminent, or of commissions, to gainsay it, unless to their eventual disgrace. The other new elementary facts established are the power of removing sewage or liquid manure, and of applying it to the soil before advanced stages of decomposition arise, and its permanent retention by the soil in chemical combination.

As I stated the other day at the Public Health Section of the meeting at Birmingham of the National Association for the Advancement of Social Science, the progress and position of the question, as applicable to the relief of towns, has close analogies to the progress of railway communication. Charles Knight states that "the earliest railway for public traffic in England was one passing from Merstham to Wandsworth, through Croydon, a small single line on which a miserable team of lean mules or donkeys might be seen crawling at the rate of four miles an hour with several trucks of stone and lime behind them. It was commenced in 1801 and opened in 1803, and the men of science of that day—we cannot say that the respectable name of Stephenson was among them [Stephenson was then a brakesman at Killingworth] tested its capabilities, and found that one horse could draw some 35 tons at six miles an hour, and then with prophetic wisdom declared that railways could never be worked profitably." Later on, when a locomotive was seen conveying goods at a rate of more than 20 miles an hour, at a cost of three-eighths of a penny, or less than a ½*d.* per ton per mile; or, in other words, when the elementary fact was demonstrated of the practicability of public conveyance more than six times quicker and six times cheaper than the common method, the cry was still the same, in the face of the demonstration, that it would never answer. And no doubt there have been apparent justifications for their prognostications—but totally independent of the elementary facts—as in double and treble expenditures, &c., beyond what is now proved might have sufficed. Lord John Russell has stated that it takes a quarter of a century to get a new simple idea into the public mind of England. In a quarter of a century, when the elementary fact or idea of the cheapness of railway conveyance did get into the mercantile mind, and became established and properly considered, and had superseded all mere opinion evidence, the chief direction of opposition—and that too in the guise of superior wisdom—was to supersede the first successful plan, not by anything more simple, but by something more complex and obviously dearer, as by substituting for the performance of the one engine running, a multitude of engines which were stationary, by rope or chain, or by atmospheric or hydraulic traction.

In respect to the distribution of town and farm-yard manures, and simple water, the elementary mechanical fact has been established of a power of distribution relatively as cheap and as quick as the railroad compared with the common road conveyance; upwards of 100 tons being proved to be dis-

tributable within an hour at a less expense than 2*s.*, and this elementary fact has been presented in varied demonstrations with engines of different power, chiefly small, all excelling the horse in rapidity and cheapness in distributions at a given distance, from 1*d.* to 3*d.* per ton;—but in the face of these demonstrations, there are men of scientific position who declared that it could not be worked profitably, that is to say, that it would not answer to do that for pence which is now done for shillings, or to do that in an hour which now requires a day.

The opposition made to the application of this engineering element to the distribution by jet, on the ground of its expense, reminds me of a story told of the late Duke of Bedford that having urged upon one of his farmers who was ploughing with four horses in line, that as good work might be done with two horses properly yoked abreast, the farmer boldly denied the fact: on which the duke got off his horse, unyoked the team, dismissed two, attached two abreast to the plough, took it in hand himself, and did good work with it; to which practical demonstration the farmer's answer was, "that it might be all very well for his grace, as a duke, to work in that way, but he, as a farmer, could not afford it." This was a farmer of the old school; but here we have the editor of a scientific agricultural journal accepting a story as a fact, and proclaiming it to Europe, that a farm had been ruined by a plan which saves all the liquid manure previously wasted—had been ruined by works which, at a expense of 10*s.*, effect a distribution of 40,000 gallons per diem, or, with the labour of one man at the engine and a man and a boy at the hydrants, regularly effect a distribution of upwards of 18 tons of liquified manure per hour, about a mile distant;—as much as would probably be distributed within the same distance, within the same time, by some hundred of men by the Swiss method of distribution with the *dossier!* His dealing with the established elementary fact, or principle of the fertilising power of such manure, really is of the character of one presented to the notice of the Commissioners in connexion with the farm of Mr. Harvey, the great dairy keeper near Glasgow, where the urine from the cow-sheds alone sufficed to raise a very large farm to a degree of fertility exceeding almost all others in the same district, and enabled him to sell the whole of his dung to other farmers, of whom we were informed that, notwithstanding the visible demonstration made from year to year of the fertilising power of the liquid manure, most of the farmers who bought the dung were unaffected by the visible demonstrations, and continue to allow the liquid manure produced on their own farms to continue to run to waste into the ditches and watercourses.

Notwithstanding the imperfections of the first works,—some of which, I must confess, present examples in respect to execution of the like humble grade as that of the first railway example at Croydon—the primary elementary principles in question have been so far advanced that, as in the case of the early railway progress, the chief efforts in the way of opposition are as respects the town manures to obtain substitutes more complex in principle and more costly in application. Under the new system of tubular drainage, now extensively completed in many, and in progress in some hundred towns, all refuse is at once removed, without stagnation, without deposit, before it can enter into any advanced stage of decomposition, and before noxious emanations can be evolved; and it is demonstrated that, after constant removal from beneath the sites of houses and towns, it may be even more rapidly applied to agricultural production. In the two working examples of Rugby and Watford, the refuse discharged into the house drains at 8 or 9 o'clock will, under ordinary circumstances, be upon the land before 10 or 11 o'clock, and not merely upon the land in mechanical suspension, but incorporated in the soil, in effectual chemical combination:—not merely deodorised, but disinfected. As in the case of the first lengths of railway traction brought into complete operation—competent and disinterested persons who duly considered them would see in them the demonstrations of the most extensive applicability, so in these examples of the application of town refuse to agricultural production, no doubt would be entertained that, by the application of the like means, the whole of the morning's refuse of the metropolis might be put in constant removal at the rate of some three miles per hour, and would be inoffensively incorporated in the soil before the nightfall;—that all the necessary works, internal and external, to achieve this result, might be accomplished considerably within the expense required by the official referee's plan of outfalls, to throw the whole of the refuse of the metropolis into the sea.

But the new elementary facts are far too simple for popular, or even, it would seem, for professional appreciation; and greater complexity, more so called 'art and genius,' and works of greater expense are required. Instead of discharging the refuse from the houses of the poorer and middle classes, it is sought to retain it in *fosses mobiles*, usually falsely called *inodores*. Failures and nuisances in the course of abandonment in France are reinvented and repatented in England, and agitation is maintained for their introduction. It being thus proposed that the excreta shall be retained in the houses in a decomposing state, deodorisers and disinfectants are to be used, and every house is to have its chemical manipulations with one of the chemical agents: and the conflict is, which it shall be—whether peat charcoal, sulphite of zinc, or sulphite of magnesia shall be manufactured on immense scales of expense and profit. In respect, however, to house drains, short lengths, with good falls behind the houses, are too simple and too cheap;—kitchen floors are to be ripped up, the front pavement and road-ways are to be broken through for long lengths of drains with bad falls; prolonged divisions of the drains, which increase friction, are preferred, and, even where tubular branch sewers are adopted, sizes are frequently used for two or three houses which would serve for 200 or 300. In the face of the demonstrations of the complete self cleansing powers of sewers of sizes and shapes properly adjusted to the flow of the sewerage, such large sizes and rough formations are maintained, so as to increase the friction, retard the flow, occasion deposit, and create extended cesspools. Then there are necessary arrangements for intermittent flushings, besides demands and projects for the extensive use of deodorisers and disinfectants to check and mitigate the products of decomposition:—elaborate but unsuccessful trappings to protect houses and streets against their escapes, and calls for the construction of immense ventilating shafts, to lead away and diffuse above and spread about the deleterious vapours which it is proved the simple and less expensive works do not generate. When the manure which has been detained underneath the sites of dwellings or underneath the streets, decomposed, and deteriorated at the expense of the inhabitants, arrives, after storms or flushings, at the outfall, its direct application by quick and economical power is too ample and far too cheap. It is to be arrested and spread out into large sewer reservoirs, there to be subjected to an expensive chemical treatment, which precipitates a portion to be converted into a solid form; which solidified manure must again be put into water, for the development of such fertilising powers as it may contain, the highest of which are not pretended to contain as much as is thrown away on the original solution. At the meeting of the Health section of the Association for the Advancement of Social Science, I asked a projector who brought forward a plan of this species, had he seen the works tried on the same principle at St. Thomas's, Exeter, which had been abandoned. No, he had not. Had he examined those tried at Croydon and abandoned? No, he had not. Had he examined those nearer, at the works at Leicester, the solidified manure of which had not succeeded; or others on the like plan—which Mr. Pigott Smith, the surveyor of Birmingham, not inaptly described as an elaborate machinery for obtaining the bran, and throwing away the flour—a description which a close examination and report by Professor Hofmann, of the College of Chemistry, and other chemists, fully justifies? No; he had not. But he will still persevere, and in despite of the proved elementary principles of success on the one side, and of failures on the other, large capital is invested—in the instance of Leicester, double that which would have sufficed for a direct application—in the face of such experience as that for half a century at Edinburgh, and of the continued letting of inferior applications at 20*l.* and 30*l.* an acre per annum. Agitation is maintained for the depreciation of the principle and practice of liquified applications, and the exaltation of applications of the solidified manufactures, of which it has been repeatedly announced that the records of the Royal Agricultural Society do not furnish one solitary instance of success.

Where these intermediate applications are proposed to be elided, and more direct applications adopted, the evidence of the elementary facts ascertained is still defied. Thus, in respect to the area required, it is now tolerably well ascertained that 100 acres will suffice for the utilisation of the sewage of 500 houses; that for the metropolis, some 50,000 or 60,000 acres, about the extent of the Plumstead and the Kentish marshes, would suffice; but one plan demands nine millions of acres, whilst the official referees, more moderate, but still without any justificatory facts, demand 100,000 acres. On considerable experience, it is now ascertained that for the complete distributing apparatus of pipes, hydrants, &c., for the land, leaving it free for arable as well as Grass cultivation, an average expense of 5*l.* per acre (or the average expense for permanent works of one year's ordinary top-dressing) will suffice;—that with this apparatus 13 or 15 inches of liquified manure will produce as great an effect as 60 inches thrown on by the old method of submersion;—but in the face of this experience (*v. ante*), the formation of water meadows at the expense of 12*l.* per acre is preferred, leading to the conversion of extensive sewer marsh surfaces, with additions of works, leading to an estimated expenditure of no less a sum than 75*l.* per acre.

"It must not be expected," says the Archbishop of Dublin, "that reason will universally make its way. '*Medicamenta*,' says the medical aphorism, '*non agunt in cadaver*.' Those in whom indolence is combined with pride will be induced by the one to remain in their position, and by the other to fortify it as they can."

The delay of progress in this branch of art does not, however, always arise from want of understanding. The enemies of economical works commonly understand well enough what they are about, as shown by artful and fallacious diversions. On the part of a number of towns, the delay has arisen entirely for the want of sufficient cheap and inexpensive powers for the application of the sewerage to waste and common lands. To farms the application of the principle of culture is in progress. The French Commissioners received a list of 32 new farms, on which distributory apparatus had been laid down by one firm alone—Messrs. Young, mechanical engineers, of Ayr—since they executed the distributory works at Myer Mill Farm for Mr. P. W. Kennedy, and I hear of others in progress in different parts of the country. I repeat, let agriculturists who recognise the principle in question be guided in its application to their own farms by simple trial works of their own.

Home Correspondence.

Comparative Condition and Remuneration of English and Scotch Labourers.—I have read with attention the articles which have appeared of late on the comparative condition and remuneration of agricultural labourers north and south of the Tweed. As it has fallen to my lot to serve in ten different counties, extending almost from "Land's End to John-o-Groat's," my observations shall be founded on facts, and with your permission I will print them. In the course of my peregrinations I have lodged in the so-called hind's house, farm kitchen, bothie, the English cottage, and at times being honoured as farmer's companion in his own dwelling. It being my inclination in youth to move rather oftener than my friends approved of, it kept the purse rather empty, but swelled the brains; I have now however the pleasure, if not the advantage, of knowing from experience the real state of my fellow labourers north and south of the Tweed. I am happy to state that my experience does not permit me to join the "hue and cry" raised against employers as a class; in short, my treatment has invariably been attended with civility and forbearance, and I often with pleasure reflect on the sound admonitions I have received, and to this date they favour me with their correspondence. From my wide range of experience, as already stated, I have had ample opportunities of observing the honesty and integrity of my fellow-labourers, and it gives me pleasure to state, in eight counties out of the ten, such a thing as pilfering from an employer never came under my notice, or even had it been attempted, the offender would have been belaboured from the place by his fellow workmen—the grand prevention no doubt being that the necessaries of life were duly provided for them, leaving hunger (too often the mother of theft, when there are no means to satisfy it) altogether unknown. I regret that the same remark will not apply to all. Ignorance, with no regard for self-respect, combined with mistaken ideas, pressed forward by an empty stomach, to some give the crime a colour of necessity, caused too often through improvident habits and intemperance, often remarking while committing the act, that "a living must be got by some means," and if they don't get it, they must take it. It is known to most of your readers that English labourers are paid in weekly wages, ranging from 10*s.* to 15*s.* a week, take as an average, say 13*s.*, or 33*l.* 16*s.* a year, whereas in Scotland the system varies in different localities. But provision is always made that the employer provides the staff of life in ample quantities. As "A Scottish Rustic" has so graphically described the system in the "border counties," which gives colour to the idea that the system is universal and degrading in the extreme, I shall state the wages paid at the present date in the midland and northern counties, where hinding and bondagers are unknown. Married men as ploughmen are only partially employed: where they are their wages run as follows:—Engagements 12 months; money, 16*l.* 10*s.*, paid twice a-year; keep for a cow, 7*l.*; 65 stones imperial of oatmeal, 6*l.* 10*s.*; house and garden, 70*s.*; Potatoes ½ ton, 30*s.*; firing 30*s.*; in whole 36*l.* 10*s.* Unmarried men receive in cash 23*l.*; board and lodging in farm kitchen, say 5*s.* a-week; in whole 36*l.* a-year. Bothie men, cash 23*l.*; 65 imperial stones of oatmeal, value 6*l.* 10*s.*; warm milk, value 2*s.* a-week; firing and lodging, 1*s.* a-week; in whole 36*l.* 6*s.* It is thus shown that the wages in cash payment are rather in favour of our northern neighbours, but how different are the results? With the Scotch labourer provisions are invariably supplied direct from the employer, and such a thing as pining hunger was never felt by the writer, nor does it exist, whereas the English labourer has retail price to pay for every article he consumes. The former are "well fed," "well clad," athletic men, and do their duty cheerfully. The latter have "a fill" and "a famine," time about, and are poorly clad, half-starved, discontented beings. *A Labourer.*

Finger and Toes.—For the last two or three years the Turnip crop upon my farm has been much destroyed by the disease finger and toe, or perhaps anbury would be the more correct term; indeed, so much so as to be of little or no value at all this season, so virulent has it become, although formerly there was no part of the country produced a larger produce. The soil is well adapted for Turnips, and receives heavy applications of both farm-yard manure, dissolved bones, and guano, but without effect. The rotation is green crop, Barley and Wheat with seeds, two years' pasture, Oats, a considerable proportion of the Turnips being consumed upon the land with sheep. Lime has been applied, but as yet without any advantage, except what was laid on some years ago. I intend to apply it again, and it is what has been used in a soap work. I find it effervesces with an acid, and it has the advantage of being near at hand. Norfolk farmers, I believe, say that whatever effervesces with an acid is good for preventing the disease. The climate of Scotland is too cold for Mangel, otherwise I would substitute it for the Turnip, as perhaps a change of the green crop would be of great advantage. *S. G. T.*

Do Fallows Pay?—My experience and observation have led me to the conclusion that they do not. A case in point will serve to illustrate my views. A field within my knowledge has this last summer undergone a course of ploughing, harrowing, rolling, and scarifying. Few, I presume, would be inclined to find fault with the occupier for want of industry. The field in question is a strong clay, and was ploughed up early in the spring, with a deep furrow, which had the effect of laying it up exceedingly rough. Soon after the first ploughing was finished it was crossed with the plough again, and so on through the hot weather of May, June, and July, an all but continuous war was kept up against a host of very obstinate clods, so that by the beginning of September over this field a pretty uniform, smooth, and fine surface had been obtained, indeed so much so that after the heavy rains which we had about that time it presented more the appearance of the crust of a well-baked pie than any other thing which I have seen, and after lying for some four weeks in a chrysalis state, it was again ploughed up into 8 feet ridges, and finally seeded with Wheat about the middle of October, at an outlay of 12*l.* per acre. Another field near it, and in all respects very similar, was in November of last year ploughed up 10 inches deep, and remained so until the last week in March of this year, when it was twice scarified, then ridged 30 inches apart, manured, the ridges split, and seeded with Mangel about the 16th April. The crop during the season was horse-hoed five times, hand-hoed twice, hand-weeded twice, and plants thinned, the crop stored, and field ploughed ready for seeding with Barley next spring at a cost of 7*l.* per acre. The crop, owing to the dry weather, came up very irregular and patchy, and worth about 11*l.* per acre. Both fields are clean and in good condition for next year's crop; the Mangel field to have a dressing of 2 cwt. of guano in the spring. If in 1858 we suppose the fallow field to produce 6 qrs. of Wheat per acre, we may with equal justice give the Mangel field credit for 7 qrs. of Barley. Again, if in 1859 the Wheat field should supply Whitechapel with four loads of Clover per acre, who can say that the Barley field will not contribute an equal quantity to Smithfield. With such results on which side will the balance lie, and who will continue to fallow? That many will I have no doubt. I am also aware that it is not easy to overcome habit, and consequently would expect comparatively few imitators, but when sound views are borne out by successful practice, the result of experience and reflection, and when example has put it beyond the bounds of experiment, one might hope to see something different from what I very frequently see—an amount of undeniable energy and perseverance—an amount of undeniable energy and perseverance expended on farming operations, which, to my mind, displays a want of knowledge of even the first laws which operate for the production of effects anticipated. I may go one step further and say that until the mist of prejudice and long-established custom be cleared away, we must expect to find in nine cases out of ten that form of practice and spirit of argument which will admit of nothing new, however convincing in its composition. *P. Mitchell.*

Mr. Piper's Balance Sheet.—In your Number of the 14th ult., under the head of Home Correspondence, you remark on Mr. Piper's balance-sheet; you do not however appear to be aware that Mr. Piper publishes *his* balance-sheet of the Lois-Weedon system and not Mr. Smith's. Mr. Piper has grown Wheat on his own plan and on Mr. Smith's plan, both on his own occupation, and he publishes his balance-sheet, the result of his growing under both systems. He expresses himself gratefully to you for the considerate way in which you have treated the subject, and begs you will place the

matter as it should stand; illness compels him to depute another person to do this for him, or you would have heard from him earlier. He wishes to add that he is glad of discussion on these matters, that the truth may be brought out. Mr. Smith on his own occupation grows double the amount that Mr Piper has done on Mr, Smith's system. *J. B. Sattell, Colne Engain.*

Weeds.—Are weeds, popularly so called, such robbers as they are supposed to be, or are they not, as a certain elderly gentleman is sometimes said to be, painted blacker than they deserve? Our old fashioned fields in Ireland, exhausted and incapable of bearing profitable crops of Potatoes and corn, are given up to weeds for three or four years, and thus recover a fertility that enables them to bear several more crops of Potatoes and corn to the entire satisfaction and comfort of Paddy. Liebig says the exhausted fields in the neighbourhood of Naples recover a fertility for being given up in a similar way to the beneficent dominion of weeds. Very unkindly he does not allow any credit to these friends of man, but ascribes the restored fertility to the sole and unassisted influence of atmospheric matters in the decomposition of earthly ones; but had these fields continued in tillage, aided by manures and the opening and disintegrating labours of man, so far from recovering such fertility they would have become further deteriorated, as the necessity for ceasing to till them evinces. Surely these weeds are not robbers, rather they are restorers of a fertility which our cultivated crops have stolen from our fields. But weeds are also further our friends by their being stimulators of good culture, and so further contributors to fertility, for were it not for their maintaining so stoutly their right of inheritance, our fallows and our fallow crops would not receive from us the labour that is essential to their increased productiveness, and which is so necessary to admit the inflow and absorption of atmospheric elements of vegetable foods, and their action on those that would else remain dormant in the soil. Weeds have been the origin of all fertile soils; the sterile rock springing from its ocean bed would remain sterile for ever did not weeds come to the rescue, and by their generous growth fit it to give food to the beast of the field and bird of the air, and bread to man. What do we not owe to weeds! and yet we churlishly call them robbers. Even in death they are victorious and do good to man in return for their murder, for in their destruction they give rich vegetable food to the hungry earth. In every way they are the best friends of the farmer of land, but to the thick seeders they are invaluable, for they necessitate and afford excellent reasons for that thick seeding which makes the armies of the invaders to exceed those of the natives of the soil, and, as this thick seeding renders their destruction impossible, their continual increase brings with it the blessed necessity of still thicker seeding. Really thick seeders owe me thanks for this chapter, and will no doubt gratefully snap up this sop to Cerberus. *J. M. Goodiff,*

Rabbit Breeding.—In reply to "North Lancastershire" on breeding the tame rabbit for profit, I would advise him in the first place to prepare some hutches for the breeding does with a good perforated bottom; also a wire window at the end of the long side, leaving a dark end for the doe to lay her young. The wire window in all my hutches acted as a doorway, so that I had perfect control over every part of the hutch; this is necessary, as many does are careless in laying their young, oftentimes leaving them in two separate places. When this is the case they should all be put into the best place. In this point I differ from all other writers on rabbit breeding, as they recommend their not being looked at until they are able to run about. With me a young doe sometimes only had two young ones; when this happened I generally put them with another doe that had a like number or more, so as to make up the number to six, which they can bring up well. By this your correspondent will see the necessity of allowing several does to young as near each other as possible. Frequently I have had over a dozen at a breed. I may mention here that a doe belonging to a cottager hard by had the extraordinary number of 18 at once, and brought up 15; but, as may be supposed, they were very small when a month old. This doe afterwards fell into my hands, and had 11 the next breed. When any of mine had more than six I took the earliest opportunity of equally dividing, making the number to each doe six; the weakest above that number were killed, as six at the month's end would be worth more than a larger number brought up by one doe, especially for feeding. It would be a good beginning for "N. L." to commence with 10 does and two bucks, as it is an object to have the breeds as near together as possible. The lots will run to about 50, allowing for accidents. The young should remain with the does to the end of five weeks. The latter should not go to the bucks for two or three weeks until they have recruited their strength, otherwise the young are very small. When they are taken from the old ones they should be put into a warm airy place, not too many together or they become diseased; feed liberally on Oats, fine bran, hay, and roots, such as Beet, Turnips, Carrots, &c., a great variety of weeds, and the refuse of the garden; but this should be limited, or they will not eat dry food. The latter is most essential, as too much green food will bring on rot. A little good hay and Oats should be given to them every day. At three months old they should be put up to fatten; the sexes separate, or they will fight, consequently make little or no progress. Great care should be taken in first selecting the stock. I found the grey and white more hardy than the black and white. The choice should fall on a doe with large ears; a long straight side not in the least inclined to be big-bellied. I have pointed out the principal incidents for a beginner; to treat the subject in every particular would no doubt take up too much of your space. *Thorp Perrow.*

Societies.

FREEMASON'S TAVERN, *Dec.* 10.—*Guideway Steam Agriculture.*—A meeting of gentlemen interested in agriculture was held for the purpose of hearing from Mr. P. A. Halkett a description of his system, the number and variety of the operations of tillage he has performed, and the costs at which they have been done by the guideway steam process; also to enable him to prove his assertion that large profits were to be derived from his system of the entire cultivation of land by the power of steam. Mr. Mechi occupied the chair.

The Chairman said: We must all feel that horses are most expensive in the cultivation of the soil, and that steam would be preferable provided it could be profitably employed. We know practically that if our manufactories or our locomotion had to depend on horse power three parts of the population of this country would be unclothed and unconveyed. When we consider that a manufacturer with an engine of 500 horse-power (which is probably kept working night and day), would require at least 2000 horses to work it, inasmuch as a horse can only work six hours continuously; when we consider the impossibility of finding grooming space and stabling for 2000 horses, and compare that with that which is required for an engine of 500 horse power, I am quite sure you will say that we ought to take the engine, provided it can be done profitably. Now, it appears that the difficulty as applied to the soil is one of friction. We had capital roads in this country which cost millions of money; but, when the locomotive was invented, it was found that owing to that friction it could not be applied to common roads, &c., therefore money has been found to the extent of three hundred millions to make new roads fit for this young gentleman—the steam engine or locomotive. I think it is not a question of what a thing costs, but of what it will pay, and it is on this principle only that we may expect Mr. Halkett's invention can be made to pay. 24*l.* an acre seems a large sum of money to fix upon land—in many cases it is equal to the fee simple—but then it becomes a question of whether the same principle does not apply to this as to the locomotive and roads, and whether it will not be sufficiently remunerative in the shape of investment. I do not at present pass an opinion upon it, but I think it is worth while submitting it to practical men and engineers who are not likely to make a mistake upon the subject. To-day I went to the Polytechnic Institution and heard Mr. Pepper lecture on this very subject. There were two trucks, each of which contained 1½ ton of Mangel Wurzel; and I saw two men move the 3 tons of Mangel Wurzel with perfect ease, and they would have had no trouble in passing from one end of London to the other, provided the roads were level. Now I have had carried off many hundred tons of Mangel Wurzel within the last month, and I find that on a clay farm, late in October, two horses could only carry off at a rate which would require twelve horses to carry off 8 tons, and the reason of that was nothing else but the difference in friction, and this was the difficulty that applied equally to locomotive engines on common roads. I think we can infer from that that there is some reason for inquiring into this question, and to give Mr. Halkett an opportunity of explaning it to us. I have seen Mr. Halkett's machine working eight ploughs and a subsoiler, ploughing in one of the wettest days I ever remember, and practically found no difficulty in doing it; and I think you can easily understand that it would be so with a locomotive engine if suitable ploughs were attached beneath it. At present we have not been able to feed the people of this country so fully as they require. Our rapidly increasing population requires for food that which was found necessary for manufactures. If our manufacturers had not acquired a great amount of capital to produce cheap goods, we could not have clothed or employed our own people or have been able to envelope the world in cotton, but we should have been compelled to obtain our clothing from other countries without having the wherewithal to pay for it.

Mr. Halkett's address is for the most part already given at p. 858; we give the following additional extract, however, descriptive of the machinery and plan which he adopts. He said—The system I advocate is that of laying down over the whole farm to be cultivated parallel hard tram-roads or guideways to enable a platform, to which the various implements of agriculture are attached, to travel. The platform is driven by two engines placed at the extreme ends or sides of the platform which are geared together by an intermediate shaft. The ends of this intermediate shaft are connected to the wheels of the platform in such a manner that the whole set of wheels (16 in number in my present machine), act simultaneously as driving wheels to the platform. The platform that has been worked is 30 feet wide, but engineers have agreed with me that it can be made 50 feet wide.—Mr. Halkett then showed by diagrams the various sections of the platform and engines, and said that as the whole of the wheels were driving wheels the machine could ascend a hill without difficulty; in fact, till the gradient assumed a point where iron slips upon iron, which is one in five. In the ordinary case of a train on railroads the first six wheels, four of the locomotive, were the only driving wheels. By the machine he had been able to perform all descriptions of farming, ploughing, hoeing, drilling, reaping, carriage of crops, &c. Having thus briefly explained the nature of the machinery employed, Mr. Halkett referred to the "asserted large profits to be derived by this system of cultivation," in the terms already given at p. 858. A very interesting conversation then followed, in which Mr. Mechi (the chairman), Mr. Bullock Webster, Mr. Slaney, Mr. Moore, Mr. Wilkins, Mr. Wyatt, Mr. Grafton, Mr. Burcham, and others took part, which resulted in eliciting the following information from the lecturer:—

Both engines are worked by one man. The machine does not break the joints of the Couch Grass, but clears it completely out in long pieces. The cost of putting the machine in operation on a farm would be about 20*l.* an acre for the rail, and 3*l.* an acre for the machinery. It is calculated to last as long as a house, and may therefore be put down at 21 years' purchase. The method of laying down a foundation for the rails is as follows:—A trench is cut 18 inches wide at the top down to within a few inches of the subsoil; this is filled with burnt clay ballast and well rammed, and on this are laid [illegible] bricks formed of hard materials like paviers. On the top of these bricks are laid angle irons, and a strip of iron goes across them with bolts at every 15 feet, secured to bricks down in the subsoil. The rails are tarred to prevent the rust; and this can be done by the machine as it moves along, with a brush once or more in a year. The loss of land occupied by the road is very small. Taking the gauge at 50 feet, and [illegible] rail at 2½ feet, it is about the 1-20th of the land. [illegible] roads are wanted; and the loss is not more than the [illegible] water furrows. A very lengthy discussion then ensued as to the solidity and security of the rails and its foundation, which was most fully and satisfactorily explained by the lecturer.

Mr. Wren Hoskyns then came forward and said—

"This is the second time I have been present at Mr. Halkett's very interesting exhibitions—the first to see his machine at work, and the second to hear his oral description, and I must say that I have been much pleased. After years of experience under the old system of cultivation, it is almost too much to expect a perfect piece of work at so early a period as this, but I think I shall experience no difficulty in obtaining a vote of thanks for Mr. Halkett, not merely for the information he has given us, but for the labour, the time, and the large portion of his property he has devoted to this subject. It is one of the most important questions of the day, and no doubt he will have great impediments to encounter. One of these arises from the difficulties which clog the advance of any agricultural system on a gigantic scale where large tracts of land are necessary to be purchased—the laws of settlement and entail offer great objections, and also the enormous expense and delay in transferring land. The first objection that occurred to me was the difficulty that awaited him in getting farms of such a size as to be able to realise his mode of cultivation, supposing he had mastered all mechanical and engineering difficulties. The engineering question seems to have occupied us this evening. The first point is that there should be an efficient railway, and the other point is the agricultural part. Now, any gentleman unacquainted with the extraordinary difficulties of a clay soil cannot have the least idea of the benefits to be derived from this mode of cultivation which will perform the process of culture without having the animals poaching, as we call it, the ground; that is, treading and leaving the marks of 16 iron-shod feet on the soil as the fulcrum of power on the land. As far, therefore, as it is possible to look at Mr. Halkett's plan generally, it appears to me that two great advantages are gained by it; the first is the immense saving of power by means of the rail. I do not here enter into any question of deflection that may be supposed to exist, as that is only a question of detail which by no means should stand in the way of ultimate success. The first great advantage, I say, is the immense gain of having an iron track to go upon, instead of the moist and sticky earth. Here he has always a clean road, and one on which I can see the greatest amount of power is to be obtained at the least expense. The second advantage is to be able to cultivate clay soil without any weight whatever attached to the machine that cultivates or the power that draws the machine, that is to say, that if it is for ploughing, the plough is to go through the ground without any pressure on the soil. In the act of lifting there is a degree of pressure by the tugging, irregular action of the horses, because we all know that the tug is very unequal. With mechanical action, even when applied to ploughing, we know that the results are far better; but I say that nothing can be worse than the action of a plough with four horses working on the land as we see every day in winter. The question, therefore, is the successful solution of the problem of the cultivation of clay soils without having any horses or heavy machines pressing into the soil during cultivation; when we have accomplished that we shall have done more to advance the value of the clay soils of this country than is done for light soils by the introduction of machinery. Clay soil is more valuable, as it contains a far greater quantity of food for plants in a form more difficult to be taken away either by moisture or the heat of the sun, then we shall be able to make 12 months soils instead of what the farmers call six months soils. I will not venture to act the part either of advocate or opponent of this very interesting invention of Mr. Halkett's; one may differ from his scheme, but one cannot differ from himself. I feel with regard to Mr. Halkett, that the good-natured manner in which he has answered questions, and the extremely scientific style with which he has described the machine, entitle him to our best reception, and a vote of thanks." (Cheers.) On the motion of the chairman, the following resolution was unanimously passed:—

"Recognising the fact that cultivation by spade labour is productive of larger crops than cultivation by horse ploughing, but that the cost of the former prevents its entering into profitable competition with the latter, and having heard the testimony of agriculturists that land cultivated by Mr. Halkett's guideway steam apparatus is brought into condition either equal or superior to that attainable by spade labour, and according to Mr. Halkett's calculations, apparently well verified, at a cost considerably less than that of horse labour (including interest on outlay, and allowance for wear and tear of machinery)—Resolved, that the subject appears to this meeting of the greatest importance to the agricultural interests of this country, and worthy the deep attention and examination of landowners and agriculturists."

Mr. Slaney in a vote of thanks to Mr. Halkett said: I do consider when we reflect upon the difficulties we have to meet with, that any plan brought forward so skilfully and so ably as this is, which promises at least fairly to introduce a method by which we may improve clay soils, and by so doing improve the condition of the inhabitants, amply deserves our best thanks. I can only say, alluding to the proposition that if any society should be established upon the principle of limited liability, which I had the honour of introducing to Parliament some years since, I should be most happy to take some shares for the purpose of endeavouring practically to carry it out. (Cheers.)

Mr. Halkett, in acknowledging the vote of thanks, referred to an experiment made with reference to what has this evening been said about clay lands. He said: Having read that liquid manure mixed with clay would prevent its getting consolidated into clods, I tried it; I mixed some clay with liquid manure, and left it standing with some other pieces mixed with fine ashes, and others with plain water. I found after the liquid manured piece had got dry that when pressed it crumbled, while the other pieces did not crumble; yet I found that if I took the clay that had the liquid manure in it and wetted it with water and pugged it with the hand, although it had the manure in it, that it then got as hard as a piece of marble. Now, that is exactly what you do with horses, and as also a man does when he is going to make bricks—he in fact pugs his clay.

Farmers' Clubs.

LONDON: *Land Drainage.*—At the late monthly meeting of this society, after the presentation of a service of plate to Mr. Nesbit as an acknowledgment of

the services he has rendered to the interests of agriculture, a lecture was given by that gentleman on the above subject. We extract the following passages from the opening statement:—

Mr. Nesbit said: "I come before you, not to advocate deep draining or shallow draining, but to endeavour to deduce from the nature of the soil itself the laws which ought to govern the art of draining in different localities. In the first place, what is the difference, chemically, between a drained and an undrained soil? An undrained soil is not simply a soil in which water is present, but a soil in which water is present to an abnormal extent—to an extent that will injure the vegetation. The question then arises, how does an excess of water injure the condition of the soil? If you have a large quantity of water very near the surface of the soil, that water by its evaporation produces cold; the land is, in consequence of being undrained, very much colder than it otherwise would be; in other words, the average temperature of the soil throughout the year is very much lower than it would be, if the water did not approach so near the surface. That is one case. We will take another—that in which the water-bearing surface does not come to the top of the land, but so near to it, that the mere capillary action of the soil will bring it to the surface. Here you have a second case of injury from excess of water, though not so bad a one as the first. Capillary attraction has a very important bearing on the question of drainage, as respects both the depth and distance of collateral drains. I wish to impress upon you this point—that, where the soil is exceedingly fine, where the pores of the soil are very minute, capillary attraction will raise the water much higher than it will where the soil is of a gravelly and coarse character. This ought to affect the judgment of every man who puts a drain into the land, because, in proportion as the capillary attraction of different soils varies in force and amount, so the modes of draining those soils properly and effectually must vary likewise. Another point of considerable importance is this—that, in drained land, not only have you got rid of the evaporation of the water from the surface of the soil, but the soil at the surface, being warmed by the rays of the sun and by the diffused heat of day, warms the water that falls on the soil; and that water, in passing downwards, leaves its heat in the soil. You see, therefore, that if a soil be capable of deep drainage, the deeper the drain, within certain limits, the greater will be the amount of soil heated by the water that comes from the surface. Another effect presents itself—namely, that after the water has entered the soil the air must follow it. So that you have two courses of action. You have the water heated, particularly in summer weather, passing downwards, and warming the soil; and you have the warm air following afterwards, and also warming the soil. Besides that, the drainage has a distinct action in disintegrating the mineral matters of the soil for the purposes of the plant, and in oxidising the vegetable matters, and furnishing means by which the process of vegetation may take place more rapidly than it otherwise would do. When water falls on dry and porous soils, it first, as it descends, drives out the air, and is then itself followed by air from above. The question of deep and shallow drainage is one which you will have to determine, in each case, upon its own merits. The experiments which I have to exhibit will, however, evince clearly that there is no one decided depth and no one decided width at which it can be laid down as a rule that all draining should be carried on, but that draining must vary according to the circumstances and condition of the soil. You see then very clearly that, so far as chemical principles are concerned, we have here the passage of the water through the soil and the alternate passage of air; and thus we have the irrigation and the aeration of the soil accomplished in the most beneficial manner by means of drainage."

Mr. Nisbet then referred to the explanations which geological inquiries have given of Elkington's success in the removal of spring water from swamps. He then referred again to the theory of ordinary drainage:—

"The amount of the resistance of different soils to the passage of water in a given time has not been taken into sufficient account. What answer should we give to the question—'How far will water penetrate into soils?' I think that the following answer will express a general law which governs all cases:—'Until the resistance to its downward passage equals the pressure from above.' If the soil be porous, the water from above will pass down until it reaches the water level; and when it reaches the water-level, it meets with opposition and begins to rise. But where is the point in a clay soil—a homogeneous clay soil—at which the water will issue? We cannot talk of a water-level in clays where no water can be found, even at a depth of 50 or 60 feet. But some soils like these are those precisely which most require draining from surface-water. There is a depth in these soils beyond which surface-water will not penetrate; and this depth will vary with the varying fineness and tenacity of the soil. These considerations ought, therefore, to exert their proper influence on the art of the practical drainer. Let me here observe that a vast variety of the soils which are called by farmers clay soils are not clay soils. If you show me a soil which requires an admixture of 40 or 50 per cent. of sand before it will make a brick, I will admit that to be a clay soil; but when a soil will make a brick without any admixture of sand, I cannot admit it to be a real clay soil. The question of drainage therefore we see, in depth and distance, depends on the fineness of the particles and pores of the soil; the amount of capillary attraction; and last, though not least, the amount of resistance a soil offers to the passage of a given quantity of water in a given time. Let me here remark that in all discussions on drainage, the element of time has not been sufficiently taken into consideration."

The lecturer then alluded to the statement that deep drains always run the first, denying its accuracy. He continued:—

"There is another point which I wish to introduce. It has often occurred to me that in some cases it would be well if instead of further draining there were irrigation. I would suggest that there is such a thing as natural overdrainage; that I have seen such a thing, in such soils as the sands resting on chalk, in the district between Bury St. Edmund's and Brandon in Suffolk. Has there been no such thing as overdraining artificially? I would submit for the consideration of practical farmers the inquiry, whether there be not many cases in which the land of this country is drained too much. It is a well-known fact that if you have a piece of fallow land exposed to the action of the atmosphere, and have another piece of land under crop (say Vetches or Winter Tares), when you come to plough them up you will find the latter quite dry and hard, compared with the former. This difference is accounted for by the fact that every leaf of the Vetch has its little root or tube with ramifications running downward into the soil, and that all the moisture of the soil is brought up by the roots to the surface, where it evaporates by the leaves of the plant. This may perhaps account for the difficulty often experienced in getting a good crop of Turnips after Tares. But does not the evaporation from the leaf and the absorption likewise of water by the roots of the plants, as in the case of Grass and meadow lands, seem to point to the necessity of more water than in ordinary arable land? And in the case of the constant evaporation from Grass land by the leaves and root, may not the water-level, without danger of injury from stagnant water, be allowed to approach a little nearer the surface than in arable land? It is the opinion of many practical men, and I submit it to you with great diffidence, that some Grass lands may have been over-drained—that the water has been taken away too deeply from them. It is one thing to remove an excess of water; it is another thing to take away what is necessary for crops; and therefore any invariable depth—any depth, to be observed in all cases, and in all varieties of soil—is, in my judgment, founded in error."

Calendar of Operations.

DECEMBER.

WEST SUSSEX, *December* 16.—During the whole autumn we have had the weather very mild and comparatively dry, and work has been got well forward. Wheat is all put in, and the earlier sowings are up, and looking very strong, and there is fear that if we have much snow during the winter it may get damaged, especially that on the rich lands. There has still been a great breadth of it sown, for though compared with Barley it does not pay this year, yet we all believe that this is an exception, and after all the price per acre is perhaps better than last year, for the yield upon the whole is as much or more than was expected, and there is I think little doubt that upon the low, rich, coast land where it has been properly cultivated from 5 to 7 quarters will be got, where last year from 3½ to 4½ was the average; and the quality is so superior. Barley turns out very various in quality, but the yield is an average; Oats do not come quite up to the mark. Peas yield pretty well, and the quality is better than usual. Our West Sussex fat cattle and root show came off last week, and though on a very small scale, yet it showed that there are not wanting spirit and judgment to some extent. There were not more than about a dozen show beasts, but they were all good, especially some Sussex heifers, which would have made a respectable appearance at Baker Street. From what I have seen of this breed it appears deserving of more notice than it has yet obtained. In colour they resemble the Devons, but are of a better shape; perhaps they may be partly connected with the Devons, for at our county show in July the first prize cows were by some thought to be Devons. Our root show was fair. The Mangels were very good; one of the Long Red weighed 42lbs. and many of the Yellow Globe from 25 to 30lbs. But the Turnips were far below what the past years have produced, which proves that the crop is far below an average, but as the autumn has been so mild roots have been kept in reserve, so that there is no fear of a short supply. Respecting sheep there have been very bad complaints of losses among the ewes in lambing. Many have lost a number of ewes, and others have had losses by their sliping their lambs. And considering the high price that was paid for them at Appleshaw and other places, the prospect of profit is a very large minus. It would be well if some change could be brought about respecting the management of this great fair. The sheep are brought many miles from Dorset, Wilts, and Somerset, and after walking for 4 or 6 days on short feed, are turned into a plot of white Turnips to fill them up, which it certainly has the effect of doing, and there is little doubt that great harm is done to the lambs at the same time, and losses are frequent in getting them home; this year it has been worse than usual, some having thus lost 7 or 8 per cent. Surely business may be better managed than that; as railways are convenient through the breeding counties, they might be got up more directly at less risk and not more expense. Were the new fair at Dorchester on September 29th better supported, it would be a gain to all parties. There is very little of importance now going on on the farm, ploughing the remainder of the Wheat stubbles, carting chalk or earth for top-dressing, trimming hedges, threshing, and feeding cattle, being the principal work. There do not appear to be many hands out of employ, which may be accounted for by the Militia having been called out. *G. S.*

Notices to Correspondents.

COWS IN CALF: *Irish Subscriber.* Carrots in moderation are very good food for them. Any abrupt change of food is bad.

CLAY BALLAST: *Cor.* It is hardly possible to give any other general directions for the burning of clay into road material than appear in Mr. Bailey Denton's essay. Mr. Denton tells us that he knows of no clays belonging to the earlier formations, anterior to the lias, from which ballast may be made with certainty. There are however patches of the old red and the new sandstones which furnish excellent material, but these are the exceptions. The clay of the coal measures is useless for the purpose. Alluvial clay makes first rate ballast, and after the best of clay is found it will frequently turn out a failure, in consequence of incomplete burning. Nothing requires more "knack" and more attention; for one ton of coals in good hands will make as much ballast of an excellent vitrified character as five times the quantity will make of useless stuff in the hands of a novice. Mr. Denton has always found it wise economy to use coals of middling good quality, and he would be indisposed to attempt the burning of clay with any other fuel than coal.

DRAINS: *Inquirer* says "I have had 4 feet trial holes made in a field of clayey soil; in only one of them does any water show itself, at the lower end of the field. The tenant says it wants draining; certainly it poaches in parts from treading of cattle, and yet the holes close by make no water. Will draining be necessary for this field, and if so at what depth? In the trial hole where water appears it seems to come not from the bottom, but at about 2 feet from surface. The tenant thinks it would be waste of money to drain 4 feet deep; 30 inches he says answers best on the adjoining farms." [We should not fear putting the drains in 4 feet deep notwithstanding that no water weeps through the soil and subsoil as at present cultivated. It is clear that *no* water coming into the holes is as conclusive against 30 inches as against 48. Choose a depth below which you are not likely to be driven by the better and deeper cultivation which will undoubtedly obtain hereafter.]

THE EXPERIENCES OF THE BREEDER: *C D.* We have placed your letter in the hands of the most competent authority upon its subject whom we know. The crossbred animals referred to in our report exhibited their descent clearly enough in their appearance to justify the remark that a breeder managing his materials properly can certainly obtain the result he aims at; and the pure bred animals exhibited at Baker Street were uniform enough to prove that perseverance in any course of breeding will end in a permanent character being imprinted. We hope that Mr. Willoughby Wood may be induced to give us his experience on the length of time during which this perseverance must be maintained before this permanence of character can be considered sure.

THE PRICE OF BREAD: *Curate.* The right definition of a "reasonable" profit is just "the largest profit possible." The price of a thing depends upon the demand for it, quite as much as it does upon the cost of it. When Lord Walsingham sold his ewes at Chelmsford for 20*l.* a-piece, and when Colonel Townley asked and received 1200 guineas for "Master Butterfly" shown there, they did not regulate their demand by what the animals had cost them but by what they thought their customers were willing to give; and they acted on the very same principle as actuates and justifies your baker in putting as high price upon his loaves as he can get your parishioners to give. The only way in which the price of well bred stock can be reduced in the face of a well sustained demand is to increase the number of the breeders and their herds. You will do more to bring the loaf to what may be a reasonable price by inducing a rival baker to set up his shop in your village than by any information on the relationship between the cost of flour and bread that we or any other authority can give you.

HENRY ORMSON, Stanley Bridge, King's Road, Chelsea, HORTICULTURAL BUILDER and HOT-WATER APPARATUS MANUFACTURER, begs most respectfully to inform the Nobility, Gentry, Nurserymen, &c., that Mr. Gray and himself, who have for the last 12 years been associated as Horticultural Builders, &c., under the firm of GRAY & ORMSON, have by mutual consent Dissolved Partnership, and in soliciting a continuance of their support it affords him much satisfaction to state that he has succeeded in obtaining the above most eligible premises, in which it is his intention to carry on the business in all its branches; and he trusts by unremitting personal attention to its details, by using only the very best materials, by employing the most skilful and efficient workmen, and by the most moderate possible charges, to merit a continuance of the patronage so kindly and liberally bestowed on the late Firm.

In the Building Department his object will be to adapt all erections to the particular purposes for which they are required. He will devote equal attention to the plain, inexpensive, practical erections of Pits, Orchard Houses, Greenhouses, Vineries, &c., as to the more elaborate and architectural erections of Conservatories, Winter Gardens, &c., either in wood or iron.

The Heating Department will engage his especial personal attention, and he feels justified in saying that in simplicity, safety, durability, and economy of fuel, combined with thorough effectiveness, his system will bear comparison with any other in operation.

Knowing the absolute necessity for thorough ventilation, he makes it a matter of the first consideration.

Having engaged competent Draughtsmen and an efficient Office Staff, he is prepared and will be happy to forward Plans, Estimates, and Specifications by post or otherwise, and to wait personally on any Ladies or Gentlemen who may desire to see him on their grounds.—Stanley Bridge, King's Rd., Chelsea, Dec. 26.

C. STEPHENSON, late STEPHENSON AND SONS 61, Gracechurch Street, London, Manufacturer of Iron Hurdles, Fencing, &c., Improved Iron and Copper Conical Boilers and Apparatus for Warming Buildings of every description by Hot Water.

Prices and Estimates furnished upon application.

HOT-WATER APPARATUS.

J. R. PEILL, 17, New Park Street, Southwark, (late STEPHENSON & PEILL), Inventor of the Improved Conical Boilers in Iron and Copper, is now enabled to make considerable reduction in the prices charged by his late firm, and to supply the trade upon very advantageous terms with materials for Warming Buildings of every description; Iron Conservatories, Roofs, and every description of metal work. Prices, &c., at the Manufactory as above.

HEATING BY HOT WATER.

J. JONES has always the largest stock in London of HOT-WATER PIPES, ELBOWS, TEES, SYPHONS, and all fittings required for the same, Cylindrical, Conical, and Saddle Boilers, of cast and wrought iron, double doors, furnace bars, &c. &c.

Drawings and prices for the materials, or estimates given for the apparatus fixed complete, which will be found cheaper than those of any other House, on application to J. JONES, Iron Merchant, 6, Bankside, Southwark, London.

MONRO'S CANNON BOILER.—INVENTED BY MR. JOHN MONRO, GARDENER AT COLNEY HOUSE, NEAR ST. ALBANS.

J. JONES, having made arrangements for the entire Sale of the above BOILERS, begs to state that they are made in both Wrought and Cast Iron of different sizes. These most powerful Boilers contain a comparatively small quantity of water, and can therefore be heated in a very short time at a moderate cost for fuel. They are adapted for heating Greenhouses, Hothouses, Churches, &c., and will be found to surpass every other Boiler hitherto invented. The price of the 24-inch Wrought-Iron is 6*l.* 10*s.* each; 36-inch ditto, 8*l.* 10*s.* each.

The above Boilers are now kept in stock ready for immediate delivery. J. JONES has also the largest stock in London of Hot-water Pipes, and connections for the same. Drawings and prices, which will be found cheaper than any other house, on application to J. JONES, Iron Bridge Wharf, 6, Bankside, Southwark, London.

THOMSON'S PATENT HOT-WATER GAS-HEATING APPARATUS.

MANUFACTURERS AND AGENTS FOR THE PATENTEE, ROBERT THOMSON AND SONS, PLUMBERS, BRASSFOUNDERS, and GAS FITTERS, Dalkeith, N.B.

These Stoves are now in general use in England, Ireland, and Scotland. Prospectus may be had from all Ironmongers, Nurserymen and Seedsmen, and Plumbers in the Kingdom, or direct from the Manufacturers.

HORTICULTURAL WORKS,

DANVERS STREET, CHELSEA, SEPTEMBER, 1857.

DISSOLUTION OF PARTNERSHIP.

MR. GRAY begs most respectfully to announce to his patrons and friends that the Partnership hitherto existing between Mr. ORMSON and himself is now at an end, and that the Business will be carried on by him as usual, and he hopes to be honoured with a continuance of that support and patronage with which this establishment has been so long favoured.

Mr. GRAY avails himself of this opportunity to tender his grateful thanks to the many kind friends and supporters by whose patronage this establishment has been raised to its present position, and he begs to assure them that it will be his most anxious care and study to maintain it.

HORTICULTURAL WORKS AND HOT-WATER APPARATUS MANUFACTORY.

KENSAL GREEN, HARROW ROAD, LONDON.

JOHN TAYLOR AND SON beg to call the attention of the nobility and gentry to the very superior manner in which they Erect all kinds of Conservatories, Vineries, Greenhouses, &c., combining every improvement with elegance of design, and durability of materials and workmanship.

Their VENTILATING APPARATUS for the Fronts and Roofs of Houses has given the highest satisfaction. Churches, Chapels, Schools, Entrance Halls, Public Buildings, &c., heated with Hot-Water Apparatus in a most economical and efficient manner.

J. T. & SON have great pleasure in referring to numbers of the nobility and gentry by whom they are extensively engaged.

GREEN AND HOTHOUSES, ORCHARD HOUSES, PIT LIGHTS, ETC., MADE BY MACHINERY AT

J. LEWIS'S HORTICULTURAL WORKS, Stamford Hill, Middlesex.—These Buildings are warranted of the best description, being principally made by steam power, and at prices which defy competition. J. L. can with confidence recommend his improved Iron Roofs and Ventilating Machinery, invented and patented by him. They are justly considered on the best principle in use, are more durable, more elegant in design, and upon the best practicable plan with regard to real usefulness and sound economy. The Hot-water Apparatus is warranted of the simplest, and most efficient. No charge is made for works from this establishment unless found to answer the purpose intended. J. L. can refer to numbers of the nobility and gentry by whom he has been employed this last 17 years. Lists of prices on application.

WEEKS' ONE BOILER SYSTEM.

TO BE SEEN IN OPERATION.

THE HORTICULTURAL WORLD CAN NOW SEE MANY IMPORTANT ADDITIONAL PROOFS, AND WILL BE ENABLED TO JUDGE OF THE EFFICIENCY OF THESE **POWERFUL BOILERS.**

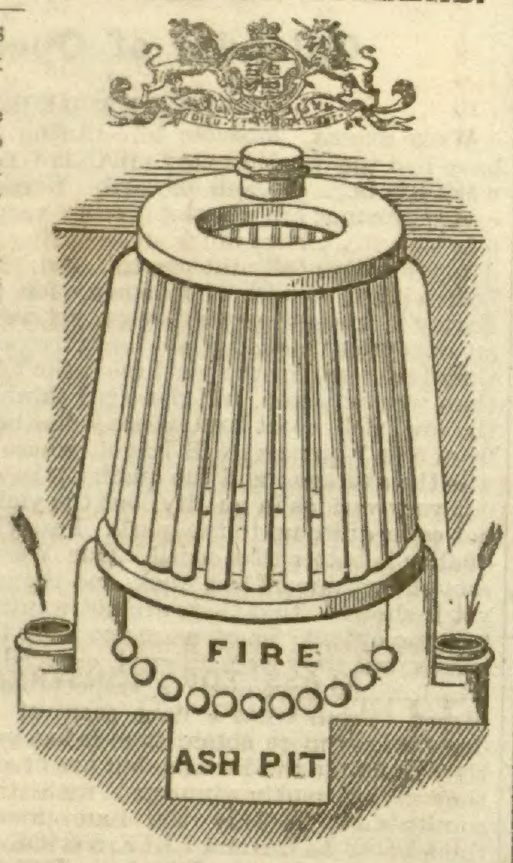
THE enormous amount of work performed by WEEKS' BOILERS renders it difficult to believe unless actually witnessed, and for that purpose we most respectfully invite the Nobility, Gentry, and Horticulturists to visit Messrs. Edward A. Henderson & Son, the Wellington Nursery, St. John's Wood. There will be found one of WEEKS' BOILERS now attached to various Hot-houses, &c., equal to 1200 feet long; also to all the various Offices, Seed Shops, and Warehouses, the hot water circulating through 5500 feet of cast-iron pipe. Any one house can be heated separately, either with top or bottom heat, or the whole together, or any part regulated at pleasure.

SEE ALSO JOHN WEEKS & Co.'s Garden Establishment, where can also be seen equally extensive ranges of Hot-houses, and the New *Grand Winter Garden*, the whole equal to a range of Hot-houses 1300 feet long. The whole effectually heated by *One Boiler*. Also, at Messrs. F. & A. Smith's, Nurserymen, Dulwich.—In this establishment, which is justly called a village of glass, if the whole of the Hot-houses and Pits were placed in one line they would measure 3000 feet in length, the whole now to be heated upon WEEKS' ONE BOILER SYSTEM. We repeat the dimensions, 30 Houses and Pits, each 100 feet long, making 3000 feet. The world will naturally say "Is it possible?" We reply, go and see.

WEEKS' ONE BOILER SYSTEM may also be seen in various parts throughout the kingdom. The following are a few of the places where *Weeks' One Boiler is doing wonders*:—William Leaf, Esq., Streatham; Thomas Assheton Smith, Esq., Tedworth; William Pearson, Esq., East Bergholt, Suffolk; John Elger, Esq., Putney Heath; Josiah Spode, Esq., near Rugeley; Charles Paget, Esq., M.P., Ruddington, Notts; W. C. Boden, Esq., Ruddington, Notts; Sir Henry Meux, Bart., M.P., Theobald's Park, Herts; the Law Courts, Lancaster Castle. JOHN WEEKS & Co., can also refer to the Warming of about 200 Gentlemen's Mansions, 100 Churches, Chapels, and Schools, and a very large number of Horticultural Buildings throughout the kingdom, a list of which may be had on application.

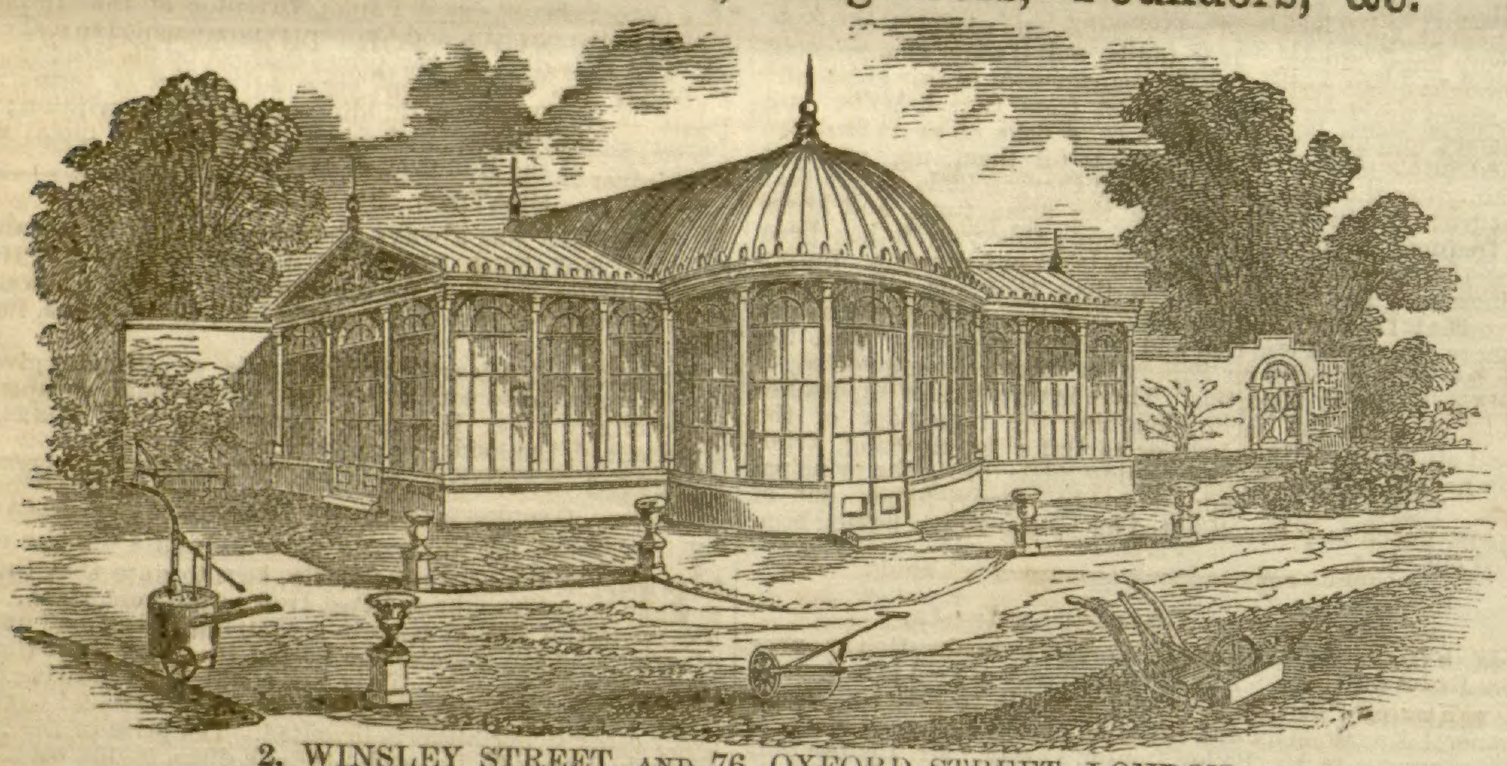
See our various Pamphlets on Horticultural Buildings and Heating by Hot-water; also on Stove and Greenhouse Plants, Vines, Fruits, &c.

Boilers and Hot-water Apparatus of all sizes. A large Stock of Horticultural works kept ready for immediate application.



JOHN WEEKS & COMPANY,
Hothouse Builders and Hot-water Apparatus Manufacturers,
KING'S ROAD, CHELSEA, S.W.

COTTAM & HALLEN, Engineers, Founders, &c.



2, WINSLEY STREET, AND 76, OXFORD STREET, LONDON.

A SHOW ROOM DEVOTED ENTIRELY TO ARTICLES OF HORTICULTURE.

ILLUSTRATED CATALOGUES UPON APPLICATION.

Conservatories	Mowing Machines	Hand-glass Frames	Garden Engines	Flower Sticks
Greenhouses	Fountains	Game Netting	" Syringes	Garden Bordering
Hot-Water Apparatus	Ornamental Wire Work	Hurdles	" Rollers	Watering Pots
Garden Vases	Flower Stands	Garden Chairs	Flower Labels	Garden Arches, &c.

Iron Hurdles, Strained Wire Fencing, Game Netting, &c.

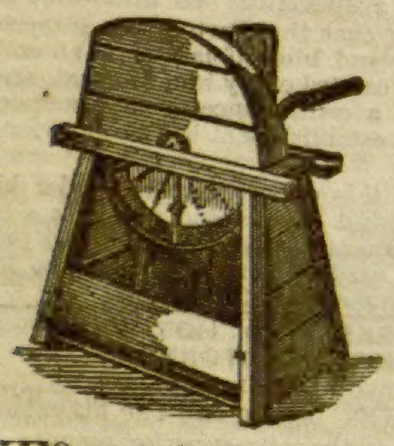
AGRICULTURAL LIST UPON APPLICATION.

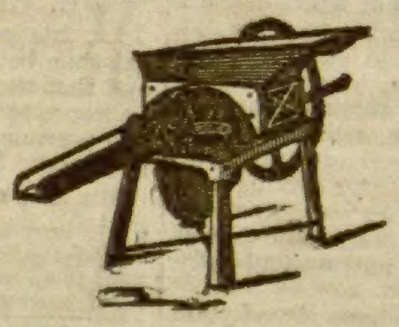
Every description of Plain, Ornamental, Cast and Wrought Iron, and Wire Work.

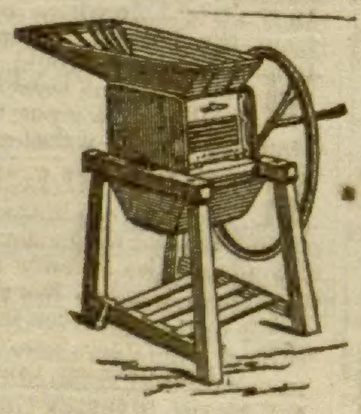
EXHIBITION PRIZE MEDAL GATES AND ENAMELLED MANGERS.

TURNIP PULPING MACHINES:—

GARDNER'S CUTTERS, with Patent Pulping Apparatus attached.







B. SAMUELSON,

BRITANNIA WORKS, BANBURY,

TO meet the demand for PULPING MACHINES, has applied to his GARDNER'S TURNIP CUTTER a simple and inexpensive apparatus, enabling any farm labourer to convert it, in a few seconds, into a PERFECT PULPING MACHINE, or it may be altered, with equal facility, to CUT PIECES ¼ INCH BY ¼ INCH, FOR FEEDING YOUNG LAMBS, or to CUT RIBANDS, LIKE MOODY'S OR BUSHE & BARTER'S

	On wood frame.	On patent iron frame
Price of Gardner's Single Action Cutters	£4 10 0	£5 2 6
" " Double Action ditto	5 10 0	6 2 6
Extra for Apparatus to Cut for Lambs	0 3 6	0 5 0
Or into Ribands	0 3 6	0 5 0
Extra for Pulping Apparatus	1 5 0	1 7 6

Samuelson's Patent Food-preparing Machine,

Cutting Roots into Ribands, and Straw or Hay into Chaff, and mixing them, at one operation. (Testimonials on application.)

Price—No. 1, for Hand Power .. £6 10 0
" No. 2, for Horse Power, or may be worked by a man and boy .. 9 0 0

Machines for Pulping only,

As perfect and expeditious as the most approved hitherto made, and much simpler in construction.

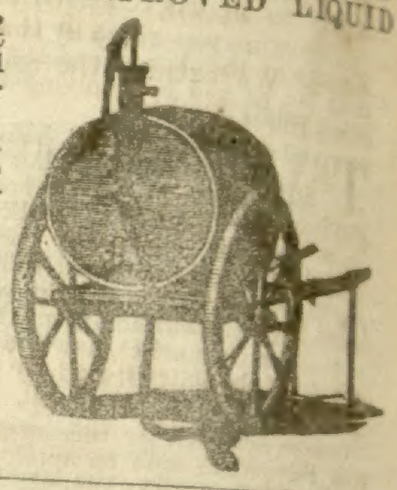
Price—Pulper No. 1 .. £4 10 0
" Pulper No. 2, for power or man and boy .. 5 10 0
" Pulper No. 3 (Disc principle) .. 4 10 0

Also CHAFF-CUTTERS, on Cornes's principle, 4*l.* up to 14*l.* 14*s.*; ROLLER MILLS, CAKE-BREAKERS, &c.

Illustrated Catalogues sent post free on receipt of application.

B. SAMUELSON, Britannia Works, Banbury.

WARNER'S 4½-inch IMPROVED LIQUID MANURE PUMP, with J. W. & Son's Patent Bucket and Sucker, fitted with 1½ inch Brass Union for attaching flexible suction, with strong wrought iron Straps for screwing on to any ordinary Water-butt or Cart, as shown in drawing.



Price of Pump and Union, 50*s.* If with planished copper barrel and galvanised iron handle, &c., 14*s.* extra.

2-inch Flexible Rubber and Canvas Suction for ditto, 3*s.* 0*d.* per foot.

1¾ Gutta Percha Suction, 1*s.* 11*d.* per foot.

WARNER'S PATENT VIBRATING STANDARD PUMPS.

PATENT CAST-IRON PUMPS, fitted with J. W. & Son's Patent Buckets and Suckers, which cannot clog in action, for Farms, Cottages, and Wells, not exceeding 28 feet.

Diameter of Barrel.	Height.		£ s. d.
2½ in. short	1 ft. 7 in.	Fitted for lead, gutta percha, or cast iron flanged pipe, as required.	1 10 0
2½ " long	3 " 3 "		1 14 0
3 " ditto	3 " 6 "		2 8 0
3½ " ditto	3 " 6 "		2 12 0
4 " ditto	3 " 6 "		3 3 0
2½ " short, with 15 feet of Lead Pipe attached, ready for fixing			2 14 0
2½ in. long	ditto	ditto ditto	2 18 0

The short barrel Pump is very convenient for fixing in situations of limited height and space, for the supply of coppers and sinks in Wash-houses with soft water from underground tanks, or in Hot, Forcing, and Plant Houses; they may be fixed, when desired, under the stage.

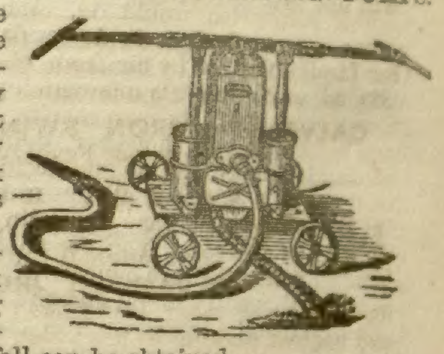
May be obtained of any Ironmonger or Plumber in Town or country, at the above prices, or of the Patentees and Manufacturers, JOHN WARNER & SONS, 8, Crescent, Jewin Street, London.

Every description of Machinery for Raising Water by means of Wheels, Rams, Deep Well Pumps, &c.; also Fire and Garden Engines, &c. &c.—Engravings sent on application.

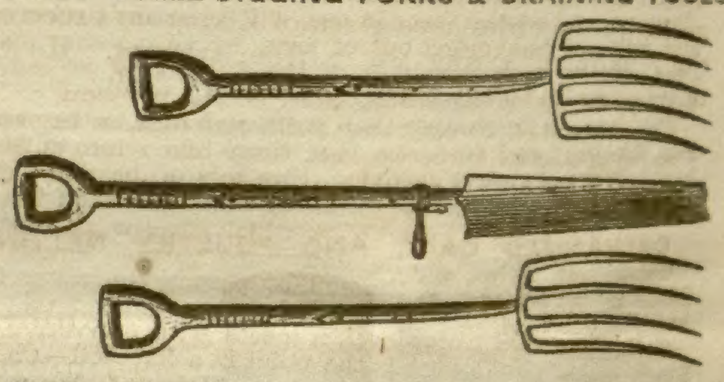
B. FOWLER AND CO., PUMP MAKERS and ENGINEERS, Whitefriars Street, Fleet Street, London.

HOLMAN'S PATENT DOUBLE ACTION FARM FIRE ENGINE, LIQUID MANURE, and IRRIGATING PUMPS.

These Pumps are made expressly for the above purposes, are simple, inexpensive, and well worthy attention. B. FOWLER & Co. make and fix every description of Pump work for deep or shallow wells for domestic, agricultural, and manufacturing purposes. They also fix Hydraulic Rams for raising water to the top of mansions, &c., where a small fall can be obtained.



PARKES' STEEL DIGGING FORKS & DRAINING TOOLS

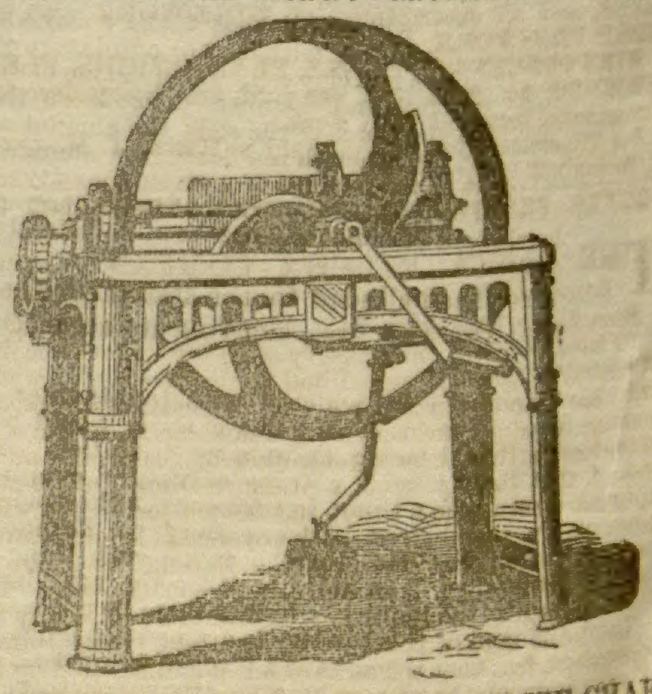


MESSRS. BURGESS AND KEY, as Mr. Parkes' Wholesale Agents for England, have always in stock a large assortment. These Forks and Tools are now in use by upwards of 1000 of the Nobility and Farmers members of the Royal Agricultural Society, who pronounce them to be the best ever invented, and to facilitate labour at least 20 per cent.

Price Lists sent free on application, and Illustrated Catalogue of the best Farm Implements on receipt of eight postage stamps.

95, Newgate Street, London.

PRIZE CHAFF MACHINE.



RICHMOND AND CHANDLER'S PRIZE CHAFF-CUTTING MACHINES possess more good qualities than any others yet produced, and with beautiful simplicity combine economy of cost with substantial workmanship.

Excellence of design and adaptation of material have induced some unprincipled makers to force the market with copies of their invention, but without regard to the working qualities of the machine.

RICHMOND & CHANDLER have repeatedly obtained Premiums from the Irish, Scotch, and English Royal Agricultural Societies for the perfect efficiency and simplicity of their Machines, and which are the only Chaff Machines having been awarded Prizes in the three kingdoms. For export they are so constructed as to be taken in pieces for close packing, and are easily put together, without the aid of skilled labour. Catalogues free on application to RICHMOND & CHANDLER, Salford, Manchester. Branch Establishment, South John Street, Liverpool.

GARDEN WALKS—BARN AND MALTHOUSE FLOORS—LIQUID MANURE TANK.

ASPHALTE

For any of the above purposes, with instructions for laying it down, to be had by applying to JOHN PILKINGTON, 15, Fish Street Hill, London, E.C.

THE PATENT ENAMELLED SAFETY EYELET DIRECTION LABEL is smoother to write upon than parchment or buckram, resists the wet better, and is not liable to be eaten off by vermin. 500 post free for 7*s.* on receipt of stamps or Post-office Order. Ticket Labels from 2*s.* 6*d.* to 5*s.* per 1000.—Manufactured by JOHN FISHER & Co., Label Works, Boston, Lincolnshire.

M'GLASHEN'S

PATENT TREE TRANSPLANTERS.—

Orders executed for this most useful invention, or Descriptive Pamphlets sent on application to S. M'GLASHEN & Co., Canon Mill Bridge, Edinburgh.

SIMPSON'S PATENT STRAW AND HAYBAND-MAKING MACHINE.—Orders should be sent at once to J. H. SIMPSON, Engineer, Petersham, Surrey, S.W.

Letter from Mr. GEO. DAWS.

"To Mr. SIMPSON.—I beg to say I have one of your Straw and Hayband-making Machines in use, and as far as I can judge I think it a very useful implement, and I feel perfectly satisfied with it. You can make any use of this you please.

(Signed) "GEO. DAWS, Hatton, Hounslow, Middlesex, Dec. 21, 1857."

TO NURSERYMEN, ETC.

3000 NEW ARCHANGEL MATS, large size.—Apply to

GARNOCK, BIBBY, AND CO.,

Patent Cordage and Wire Rope Manufacturers, Liverpool.

"TIFFANY" FOR SHADING CONSERVATORIES,

MANUFACTURED BY

JOHN SHAW & CO., 40, Princess Street, Manchester.—TIFFANY, a light, cheap, and durable material for Shading Conservatories and other Hothouses, effectually securing Plants from the scorching rays of the sun, without obscuring the light; also one of the best protectors of Fruits from Birds and Wasps, and the Bloom of Wall Trees from Spring Frosts. Sold in pieces 20 yards long by 38 inches wide, at 3*d.* per yard or 5*s.* per piece. A liberal allowance to the Trade when 10 or more pieces are taken.

N.B.—Orders from unknown correspondents must be accompanied by a remittance.

HENRY J. MORTON AND CO.,

2, Basinghall Buildings, Leeds.

GALVANISED IRON WATER CISTERNS

for Cottage Houses, &c., containing 120 gallons, and fitted with tap, keeping the water perfectly sweet and clean, 25*s.* EACH; will not rust or corrode.

GALVANISED IRON PUMPS

for Liquid Manure or Domestic Use, 3 inches diameter, 30*s.* and 32*s.* 6*d.* each; Tail Pipe for same at from 10*d.* per foot.

GALVANISED IRON SWING WATER BARROWS

for Garden or Farm use, 32*s.* 6*d.* each.

PRICES REDUCED.

H. J. MORTON AND CO., Galvanised Iron Works, 2, Basinghall Buildings, Leeds.

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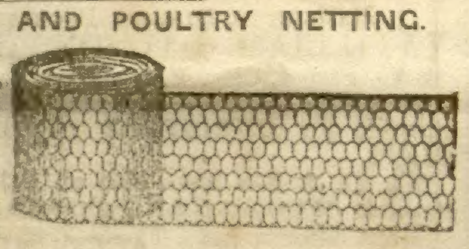

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5 ,, ,,	0 6½ ,,	15 ,, ,,	3 0 ,,
6 ,, ,,	0 8 ,,	16 ,, ,,	3 6 ,,
7 ,, ,,	0 10 ,,	17 ,, ,,	4 0 ,,
8 ,, ,,	1 0 ,,	18 ,, ,,	5 0 ,,
9 ,, ,,	1 2 ,,	19 ,, ,,	6 0 ,,
10 ,, ,,	1 4 ,,	20 ,, ,,	7 0 ,,
11 ,, ,,	1 6 ,,		

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